Thank you for your interest in our bid opportunities and we welcome you to submit a response. Please be sure to review and comply with all specifications and requirements.

Addendum Description

Addendum #2

Notice Modifications

Notice Information	From Value	To Value
No entries		

Category Modifications

Added Categories
No Categories Added

Removed Categories
No Categories Removed

Added Documents[A]

Document	Size	Uploaded Date	Language
Addendum #2 Part 1 [pdf]	195 Kb	09/19/2025 05:29 PM EDT	English
Addendum #2 Part 2 [pdf]	7 Mb	09/19/2025 05:29 PM EDT	English
Addendum #2 Part 3 [pdf]	102 Mb	09/19/2025 05:30 PM EDT	English

DAG
Architects

Addendum #

Date of Issuance: 19 September, 2025

Project: GCSC Nursing Simulation Center Demo Package

Project Number: 25004

1A-1 General

The following changes and/or additions to the plans and specifications are hereby made part of same and are incorporated in full as part of the Contract Documents.

1. NA

1A-2 Specifications

1. Comment - Section listed as 01 78 00 Warranties & Bonds is numbered 01 74 00 on the pages. Response: See attached / revised Spec Section 01 78 00 with corrected numbering on the pages.
2. Comment - Section listed as 01 78 23 Operation and Maintenance Data is numbered 01 73 00 on the pages. Response: See attached / revised Spec Section 01 78 23 with corrected numbering on the pages.
3. These spec sections were listed on the TOC but were not issued: Response: All the specifications listed below will be issued with this addendum with exception of Spec section 27 50 00 and 27 80 00. The table of contents will be revised accordingly.
   - 01 30 00 Cast-In-Place Concrete
   - 05 12 00 Structural Steel Framing
   - 05 21 00 Steel Joist Framing
   - 05 31 00 Steel Decking
   - 05 40 00 Cold-Formed Metal Framing
   - 08 41 16 Aluminum-Framed Entrances and Storefronts (TRIFAB-451T)
   - 27 50 00 Intercom/PA System (Deleted from Table of Contents) Revised T.O.C. (See Attached)
   - 27 80 00 IP Security Camera System (Deleted from Table of Contents) Revised T.O.C. (See Attached)
   - 28 31 00 Fire Detection and Alarm Systems Replace 28 31 00 with 28 46 21.11 Addressable Fire Alarm Systems (See Attached)
   - 31 25 00 Erosion Control and Environmental Protection
   - 32 93 00 Plants
4. Comment: Section listed as 07 17 16 Bentonite Waterproofing is numbered 07 17 16.05 on the pages. Response: Page numbers have been revised (See attached)
5. Comment: Section listed as 08 33 00 Insulated Rolling Service Door is titled ASHRAE 90.1 AND IECC 2021 Compliant Insulated Rolling Service Door on the top of the section but has Aluminum-Framed Entrances and Storefronts on the bottom of the pages. Response: Specification has been revised. (See attached)

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6. Comment: Section listed as 08 41 14 Aluminum Entrance (Doors) (500IR) is titled Aluminum Framed Entrances on the pages. Response: Specification has been revised (See Attached)
7. Comment: The page numbering in Section 08 41 15 Aluminum Framed Entrances and Storefronts (TRIFAB-451) skips page 9. Is the information complete in the section? Response: Specification has been revised. (See Attached)
8. Comment: Section listed as 08 44 13 Aluminum Curtain Wall (1600 Wall System 1 IR) is titled Glazed Aluminum Curtain Walls on the pages. Response: Specification has been revised (See Attached)
9. Comment: Section 08 71 00 Door Hardware, pages 36-38 - The Opening List has a column for "Fire Rating". Should there be listings in that column? Response: We will issue a revised specification in a later addendum. There are several fire rated doors (45-minute doors and frames), and they are as follows: 100B, 100D, 101, 118, 123, 124B, 200, 200C, 201, 228

    In addition to Fire Ratings, please note the following :

    - Page 6 – Paragraph 2.02 A2 – "Exit Devices" Should say "Substitutions **not** permitted".
    - Page 7 – Paragraph 2.06 A2 - "Manufacturers" - All Lock cylinders should be Schlage – (That is the college standard for door keys. No substitution.) Please remove Best - Dormakaba as an option).
    - Page 14 – Paragraph 2.18 A2 - "Electrified Hardware Manufacturers" - Should be Von Duprin" ONLY – No substitutions – (College Standard. Please remove Best – Dormakaba).

10. Comment: There are 2 of each of these sections that are not the same: Response: Discard previous specifications (duplicates) and see attached replacements.
    - 10 14 16 Plaques
    - 10 14 19 Dimensional Letter Signage
    - 10 14 23 Room Identification Panel Signage
    - 31 23 16 Earthwork for Utilities
11. Comment: Section listed as 10 21 13 Plastic Toilet Compartments is numbered 10 21 13.19 on the pages. Response: Specification has been revised. (See Attached)
12. Comment: Section listed as 12 36 61 Solid Surfacing Countertops is numbered 12 36 61.16 on the pages. Response: Specification has been revised (See Attached)
13. Comment: Section listed as 14 21 00 Electric Traction Elevators is numbered 104116 on the bottom of the pages. Also the section ends at 3.6 Demonstrations subparagraph A. Should there be anything after or is this the end of the section? Response: Specification has been revised. Section does end at 3.6. (See Attached)
14. Comment: Section listed as 21 13 00 Building Sprinkler System is titled Building Sprinkler and Standpipe Systems on the pages. Response: T.O.C. has been revised (See Attached)
15. Comment: Section listed as 23 05 91 Testing, Cleaning, Piping Systems is titled Testing, Cleaning, and Sterilization of Piping Systems on the pages. Response: T.O.C. has been revised (See Attached)
16. Comment: Section 28 46 21.11 Addressable Fire-Alarm Systems is listing in Div 26 on the TOC. Response: T.O.C. has been revised (See Attached)
17. Comment: Section listed as 31 10 00 Site Preparation is numbered 33 31 00 on the bottoms of pages 2-3. Response: Specification has been revised (See Attached)

18. Comment: Section 31 31 16 Termite Control was issued but not listed on the TOC. Response: T.O.C. has been revised (See Attached)
19. Comment: Section 32 84 00 Planting Irrigation was issued but not listed on the TOC. The section is titled Irrigation on the bottom of the pages. Response: T.O.C. has been revised (See Attached)
20. Comment: Section listed as 32 92 00 Restoration is titled Turf & Grasses on the bottom of the pages. Response: Specification has been revised (see Attached)
21. Comment: Section 32 92 19 Grassing (By Seeding) is incomplete. There are only 2 pages and appears to end mid sentence. Also, the bottom of page 2 is numbered 32 92 00. Response: The Specification has been revised (See Attached)
22. Comment: Section listed as 32 92 23 Sodding is incomplete. There are only 2 pages. Page 2 is the same page as page 2 in section 32 92 19 except it is titled Restoration and numbered 32 92 00 on the bottom of page 2. Response: Specification has been revised (See Attached)
23. Can the door numbers be provided for Alternate #1 per Specification 012300-1? The door numbers are not currently shown. Response: Provide Hollow metal door frames and wood doors (FG) in lieu of aluminum storefront frames and aluminum (FG) Doors for the following door numbers: 103, 104, 105, 106, 112, 113,114, 203, 204, 205, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214,215, 216, 217, 230A, 230B.
24. Specification Section 00 73 00 Supplementary Conditions of the Contract for Construction Article 8 ; Time, 8.2 Progress and Completion; 8.2.5 states that liquidated damages in the amount of **"$1000.00 for each and every calendar day elapsing between the date fixed for substantial completion and the date such Substantial Completion shall be fully accomplished"** Response: The amount per day has been revised / increased to $3000 per calendar day .

1A-3 Drawings

1. The sheet index shows plans for Telecom, Security, and A/V, but no plans are provided. Can the low-voltage plans be provided? Response: These sheets will be added to this addendum.
2. In lieu of the currently drawn clear-spanned 80'+ truss system, would an internal bearing for the truss system be considered? This would offer substantial cost savings on the truss package and also provide a much easier & safer installation. Response: Bid as designed, but we will certainly look at cost saving options upon award of Contract.
3. The existing elevations and contour lines are difficult to determine on the plans … Can an existing survey be provided that would show this information more clearly? Response: See Attached Survey.
4. The proposed Finish Floor elevation is unclear. It says Min. FF of 10.20. Please clarify. This minimum could be interpreted as the FF in the elevator pit. Response: Finish Floor has been set at 10.2'. The elevator pit elevation will be approx. 4' lower.

Civil

1. Sheet C-101 - DEMO & EROSION CONTROL PLAN. see attached plans dated 9/19/25

- Added temporary stabilized construction entrance at the north end of the limits of construction.
- Adjusted limits of silt fence and construction fencing
- Added a note for an existing site light at the north end of the site to be relocated. New location to be coordinated with owner. The existing light is in conflict with the proposed concrete sidewalk.
- Noted for existing sign to be relocated. The sign is in conflict with the proposed concrete sidewalk.

2. Sheet C-102 - SITE PLAN. see attached plans dated 9/19/25

- Adjusted sidewalk and concrete equipment pads on the west side of the building.

3. Sheet C-103 - GRADING & DRAINAGE PLAN. see attached plans dated 9/19/25

- Adjusted sidewalk and concrete equipment pads grading on the west side of the building.
- Turned off underground utilities for clarity
- Added notes for manhole rims and vault tops to be adjusted to match proposed surface.
- Added two (2) 6" roof drain connections on the west side of the building.

4. Sheet C-104 - UTILITY PLAN. see attached plans dated 9/19/25

- Adjusted sidewalk on the west side of the building.
- Added two (2) 6" roof drain connections.

5. Sheet C-201 - MISCELLANEOUS DETAILS. see attached plans dated 9/19/25

Structural

1. Sheet S-001 – GENERAL NOTES. see attached plans dated 9/19/25

- Added structural load table.

2. Sheet S-101 - FOUNDATION PLAN. see attached plans dated 9/19/25

- Removed section 2.S-101 in lieu of cast in place pedestal to support cold formed framing steel column wrap.

3. Sheet S-102 – LEVEL 2 FRAMING PLAN. see attached plans dated 9/19/25

- Added 1" recess within floor slab for shower pan.

4. Sheet S-302 - UTILITY PLAN. see attached plans dated 9/19/25

- Added notes for coordination of elevator elements (sump pump pit grate, elevator hoist beam).

5. Sheet S-801 – DEDUCTIVE ALTERNATE FOUNDATION PLAN. see attached plans dated 9/19/25

- New sheet added to set.

6. Sheet S-802 – DEDUCTIVE ALTERNATE LEVEL 2 FRAMING PLAN. see attached plans dated 9/19/25

- New sheet added to set.

7. Sheet S-803 – DEDUCTIVE ALTERNATE ROOF FRAMING PLAN. see attached plans dated 9/19/25

- New sheet added to set.

Architectural

1. Sheet G-002 – INDEX OF DRAWINGS. see attached plans dated 9/19/25

- Added additional sheets.

2. Sheet LS111 – LIFE SAFETY PLAN LEVEL 1. see attached plans dated 9/19/25

- Added 1 hour fire rating to walls to Fire Riser 125.

3. Sheet A-011 PARTITION TYPES INTERIOR. see attached plans dated 9/19/25

- Revised Partition Type 3S#.

4. Sheet A-101 – ARCHITECTURAL SITE PLAN. see attached plans dated 9/19/25

- Updated sidewalk location.

5. Sheet A-102 – ARCHITECTURAL ENLARGED SITE PLAN. see attached plans dated 9/19/25

- Updated sidewalk location.
- Removed satellite dishes to be demolished prior to construction project.

6. Sheet A-111 – ANNOTATION PLAN. see attached plans dated 9/19/25

- Added Vacuum Pump Room 127.
- Added 1 hour fire rating to walls to Fire Riser 125.

7. Sheet A-112 – LEVEL 1 DIMENSION PLAN. see attached plans dated 9/19/25

- Added Vacuum Pump Room 127.

8. Sheet A-113 – LEVEL 1 REFLECTED CEILING PLAN. see attached plans dated 9/19/25

- Added Vacuum Pump Room 127.
- Added Ceiling Detail in Skills Lab 1.

9. Sheet A-310 – WALL SECTIONS. see attached plans dated 9/19/25

- Section Detail Tags added.

10. Sheet A-311 – WALL SECTIONS. see attached plans dated 9/19/25

- Section Detail Tags added.

11. Sheet A-312 – WALL SECTIONS. see attached plans dated 9/19/25

- Section Detail Tags added.

12. Sheet A-320 – DETAILS. see attached plans dated 9/19/25

- Detail graphics corrected.

13. Sheet A-341 – DOOR AND WINDOW DETAILS. see attached plans dated 9/19/25

- Additional information added to overhead door details.

14. Sheet A-421 – VERTICAL CIRCULATION- MAIN STAIR. see attached plans dated 9/19/25

- Added new section cut B3/A423 though main stairs.
- Added new section cut B1/A422 through lobby.

15. Sheet A-422 VERTICAL CIRCULATION – MAIN STAIR

- Added section B1-STAIR 100A SECTION 2
- Added detail A2-ENLARGED STAIR 100A Section

16. Sheet A-423 VERTICAL CIRCULATION – STAIR

- Title change for drawing A1 to reflect correct stairwell room tag.
- Title change for drawing B1 to reflect correct stairwell room tag.
- Title change for drawing C1 to reflect correct stairwell room tag.
- Added section B3-STAIR 100A SECTION
- Added note for laminated wood panel reglet on section A2-100A STAIR SECTION

17. Sheet A-431 – VERTICAL CIRCULATION- ELEVATOR. see attached plans dated 9/19/25

- Additional Information added to elevator sections.

18. Sheet A-601 – DOOR AND FRAME SCHEDULE. see attached plans dated 9/19/25

- Updated door types.
- added door 127.
- added 1 hour fire rating to door 124B.

19.Sheet A-801 ALTERNATE #4 LEVEL 1 PLAN

- Moved sidewalk westward along west elevation to accommodate condenser pad clearance.
- Added sink symbol in R.R. 110.

20.Sheet A-802 ALTERNATE #4 LEVEL 2 PLAN

- Added room and door tags for storage and restroom.

Interiors

1. Sheet I-001– SPECIFICATIONS. see attached plans dated 9/19/25

- Additional tile (T-3) has been removed from finish specifications.
- Additional information for updated specifications for RS-2 has been added.

2. Sheet I-201– INTERIOR ELEVATIONS. see attached plans dated 9/19/25

- Additional information for updated outside stair rail finish has been added to elevation.

3. Sheet I-301– TRANSITIONAL DETAILS. see attached plans dated 9/19/25

- Additional information for updated outside stair rail finish has been added to elevation.

Fire Protection

1. Sheet FP111 – FIRE PROTECTION FLOOR PLAN – LEVEL 1. see attached plans dated 9/19/25

- Added Room 127-Vacuum Pump to the floor plan. This room will be Ordinary Group 1 hazard classification.

Plumbing

1. Sheet P-001 – PLUMBING LEGEND, SCHEDULE, DETAILS & NOTES. see attached plans dated 9/19/25

- EWC-1 added to plumbing fixture schedule.

2. Sheet P-111- PLUMBING FLOOR PLAN – LEVEL 1 DOMESTIC WATER. see attached plans dated 9/19/25

- Shutoff valves have been added to cold water lines serving exterior wall hydrants.

3. Sheet P-112 – PLUMBING FLOOR PLAN – LEVEL 1 SANITARY. see attached plans dated 9/19/25

- Sanitary vent has been added to the line serving the commercial clothes washer and nearby fixtures.

4. Sheet P-201 – PLUMBING RISER DIAGRAMS. see attached plans dated 9/19/25

- Shutoff valves have been added to cold water lines serving exterior wall hydrants.
- Riser diagram representing domestic water in and around the first-floor gang toilets has been updated to more accurately reflect what is shown on the associated floor plan.

5. Sheet P-202 – PLUMBING RISER DIAGRAMS. see attached plans dated 9/19/25

- Sanitary vent has been added to the line serving the commercial clothes washer and nearby fixtures.

Mechanical

1. Sheet M-002 – HVAC Schedules. see attached plans dated 9/19/25

- Revised AHU-1.4 in VRF Indoor Unit Schedule.

2. Sheet M-111 – HVAC Floor Plan – Level 1. see attached plans dated 9/19/25

- Added ductwork to new Room 127-Vacuum Pump.

Electrical

1. **1. Sheet E-001 – ELECTRICAL LEGENDS AND NOTES. see attached plans dated 9/19/25**

- Updated the Sheet Index to include newly added Sheets.
- Shifted the Nurse Call Legend to make room for expanded Sheet Index.

2. Sheet E-102 – LEVEL 1 SITE PLAN – NEW WORK. see attached plans dated 9/19/25

- Rerouted fire alarm fiber run from Central Plant to have run partially utilize existing vault and entry conduit.
- Updated fire alarm fiber run detail notes.
- Revised Bid Alternate 4 general note.

3. Sheet E-111 – LEVEL 1 POWER PLAN. see attached plans dated 9/19/25

- Relocated EBS monitor power and data from wall-mount to ceiling-mount.
- General power receptacle formerly located in Storage Room 121 now mounted at +48" within Vacuum Pump Room 127.
- Relocated receptacle in Women's Restroom 115 to avoid conflict with paper towel dispenser.
- Relocated receptacle in Men's Restroom 117 to be at countertop. Relabeled from +44" mounting height to +AC".
- Revised Bid Alternate 4 general note.

4. Sheet E-112 – LEVEL 1 MECH POWER PLAN. see attached plans dated 9/19/25

- Relocated vacuum pump disconnect with Vacuum Pump Room 127.
- Added power for motorized sunshades in Conference Room 108.
- Revised Bid Alternate 4 general note.

5. Sheet E-113 – LEVEL 1 MISC SYSTEMS PLAN. see attached plans dated 9/19/25

- Added heat detector to Vacuum Pump Room 127.
- Added Keynote 4 for tamper/flow valves in Fire Riser Room 125.
- Revised Bid Alternate 4 general note.

6. Sheet E-114 – LEVEL 1 LIGHTING PLAN. see attached plans dated 9/19/25

- Revised lighting layout for Storage Room 121.
- Added lighting fixture and controls for Vacuum Pump 127.
- Revised Bid Alternate 4 general note.

7. Sheet E-121 – LEVEL 2 POWER PLAN. see attached plans dated 9/19/25

- Relocated EBS monitor power and data from wall-mount to ceiling-mount.
- Added additional access control panel power and data to IT Room 222.
- Revised floor box in Lobby 200 to be power only; data removed.
- Revised Bid Alternate 4 general note.

8. Sheet E-122 – LEVEL 2 MECH POWER PLAN. see attached plans dated 9/19/25

- Revised Bid Alternate 4 general note.

9. Sheet E-123 – LEVEL 2 MISC SYSTEMS PLAN. see attached plans dated 9/19/25

- Revised Bid Alternate 4 general note.

10. Sheet E-124 – LEVEL 2 LIGHTING PLAN. see attached plans dated 9/19/25

- Revised Bid Alternate 4 general note.

11. Sheet E-131 – ROOF LIGHTNING PROTECTION PLAN. see attached plans dated 9/19/25

- Revised Bid Alternate 4 general note.

12. Sheet E-612 – PANEL SCHEDULES. see attached plans dated 9/19/25

- Added five (5) circuits to Panel P1A for Conference Room 108 sunshades.

13. Sheet E-613 – PANEL SCHEDULES. see attached plans dated 9/19/25

- Added one (1) circuit to P2B for IT Room 222 access control panel.
- Relabeled circuits and changed loads in Panel P2B to better define equipment served.

14. Sheet E-811 – ALTERNATE POWER PLANS. see attached plans dated 9/19/25

- New sheet added to set.

15. Sheet E- 812 – ALTERNATE MECH POWER PLANS. see attached plans dated 9/19/25

- New sheet added to set.

16. Sheet E- 813 – ALTERNATE MISC SYSTEMS PLANS. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet E- 814 – ALTERNATE LIGHTING PLANS. see attached plans dated 9/19/25

- New sheet added to set.

18. Sheet E- 861 – ALTERNATE PANEL SCHEDULES. see attached plans dated 9/19/25

- New sheet added to set.

Telecom

1. Sheet T-101 – COMMUNICATION SITE PLAN. see attached plans dated 9/19/25

- New sheet added to set.

15. Sheet T-201 – COMMUNICATION FLOOR PLAN LEVEL 1. see attached plans dated 9/19/25

- New sheet added to set.

16. Sheet E- T-202 – COMMUNICATION FLOOR PLAN LEVEL 2. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 301 – COMMUNICATIONS TYPICAL DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

18. Sheet T- 302 – COMMUNICATIONS TYPICAL DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 303 – COMMUNICATIONS TYPICAL FLOOR BOX DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 304 – COMMUNICATIONS TYPICAL FACEPLATE & LABELING DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 401 – DATA SYSTEM SINGLE LINE CONF. DIAGRAM. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 501 – CC ENLARGED FLOOR PLANS & RACK ELEVATIONS. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 801 – COMMUNICATIONS FLOOR PLAN LEVEL 1- BID ALT #4. see attached plans dated 9/19/25

- New sheet added to set.

17. Sheet T- 802 – COMMUNICATIONS FLOOR PLAN LEVEL 2- BID ALT #4. see attached plans dated 9/19/25

- New sheet added to set.

ACS/Security

1. Sheet ACS-101 – ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 1. see attached plans dated 9/19/25

- New sheet added to set.

2. Sheet ACS-102 – ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 2. see attached plans dated 9/19/25

- New sheet added to set.

3. Sheet ACS-201 – ACCESS CONTROL SYSTEM DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

4. Sheet ACS-301 – ACCESS CONTROL SYSTEM DETAILS. see attached plans dated 9/19/25

- New sheet added to set.

5. Sheet ACS-801 – ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 1- BID ALT #4. see attached plans dated 9/19/25

- New sheet added to set.

5. Sheet ACS-802 – ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 2- BID ALT #4. see attached plans dated 9/19/25

- New sheet added to set.

Audio Visual

1. Sheet AV100 – AV 1ST FLOOR PLAN. see attached plans dated 9/19/25

- New sheet added to set.

2. Sheet AV101 – AV 2ND FLOOR PLAN. see attached plans dated 9/19/25

- New sheet added to set.

3. Sheet AV200 – AV 1ST FLOOR RCP. see attached plans dated 9/19/25

- New sheet added to set.

4. Sheet AV201 – AV 2ND FLOOR RCP. see attached plans dated 9/19/25

- New sheet added to set.

5. Sheet AV300 – AV ELEVATIONS. see attached plans dated 9/19/25

- New sheet added to set.

6. Sheet AV400 – AV SYSTEM SCHEMATICS- PART 1. see attached plans dated 9/19/25

- New sheet added to set.

5. Sheet AV401 – AV SYSTEM SCHEMATICS- PART 2. see attached plans dated 9/19/25

- New sheet added to set.

End of Addendum

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00 60 00	LABOR AND MATERIAL PAYMENT BOND
00 60 01	PERFORMANCE BOND
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00 73 00	GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION & SUPPLEMENTARY CONDITIONS OF THE CONTRACT

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01 25 00	SUBSTITUTION PROCEDURES
01 25 00.1	CSI SUBSTITUTION FORM
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01 32 33	PHOTOGRAPHIC DOCUMENTATION
01 33 00	SUBMITTAL PROCEDURES
01 40 00	QUALITY REQUIREMENTS
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01 43 30	QA FOR FIRESTOPPING PENETRATIONS AND JOINTS
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03 11 19	INSULATING CONCRETE FORMING
03 30 00	CAST-IN-PLACE CONCRETE

DIVISION 04 – MASONRY

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08 41 13	ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (TRIFAB-451)
08 41 13	ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (TRIFAB-451T)
08 44 13	ALUMINUM CURTAIN WALL (1600 WALL SYSTEM 1 IR)
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09 24 13.1 FINISH SYSTEM FOR EXTERIOR COLUMN WRAPS AT LOBBY CURTAINWALL
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NOTE: FOR ALL OTHER FINISHES, REFER TO INTERIOR DESIGN DOCUMENTS

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10 14 16 PLAQUES
10 14 19 DIMENSIONAL LETTER SIGNAGE
10 14 23 ROOM IDENTIFICATION PANEL SIGNAGE
10 21 13 PLASTIC TOILET COMPARTMENTS
10 26 00 WALL AND DOOR PROTECTION
10 28 00 TOILET BATH AND LAUNDRYACCESSORIES
10 44 13 FIRE PROTECTION CABINETS
10 44 16 FIRE EXTINGUISHERS
10 71 13 EXTERIOR SUN CONTROL DEVICES

DIVISION 11 – EQUIPMENT

11 65 00 - AUDIO – VISUAL SYSTEMS

DIVISION 12 – FURNISHINGS

12 36 61 SOLID SURFACING COUNTERTOPS

DIVISION 13 – SPECIAL CONSTRUCTION – NOT USED

DIVISION 14 – CONVEYING EQUIPMENT

14 21 00 ELECTRIC TRACTION ELEVATORS

DIVISION 21- FIRE PROTECTION

21 13 00 BUILDING SPRINKLER AND STANDPIPE SYSTEMS
21 31 16 DIESEL ENGINE DRIVE FIRE PUMP

DIVISION 22 – PLUMBING

22 01 00 PLUMBING GENERAL
22 07 00 INSULATION FOR PLUMBING EQUIPMENT AND PIPING
22 11 13 POTABLE WATER SYSTEM
22 13 16 SOIL, WASTE, AND VENT SYSTEM
22 30 00 PLUMBING FIXTURES, EQUIPMENT, TRIM & SCHEDULE
22 62 00 MEDICAL VACUUM SYSTEM
22 63 00 MEDICAL GAS SYSTEM

DIVISION 23 – HEATING, VENTILATING AND, AIR CONDITIONING (HVAC)

23 01 00 MECHANICAL GENERAL
23 05 13 ELECTRIC MOTORS
23 05 20 PIPES AND PIPE FITTINGS
23 05 21 PIPING SPECIALTIES
23 05 23 VALVES
23 05 29 SUPPORTS, ANCHORS, AND SEALS
23 05 48 VIBRATION ISOLATION
23 05 53 MECHANICAL IDENTIFICATION
23 05 56 ACCESS DOORS

23 05 90 START-UP REQUIREMENTS FOR HVAC SYSTEMS
23 05 91 TESTING, CLEANING, PIPING SYSTEMS
23 05 93 TESTING AND BALANCING OF MECHANICAL SYSTEMS
23 09 23 DIRECT DIGITAL CONTROLS
23 07 13 EXTERIOR INSULATION FOR DUCTWORK
23 07 16 INSULATION FOR HVAC EQUIPMENT AND PIPING
23 08 00 HVAC SYSTEM COMMISIONING
23 09 23 DIRECT DIGITAL CONTROLS
23 31 13 HVAC METAL DUCTWORK
23 33 00 DUCTWORK ACCESSORIES
23 34 00 FANS
23 37 13 GRILLES, REGISTERS, AND CEILING DIFFUSERS
23 37 26 WALL LOUVERS
23 81 03 OUTSIDE AIR PRECONDITIONING UNITS
23 81 28 DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNITS
23 81 30 VARIABLE REFRIGERANT VOLUME HEAT PUMP SYSTEMS

DIVISION 26 - ELECTRICAL

26 05 00 ELECTRICAL GENERAL REQUIREMENTS
26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 23 CONTROL-VOLTAGE ELECTRICAL POWER CABLES
26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 05 43 UNDERGROUND DUCTS AND RACEWAYS
26 05 44 SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS
26 05 73.13 SHORT CIRCUIT STUDIES
26 05 73.16 COORDINATION STUDIES
26 05 73.19 ARC-FLASH HAZARD ANALYSIS
26 08 00 COMMISIONING OF ELECTRICAL SYSTEMS
26 09 23 LIGHTING CONTROL DEVICES
26 09 43 DISTRIBUTED INTELLIGENCE BASED LIGHTING CONTROLS
26 24 16 PANELBOARDS
26 27 26 WIRING DEVICES
26 28 16 ENCLOSED SWITCHES AND CIRCUIT BREAKERS
26 41 13 LIGHTNING PROTECTION FOR STRUCTURES
26 43 13 SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
26 51 19 LED INTERIOR LIGHTING
26 52 13 EMERGENCY AND EXIT LIGHTING
26 56 13 LIGHTING POLES AND STANDARDS
26 56 19 LED EXTERIOR LIGHTING

DIVISION 27 - TELECOMMUNICATIONS

27 00 00 COMMUNICATIONS STRUCTURED CABLING SYSTEM
27 50 00 INTERCOM/PA SYSTEM
27 80 00 IP SECURITY CAMERA SYSTEM

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 10 00 ELECTRONIC ACCESS CONTROL SYSTEM
28 46 21.11 ADDRESSABLE FIRE ALARM SYSTEMS

DIVISION 30 – SITE CLEARING, RESTORATION, AND MISCELLANEOUS SITE WORK

30 00 00 - GENERAL SITE WORK REQUIREMENTS

DIVISION 31 - EARTHWORK

31 10 00 -	SITE PREPARATION
31 20 00 -	EARTHWORK
31 23 16 -	EARTWORK FOR UTILITIES
31 25 00 -	EROSION CONTROL AND ENVIRONMENTAL PROTECTION
31 31 16	TERMITE CONTROL

DIVISION 32 – SITE WORK

32 05 23 -	CONCRETE FOR SITE WORK
32 13 13 -	CONCRETE WALKS, CURBS, GUTTERS AND PAVEMENT
32 84 00	PLANTING IRRIGATION
32 92 00 -	RESTORATION
32 92 10 -	TURF AND GRASSES
32 92 19 -	GRASSING (BY SEEDING)
32 92 23 -	SODDING
32 93 00-	PLANTS

DIVISION 33 – (Site) UTILITIES

33 05 07 -	DIRECTIONAL BORES
33 11 10 -	WATER DISTRIBUTION SYSTEM
33 31 00 -	SEWER COLLECTION SYSTEM
33 40 00 -	STORM SEWER COLLECTION SYSTEM

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SECTION 01 78 00 - WARRANTIES AND BONDS

PART 1 - GENERAL

REQUIREMENTS:

A. Preparation and submittal of warranties and bonds.

B. Schedule of submittals.

RELATED REQUIREMENTS:

A. Section of 01 70 00 - Contract Closeout

B. Individual Specifications Sections: Warranties and bonds required for specific Products or work.

FORM OF SUBMITTALS:

Bind with operation and maintenance manuals specified in Section 01 73 00.

PREPARATION OF SUBMITTALS:

A. Obtain warranties and bonds, executed in triplicate (3) by responsible subcontractors, suppliers, and manufacturer's within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

TIME OF SUBMITTALS:

A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

B. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

WARRANTY SERVICE

A. The Contractor shall proceed with warranty repair or replacement within 24 hours of being notified that a warranty deficiency exists.

B. In order to insure prompt and effective correction of warranty deficiencies, the Contractor shall, if he or any of his Subcontractors do not maintain fully staffed service organizations within Leon County, designate firms within Leon County authorized to perform warranty work on the Contractor's behalf. The name, addresses, and

phone numbers of these designated firms shall be included within the closeout documents, along with affidavits signed by officers of the designated firms stating that they have been retained and will perform required warranty service.

END OF SECTION 01 74 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

REQUIREMENTS:

A. Format and content of manuals.

B. Instruction of Owner's personnel.

C. Schedule of submittals.

RELATED REQUIREMENTS:

A. Shop Drawings, Product Data, and Samples.

B. Testing, Adjusting, and Balancing of Systems: Test and balance reports.

C. Section 01 70 00 - Contract Closeout

D. Warranties and Bonds

E. Individual Specification Sections: Specific requirements for operation and maintenance data.

FORMAT:

A. Prepare data in the form of an instructional manual.

B. Electronic Format on DVD

C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; use volumes as needed.

D. Arrange content by systems, process flow, under section numbers and sequence of Table of Contents of this Project Manual.

E. Provide tabbed fly leaf for each separate project and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data.pdf format on DVD

G. Drawings: Electronic on DVD

CONTENTS OF EACH VOLUME:

A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to

show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

E. Warranties and Bonds: Bind in copy of each.

MANUAL FOR MATERIALS AND FINISHES:

A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, color and texture designations. provide information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation; delete inapplicable information.

D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

E. Warranties and Bonds: Bind in copy of each.

MANUAL FOR MATERIALS AND FINISHES:

A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional Requirements: As specified in individual Specifications sections.

MANUAL FOR EQUIPMENT AND SYSTEMS:

A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Give function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number or replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.

C. Include as-installed color coded wiring diagrams.

D. Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operations and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide as-installed control diagrams by controls manufacturer.

K. Provide Contractor's coordination drawings, with as-installed color coded piping diagrams.

L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Include test and balancing reports as specified.

O. Additional Requirements: As specified individual specifications sections.

P. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

INSTRUCTION OF OWNER PERSONNEL:

A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.

B. Use operation and maintenance manuals as basis of instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data become apparent during instruction.

SUBMITTALS:

A. Submit one (1) copy of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with Architect/Engineer comments. Revise content of documents as required prior to final submittal.

B. Submit three (3) copies of revised volumes of data in final form within ten days after final inspection.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 01 73 00

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for the following:

1. Footings.
2. Slabs-on-grade.
3. Suspended slabs.
4. Columns.
5. Beams.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete Subcontractor.
e. Special concrete finish Subcontractor.

2. Review inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

E. Samples: For waterstops and vapor retarder.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, manufacturer and testing agency.

B. Welding certificates.

C. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Waterstops.
6. Curing compounds.
7. Bonding agents.
8. Adhesives.
9. Vapor retarders and barriers.
10. Semirigid joint filler.
11. Joint-filler strips.
12. Repair materials.

D. Material Test Reports: For the following, from a qualified testing agency:

1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

E. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

F. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

G. Field quality-control reports.

H. Minutes of preinstallation conference.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.10 FIELD CONDITIONS

A. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 – PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301.
2. ACI 117.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. High-density overlay, Class 1 or better.
b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
c. Structural 1, B-B or better; mill oiled and edge sealed.
d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive damp proofing or waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I/II, gray.
2. Blended Cement: ASTM C595/C 595 M, Type IL, gray.
3. Fly Ash: ASTM C 618, Class F or C.
4. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Lightweight Aggregate: ASTM C 330/C 330M, 3/4-inch nominal maximum aggregate size.

E. Air-Entraining Admixture: ASTM C 260/C 260M.

F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with

ASTM C 494/C 494M, Type C.

H. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

I. Water: ASTM C 94/C 94M and potable.

2.6 WATERSTOPS

A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

2.7 VAPOR RETARDERS AND BARRIERS

A. Sheet Vapor Barrier: ASTM E 1745, Class A with a Perm Rating less than or equal to 0.018 perms (grains / ft2 *hr *in. HG) as tested by ASTM E 96

1. Minimum thickness: 15 mil

B. Vapor Barrier Accessories:

1. Seal Tape: Water vapor transmission rate per ASTM E96 on 0.3 perm or less.
2. Vapor Proofing Mastic: Water vapor transmission rate per ASTM E96 of 0.3 perm or less.
3. Pipe Boots: Construct pipe boots from vapor barrier material, pressure sensitive tape and/or mastic per manufacturer’s instructions.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 according to ASTM D 2240.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

E. High-Strength Epoxy Doweling System: Epoxy doweling system shall consist of an injectable two-part epoxy complying with the requirements of ASTM C881-90, Type IV, Grade 3, Class B and C except gel times. Epoxy doweling system shall be tested in accordance with ICC Acceptance Criteria 308 demonstrating compliance with the performance features of ACI 355.2. Epoxy doweling system shall have an ICC-ES Evaluation Report (ESR) indicating it is intended for use in cracked and uncracked normal weight concrete in Seismic Design Categories A and B. The epoxy doweling system shall be installed according to manufacturer's instructions.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Hilti HIT-HY 200 Adhesive Anchoring System (ICC ESR-3187)
b. ITW Red Head EPCON G5 Adhesive Anchoring System (ICC ESR-1137)
c. Powers AC100+ Gold Adhesive Anchor System (ICC ESR-2582)
d. Simpson Strong-Tie SET-XP Epoxy Adhesive Anchors (ICC ESP-2508)

F. Expansion Wedge Anchors: Expansion wedge anchors shall consist of threaded stud bolt body and integral wedge expander, nut, and washer complying with the requirements of Federal Specification A-A 1923A, Type 4. Expansion wedge anchors shall be tested in accordance with ICC Acceptance Criteria 193 demonstrating compliance with the performance features of ACI 355.2. Expansion wedge anchors shall have an ICC-ES Evaluation Report (ESR) indicating it is intended for use in cracked and uncracked normal weight concrete in Seismic Design Categories A and B. Anchors shall be made of zinc-plated carbon steel meeting ASTM B633 or Type 304 stainless steel.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Hilti Kwik Bolt 3 (KB3) Concrete Anchors (ICC ESR-2302)
b. ITW Red Head TRUBOLT Wedge Anchor (ICC ESR-2251)
c. Powers Power-Stud+ SD1/SD2 Anchor (ICC ESR-2818/ESR-2502/)
d. Simpson STRONG-BOLT/STRONG-BOLT 2 Wedge Anchor (ICC ESR-1771/ESR-3037)

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.

4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20 percent.
2. Combined Fly Ash and Pozzolan: 20 percent.
3. Ground Granulated Blast-Furnace Slag: 50 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent Portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.
6. Combined Fly Ash,, Pozzolans, Ground Granulated Blast-Furnace Slag and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Normal-weight concrete.

1. Minimum Compressive Strength: As indicated at 28 days.
2. Maximum W/C Ratio: 0.50.
3. Slump Limit: 5 inches and 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
4. Air Content: 3 percent, plus or minus 1 percent at point of delivery for 1-inch nominal maximum aggregate size.

B. Slabs-on-Grade: Normal-weight concrete.

1. Minimum Compressive Strength: As indicated at 28 days.
2. Maximum W/C Ratio: 0.50.
3. Minimum Cementitious Materials Content: 470 lb/cu. yd..
4. Slump Limit: 4 inches, plus or minus 1 inch.
5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

C. Suspended Slabs: Lightweight concrete.

1. Minimum Compressive Strength: As indicated at 28 days.
2. Calculated Equilibrium Unit Weight: 115 lb/cu. ft., plus or minus 3 lb/cu. ft. as determined by ASTM C 567/C 567M.
3. Slump Limit: 5 inches, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Not permitted.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer's written instructions.

3.5 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 WATERSTOP INSTALLATION

A. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.8 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or powerdriven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated or exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-filmfinish coating system.

2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

   a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.

3. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated and where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high unless otherwise indicated, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
6. Coordinate anchor installation with equipment manufacturer.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after

placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard Portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact,

and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

C. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Headed bolts and studs.
4. Verification of use of required design mixture.
5. Concrete placement, including conveying and depositing.
6. Curing procedures and maintenance of curing temperature.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
6. Compression Test Specimens: ASTM C 31.
   a. Cast and laboratory cure four 6x12 or five 4x8 cylinder specimens for each composite sample.
   b. One cylinder size shall be used throughout the project.

c. Each cylinder shall be weighed and the weight recorded directly prior to performing the compression test.

7. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimen at 7 days and two 6x12 or three 4x8 specimens at 28 days, and retain one specimen for later testing at 56 days if 28 day strength falls below the required specified strength.

   a. A compressive-strength test shall be the average compressive strength from a set of two 6x12 or three 4x8 specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive strength test value falls below specified compressive strength by more than 500 psi.
10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

C. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

END OF SECTION 033000

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SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Structural steel.
2. Field-installed shear connectors.
3. Grout.

B. Related Requirements:

1. Section 053100 "Steel Decking" for field installation of shear connectors through deck.

1.3 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.4 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name, for demand critical welds.

D. Delegated-Design Submittal: For structural-steel connections indicated to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, fabricator, professional engineer, and testing agency.

B. Welding certificates.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Mill test reports for structural steel, including chemical and physical properties.

E. Product Test Reports: For the following:

1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
2. Direct-tension indicators.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shear stud connectors.
5. Shop primers.
6. Nonshrink grout.

F. Survey of existing conditions.

G. Source quality-control reports.

H. Field quality-control reports.

I. Domestically sourced in the United States: Written Certification the structural steel has been 100% milled and 100% fabricated in the United States only with domestically sourced materials.

1.8 QUALITY ASSURANCE

A. Fabricator Qualifications: The fabricator must meet one of the two following requirements.

1. A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).
2. A qualified fabricator with a minimum of 5 years experience in fabricating structural steel similar to that indicated for this project and with a record of successful in-service performance, and one of the two options below:
   a. An independent auditor certification of their quality control program.

B. Installer Qualifications: The installer must meet one of the two following requirements.

1. A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.
2. A qualified installer with a minimum of 5 years experience in installing structural steel similar to that indicated for this project and with a record of successful in-service performance.
   a. Provide three project references with Owner contact information with the bid.
   b. Provide a copy of the installers Policy for Quality and Policy for Safety with the bid.

C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P1 or to SSPCQP

D. 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."

E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be

considered separate processes for welding personnel qualification.

F. Comply with applicable provisions of the following specifications and documents:
1. AISC 303.
2. AISC 341 and AISC 341s1.
3. AISC 360.
4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
2. Clean and relubricate bolts and nuts that become dry or rusty before use.
3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator, including comprehensive engineering analysis by a qualified professional engineer, to withstand loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC 360.
2. Use Load and Resistance Factor Design; data are given at ultimate load level.

2.2 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A 992.

B. Channels, Angles, M, S-Shapes: ASTM A 36.

C. Plate and Bar: ASTM A 36 or as indicated otherwise.

D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade C (Fy=50 ksi), structural tubing.

E. Steel Pipe: ASTM A 53, Type E or Type S, Grade B.

1. Weight Class: As indicated.
2. Finish: Black except where indicated to be galvanized.

F. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.

B. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon steel washers.

1. Finish: Hot-dip or mechanically deposited zinc coating.
2. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with mechanically deposited zinc coating finish.

C. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.

1. Finish: Plain.

D. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

E. Unheaded Anchor Rods: ASTM F 1554, Grade 36, unless otherwise indicated.

1. Configuration: Straight.
2. Nuts: ASTM A 563 heavy-hex carbon steel.
3. Plate Washers: ASTM A 36/A 36M carbon steel.

4. Washers: ASTM F 436, Type 1, hardened carbon steel.
5. Finish: Plain.

F. Threaded Rods: ASTM A 36.

1. Nuts: ASTM A 563 heavy-hex carbon steel.
2. Washers: ASTM F 436, Type 1, hardened carbon steel.
3. Finish: Plain.

2.4 PRIMER

A. Primer: Comply with Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."

B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

C. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

2.5 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

1. Camber structural-steel members where indicated.
2. Fabricate beams with rolling camber up.
3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
4. Mark and match-mark materials for field assembly.
5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning."

F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.7 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.8 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
5. Galvanized surfaces.

6. Surfaces enclosed in interior construction.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
4. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils.

2.9 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
2. Galvanize lintels shelf angles attached to structural-steel frame and located in exterior walls.

2.10 SOURCE QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

B. Bolted Connections: Inspect and test shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

D. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

E. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not use thermal cutting during erection.

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

3.4 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of

bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E 165.
b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

D. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:

1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

3.6 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

C. Touchup Painting: Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

D. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 051200

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SECTION 052100 – STEEL JOIST FRAMING

1.1 SECTION INCLUDES

A. K-series steel joists.

B. KCS-type joists.

C. LH-series long span steel joists.

D. DLH-series long span steel joists, joist girders, composite joists, and joist bridging and accessories.

1.2 RELATED SECTIONS

A. Section 05 31 00 - Steel Decking.

1.3 REFERENCES

A. American Welding Society (AWS):

1. AWS D1.1/D1.1M:, Structural Welding Code - Steel.

B. International Standards Association (ISO):

1. ISO 14021 - Environmental labels and declarations Self-declared environmental claims (Type II environmental labelling)

C. Society for Protective Coatings (SSPC).

D. Steel Joist Institute (SJI):

1. SJI 100 - Standard Specification and Standard Load Tables for Steel Joists and Standard Weight Tables for Joist Girders.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data:

1. Manufacturer's data sheets on each product to be used.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1. Joist Layout Drawings: Indicate joist designations, non-standard configurations, non-standard cambers, layout, extensions, bridging, and other accessories provided by the joist manufacturer, connections to structure, and field splices.

D. Joist Calculations: Provide stamped joist calculations for all joists on the approved Shop Drawings.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables of SJI "Standard Specification."
   1. Manufacturer Responsibilities: Joists shall be designed by qualified engineering professionals to comply with the specified performance requirements.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.

C. SJI Specifications: Comply with applicable requirements of SJI's "Standard Specification" for the types of joists indicated on the Construction Drawings and/or Joist Layout Drawings and with all applicable requirements of SJI Technical Digest No. 9.

D. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle joists in accordance with the requirements of SJI's "Standard Specification" and Technical Digest No. 9.

B. Protect joists from corrosion, deformation, and other damage during delivery, storage, and erection.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Vulcraft/Verco Group

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide joists capable of withstanding all design loads indicated on the approved Joist Layout Drawings in accordance with SJI Specifications.

B. Serviceability Performance: Design joist to withstand design loads with live or snow load deflections in accordance with SJI Specifications.

2.3 MATERIALS

A. Steel: Comply with the requirements of SJI's "Standard Specification" for web and steel-angle chord members.

1. Round bar chord members are not permitted.
2. Top chord members shall be hot rolled angles.

B. Accessories: Comply with the requirements of SJI's "Standard Specification" and "Code of Standard Practice for Steel Joists and Girders".

C. Welding Materials: Comply with the requirements of SJI Technical Digest No. 3 and AWS D1.1/D1.1M for the materials being welded.

D. Shop and Touchup Primer: Comply with the requirements ofSSPC-Paint Specification No. 15 and the VOC limitations of the authorities having jurisdiction.

2.4 FINISHES

A. Prepare surfaces to be prime painted in accordance with SSPC-SP 2 Surfaces to be prime painted shall be free of dirt and loose mill scale, cleaned in accordance with standard shop practices.

B. Apply one (1) coat of manufacturer standard gray shop primer to joists and joist accessories with a continuous dry film.

2.5 SUSTAINABILITY

A. The joist supplier must have product EPDs meeting the sustainability requirements listed in this specification.

2.6 COMPOSITE JOISTS

A. See Section 05 22 00 for all requirements for composite joists and composite floor systems.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly constructed and prepared.

1. Examine all supporting structural members, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.

a. Proceed with erection and installation only after any unsatisfactory conditions have been corrected.

B. If substrate preparation is the responsibility of another installer, notify Architect in

writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

1. Do not install joists until supporting construction is in place and secured
2. Handle and erect joists in accordance with SJI's "Standard Specification", SJI's "Code of Standard Practice for Steel Joists and Girders", SJI Technical Digest No. 9, manufacturer's instructions, Contract Drawings, and approved Joist Layout Drawings
3. Do not field cut or otherwise alter structural members without Engineering approval
4. All field welds to conform to the requirements of AWS D1.1/D1.1M for the material being welded

END OF SECTION 052100

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SECTION 053100 – STEEL DECKING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel decking for floors and roofs.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete. For normal-weight and lightweight structural concrete fill over steel deck.

B. Section 05 12 00 - Structural Steel Framing. For shop and field welded shear connectors.

1.3 REFERENCES

A. American Iron and Steel Institute (AISI).

B. American National Standards Institute (ANSI):

1. ANSI/AISI S100-16 w/S2-20, North American Specification for the Design of Cold-Formed Steel Structural Members
2. ANSI/AISI S310-20, North America Standard for the Design of Profiled Steel Diaphragm Panels
3. ANSI/SDI RD-2017 Standard for Roof Deck
4. ANSI/SDI C-2017 Standard for Composite Steel Floor Deck-Slabs
5. ANSI/SDI NC-2017 Standard for Non-Composite Steel Floor Deck
6. ANSI/SDI RD-2017 Standard for Roof Deck

C. American Welding Society (AWS):

1. AWS D1.3/D1.3M:2018, Structural Welding Code - Sheet Steel.

D. ASTM International (ASTM):

1. ASTM A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable.
2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

E. Steel Deck Institute (SDI):

1. SDI Manual of Construction (MOC).

F. Underwriters Laboratories (UL):

1. Fire Resistance Directory.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data: For each type of steel deck specified including dimensions and finishes.

1. Manufacturer's data sheets on each product to be used.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Verification Samples: Two representative units of each type, size, pattern, and color.

D. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1. Include layout and types of deck panels, deck attachment details, accessories specified on the contract documents and other information required for a thorough review.

E. Welding certificates: If field welding is performed, welder certificates signed by the Contractor certifying that welders comply with requirements specified under "QualityAssurance" Article in this specification.

F. Test and Evaluation Reports:

1. Steel Deck: Product Evaluation Reports from IAPMO showing compliance with the specified requirements.
2. Product Test Reports or Evaluation Reports: Reports from a qualified testing or evaluation agency, indicating that each of the following complies with specified requirements:

a. Mechanical fasteners: If mechanical fasteners are used, independent test reports or evaluation reports shall be provided by the fastener manufacturer.
b. Acoustical deck performance.
c. Approval reports by Factory Mutual demonstrating that the products provided meet the loss-prevention requirements if specified.

G. Sustainability:

1. Environmental Product Declarations (EPD): Submit steel floor or roof deck manufacturer's EPD per the following:

a. All EPDs are to be third-party verified in accordance with the current version of ISO 14025 (validated by a date that has not yet expired) and indicate the following Impact Categories:

1) Global Warming Potential (GWP): All GWP information submitted shall be in the form of kgCO2eq/kg.
2) Ozone Depletion Potential (ODP): All ODP information shall be in the form of kgCFC-11/kg.
3) Acidification Potential (AP): All AP information shall be submitted in the form of kgSO2/kg.
4) Eutrophication Potential (EP): All EP information submitted shall be in the form of kgN/kg.
5) Smog Formation Potential (SFP): All SFP information shall be submitted in the form of kgO3/kg.
6) Energy Consumption: All energy consumption information shall be submitted in the form of MJ.

b. Manufacturer-specific GWP information will be one of the decision criteria when awarding this scope. The manufacturer EPD must indicate GWP information from the specific mill or plant facility from which the material is procured. EPDs including GWP information for more than one facility are acceptable as long as each facility's GWP information is reported separately. EPDs reporting GWP values as averages from multiple facilities only or industry-wide EPDs are not acceptable.
c. EPDs must clearly indicate the Product Flow Diagram disclosing if product fabrication is included within the "cradle-to-gate" life cycle scope (product stages A1-A3) of the EPD.

2. Recycled Content of Steel Products: Provide documentation in accordance with the current version of ISO 14021 from the manufacturer of steel floor and roof decking products. For each product, both the post-consumer and preconsumer recycled content percentage by weight must be indicated.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.

1. Manufacturers offering deck products to be incorporated into the work:

a. Must submit evaluation reports from an accredited 3rd party evaluation agency such as IAPMO and be a member of the Steel Deck Institute.
b. Must submit product EPDs in accordance with the sustainability requirement listed in this specification.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.

1. The intent of a mock-up is to demonstrate quality of workmanship and visual appearance.
2. If the mock-up is not acceptable, rebuild the mock-up until satisfactory results are achieved.
3. Retain mock-up during construction as a standard for comparison with completed work.
4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Store products in accordance with SDI Manual of Construction (MOC). Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

1. Protect acoustical roof deck batt insulation to maintain insulation free of moisture.
2. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

C. Locate deck bundles to prevent overloading of supporting members.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Vulcraft/Verco Group

1. Subject to compliance with requirements, provide products by one of the following:

a. Verco Decking.
b. Vulcraft.

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.

2.2 PERFORMANCE AND DESIGN REQUIREMENTS

A. Codes and Standards: Comply with applicable provisions of the following specifications:

1. ANSI/AISI S100-16 w/S2-20, North American Specification for the Design of Cold-Formed Steel Structural Members.
2. ANSI/AISI S310-20, North America Standard for the Design of Profiled Steel Diaphragm Panels.
3. ANSI/SDI RD-2017 Standard for Roof Deck.
4. ANSI/SDI C-2017 Standard for Composite Steel Floor Deck-Slabs.
5. ANSI/SDI NC-2017 Standard for Non-Composite Steel Floor Deck.

B. Welding Qualifications: Qualify procedures and personnel in accordance with and the following welding codes:

1. AWS D1.3/D1.3M:2018, Structural Welding Code - Sheet Steel.

C. Mechanical Fasteners: If required by the fastener manufacturer, certify that each mechanical fastener installer has satisfactorily passed certification tests as required by the fastener manufacturer.

D. Fire Resistance Assemblies: Provide steel deck units classified by Underwriters Laboratories (UL) in the "Fire Resistance Directory" if a fire rated assembly is required. Identify steel deck bundles with labels bearing the UL mark.

2.3 STEEL DECKS

A. Steel Deck Panels: Comply with ANSI/SDI RD-2017, C-2017, or NC-2017. Deck profile, design uncoated-steel thickness, steel grade and finish, and side-lap configuration as indicated on the structural drawings.

B. Composite Steel Deck Panels: With integral embossments or configurations.

1. Comply with ANSI/SDI C-2017.

C. Materials: Sheet steel.

1. Uncoated Steel Sheet Shop Primed: ASTM A1008, Structural Steel.

a. Grade: As indicated on structural drawings.

2. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel.

a. Grade: As indicated on structural drawings.
b. Zinc Coating: As indicated on structural drawings.

D. Finishes:

1. Shop Applied Primer: Manufacturer's standard baked-on, rust-inhibitive primer to top and/or bottom sides as indicated on structural drawings.

a. Composite Decks: Do not prime top side of composite decks.
b. Color: By Submittal/Owner approval

2.4 ACCESSORIES

A. Manufacturer's standard accessory materials for decking complying with requirements indicated.

1. Miscellaneous Sheet Metal Deck Accessories: Galvanized steel sheet.
a. Yield Strength: 33,000 psi (2217527 kPa).
b. Material Thickness: No less than 0.0358 inch (0.909 mm), 20 ga uncoated thickness of profile indicated or required for application.
c. Items include but are not limited to the following:

1) Column Closures
2) End Closures
3) Z-Closures
4) Cover Plates
5) Pour Stops
6) All other miscellaneous components for pour

B. Mechanical Support Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

1. Size and fastening pattern as indicated.

C. Screws for Side-Lap Fastening: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, diameter and spacing or quantity as indicated on structural drawings.

D. Flexible Closure Strips: Synthetic rubber.

E. Pour Stops and Girder Fillers: Galvanized steel sheet.

1. Yield Strength: 33,000 psi (227527 kPa)
2. Thickness and Profile: Recommended by SDI for overhang and slab depth.

F. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch (1.519 mm), 16 ga thick, with factory-punched hole of 3/8 inch minimum diameter.

G. Sump Pans: Single-piece steel sheet, 0.0747 inch (1.897 mm), 14 gauge, thick galvanized steel sheet. For drains, cut holes in the field.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly constructed and prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION OF DECKS

A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

B. Install deck panels and accessories in accordance with ANSI/SDI RD-2017, C-2017, or NC-2017, SDI MOC, structural drawings, installation drawings marked for field use, and requirements in this section.

C. Place deck panels on structural supports and adjust to final position with ends aligned. Bring deck into contact with the bearing surface as required by the fastening system and attach firmly to the supports immediately after placement to form a safe working platform.

D. Install temporary shoring before pouring concrete if required to meet strength or deflection limitations.

E. Fasten deck panels to steel supporting members, side-laps between supports, and at perimeter edges by the means indicated.

1. Locate welds as indicated and comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
2. Locate mechanical fasteners as indicated and install in accordance with fastener manufacturer's written instructions.
3. Install PunchLok II side-lap connections using the PunchLok II tool as indicated.

F. End Bearing: Install deck ends over supports with a minimum end bearing of 2 inches (51 mm), or as indicated on the approved installation drawings with end joints as follows:

G. End Joints: Lapped or butted per the approved installation drawings. Laps shall be 3 inches (76 mm) minimum at open-web steel joists or 2 inches (51 mm) at other structural supports.

H. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

I. Install additional reinforcement and closure pieces as specified on the structural drawings.

J. Accessories:

1. Deck Accessories: Install and fasten steel sheet accessories in accordance with ANSI/SDI RD-2017, C-2017, NC-2017, or SDI MOC the approved installation drawings.

    a. Roof Sump Pans: Install where indicated in architectural details in openings cut in roof deck and mechanically fasten flanges to top of deck. Space mechanical fasteners not more than 12 inches (305 mm) apart with at least one fastener at each corner.
    b. Install reinforcing members as indicated to span between supports and weld or mechanically fasten.

2. Flexible Closure Strips: Install flexible closure strips over partitions, walls, where indicated. Install with adhesive in accordance with closure manufacturer's written instructions to ensure complete closure.
3. Sound-Absorbing Insulation for non-cellular acoustical decks: Install into topside ribs of deck before roofing insulation is applied.

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Special inspections and qualification of welding special inspectors for cold-formed steel floor and roof deck in accordance with quality-assurance inspection requirements of ANSI/SDI QA/QC.

    a. Field Weld Inspection and Other Inspections: As indicated on structural drawings.
    b. PunchLok II Connections: Inspect to ensure the sidelap material has been sheared and offset so the sheared surface of the male leg is visible in the cut.
    c. Sidelap Screw Connections: Inspect to ensure the proper size and number of screw attachments per span have been installed between supports.
    d. Support Connections: Inspect to ensure the proper size and number of attachments per deck sheet have been installed. Verify fasteners are installed

per the manufacturer's instructions and quality assurance requirements.

e. Other Attachments of Deck and Accessories: Inspect according to manufacturer's instructions and quality assurance requirements, or per industry standards.

3.5 CLEANING AND PROTECTION

A. Clean products in accordance with the manufacturers recommendations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 053100

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SECTION 054000 – COLD FORMED FRAMING

1.1 SECTION INCLUDES

A. Load-bearing steel stud exterior and interior wall framing.

B. Non-load-bearing steel stud exterior and interior wall framing.

C. Steel soffit framing.

D. Steel ceiling joist framing.

E. Steel stud truss framing.

1.2 RELATED SECTIONS

A. Division 01: Administrative, procedural, and temporary work requirements.

1.3 REFERENCES

A. American Iron and Steel Institute (AISI):

1. Specification for the Design of Cold-Formed Steel Structural Members.
2. AISI S210 - North American Standard for Cold-Formed Steel Framing - Floor and Roof System Design.
3. AISI S211 - North American Standard for Cold-Formed Steel Framing - Wall Stud Design.
4. AISI S212 - North American Standard for Cold-Formed Steel Framing - Header Design.
5. AISI S213 - North American Standard for Cold-Formed Steel Framing - Lateral Design.

B. American Society of Civil Engineers (ASCE):

1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. American Welding Society (AWS):

1. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.

D. ASTM International (ASTM):

1. A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process..
2. A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
3. A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
4. C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.
5. C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
6. C1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.

E. Steel Stud Manufacturer's Association (SSMA):
1. Member Directory.

F. Society for Protective Coatings (SSPC):
1. Painting Manual.

1.4 SUBMITTALS

1.5 Include the following for submission of shop drawings, product data, and samples for the Architect's review.

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data:

1. Product Data: Framing components, sizes, materials, finishes, and accessories.
2. Manufacturer's data sheets on each product to be used.
3. Preparation instructions and recommendations.
4. Storage and handling requirements and recommendations.
5. Typical installation methods.

C. Verification Samples: Two representative units of each type, size, pattern and color.

D. Shop Drawings: Framing layout, components, connections, fastenings, and pertinent details.

E. Quality Control Submittals:

1. Certificates of Compliance: Certificate from Professional Structural Engineer responsible for system design that system was designed in accordance with Contract Document requirements, applicable Building Code, and generally accepted engineering practices.
2. Welder Certifications: As required by AWS D1.3/D1.3M.

F. Sustainable Design Submittals:

1. Recycled Content.
2. Regional Materials.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Current member of SSMA.

B. Installer Qualifications: Minimum 5 years documented experience in work of this Section.

C. Welder Qualifications: AWS D1.3/D1.3M.

D. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

E. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.

1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.

2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
3. Retain mock-up during construction as a standard for comparison with completed work.
4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

B. Protect from damage due to weather, excessive temperature, and construction operations.

1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.10 WARRANTY

A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers Association: The Steel Stud Manufacturer's Association, who's members cover all US Territories. The SSMA's headquarters is located at: 201 N. Maple Grove Rd. Suite 100; Boise, ID 83704; Phone: 208-229-7660; Email: info@ssma.com; Web: www.ssma.com.

B. Acceptable Association Manufacturers:
1. Consolidated Fabricators Corporation. (www.confabbpd.com)
2. Custom Stud, Inc. (www.customstud.com)
3. Frametek Steel Products. (www.frametеksteel.com)
4. Olmar Supply Inc. (www.olmarsupply.com)
5. SCAFCO Corporation. (www.scafco.com)
6. Steel Construction Systems. (www.steelconsystems.com)
7. United Metal Products, Inc. (www.unitedmetalproducts.info)
8. Novus Advanced Manufacturing (https://novussteel.us)

C. Substitutions: Not permitted.

D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 PERFORMANCE REQUIREMENTS

A. Calculate structural properties of framing members in accordance with AISI

Specifications; AISI S210, AISI S211, AISI S212, and AISI S213.

B. Design framing under direct supervision of a Professional Structural Engineer with experience in the work of this Section and licensed in State in which Project is located.
   1. Professional Structural Engineer: 2 years documented experience in work of this Section.
   2. Professional Structural Engineer: ____ years documented experience in work of this Section.

C. Design exterior wall stud system and/or roof trusses to withstand:

   1. Live and dead loads in accordance with Florida Building Code 8th Ed. (2023).
   2. Wind pressure loads in accordance with ASCE 7-22.
   3. Movement Due to Temperature Variances:

      a. Ambient temperature range of 120 degrees F (49 degrees C).
      b. Surface temperature range of 160 degrees F (71 degrees C).

   4. Maximum Deflection Under Loading: L/360 without sheathing materials.
   5. Minimum Vertical Deflection of Structure: 1/2 inch (13 mm).

D. Design system to accommodate construction tolerances, deflection of building structural members, and clearances at openings.

2.3 MATERIALS

A. Framing Materials:

   1. ASTM A653/A653M or A1003/A1003M.

      a. Galvanized Sheet Steel: G90 coating class.

   2. Minimum sheet steel Thickness: 0.054 inch (1.37 mm)
   3. Fabricate components to ASTM C955.
   4. Studs: SSMA stud profile, C-shaped, punched for utility access.
   5. Studs and Joists: SSMA stud profile, C-shaped, punched for utility access.
   6. Tracks:

      a. SSMA stud track profile, C-shaped, same gage and depth as studs, unpunched.
      b. Top Track: Deflection type, deep leg track with slotted screw holes.

         1) Allowable overhead structure movement without framing damage:

            a) Plus or minus 1/2 inch (13 mm).

      c. Top and Bottom Track: 1-1/4 inch (32 mm) high legs.
      d. Bottom Track: 1-1/4 inch (32 mm) high legs.
      e. Rim Track: Provide closure for ends of joists.

2.4 ACCESSORIES

A. Bracing, Furring, Bridging and Web Stiffeners: Formed sheet steel, thickness determined by performance requirements specified.

B. Plates, Gussets, Clips: Formed sheet steel, thickness determined by performance requirements specified.

C. Fasteners: ASTM C1513; self-drilling, self-tapping screws.

D. Touch Up Paint: SSPC Paint 20, Type I or II.

E. Welding Electrodes: AWS D1.3/D1.3M; type required for materials being welded.

2.5 FABRICATION

A. Prefabrication of Framing Components:
1. Using templates.

B. Field Fabrication: Prohibited except for minor alterations to accommodate site conditions.

C. Cut members square and with tight fit to adjacent framing.

D. Component Assembly Methods:

1. Screw connection.
2. Welding. Welding to conform to AWS D1.3/D1.3M.
3. Clinching.

E. Fabricate straight, level, and true, without warp or rack.

F. Fabrication Tolerances: In accordance with ASTM C955.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

A. Install framing components in accordance with ASTM C1007, manufacturer's instructions, and approved Shop Drawings.

B. Welding: In accordance with AWS D1.3/D1.3M.

C. Make provisions for erection stresses. Provide temporary alignment and bracing.

3.2 INSTALLATION - AXIALLY LOADED STUD FRAMING

A. Place top and bottom tracks in straight lines with ends butted.

1. Fasten tracks at maximum 12 inches (305 mm) on center.

B. Stud Spacing: As indicated on the Drawings

1. Space studs at 2 inches (51 mm) from abutting walls and each side of openings.

C. Connect studs to top and bottom tracks.

D. Construct corners using minimum of three studs.

E. Do not splice studs.

F. Erect, brace, and reinforce stud framing to develop strength to achieve design requirements.

G. Install headers above openings and intermediate studs above and below openings to align with wall stud spacing.

H. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

I. Diagonally brace walls at location indicated for shear construction.

3.3 INSTALLATION - NON-AXIALLY LOADED STUD FRAMING

A. Place top and bottom tracks in straight lines with ends butted.

1. Fasten tracks at maximum 12 inches (305 mm) on center.

B. Place Studs at Spacing Indicated:

1. Place studs 2 inches (51 mm) from abutting walls and at each side of openings.

C. Install deflection compensating top track at framing extending to underside of structure.

D. Connect studs to top and bottom tracks.

E. Construct corners using minimum of three studs.

F. Do not splice studs.

G. Erect, brace, and reinforce stud framing to develop strength to achieve design requirements.

H. Install headers above openings and intermediate studs above and below openings to align with wall stud spacing.

I. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

J. Laterally brace walls at locations indicated.

3.4 INSTALLATION - TRUSSES

A. Place trusses at spacings indicated.

B. Make provisions for erection stresses. Provide temporary alignment and bracing.

C. Set trusses parallel and level; install lateral bracing and bridging as required.

3.5 INSTALLATION TOLERANCES

A. In accordance with ASTM C1007.

3.6 FIELD QUALITY CONTROL

A. Testing and Inspection Services: Inspect and test shop and field welds in accordance with AWS D1.3/D1.3M.

3.7 ADJUSTING

A. Clean and touch up galvanized coatings at welded and abraded surfaces in

accordance with:

1. ASTM A780, Annex A1. Repair Using Zinc-Based Alloys requires heating the surface to 600 degrees F and using repair sticks that melt on contact.
2. ASTM A780, Annex A2. Repair Using Paints Containing Zinc Dust.
3. ASTM A780, Annex A3. Repair Using Sprayed Zinc aka. Metallizing, requires blast cleaning of affected areas and special application equipment.

END OF SECTION 054000

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SECTION 07 17 16 – BENTONITE WATERPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bentonite composite sheet waterproofing
2. Molded sheet drainage panels

1.2 RELATED REQUIREMENTS

1. Section 03 10 00 "Cast-in-Place Concrete" for forms, waterstops, and concrete placement.

2. Division 07 waterproofing and air barrier Sections for flexible flashing that may be part of adjoining waterproofing and air barrier work.

3. Section 31 202 00Earthwork for excavating and backfilling[, including requirements for preparation of substrates to receive bentonite waterproofing].

4. Section 31 22 22 - Trenching Backfilling" for permanent below-grade support systems that require blind-side waterproofing[, including requirements for preparation of substrates to receive bentonite waterproofing].

B. References, General: Versions of the following standards current as of the date of issue of the project apply to the Work of this Section.

C. ASTM International (ASTM): www.astm.org:

1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants
2. ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
3. ASTM D5385 - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
4. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
5. ASTM E96/E 96M - Standard Test Methods for Water Vapor Transmission of Materials
6. ASTM D1004 Test Method for initial Tear Resistance of Plastics Film and Sheeting
7. ASTM D1505 Test Method for Density of Plastics by the Density-Gradient Technique
8. ASTM D1603 Test Method for Carbon Black in Olefin Plastics
9. ASTM D3895 Test Method for Oxidative Induction Time of Polyolefin’s by Thermal Analysis
10. ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
11. ASTM D5199 Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
12. ASTM D5397 Procedure to perform a single Point Notched Constant Tensile Load – (SP-NCTL) Test; Appendix
13. ASTM D6392 Determining the Integrity of Non-Reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
14. ASTM D6693 Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes

D. U. S. Environmental Protection Agency (EPA): www.epa.gov:

1. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Conference: Conduct conference at Project Site.

1. Review requirements for waterproofing products and installation, including surface preparation, substrate conditions, project and manufacturer's details, installation procedures, mockups, testing and inspection requirements, protection and repairs, and coordination and sequencing of waterproofing work with work of other Sections.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of waterproofing product specified, including:

1. Technical data indicating compliance with requirements.

2. Substrate preparation instructions and recommendations.

B. Shop Drawings: Show locations for waterproofing system components. Show details for each type of substrate, joints, corners, and edge conditions, including flashings, counterflashings, penetrations, transitions, and terminations.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type of HDPE/bentonite waterproofing, from manufacturer.

B. Qualification Data: For Installer, manufacturer[, and waterproofing Inspector].

1. Certification of manufacturer's approval of Installer.

C. Product Test Reports: Test data for waterproofing products and waterproofing system, by qualified testing agency, indicating proposed waterproofing meets performance requirements, when requested by Architect.

D. Warranty: Sample of manufacturer and installer special warranties.

E. Field quality control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A manufacturer-approved firm with minimum [three] years experience in installation of specified products in successful use on similar projects, employing workers trained by manufacturer, including a full-time on-site supervisor with a minimum of [ten] years experience installing similar work, and able to communicate verbally with Contractor[, Architect,] and employees.

B. Manufacturer Qualifications: A qualified manufacturer with minimum thirty years experience in manufacture of waterproofing as one of its principal products. Manufacturer shall provide field service representation during construction, approving an acceptable installer, recommending appropriate installation methods, and conducting a final field visit of the waterproofing system applied.

1. Manufacturer's product submitted has been in satisfactory operation on five similar installations for at least ten years.

2. Approval of Manufacturers and Comparable Products: [Submit] [Prime Bidder must submit] the following in accordance with project substitution requirements, within time allowed for substitution review:

a. Product data

b. Sample shop drawings from similar project.
c. Project references: Minimum of five installations of similar system not less than ten years old, with Owner and Architect contact information.
d. Name and resume of proposed qualified Inspector.
e. Sample warranty from the manufacturer or applicator.

C. Pre-Waterproofing Conference: Hold a pre-waterproofing installation meeting prior to commencement of field installation to establish procedures to maintain required working conditions and to coordinate section work with shotcrete installation and adjacent work. Verify that final waterproofing details comply with waterproofing manufacturer's current installation requirements and recommendations. manufacturer's representative, Waterproofing Foreman, Consultant, and all other pertinent parties shall attend this meeting.

D. Water sample test: Waterproofing contractor shall supply project site water sample to waterproofing membrane manufacturer for analysis. Manufacturer shall conduct test free of charge. Contractor is responsible for collection and shipment of two (2) liter of actual site water. Ship the water in uncontaminated, sealed plastic containers. Ship the sample to Tremco. Provide the project name, city and state along with the return address to forward test results.

E. Mockups: Provide waterproofing mockup application within mockups required in other sections, or if not specified, in an area of not less than 150 sq. ft. (14 sq. m) of surface where directed by Architect for each type of substrate condition. Include examples of surface preparation, crack and joint treatment, waterproofing application, and flashing, transition, and termination conditions, to set quality standards for execution.

1. Include intersection of waterproofing with adjacent waterproofing and moisture control systems.

1.7 DELIVERY, STORAGE AND HANDLING

A. Accept materials on site in manufacturer's unopened original packaging.

B. Store products in weather protected environment, clear of ground and moisture, within temperature ranges recommended by waterproofing manufacturer.

C. Construction Waste: Store and dispose of packaging materials and construction waste in accordance with requirements of Division 01 Section Temporary Facilities and Controls."

1.8 ENVIRONMENTAL REQUIREMENTS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit bentonite waterproofing to be installed according to manufacturers' written instructions and warranty requirements.

1. Do not install waterproofing or weld seams during rain, mist or heavy fog. If rain, mist or snow is anticipated before the membrane is compacted below-grade, cover any exposed bentonite or seams with min. 6 mil polyethylene sheet.

2. Placing bentonite clay products on damp surfaces is allowed if approved in writing by manufacturer.

1.9 SCHEDULING

A. Schedule work so waterproofing applications may be inspected prior to concealment.

1.10 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which waterproofing manufacturer agrees to furnish waterproofing material to repair or replace those materials installed according to manufacturer's written instructions that exhibit material defects or otherwise fail to perform as specified under normal use within warranty period specified.

1. Access for Repair: Owner shall provide unimpeded access to the Project and the waterproofing system for purposes of testing, leak investigation, and repair, and shall reinstall removed cladding and overburden materials upon completion of repair.

2. Cost Limitation: Manufacturer's obligation for repair or replacement shall be limited to the replacement cost of materials. Including labor.

3. Warranty Period: 10]years date of Substantial Completion.

4. First 2 years of labor shall be provided by the waterproofing applicator.

B. Issuance of Manufacturer's System Warranty requires the following:

1. Manufacturer's Approved Applicator to install waterproofing system.
2. In Part 3 work, install waterstops in all applicable horizontal and vertical cold-pour shotcrete construction joints and shotcrete lift joints. Manufacturer's warranty shall be independent from any other warranties made by the Contractor under requirements of the Contract Documents and may run concurrent with said warranties.
3. PRODUCTS

1.11 MANUFACTURERS

A. Basis-of-Design Products: Provide waterproofing products manufactured by **Tremco, Inc., Commercial Sealants and Waterproofing Division,** Beachwood OH; (866) 321-6357; email: techresources@tremcoinc.com; www.tremcosealants.com.

B. Source Limitations: Provide waterproofing system materials and accessory products from Tremco, a single-source system manufacturer

1.12 PERFORMANCE REQUIREMENTS

A. General: Waterproofing system shall be capable of performing as a continuous watertight installation and as a moisture drainage plane transitioned to adjacent flashings and discharging water to the building exterior. Waterproofing shall accommodate normal substrate movement, construction material transitions, opening transitions, penetrations, and perimeter conditions without resultant moisture deterioration.

B. Compatibility: Provide waterproofing system materials that are compatible with one another and with adjacent materials under conditions of service and application required, as demonstrated by waterproofing manufacturer based on testing and field experience.

1.13 WATERPROOFING MEMBRANE

A. Composite HDPE/Bentonite Membrane with Protective Facing: Composite membrane consisting of granular bentonite laminated to a 60-mil (1.5 mm) thick HDPE geomembrane liner for a composite weight of up to 1.0 lb/sq. ft. (4.88 kg/sq. m).

1. Products: Subject to compliance with requirements, [available products that may be incorporated into the Work include, but are not limited to, the following:

a. Basis of Design Product:**Tremco, Inc., Paraseal GM/LG - 60 mil**
b. Puncture Resistance: 400 lbf (1.78 kN) according to ASTM E 154.
c. Tensile Strength, Membrane: 4,000 psi (27.58 MPa) according to ASTM D 412.
d. Elongation, Percent: 700 percent according to ASTM D 412.
e. Resistance to Hydrostatic Head: 230 ft. (70.1 m) according to ASTM D 5385.
f. Vapor Permeance: 0.03 perms according to ASTM E 96.
g. VOC Content: 0 g/L.

1.14 ACCESSORY MATERIALS

A. Granular Bentonite: Sodium bentonite clay containing a minimum of 90 percent montmorillonite (hydrated aluminum silicate), with a minimum of 90 percent passing a No. 20 (0.85-mm) sieve.

a. Basis of Design Product – **Tremco, Inc., Paragranular**

B. Bentonite Mastic: Trowelable consistency, bentonite compound, specifically formulated for application at joints and penetrations.

a. Basis of Design Product – **Tremco, Inc., Paramastic**

C. Termination Bar: Extruded-aluminum or formed-stainless-steel bars with upper flange to receive sealant.

a. Basis of Design Product – **Tremco, Inc., Paraterm Bar**

D. Plastic Protection Sheet: Polyethylene sheeting complying with ASTM D 4397; thickness recommended by waterproofing manufacturer to suit application but at least 6 mils (0.15 mm) thick.

E. Cement Grout Patching Material: Manufacturer's recommended grout mix compatible with substrate being patched.

F. Masonry Fasteners: Case-hardened nails or hardened-steel, powder-actuated fasteners. Depending on manufacturer's written requirements, provide 1/2- or 1-inch- (12- or 25-mm-) diameter washers under fastener heads.

G. Tapes: Waterproofing manufacturer's recommended tape for joints between sheets, membranes, or panels. Use with recommended adhesive bonding primer.

1. Reinforced Overlap Seam Tape: Reinforced, rubberized-asphaltic waterproofing seam tape 4-inch (102 mm) wide by 60 mils (1.5 mm) thick for sealing membrane overlaps.

a. Basis of Design Product **– Tremco, Inc., Permanent Seam Tape**

2. Non-Reinforced Overlap Tape: Non-reinforced, adhesive tape of partially cross-linked polymeric elastomers 2 by 1/8 inch (50 by 3.2 mm) for molding form-fit seals around contours and for taping seams within overlaps.

a. Basis of Design Product – **Tremco, Inc., Para JT**

3. Bentonite Laminate Tape: Pressure sensitive, double-sided tape laminate of bentonite sandwiched between a netting and non-woven fabric for wrapping through-concrete imbeds and other detailing.

a. Basis of Design Product – **Tremco, Inc., Parastick 'n' Dry**

H. Sealants: As recommended in writing by waterproofing manufacturer. Comply with requirements specified in Division 07 Section "Joint Sealants."

a. Basis of Design Product – **Tremco, Inc., Dymonic 100**

I. Waterstops: Flexible, reinforced, bentonite-laminate waterstop strips 1/2 by 1 inch (12 by 25 mm) with pressure-sensitive adhesive backing for sealing static cold joints in concrete.

a. Basis of Design Product – **Tremco, Inc., Superstop**

J. Joint Sealants: Termination Seals:

1. Single Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT:

a. Basis of Design Product – **Tremco, Inc., Dymonic 100**

1.15 WATERPROOFING PROTECTION AND DRAINAGE

A. Protection Course: Not required

B. **Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel**: Manufactured composite subsurface drainage panels consisting of a nonwoven, spun-bonded polypropylene facing laminated to one side of a studded, non-biodegradable, polystyrene drainage core.

1. Basis of Design: **Tremco, TREMDrain.**
2. Flow Capacity, per unit width, ASTM D 4716: 9 gpm/ft. (112 lpm/m).
3. Flow Rate, ASTM D 4491: 165 gpm/ft2 (6,724 lpm/m2).
4. Apparent Opening Size: No. 70 sieve (210 micron).
5. Puncture Strength, ASTM D 4833: 65 lb (289 N).
6. Core Compressive Strength, ASTM D 1621: 10,800 lb/ft2 (527 kN/m2).
7. Thickness: 0.25 inch (6.35 mm).
8.

PART 2 - EXECUTION

2.1 EXAMINATION

A. Surface Condition: Before applying waterproofing materials, examine substrate and conditions to ensure substrates and conditions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 INTERFACE WITH OTHER WORK

A. Sequencing of Work: Coordinate sequencing of waterproofing work with work of other sections that form portions of building envelope moisture control to ensure that flashings and transition materials can be properly installed and inspected.

B. Subsequent Work: Coordinate waterproofing work with work of other sections installed subsequent to waterproofing to ensure complete inspection of installed waterproofing and sealing of waterproofing penetrations necessitated by subsequent work.

2.3 PREPARATION

A. Clean, prepare, and treat substrates.

B. Formed Concrete Surfaces: Remove fins and projections. Fill voids, rock pockets, form-tie holes, and other defects greater than 1/2 inch (12 mm) in depth in accordance with manufacturer's written instructions.

C. Excavation Support and Protection System: If water is seeping, use plastic protection sheets or other suitable means to prevent wetting the bentonite waterproofing. Fill minor gaps and spaces 1 inch (25 mm) wide or wider with wood, metal, concrete, or other appropriate filling material. Cover or fill large voids and crevices with cement mortar.

2.4 INSTALLATION, GENERAL

A. Install waterproofing and accessories according to manufacturer's written instructions.

1. Apply Paragranular around penetrations in horizontal surfaces and changes in plane according to manufacturer's details.

2. Apply Paramastic at changes of plane, construction joints in substrate, projections, and penetrations.

3. The HDPE liner system shall be installed as shown on the Contract Drawings and as recommended by the manufacturer. Where manufacturer installation guidelines are more stringent that specified herein, the manufacturer guidelines shall be adhered to. The Contractor shall be responsible for quality assurance during the installation procedures.

B. The Installer, the waterproofing material manufacturer's representative, and the Waterproofing Consultant shall examine the substrates and other conditions under which this section's work shall be performed. The Waterproofing manufacturer's representative shall provide a letter chronicling all circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected and are acceptable for compliance with manufacturer's warranty requirements.

C. The Shoring Contractor shall install cement board at grade line over future cuts in the beams to prevent damage to the waterproofing membrane or the Contractor may precut the front side of the steel "I" beams.

2.5 SURFACE PREPARATION

A. Protect adjacent work areas and finish surfaces from damage or contamination from waterproofing products during installation operations.

B. Under Slab Assembly: A minimum 2-inch mud slab shall be installed across the entire project site with the membrane system being installed on top of the mud slab. A second 2-inch protection slab shall be poured over the membrane to provide a protection surface. A mat slab will be poured in appropriate sequencing.

C. Wood lagging shoring: Excavation contractor shall provide wood lagging shoring extending to the lowest level of the waterproofing installation. All lagging boards in hydrostatic condition must be grouted in place. Any voids or cavities exterior of the lagging filled cementitious grout. Interior surface of lagging boards should be monolithic and tight together with gaps less than ½” inch. Fill gaps in excess of ½” inch with cementitious grout.

D. Clean expansion joints, prime, fit with a proper compression seal product and seal with polyurethane sealant or applicable expansion joint assembly product manufactured by others. Expansion joint material manufacturer is responsible for water tightness of the expansion joint material.

E. At all locations where water seepage is occurring through wood lagging, Contractor shall install a 12-mil thick visqueen layer directly over the lagging prior to installation of the waterproofing system.

2.6 FIELD SEAMS AND PANEL OVERLAPS

A. Seams shall meet the following requirements:

1. Maximum extent possible, orient seams parallel to line of slope, i.e., down and not across slope.
2. Minimize number of field seams in corners, odd-shaped geometric locations and outside corners.
3. Slop seams (panels) shall extend minimum of five-feet beyond grade break into flat area.
4. Align seam overlaps consistent with requirements of welding equipment being used. 5 to 6-inch overlap is commonly suggested.
5. Provide at least one Certified Applicator who shall provide direct supervision over other welders as necessary.

B. Extrusion Welding

1. Hot air tack adjacent pieces together using procedures that do not damage the Geomembrane.
2. Clean Geomembrane surface by disc grinder or equivalent.
3. Purge welding apparatus of heat-degraded extrudate before welding.

C. Hot-Wedge Welding

1. Welding apparatus shall be self-propelled device equipped with electronic controller that displays applicable temperatures.
2. Clean seam area of dust, mud, moisture and debris immediately ahead of hot wedge welder.
3. Protect against moisture build-up between sheets

D. Penetrations

1. Provide all necessary details and materials to properly seal any penetrations to the Geomembrane (i.e. boots, gaskets and clamps).
2. Install in accordance with manufacturer’s recommendations

E. Trial Welds

1. Perform trial welds on Geomembrane samples to verify welding equipment is operating properly.
2. Make trial welds under same surface and environmental conditions as production welds, i.e., in contact with subgrade and similar ambient temperature.
3. Minimum of two trial welds per day, per welding apparatus, one made prior to start of work and one completed at mid shift
4. Cut four, one-inch wide by six-inch ling test strips from the trial weld.
5. Quantitatively test specimens for peel adhesion, and then for shear strength.
6. Trial weld specimens shall pass when the results are achieved in both peel and shear test.
    a. Peel strength (fusion): 98 pounds per inch, ASTM D 6392.
    b. Peel Strength (extrusion): 78 pounds per inch, ASTM D 6392.
    c. Shear Strength: 121 pounds per inch, ASTM D 6392.

7. The break, when peel testing, occurs in the liner material itself, not through peel separation (FTB).

8. The break is ductile.

9. Repeat the trial weld, in it's entirely, when any of trial weld samples fail in either peel or shear.

10. No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed trial weld.

11. Seaming shall not proceed when ambient air temperature or adverse weather conditions jeopardize integrity of liner installation. Contractor shall demonstrate that completing acceptable trial welds can perform acceptable seaming.

12. Field seams shall be tested using appropriate test standards and manufacturers recommended and approved methods. The testing of the field seams shall be the responsibility of the Contractor and should meet the QC criteria recommended by the manufacturer. The methods applied for testing field seams or wells shall include non-destructive testing, destructive testing, field vacuum testing, laboratory testing, etc., and other recommended and applicable tests.

13. Upon completed tests on the exposed black H.D.P.E. seams, install a continuous layer of three inch wide Para Stick N' Dry tape over, adhere with Paraprimer.

2.7 MEMBRANE INSTALLATION OVER COMPOSITE DRAINAGE BOARD AT LAGGING WALLS

A. Install Paraseal GM membrane with the gray, bentonite side to be in direct contact with shotcrete and over a continuous layer of TREMdrain drainage board.

B. On shoring walls to receive shotcrete, install membrane with a minimum 6 inch sheet edge overlaps. Tack membrane to highest point of shoring. All overlaps must be either extrusion or wedge welded. Upon completion install a three wide strip of Para Stick N' Dry tape centered over completed HDPE weld and adhere with Paraprimer.

C. Verify which penetrations must be accessed after concrete placement for completion of waterproofing detail treatment and ensure that sufficient access to membrane is provided within a wood formed box out; verify which penetrations will not be accessed after concrete placement for completion of waterproofing detail treatment and ensure that final detailing procedures are completed prior to shotcreting/guniting; waterproof penetrations in accord with manufacturer's current procedures; contact manufacturer for procedures at project conditions not provided in installation manuals.

D. There should be no rebar anchorage & shotcrete wire screed pins that penetrate into the installed membrane. Threaded rods must be welded to the face of the steel "I" beam. Cut Paraseal GM close around welded rod. Install closed cell neoprene rubber washer with galvanized square plate washers placed over and bolt down tight to compress rubber washers with 1/2 inch stainless steel nut and washer. Finally, caulk over entire assembly with either Vulkem 116 or Dymeric 240 FC polyurethane sealant.

E. Prevent waterproofing products from hydrating before material is contained with concrete, shotcrete, or backfill. When threat of rain is imminent, installed products not already contained should be covered with polyethylene sheeting to decrease the chance of hydration. After any precipitation, pump standing water off waterproofing as soon as possible and repair damaged membrane.

F. Inspect finished membrane installation and repair any damaged material prior to shotcrete placement. **Assure that membrane is not displaced during shotcrete placement.**

G. Complete waterproofing details and terminations at grade line coordinating with other trades.

H. Cut and secure to fit tightly around all tieback heads. Then install 26 gauge fabricated sheet metal cover over tieback head. Prior to installing cover, fill cavity of cover with a 50/50 mix of mastic and water stoppage (granular bentonite). Secure flanges of metal cover to lagging with fasteners. Cut and secure an extra section of membrane around the sheet metal cover; installing the membrane section over the flanges and extending outward from the cover a minimum 12-inch radius. Finally, detail around the base of sheet metal cover with ¾" inch cant of mastic. A preformed TB-boot can be used in lieu of the fabricated sheet metal box as a tie-back head cover following the instructions above.

2.8 MEMBRANE INSTALLATION AT CMU BLOCK WALLS

A. Install membrane sheets in vertical or horizontal lifts with HDPE-side facing applicator to prepared surfaces conforming to manufacturer's requirements.

B. Securely fasten membrane sheets to wall surfaces with fasteners along top edge at 12 inches on center. Securely fasten at 24 inches on center along vertical edge to be overlapped by subsequent membrane sheet. Align fasteners to be fully covered by overlapping membrane.

C. Install subsequent membrane sheets to overlap previous sheets 3-1/2 inches. Align overlaps and effect overlap seals.

D. Start horizontal orientation at lowest portion of wall and overlap in shingle fashion with staggered end laps.

E. Extend membrane onto footing surfaces 6-inch minimum. Overlap below-slab membrane 6-inch minimum. Securely fasten 18 inches on center to tops of footings and horizontal shelves. Cover fasteners completely with seam tape and roll-press affecting a vapor tight seal.

F. Waterproof penetrations in accord with manufacturer's recommendations to affect a vapor tight seal.

G. Install composite drainage board over entire membrane surface in accordance with manufacturer's installation criteria.

2.9 FIELD QUALITY CONTROL

A. Contractor's Inspector: Contractor shall engage manufacturer's qualified Inspector full-time during the Work to perform tests and inspections, including documenting of waterproofing prior to concealment.

1. Continuous non-destructive testing of all membrane seams in accordance with

a. Vacuum Test: In accordance with ASTM D 5641, Geomembrane Seam Evaluation by Vacuum Chamber

b. Air Pressure Testing: in accordance with ASTM D 5820, Pressurized Air Channel Evaluation of Dual Seamed Geomembranes

c. Copper Spark Test: In accordance with ASTM D6365, Testing Extrusion Weld Seams with embedded copper wire

2. Provide written report of tests and inspections.

B. Correction: Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements.

C. Defects and Repairs

1. Examine all seams and non-seam areas of the Geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter.

2. Repair and non-destructively test each suspect location in both seam and non-seam areas. Do not cover Geomembrane at locations that have been repaired until test results with passing values are available.

3. Remove damaged Geomembrane and replace with acceptable Geomembrane materials if damage cannot be satisfactorily repaired.

4. Repair any portion of unsatisfactory Geomembrane or seam area failing destructive or non-destructive test.

5. Contractor shall be responsible for repair of defective areas.

6. Agreement upon appropriate repair method shall be decided between Architect and Contractor by using one of the following repair methods:

    a. Patching – Used to repair large holes, tears, undispersed raw materials and contamination by foreign matter.
    b. Abrading and Re-welding used to repair short section of seam.
    c. Spot Welding – Used to repair pinholes or other minor, localized flaws or where Geomembrane thickness has been reduced.
    d. Capping – Used to repair long lengths of failed seams.
    e. Flap Welding – Used to extrusion weld the flap (excess outer portion) of fusion weld in lieu of full cap.
    f. Remove unacceptable seam and replace with new material.

7. The following procedures shall be observed when repair method is used:

    a. Geomembrane surfaces shall be clean and dry at time of repair.
    b. Surfaces of polyethylene that are to be repaired by extrusion welds shall be lightly abraded to ensure cleanliness.
    c. Extend patches or caps at least 6 inches for extrusion welds and 4-inches for wedge welds beyond edge of defect, and around all corners of patch material.

8. Repair Verification

    a. Number and log each patch repair.
    b. Non-destructively test each repair using methods epecified in this specification.

2.10 CLEANING AND PROTECTING

A. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.

B. Protect waterproofing from damage from subsequent work. Protect waterproofing materials from exposure to UV light for period in excess of that acceptable to waterproofing manufacturer; replace overexposed materials and retest.

END OF SECTION 07 17 16.05

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SECTION 08 33 00
INSULATED ROLLING SERVICE DOOR
Gulf Coast State College - Nursing Simulation Building

PART 1 GENERAL

1.1 SUMMARY

A. **Section Includes:** Manual overhead insulated rolling doors.

B. Related Sections:
1. 05 50 00 Metal Fabrications. Door opening jamb and head members.
2. 06 10 00 Rough Carpentry. Door opening jamb and head members.
3. 08 31 00 Access Doors and Panels. Access doors.
4. 08 70 00 Hardware. Padlocks. Masterkeyed cylinder.
5. 09 91 00 Painting. Field painting.
6. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, and installation of control station and wiring.

C. Products That May Be Supplied, But Are Not Installed Under This Section:
1. Control Station

1.2 SYSTEM DESCRIPTION

A. Design Requirements:
1. Air Infiltration to Comply With:
a. **ASHRAE®** (American Society of Heating, Refrigeration, and Air-Conditioning Engineers) Standard 90.1-2007, 2010 & 2013 requirements of less than .3 CFM/FT2
b. **IECC®** (International Energy Conservation Code) 2021 requirements of less than 1.0 CFM/FT2

2. Wind Loading:
a. Supply doors to withstand up to designed wind load

3. Cycle Life:
a. Design doors of standard construction for normal use of up to 20 cycles per day maximum, and an overall maximum of 50,000 operating cycles for the life of the door

4. Seismic Performance:
a. Provide manufacturer's seismic calculations confirming ASCE7-10

5. Insulated Door Slat Material Requirements:
a. Flame Spread Index of 0 and a Smoke Developed Index of 10 as tested per ASTM E84
b. Sound Transmission Class (STC) rating up to 30 for the entire assembly. If an STC of 32 is desired, additional options are required. All configurations are evaluated per ASTM E90 and based on testing a complete, operable assembly
c. Minimum R-value of 8.0 (U-value of 0.125) as calculated using the ASHRAE Handbook of Fundamentals
d. Insulation to be CFC Free with an Ozone Depletion Potential (ODP) rating of zero

6. Safety:
a. Chain operated doors shall be designed so that the door immediately stops upward or downward travel and is maintained in a stationary position when the hand chain is released by user.

1.3 SUBMITTALS

A. Reference Section 01 33 00 Submittal Procedures; submit the following items:

1. Product Data

2. **Shop Drawings:** Include special conditions not detailed in Product Data. Show interface with adjacent work.

3. Quality Assurance/Control Submittals:
- a. Provide manufacturer ISO 9001:2015 registration
- b. Provide manufacturer and installer qualifications - see below
- c. Provide manufacturer's installation instruction
- d. Provide manufacturer's Health Product Declaration (HPD) for each product
- **e. Manufacturer must provide independent testing lab results proving .3 CFM/FT2 or less air infiltration**

4. Closeout Submittals:
- a. Operation and Maintenance Manual
- b. Certificate stating that installed materials comply with this specification

1.4 QUALITY ASSURANCE

A. Qualifications:
1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years experience in producing doors of the type specified

2. **Installer Qualifications:** Manufacturer's approval

1.5 DELIVERY STORAGE AND HANDLING

A. Reference Section 01 66 00 Product Storage and Handling Requirements

B. Follow manufacturer's instructions

1.6 WARRANTY

A. **Standard Warranty:** Two years from date of shipment against defects in material and workmanship

B. **Maintenance:** Submit for owner's consideration and acceptance of a maintenance service agreement for installed products

PART 2 PRODUCT

2.1 MANUFACTURER

A. Manufacturer:
1. **Cornell:** 24 Elmwood Avenue, Mountain Top, PA 18707.
Telephone: Meghan Joseph (727) 318-0929
2. Cookson
3. **Clopay Building Products**

Substitutions: Not permitted

2.2 PRODUCT INFORMATON

A. **Model:** ESD30

2.3 MATERIALS

A. Curtain: Air infiltration rate of less than .3 CFM/FT2, as tested per ASTM E283 validated by an independent testing agency. **Test report required.**
1. Fabrication:
a. Slat Material:

1) **Galvanized Steel/Galvanized Steel:** Manufacturer recommended gauge based on performance requirements. Minimum 24/24 gauge, Grade 40, ASTM A 653 galvanized steel zinc coating

b. **Insulation:** 7/8 inch (22 mm) foamed-in-place, closed cell urethane
c. **Total Slat Thickness:** 15/16 inch (24 mm)
d. **Flame Spread Index** of 0 and a **Smoke Developed Index** of 10 as tested per ASTM E84
e. **R-value**: 8.0
f. **STC Rating:** Sound Transmission Class (STC) rating up to 30 for the entire assembly. If an STC of 32 is desired, additional options are required. All configurations are evaluated per ASTM E90 and based on testing a complete, operable assembly

2. Exterior Slat Finish:

a

a. SpectraShield® Coating System (Color Selected by Architect):

1) **SpectraShield** color as selected by Architect from manufacturer's color range, more than 180 colors

1) **SpectraShield Ultra** – Ultra Powder Coat to be applied as a protective top coat over SpectraShield finish. Top coat is a polyester based structured wear resistant clear powder coat of 2.5-3.5 mils cured film thickness. ASTM D-3363 pencil hardness: 2H or better. Tested per ASTM B117. Base coating of SpectraShield color as selected by Architect from manufacturer's color range, more than 180 colors.

B. **Endlocks:** Fabricate interlocking sections with high strength galvanized cast iron endlocks on alternate slats each secured with two ¼" (6.35 mm) rivets. Provide windlocks as required to meet specified wind load.

C. Bottom Bar

1. Configuration:

a. **Insulated Bottom Bar:** Reinforced extruded aluminum interior face with full depth insulation and exterior skin slat to match curtain material and gauge. Minimum 4" tall x 1-1/16" thickness.

2. Finish:

a. Match slats

3. **Air Infiltration Certification Label:** Must be affixed to bottom bar

D. Guides:

1. Fabrication:

a. **Thermal break required.** Minimum 3/16 inch (4.76 mm) [structural steel] angles. Provide windlock bars of same material when windlocks are required to meet specified wind load. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.Top 16 ½" (419.10 mm) of coil side guide angles to be removable for ease of curtain installation and as needed for future curtain service

2. Finish:

a. **SpectraShield® Coating System (Color to match slats):** Zirconium treatment followed by baked-on polyester powder coat, [color as selected by Architect from manufacturer's standard color range, over 180 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

E. Counterbalance Shaft Assembly:

1. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width

2. **Spring Balance:** Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque.

F. Brackets:

Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures

1. Finish:

a. Match slats

G. Hood:

Minimum 24 gauge galvanized steel reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag.

1. Finish:

a. SpectraShield® Coating System (Color to match slats):

1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding, gray baked-on base coat and gray baked-on polyester finish coat
2) Zirconium treatment followed by baked-on polyester powder coat, with [color as selected by Architect from manufacturer's standard color range, over 180 colors] [custom color as selected by Architect]; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

H. Weatherstripping:

1. Bottom Bar:

a. **Manually Operated Doors:** Replaceable, bulb-style, compressible EDPM gasket extending into guides
2. **Guides:** Replaceable vinyl strip on guides sealing against both sides of curtain
3. **Lintel Seal:** Double brush seal with EPDM sandwiched between the two brush seals at door header to impede air flow.
4. **Hood:** Neoprene/rayon baffle to impede air flow above coil

2.4 OPERATION

A. **Manual ControlGard Chain Hoist:** Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide. Chain hoist to include integral brake mechanism that will immediately stop upward or downward travel and maintain the door in a stationary position when the hand chain is released by the user

2.5 ACCESSORIES

A. Locking:

1. **Masterkeyable cylinder** operable from coil side of bottom bar, options for all types of operation. Provide interlock switches on Motor operated units.
   a. U-Change

D. **Trim Package:** Minimum 16 gauge powder coated steel to match guides

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings
B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates
C. Commencement of work by installer is acceptance of substrate

3.2 INSTALLATION

A. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports
B. Follow manufacturer's installation instructions

3.3 ADJUSTING

A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion

3.4 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.
B. Remove surplus materials and debris from the site

3.5 DEMONSTRATION

A. Demonstrate proper operation to Owner's Representative
B. Instruct Owner's Representative in maintenance procedures

END OF SECTION

SECTION 084114: ALUMINUM ENTRANCES (DOORS) (500IR)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section covers Kawneer Aluminum Entrances, including glass and glazing, door hardware, and components.

B. Types of Kawneer Aluminum Entrances include:
1. 500 IR Swing Door:
   a. Wide stile
   b. Vertical face dimension: 5" (127.0 mm)
   c. Depth: 1-3/4" (44.5 mm)
   d. High-traffic applications

C. Related Sections:
1. 072700: Air Barriers
2. 079200: Joint Sealants
3. 084313: Aluminum-Framed Storefronts
4. 084413: Glazed Aluminum Curtain Walls
5. 085113: Aluminum Windows
6. 087000: Hardware
7. 088000: Glazing
8. 280000: Electronic Safety and Security

1.3 DEFINITIONS

A. For fenestration industry standard terminology and definitions, refer to the Fenestration & Glazing Industry Alliance (FGIA) Glossary (AAMA AG-13).

1.4 PERFORMANCE REQUIREMENTS

A. General Performance:
1. Aluminum-framed entrance system shall withstand the effects of the following performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Wind Loads:

1. The entrance system shall include anchorage that is capable of withstanding the following wind load design pressures:
   a. Inward: 38.24 psf
   b. Outward: -47.87 psf
2. The design pressures are based on the 2023 Building Code, 8th Edition.

C. Air Leakage:
1. For single-acting offset pivot or butt-hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E 283 at a pressure differential of 1.57 psf (75 Pa) for single doors and pairs of doors.
2. A single 3'0" x 7'0" (915 mm x 2134 mm) entrance door and frame shall not exceed 1.0 cfm/ft^2.
3. A pair of 6'0" x 7'0" (1830 mm x 2134 mm) entrance doors and frame shall not exceed 1.0 cfm/ft^2.

Water Resistance:

4. For single-acting offset pivot or butt-hung entrances in the closed and locked position, the test specimen shall be tested in accordance with TAS-202 of the Florida Building Code. There shall be no water infiltration when tested to a pressure differential of 10 psf (479 Pa) for single doors and for pairs of doors.

D. Uniform Load Structural:
1. A static air design load of 85 psf (4070 Pa), or 65 psf (3113 Pa) for laminated infill, shall be applied in the positive and negative direction in accordance with Florida Building Code TAS-202 and ASTM E 330.
2. There shall be no deflection in excess of L/180 of the span of any framing member at design load.
3. At a structural test load equal to 1.5 times the specified design load, no glass breakage shall occur.

E. Structural-Test Performance:
1. Corner strength shall be tested per the Kawneer dual moment load test procedure and certified by an independent testing laboratory to ensure weld compliance and corner integrity. (Testing procedure and certified test results are available upon request.)

F. Windborne-Debris-Impact Resistance Performance:
1. Performance shall be tested in accordance with ASTM E1886 and information in ASTM E1996, and in TAS-201/203:
   a. Large-Missile Impact: For aluminum-framed systems located within 30 feet (9.1 m) of grade
   b. Small-Missile Impact: For aluminum-framed systems located above 30 feet (9.1 m) of grade

G. Forced Entry:
1. Performance shall be tested in accordance with AAMA 1304.

H. Environmental Product Declaration (EPD): Shall have an Aluminum Extrusions EPD.

1.5 SUBMITTALS

A. Product Data:
   1. For each type of aluminum-framed entrance door indicated, include:
      a. Construction details
      b. Material descriptions
      c. Fabrication methods
      d. Dimensions of individual components and profiles
      e. Hardware
      f. Finishes
      g. Installation instructions

B. Shop Drawings:
   1. Plans
   2. Elevations
   3. Sections
   4. Details
   5. Hardware
   6. Attachments to other work
   7. Operational clearances
   8. Installation details

C. Samples for Initial Selection:
   1. Provide samples for units with factory-applied color finishes.
   2. Provide samples of hardware and accessories involving color selection.

D. Samples for Verification:
   1. Provide a verification sample for aluminum-framed entrance doors and required components.

E. Product Test Reports:
   1. Provide test reports for each type of aluminum-framed entrance door used in the project.
   2. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
   3. Test reports must indicate compliance with performance requirements.

F. Fabrication Sample:
   1. Provide a fabrication sample of a corner, consisting of a door stile and rail and using full-size components that show details of the following:
      a. Glazing

G. Supply Chain Sustainability Documentation:
   1. Provide EcoVadis certification or equivalent.
   2. Provide policy document in place to prevent modern slavery, forced labor, human trafficking, and other forms of labor exploitation in supply chain.

H. Entrance Door Hardware Schedule:
   1. Schedule shall be prepared by or under the supervision of supplier.
   2. Schedule shall detail fabrication and assembly of entrance door hardware, including procedures and diagrams.
   3. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Installer must have successfully installed the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications:
   1. Manufacturer must be capable of fabricating aluminum-framed entrance doors and storefronts that meet or exceed the stated performance requirements.
   2. Manufacturer must document this performance by the inclusion of test reports and calculations.

C. Source Limitations:
   1. Obtain aluminum-framed entrance doors through one source from a single manufacturer.

D. Product Options:
   1. Drawings indicate size, profiles, and dimensional requirements of aluminum-framed entrance doors and are based on the specific system indicated. Refer to Division 01 Product Requirements Section. Do not modify size and dimensional requirements.
   2. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups:
   1. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   2. Build mockup for the type(s) of swing entrance door(s) indicated, in location(s) shown on drawings.

F. Pre-installation Conference:
   1. Conduct conference at project site to comply with requirements in Division 01 Project Management and Coordination Section.

1.7 PROJECT CONDITIONS

A. Field Measurements:
   1. Verify actual dimensions of aluminum-framed entrance door openings by field measurements before fabrication.
   2. Indicate measurements on shop drawings.

1.8 WARRANTY

A. Submit manufacturer's standard warranty for owner's acceptance.

B. Warranty Period:
   1. Two years from Date of Substantial Completion of the project provided however that in no event shall the Limited Warranty begin later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:
   1. Kawneer Company, Inc.
   2. The door stile and rail face dimensions of the 500IR entrance door will be as follows:
      a. 500 IR Swing Door:
         1) Vertical face dimension: 5" (127.0 mm)
         2) Top Rail: 5" (127.0 mm)
         3) Bottom Rail: 6-1/2" (165.1 mm)
         4) Optional Bottom Rail: 10" (254.0 mm)
   3. Major portions of the door members shall be 0.125" (3.2 mm) nominal thickness.
   4. Glazing molding shall be 0.05" (1.3 mm) thick.
   5. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
   6. Structural silicone sealant shall be Dow Corning 983, 995 or Tremco Proglaze SSG.

B. Subject to compliance with requirements, provide a comparable product by the following:
   1. Manufacturer: Or Equal

C. Substitutions:
   1. Refer to Division 01 Substitutions Section for procedures and submission requirements.
   2. Pre-Contract (Bidding Period) Substitutions:
      a. Submit written requests ten (10) days prior to bid date.
   3. Product Literature and Drawings:
      a. Submit product literature and drawings modified to suit specific project requirements and job conditions.
   4. Certificates:
      a. Submit certificate(s) certifying that the substitute manufacturer (1) attests to adherence to specification requirements for storefront system performance criteria, and (2) has been engaged in the design, manufacture, and fabrication of aluminum-framed entrance doors for a period of not less than ten (10) years. (*Company Name*)
   5. Test Reports:
      a. Submit test reports verifying compliance with each test requirement required by the project.

6. Samples:
   a. Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

D. Substitution Acceptance:
1. Acceptance will be in written form, either as an addendum or modification.
2. Acceptance will be documented by a formal change order signed by the owner and contractor.

2.2 MATERIALS

A. Aluminum Extrusions:
1. Alloy and temper recommended by aluminum-framed entrance door manufacturer for strength, corrosion resistance, and application of required finish.
2. Not less than 0.090" (2.3 mm) wall thickness at any location for the main frame and door leaf members.

B. Fasteners:
1. Nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories:
1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

D. Reinforcing Members:
1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
2. Reinforcing members must provide sufficient strength to withstand the design pressure indicated.

E. Weather Seals:
1. Provide weather stripping with integral barrier fin or fins of semi-rigid, polypropylene sheet or polypropylene-coated material.
2. Comply with AAMA 701/702.

2.3 STOREFRONT ENTRANCE FRAMING SYSTEM

A. Storefront Entrance Framing:
1. IR500/501

B. Non-Brackets and Reinforcements:
1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

C. Fasteners and Accessories:
   1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories must be compatible with adjacent materials.
   2. Where exposed, fasteners and accessories shall be stainless steel.

D. Perimeter Anchors:
   1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling, and Unloading:
   1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection:
   1. Store materials so that they are protected from exposure to harmful weather conditions.
   2. Handle material and components to avoid damage.
   3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.4 GLAZING

A. Glazing shall comply with requirements in Division 08 Glazing Section.

B. Glass:
   1. 9/16" laminated infill with .090" (2.3 mm) PVB interlayer

C. Glazing Gaskets:
   1. Manufacturer's standard compression types
   2. Replaceable, extruded EPDM rubber

D. Spacers and Setting Blocks:
   1. Manufacturer's standard elastomeric type

2.5 HARDWARE

A. General Hardware Requirements: (Refer to Section 08 71 00 Door Hardware) **Hardware set #1** (Doors 100A), **Hardware set #2** (Doors 100F, 102A) , **Hardware Set # 42** (Doors 100)

2.6 FABRICATION

A. Fabricate aluminum-framed entrance doors in sizes indicated.

B. Include a complete system for assembling components and anchoring doors.

C. Fabrication requirements:
   1. Aluminum-framed glass doors shall be reglazable without dismantling perimeter framing.
   2. Door corner construction:

a. Mechanical clip fastening
b. SIGMA deep-penetration plug welds
c. 1-1/8" (28.6 mm) long fillet welds inside and outside of all four corners
d. Hook-in type glazing stops with EPDM glazing gaskets reinforced with non-stretchable cord

3. Joint construction:
   a. Accurately fit and secure joints and corners.
   b. Make joints hairline in appearance.
4. Prepare components with internal reinforcement for door hardware.
5. Arrange fasteners and attachments to conceal from view.

D. Weather-stripping:
1. Provide weather-stripping locked into extruded grooves in door panels or frames as indicated on manufacturer's drawings and details.

2.7 ALUMINUM FINISHES

A. Finish designations that are prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:
1. Kawneer Permanodic® AA-M10C21A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear) (Optional)

PART 3 EXECUTION

3.1 EXAMINATION

A. With installer present, examine openings, substrates, structural support, anchorage, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work:
1. Verify rough opening dimensions.
2. Verify levelness of sill plate.
3. Verify operational clearances.
4. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components for proper water management.
5. Masonry Surfaces:
   a. Masonry surfaces must be visibly dry and free of excess mortar, sand, and other construction debris.
6. Wood Frame Walls:
   a. Wood frame walls must be dry, clean, sound, well nailed, free of voids, and without offsets at joints.
   b. Ensure that nail heads are driven flush with surfaces in opening and within 3" (76.2 mm) of opening.
7. Metal Surfaces:

a. Metal surfaces must be dry and clean (free of grease, oil, dirt, rust, corrosion, and welding slag).
b. Ensure that metal surfaces are without sharp edges or offsets at joints.

B. Proceed with installation only after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Comply with drawings, shop drawings, and manufacturer's written instructions for installing aluminum-framed entrance doors, hardware, accessories, and other components.

B. Install aluminum-framed entrance doors so that the doors:
1. Are level, plumb, square, and true to line
2. Are without distortion and do not impede thermal movement
3. Are anchored securely in place to structural support
4. Are in proper relation to wall flashing and other adjacent construction

C. Set the sill threshold in a bed of sealant, as indicated, for weathertight construction.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services:
1. Upon owner’s written request, provide periodic site visit by manufacturer’s field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjusting: Not applicable.

B. Cleaning:
1. Avoid damaging protective coatings and finishes.
2. Clean glass and aluminum surfaces of product immediately after installation.
3. Comply with glass manufacturer's written recommendations for final cleaning and maintenance.
4. Remove non-permanent labels and clean surfaces.
5. Remove excess sealants, glazing materials, dirt, and other substances.
6. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.
7. Remove construction debris from project site and legally dispose of debris.

C. Protection:
1. Protect installed product’s finish surfaces from damage during construction.

END OF SECTION 084113

SECTION 084115: ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS (TRI-FAB 451)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section covers Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

B. Types of Kawneer Aluminum Storefront Systems include:
   1. Trifab® VersaGlaze® 451 Framing System
      a. 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension
      b. Non-thermal
      c. Center set, structural silicone or weatherseal (type B) glazed
      d. Screw spline, shear block, stick, or punched opening

C. Related Sections:
   1. 072700: Air Barriers
   2. 079200: Joint Sealants
   3. 083213: Sliding Aluminum-Framed Glass Doors
   4. 084113: Aluminum-Framed Entrances and Storefronts
   5. 084413: Glazed Aluminum Curtain Walls
   6. 085113: Aluminum Windows
   7. 088000: Glazing
   8. 107113: Exterior Sun Control Devices
   9. 122600: Interior Daylighting Devices

1.3 DEFINITIONS

A. For fenestration industry standard terminology and definitions, refer to the Fenestration & Glazing Industry Alliance (FGIA) Glossary (AAMA AG-13).

1.4 PERFORMANCE REQUIREMENTS

A. General Performance:

   1. Product to comply with the specified performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction, as determined by testing of aluminum storefront systems representing those indicated for this project.

2. Aluminum storefront systems shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
3. Failure includes any of these events:
   a. Thermal stresses transferring to building structure
   b. Glass breakage
   c. Loosening or weakening of fasteners, attachments, and other components
   d. Failure of operating units

B. Delegated Design:
1. Design aluminum storefront systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Wind Loads: Interior Application

D. Air Leakage:
1. The test specimen shall be tested in accordance with ASTM E 283.
2. With interior seal, air leakage rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 6.2 psf (300 Pa).
3. Without interior seal, air leakage rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 1.6 psf (75 Pa).
4. CSA A440 Fixed Rating

E. Water Resistance:
1. The test specimen shall be tested in accordance with ASTM E 331.
2. There shall be no leakage at a minimum static air pressure differential of:
   a. 8 psf (383 Pa) as defined in AAMA 501.
   b. 10 psf (479 Pa) as defined in AAMA 501 with VersaGlaze® HP Sill Flashing.
   c. 8 psf (383 Pa) as defined in AAMA 501 with optional Air/Vapor Barrier Tie-in.

F. Uniform Load Structural:
1. A static air design load of 35 psf (1680 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330.
2. There shall be no deflection in excess of L/175 of the span of any framing member.
3. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

G. Seismic:
1. When tested to AAMA 501.4, system must meet design displacement (elastic) of 0.010 times the story height and ultimate displacement (inelastic) of 1.5 times the design displacement.

H. Thermal Movements:
1. Allow for thermal movements resulting from the following:

   a. 0°F (-18 C) to 180°F (82 C) maximum change (range) in ambient and surface temperatures

b. 75°F (24 C) test interior ambient air temperature

2. Test performance shows no buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5 for a minimum 3 cycles.

I. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC):

1. Sound transmission loss test results in accordance with AAMA 1801 are based upon 1" (25.4 mm) clear double laminated insulating glass with PVB interlayer (1/8", 0.030", 1/8", 1/2" AS, 1/8", 0.030", 1/8").
2. The glass to exterior ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 38 and OITC 31.
3. The glass to center ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 37 and OITC 30.
4. The glass to interior ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 38 and OITC 30.

J. Material Ingredient Reporting:

1. Shall have a complete list of chemical ingredients to at least 100 ppm (0.01%) that covers 100% of the product.
2. Acceptable documentation includes:
   a. Manufacturer's inventory with Chemical Abstract Service Registration Number (CASRN or CAS#):
      1) Kawneer's Material Transparency Summary (MTS)

1.5 SUBMITTALS

A. Product Data:

1. For each type of aluminum-framed storefront system indicated, include:
   a. Construction details
   b. Material descriptions
   c. Dimensions of individual components and profiles
   d. Hardware
   e. Finishes
   f. Installation instructions

B. Shop Drawings:

1. Plans
2. Elevations
3. Sections
4. Details
5. Hardware
6. Attachments to other work
7. Operational clearances

8. Installation details

C. Samples for Initial Selection:
   1. Provide samples for units with factory-applied color finishes.
   2. Provide samples of hardware and accessories involving color selection.

D. Samples for Verification:
   1. Provide a verification sample for aluminum-framed storefront system and required components.

E. Product Test Reports:
   1. Provide test reports for each type of aluminum-framed storefront used in the project.
   2. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
   3. Test reports must indicate compliance with performance requirements.

F. Fabrication Sample:
   1. Provide a fabrication sample of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
      a. Joinery, including concealed welds
      b. Anchorage
      c. Expansion provisions
      d. Glazing
      e. Flashing and drainage

G. Supply Chain Sustainability Documentation:
   1. Provide EcoVadis certification or equivalent.
   2. Provide policy document in place to prevent modern slavery, forced labor, human trafficking, and other forms of labor exploitation in supply chain.

H. Entrance Door Hardware Schedule:
   1. Schedule shall be prepared by or under the supervision of supplier.
   2. Schedule shall detail fabrication and assembly of entrance door hardware, including procedures and diagrams.
   3. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Installer must have successfully installed the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications:
   1. Manufacturer must be capable of providing aluminum-framed storefront systems that meet or exceed performance the stated performance requirements.

2. Manufacturer must document this performance by the inclusion of test reports and calculations.

C. Source Limitations:
1. Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. Product Options:
1. Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Product Requirements Section. Do not modify size and dimensional requirements.
2. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups:
1. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
2. Build mockups for the type(s) of storefront elevation(s) indicated, in location(s) shown on drawings.

F. Pre-installation Conference:
1. Conduct conference at project site to comply with requirements in Division 01 Project Management and Coordination Section.

G. Structural-Sealant Glazing must comply with ASTM C 1401, “Guide for Structural Sealant Glazing” for design and installation of structural-sealant-glazed systems.

H. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

1.7 PROJECT CONDITIONS

A. Field Measurements:
1. Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication.
2. Indicate measurements on shop drawings.

1.8 WARRANTY

A. Submit manufacturer's standard warranty for owner's acceptance.

B. Warranty Period:
1. Two years from Date of Substantial Completion of the project provided however that in no event shall the Limited Warranty begin later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:
   1. Kawneer Company, Inc.
   2. Trifab® VersaGlaze® 451 Framing System
      a. 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension
      b. Non-thermal
      c. Front, center, back, multi-plane, structural silicone or weatherseal (type B) glazed
      d. Screw spline, shear block, stick, or punched opening

2.2 MATERIALS

A. Aluminum Extrusions:
   1. Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish.
   2. Not less than 0.070" (1.8 mm) wall thickness at any location for the main frame
   3. Complying with ASTM B221: 6063-T6 alloy and temper

B. Fasteners:
   1. Nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories:
   1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
   2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

D. Reinforcing Members:
   1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

E. Sealant:
   1. For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

F. Tolerances:
   1. References to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 STOREFRONT FRAMING SYSTEM

A. Brackets and Reinforcements:
   1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

B. Fasteners and Accessories:
   1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and

accessories must be compatible with adjacent materials.

2. Where exposed, fasteners and accessories shall be stainless steel.

C. Perimeter Anchors:
1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

D. Packing, Shipping, Handling, and Unloading:
1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

E. Storage and Protection:
1. Store materials so that they are protected from exposure to harmful weather conditions.
2. Handle material and components to avoid damage.
3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.4 GLAZING SYSTEMS

A. Glazing to meet requirements in Division 08 Glazing Section.

B. Glazing Gaskets:
1. Manufacturer's standard compression types
2. Replaceable, extruded EPDM rubber

C. Spacers and Setting Blocks:
1. Manufacturer's standard elastomeric type

D. Bond-Breaker Tape:
1. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants for structural-sealant-glazed systems as recommended by manufacturer for joint type, and as follows:
1. Structural Sealant:
   a. ASTM C 1184
   b. Single-component neutral-curing silicone formulation that is compatible with the system components with which it comes in contact
   c. Specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in the aluminum-framed systems indicated
   d. Color: Black
2. Weatherseal sealant:
   a. ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O
   b. Single-component neutral-curing formulation that is compatible with the structural sealant and other system components with which it comes in contact
   c. Recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system

manufacturers for this use

d. Color: Matching structural sealant

2.5 ENTRANCE DOOR SYSTEMS

A. Refer to Entrance Doors as specified in Division 084113 Aluminum-Framed Entrances and Storefronts Section.

B. Refer to Entrance Door Hardware as specified in Division 084113 Door Hardware Section.

2.6 ACCESSORY MATERIALS

A. Joint Sealants:

1. For installation at perimeter of aluminum-framed systems, as specified in Division 07 Joint Sealants Section.

2.7 FABRICATION

A. Fabricate framing member components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations
2. Accurately fitted joints that are flush, hairline, and weatherproof
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior
4. Physical and thermal isolation of glazing from framing members
5. Accommodations for thermal and mechanical movements of glazing and framing that maintain required glazing edge clearances
6. Provisions for field replacement of glazing
7. Fasteners, anchors, and connection devices that are concealed from view to the greatest extent possible

B. Mechanically Glazed Framing Members:

1. Fabricate for flush glazing without projecting stops.

C. Structural-Sealant-Glazed Framing Members:

1. Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

D. Storefront Framing:

1. Fabricate components for assembly using manufacturer’s standard installation instructions.

E. After fabrication, clearly mark components to identify their locations in project according to shop drawings.

2.8 ALUMINUM FINISHES

A. Finish designations that are prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:

1. Kawneer Permanodic® AA-M10C21A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear) (Optional)

PART 3 EXECUTION

3.1 EXAMINATION

A. With installer present, examine openings, substrates, structural support, anchorage, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work:
   1. Verify rough opening dimensions.
   2. Verify levelness of sill plate.
   3. Verify operational clearances.
   4. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components for proper water management.
   5. Masonry Surfaces:
      a. Masonry surfaces must be visibly dry and free of excess mortar, sand, and other construction debris.
   6. Wood Frame Walls:
      a. Wood frame walls must be dry, clean, sound, well nailed, free of voids, and without offsets at joints.
      b. Ensure that nail heads are driven flush with surfaces in opening and within 3" (76.2 mm) of opening.
   7. Metal Surfaces:
      a. Metal surfaces must be dry and clean (free of grease, oil, dirt, rust, corrosion, and welding slag).
      b. Ensure that metal surfaces are without sharp edges or offsets at joints.

B. Proceed with installation only after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed storefront system, accessories, and other components.

B. Install aluminum-framed storefront system so that components:
   1. Are level, plumb, square, and true to line
   2. Are without distortion and do not impede thermal movement
   3. Are anchored securely in place to structural support
   4. Are in proper relation to wall flashing and other adjacent construction

C. Set sill members in bed of sealant or with gaskets, as indicated, for weather-tight construction.

D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront system to the exterior.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at

points of contact with other materials.

3.3 FIELD QUALITY CONTROL

A. Field Tests:
   1. Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured.
   2. Conduct tests for air infiltration and water penetration with manufacturer's representative present.
   3. Tests that do not meet the specified performance requirements and units that have deficiencies shall be corrected as part of the contract amount.
   4. Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.
   5. Air Infiltration Tests:
      a. Conduct tests in accordance with ASTM E 783.
      b. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.
   6. Water Infiltration Tests:
      a. Conduct tests in accordance with ASTM E 1105.
      b. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.2 psf (300 Pa).

B. Manufacturer's Field Services:
   1. Upon owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjusting: Not applicable.

B. Protection:
   1. Protect installed product's finish surfaces from damage during construction.

C. Cleaning:
   1. Clean glass immediately after installation.
      a. Comply with glass manufacturer's written recommendations for final cleaning and maintenance.
      b. Remove non-permanent labels and clean surfaces.
   2. Clean aluminum surfaces.
   3. Avoid damaging protective coatings and finishes.
   4. Remove excess sealants, glazing materials, dirt, and other substances.
   5. Repair or replace damaged installed products.
   6. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.
   7. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 084113

SECTION 084116: ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS (TRIFAB-451T)

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PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section covers Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

B. Types of Kawneer Aluminum Storefront Systems include:
1. Trifab® VersaGlaze® 451T Framing System – Impact Resistant and Blast Mitigation
   a. 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension
   b. Thermal
   c. Front, center, back, multi-plane, structural silicone or weatherseal (type B) glazed
   d. Impact resistant, blast mitigation glazing
   e. Screw spline, shear block, stick, or punched opening

C. Related Sections:
1. 072700: Air Barriers
2. 079200: Joint Sealants
3. 083213: Sliding Aluminum-Framed Glass Doors
4. 084113: Aluminum-Framed Entrances and Storefronts
5. 084413: Glazed Aluminum Curtain Walls
6. 085113: Aluminum Windows
7. 088000: Glazing
8. 107113: Exterior Sun Control Devices
9. 122600: Interior Daylighting Devices

1.3 DEFINITIONS

A. For fenestration industry standard terminology and definitions, refer to the Fenestration & Glazing Industry Alliance (FGIA) Glossary (AAMA AG-13).

1.4 PERFORMANCE REQUIREMENTS

A. General Performance:

1. Product to comply with the specified performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction, as determined by testing of aluminum storefront systems representing those indicated for this project.
2. Aluminum storefront systems shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
3. Failure includes any of these events:
   a. Thermal stresses transferring to building structure
   b. Glass breakage
   c. Loosening or weakening of fasteners, attachments, and other components
   d. Failure of operating units

B. Delegated Design:
1. Design aluminum storefront systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Wind Loads:

EDITOR NOTE: Provide wind load design pressures in PSF and include applicable building code and year edition.

1. The storefront system shall include anchorage that is capable of withstanding the following wind load design pressures:
   a. Inward: (_____) psf or (_____) Pa
   b. Outward: (_____) psf or (_____) Pa
2. The design pressures are based on the (_____) Building Code, (_____) Edition.

D. Air Leakage:
1. The test specimen shall be tested in accordance with ASTM E 283.
2. With interior seal, air leakage rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 6.2 psf (300 Pa).
3. Without interior seal, air leakage rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 1.6 psf (75 Pa).
4. CSA A440 Fixed Rating

E. Water Resistance:
1. The test specimen shall be tested in accordance with ASTM E 331.
2. There shall be no leakage at a minimum static air pressure differential of:
   a. 8 psf (383 Pa) as defined in AAMA 501.
   b. 10 psf (479 Pa) as defined in AAMA 501 with VersaGlaze® HP Sill Flashing.
   c. 8 psf (383 Pa) as defined in AAMA 501 with optional Air/Vapor Barrier Tie-in.

F. Uniform Load Structural:
1. A static air design load of 35 psf (1680 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330.

2. There shall be no deflection in excess of L/175 of the span of any framing member.
3. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

G. Seismic:
1. When tested to AAMA 501.4, system must meet design displacement (elastic) of 0.010 times the story height and ultimate displacement (inelastic) of 1.5 times the design displacement.

H. Thermal Movements:
1. Allow for thermal movements resulting from the following:
a. 0°F (-18 C) to 180°F (82 C) maximum change (range) in ambient and surface temperatures
b. 75°F (24 C) test interior ambient air temperature
2. Test performance shows no buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5 for a minimum 3 cycles.

I. Thermal Transmittance (U-factor):
1. Thermal transmittance test results are based upon 1" (25.4 mm) clear high-performance insulating glass [1/4" (e=0.035, #2), 1/2" aluminum spacer and argon fill gas, 1/4"].
2. When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than listed here:
a. Trifab® Versaglaze® 451T Framing System, Center Plane (0.28 COG) 0.38 or project specific (____) Btu/hr/ft^2/°F per AAMA 507 or (____) Btu/hr/ft^2/°F per NFRC 100.
3. Thermal transmittance test results are based upon 1" (25.4 mm) clear high-performance insulating glass [1/4" (e=0.035, #2), 1/2" warm edge spacer and argon fill gas, 1/4"].
4. When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than listed here:
a. Trifab® Versaglaze® 451T Framing System, Center Plane (0.28 COG) 0.36 or project specific (____) Btu/hr/ft^2/°F per AAMA 507 or (____) Btu/hr/ft^2/°F per NFRC 100.

J. Condensation Resistance Factor (CRF):
1. The glass to exterior CRF, when tested to AAMA Specification 1503, shall not be less than 70_{frame} and 69_{glass} (low-e) or 69_{frame} and 58_{glass} (clear)
2. The glass to center CRF, when tested to AAMA Specification 1503, shall not be less than 62_{frame} and 68_{glass} (low-e) or 63_{frame} and 56_{glass} (clear)
3. The glass to interior CRF, when tested to AAMA Specification 1503, shall not be less than 56_{frame} and 67_{glass} (low-e) or 54_{frame} and 58_{glass} (clear)

K. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC):
1. Sound transmission loss test results in accordance with AAMA 1801 are based upon 1" (25.4 mm) clear double laminated insulating glass with PVB interlayer (1/8", 0.030", 1/8", 1/2" AS, 1/8", 0.030", 1/8").
2. The glass to exterior ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 38 and OITC 31.

3. The glass to center ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 37 and OITC 30.
4. The glass to interior ratings, when tested to ASTM E1425 and ASTM E90, shall not be less than STC 38 and OITC 30.

L. Impact Resistance Performance:
1. The test specimen shall be tested in accordance with ASTM E 1886, information in ASTM E 1996 and TAS 201/203.
2. Large-Missile Impact: For aluminum-framed systems located within 30 feet (9.1 m) of grade.
3. Small-Missile Impact: For aluminum-framed systems located above 30 feet (9.1 m) of grade.

M. Blast Mitigation Performance:
1. The test specimen shall be tested or proven through analysis to meet ASTM F1642, GSA-TS01, and UFC 04-010.01 performance criteria.
2. To meet UFC 04-010.01, B-3.1 Standard 10 for Windows and Skylights, the following options are available:
a. Section B-3.1.1 Dynamic analysis
b. Section B-3.1.2 Testing
c. Section B-3.1.3 ASTM F2248 Design Approach

N. Environmental Product Declaration (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.

1.5 SUBMITTALS

A. Product Data:
1. For each type of aluminum-framed storefront system indicated, include:
a. Construction details
b. Material descriptions
c. Dimensions of individual components and profiles
d. Hardware
e. Finishes
f. Installation instructions

B. Shop Drawings:
1. Plans
2. Elevations
3. Sections
4. Details
5. Hardware
6. Attachments to other work
7. Operational clearances
8. Installation details

C. Samples for Initial Selection:
   1. Provide samples for units with factory-applied color finishes.
   2. Provide samples of hardware and accessories involving color selection.

D. Samples for Verification:
   1. Provide a verification sample for aluminum-framed storefront system and required components.

E. Product Test Reports:
   1. Provide test reports for each type of aluminum-framed storefront used in the project.
   2. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
   3. Test reports must indicate compliance with performance requirements.

F. Fabrication Sample:
   1. Provide a fabrication sample of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
      a. Joinery, including concealed welds
      b. Anchorage
      c. Expansion provisions
      d. Glazing
      e. Flashing and drainage

G. Entrance Door Hardware Schedule:
   1. Schedule shall be prepared by or under the supervision of supplier.
   2. Schedule shall detail fabrication and assembly of entrance door hardware, including procedures and diagrams.
   3. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Installer must have successfully installed the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications:
   1. Manufacturer must be capable of providing aluminum-framed storefront systems that meet or exceed performance the stated performance requirements.
   2. Manufacturer must document this performance by the inclusion of test reports and calculations.

C. Source Limitations:

1. Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. Product Options:
1. Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Product Requirements Section. Do not modify size and dimensional requirements.
2. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups:
1. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
2. Build mockups for the type(s) of storefront elevation(s) indicated, in location(s) shown on drawings.

F. Pre-installation Conference:
1. Conduct conference at project site to comply with requirements in Division 01 Project Management and Coordination Section.

G. Structural-Sealant Glazing must comply with ASTM C 1401, “Guide for Structural Sealant Glazing” for design and installation of structural-sealant-glazed systems.

H. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

1.7 PROJECT CONDITIONS

A. Field Measurements:
1. Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication.
2. Indicate measurements on shop drawings.

1.8 WARRANTY

A. Submit manufacturer's standard warranty for owner's acceptance.

B. Warranty Period:
1. Two years from Date of Substantial Completion of the project provided however that in no event shall the Limited Warranty begin later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:
1. Kawneer Company, Inc.

2. Trifab® VersaGlaze® 451T Framing System – Impact Resistant and Blast Mitigation
   a. 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension
   b. Thermal
   c. Front, center, back, multi-plane, structural silicone or weatherseal (type B) glazed
   d. Impact resistant, blast mitigation glazing
   e. Screw spline, shear block, stick, or punched opening

2.2 MATERIALS

A. Aluminum Extrusions:
   1. Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish.
   2. Not less than 0.070" (1.8 mm) wall thickness at any location for the main frame
   3. Complying with ASTM B221: 6063-T6 alloy and temper

B. Fasteners:
   1. Nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories:
   1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
   2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

D. Reinforcing Members:
   1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

E. Sealant:
   1. For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

F. Tolerances:
   1. References to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 STOREFRONT FRAMING SYSTEM

A. Thermal Barrier:
   1. Kawneer IsoLock® Thermal Break with dual nominal 1/4" (6.4 mm) separation consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.

2. Thermal break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.

B. Brackets and Reinforcements:
1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

C. Fasteners and Accessories:
1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories must be compatible with adjacent materials.
2. Where exposed, fasteners and accessories shall be stainless steel.

D. Perimeter Anchors:
1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling, and Unloading:
1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection:
1. Store materials so that they are protected from exposure to harmful weather conditions.
2. Handle material and components to avoid damage.
3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.4 GLAZING SYSTEMS

A. Glazing to meet requirements in Division 08 Glazing Section.

B. Glazing Gaskets:
1. Manufacturer's standard compression types
2. Replaceable, extruded EPDM rubber

C. Spacers and Setting Blocks:
1. Manufacturer's standard elastomeric type

D. Bond-Breaker Tape:
1. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants for structural-sealant-glazed systems as recommended by manufacturer for joint type, and as follows:
1. Structural Sealant:
a. ASTM C 1184

b. Single-component neutral-curing silicone formulation that is compatible with the system components with which it comes in contact
c. Specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in the aluminum-framed systems indicated
d. Color: Black

2. Weatherseal sealant:
a. ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O
b. Single-component neutral-curing formulation that is compatible with the structural sealant and other system components with which it comes in contact
c. Recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use
d. Color: Matching structural sealant

2.5 ENTRANCE DOOR SYSTEMS

A. Refer to Entrance Doors as specified in Division 084113 Aluminum-Framed Entrances and Storefronts Section.

B. Refer to Entrance Door Hardware as specified in Division 084113 Door Hardware Section.

2.6 FABRICATION

A. Fabricate framing member components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations
2. Accurately fitted joints that are flush, hairline, and weatherproof
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior
4. Physical and thermal isolation of glazing from framing members
5. Accommodations for thermal and mechanical movements of glazing and framing that maintain required glazing edge clearances
6. Provisions for field replacement of glazing
7. Fasteners, anchors, and connection devices that are concealed from view to the greatest extent possible

B. Mechanically Glazed Framing Members:
1. Fabricate for flush glazing without projecting stops.

C. Structural-Sealant-Glazed Framing Members:
1. Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

D. Storefront Framing:
1. Fabricate components for assembly using manufacturer’s standard installation instructions.

E. After fabrication, clearly mark components to identify their locations in project according to shop drawings.

2.7 ALUMINUM FINISHES

A. Finish designations that are prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:
1. Kawneer Permanodic® AA-M10C21A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear) (Optional)

PART 3 EXECUTION

3.1 EXAMINATION

A. With installer present, examine openings, substrates, structural support, anchorage, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work:
1. Verify rough opening dimensions.
2. Verify levelness of sill plate.
3. Verify operational clearances.
4. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components for proper water management.
5. Masonry Surfaces:
a. Masonry surfaces must be visibly dry and free of excess mortar, sand, and other construction debris.
6. Wood Frame Walls:
a. Wood frame walls must be dry, clean, sound, well nailed, free of voids, and without offsets at joints.
b. Ensure that nail heads are driven flush with surfaces in opening and within 3" (76.2 mm) of opening.
7. Metal Surfaces:
a. Metal surfaces must be dry and clean (free of grease, oil, dirt, rust, corrosion, and welding slag).
b. Ensure that metal surfaces are without sharp edges or offsets at joints.

B. Proceed with installation only after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed storefront system, accessories, and other components.

B. Install aluminum-framed storefront system so that components:

1. Are level, plumb, square, and true to line
2. Are without distortion and do not impede thermal movement
3. Are anchored securely in place to structural support
4. Are in proper relation to wall flashing and other adjacent construction

C. Set sill members in bed of sealant or with gaskets, as indicated, for weather-tight construction.

D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront system to the exterior.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 FIELD QUALITY CONTROL

A. Field Tests:
1. Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured.
2. Conduct tests for air infiltration and water penetration with manufacturer’s representative present.
3. Tests that do not meet the specified performance requirements and units that have deficiencies shall be corrected as part of the contract amount.
4. Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.
5. Air Infiltration Tests:
    a. Conduct tests in accordance with ASTM E 783.
    b. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.
6. Water Infiltration Tests:
    a. Conduct tests in accordance with ASTM E 1105.
    b. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.2 psf (300 Pa).

B. Manufacturer's Field Services:
1. Upon owner’s written request, provide periodic site visit by manufacturer’s field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjusting: Not applicable.

B. Protection:
1. Protect installed product’s finish surfaces from damage during construction.

C. Cleaning:

1. Clean glass immediately after installation.
   a. Comply with glass manufacturer's written recommendations for final cleaning and maintenance.
   b. Remove non-permanent labels and clean surfaces.
2. Clean aluminum surfaces.
3. Avoid damaging protective coatings and finishes.
4. Remove excess sealants, glazing materials, dirt, and other substances.
5. Repair or replace damaged installed products.
6. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.
7. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 084113

NOTES AND DISCLAIMERS

Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor. It is the responsibility of the owner, the specifier, the architect, the general contractor, and the installer and the fabricator/transformer, consistent with their roles, to determine the appropriate materials for a project in strict conformity to all applicable national, regional and local building codes and regulations.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

Information contained herein or related hereto is intended only for evaluation by technically skilled persons, with any use thereof to be at their independent discretion and risk. Such information is believed to be reliable, but Kawneer shall have no responsibility or liability for results obtained or damages resulting from such use.

This guide specification is intended to be used by a qualified construction specifier. The guide specification is not intended to be used verbatim as a project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm and the particular requirements of a specific construction project.

Kawneer grants no license under, and shall have no responsibility or liability for infringement of, any patent or other proprietary right. Nothing in this document should be construed as a warranty or guarantee by Kawneer, and the only applicable warranties will be those set forth in Kawneer acknowledgment or in any printed warranty documents issued by Kawneer. The foregoing may be waived or modified only in writing by a Kawneer officer.

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SECTION 084413: ALUMINUM CURTAIN WALL (1600 WALL SYSTEM 1 IR)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section covers Kawneer Architectural Aluminum Curtain Wall Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of curtain wall framing.

B. Types of Kawneer Aluminum Curtain Wall Systems include:
1. 1600 Wall System®1 Curtain Wall impact resistant (IR):
a. Sight line: 2-1/2" (63.5 mm)
b. Outside-glazed pressure plate format
c. System depth:
1) 7-13/16" (198.4 mm) for 1-5/16" (33.3 mm) insulating glazing

Related Sections:

2. 072700: Air Barriers
3. 079200: Joint Sealants
4. 084113: Aluminum-Framed Entrances and Storefronts
5. 085113: Aluminum Windows
6. 088000: Glazing
7. 107113: Exterior Sun Control Devices

1.3 DEFINITIONS

A. For fenestration industry standard terminology and definitions, refer to the Fenestration & Glazing Industry Alliance (FGIA) Glossary (AAMA AG-13).

1.4 PERFORMANCE REQUIREMENTS

A. General Performance:
1. Product to comply with the specified performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction, as determined by testing of glazed aluminum curtain walls representing those indicated for this project.
2. Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
3. Failure includes any of these events:

a. Thermal stresses transferring to building structure
b. Glass breakage
c. Loosening or weakening of fasteners, attachments, and other components
d. Failure of operating units

B. Delegated Design:
1. Design glazed aluminum curtain walls, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Wind Loads:
1. The curtain wall system shall include anchorage that is capable of withstanding the following wind load design pressures:
a. Inward: 38.24 psf
b. Outward: -47.87 psf
2. The design pressures are based on the 2023 Building Code, 8th Edition.

D. Air Leakage:
1. The test specimen shall be tested in accordance with ASTM E 283.
2. Air infiltration rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 6.2 psf (300 Pa).

E. Water Resistance:
1. Static:
a. The test specimen shall be tested in accordance with ASTM E 331.

2. Dynamic:
a. The test specimen shall be tested in accordance with AAMA 501.1.

F. Uniform Load:
1. A a static air design load of 40 psf (1915 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330.
2. There shall be no deflection in excess of L/175 of the span of any framing member at design load.
3. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

Seismic:

4. When tested to AAMA 501.4, system must meet design displacement (elastic) of 0.010 times the story height and ultimate displacement (inelastic) of 1.5 times the design displacement.
5. When tested to AAMA 501.6, system must meet dynamic seismic drift causing glass fallout (ΔFallout) of 4.75" or 0.0300 times the story height.

G. Thermal Transmittance (U-factor), Physical Test:
1. Thermal transmittance test results in accordance with AAMA 1503

2. When tested using AAMA 1503, the thermal transmittance (U-factor) shall not be more than 0.66 Btu/hr/(hr·ft^{2}·°F).

H. Thermal Transmittance (U-factor), Physical Test:
1. Thermal transmittance test results in accordance with AAMA 1503 or CSA A440 are based upon 1" (25.4 mm) clear, low-emissivity coated glass insulating unit, (1/4" e=0.035, #2), 1/2" warm edge spacer and argon fill gas, 1/4").
2. When tested using AAMA 1503, the thermal transmittance (U-factor) shall not be more than 0.43 Btu/(hr·ft^{2}·°F).

I. Thermal Transmittance (U-factor), Simulation:
1. Thermal transmittance simulation results using NFRC 100 or AAMA 507 are based on a Center of Glass (COG) U-factor of 0.24 Btu/(hr·ft^{2}·°F) and a warm-edge spacer.
2. When simulated using NFRC 100 or AAMA 507, the U-factor shall not be more than 0.39 Btu/(hr·ft^{2}·°F) or project specific (____) Btu/(hr·ft^{2}·°F) per AAMA 507 or (____) Btu/(hr·ft^{2}·°F) per NFRC 100.
3. When tested to ASTM E90 and ASTM E1425, the Sound Transmission Class (STC) and Outdoor/Indoor Transmission Class (OITC) shall not be less than:
   a. STC 31 or OITC 26 based upon 1" (25.4 mm) insulating glass (1/4", 1/2" AS, 1/4")
   b. STC 37 or OITC 30 based upon 1" (25.4 mm) laminated glass (1/4" laminated, 1/2" AS, 1/4" laminated)

J. Windborne-Debris-Impact Resistance Performance:
1. Performance shall be tested in accordance with TAS 201/203, ASTM E1886 and information in ASTM E1996:
   a. Large-Missile Impact: For aluminum-framed systems located within 30 feet (9.1 m) of grade
   b. Small-Missile Impact: For aluminum-framed systems located above 30 feet (9.1 m) of grade

K. Blast Mitigation Performance:
1. Performance shall be tested or proven through analysis to meet ASTM F1642, GSA-TS01, and UFC 04-010.01 performance criteria.
2. The following options are available to meet UFC 04-010-01, B-3.1 Standard 10 for Windows and Skylights:
   a. Section B-3.1.1 Dynamic analysis
   b. Section B-3.1.2 Testing
   c. Section B-3.1.3 ASTM F2248 Design Approach

L. Environmental Product Declaration (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.

1.5 SUBMITTALS

A. Product Data:

1. For each type of product indicated, include:
    a. Construction details
    b. Material descriptions
    c. Dimensions of individual components and profiles
    d. Finishes

Environmental Product Declaration (EPD):

    e. Include a Type III Product-Specific EPD created from a Product Category Rule.
2. Material Ingredient Reporting:
    a. Include documentation for material reporting that has a complete list of chemical ingredients to at least 100 ppm (0.01%) that covers 100% of the product.

B. Shop Drawings:
    1. Plans
    2. Elevations
    3. Sections
    4. Full-size details
    5. Attachments to other work

C. Samples for Initial Selection:
    1. Provide samples for units with factory-applied color finishes.

D. Samples for Verification:
    1. Provide a verification sample for each type of exposed finish required, in manufacturer's standard sizes.

E. Product Test Reports:
    1. Provide test reports for glazed aluminum curtain walls.
    2. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
    3. Test reports must indicate compliance with performance requirements.

F. Fabrication Sample:
    1. Provide a fabrication sample of each vertical-to-horizontal intersection of aluminum-framed curtain wall systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
        a. Joinery
        b. Glazing

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
    1. Installer must have successfully installed the same or similar systemsrequired for the project and other projects of similar size and scope.

B. Manufacturer Qualifications:
   1. Manufacturer must be capable of fabricating glazed aluminum curtain walls that meet or exceed the stated performance requirements.

C. Source Limitations:
   1. Obtain aluminum curtain wall system through one source from a single manufacturer.

D. Product Options:
   1. Information on drawings and in specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
   2. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups:
   1. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   2. Build mockups for the type(s) of curtain wall elevation(s) indicated, in location(s) shown on drawings.

F. Pre-installation Conference:
   1. Conduct conference at project site to comply with requirements in Division 01 Project Management and Coordination Section.

1.7 PROJECT CONDITIONS

A. Field Measurements:
   1. Verify actual locations of structural supports for glazed aluminum curtain walls by field measurements before fabrication.
   2. Indicate measurements on shop drawings.

1.8 WARRANTY

A. Submit manufacturer's standard warranty for owner's acceptance.

B. Warranty Period:
   1. Two years from Date of Substantial Completion of the project provided however that in no event shall the Limited Warranty begin later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:
1. Kawneer Company, Inc.
2. 1600 Wall System®1 Curtain Wall types:
3. Or Equal
   a. 1600 Wall System®1 Curtain Wall impact resistant (IR):
      1) Sight line: 2-1/2" (63.5 mm)
      2) Outside-glazed pressure plate format
      3) System depth:
         a) 7-13/16" (198.4 mm) for 1-5/16" (33.3 mm) insulating glazing
4. Tested to AAMA 501, ASTM E 1886, E 1996, and TAS 201, 202, 203

B. Subject to compliance with requirements, provide a comparable product by the following:

C. Substitutions:
1. Refer to Division 01 Substitutions Section for procedures and submission requirements.
2. Pre-Contract (Bidding Period) Substitutions:
   a. Submit written requests ten (10) days prior to bid date.
3. Product Literature and Drawings:
   a. Submit product literature and drawings modified to suit specific project requirements and job conditions.
4. Certificates:
   a. Submit certificate(s) certifying that the substitute manufacturer (1) attests to adherence to specification requirements for curtain wall system performance criteria, and (2) has been engaged in the design, manufacture, and fabrication of aluminum curtain walls for a period of not less than ten (10) years. (*Company Name*).
5. Test Reports:
   a. Submit test reports verifying compliance with each test requirement required by the project.
6. Samples:
   a. Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

D. Substitution Acceptance:
1. Acceptance will be in written form, either as an addendum or modification.
2. Acceptance will be documented by a formal change order signed by the owner and contractor.

2.2 MATERIALS

A. Aluminum Extrusions:
1. Alloy and temper recommended by glazed aluminum curtain wall manufacturer for strength, corrosion resistance, and application of required finish
2. Not less than 0.070" (1.8 mm) wall thickness at any location for the main frame
3. Complying with ASTM B221: 6063-T6 alloy and temper

B. Aluminum Sheet Alloy:
1. Shall meet the requirements of ASTM B209.

C. Fasteners:
1. Aluminum, nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

D. Anchors, Clips, and Accessories:
1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

E. Pressure Plate:
1. Pressure plate shall be aluminum.
2. Pressure plate shall be fastened to the mullion with stainless steel screws.

F. Reinforcing Members:
1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
2. Reinforcing members must provide sufficient strength to withstand the design pressure indicated.

G. Sealant:
1. For sealants required within fabricated curtain wall system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

H. Thermal Barrier:
1. Thermal separator shall be extruded of a silicone compatible elastomer that provides a minimum 1/4" (6.3 mm) separation.

I. Tolerances:

1. References to tolerances for wall thickness and other cross-sectional dimensions of glazed curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.

J. Red List Free:

2.3 CURTAIN WALL FRAMING

A. Framing Members:
1. Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads
2. Glazing System: Four-sided captured
3. Glazing Plane: Front

B. Glass:
1. Insulating glass options:
a. 1-5/16" (33.3 mm)

C. Brackets and Reinforcements:
1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

D. Framing Sealants:
1. Shall be suitable for glazed aluminum curtain wall as recommended by sealant manufacturer.

E. Fasteners and Accessories:
1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories must be compatible with adjacent materials.
2. Where exposed, fasteners and accessories shall be stainless steel.

F. Perimeter Anchors:
1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

G. Packing, Shipping, Handling, and Unloading:
1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

H. Storage and Protection:
1. Store materials so that they are protected from exposure to harmful weather conditions.
2. Handle material and components to avoid damage.
3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.4 GLAZING

A. Glazing to meet requirements in Division 08 Glazing Section.

B. Available Glazing Options:
   1. 1600 Wall System®1 IR Curtain Wall:
      a. System depth:
         1) 7-13/16" (198.4 mm) for 1-5/16" (33.3 mm) insulating glazing

C. Glazing Gaskets:
   1. Gaskets to meet requirements of ASTM C864.

D. Spacers and Setting Blocks:
   1. Manufacturer's standard elastomeric type

E. Bond-Breaker Tape:
   1. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

F. Glazing Sealants:
   1. As recommended by manufacturer for joint type.

2.5 OPERABLE UNITS

A. Doors comply with Division 08 Aluminum-Framed Entrances and Storefronts Section.

B. Windows comply with Division 08 Aluminum Windows Section.

2.6 ACCESSORY MATERIALS

A. Bituminous Paint:
   1. Cold-applied asphalt-mastic paint
   2. Complies with SSPC-Paint 12 requirements except containing no asbestos
   3. Formulated for 30-mil (0.762 mm) thickness per coat

B. Versoleil® SunShade - Outrigger/Single Blade System:
   1. Aluminum sunshade that consists of outriggers, louvers, and fascia which may be selected from standard configurations, modified configurations, or customized configuration.
   2. Anchored directly to the vertical curtain wall mullions.
   3. Anchors shall be painted:
      a. Select from Kawneer’s standard paints and colors. Custom colors are available upon request.
   4. Louvers and fascia shall be painted or anodized:

a. Painted: Select from Kawneer's standard paints and colors. Custom colors are available upon request.
b. Anodized: Select from Kawneer's anodized finishes.
c. Panel/shelf projection not exceeding 30" (762 mm).
d. Mullion spacing of framing system shall not exceed 6' (1.83 m) on center.
e. Panel/shelf deflection shall not exceed 1/120 of horizontal span length.
f. Manufacturer's installation instructions
g. Samples for verification:
    1) Factory-applied finish as selected by architect
    2) Functioning Light Shelf sample demonstrating operation
h. Shop drawing, including plans, elevations, sections, fabrication, and installation details
i. Validation from manufacturer of single-source for light shelf and framing system and compatibility between the systems

2.7 FABRICATION

A. Extrude or form aluminum shapes before finishing.

B. Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations
2. Accurately fitted joints
3. Physical and thermal isolation of glazing from framing members
4. Accommodations for thermal and mechanical movements of glazing and framing that maintain required glazing edge clearances
5. Provisions for field replacement of glazing from exterior
6. Fasteners, anchors, and connection devices that are concealed from view to the greatest extent possible
7. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior

C. Curtain Wall Framing:
1. Fabricate components for assembly using shear block system following manufacturer's standard installation instructions.

D. After fabrication, clearly mark components to identify their locations in project according to shop drawings.

2.8 ALUMINUM FINISHES

A. Finish designations that are prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:

1. Kawneer Permanodic® AA-M10C21A31, AAMA 611, Architectural Class II Clear Anodic Coating (Color #14 Clear) (Standard)

PART 3 EXECUTION

3.1 EXAMINATION

A. With installer present, examine areas for compliance with requirements for installation tolerances and other conditions affecting performance of the work.

B. Proceed with installation only after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Curtain Wall System Installation:
   1. Install curtain wall systems plumb, level, and true to line, without warp or rack of frames, within manufacturer's prescribed tolerances, and complying with installation instructions.
   2. Provide support and anchor in place.
   3. Dissimilar Materials:
      a. Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
   4. Glazing:
      a. Glass shall be outside-glazed.
      b. Glass shall be held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners that are spaced no more than 9" (228.6 mm) on center.
   5. Water Drainage
      a. Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations.
      b. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

B. Related Products Installation:
   1. Sealants (Perimeter):
      a. Refer to Joint Treatment (Sealants) Section.
   2. Glass:
      a. Refer to Glass and Glazing Section.
      b. Reference: ANSI Z97.1, CPSC 16 CFR 1201, and GANA Glazing Manual.

3.3 FIELD QUALITY CONTROL

A. Field Tests:
   1. Architect shall select curtain wall units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter-caulked, and cured.

2. Conduct tests for air infiltration and water penetration with manufacturer's representative present.
3. Tests that do not meet the specified performance requirements and units that have deficiencies shall be corrected as part of the contract amount.
4. Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.

5. Air Infiltration Tests:
   a. Conduct tests in accordance with ASTM E 783.
   b. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.
6. Water Infiltration Tests:
   a. Conduct tests in accordance with ASTM E 1105.
   b. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf (383 Pa).

B. Manufacturer's Field Services:
   1. Upon owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjusting: Not applicable.

B. Protection:
   1. Protect installed product's finish surfaces from damage during construction.
   2. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

C. Cleaning:
   1. Repair or replace damaged installed products.
   2. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.
   3. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.
   4. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 084413

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SECTION 101416 - PLAQUES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal plaques.

1.2 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For plaques.

1. Include fabrication and installation details and attachments to other work.
2. Show plaque mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
3. Show message list, **including raised characters** and layout for each plaque at least **half size**.

C. Samples for Initial Selection: For each type of plaque, exposed component, and exposed finish.

1. Include representative Samples of available typestyles and graphic symbols.

D. Samples for Verification: For each type of plaque showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:

1. Plaques: material sample

E. Product Schedule: For plaques. Use same designations indicated on Drawings or specified.

1.4 APPROVED MANUFACTURER/PROVIDER

1. PROVIDE PLAQUE FROM APPROVED MANUFACTURER:

ADVANCED SIGN SOLUTIONS, 7518 MCELVEY RD, PANAMA CITY BEACH, FL 32408 WWW.ADV-SIGNS.COM, 888.368.9928; 850.914.9925; SUPPORT@ADV-SIGNS.COM

1.5 QUALITY ASSURANCE

A. Installer Qualifications: **Approved Manufacturer/Provider listed in 1.4**

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of plaques that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.

2. Warranty Period: **Five** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 METAL PLAQUES

A. Precision Tooled Plaque: Precision tooled aluminum plaque with background texture, border, and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
1. Plaque Material: Cast **aluminum**
2. **20x24in**
3. **5/16in**
4. Finishes:

a. **Satin finish**

5. Background Texture: **pebble**
6. Integrally Cast Border Style: **bevel – single line bevel**
7. Mounting: **Concealed studs**].
8. Text and Typeface: **brushed clear, horizontal stroke**

2.2 MATERIALS

A. Cast or Precision Tooled Aluminum

2.3 ACCESSORIES

A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of plaques, noncorrosive and compatible with each material joined, and complying with the following:

1. Use concealed fasteners and anchors unless indicated to be exposed.

2. For exterior exposure, furnish **stainless steel** devices unless otherwise indicated.

3. Plaque Mounting Fasteners:

a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of plaque, screwed into back of plaque, or screwed into tapped lugs cast integrally into back of plaque unless otherwise indicated.

B. Adhesive: As recommended by plaque manufacturer.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.4 FABRICATION

A. General: Provide manufacturer's standard plaques according to requirements indicated.

1. Preassemble plaques in the shop to greatest extent possible. Disassemble plaques only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
5. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match plaque finish.
6. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

2.5 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.

D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Verify that plaque-support surfaces are within tolerances to accommodate plaques without gaps or irregularities between backs of plaques and support surfaces unless otherwise indicated.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF METAL PLAQUES

A. General: Install plaques using mounting methods indicated and according to manufacturer's written instructions.

1. Install plaques level, plumb, true to line, and at locations and heights indicated, with plaque surfaces free of distortion and other defects in appearance.
2. Install plaques so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that plaque surfaces are clean and free of materials or debris that would impair installation.
4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of plaque. Remove loose debris from hole and substrate surface.
    a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place plaque in position and push until flush to surface, embedding studs in holes. Temporarily support plaque in position until adhesive fully sets.
    b. Thin or Hollow Surfaces: Place plaque in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
2. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of plaque and of suitable quantity to support weight of plaque after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as plaque is applied and to prevent visibility of cured adhesive at plaque edges. Place plaque in position, and push to engage adhesive. Temporarily support plaque in position until adhesive fully sets.
3. Shim-Plate Mounting: Provide 1/8-inch- (3-mm-) thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other direct

mounting methods are impractical. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach plaques to plate using **method specified above**.

3.3 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed plaques and plaques that do not comply with specified requirements. Replace plaques with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as plaques are installed.

C. On completion of installation, clean exposed surfaces of plaques according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain plaques in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101416

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SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Dimensional characters.

a. Cast dimensional characters.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product

B. Shop Drawings: For signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
3. Show message list, typestyles, graphic elements, and layout for each sign at least **half size**.

C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: **Five** years from date of Substantial Completion.

PART 2 - PRODUCTS

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2.1 PERFORMANCE REQUIREMENTS

A. Thermal Movements: For exterior **fabricated channel dimensional characters**, allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: **120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces**.

2.2 DIMENSIONAL CHARACTERS

A. Cast Characters: Characters with uniform faces, sharp corners, and precisely formed lines and profiles, and as follows:
1. Character Material: Cast **aluminum**.
2. Character Height: **As indicated on Drawings**.
3. Finishes:

a. Integral Metal Finish: **As selected by Architect from full range of industry finishes**.

4. Mounting: **Concealed studs**.

2.3 DIMENSIONAL CHARACTER MATERIALS

A. Aluminum, painted or clear finish **As selected by Architect from full range of industry finishes**.

2.4 APPROVED MANUFACTURER/PROVIDER

ADVANCED SIGN SOLUTIONS, 7518 MCELVEY RD, PANAMA CITY BEACH, FL 32408 WWW.ADV-SIGNS.COM, 888.368.9928; 850.914.9925; SUPPORT@ADV-SIGNS.COM

2.5 ACCESSORIES

A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:

1. Use concealed fasteners and anchors unless indicated to be exposed.
2. For exterior exposure, furnish **stainless steel** devices unless otherwise indicated.
3. Exposed Metal-Fastener Components, General:

a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.

4. Sign Mounting Fasteners:

a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.

B. Adhesive: As recommended by sign manufacturer.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 FABRICATION

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
2. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
4. Internally brace dimensional characters for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
5. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
6. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

PART 3 - EXECUTION

3.1 INSTALLATION OF DIMENSIONAL CHARACTERS

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.

a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.

C. Remove temporary protective coverings and strippable films as signs are installed.

END OF SECTION 101419

SECTION 10 14 23 - ROOM IDENTIFICATION PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Interior and Exterior Panel signs.
   2. Signage accessories.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. **Provide signage schedule for acceptance by Architect and Owner. Room names and numbers shall be based requirements established for this campus, matching existing signage. (see approved manufacturer/provider)**
C. Shop Drawings: Show fabrication and installation details for signs.
   1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
   2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.
D. Samples: For each sign type and for each color and texture required.

1.3 QUALITY ASSURANCE

A. Signage shall comply with the requirements of the Florida Accessibility chapter of the Florida Building Code-Buildings and with the requirements of the Authority Having Jurisdiction.
B. Source Limitations: Obtain each sign type through one source from a single manufacturer.
C. Regulatory Requirements: Comply with the Florida Building Code, Americans Disabilities Act (ADA) and with the code provisions as adopted by authorities having jurisdiction.

1.4 PROJECT CONDITIONS

A. Field Measurements: Where sizes of signs are determined by dimensions of surfaces on which they are installed, verify dimensions by field measurement before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
B. Aluminum Extrusions: ASTM B 221 (ASTM B 221 M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.

2.2 PANEL SIGNS

A. General: All lettering & symbols shall be raised polymer and integral with panel. Vinyl lettering is not acceptable.
B. Manufacturers: Subject to compliance with requirements, provide products by
   1. Advanced Sign Solutions; www.adv-signs.com; 7518 McElvey Rd, Panama City, FL 32408; 850.914.9925/888.368.9928; support@adv-signs.com

C. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally from corner to corner, complying with the following requirements:
   1. Acrylic Sheet: Minimum 0.080 inch (2.03 mm) thick.
   2. Aluminum Extrusion/Frame with end caps (match existing)
   3. Acrylic insert & paper insert (match existing)
   4. Mounting: by approved manufacturer/installer
      a. Wall mounted with adhesive, two-face tape only used for temporary mounting, while adhesive sets.
      b. Manufacturer's standard anchors for substrates encountered.
   5. Test Type: Match existing; client font and color
   6. Text Size: 5/8-inch to 2-inch high by 1/32 inch thick
   7. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch (0.8 mm) above surface with contrasting colors.
   8. Location: As indicated on the drawings.
   9. Color: Match existing

D. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
   1. Panel Material: acrylic lens (match existing)
   2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).

E. Color: Match existing.

2.3 APPROVED MANUFACTURER:

A. Advanced Sign Solutions, www.adv-signs.com; 850.914.9925/888.368.9928; support@adv-signs.com; 7518 McElvey Rd, Panama City Beach, FL 32408

2.4 FABRICATION

A. General: Provide manufacturer's standard signs of configurations indicated.
   1. Match existing

2.5 ACRYLIC SHEET FINISHES
   1. Match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate signs and accessories where indicated, in full compliance with Accessibility Code, using mounting methods of types described and complying with manufacturer's written instructions.
   1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Wall Signs: Install signs on walls adjacent to latch side of door. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches (75 mm) of sign without encountering protruding objects or standing within swing of door.

B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
   1. Two-face Tape: Mount sign to smooth, nonporous surfaces: Temporary method only. Use silicone – adhesive mounting as recommended per manufacturer.

3.2 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10 14 00

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SECTION 10 21 13- PLASTIC TOILET COMPARTMENTS

1.1 SUMMARY

A. Section Includes:

1. Solid-plastic (HDPE) toilet compartments configured as **toilet enclosures and urinal screens**.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for supports that attach **floor-and-ceiling-anchored compartments** to overhead structural system.
2. **Section 061000 "Rough Carpentry"** for **blocking overhead support of floor-and-ceiling-anchored compartments**.
3. Section 092216 "Non-Structural Metal Framing.
4. Section 102800 "Toilet, Accessories" for accessories mounted on toilet compartments.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Solid-plastic toilet compartments:

B. Shop Drawings: For solid-plastic toilet compartments.

1. Include plans, elevations, sections, details, and attachment details.

C. Samples: For each type of toilet compartment material indicated.

1. Include Samples of hardware and accessories involving material and color selection.

D. Sustainable Design Submittals:
1. Provide LED compliant products

1.3 INFORMATIONAL SUBMITTALS

A. Certificates:

1. Product Certificates: For each type of toilet compartment by manufacturer.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.

B. Comply with LEED requirements.

C. Regulatory Requirements: Comply with applicable provisions in the Florida Accessibility Code for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS

A. Products acceptable for use on this project include:
1. Scranton Products
2. General Partitions

B. Toilet-Enclosure Style: **Overhead braced Floor anchored**.

C. Urinal-Screen Style: **Wall hung**.

D. Door, Panel**, Screen**, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, **no-sightline system,** and with homogenous color and pattern throughout thickness of material.

1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
2. Color and Pattern: **One color and pattern as selected by Architect from manufacturer's full range**.

E. Pilaster **Shoes and Sleeves (Caps)**]: Manufacturer's standard design; **polymer**.

1. Polymer Color and Pattern: **Matching pilaster**.

F. Brackets (Fittings):
1. Full-Height (Continuous) Type: Manufacturer's standard design; **stainless steel**.

2.3 HARDWARE AND ACCESSORIES

A. Hardware and Accessories, Heavy Duty: Manufacturer's heavy-duty operating hardware and accessories.

1. Hinges: Manufacturer's minimum 0.062-inch- (1.59-mm-) thick stainless steel **paired, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees at accessible stalls, and continuous, cam type that swings to a closed or partially open position** at standard stalls, allowing emergency access by lifting door. Mount with through bolts.

2. Latch and Keeper: Manufacturer's heavy-duty, surface-mounted, cast-stainless steel latch unit, designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through bolts.
3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories. Mount with through bolts.
4. Door Bumper: Manufacturer's heavy-duty, rubber-tipped, cast-stainless steel bumper at out-swinging doors. Mount with through bolts.
5. Door Pull: Manufacturer's heavy-duty, cast-stainless steel pull at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through bolts.

2.4 MATERIALS

A. Aluminum Castings: ASTM B26/B26M.

B. Aluminum Extrusions: ASTM B221 (ASTM B221M).

C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.

D. Stainless Steel Castings: ASTM A743/A743M.

2.5 FABRICATION

A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.

B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, out-swinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION OF PLASTIC TOILET COMPARTMENTS

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

a. Pilasters and Panels: 1/2 inch (13 mm).
b. Panels and Walls: 1 inch (25 mm).

2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.

a. Locate bracket fasteners, so holes for wall anchors occur in masonry or tile joints.
b. Align brackets at pilasters with brackets at walls.

B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust, so tops of doors are parallel with overhead brace when doors are in closed position.

C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113.19

SECTION 12 36 61 - SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface vanities.
3. Solid surface material backsplashes.
4. Solid surface material end splashes.
5. Solid surface material apron fronts.
6. Solid surface material sinks.
7. Solid surface window sills.
8. Solid surface adhesives and sealants.

B. Related Requirements:

1.3 ACTION SUBMITTALS

A. Product Data: For countertop, wall, and **sill** materials including manufacturer's technical data sheets, and published written instructions.

B. Sustainable Design Submittals:

1. Product Data: For adhesives and sealants, indicating VOC content.
2. Laboratory Test Reports: For adhesives and sealants, indicating compliance with requirements for low-emitting materials.

C. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, terminations, and cutouts.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

D. Samples for Initial Selection: For each type of material exposed to view. See finish schedule on the drawings.

E. Samples for Verification: For the following products:

1. Countertop material, 6 inches (150 mm) square.
2. Countertop, with front edge **and backsplash**, 8 by 10 inches (200 by 250 mm), of construction and in configuration specified.

F. Certificates: For the following certifications:

1. United States Food and Drug Administration (FDA) compliance for food contact materials described in 21 CFR 174 to 21 CFR 190.
2. New York City material equipment acceptance, MEA 181-96-M.
3. ANSI/NSF 51 "food zone" and FDA "direct-food contact" compliant.
4. UL GREENGUARD® Gold Certified product for low-chemical emissions.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and fabricator.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001 quality management system certification for manufacturing facility(ies).

B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

1. Manufacturer-certified fabricator.

C. Installer Qualifications: Manufacturer certified fabricator of countertops.

D. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

1. Build mockup of typical countertop as **indicated by Architect**.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify dimensions of countertops by field measurements **after base cabinets are installed but** before countertop fabrication is complete.

1.8 COORDINATION

A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

1.9 WARRANTY

A. Manufacturer's Warranty: Manufacturer and installer agree to repair or replace sheet material not free from defects in materials, fabrication, or workmanship within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP AND WALL MATERIALS

A. Composition Solid-Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Wilsonart LLC; or a comparable product by one of the following:

    a. Affinity Surfaces; a brand of Domain Industries, Inc.
    b. Avonite Surfaces.
    c. E. I. du Pont de Nemours and Company.
    d. Formica Corporation.
    e. LG Chemical, Ltd.
    f. Meganite Inc.

2. Thickness: As indicated by product specified on the drawings..
3. Panel Weight: As indicated by product specified on the drawings..
4. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

    a. Flame-Spread Index: **25** or less.
    b. Smoke-Developed Index: **450** or less.

5. Colors and Patterns: **As specified on the drawings.**

2.2 COUNTERTOP FABRICATION

A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."

1. Grade: **Premium**

B. Countertops: 1/2-inch (12.7-mm) thick, solid surface material with front edge built up with same material.

C. Backsplashes: **3/4-inch (19-mm)** thick, solid surface material.

D. Fabricate tops with shop-applied edges **and backsplashes** unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

E. Joints: Fabricate countertops without joints.

F. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures **in shop** using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.

    a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop.

2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.
4. Counter-Mounted Cooktops: Prepare countertops in shop for field cutting openings for cooktops. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.

2.3 INSTALLATION MATERIALS

A. Adhesive: Product recommended by solid surface material manufacturer.

1. Adhesives shall have a VOC content of **70**g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m), 1/4 inch (6 mm) maximum. Do not exceed 1/64-inch (0.4-mm) difference between planes of adjacent units.

B. Fasten countertops by adhering with 100-percent silicone material in dab format (not bead format) to base units into underside of countertop at 18 to 24 inches (457 to 610 mm) o.c. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

C. Fasten countertops by adhering with 100-percent silicone material in dab format (not bead format) to base units into underside of countertop at 18 to 24 inches (457 to 610 mm) o.c. Shim as needed to align subtops in a level plane.

D. Secure countertops to subtops or wood-web frame with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

F. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16

SECTION 142100 ELECTRIC TRACTION ELEVATORS

PART 1: GENERAL

1.1 SUMMARY

A. Section Includes: Electric Traction Elevators.

B. Products Supplied but Not Installed Under this Section:

1. Hoist Beam
2. Pit Ladder
3. Inserts mounted in block walls for rail attachments

C. Work Supplied Under Other Sections:

1. Temporary lighting, including temporary lighting in hoistway for machine space with switch located in hoistway on the strike jamb side of top landing door.
2. Main line disconnects for each elevator.
   a. One fused three phase permanent power in building electrical distribution room
3. Hoistway ventilation shall be in accordance with local and national building code requirements.
4. Guide Rail Support shall be structurally adequate to extend from pit floor to top of hoistway, with spans in accordance with requirements of authority having jurisdiction and final layouts.
5. Removable barricades at all hoistway openings, in compliance with OSHA 29 CFR 1926.502 in addition to any local code requirements.
6. Lifeline attachments capable of withstanding 5000 lb load in accordance with OSHA 29 CFR 1926.502. Provide a minimum of 2 at the top, front of each hoistway.
7. Pit lighting: Fixture with switch and guards. Provide illumination level equal to or greater than that required by ASME A17.1/CSA B44 2000, or applicable version.
8. Control space lighting with switch. Coordinate switch with lighting for machine space as allowable by code.
9. Access Doors: As required for access to governor and/or seismic switch. Access door shall be self-closing, self-locking if necessary and operable from the inside without a key.

D. Related sections:

1. Section 015000 – Temporary Facility and Controls
2. Section 033000 - Cast-in-Place Concrete:

3. Section 042000 - Unit Masonry
4. Section 055000 - Metal Fabrications
5. Section 071600 - Cementitious Waterproofing
6. Section 230000 - Heating, Ventilating, and Air Conditioning
7. Section 260000 - Electrical
8. Section 263000 - Electric Power Generating and Storing Equipment
9. Section 273000 - Voice Communications
10. Section 283100 - Fire Detection and Alarm
11. Section 310000 – Earthwork

E. Industry and government standards:

1. ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
2. ADAAG - Accessibility Guidelines for Buildings and Facilities
3. ANSI/NFPA 70, National Electrical Code
4. ANSI/NFPA 80, Standard for Fire Doors and Fire Windows
5. ASME/ANSI A17.1, Safety Code for Elevators and Escalators.

1.2 DESCRIPTION OF ELEVATOR

A. Elevator Equipment: KONE Machine Room-Less gearless traction elevator

B. Equipment Control: KCM831

C. Drive: Regenerative

D. Quantity of Elevators: 1 Elevator

E. Landings: 2

F. Openings: 2 Front Openings, 0 Back Openings

G. Travel: 16’ 0”

H. Rated Capacity: 5,000 lb

I. Rated Speed: 150 FPM

J. Clear Inside Dimensions: (W x D) 5' 7 3/16" x 8' 9 11/16"

K. Cab Height: 8'

L. Clear height under suspended ceiling: 7'-6"

M. Entrance Width and Type: 54" and Left Opening

N. Entrance Height: 7'-0"

O. Main Power Supply: 208 V Volts + 5%, three-phase

P. Operation: Simplex

Q. Machine Location: Inside the hoistway mounted on car guide rail

R. Control Space Location: Integrated control

S. Elevator Equipment shall conform to the requirements of seismic zone: Non-Seismic

T. Maintenance Service Period: 12 Months

1.3 PERFORMANCE REQUIREMENTS

A. Car Performance

1. Car Speed ± 5% of contract speed under any loading condition or direction of travel.
2. Car Capacity: Safely lower, stop and hold (per code) up to 125% of rated load.

B. System Performance

1. Vertical Vibration (maximum): 15 mg ISO187338/ISO 8041 system pk – pk
2. Horizontal Vibration (maximum): 12 mg ISO187338/ISO 8041 system pk – pk
3. Jerk Rate (maximum): 3.3 ft/sec3
4. Acceleration (maximum): 1.3 ft/sec2
5. In Car Noise: 55 dB(A) Maximum
6. Leveling Accuracy: ±0.2 inches
7. Starts per hour (maximum): 240

1.4 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit manufacturer's product literature for each proposed system.

1. Cab design, dimensions and layout.
2. Layout, finishes, and accessories and available options.
3. Controls, signals and operating system.

4. Color selection charts for cab and entrances.

C. Shop Drawings:

1. Clearances and travel of car.
2. Clear inside hoistway and pit dimensions.
3. Location and layout of equipment and signals.
4. Car, guide rails, buffers and other components in hoistway.
5. Maximum rail bracket spacing.
6. Maximum loads imposed on building structure.
7. Hoist beam requirements.
8. Location and sizes of access doors.
9. Location and details of hoistway door and frames.
10. Electrical characteristics and connection requirements.

D. Operation and maintenance data:

1. Provide manufacturer's standard maintenance and operation manual.

E. Diagnostic Tools

1. Prior to seeking final acceptance for the completed project as specified by the Contract Documents, the Elevator Contractor shall deliver to the Owner any specialized tool(s) that may be required to perform diagnostic evaluations, adjustments, and/or parametric software changes and/or test and inspections on any piece of control or monitoring equipment installed.

   This shall include any specialized tool(s) required for monitoring, inspection and/or maintenance where the means of suspension other than conventional wire ropes are furnished and installed by the Elevator Contractor. Any and all such tool(s) shall become property of the Owner. Any diagnostic tool provided to the Owner by the Elevator Contractor shall be configured to perform all levels of diagnostics, systems adjustment and parametric software changes which are available to the Elevator Contractor.

   In those cases where diagnostic tools provided to the Owner require periodic recalibration/or re-initiation, the Elevator Contractor shall perform such tasks at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the competed project During those intervals in which the Owner might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation, or repair, the Elevator Contractor shall provide a temporary replacement for the tool at no additional cost to the Owner.

   The Elevator Contractor shall deliver to the Owner, printed instructions for the proper use of any tool that may be necessary to perform diagnostic evaluations, system adjustment, and/or parametric software changes on any unit of microprocessor-based elevator control equipment

and means of suspension other than standard elevator steel cables furnished and install by the Elevator Contractor.
Accompanying the printed instructions shall be any and all access codes, password, or other proprietary information that is necessary to interface with the microprocessor-control equipment.

1.5 QUALITY ASSURANCE

A. Manufacturer: Minimum of fifteen years' experience in the fabrication, installation and service of elevators of the type and performance of the specified. The manufacturer shall have a documented quality assurance program.

B. Installer: The equipment manufacturer shall install the elevator.

C. Inspection and Testing: In accordance with requirements of local jurisdiction, obtain required permits, inspections and tests.

1.6 DELIVERY, STORAGE AND HANDLING

A. If the construction site is not prepared to receive the elevator equipment at the agreed ship date, the General Contractor shall be responsible for the cost of storage at an approved facility. Additional labor costs for double handling will be the responsibility of the General Contractor.

B. Delivered elevator materials shall be stored in a protected environment in accordance with manufacturer recommendations. A minimum storage area of 10 feet by 20 feet is required adjacent to the hoistway.

1.7 WARRANTY

A. Provide manufacturer warranty for a period of one year. The warranty period is to begin upon final acceptance of the Contract. Warranty covers defects in materials and workmanship. Damage due to ordinary use, vandalism, improper or insufficient maintenance, misuse, or neglect do not constitute defective material or workmanship.

1.8 MAINTENANCE SERVICE

A. The elevator manufacturer shall provide maintenance service consisting of regular examinations and adjustments of the elevator equipment for a period of 12 Months after date of final acceptance.

Predictive maintenance shall be included for the full maintenance period. This service must be capable of using AI-based analytics to identify potential equipment issues and notifying the elevator provider via an internet connection.

Replacement parts shall be produced by the original equipment manufacturer.

B. Maintenance service to be performed during regular working hours of regular working days and shall include emergency call back service during regular working hours.

C. Maintenance service shall not include adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents.

PART 2: PRODUCTS

2.1 MANUFACTURER

A. Provide AC gearless machine room-less elevator systems subject to compliance with the design and performance requirements of this specification. Elevator manufacturers may include but are not limited to one of the following:

1. Basis of Design: KONE Machine Room-Less traction elevators by KONE, Inc. (www.kone.com).

2. Other acceptable machine room-less products: manufacturer with minimum 15 years' experience in manufacturing, installing, and servicing elevators of the type required for the project.

2.2 EQUIPMENT: CONTROL COMPONENTS AND CONTROL SPACE

A. Controller: Provide microcomputer-based control system to perform all functions.

1. All high voltage (110V or above) contact points inside the controller cabinet shall be protected from accidental contact in a situation where the controller doors are open.

2. Controller shall be separated into two distinct halves; Motor Drive side and Control side. High voltage motor power conductors shall be routed and physically segregated from the rest of the controller.

3. Provide a serial cardrack and main CPU board containing a non- erasable EPROM and operating system firmware.

4. Variable field parameters and adjustments shall be contained in a non- volatile memory module.

B. Drive: Provide Variable Voltage Variable Frequency AC drive system to develop high starting torque with low starting current.

C. Controller Location: Locate controller{s} in the front wall integrated with the top landing entrance frame, machine side of the elevator. One non-fused three phase permanent power in hoist way at top landing. A separate control space should not be required.

2.3 EQUIPMENT: HOISTWAY COMPONENTS

A. Machine: AC gearless machine, with permanent magnet synchronous motor, direct current electro-mechanical disc brakes and integral traction drive sheave, mounted to the car guide rail at the top of the hoistway

B. Governor: Friction type over-speed governor rated for the duty of the elevator specified.

C. Buffers, Car and Counterweight: Polyurethane buffer.

D. Hoistway Operating Devices:

1. Emergency stop switch in the pit

2. Terminal stopping switches.

3. Emergency stop switch on the machine

E. Positioning System: System consisting of magnets and proximity switches.

F. Guide Rails and Attachments: Steel rails with brackets and fasteners.

2.4 EQUIPMENT: HOISTWAY ENTRANCES

A. Hoistway Entrances

1. Sills: Extruded Aluminum.

2. Doors: Hollow metal construction with vertical internal channel reinforcements.

3. Fire Rating: Entrance and doors shall be UL fire-rated for 1-1/2 hour.

4. Entrance Finish: Brushed Stainless Steel.

5. Entrance Markings Jamb Plates: Provide standard entrance jamb tactile markings on both jambs, at all floors. Plate Mounting: Refer to manufacturer drawings.

2.5 EQUIPMENT: CAR COMPONENTS

A. Car Frame: Provide car frame with adequate bracing to support the platform and car enclosure.

B. Car Safeties: Device will be provided and mounted under the car platform, securely bolted to the Car Frame. The safety will be actuated by a centrifugal governor mounted at the top of the hoistway. The Safety is designed to operate in case the car attains excessive descending speed.

C. Platform: Platform shall be all steel construction.

D. Car Guides: Provide guide-shoes mounted to top and bottom of both car and counterweight frame. Each guide-shoe assembly shall be arranged to maintain constant contact on the rail surfaces. Provide retainers in areas with Seismic design requirements.

E. Car Wall Finish:

1. Side Walls: Scottish Quad Textured Stainless Steel (K)

2. Rear Wall: Scottish Quad Textured Stainless Steel (K)

3. Car front, Door and Skirting: Brushed Stainless Steel

4. Ceiling: Round, LED spotlights

5. Handrails: Brushed Stainless Steel

   a. Rails to be located on Side Walls of car enclosure.

6. Sills: Aluminum extruded.

F. Cab Wall Protection Pads to be included

G. Flooring: By others. (Not to exceed 6lb/sqft and 1/2" finished depth.)

H. Emergency Car Signals

1. Emergency Siren: Siren mounted on top of cab that is activated when the alarm button in the car operating panel is engaged. Siren shall have rated sound pressure level of 80 dB(A) at a distance of three feet from device. Siren shall respond with a delay of not more than one second after activation of alarm button.

2. Emergency Car Lighting: Provide emergency power unit employing a 12- volt sealed rechargeable battery and totally static circuits shall illuminate the elevator car and provide current to the alarm bell in the event of building power failure.

3. Emergency Exit Contact: An electrical contact shall be provided on the car-top exit.

I. Ventilation: Manufacturer's standard cab fan

2.6 EQUIPMENT: SIGNAL DEVICES AND FIXTURES

A. Car Operating Panel: Provide car operating panel with all push buttons, key switches, and message indicators for elevator operation. Fixture finish to be Brushed Stainless Steel

1. Main Flush mounted car operating panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond to landings served, emergency call button, door open button, door close button, and key switches for lights, inspection, and exhaust fan. Buttons have Amber Dot Matrix illumination (halo). All buttons to have raised text and Braille marking on left hand side. The car operating display panel shall be Amber Dot Matrix. All texts, when illuminated, shall be Amber Dot Matrix. The car operating panel shall have a Brushed Stainless Steel finish.

2. Additional features of car operating panel shall include:

a. Car Position Indicator within operating panel Brushed Stainless Steel

b. Elevator Data Plate marked with elevator capacity and car number on car top.

c. Help buttons with raised markings.

d. In car stop switch per local code.

e. Call Cancel Button.

B. Hall Fixtures: Wall mounted hall fixtures shall be provided with necessary push buttons and key switches for elevator operation. Wall mounted hall fixtures shall have a Brushed Stainless Steel finish.

1. Vandal Resistant hall fixtures shall feature round, mechanical, buttons in applied mount face frame. Hall fixtures shall correspond to options available from that landing. Buttons shall be in a vertically mounted fixture.

C. Car Lantern and Chime: A directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel, and a chime will sound. The chime will sound once for up and twice for down. The car riding lantern face plate shall have a Brushed Stainless Steel finish.

2.7 EQUIPMENT: ELEVATOR OPERATION AND CONTROLLER

A. Elevator Operation

1. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

2. Zoned Car Parking.

3. Relative System Response Dispatching.

B. Standard Operating Features to include:

1. Full Collective Operation

2. Fan and Light Control.

3. Load Weighing Bypass.

4. Ascending Car Uncontrolled Movement Protection

5. Top of Car Inspection Station.

C. Additional Operating Features to include:

1. Independent Service.
2. Hoistway Access Bottom Landing.
3. Hoistway Access Top Landing.
4. Car Wall Protection Pads
5. Provision for Card Reader in Car (Card Reader provided and Installed by others).

6. Emergency Battery Power Supply
   a. When the main line power is lost for longer than 5 seconds the emergency battery power supply provides power automatically to the elevator controller. The elevator will rise or lower to the first available landing, open the doors, and shut down. The elevator will return to service upon the return of normal main line power. An auxiliary contact on the main line disconnect and shunt trip breaker (if required) shall be provided by others.

D. Elevator Control System for Inspections and Emergency

1. Provide devices within controller to run the elevator in inspection operation.

2. Provide devices on car top to run the elevator in inspection operation.

3. Provide within controller an emergency stop switch to disconnect power from the brake and prevents motor from running.

4. Provide the means from the controller to mechanically lift and control the elevator brake to safely bring car to nearest available landing when power is interrupted.

5. Provide the means from the controller to reset the governor over speed switch and also trip the governor.

6. Provide the means from the controller to reset the emergency brake when set because of an unintended car movement or ascending car over speed.

7. Provide the means for the control to reset elevator earthquake operation.

2.8 EQUIPMENT: DOOR OPERATOR AND CONTROL

A. Door Operator: A closed loop permanent magnet VVVF high-performance door operator shall be provided to open and close the car and hoistway doors simultaneously. Door movement shall be cushioned at both limits of travel. Electro-mechanical interlock shall be provided at each hoistway entrance to prevent operation of the elevator unless all doors are closed and locked. An electric contact shall be provided on the car at each car entrance to prevent the operation of the elevator unless the car door is closed.

B. The door operator shall be arranged so that, in case of interruption or failure of electric power, the doors can be readily opened by hand from within the car, in accordance with applicable code. Emergency devices and keys for opening doors from the landing shall be provided as required by local code.

C. Doors shall open automatically when the car has arrived at or is leveling at the respective landings. Doors shall close after a predetermined time interval or immediately upon pressing of a car button. A door open button shall be provided in the car. Momentary pressing of this button shall reopen the doors and reset the time interval.

D. Door hangers and tracks shall be provided for each car and hoistway door. Tracks shall be contoured to match the hanger sheaves. The hangers shall be designed for power operation with provisions for vertical and lateral adjustment. Hanger sheaves shall have polyurethane tires and pre-lubricated sealed-for-life bearings.

E. Electronic Door Safety Device. The elevator car shall be equipped with an electronic protective device extending the full height of the car. When activated, this sensor shall prevent the doors from closing or cause them to stop and reopen if they are in the process of closing. The doors shall remain open as long as the flow of traffic continues and shall close shortly after the last person passes through the door opening.

PART 3: EXECUTION

3.1 EXAMINATION

A. Field measure and examine substrates, supports, and other conditions under which elevator work is to be performed.

B. Do not proceed with work until unsatisfactory conditions are corrected.

C. Prior to start of work, verify hoistway is in accordance with shop drawings. Dimensional tolerance of hoistway from shop drawings: -0 inches +2 inches. Do not begin work of this section until dimensions are within tolerances.

D. Prior to start of work, verify projections greater than two inches (four inches if ASME A17.1/CSA B44 2000 applies) must be beveled not less than 75 degrees from horizontal.

E. Prior to start of work, verify landings have been prepared for entrance sill installation. Traditional sill angle or concrete sill support shall not be required.

F. Prior to start of work, verify elevator pit has been constructed in accordance with requirements, is dry and reinforced to sustain vertical forces, as indicated in approved submittal. Verify that sumps or sump pumps located within pit will not interfere with installed elevator equipment.

G. Prior to start of work, verify control space has been constructed in accordance with requirements, with access coordinated with elevator shop drawings, including sleeves and penetrations.

H. Verify installation of GFCI protected 20-amp in pit and adjacent to each signal control cabinet in control space.

3.2 PREPARATION

A. Coordinate installation of anchors, bearing plates, brackets and other related accessories.

3.3 INSTALLATION

A. Install equipment, guides, controls, car and accessories in accordance with manufacturer installation methods and recommended practices.

B. Properly locate guide rails and related supports at locations in accordance with manufacturer's recommendations and approved shop drawings. Anchor to building structure using isolation system to minimize transmission of vibration to structure.

C. All hoistway frames shall be securely fastened to fixing angles mounted in the hoistway. Coordinate installation of sills and frames with other trades.

D. Lubricate operating system components in accordance with manufacturer recommendations.

E. Perform final adjustments, and necessary service prior to final acceptance.

3.4 CONSTRUCTION

A. Interface with Other Work:

1. Guide rail brackets attached to steel shall be installed prior to application of fireproofing.

2. Coordinate construction of entrance walls with installation of door frames and sills. Maintain front wall opening until elevator equipment has been installed.

3. Ensure adequate support for entrance attachment points at all landings.

4. Coordinate wall openings for hall push buttons, signal fixtures and sleeves. Each elevator requires sleeves within the hoistway wall.

5. Coordinate emergency power transfer switch and power change pending signals as required for termination at the primary elevator signal control cabinet in each group.

6. Coordinate interface of elevators and fire alarm system.

7. Coordinate interface of dedicated telephone line.

3.5 TESTING AND INSPECTIONS

A. Perform recommended and required testing in accordance with authority having jurisdiction

B. Obtain required permits and provide originals to Owner's Representative.

3.6 DEMONSTRATION

A. Prior to final acceptance, instruct Owner's Representative on the proper function and required daily maintenance of elevators. Instruct personnel on emergency procedures.

SECTION 23 09 23 - DIRECT DIGITAL CONTROLS

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-23 Basic Mechanical Materials and Methods sections apply to work of this section.

1.3 Extent of Energy Management Control And DDC Systems (EMCS/DDC) work required by this section is indicated on drawings and input/output schedules, and by requirements of this section.

1.4 Refer to other Division-23 sections for installation of instrument wells, valve bodies and dampers in mechanical systems; not work of this section.

1.5 Refer to Division-26 sections for the following work; not work of this section. Power supply wiring for power source to power connection on controls and/or EMCS panels. Include starters, disconnects, and required electrical devices, except where specified as furnished, or factory-installed, by manufacturer.

1.6 Provide the following electrical work as work of this section, complying with requirements of Division-26 sections: Control wiring between field-installed controls, equipment, indicating devices, and EMCS/DDC panels.

1.7 Codes and Standards:

1.7.1 Electrical Standards: Provide electrical products which have been tested, listed and labeled by UL and comply with NEMA standards.

1.7.2 NEMA Compliance: Comply with NEMA standards pertaining to components and devices for electric control systems.

1.7.3 NFPA Compliance: Comply with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems" where applicable to controls and control sequences.

1.7.4 Federal Communication Commission (FCC) as required.

1.8 Approval Submittals:

1.8.1 Product Data: Submit manufacturer's technical product data for each EMCS/DDC panel and control device furnished, indicating dimensions, capacities, performance characteristics, electrical characteristics, finishes of materials. Include installation instructions and start-up instructions. Provide technical specification data for each component and software module.

1.8.2 Shop Drawings: Submit shop drawings for the EMCS/DDC containing the following information prior to install:

1.8.2.1 Schematic flow diagram of system showing heat pump units, outside air units, and control devices.

1.8.2.2 Label each control device with setting or adjustable range of control.

1.8.2.3 Indicate all required electrical wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed. The point-to-point wiring diagram shall show all interconnections.

1.8.2.4 Provide details of faces of EMCS/DDC panels, including controls instruments and labeling.

1.8.2.5 Include written description of sequence of operation.

1.8.2.6 Provide a scaled floor plan drawing showing location of all conduit, control cabling, junction boxes, control devices, and surge suppression devices.

1.8.2.7 Provide a typical graphic for each piece of equipment as it will appear on the digital controls interface.

1.9 Test Reports and Verification Submittals:

1.9.1 Submit system verification letter from manufacturers representative stating that all HVAC controls have been checked, calibrated, started up and verified for proper operation. State that the Owner training has been completed and provide a roster of attendees.

1.10 O&M Data Submittals:

1.10.1 Maintenance Data: Submit maintenance instructions and spare parts lists for each type of control device. Include that type data, and a copy of all approval submittals in O&M Manual.

1.10.2 System Manual: In addition to the maintenance data requirements, provide an EMCS/DDC Owner's Manual in a separate binder specifically for this project. This manual shall provide a description of the information flow to and from panels and devices and shall describe the overall communications network. The manual shall also include operating instructions, block diagrams, schematics, schedules, and system descriptions. Instruct Owner's personnel with this manual during the required training periods.

1.10.3 Software: Submit a copy of all software.

1.10.4 Service: Submit name, address, and telephone number of company that will provide service and training for the system.

1.10.5 As-Built Drawings: Provide a scaled floor plan drawing showing location of all conduit, control cabling, junction boxes, control devices, and surge suppression devices.

2 PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide EMCS/DDC control systems of one of the following:

Automated Logic
Schneider Electric IA Series
Trane

2.2 General: Provide EMCS/DDC control products in sizes and capacities indicated, consisting of valves, dampers, sensors, controllers and other components as required for complete installation. Except as otherwise indicated, provide manufacturer's standard control system components as indicated by published product information, designed and constructed as recommended by manufacturer. Provide an EMCS/DDC controls system with the following functional and construction features as indicated. Communications between System Controllers and sub-networks of Custom Application Controllers and/or Application Specific Controllers shall utilize BACnet MSTP (RS485) communications.

2.2.1 Each System Controller shall perform communications to a network of Custom Application and Application Specific Controllers using BACnet/MSTP (RS485) as prescribed by the BACnet standard. Each System Controller shall function as a BACnet Router to each unit controller

providing a unique BACnet Device ID for all controllers within the system.

2.2.2 The Controls Contractor shall provide all communication media, connectors, repeaters and network switches routers necessary for the high speed Ethernet communications network.

2.2.3 All values within the system (i.e. schedules, datalogs, points, software variables, custom program variables) shall be readable and controllable (where appropriate) by any System Controller or BACnet Workstation on the communications network via BACnet.

2.3 Quality Assurance:

2.3.1 Provide equipment of firms regularly engaged in manufacture of EMCS/DDC equipment, of types required, whose products have been in satisfactory use in similar service for not less than three years. Provide evidence that software has been in use satisfactorily for at least one year.

2.3.2 Contractor shall have at least three years experience in the installation and servicing of EMCS/DDC equipment similar to that being installed. Contractor shall have an office within 100 miles of the project and shall maintain a remote terminal capable of communication with the EMCS/DDC during the year warranty period.

2.4 Dampers: Refer to Division-23 Section “Ductwork Accessories” for dampers. Actuators are work of this section.

2.5 Actuator Motors: Size each motor to operate dampers or valves with sufficient reserve power to provide smooth modulating action or two position action as specified.

2.5.1 Provide permanent split-capacitor or shaded pole type motors with gear trains completely oil-immersed and sealed. Equip spring-return motors, where indicated on drawings or in operational sequence, with integral spiral-spring mechanism. Furnish entire mechanism in housing designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.

2.5.2 Equip motors for outdoor locations and for outside air intakes with “O-ring” gaskets designed to make motors completely weatherproof, and equip with internal heaters to permit normal operation at 10ºF.

2.5.3 Furnish non-spring return motors for dampers larger than 25 sq. ft. and for valves larger than 2½”. Size for running torque rating of 150 inch-pounds and breakaway torque rating of 300 inch-pounds. Size spring-return motors for running torque rating of 150 inch-pounds and breakaway torque rating of 150 inch-pounds.

2.6 EMCS/DDC Associated Components:

2.6.1 Provide field-programmable microprocessor-based, stand-alone EMCS/DDC panels as specified herein. The EMCS/DDC panel manufacturer shall be responsible for the complete engineering of the panel. The panel shall be UL listed and housed in a key locked metal cabinet. Parts shall be plug in (modular) for easy repair or expansion. Power input shall be 24V or 120 V. Relays and contacts shall be rated at 24 VA at 24 VAC or 125 VA at 120 and 230 VAC, as required.

1. The System Controller shall have sufficient memory to support its operating system, database, and programming requirements.
2. The controller shall provide a USB communications port for connection to a PC
3. The operating system of the Controller shall manage the input and output communications signals to allow distributed controllers to share real and virtual point information and allow central monitoring and alarms.

4. All System Controllers shall have a real time clock.
5. Data shall be shared between networked System Controllers.
6. The System Controller shall continually check the status of its processor and memory circuits. If an abnormal operation is detected, the controller shall:
   a. Assume a predetermined failure mode.
   b. Generate an alarm notification.
   c. Create a retrievable file of the state of all applicable memory locations at the time of the failure.
   d. Automatically reset the System Controller to return to a normal operating mode.
7. Environment. Controller hardware shall be suitable for the anticipated ambient conditions. Controller used in conditioned ambient shall be mounted in an enclosure, and shall be rated for operation at -40 F to 122 F.
8. Clock Synchronization.
   a. All System Controllers shall be able to synchronize with a NTP server for automatic time synchronization.
   b. All System Controllers shall be able to accept a BACnet time synchronization command for automatic time synchronization.
   c. All System Controllers shall automatically adjust for daylight savings time if applicable.
9. Serviceability
   a. Provide diagnostic LEDs for power, communications, and processor.
   b. The System Controller shall have a display on the main board that indicates the current operating mode of the controller.
   c. All wiring connections shall be made to field removable, modular terminal connectors.
   d. The System controller shall utilize standard DIN mounting methods for installation and replacement.
10. Memory. The System Controller shall maintain all BIOS and programming information indefinitely without power to the System controller
11. Immunity to power and noise. Controller shall be able to operate at 90% to 110% of nominal voltage rating and shall perform an orderly shut-down below 80% nominal voltage
12. BACnet Test Labs (BTL) Listing. Each System Controller shall be listed as a Building Controller (B-BC) by the BACnet Test Labs.

2.7 EMCS/DDC Functions: Furnish the following applications software for building and energy management. All software applications shall reside and run in the system controllers. Editing of applications shall occur at the operator interface.

1. Scheduling. Provide the capability to schedule each object or group of objects in the system. Each of these schedules shall include the capability for start, stop, optimal start, optimal stop, and night economizer actions. Each schedule may consist of up to [10] events. When a group of objects are scheduled together, provide the capability to define advances and delays for each member. Each schedule shall consist of the following:
   a. Weekly Schedule. Provide separate schedules for each day of the week.
   b. Exception Schedules. Provide the ability for the operator to designate any day of the year as an exception schedule. This exception schedule shall override the standard schedule for that day. Exception schedules may be defined up to a year in advance. Once an exception schedule is executed it will be discarded and replaced by the standard schedule for that day of the week.
   c. Holiday Schedules. Provide the capability for the operator to define up to 99 special or holiday schedules. These schedules may be placed on the scheduling calendar and will be repeated each year. The operator shall be able to define the length of each holiday period.
   d. Optimal Start. The scheduling application outlined above shall support an optimal start algorithm. This shall calculate the thermal characteristics of a zone and start the equipment prior to occupancy to achieve the desired space temperature at the specified occupancy time. The algorithm shall calculate separate sets of heating and

cooling rates for zones that have been unoccupied for less then and greater than 24 hours. Provide the ability to modify the start algorithm based on outdoor air temperature. Provide an early start limit in minutes to prevent the system from starting before an operator determined time limit.

2. Trend Log Application
   a. Trend log data shall be sampled and stored on the System Controller panel and shall capable of being archived to a BACnet Workstation for longer term storage.
      1) Trend logs shall include interval, start-time, and stop-time.
      2) Trend log intervals shall be configurable as frequently as 1 minute and as infrequently as 1 year.
   b. Automated Trend Logs.
      1) The system controller shall automatically create trend logs for defined key measurements for each controlled HVAC device and HVAC application.
      2) The automatic trend logs shall monitor these parameters for a minimum of 7 days at 15 minute intervals. The automatic trend logs shall be user adjustable.
3. Alarm/Event Log
   a. Any object in the system shall be configurable to generate an alarm when transitioning in and out of a normal or fault state.
   b. Any object in the system shall allow the alarm limits, warning limits, states, and reactions to be configured for each object in the system.
   c. An alarm/event shall be capable of triggering any of the following actions:
      1) Route the alarm/event to one or more alarm log. The alarm message shall include the name of the alarm location, the device that generated the alarm, and the alarm message itself.
      2) Route an e-mail message to an operator(s)
      3) Log a data point(s) for a period of time
      4) Run a custom control program
4. Point Control. User shall have the option to set the update interval, minimum on/off time, event notification, custom programming on change of events.
5. Timed Override. A standard application shall be utilized to enable/disable temperature control when a user selects on/cancel at the zone sensor, operator interface, or the local operator display. The amount of time that the override takes precedence will be selectable from the operator interface.
6. Anti-Short Cycling. All binary output points shall be protected from short cycling

2.8 Operator Interface:

1. Operator Interface
   a. The operator interface shall be accessible via a web browser.
   b. The operator interface shall support the following Internet web browsers:
      1) Internet Explorer 8.0+
   c. The operator interface shall support the following mobile web browsers:
      1) iOS (iPad/iPhone) V4.0+
      2) Android (Phone) V2.3+
2. Mobile App Operator Interface
   a. Mobile App Operator Interface shall support the following Operating systems
      1) Apple iOS 5
      2) Apple iOS 6
      3) Android V2.3
      4) Android V4.0
      5) Android V4.1
   b. The operator interface shall support system access on a mobile device via a mobile app to:
      1) Alarm log
      2) System Status
      3) Equipment status
      4) Space Status

5) Standard Equipment graphics

c. The operator interface shall support actions on a mobile device via a mobile app to:
   1) Override set points
   2) Override occupancy
   3) Acknowledge Alarms
   4) Comment on Alarms

d. System Security
   1) Each operator shall be required to login to the system with a user name and password in order to view, edit, add, or delete data.
   2) User Profiles shall restrict the user to only the objects, applications, and system functions as assigned by the system administrator.
   3) Each operator shall be allowed to change their user password
   4) The System Administrator shall be able to manage the security for all other users
   5) The system shall include pre-defined “roles” that allow a system administrator to quickly assign permissions to a user.
   6) User logon/logoff attempts shall be recorded.
   7) The system shall protect itself from unauthorized use by automatically logging off following the last keystroke. The delay time shall be user definable.
   8) All system security data shall be stored in an encrypted format.

e. Database
   1) Database Save. A system operator with the proper password clearance shall be able to archive the database on the designated operator interface PC.
   2) Database Restore. The system operator shall also be able to clear a panel database and manually initiate a download of a specified database to any panel in the system.

f. On-Line Help and Training
   1) Provide a context sensitive, on line help system to assist the operator in operation and configuration of the system.
   2) On-line help shall be available for all system functions and shall provide the relevant data for each particular screen.

g. System Diagnostics
   1) The system shall automatically monitor the operation of all network connections, building management panels, and controllers.
   2) The failure of any device shall be annunciated to the operators.

h. Equipment & Application Pages
   1) The operator interface shall include standard pages for all equipment and applications. These pages shall allow an operator to obtain information relevant to the operation of the equipment and/or application, including:
      a) Animated Equipment Graphics for each major piece of equipment and floor plan in the System. This includes:
         (1) Each Outside Air Unit (OAU), VRF Heat Pump(MHP), and VRF indoor units (AHU). These graphics shall show all points dynamically as specified in the points list.
         (2) Animation capabilities shall include the ability to show a sequence of images reflecting the position of analog outputs, such as valve or damper positions. Graphics shall be capable of launching other web pages.
      b) Alarms relevant to the equipment or application without requiring a user to navigate to an alarm page and perform a filter.
      c) Historical Data (As defined in Automatic Trend Log section below) for the equipment or application without requiring a user to navigate to a data log page and perform a filter.

i. System Graphics. Operator interface shall be graphically based and shall include at least one graphic per piece of equipment or occupied zone, and graphics that summarize conditions on each floor included in this contract. Indicate thermal comfort on floor plan summary graphics using colors to represent zone temperature relative to zone set point.

1) Functionality. Graphics shall allow operator to monitor system status, to view a summary of the most important data for each controlled zone or piece of equipment, to use point and-click navigation between zones or equipment, and to edit set points and other specified parameters.
2) Graphic imagery – graphics shall use 3D images for all standard and custom graphics. The only allowable exceptions will be photo images, maps, schematic drawings, and selected floor plans.
3) Animation. Graphics shall be able to animate by displaying different Image lies for changed object status.
4) Alarm Indication. Indicate areas or equipment in an alarm condition using color or other visual indicator.
5) Format. Graphics shall be saved in an industry-standard format such as BMP, JPEG, PNG, or GIF. Web-based system graphics shall be viewable on browsers compatible with World Wide Web Consortium browser standards. Web graphic format shall require no plug-in (such as HTML and JavaScript) or shall only require widely available no-cost plug-ins (such as Active-X and Macromedia Flash).

j. Custom Graphics
1) The operator interface shall be capable of displaying custom graphics in order to convey the status of the facility to its operators.
2) Graphical Navigation. The operator interface shall provide dynamic color graphics of building areas, systems and equipment.
3) Graphical Data Visualization. The operator interface shall support dynamic points including analog and binary values, dynamic text, static text, and animation files.
4) Custom background images. Custom background images shall be created with the use of commonly available graphics packages such as Adobe Photoshop. The graphics generation package shall create and modify graphics that are saved in industry standard formats such as GIF and JPEG.

k. Graphics Library. Furnish a library of standard HVAC equipment such as chillers, air handlers, terminals, fan coils, unit ventilators, rooftop units, and VAV boxes, in 3-dimensional graphic depictions. The library shall be furnished in a file format compatible with the graphics generation package program.

l. Manual Control and Override.
1) Point Control. Provide a method for a user to view, override, and edit if applicable, the status of any object and property in the system. The point status shall be available by menu, on graphics or through custom programs.
2) Temporary Overrides. The user shall be able to perform a temporary override wherever an override is allowed, automatically removing the override after a specified period of time.
3) Override Owners. The system shall convey to the user the owner of each override for all priorities that an override exists.
4) Provide a specific icon to show timed override or operator override, when a point, unit controller or application has been overridden manually.

m. Engineering Units
1) Allow for selection of the desired engineering units (i.e. Inch pound or SI) in the system.
2) Unit selection shall be able to be customized by locality to select the desired units for each measurement.
3) Engineering units on this project shall be IP.

3. Scheduling. A user shall be able to perform the following tasks utilizing the operator interface:
a. Create a new schedule, defining the default values, events and membership.
b. Create exceptions to a schedule for any given day.
c. Apply an exception that spans a single day or multiple days.
d. View a schedule by day, week and month.
e. Exception schedules and holidays shall be shown clearly on the calendar.

f. Modify the schedule events, members and exceptions.

4. Trend Logs
   a. Trend Logs Definition.
      1) The operator interface shall allow a user with the appropriate security permissions to define a trend log for any data in the system.
      2) The operator interface shall allow a user to define any trend log options as described in the Application and Control Software section.
   b. Trend Log Viewer.
      1) The operator interface shall allow Trend Log data to be viewed and printed.
      2) The operator interface shall allow a user to view trend log data in text-based (time –stamp/value).
      3) The operator shall be able to view the data collected by a trend log in a graphical chart in the operator interface.
      4) Trend log viewing capabilities shall include the ability to show a minimum of 5 points on a chart.
      5) Each data point trend line shall be displayed as a unique color.
      6) The operator shall be able to specify the duration of historical data to view by scrolling and zooming.
      7) The system shall provide a graphical trace display of the associated time stamp and value for any selected point along the x-axis.
   c. Export Trend Logs.
      1) The operator interface shall allow a user to export trend log data in CSV or PDF format for use by other industry standard word processing and spreadsheet packages.
5. Alarm/Event Notification
   a. An operator shall be notified of new alarms/events as they occur while navigating through any part of the system via an alarm icon.
   b. Alarm/Event Log. The operator shall be able to view all logged system alarms/events from any operator interface.
      1) The operator shall be able to sort and filter alarms from events. Alarms shall be sorted in a minimum of 4 categories based on severity.
      2) Alarm/event messages shall use full language, easily recognized descriptors.
      3) An operator with the proper security level may acknowledge and clear alarms/events.
      4) All alarms/events that have not been cleared by the operator shall be stored by the building controller.
      5) The alarm/event log shall include a comment field for each alarm/event that allows a user to add specific comments associated with any alarm.
   c. Alarm Processing.
      1) The operator shall be able to configure any object in the system to generate an alarm when transitioning in and out of a normal state.
      2) The operator shall be able to configure the alarm limits, warning limits, states, and reactions for each object in the system.
6. Reports and Logs.
   a. The operator interface shall provide a reporting package that allows the operator to select reports.
   b. The operator interface shall provide the ability to schedule reports to run at specified intervals of time.
   c. The operator interface shall allow a user to export reports and logs from the building controller in a format that is readily accessible by other standard software applications including spreadsheets and word processing. Acceptable formats include:
      1) CSV, HTML, XML, PDF
   d. Reports and logs shall be readily printed to the system printer.
   e. Provide a means to list and access the last 10 reports viewed by the user.
   f. The following standard reports shall be available without requiring a user to manually configure the report:

1) All Points in Alarm Report: Provide an on demand report showing all current alarms.
2) All Points in Override Report: Provide an on demand report showing all overrides in effect.
3) Commissioning Report: Provide a one-time report that lists all equipment with the unit configuration and present operation.
4) Points report: Provide a report that lists the current value of all points

7. Custom Application Programming. Provide the tools to create, modify, and debug custom application programming. The operator shall be able to create, edit, and download custom programs at the same time that all other system applications are operating. The system shall be fully operable while custom routines are edited, compiled, and downloaded.
8. Custom Graphic Editor. Provide the tools to create, modify, and debug custom graphics. The operator shall be able to create, edit, and download custom graphics at the same time that all other system applications are operating. The system shall be fully operable while custom graphics are edited, compiled, and downloaded.

2.9 Associated Hardware: Provide actuators, relays, and other interface devices as required to execute the indicated control functions.

2.10 EMCS/DDC Input Devices:

2.10.1 Temperature Sensors: Provide nickel resistance temperature detector (RTD) type sensors for duct, well or room mounting as required by duty indicated. Accuracy: plus or minus 0.5ºF.

2.10.2 Current Transformers: Provide current transformers (and potential transformers if required) and all associated interface equipment for sensing kW demand.

2.10.3 Programmable Thermostats: Provide field programmable electronic thermostats with BACnet MS/TP communications protocol for commercial applications. Provide internal temperature and humidity sensors, test output menu or service mode for commissioning and manual output testing, configurable occupancy outputs (24v terminal, sensor based or scheduled) to enable external equipment, occupied override button with configurable duration.

Viconics VT Series
Viconics VZ Series
Honeywell TC500 Series
Schneider Electric SD7600 Series
Schneider Electric SD8600 Series
Sieimens RDY2000 Series
Distech ECLYPSE Series
Trane BAYSENS924 Series

2.11 Guarantee:

2.11.1 All components, parts, and assemblies shall be guaranteed against defects in material and workmanship for a period of one year after acceptance. Expressed warranties are conditionally based on the requirement that the items covered within the guarantee are used and maintained in accordance with the manufacturer's recommendations. Guarantee commences at time of acceptance and continues for one year. Acceptance shall not occur until the Owner's operators are able to use the EMCS/DDC and receive reliable information from inputs and outputs.

2.11.2 The first year guarantee shall, as part of the base bid for the EMCS/DDC, include full service and maintenance of the EMCS/DDC. This service and maintenance shall include all necessary repair, reprogramming, calibration, cleaning, minimum (4) quarterly inspections, call back service, etc. This first year service, maintenance and guarantee shall be included in the

base bid of the EMCS/DDC.

3 EXECUTION

3.1 Examine areas and conditions under which EMCS/DDC work is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.2 Installation of EMCS/DDC:

3.2.1 General: Install systems and materials in accordance with manufacturer's instructions, shop drawings, and details on drawings. Install electrical components and use electrical products complying with requirements of applicable Division-26 sections of these specifications. Mount panels at convenient locations and heights.

3.2.2 Control Wiring: The term "control wiring" is defined to include wire, conduit and miscellaneous materials as required for mounting and connecting electric control devices. Install all control wiring in conduit. All low voltage control wiring shall be installed in conduit.

3.2.3 Wiring System: Install complete control wiring system for the EMCS/DDC. Conceal wiring, except in mechanical rooms and areas where other conduit and piping are exposed. Provide multi-conductor instrument harness (bundle) in place of single conductors where number of conductors can be run along common path. Fasten flexible conductors bridging cabinets and doors, neatly along hinge side, and protect against abrasion. Tie and support conductors neatly.

3.2.4 Install control wiring in accordance with the National Electric Code and Division 26 requirements.

3.2.5 Number-code or color-code conductors, excluding those used for local individual room controls, appropriately for future identification and servicing of control system. Tag all sensor wiring to identify zone number and room number where sensor is located.

3.2.6 Label all sensors, valves, dampers, safety devices and controllers with engraved tags matching the shop drawings.

3.3 Programming of EMCS/DDC:

3.3.1 The Contractor shall obtain operational schedules for the controlled equipment from the Engineer. Submittal data relevant to operational schedules shall be forwarded from the Contractor to the Engineer. Upon receipt of approval, the Contractor shall proceed with installation, setup, calibration and check out of the various control and monitoring systems.

Having completed component and system installation, the Contractor shall submit a written request to the Engineer to inspect and approve their satisfactory operation.

3.3.2 The EMCS/DDC shall perform all functions on the equipment as describes in as called for in the input/output schedule on the drawings. This, in conjunction with the drawings, defines the scope and extent of the project with regard to the required number of panels, control point relays, and devices. Field verify voltages at point-of-interface and provide relays as required.

3.3.3 Channel numbers may be reassigned by the Contractor during shop drawing submittal.

3.3.4 Model numbers, horsepowers, voltages, and other information equipment where listed on the drawings are for Contractor's convenience. Verify all information in the field as necessary for preparation of shop drawings.

3.4 Functional Requirements of EMCS/DDC:

3.4.1 Provide all necessary relays, sensors, wiring and contacts to achieve proper operation.

3.4.2 Connect EMCS/DDC panels to remote panels where shown.

3.5 Adjusting and Cleaning:

3.5.1 Startup: Startup, test, and adjust the EMCS/DDC in presence of manufacturer's authorized representative. Demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

3.5.2 Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

3.5.3 Final Adjustment: After completion of installation, adjust the program, relays, interface devices, and similar equipment provided as work of this section for optimum operation.

3.6 Owner's Instructions:

3.6.1 During system startup and at such time acceptable performance of the EMCS/DDC hardware and software has been established, the Contractor shall provide on-site operator instruction. This instruction shall be performed during normal working hours and shall be conducted by a competent representative of the Contractor familiar with the system's software, hardware and accessories. The Contractor shall maintain a roster of all attendees at all training sessions.

3.6.2 At a time mutually agreed upon during system training as stated above, the Contractor shall give up to 40 hours (as needed) of instruction to the Owner's designated personnel on the operation of all equipment within the EMCS/DDC and describe its intended use with respect to the programmed functions specified.

3.6.3 Operator orientation of the EMCS/DDC shall include, but not be limited to, the overall operational program, equipment functions both individually and as part of the total integrated system, commands, advisories, and appropriate operator intervention required in responding to the EMCS/DDC operation.

3.6.4 Provide at least 14-day notice to Owner and Engineer of training dates.

3.7 System Verification: The manufacturer's authorized representative shall state in writing to the Engineer that the EMCS/DDC system is operating properly, final adjustments and calibrations are complete, and Owner training has been accomplished.

END OF SECTION

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SECTION 28 46 21.11 – ADDRESSABLE FIRE ALARM SYSTEMS

PART 1 - GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this Section.

1.2 Division-26 Electrical Sections apply to work of this Section.

A. The fire alarm system shall be installed by a state certified fire alarm system installation Contractor.

B. It is the intent of this specification to provide an individual complete and operational low voltage, time-division multiplexed, addressable intelligent fire alarm system as described herein. The system shall include, but not be limited to: control panels and power supplies, standby power supply and battery, alarm initiating and indicating appliances and devices, monitor and supervision devices, system wiring, and accessories required to provide and install a complete and software operational system. All equipment and installation shall comply with the requirements of these specifications and the related Drawings. Items specified by either shall be as if specified by both. The individual system specified herein shall be networked as described herein.

C. The equipment and installation shall comply with the current provisions of the following standards:

National Fire Protection Association Standards:
NFPA 70 National Electric Code
NFPA 72 National Fire Alarm Code
NFPA 101 Life Safety Code
Underwriters Laboratories Inc.

Underwriters Laboratories Inc. for use in fire protective signaling systems shall list the system and all components. The UL Label shall be considered as evidence of compliance with this requirement. The equipment shall be listed by UL under the following standards as applicable:

UL 864/UOJZ, APOU	Control Units for Fire Protective Signaling Systems.
UL 1076/APOU	Proprietary Burglar Alarm Units and Systems.
UL 268	Smoke Detectors for Fire Protective Signaling Systems.
UL 268A	Smoke Detectors for Duct Applications.
UL 521	Heat Detectors for Fire Protective Signaling Systems.
UL 228	Door Holders for Fire Protective Signaling Systems.
UL 464	Audible Signaling Appliances.
UL 1638	Visual Signaling Appliances.
UL 38	Manually Activated Signaling Boxes.
UL 1971	Visual Signaling Appliances.
UL 1481	Power Supplies for Fire Protective Signaling Systems.
UL 1711	Amplifiers for Fire Protective Signaling Systems.

Any equipment not bearing a UL Label shall be removed and replaced with labeled equipment at the Contractors' expense.

Americans with Disabilities Act (ADA)

In the case of any discrepancy between these specifications, the project drawings, and any applicable local codes, the installed Fire Alarm System shall comply with the most stringent requirement.

D. The system and all components shall be listed by Underwriter's Laboratories for specific application

as fire alarm equipment. The UL label shall be prima facie evidence of compliance with this requirement. Any equipment not bearing a UL label will be unacceptable and will be removed and replaced with labeled equipment at the Contractor's expense.

1.3 SUBMITTALS:

A. Submit the producer's standard descriptive data sheets for each type of product being provided. Mark the data sheet for the product being provided with an identifying mark or arrow. Complete data sheets bearing the printed logo or trademark of the fire alarm control panel manufacturer for the following equipment:

1. System Control Panel.
2. System Power Supply.
3. Standby Power Supply.
4. Each type of automatic smoke detector and fire detector.
5. Manual alarm initiating station.
6. Audible/Visual alarm indicating appliances.
7. Voice Evacuation Equipment
8. Any other items required by the Project Drawings or Specifications.

B. Evidence of listing of all proposed equipment by UL for application as fire alarm equipment.

C. Submit a scaled "point-to-point" wiring diagram showing the connections to the equipment and terminal cabinets. Indicate the equipment numbers, terminal numbers, wire numbers, zone numbers, wire colors, junction box sizes, and conduit sizes. Include the connections for the Mechanical Systems and the Fire Detection and Alarm System. The submittal shall be made for approval prior to the installation of the wiring in the raceways. Make a clear statement that all circuits shall be terminated on terminal strips and that wire nuts will not be allowed. Electronic floor plans are available from the Architect.

D. A custom wiring diagram for the building showing wiring to each individual appliance and device.

E. Submit voltage drop calculations for all alarm circuits.

F. Submit battery calculations for the fire alarm panel with all devices under supervisory and alarm conditions.

G. Evidence of certification of the proposed fire alarm Contractor by both the State of Florida Department of Professional Regulation.

H. Written certification by the fire alarm Contractor that no power supply or circuit on the system has an electrical load greater than 80% of its rated capacity.

I. No equipment shall be purchased by the Contractor for the fire alarm system until the Architect has approved the above submittals in entirety and returned them to the Contractor.

J. It is the Contractor's responsibility to meet the entire intent of the specifications. Approved submittals shall only allow the Contractor to proceed with the installation and shall not be construed to mean that the Contractor has satisfied the requirements of these specifications.

K. The contractor shall provide the following:

1. Hourly, Non-Standard, Holiday, and Overtime Service Rates.
2. Semi-Annual inspection rates. These services are to be performed by factory trained and authorized personnel, for this installed System with the submittal. These hourly service rates shall be guaranteed for a three-year period beyond the three-year warranty period. The Contractor shall also provide Annual Inspection Rates for System Testing in compliance with

NFPA 72 requirements for three years of system operation. Proof of the level of factory training and authorization of the servicing Contractor shall be included in the submittal.

a. Evidence of listing by Underwriters' Laboratories for all proposed equipment for use as Fire Alarm equipment. (Ref.: Underwriters' Laboratories, Section UOJZ).
b. A Single Line System Block Diagram and written System Operational Overview.
c. Complete calculations showing the electrical load on the following system components:
    1) Each system Power Supply
    2) Each standby Power Supply (batteries)
    3) Each Notification Appliance Circuit.
    4) Each auxiliary control circuits that draw power from any system power supply.
d. Field Connection Drawings: A complete set of drawings, one for each Fire Alarm Control Panel module which has any external (field) wiring connected to it, and one for each system detector, module or signaling appliance, shall be supplied. The Field Connection Drawings shall be done under AutoCAD Version 2020 or later. They shall be provided on computer diskette and in paper format. Building floor plans of contract sheets will be furnished on diskette to the Contractor by the Architect without charge.
e. Warranty Statement from the manufacturer shall be provided as part of the submittal package. This warranty statement will state a 3 year period of warranty for all of the products proposed for the project, and shall include the name and address of the authorized manufacturers' agent who will honor any and all warranty claims.
f. Written Certification by the Fire Alarm Contractor that no power supply or circuit in the system has an electrical load greater than 80% of its rated capacity.
g. A scaled plan of building showing the placement of each individual item of fire alarm equipment as well as raceway size and routing, junction boxes, and conductor size, quantity, and color in each raceway.

1.4 QUALITY ASSURANCE:

A. Each and all items of the fire alarm system shall be listed as a product of a single fire alarm manufacturer under the appropriate category by Underwriters' Laboratories, Inc. (UL), and shall bear the "UL" label. All control equipment shall be listed under UL Category UOJZ as a single control unit. Partial listing will not be acceptable.

B. All control equipment shall have transient protection devices to comply with UL 864 requirements.

C. Manufacturer's Qualifications: All fire alarm equipment shall be the product of one manufacturer. System appliances and devices not manufactured by the control panel manufacturer shall be products regularly distributed by the control panel manufacturer and cross-listed by Underwriter's Laboratories for compatibility with the system control panel.

D. Installer's Qualifications: The installation and testing of all components of the system shall be performed by a Contractor holding a current certification issued by the State of Florida Department of Professional Regulation. The Contractor shall be certified as either an Alarm System Contractor – Type 1 or an Unlimited Electrical Contractor.

F. The fire alarm Contractor shall be an experienced firm regularly engaged in the layout and installation of automatic fire alarm systems. The Contractor shall have successfully completed the installation, testing, and warranty of systems of the scope of the largest system on this project at least three years prior to bid, and have regularly engaged in the business of fire alarm systems contracting continuously since.

G. The fire alarm Contractor shall have been certified by the State of Florida Department of Professional Regulation to install fire alarm systems, have been NICET Level III certified, and certified by one of the above listed approved equipment manufacturer to perform installation, testing, adjustment, maintenance, and repair on the approved manufacturer's equipment prior to the date of bid. The proposed fire alarm Contractor shall commence no work on the project until he furnishes evidence, satisfactory to the aforementioned certifications and receives notice to proceed with the installation from

the Architect.

H. Firms shall have been factory authorized service organization and stock spare parts.

1.5 WARRANTY AND MAINTENANCE:

A. The Contractor shall supply a 3-year warranty from date of commissioning for all Control System and Field Devices and appliances. The Contractor shall warrant the installed fire alarm system to be free from defects of material and installation for a period of 3 years from acceptance by the Architect. Any deficiencies shall be immediately corrected at no additional cost to the Owner. The Contractor shall maintain a service organization with adequate spare parts stock within 150 miles of the installation. Any defects that render the system inoperative shall be repaired within 24 hours of the Owner notifying the Contractor. Other defects shall be repaired within 48 hours of the Owner notifying the Contractor.

B. The Factory Trained and Authorized Contractor who Designed and Installed this system shall provide a separate maintenance contract for a period of 3 Years from the date of system warranty expiration. As part of the systems maintenance, the installing Contractor will provide printed out reports which detail the sensitivity of each smoke detector installed in the system, and the date of the report.

C. The Fire Alarm System supplied shall include a store of spare system sub-assemblies and field devices for use as emergency service stock. As a minimum, the spares stock shall include 2% of each different type of field connected device.

PART 2 - PRODUCTS

This Fire Alarm System Specification must be conformed to in its entirety to ensure that the installed and programmed System will function as designed, and will accommodate the future requirements and operations required by the building Owner. All specified operational features will be met without exception.

2.1 SYSTEM OVERVIEW AND DESCRIPTION:

A. The Fire Alarm System supplied under this specification shall be a microprocessor-based direct wired peer to peer network system. The system shall utilize independently addressed, and microprocessor-based smoke detectors, heat detectors, and modules as described in this specification.

B. All Fire Alarm equipment shall be arranged and programmed to provide an integrated system for the early detection of fire, the notification of individual system building occupants, the automatic summoning of the local Fire Department, the override of the HVAC system operation, and the activation of other auxiliary systems to inhibit the spread of fire and to facilitate the safe evacuation of building occupants

C. The fire alarm equipment shall be installed in the locations shown on the project drawings.

D. The fire alarm system shall be fully supervised for the detection and reporting of the derangement of any component or circuit on the system. Signaling Line Circuits shall provide the level of performance designated as, Style 7 by UL and the NFPA. Indicating circuits shall provide the level of performance designated as Style Y by UL and the NFPA.

E. The fire alarm system shall be microprocessor driven with stored program controllers. Each panel node on the network shall use a multiple microprocessor design so that the failure of a single microprocessor will not result in a local failure. Fire alarm systems that utilize only one microprocessor for system and SLC control will not be accepted.

F. The fire alarm system shall operate from direct current having a nominal potential of 24 volts. The direct current shall be provided by a solid-state power supply connected to the building electrical sys-

tem by a dedicated branch circuit in strict compliance with Articles 725 and 760 of the NEC, and these specifications.

G. A standby power supply shall automatically supply electrical energy to the system whenever the primary power supply fails to provide the minimum voltage required for proper system operation. The standby power supply shall be an electrical battery with capacity to operate the system under maximum supervisory load for 24 Hours in Standby and then be capable of operating the system for 5 Minutes in the alarm mode. The fire alarm system shall include a charging circuit to automatically maintain the electrical charge of the battery. The fire alarm system shall include the alarm initiating and indicating appliances and devices shown on the project drawings.

H. All Control Panel Assemblies and the connected Automatic and Manual Alarm and Field Notification Appliances shall be designed and manufactured by the same company, and shall be tested and cross-listed as compatible (UOJZ) to ensure that a fully functioning system is designed and installed.

I. Provide and install all required equipment and accessories necessary for the proper operation of the system.

2.2 GENERAL EQUIPMENT AND MATERIAL REQUIREMENTS:

All equipment furnished for this project shall be new and unused. All components and systems shall be designed for uninterrupted duty. All equipment, materials, accessories, devices, and other facilities covered by this specification or noted on contract drawings and installation specifications shall be the best suited for the intended use and shall be provided by a single manufacturer.

A. The manufacturer’s representative and a verification certificate presented upon completion shall verify system installation and operations. The manufacturer’s representative shall be responsible for an on-site demonstration of the operation of the system and initial staff training as defined by this specification.

B. The system shall include a manner to display field device topology.

C. In addition, As-Built riser and wiring diagrams reflecting all terminations, each programmed device characteristic including detector type, base type, serial number, sensitivity setting and wire configurations will be provided to the Architect, based on the information gathered during the verification process described above. The fully executed sworn affidavit (at the back of this section) will be provided to the Architect with the As-Built riser and wiring diagrams verifying their accuracy.

D. It shall be possible for authorized service personnel to change the personality/function of the connected intelligent devices to meet changes in building layout or environment.

E. Equipment and material furnished shall comply with the latest revisions of applicable codes and standards of Underwriters Laboratories, Inc., ANSI, NEMA and NFPA and shall be listed, approved and labeled for the applications. Except as noted, all system components shall be built and tested by the same manufacturer, providing a single source or responsibility.

2.3 Approved Manufacturers:

A. GE EST IV Series or compatible with existing system of the same.

(1) FIELD PROGRAMMING:

The system shall be programmable, configurable and expandable in the field without the need for special tools or PROM programmers and shall not require replacement of memory ICs. All pro-

grams shall be stored in non-volatile memory. The programming function shall be entered with a special password that may be changed in the field to a new value at any time by entering the old password and requesting a password change.

2.4 CONTROL PANEL OVERVIEW:

The Fire Alarm System shall be a Multi-Processor Based Network System designed specifically for Fire and Security applications. The System shall be UL listed under Standards 864 (Control Units for Fire-Protective Signaling Systems) under categories UOJZ and APOU. The specified modules shall also be listed under UL 1076 (Proprietary Burglar Alarm Units and Systems) under category APOU. All new devices and circuits shall be addressable. The new panel shall have sufficient battery capacity to handle all new devices with a 50% reserve.

A. The System shall include all required hardware and system programming to provide a complete and operational system, capable of providing the protected premises with the following functions and operations:

1. All System operational software is to be stored in non-volatile memory. Systems that utilize dynamic RAM or static RAM for program storage are unreliable and will not be accepted.
2. Control Panel disassembly, and replacement of electronic components of any kind shall not be required in order to upgrade the operations of the installed system to conform to future application code and operating system changes.
3. System response to any alarm condition must occur within 3 seconds, regardless of the size and the complexity of the installed system.
4. All initial system programming, as well as all any changes made to the system programming during the start-up and system acceptance phase, shall be made electronically, and shall not require the use of diode matrices or other hardware destructive means. All changes shall be fully documented in the as-built documentation package. Systems which store initial programming or field programming changes in battery backed memory shall not be accepted
5. The system shall allow the testing of the entire installed system (Walk Test) dependent only on the needs of the testing agency, and of the occupancy requirements of the building. The testing of the installed system shall not be defined or limited by the physical layout of the Fire Alarm System, or its application to the protected premises.
6. The Fire Alarm System shall utilize Surface Mount Technology in its internal elements to increase reliability of each system component, and the system as a whole.
7. Ground Faults localized to the network node. If ground faults occur on the field wiring of the system, then the electrical location of those field-wiring faults shall be identified and annunciated to the network node, electronic loop controller, or the device where the fault has occurred.
8. All of the operational interface hardware needed to allow the system to function, as a network, shall be included with the Fire Alarm System. No additional interfaces or electronic modules shall be required to enable the system to function as a true network.
9. The Control of any or all of the System Common Control Functions shall be automatically routed, through the system operational program, to any node of the installed system as an automatic function of the time of day and/or date.

3 VOICE EVACUATION EQUIPMENT:

A. Integrated Audio: The Fire Alarm System shall incorporate a true digital integrated audio system into the network, multiplexing 4 independent audio channels over a single pair of wires. The system shall include distributed audio amplifiers, one for each speaker circuit, for system survivability. Tone generators shall also reside in each amplifier cabinet in case of message failure. The backup tone shall be a temporal tone to allow evacuation signals to be broadcast in the protected premises in the event of a loss of data communication from the multiplexed audio riser.

A. A digital message unit shall be provided which provides up to 15 minutes of prerecorded emergency messaging. The message contained in the fully digital message unit shall be

recordable and changeable in the field on a computer. Keying of either microphone shall allow a live evacuation announcement

B. Audio Source Unit:

1. The Fire Alarm System shall be provided with the fully integrated Emergency Communications System. The Emergency Communications System shall include a paging microphone at the FACP and a remote microphone in the main theatre sound booth, digital message playback unit, and 4 fully digitized and multiplexed Audio Channels. Four dedicated page mode control switches shall provide the emergency operator with instantaneous one touch paging to safely control the staged evacuation of building occupants. Automatic programming shall dynamically group the most frequently targeted paging zones.
   a. The “All Call” switch will direct the manual page to the entire facility.
   b. The “Page to Evac” switch will direct the manual page to those building are as automatically receiving the Evacuation Signal.
   c. The “Page to Alert” switch will direct the manual page to those building are as automatically receiving the Alert Signal.
   d. The “All Call Minus” switch will direct the manual page to those building areas which are programmed to receive the auxiliary and general channel connections such as stairwells
2. The system shall have paging control switches and LEDs to support specific zone selection as shown on the plans. The zone control / displays shall confirm amplifier selection and annunciate amplifier and amplifier circuit trouble.
3. The system shall automatically deliver a preannounce tone of 1000 Hz for three seconds when the emergency operator presses the microphone talk key. Either at the FACP or the remote microphone in the main theater sound booth. A ‘ready to page’ LED shall flash during the preannounce and turn steady when the system is ready for the user’s page delivery.
4. The system shall include a page deactivation timer, which activates for 3 seconds when the emergency user releases the microphone talk key. Should the user subsequently press the microphone key during the deactivation period, a page can be delivered immediately. Should the timer complete its cycle the system shall automatically restore emergency signaling and any subsequent paging will be preceded by the pre-announce tone. A VU display shall display voice level to the emergency operator.

C. Audio Amplifiers:

1. Each audio power amplifier shall have integral audio signal de-multiplexers, allowing the amplifier to select any one of eight digitized audio channels. The channel selection shall be directed by the system software. Up to 4 multiple and different audio signals must be able to be broadcast simultaneously from the same system network node.
2. Each amplifier output shall include a dedicated, supervised 25 Vrms speaker circuit that is suitable for connection of emergency speaker appliances. Each amplifier shall also include a notification appliance circuit rated at 24Vdc @ 3.5A for connection of visible (strobe) appliances. This circuit shall be fully programmable and it shall be possible to define the circuit for the support of audible, visible, or ancillary devices.
3. Standby Audio amplifiers shall be provided that automatically sense the failure of a primary amplifier, and automatically program themselves to select and de-multiplex the same audio information channel of the failed primary amplifier, and fully replace the function of the failed amplifier.
4. In the event of a total loss of audio data communications, all amplifiers will default to the local “EVAC” tone generator channel. If the local panel has an alarm condition, then all amplifiers will sound the EVAC signal on their connected speaker circuits.
5. In the event of a loss of the fully digitized, multiplexed audio riser, the audio amplifiers shall automatically default to an internally generated alarm tone, which shall be operated at a 3-3-3 temporal pattern.
6. Audio amplifiers shall automatically detect a short circuit condition on the connected speaker circuit wiring, and shall inhibit it from driving into that short circuit condition.

7. The Audio System shall include sufficient battery standby for 5 minutes of alarm after a 24-hour building power failure.

4 CONTROL PANEL OPERATION:

A. When an alarm condition is detected by one of the systems initiating devices, the following functions shall immediately occur:

1. The system alarm LED shall flash.
2. The local sounding device in the panel shall be activated.
3. The LCD display shall indicate all pertinent information associated with the alarm and its location.
4. The appropriate status change message shall be sent to the central station by an integral digital communicator.
5. All automatic programs assigned to the alarm point shall be executed and the associated indicating devices and relays addressed and activated.

B. Operation of any manual or automatic initiating device shall sound all alarm signals and shall also sound an alarm and indicate the zone activated on the fire alarm annunciator panels. Flashing light at each audible alarm shall operate with the audible alarm device.

C. Operation of any manual or automatic initiating device shall shut down air handling units. Locations shall be as shown on the Drawings.

D. Malfunction of supervised circuits shall indicate as "Trouble" on the fire alarm annunciator panels. An audible and visual signal shall indicate trouble with provisions to silence the audible signal but not the visual indication.

E. Operation of the fire alarm system and "Trouble" shall operate the necessary contacts that may be connected via telephone lines to remote locations.

F. When a trouble condition is detected by one of the system initiating devices, the following functions shall immediately occur:

1. The system trouble LED shall flash.
2. A local sounding device in the panel shall be activated.
3. The 80-character LCD display shall indicate all pertinent information associated with the trouble condition and its location.

5 FUNCTIONAL OPERATION OF THE FIRE ALARM SYSTEM:

A. Alarm detection: When a fire alarm condition is detected by one of the system initiating devices, the following functions shall immediately occur:

1. The System alarm indicator shall flash continuously.
2. A local sounding device in the panel shall be activated.
3. The control panel display shall indicate all pertinent information associated with the alarm and its location.
4. All automatic programs assigned to the alarm point shall be executed and the associated indicating appliance circuits and control relays addressed and activated.

B. System trouble detection: When a trouble condition is detected by one of the system initiating devices, the following functions shall immediately occur:

1. The System Trouble indicator shall flash.
2. A local sounding device in the panel shall be activated.
3. The control panel display shall indicate all pertinent information associated with the trouble

condition and its location.

4. However, unacknowledged alarm messages shall have priority over trouble messages, and if such an alarm must also be displayed, the trouble message shall not be displayed until the operator has acknowledged all alarm messages.

C. Short circuit fault isolation: The system shall contain a method of isolating wire-to-wire short circuits on an SLC loop in order to limit the number of detectors or elements that are incapacitated by the short circuit fault. If a wire-to-wire short occurs, the system shall automatically disconnect a downstream segment of the SLC that contains the short circuit fault. When the short is corrected, the isolated section of the SLC loop shall automatically be reconnected to the SLC and full communication between the control panel and all affected devices restored.

D. Control switch operation: The system control panel shall provide at least the following switches for system control:

1. Acknowledge Switch: Activation of the control panel Acknowledge switch in response to a single new trouble or alarm condition shall silence the panel sounding device and change the System Alarm or Trouble LEDs from flashing to steady-ON. If additional new alarm or trouble conditions exist in the system, activation of this switch shall scroll the display to any queued subsequent alarm or trouble conditions that exist, and shall not silence the local audible device or change the LEDs to steady until all queued conditions have been so acknowledged. New alarm conditions shall always be displayed before new trouble conditions. Activation of the Acknowledge switch shall also cause a corresponding message to be displayed on System displays and Printers.
2. Signal Silence Switch: Activation of the Signal Silence Switch shall cause all appropriate indicating appliance circuits and relays to return to the normal condition after an alarm condition. The selection of indicating appliance circuits silenced by this switch shall be fully programmable from the system control panel. The system shall also include a means through system programming to allow for signal silences inhibit time.
3. System Reset Switch: Activation of the System Reset Switch shall cause all initiating devices, indicating appliance circuits, and associated output devices to return to the normal condition. If alarm conditions exist in the system after the System Reset Switch activation, the system shall then repeat the alarm sequence.
4. Lamp Test Switch: Activation of the Lamp Test Switch shall turn on all LED indicators, system graphic display, and then return all indicators to the previous condition.

6 SERVICE/TESTING AIDS:

A. Automatic detector test: The system shall include a Resident Automatic Detector Sensitivity Test, which satisfy the NFPA and UL requirements for detector sensitivity test. No additional calibrated tests are required if the system indicates the smoke detectors are with in the normal sensitivity range.

B. Watch-dog circuits: The system shall include "Watch-Dog" circuits to detect and report failure of any microprocessor circuit, memory, or software.

C. Field programming: The system shall be totally programmable, configurable and expandable via programming. Systems which require special tools, PROM programmers, or replacement of software media to effect permanent program changes will not be accepted. All programs shall be stored in non-volatile memory. The programming function shall be accessed via a special password, which shall be selected when the system is installed. The password shall be changeable in the field at any time by entering the old password and requesting a password change. All software shall be supplied with the system so that the Owner may fully program and maintain the system.

7 FIRE ALARM SYSTEM OPERATORS' INTERFACE:

A. The system display: The display shall provide the means to inform the System Operator with detailed information about the off-normal status of the installed Fire Alarm System. The LCD display shall automatically respond to the status of the system, and shall display that status in 80-character front panel display.

B. Automatic functions: The following status functions shall be annunciated by the LCD Display:

1. When the Fire Alarm System is in the “Normal” Mode, the panel displays:
   a. The current Date and Time.
   b. A Custom System Title (minimum 2 lines X 21 characters).
   c. A summary total of system events.
2. With the Fire Alarm System in the “Alarm” Mode, the display shall automatically reconfigure into four logical windows.
   a. Systems Status Window: The DISPLAY shall show the system time and the number of active points and disabled points in the system in this section of the DISPLAY.
   b. Current Event Window: The DISPLAY shall show the first active event of the highest priority in reverse text to highlight the condition to the Emergency Operator. The top line of the reversed text shall show the sequence number in which the displayed event was received, as well as its event type. The second and third lines of reversed text shall display an identification message related to the displayed event.
   c. Last Event Window: The DISPLAY shall show the most recent, highest priority event received by the system.
   d. Type Status Window: The DISPLAY shall show the total number of active events in the system, by event type. There shall be four different System Event Types which shall be displayed, “Alarm Events”, “Supervisory Events”, “Active Trouble Events”, and “Active Monitor Events”.

8 System protected premises circuit interface: An Electronic Loop Controller (SLC) shall be provided in each Fire Alarm Control Panel (where needed), to interface between the panel and the Analytical Microprocessor-based Detectors and modules. On each electronic loop controller in the system there shall be a minimum of 20 spare sensor addresses and 20 spare module addresses for future expansion.

A. The communications format used by this controller shall be 100% digital. Communications between the Fire Alarm Control Panel and the Analytical Microprocessor-based Detectors and modules shall incorporate both BROADCAST POLLING and DIRECT ADDRESS SEARCH (serial polling communication) methods for increased integrity and decreased system response time.

B. The Electronic Loop Controller (SLC) shall communicate to the connected detectors and modules utilising any wiring material or method complying with Chapter 3 of the National Electrical Code (ANSI/NFPA 70-1996). The Electronic Loop Controller shall not require special cables or home run connections to operate. “T” Tapping and parallel wiring shall be permitted on those Signalling Line Circuits designated as Style 4.

C. It shall be possible to connect the electronic loop controller to the Analytical Microprocessor-based Detectors and modules as Style 4 circuits without the use of special shielding, twisted wire, or conduits. It must be possible to wire branch circuits (T-Taps) from Style 4 Circuits. Each Electronic Protection Loop can be configured to operate as a Style 7 loop without the need for additional hardware modules.

D. The electronic controller, through the system program, shall provide the ability to set the sensitivity and alarm verification time of each of the individual Analytical Microprocessor-based Detectors on the circuit. It shall be possible to automatically set the sensitivity of each of the individual intelligent detector for day and night periods.

E. All system programming and history shall be permanently stored in non-volatile memory to ensure that no programming or history is lost. Systems which store initial programming or field programming changes in battery backed memory shall not be accepted.

F. The Electronic Loop Controller shall be capable of addressing all Analytical Microprocessor-based Detectors and modules connected to it electronically, without the need to set switches at any of the individual devices.

G. The Electronic Loop Controller shall provide a minimum of 5 levels of supervision for each smoke detector on the circuit:

1. Device Location
2. Unexpected Device Add/Delete
3. Missing Device Address
4. Changes in the Physical Wiring of the Loop Circuit
5. Changes in Device Personalities

H. The Electronic Loop Controller (SLC) shall detect the electrical location of each connected detector and module. The location and type of each connected device shall be mapped and stored in memory in the loop controller. It shall be possible to access and display this map at any time.

I. The Electronic Loop Controller shall be capable of reporting any additional device addresses, which may have been added to the circuit, and/or changes that may have been made to the wiring in the data circuit. A specific trouble shall be reported for any and all off-normal non-alarm condition.

J. The Electronic Loop Controller (SLC) shall be able to report the following information on a per addressable device basis.

1. Device Address
2. Device Type
3. Current Detector Sensitivity Values and the Extent of Environmental Compensation for smoke detectors.
4. Specific trouble codes to diagnose device / wiring faults.
5. Cumulative Number of Alarms and Troubles.
6. Date of Last Alarm.
7. Alarm Verification Cycle Count.
8. Date of Last Maintenance for the Device.

K. The Electronic Loop Controller shall notify the System Operator when any connected smoke detector reports a “Routine Maintenance Required” signal to the system.

L. If an Electronic Loop Controller should fail to communicate, the circuit shall automatically switch into the stand alone alarm mode. In the stand-alone alarm mode, the circuit shall be capable of producing a loop alarm if any of the connected alarm type intelligent devices become active.

M. To enhance the survivability of the entire installed Fire Alarm System, all Electronic Loop controllers shall be located no more than 1 floor away from the area which they are applied to protect.

9 Hard wired nac circuits: Provide where indicated on the plans supervised hard-wired Notification Appliance Circuits (NAC) for the control of 24Vdc signaling appliances. Each NAC shall operate as a Class B (Style Y) circuit, and shall be capable of controlling up to 3.5 amps of signaling power.

A. Provide where indicated on the plans supervised hard-wired Notification Appliance Circuits (NAC) for the control of 70.7Vrms Audio Signaling Appliances. Each NAC shall operate as a Class B (Style Y) circuit, and shall control up to 35 Watts of signaling power.

B. Provide where indicated on the plans supervised hard-wired Notification Appliance Circuits (NAC) for the control of 25Vrms Audio Signaling Appliances. Each NAC shall operate as a Class B (Style Y), and shall control up to 50 Watts of power to the circuit.

C. Panel NACs shall be power limited to 3.5A at 24Vdc and 4.1A at 20.4Vdc to support higher current demand by visible appliances at lower battery voltages.

10 SYSTEM PROGRAMMABLE OPERATIONS: System Message Processing and Display Operations:

A. The routing of all network annunciation and control parameters shall be configurable to any or all nodes in the network manually, or automatically as a function of the time of day or date.

B. All of the system Printer ports can be configured to display any or all of the following functions:

1. Alarm
2. Supervisory
3. Trouble
4. Monitor
5. Service Group

C. Each Display located anywhere in the system shall be configurable to show the status of any or all of the following functions pertaining to any point anywhere in the entire network system:

1. Alarm
2. Supervisory
3. Trouble
4. Monitor

D. The system shall provide the capability to label each point in the system with up to 256 characters of custom message.

E. The system shall have the capability to provide up to 128 logical “Counting AND” Groups. Each group shall have a programmable ‘activation’ number. Whenever the number of active devices in an AND Group reaches the activation number, the AND Groups’ rules will execute. It shall be possible to ‘overlap’ AND groups by having devices appear in more than one group.

F. The system shall have the ability to define a minimum of 128 Matrix Groups with up to 250 points in each group. For each matrix, it shall be possible to define a ‘radius’ and an ‘activation’ number. The radius number defines the proximity between detector locations. When two detectors activate at or within the value of the ‘radius’ or whenever the number of active devices reaches the activation number the Matrix Group activates. It shall be possible to ‘overlap’ Matrix groups by having devices appear in more than one group.

G. The system shall include the ability to define an alternate set of device commands which may be used in combination with the system test command for the testing of the connected Intelligent Smoke Detectors. This function shall disable the normal alarm command for each of the members of the group, so that the testing process will not result in an activation of the building evacuation signals, auxiliary relays or central station connections.

H. The system shall include Time Control functions which will have the ability to control any system output or function, or initiate any system operational sequence as a function of the Month, Day of Week, Date, Hour, Minute, or Holiday.

I. The system shall provide the ability to download data from the intelligent systems Detectors to a P.C. while the system is on-line and operational in the protected premises. The downloaded data may then be analyzed in a diagnostic program supplied by the system manufacturer.

11 FIELD MOUNTED SYSTEM COMPONENTS:

A. Analytical Microprocessor-based Detectors - General Operation The System shall use Analytical Microprocessor-based Detectors that are capable of full digital communications with the Fire Alarm System using both broadcast and polling communications protocols. Each detector shall be capable of performing independent advanced fire detection algorithms. The fire detection algorithm shall measure sensor signal dimensions, time patterns and combines different fire parameters to increase reliability and distinguish real fire conditions from unwanted nuisance alarms caused by environmental events. Signal patterns that are not typical of fires shall be eliminated by digital filters and shall not cause a system alarm condition. Devices not capable of combining different fire parameters or employing digital filters shall not be acceptable.

B. Each smoke detector shall have an integral microprocessor capable of making alarm decisions based on fire parameter information stored in the detectors' memory. Detectors not capable of making independent alarm decisions shall not be acceptable. Maximum total loop response time for detectors changing state (alarm or trouble) shall be 0.5 seconds.

C. Each smoke detector shall have a separate means of displaying system communication and detector alarm status. A green LED shall flash to confirm communication with the system through the electronic loop controller. A red LED shall flash to indicate that the detector is in alarm. If communications between the detector and the electronic loop controller is lost, both LED's will illuminate steady to indicate an alarm in the "standalone mode". Both LEDs shall be visible through a full 360 degree viewing angle.

D. Each smoke detector shall be capable of identifying diagnostic codes to be used for system maintenance. All diagnostic codes shall be stored in the detector.

E. Each smoke detector shall be capable of transmitting pre-alarm and alarm signals to the Fire Alarm Control Panel via the Electronic Loop Controller. It shall be possible to program Fire Alarm Control Panel activity and response to each of the following signal levels:

1. Normal
2. Pre-Alarm
3. Alarm
4. Trouble
5. Detector Need Cleaning

F. Each smoke detector may be individually programmed to operate at any one of five (5) sensitivity settings.

G. Each smoke detector microprocessor shall contain an environmental compensation algorithm, which identifies and sets ambient "Environmental Thresholds" continually and periodically. In this manner, the environmental impact of temperature, humidity, environmental contaminates as well as detector aging shall be automatically monitored. This process shall employ digital compensation techniques to adapt the detector to both long term and short term changes in the environment in which they are installed. The microprocessor shall monitor this environmental compensation value and alert the system operator when the detector 80% of the allowable environmental compensation value. Differential sensing algorithms shall maintain a constant differential between selected detector sensitivity and the derived base line sensitivity that the detector has sensed in its environment. The base line sensitivity information shall be automatically and periodically updated and permanently stored in the detector.

H. The Analytical Microprocessor-based Detectors together with the Electronic Loop Controller shall provide increased system reliability and inherent survivability through intelligent standalone conven-

tional alarm operation. The detectors shall automatically change to standalone conventional device operation in the event of an electronic loop controller communications failure. In the standalone conventional detector mode, the micro-processor-based detector shall continue to operate using sensitivity and environmental compensation information stored in its microprocessor at the time of the communications failure. The electronic loop controller shall continue to monitor the communications loop and activate a loop alarm if any of the connected analytical microprocessor based detectors reach their stored alarm sensitivity threshold.

I. Each detector shall be capable of automatic electronic addressing and/or custom addressing without the use of DIP or rotary switches, and shall mount on a common base to allow the simple replacement of one detector type with another detector type. The addressing of the detectors shall not depend on the electrical position of the detector on the circuit.

12 ANALYTICAL MICROPROCESSOR-BASED DETECTORS - FIXED TEMPERATURE HEAT DETECTOR:

A. The intelligent heat detector shall have a solid-state heat sensor, and shall transmit an alarm at a fixed temperature of 135° F (57°C). The detector shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on its' analysis of the area of installation. The heat detector shall be rated for ceiling installation at a minimum of 70 ft (21.3m) centers and be suitable for wall mount applications

B. Systems using central processing methods to monitor the inputs from a circuit of analog sensors to detect a fire will not be accepted.

13 ANALYTICAL MICROPROCESSOR-BASED DETECTORS - PHOTOELECTRIC SMOKE DETECTOR:

A. The Analytical Microprocessor-based photoelectric detector shall utilize a light scattering type photoelectric smoke sensor to detect visible particulates produced by combustion. The integral microprocessor shall dynamically examine values from the sensor and initiate a system alarm based on the analysis of data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental affects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the detectors' memory and shall be transferred to the electronic loop controller for retrieval using a laptop PC or the Intelligent Detector Program/Service Tool designed by the manufacturer specifically for the purpose. The photoelectric smoke detector shall be rated for area applications when installed at a minimum of 30 ft (9.1m) centers and shall be suitable for wall mount applications. The photoelectric smoke detector shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide with air velocities up to 5,000 ft/min (0-25.39 m/sec) without requiring specific duct detector housings or sampling tubes.

B. The alarm set point shall be field selectable to any of five sensitivity settings ranging from 1.0% to 3.5% smoke obscuration per foot. The photo detector shall be suitable for operation in the following environment:

1. Temperature: 32°F to 120°F (0°C to 49°C)
2. Humidity: 0-93% RH, non-condensing

3. Elevation: no limit

C. In the event of a loss of communications of the smoke detector with the Electronic Loop Controller, the smoke detector will automatically revert to the “Standalone Conventional” operation, and Fire Alarm System functions shall not be compromised.

14 ANALYTICAL MICROPROCESSOR-BASED DETECTORS - MOUNTING BASES:

A. All Analytical Microprocessor-based Detector mounting bases shall provide a means to mount the detector to a [North American 1-gang, 3½” or 4” octagon box and 4” square box] [European BESA or 1-gang]. The mounting base shall not contain any electronics, shall support all Microprocessor-based Smoke detector types detailed in this specification, and have the following minimum requirements:

1. Removal of the respective detector shall not affect electronic loop communications with other detectors on that loop.
2. Field Wiring Connections shall be made to the room side of the base, so that wiring connections can be made or disconnected by the Contractor without the need to remove the mounting base from the electrical box.
3. The base shall be capable of supporting remote alarm annunciation.

15 ANALYTICAL MICROPROCESSOR-BASED DETECTORS - DUCT SMOKE DETECTION APPLICATIONS:

A. The Analytical Microprocessor-based photoelectric smoke detectors shall be readily adaptable for use directly in air duct smoke detection applications, in ducts 3 ft (0.91m) high and 3 ft (0.91m) wide. When used for duct smoke detection, the smoke detectors shall not forfeit any of the system functionality which they have when used as area smoke detectors.

B. Duct detector housing: The Analytical Microprocessor-based photoelectronic and Multi-Sensor smoke detectors shall be readily adaptable for use in air duct smoke detection applications, using a housing that mounts to the outside of the duct. When used for duct smoke detection, the smoke detectors shall not forfeit any of the system functionality which they have when used as area smoke detectors.

C. The duct smoke detection housing shall allow the detector to sample and compensate for, variations in duct air velocity between 300 and 4000 feet per minute (300 to 1000 for ion-photo-heat detector).

D. Remote alarm LEDs and Remote Test Stations shall be supported by the duct smoke detector.

E. All detectors used in duct applications shall be located in accordance with NFPA 72E recommendations.

16 ANALYTICAL MICROPROCESSOR-BASED DETECTORS – REMOTE ALARM LED.

Provide where indicated on the plans or where the detector is not in sight from the ground, a Remote LED Alarm Indicator for each smoke detector. LED shall have a 180-degree viewing angle and mount on a standard 1-gang box.

17 SINGLE RISER SIGNAL MODULE:

The Microprocessor-based Addressable Single Input Signal Module shall provide one (1) supervised Class B (style Y) Indicating Appliance Circuit capable of a controlling 2A of polarized 24 VDC Notification Appliances, 50W speaker circuit power @ 25VRMS, or 35W speaker circuit power @ 70VRMS.

A. The Microprocessor-based Addressable Single Riser Signal Module shall provide one (1) supervised Style Y Indicating Appliance Circuit (IAC) for the connection of a telephone call-in circuit. The module shall have the capability of generating its own “ring tone” to ensure that the Fire Fighter knows that they are connected to the telephone call-in circuit.

18 CONTROL RELAY MODULE:

A. Microprocessor-based Addressable Control Relay Modules shall provide one form “C” dry relay contact rated at 2 amps @ 24 Vdc to control external appliances or equipment processes. The control relay module shall be rated for pilot duty applications and releasing systems service. The position of the relay contact shall be confirmed by the system firmware. Non-addressable relays will not be allowed.

B. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.

C. Secure Egress Door Controls: Provide an output signal using an addressable relay to unlock secured path of egress door devices upon system notification.

B. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:
   a. Elevator lobby detectors except the lobby detector on the designated floor.
   b. Smoke detector in elevator machine room.
   c. Smoke detectors in elevator hoistway.
2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.
4. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

19 MICROPROCESSOR-BASED ADDRESSABLE MANUAL PULL STATIONS – GENERAL:

The Fire Alarm System shall incorporate microprocessor-based addressable Manual Pull Stations connected over a 2-wire electronic communications loop, using both broadcast and serial polling protocols. All Manual Pull Stations shall display communications and alarm status.

A. All addressing of the Microprocessor-based Addressable Manual Single Action Pull Stations shall be done electronically, and the electrical location of each station shall be automatically reported to the Fire Alarm Control Panel, where it may be downloaded into a PC, or printed out. The addressing of the Manual Pull Station shall not be dependent on their electrical location on the circuit.

B. All Microprocessor-based Addressable Manual Pull Stations shall have a visual means to confirm communications with the FACP, and a visual means to confirm the alarm status of the modules.

C. All field wiring to the Microprocessor-based Addressable Manual Pull Stations shall be supervised for opens and ground faults. All ground faults shall be location annunciated to the module of incidence.

D. Diagnostic circuitry, and their associated indicators, with reviewable Trouble Codes, shall be integral to the Microprocessor-based Addressable Manual Pull Stations to assist in troubleshooting system faults.

E. All Manual Fire Alarm station shall be suitable for operation in the following environment:

1. Temperature: 32°F to 120°F (0°C to 49°C)
2. Humidity: 0-93% RH, non-condensing
3. Include ground fault to the device.

F. Each Manual Pull Station shall have a Stopper II Lexan cover.

20 MICROPROCESSOR-BASED ADDRESSABLE SINGLE ACTION FIRE ALARM STATION:

The Microprocessor-based Addressable Fire Alarm Stations shall be single action fire alarm stations.

Provide a key locked test feature. Finish the station in red with white “PULL IN CASE OF FIRE” lettering.

21 FIRE ALARM NOTIFICATION APPLIANCES:

A. Fire alarm notification appliances – general requirements: All appliances which are supplied for the requirements of this specification shall be UL Listed for Fire Protective Service, and shall be capable of providing the “Equivalent Facilitation” which is allowed under the Americans with Disabilities Act Accessibilities Guidelines (ADA(AG)), and shall be UL 1971, and ULC S526 Listed. All appliances shall be of the same manufacturer as the Fire Alarm Control Panel specified to insure absolute compatibility between the appliances and the control panels, and to ensure that the application of the appliances are done in accordance with the single manufacturers’ instructions. Any appliances that do not meet the above requirements, and are submitted for use must show written proof of their compatibility for the purposes intended. Such proof shall be in the form of documentation from all manufacturers which clearly states that their equipment (as submitted) are 100% compatible with each other for the purposes intended. All strobes shall be provided with lens markings oriented for wall mounting. It shall be possible to replace the lens of any installed strobe in order to facilitate the replacement of a broken lens, or to change the orientation of the lens markings. Ceiling mounted strobes shall have lens markings with correctly oriented lettering. Removal of an installed strobe to facilitate the changing of a lens shall not be acceptable.

B. Self - synchronized strobes: Strobes shall be supplied by the same manufacturer as the Fire Alarm Control Equipment. In - Out screw terminals shall be provided for wiring. The Strobes shall have a red or white plastic faceplate. They shall provide the proper candela output for the project and synchronized flash outputs. The strobe shall have lens markings oriented for wall mounting.

C. The same manufacturer as the Fire Alarm Control Equipment shall supply strobes. In - Out screw terminals shall be provided for wiring. The Strobes shall have a red metal faceplate. Provide candela ratings as shown on drawings. All strobes in multi-outlet areas shall be synchronized.

D. Speaker/strobes - electronic type: Horns shall by the same manufacturer as the Fire Alarm Control Equipment. In - Out screw terminals shall be provided for wiring. The Horn shall have a red plastic housing. Horns shall be suitable for indoor or outdoor use. A sound output level of 103 dBA Peak shall be provided. It must not be necessary to completely remove the screws to facilitate mounting.

E. Horn/strobes shall by the same manufacturer as the Fire Alarm Control Equipment. The Horn/Strobes shall have a red plastic housing. Provide candela ratings as shown on drawings. All strobes in multi-outlet areas shall be synchronized. Removal of a installed Horn/Strobe to change the lens markings shall not be acceptable. Horns shall provide a 100 dBA Peak sound output. It must not be necessary to completely remove the screws to facilitate mounting.

22 EXTERIOR HORNS shall be recessed mounted in a red metallic weatherproof cast aluminum box.

23 SYSTEM WIRING:

A. Raceways and outlet boxes: Shall comply with all other applicable Division 26 Specifications. Minimum raceway size for the fire alarm system shall be 1/2". The complete raceway system shall be grounded and bonded in accord with the requirements of the NEC. Outlet boxes shall be installed in the approximate locations indicated on the Drawings. It is the responsibility of the Contractor to ensure that the final locations of fire detectors and other initiating and indicating appliances and devices are in compliance with all applicable codes.

C. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.
2. Pathways shall be installed in EMT unless within plenum space where plenum rated cabling may be used.
3. Exposed EMT shall be painted red enamel.

C. Conductors and terminations: Shall be copper with type THHN/THWN insulation. Minimum conductor size shall be #14 AWG except that signaling line circuit (SLC) loops shall be wired with UL listed type FPL cable comprised of a jacketed and electrically shielded pair of conductors #18 AWG or larger. If stranded conductors are used they shall comply with Sections 760-16(c), 760-28(a), and 760-30(a) of the NEC.

D. All circuits shall be identified using a unique conductor insulation color throughout the system for each type of circuit.

E. Termination of conductors shall be by means of factory wiring terminals or factory pigtails.

24 CIRCUIT PROTECTORS:

Shall have a line-to-line response time of less than one nanosecond capable of accepting greater than 2000 amps at 28 volts. Line-to-earth response time shall be less than one nanosecond with a maximum current of 2000 amps (35 joules each line) to earth. Shield to earth current shall be 5000

amps maximum. Spark gap devices or devices incorporated in or installed within the fire alarm control panel in lieu of the specified protector are not acceptable.

25 Networked Fire Alarm System

25.2.1 Network fire alarm control units shall include all features as described in this specification for stand-alone FACUs and shall have network communication capabilities as described herein.

25.2.1.1 All points monitored and controlled by a single node shall be capable of being programmed as “Public”. Each point made public to the network may be programmed to be operated by any other node connected to the network.

25.2.1.2 Network communications shall be capable of supporting “point lists” that can be handled as though they were a single point.

25.2.1.3 The network shall provide a means to log into any node on the system via a laptop computer and have complete network access (Set Host) for diagnostics, maintenance reporting, and information gathering of all nodes in the system. [The means shall include the capability to log into any node on the system via TCP/IP Ethernet network communications protocol compatible with IEEE Standard 802.3. Ethernet access to any fire alarm panel shall be capable of providing access only to authenticated users through a cryptographically authenticated and secure SSL tunnel. Provisions for a standard RJ-45 Ethernet connection to the owner’s Ethernet network must be provided at each node as part of the contract. Systems not meeting this requirement must provide all diagnostic tools required to support this function from selected points on the network. This Section covers fire alarm systems, including initiating devices, notification appliances, controls, and supervisory devices.

25.2.1.4 Network node communication shall be through a token ring, hub, or star topology configuration, or combination thereof.

25.2.1.5 A single open, ground or short on the network communication loop shall not degrade network communications. Token shall be passed in opposite direction to maintain communications throughout all network nodes. At the same time the status of the communication link shall be reported.

25.2.1.6 If a group of nodes becomes isolated from the rest of the network due to multiple fault conditions, that group shall automatically form a sub-network with all common interaction of monitoring and control remaining intact. The network shall be notified with the exact details of the lost communications.

25.2.1.7 Fiber optics communication shall be provided as an option via a fiber optics modem. Modem shall multiplex audio signals and digital communication via full duplex transmission over a single fiber optic cable, either single mode or multi mode.

25.2.1.8 The communication method shall be NFPA 72 style 7.”

PART 3 - EXECUTION

3.1 The entire system shall be installed in a workmanlike manner in accordance with approved manufacturers manuals and wiring diagrams. The Contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation. All wiring shall be of the type recommended by the NEC, approved by local authorities having jurisdiction for the purpose, and shall be installed in dedicated conduit throughout.

3.2 All penetration of floor slabs and fire walls shall be fire stopped in accordance with all local fire codes. In addition, all walls shall be water-proofed at conduit penetrations.

3.3 END OF LINE RESISTORS:

Shall be furnished as required for mounting as directed by the manufacturer.

3.4 INSTALLATION OF CONTROL PANEL AND RELATED EQUIPMENT:

A. Installation of all Fire Alarm Control Equipment and Field Mounted Devices and Appliances shall be in strict compliance with the manufacturer's written instructions.

B. Connection of the fire alarm system power supply (supplies) to the electrical system shall be by a dedicated branch electrical circuit. The means to disconnect this circuit shall be accessible only to authorized personnel, shall be capable of being locked in the "on" position, and shall be clearly marked "FIRE ALARM CIRCUIT CONTROL" in accord with NFPA standards.

C. Batteries shall only be installed in the control panel enclosure when they are of the gelled-electrolyte type and where the control panel manufacturer recommends such installation.

D. The Control Equipment shall not be installed until all field wiring to the field mounted devices and appliances have been installed and the wiring on those circuits have been checked for faults and shorts, and any faults and shorts found have been corrected.

E. The Fire Alarm Contractor shall neatly lace all field wiring conductors in the gutter spaces of the control panels and secure the wiring away from all circuit boards and control equipment components. All field-wiring circuits shall be neatly and legibly labeled in the control panel. No wiring except homeruns from fire alarm system circuits and system power supply circuits shall be permitted in the control panel enclosure. Additionally, no wiring splices will be permitted in the control panel enclosure.

3.5 SYSTEM WIRING AND SUPERVISION:

A. Provide a Style 7 initiating and alarm circuits with electrical supervision for shorts and open conditions.

B. Install end-of-line resistors as required.

C. Power Supplies: The control panel shall receive 120 VAC power via the existing power supply for the current fire alarm control panel, unless otherwise shown.

D. All circuits requiring system operating power shall be 24 VDC and shall be individually fused at the control panel.

E. Control of auxiliary services:

1. Fan shut down relays. Only addressable control relays will be allowed.
2. Alarm initiation from kitchen extinguishing equipment.

F. Equip and wire system so that by energizing fire alarm audible signaling devices will also activate the following:

1. Interior strobe lights.
2. Fan shut-down circuits.
3. Release kitchen fire rated shutter after a 15 second time delay. Time delay shall be adjustable from 0 to 60 seconds.
4. Closing of the main gas service valve.

3.6 SYSTEM TEST AND CERTIFICATION / DEMONSTRATION:

The completely installed fire alarm system will be fully tested in compliance with Testing Procedures for Signaling Systems (ANSI/NFPA 72H). The Fire Alarm Contractor shall test:

A. Every alarm initiating appliance and device for proper response and program execution.

B. Every indicating appliance for proper operation and audible/visual output

C. All auxiliary control functions such as elevator capture, smoke door and damper release, and functional override of HVAC, ventilation, and pressurization controls.

3.7 The Architect shall be notified at least 10 working days prior to the scheduled testing so that he/she may be present for such testing. The testing will only be scheduled after “As-Built” Drawings are turned in with the Affidavit of True and Correct As-Built Drawings fully executed. Find blank affidavit at the end of this section.

A. After the system has been completely tested to the satisfaction of the Architect, and the building Owner; the Fire Alarm Contractor shall complete the Fire Alarm System Certification of Completion form published by the NFPA (Figure 1-7.2.1 in the National Fire Alarm Code). In compliance with published NFPA standards, parts 1, 2, and 4 through 10 shall be completed after the system is installed and the wiring has been checked. Part 3 shall be completed after the operational acceptance tests have been completed. The completed form signed by the qualifying agent of the Fire Alarm System Contractor shall be delivered to the Architect with the other system documentation required by these specifications.

3.8 DELIVERY OF SYSTEM DOCUMENTATION PACKAGE:

The Fire Alarm Contractor shall deliver two sets of the System Documentation Package to the Building Owners Representative and the Local Authority Having Jurisdiction. Final payment of the Contractor will not be authorized until the complete documentation specified herein is delivered to the Architect. The System Documentation Package shall consist of the following documents, to be provided after the fire alarm system has been completely installed and tested:

A. Operations and Maintenance Manuals which detail the operation and maintenance of the installed System. An “As-Built” copy of the scaled plan of each building showing the actual installed location of each piece of fire alarm equipment as well as the installed raceway sizes and routing, conductor sizes and quantities in each raceway, and the exact location of each junction box. The Affidavit of True and Correct As-Built Drawings shall be fully executed and turned in with “As-Built” drawings (as shown at the end of this section).

B. Point to Point diagrams of the entire System as installed and tested. Point to Point Diagrams shall include all connected Smoke and Heat Detectors and addressable Field Modules. In addition, “As-Built” riser and wiring diagrams reflecting all T-Taps, each programmed device characteristic including detector type, base type, serial number, sensitivity setting and wire configurations will be provided to the Architect, based on the information gathered during the system final testing process.

C. All “As-Built” drawings and diagrams shall be done and turned over to the Owner.

D. The application program (database) listing for the system as installed at the time of acceptance by the building Owner and/or Local AHJ (Disk and Hard copy printout).

E. Time and Date stamped report, which lists every Fire Alarm System Cabinet within the system. This report shall include date regarding each cabinet in the system, the hardware modules mounted in each cabinet, and the physical mounting location of each module.

F. A Time and Date stamped report, which lists every detector, module, switch and output circuit within the system. This report shall include addressing, custom labeling, device type, and physical location for each device.

G. A letter certifying that the installation is in strict compliance with all applicable codes and in strict compliance with the requirements of these specifications.

H. Two originals of the NFPA document titled “Fire Alarm System Certification and Description” completely filled-in and signed as required.

I. Name, address, and telephone of the authorized factory representative.

J. Written certification by the fire alarm Contractor that no power supply audio amplifier or circuit on the system has an electrical load greater than 80% of its rated capacity.

K. Copies of the manufacturers’ 3-year warranty on all the system components and the Contractors’ 3-year warranty on the installed system.

3.9 SYSTEM STARTUP:

A Factory Trained and Authorized Engineered Systems Distributor shall perform system Startup. A Contractor under the direction of the Factory Trained and Authorized Engineered Systems Distributor may perform certain functions of the Systems Startup Procedure.

3.10 INSTRUCTION OF OWNER:

The Fire Alarm Contractor shall schedule and execute an instruction class for the Building Owner, which details the proper operation of the installed fire alarm system. The instruction shall also cover the schedule of maintenance required by NFPA 72H and any additional maintenance recommended by the system manufacturer. This instruction shall also be separately furnished to the Local Municipal Fire Department if so requested by the Local Authority Having Jurisdiction. The instruction shall be presented in an organized and professional manner by a person factory trained in the operation and maintenance of the equipment and who is also thoroughly familiar with the installation. The Fire Alarm Contractor shall provide operations manuals or any other curricula that may enhance the instruction of the Building Owners or Local Municipal Fire Department in the operation and maintenance of the system.

3.11 WIRING:

A. All wiring shall be installed according to NEC standards per the drawings submitted by the authorized Engineered Systems Distributor, unless otherwise noted.

B. Where required, wiring shall be in metallic conduit solely for the fire detection and alarm system. Minimum conductor size shall be #14 AWG. Install and connect wiring in conformance with the recommendations and wiring diagrams provided by the Fire Alarm System manufacturer. Adhere to the zones indicated on the Drawings. Any non-metallic conduit shall be replaced with metallic conduit with no cost to the Owner.

C. All wiring shall be tagged, numbered, color-coded and terminated on terminal blocks in the cabinets, in boxes, at equipment and at devices. Wire nuts or splices shall not be used. Each set of zone conductors shall be tagged with the zone number on each conductor at termination (each end) and in each junction or pull box in the raceway system.

3.12 Mounting of fire alarm boxes shall be 48" above finished floor (Handicapped Code).

3.13 Junction boxes and cabinets for the Fire Alarm System shall be painted International "FIRE RED".

3.14 FIELD QUALITY CONTROL:

The system shall be installed and fully tested under the supervision of trained manufacturer's representative. The system shall be demonstrated to perform all the functions as specified.

3.15 Provide in a frame and under glass, computer generated, color-coded diagram of the building and site, indicating the zones by number. Install frame near the fire alarm control panel or the annunciator panel or at a location designated by the Owner's representative. Minimum size of the graphic shall be 11"x17".

3.16 TESTS:

Upon completion of the installation, the Contractor and the manufacturer's authorized representative together shall test every alarm initiating device for proper response and zone indication, every alarm signaling device for effectiveness, and all auxiliary functions. Repeat all tests with "NORMAL" power disconnected. The Owner and designated representative shall be given the opportunity to witness these tests. An itemized test report shall be submitted to the Owner, detailing and certifying all results.

3.17 WARRANTIES:

The Contractor shall warrant the complete fire alarm system wiring and equipment to be free from inherent mechanical and electrical defects for a period of 3 years specified herein from the date of placing the completed system in operation. The conductors shall be replaced on any loop that exhibits repeated ground faults. If the ground faults persist, each device on that loop shall be replaced. These repairs are to be considered warranty work and shall be performed at no additional cost to the Owner.

3.18 The equipment manufacturer shall make available to the Owner a maintenance contract proposal to provide a minimum of 2 inspections and tests per year in compliance with NFPA-72 guidelines.

3.19 The maintenance contract shall include an agreement by the manufacturer that it will provide to the Owner, verifiable evidence to substantiate its claim that damage to any part of the fire alarm system was caused by lightning. Such evidence shall include, but not limited to, proof that the surge entered the equipment either on power conductors, system ground or by communication lines. Proof that the surge was not related to switching, welding, motor starting, copy machines or equipment with silicon-controlled rectifiers such as battery chargers and un-interruptible power systems.

3.20 Furnish 3 bound copies of brochure including maintenance instructions, spare parts list, wiring diagram and troubleshooting check list.

END OF SECTION 28 31 11

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SECTION 31 10 00
SITE PREPARATION

1. GENERAL

1.1 DESCRIPTION OF WORK
A. Includes But Not Limited To:
1) Demolish required existing above and below grade improvements.
2) Prepare site for earthwork and grading including:
(a) Protection of existing trees.
(b) Removal of trees and other vegetation.
(c) Topsoil stripping.
(d) Clearing and/or grubbing.
3) Disposal of all products and debris not required.

1.2 RELATED SECTIONS
A. Section 30 00 00 - General Site Work Requirements
B. Section 31 20 00 - Earthwork
C. Section 31 25 00 - Erosion Control and Environmental Protection

1.3 SUBMITTALS - comply with requirements of Section 30 00 00.

1.4 QUALITY ASSURANCE - comply with requirements of Section 30 00 00.

1.5 JOB CONDITIONS
A. Improvements on Adjoining Property (when applicable)
1) Authority for performing removal and alteration work on property adjoining Owner's property will be obtained by Owner prior to award of contract. Contractor to obtain copy of authorization prior to beginning work.
2) Extent of work on adjacent property is indicated on Drawings.

2. PRODUCTS

2.1 MATERIALS
A. Wood Framing: Posts 4"x4", rails 2"x4", exposed height above grade 4'-0".
B. Construction Fencing: 48" high orange polyethylene fence, such as "E-Z Fence" as manufactured by Sivard Corp., or "Safety Fence" as manufactured by Weathashade or approved equal.
C. Sediment Control Barriers: Refer to Section 31 25 00 - Erosion Control and Environmental Protection

3. EXECUTION

3.1 PROTECTION OF EXISTING IMPROVEMENTS:
A. Protect all existing improvements, public or private, on or adjacent to site, except items indicated for removal.
B. Protect from disturbance or damage all land monuments and property markers.

3.2 PROTECTION OF EXISTING TREES AND VEGETATION
A. Protect against damage existing trees and other vegetation indicated to remain in place.
B. Do not smother trees by stockpiling construction materials or excavated materials within drip line.
C. Do not park within drip line.
D. Provide temporary guards to protect trees and vegetation to remain.
1) Prior to commencing work, construct temporary 4-0" high, double rail, wood fence enclosure a minimum 8'-0" square centered on trees and vegetation to remain. Increase enclosure size as directed on plans for large trees or groups of trees.

2) Maintain fencing during full construction period.
3) Remove fencing when directed by Engineer

E. Interfering branches and roots of trees scheduled to remain may be removed with approval of Engineer.
F. Protect cut and exposed roots:
1) Coat cut faces of roots over 1" in diameter with emulsified asphalt or other coating formulated for use on damaged plant tissues.
2) Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
G. Unauthorized Damage:
1) Work adjacent to or within the drip line of trees does not authorize damage to tree unless tree is shown for removal. Contractor shall protect trees as contained herein. Protection may include alternative construction methods such as boring for utilities or relocation of improvements. Prior to performing work adjacent to or within drip line of any regulated tree, Contractor shall determine location of improvements with respect to tree root system or drip line, assess impacts of work upon trees using appropriate means including the employ of arborists or foresters as necessary. Additionally, Contractor shall determine requirements of regulatory entities for regulated trees prior to performing work. Notify Engineer if work will adversely impact trees.
2) Repair or replace damaged trees and vegetation indicated to remain in a manner acceptable to Engineer. Employ licensed Arborist to repair damage.
H. Water trees and other vegetation to remain within limits of contract work as required to maintain health.

3.3 SITE CLEARING

A. General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction in accordance with Section 110, FDOT Standard Specifications.
B. Clearing and/or Grubbing: Clear designated areas of trees, shrubs and other vegetation, except as indicated to be protected.
1) Completely remove buildings, timber, brush, stumps, roots, rubbish, debris, and all other obstructions resting on or protruding through ground surface. Unless noted otherwise, extent of work to be to limits of ROW or, in all other cases, to a distance necessary for construction of improvements, but not less than 2 feet beyond pavement, curb, sidewalk, and site structures and 5 feet beyond building perimeters.
2) Fell trees in a manner to prevent injury to trees scheduled to remain.
3) Remove roots, deleterious matter and other debris to a depth of at least one-foot below existing grade or finished subgrade.
4) Scrape surface to a depth of at least six inches and remove all exposed roots, deleterious matter, and debris to a depth of at least one-foot.
5) Completely remove stumps within the limits of work.
6) Use hand methods for grubbing inside the drip line of trees to remain.
7) Strip grass materials to a maximum depth of 1" under tree canopies and carefully till or scarify existing grade to a depth of 1".
8) Fill depressions caused by clearing and grubbing operations with satisfactory soil material in accordance with Section 31 20 00 Earthwork, unless further excavation or earthwork is indicated.
C. For the purposes of unsuitable material and earthwork quantities, clearing and grubbing will be assumed to remove all soils to a depth of 6 inches below existing grade. These soils will not be included in any computations of unsuitable material quantities.
D. Removal of Improvements: Remove existing above-grade and below-grade improvements necessary to permit indicated work.
1) Remove all abandoned underground piping or conduit, whether known or discovered, located within limits of work unless directed otherwise by Engineer.

3.4 DISPOSAL OF WASTE MATERIALS - comply with requirements of Section 30 00 00

4. MEASUREMENT AND PAYMENT

4.1 GENERAL

A. The contract unit price shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals necessary for completion in every detail in accordance with plans and specifications.
   1) There will be no separate payment for locating existing utilities and structures, clean-up and restoration of property, or other items under this section unless specifically identified on the proposal, bid form or contract.

END OF SECTION 31 10 00

SECTION 31 23 16
EARTHWORK FOR UTILITIES

1. GENERAL

1.1 DESCRIPTION OF WORK
A. Extent of work is indicated on drawings and includes but is not limited to:
1) Excavation for utility systems to points of connection or termination.
2) Trenching for utility systems to points of connection or termination.
3) Preparation of utility system subgrade and bedding.
4) Placement of select granular bedding material.
5) Backfilling for utility systems to points of connection or termination.
6) Finish grading and stabilization
7) Removal and replacement of pavement.

1.2 RELATED WORK
A. Section 30 00 00 - General Site Work Requirements
B. Section 31 20 00 - Earthwork
C. Section 31 25 00 - Erosion Control and Environmental Protection
D. Section 32 92 19 - Grassing by Seeding

1.3 DEFINITIONS
A. Pipe Bedding: Pipe bedding is defined as contact between a pipe and soil foundation on which it rests.
B. Unauthorized excavation: Removal of materials beyond indicated lines, grades and cross-sections without specific direction of Engineer.
C. Suitable Soils: Soils suitable for providing required engineering properties beneath or adjacent to proposed work.
D. Unsuitable soils: Soils identified as unsuitable for location within limits of work.
E. Unsuitable material: Unsuitable material includes unsuitable soils, waste material, man-made material, trash, debris, or other material as identified by Geotechnical Engineer as unsuitable within limits of work.

1.4 SUBMITTALS - comply with requirements of Section 30 00 00.

1.5 QUALITY ASSURANCE - comply with requirements of Section 30 00 00.

2. PRODUCTS

2.1 SOIL MATERIALS
A. Satisfactory (suitable) soil materials: Materials complying with AASHTO soil classification groups A-1, A-2-4, A-2-5, A-3 and sand to slightly silty sand material with no more than 15% by dry weight finer than number 200 US mesh sieve. Material to be free of clay, rock or gravel larger than two inches in any dimension, debris, refuse, rubble, organics and other deleterious matter.
1) Do not use material from on-site sources unless authorized in Geotechnical Report or by Geotechnical Engineer in writing.
B. Unsatisfactory (unsuitable) soil materials: Materials complying with AASHTO soil classification groups A-2-6, A-2-7, A-4, A-5, A-6, A-7 and A-8 or as identified by Geotechnical Engineer.
1) Unsatisfactory materials include but are not limited to materials containing roots, organics, peat, muck, clay, trash, debris, frozen materials and stones larger than three inches. Unsatisfactory materials also include manmade fills, refuse or backfills from previous construction.
C. Backfill and Fill Materials: Satisfactory soil materials.
D. Unyielding material: Rock and gravely soils with stones greater than three inches.
E. Unstable material: Material too wet to properly support the utility pipe, conduit or appurtenance structure.

F. Select Granular Material: Well-graded sand, gravel, crushed gravel, crushed stone or crushed slag composed of hard, tough and durable particles with not more than 15% by weight of material passing a No. 200 mesh sieve and not less than 95% by weight passing the one inch sieve. The maximum allowable aggregate size shall be two inches or maximum size recommended by pipe manufacturer, whichever is smaller.

3. EXECUTION

3.1 EXCAVATION

A. General: Excavate to lines, grades and cross-sections indicated and/or necessary to permit indicated work.
   1) Includes excavation of pavements and other obstructions visible on ground surface; underground structures utilities and other items indicated to be demolished and removed; together with earth and other materials encountered.
   2) Conduct work in accordance with Section 31 20 00 - Earthwork.
   3) Conduct work in accordance with Section 31 25 00 - Erosion Control and Environmental Protection.

B. Unauthorized excavation, as well as remedial Work directed by Engineer, shall be at Contractors expense.

C. Trench Excavation: Trench width below top of pipe shall not exceed 24 inches plus pipe outside diameter (OD) for pipes of less than 24 inches inside diameter, and shall not exceed 36 inches plus OD for larger sizes.
   1) Where recommended trench widths are exceeded, redesign using stronger pipe or special installation procedures. Cost of redesign and increased cost of pipe or installation procedures shall be borne by Contractor.
   2) When unsuitable material is encountered, notify Engineer for direction prior to performing work.
   3) Side slopes shall vary dependent upon depth, type of soils, and position of surface structures.

D. Trench Grade: Grade uniformly to lines and grades shown on plans less any additional excavation for special bedding.

E. Removal of Unyielding Material: Where unyielding material is encountered in trench bottom, remove material four inches below required grade and replace with suitable material.

F. Removal of Unstable Material: Where unstable material is encountered in trench bottom, remove to 1/4 outside pipe diameter but not less than four inches and replace to proper grade with select granular material.
   1) When required due to fault or neglect of Contractor in his performance of work, resulting material shall be excavated and replaced without additional cost to Owner. When removal of unstable material is required due to presence of unsuitable material, payment shall be as contained herein.

G. Appurtenance Excavation: Excavation for manholes, catch-basins, inlets or similar structures to be at least 12 inches clear between outer structure surfaces and face of excavation or support members or of sufficient size to permit placement and removal of forms for full length and width of structure footings and foundations as shown.
   1) Removal of unstable material shall be as specified above.
   2) Use special care to protect bottom of excavation when concrete or masonry is to be placed in an excavated area. Do not excavate to final grade level until just before concrete or masonry is placed.

H. Material Storage: During excavation, stockpile material satisfactory for backfilling in an orderly manner at a distance from banks of trench sufficient to avoid overloading and to prevent slides or cave-ins.

3.2 STABILITY OF EXCAVATIONS - Comply with requirements of Section 31 20 00.

3.3 DEWATERING OF EXCAVATIONS - Comply with requirements of Section 31 20 00.

3.4 BOTTOM PREPARATION

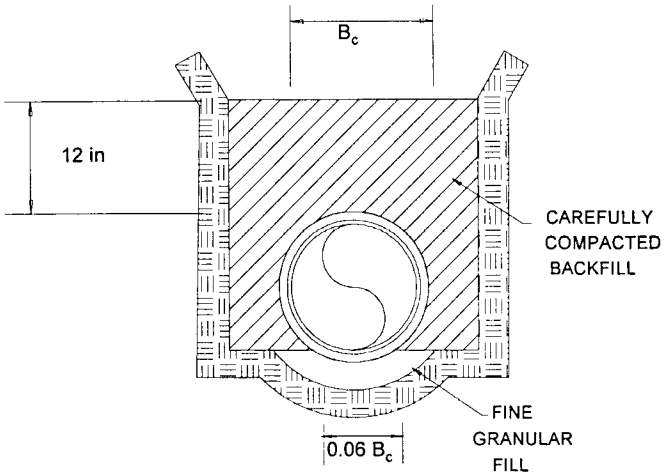
A. Bottom Preparation: Accurately shape to provide uniform, stable bedding of pipe.

1) Adjust line and grade by scraping away or adding adequately compacted material under pipe. Wedges, blocks, or beating on pipe is prohibited.

3.5 PIPE BEDDING

A. General: Bed pipe to provide uniform bearing and support for bottom quadrant of each section of pipe.
   1) Remove point bearing stones, stumps, limbs, or other debris larger than 2 inches in any dimension, or as recommended by the pipe manufacturer, whichever is smaller.
   2) Excavate bell holes to necessary size at each joint or coupling to eliminate point bearing.
   3) Provide stable pipe support and bottom reaction of barrel.

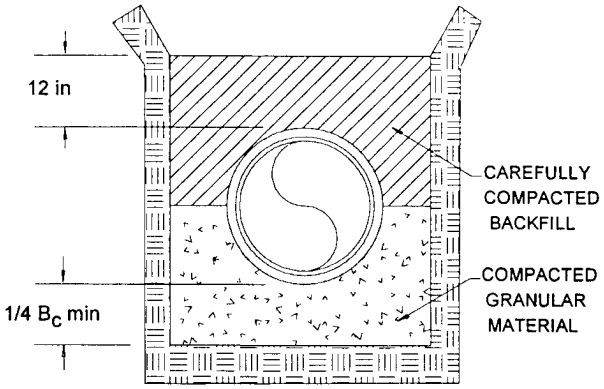
B. Select one of following bedding classes to obtain a stable support for pipe.
   1) Class B (First Class Bedding): Class B bedding may be achieved by either of following methods.
      (a) Shaped Bottom with Tamped Backfill - Shape bottom to conform to a cylindrical surface with a radius of at least 2 inches greater than radius to outside of pipe and with a width sufficient to allow six-tenths of width of pipe barrel to be bedded in fine granular fill placed in shaped excavation. Carefully place and compact backfill at sides of pipe to a thickness of at least 12 inches above top of pipe.



SHAPED BOTTOM WITH TAMPED BACKFILL

CLASS B(1)

(b) Compacted Granular Bedding with Tamped Backfill - Bed pipe in compacted granular material placed on a flat trench bottom. The granular bedding shall have a minimum thickness of one fourth outside pipe diameter and shall extend halfway up pipe barrel at sides. Carefully backfill and compact material to a minimum depth of 12 inches over top of pipe.

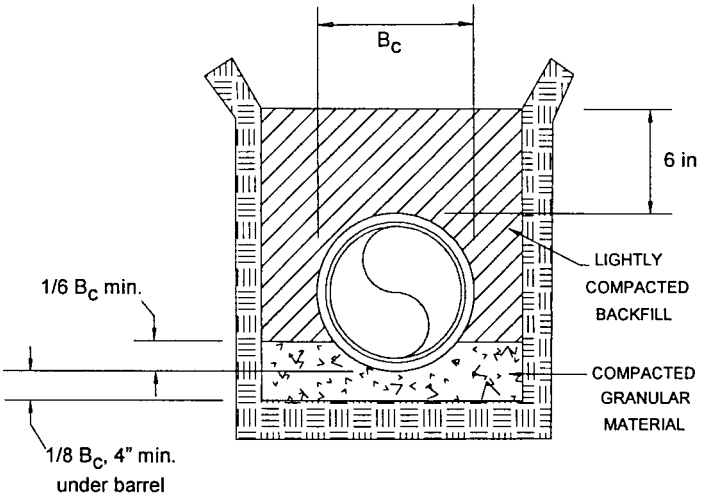


COMPACTED GRANULAR BEDDING

CLASS B(2)

2) Class C (Ordinary Bedding): Class C bedding may be achieved by either of the following methods.
   (a) Shaped Bottom - Bed pipe with ordinary" care in an earth foundation formed in trench bottom by a shaped excavation to fit pipe barrel with reasonable closeness for a width of at least 50 percent of outside pipe diameter. Fill sides and area over pipe to a minimum depth of 6 inches above top of pipe with lightly compacted fill.

   (b) Compacted Granular Bedding with a Tamped Backfill - Bed pipe in compacted granular material placed on a flat trench bottom. The granular bedding shall have a minimum thickness of 4 inches under barrel and extend one-tenth to one-sixth of outside diameter up pipe barrel at sides. Fill remainder of sides and to a minimum depth of 6 inches over top of pipe with lightly compacted backfill.



GRANULAR BEDDING

CLASS C(2)

3.6 BACKFILLING

A. General: Backfilling shall be accomplished in three zones, haunching, initial backfill and final backfill for each area classification.

B. Trench Backfill: Backfill to grade shown.
   1) Backfill to two feet above top of pipe prior to performing pressure tests.
   2) Do not place backfill in standing water.
   3) Maintain dry condition during backfill until level exceeds elevation of ground water table.

C. Compaction: Compact fill layers to minimum percentage of maximum dry density in accordance with AASHTO T-1 80 for each area classification and zone as indicated below.
   1) Obtain proper moisture content in soils prior to compaction by wetting or drying as required.

D. Haunching .Carefully place and compact backfill material in thin level lifts not to exceed 4 inches under pipe haunch and to springline (midpoint) of pipe to provide side support.
   1) Prevent vertical and lateral displacement of pipe from proper alignment.
   2) Compact soils using hand operated tamping devices or other methods to 95 percent of maximum dry density in accordance with AASHTO T-180.
   3) Ensure thorough compaction of fill under haunches of pipe.

E. Initial Backfill: Carefully place and compact backfill material in thin level lifts not to exceed 6 inches in thickness from springline to a height of at least one foot above pipe.
   1) Place fill evenly on both sides of pipe for full length of pipe.
   2) Compact soils using hand operated tamping devices or other methods to 95 percent of maximum dry density in accordance with AASHTO T-180.
   3) Ensure thorough compaction of the fill.

F. Final Backfill: Backfill remainder of the trench, except beneath pavement, structures, or other items as specified herein, with native satisfactory material placed in thin level lifts not to exceed 12 inches in thickness and compacted to 90 percent of maximum dry density in accordance with AASHTO T-180.

1) Place fill from top of initial backfill to lines and grades shown on construction documents or existing grade but not less than 12 inches clear.

G. Final Backfill under Roadways and Structures: Place suitable soils, either native or borrow, in thin level lifts not to exceed 12 inches in thickness and compact to 95 percent of maximum dry density in accordance with AASHTO T180.
   1) Place fill from top of initial backfill to bottom of base or existing grade.
   2) For utilities installed after subgrade preparation, prepare subgrade in accordance with requirements for pavement section at no additional compensation.
   3) Do not use unsuitable soils.

H. Final Backfill under Appurtenances: After manhole, catch-basin, inlet or similar structure has been constructed and concrete has been allowed to cure for three days minimum, place fill in manner that structure will not be damaged by shock of falling earth.
   1) Deposit and compact material as specified for final backfill or final backfill under roadways and structures, and place in manner to prevent eccentric loading and excessive stress on structure.

I. Unsuitable Material: In locations where native material is unsuitable soils, notify Engineer for directions prior to backfill operations. Final backfill shall consist of native unsuitable soils or suitable soils as directed by Engineer. Replacement of native unsuitable soils with suitable soils shall be paid for as specified herein, except, in locations where removal and replacement of unsuitable soils is covered and paid for under other sections no additional compensation will be due.

3.7 FINISHING

A. Areas outside limits of other work: Finish grade disturbed areas to provide a smooth, uniform and attractive surface free of exposed roots and debris and then stabilize in accordance with Section 32 92 19 -Grassing by Seeding or repair pavement in accordance with details contained on drawings or to match existing.

3.8 DISPOSAL OF EXCESS AND WASTE MATERIALS - Comply with requirements of Section 30 00 00.

3.9 TESTING AND INSPECTION REQUIREMENTS - comply with requirements of Section 30 00 00.

4. MEASUREMENT AND PAYMENT

4.1 GENERAL

A. The contract unit price shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals necessary for completion in every detail in accordance with plans and specifications.
   1) There will be no separate payment for work covered by this section except as contained herein, and all costs in connection therewith shall be included in the contract price for item or structure to which it pertains.
   2) Bedding: No separate payment will be made for this item.
   3) Replacement of unsuitable or unstable material with suitable material in the bedding, haunching and initial backfill areas: No separate payment will be made for this item.
   4) Unsuitable materials in the final backfill zone: The contract unit price shall be compensation in full for one cubic yard, in-place, of suitable fill material. Measurement shall be as computed by the Engineer. When a separate unit price is not available for this item, at discretion of Engineer, a unit price equal to one-half unit price for removal and replacement of unsuitable material will be used.

END OF SECTION 31 23 16

SECTION 31 25 00
EROSION CONTROL AND ENVIRONMENTAL PROTECTION

1. GENERAL

1.1 DESCRIPTION OF WORK

A. Extent of work includes but is not limited to following.
   1) Compliance with **FDEP NPDES Stormwater Regulatory Program for Construction Activities**.
   2) Temporary erosion control.
   3) Permanent erosion control.
   4) Staked hay bales.
   5) Sediment control Barrier.
   6) Sedimentation Basins.
   7) Turbidity Barriers.
   8) Operation and Maintenance of Stormwater Management Systems.

B. The need for temporary erosion control, permanent erosion control and environmental protection shall be considered as an anticipated condition of construction.

1.2 RELATED WORK

A. Section 30 00 00 - General Site Work Requirements.
B. Section 31 10 00 – Site Preparation.
C. Section 31 20 00 - Earthwork.
D. Section 32 92 23 - Sodding.
E. Section 32 92 19 - Grassing (by Seeding).

1.3 REFERENCES

A. Comply with the provisions of following codes and standards, except as otherwise shown or specified:
   1) American Society for Testing and Materials (ASTM) Publications:
      (a) D123 Standard Terminology Relating to Textiles.
      (b) D1683 Failure in Sewn Seams of Woven Fabrics.
      (c) D2487 Test Method for Classification of Soils for Engineering Purposes.
      (d) D3786 Standard Test Method for Mullen Burst Strength.
      (e) D3787 Bursting Strength of Knitted Goods - Constant-Rate-of-Traverse (CRT) Ball Burst.
      (f) D4439 Standard Terminology for Geotextiles.
      (g) D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
      (h) D4632 Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method).
   2) Virginia Highway Department:
      (a) VTM-51 -79
      (b) VTM-51 -79
      (c) VTM-51 Filtration Efficiency.
      (d) VTM-51 Slurry Flow Rate.

1.4 SUBMITTALS - comply with requirements of Section 30 00 00.

1.5 QUALITY ASSURANCE - comply with requirements of Section 30 00 00.

2. REGULATORY COMPLIANCE

2.1 **GENERAL –** comply with all regulatory and permit requirements.

2.2 FDEP NPDES STORMWATER REGULATORY PROGRAM

A. For projects that disturb 1 acre or more of land, comply with the requirements of the FDEP NPDES

stormwater regulatory program.

1) Submit Notice of Intent to use Generic Permit for Stormwater Discharge from Large and Small Construction Activities (FDEP Form 62-621.300(4)(b)) 48 hours prior to commencement of construction.
2) Prepare and maintain on-site the Stormwater Pollution Prevention Plan in accordance with Chapter 62-621.300(4), Florida Administrative Code.
3) Comply with the requirements and conditions of the FDEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.
4) Perform weekly and required inspections and complete all reports.
5) Upon final stabilization and completion of construction, complete and submit the required Notice of Termination.
6) Retain a copy of the Stormwater Pollution Prevention Plan, all reports, records and data for a period of 3 years from the date of final stabilization.

3. PRODUCTS

3.1 SOIL REINFORCEMENT MAT AKA EROSION CONTROL MAT

A. Soil reinforcement mat: Enkamat 7010, Tensar TM3000, or approved equal.
B. Staples: Blanket staples as provided by mat manufacturer.

3.2 JUTE MESH

A. Jute mesh: Terrajute by Terratex, Belton Soil Antiwash, or approved equal.
B. Staples: Blanket staples as provided by mat manufacturer.

3.3 HAY BALES

A. Hay bales shall be in accordance with FDOT Section 104 and 981, and FDOT Index 102

3.4 SANDBAGS

A. Sandbags shall be in accordance with FDOT Section 104.

3.5 SEDIMENT CONTROL BARRIERS

A. Sediment control barriers include geotextile sediment fabrics, silt fences, floating turbidity barriers, and staked turbidity barriers.
B. Geotextile sediment fabrics: In accordance with FDOT Section 985 for erosion control fabrics.
C. Silt Fences: In accordance with FDOT Section 104 and 985 and FDOT Index 102.
    1) Reinforce filter fabric with wire fence on upstream side when necessary.
    2) Do not exceed a post spacing of ten feet.
    3) Place wire fence and filter fabric on upstream side of posts.
    4) Install posts uniformly with approximately 20 degrees inclination toward potential silt source (upstream).
    5) Filter fabric shall be a minimum of 45 inches wide.
    6) Secure fabric to post or fence with suitable staples, tie wire, or hog rings to prevent tearing of fabric.
    7) Splice filter fabric at support posts with a minimum of six-inch overlap and securely seal.
D. Floating Turbidity Barrier: In accordance with FDOT Section 104 and FDOT Index 103.
E. Staked Turbidity Barrier: In accordance with FDOT Section 104 and FDOT Index 103.

3.6 STRAW BLANKETS

A. Straw blankets: As manufactured by Erosion Control Systems, Inc. (ECS), North American Green (NAG), or approved equal and as follows.
    1) Side slopes gentler than 4:1 - ECS Standard Blanket, NAG S75
    2) Side slopes of 3:1 to 4:1 - ECS High Velocity Blanket, NAG S150
    3) Side slopes of 2:1 to 3:1 - ECS Earth Lock, NAG SC150
    4) Side slopes of 1:1 to 2:1 - ECS Earth Lock, NAG C125
B. Staples: Blanket staples as provided by mat manufacturer.

3.7 TACKIFIER

A. Tackifiers shall be asphalt emulsion in accordance with FDOT Section 577 or other approved products.

4. EXECUTION

4.1 GENERAL

A. Environmental protection and erosion control, both temporary and permanent, shall be provided to prevent pollution of water, detrimental effects to public or private property, damage to work and to satisfy specific or general conditions of applicable permits and regulations. Prevent pollution and siltation of streams, canals, lakes, reservoirs and other water bodies with fuels, oils, bitumens, calcium chloride, silts, soils, untreated water or other harmful materials.

B. Prior to construction, provide necessary erosion control and environmental protection on project site and adjacent areas.
   1) Coordinate operations with timing of permanent erosion control and install temporary erosion control as needed to assure effective and continuous control of erosion and water pollution throughout life of contract.
   2) Except as permitted for construction, prevent discharge of excavated material into water bodies.
   3) Except as permitted for construction, do not place fill material adjacent to water bodies where uncontrolled discharge will occur.
   4) Do not disturb lands or waters outside limits of construction.
   5) Provide temporary or permanent stabilization of areas within 14 days of completion of earthwork or grading.

C. Dewatering: Treat discharge by one or more of following methods prior to conveyance off-site or into environmental areas:
   1) Pumping into grassed swales or appropriate vegetated areas.
   2) Sediment basins.
   3) Confinement by an appropriate enclosure such as silt fence when other methods are not available.

D. Perform operations in detention areas, excavation and stockpile areas and disposal areas such that erosion during and after completion of work will not likely result in detrimental conditions, siltation or water pollution.

E. Limitation of Exposure of Erodible Earth: Limit surface area of unprotected erodible earth exposed by clearing and grubbing, excavation or filling operations and provide immediate permanent or temporary erosion or pollution control measures commensurate with exposure.
   1) Do not exceed one-half acre without specific prior approval by the Owner's Engineer.
   2) Engineer may increase or decrease exposed area on basis of conditions of project.

F. Construction entrances: Place straw, mulch, gravel or other suitable material on ground in areas where construction related traffic is to enter and exit site.

G. Grate Inlets: Place geotextile sediment fabric beneath grates in inlets upon inlet placement to prevent discharge of sediments into structures and retention/detention area. Geotextile to remain until all paving, grading, and final stabilization has been completed and accepted.

H. If wind erosion becomes significant during construction, stabilize area using sprinkling, irrigation, hay or other acceptable methods.

I. Exposed earth, either existing or created by construction, shall be stabilized with permanent vegetative erosion control as shown on the drawings or as contained herein. When erosion control type is not shown on the drawings, the Contractor may select from any of the approved methods based on the use area as contained in paragraph 4.4.

4.2 TEMPORARY AND PERMANENT EROSION CONTROL WITH VEGETATION AND COVERINGS

A. General: Includes but not limited to grassing, sodding, mulching, sandbagging, artificial coverings, berms, and baled hay or straw.

B. Grassing: As specified in Section 32 92 19 except as modified herein. For temporary grassing, perennial grass seed may be omitted if permanent erosion control will be placed prior to death of annual grass.

C. Sod: As specified in Section 32 92 23.

D. Mulch: As specified in Section 32 92 19.

E. Sandbagging: Furnish and place sandbags in configurations to control erosion and siltation.
F. Artificial Coverings: Furnish and apply fiber mats, netting, plastic sheeting, or approved other to surfaces.
G. Baled Hay or Straw: Construct baled hay or straw dams to protect against downstream accumulations of silt.
   1) Construct in accordance with details shown in construction drawings, or when details are not shown, in accordance with FDOT Standard Index No. 102.

4.3 TEMPORARY EROSION CONTROL WITH SEDIMENT CONTROL BARRIERS

A. General: Includes but not limited to silt fences, floating turbidity barriers and staked turbidity barriers.
   1) Furnish, install, maintain, and remove temporary fences and barriers in accordance with manufacturers recommendations, these specifications, details shown on plans, or, when details are not shown, in accordance with FDOT Index 102.
   2) Turbidity barriers in waters of state may be either floating or staked types or any combination of types suitable to site conditions and meeting erosion control and water quality requirements.
      (a) Barrier type will be at Contractors option unless otherwise specified in plans.
B. Silt Fence: Erect at locations shown on plans, as needed to prevent sedimentation of off-site or environmental areas, or as directed by Engineer.
   1) Construct and install in accordance with FDOT Index 102.
   2) Entrench bottom of fabric into ground a minimum of eight inches.
   3) As a minimum, install at following locations:
      (a) Around entire site or units of work.
      (b) Between retention/detention areas and upland areas which sheet flow to retention/detention area.
      (c) Around ends of pipes which discharge into retention/detention area including sump when applicable.
      (d) At locations of environmentally sensitive areas when located on-site.
      (e) Between pavement and permanent vegetative stabilization to protect vegetation during establishment period.
C. Staked Turbidity Barrier: Erect at locations shown on plans, to contain silt and other deleterious matter occurring as a result of dredging, filling or other construction activities in waters of State, or as directed by Engineer.
D. Floating Turbidity Barrier: Erect at locations shown on plans, to contain silt and other deleterious matter occurring as a result of dredging, filling or other construction activities in waters of State, or as directed by Engineer.

4.4 STABILIZATION USE AREAS:

A. Flat areas (slopes of 8:1 or shallower): Use seed and mulch, hydro-seeding, seed and straw blanket, or solid sod at option of Contractor, unless shown otherwise.
B. Shallow slopes (slopes exceeding 8:1 but shallower than or equal to 6:1): Use seed and mulch, hydro-seeding, seed and straw blanket, or solid sod at option of Contractor, unless shown otherwise.
   1) For seed and mulch and hydro-seeding, apply tackifier within 24 hours of seed placement.
C. Moderate slopes (slopes exceeding 6:1 but shallower than or equal to 3:1): Use seed and straw blanket, or solid sod at option of the Contractor, unless shown otherwise.
   1) Sod: Apply tackifier prior to placement. For slopes steeper than 4:1, lay with staggered joints in transverse direction and lap joints a minimum of 4 inches in longitudinal direction. Cover with jute mesh in highly erodible soils with slopes of 4:1 or steeper, a rise of 3 feet or more and subject to runoff from pavement or building.
   2) Seed and straw blanket: Apply tackifier after placement of seed.
D. Steep slopes (slopes exceeding 3:1): Use seed and straw blanket, or solid sod at option of Contractor, unless shown otherwise.
   1) Sod: Underlay with soil reinforcement mat. Place with staggered joints in transverse direction and 4 inch lapped joints in longitudinal direction. Cover with jute mesh.
   2) Seed and straw blanket: Apply asphalt mulch tackifier to seed after placement and blanket after placement.

EROSION CONTROL METHOD	AREA TYPE			
	Flat areas	Shallow Slopes	Moderate slopes	Steep slopes
Seed and Mulch	✓			
Hydro-Seeding	✓			
Seed and Mulch w/Asphalt Mulch		✓		
Hydro-Seeding w/Asphalt Mulch		✓		
Seed and Straw Blanket	✓	✓	✓	✓
Solid Sod	✓	✓	×	
Solid Sod w/Jute Mesh			✓	
Solid Sod w/Soil Reinforcement Mat and Jute Mesh				✓

× - Conditional Use.

4.5 INSPECTION AND MAINTENANCE

A. General: Provide routine maintenance and inspection of permanent and temporary erosion control features until project is completed and accepted and for 90 days thereafter.
   1) Inspect all temporary erosion control measures immediately after each rainfall and at least daily during prolonged rainfall.
   2) Inspect for effectiveness and breaches.
   3) Immediately correct deficiencies.
   4) Fill, level, and repair eroded areas as required.
   5) Leave areas with smooth uniform stand of vegetation, free of ruts, washes, or uneven areas and suitable for maintenance with standard mowing equipment.

B. Begin maintenance of vegetated areas immediately after planting.
   1) Repair as required.
   2) Monitor condition of vegetation.
   3) Water as necessary to insure health of vegetation during maintenance period.

C. Remove sediment deposits when deposits reach approximately one-half of volume capacity of barrier or as directed. Sediment deposits in place after barrier is no longer required shall be dressed to conform to finished grade, prepared and finished as shown on construction plans or seeded in accordance with Section 32 92 19, GRASSING BY SEEDING.

D. Temporary barriers are to remain in place until completion of stabilization of all upland areas tributary to barrier. Notify Engineer prior to removal.

4.6 TESTING AND INSPECTION REQUIREMENTS - comply with requirements of Section 30 00 00.

5. STORMWATER MANAGEMENT SYSTEMS: RECOMMENDED O & M PROCEDURES

5.1 GENERAL: Owner's and operator's of stormwater management systems are required by conditions of the operation permit to maintain the system to function as intended and permitted. The following procedures are recommended to keep your system functioning as an effective water pollution control device.

A. Inspect stormwater structures, pipe systems, and control structures (weirs, orifices and skimmers) on a monthly basis and following extreme rainfall events.
   1) Remove obstructions, garbage, debris and sediments.
   2) Correct deficiencies.

B. Inspect ponds, swales, and ditches monthly and following extreme rainfall events.
   1) Remove obstructions, garbage and debris.

2) Check for sedimentation or vegetation that reduces volume of facility. Remove and re-vegetate as required.
3) Re-vegetate bare area or areas with poor stabilizing vegetation.
4) Correct eroded areas and stabilize with vegetation. Employ professional to evaluate recurring problems and correct as required.

C. Conduct site operations to prohibit discharges of foreign materials into basins including yard clippings, landscape mulch and soils. Do not sweep or wash sediments and other materials from pavement areas into basins. Utilize vacuum trucks and street cleaning services for removal of such materials.

D. Normally Dry Retention Basins (Ponds): Normally dry systems are designed to store and release stormwater solely through infiltration into underlying soils.
1) Annually, monitor performance of basins during a rainfall event of 1-inch minimum within a 24-hour period. Note amount and duration of rainfall, maximum pond stage, and amount of time for discharge of water to a dry condition. Compare results with other measured events. When performance has noticeably deteriorated or discharge time exceeds 72 hours, employ professional to evaluate and determine necessary maintenance.
2) Once every three years aerate soils and stabilizing vegetation using a spiked grass aerator.
3) Once every 10 years or upon deterioration of performance, employ a Professional Geotechnical Engineer to perform a hand auger boring or borings in basin bottom and evaluate plugging of underlying soils. Perform such other tests as recommended by the Geotechnical Engineer to verify capabilities of system.
4) Anticipate removal of vegetation and top layer of underlying soils every 15 to 20 years unless annual monitoring dictates such maintenance is not required. Replacement soils within basin should be tested to insure permeability rates match underlying soils.

E. Normally Dry Detention Basins (Ponds): Normally dry detention basins are designed to store and release stormwater through a control structure and infiltration into the underlying soils.
1) Comply with requirements for normally dry retention basins, except monitor performance from top of control structure.

F. Wet Detention Basins (Ponds): Wet detention systems are permanently wet ponds which are designed to store and slowly release a defined quantity of storm water runoff through an outlet structure. The outlet structure will include a draw down orifice or weir. The wet detention system consists of a permanent pool (below the draw down orifice) and a treatment volume (above the draw down orifice and below the overflow weir.) The draw down orifice is sized to slowly draw down the treatment volume after a storm event. Aquatic plants are planted on a gently sloping shelf around the perimeter of the pond (littoral shelf).
1) Inspect drawdown orifice to ensure that it is not plugged.
2) Remove nuisance plant species such as cattails, willow trees, popcorn trees or other invasive species that clog systems or crowd desirable species.
3) If applicable, inspect and replant littoral zone if percent of vegetated cover falls below permitted percentage.
4) Inspect annually for eutrophication (algal blooms). Employ professional for correction.
5) Anticipate replanting of littoral zones and cleaning of pond every 10 to 15 years.

6. MEASUREMENT AND PAYMENT

6.1 GENERAL

A. The contract unit price shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals necessary for completion in every detail in accordance with plans and specifications.
1) There will be no separate payment for clean up and restoration of property, or other items under this section unless specifically identified on the proposal, bid form, or contract.

END OF SECTION 31 25 00

SECTION 328400 PLANTING IRRIGATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Piping.
2. Manual valves.
3. Automatic control valves.
4. Miscellaneous piping specialties.
5. Sprinklers.
6. Drip irrigation specialties.
7. Controllers.
8. Boxes for automatic control valves.

1.3 DEFINITIONS

A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.

B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.

C. Main Piping: Downstream from point of connection to water distribution piping to and including control valves. Piping is under water-distribution-system pressure.

D. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.4 PERFORMANCE REQUIREMENTS

A. Irrigation zone control shall be automatic operation with controller valves.

B. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.

C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:

1. Irrigation Main Piping: **200 psig**
2. Circuit Piping: **150 psig**

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics and furnished specialties and accessories.

B. Wiring Diagrams: for power, signal, and control wiring.

C. Delegated-Design Submittal: For irrigation systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved. Also include adjustments necessary to avoid plantings and obstructions such as signs and light standards.

B. Qualification Data: For qualified Installer.

C. Zoning Chart: Show each irrigation zone and its control valve.

D. Controller Timing Schedule: Indicate timing settings for each automatic controller zone.

E. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For sprinklers, drip, controllers, and automatic control valves to include in operation and maintenance manuals.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers that include a certified irrigation designer qualified by The Irrigation Association or Professional Class member of the American Society of Irrigation Consultants

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.10 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

B. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedules 40 and 80.

1. PVC Socket Fittings: ASTM D 2466, Schedules 40 and 80.
2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.

C. PVC Pipe, Pressure Rated: ASTM D 2241, PVC 1120 compound, SDR 21 and SDR 26.

1. PVC Socket Fittings: ASTM D 2467, Schedule 80.
2. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.

2.2 PIPING JOINING MATERIALS

A. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 6q56.

B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 ENCASEMENT FOR PIPING

A. Standard: ASTM A 674 or AWWA C105.

2.4 MANUAL VALVES

A. Plastic Threaded Ball Valves:

1. Description:
   a. Standard: MSS SP-122.
   b. Pressure Rating: 150 psig
   c. Body Material: PVC.
   d. Type: Union.
   e. End Connections: Socket or threaded.
   f. Port: Full.

2.5 AUTOMATIC CONTROL VALVES

A. Plastic Automatic Control Valve

1. General Information
   a. Provide valve as per the specification.

2. Valve
   a. Irrigation valve specifications include but are not limited to:
      1) The valve body and bonnet shall be constructed of heavy-duty and ultra-violet resistant plastic.
      2) The bonnet shall be assembled to the body using multi-drive screws for use with flathead, Phillips, or hexagonal tools.
      3) Shall possess a water tight seal between the body and bonnet.
      4) Shall be a normally closed, forward flow design.
      5) Shall have a filtered pilot flow to resist debris and clogging.
      6) Shall be slow closing to prevent water hammer from causing subsequent system damage.
      7) Shall have a Ø1 inch NPT globe and angle inlet as well as a Ø1 inch NPT outlet.
      8) Shall have a manual internal bleed capability to operate the valve without allowing water into the valve box.
      9) Shall have a non-rising flow control handle to adjust water flow as needed.
      10) Shall include a 24 VAC 50/60 Hz solenoid capable of 2-wire operation.
         a) Inrush current: 0.41A (9.9VA) at 60Hz
         b) Holding current: 0.14A (3.43 VA) at 60Hz
      11) Operating flow rate of 2-40 gpm (7.6-151.4 l/min).
      12) Operating pressure range of 15-150 psi (1.04-10.4 bar).
      13) Water temperature: Up to 110°F (43°C).
      14) Ambient temperature: Up to 125°F (52°C).
      15) Shall accommodate an optional field-installed pressure regulating dial.
      16) Shall accept an optional latching solenoid for use with battery operated controllers.
      17) Shall be available with an optional purple flow control handle for use with non-potable water applications.
      18) Shall have a heavy-duty stainless steel spring for positive diaphragm closure.

2.6 SPRINKLERS

1. Rotors
   a. designed to provide uniform coverage over entire area of spray shown on drawings at available water pressure or as follows:
      1) Rotor for shrub or groundcover (21-40 feet) spacing: maximum 30-40 psi.
2. Pop-Up Spray
   a. Rotor for shrub or small turf areas (8-17 feet) spacing: maximum 30-40 psi. Irrigation rotor specifications include but are not limited to:
      1) The rotor body, stem and nozzle, shall be constructed of heavy-duty and ultra-violet resistant plastic.
         a) Shall have a heavy-duty stainless steel retract spring for positive pop-down.
      2) Shall have integrated seals and method for clearing debris.
         a) Oversized pressure activated wiper seal prevents leaks and protects internals from debris.
         b) Precision controlled flush at pop-down to clear debris from the unit, to assure positive stem retraction in all soil types.
         c) Ported arc adjustment screw to clear debris from unit at pop-down
      3) Shall have a slip clutch installation feature to allow easy arc alignment.
      4) Non-reversing 360° full arc rotation.
      5) 7.38 inch body height; 4.0 inch and 12 inch pop-up height (measured to center of nozzle).
      6) Operating range of 8 to 25 feet.
      7) Operating pressure range of 5 to 55 psi.
      8) Shall have a precipitation rate of 0.20 to 1.50 in/hr.
      9) Shall include a green cover and a flow shut-off valve in the rotor head.
      10) Exposed surface diameter shall measure 1.5 inch.
      11) Shall include Ø3/4 inch NPT female threaded bottom inlet.
      12) Shall include a nozzle tree containing twelve nozzles with indicated flow rates from 0.76 to 9.63 gpm and an exit trajectory of 10-25°.
      13) All rotor body components shall be removable from the top without special tools in order to provide quick and easy flushing and maintenance of the sprinkler.
      14) Shall include slot in cover for use of a pull up tool for ease of nozzle installation and replacement.
      15) Shall include nozzle retention screw that may also be used to reduce spray radius by 25%.
      16) Shall have a filter screen in the stem to protect the drive from clogging and to simplify removal for cleaning and flushing the system.
      17) Shall utilize nozzles designed to deliver even distribution over the entire radius including large wind resistant droplets and gentle close-in-watering.

2.7 CONTROLLERS

A. Description:

1. The controller shall be a full-featured, commercial-industrial product for the purpose of irrigation operation, management, and monitoring of control valves and sensors. The

controller shall be of a modular design that is provided with a standard 8-station output module. The controller shall be expandable to 12-station decoder output module controller Stations for Automatic Control Valves: Each station is variable from approximately 5 to 60 minutes. Include switch for manual or automatic operation of each station.

2. Exterior Control Enclosures: NEMA 250, Type 4, weatherproof, with locking cover and two matching keys; include provision for grounding.
   a. Body Material: Molded plastic.
   b. Mounting: Pole mounted.
3. Control Transformer: 24-V secondary, with primary fuse.
4. Depending on requirements, transformer input shall be 120 VAC, 60 Hz or 230 VAC, 50 Hz. Maximum output per station shall be 24 VAC, up to 0.56 A. Maximum output per P/MV terminal shall be 24 VAC, up to 0.56 A.
5. The controller transformer shall be equipped with an internal, self-resetting thermal circuit breaker to protect against overheating.
6. The controller transformer shall also be equipped with a ground lug for connecting to proper earth-ground hardware.
7. Station Modules
   a. Controller shall provide 12 (plastic enclosure) station output module slots Timing Device: Adjustable, 24-hour, 14-day clock, with automatic operations to skip operation any day in timer period, to operate every other day, or to operate two or more times daily.
   b. Station modules shall be secured against field wiring tension by locking levers.
   c. Using 2 wire only, the controller shall be expandable from 8 to 38 stations (plastic) and 8 to 54 stations (metal and pedestals).
   d. Using conventional station modules in conjunction with one decoder output module (model: EZ-DM), all controller configurations (plastic, metal, pedestal) shall expand up to 54 stations.
   e. Using only one decoder output module (model: EZ-DM) all controller configurations (plastic, pedestal) shall expand up to 54 stations.
   f. The controller shall have a base model capacity of 12 stations, consisting of one 8-station output module.
   g. Each station output shall supply 24 VAC, up to 0.56 A current for solenoid activation.
   h. The controller shall have self-diagnostic, electronic short circuit protection that detects a faulty circuit, continues watering the remainder of the program, and reports the faulty station via alert/notification to the user's smartphone, tablet, or computer. The built-in milliamp sensor shall constantly be measuring the current draw of each individual station.
   i. Module hardware
      1. The controller output modules shall have metal oxide varistors (MOVs) and copper induction coils on each station output circuit to help protect the micro-circuitry from power surges
         i. Sensor inputs - The controller shall be equipped with two dedicated general-purpose sensor ports.
      2. The sensor inputs shall be compatible with any standard normally closed or normally open "Clik-type" sensors for automatic shutdown during rain, freeze, soil moisture, and/or wind events.

3. The sensor inputs shall also be compatible with the Rainbird Flow Meter for flow monitoring, alerts, and reporting.

k. P/MV outputs
   1. The controller shall have one built-in P/MV (24 VAC) output with a capacity of up to 0.56 A.
   2. The P/MV output shall be selectable as active or disabled per each individual station.
   3. A common wire terminal is provided on the controller's power module, and additional commons are provided on each station output module.
      a. SmartPort®
         1) The controller shall be pre-wired with a SmartPort connector for easy connection of optional wireless remote controls.
         2) For international or short-range uses, the wireless remote control shall be the Rainbird model with a useful range of up to 1,000' (330 m).
         3) For use in the United States or long-range uses, where permitted, the wireless remote shall be Rainbird model with a useful range of up to 2 mi. (3.2 km).
   4. 3.10 Wi-Fi information
      a. The controller shall be equipped with built-in Wi-Fi.
      b. Wi-Fi operation shall be 802.11 b/g/n.
      c. Wi-Fi frequency is 2.4 GHz.
      d. Security shall have the ability to auto detect and offer the following security settings: WPA2, WPA Personal, and WPA Auto.

8. Moisture Sensor: Adjustable from one to seven days, to shut off water flow during rain.
9. Wiring: UL 493, Type UF multiconductor, with solid-copper conductors; insulated cable; suitable for direct burial.
   a. Feeder-Circuit Cables: No. 12 AWG minimum, between building and controllers.
   b. Low-Voltage, Branch-Circuit Cables: No. 14 AWG minimum, between controllers and automatic control valves; color-coded different from feeder-circuit-cable jacket color; with jackets of different colors for multiple-cable installation in same trench.
   c. Splicing Materials: Manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.

2.8 BOXES FOR AUTOMATIC CONTROL VALVES

A. Plastic Boxes:
   1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
      a. Size: As required for valves and service.
      b. Shape: Round (for gate valves) and Rectangular for control valves.
      c. Sidewall Material: PE.
      d. Cover Material: PE

B. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

B. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.

C. Drain Pockets: Excavate to sizes indicated. Backfill with cleaned gravel or crushed stone, graded from 3/4 to 3 inches to 12 inches below grade. Cover gravel or crushed stone with sheet of asphalt-saturated felt and backfill remainder with excavated material.

D. Provide minimum cover over top of underground piping according to the following:

1. Irrigation Main Piping: Minimum depth of 36 inches below finished grade, or not less than 18 inches below average local frost depth, whichever is deeper.
2. Circuit Piping: 12 inches.
3. Drain Piping: 12 inches.
4. Sleeves: 24 inches.

3.2 PREPARATION

A. Set stakes to identify locations of proposed irrigation system. Obtain Architect's approval before excavation.

3.3 PIPING INSTALLATION

A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.

B. Install piping at minimum uniform slope of 0.5 percent down toward drain valves.

C. Install piping free of sags and bends.

D. Install groups of pipes parallel to each other, spaced to permit valve servicing.

E. Install fittings for changes in direction and branch connections.

F. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.

G. Install underground thermoplastic piping according to ASTM D 2774 and ASTM F 690.

H. Install expansion loops in control-valve boxes for plastic piping.

I. Lay piping on solid subbase, uniformly sloped without humps or depressions.

J. Install ductile-iron piping according to AWWA C600.

K. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.

L. Install water regulators with shutoff valve and strainer on inlet and pressure gage on outlet. Install shutoff valve on outlet. Install aboveground or in control-valve boxes.

M. Water Hammer Arresters: Install between connection to building main and circuit valves aboveground or in control-valve boxes.

N. Install piping in sleeves under parking lots, roadways, and sidewalks.

O. Install sleeves made of Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.

P. Install transition fittings for plastic-to-metal pipe connections according to the following:
1. Underground Piping:
   a. NPS 1-1/2 and Smaller: Plastic-to-metal transition fittings.
   b. NPS 2 and Larger: AWWA transition couplings.
2. Aboveground Piping:
   a. NPS 2 and Smaller: Plastic-to-metal transition fittings.
   b. NPS 2 and Larger: Use dielectric flange kits with one plastic flange.

Q. Install dielectric fittings for dissimilar-metal pipe connections according to the following:
1. Underground Piping:
   a. NPS 2 and Smaller: Dielectric coupling or dielectric nipple.
   b. NPS 2-1/2 and Larger: Prohibited except in control-valve box.
2. Aboveground Piping:
   a. NPS 2 and Smaller: Dielectric union.
   b. NPS 2-1/2 to NPS 4: Dielectric flange.
   c. NPS 5 and Larger: Dielectric flange kit.
3. Piping in Control-Valve Boxes:
   a. NPS 2 and Smaller: Dielectric union.
   b. NPS 2-1/2 to NPS 4: Dielectric flange.
   c. NPS 5 and Larger: Dielectric flange kit.

3.4 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Flanged Joints: Select rubber gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

E. Ductile-Iron Piping Gasketed Joints: Comply with AWWA C600 and AWWA M41.

F. Copper-Tubing Brazed Joints: Construct joints according to CDA's "Copper Tube Handbook," using copper-phosphorus brazing filler metal.

G. Copper-Tubing Soldered Joints: Apply ASTM B 813 water-flushable flux to tube end unless otherwise indicated. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy (0.20 percent maximum lead content) complying with ASTM B 32.

H. PE Piping Fastener Joints: Join with insert fittings and bands or fasteners according to piping manufacturer's written instructions.

I. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End PE Pipe and Fittings: Use butt fusion.
2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.

J. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.

3.5 VALVE INSTALLATION

A. Valves: Install in boxes for automatic control valves or aboveground between shutoff valves.

3.6 SPRINKLER INSTALLATION

A. Install sprinklers after hydrostatic test is completed.

B. Install sprinklers at manufacturer's recommended heights.

C. Locate part-circle sprinklers to maintain a minimum distance of 6 inches from walls and 2 inches from other boundaries unless otherwise indicated.

3.7 AUTOMATIC IRRIGATION-CONTROL SYSTEM INSTALLATION

A. Equipment Mounting: Install exterior freestanding controllers within manufacturer plastic cabinet.

1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished by manufacturer.
2. Install anchor bolts to elevations required for proper attachment to supported equipment per manufacturer.

B. Install control cable in same trench as irrigation piping and at least 2 inches below piping. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

3.8 CONNECTIONS

A. Comply with requirements for piping specified for irrigation water supply as directed by local permitting requirements and Chapter 62-524, F.A.C., rules of Florida Department of Environmental Protection for piping, fittings, and specialties.

B. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.

C. Connect wiring between controllers and automatic control valves.

3.9 IDENTIFICATION

A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

B. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.
1. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 312000 "Earth Moving" for warning tapes.

3.10 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.
1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:
1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.

3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Any irrigation product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.11 STARTUP SERVICE

A. Perform startup service.
1. Complete installation and startup checks according to manufacturer's written instructions.
2. Verify that controllers are installed and connected according to the Contract Documents.
3. Verify that electrical wiring installation complies with manufacturer's submittal.

3.12 ADJUSTING

A. Adjust settings of controllers.

B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.

C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with finish grade.

3.13 CLEANING

A. Flush dirt and debris from piping before installing sprinklers and other devices.

3.14 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain automatic control valves and controllers.

3.15 PIPING SCHEDULE

A. Install components having pressure rating equal to or greater than system operating pressure.

B. Piping in control-valve boxes and aboveground may be joined with flanges or unions instead of joints indicated.

C. Underground irrigation main piping NPS 4 shall be one of the following:
1. Class 200 PVC pipe and socket fittings, and solvent-cemented joints.

D. Underground irrigation main piping, NPS 5 and larger, shall be the following:
1. Class 200 PVC pipe and socket fittings; and solvent-cemented joints.

E. Circuit piping, NPS **2** the following:
1. Schedule 40, PVC pipe and socket fittings; and solvent-cemented joints.

F. Circuit piping, NPS 2-1/2 to NPS 4 shall be the following:
1. Schedule 40, PVC pipe and socket fittings; and solvent-cemented joints.

G. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe; threaded PVC fittings; and threaded joints.
   1. Option: Plastic swing-joint assemblies, with offsets for flexible joints, manufactured for this application.

END OF SECTION 328400

SECTION 32 92 00
RESTORATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The work includes the restoration of driveways, lawn areas, trees and plants, roadways, sprinkler systems, walks and any other existing improvement affected by the proposed work.

B. This section includes furnishing equipment, labor and materials, and performing all necessary and incidental operations to perform the required work.

PART 2 – PRODUCTS

2.01 SOD

A. Any slope equal to or steeper than 1 vertical to 3 horizontal shall be sodded and the sod shall be pinned down for stabilization.

B. The CONTRACTOR shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, re-staking sod, filling, leveling and repairing of any washed or eroded areas, as may be necessary.

2.02 PLANTS AND TREES

A. Existing damaged plants and tress shall be replaced by plants and trees of equal type, quality and size whenever possible. All new plants and trees shall be sound, healthy, vigorous and free from defects, decay, disfiguring, bark abrasions, plant diseases, insect pests, their eggs or larvae. The new plants shall be approved by the ENGINEER before placing.

B. Existing plants may be removed, preserved, and replaced at the CONTRACTORs option. Plants shall be handled by an approved nursery.

C. Plants shall be watered and cared for until new growth appears. Dead and dying plants shall be immediately replaced. Plants used shall be in accordance with the standards for Florida No. 1 or better as given in Grades and Standards for Nursery Plants Part 1.

D. Plants shall conform to the sizes indicated by the OWNER.

E. Trees shall be guaranteed for one year. If the replaced tree dies within one year of project completion it shall be replaced by the CONTRACTOR at no expense to the City.

2.03 MULCH

A. Match existing mulch.

2.04 WATER

A. The water used in the performance of this Contract shall be of drinking water quality, clean and free from injurious amounts of oil, acid, alkali, or organic matter. The CONTRACTOR shall purchase all testing water from the County.

2.05 PLANTING MIXTURE:

A. The 18 inch planting mixture, when required, shall consist of a thorough mixture of 40% peat and 60% sand. The peat shall be Florihome peat or equivalent and the sand shall be clean and free from debris of any kind.

2.06 FERTILIZER

A. Fertilizer shall be pelletized 13-13-13, or approved equal.

PART 3 - EXECUTION

3.01 LANDSCAPING RESTORATION

A. Lawn Areas: Any lawn area affected by the required work shall be restored to a condition equal or better than the conditions existing before the commencement of work.

B. Balled Plants: Plants where required shall be adequately balled with firm natural balls of soil, sized as set forth in "Horticultural Standards." Balls shall be firmly wrapped with burlap or equally approved strong cloth. No balled plant will be planted if the ball is cracked or broken before or during the process of planting.

C. Preparation of Plant Pits: All plant pits shall be circular in outline and have vertical sides. Tree pits shall be two feet wider than the width of the ball and one foot deeper than the depth of the ball. Shrubs that are either B&B or 3 gallons + shall have pits that are two feet wider than the width of the plant ball and 6 inches deeper than the depth of the ball. Smaller shrubs shall have pits that are at least one foot wider than the width of the plant ball and 6 inches deeper than the ball depth.

D. Setting Plants: All plants except as otherwise specified, shall be centered in pits. Deep planting shall be avoided and unless otherwise specified, plants shall be set at such a level that after settlement they will bear the same relation to the required grade as they have to the natural grade before being transplanted.

E. Balled and burlapped plants and palm trees shall be placed on 6 inches to 12 inches of tamped planting mixture and adjusted so as to be at the proper level. The rope and burlap shall be cut away and the burlap folded down to the bottom of the pit. Very large B&B plants shall remain wrapped until fully backfilled and then just the upper portion of the burlap shall be removed. Backfill of planting mix shall be placed halfway up the pit and then water tamped. After this water has drained away, backfill around the ball to grade and water tamp again. Finally, form a ridge of soil around the edge of the pit to form a saucer and full area three times with water.

F. Water: Water to be used initially during plant installation shall be furnished by the CONTRACTOR. The existing irrigation system, where damaged, shall be promptly repaired after the installation of the plants.

G. Options as to Methods: Any plant may be furnished container grown instead of balled if all other requirements are met.

H. Immediately before sod is placed, 8-8-8 fertilizer shall be applied at the rate of approximately 500 pounds per acre, by broadcasting and raking into the planting area.

I. Sod shall be firmly embedded by light tamping. Wherever necessary to prevent an erosion condition caused by vertical edges at the outer limits of the sodded area, the sod shall be tamped so as to produce a featheredge at the outer limits. The sod shall be kept in a moist condition after it is planted. Water shall not be applied between the hours of 8 A.M., and 4 P.M., nor when there

is danger of freezing.

J. The CONTRACTOR shall, at his expense, maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, filling, leveling and repairing of any washed or eroded areas, as may be necessary.

3.02 PAVEMENT REPLACEMENT

A. Asphalt pavement shall be removed by saw cutting on a straight line with edges as vertical as possible. Concrete pavement or asphalt surfaced concrete shall be removed by cutting with a concrete saw in as straight a line and vertically as possible.

B. Non-asphalt pavement replacement shall be replaced of like material and thickness. Asphalt or built-up asphalt pavement replacement shall be replaced with like material or concrete as directed by the ENGINEER.

1. Where asphalt or built-up asphalt pavement is replaced by concrete, the concrete shall have a minimum of 6 inches in thickness and be reinforced with 6 by 6 No. 6 gage welded wire fabric. Where the pavement replacement is of like material, it shall be replaced in thickness equal to or better than that existing at the time of removal.

C. Road cuts across City or County roads shall not be cut.

D. Unless the base is sealed or other temporary paving applied over driveway areas to be repaved, pavement shall be replaced not later than three weeks after completion of backfill.

3.03 CURB REMOVAL AND REPLACEMENT

A. Curb removal and replacement required in the construction of this work shall be done by the CONTRACTOR. Reasonable care shall be exercised in removing the curb, and the CONTRACTOR shall either stockpile or dispose of this material as directed by the ENGINEER. Curb shall be replaced of like material in a manner and condition equal to or better than that existing at the time of removal. Materials and methods of replacing State Highway sidewalks or curbs shall conform to the Department of Transportation specifications.

3.04 TESTS

A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the CONTRACTOR at such locations as may be recommended by the ENGINEER. If the densities as determined by the specified tests fall below the required minimums, the CONTRACTOR shall pay for all retests.

END OF SECTION 32 92 00

SECTION 329210 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Sodding.

B. Related Requirements:
   1. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See “Soil Preparation (Performance Specification)" and drawing designations for planting soils.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for sod. Include identification of source and name and telephone number of supplier.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

C. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

PART 2 - PRODUCTS

2.1 TURFGRASS SOD

A. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

B. Turfgrass Species: Zoysia Grass ‘El Toro’ (Eremochloa ophiuroides).

C. Turfgrass Species: Sod of grass species as follows, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
   1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

   1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
   1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
   2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
   3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation**."**

B. Coordinate "Placing Planting Soil" Paragraph below with Section 329113 "Soil Preparation" or Section 329115 "Soil Preparation (Performance Specification)."

C. Placing Planting Soil: Blend planting soil in place.
   1. Reduce elevation of planting soil to allow for soil thickness of sod.

D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

F. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.3 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or

sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.4 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering:

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow Zoysia grass to a height of 1 to 2.5 inch.

3.5 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.6 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.7 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove non-degradable erosion-control measures after grass establishment period.

3.8 MAINTENANCE SERVICE

A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Sodded Turf: 30 days from date of Substantial Completion.

END OF SECTION 329200

SECTION 32 92 23
SODDING

1. GENERAL

1.1 DESCRIPTION OF WORK
A. Extent of work is indicated on drawings and includes but is not limited to:
   1) Ground preparation.
   2) Fertilization.
   3) Sodding.
   4) Watering.

1.2 RELATED WORK
A. Section 30 00 00 - General Site Work Requirements
B. Section 31 20 00 - Earthwork
C. Section 31 23 16.13 - Earthwork for Utilities
D. Section 31 25 00 - Erosion Control and Environmental Protection

1.3 SUBMITTALS - Comply with requirements of Section 30 00 00

1.4 QUALITY ASSURANCE - Comply with requirements of Section 30 00 00.

2. PRODUCTS

2.1 SOLID SOD - Comply with requirements of FDOT Section 575 and Section 981.

2.2 FERTILIZER - Comply with requirements of FDOT Section 575 and Section 982.

2.3 DOLOMITIC LIME - Comply with requirements of FDOT Section 575 and Section 982.

2.4 WATER - Comply with requirements of FDOT Section 575 and Section 983.

3. EXECUTION

3.1 GENERAL
A. Use of solid sod is conditioned on the time of year, weather and soil conditions. Do not sod when time of year, weather or soil conditions are inappropriate without authorization of Engineer. During dormant periods, consult with Engineer on use of alternative stabilization method. Engineer may direct use of seed & mulch, hydroseeding, hydromulch or any stabilization methods as contained in Section 31 25 00 as an alternative to solid sod.

3.2 PREPARATION OF GROUND
A. Scarify or loosen area to a suitable depth then rake smooth, free from rocks or stones.
   1) Engineer may authorize elimination of ground preparation for area where the soil is sufficiently loose.
   2) Correct soft spots and inequalities in grade.
   3) Schedule inspection by Engineer upon preparation of ground.
   4) Water soil before sod placement.
   5) Comply with requirements of Section 31 25 00.

3.3 FERTILIZATION - Comply with requirements of FDOT Section 575.

3.4 SOD PLACEMENT
A. General: Lay sod without voids and tamp or roll to required finish grade.
   1) Broom screen topsoil over entire area.
   2) Thoroughly water sod.

3) Sod surface shall be true to finished grade lines and even and firm at all points.

B. Joints: Closely butt and stagger joints.
   1) Avoid continuous seam along line of water flow.
   2) Place sod in rows at angles of not less than 60 degrees to slope.

C. Attachment: Sod may be placed in conjunction with tackifier, soil reinforcement or coverings. Comply with requirements of Section 31 25 00.
   1) In areas with slopes steeper than 4:1, secure sod with staples, wooden stakes or other approved means to prevent movement.

D. Watering: Maintain sod in moist condition to full depth of root zone for at least two weeks after placement. Thereafter, apply water as needed until sod roots and begins to grow.

3.5 MAINTENANCE

A. Maintain sodded areas in a satisfactory condition until final acceptance of project.
   1) Repair any damaged areas and replace sod in areas where establishment of grass stand is unsatisfactory.
   2) Replacement or repair necessary due to Contractors negligence, carelessness or failure to provide routine maintenance shall be at Contractor's expense. Replacement necessary due to factors determined to be beyond control of Contractor shall be paid for under appropriate contract pay item.

3.6 GUARANTEE

A. Guarantee sod for a period of 90 days after date of final acceptance.

3.7 TESTING AND INSPECTION REQUIREMENTS - Comply with requirements of Section 30 00 00.

4. MEASUREMENT AND PAYMENT

4.1 GENERAL

A. The contract unit price shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals necessary for completion in every detail in accordance with plans and specifications.
   1) There will be no separate payment for clean up and restoration of property, or other items under this section unless specifically identified on the proposal, bid form, or contract.

END OF SECTION 32 92 23

SECTION 329300 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plants
2. Tree stabilization
3. Landscape Fabric Materials

B. Related Requirements:

1. Section 329200 Turf and Grasses" for turf
2. Section 328400 Planting Irrigation

C. Backfill: The earth used to replace or the act of replacing earth in an excavation.

D. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.

E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

F. Finish Grade: Elevation of finished surface of planting soil.

G. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.

H. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

I. Planting Area: Areas to be planted.

J. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

K. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

L. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

M. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.

N. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.3 COORDINATION

A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.

1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:

1. Manufacturer's certified analysis of standard products.
2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in landscape installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Pesticide Applicator: State licensed, commercial.

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

1. Selection of plants purchased under allowances is made by Architect, who tags plants at their place of growth before they are prepared for transplanting.

C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

D. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Handle planting stock by root ball.

E. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

F. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots that are in less than moist condition in water for two hours. Reject plants with dry roots.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.9 FIELD CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
b. Structural failures including plantings falling or blowing over.

2. Warranty Periods: From date of acceptance from college.

a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
c. Annuals: Three months.

3. Include the following remedial actions as a minimum:

a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock,

densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Biennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

2.2 FERTILIZERS

A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.

1. See plan specifications.

2.3 MULCHES

A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:

1. See plan specifications.

2.4 LANDSCAPE FABRIC

A. Landscape fabric performance capabilities shall be determined by ASTM D 3776, d 1777, D 4833, D 4533, D 4355, D 4751 and D 4491.

B. Fabric shall be furnished in rolls with a date code identification, which allows for sufficient tracking of the product back to date of manufacturing and for quality control purposes.

C. Fabric shall be of consistent thickness with fibers distributed evenly over the entire area of the material.

D. Fabric shall be free of defects and voids that would interfere with proper installation or impair performance.

E. Fabric shall be stored by the Contractor in a manner that protects them from damage by construction activities.

F. Site Preparation:
1. Before placing fabric, the Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications.
2. The Contractor shall not proceed until all unsatisfactory conditions have been remedied. By beginning construction, the Contractor signifies that the preceding work is in conformance with this specification.
3. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations

G. Slope Installation
1. Fabric shall be installed as directed by the owner's representative in accordance with manufacturer's Installation Guidelines, and Staple Pattern Guides..
2. Fabric shall be orientated in vertical strips and anchored with staples, as identified in the Staple Pattern Guide. Adjacent strips shall be abutted or overlapped to allow for installation of a common row of staples that anchor through the nettings of both fabric sections.
3. Where exposed to overland sheet flow, a trench shall be located at the uphill termination. Fabric shall be stapled to the bottom of the trench. The trench shall be backfilled and compacted. Where feasible, the uphill end of the fabric shall be sufficiently extended over the crest of the slope.

2.5 PESTICIDES

A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide Selective: Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide Selective: Effective for controlling weed growth that has already germinated.

2.6 TREE-STABILIZATION MATERIALS

A. Trunk-Stabilization Materials:

1. See plan specifications.

2.7 MISCELLANEOUS PRODUCTS

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

B. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

D. Lay out plants at locations directed by Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

3.3 PLANTING AREA ESTABLISHMENT

A. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

B. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at application rate according to manufacturer's written recommendations.

3.4 EXCAVATION FOR TREES AND SHRUBS

A. See plan specifications.

3.5 TREE, SHRUB, AND VINE PLANTING

A. See plan specifications.

3.6 TREE, SHRUB, AND VINE PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Prune, thin, and shape trees, shrubs, and vines as directed by Architect.

C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

D. Do not apply pruning paint to wounds.

3.7 TREE AND PALM STABILIZATION

A. See plan specifications.

3.8 GROUND COVER AND PLANT PLANTING

A. See plan specifications.

3.9 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 36-inch radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.

2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch extending 12 inches beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.10 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.11 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas according to manufacturer's written recommendations. Do not apply to seeded areas.

C. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.12 REPAIR AND REPLACEMENT

A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

B. Remove and replace trees that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of same size as those being replaced for each tree of 6 inches or smaller in caliper size.

3.13 CLEANING AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

3.14 MAINTENANCE SERVICE

A. Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

B. Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

END OF SECTION 329300

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September 16, 2025 (10:47:57 EST)
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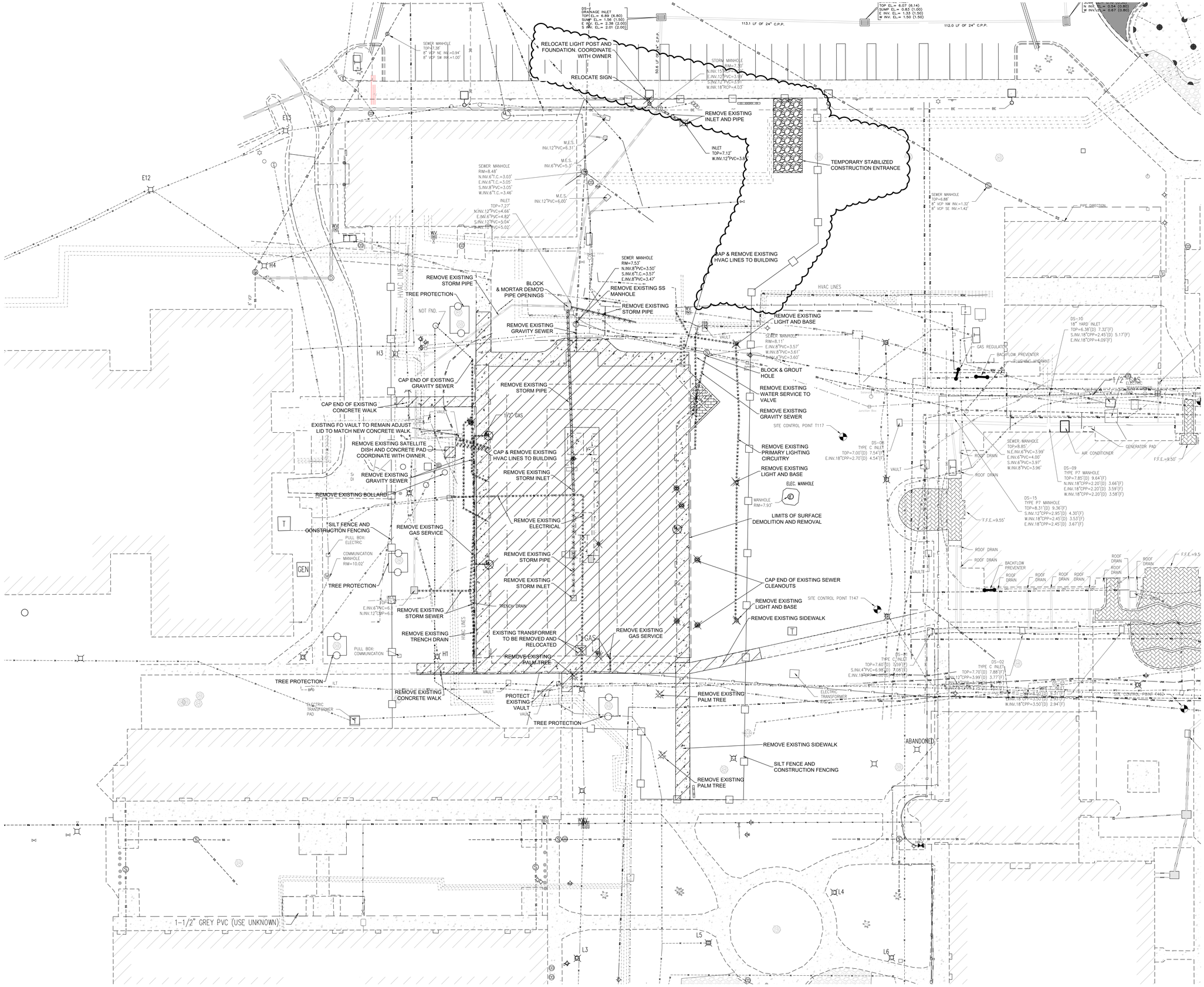

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

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PANAMA CITY, FL, 32401

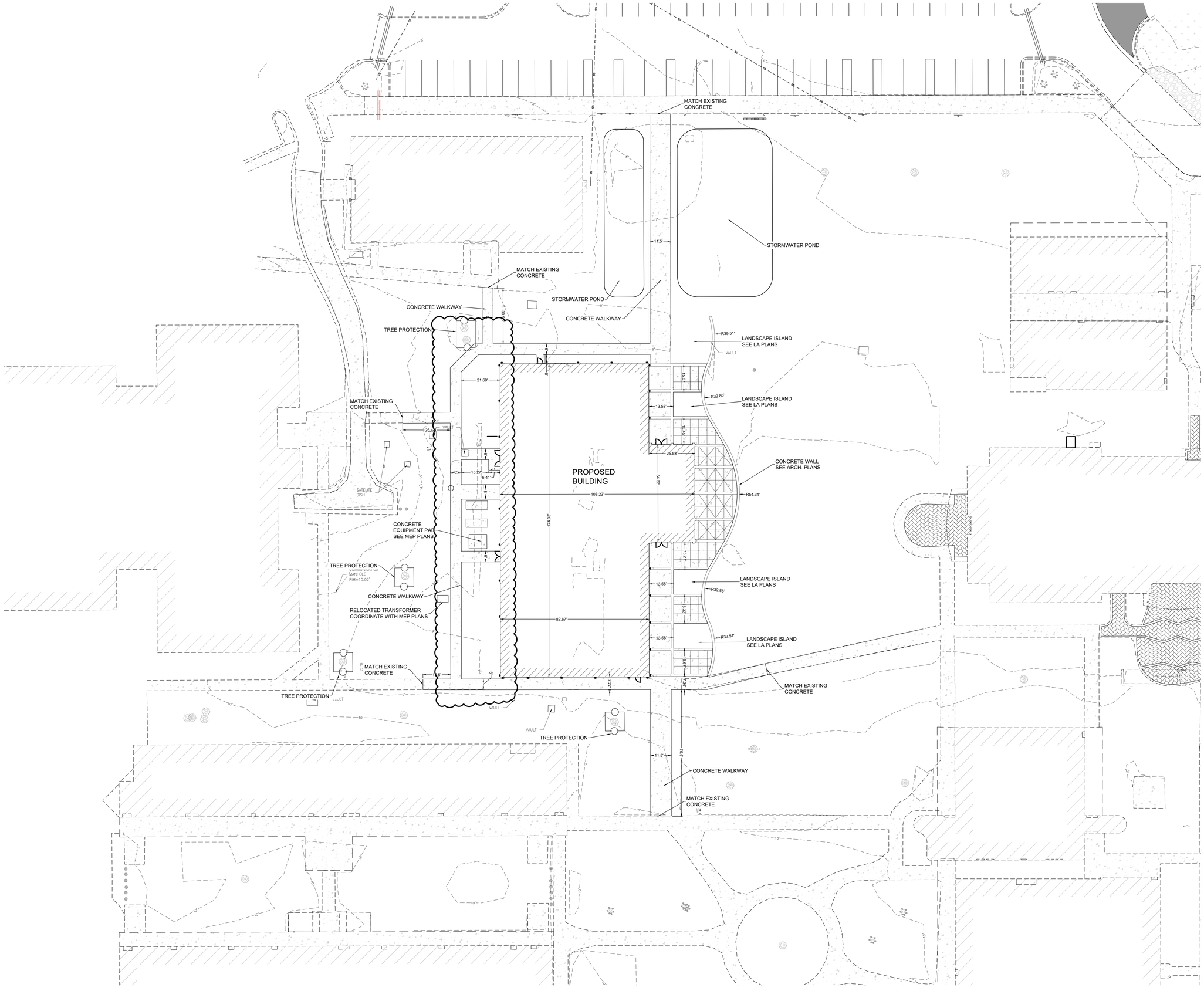
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number	50186685
Dated	08.29.2025

DEMO & EROSION CONTROL PLAN

C-101



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GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

0' 10' 20' 40'
SCALE: 1" = 20'

REVISIONS

NO	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number 50186685
Dated 08.29.2025

SITE PLAN

C-102

September 16, 2025 (10:48:09 EST)
K:\50186685.000_DAG_GCSC NURSING AND SIMULATION CENTER_CIVIL\DFOLDER_PRODUCTION\50186685_SITEPLAN.DWG C-102 SITE PLAN BY: MHURST

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September 16, 2025 (16:46:09 EST)
K:\50186685.000_DAD_GCSC-NURSING AND SIMULATION CENTER_CIVIL\DF\OLDER_PRODUCTION\50186685_SITEPLAN.DWG C-103 GRADING & DRAINAGE BY: MMURST

ADJUST RIM TO MATCH PROPOSED SIDEWALK

STORM MANHOLE
RIM=7.30'
N.INV.15"RCP=4.00'
E.INV.12"PVC=3.99'
S.INV.12"PVC=3.91'
W.INV.18"RCP=4.03'

MATCH EXISTING

DP-14 34' of 12" ADS HP @ 0.59%

DS-14
FDOT Type C Inlet
TOP:7.50
INV OUT NW: 4.20 12" ADS HP

M.E.S.
INV.12"PVC=6.31'

M.E.S.
INV.6"PVC=5.3'

SEWER MANHOLE
RIM=8.48'
N.INV.6"T.C.=3.03'
E.INV.6"T.C.=3.05'
S.INV.8"PVC=3.05'
W.INV.6"T.C.=3.46'

INLET
TOP=7.27'
N.INV.12"PVC=4.66'
E.INV.6"PVC=4.82'
S.INV.12"PVC=5.04'
W.INV.15"PVC=5.02'

M.E.S.
INV.12"PVC=6.00'

DS-12
1:4 M.E.S.
TOP:13.11
INV OUT E: 12.00 12" ADS HP

DP-12 23' of 12" ADS HP @ 0.00%

DS-13
1:4 M.E.S.
TOP:13.11
INV IN W: 12.00 12" ADS HP

DS-11
FDOT Type C Inlet
TOP:6.00
INV IN S: 4.25 18" ADS HP

DP-10 45' of 18" ADS HP @ 0.56%

MATCH EXISTING

ADJUST RING & COVER TO MATCH NEW GRADE

HVAC LINES

DS-9
FDOT Type P7 Manhole
TOP:9.45
INV OUT E: 5.00 18" ADS HP

DP-9 136' of 18" ADS HP @ 0.37%

DS-10
FDOT Type P7 Manhole
TOP:7.53
INV IN W: 4.50 18" ADS HP
INV IN S: 4.50 18" ADS HP
INV OUT N: 4.50 18" ADS HP

SEWER MANHOLE
RIM=8.11'
E.INV.8"PVC=3.57'
W.INV.8"PVC=3.61'
S.INV.4"PVC=3.60'

DS-1
FDOT Type P7 Manhole
TOP:9.62
INV OUT S: 4.50 18" ADS HP

DP-8 23' of 18" ADS HP @ 1.11%

MATCH EXISTING

DS-8
FDOT Type C Inlet
TOP:7.52
INV IN S: 4.75 18" ADS HP
INV OUT N: 4.75 18" ADS HP

6"X12" TEE

12" ROOF DRAIN COLLECTOR PIPE

DP-7 61' of 18" ADS HP @ 0.41%

6" ROOF DRAIN

ADJUST EXISTING FO VAULT LID TO MATCH TOP OF NEW CONCRETE WALK

12" IN-LINE DRAIN GRATE SET FLUSH TO CONCRETE (TYP UNO)

DS-7
FDOT Type C Inlet
TOP:7.64
INV IN S: 5.00 18" ADS HP
INV OUT N: 5.00 18" ADS HP

PROPOSED BUILDING
MIN FF = 10.20'

6" ROOF DRAIN (TYP UNO)

ELEC. MANHOLE

MANHOLE RIM=7.93'

6" ROOF DRAIN

DP-6 60' of 18" ADS HP @ 0.34%

DS-6
FDOT Type C Inlet
TOP:7.28
INV IN S: 5.20 18" ADS HP
INV OUT N: 5.20 18" ADS HP

12" ROOF DRAIN COLLECTOR PIPE

6"X12" TEE

DP-5 35' of 18" ADS HP @ 0.58%

DS-5
FDOT Type C Inlet
TOP:7.69
INV IN S: 5.40 18" ADS HP
INV OUT N: 5.40 18" ADS HP

SITE CONTROL POINT T147

DP-4 19' of 18" ADS HP @ 0.51%

MATCH EXISTING

6" ROOF DRAIN (TYP UNO)

DP-1 169' of 18" ADS HP @ 0.30%

6" ROOF DRAIN (TYP UNO)

SATELITE DISH

PULL_BOX: ELECTRIC

COMMUNICATION MANHOLE RIM=10.02'

INLET
TOP=7.27'
E.INV.6"PVC=4.82'
N.INV.12"CMP=6.39'

PULL BOX: COMMUNICATION

MATCH EXISTING

VAULT

ELECTRIC TRANSFORMER PAD

DS-2
FDOT Type C Inlet
TOP:9.10
INV IN N: 6.00 18" ADS HP
INV OUT E: 6.00 18" ADS HP

DP-2 79' of 18" ADS HP @ 0.32%

VAULT

STRUCTURE - (27)
FDOT Type C Inlet
TOP:9.86
INV IN W: 5.75 18" ADS HP
INV OUT E: 5.75 18" ADS HP

DP-3 79' of 18" ADS HP @ 0.32%

DS-4
FDOT Type C Inlet
TOP:7.99
INV IN W: 5.50 18" ADS HP
INV OUT N: 5.50 18" ADS HP

ELECTRIC TRANSFORMER PAD

ABANDONED

MATCH EXISTING

DS-01
TYPE C INLET
TOP=7.60'(D) 7.59'(F)
S.INV.4"PVC=6.98'(D) 7.08'(F)
E.INV.18"CPP=4.00'(D) 4.01'(F)

DS-02
TYPE C INLET
TOP=7.70'(D) 7.88'(E)
N.INV.12"CPP=3.99'(D) 3.77'(F)
E.INV.18"CPP=3.75'(D) 3.41'(F)
W.INV.18"CPP=3.75'(D) 3.53'(F)

DS-03
TYPE C INLET
TOP=8.50'(D) 9.31'(F)
E.INV.18"CPP=3.50'(D) 2.93'(F)
W.INV.18"CPP=3.50'(D) 2.94'(F)

DS-08
TYPE C INLET
TOP=7.00'(D) 7.54'(F)
18"CPP=2.70'(D) 4.54'(F)

SITE CONTROL POINT T117

Solenoid Valve

Junction Box

GAS REGULATOR

BACKFLOW PREVENTER

FLUSHING HYDRANT

3" PVC Main Line

VAULT

DS-10
18" YARD INLET
TOP=6.38'(D) 7.32'(F
S.INV.18"CPP=2.45'(D
E.INV.18"CPP=4.09'(F

SEWER MANHOLE
TOP=8.85'
N.E.INV.6"PVC=3.99'
E.INV.6"PVC=4.00'
S.INV.6"PVC=3.97'
W.INV.8"PVC=3.96'

ROOF DRAIN

DS-09
TYPE P7 MANHOLE
TOP=7.85'(D) 9.64'(F)
N.INV.18"CPP=2.20'(D) 3.
E.INV.18"CPP=2.20'(D) 3.
W.INV.18"CPP=2.20'(D) 3.

DS-15
TYPE P7 MANHOLE
TOP=8.31'(D) 9.36'(F)
S.INV.12"CPP=2.95'(D) 4.30'(F)
W.INV.18"CPP=2.45'(D) 3.53'(F)
E.INV.18"CPP=2.45'(D) 3.67'(F)

BACKFLOW PREVENTER

ROOF DRAIN

VAULT

3" Irrigation Main #1

MATCH EXISTING

WV

0' 10' 20' 40'
SCALE: 1" = 20'

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

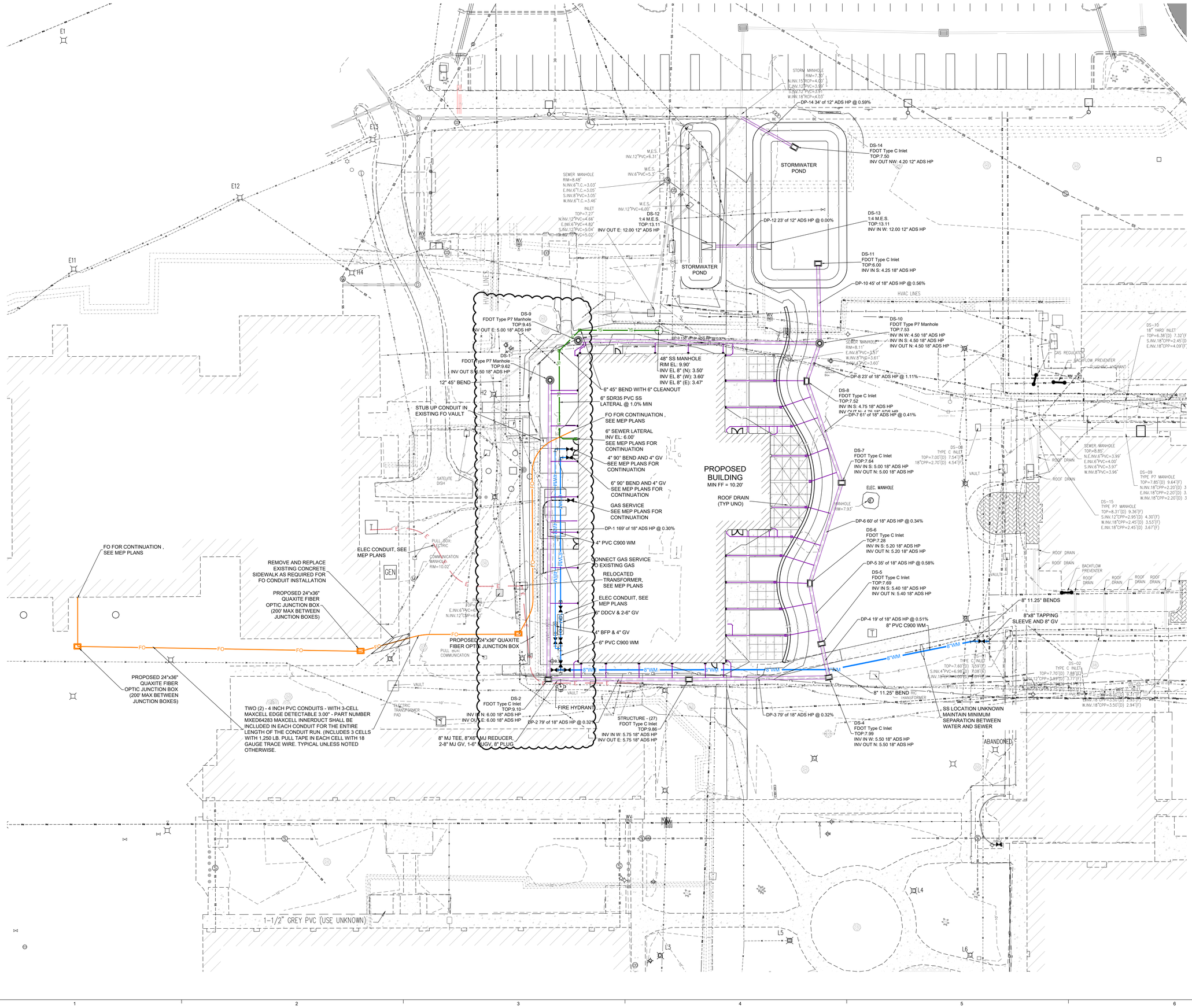
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number 50186685
Dated 08.29.2025

GRADING & DRAINAGE

C-103



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REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number	50186685
Dated	08.29.2025

UTILITY PLAN

C-104

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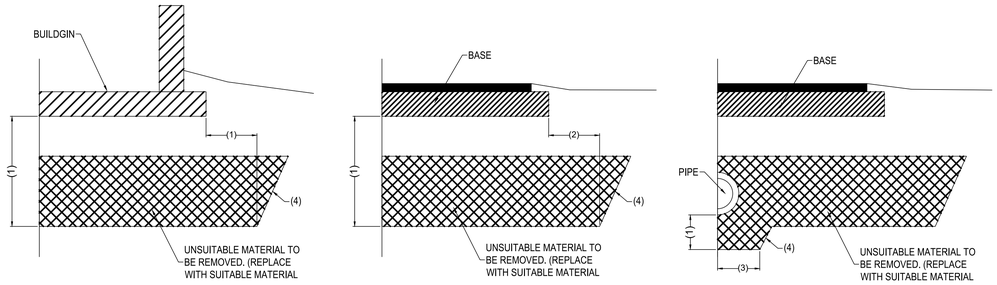
September 16, 2025 (10:46:09 EST)
K:\50186685.000_DAG_GCSC NURSING AND SIMULATION CENTER_CIVIL\SF\FOLDER_PRODUCTION\50186685_SITEPLAN.DWG C-306 UTILITY PLAN BY: MHURST

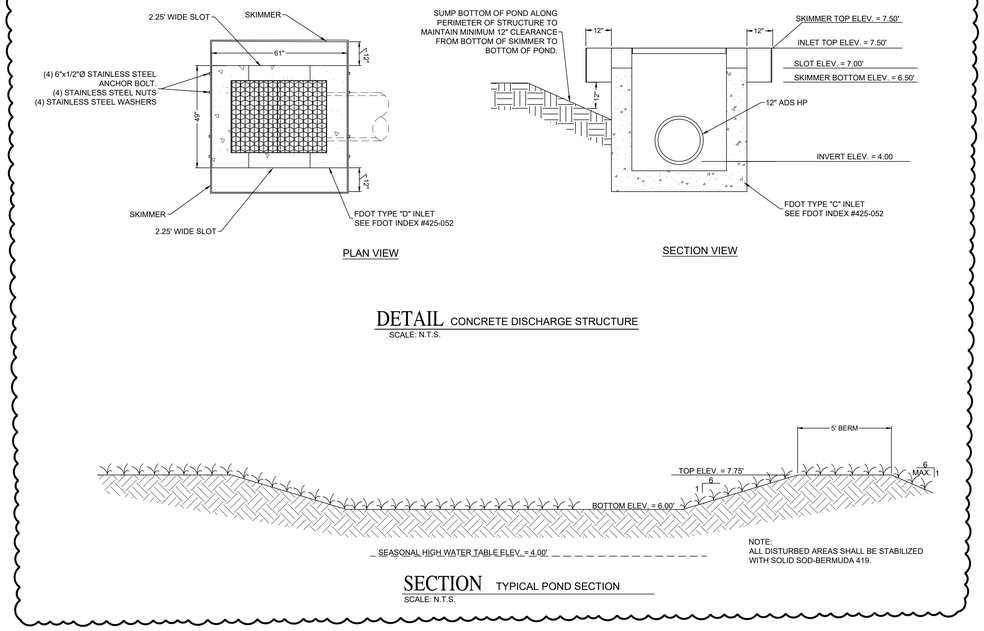


NOTES

1. CONTRACTOR TO REMOVE UNSUITABLE MATERIAL BENEATH BUILDINGS AND FOUNDATIONS TO FULL DEPTH IN ACCORDANCE WITH GEOTECHNICAL REPORT AND TECHNICAL SPECIFICATIONS. EXTEND UNSUITABLE MATERIAL REMOVAL LIMITS FOR A DISTANCE EQUAL TO DEPTH OF EXCAVATION BEYOND BUILDINGS AND FOUNDATIONS, BUT NOT LESS THAN 5 FEET.
2. CONTRACTOR TO REMOVE UNSUITABLE MATERIAL BENEATH PAVEMENT AREAS UP TO A DEPTH OF 4 FEET BENEATH BOTTOM OF BASE COURSE OR BOTTOM OF CONCRETE. ACTUAL DEPTH OF REMOVAL AND REPLACEMENT WILL VARY WITH DEPTH OF UNSUITABLE MATERIAL. SEE GEOTECHNICAL REPORT. EXTEND UNSUITABLE MATERIAL REMOVAL LIMITS FOR A DISTANCE OF 2 FEET BEYOND EDGE OF PAVEMENT OR BACK OF CURB.
3. CONTRACTOR TO REMOVE UNSUITABLE MATERIAL BENEATH UTILITIES UNDER ROADWAYS UP TO A DEPTH OF 1.5 TIMES DIAMETER OF PIPE, BUT NOT MORE THAN 4 FEET BENEATH BOTTOM OF PIPE. ACTUAL DEPTH OF REMOVAL AND REPLACEMENT WILL VARY WITH DEPTH OF UNSUITABLE MATERIAL. SEE GEOTECHNICAL REPORT. EXTEND UNSUITABLE MATERIAL REMOVAL LIMITS FOR A DISTANCE OF 2 FEET BEYOND WIDTH OF PIPE.
4. PRIOR TO COMMENCEMENT, CONTRACTOR TO REQUEST AUTHORIZATION FROM GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO OBSERVE REMOVAL AND NOTIFY CONTRACTOR WHEN TO TERMINATE REMOVAL AND BEGIN FILL. COORDINATE ANY DEWATERING WITH GEOTECHNICAL ENGINEER. EXCAVATION SIDE SLOPE TO BE AS DIRECTED BY GEOTECHNICAL ENGINEER.
5. UNSUITABLE MATERIAL QUANTITIES TO BE MEASURED AND CALCULATED IN ACCORDANCE WITH SPECIFICATION SECTION 02200
6. REMOVAL OF UNSUITABLE MATERIAL NOT PERFORMED IN ACCORDANCE WITH SPECIFCATION SECTION 02200 WILL BE AT CONTRACTOR'S COST.

DETAIL UNSUITABLE MATERIAL REMOVAL LIMITS

SCALE: N.T.S.

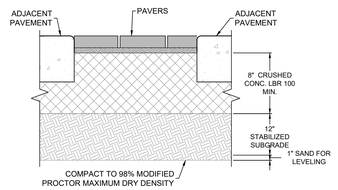


DETAIL CONCRETE DISCHARGE STRUCTURE

SCALE: N.T.S.

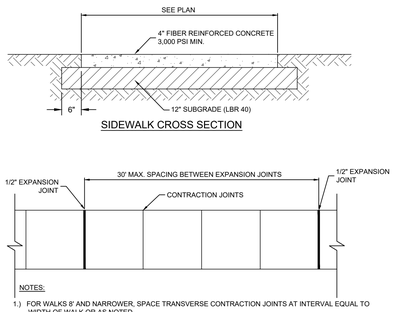
SECTION TYPICAL POND SECTION

SCALE: N.T.S.



DETAIL SIDEWALK & BRICK PAVERS

SCALE: N.T.S.

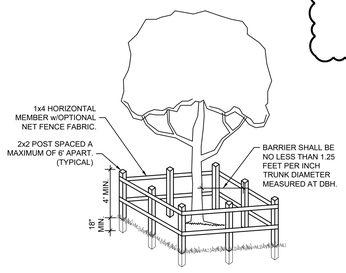


NOTES:

1.) FOR WALKS 8' AND NARROWER, SPACE TRANSVERSE CONTRACTION JOINTS AT INTERVAL EQUAL TO WIDTH OF WALK OR AS NOTED.
2.) CONTRACTION JOINTS TO BE 1" DEEP SCORED, SAW-CUT, OR FORMED WITH INSERT AT CONTRACTORS OPTION UNLESS NOTED OTHERWISE. SCORED JOINTS TO USE AN APPROVED TOOL. INSERTS TO BE GREENSTREAK ZIPCAP #855 OR EQUAL. SCORED JOINTS TO BE EDGED WITH 1/8" RADIUS.
3.) EXPANSION JOINT REQUIRED WHERE SHOWN. EXPANSION JOINT TO CONSIST OF 1/2" FIBER BOARD AND GREENSTREAK CAP SEAL #624 OR EQUAL.
4.) ALL SIDEWALKS SHALL HAVE A MAXIMUM 2% CROSS SLOPE.

DETAIL CONCRETE SIDEWALK

SCALE: N.T.S.



TREE PROTECTION NOTES:

1. TREE PROTECTION BARRIER SHALL BE PLACED NO LESS THAN 1.25 FEET PER INCH TRUNK DIAMETER (DBH) FROM THE PROTECTED TREE.
2. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE MINIMUM SETBACK OF A TREE TO REMAIN ON SITE UNLESS OTHERWISE APPROVED BY THE CITY.
3. ALL TRIMMING UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE NATIONAL ARBORIST ASSOCIATION (NAA) PRUNING STANDARDS.
4. ALL TREE ROOTS EXISTING WITHIN APPROVED IMPROVEMENT AREAS AND ORIGINATING FROM A PROTECTED TREE, SHALL BE SEVERED CLEAN AT THE LIMITS OF THE PRESERVED AREA INDICATED ON THE PLAN.
5. THE IRRIGATION SYSTEM (IF PRESENT) SHALL BE DESIGNED TO MINIMIZE ROOT DISTURBANCE TO EXISTING TREES AND OTHER VEGETATION TO BE RETAINED.

DETAIL TREE PROTECTION BARRIER

SCALE: N.T.S.

STORMWATER OPERATION/MAINTENANCE PLAN

OPERATION AND MAINTENANCE ENTITY IS GCSC

AFTER EACH RAINFALL EVENT

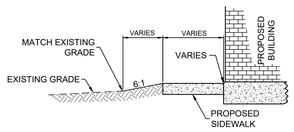
1. PAVEMENT AREAS – CLEAN/SWEEP DEBRIS AND DIRT FROM PAVEMENT AREAS.
2. SEDIMENTS IN RETENTION/DETENTION AREAS – REMOVED IMMEDIATELY.
3. DEBRIS IN RETENTION/DETENTION AREAS – ALL DEBRIS AND FOREIGN MATERIAL SHALL BE REMOVED IMMEDIATELY.
4. YARD INLETS, CATCH BASINS, ETC. – ALL DEBRIS AND FOREIGN MATERIALS SHALL BE REMOVED IMMEDIATELY.

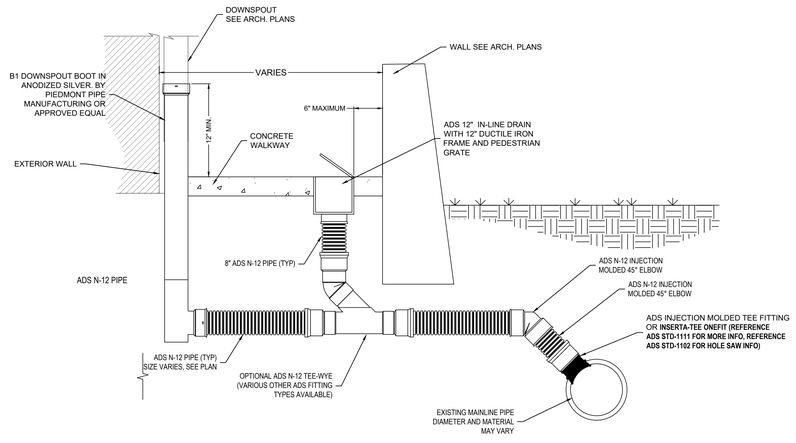
PERIODIC POND/SYSTEM MAINTENANCE

1. CLEANING/SWEEPING OF PAVEMENT AREAS SHALL BE ACCOMPLISHED WEEKLY OR AS REQUIRED.
2. INSPECT POND PERIODICALLY FOR ACCUMULATION OF TRASH AND DEBRIS AND REMOVE IT UPON DISCOVERY.
3. MOWING AND LANDSCAPING MAINTENANCE SHOULD BE DONE ON A MONTHLY BASIS DURING THE ACTIVE GROWING SEASON FOR THE AREA. INSPECT AND MAINTAIN AS REQUIRED DURING THE GROWING SEASON.
4. WEEDS OR UNDESIRABLE GROWTH SHALL BE REMOVED UPON DISCOVERY.
5. CATCH BASINS SHALL BE FLUSHED AS NECESSARY (IF ANY).
6. THE OWNER SHALL RE-GRADE AND RE-STABILIZE SWALE/RETENTION/DETENTION AREAS AS REQUIRED TO MAINTAIN THE APPROVED DESIGN, CROSS-SECTION, LINE, AND GRADE.
7. REMOVE SEDIMENT FROM POND WHEN ACCUMULATION REACHES FOUR (4) INCHES. MEASURE ACCUMULATION ONCE A YEAR.

INSPECTIONS

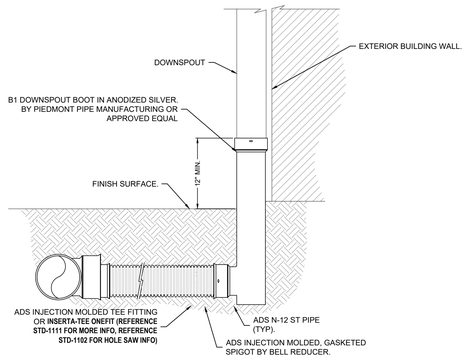
1. A MAINTENANCE INSPECTION MUST BE PERFORMED EVERY THIRD YEAR BY A REGISTERED PROFESSIONAL.
2. THE MAINTENANCE INSPECTION MUST BE DOCUMENTED ON THE FDEP AND/OR NWFWMD STANDARD INSPECTION FORM 62-330.311(1).
3. THE INSPECTION MUST BE SIGNED, SEALED, AND DATED BY THE REGISTERED PROFESSIONAL.
4. THE INSPECTION MUST BE CONDUCTED USING THE PLANS, CALCULATIONS AND SPECIFICATIONS APPROVED BY THE FDEP AND/OR NWFWMD.





DETAIL DOWNSPOUT WITH YARD DRAIN CONNECTION TO STORM DRAIN

SCALE: N.T.S.

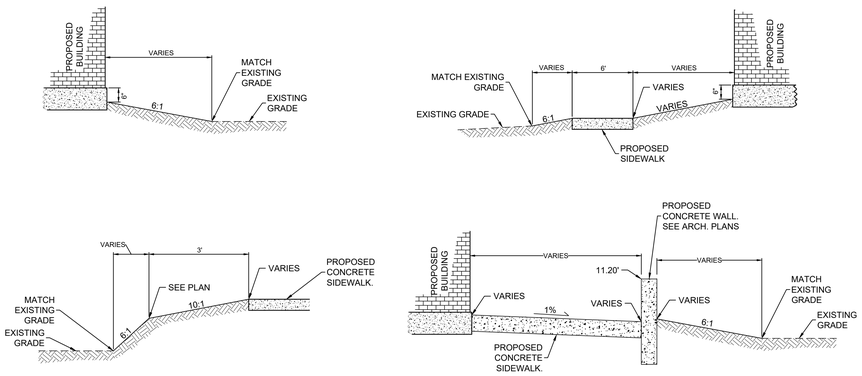


NOTES:

1. D.S. = DOWNSPOUT
2. DOWNSPOUT LOCATIONS ARE APPROXIMATE. ALL DOWNSPOUTS SHALL BE CONNECTED TO THE STORM PIPE NETWORK UNLESS OTHERWISE SPECIFIED ON THE PLANS. SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
3. GUTTERS SHALL BE CONTINUOUS 5" ALUMINUM WITH 5"x5" DOWNSPOUT OR AS SHOWN ON ARCHITECTURAL / MEP PLANS.
4. ALL PIPE UNDERDRAINS SHALL MAINTAIN POSITIVE FLOW TO STORM WATER COLLECTION SYSTEM.

DETAIL DOWNSPOUT CONNECTION TO STORM DRAIN

SCALE: N.T.S.



NOTES:

1.) UNLESS NOTED OTHERWISE ON THE LANDSCAPE PLANS, ALL DISTURBED AREAS ARE TO BE STABILIZED WITH SOLID SOD.

TYPICAL SECTIONS

SCALE: N.T.S.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

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PANAMA CITY, FL, 32401

0' 15' 30' 60'
SCALE: 1" = 30'

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number	50186685
Dated	08.29.2025

MISCELLANEOUS DETAILS

C-201

September 16, 2025 (10:47:49 EST)
K:\50186685.000_DAD_GCSC-NURSING AND SIMULATION CENTER_CIVIL\DFOLDER_PRODUCTION\50186685_NOTES-DETAILS.DWG C-201 MISCELLANEOUS DETAILS BY MHURST

GENERAL

1. THE OWNER/CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FINAL DIMENSIONS, PRIOR TO START.
2. THE CONTRACTOR SHALL COORDINATE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL WORKS DOCUMENTS WITH THE STRUCTURAL CONTRACT DOCUMENTS. NOTIFICATION SHALL BE MADE TO THE ENGINEER OF RECORD OF ANY CONFLICT AND/OR OMISSIONS.
3. FOR DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS, SEE THE ARCHITECTURAL PLANS.
4. THE CONTRACTOR SHALL VERIFY EXISTING SITE CONDITIONS, DIMENSIONS, AND ELEVATIONS PRIOR TO STARTING WORK. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IN EXISTING SITE CONDITIONS, DIMENSIONS, OR ELEVATIONS TO THOSE SHOWN IN THE STRUCTURAL CONTRACT DOCUMENTS.
5. THE REVIEW OF SUBMITTALS AND/OR SHOP DRAWINGS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR ALSO SHALL BE RESPONSIBLE FOR MEANS, METHOD, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION INCLUDING BUT NOT LIMITED TO DEMOLITION PROCEDURES AND TEMPORARY SHORING.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, CONSTRUCTION, AND ERECTION OF SAFE AND ADEQUATE BRACING, SHORING, TEMPORARY SUPPORTS, ETC. REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL INTERMEDIATE STAGES OF CONSTRUCTION AND/OR DEMOLITION.
7. IN NO CASE SHALL STRUCTURAL ALTERATIONS OR WORK AFFECTING A STRUCTURAL MEMBER BE MADE, UNLESS APPROVED BY THE ENGINEER OF RECORD IN WRITING.
8. NO PROVISION OF ANY REFERENCED STANDARD SPECIFICATION, MANUAL OR CODE (WHETHER OR NOT SPECIFICALLY INCORPORATED BY REFERENCE IN THE CONTRACT DOCUMENTS) SHALL BE EFFECTIVE TO CHANGE THE DUTIES AND RESPONSIBILITIES OF OWNER, CONTRACTOR, ENGINEER, SUPPLIER, OR ANY OF THEIR CONSULTANTS, AGENTS, OR EMPLOYEES FROM THOSE SET FORTH IN THE CONTRACT DOCUMENTS. NOR SHALL IT BE EFFECTIVE TO ASSIGN TO THE STRUCTURAL ENGINEER OF RECORD OR ANY OF THE STRUCTURAL ENGINEER OF RECORD'S CONSULTANTS, AGENTS, OR EMPLOYEES ANY DUTY OR AUTHORITY TO SUPERVISE OR DIRECT THE FURNISHING OR PERFORMANCE OF THE WORK OR ANY DUTY OR AUTHORITY TO UNDERTAKE RESPONSIBILITIES CONTRARY TO THE PROVISIONS OF THE CONTRACT DOCUMENTS.
9. CONTRACT DOCUMENTS INCLUDE, BUT ARE NOT LIMITED TO, THE STRUCTURAL DOCUMENTS (DRAWINGS AND SPECIFICATIONS), BUT DO NOT INCLUDE SHOP DRAWINGS, VENDOR DRAWINGS, OR MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR.
10. REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION, OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES, SHALL MEAN THE LATEST STANDARD, CODE, SPECIFICATION OR TENTATIVE SPECIFICATION ADOPTED AT THE DATE OF TAKING BIDS, UNLESS SPECIFICALLY STATED OTHERWISE.
11. CONTRACT DOCUMENTS SHALL GOVERN IN THE EVENT OF A CONFLICT WITH THE CODE OF PRACTICE OR SPECIFICATIONS OF ACI, PCI, AISC, SJI OR OTHER STANDARDS. WHERE A CONFLICT OCCURS WITHIN THE CONTRACT DOCUMENTS, THE STRICTEST REQUIREMENT SHALL GOVERN.
12. MATERIAL, WORKMANSHIP, AND DESIGN SHALL CONFORM TO THE REFERENCED BUILDING CODE.
13. CONTRACTOR SHALL OBTAIN AND COORDINATE EDGE OF SLAB DIMENSIONS, OPENING LOCATIONS AND DIMENSIONS, DEPRESSED SLAB LOCATIONS AND EXTENTS, SLAB SLOPES, CURB LOCATIONS, AND CMU WALL LOCATIONS. ARCHITECT/STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY OR OMISSION.
14. CONTRACTOR HAS SOLE RESPONSIBILITY FOR MEANS, METHODS, SAFETY, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
15. CONTRACTOR HAS SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA REGULATIONS.
16. REPRODUCTION OF STRUCTURAL DRAWINGS FOR SHOP DRAWINGS IS NOT PERMITTED. ELECTRONIC DRAWING FILES WILL NOT BE PROVIDED TO THE CONTRACTOR.
17. SUBMIT SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE STRUCTURAL ELEMENTS AND CONNECTIONS SHOWN IN THE CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE SEALED BY ENGINEER LICENSED IN THE PROJECT STATE. REVIEW OF SHOP DRAWINGS SHALL BE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS REGARDING ARRANGEMENT AND SIZES OF MEMBERS AND THE CONTRACTOR'S INTERPRETATION OF THE DESIGN LOADS AND CONTRACT DOCUMENT DETAILS. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE ARCHITECT/STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK ALL SUBMITTALS AND SHOP DRAWINGS BEFORE SUBMITTING TO THE STRUCTURAL ENGINEER. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE ARCHITECT/STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE SEALED BY ENGINEER LICENSED IN PROJECT STATE.
18. WHERE A SECTION OR DETAIL IS SHOWN OR DETAILED FOR ONE CONDITION, IT SHALL APPLY TO ALL SIMILAR AND LIKE CONDITIONS. DETAILS LABELED "TYPICAL" ON THE STRUCTURAL DRAWINGS APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR. THE CONTRACTOR SHALL CONSIDER ALL OF THE CONTRACT DOCUMENTS IN DETERMINING SIMILAR AND LIKE CONDITIONS.
19. ALL FLASHING AND WATERPROOFING BY CONTRACTOR/ARCH PLANS.
20. ALL ADA REQUIREMENTS SHALL BE ADHERED (IF APPLICABLE) TO AND MAY NOT BE SHOWN ON THESE PLANS IN ITS ENTIRETY.
21. PLANS DO NOT INCLUDE ANY FIRE ESCAPE PLAN, FIRE SPRINKLER, OR FIRE RELATED DESIGN ASPECTS, U.N.O.. OWNER/CONTRACTOR SHALL PROVIDE APPLICABLE FIRE PROTECTION DESIGN/DOCUMENTS NOT SHOWN ON THIS PLAN SET.
22. OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THRESHOLD INSPECTION REQUIREMENTS (IF APPLICABLE).

CODE DESIGN

1. WIND LOADS: SEE TABLE

ESTIMATED DEFLECTIONS (IN INCHES) ARE AS FOLLOWS:

	LIVE LOAD	DEAD + LIVE LOAD
ROOF MEMBERS:	L/240 OR < 1"	L/180
FLOOR MEMBERS:	L/360 OR < 1/2"	L/240

WHERE, L = SPAN LENGTH (IN INCHES) BETWEEN CENTERLINES OF SUPPORTS. (FOR CANTILEVERS, L IS TWICE THE LENGTH OF THE CANTILEVER.)

FOUNDATION

1. FOUNDATION DESIGN IS BASED ON AN ASSUMED ALLOWABLE BEARING PRESSURE OF 2000 PSF. STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD DIFFERENT FROM THOSE ASSUMED FOR DESIGN.
2. ALL FOUNDATION BEARING SOIL SHALL BE COMPACTED TO 98% STANDARD PROCTOR OR 95% MODIFIED PROCTOR AS SPECIFIED BY AASHTO T-99 AND AASHTO T-180, RESPECTIVELY.
3. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED w/ 3/4" X 3/4" (MIN.) KEY WAY. ALL SURFACES SHALL BE CLEANED BEFORE PLACEMENT OF ADJACENT CONCRETE. CONTRACTION JOINTS / SAW CUTS SHALL BE INSTALLED AT 10' O.C. EACH WAY OR NO GREATER THAN 30 TIMES THE SLAB THICKNESS (LESSER OF THE TWO) AND SHALL BE A MINIMUM OF 1/8" WIDE AND TO A DEPTH OF 25% OF THE SLAB THICKNESS (MIN.) UNLESS OTHERWISE NOTED. ALL CONCRETE SLABS LOCATED WITHIN VE FLOOD ZONES SHALL BE SCORED IN 25 SQ. FT. SECTIONS (MAXIMUM). REFER TO F.D.E.P. PERMIT DRAWINGS FOR ALL CONCRETE SLABS LOCATED SEAWARD OF THE COASTAL CONSTRUCTION CONTROL LINE.
4. STRUCTURAL TESTING/INSPECTION AGENCY SHALL CERTIFY THE BEARING MEDIUM BEFORE STARTING CONSTRUCTION.
5. NO FOOTINGS SHALL BE PLACED IN WATER.
6. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THE CONDITIONS USED FOR DESIGN OF FOOTINGS AS OUTLINED IN THESE NOTES OR ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER OF RECORD BEFORE PROCEEDING.
7. BACK FILL BOTH SIDES OF FOUNDATION WALLS AT SAME TIME TO PREVENT OVERTURNING.

CONCRETE MASONRY

1. CONCRETE MASONRY WORK SHALL CONFORM TO ACI 530, BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES AND ACI 530.1, SPECIFICATION FOR MASONRY STRUCTURES.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE MASONRY SHALL BE F'M = 1,500 PSI.
3. MORTAR SHALL COMPLY WITH THE BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY AND SHALL BE OF THE FOLLOWING TYPE:
   WALLS BELOW GRADE — TYPE M OR S
4. CONCRETE MASONRY UNITS SHALL BE GROUTED WITH 2,500 PSI COARSE GROUT AS SHOWN IN THE STRUCTURAL DOCUMENTS. GROUT SHALL CONFORM TO ASTM C476.
5. PROVIDE HORIZONTAL JOINT REINFORCEMENT WITH NO. 9 GAGE LONGITUDINAL WIRES AT 16" VERTICALLY, UNLESS NOTED OTHERWISE. PROVIDE SPECIAL ACCESSORIES FOR CORNERS, INTERSECTIONS, ETC.
6. MINIMUM VERTICAL WALL REINFORCEMENT SHALL BE #5 @32" UNLESS NOTED OTHERWISE.
7. DEFECTIVE AREAS IN CONCRETE INCLUDING, BUT NOT LIMITED TO, HONEY-COMBING, SPALLS, AND CRACKS WITH WIDTHS EXCEEDING 0.01 INCH SHALL BE REPAIRED. EXTENTS OF DEFECTIVE AREA TO BE DETERMINED BY THE STRUCTURAL ENGINEER.
8. REINFORCING DOWELS MUST BE TIED IN PLACE PRIOR TO POURING FOOTING. "WET-STICKING" IS NOT ALLOWED.

GENERAL CONCRETE

1. ALL CONCRETE, UNLESS NOTED OTHERWISE ON SPECIFIC VIEW/DETAIL, SHALL BE 4000 psi MIN. 28-DAY COMPRESSION TEST.
2. SEE MEP & ARCHITECTURAL FOR ALL FLOOR & SLAB OPENINGS, DRAINS, & SLOPING.
3. CONDUITS PLACED IN STRUCTURAL MEMBERS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
   A. CONDUITS SHALL BE PLACED ONLY IN THE MIDDLE THIRD OF THE DEPTH OF THE STRUCTURAL MEMBER
   B. CONDUITS SHALL NOT HAVE AN OUTISDE DIAMETER GREATER THAN 1/3 OF THE SLAB, WALL, OR COLUMN THICKNESS.
   C. CONDUITS SHALL NOT BE PLACED IN THE WALLS (INCLUDING ICF) AND SLAB UNLESS SPECIFICALLY NOTED ON THE ELECTRICAL DRAWINGS.
   D. INTERSECTING CONDUITS SHALL NOT HAVE A COMBINED DEPTH GREATER THAN 1/3 OF THE OVERALL DEPTH OF THE SLAB OR WALL.
   E. CONDUITS SHALL NOT BE PLACE IN ANY STRUCTURAL COLUMN.
   F. FOR STEEL DECK CONCRETE FLOORS, THE DEPTH OF SLAB SHALL BE CONSIDERED THE TOTAL SLAB THICKNESS.
4. CONSTRUCTION JOINTS IN WALLS, BEAMS, AND SLABS SHALL BE PLACED MIDWAY BETWEEN SUPPORTS & SHALL HAVE THE SURFACE OF THE INITIAL POUR ROUGHED TO 1/4".
5. CONTRACTOR SHALL SUBMIT A CONCRETE DESIGN MIX IN ACCORDANCE WITH AC I318 WITH THE APPROPRIATE GRAPHS & GENERAL DATA. MIX DESIGN SHALL ALSO INDICATE 7 & 28 DAY COMPRESSIVE STRENGTHS.

INSULATED CONCRETE FORMS (ICF)

1. FOR WALLS WITH BOTH VERTICAL AND HORIZONTAL REINFORCEMENT, PLACE THE VERTICAL BARS @ THE CENTER OF ICF CORE WITH THE HORIZONTAL REINFORCING STAGGERED @ EITHER SIDE.
2. HORIZONTAL AND VERTICAL CONSTRUCTION JOIST SHALL HAVE THEIR SURFACES ROUGHENED TO 1/4" U.N.O.
3. DESIGN, DETAILING, FABRICATION, AND TESTING OF WALLS USING ICF SHALL CONFORM TO AC I318.
4. ALL CONCRETE USED IN THE CORE OF ICF WALLS SHALL HAVE:
   A. A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 psi.
   B. A MAXIMUM SLUMP OF 6" +/- 1".
   C. A MAXIMUM WATER CEMENT RATIO OF 0.50

BRICK LINTELS

1. CONTRACTOR SHALL INSTALL BRICK VENEER LINTELS LOCATED AT **LEVEL 1 (+0' - 0" TO +16' - 0")** PER THE FOLLOWING:
   A. FOR OPENINGS OF 4' - 0" AND LESS, INSTALL 5" X 3-1/2" X 3/8" LOOSE LINTEL
   B. FOR OPENINGS GREATER THAN 4' - 0" AND LESS THAN 8' - 6", INSTALL 6" X 3-1/2" X 3/8" LOOSE LINTEL
2. CONTRACTOR SHALL INSTALL BRICK VENEER LINTELS LOCATED AT **LEVEL 2 (+16' - 0" TO +30' - 0")** PER THE FOLLOWING:
   A. FOR OPENINGS OF 8' - 6" AND LESS, INSTALL 5" X 3-1/2" X 3/8" LOOSE LINTEL
   B. FOR OPENINGS GREATER THAN 4' - 0" AND LESS THAN 8' - 6", INSTALL 6" X 3-1/2" X 3/8" LOOSE LINTEL
3.

REINFORCEMENT

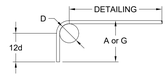
1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND HAVE MINIMUM SIDE AND END LAPS OF 8".FOR ALL MONOLITHIC FOOTINGS, A DOUBLE LAYER OF WELDED WIRE FABRIC SHALL BE INSTALLED WITHIN 3'-0" OF ALL FOOTINGS (3" CLEAR OF OUTSIDE PERIMETER OF FOOTING)
3. REINFORCING STEEL SHALL ONLY BE WELDED OR TACK-WELDED IF IT CONFORMS TO ASTM A706, AND AWS D1.4. REINFORCING SHALL NOT BE WELDED NOR TACK-WELDED UNLESS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
4. SUBMIT SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. WRITTEN DESCRIPTION OF REINFORCEMENT WITHOUT ADEQUATE SECTIONS, ELEVATIONS, AND DETAILS IS NOT ACCEPTABLE.
5. PROVIDE DOWELS FROM FOUNDATIONS THE SAME SIZE AND NUMBER AS THE VERTICAL WALL OR COLUMN REINFORCING, UNLESS NOTED OTHERWISE. REINFORCING DOWELS MUST BE TIED IN PLACE PRIOR TO POURING FOOTING. "WET-STICKING" IS NOT ALLOWED.
6. WALL FOOTING REINFORCEMENT SHALL EXTEND 2' - 0" MIN. INTO ADJACENT COLUMN FOOTINGS, U.N.O.
7. PLACE REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE:
   A. CAST-IN-PLACE (NON POST-TENSIONED) CONCRETE REINFORCEMENT COVER

PERMANENTLY EXPOSED TO EARTH:	
CAST AGAINST THE EARTH	3" CLEAR
EXPOSED TO EARTH OR WEATHER:	
FOR BARS LARGER THAN A NO. 5 BAR	2" CLEAR
NO. 5 BARS OR SMALLER	1 1/2" CLEAR
NOT EXPOSED TO EARTH OR WEATHER	
SLABS & WALLS	3/4" CLEAR
BEAMS AND COLUMNS	1 1/2" CLEAR TO TIES

   B. MASONRY REINFORCING STEEL SHALL BE PLACED IN THE CENTER OF CMU CELLS, UNLESS NOTED OTHERWISE.
8. REINFORCEMENT SHALL BE SPLICED ONLY AT LOCATIONS SHOWN OR NOTED IN THE STRUCTURAL DOCUMENTS, EXCEPT REINFORCEMENT MARKED "CONTINUOUS" CAN BE SPLICED AT LOCATIONS DETERMINED BY CONTRACTOR. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. REINFORCING STEEL SPLICES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

MINIMUM LAP SPLICE LENGTH (IN.) - 4000 PSI CONCRETE						
	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
	22	29	36	43	63	72
MINIMUM LAP SPLICE LENGTH (IN.) - 1500 PSI NORMAL WEIGHT CMU						
6-in CMU WALL	19	25	39	81	NA	NA
8-in CMU WALL	19	25	31	57	79	113
12-in CMU WALL	19	25	31	53	61	75

RECOMMENDED END HOOKS ANCHORAGE LENGTH (IN.) - 3000 PSI CONCRETE						
	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
D	2.25	3.00	3.75	4.50	5.25	6.00
A or G	6	8	10	12	14	16



POST INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQ'D BY THE BUILDING CODE. PROVIDE CONTINUOUS SPECIAL INSPECTION FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER THE APPLICABLE EVALUATION REPORT. CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.
   A. CONCRETE ANCHORS
      a. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:
         - SIMPSON STRONG-TIE "TITEN-HD" (ICC-ES ESR-2713)
         - SIMPSON STRONG-TIE "STRONG-BOLT 2" (ICC-ES ESR-3037)
      b. ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
         - SIMPSON STRONG-TIE "SET-XP" (ICC-ES ESR-2508)
         - SIMPSON STRONG-TIE "AT-XP" (IAPMO-ES ER-0263)
         - HILTI HIT HY150 INJECTION ADHESIVE
         - EPCON CERAMIC 6 EPOXY ADHESIVE SUPPLIED BY ITW RAMSET/RED HEAD
         - POWER-FAST EPOXY INJECTION GEL SUPPLIED BY POWERS FASTENING
      c. POWDER AND GAS-ACTUATED FASTENERS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED POWDER ACTUATED FASTENERS INCLUDE:
         - SIMPSON STRONG-TIE "POWER-DRIVEN FASTENERS" (ICC-ES ESR-2138)
         - SIMPSON STRONG-TIE "GAS-ACTUATED FASTENERS" (ICC-ES ESR-2811)
2. MASONRY ANCHORS
   A. ANCHORAGE TO SOLID-GROUTED CONCRETE MASONRY:
      a. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR AC106. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:
         - SIMPSON STRONG-TIE "TITEN-HD" (ICC-ES ESR-1056)
         - SIMPSON STRONG-TIE "STRONG-BOLT 2" (IAMPO-ES ER-0240)
         - SIMPSON STRONG-TIE "WEDGE-ALL" (ICC-ES ESR-1396)
      b. ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:
         - SIMPSON STRONG-TIE "AT-XP" (IAMPO-ES ER-0281)
         - SIMPSON STRONG-TIE "SET-XP" (IAMPO-ES ER-0265)
         - HILTI HIT HY150 INJECTION ADHESIVE
         - EPCON CERAMIC 6 EPOXY ADHESIVE SUPPLIED BY ITW RAMSET/RED HEAD
         - POWER-FAST EPOXY INJECTION GEL SUPPLIED BY POWERS FASTENING
3. ANCHORAGE TO HOLLOW CONCRETE MASONRY:
   A. ADHESIVE ANCHORS WITH SCREEN TUBES SHALL BE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC58 OR AC60, AS APPROPRIATE. THE APPROPRIATE SCREEN TUBE SHALL BE USED AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. PRE-APPROVED ADHESIVE ANCHORS WITH SCREEN TUBES INCLUDE:
      - SIMPSON STRONG-TIE "SET" (ICC-ES ESR-1772)
      - SIMPSON STRONG-TIE "AT" (ICC-ES ESR-1958)
      - HILTI HIT HY150 INJECTION ADHESIVE
      - EPCON CERAMIC 6 EPOXY ADHESIVE SUPPLIED BY ITW RAMSET/RED HEAD
      - POWER-FAST EPOXY INJECTION GEL SUPPLIED BY POWERS FASTENING
4. ALL DRILLED & EPOXIED 5/8" THREADED RODS SHALL MAINTAIN A MINIMUM EDGE DISTANCE OF 1 3/4" AND CLEAR SPACING OF 4" O.C. (MAX.)

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 318 AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 301.
2. UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
3. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROVES, ORNAMENTS, CLIPS OR GROUNDS REQUIRED TO BE ENCASED IN CONCRETE AND FOR LOCATION OF FLOOR FINISHES AND SLAB DEPRESSIONS.
4. CONSTRUCTION JOINT LOCATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. NO HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED EXCEPT THOSE SHOWN ON THE STRUCTURAL DRAWINGS.
5. DEFECTIVE AREAS IN CONCRETE INCLUDING, BUT NOT LIMITED TO, HONEY-COMBING, SPALLS, AND CRACKS WITH WIDTHS EXCEEDING O.O1 INCH SHALL BE REPAIRED. EXTENT OF DEFECTIVE AREA TO BE DETERMINED BY THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WIDE FLANGE MEMBERS CONFORM TO ASTM A992 GRADE 50.
2. ALL STRUCTURAL TUBES SHALL CONFORM TO ASTM A500 GRADE B.
3. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
4. ALL STRUCTURAL BOLTS SHALL BE ASTM F3125 GRADE A325. ALL BOLTED CONNECTIONS NEED ONLY TO BE 'SNUG TIGHT' UNLESS NOTED OTHERWISE ON THE PLAN SET.
5. ALL WASHERS SHALL BE ASTM F436 HARDENED WASHERS.
6. ALL WELDING SHALL BE PERFORMED BY PERSONNEL CURRENTLY CERTIFIED BY THE AMERICAN WELDING SOCIETY (AWS) AS HAVING PASS ALL AWE QUALIFICATION TESTS FOR WELDING PROCESSES THEY ARE TO PERFORM. ALL WELDS SHALL BE PERFORMED USING E70XX ELECTRODES & SHALL CONFORM TO ALL AISC & AWS STANDARDS.
7. CONTRACTOR SHALL CONFIRM AVAILABILITY OF ALL MATERIAL SPECIFICATIONS WITHIN THIS PLAN SET. SCE SHALL BE NOTIFIED IN WRITING OF ANY MATERIALS NOT AVAILABLE FOR RECOMMENDATIONS / CONSULTATION SUBSTITUTION.
8. CONTRACTOR SHALL SUBMIT A WRITTEN RFI TO SCE FOR ANY MATERIAL SPECIFICATION SUBSTITUTION FOR APPROVAL PRIOR TO CONSTRUCTION / MFG.
9. ALL HOLES AND OPENINGS REQUIRED IN STRUCTURAL STEEL MEMBERS BY OTHER TRADES SHALL BE SHOWN ON THEIR RESPECTIVE DRAWINGS AND ON SHOP DRAWINGS SUBMITTED FOR REVIEW.
10. FIELD MODIFICATION OF THE STRUCTURAL STEEL & ITS CONNECTIONS IS NOT PERMITTED PRIOR TO REVIEW AND APPROVAL BY THE (STRUCTURAL) ENGINEER OF RECORD.
11. WELDING SEQUENCING AND MEANS (PER STEEL FABRICATOR, STEEL ERECTOR, AND/OR CONTRACTOR) SHALL BE SUCH THAT MINIMIZES AND AVOIDS UNDUE DISTORTION & WARPING.

STEEL DECK

1. FABRICATION AND INSTALLATION OF METAL DECK SHALL CONFORM TO THE LATEST EDITION OF THE STEEL DECK INSTITUTE MANUAL.
2. FLOOR DECK SHALL CONFORM TO ASTM A653 SS GRADE 50.
3. METAL DECK SHALL HAVE THE FOLLOWING MINIMUM SECTION PROPERTIES:
   A. FLOOR DECK I+ (I-) = 0.197 (0.217) in4/ft S+ (S-) = 0.224 (0.229) in3/ft
4. PROVIDE RIDGE/VALLEY PLATES, REINFORCING CHANNELS, CLOSURES, CANT STRIPS, FINISH STRIPS, POUR STOPS, AND ANY OTHER ACCESSORIES AS REQ'D.

COLD-FORMED METAL FRAMING

1. GALVANIZED STUDS AND TRACKS (12, 14, AND 16 GAUGE) SHALL BE MADE OF STEEL CONFORMING TO ASTM A653, GRADE 50.
2. GALVANIZED STUDS, TRACKS, BRIDGING, END CLOSURES, AND ALL OTHER ACCESSORIES (18 AND 20 GAUGE) SHALL BE MADE OF STEEL CONFORMING TO ASTM A653 GRADE 33.
3. ALL COLD-FORMED METAL FRAMING SHALL HAVE G-90 GALVANIZED COATING.
4. FRAMING COMPONENTS MAY BE PRE-ASSEMBLED INTO PANELS PRIOR TO ERECTING AND SHOULD BE SQUARE WITH COMPONENTS ATTACHED IN A MANNER TO PREVENT RACKING. HANDLING AND LIFTING OF THE PANELS DURING ERECTION SHALL BE DONE IN A MATTER TO PREVENT DISTORTION OF ANY MEMBER.
5. AT TRACK BUTT JOINTS, ABUTTING PIECES SHALL BE BUTT WELDED OR SPLICED TOGETHER.
6. STUDS SHALL BE PLUMBED, ALIGNED, AND FASTENED TO THE FLANGES OR WEBS OF THEIR ASSOCIATED TRACKS. THE ENDS OF STUDS MUST ALSO BEAR AGAINST THE WEB OF BOTH THE UPPER AND LOWER TRACKS U.N.O.
7. ALL COLD-FORMED FRAMING SHALL BE TEMPORARILY BRACED AND SHORED UNTIL THE ENTIRE STRUCTURAL SYSTEM IS COMPLETE.

STRUCTURAL LOADS:

SUPERIMPOSED DEAD LOADS (IN ADDITION TO SELF-WEIGHT):

CORRIDORS	10 PSF
INSTRUCTIONAL/CLASSROOM	20 PSF
ROOF	15 PSF

SUPERIMPOSED LIVE LOADS:

CORRIDORS	100 PSF
INSTRUCTIONAL/CLASSROOM	60 PSF
OFFICES	60 PSF
STAIRS	100 PSF
ALL OTHER SPACES	80 PSF

WIND LOADS AS SPECIFIED BY ASCE 7-22 (LRFD):

ULTIMATE WIND SPEED	153 MPH
NOMINAL WIND SPEED	119 MPH
STRUCTURAL RISK CATEGORY	III
EXPOSURE CATEGORY	D
INTERNAL PRESSURE COEFFICIENT	0.18 ±
IMPACT GLASS WINDOWS & DOORS	REFER TO ARCH

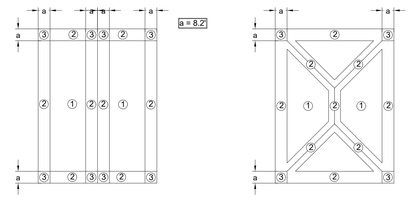
NOTE: THESE STRUCTURAL LOADS, INCLUDING WIND PRESSURES THIS SHEET, SHALL BE REFERENCED FOR ALL DELIGATED DESIGNS STATED ON THIS PLAN.

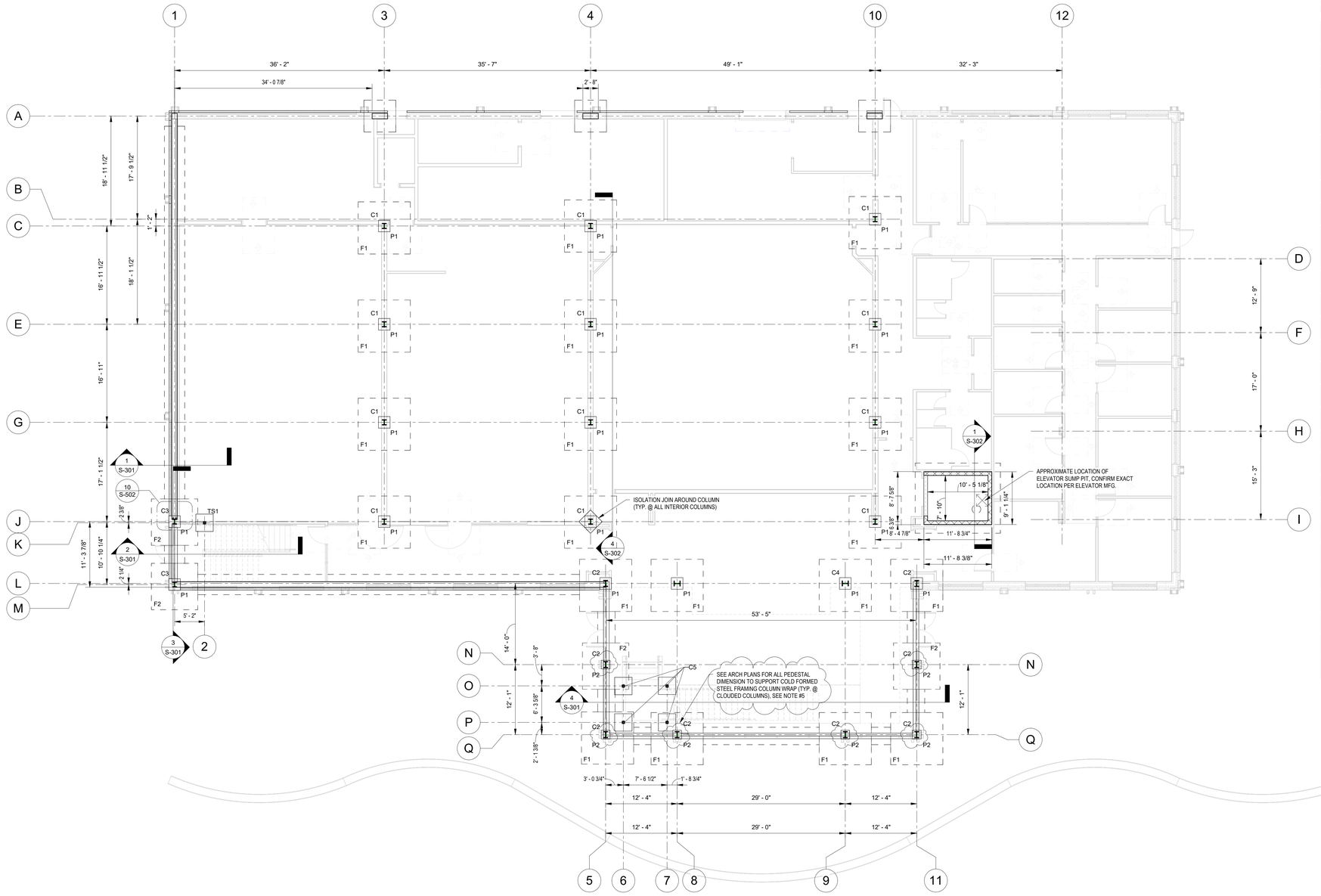
MAIN WIND FRAME RESISTING SYSTEM (MWFRS)		
AREA	INTERIOR ZONE	END ZONE
WALLS	39.86 PSF	49.83 PSF
ROOF	± 34.66 PSF	± 43.33 PSF

COMPONENTS AND CLADDING ROOF PRESSURES (PSF)		
ZONE	+ GCpi	- GCpi
ROOF (ZONE 1)	32.28	-72.62
ROOF (ZONE 2)	32.28	-94.63
ROOF (ZONE 3)	32.28	-101.97

COMPONENTS AND CLADDING WALL PRESSURES (PSF)								
	0 SF - 10 SF		10 SF - 30 SF		30 SF - 60 SF		60 SF - 100 SF	
ZONE	+ GCpi	- GCpi	+ GCpi	- GCpi	+ GCpi	- GCpi	+ GCpi	- GCpi
4	43.28	-46.95	43.28	-46.95	40.19	-43.86	38.24	-41.91
5	43.28	-57.95	43.28	-57.95	40.19	-51.77	38.24	-47.87

NOTE: ALL PRESSURES SHOWN ARE BASED UPON ASD DESIGN, WITH A LOAD FACTOR OF 0.6.





1 FOUNDATION PLAN
1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. SLAB ON GRADE SHALL BE 6"TH NORMAL WEIGHT CONCRETE (3000 psi MIN.) w/ 6"x6" W2.5 x W2.5 WWM w/ 15 MIL VAPOR BARRIER OVER CLEAN, COMPACTED FILL.
2. SEE ARCH PLANS FOR LOCATIONS OF ALL SLAB DEPRESSIONS, SLOPES, OPENINGS; IF APPLICABLE.
3. ELEVATOR PIT FINISHED DEPTH SHALL BE COORDINATED WITH ELEVATOR MANUFACTURER AND COMFIRMED WITH EOR PRIOR TO CONSTRUCTION.
4. AT LOCATIONS WHERE STEEL COLUMN IS WITHIN 6" OF OPENING, CONTRACTOR SHALL INSTALL STEEL STUD FRAMING (DELEGATED DESIGN) TO ACHIEVE DESIRED ROUGH OPENING DIMENSIONS.
5. WHERE SLAB EDGE EXTENSIONS ARE USED TO SUPPORT STUCCO COLUMN SURROUNDS, INSTALL #5 DOWELS (5" IN & 5" OUT) & EPOXY w/ SIMPSON SET-3G (OR EQUAL) @ 24" O.C. ALONG SLAB EDGE EXTENSION TO BUILDING SLAB INTERFACE & WITHIN 12" OF ENDS/CORNERS.

Column Schedule - By Location

Column Location	Mark	Base Offset	Type	Base Level	Top Level	Top Offset	Length	Base Plate	Anchorage
B-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
C-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
C-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-1	C3	0' - 0"	W10X33	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
K-2	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	9' - 8 5/8"	9' - 8 5/8"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
L-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-8	C4	0' - 0"	W12X58	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-9	C4	0' - 0"	W12X58	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
M-1	C3	0' - 0"	W10X33	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
N-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	-2' - 0"	28' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
N-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
O-6	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
O-7	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
P-6	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
P-7	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
Q-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-8	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-9	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)

Footing Schedule

Mark	Type	Count	Elevation at Top	Reinforcement	Concrete Compressive Strength
F1	108" x 108" x 18"	20	-2' - 0"	(14) #5 BARS EA. WAY, TOP & BTM	4000 psi
F2	96" x 96" x 18"	4	-2' - 0"	(12) #5 BARS EA. WAY TOP & BTM	4000 psi
F3	66" x 66" x 18"	3	-2' - 0"	(9) #5 BARS EA. WAY TOP & BTM	4000 psi
P1	24" x 24" x 18"	18	-0' - 6"	(8) #6 VERTICAL BARS	4000 psi
P2	18" x 18" x 18"	6	-0' - 6"	(8) #6 VERTICAL BARS	4000 psi
TS1	36" x 36" x 12"	5	0' - 0"	(5) #5 BARS EA. WAY	4000 psi

Wall Footing Schedule

Mark	Type	Elevation at Top	Continuous Reinforcement	Transverse Reinforcement	Concrete Compressive Strength
WF1	Bearing Footing - 36" x 12"	-2' - 0"	(5) #5 Bars	#5 Bars @ 12" O.C.	4000 psi
WF2	Bearing Footing - 42" x 12"	-2' - 0"	(6) #5 Bars	#5 Bars @ 12" O.C.	4000 psi

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SCE Project Number: 25-93-01

Gulf Coast State College

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	9/19/25

Project Number **25004**

Dated 8/29/25

Foundation Plan

S-101

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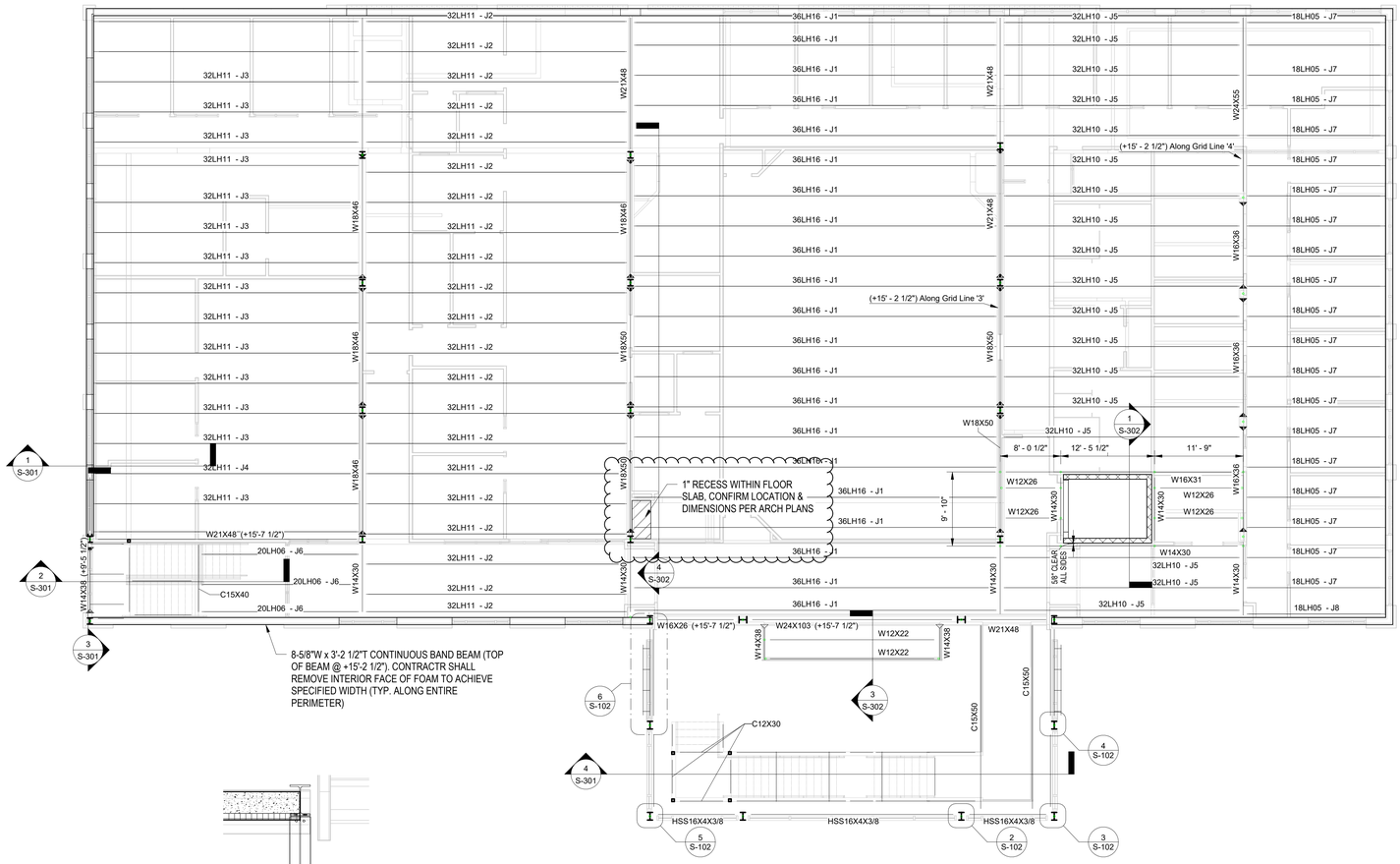
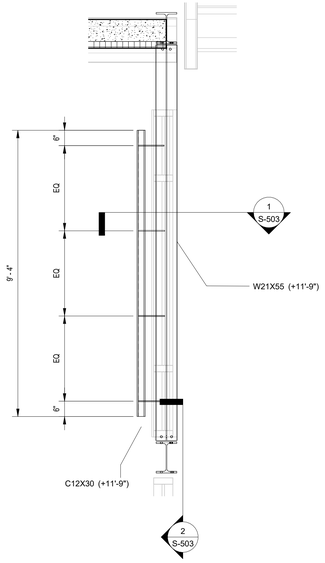
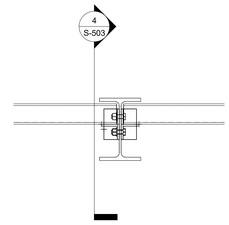


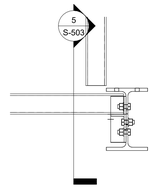
1 LEVEL 2 FRAMING PLAN
1/8" = 1'-0"



6 LOBBY CANOPY BUILT UP BEAM
1/2" = 1'-0"



2 LOBBY CURTAIN WALL SUPPORT TO INTERIOR COLUMN 1
1" = 1'-0"



3 LOBBY CURTAIN WALL SUPPORT TO CORNER COLUMN 1
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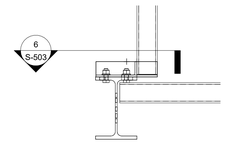
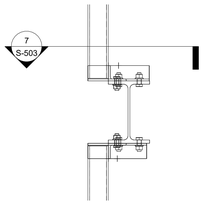


5 LOBBY CURTAIN WALL SUPPORT TO CORNER COLUMN 2
1" = 1'-0"



4 LOBBY CURTAIN WALL SUPPORT TO INTERIOR COLUMN 2
1" = 1'-0"

LEVEL 2 FRAMING PLAN NOTES:

1. FLOOR SLAB SHALL BE 3"TH NORMAL WEIGHT CONCRETE (4000 psi MIN.) w/ 6"x6" W2.5 x W2.5 WWM OVER 1.5VLI-20 GA COMPOSITE FLOOR DECK BY VULCRAFT OR OTHER EQUAL (3 SPAN MIN., 4.5" TOTAL THICKNESS).
2. TOP OF STEEL ELEVATION (UNDERSIDE OF DECK) FOR ALL FRAMING MEMBERS SHALL (+15'-7.5") AND ARE TO BE MEASURED FROM LEVEL 1 TOP OF SLAB (+/-0'-0" RELATIVE ELEVATION).
3. ALL HORIZONTAL STRUCTURE MEMBERS HAVING TOP OF STEEL ELEVATION DIFFERING FROM THAT OF UNDERSIDE OF DECK (+15'-7.5") HAVE THEIR RESPECTIVE ELEVATIONS FOLLOWING THEIR RESPECTIVE BEAM TAGS (+X'-X").
4. ALL BAR JOISTS SHALL HAVE 5" SEAT DEPTH.
5. ALL STAIR LANDING ELEVATIONS SHALL BE CONFIRMED PER ARCH PLANS PRIIOR TO CONSTRUCTION.
6. REFER TO MECHANICAL PLANS FOR ALL FLOOR OPENINGS AND LOCATIONS.

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PANAMA CITY, FL, 32401

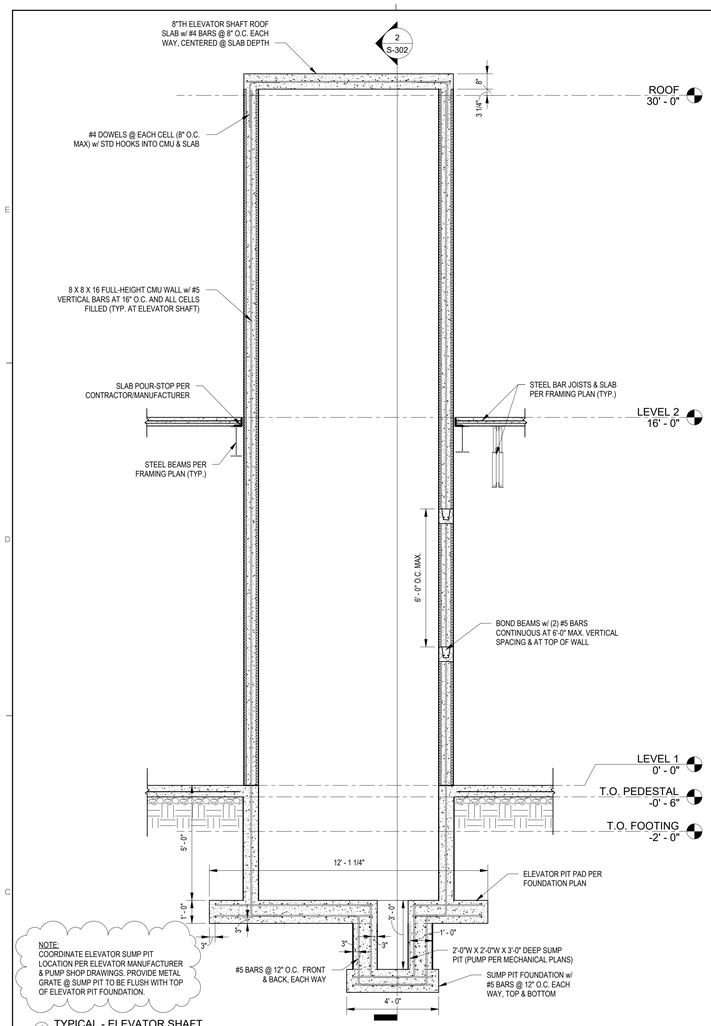
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

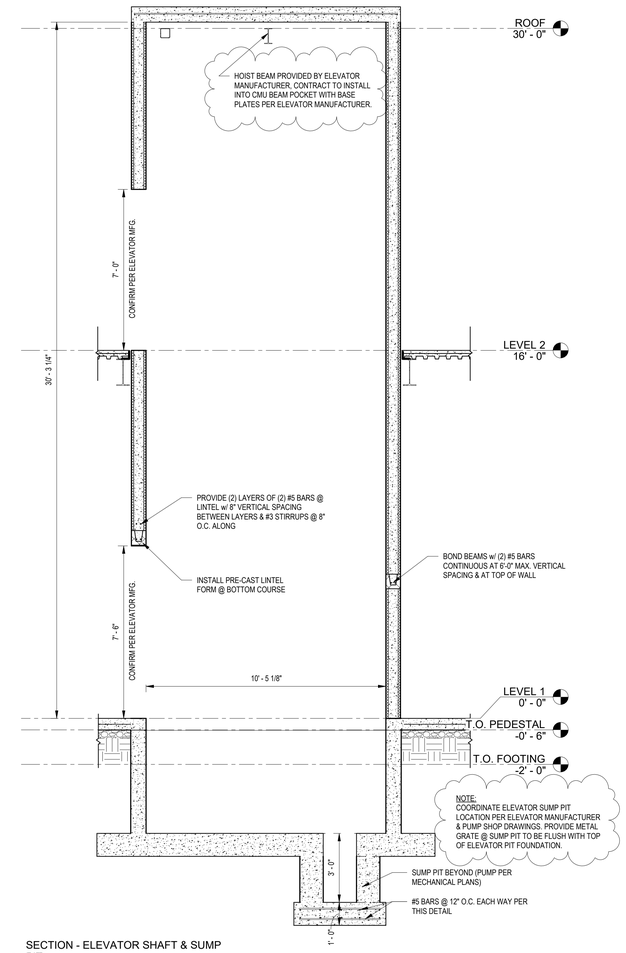
Project Number	25004
Dated	8/29/25

Level 2 Framing Plan

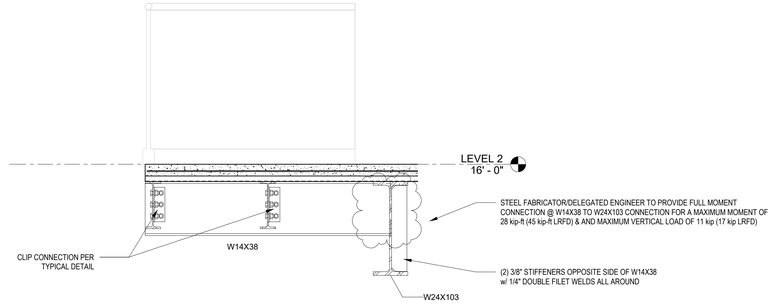
S-102



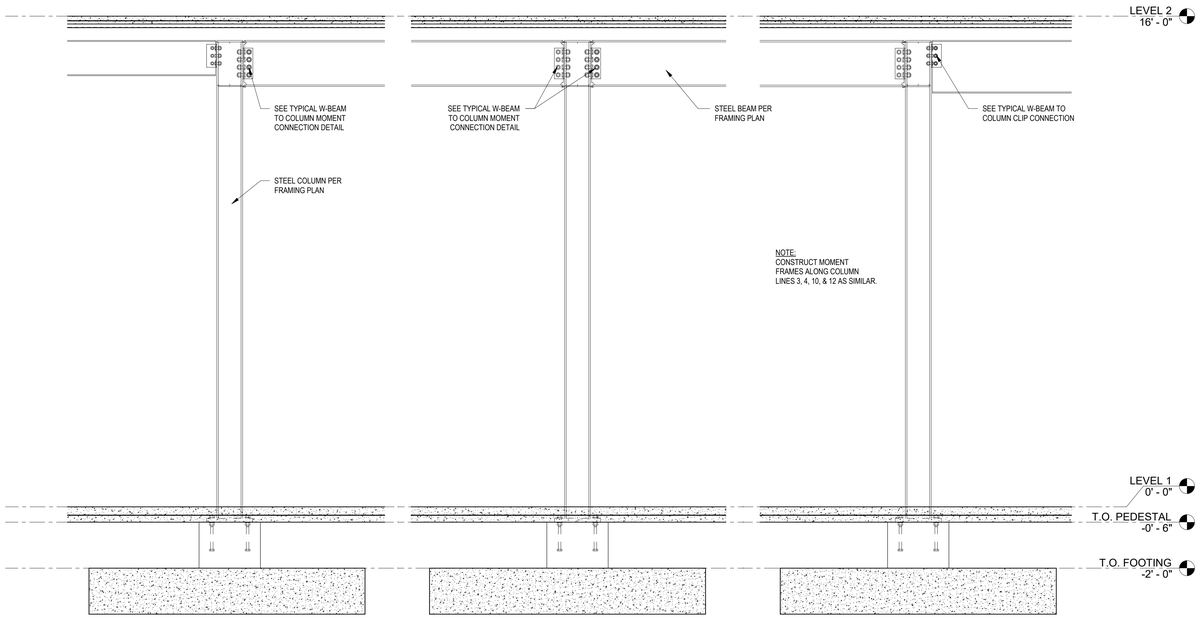
1 TYPICAL - ELEVATOR SHAFT
3/8" = 1'-0"



2 SECTION - ELEVATOR SHAFT & SUMP PIT
3/8" = 1'-0"



3 SECTION - CANTILEVERED BALCONY SECTION
3/4" = 1'-0"



4 SECTION - TYPICAL INTERIOR MOMENT FRAME
1/2" = 1'-0"

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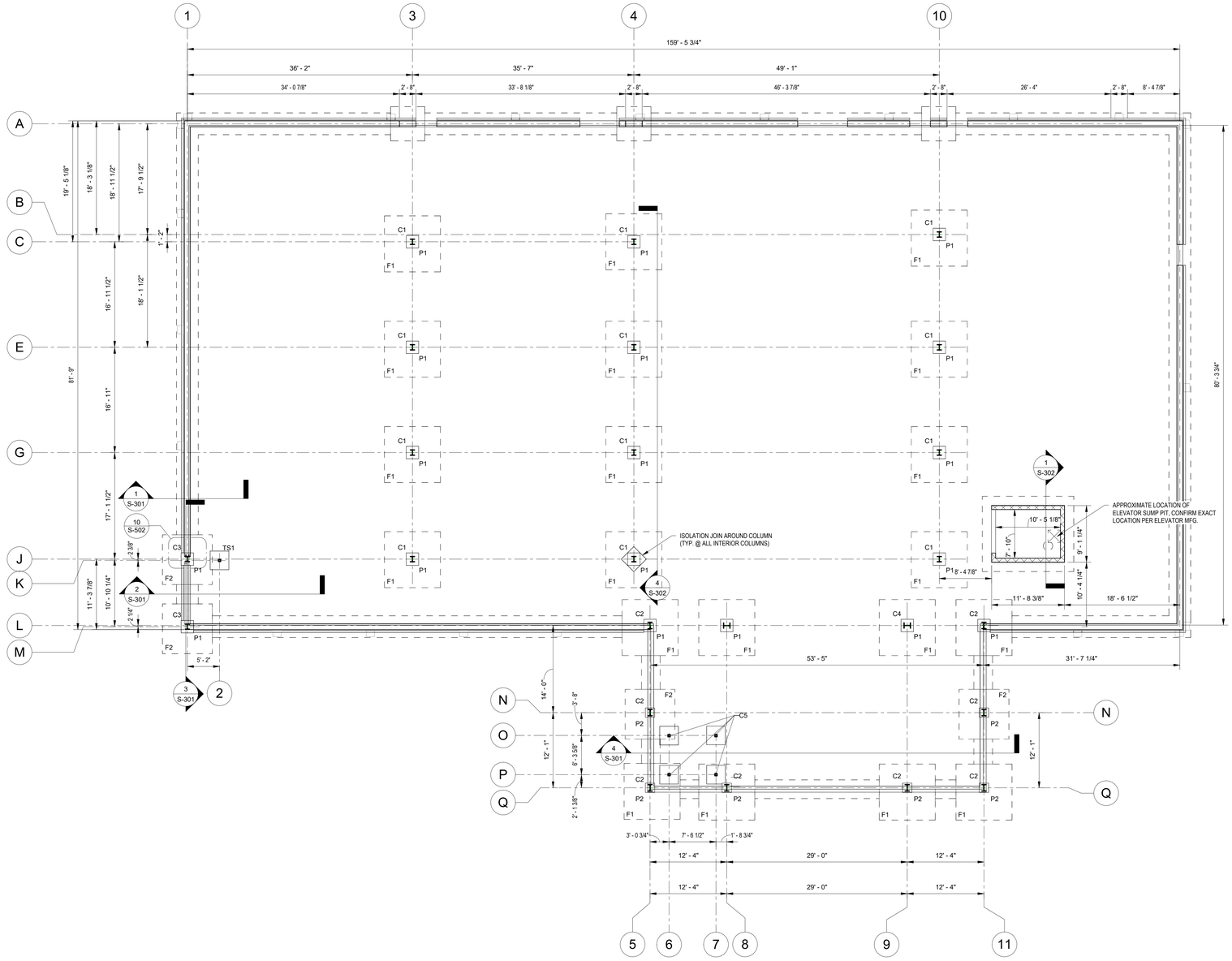
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	9/19/25

Project Number	**25004**
Dated	8/29/25

Typical Sections

S-302



1 FOUNDATION PLAN
1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. SLAB ON GRADE SHALL BE 6"TH NORMAL WEIGHT CONCRETE (3000 psi MIN.) w/ 6"x6" W2.5 x W2.5 WWM w/ 15 MIL VAPOR BARRIER OVER CLEAN, COMPACTED FILL.
2. SEE ARCH PLANS FOR LOCATIONS OF ALL SLAB DEPRESSIONS, SLOPES, OPENINGS; IF APPLICABLE.
3. ELEVATOR PIT FINISHED DEPTH SHALL BE COORDINATED WITH ELEVATOR MANUFACTURER AND COMFIRMED WITH EOR PRIOR TO CONSTRUCTION.
4. AT LOCATIONS WHERE STEEL COLUMN IS WITHIN 6" OF OPENING, CONTRACTOR SHALL INSTALL STEEL STUD FRAMING (DELEGATED DESIGN) TO ACHIEVE DESIRED ROUGH OPENING DIMENSIONS.

Column Schedule - By Location

Column Location	Mark	Base Offset	Type	Base Level	Top Level	Top Offset	Length	Base Plate	Anchorage
B-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
C-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
C-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
E-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
G-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-1	C3	0' - 0"	W10X33	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-3	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-4	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
J-10	C1	0' - 0"	W10X45	T.O. PEDESTAL	LEVEL 2	-0' - 9 1/2"	15' - 8 1/2"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
K-2	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	9' - 8 5/8"	9' - 8 5/8"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
L-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-8	C4	0' - 0"	W12X58	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-9	C4	0' - 0"	W12X58	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
L-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
M-1	C3	0' - 0"	W10X33	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 18" X 18"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
N-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	-2' - 0"	28' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
N-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
O-6	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
O-7	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
P-6	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
P-7	C5	0' - 0"	HSS4X4X3/8	LEVEL 1	LEVEL 1	2' - 10 1/4"	2' - 10 1/4"	1/2" X 9" X 9"	(4) 1/2" X 5" SIMPSON TITEN HD
Q-5	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-8	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-9	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)
Q-11	C2	0' - 0"	W12X50	T.O. PEDESTAL	ROOF	0' - 0"	30' - 6"	1-1/2" X 16" X 16"	(4) 1" X 16" ANCHOR BOLTS (3" HOOKS)

Footing Schedule

Mark	Type	Count	Elevation at Top	Reinforcement	Concrete Compressive Strength
F1	108" x 108" x 18"	20	-2' - 0"	(14) #5 BARS EA. WAY, TOP & BTM	4000 psi
F2	96" x 96" x 18"	4	-2' - 0"	(12) #5 BARS EA. WAY TOP & BTM	4000 psi
F3	66" x 66" x 18"	3	-2' - 0"	(9) #5 BARS EA. WAY TOP & BTM	4000 psi
P1	24" x 24" x 18"	18	-0' - 6"	(8) #6 VERTICAL BARS	4000 psi
P2	18" x 18" x 18"	6	-0' - 6"	(8) #6 VERTICAL BARS	4000 psi
TS1	36" x 36" x 12"	5	0' - 0"	(5) #5 BARS EA. WAY	4000 psi

Wall Footing Schedule

Mark	Type	Elevation at Top	Continuous Reinforcement	Transverse Reinforcement	Concrete Compressive Strength
WF1	Bearing Footing - 36" x 12"	-2' - 0"	(5) #5 Bars	#5 Bars @ 12" O.C.	4000 psi
WF2	Bearing Footing - 42" x 12"	-2' - 0"	(6) #5 Bars	#5 Bars @ 12" O.C.	4000 psi

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Gulf Coast State College

GCSC NURSING SIM. CENTER

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PANAMA CITY, FL, 32401

REVISIONS

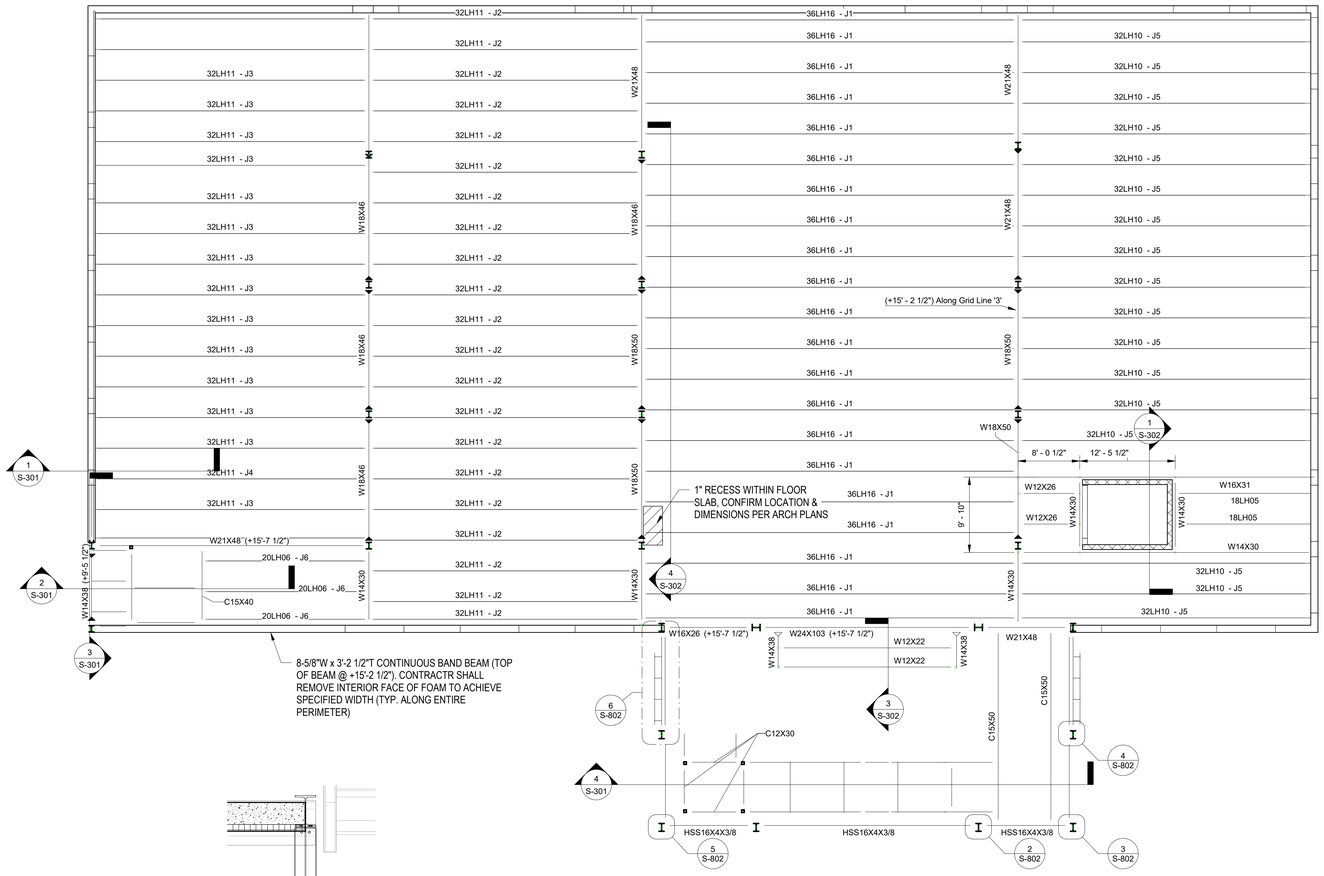
NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number 25004
Dated 8/29/25

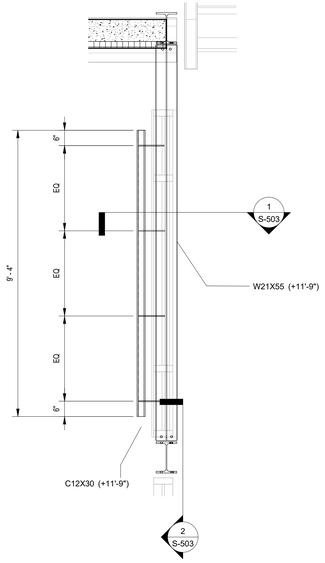
NEW SHEET ADDED TO SET

Deductive Alternate Foundation Plan

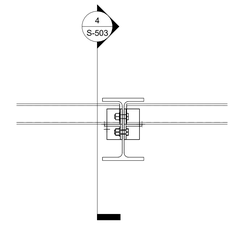
S-801



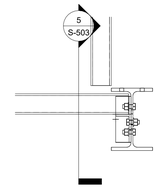
1 LEVEL 2 FRAMING PLAN
1/8" = 1'-0"



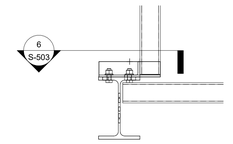
6 LOBBY CANOPY BUILT UP BEAM
1/2" = 1'-0"



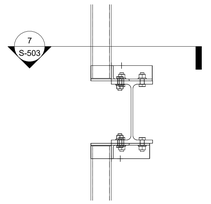
2 LOBBY CURTAIN WALL SUPPORT TO INTERIOR COLUMN 1
1" = 1'-0"



3 LOBBY CURTAIN WALL SUPPORT TO CORNER COLUMN 1
1" = 1'-0"



5 LOBBY CURTAIN WALL SUPPORT TO CORNER COLUMN 2
1" = 1'-0"



4 LOBBY CURTAIN WALL SUPPORT TO INTERIOR COLUMN 2
1" = 1'-0"

LEVEL 2 FRAMING PLAN NOTES:

1. FLOOR SLAB SHALL BE 3"TH NORMAL WEIGHT CONCRETE (4000 psi MIN.) w/ 6"x6" W2.5 x W2.5 WWM OVER 1.5VLI-20 GA COMPOSITE FLOOR DECK BY VULCRAFT OR OTHER EQUAL (3 SPAN MIN., 4.5" TOTAL THICKNESS).
2. TOP OF STEEL ELEVATION (UNDERSIDE OF DECK) FOR ALL FRAMING MEMBERS SHALL (+15'-7.5") AND ARE TO BE MEASURED FROM LEVEL 1 TOP OF SLAB (+/-0'-0" RELATIVE ELEVATION).
3. ALL HORIZONTAL STRUCTURE MEMBERS HAVING TOP OF STEEL ELEVATION DIFFERING FROM THAT OF UNDERSIDE OF DECK (+15'-7.5") HAVE THEIR RESPECTIVE ELEVATIONS FOLLOWING THEIR RESPECTIVE BEAM TAGS (+X'-X").
4. ALL BAR JOISTS SHALL HAVE 5" SEAT DEPTH.
5. ALL STAIR LANDING ELEVATIONS SHALL BE CONFIRMED PER ARCH PLANS PRIIOR TO CONSTRUCTION.
6. REFER TO MECHANICAL PLANS FOR ALL FLOOR OPENINGS AND LOCATIONS.

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GULF COAST STATE COLLEGE SINCE 1957

Gulf Coast State College

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

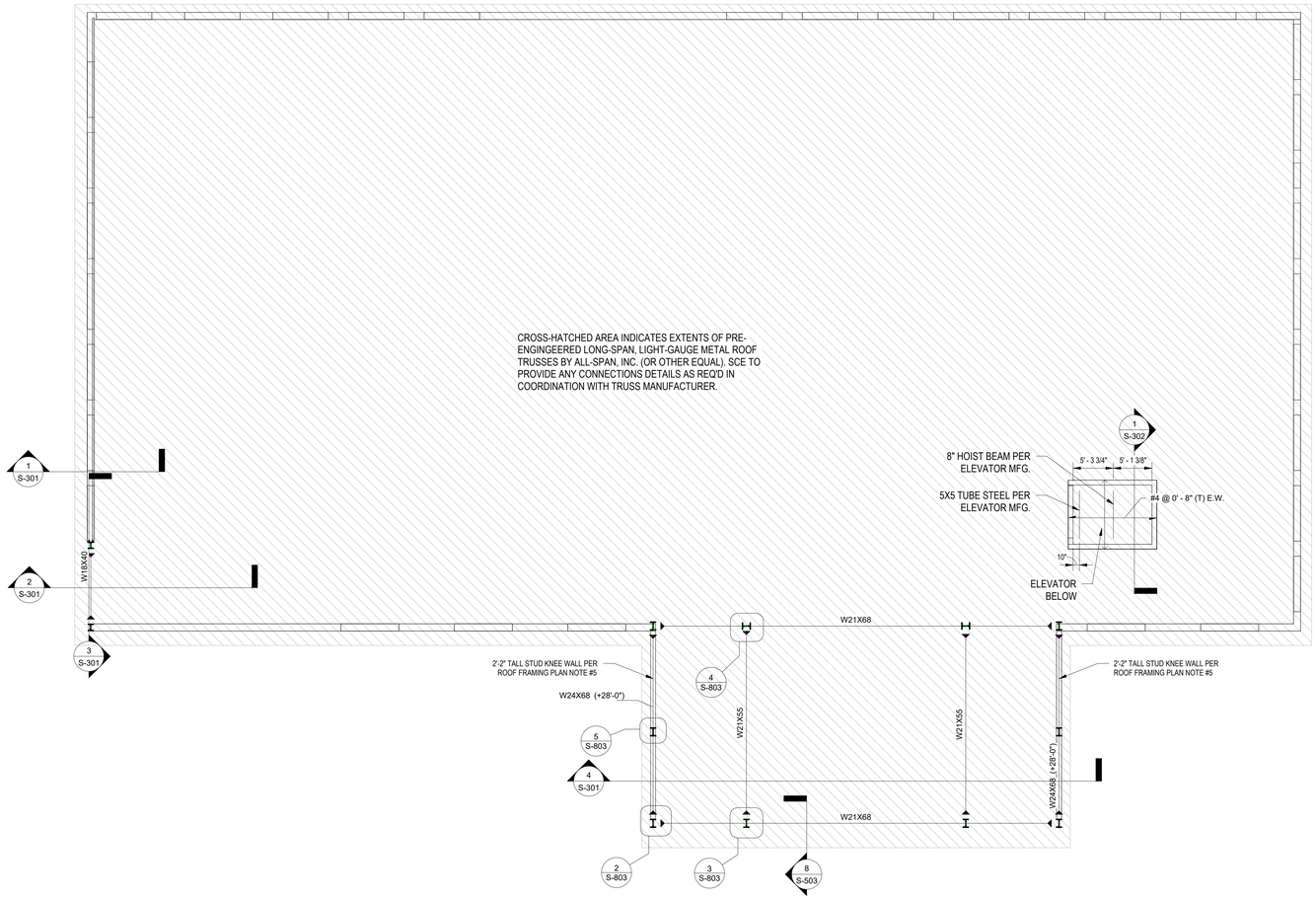
NO.	DESCRIPTION	DATE
	ADDENDUM	09-19-2025

Project Number	25004
Dated	8/29/25

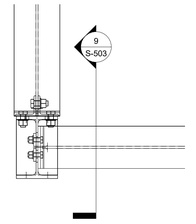
NEW SHEET ADDED TO SET

Deductive Alternate
Level 2 Framing Plan

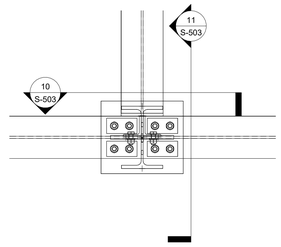
S-802



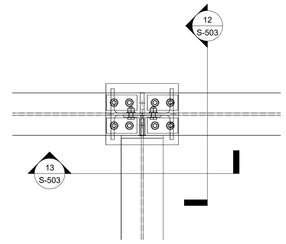
1 ROOF FRAMING PLAN
1/8" = 1'-0"



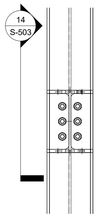
2 LOBBY UPPER MOMENT FRAME TO CORNER COLUMN
1" = 1'-0"



3 LOBBY UPPER MOMENT FRAME TO INTERIOR COLUMN 1
1" = 1'-0"



4 LOBBY UPPER MOMENT FRAME TO INTERIOR COLUMN 2
1" = 1'-0"



5 LOBBY UPPER MOMENT FRAME TO INTERIOR COLUMN 3
1" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. FLOOR SLAB SHALL BE 3"TH NORMAL WEIGHT CONCRETE (4000 psi MIN.) w/ 6"x6" W2.5 x W2.5 WWM OVER 1.5VLI-20 GA COMPOSITE FLOOR DECK BY VULCRAFT OR OTHER EQUAL (3 SPAN MIN., 4.5" TOTAL THICKNESS).
2. TOP OF STEEL ELEVATION (TOP OF WALL) FOR ALL FRAMING MEMBERS SHALL (+30'-0") AND ARE TO BE MEASURED FROM LEVEL 1 TOP OF SLAB (+/-0'-0" RELATIVE ELEVATION).
3. ALL HORIZONTAL STRUCTURE MEMBERS HAVING TOP OF STEEL ELEVATION DIFFERING FROM THAT OF FINISHED WALL (+30'-0") HAVE THEIR RESPECTIVE ELEVATIONS FOLLOWING THEIR RESPECTIVE BEAM TAGS (+X'-X").
4. ROOF FRAMING SHALL CONSIST OF PRE-ENGINEERED, LONG-SPAN, LIGHT-GAUGE METAL ROOF TRUSSES BY OTHERS (MANUFACTURER TO BE DETERMINED). TRUSS MANUFACTURER SHALL PROVIDE TRUSS LAYOUT PLAN TO SCE PRIOR TO CONSTRUCTION. SCE SHALL PROVIDE ADDITIONAL DETAILING AS REQUIRED IN COORDINATION WITH ROOF TRUSS MANUFACTURER.
5. AT LOCATIONS REQ'D PER ROOF FRAMING PLAN, CONTRACTOR SHALL INSTALL 8"TH STEEL STUD KNEE WALL (DELEGATED DESIGN).

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NEW SHEET ADDED TO SET

Deductive Alternate
Roof Framing Plan

S-803

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BID DOCUMENTS

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number **25004**

Dated 08.29.2025

INDEX OF DRAWINGS

G-002

CODE ANALYSIS

Applicable Codes and Ordinances

Florida Building Code (FBC), 8th Edition (2023)
Florida Fire Prevention Code, 8th Edition (2023)
Florida Plumbing Code, 8th Edition (2023)
Florida Mechanical Code, 8th Edition (2023)
Florida Fuel Gas Code, 8th Edition (2023)
National Electrical Code, NFPA 70, 2020 Edition
Florida Energy Code (FEC), 8th Edition (2023)
Florida Accessibility Code, 8th Edition (2023)

Occupancy Classification

Mixed Use, Non-separated Occupancies per 508.3
B - Business (304) Students above 12th Grade
A-3 - Assembly Lecture Halls , 13% of overall building square footage

Construction

Type: IIB, sprinklered (FBC Section 602.2), 2 Stories

Actual Building Floor Area:
1st Floor : 15,696 GSF
2nd Floor: 15,696 GSF
Total: 31,392 GSF

Allowable floor area and height (Most restrictive applies at unseparated mixed occupancies)
506.2.4 Mixed-occupancy, multistory building
Allowable Area per floor = 35,625
A3 Aa= 28500 +(9500x.75)= 35,625
B Aa = 69,000+(23,000x.75)= 86,250

Allowable Height - 75' max., 3 stories max. above grade plane

Fire Resistance Ratings (FBC Table 601, unless noted otherwise)

Primary structural frame	0
Bearing Walls	
Exterior	0
Interior	0
Nonbearing walls and partitions	
Exterior (FBC Table 602)	
X < 5 feet	1
5 ≤ X ≤ 10	1
10 ≤ X ≤ 30	0
X ≥ 30	0
Interior	0
Floor construction and associated secondary members	0
Roof construction and associated secondary members	0

Incidental Use Areas

FBC:
Furnace & Boilers Automatic sprinkler & Smoke resistant walls
*Educational Labs Automatic sprinkler & Smoke resistant walls
Electrical Rooms Refer to NFPA 70

Smoke resistant walls shall resist passage of smoke & doors shall have closers
*Note- Skills Labs on 1st floor and Student Success Lab on 2nd floor are demonstration classrooms and do not use any chemicals or hazardous materials, so these rooms are not smoke rated

Egress Related Requirements

FBC:
1019.3 Exit access stairs can communicate between 2 stories.
Minimum Corridor Width: 44"
Max. Dead End Corridor Length: Group B sprinklered 50' max.
Maximum Common Path of Travel Distance: A=75', B=100'
Maximum Exit Access Travel Distance: Sprinklered A=250', B=300'

Energy Conservation

Climate Zone: Bay County- 2A, warm-humid (FEC Table C301.1)

C402.1.3 Insulation Components R- Values
Roof Insulation - R-38
Mass Walls - R 5.7 ci
Non-Swinging Doors- R 4.75

Table C402.3 Minimum Roof Reflectance: 3 year aged Solar reflectance of .55 and 3 year aged thermal emittance of .75 or 3 year aged SRI 64

C402.4 Fenestration Max U-Factor and SHGC requirements
Fixed - U 0.50
Operable - U 0.65
Entrance Doors - U 0.83
SHGC - .25

C402.5.1 Air Barrier Required

Florida Fire Prevention Code Requirements

Florida Fire Prevention Code
Ch. 38 New Business Occupancies
Meet Ch. 7
Minimum Corridor Width: 44"
Max. Dead End Corridor Length: Group B sprinklered 50' max.
Maximum Common Path of Travel Distance: B=100'
Maximum Exit Access Travel Distance: Sprinklered , B=300'

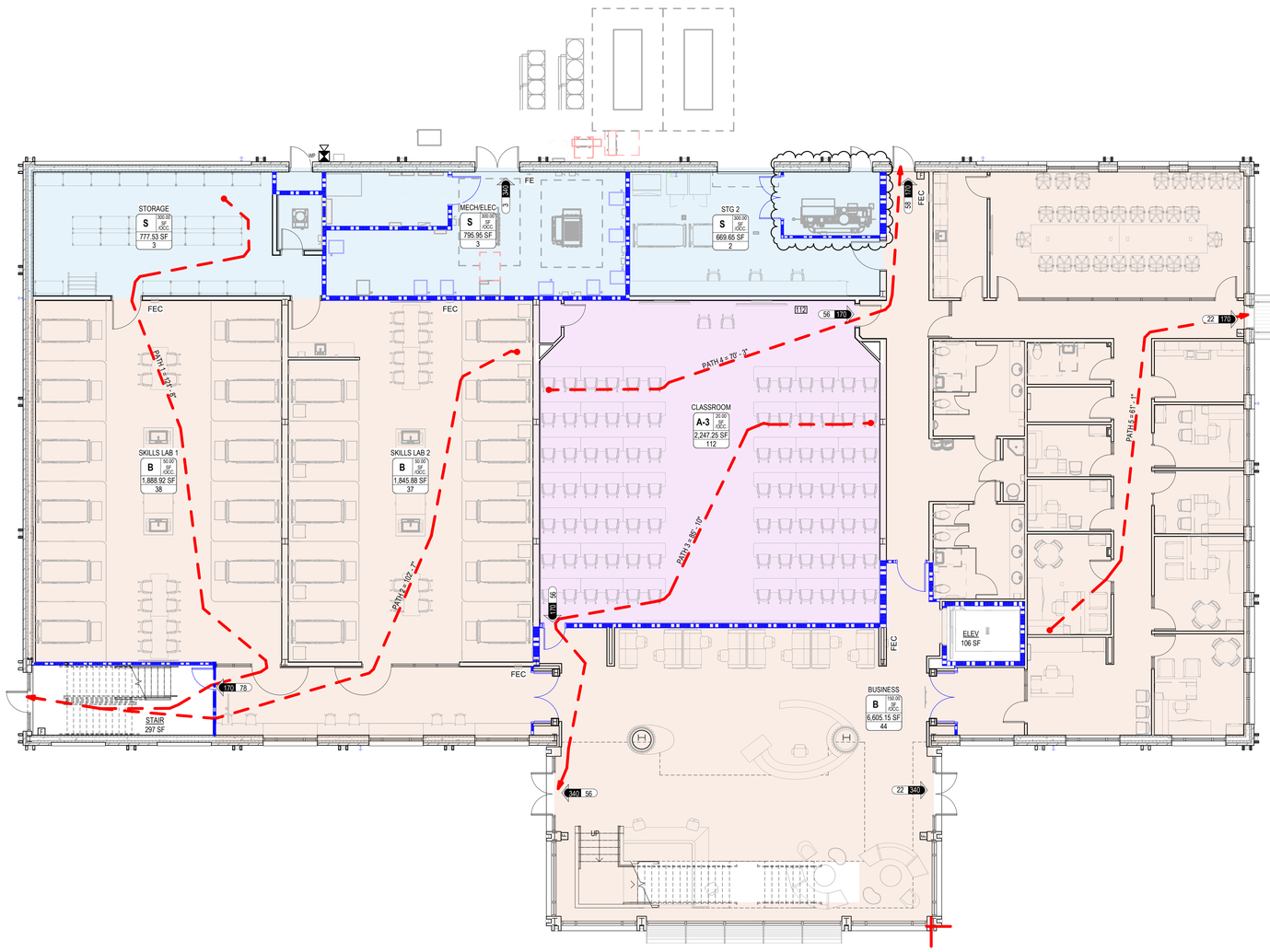
8.6.7 Atriums
Separated by 1 hour fire barrier with opening protectives
Access to exits is permitted within the atrium
Building is sprinklered

38.2.2.12 Area of Refuge complying with 7.2.12 permitted

38.3.2.4 Medical Gas storage and operation shall be in accordance with NFPA 99.

38.3.4.1 Fire alarm in accordance with 9.6 is required.

38.3.6 Fire rated corridors not required with automatic sprinkler system



LIFE SAFETY SYMBOLS

ONE HOUR-RATED FIRE BARRIER

TWO HOUR-RATED FIRE BARRIER

SMOKE-RATED BARRIER

TRAVEL DIST. = XX
START POINT
END POINT
TRAVEL DISTANCE (IN FEET)
PATH OF TRAVEL

ALLOWABLE EGRESS COMPONENT OCCUPANT LOAD
340 120
ACTUAL OCCUPANT LOAD SERVED
DOOR EGRESS CAPACITY

ALLOWABLE EGRESS COMPONENT OCCUPANT LOAD
220 16
ACTUAL OCCUPANT LOAD SERVED
STAIR EGRESS CAPACITY

OCCUPANCY TYPE: E
AREA PER OCCUPANT: 30 /OCC.
AREA: 1,550 SF
OCCUPANTS: 52
OCCUPANT LOAD PER AREA

OCCUPANCY TYPES

A-3, ASSEMBLY - LECTURE HALLS

B, BUSINESS

S, STORAGE

FE FIRE EXTINGUISHER (BRACKET MOUNTED) REFER TO SPECIFICATIONS

FEC FIRE EXTINGUISHER CABINET; RECESSED; MT 4'-0" TO TOP. INCLUDE 4-A-80-BC TYPE FIRE EXTINGUISHER

FEB FIRE EXTINGUISHER (CABINET WITH BLANKET) REFER TO SPECIFICATIONS

EXIT EXIT EXIT SIGNS - SEE ELECTRICAL

ASSEMBLY MAX. OCCUPANCY SIGN

SIGNAGE, SEE SHEET A-001

TRAVEL DISTANCES LEVEL 1

PATH ID	TRAVEL DISTANCE ON PATH
1	121' - 8"
2	102' - 7"
3	85' - 10"
4	70' - 3"
5	61' - 1"

_DAG - Occupant Load Ch.10 (G10 Floor Plan_Life Safety)

ROOM NAME	OCCUPANCY TYPE PER SPACE	AREA PER OCCUPANT	AREA	MAX OCCUPANTS	NET OR GROSS
Level 1					
ELEV			106.43 SF		
STAIR			297.32 SF		
A-3					
CLASSROOM	A-3	20.00 SF	2,247.25 SF	113	
B					
BUSINESS	B	150.00 SF	6,605.15 SF	45	
SKILLS LAB 1	B	50.00 SF	1,888.92 SF	38	
SKILLS LAB 2	B	50.00 SF	1,845.88 SF	37	
S					
MECH/ELEC	S	300.00 SF	795.95 SF	3	
STG 2	S	300.00 SF	669.65 SF	3	
STORAGE	S	300.00 SF	777.53 SF	3	
Level 2					
ELEV			113.12 SF		
STAIR			295.45 SF		
A-3					
CLASSROOM	A-3	20.00 SF	1,881.73 SF	95	
B					
BUSINESS	B	150.00 SF	5,864.35 SF	40	
MULTI-PURPOSE LAB	B	50.00 SF	1,528.88 SF	31	
SIM LAB	B	50.00 SF	2,451.58 SF	50	
STUDENT SUCCESS LAB	B	50.00 SF	1,231.29 SF	25	
S					
MECH	S	300.00 SF	437.07 SF	2	
TOTALS			29,037.57 SF	485	

A1 LEVEL 1 LIFE SAFETY PLAN
1/8" = 1'-0"

PRINT THIS SHEET IN COLOR TO READ RATED WALL TYPES AND OCCUPANCY TYPE AREAS

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LIFE SAFETY PLAN LEVEL 1

LS111

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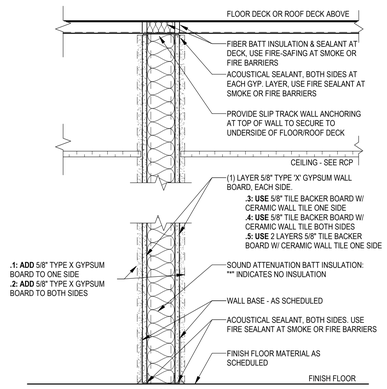
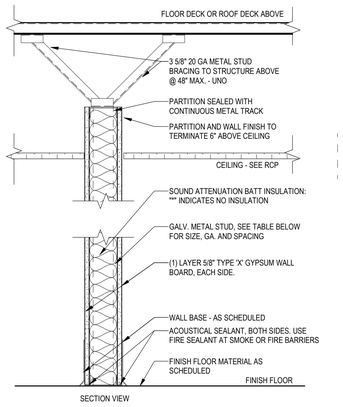


REFERENCE ACOUSTICAL ASSEMBLY GUIDE SOUNDBOOK 2.0 FOR NGC ASSEMBLIES
STC INDICATED IS BASED ON 20 GAUGE FULL HEIGHT PARTITIONS
NGC 2018106 @ 1S4 = 46 , NGC 2018130 @ 1S6 = 44
NGC 2028113 @ 1S4.2 = 52 , NGC 2018132 @ 1S6.2= 54

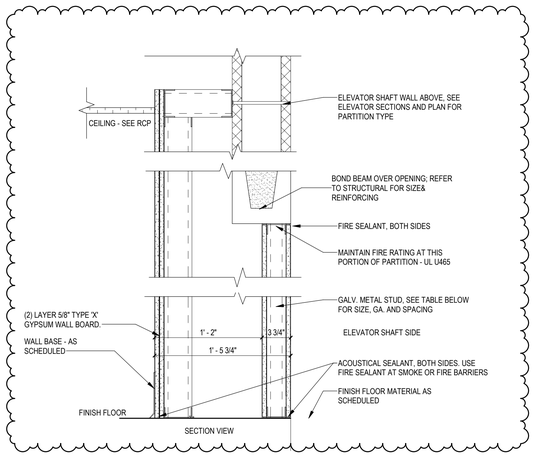
PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
1S4	-	-	46	3 5/8"	20 /16	"
1S4 | 1	1 HR	U 465	46	3 5/8"	20 /16	"
1S4.2		-	52	3 5/8"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD
1S4.2 | S	SMOKE	U 411	52	3 5/8"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD
1S4.2 | 1	1 HR	U 411	52	3 5/8"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD
1S4.3	-		46	3 5/8"	20 / 16	ONE SIDE: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
1S4.4			46	3 5/8"	20 /16	BOTH SIDES: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
1S4.5 | 1	1 HR	U 411	52	3 5/8"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD ONE SIDE: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
1S6	-	-	44	6"	20 /16	
1S6 | 1	1 HR	U 465	44	6"	20 /16	"
1S6.2			54	6"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD
1S6.3			54	6"	20 /16	ONE SIDE: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
1S6.2 | 1	1 HR	U 411	54	6"	20 /16	BOTH SIDES: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD

1S#: METAL STUD INTERIOR FULL HEIGHT PARTITION



PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
2S4	-	-	-	3 5/8"		"
2S4.4	-		-	3 5/8"	20 / 16	BOTH SIDES: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
2S6	-	-	-	6"	20 / 16	"
2S6.1	-	-	-	6"	20 / 16	ONE SIDE: ADD ONE LAYER 5/8" TYPE "X" GYPSUM BOARD

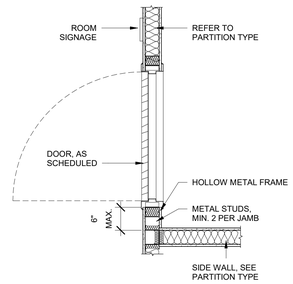
2S#: METAL STUD INTERIOR PARTIAL HEIGHT ABOVE CEILING PARTITION



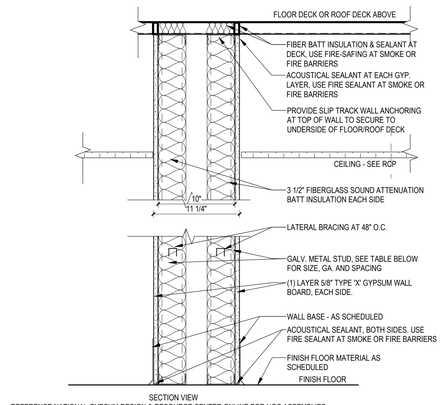
PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
3S4.1|1	1 HR	U465	-	3 5/8" & 2 1/2"	20 / 16	MAINTAIN FIRE RATING OF WALL IN LINE WITH CMU WALL

3S#: METAL STUD INTERIOR PARTIAL HEIGHT PARTITION AT ELEVATOR CONTROLLER

NOTE: REFER TO DIMENSION PLANS FOR EXCEPTIONS TO TYPICAL INSTALL



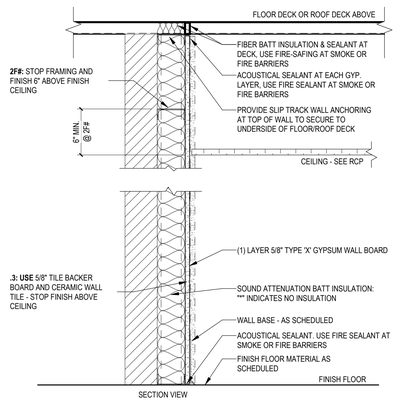
TYPICAL INTERIOR DOOR INSTALL
3/4" = 1'-0"



REFERENCE NATIONAL GYPSUM DESIGN & RESOURCE CENTER ONLINE FOR NGC ASSEMBLIES
STC INDICATED IS BASED ON 20 GAUGE FULL HEIGHT PARTITIONS
NGC 2018083 = 60

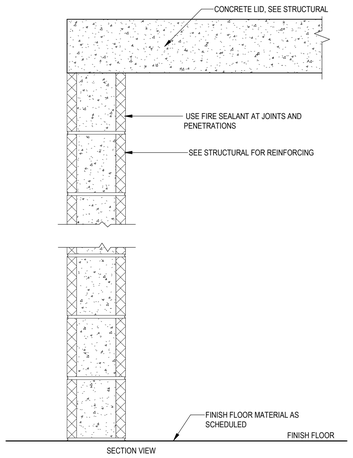
PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
4S10	-	-	-	3 5/8"	20 / 16	
4S10|S	SMOKE	UL V488	60	3 5/8"	20 / 16	
4S10|1	1 HR	UL V488	60	3 5/8"	20 / 16	

4S#: METAL STUD INTERIOR FULL HEIGHT CHASE WALL PARTITION



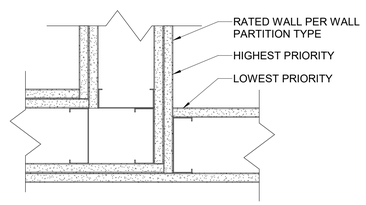
PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
2F0	-	-	-	7/8"	20 / 16	EXTEND 6" ABOVE CEILING, NO INSULATION IN CAVITY
***2F3**	-	-	-	2 1/2"	20 / 16	EXTEND 6" ABOVE CEILING, NO INSULATION IN CAVITY
1F4	-	-	-	3 5/8"	20 / 16	
***1F4**	-	-	-	3 5/8"	20 / 16	NO INSULATION IN CAVITY
2F4	-	-	-	3 5/8"	20 / 16	"
2F4.3	-	-	-	3 5/8"	20 / 16	ONE SIDE: USE 5/8" TILE BACKER BOARD AND CERAMIC WALL TILE
2F6	-	-	-	6"	20 / 16	"

#F#: METAL INTERIOR FURRING



PARTITION TYPE	RATING	UL	STC	STUD SIZE	STUD MODIFICATION GA / SPACING	NOTES
M8 | 1	1 HR	UL906	-		- / -	COORDINATE OPENINGS WITH ELEVATOR MFR/SHOP DRAWINGS

M8: 8" CMU



WALL PRIORITY LEGEND:	
2 HOUR FIRE AND SMOKE WALL	PRIORITY 1
2 HOUR FIRE WALL	PRIORITY 2
2 HOUR SHAFTWALL	PRIORITY 2
1 HOUR FIRE AND SMOKE WALL	PRIORITY 3
1 HOUR FIRE WALL	PRIORITY 4
NON-RATED WALL	PRIORITY 5

WALL PRIORITY DETAIL
3" = 1'-0"

GENERAL NOTES

PARTITION TYPES

WALL AND PARTITION GENERAL NOTES:

1. ALL MASONRY TO BE RUNNING BOND WITH CONCAVE JOINTS, UNLESS OTHERWISE INDICATED.
2. REFER TO STRUCTURE FOR LOAD BEARING AND LATERAL LOAD RESISTANT WALL CONSTRUCTION
3. MAXIMUM STUD SPACING TO BE 16" O.C. UNLESS OTHERWISE INDICATED.
4. MINIMUM STUD GAUGE TO BE PER MANUFACTURER'S SPAN CHARTS AS DERIVED FROM ASTM C754-15 FOR PROJECT CONDITIONS UNLESS OTHERWISE INDICATED.
5. PROVIDE (2) METAL STUDS MIN. AT ALL JAMB CONDITIONS.
6. PROVIDE CEMENTITIOUS TILE BACKER BOARD BEHIND TILE AND MOISTURE RESISTANT GYPSUM WALL BOARD ABOVE CEMENTITIOUS BACKER AND TILE, WHERE OCCURS.
7. CONTRACTOR SHALL PROVIDE **20 GAUGE GALV. SHEET METAL** REINFORCING BEHIND WALL MOUNTED AND CEILING MOUNTED EQUIPMENT INCLUDING TVs, CASEWORK, GRAB BARS, AND OTHER ITEMS.
8. ALL STUD PARTITION CAVITIES SHALL RECEIVE UNFACED SOUND BATT INSULATION FULL THICKNESS AND HEIGHT OF FRAMING UNLESS OTHERWISE INDICATED.
9. PROVIDE CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT BOTTOM OF GYP. BOARD AT STUD PARTITIONS
10. SOUND RATED PARTITIONS: AT ALL 1, 2, AND 4 TYPE PARTITIONS PROVIDE THE FOLLOWING UNLESS OTHERWISE INDICATED.
    - PROVIDE 2 CONTINUOUS BEADS OF ACOUSTICAL SEALANT AROUND PERIMETER OF PARTITIONS AT JOINT BETWEEN END OF WALL AND ADJACENT CONSTRUCTION.
    - ALL JUNCTION BOXES ARE TO BE INSTALLED WITH SOUND PUTTY PADS FULLY WRAPPING THE OUTSIDE OF THE BOX.
    - ISOLATE ALL RIGID CONDUIT, DUCTS, PLUMBING PIPES, VENTS, ETC. FROM THE BUILDING CONSTRUCTION BY MEANS OF RESILIENT SLEEVES, MOUNTS, OR 1/4" MINIMUM THICK RESILIENT MATERIALS.
11. ELECTRICAL JUNCTION BOXES SHALL NEVER BE INSTALLED "BACK TO BACK".
12. CUT GYPSUM BOARD TO FIT AROUND METAL DECK PROFILE.
13. SEAL ALL FLOOR AND WALL PENETRATIONS.

GENERAL NOTES FOR FIRE RATED WALLS AND PARTITIONS; AND SMOKE PARTITIONS:

1. PROVIDE FIRE RATED GYPSUM WALL BOARD AT FIRE RATED PARTITION ASSEMBLIES.
2. PROVIDE FIRE SEALANT AT TOP AND BOTTOM TRACKS OF ALL FIRE-RATED WALLS AND PARTITIONS.
3. PROTECT ALL CABLE, CONDUIT, PIPE, AND MECHANICAL DUCT PENETRATIONS WITH A FIRE-STOP SYSTEM OR DEVICES AT ALL FIRE-RATED WALLS, PARTITIONS, FLOORS, AND ROOF.
4. PENETRATIONS FOR CABLES, CONDUIT, PIPES AND MECHANICAL DUCTS SHALL BE PROTECTED BY A SYSTEM OR MATERIALS CAPABLE OF LIMITING THE TRANSFER OF SMOKE AT SMOKE RATED WALLS AND/OR PARTITIONS.
5. AIR TRANSFER OPENINGS IN SMOKE PARTITIONS SHALL BE PROVIDED WITH SMOKE DAMPERS PER NFPA 101, SECTION 8.4.6 WHERE REQUIRED - REFER TO MECHANICAL.
6. LABEL FIRE AND SMOKE WALLS AND PARTITIONS ABOVE CEILING, IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS. LETTERING TO BE MIN. 3" HIGH, WITHIN 15' OF EACH END OF PARTITION AND NOT EXCEEDING 30' APART.

TOP OF PARTITION IDENTIFIER or CORE ASSEMBLY VARIATION LEGEND:

1 FULL HEIGHT: PARTITION TO TERMINATE AND SEAL TO UNDERSIDE OF DECK ABOVE.

2 PARTIAL HEIGHT, ABOVE CEILING: PARTITION TO TERMINATE ABOVE HIGHEST ADJACENT CEILING AND BRACE TO STRUCTURE ABOVE; HEIGHT AND BRACING AS INDICATED IN PARTITION DIAGRAMS.

3 PARTIAL HEIGHT: PARTITION TO TERMINATE AT HEIGHT INDICATED AND BE BRACED / REINFORCED AS INDICATED ON PARTITION DIAGRAMS.

4 FULL/PARTIAL HEIGHT: PARTITION FRAMING TO TERMINATE AT UNDERSIDE OF DECK ABOVE. PARTITION FINISH TO TERMINATE AT INDICATED DISTANCE ABOVE FINISH CEILING.

PARTITION CORE TYPE AND SIZE LEGEND:

#F0 - 7/8" HAT CHANNEL
#F1 - 1 1/2" CHANNEL
#F2 - 1 5/8" METAL STUD
#F3 - 2 1/2" METAL STUD
#F4 - 3 5/8" METAL STUD
#F6 - 6" METAL STUD
#F8 - 8" METAL STUD

M4 - 4" CONCRETE MASONRY UNIT
M6 - 6" CONCRETE MASONRY UNIT
M8 - 8" CONCRETE MASONRY UNIT
M12 - 12" CONCRETE MASONRY UNIT

#S4 - 3 5/8" METAL STUD
#S6 - 6" METAL STUD
#S8 - 8" METAL STUD

SH3 - 2 1/2" METAL C-H STUD
SH4 - 4" METAL C-H STUD

PARTITION MODIFIER LEGEND

.1 ADD ONE LAYER OF 5/8" TYPE "X" GYPSUM BOARD ONE SIDE.

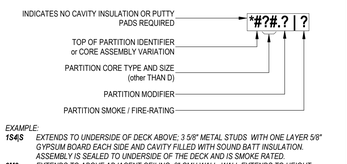
.2 ADD ONE LAYER OF 5/8" TYPE "X" GYPSUM BOARD EACH SIDE.

.3 REPLACE GYPSUM BOARD ONE SIDE WITH 5/8" TILE BACKER BOARD AND CERAMIC TILE.

.4 REPLACE GYPSUM BOARD EACH SIDE WITH 5/8" TILE BACKER BOARD AND CERAMIC TILE.

.5 ADD ONE LAYER OF 5/8" TYPE "X" GYPSUM BOARD EACH SIDE; REPLACE BOTH LAYERS OF GYPSUM BOARD ONE SIDE WITH 5/8" TILE BACKER BOARD AND CERAMIC TILE.

LEGEND



EXAMPLE:

1S4|S *EXTENDS TO UNDERSIDE OF DECK ABOVE; 3 5/8" METAL STUDS WITH ONE LAYER 5/8" GYPSUM BOARD EACH SIDE AND CAVITY FILLED WITH SOUND BATT INSULATION. ASSEMBLY IS SEALED TO UNDERSIDE OF THE DECK AND IS SMOKE RATED.*

2M8 *EXTENDS TO ABOVE ADJACENT CEILING; 8" CMU WALL. WALL EXTENDS TO HEIGHT INDICATED OR AT LEAST ONE FULL COURSE ABOVE ADJACENT CEILING HEIGHT.*

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BID DOCUMENTS

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

PARTITION TYPES INTERIOR

A-011

GENERAL NOTES

SITE PLAN

1. UNLESS OTHERWISE INDICATED, FOR CONCRETE SIDEWALKS AND EXISTING SITE ELEMENTS, REFER TO CIVIL DRAWINGS.
2. THE PRIMARY INTENT OF THIS DRAWINGS IS FOR COORDINATION OF SITE ELEMENTS INCLUDED IN THE ARCHITECTURAL PORTION OF THE DRAWINGS. FOR ADDITIONAL SITE ELEMENTS, REFER TO ENGINEERING DRAWINGS.
3. REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPING.

STUDENT UNION EAST

SOCIAL SCIENCE

HVAC LINES

JAMES R. ASBELL BUSINESS BUILDING

LIBRARY

A1
A-102

CENTRAL HVAC PLANT

COLLEGIATE DRIVE

ADDITIVE ALTERNATE#2: PAVING, SEATWALL, LANDSCAPING, AND ASSOCIATED UNDERGROUND DRAINAGE

LANGUAGE ARTS

LA FRIANDISE DINING ROOM

ROSENWALD CLASSROOM

PHYSICAL SCIENCE

A1 ARCHITECTURAL SITE PLAN
1" = 30'-0"

TRUE NORTH

30 0 30 60
1" = 30'-0" SCALE FEET

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ARCHITECTURAL SITE PLAN

A-101

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CONCRETE SIDEWALK, SEE CIVIL

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

CONCRETE SIDEWALK, SEE CIVIL

CONCRETE SIDEWALK, SEE CIVIL

CONCRETE SIDEWALK, SEE CIVIL

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS

1'-6" HIGH x 1'-4" WIDE CONCRETE SEAT WALL, TYP.

1'-6" HIGH x 1'-4" WIDE CONCRETE SEAT WALL, TYP.

A4
A-321

1' - 4" | 13' - 0" | 1' - 4" | 13' - 8" | 1' - 4" | 13' - 8" | 1' - 4" | 13' - 8" | 1' - 4"

13' - 7 1/4" | 1' - 4" | 11' - 0" | 1' - 4" | 13' - 2" | 1' - 4" | 13' - 2" | 1' - 4" | 11' - 0" | 1' - 4" | 13' - 8 3/4"

1' - 4" | 13' - 8" | 1' - 4" | 13' - 0" | 1' - 4"

4' - 8" TYP.

11' - 6"

1' - 4"

EQ

A1 ARCHITECTURAL ENLARGED SITE PLAN

1/8" = 1'-0"

TRUE NORTH

LEGEND

- CONCRETE PAVER, SEE LANDSCAPE DRAWINGS
- INTEGRAL COLOR CONCRETE SIDEWALK, SEE LANDSCAPE DRAWINGS

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DESCRIPTION	*DATE*
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Project Number	**25004**
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ARCHITECTURAL ENLARGED SITE PLAN

A-102

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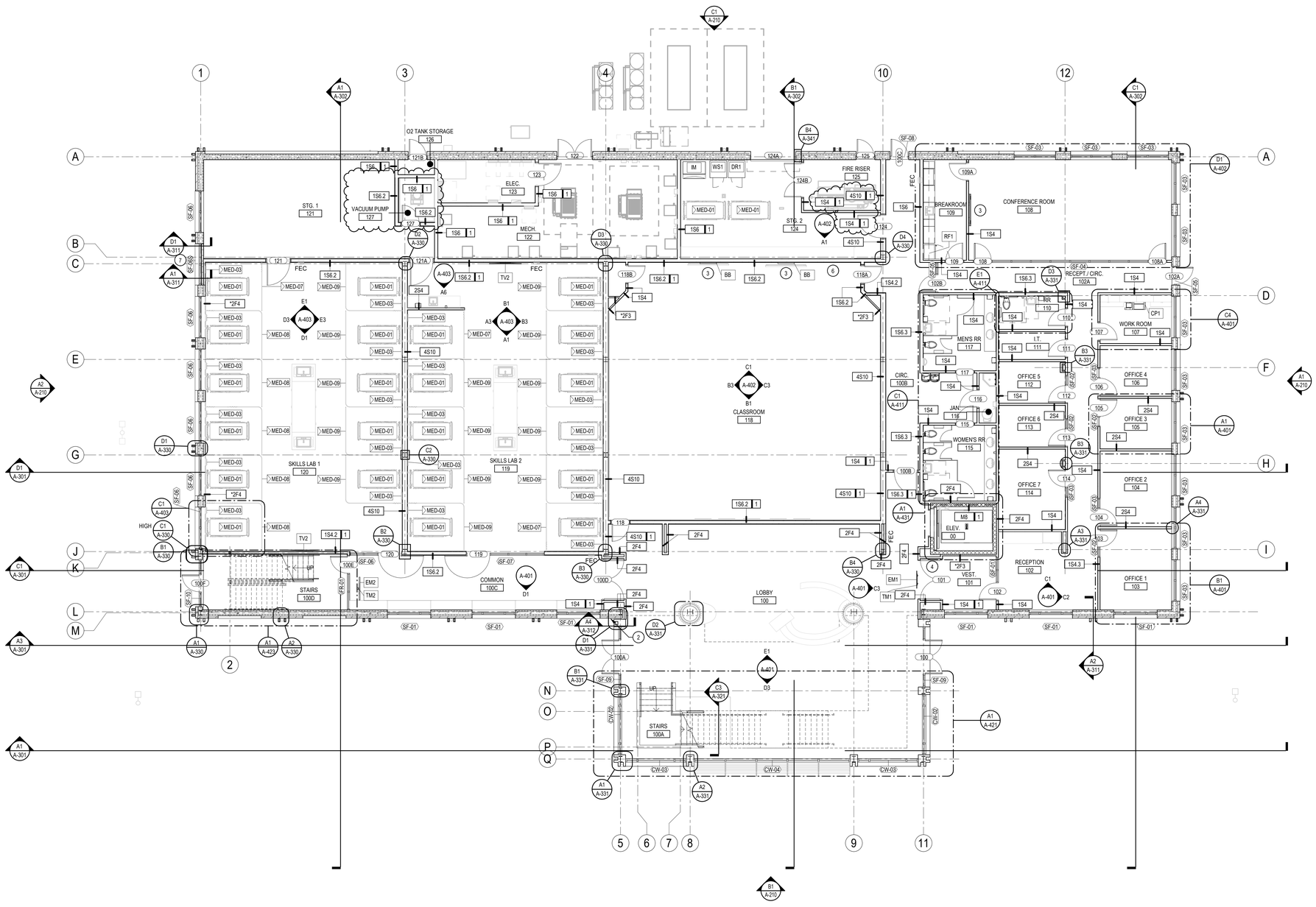

A1 LEVEL 1 ANNOTATED FLOOR PLAN
1/8" = 1'-0"
TRUE NORTH

GENERAL NOTES

FLOOR PLAN

1. ALL CONTRACTORS MUST FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING NEW WORK.
2. THE CONTRACTOR SHALL PROVIDE SHEET METAL REINFORCING BEHIND WALL MOUNTED AND CEILING MOUNTED EQUIPMENT, AND WHERE INDICATED FOR FUTURE WALL MOUNTED ITEMS. COORDINATE WITH A/V, DATA, CASEWORK, FURNITURE, ELECTRICAL, AND INTERIOR ELEVATION DRAWINGS.
3. CONTRACTOR SHALL COORDINATE WORK WITH MECHANICAL, ELECTRICAL, PLUMBING, AND ALL OTHER DISCIPLINES.
4. INTERIOR DOORS TO BE LOCATED MIN 6" FROM ADJACENT STUD PARTITIONS AND 8" FROM ADJACENT MASONRY PARTITIONS, UNLESS DIMENSIONED OR NOTED OTHERWISE.
5. REFER TO FINISH SCHEDULE(S) IN INTERIORS SHEETS FOR FINISHES.
6. REFER TO A-011 FOR ADDITIONAL INFORMATION ON INTERIOR PARTITION TYPE ASSEMBLIES.
7. ALL DIMENSIONS ON THE DIMENSION PLANS ARE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   - ALL DIMENSIONS TO CMU ARE TO FACE OF CMU.
   - ALL DIMENSIONS TO STUDS ARE TO FACE OF STUD, INCLUDING PARTITION TYPES WITH RESILIENT CHANNELS
   - ALL DIMENSIONS TO BRICK ARE TO OUTSIDE FACE OF BRICK.
8. REFER TO A-400 SERIES SHEETS FOR ADDITIONAL INFORMATION, INCLUDING TOILET ROOM DIMENSIONS.
9. REFER TO LS-SERIES LIFE SAFETY SHEETS FOR FIRE RATED AND SMOKE PARTITION LOCATIONS.
10. REFER TO STRUCTURAL FOR BRACING TYPE AND LOCATIONS.
11. REFER TO PLUMBING FOR FIXTURE SCHEDULES.
12. CONTRACTOR SHALL PROVIDE ISOLATION BETWEEN DISSIMILAR METALS.
13. PROVIDE CONCRETE SPLASH BLOCKS / METAL SPLASH PANS AT ALL DOWNSPOUTS THAT DRAIN TO ROOFS OR GRADE, AND AT ALL CANOPY COLUMNS THAT DRAIN TO GRADE.

LEGEND

FLOOR PLAN

- OFFICE 100 350 SF — ROOM IDENTIFIER - NAME, NUMBER, AREA
- 1W1X.1 — PARTITION TYPE IDENTIFIER - SEE WALL TYPES
- 100X — DOOR IDENTIFIER - SEE DOOR SCHEDULE
- # — WINDOW IDENTIFIER - SEE WINDOW TYPES AND ELEVATIONS
- SF# — STOREFRONT WINDOW IDENTIFIER - SEE STOREFRONT TYPES AND ELEVATIONS
- CW# — CURTAIN WALL IDENTIFIER - SEE CURTAIN WALL TYPES AND ELEVATIONS
- 0 — NEW COLUMN GRIDLINE
- SPOT ELEVATION MARKER
- EQ-1 — EQUIPMENT - CONTRACTOR-PROVIDED
- EQ-1 — EQUIPMENT - OWNER-PROVIDED
- MED-99 — MEDICAL EQUIPMENT - OWNER-PROVIDED
- 1 — SIGNAGE IDENTIFIER - SEE SIGN TYPES

SHEET NOTES

ANNOTATION PLAN

1. WALLS TO RECEIVE LEVEL 5 GYPSUM BOARD FINISH.
2. BUILDING PLAQUE, COORDINATE FINAL LOCATION WITH ARCHITECT.
3. FLAT PANEL DISPLAY, REFERENCE AV DRAWINGS.
4. SIGNAGE FOR "EMERGENCY COMMUNICATE", AND "PUSH FOR HELP" TO BE LOCATED ON BACK OF DOOR, COORDINATE WITH ELECTRICAL. REFERENCE A-001 FOR SIGNAGE DETAILS.
5. SIGNAGE FOR "IN CASE OF FIRE USE STAIRS" TO BE LOCATED ON SIDE WALL. REFERENCE A-001 FOR SIGNAGE DETAILS.
6. SIGNAGE FOR "MAXIMUM OCCUPANCY" TO BE PROVIDED, REFERENCE A-001 FOR SIGNAGE DETAILS.
7. FURR-OUT WALL ON INTERIOR AT SPANDREL GLAZING, TYP. SEE SECTION A1/A-311 AND D1/A-311 FOR TYPICAL DETAIL INFORMATION.

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REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

Project Number **25004**
Dated 08.29.2025

LEVEL 1
ANNOTATION
PLAN

A-111

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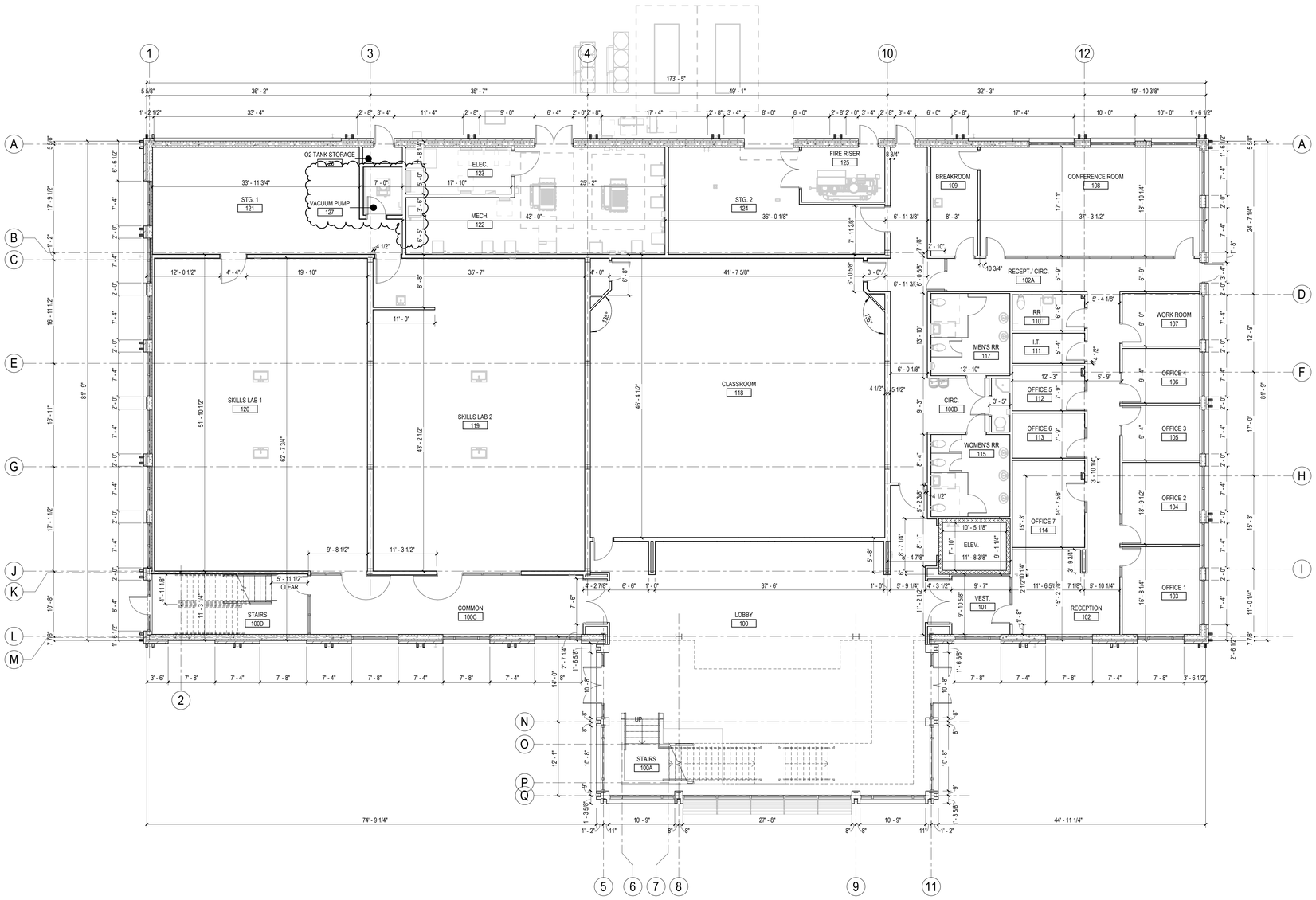

GENERAL NOTES

FLOOR PLAN

1. ALL CONTRACTORS MUST FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING NEW WORK.
2. THE CONTRACTOR SHALL PROVIDE SHEET METAL REINFORCING BEHIND WALL MOUNTED AND CEILING MOUNTED EQUIPMENT, AND WHERE INDICATED FOR FUTURE WALL MOUNTED ITEMS. COORDINATE WITH A/V, DATA, CASEWORK, FURNITURE, ELECTRICAL, AND INTERIOR ELEVATION DRAWINGS.
3. CONTRACTOR SHALL COORDINATE WORK WITH MECHANICAL, ELECTRICAL, PLUMBING, AND ALL OTHER DISCIPLINES.
4. INTERIOR DOORS TO BE LOCATED MIN 6" FROM ADJACENT STUD PARTITIONS AND 8" FROM ADJACENT MASONRY PARTITIONS, UNLESS DIMENSIONED OR NOTED OTHERWISE.
5. REFER TO FINISH SCHEDULE(S) IN INTERIORS SHEETS FOR FINISHES.
6. REFER TO A-011 FOR ADDITIONAL INFORMATION ON INTERIOR PARTITION TYPE ASSEMBLIES.
7. ALL DIMENSIONS ON THE DIMENSION PLANS ARE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   - ALL DIMENSIONS TO CMU ARE TO FACE OF CMU
   - ALL DIMENSIONS TO STUDS ARE TO FACE OF STUD, INCLUDING PARTITION TYPES WITH RESILIENT CHANNELS
   - ALL DIMENSIONS TO BRICK ARE TO OUTSIDE FACE OF BRICK.
8. REFER TO A-400 SERIES SHEETS FOR ADDITIONAL INFORMATION, INCLUDING TOILET ROOM DIMENSIONS.
9. REFER TO LS-SERIES LIFE SAFETY SHEETS FOR FIRE RATED AND SMOKE PARTITION LOCATIONS.
10. REFER TO STRUCTURAL FOR BRACING TYPE AND LOCATIONS.
11. REFER TO PLUMBING FOR FIXTURE SCHEDULES.
12. CONTRACTOR SHALL PROVIDE ISOLATION BETWEEN DISSIMILAR METALS.
13. PROVIDE CONCRETE SPLASH BLOCKS / METAL SPLASH PANS AT ALL DOWNSPOUTS THAT DRAIN TO ROOFS OR GRADE, AND AT ALL CANOPY COLUMNS THAT DRAIN TO GRADE.

A1 LEVEL 1 DIMENSIONED FLOOR PLAN
1/8" = 1'-0"

TRUE NORTH

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

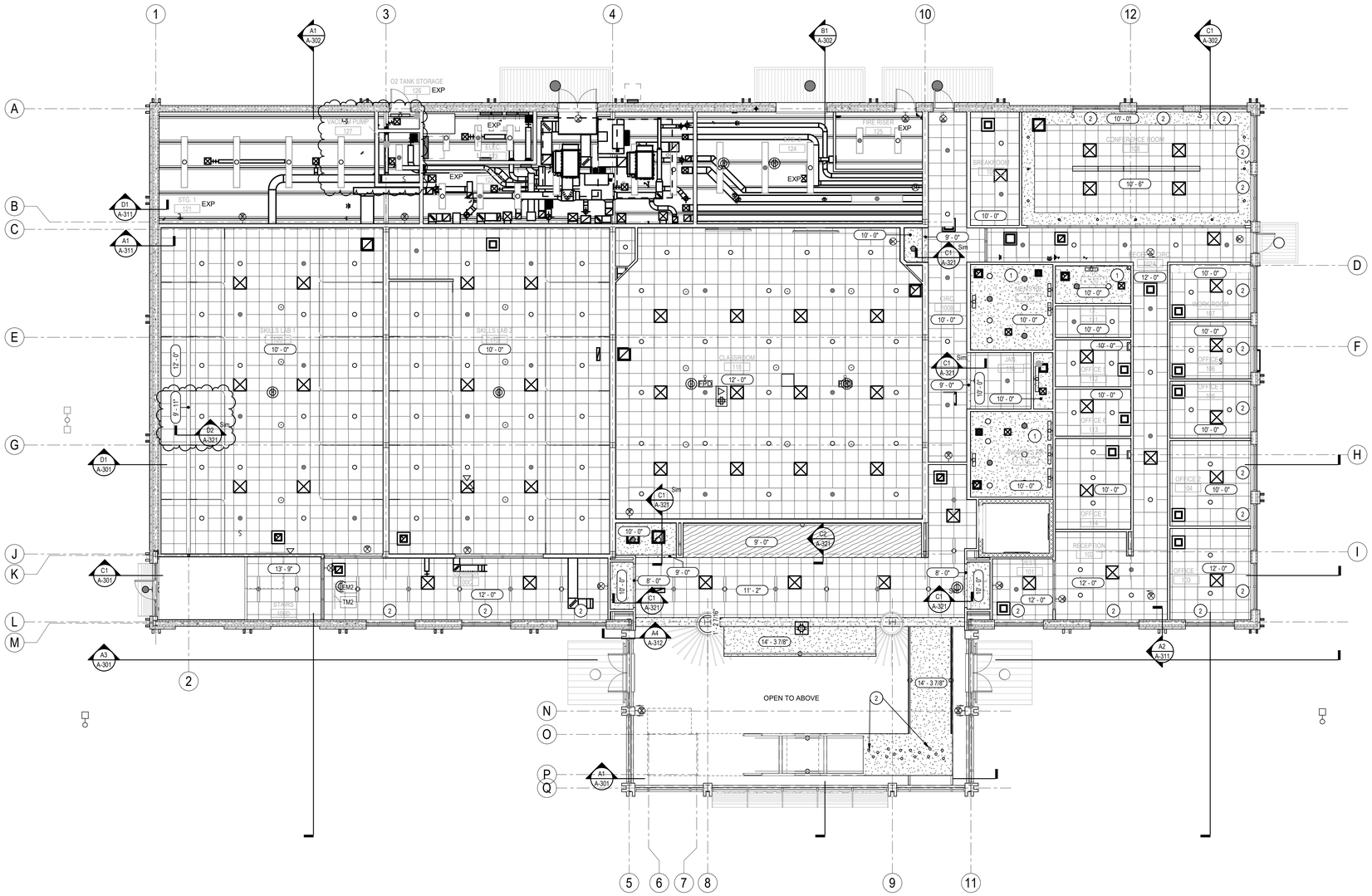
REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

Project Number **25004**
Dated 08.29.2025

LEVEL 1
DIMENSION PLAN

A-112



GENERAL NOTES

REFLECTED CEILING

1. CONTRACTORS SHALL COORDINATE ALL WORK, SHOWN OR UN-SHOWN, WITH ALL OTHER DISCIPLINES.
2. CONTRACTOR SHALL PROVIDE REINFORCING [TYPE TBD] BEHIND ALL CEILING MOUNTED EQUIPMENT.
3. REFER TO FINISH SCHEDULE(S) IN A-600 SERIES SHEETS FOR FINISHES AND ADDITIONAL INFORMATION.
4. ALL ACCESS PANEL SIZES AND LOCATIONS TO BE COORDINATED WITH MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE SPRINKLER WORK.
5. CENTER ACT GRID AND LIGHTS WITHIN EACH ROOM, UNO.
6. REFER TO ELECTRICAL FOR LIGHTING FIXTURE SCHEDULE(S).
7. ALL FIRE SPRINKLER HEADS AND ELECTRICAL FIXTURES SHALL BE CENTERED WITHIN CEILING TILES, UNO.
8. CEILING HEIGHTS NOTED REFERENCE ELEVATION ABOVE FINISH FLOOR OF ASSOCIATED BUILDING LEVEL.

LEGEND

REFLECTED CEILING

- LIGHT FIXTURES - SEE ELECTRICAL
- MECHANICAL DEVICES - SEE MECHANICAL
- CEILING - TYPE A
  2' x 2' ACOUSTICAL CEILING TILE 9'-0" AFF UNLESS NOTED OTHERWISE, SEE FINISH SCHEDULE
- CEILING - TYPE B
  GYPSUM BOARD CEILING 9'-0" AFF UNLESS NOTED OTHERWISE, PROVIDE MOISTURE RESISTANT @ ALL WET AREAS AND JANITOR'S CLOSET
- CEILING - TYPE C
  GYPSUM BOARD CEILING WITH FINISH PANEL SYSTEM, REFER TO INTERIORS DRAWINGS
- PREFINISHED METAL SOFFIT PANELS
- (S) SPEAKER SYSTEM, SEE FIRE ALARM
- EXIT LIGHT, SEE ELECTRICAL
- EXIT DIRECTIONAL EXIT LIGHT, SEE ELECTRICAL
- (M) MOTION DETECTOR, SEE ELECTRICAL
- CLG-1 CEILING TYPE
- 10'-0" CEILING HEIGHT AFF DESIGNATION
- EXP EXPOSED CEILING
- PM PROJECTOR MOUNT
- ACCESS PANEL
- SECURITY CAMERA

SHEET NOTES

CEILING PLAN

1. PROVIDE CEILING MOUNTED ACCESS PANEL, COORDINATE WITH MECHANICAL AND ELECTRICAL FOR LOCATION.
2. MANUAL ROLLER SHADES AT EXTERIOR STOREFRONT, SEE INTERIORS.
3. MOTORIZED ROLLER SHADES AT EXTERIOR CURTAINWALL, SEE INTERIORS.
4. ARRAY OF CEILING HUNG PENDANT LIGHT FIXTURES, SEE INTERIORS.

A1 LEVEL 1 REFLECTED CEILING PLAN
1/8" = 1'-0"

TRUE NORTH

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LEVEL 1
REFLECTED
CEILING PLAN

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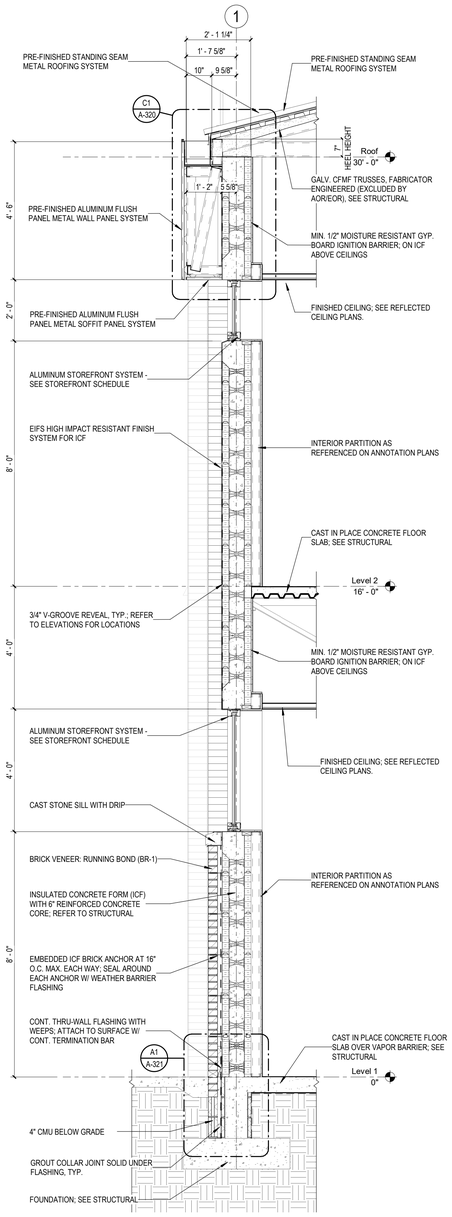
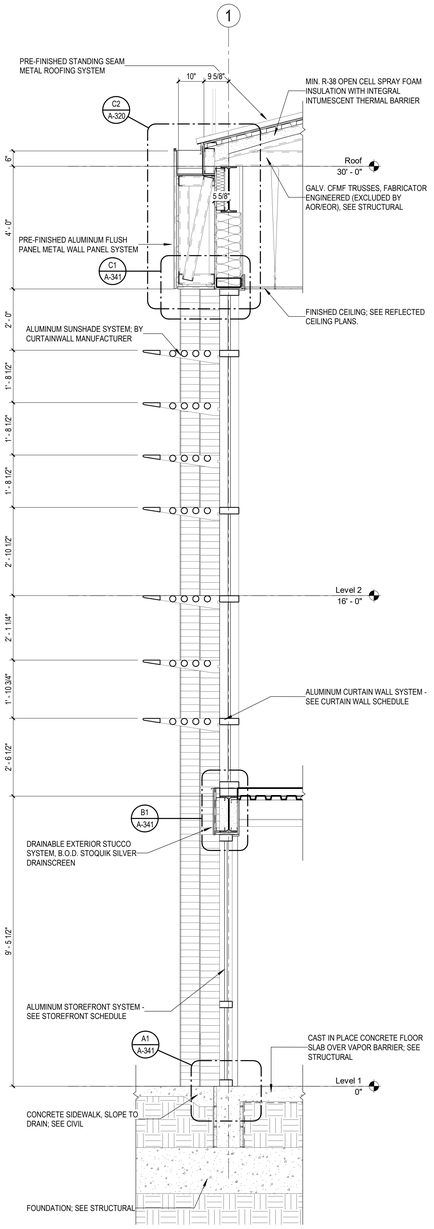
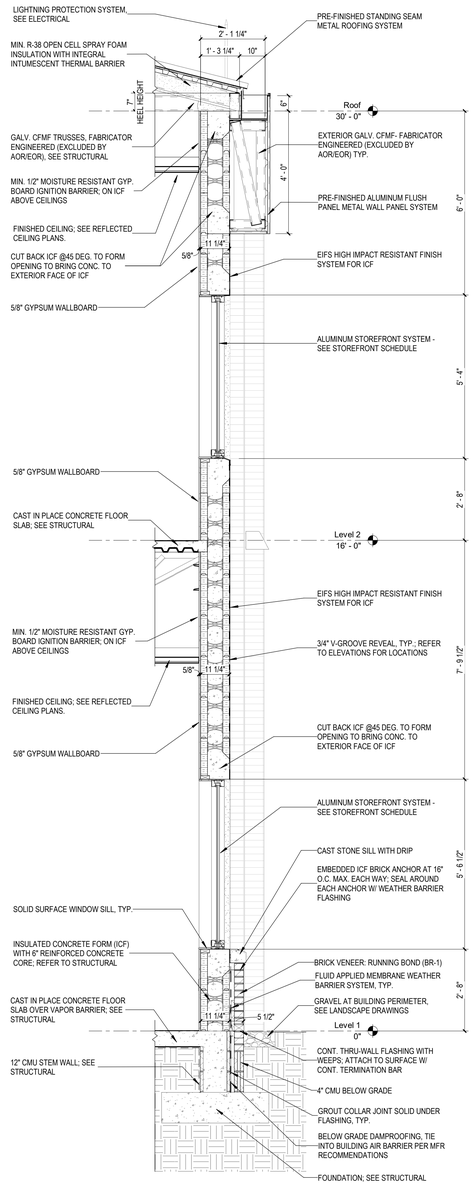
ADDITIONAL DETAIL CALL-OUTS ADDED



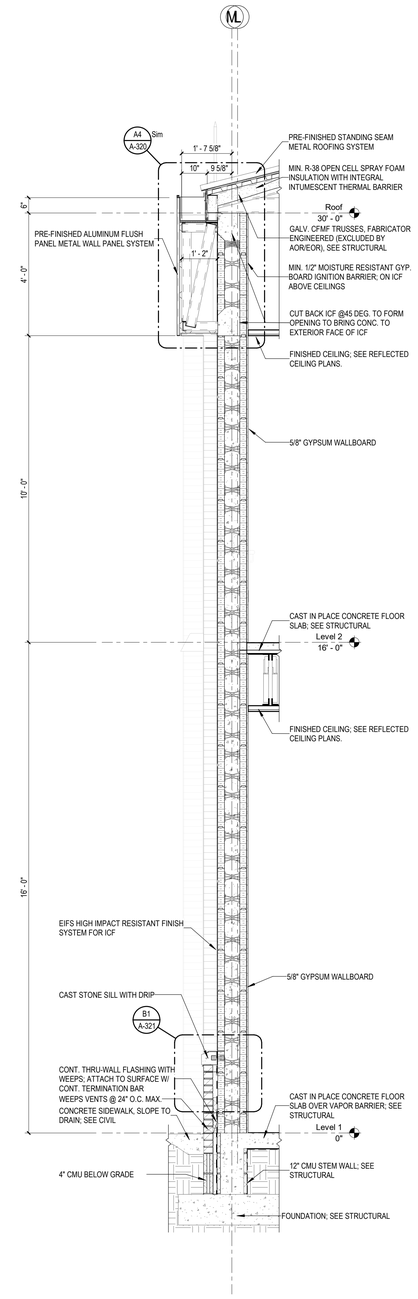
A1 SOUTH WALL SECTION
1/2" = 1'-0"



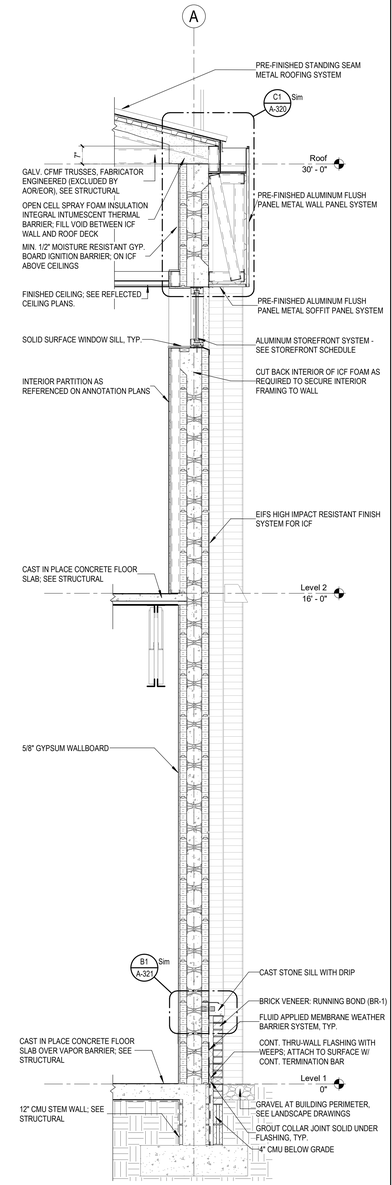
A2 SOUTH WALL SECTION AT STAIR
1/2" = 1'-0"



A3 NORTH WALL SECTION AT WINDOWS
1/2" = 1'-0"



A4 EAST WALL SECTION AT STAIRWELL
1/2" = 1'-0"



A5 WEST WALL SECTION AT HIGH WINDOW
1/2" = 1'-0"

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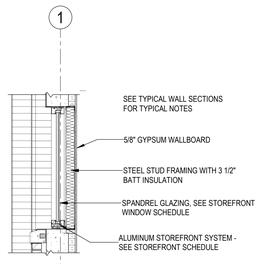
Dated	08.29.2025

WALL SECTIONS
A-310



D1 SECTION AT SPANDREL GLAZING
1/2" = 1'-0"

ADDITIONAL DETAIL CALL-OUTS ADDED

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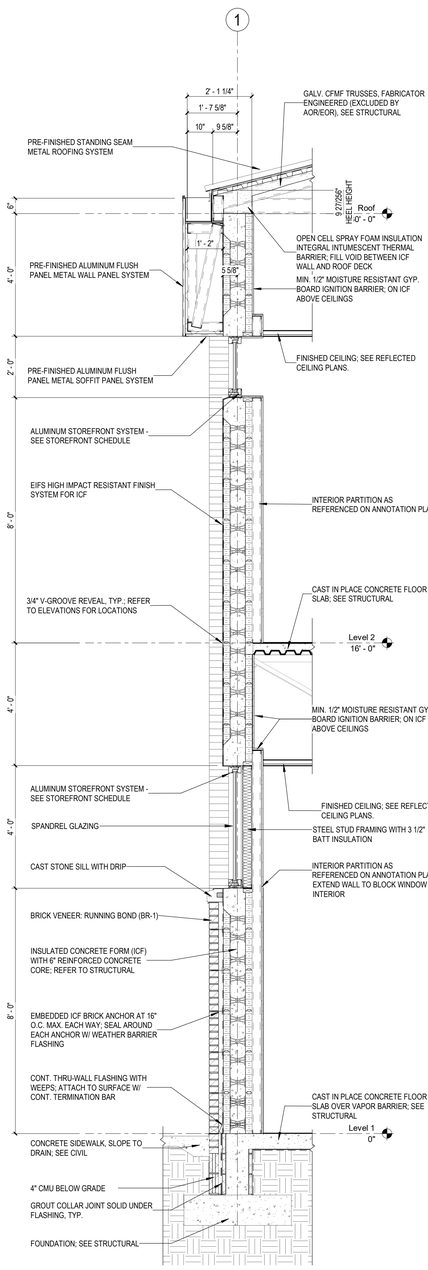
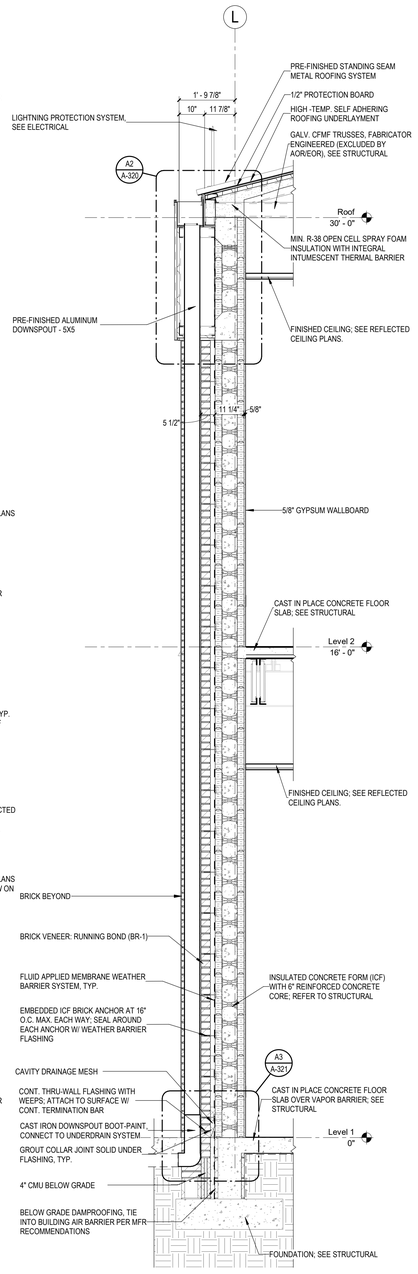
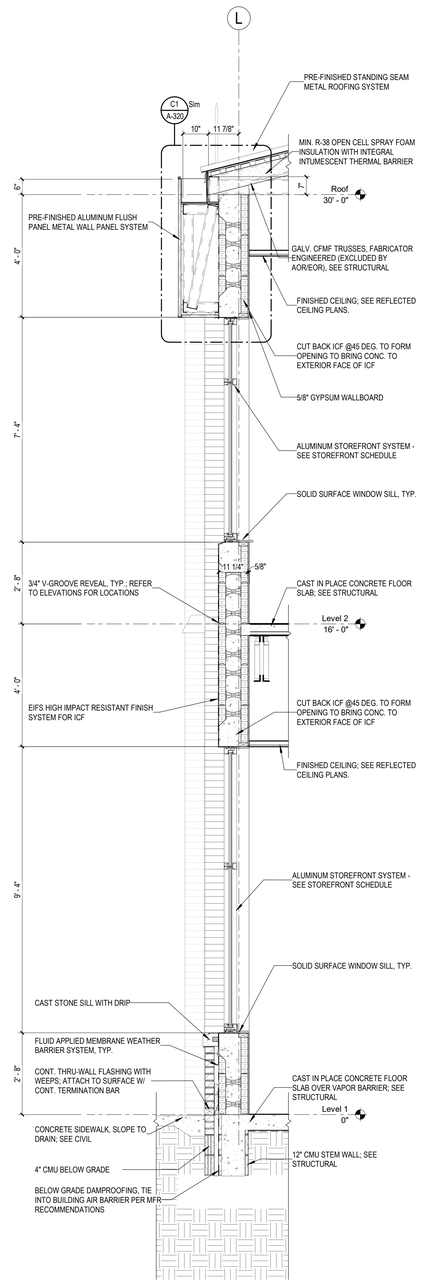


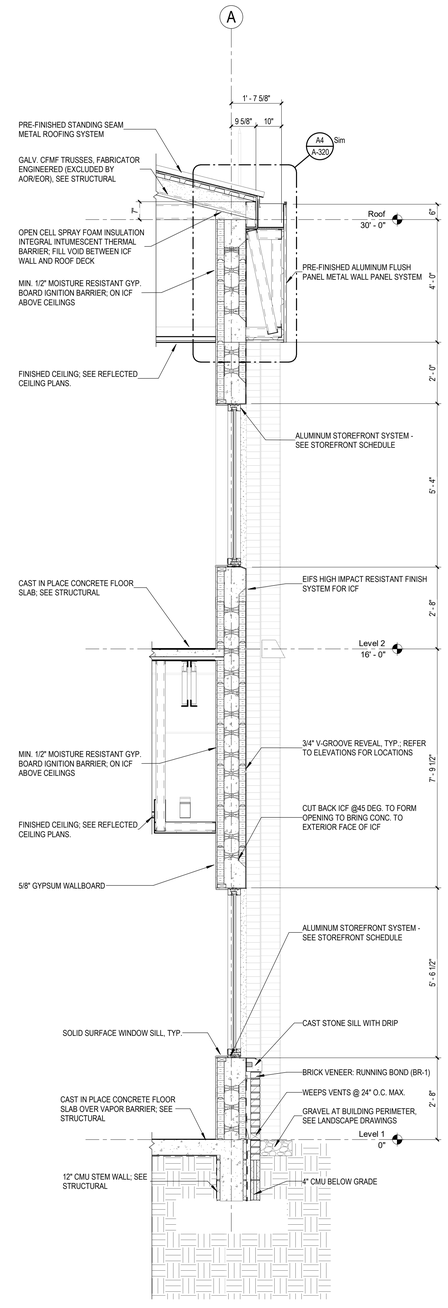
A1 TYP. SECTION AT SPANDREL GLAZING
1/2" = 1'-0"



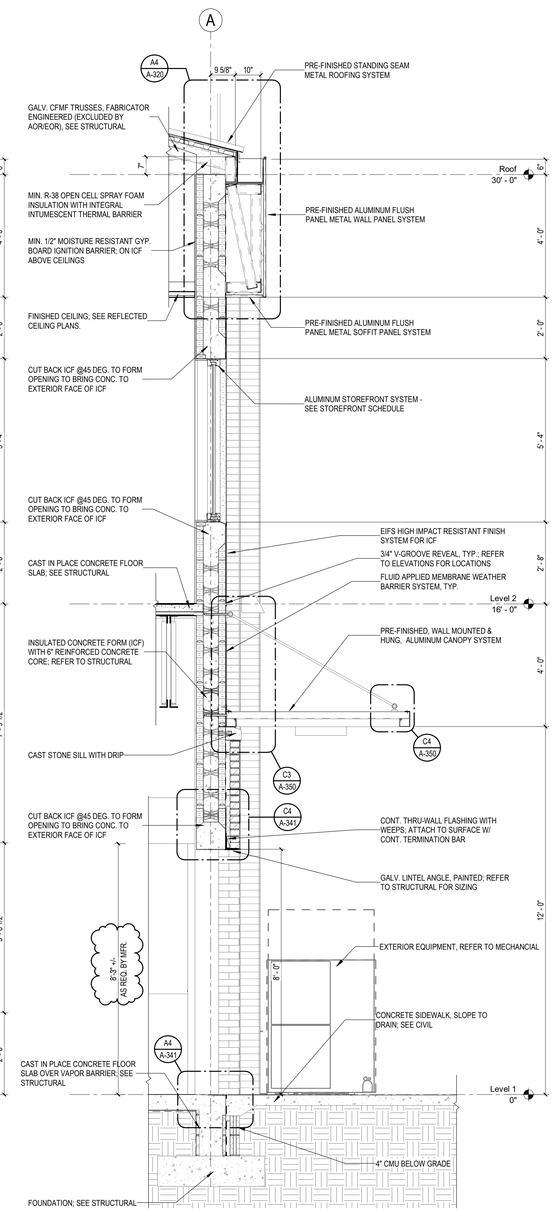
A2 EAST SECTION AT DOWNSPOUT
1/2" = 1'-0"



A3 EAST SECTION AT WINDOWS
1/2" = 1'-0"



A4 WEST WALL SECTION AT WINDOWS
1/2" = 1'-0"



A5 WEST WALL SECTION
1/2" = 1'-0"

WALL SECTIONS

A-311

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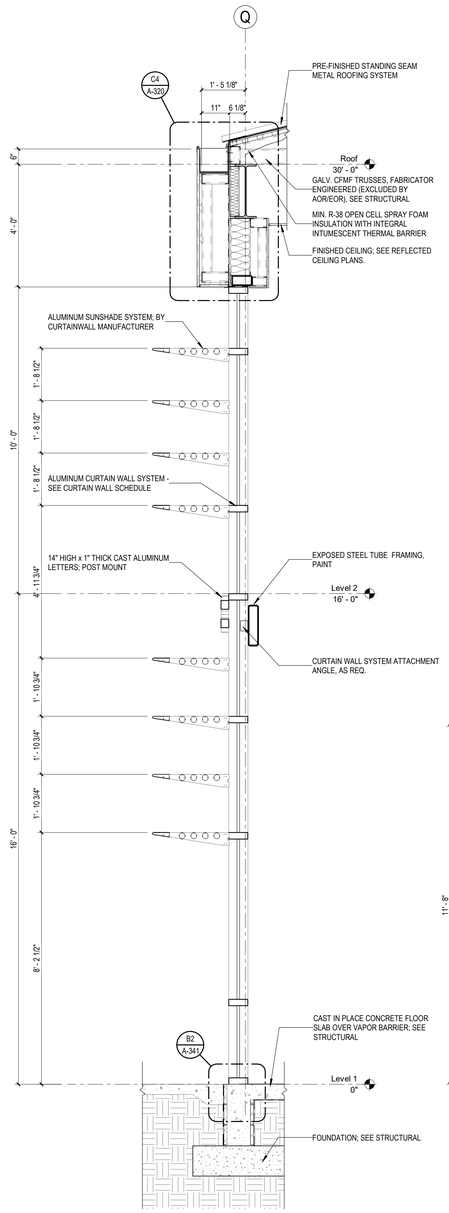

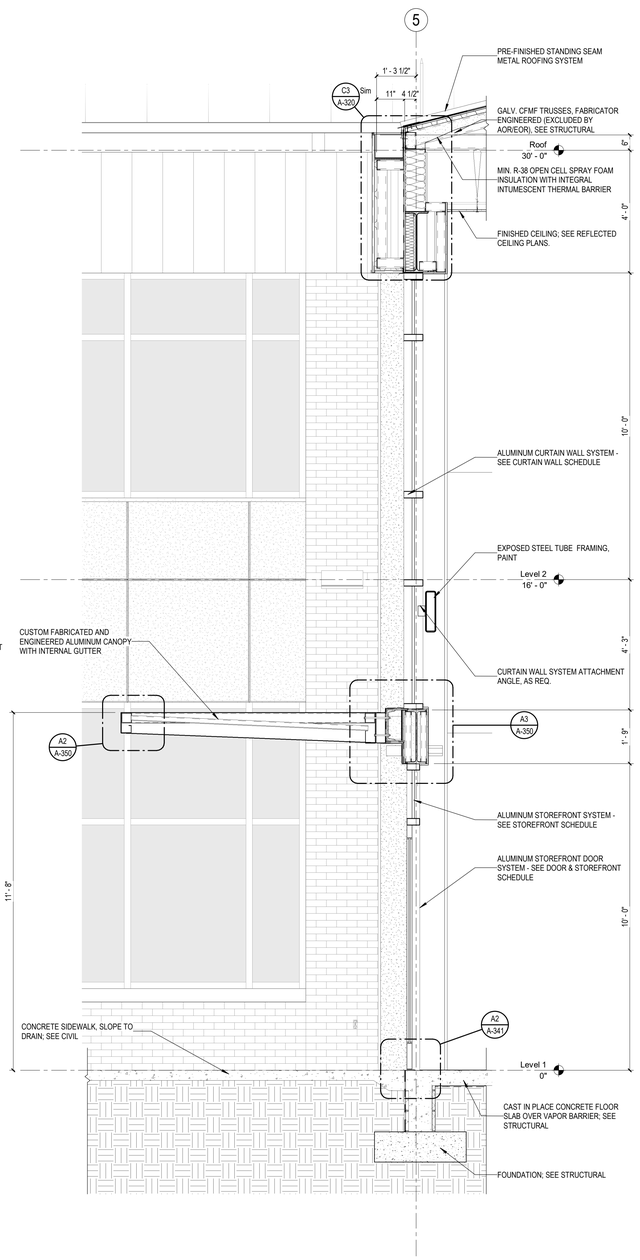

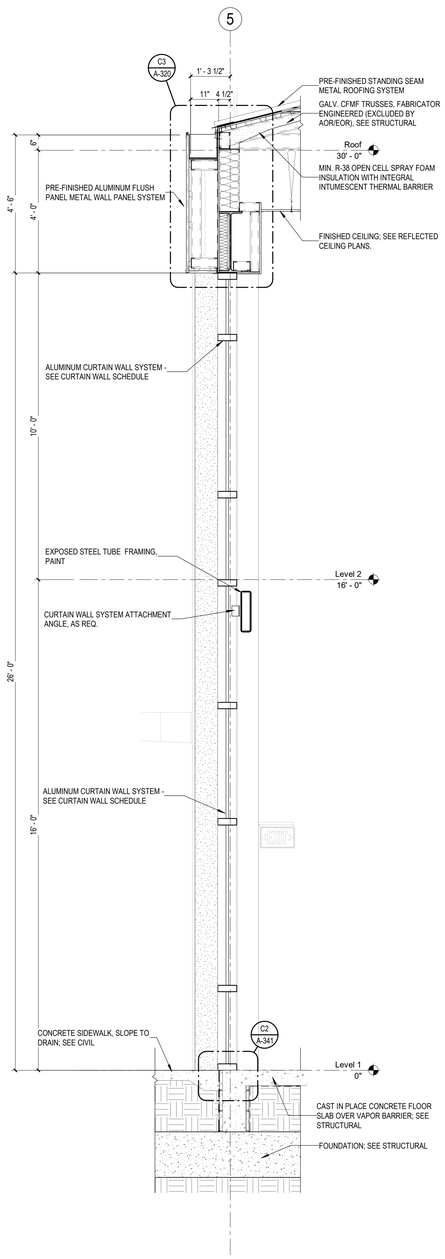

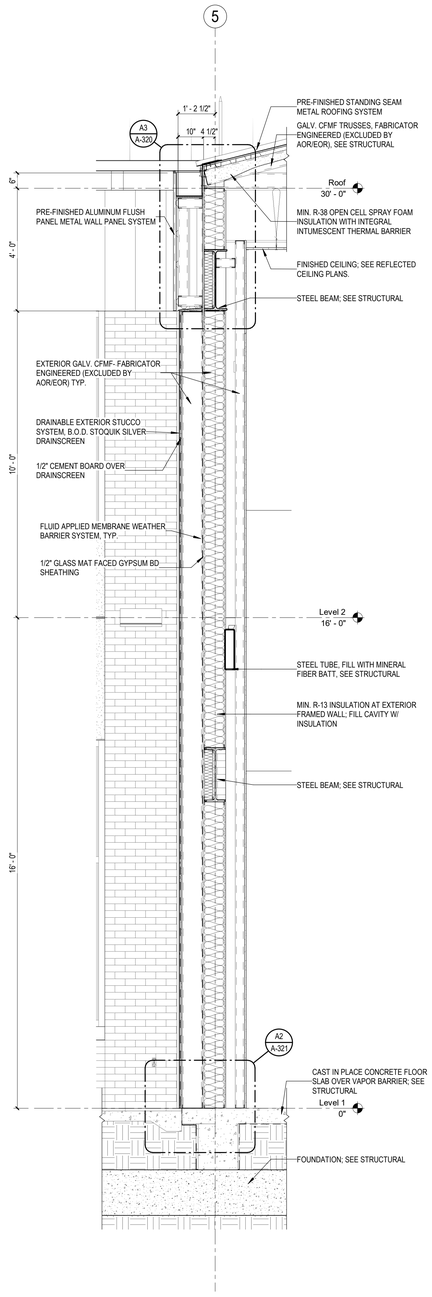

A1 EAST WALL SECTION LOBBY
1/2" = 1'-0"

A2 SOUTH WALL SECTION AT ENTRANCE
1/2" = 1'-0"

A3 SOUTH WALL SECTION AT LOBBY
1/2" = 1'-0"

A4 SECTION AT COLUMN
1/2" = 1'-0"

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REVISIONS

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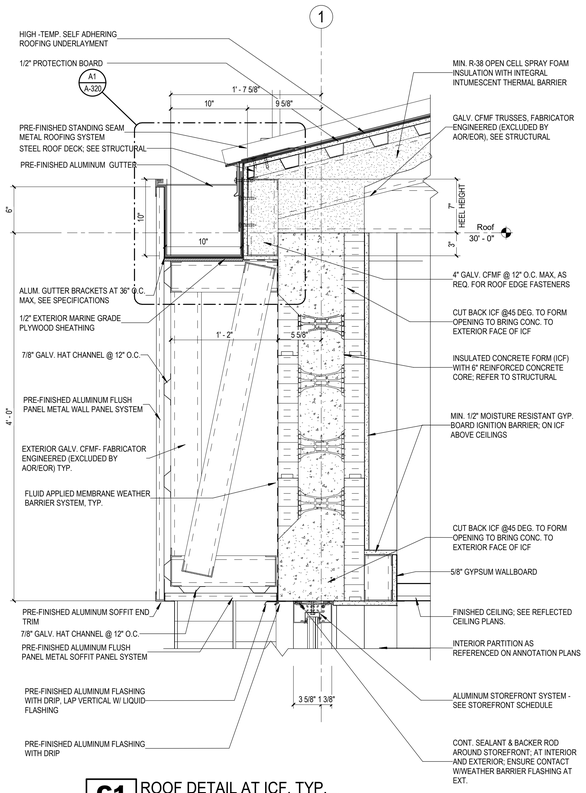
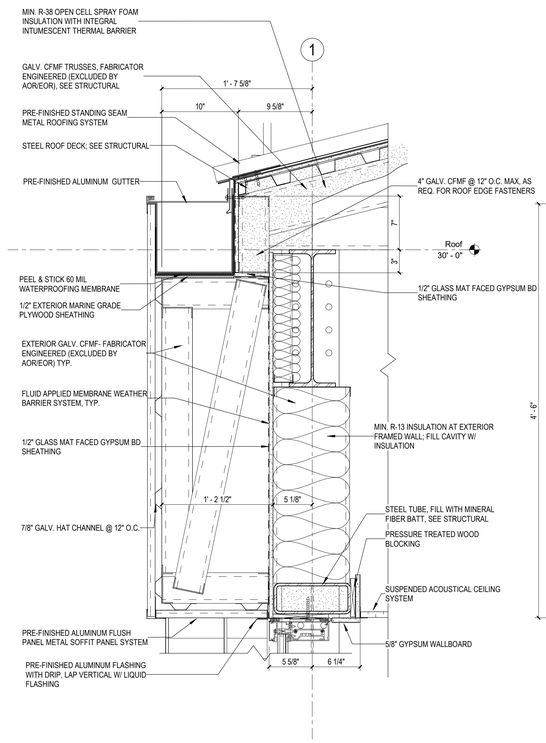
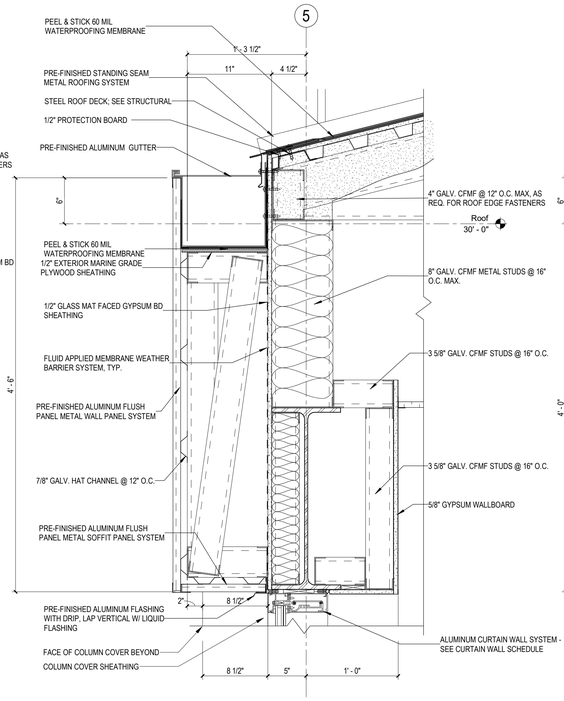
WALL SECTIONS
A-312



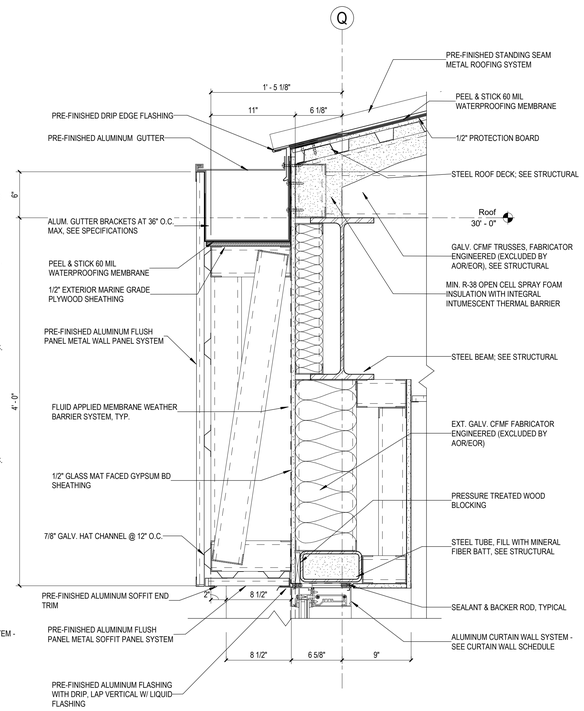
C1 ROOF DETAIL AT ICF, TYP.
1 1/2" = 1'-0"



C2 ROOF DETAIL AT STAIRWELL
1 1/2" = 1'-0"

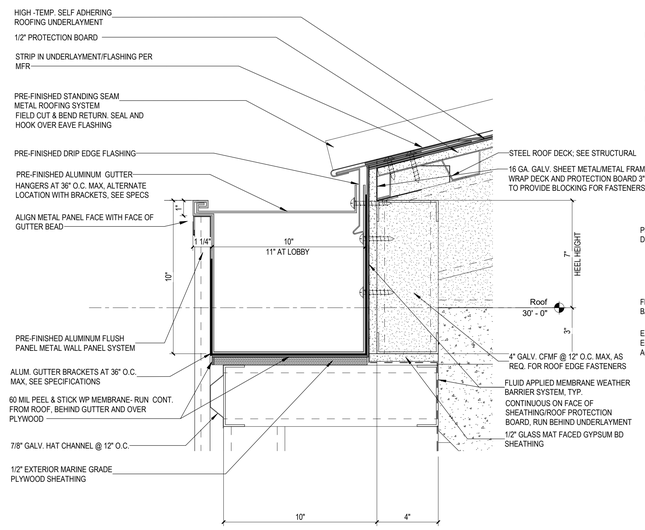


C3 ROOF DETAIL AT LOBBY, NORTH-SOUTH
1 1/2" = 1'-0"

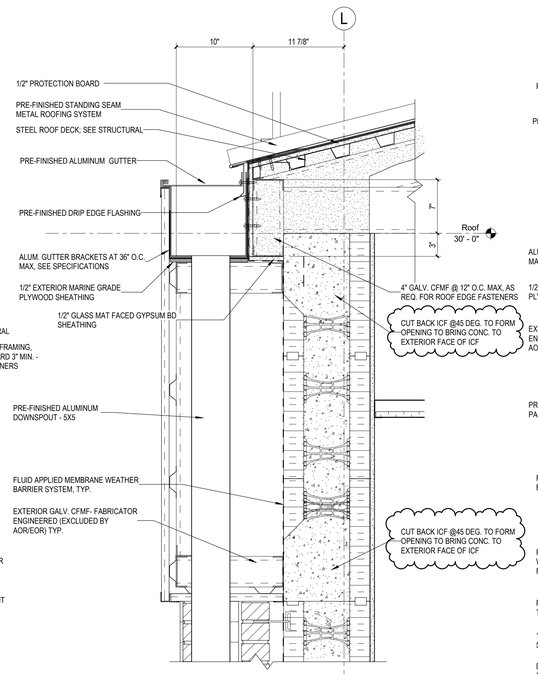


C4 ROOF DETAIL AT LOBBY, EAST-WEST
1 1/2" = 1'-0"

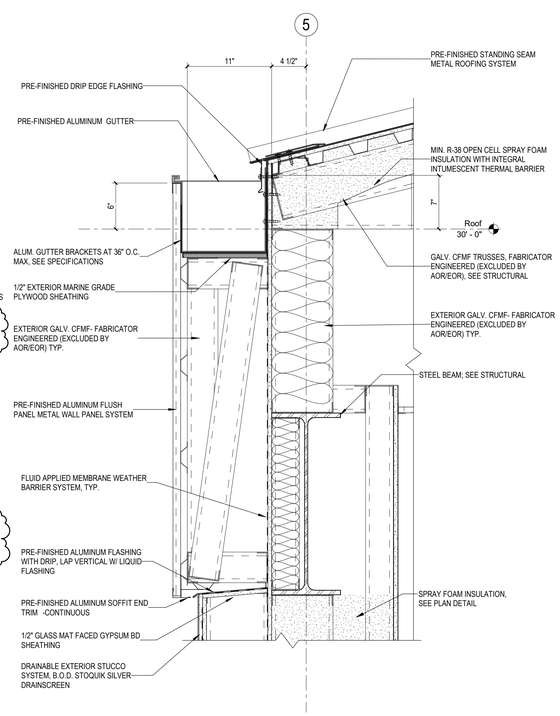
NOTE: ROOFING SHALL BE INSTALLED AND FASTENED PER FLORIDA PRODUCT APPROVAL INSTALLATON REQUIREMENTS AND ROOFING MANUFACTURER'S WARRANTY REQUIREMENTS AND RECOMMENDED DETAILS



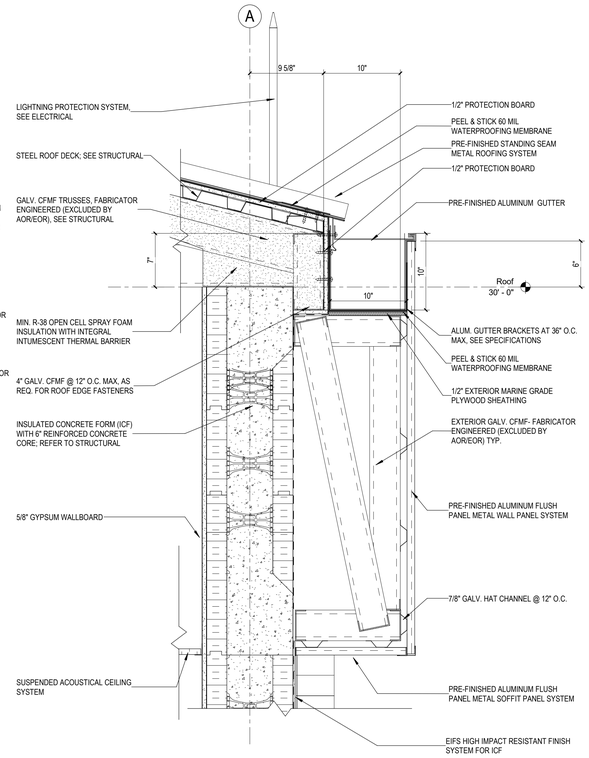
A1 GUTTER DETAIL
3" = 1'-0"



A2 ROOF DETAIL AT DOWNSPOUT
1 1/2" = 1'-0"



A3 ROOF DETAIL AT LOBBY COLUMN
1 1/2" = 1'-0"



A4 TYP. ROOF DETAIL AT EIFS
1 1/2" = 1'-0"

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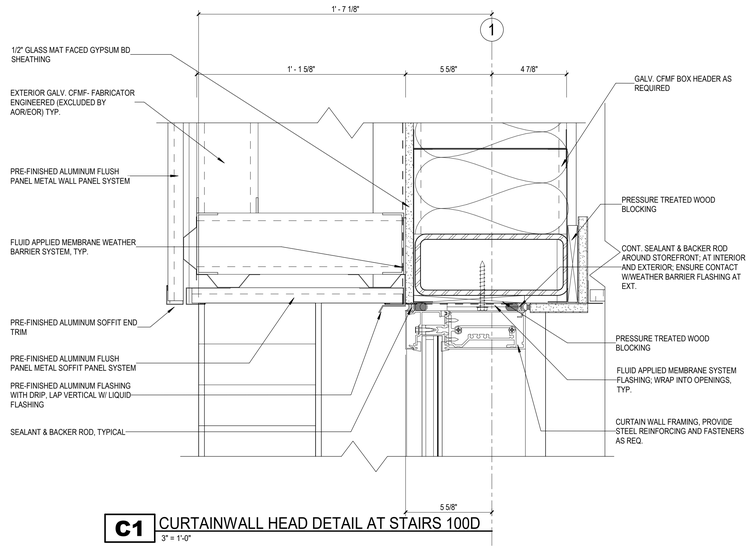
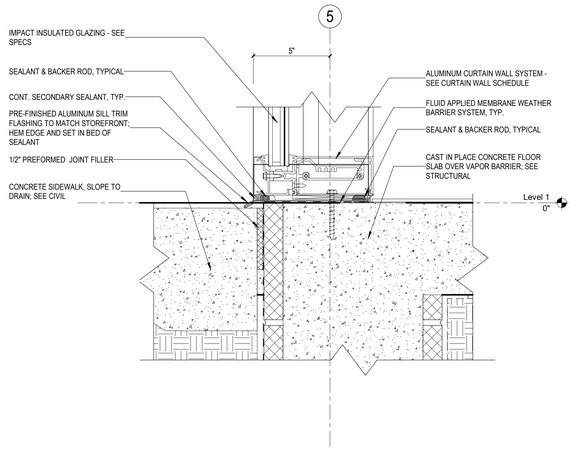
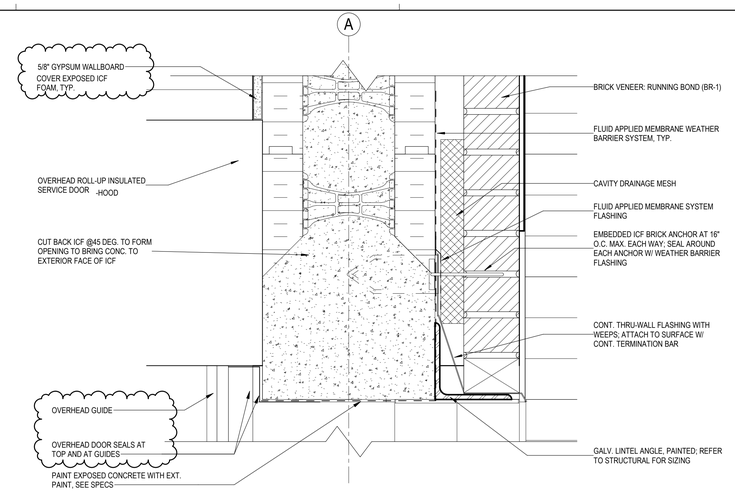
DETAILS
A-320



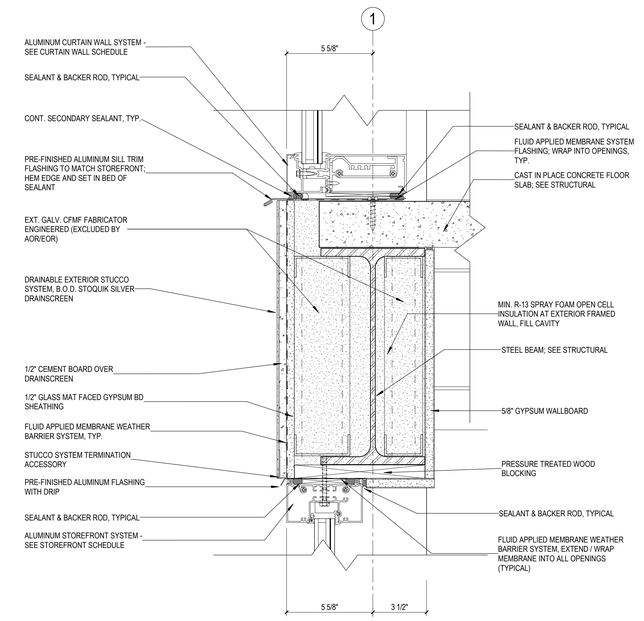
C1 CURTAINWALL HEAD DETAIL AT STAIRS 100D
3" = 1'-0"



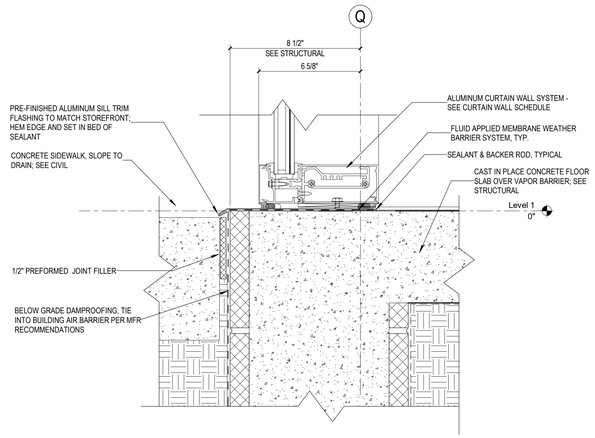
C2 CURTAIN WALL SILL DETAIL CL 5
3" = 1'-0"



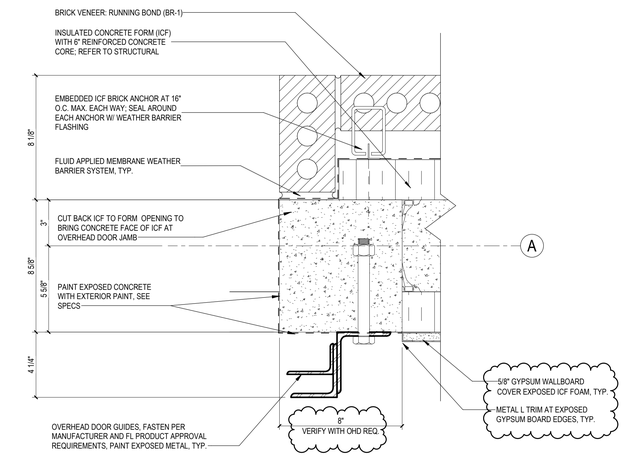
C4 OVERHEAD DOOR HEAD DETAIL
3" = 1'-0"



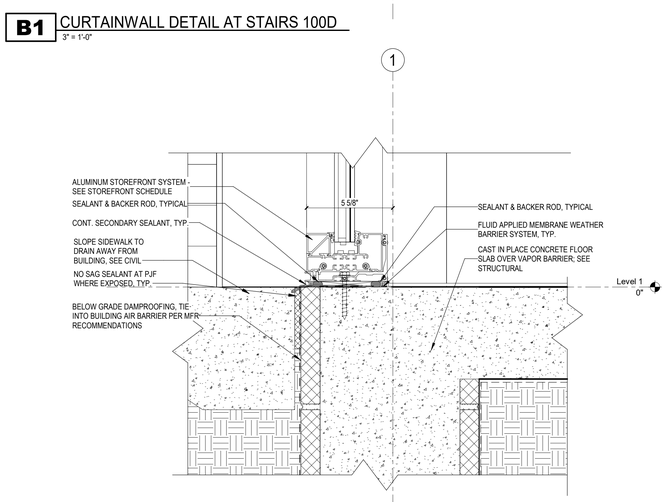
B1 CURTAINWALL DETAIL AT STAIRS 100D
3" = 1'-0"



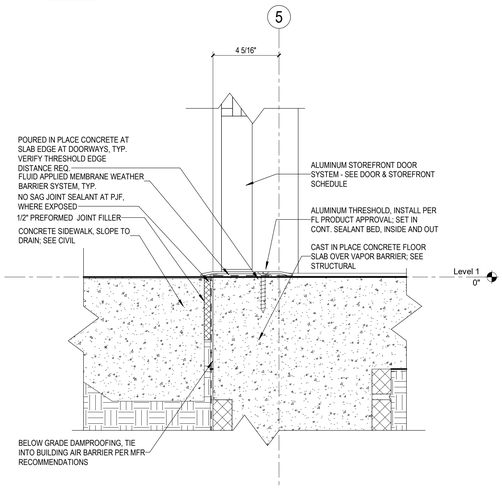
B2 CURTAINWALL SILL DETAIL
3" = 1'-0"



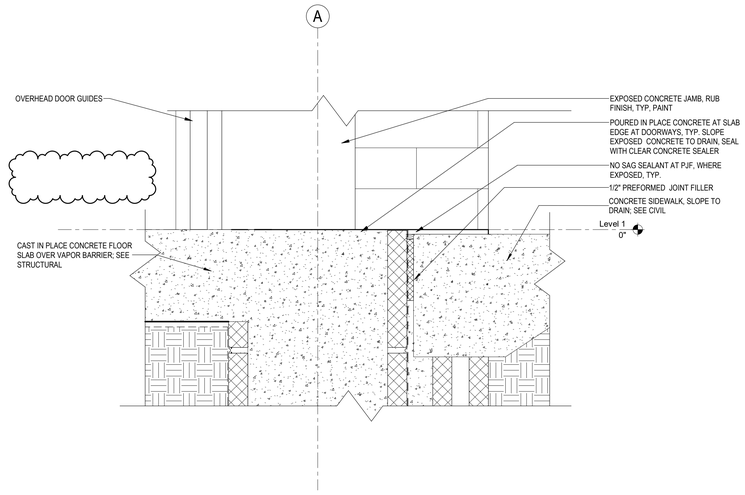
B4 OVERHEAD DOOR JAMB DETAIL
3" = 1'-0"



A1 STOREFRONT SILL DETAIL AT STAIRS 100D
3" = 1'-0"



A2 STOREFRONT DOOR SILL DETAIL AT LOBBY 100
3" = 1'-0"



A4 OVERHEAD DOOR SILL DETAIL
3" = 1'-0"

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BID DOCUMENTS

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

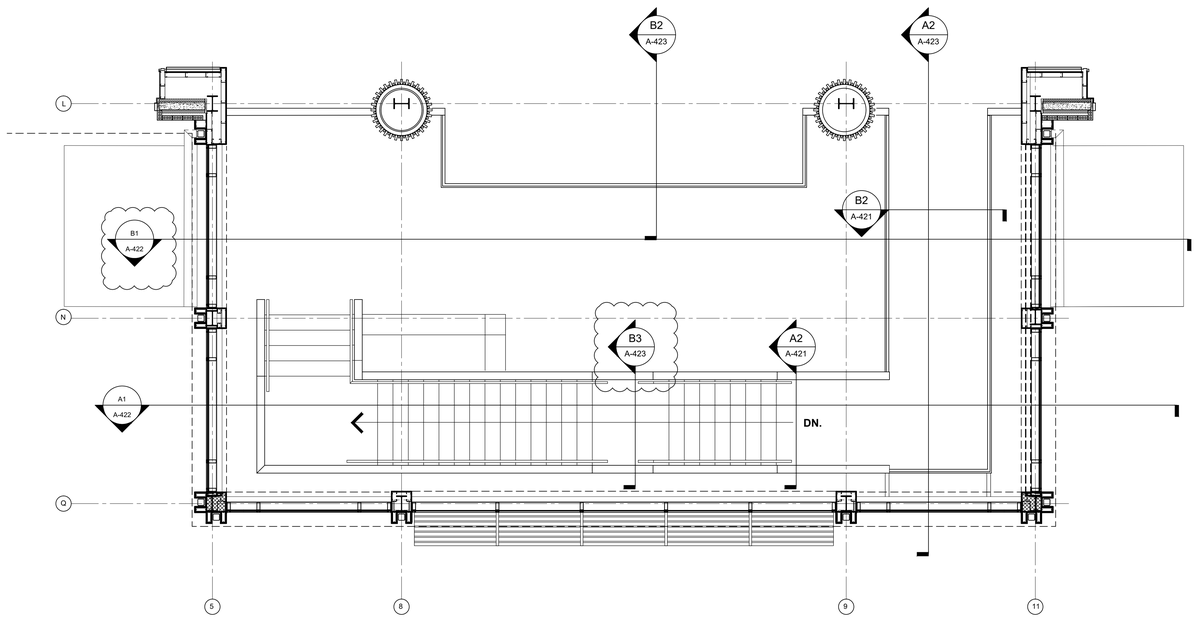
REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

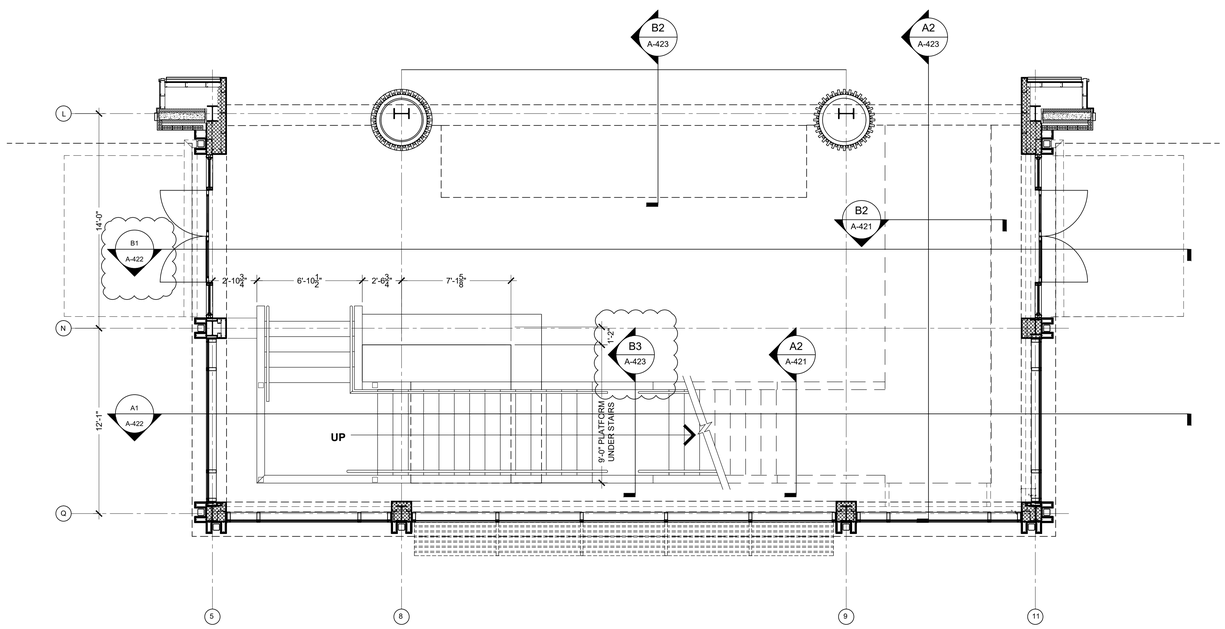
Project Number	**25004**
Dated	08.29.2025

DOOR AND WINDOW DETAILS

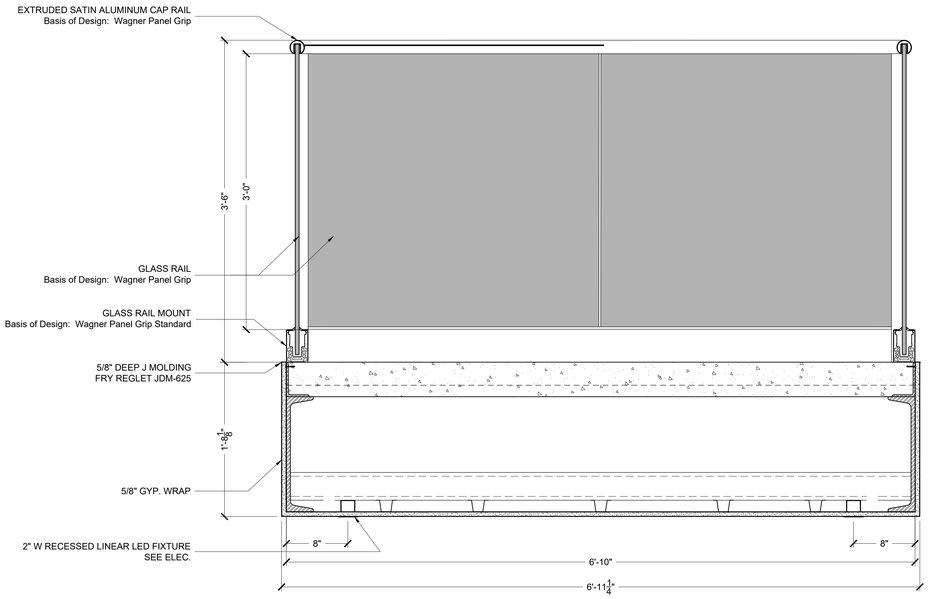
A-341



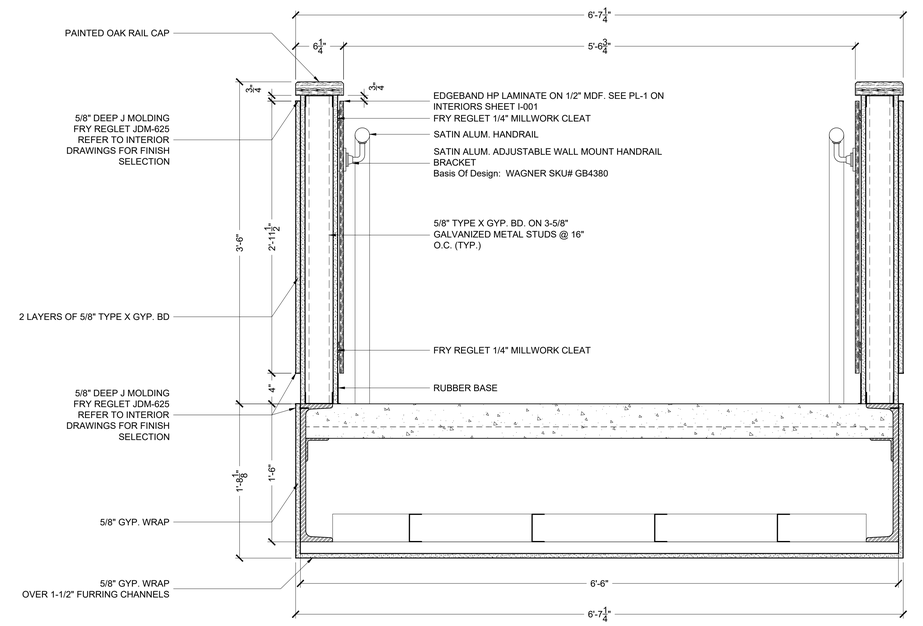
B1 100A MAIN STAIR - SECOND FLOOR PLAN
1/4" = 1'-0"



A1 100A MAIN STAIR - FIRST FLOOR PLAN
1/4" = 1'-0"



B2 100A STAIR SECTION
1-1/2" = 1'-0"



A2 100A STAIR SECTION
1-1/2" = 1'-0"

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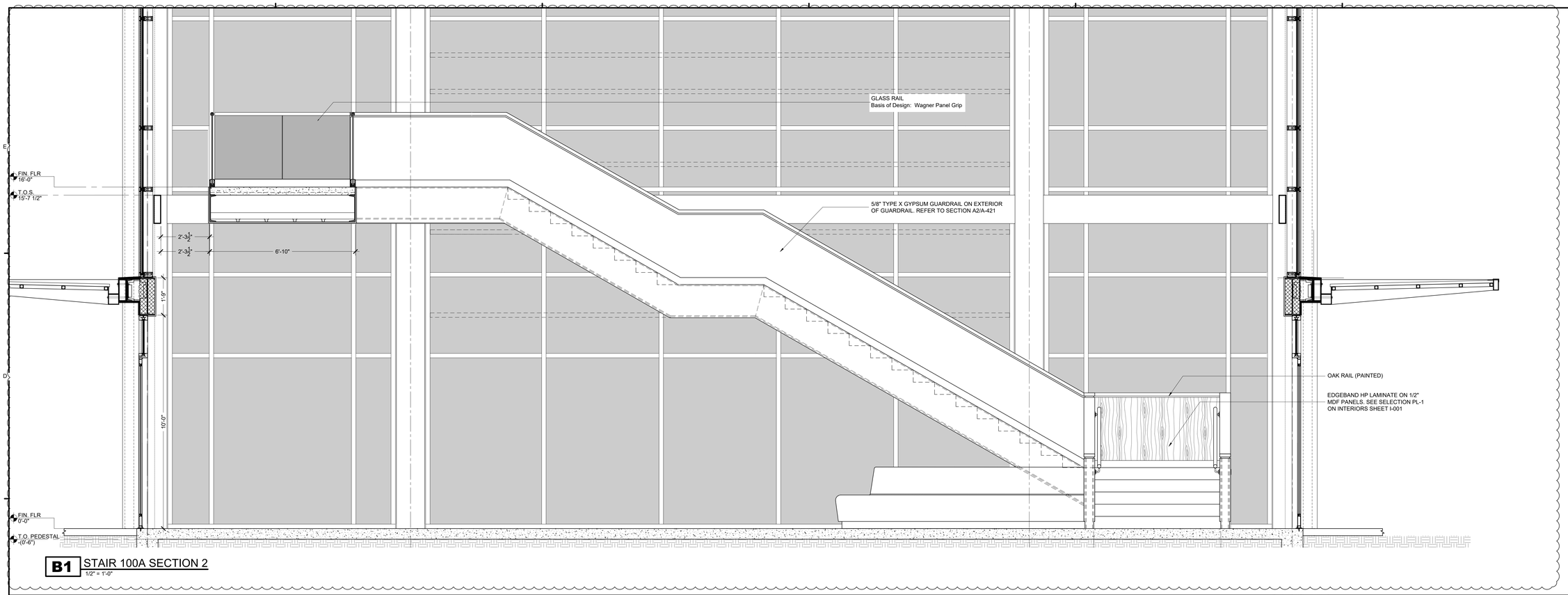
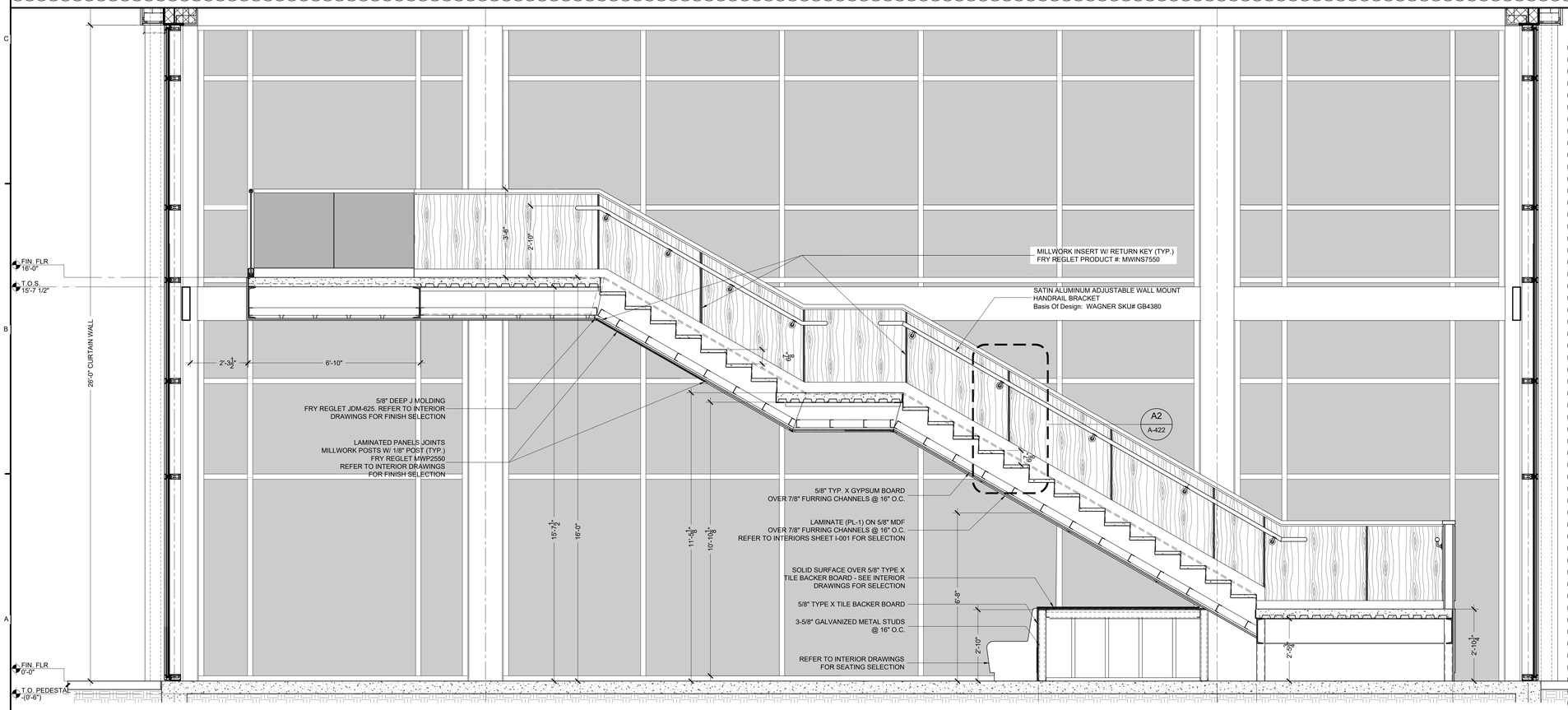
Project Number	25004
Dated	08.29.2025

VERTICAL CIRCULATION - MAIN STAIR

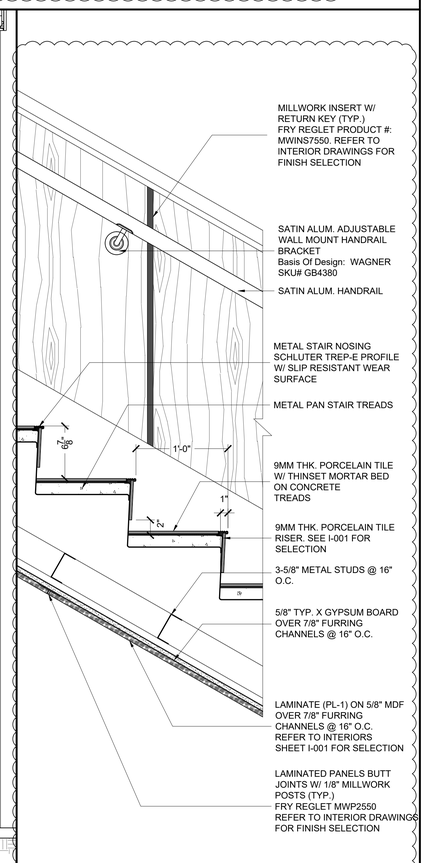
A-421



B1 STAIR 100A SECTION 2
1/2" = 1'-0"



A1 STAIR 100A SECTION 1
1/2" = 1'-0"



A2 ENLARGED STAIR 100A SECTION
1-1/2" = 1'-0"

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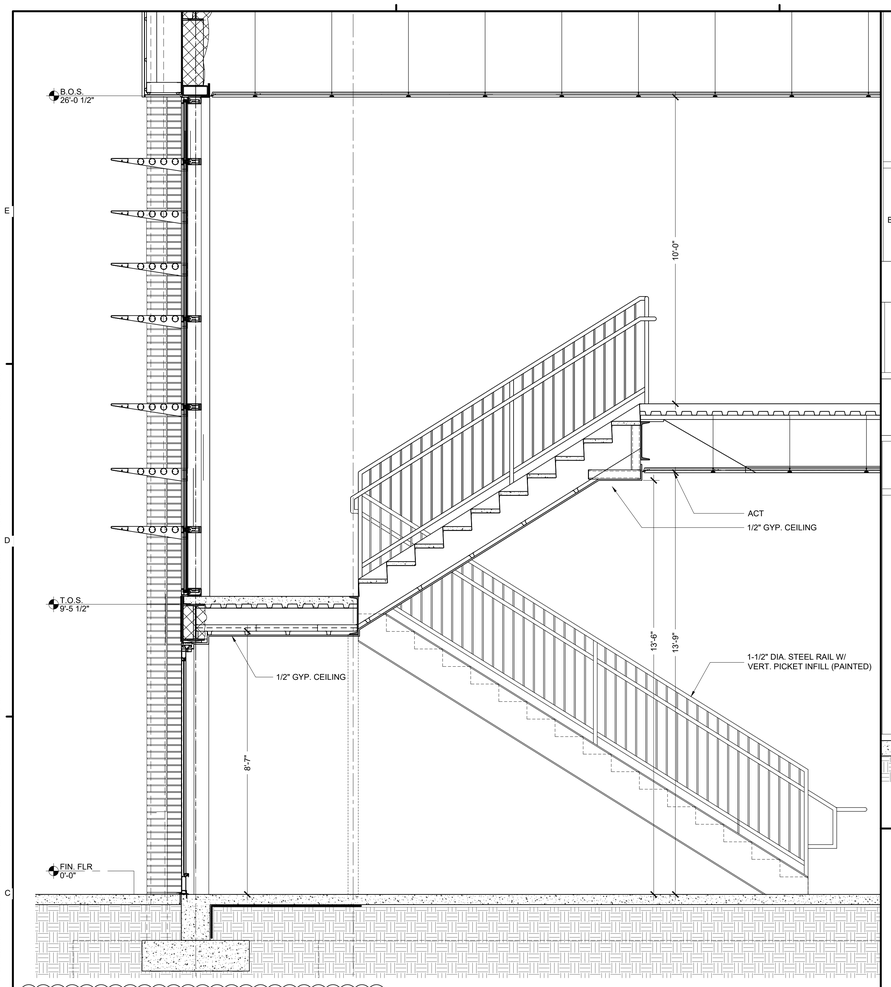
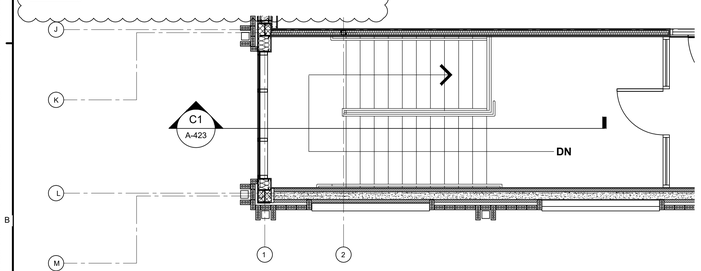
Dated 08.29.2025

VERTICAL CIRCULATION - MAIN STAIR

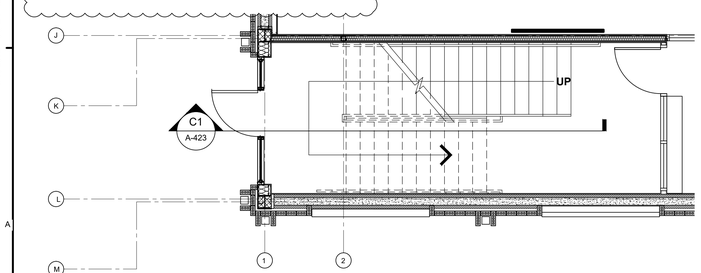
A-422



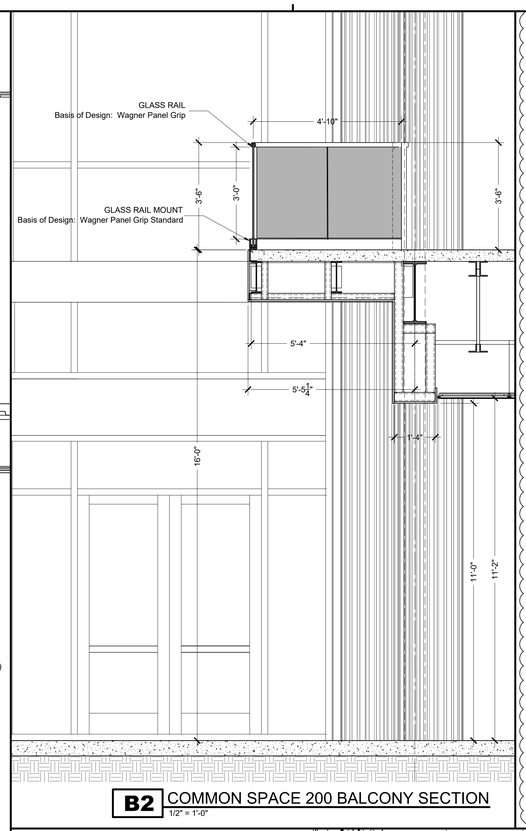
C1 STAIR 100D SECTION
1/2" = 1'-0"



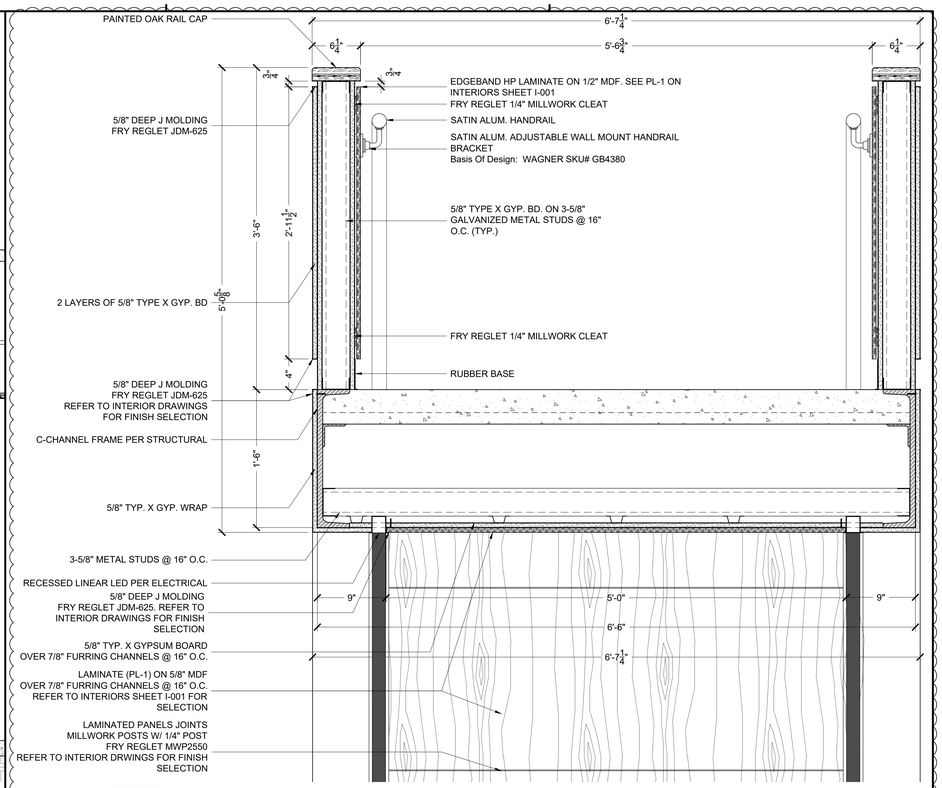
B1 200B STAIRS - SECOND FLOOR PLAN
1/4" = 1'-0"



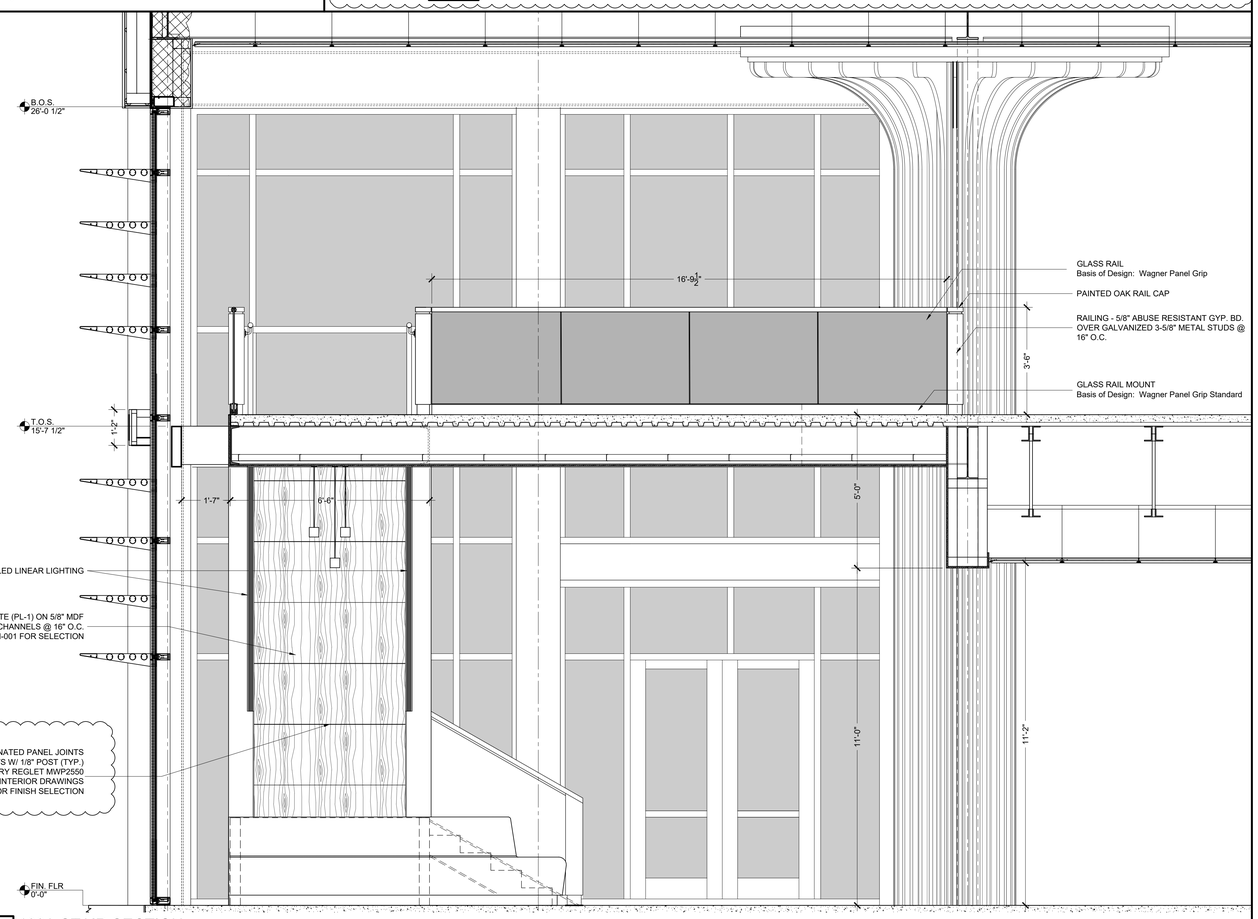
A1 100D STAIRS - FIRST FLOOR PLAN
1/4" = 1'-0"



B2 COMMON SPACE 200 BALCONY SECTION
1/2" = 1'-0"



B3 STAIR 100A SECTION
1-1/2" = 1'-0"



A2 100A STAIR SECTION
1/2" = 1'-0"

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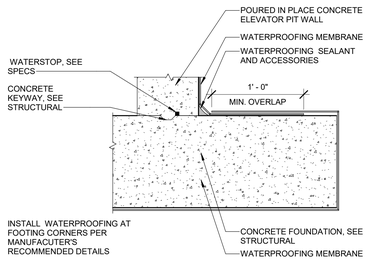
Project Number	**25004**
Dated	08.29.2025

VERTICAL CIRCULATION - STAIR

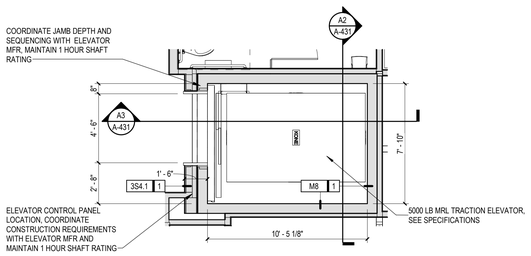
A-423

GENERAL NOTES — ELEVATOR

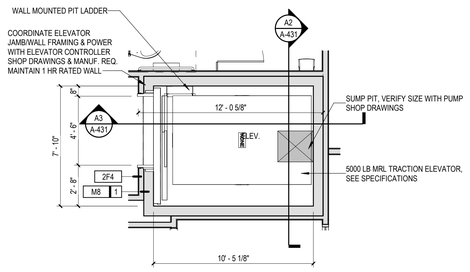
1. VERIFY AND COORDINATE ALL ELEVATOR DIMENSIONS AND MINIMUM CLEAR PRE-CONSTRUCTION WALL OPENING DIMENSIONS WITH ELEVATOR MANUFACTURER REQUIREMENTS, PRIOR TO CONSTRUCTION.
2. CONTROLLER TO BE LOCATED AND INSTALLED PER MANUFACTURERS REQUIREMENTS.
3. WALL NICHE / DOOR OPENING TO CLEAR OPENING, TO BE SELECTED BY CONTRACTOR.
4. SEE SHEET A-311 FOR PARTITION TYPE INFORMATION.



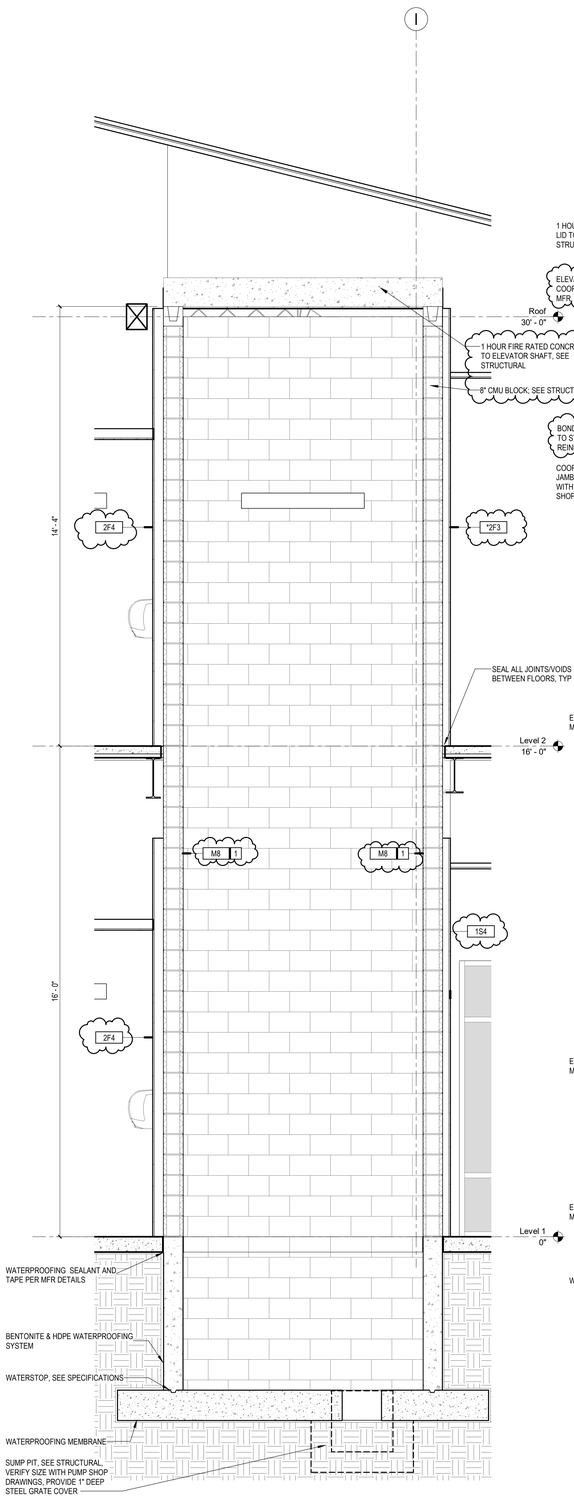
C1 ELEVATOR PIT DETAIL
1 1/2" = 1'-0"



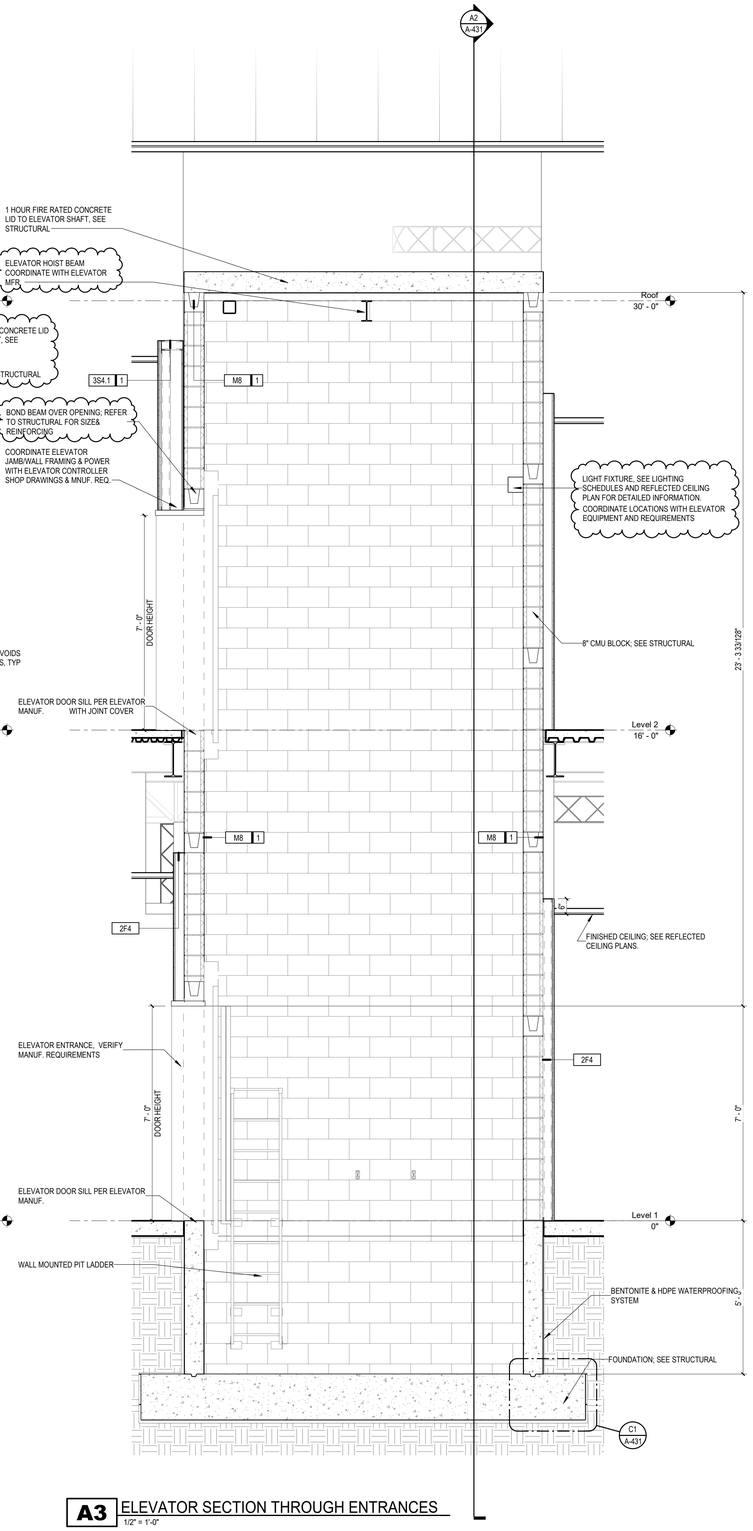
B1 2ND FLOOR PLAN ELEVATOR
1/4" = 1'-0"



A1 1ST FLOOR PLAN ELEVATOR
1/4" = 1'-0"



A2 ELEVATOR SECTION
1/2" = 1'-0"



A3 ELEVATOR SECTION THROUGH ENTRANCES
1/2" = 1'-0"

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DESCRIPTION	DATE
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Project Number **25004**
Dated 08.29.2025

VERTICAL CIRCULATION - ELEVATOR

A-431

GENERAL NOTES DOORS

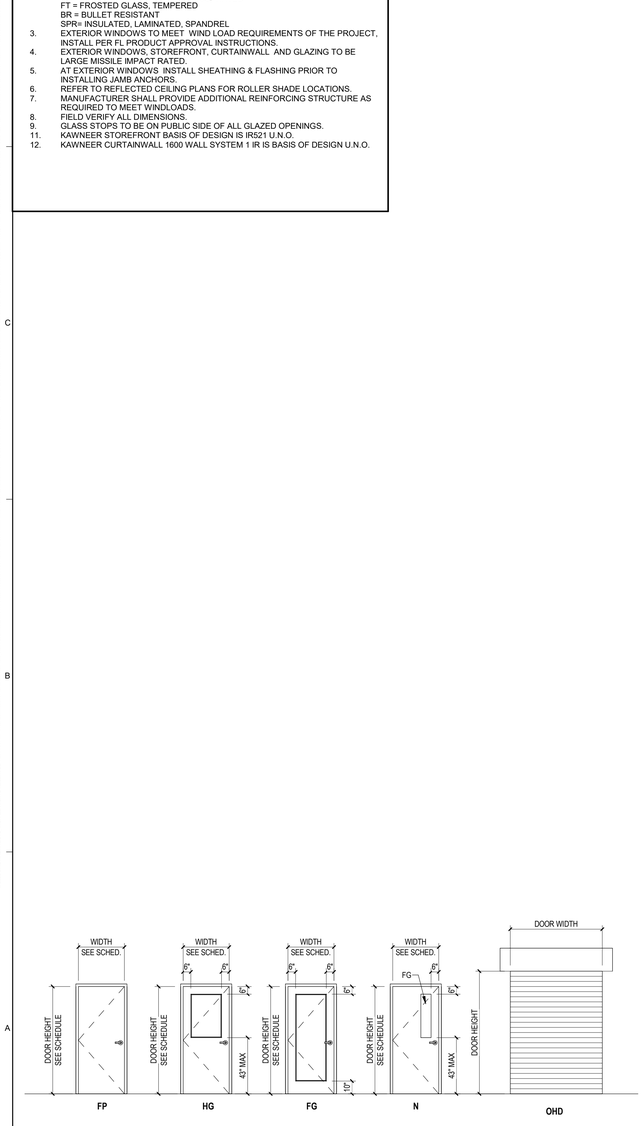
1. MATERIAL ABBREVIATIONS:
   HM = HOLLOW METAL (ALL HOLLOW METAL DOORS AND FRAMES IN EXTERIOR LOCATIONS TO BE GALVANIZED)
   STL = STEEL
   ALUM = ALUMINUM
   SCWD = SOLID CORE WOOD DOOR
   SF = ALUMINUM STOREFRONT
2. GLASS TYPE ABBREVIATIONS; REFER TO SPECIFICATIONS FOR DEFINITIONS:
   TG = TEMPERED GLASS
   FRG = FIRE RATED GLASS
   LG = LAMINATED GLASS
   XGT = INSULATED LAMINATED GLASS, TINTED
   FT = FROSTED GLASS, TEMPERED
   BR= BULLET RESISTANT
3. UNLESS NOTED OTHERWISE ALL DOORS ARE 1-3/4" THICK.
4. SEE DOOR HARDWARE SPECIFICATIONS FOR HARDWARE LOCKSET SCHEDULE.
5. EXTERIOR DOORS AND FRAMES SHALL MEET WIND LOAD REQUIREMENTS OF THE PROJECT.
6. EXTERIOR DOORS, FRAMES, GLASS, SIDELITES, AND LIGHT KITS TO BE LARGE MISSILE IMPACT RATED.
7. GLASS FOR ALL INTERIOR DOORS AND SIDELITES SHALL BE CLEAR TEMPERED, UNLESS NOTED OTHERWISE.
8. AT ALL FIRE RATED DOORS PROVIDE FIRE RATED GLAZING WITH MARKINGS AS REQUIRED.
9. HOLLOW METAL EXTERIOR DOORS AND FRAMES ARE TO BE PAINTED GALVANIZED HOLLOW METAL.
10. GROUT EXTERIOR DOOR FRAMES AT CMU WALLS.
11. ALL HOLLOW METAL FRAMES OCCURRING IN GYP. BOARD PARTITION WALLS ARE TO BE WRAP AROUND FRAMES, REGARDLESS OF WALL THICKNESS.
12. DOORS AND FRAMES AT FIRE RATED WALLS SHALL BE FIRE RATED WHETHER INDICATED OR NOT.
13. AT EXTERIOR DOORS, INSTALL SHEATHING AND FLASHING PRIOR TO INSTALLING JAMB ANCHORS.
14. AT INTERIOR DOORS, REFER TO TYPICAL INTERIOR DETAILS FOR FLOORING TRANSITIONS AT SILLS
15. SEE MECHANICAL DRAWINGS FOR DOOR UNDERCUT LOCATIONS.
16. DOOR DETAILS NOT SPECIFICALLY LISTED ARE MANUFACTURER STANDARD DETAILS.

GENERAL NOTES WINDOWS

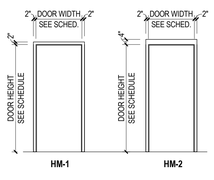
1. MATERIAL ABBREVIATIONS:
   HM = HOLLOW METAL (ALL HOLLOW METAL DOORS AND FRAMES IN EXTERIOR LOCATIONS TO BE GALVANIZED)
   SCWD = SOLID CORE WOOD DOOR
   SF = ALUMINUM STOREFRONT
2. GLASS TYPE ABBREVIATIONS; REFER TO SPECIFICATIONS FOR DEFINITIONS:
   TG = TEMPERED GLASS
   FRG = FIRE RATED GLASS
   LG = LAMINATED GLASS, CLEAR
   LGT= LAMINATED GLASS, TINTED
   XGT = INSULATED LAMINATED GLASS, TINTED
   FT = FROSTED GLASS, TEMPERED
   BR = BULLET RESISTANT
   SPR= INSULATED, LAMINATED, SPANDREL
3. EXTERIOR WINDOWS TO MEET WIND LOAD REQUIREMENTS OF THE PROJECT, INSTALL PER FL PRODUCT APPROVAL INSTRUCTIONS.
4. EXTERIOR WINDOWS, STOREFRONT, CURTAINWALL AND GLAZING TO BE LARGE MISSILE IMPACT RATED.
5. AT EXTERIOR WINDOWS INSTALL SHEATHING & FLASHING PRIOR TO INSTALLING JAMB ANCHORS.
6. REFER TO REFLECTED CEILING PLANS FOR ROLLER SHADE LOCATIONS.
7. MANUFACTURER SHALL PROVIDE ADDITIONAL REINFORCING STRUCTURE AS REQUIRED TO MEET WINDLOADS.
8. FIELD VERIFY ALL DIMENSIONS.
9. GLASS STOPS TO BE ON PUBLIC SIDE OF ALL GLAZED OPENINGS.
11. KAWNEER STOREFRONT BASIS OF DESIGN IS IR521 U.N.O.
12. KAWNEER CURTAINWALL 1600 WALL SYSTEM 1 IR IS BASIS OF DESIGN U.N.O.

DOOR SCHEDULE

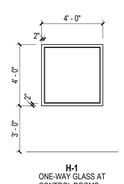
DOOR NO.	LEAFS	SIZE WIDTH x HEIGHT	THICK	DOOR TYPE	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	FRAME DETAILS HEAD	FRAME DETAILS JAMB	FRAME DETAILS SILL	FIRE RATING	IMPACT RESISTANT	HARDWARE SET	COMMENTS
Level 1														
100	2	6' - 0" x 8' - 0"	2"	FG	ALUM	SF-09	ALUM			A2/A-341		YES	42	
100A	2	6' - 0" x 8' - 0"	2"	FG	ALUM	SF-09	ALUM			A2/A-341		YES	1	
100B		4' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		27	
100C		3' - 0" x 7' - 10"	2"	FG	ALUM	SF-08	ALUM	D3/A-340	B3/A-340 SIM.	A2/A-341 SIM.		YES	5	
100D	2	7' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		25	
100E		3' - 0" x 7' - 0"	2"	FG	ALUM	iFR-01	ALUM				1 HR		26	
100F		3' - 0" x 8' - 0"	2"	FG	ALUM	SF-10	ALUM			A2/A-341 SIM.		YES	2	
101	2	7' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		25	
102		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-01	ALUM						16	
102A		3' - 0" x 8' - 0"	2"	FG	ALUM	SF-05	ALUM	C1/A-340 SIM.	B3/A-340 SIM.	A2/A-341 SIM.		YES	2	
102B		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-05	ALUM						17	
103		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
104		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
105		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
106		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
107		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						30	
108		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-04	ALUM						19	
108A		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-04	ALUM						20	
109		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						13	
109A		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						31	
110		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						36	
111		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						12	
112		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
113		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
114		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
115		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						38	
116		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						35	
117		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						38	
118		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM				1 HR		11	
118A		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						11	
118B		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						43	
119		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-07	ALUM						17	
120		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-06	ALUM						17	
121		4' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						6	
121A		4' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						7	
121B		3' - 0" x 7' - 8"	1 3/4"	FP	HM	HM-2	HM	C4/A-340	B4/A-340	A4/A-340		YES	4	
122	2	6' - 0" x 7' - 8"	1 3/4"	FP	HM	HM-2	HM	C4/A-340	B4/A-340	A4/A-340		YES	3	
123		4' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		10	
124		4' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						9	
124A		8' - 0" x 8' - 2 1/4"	3"	OHD	STL	- - -	STL	C4/A-341	B4/A-341	A4/A-341			39	
124B	2	6' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		10A	
125	2	6' - 0" x 7' - 8"	1 3/4"	FP	HM	HM-2	HM	C4/A-340	B4/A-340	A4/A-340		YES	3	
127		3' - 0" x 7' - 0"	1 3/4"	FP	HM	HM-1	HM						43	
Level 2														
200		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		33	
200A		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-10	ALUM						17	
200B		3' - 0" x 7' - 0"	2"	FG	ALUM	iFR-02	ALUM				1 HR		41	
200C	2	7' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		32	
201	2	7' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		32	
202		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-01	ALUM						16	
203		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
204		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
205		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
206		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
207		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
208		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
209		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
210		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
211		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
212		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
213		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
214		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
215		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
216		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
217		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
218		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-09	ALUM						23	
220		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						36	
221		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						36	
222		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						12	
223		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						30	
224		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						38	
225		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						34	
226		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						38	
227		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM				1 HR		11	
227A		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						14	
227B		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						43	
228		3' - 0" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM				1 HR		9	
229		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-14	ALUM						16	
229A		3' - 6" x 7' - 0"	1 3/4"	FP	SCWD	HM-1	HM						29	
229B		4' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
229C		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						45	
229D		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						45	
229E		4' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
229F		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-15	ALUM						23	
229G		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-16	ALUM						23	
229H		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
229I		4' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
229I-A		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
229J		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						45	
229K		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						45	
229L		4' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						28	
230		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-13	ALUM						22	
230A		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-03	ALUM						18	
230B		3' - 0" x 7' - 0"	2"	FG	ALUM	iSF-02	ALUM						18	
230C		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						12	
231		4' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						8	
231B		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						15	
231C		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-11	ALUM						24	
231D		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-11	ALUM						24	
231E		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-11	ALUM						24	
231F		4' - 0" x 7' - 0"	2"	FG	ALUM	iSF-11	ALUM						24	
231G		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						44	
231G-A		3' - 0" x 7' - 0"	1 3/4"	N	SCWD	HM-1	HM						40	



DOOR TYPES
1/4" = 1'-0"



HM FRAME TYPES
1/4" = 1'-0"



HM FRAME TYPES - WINDOWS
1/4" = 1'-0"

FIRE PROTECTION RATED GLAZING SCHEDULE

GLAZING IN DOORS, SIDE LIGHTS & TRANSOMS

DOOR FIRE RATING	VISION LITE GLASS TYPE	MARKINGS
20 MIN.	FPGL-1 (FPGL-2 at sidelites and transoms)	D-20 OR D-W-20 (D-H-20,D-H-W-20 at sidelites & transoms)
45 MIN.	FPGL-3	D-H-45 OR D-H-W-45
60 MIN.	FPGL-4	D-H-60 OR D-H-W-60
90 MIN.	FPGL-5	D-H-90 OR D-H-W-90

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BID DOCUMENTS

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

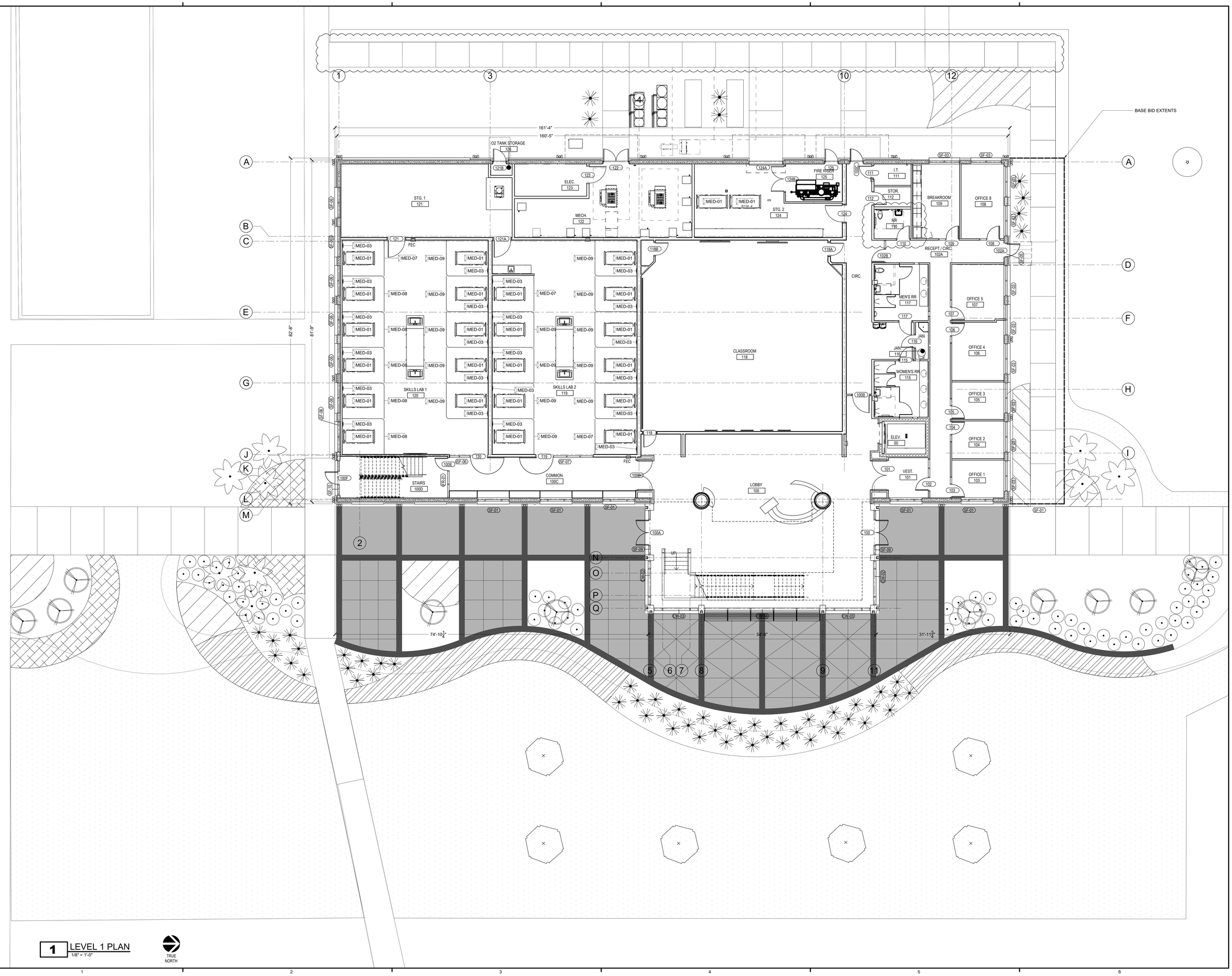
REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

Project Number **25004**
Dated 08.29.2025

DOOR AND FRAME SCHEDULE

A-601



1 LEVEL 1 PLAN
1/8" = 1'-0"

TRUE NORTH

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

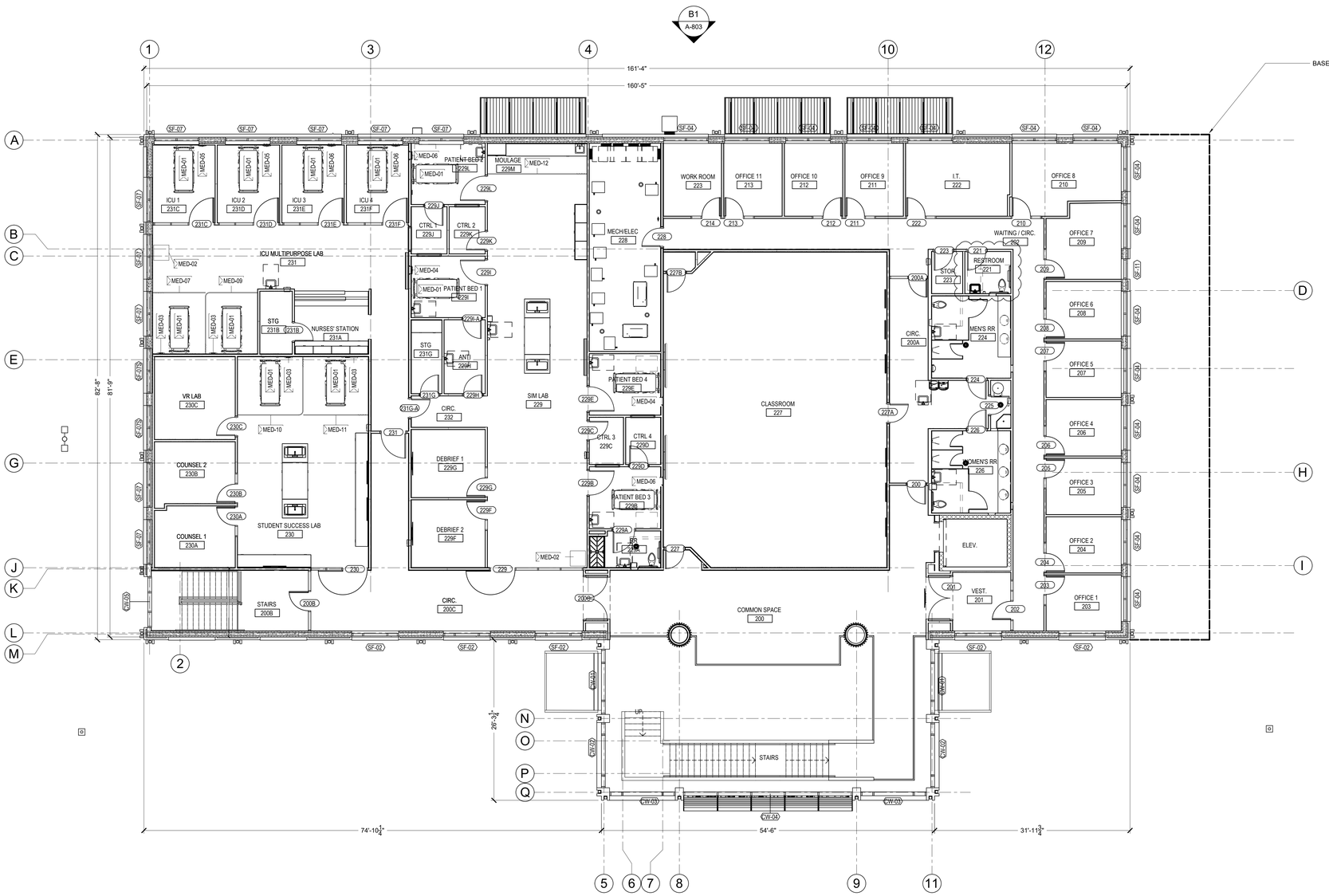
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number	25004
Dated	08.29.2025

ALTERNATE # 4
LEVEL 1 PLAN

A-801



1 LEVEL 2 PLAN
1/8" = 1'-0"

TRUE NORTH

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number	25004
Dated	08.29.2025

ALTERNATE #4
LEVEL 2 PLAN

A-802

FINISH LEGEND

PAINT
PAINT COLORS

P-1 (GENERAL)
MANUF: SHERWIN WILLIAMS
COLOR NAME: DRIFT OF MIST
COLOR #: SW 9166

P-2 (ACCENT)
MANUF: SHERWIN WILLIAMS
COLOR NAME: STARGAZER
COLOR #: SW 9635

P-3 (ACCENT)
MANUF: SHERWIN WILLIAMS
COLOR NAME: SILVERMIST
COLOR #: SW 7621

P-4 (DOOR FRAMES)
MANUF: SHERWIN WILLIAMS
COLOR NAME: FAWN BRINDLE
COLOR #: SW 7640

P-5
MANUF: SHERWIN WILLIAMS
COLOR NAME: PURE WHITE
COLOR #: SW 7005

PAINT FINISHES

A
MANUF: SHERWIN WILLIAMS
PRODUCT: PRO MAR 200 LOW VOC, LATEX EGG-SHELL FINISH

B (DOOR FRAMES)
MANUF: SHERWIN WILLIAMS
PRODUCT: PRO INDUSTRIAL DTM ACRYLIC, SEMI-GLOSS

C
MANUF: SHERWIN WILLIAMS
PRODUCT: PRO MAR 200 LATEX SEMI-GLOSS

D (CEILINGS)
MANUF: SHERWIN WILLIAMS
PRODUCT: PRO MAR 200 LATEX FLAT FINISH

CARPET

C-1
MANUF: INTERFACE
COLLECTION: BEAUMONT RANGE
PATTERN: EBEN
COLOR: 107539 GREIGE
SIZE: 25 CM X 1 M
INSTALL: ASHLAR
CONTACT: SHELBY EANES, 470.698.4508, SHELBY.EANES@INTERFACE.COM

LUXURY VINYL TILE

LVT-1
MANUF: INTERFACE
COLLECTION: EARTHEN FORMS
PATTERN: ON GRAIN
COLOR: A03308 SMOKEY ASH
SIZE: 25 CM X 1 M
THICKNESS: 5 MM
INSTALL: ASHLAR
NOTE: USE MANUFACTURER'S ADHESIVE AS RECOMMENDED FOR SUBSTRATE CONDITIONS.
CONTACT: SHELBY EANES, 470.698.4508, SHELBY.EANES@INTERFACE.COM

LVT-2
MANUF: INTERFACE
COLLECTION: BRUSHED LINES
PATTERN: BRUSHED LINES
COLOR: A01608 SANDALWOOD
SIZE: 25 CM X 1 M
THICKNESS: 5 MM
INSTALL: ASHLAR
NOTE: USE MANUFACTURER'S ADHESIVE AS RECOMMENDED FOR SUBSTRATE CONDITIONS.
CONTACT: SHELBY EANES, 470.698.4508, SHELBY.EANES@INTERFACE.COM

LVT-3
MANUF: INTERFACE
COLLECTION: BRUSHED LINES
PATTERN: BRUSHED LINES
COLOR: CELADON
SIZE: 25 CM X 1 M
THICKNESS: 5 MM
INSTALL: ASHLAR
NOTE: USE MANUFACTURER'S ADHESIVE AS RECOMMENDED FOR SUBSTRATE CONDITIONS.
CONTACT: SHELBY EANES, 470.698.4508, SHELBY.EANES@INTERFACE.COM

LVT-4
MANUF: INTERFACE
COLLECTION: SCORPIO
PATTERN: STARGAZING
COLOR: A01713 PEBBLE
SIZE: 50 CM X 50 CM
THICKNESS: 4.5 MM
INSTALL: MONOLITHIC
NOTE: USE MANUFACTURER'S ADHESIVE AS RECOMMENDED FOR SUBSTRATE CONDITIONS.
CONTACT: SHELBY EANES, 470.698.4508, SHELBY.EANES@INTERFACE.COM

LVT-5 (RESTROOMS)
MANUF: MANNINGTON
STYLE: SPACIA
PATTERN: STONE
COLOR: GIBSON SSSS2603
SIZE: 18" X 18"
THICKNESS: 20 MIL.. 4 MM THICK
INSTALL: MONOLITHIC
NOTE: USE MANUFACTURER'S ADHESIVE AS RECOMMENDED FOR SUBSTRATE CONDITIONS. NO MICRO BEVELED EDGES.
CONTACT: SCOTT PRESSMAN, SCOTT.PRESSMAN@MANNINGTON.COM

SHEET VINYL

SV-1
MANUF: MANNINGTON
COLLECTION: BIOSPEC ARMOR
COLOR: LUNAR ROCK OR118
SIZE: 6'6"
THICKNESS: 0.080"
INSTALL: RANDOM REPEAR, REVERSE SHEET FOR SEAMING
CONTACT: SCOTT PRESSMAN, SCOTT.PRESSMAN@MANNINGTON.COM

TILE

T-1
MANUF: NASCO STONE + TILE
COLLECTION: FORAGE PORCELAIN TILE
COLOR: PERLA
FINISH: MATTE
SIZE: 24" X 24"
THICKNESS: 3/8"
GROUT: UTILIZE MANUFACTURER'S RECOMMENDED EPOXY GROUT JOINT SIZE PER TCNA GUIDELINES.
INSTALL: RANDOM RUNNING BOND
CONTACT: ERICA GALVIS, ERICA@NASCOSTONETILE.COM

T-2
MANUF: TILEBAR
COLLECTION: RIZO
COLOR: TAUPE
FINISH: MATTE
SIZE: 24" X 24"
THICKNESS: 9 MM
GROUT: UTILIZE MANUFACTURER'S RECOMMENDED EPOXY GROUT JOINT SIZE PER TCNA GUIDELINES.
INSTALL: MONOLITHIC
CONTACT: EMILY HATCH, 678.614.3473, EHATCH@TILEBAR.COM

SEALED CONCRETE

SC-1
FINISHED AND CLEAR SEALED CONCRETE FLOORING, LATICRETE DRESS & SEAL WB 30. MATTE FINISH.

BASE

B-1
MANUF: TARKETT / JOHNSONITE
PRODUCT: MILLWORK PROFILE - EXHIBIT
COLOR: 29 MOON ROCK
SIZE: 4.25" H
CONTACT: NICOLETTE PIZZOFERRATO, 470.825.5494, NICOLETTE.PIZZOFERRATO@TARKETT.COM

B-2
MANUF: TARKETT / JOHNSONITE
PRODUCT: COVE BASE
COLOR: 29 MOON ROCK
SIZE: 4" H
CONTACT: NICOLETTE PIZZOFERRATO, 470.825.5494, NICOLETTE.PIZZOFERRATO@TARKETT.COM

B-3
PRODUCT: (FLASH COVE) 6" HIGH SV-1 BASE, SELF-FLASH COVED
INSTALL: ANODIZED ALUMINUM TRIM CAP OR OVERLAP INSTALLATION. PROVIDE CORNER FILLER STRIP (REFERENCE SPECIFIC SCHEDULED SHEET VINYL FLOORING SPECIFICATION FOR MATERIAL TO BE USED). UTILIZE HEAT WELDED INSIDE AND OUTSIDE CORNER DETAIL.

WALL TILE

WT-1
MANUF: DALTILE
COLLECTION: VERTUO
COLOR: MAESTRO VR10
FINISH: MATTE
SIZE: 12" X 24"
THICKNESS: 5/16"
GROUT: UTILIZE MANUFACTURER'S RECOMMENDED EPOXY GROUT JOINT SIZE PER TCNA GUIDELINES.
INSTALL: 1/2 OFFSET RUNNING BOND
CONTACT: KATIE BERRY, 205.616.4405, KATIE.BERRY@DALTILE.COM

WALLCOVERING

WC-1
MANUF: WOLF GORDON RAMPART
PATTERN: SHIFT
COLOR: CREAM
SIZE: 52" W, 35 OZ/LY, REVERSE HAND, RANDOM MATCH
CONTACT: KAELIN STROSCHEIN, 770.212.0629, Kaelin.stroschein@Wolfgordon.com

WC-2
MANUF: KOROSEAL
PRODUCT: TYPE II DIGITAL WALLCOVERING
STYLE: CUSTOM IMAGE
COLOR: CUSTOM IMAGE
WIDTH: 72"
INSTALL: INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
CONTACT: MAUREEN GUNDAKER, 404.432.1016

SOLID SURFACE

SS-1
MANUF: CAMBRIA
PRODUCT: QUARTZ
PATTERN: IRONSBRIDGE
THICKNESS: 2 CM
EDGE: EASED
INSTALL: ENSURE CONTINUOUS HORIZONTAL VEINING ON ALL SIDES OF INSTALLATION.
CONTACT: BRANDON FAVIA, BRANDON.FAVIA@GO.CAMBRIAUSA.COM

SS-2
MANUF: LX HAUSYS
PRODUCT: HI MACS
COLOR #: MOONDUST G160
THICKNESS: 1/2"
EDGE: EASED
CONTACT: ERIK MOSCA, 404.661.3658, EMOSCA@LXHAUSYS.COM

SS-3
MANUF: LX HAUSYS
PRODUCT: HI MACS
COLOR #: ALPINE WHITE
THICKNESS: 1/2"
EDGE: EASED
CONTACT: ERIK MOSCA, 404.661.3658, EMOSCA@LXHAUSYS.COM

SS-4 (TREE BASE)
MANUF: WILSONART
PRODUCT: SOLID SURFACE
COLOR: METRO CONCRETE, 9249SS
THICKNESS: 1/2"
SIZE: 30"X144"
CONTACT: JOE VELA, 704.989.3819, VELAJ@WILSONART.COM

PLASTIC LAMINATE

PL-1
MANUF: WILSONART
COLOR: FRENCH PEAR
COLOR #: 8220-38
FINISH: FINE VELVET TEXTURE
INSTALL: VERTICAL INSTALLATION
NOTE: VERTICAL INSTALLATION
SIZE: 48" X 144"
CONTACT: SAM SPUNG, SAMANTHA.SPUNG@WILSONART.COM

PL-2
MANUF: WILSONART
COLOR: MANGALORE MANGO
COLOR #: 7984-38
FINISH: FINE VELVET TEXTURE
INSTALL: VERTICAL INSTALLATION
SIZE: 49.6" X 51.18"
CONTACT: SAM SPUNG, SAMANTHA.SPUNG@WILSONART.COM

PL-3
MANUF: PIONITE
COLOR: LOVE LETTERS
COLOR #: AW300
FINISH: TEXTURED/SUEDE
NOTE: VERTICAL INSTALLATION
SIZE: 48" X 96"
CONTACT: BRYCE WALKER, 678.687.7201, BRYCE_WALKER@PANOLAM.COM

DOORS/STAIN

WD-1
MANUF: VT INDUSTRIES
SPECIES: WHITE BIRCH, PLAIN SLICED, FLAT CUT (FC)
COLOR: RI18, RIVERSTONE
CONTACT: JACOB FREESE, 712.369.8902, JFREESE@VTINDUSTRIES.COM

CORNER GUARDS

CG-1
MANUF: C/S ACROVYN
PRODUCT: SURFACE-MOUNTED CORNER GUARD, #SSM-20N
COLOR: #262 DRIFTWOOD
RETURN: 2" RETURN
INSTALL: FULL HEIGHT
CONTACT: PAM REGISTER, PREGISTER@C-SGROUP.COM, 404.922.5653

CEILINGS

ACT-1
MANUF: ARMSTRONG
PRODUCT: #1772 DUNE
COLOR: WHITE
SIZE: 24" X 24" X 5/8"
EDGE: SQUARE EDGE LAY-IN
GRID: ARMSTRONG 15/16" PRELUDE XL STEEL EXPOSED TEE GRID
CONTACT: JODY TEETER, JTTEETER@ARMSTRONGCEILINGS.COM

ACT-2
MANUF: ARMSTRONG
PRODUCT: OPTIMA HIGH NRC
COLOR: WHITE
SIZE: 24" X 24" X 5/8"
EDGE: SQUARE EDGE LAY-IN
GRID: ARMSTRONG 15/16" PRELUDE XL STEEL EXPOSED TEE GRID
CONTACT: JODY TEETER, JTTEETER@ARMSTRONGCEILINGS.COM

SPECIALTY FINISHES

SF-2 (STONE SLAB)
MANUF: INFINITY
PRODUCT: ICONIC CIPOLLINO MB25
COLOR: GREEN
FINISH: POLISHED
SIZE: 63.5" X 127.5"
NOTE: CUT TO DIMENSIONS SHOWN ON ELEVATION 7/I-800
THICKNESS: 6 MM RECTIFIED
CONTACT: INFO@INFINITYSURFACES.IT

SF-3 (ACOUSTIC PANEL)
MANUF: SOELBERG
PRODUCT: CORSA - ACOUSTIC PANEL
COLOR: CARIBBEAN PRINT/GRADIENT, COLOR SEAFOAM
SIZE: 42" x 108"
THICKNESS: +/- 1/2"
INSTALL: INSTALL WITH DARKER GRADIENT AT TOP TO LIGHTER GRADIENT AT BOTTOM.
NOTE: CONTRACTOR TO SEND DIGITAL MOCK-UP PRIOR TO ORDERING.
CONTACT: MELISSA MONK, 404.276.0494, MELISSA@MAPCONTRACT.COM

SF-4 (ACOUSTIC TILE)
MANUF: CARNEGIE
PRODUCT: XOREL ACOUSTIC TILES - RIPPLE
FINISH: QUIET CORE SUBSRTATE - NRC 0.70
SIZE: 1" THICK
NOTE: SEE ELEVATION 2/I-801 FOR INSTALL INFORMATION. USE MANUFACTUER'S RECOMMENDED ADHESIVE FOR PROPER INSTALLATION.
CONTACT: BRYNA WIGGINS, 404.660.5945, Brynawiggins@witcontract.com

A. FLASHBACK, 6603 38
B. FLASHBACK, 6615, 51

SF-5 (STAIR TREAD/RISER)
MANUF: AMERICAN BILTRITE
PRODUCT: ABPURE HAMMERED STAIR TREAD WITH RISER - OPM
COLOR: OPM-32 APPALACHAIN TRAIL
NOTE: STAIR TREAD/RISER
CONTACT: CHRIS LEE, 864.616.5049, clee@american-biltrite.com

SF-6 (WOOD PANEL)
MANUF: STACKED WOOD
PRODUCT: 3313 POLYGON, 3D WOOD PANEL
COLOR: STAIN TO MATCH WD-1.
SIZE: 14" X 48.5"
FIRE TREATMENT: CLASS B / II
THICKNESS: .26"
CONTACT: info@biboyd.com <info@biboyd.com>

SF-7 (PLAM PANEL)
MANUF: MARLITE
PRODUCT: SIEVA LARGE PANEL WALL SYSTEM
SIZE: REFER TO ELEVATION FOR EXTENTS & FINISH DETAILS. CONFIRM ALL INSTALLATION DETAILS DURING SHOP DRAWING REVIEW PROCESS.
COLOR: PL-1, FINISH FOR REVEALS - CLEAR SATIN ANODIZED
CONTACT: ANITA CRAIG, 330.260.7621, ACRAIG@MARLITE.COM

SF-8 (FILM)
MANUF: SOLYX WINDOW FILM
PRODUCT: SX-3131-CTS
PATTERN: ECO DUSTED
NOTE: CUT TO SIZE, SEE WALL FINISH PLAN FOR INSTALLATION LOCATION. ALL WINDOW FILM ON INTERIOR GLAZING TO GO UP TO 6' MINIMUM - SEE TYPICAL ELEVATION.
CONTACT: JAMIE HAMILTON, 404.360.7866, Jamie@nationalglazingsolutions.com

SF-9 (METAL)
MANUF: FORMS+SURFACES
PRODUCT: FUSED GRAPHITE METAL
FINISH: SANDSTONE FINISH
SIZE: 48" X 120"
NOTE: REFER TO INTERIOR ELEVATIONS SHEET I-800 FOR APPLICATION LOCATION.
CONTACT: JENNIFER LOUX, 404.323.8265, Jennifer.loux@forms-surfaces.com

SF-10 (DIMENSIONAL PANEL)
MANUF: MARIO ROMANO
PRODUCT: CORIAN DIMENSIONAL PANEL
PATTERN: V90, LAKE
COLOR: WHITE
SIZE: CUSTOM SIZE - SEE ELEVATION 6/I-200 FOR DIMENSIONS
CONTACT: 310.243.6967

ROLLER SHADES

RS-1 (MANUAL)
MANUF: INPRO
PRODUCT: CF200 SOLOMOUNT CORDLESS SHADE
PATTERN: WT 24X
COLOR: 241-18 WHITE/GREY
OPENNESS: 3%
SIZE: MANUFACTURER TO VERIFY IN FIELD
CONTACT: PAUL BATES, 770.880.2948, Pbates@inprocorp.com

RS-2 (MOTORIZED)
MANUF: INPRO
PRODUCT: MR150 SOLOMOUNT DUAL MOTORIZED SHADE
PATTERN: 1) WT 24X, 2)
COLOR: 1) 241-18 WHITE/GREY, 2) 245B WHITE/GREY
OPENNESS: 1) 3%, 2) BLACKOUT
SIZE: MANUFACTURER TO VERIFY IN FIELD
CONTACT: PAUL BATES, 770.880.2948, Pbates@inprocorp.com

TOILET PARTITIONS

TP-1
MANUF: BRADLEY
PRODUCT: PHENOLIC PRIVACY PARTITIONS
COLOR: FASHION GREY
SIZE: AVAILABLE IN 4'X10' SHEETS
INSTALL: FLOOR TO CEILING SUPPORTED BETWEEN DOORS
CONTACT: RYAN BARNES, 678.516.0377, ryanbarnes@harrywarren.com

CUBICLE CURTAINS

CC-1
MANUF: ARCCOM
NUMBER: AC-33375X
COLOR: SEAFOAM #6
WIDTH: 72"
REPEAT: RAILROAD
NOTE: INPRO FORMATRAC BENDABLE TRACK WITH MOLDED NYLON CARRIERS, COLOR: WHITE. PROVIDE CONTINUOUS TRACK AT ALL CUBICLE CURTAIN LOCATIONS.
CONTACT: SARA HELPER 404.242.3352, SHELPER@ARC-COM.COM

WALL PROTECTION

WP-1
MANUF: INPRO
PRODUCT: PRISM SOLID SURFACE
COLOR: FROSTED WHITE P9711
THICKNESS: .040" THICK
SIZE: 48" X 120"
INSTALL: INSTALL FULL 4'-0" PANEL ON TOP OF BASE (TOTAL HEIGHT TO TOP OF WALL PROTECTION TO BE 52"-54" +/- (DEPENDENT ON BASE HEIGHT)), UNLESS OTHERWISE NOTED, WITH FINISHED CORNER AND SEAM TRIMS IN MATCHING COLOR FOR COMPLETE, MONOLITHIC INSTALLATION. WALL PROTECTION TO BE APPLIED DIRECTLY TO GYPSUM BOARD. CAULK AT WALL TO TRIM JOINT IN COLOR TO MATCH WALL PROTECTION.
CONTACT: PAUL BATES, 770.880.2948, Pbates@inprocorp.com

ELEVATORS

PUBLIC ELEVATORS
DOOR FINISH: MANUFACTURER'S STANDARD BRUSHED STAINLESS STEEL
INTERIOR PANELS: PLASTIC LAMINATE - PL-1
CAB REVEALS: BRUSHED STAINLESS STEEL 1-1/2"
HANDRAILS: 1-1/4" CYLINDRICAL STAINLESS STEEL WITH SATIN FINISH, ALL THREE WALLS
FLOORING: LVT-1
CEILING: LF-97 STAINLESS STEEL PANELS WITH SATIN FINISH AND SQUARE LED LIGHTING

FINISH MATERIAL REMARKS

VINYL FLOOR

1. CAULK ALL VINYL TILE/VINYL COMPOSITION TILE FLOORING TO DOOR JAMBS/MILLWORK TRANSITIONS IN COLOR TO MATCH FLOORING.
2. CONTRACTOR TO COORDINATE WITH THE INTERIOR DESIGN DRAWINGS FOR FLOORING PATTERN/LAYOUT.
3. **CONTRACTOR TO SUBMIT SEAMING DIAGRAMS FOR PROJECT MANAGER & OWNER APPROVAL OF ALL FLOOR TYPES ON BOTH LEVELS PRIOR TO INSTALLATION.**

SHEET VINYL

1. AT ALL SHEET VINYL FLOORING, INSTALLATION/PATTERNING SHALL BE FIELD CUT WITH A TEMPLATE. LAYOUT AND WELDING ROD COLOR PLACEMENT TO BE APPROVED BY INTERIOR DESIGNER PRIOR TO CUTTING.
2. A SEAMING DIAGRAM SHALL BE SUBMITTED BY THE SUBCONTRACTOR TO BE APPROVED BY THE INTERIOR DESIGNER PRIOR TO CUTTING.
3. AT ALL LOCATIONS, UTILIZE 2-PART EPOXY/POLYURETHANE ADHESIVE AS RECOMMENDED BY MANUFACTURER FOR HIGH WHEEL TRAFFIC/HIGH STATIC LOAD INSTALLATION REQUIREMENTS.
4. CAULK ALL SHEET VINYL FLOORING TO DOOR JAMB/MILLWORK TRANSITIONS IN COLOR TO MATCH FLOORING.

PAINT

1. MINIMUM ONE (1) PRIMER COAT AND TWO (2) FINISH COATS AS RECOMMENDED BY MANUFACTURERE AND SPECIFIED IN CONTRACT DOCUMENTS.
2. SUBMIT PAINT BRUSH DOWN SAMPLES OF COLOR MATCHING FOR INTERIOR DESIGNER APPROVAL PRIOR TO ORDER.

WALL TILE

1. MINIMUM ONE (1) PRIMER COAT AND TWO (2) FINISH COATS AS RECOMMENDED BY MANUFACTURER AND SPECIFIED IN CONTRACT DOCUMENTS.
2. SUBMIT PAINT BRUSH DOWN SAMPLES OF COLOR MATCHING FOR INTERIOR DESIGNER APPROVAL PRIOR TO ORDER.

WALL PROTECTION

1. REFERENCE FLOOR PLANS IN CONJUNCTION WITH FINISH LEGEND FOR TYPE AND LOCATION OF WALL PROTECTION AND CORNER GUARDS.
2. PROVIDE FULL HEIGHT SURFACE MOUNTED CORNER GUARDS AT ALL OUTSIDE CORNERS WITHIN BACK OF HOUSE AREAS. LOCATIONS TO BE CONFIRMED DURING SHOP DRAWING REVIEW PROCESS.

CEILINGS

1. CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS FOR MORE INFORMATION AND DETAILS ON REFLECTED CEILING PLAN.

MILLWORK

1. FOR ALL MILLWORK IN PROJECT, CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL BY DESIGNER AND OWNER.
2. FOR ALL WALL PANELS, CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL BY DESIGNER AND OWNER.

PLASTIC LAMINATE

1. GRAIN/PATTERN TO RUN VERTICALLY UNLESS OTHERWISE NOTED.

SOFT GOODS

1. ALL DECORATIVE WINDOW TREATMENTS/CUBICLE CURTAINS WITH TRACKS SHALL BE FURNISHED/INSTALLED BY GENERAL CONTRACTOR.
2. MATCH CAMPUS FABRICATION STANDARDS IN ALL RESPECTS.

CUBICLE CURTAINS

1. INSTALL WITH SNAP PANELS PER SPECIFICATIONS.

TRACK

1. CUBICLE CURTAIN TRACK TO BE INPRO FORMATRAC BENDABLE TRACK WITH MOLDED NYLON CARRIERS, COLOR: WHITE. PROVIDE CONTINUOUS TRACK AT ALL CUBICLE CURTAIN LOCATIONS.
2. USE SPLICES ONLY WHERE ONE-PIECE SECTIONS CANNOT BE OBTAINED.
3. FASTEN TRACK TO CEILING GRID WITH INPRO TRACK CLIPS SPACED NOT MORE THAN 2' ON CENTER, OR APPROVED EQUAL METHOD.
4. PROVIDE ALL TRACK, CARRIERS, AND ACCESSORIES FOR COMPLETE AND OPERATIONAL SYSTEM.

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CLIENT

GULF COAST STATE COLLEGE NURSING SKILLS LAB

5230 US-98
PANAMA CITY, FL, 32401

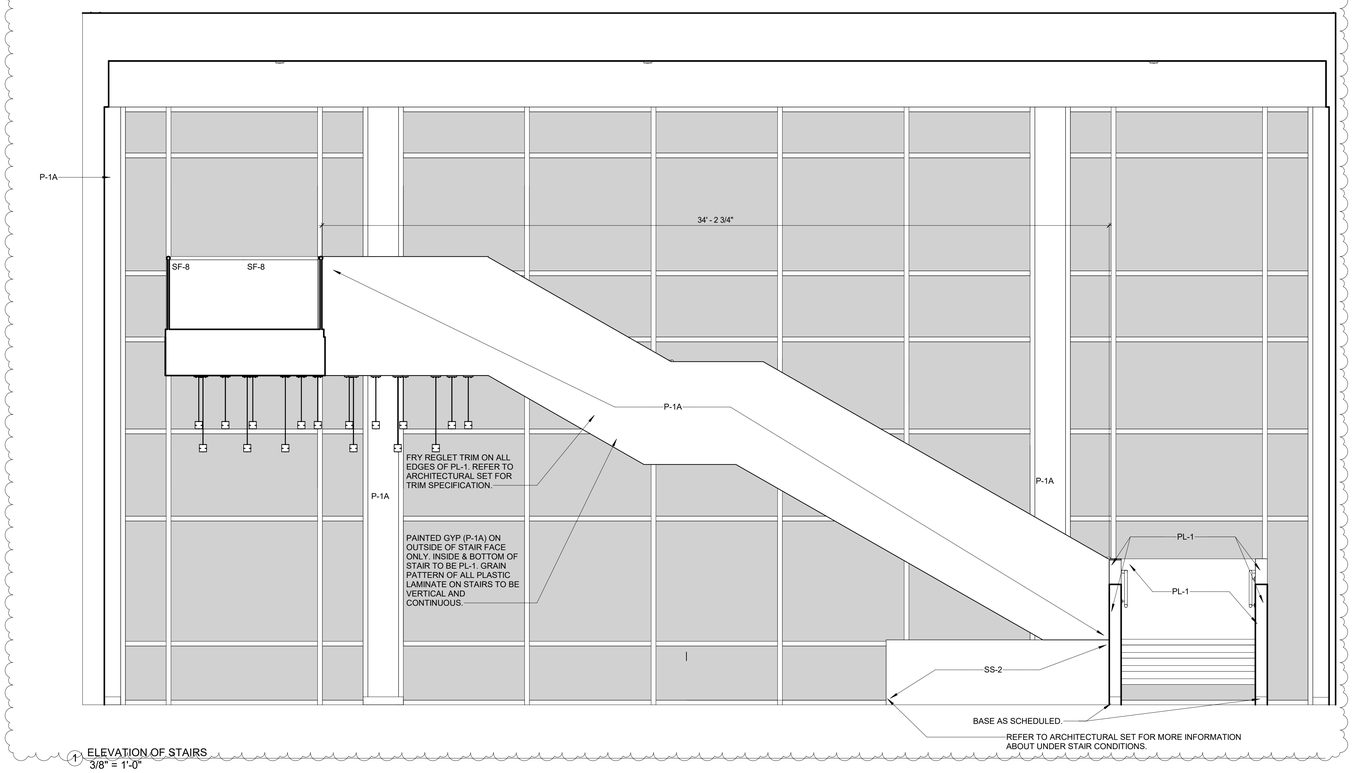
REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

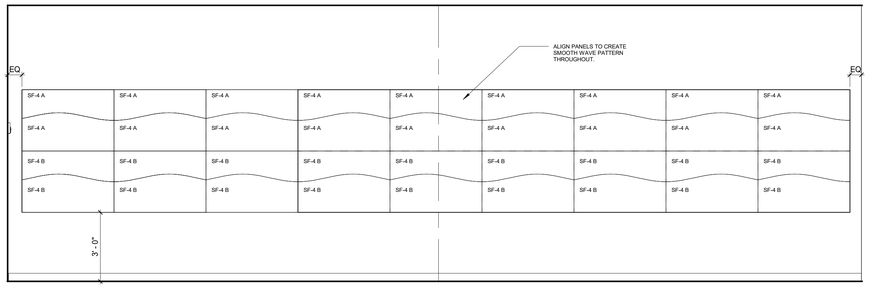
Project Number **25.008.01**
Dated 09/19/2025

FINISH LEGEND

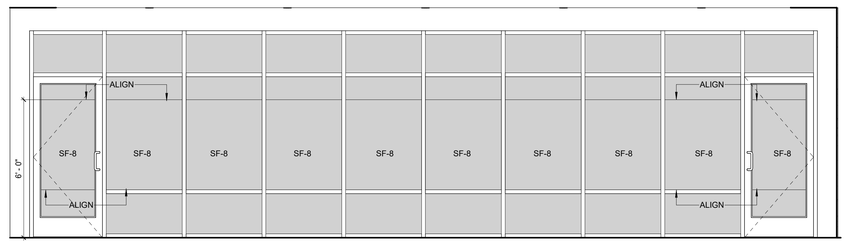
I-001



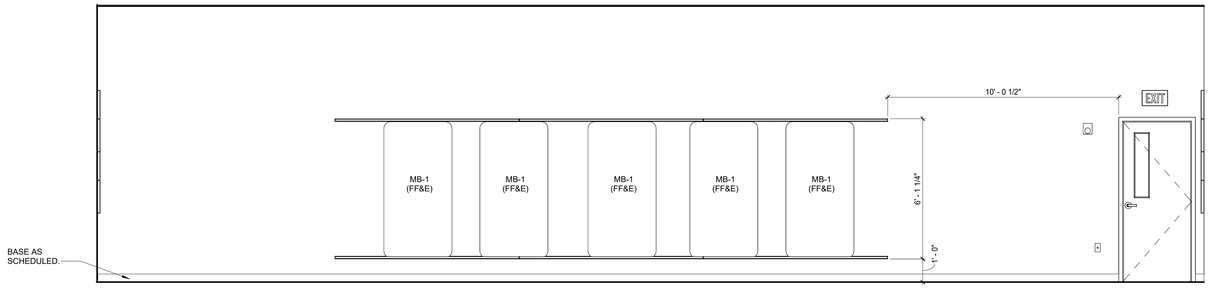
1 ELEVATION OF STAIRS
3/8" = 1'-0"



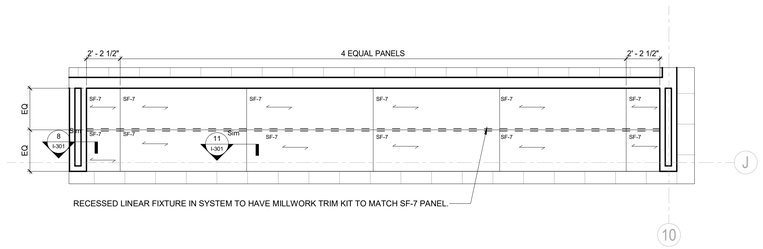
2 CLASSROOM ACOUSTIC TILE LAYOUT
3/8" = 1'-0"



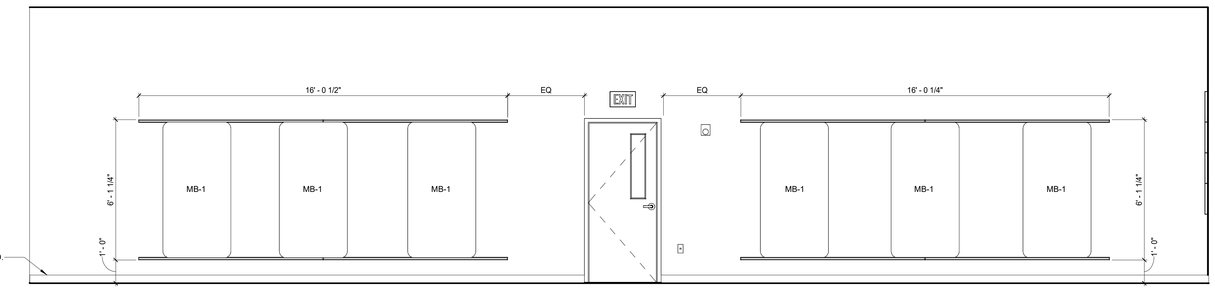
3 CONFERENCE ROOM 108 STOREFRONT FILM/TYPICAL SF-8 LAYOUT
3/8" = 1'-0"



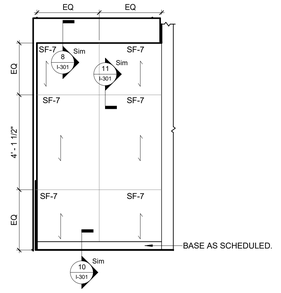
4 CLASSROOM 118 SOUTH WALL
3/8" = 1'-0"



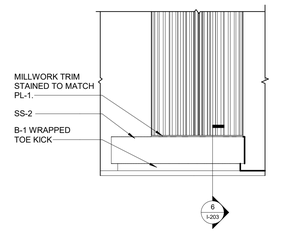
5 ENLARGED CEILING PLAN OF SF-7 PANEL NICHE
1/4" = 1'-0"



6 CLASSROOM 227 EAST WALL
3/8" = 1'-0"



7 ELEVATION OF LOBBY SF-7 NICHE
3/8" = 1'-0"



8 ELEVATION OF LOBBY BENCH
3/8" = 1'-0"

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CLIENT

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5230 US-98
PANAMA CITY, FL, 32401

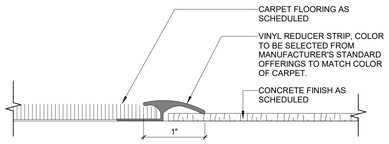
REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

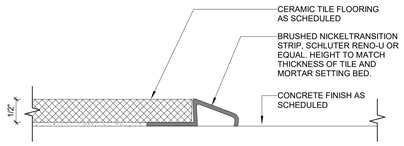
Project Number	**25.008.01**
Dated	09/19/2025

INTERIOR ELEVATIONS

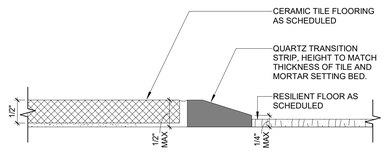
I-201



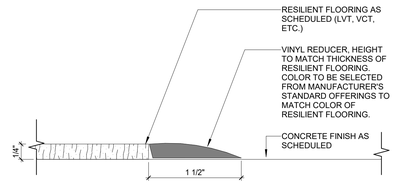
1 CARPET TO RESILIENT TRANSITION
12" = 1'-0"



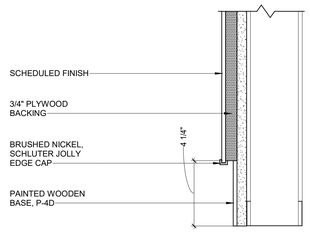
2 CERAMIC TILE TO CONCRETE TRANSITION
12" = 1'-0"



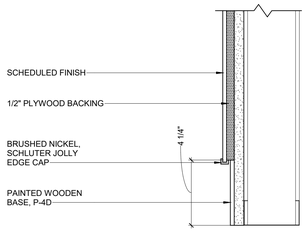
3 CERAMIC TILE TO RESILIENT FLOORING TRANSITION
12" = 1'-0"



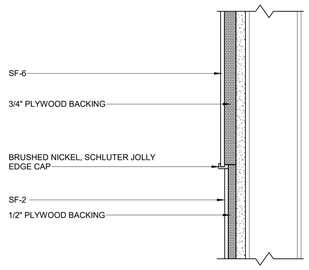
4 LVT OR VCT TO CONCRETE TRANSITION
12" = 1'-0"



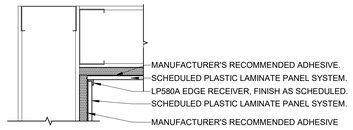
5 SECTION OF SF-6 TO BASE
3" = 1'-0"



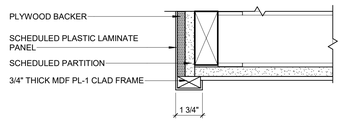
6 SECTION OF SF-2 TO BASE
3" = 1'-0"



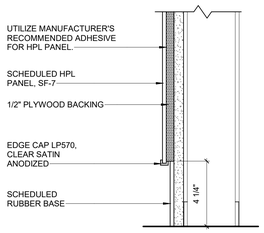
7 SECTION OF SF-6 TO SF-2
3" = 1'-0"



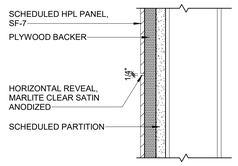
8 SF-7 TO CEILING DETAIL
3" = 1'-0"



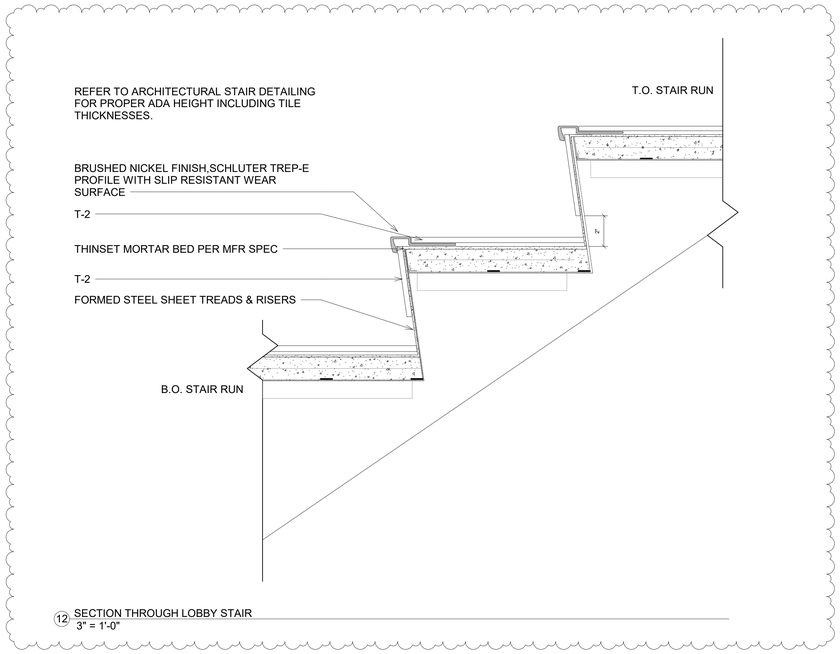
9 SECTION OF LOBBY NICHE PICTURE FRAME DETAIL
3" = 1'-0"



10 SECTION OF SF-7 TO BASE
3" = 1'-0"



11 SF-7 REVEAL DETAIL
3" = 1'-0"



12 SECTION THROUGH LOBBY STAIR
3" = 1'-0"

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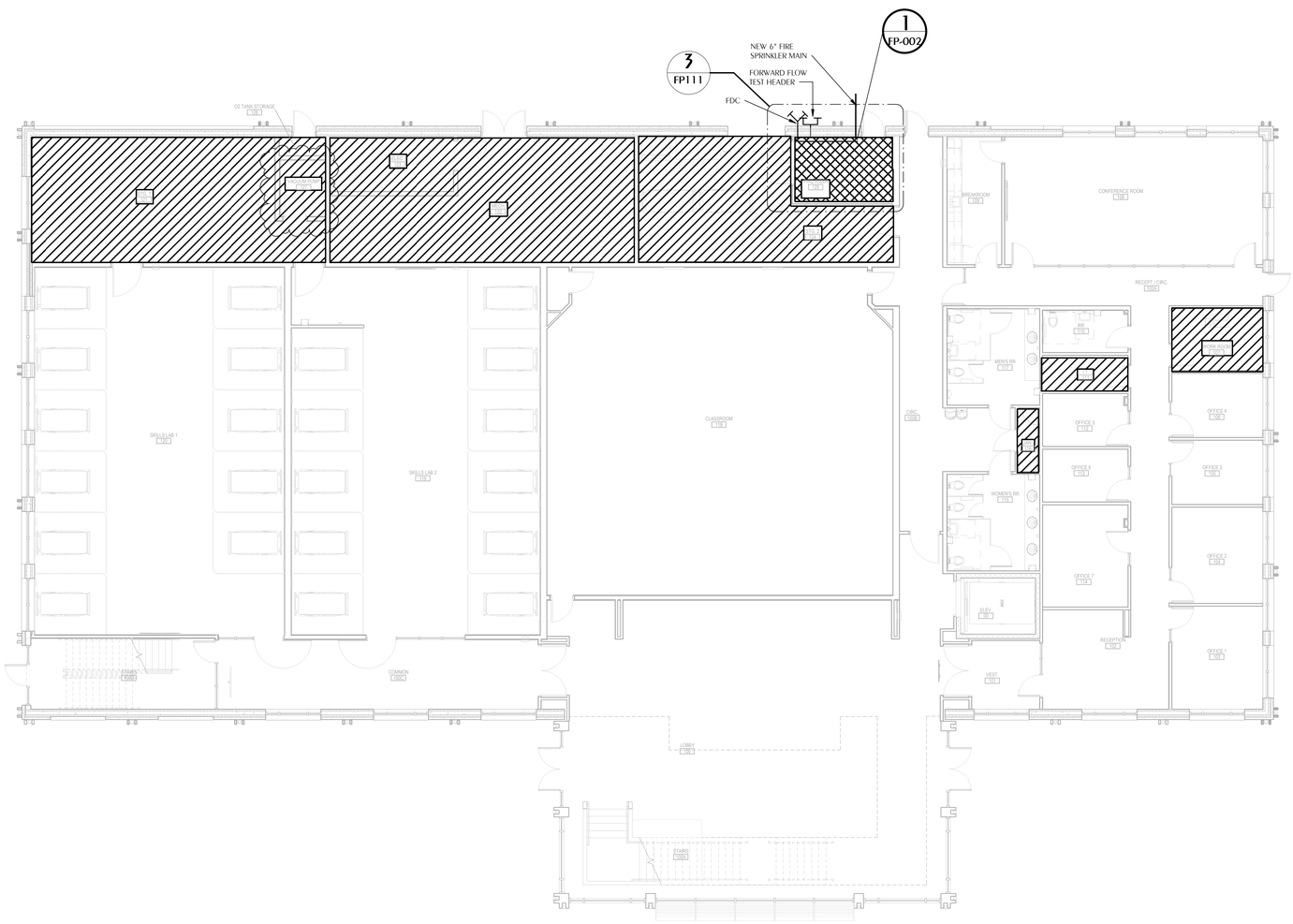
REVISIONS

DESCRIPTION	DATE
ADDENDUM	09/19/2025

Project Number	**25.008.01**
Dated	09/19/2025

TRANSITION DETAILS

I-301

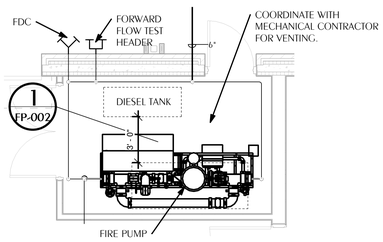


HAZARD CLASSIFICATION

	LIGHT HAZARD
	ORDINARY HAZARD GROUP 1
	EXTRA HAZARD GROUP 2

FIRE PROTECTION FLOOR PLAN-LEVEL 1

PROJECT NORTH / TRUE NORTH — 1 FP111 — SCALE: 1/8" = 1'-0"



ENLARGED FIRE PUMP ROOM

PROJECT NORTH / TRUE NORTH — 3 FP111 — SCALE: 1/4" = 1'-0"

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WATFORD ENGINEERING
4402 Clinton Street, Marianna, Florida 32446 Florida Certificate of Authorization: 27825
850.526.3447 Project Number: 2024-096 David N Watford, PE Florida License 58208
Drawn By: TLC Checked By: **DNW**

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
Addendum	9/19/2025

Project Number **25004**
Dated 08.29.2025

FIRE PROTECTION FLOOR PLAN-LEVEL 1

FP111

LEGEND

———	S or W	SOIL OR WASTE PIPING
- - - -	V	VENT PIPING
— — —	CW	COLD WATER SUPPLY PIPING
— - - —	HW	HOT WATER SUPPLY PIPING
———	HWR	HOT WATER RETURN PIPING
— · · —	TW	TEMPERED WATER PIPING (85°F)
——G——G——	G	GAS PIPING
	GV	GATE VALVE
	CV	CHECK VALVE
	BV	BALL VALVE
	HB	HOSE BIBB
	WH	WALL HYDRANT
	CO	CLEANOUT TO FLOOR
	FD	FLOOR DRAIN
	FD	FLOOR DRAIN WITH TRAP PRIMER CONNECTION
	COTG	CLEANOUT TO GRADE
		UNION
	VTR	VENT THRU ROOF
1		SHEET NOTE
		POINT OF CONNECTION TO EXISTING
S		SOLENOID VALVE
	SS	SERVICE SINK
	WC	WATER CLOSET
	TP	TRAP PRIMER
	EWH	ELECTRIC WATER HEATER
	WHA	WATER HAMMER ARRESTOR TYPE A
	WHB	WATER HAMMER ARRESTOR TYPE B
	WHC	WATER HAMMER ARRESTOR TYPE C
	L	LAVATORY
	UR	URINAL
	KW	KILOWATT
	TCV	THERMOSTATIC CONTROL VALVE
	(E)	EXISTING
	(M)	INDICATES MECHANICAL EQUIPMENT, REFER TO MECHANICAL DRAWINGS.
	(C)	INDICATES CIVIL EQUIPMENT, REFER TO CIVIL DRAWINGS.

GENERAL NOTES

1. COORDINATE ALL PIPING WITH DUCTWORK SHOP DRAWINGS AND EXISTING CONDITIONS. ROUTE PIPING AS REQUIRED TO AVOID CONFLICTS.
2. PRIOR TO START OF ANY WORK, COORDINATE SANITARY SEWER AND POTABLE WATER PIPING WITH EXISTING SITE UTILITIES. REPORT ANY CONFLICT WITH ARCHITECT.
3. FIELD VERIFY PIPE INVERTS PRIOR TO LAYING OUT SANITARY SEWER PIPING. COORDINATE WITH EXISTING CONDITIONS.
4. ALL PIPING PASSING THROUGH ANY WALL SHALL HAVE A SLEEVE PER SPECIFICATIONS.
5. ALL PIPING PASSING THROUGH FIRE-RATED WALLS SHALL HAVE A FIRE-RATED SLEEVE PER SPECIFICATIONS. ALL PIPING PENETRATIONS THROUGH WALLS OR FLOORS SHALL BE SEALED TO EQUAL THE RATING OF THE WALLS OR FLOORS.
6. ALL PIPING INDICATED IS ABOVE THE CEILING EXCEPT THE OBVIOUS SANITARY SOIL, WASTE, VENT AND POTABLE WATER PIPING BELOW FLOOR OR GRADE.
7. COORDINATE EXACT LOCATION OF ALL EXTERIOR WALL HYDRANTS WITH ARCHITECTURAL DRAWINGS.
8. UNDER SLAB SOIL, WASTE AND VENT PIPING PASSING TO UNDERSIDE OR THROUGH FOUNDATION FOOTING, WALL OR GRADE BEAM SHALL BE PROVIDED WITH A RELIEVING ARCH OR PIPE SLEEVE 2 (TWO) PIPE SIZES GREATER THAN PIPE SIZE INDICATED ON PLANS. COORDINATE FINAL PIPE ROUTING AND LAYOUT WITH STRUCTURAL DRAWINGS.
9. PRIOR TO SUBSTANTIAL COMPLETION OF NEW AND ALTERED WORK AREAS, CONTRACTOR SHALL HAVE SANITARY PLUMBING SYSTEM CLEARED OF DEBRIS OR ANY MATTER THAT WOULD INTERFERE OR PREVENT ADEQUATE CONVEYANCE OF MATERIALS FROM MOVING THROUGH AND TERMINATING INTO BUILDING OR PUBLIC DISPOSAL FACILITIES.
10. ALL (VTR'S) VENT THRU ROOF PENETRATIONS INDICATED ON PLANS ARE PRELIMINARY. FINAL LOCATIONS SHALL BE COORDINATED WITH ALL TRADES. ALL VTR'S SHALL BE A MINIMUM OF 10'-0" FROM ALL FRESH AIR INTAKE OPENINGS.
11. ALL TRAP PRIMERS AND DOMESTIC WATER ISOLATION VALVES SHALL BE ACCESSIBLE. TRAP PRIMERS LOCATED IN THE VICINITY OF WATER CLOSETS SHALL BE ACTIVATED BY WATER CLOSET USAGE. ISOLATION VALVES SHALL BE OF THE QUARTER TURN BALL OR GATE TYPE.
12. CONTRACTOR SHALL DEVELOP AND SUBMIT COORDINATION SHOP DRAWINGS WHICH IDENTIFY ROUTING OF PLUMBING PIPE AND LOCATION OF EQUIPMENT. SHOP DRAWINGS SHALL INDICATE COORDINATION WITH THE WORK OF OTHER TRADES.
13. ALL WORK SHALL COMPLY WITH THE FLORIDA BUILDING CODE 8TH EDITION (2023) PLUMBING.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	FIXTURE CONNECTIONS-INCHES CW	HW	W
WC-1	WATER CLOSET (ELECTRONIC)	1	-	3
WC-2	WATER CLOSET (ELECTRONIC)	1	-	3
L-1	LAVATORY (ELECTRONIC)	3/8	3/8	1-1/4
L-2	LAVATORY (ELECTRONIC)	3/8	3/8	1-1/4
L-3	LAVATORY	3/8	3/8	1-1/4
UR-1	URINAL (ELECTRONIC)	1/2	-	2
SK-1	SINGLE COMPARTMENT SINK	1/2	1/2	2
SK-2	SINGLE COMPARTMENT SINK (EYEWASH)	1/2	1/2	2
HS-1	HAND SINK (EYEWASH)	1/2	1/2	2
HS-2	HAND SINK (EYEWASH)	1/2	1/2	2
MR-1	MOP RECEPTOR (24"x24"x12")	1/2	1/2	3
MR-2	MOP RECEPTOR (36"x24"x12")	1/2	1/2	3
SH-1	SHOWER (HANDICAP)	1/2	1/2	2
EWC-1	ELECTRIC WATER COOLER	1/2	-	1-1/2
EWH-1	ELECTRIC WATER HEATER	3/4 INLET	3/4 OUTLET	-
EWH-2	ELECTRIC WATER HEATER	3/4 INLET	3/4 OUTLET	-
CP-1	CIRCULATION PUMP (INLINE)	-	3/4 FLANGE	-
TCV	TEMPERATURE CONTROL VALVE	-	1/2	-
FD	FLOOR DRAIN	1/2	-	3
HDFD	HEAVY DUTY FLOOR DRAIN	-	-	4
TD-1	TROUGH DRAIN	-	-	4
WH	RECESSED WALL HYDRANT	3/4	-	-
MV-1	WATER MIXING VALVE	1/2	1/2	-
TP-1	TRAP PRIMER	1/2	-	-
SP-1	SUMP PUMP	-	-	-
HR-1	HOSE REEL	-	-	-
UB-1	UTILITY BOX (ICE MAKER HOOK-UP)	1/2	-	-
UB-2	UTILITY BOX (CONDENSATE)	-	-	2
AC-1	AIR COMPRESSOR	-	-	-
VP-1	VACUUM PUMP	-	-	-

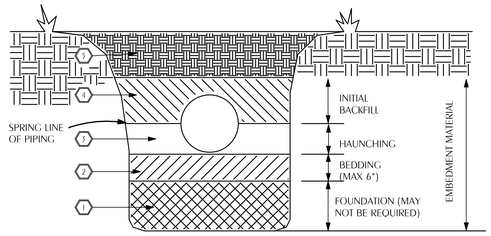
1. WATER SUPPLY TAPPING TO EACH PLUMBING FIXTURE SHALL BE FULL SIZE (MINIMUM).
2. SEE ELECTRICAL DWGS FOR FINAL POWER REQUIREMENTS.
3. PROVIDE WATER HAMMER ARRESTERS ON HOT & COLD WATER SUPPLY BRANCHES SERVING SINGULAR, MULTIPLE OR GROUPS OF PLUMBING FIXTURES. ADHERENCE TO THE PLUMBING AND DRAINAGE INSTITUTE STANDARD P.D.I.-WH201 (PER SPECIFICATIONS) SHALL BE EMPLOYED IN DETERMINING PROPER SIZE, SELECTION, PLACEMENT, LOCATION AND INSTALLATION OF ARRESTERS.

MEDICAL GAS EQUIPMENT SCHEDULE

MARK	EQUIPMENT DESCRIPTION	REMARKS
MG-1	O2 MANIFOLD	-

1. A FOUNDATION MAY BE REQUIRED IN VERY POOR SOIL CONDITIONS.
2. BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE. IN DRY SOIL CONDITIONS, CLASS II OR III MATERIAL SHALL BE HAND PLACED IN 4-6", LIGHTLY COMPACTED UNIFORM AND NOT FINER THAN THE FOUNDATION MATERIAL. IN WET CONDITIONS, CLASS I, Ii OR III MATERIAL SHALL BE HAND PLACED IN 4-6", UNIFORM AND NOT FINER THAN THE FOUNDATION MATERIAL. WHEN UTILIZING CLASS I MATERIAL, SUFFICIENT AMOUNTS OF CLASS II OR III MATERIAL SHALL BE ADDED TO FILL ALL VOIDS CREATED BY THE USE OF CLASS I MATERIAL.
3. HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. CLASS II OR III MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.
4. INITIAL BACKFILL MATERIAL SHALL BE CLASS II OR III. IT SHALL BE PLACED WITHIN 24-30" ABOVE THE TOP OF THE PIPE AND TAMPED BY A PORTABLE VIBRATOR. FINAL BACKFILL MATERIAL MAY BE MACHINE PLACED. THE MATERIAL SHALL BE CLASS II OR III MATERIAL. CLASS IV MATERIAL MAY BE INSTALLED OUTSIDE OF ROADWAY.
5. FINAL BACKFILL UNDER ROADWAYS MAY REQUIRE SPECIAL COMPACTION AND DENSITY TESTS. A MINIMUM OF 30" OF COVER OVER THE TOP OF THE PIPE SHALL BE PROVIDED BEFORE THE TRENCH IS WHEEL- LOADED.

NOTE:
ALL EMBEDMENT MATERIALS SHALL BE NO LESS THAN 95% OF MAXIMUM DENSITY. LABORATORY TESTING OF THE SOIL WILL BE REQUIRED. THIS PROCEDURE SHALL BE REQUIRED ON ALL INSTALLATIONS. ALL TRENCHING, EXCAVATION, AND BACKFILLING SHALL BE IN ACCORDANCE WITH 2023 FLORIDA PLUMBING CODE.



EMBEDMENT MATERIALS

CLASS I: ANGULAR, 1/4"-1-1/2", GRADED STONE, INCLUDING A NUMBER OF FILL MATERIALS THAT HAVE REGIONAL SIGNIFICANCE SUCH AS CORAL, SLAG, CINDERS, CRUSHED STONE AND CRUSHED SHELLS.

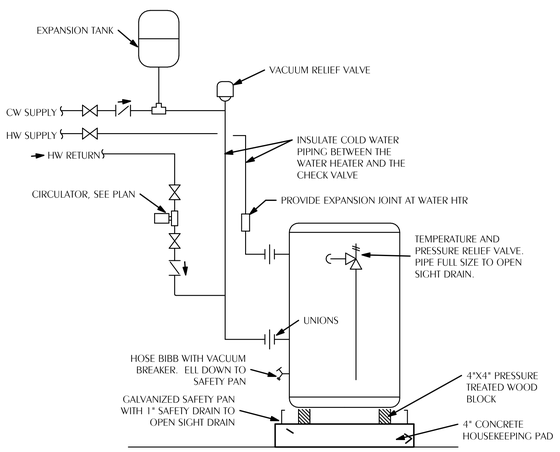
CLASS II: COARSE SANDS AND GRAVELS WITH MAXIMUM PARTICLE SIZE OF 1-1/2" INCLUDING VARIOUS GRADED SANDS AND GRAVELS CONTAINING SMALL PERCENTAGES OF FINES, GENERALLY GRANULAR AND NON-COHESIVE, EITHER WET OR DRY. SOIL TYPES GW, GP, SW, AND SP ARE INCLUDED IN THIS CLASS.

CLASS III: FINE SAND AND CLAY GRAVELS, INCLUDING FINE SANDS, SAND-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES. SOIL TYPES GM, GC, SM, AND SC ARE INCLUDED IN THIS CLASS.

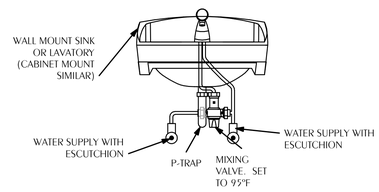
CLASS IV: SILT, SILTY CLAYS, AND CLAYS, INCLUDING INORGANIC CLAYS AND SILT OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS. SOIL TYPES MH, ML, CH, AND CL ARE INCLUDED IN THIS CLASS. THESE MATERIALS ARE NOT TO BE USED FOR BEDDING, HAUNCHING, OR INITIAL BACKFILL.

CLASS V: THIS CLASS INCLUDES THE ORGANIC SOILS, AS WELL AS SOILS CONTAINING FROZEN EARTH, DEBRIS, ROCKS LARGER THAN 1-1/2" IN DIAMETER AND OTHER FOREIGN MATERIALS. THESE MATERIALS ARE NOT TO BE USED FOR BEDDING, HAUNCHING, OR INITIAL BACKFILL.

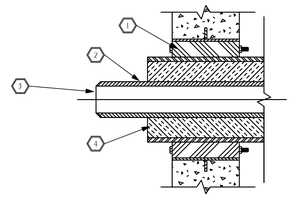
1 EXCAVATION AND BACKFILL DETAIL
P-001 SCALE: NONE



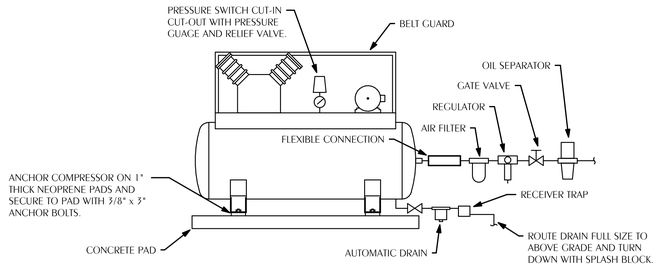
2 FLOOR MOUNTED ELECTRIC WATER HEATER
P-001 SCALE: NONE



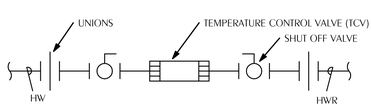
3 UNDER SINK MIXING VALVE DETAIL
P-001 SCALE: NONE TYPICAL FOR ALL L-1, L-2, L-3, SK-1, SK-2, HS-1, HS-2



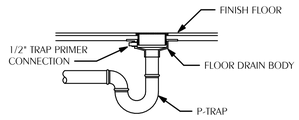
4 TYPICAL PIPE PENETRATION OF WALL
P-001 SCALE: NONE



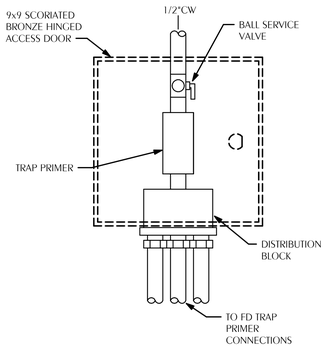
5 AIR COMPRESSOR
P-001 SCALE: NONE



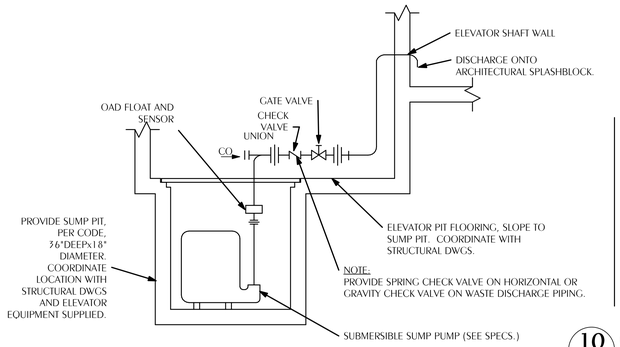
6 TEMPERATURE CONTROL VALVE DETAIL
P-001 SCALE: NONE



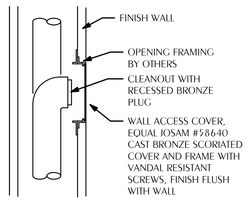
7 FLOOR DRAIN WITH TRAP PRIMER
P-001 SCALE: NONE



8 TRAP PRIMER DETAIL
P-001 SCALE: NONE



9 SUMP PUMP DETAIL
P-001 SCALE: NONE



10 CLEANOUT TO WALL
P-001 SCALE: NONE

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850.526.3447 Project Number: 2024-096 David N Watford, PE Florida License 58208
Drawn By: JDD Checked By: DNW

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

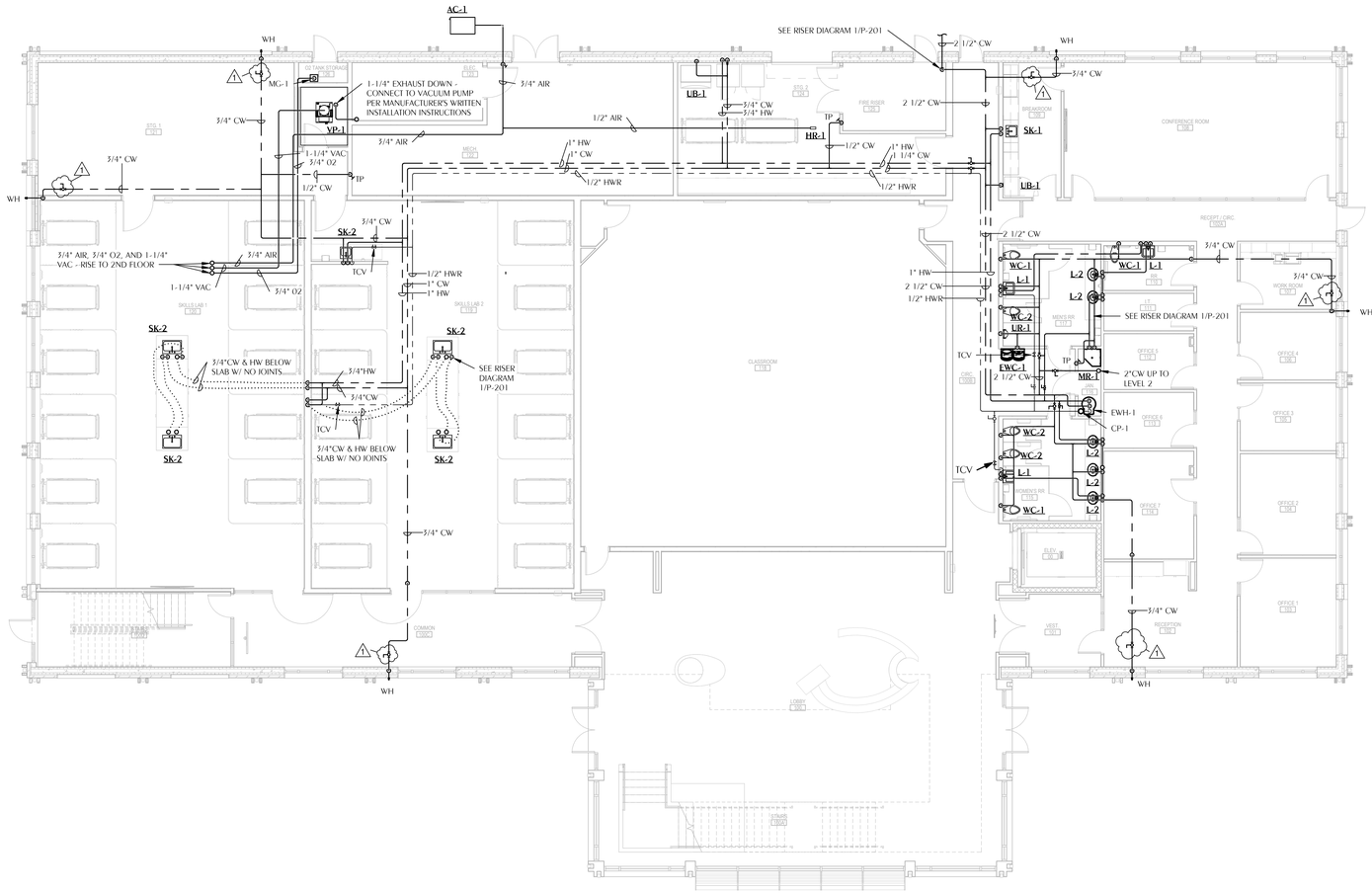
REVISIONS

DESCRIPTION	DATE
Addendum	9/19/2025

Project Number	25004
Dated	08.29.2025

PLUMBING LEGEND, SCHEDULE, DETAILS & NOTES

P-001



PLUMBING FLOOR PLAN-LEVEL 1 DOMESTIC WATER

P-111 SCALE: 1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH

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REFERENCE:
FINISHED FLOOR ELEVATION = 0'-0"

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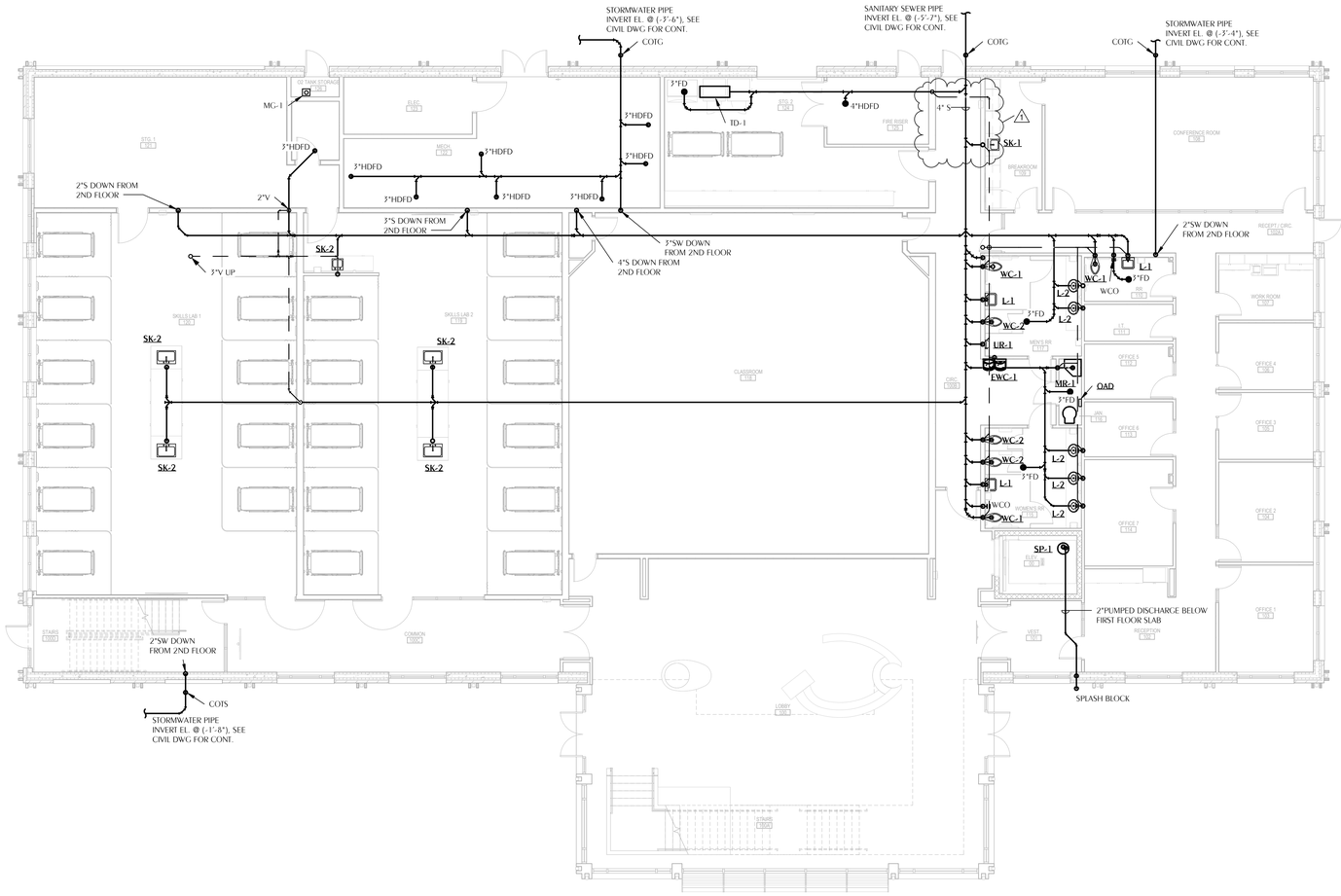
PLUMBING FLOOR PLAN-LEVEL 1 DOMESTIC WATER

P-111



PLUMBING FLOOR PLAN-LEVEL 1 SANITARY

P-112 SCALE: 1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH

REFERENCE:
FINISHED FLOOR ELEVATION = 0'-0"

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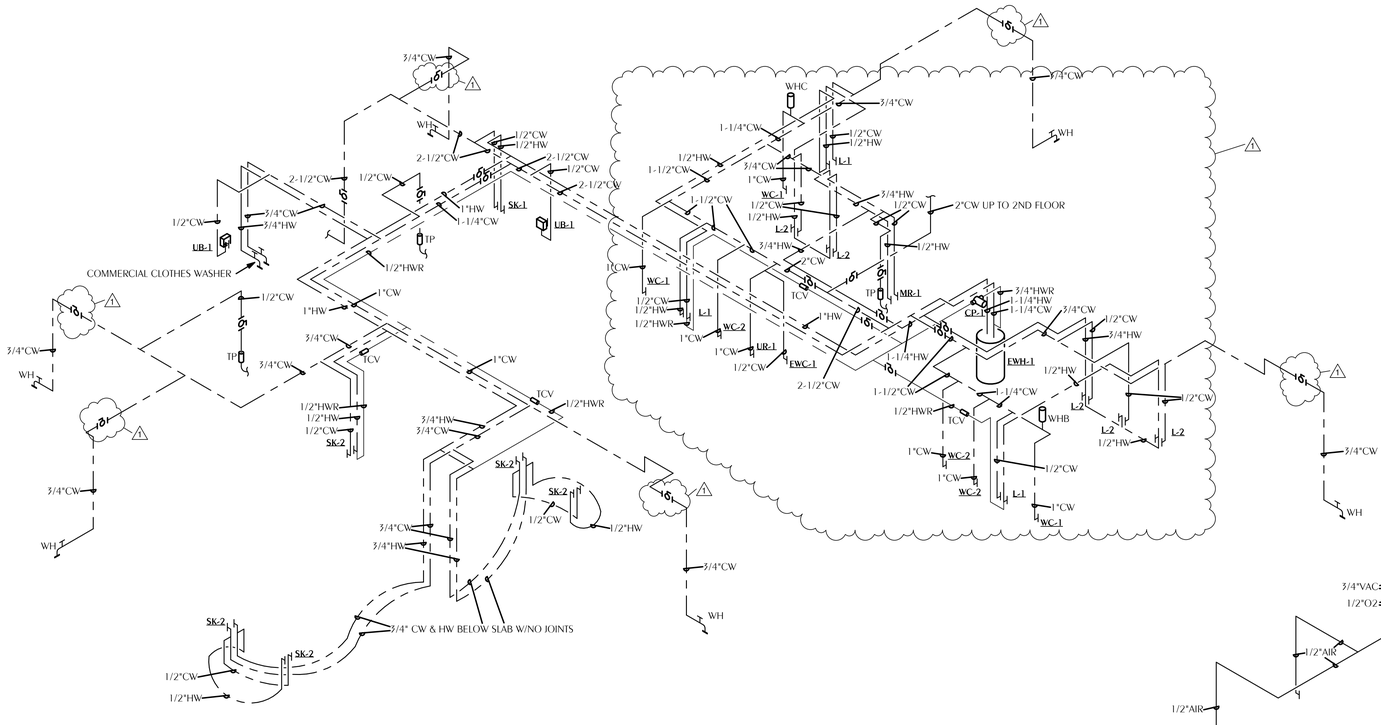
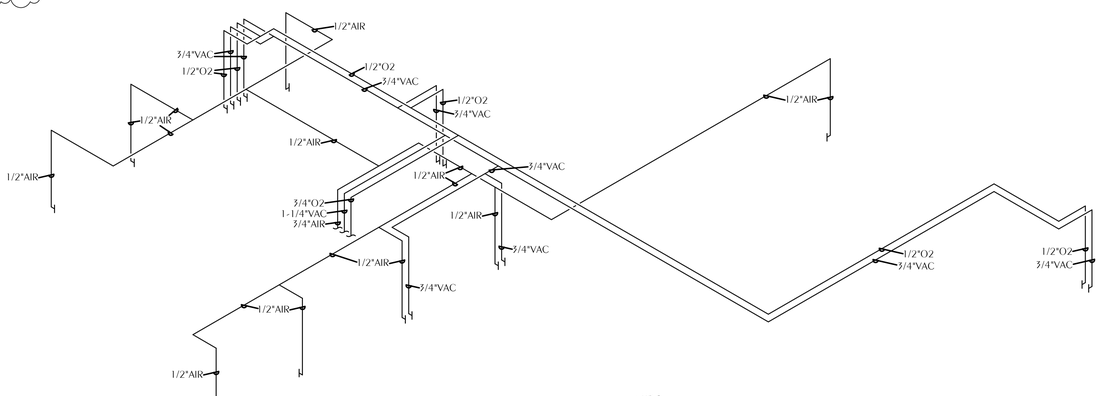
PLUMBING FLOOR PLAN-LEVEL 1 SANITARY

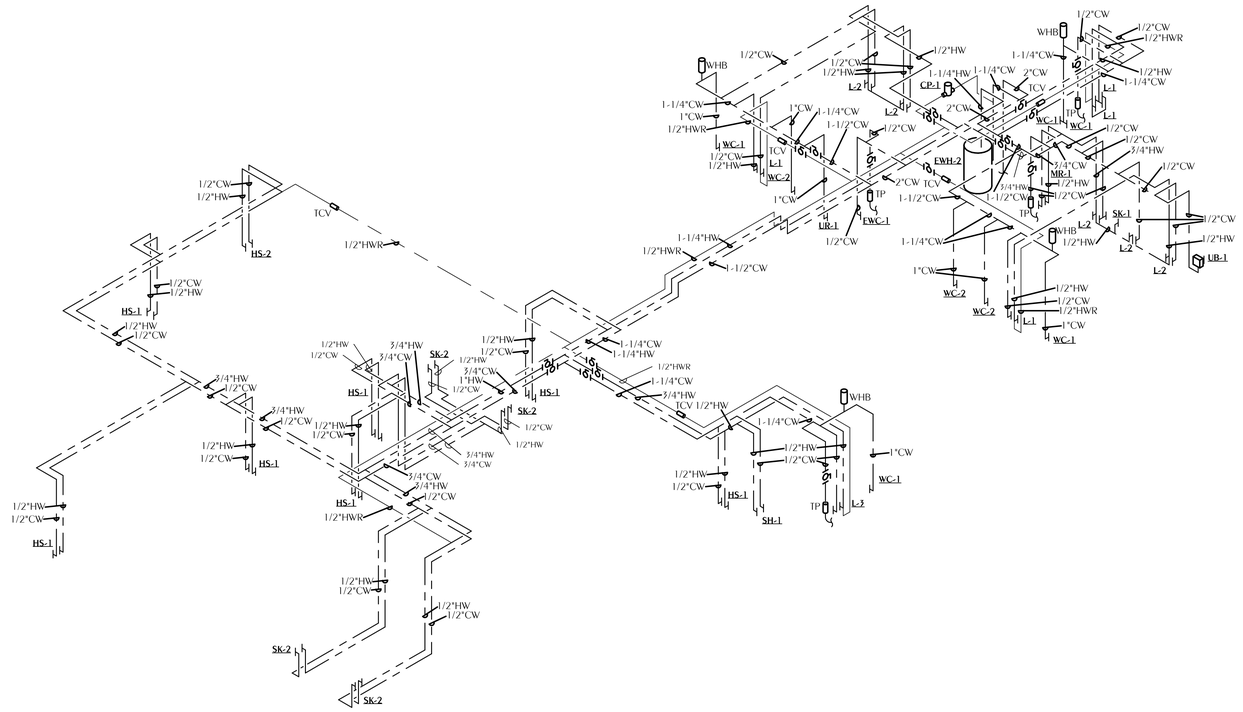
P-112



1 DOMESTIC WATER RISER DIAGRAM - 1ST FLOOR

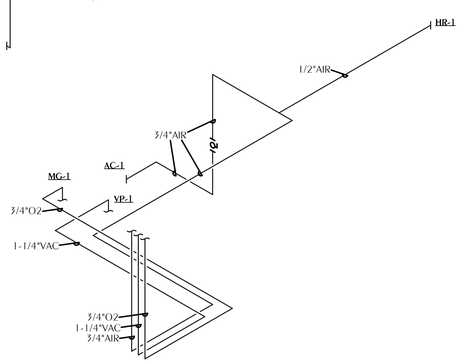
P-201 SCALE: NONE





2 DOMESTIC WATER RISER DIAGRAM - 2ND FLOOR

P-201 SCALE: NONE



3 MEDICAL AIR RISER DIAGRAM

P-201 SCALE: NONE

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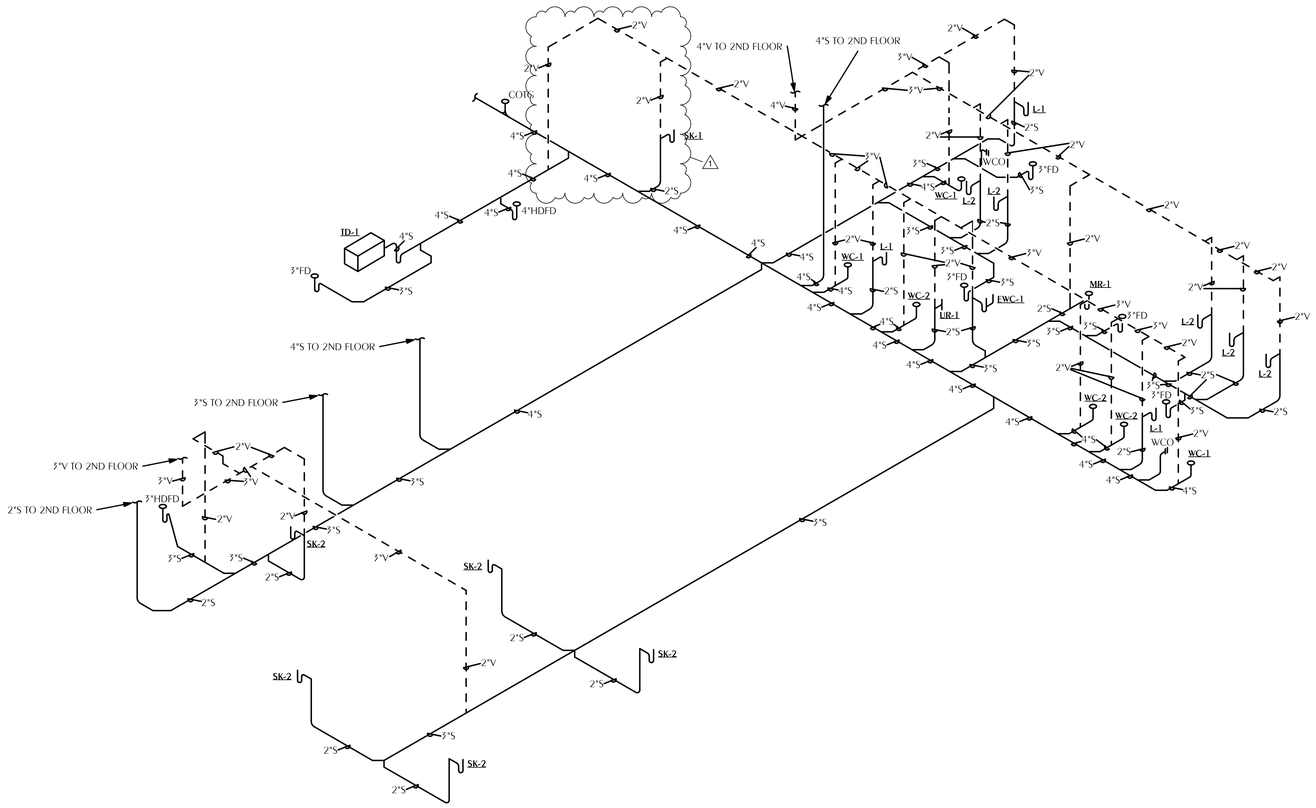
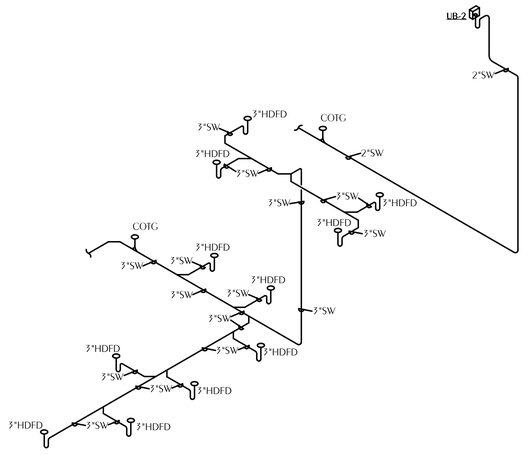
PLUMBING RISER DIAGRAMS

P-201



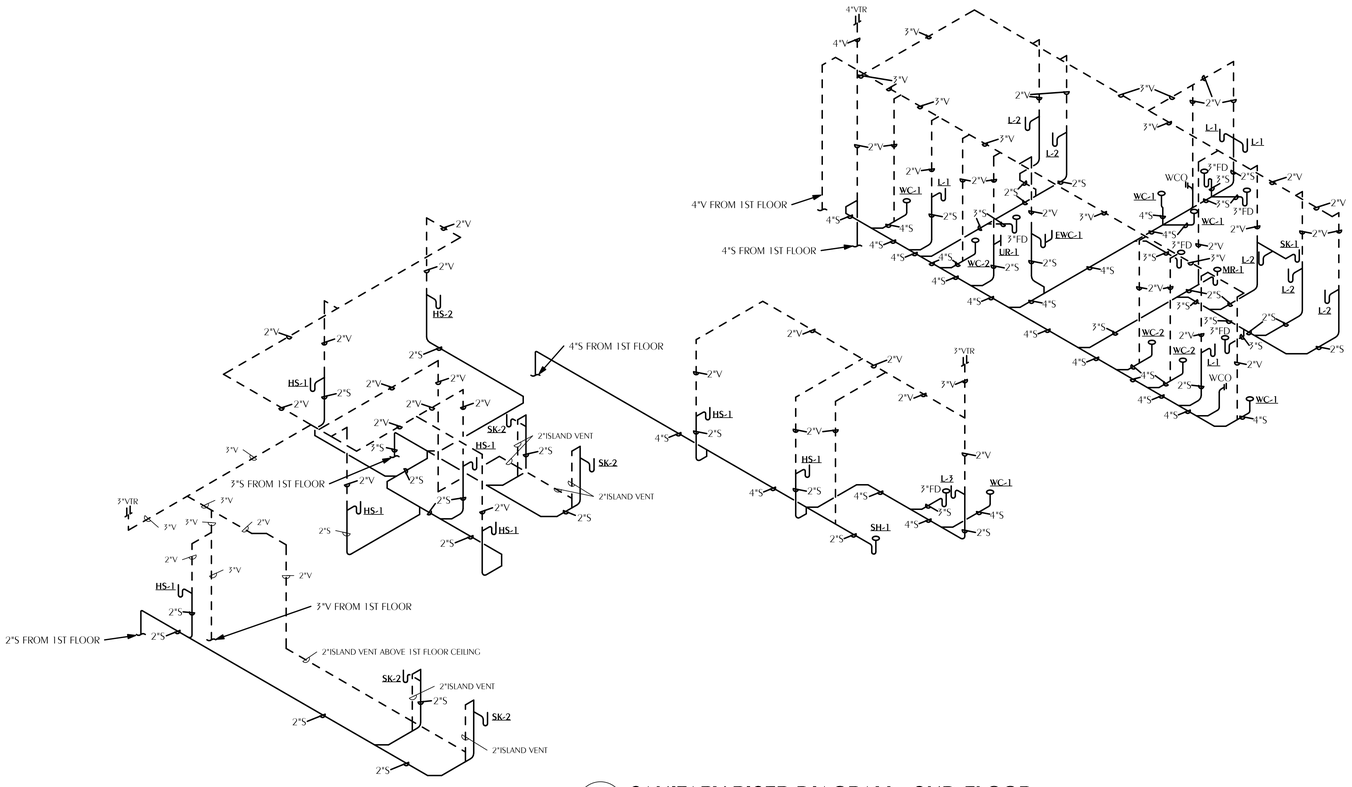
1 SANITARY RISER DIAGRAM - 1ST FLOOR

P-202 SCALE: NONE



3 STORMWATER RISER DIAGRAM

P-202 SCALE: NONE



2 SANITARY RISER DIAGRAM - 2ND FLOOR

P-202 SCALE: NONE

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PLUMBING RISER DIAGRAMS

P-202

VRF INDOOR UNIT SCHEDULE

UNIT AHU	BASIS OF DESIGN	MODEL	TYPE	DESIGN COOLING ENTER TEMP DB/WB	DESIGN COOLING CAPACITY (BTUH)		NOMINAL COOL CAPICITY (BTUH)	DESIGN HEATING TOTAL CAPICITY (BTUH)	DESIGN HEATING ENTERING TEMP DB	REFRIG. PIPE DIAMETER LIQUID/SUCTION (IN)	AIRFLOW (CFM)	VOLTS/PHASE	MCA	MOCP	NOTES
					COOLING TOTAL	COOLING SENSIBLE									
1.1	TRANE	TPVFYP036	VERTICAL AIR HANDLER	72.3/61.9	22900	19400	36000	3900	71.0	3/8 / 5/8	1065	208/1	4.13	15	1,2,3,4,5,6,7,8
1.2	TRANE	BCVE048	VERTICAL BLOWER COIL	72.7/61.2	32700	30500	36000	21100	71.2	3/8 / 5/8	1600	208/1	9.66	15	1,2,3,4,5,6,7,8,9
1.3	TRANE	TPVFYP024	VERTICAL AIR HANDLER	72.2/61.8	14100	11800	24000	0	-	3/8 / 5/8	640	208/1	3.00	15	1,2,3,4,5,6,7,8
1.4	TRANE	TPVFYP024	VERTICAL AIR HANDLER	73.1/62.3	13900	12100	24000	0	-	3/8 / 5/8	615	208/1	3.00	15	1,2,3,4,5,6,7,8
1.5	TRANE	TPVFYP036	VERTICAL AIR HANDLER	72.6/61.7	21400	19200	36000	21700	70.8	3/8 / 5/8	1045	208/1	4.13	15	1,2,3,4,5,6,7,8
1.6	TRANE	TPVFYP054	VERTICAL AIR HANDLER	71.7/60.8	28200	26600	54000	0	-	3/8 / 5/8	1480	208/1	5.63	15	1,2,3,4,5,6,7,8
1.7	TRANE	TPVFYP018	VERTICAL AIR HANDLER	72.3/62.4	11100	9100	18000	900	70.9	1/4 / 1/2	500	208/1	3.00	15	1,2,3,4,5,6,7,8
1.8	TRANE	TPVFYP030	VERTICAL AIR HANDLER	72.7/61.8	17500	15500	30000	4900	71.0	3/8 / 5/8	835	208/1	4.13	15	1,2,3,4,5,6,7,8
1.9	TRANE	TPVFYP024	VERTICAL AIR HANDLER	72.6/61.4	13300	12400	24000	3300	71.1	3/8 / 5/8	675	208/1	3.00	15	1,2,3,4,5,6,7,8
1.10	TRANE	TPVFYP012	VERTICAL AIR HANDLER	71.5/60.8	4000	3800	12000	400	71.0	1/4 / 1/2	265	208/1	3.00	15	1,2,3,4,5,6,7,8
2.1	TRANE	TPVFYP012	VERTICAL AIR HANDLER	72.7/61.8	6900	6200	12000	2800	71.1	1/4 / 1/2	330	208/1	3.00	15	1,2,3,4,5,6,7,8
2.2	TRANE	TPVFYP012	VERTICAL AIR HANDLER	72.7/61.3	8000	7400	12000	2100	71.0	1/4 / 1/2	385	208/1	3.00	15	1,2,3,4,5,6,7,8
2.3	TRANE	TPVFYP012	VERTICAL AIR HANDLER	72.5/61.9	8500	7400	12000	2200	70.9	1/4 / 1/2	400	208/1	3.00	15	1,2,3,4,5,6,7,8
2.4	TRANE	TPVFYP036	VERTICAL AIR HANDLER	72.7/61.7	21900	19900	36000	9100	70.9	3/8 / 5/8	1070	208/1	4.13	15	1,2,3,4,5,6,7,8
2.5	TRANE	TPVFYP012	VERTICAL AIR HANDLER	71.9/61.0	6700	6500	12000	1200	70.9	1/4 / 1/2	365	208/1	3.00	15	1,2,3,4,5,6,7,8
2.6	TRANE	TPVFYP036	VERTICAL AIR HANDLER	72.5/61.6	22200	20000	36000	4400	71.0	3/8 / 5/8	1090	208/1	4.13	15	1,2,3,4,5,6,7,8
2.7	TRANE	TPVFYP018	VERTICAL AIR HANDLER	72.7/62.1	14200	12100	24000	5900	70.9	3/8 / 5/8	655	208/1	3.00	15	1,2,3,4,5,6,7,8
2.8	TRANE	TPVFYP048	VERTICAL AIR HANDLER	73.0/61.6	28200	26200	48000	16800	70.7	3/8 / 5/8	1390	208/1	5.63	15	1,2,3,4,5,6,7,8
2.9	TRANE	BCVE048	VERTICAL AIR HANDLER	73.0/61.6	27700	27200	48000	2400	70.9	3/8 / 5/8	1525	208/1	9.66	15	1,2,3,4,5,6,7,8,9
2.10	TRANE	TPVFYP024	VERTICAL AIR HANDLER	72.6/61.5	13300	11800	24000	1500	70.9	3/8 / 5/8	620	208/1	3.00	15	1,2,3,4,5,6,7,8
2.11	TRANE	TPVFYP048	VERTICAL AIR HANDLER	72.9/61.4	25600	24200	48000	8400	71.0	3/8 / 5/8	1295	208/1	5.63	15	1,2,3,4,5,6,7,8

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67F (DB/WB), OUTDOOR OF 95dF (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70dF (DB), OUTDOOR OF 45d(WB)
3. HEATING AND COOLING SHALL INCLUDE NO DIVERSITY.
4. CORRECTED CAPACITY IS NET CAPICITY FOR INSTALLATION ACCOUNTING FOR PIPE RUN LENGTHS, ETC.
5. PROVIDE FACTORY ENGINEERED SHOP DRAWINGS WITH REFRIGERANT PIPE SIZES.
6. EXPOSED (INDOOR OR OUTDOOR) REF PIPING SHALL BE HARD DRAWN COPPER.
7. PROVIDE HARD WIRED REMOTE THERMOSTAT.
8. PROVIDE BAC-NET MODULE.
9. PROVIDE LEV KIT TO CONNECT BLOWER COIL UNIT TO VRF SYSTEM.

VRF CONDENSING UNIT SCHEDULE

UNIT HP	BASIS OF DESIGN	MODEL	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING OUTDOOR TEMP DB	EER	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING OUTDOOR TEMP DB	COP	VOLTS/PHASE	MCA (AMPS) MODULE 1/2	MOCP (AMPS) MODULE 1/2	NOTES
1	TRANE	TURYP240	240000	95.0	9.5	270000	25.0	3.36	208/3	50/50	80/80	1,2,3,4,5,6
2	TRANE	TURYP192	192000	95.0	9.3	215000	25.0	3.24	208/3	40/40	60/60	1,2,3,4,5,6

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
3. EFFICIENCY VALUES FOR EER, IEER, AND COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED AND NON-DUCTED INDOOR UNITS.
4. PROVIDE HEAT RECOVERY VRF UNIT.
5. HP CONSISTS OF TWO MODULES, EACH WITH 208/3 POWER. MCA AND MOCP ARE SHOWN FOR EACH MODULE.
6. PROVIDE HERESITE COIL COATING RATED FOR 15,000 HOUR SALT SPRAY PROTECTION PER ASTM B-117.

SINGLE ZONE MINI SPLIT CONDENSING UNIT SCHEDULE

UNIT MHP	BASIS OF DESIGN	MODEL	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING OUTDOOR TEMP DB	SEER2	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING OUTDOOR TEMP DB	HSPF	VOLTS/PHASE	MCA (AMPS)	MOCP (AMPS)	NOTES
1	TRANE	TRUYA0181KA70NA	18000	95.0	20.2	NA	NA	NA	208/1	11	28	1,2,3
2	TRANE	TRUYA0361KA70NA	36000	95.0	19.4	NA	NA	NA	208/1	25	31	1,2,3

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
3. EFFICIENCY VALUES FOR EER, IEER, AND COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED AND NON-DUCTED INDOOR UNITS.

VRF HEAT RECOVERY BRANCH CIRCUIT CONTROLLER SCHEDULE

SYSTEM BC	BASIS OF DESIGN	CIRCUIT MODEL	DESIGN CONNECTED LOAD (BTUH)	VOLTS/PHASE	MCA	MOP	NUMBER OF PORTS	NOTES
1	TRANE	TCMBM1012IA21N4	282500	208/1	1.2	20	12	1
2	TRANE	TCMBM1012IA21N4	329800	208/1	1.2	20	12	1

1. PROVIDE DIAMONDBACK BALL VALVES BV-SERIES, 700 PSIG WORKING PRESSURE, FULL PORT, 410A RATED

SINGLE ZONE MINI SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

UNIT	BASIS OF DESIGN	MODEL	TYPE	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING EAT °F DB/WB	DESIGN COOLING CAPACITY (BTUH)		NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING TOTAL CAPACITY (BTUH)	DESIGN HEATING EAT °F DB	AIRFLOW (CFM)	VOLTS/PHASE	MCA (AMPS)	MOP (AMPS)	NOTES
						COOLING TOTAL	COOLING SENSIBLE								
WM-1.1	TRANE	TPKA0A0181HA070A	WALL MOUNT	18000	80/67	18000	-	-	-	-	340	NA	NA	NA	1,2,3,4,5,6,7,8
WM-2.1	TRANE	TPKA0A0361KA070A	WALL MOUNT	36000	80/67	36000	-	-	-	-	810	NA	NA	NA	1,2,3,4,5,6,7,8

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
3. DESIGN COOLING CONDITIONS ARE AT 95°F AMBIENT; DESIGN HEATING CONDITIONS ARE AT 25°F AMBIENT.
4. DESIGN CAPACITY IS NET CAPACITY FOR INSTALLATION ACCOUNTING FOR 65 FT PIPE RUN LEGNTHS, ETC.
5. CALCULATE REFRIGERANT LINE SIZES BASED UPON FINAL FIELD PIPING LAYOUT.
6. EXPOSED (INDOOR OR OUTDOOR) REF PIPING SHALL BE HARD DRAWN COPPER.
7. PROVIDE BAC-NET MODULE.
8. INDOOR UNIT IS POWERED BY OUTDOOR UNIT.

100% OUTSIDE AIR UNIT SCHEDULE

UNIT OAU/OACU	BASIS OF DESIGN	OAU MODEL	OACU MODEL	CONFIGURATION	TOTAL AIRFLOW (CFM)	OA (CFM)	ESP (IN. W.C.)	FAN (BHP)	DEHUMIDIFICATION					HEATING		OAU ELECTRICAL			OACU ELECTRICAL			NOTES
									EAT° (DB/WB)	LAT° (DP)	TOTAL (BTUH)	SENSIBLE (BTUH)	MRE	EAT° (DB)	KW	VOLTS/PHASE	MCA	MOP	VOLTS/PHASE	MCA	MOP	
1	MULTISTACK	CUSTOM OAU	ACXXAH2	SPLIT	2550	2550	0.5	1.86	83.9/80.6	42.8	311900	112700	5.1	25.0	36	208/3	135.5	175	208/3	21.2	30	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15
2	MULTISTACK	CUSTOM OAU	ACXXAH2	SPLIT	2700	2700	0.5	2.09	83.9/80.6	44.9	324100	115500	5.3	25.0	39	208/3	145.9	175	208/3	21.2	30	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15

1. MRE IS MOISTURE REMOVAL EFFICIENCY IN LB/AWH.
2. ESP DOES NOT INCLUDE FILTER, CASING, ETC.
3. PROVIDE 100% OUTSIDE AIR DEHUMIDIFICATION UNIT WITH HOT GAS REHEAT.
4. PROVIDE SCR ELECTRIC HEAT.
5. PROVIDE SINGLE POINT POWER CONNECTION
6. PROVIDE REFRIGERANT SHOP DRAWINGS.
7. PROVIDE DIRECT DRIVE FAN WITH EC MOTOR.
8. PROVIDE MOTORIZED OUTSIDE AIR DAMPER.
9. PROVIDE MERV 13 FILTERS.
10. PROVIDE UV LIGHT WITH 120V POWER.
11. PROVIDE MODULAR UNIT CAPABLE OF FITTING THROUGH A 6'X7' OPENING.
12. PROVIDE UNIT WITH R454B REFRIGERANT AND FACTORY REFRIGERANT MONITORING SYSTEM.
13. PROVIDE DUAL DIGITAL COMPRESSORS.
14. UNIT SHALL HAVE 1" FRAMED FOAM INSULATION.
15. PROVIDE ANTICORROSION COIL COATING RATED FOR 20,000 HOURS SALT SPRAY PROTECTION PER ASTM B-117.

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Drawn By: IVB Checked By: KAJ

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

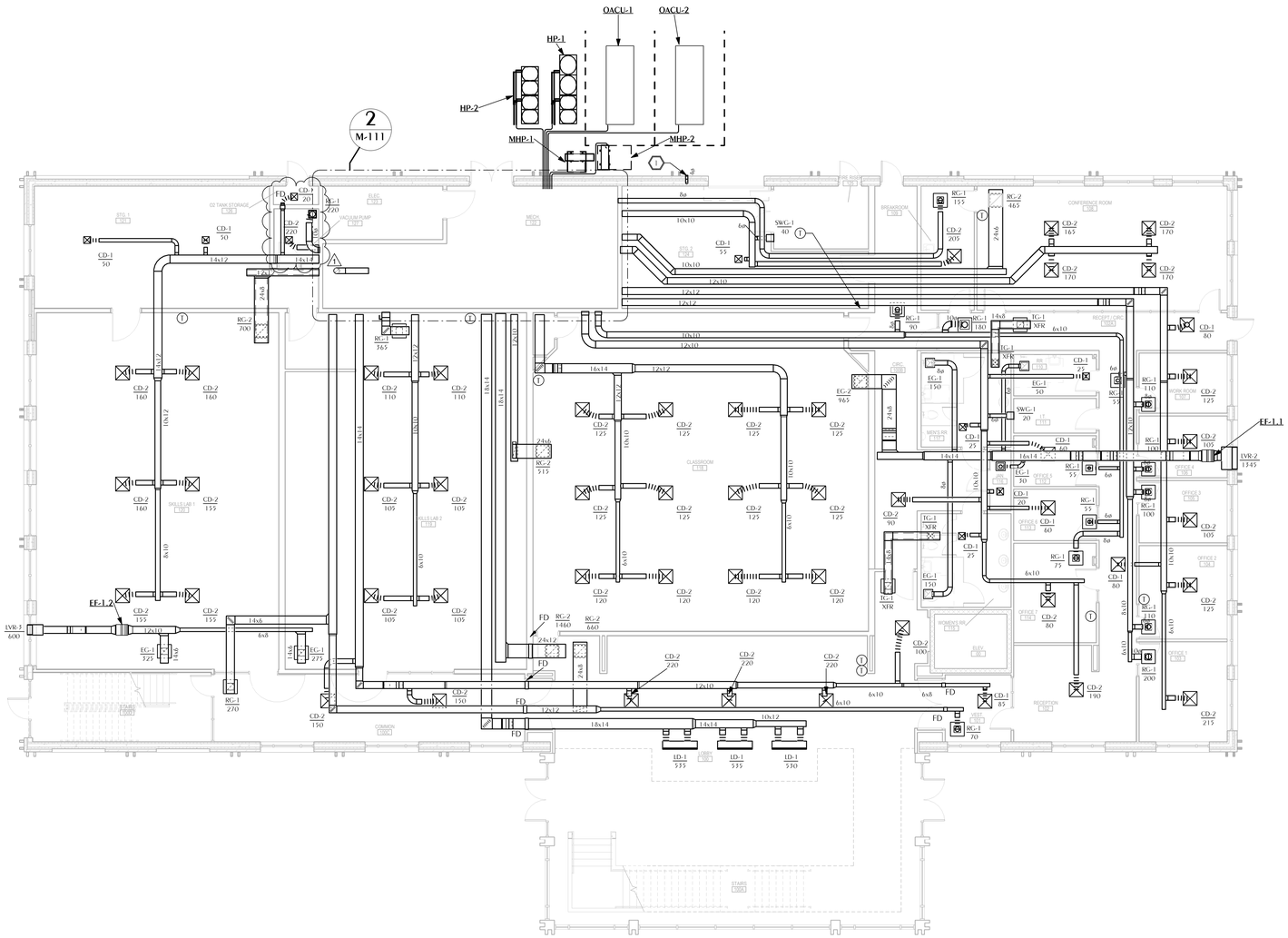
DESCRIPTION	DATE
Addendum	9/19/2025

Project Number **25004**

Dated 08.29.2025

HVAC SCHEDULES

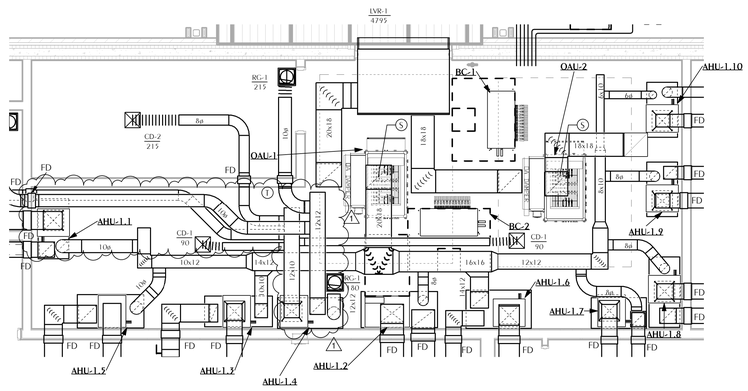
M-002



1 HVAC FLOOR PLAN-LEVEL 1

M-111 SCALE: 1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH



2 HVAC LEVEL 1 ENLARGED MECHANICAL ROOM

M-111 SCALE: 1/4" = 1'-0"

PROJECT NORTH / TRUE NORTH

SHEET NOTES

1. PROVIDE SEIHO MODEL SFZC VENT CAP WITH BACKDRAFT DAMPER FOR DRYER EXHAUST.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	DATE
Addendum	9/19/2025

Project Number **25004**

Dated 08.29.2025

HVAC FLOOR PLAN-LEVEL 1

M-111

GENERAL NOTES

A. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT SIZE AND LOCATION OF EQUIPMENT WHICH IS FURNISHED BY OTHERS AND CONNECTED BY ELECTRICAL.

B. VERIFY ALL DOOR SWINGS WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGHING-IN WALL FOR SWITCHES.

C. GENERAL CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING ANY WORK, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES. FAILURE TO DO SO INDICATES THAT THE CONTRACTOR ACCEPTS THE CONDITIONS AS THEY EXIST, AND SHALL PERFORM THE WORK REQUIRED AS SHOWN AND SPECIFIED.

D. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND REVIEW THE MECHANICAL AND SPECIAL EQUIPMENT SUBMITTALS PRIOR TO SUBMITTING THE ELECTRICAL SUBMITTALS. ANY ELECTRICAL EQUIPMENT, CONDUIT, AND WIRE SIZE CHANGES RESULTING FROM THIS REVIEW SHALL ALSO BE SUBMITTED FOR APPROVAL.

E. PROVIDE BUSHINGS ON ALL CONDUIT

F. .COMPLY WITH ALL LOCAL CODE, LAWS, AND ORDINANCES APPLICABLE TO ELECTRICAL WORK, THE STATE BUILDING CODE AND THE NATIONAL ELECTRIC CODE. OBTAIN ALL PERMITS REQUIRED BY LOCAL ORDINANCES.

G. OBTAIN ARCHITECTS APPROVAL OF ALL LIGHT FIXTURES, SWITCHES, RECEPTACLES, PANELBOARDS, ETC. PRIOR TO PURCHASING.

H. THE ELECTRICAL WORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ALL NOT SO INSTALLED SHALL BE REMOVED AND REPLACED AT NO COST TO THE OWNER.

I. THE CONTRACTOR SHALL LEAVE THE ENTIRE ELECTRICAL SYSTEM INSTALLED IN PROPER WORKING ORDER, AND SHALL REPLACE WITHOUT ADDITIONAL COST, ALL WORK OR MATERIAL WHICH MAY DEVELOP DEFECTS, (ORDINARY WEAR AND TEAR OR DAMAGE RESULTING FROM IMPROPER HANDLING EXCEPTED) WITHIN A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.

ABBREVIATIONS

1P	ONE POLE
2P	TWO POLE
3P	THREE POLE
4P	FOUR POLE
A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
ELEC	ELECTRICAL
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FLA	FULL LOAD AMPS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
Z	HERTZ (CYCLES) PER SECOND
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
LTG	LIGHTING
LV	LOW VOLTAGE
LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, AND - GROUND TRIP UNITS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MTG	MOUNTING
NEC	NATIONAL ELECTRICAL CODE
Ø	PHASE
PNL	PANELBOARD
SEC	SECONDARY
SW	SWITCH
UG	UNDERGROUND
V	VOLT
W	WATT
XFMR	TRANSFORMER

RECEPTACLES

SYMBOL	DESCRIPTION	SPECIFICATION
	DUPLEX RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES HBL5352
	QUAD RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES HBL5352
	DUPLEX GFCI RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES GF5362
	DUPLEX TAMPER RESISTANT RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R A = PROVIDE WITH TWO (2) USB-A PORTS	HUBBELL SERIES BR20xxTR HUBBELL SERIES USB20A
	QUAD TAMPER RESISTANT RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES BR20xxTR
	DUPLEX TAMPER RESISTANT GFCI RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES GFTR20
	DUPLEX TVSS RECEPTACEL; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES HBL5362SA
	SIMPLEX RECEPTACLE; 125V; 20A; 3 POLE GND; NEMA 5-20R	HUBBELL SERIES RR201WTR
	DUPLEX RECEPTACLE HALF SWITCHED	SEE DUPLEX RECEPTACLE
	QUAD RECEPTACLE HALF SWITCHED	SEE QUAD RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE. "X" INDICATES DEVICE TYPE. DEVICE TYPE: A = 125V, 30A, 3W, NEMA L5-30R B = 250V, 30A, 4W, NEMA 14-30R	A = HUBBELL SERIES HBL2610 B = HUBBELL SERIES HBL9430A
	RECEPTACLE INSTALLED IN FLOOR BOX/POKE THRU. DEVICE TYPE AS INDICATED; QUAD IS SHOWN.	SEE DETAILS; REFER TO DEVICE TYPE
	RECEPTACLE INSTALLED IN CEILING. DEVICE TYPE AS INDICATED; DUPLEX IS SHOWN.	REFER TO DEVICE TYPE

DESIGNATION	DESCRIPTION	SPECIFICATION
+XX"	MOUNTING HEIGHT INDICATION FOR OTHER THAN 18" AFF TO C/L. +XX" SHALL INDICATED MOUNTING INCHES ABOVE FINISHED FLOOR TO CENTER LINE. MOUNTING HEIGHT SHALL BE FIELD COORDINATED FOR THE FOLLOWING: •AC" = ABOVE COUNTER. •DF" = DRINKING FOUNTAIN •HB" = MEDICAL HEADBOARD •TV" = TELEVISION •SB" = SMARTBOARD/INTERACTIVE FLAT PANEL •TS" = TEACHER STATION RECEPTACLE •DW" = DISHWASHER RECEPTACLE	
WP	"WP" INDICATES WEATHER PROOF DEVICE AND WEATHER PROOF IN-USE COVER.	COVER: PASS AND SEYMOUR WIUFC10S REFER TO SPECIFICATIONS
PTA	"PTA" INDICATES BOX TYPE. EXAMPLE SHOWN INDICATES POKE THRU BOX "A".	SEE DETAILS FOR INDICATED BOX TYPE

RECEPTACLE NOTES

1. ANY RECEPTACLE LOCATED IN WET ENVIRONMENT PROVIDE THE EQUIVALENT WP VERSION OF RECEPTACLE.
2. RECEPTACLES, SWITCHES AND COVERPLATES COLOR SHALL BE SELECTED BY THE ARCHITECT FROM STANDARD COLORS.
3. VERIFY EXACT LOCATION OF ALL FLOOR OUTLETS WITH THE ARCHITECT PRIOR TO ROUGHING-IN.
4. MOUNT RECEPTACLES 18" AFF TO C/L UNLESS NOTED OTHERWISE.

ELECTRICAL EQUIPMENT

SYMBOL	DESCRIPTION	SPECIFICATION
	SURFACE MOUNTED PANEL; LINE TO GROUND VOLTAGE GREATER THAN 150V; TYP. 480Y/277V	SEE PANEL SCHEDULE; REFER TO SPECIFICATIONS
	SURFACE MOUNTED PANEL; LINE TO GROUND VOLTAGE LESS THAN 150V; TYP. 208Y/120V	SEE PANEL SCHEDULE; REFER TO SPECIFICATIONS
	FLUSH MOUNTED PANEL; LINE TO GROUND VOLTAGE GREATER THAN 150V; TYP. 480Y/277V	SEE PANEL SCHEDULE; REFER TO SPECIFICATIONS
	FLUSH MOUNTED PANEL; LINE TO GROUND VOLTAGE LESS THAN 150V; TYP. 208Y/120V	SEE PANEL SCHEDULE; REFER TO SPECIFICATIONS
T	TRANSFORMER	SEE RISER; REFER TO SPECIFICATIONS
	NON-FUSED DISCONNECT	SEE EQUIP. SCHEDULE; REFER TO SPECIFICATIONS
	FUSED DISCONNECT	SEE EQUIP. SCHEDULE; REFER TO SPECIFICATIONS
MTS	TRANSFER SWITCH; AUTOMATIC INDICATED AS "ATS", MANUAL INDICATED AS "MTS"	SEE RISER; REFER TO SPECIFICATIONS

DESIGNATION	DESCRIPTION
MDP	EQUIPMENT NAME INDICATION; EXAMPLE SHOWN AS "MDP"
30/3/3R	DISCONNECT SIZE INDICATION SHALL BE AMPS/POLES/NEMA-RATING; EXAMPLE SHOWN IS 30 AMPS, 3 POLES, NEMA 3R

EQUIPMENT NOTES

1. ALL PANELBOARDS, BACKBOARDS, TERMINAL CABINETS, ETC SHALL HAVE CUSTOM ENGRAVED NAMEPLATE MECHANICALLY AFFIXED IDENTIFYING SYSTEM. REFER TO EQUIPMENT LABELING DETAILS.
2. LOCATION OF DISCONNECT SWITCHES, ETC. FOR MECHANICAL EQUIPMENT/ROOM SHALL BE COORDINATED WITH FINAL MECHANICAL EQUIPMENT LOCATION TO PROVIDE NATIONAL ELECTRIC CODE REQUIRED ACCESS SPACE.
3. THE ELECTRICAL CONTRACTOR SHALL PROVIDE FAULT CURRENT CALCULATIONS FOR THE SERVICE EQUIPMENT AND SHALL MARK THE EQUIPMENT WITH THE AVAILABLE FAULT CURRENT AND DATE OF THE CALCULATION PER NEC 110.24. REFER TO EQUIPMENT LABELING DETAILS.
4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ARC FAULT LABELS PER NFPA 70E ARTICLE 110.16 FOR NEW EQUIPMENT. THE OWNER SHALL PROVIDE AVAILABLE CALCULATION DATA FOR THE EXISTING EQUIPMENT IN THE ELECTRICAL SYSTEM. REFER TO EQUIPMENT LABELING DETAILS.

POWER DEVICES

SYMBOL	DESCRIPTION	SPECIFICATION
	JUNCTION BOX WALL MOUNTED	REFER TO SPECIFICATIONS
	JUNCTION BOX ABOVE CEILING	REFER TO SPECIFICATIONS
	JUNCTION BOX MOUNTED IN FLOOR	REFER TO SPECIFICATIONS
	RED MUSHROOM EMERGENCY STOP; MAINTAINED PUSH AND KEY RELEASE; LABEL "EMERGENCY STOP"	SQUARE D MODEL XB6AS9345B. SEE DETAILS.
SP	2 POLE, 600V, 30A TOGGLE DISCONNECT SWITCH WITH LOCKABLE ENCLOSURE	HUBBELL BRYANT 30102D
SP	3 POLE 600V, 30A TOGGLE DISCONNECT SWITCH WITH LOCKABLE ENCLOSURE	HUBBELL BRYANT 30103D
SP WP	2 POLE600V, 30A, NEMA 3R TOGGLE DISCONNECT SWITCH WITH LOCKABLE ENCLOSURE; WEATHERPROOF	HUBBELL BRYANT 30322D
SP WP	3 POLE 600V, 30A; NEMA 3R TOGGLE DISCONNECT SWITCH WITH LOCKABLE ENCLOSURE; WEATHERPROOF	HUBBELL BRYANT 30323D

DESIGNATION	DESCRIPTION	SPECIFICATION
XX	"XX" INDICATES TYPE OF EQUIPMENT TO BE POWERED. EQUIPMENT TYPES: DDC = HVAC CONTROL PANEL, DDC ACP = ACCESS CONTROL PANEL AV = AUDIO VISUAL EQUIPMENT POWER	REFER TO SPECIFICATIONS

POWER DEVICE NOTES

1. FOR TOGGLE SWITCH USED AS EQUIPMENT DISCONNECT, ELECTRICAL PLANS INDICATING DEVICES MOUNTED TO EQUIPMENT IS DIAGRAMMATIC ONLY AND THE FINAL LOCATION OF DEVICES SHALL BE DETERMINED BY THE ELECTRICAL CONTRACTOR. COORDINATE DEVICE MOUNTED TO EQUIPMENT SPECIFIED AND PROVIDED UNDER OTHER SECTIONS WITH INSTALLING CONTRACTOR AND THE SPECIFYING ENGINEER.

LIGHTING FIXTURES

SYMBOL	DESCRIPTION	SPECIFICATION
	CEILING MOUNTED FIXTURE; DRAWN TO SCALE	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	CEILING MOUNTED FIXTURE; MIDDLE LINE INDICATES LENS DIRECTION; DRAWN TO SCALE	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	WALL MOUNTED FIXTURE	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	CEILING MOUNTED FIXTURE	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	EXIT SIGN; WALL MOUNTED; SHADED REGION INDICATES ILLUMINATED FACE; ARROW INDICATES DIRECTIONAL ARROW	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	EXIT SIGN; CEILING MOUNTED; SHADED REGION INDICATES ILLUMINATED FACE; ARROW INDICATES DIRECTIONAL ARROW	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	COMBINATION EXIT SIGN EMERGENCY LIGHTING UNIT; MOUNTING AS INDICATED	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	EMERGENCY LIGHTING UNIT	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	CEILING FAN	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS
	DUAL HEAD POLE LIGHT	SEE LIGHTING FIXTURE SCHEDULE; REFER TO SPECIFICATIONS

DESIGNATION	DESCRIPTION	SPECIFICATION
a DL	"DL" REPRESENTS FIXTURE IDENTIFIER. LOWERCASE LETTER "a" INDICATES SWITCHING ZONE.	REFER TO LIGHTING FIXTURE SCHEDULE. REFER TO LIGHTING CONTROLS MATRIX / SEQUENCE OF OPERATIONS.
	SHADED CENTER OF FIXTURE REPRESENTS FIXTURE FOR EMERGENCY EGRESS LIGHTING.	REFER TO LIGHTING FIXTURE SCHEDULE. REFER TO LIGHTING CONTROL DETAILS.

LIGHTING FIXTURE NOTES

1. LIGHTING FIXTURE SYMBOLS REPRESENT THE GENERAL SIZE AND SHAPE OF THE FIXTURE, BUT ARE NOT MEANT TO BE TO-SCALE REPRESENTATIONS UNLESS NOTED OTHERWISE. THE SYMBOLS LISTED IN THE ABOVE LEGEND ARE TYPICAL BUT MAY NOT REPRESENT ALL SYMBOLS SHOWN ON THE PLANS.
2. REFER TO THE LIGHTING FIXTURE SCHEDULE FOR FIXTURE INFORMATION.
3. LOCATION OF LIGHTING FIXTURES IN MECHANICAL EQUIPMENT ROOM SHALL BE COORDINATED WITH THE FINAL MECHANICAL EQUIPMENT LOCATION INCLUDING AC EQUIPMENT, PUMPS, DUCTWORK, PIPE, ETC. TO PROVIDE NEC REQUIRED ACCESS SPACE AND PROPER ILLUMINATION.
4. ALL EXIT SIGNS AND FIXTURES WITH INTEGRAL BATTERY BACKUP SHALL BE CONNECTED TO THE LIGHT CIRCUIT AHEAD OF LOCAL SWITCH CONTROL.

LIGHTING CONTROLS

SYMBOL	DESCRIPTION	SPECIFICATION
LCP	LIGHTING CONTROL PANEL	REFER TO SPECIFICATIONS. SEE DETAILS
LNC	LIGHTING CONTROL NETWORK CONTROLLER	REFER TO SPECIFICATIONS. SEE DETAILS.
RC	LIGHTING CONTROLS ROOM CONTROLLER. INSTALL CONCEALED ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.	REFER TO SPECIFICATIONS. SEE DETAILS.
EM	LIGHTING CONTROLS UL924 EMERGENCY RELAY. INSTALL CONCEALED ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.	REFER TO SPECIFICATIONS. SEE DETAILS.
RP	RECEPTACLE "PLUG" LOAD CONTROLLER. INSTALL CONCEALED ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.	REFER TO SPECIFICATIONS. SEE DETAILS.
BR	LIGHTING CONTROLS NETWORK BRIDGE. INSTALL CONCEALED ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.	REFER TO SPECIFICATIONS. SEE DETAILS.
V	LIGHTING CONTROLS MOTION SENSOR; CEILING MOUNTED; PROGRAMMED FOR VACANCY SENSING.	REFER TO SPECIFICATIONS. SEE DETAILS.
O	LIGHTING CONTROLS MOTION SENSOR; CEILING MOUNTED; PROGRAMMED FOR OCCUPANCY SENSING.	REFER TO SPECIFICATIONS. SEE DETAILS.
V	LIGHTING CONTROLS MOTION SENSOR; WALL MOUNTED; PROGRAMMED FOR VACANCY SENSING.	REFER TO SPECIFICATIONS. SEE DETAILS.
O	LIGHTING CONTROLS MOTION SENSOR; WALL MOUNTED; PROGRAMMED FOR OCCUPANCY SENSING.	REFER TO SPECIFICATIONS. SEE DETAILS.
D	LIGHTING CONTROLS DAYLIGHT PHOTO SENSOR; CEILING MOUNT	REFER TO SPECIFICATIONS. SEE DETAILS.
P	PHOTO SENSOR; WALL MOUNT TO ON NORTH FACE OF BUILDING EXTERIOR	REFER TO SPECIFICATIONS. SEE DETAILS.
SLX	LOW VOLTAGE SWITCH. "X" INDICATES BUTTON COUNT.	REFER TO SPECIFICATIONS. SEE DETAILS.
SW	WALL SWITCH WITH MOTION SENSOR; PROGRAM FOR OCCUPANCY SENSING.	WATTSTOPPER #DWS-301-W
SV	WALL SWITCH WITH MOTION SENSOR; PROGRAM FOR VACANCY SENSING.	WATTSTOPPER #DWS-301-W
D	DIMMER SWITCH; 120V; 0-10V	COORDINATE WITH FIXTURE DIMMING TYPE.
S	SINGLE POLE TOGGLE SWITCH	HUBBELL SERIES HBL1221
S3	3-WAY TOGGLE SWICH	HUBBELL SERIES HBL1223
S4	4-WAY TOGGLE SWITCH	HUBBELL SERIES HBL1224
SP	SINGLE POLE SWITCH; EXPLOSION PROOF	APPLETON SERIES EDS
SP	SINGLE POLE SWITCH; PILOT LIGHT; LIGHT 'ON' WHEN SWITCH IS CLOSED	HUBBELL SERIES HBL1221PLC

DESIGNATION	DESCRIPTION	SPECIFICATION
SWP	"WP" INDICATES DEVICE IN WEATHER PROOF COVER.	REFER TO SPECIFICATIONS

LIGHTING CONTROL NOTES

1. REFER TO LIGHTING CONTROL MATRIX / SEQUENCE OF OPERATIONS TABLE FOR PROGRAMMING OF LIGHTING CONTROLS.
2. REFER TO LIGHTING CONTROL DETAILS FOR TYPICAL WIRING OF CONTROLS, LOW VOLTAGE NETWORKING OF CONTROLS, AND BASIS OF DESIGN EQUIPMENT SPECIFICATIONS.
3. ALL LIGHTING CONTROL SWITCHES SHALL BE MOUNTED 48" AFF TO C/L UNLESS NOTED OTHERWISE.
4. FOR ALL DEVICES INDICATED AS WEATHERPROOF PROVIDE THE EQUIVALENT WEATHERPROOF DEVICE TYPE AND WEATHERPROOF COVER.

RACEWAYS AND CONDUCTORS

SYMBOL	DESCRIPTION
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	CONDUIT TURNED UP/DOWN
	CONDUIT CAP
	RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	RACEWAY INSTALLED EXPOSED
	RACEWAY INSTALLED IN SLAB / BELOW GRADE / UNDER FLOOR
	EMERGENCY / LIFE SAFETY POWER CIRCUIT
	LOW VOLTAGE CONDUCTOR
P-1,3,5	HOMERUN ARROW WITH CIRCUIT TAG. CIRCUIT TAG INDICATES PANEL-SPACE,SPACE,SPACE. TAG SHOWN INDICATES PANEL "P" WITH 3 POLE CIRCUIT TO SPACES 1, 3, AND 5
	WIRE COUNT TICK MARKS. EACH TICK MARK INDICATES ONE CONDUCTOR IN RACEWAY. TICK MARK WITH DOT REPRESENTS EQUIPMENT GROUND. NO TICK MARK INDICATES 2 CONDUCTORS PLUS EQUIPMENT GROUND.
	ANNOTATIVE BREAK IN WIRE INDICATES CIRCUIT CONTINUES BEYOND WHAT IS SHOWN
	FLEXIBLE CONDUIT CONNECTION

(_)#_& _#_ - _°C

- TOTAL NUMBER OF RUNS. SEE NOTE 1.
- TOTAL NUMBER OF CONDUCTORS PER RUN
- SIZE OF CONDUCTORS AWG OR KCMIL
- TRADE SIZE OF CONDUIT
- SIZE OF GROUNDING CONDUCTOR
- NUMBER GROUNDING CONDUCTORS. SHOULD ALWAYS BE 1.

NOTES
1. ONLY INDICATED IF MORE THAN ONE.
2. SEE FEEDER SCHEDULE
3. NO WIRE SIZE NOTED INDICATES 2#12 & 1#12 - 3/4"C.

EXAMPLE
2#10 & 1#10 - 3/4"C
- ONE RUN OF 3/4" CONDUIT CONTAINING TWO #10AWG AND ONE #10AWG GROUNDING CONDUCTOR.

(2)4#3/0 & 1#3 - 2"C
- TWO RUNS OF 2" CONDUIT WITH EACH CONDUIT CONTAINING FOUR #3/0AWG AND ONE #3/0AWG GROUNDING WIRE.

WIRING NOTES

1. ALL EXPOSED CONDUITS, BOXES, STRAPS AND HANGERS IN THE CONTRACT AREA WHETHER NEW OR EXISTING THAT ARE PART OF THE ELECTRICAL SYSTEM SHALL BE PAINTED TO MATCH ADJACENT FINISH.
2. FINAL CONNECTION TO ALL MOTORS SHALL BE WITH FLEXIBLE CONDUIT CONNECTION.
3. FINAL CONNECTION TO ALL DRY TYPE TRANSFORMERS SHALL BE WITH FLEXIBLE CONDUIT CONNECTION.
4. PROVIDE BUSHINGS ON ALL CONDUIT.
5. PROVIDE GREEN GROUND CONDUCTOR IN ALL CIRCUITS - SIZE PER N.E.C.
6. PROVIDE CONCRETE MARKER AT END OF ALL CONDUITS STUBBED OUT OF BUILDING FOR FUTURE USE. MARKER SHALL BE 6" DIA X 18" HIGH WITH 2" ABOVE FINISHED GRADE. INSCRIBE IN TOP OF MARKER "E" FOR ELECTRICAL,"T" FOR TELEPHONE,"V" FOR TV CABLE,"F" FOR FIRE ALARM, AND "IC" FOR INTERCOM.
7. ALL CONDUCTORS LESS THAN 100A. SHALL BE COPPER #12 & #10 SOLID, #8 AND LARGER STRANDED, #6 AND SMALLER TO BE TYPE THWN, 600 VOLT INSULATION AND TYPE THWN OR THHN FOR #4 AND LARGER. ALUM. CONDUCTORS MAY BE USED FOR 100A. AND LARGER ONLY WHERE USED WITH COMPRESSION TERMINATIONS.
8. ALL WORK SHALL BE INSTALLED IN CONCEALED TYPE CONSTRUCTION. UNDERGROUND CONDUITS UP TO FIRST BOX IN CONCEALED CONSTRUCTION MAY BE SCH.40 PVC. EXTERIOR EXPOSED WORK SHALL BE I.M.C. BRANCH CIRCUIT CONDUIT RUN IN OPEN SPACES ABOVE CEILING OR IN WALLS MAY BE THINWALL (E.M.T.) CONDUIT 1/2" MIN. SIZE.

FIRE ALARM

SYMBOL	DESCRIPTION	SPECIFICATION
FACP	FIRE ALARM CONTROL PANEL / REMOTE ANNUNCIATOR PANEL AS INDICATED; SURFACE MOUNT.	REFER TO SPECIFICATIONS.
FACP	FIRE ALARM CONTROL PANEL / REMOTE ANNUNCIATOR PANEL AS INDICATED; RECESSED MOUNT.	REFER TO SPECIFICATIONS.
	MANUAL PULL STATION.	REFER TO SPECIFICATIONS.
	WALL MOUNT SIGNAL SPEAKER/STROBE.	REFER TO SPECIFICATIONS.
	WALL MOUNT SIGNAL HORN/STROBE.	REFER TO SPECIFICATIONS.
	WALL MOUNT SIGNAL STROBE.	REFER TO SPECIFICATIONS.
	CEILING MOUNT SIGNAL SPEAKER/STROBE.	REFER TO SPECIFICATIONS.
	CEILING MOUNT SIGNAL HORN/STROBE.	REFER TO SPECIFICATIONS.
	CEILING MOUNT SIGNAL STROBE.	REFER TO SPECIFICATIONS.
H	CEILING MOUNT AUTOMATIC HEAT DETECTOR; 135 DEGREE RATE OF RISE.	REFER TO SPECIFICATIONS.
C	CEILING MOUNT CARBON MONOXIDE (CO) DETECTOR;	REFER TO SPECIFICATIONS.
	CEILING MOUNT AUTOMATIC SMOKE DETECTOR;	REFER TO SPECIFICATIONS.
	AUTOMATIC AIR DUCT SMOKE DETECTOR; MOUNTING COORDINATED WITH MECHANICAL.	REFER TO SPECIFICATIONS.
	REMOTE INDICATOR LIGHT FOR AIR DUCT SMOKE DETECTOR.	REFER TO SPECIFICATIONS.
	FIRE ALARM CONNECTION TO MAGNETIC DOOR HOLDER.	REFER TO SPECIFICATIONS.
R	NORMALLY CLOSED RELAY IN HVAC CONTROL CIRCUIT TO OPEN UPON ACTUATION OF BUILDING FIRE ALARM SYSTEM TO SHUT DOWN A/C UNIT; CONTACTS RATED 5A, 120V.	REFER TO SPECIFICATIONS.
	FIRE ALARM SYSTEM MINI-SOUNDER WITH FLASHING STROBE.	REFER TO SPECIFICATIONS.
	FIRE ALARM SYSTEM MINI-SOUNDER.	REFER TO SPECIFICATIONS.
WP	FIRE ALARM SYSTEM EXTERIOR, WEATHERPROOF SIGNAL SPEAKER.	REFER TO SPECIFICATIONS.
H	FIRE DEPARTMENT COMMUNICATIONS SYSTEM REMOTE STATION.	REFER TO SPECIFICATIONS.
	FIRE SPRINKLER FLOW/TAMPER SWITCH.	REFER TO SPECIFICATIONS.
SD	FIRE ALARM CONNECTION TO SMOKE DAMPER.	REFER TO SPECIFICATIONS.
FSD	FIRE ALARM CONNECTION TO FIRE/SMOKE DAMPER.	REFER TO SPECIFICATIONS.
SV	FIRE ALARM CONNECTION TO SOLENOID VALVE.	REFER TO SPECIFICATIONS.
H	SELF-CONTAINED HEARING IMPAIRED RESIDENTIAL SMOKE ALARM 120V; BATTERY BACK-UP; PUSH-TO-TEST BUTTON & PILOT LIGHT; TANDEM TYPE (ONE ALARMS-ALL ALARM); SYNCHRONIZED FLASHER;	REFER TO SPECIFICATIONS.
C	SELF-CONTAINED RESIDENTIAL SMOKE/CARBON MONOXIDE ALARM 120V; WITH BATTERY BACK-UP; PUSH-TO-TEST BUTTON & PILOT LIGHT; TANDEM TYPE (ONE ALARMS-ALL ALARM)	REFER TO SPECIFICATIONS.
	SELF-CONTAINED RESIDENTIAL SMOKE ALARM 120V. WITH BATTERY BACK-UP; PUSH-TO-TEST BUTTON & PILOT LIGHT; TANDEM TYPE (ONE ALARMS-ALL ALARM);	REFER TO SPECIFICATIONS.

DESIGNATION	DESCRIPTION	SPECIFICATION
WP	'WP' INDICATES DEVICE LISTED AND RATED FOR EXTERIOR LOCATION (WEATHER PROOF).	REFER TO SPECIFICATIONS.
110	FOR SIGNAL STROBE DEVICES 110 INDICATES 110 CANDELA RATING; NO INDICATION 75 CANDELA.	REFER TO SPECIFICATIONS.

FIRE ALARM NOTES

1. ALL MANUAL PULL STATIONS SHALL BE MOUNTED 48" AFF TO C/L; ALL WALL MOUNTED SIGNAL DEVICES SHALL BE LOCATED 80" AFF TO BOTTOM OF DEVICE, BUT NOT LESS THAN 6" FROM CEILING.
2. FOR SIGNAL DEVICES, STROBE CANDELA AND AUDIO SIGNAL SHALL BE SELECTABLE ON THE BACK OF THE DEVICE.
3. FIRE ALARM LOW VOLTAGE SOURCE AND BATTERY STANDBY SHALL ENERGIZE ALL ITEMS IN FIRE ALARM SYSTEM THAT REQUIRE POWER

GROUNDING

SYMBOL	DESCRIPTION	SPECIFICATION
	GROUND ROD	REFER TO SPECIFICATIONS. SEE DETAILS.
	GROUND ROD TEST WELL	REFER TO SPECIFICATIONS. SEE DETAILS.
	GROUNDING BUSSBAR	REFER TO SPECIFICATIONS. SEE DETAILS.
	3-WAY TAP EXOTHERMIC WELD SPLICE	REFER TO SPECIFICATIONS. SEE DETAILS.
	4-WAY TAP EXOTHERMIC WELD SPLICE	REFER TO SPECIFICATIONS. SEE DETAILS.
	BONDING CONNECTION	REFER TO SPECIFICATIONS. SEE DETAILS.

REFERENCE DESIGNATIONS

SYMBOL	DESCRIPTION
	KEYNOTE REFERENCE
	FEEDER NOTE REFERENCE
	REVISION REFERENCE
	REVISION CLOUD MARKS REVISED PORTION OF DRAWING.

VIEW NUMBER/IDENTIFICATION
VIEW REFERENCE
SHEET DRAWN ON

VIEW LETTER/IDENTIFICATION
INTERIOR ELEVATION REFERENCE
SHEET DRAWN ON

VIEW NUMBER/IDENTIFICATION
EXTERIOR ELEVATION REFERENCE
SHEET DRAWN ON

VIEW NUMBER/IDENTIFICATION
SECTION REFERENCE
SHEET DRAWN ON

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NURSE CALL LEGEND

SYMBOL	DESCRIPTION	SPECIFICATION
GW #	NURSE CALL GATEWAY - SURFACE WALL MOUNT/MAY SHARE EQUIPMENT CABINET WITH ANOTHER GATEWAY IF APPLICABLE. REQUIRES POWER SUPPLY AND MAY CONTAIN NETWORK SWITCH. SEE RISER DIAGRAM FOR DETAILS. EQUAL TO JERON #7993-7995A-7991-9777-9776 DENOTES EQUIP. CABINET NUMBER	
NCMS	NURSE CALL MASTER STATION - DESK TOP MOUNTEDEQUAL TO JERON #7965	
	ROOM CONTROLLER W/ PRISM CORRIDOR LIGHT - WALL MOUNTED 4" ABOVE DOOR - EQUAL TO JERON # 7953-9779	
	CONSOLE CONTROLLER - WALL OR CEILING MOUNTED - EQUAL TO JERON #7960-9779	
	PRISM CORRIDOR ZONE LIGHT - CEILING SURFACE MOUNTED IN SHOWN CORR. LOCATION - EQUAL TO JERON #793-9779	
SP	SINGLE PATIENT NURSE CALL STATION - 46" MOUNTING HEIGHT TO CENTER LINE - EQUAL TO JERON #7920	
SP E	ENHANCED SINGLE PATIENT NURSE CALL STATION - 46" MOUNTING HEIGHT TO CENTER LINE - EQUAL TO JERON #7923	
CB	CODE BLUE PUSH BUTTON STATION- 46" MOUNTING HEIGHT TO CENTER LINE -

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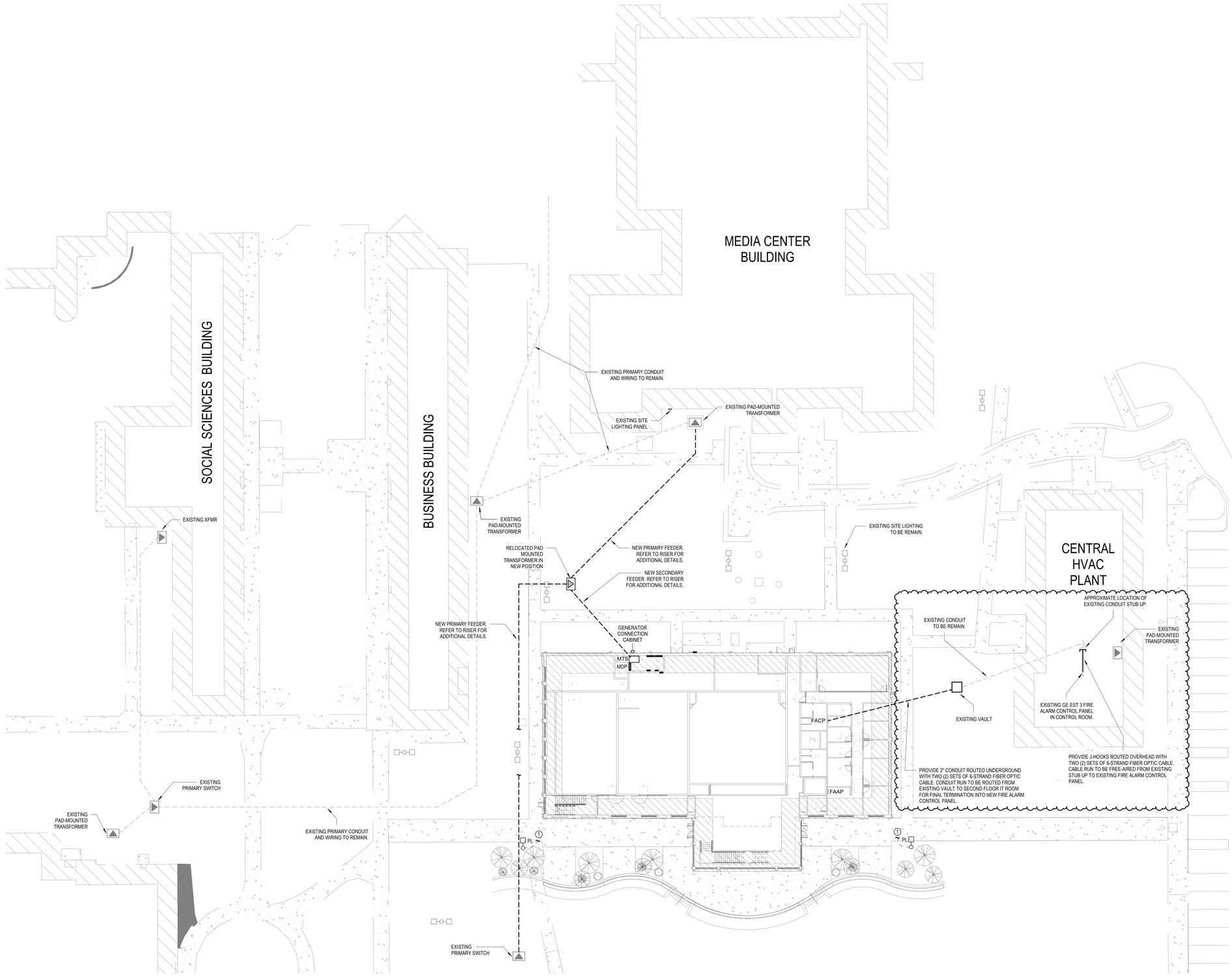
KEYNOTES

1	SITE POLE LIGHTING CIRCUIT TO RECEIVE POWER AND CONTROL FROM EXTERIOR BUILDING LIGHTING.



LEVEL 1 - SITE PLAN - NEW WORK

1" = 20'-0"

0 10' 20'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT SIZE REDUCTION OF NORTHERN SIDE OF THE BUILDING. REFER TO THE E-8XX SHEETS FOR RELOCATION OF THE IT ROOM AND FIRE ALARM CONTROL PANEL; THE ASSOCIATED CONDUIT RUN SHALL BE RELOCATED ACCORDINGLY.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

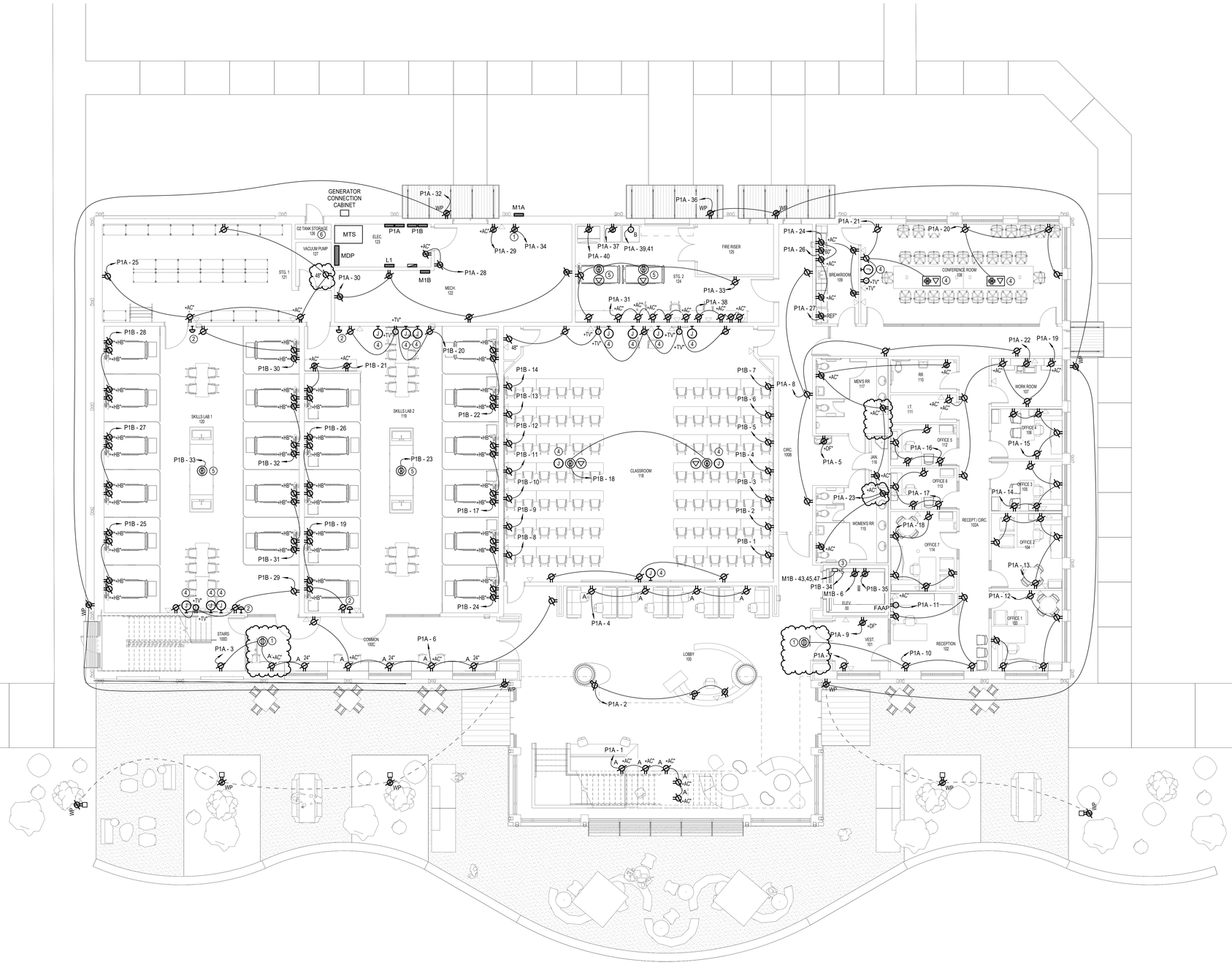
REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

LEVEL 1 SITE PLAN - NEW WORK

E-102



LEVEL 1 - POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'

KEYNOTES	
1	RECEPTACLE FOR EBS NOTIFICATION SYSTEM, COORDINATE LOCATION AND MOUNTING HEIGHT WITH CONTRACTOR.
2	PROVIDE RED EMERGENCY STOP PUSH BUTTON FOR DEACTIVATION OF ALL NON-LIGHTING LOADS WITHIN LAB SPACE. LOCATE CONTACTOR ABOVE CEILING FOR ALL CIRCUITS WITHIN THE RESPECTIVE ROOM.
3	ELEVATOR CAB LIGHT AND CONTROLS CAPABLE OF BEING LOCKED IN THE OFF POSITION.
4	PROVIDE JUNCTION BOX, CONDUIT, AND/OR 120VAC CONNECTION FOR AV EQUIPMENT. SEE AV PLANS FOR MOUNTING HEIGHT, EQUIPMENT LOCATION, AND POWER REQUIREMENTS.
5	PROVIDE CORD REELS WITHIN THIS SPACE. ALL SHALL BE PROVIDED WITH A MINIMUM LENGTH OF 25' AND NO SMALLER THAN #12 AWG COPPER WITH ONE (1) DUPLEX RECEPTACLE. CORD REELS SHALL BE CEILING-MOUNTED AND SUPPORTED FROM STRUCTURE BASED ON MANUFACTURER'S RECOMMENDATION. COORDINATE FINAL LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
6	PROVIDE CLASS 1, DIVISION 2 INSTALLATION IN THIS SPACE, INCLUDING ALL NECESSARY EXPLOSION-RESISTANT ENCLOSURE(S), DEVICE(S), SEAL-OFF(S), AND ANY OTHER REQUIREMENTS OF NEC CHAPTER 5.

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-811 FOR THE REVISED POWER LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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LEVEL 1 POWER PLAN

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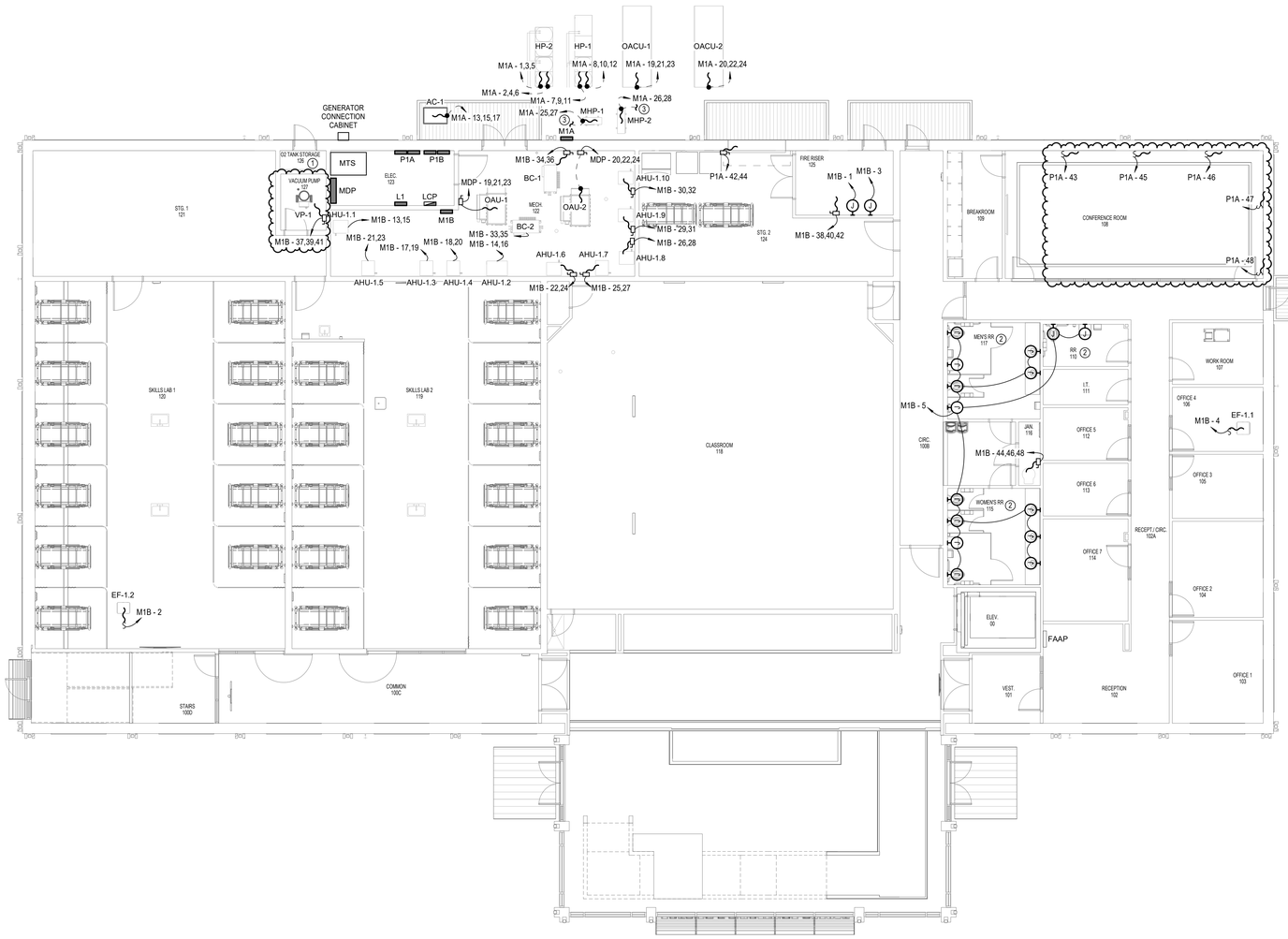
KEYNOTES

1	PROVIDE CLASS 1, DIVISION 2 INSTALLATION IN THIS SPACE, INCLUDING ALL NECESSARY EXPLOSION-RESISTANT ENCLOSURE(S), DEVICE(S), SEAL-OFF(S), AND ANY OTHER REQUIREMENTS OF NEC CHAPTER 5.
2	PROVIDE JUNCTION BOX AND 120VAC CONNECTION FOR AC/DC TRANSFORMER, CAPABLE OF POWERING A MAXIMUM OF EIGHT (8) AUTOMATED FIXTURES. PLUMBING CONTRACTOR TO PROVIDE ONE (1) TRANSFORMER PER RESTROOM. PROVIDE JUNCTION BOX, CONDUIT, AND WIRE FROM THE TRANSFORMER TO EVERY AUTOMATED FIXTURE WITHIN THIS SPACE. COORDINATE LOCATION OF TRANSFORMER WITH PLUMBING CONTRACTOR PRIOR TO INSTALLATION.
3	OUTDOOR UNIT TO SUPPLY POWER TO INDOOR UNIT ON SECOND FLOOR.



LEVEL 1 - MECH POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-812 FOR THE REVISED MECH POWER LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

LEVEL 1 MECH POWER PLAN

E-112

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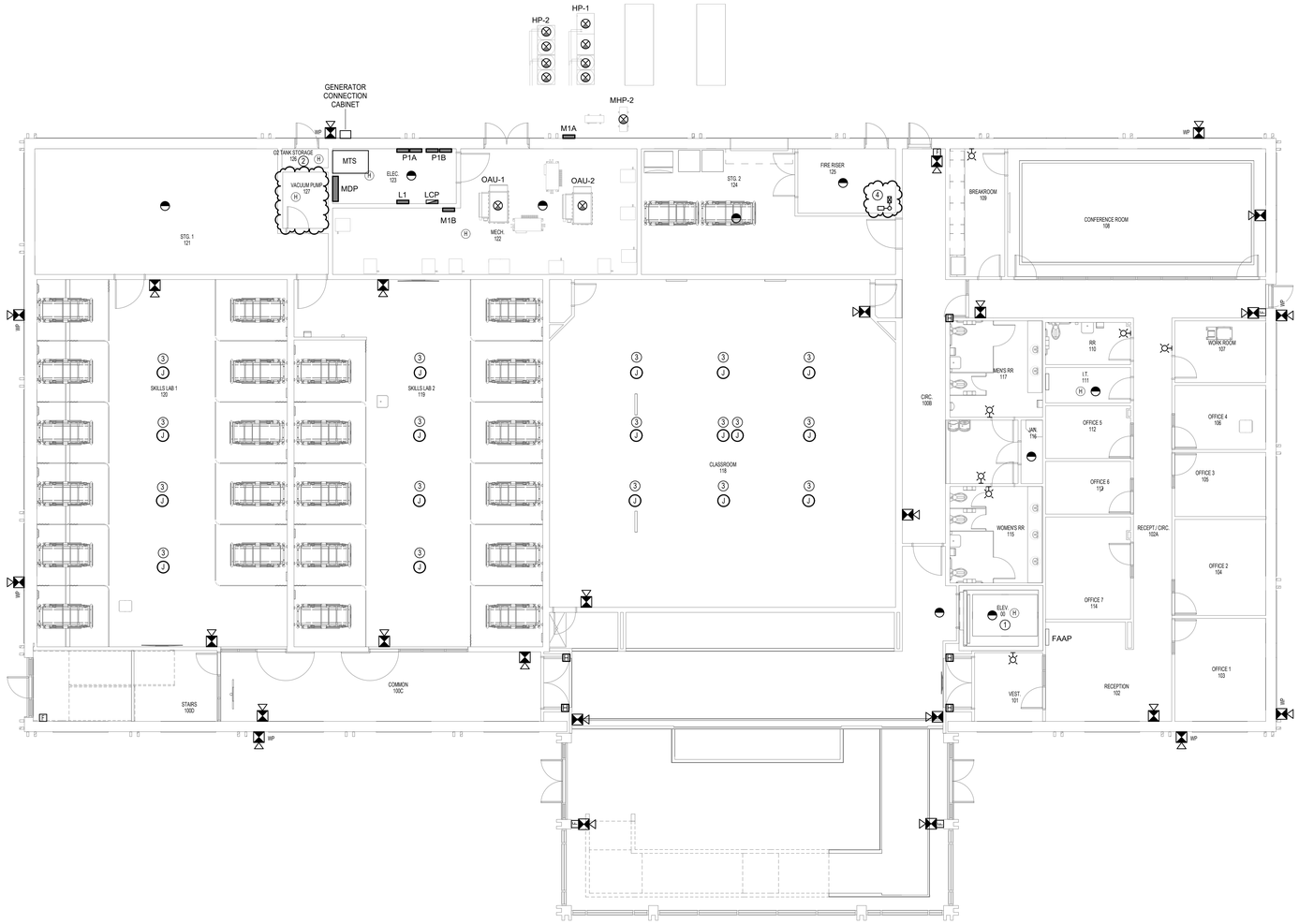
KEYNOTES

1	PROVIDE HEAT DETECTOR AT BOTTOM OF SHAFT AND SMOKE AND HEAT DETECTOR AT TOP OF SHAFT WITH ADDITIONAL NORMALLY CLOSED CONTACTS.
2	PROVIDE CLASS 1, DIVISION 2 INSTALLATION IN THIS SPACE, INCLUDING ALL NECESSARY EXPLOSION-RESISTANT ENCLOSURE(S), DEVICE(S), SEAL-OFF(S), AND ANY OTHER REQUIREMENTS OF NEC CHAPTER 5.
3	PROVIDE JUNCTION BOX, CONDUIT, AND/OR 120VAC CONNECTION FOR AV EQUIPMENT. SEE AV PLANS FOR MOUNTING HEIGHT, EQUIPMENT LOCATION, AND POWER REQUIREMENTS.
4	PROVIDE FLOW AND TAMPER SWITCHES; QUANTITY AS REQUIRED BY FIRE PROTECTION INSTALLER.



LEVEL 1 - MISC SYSTEMS PLAN

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-813 FOR THE REVISED MISC SYSTEMS LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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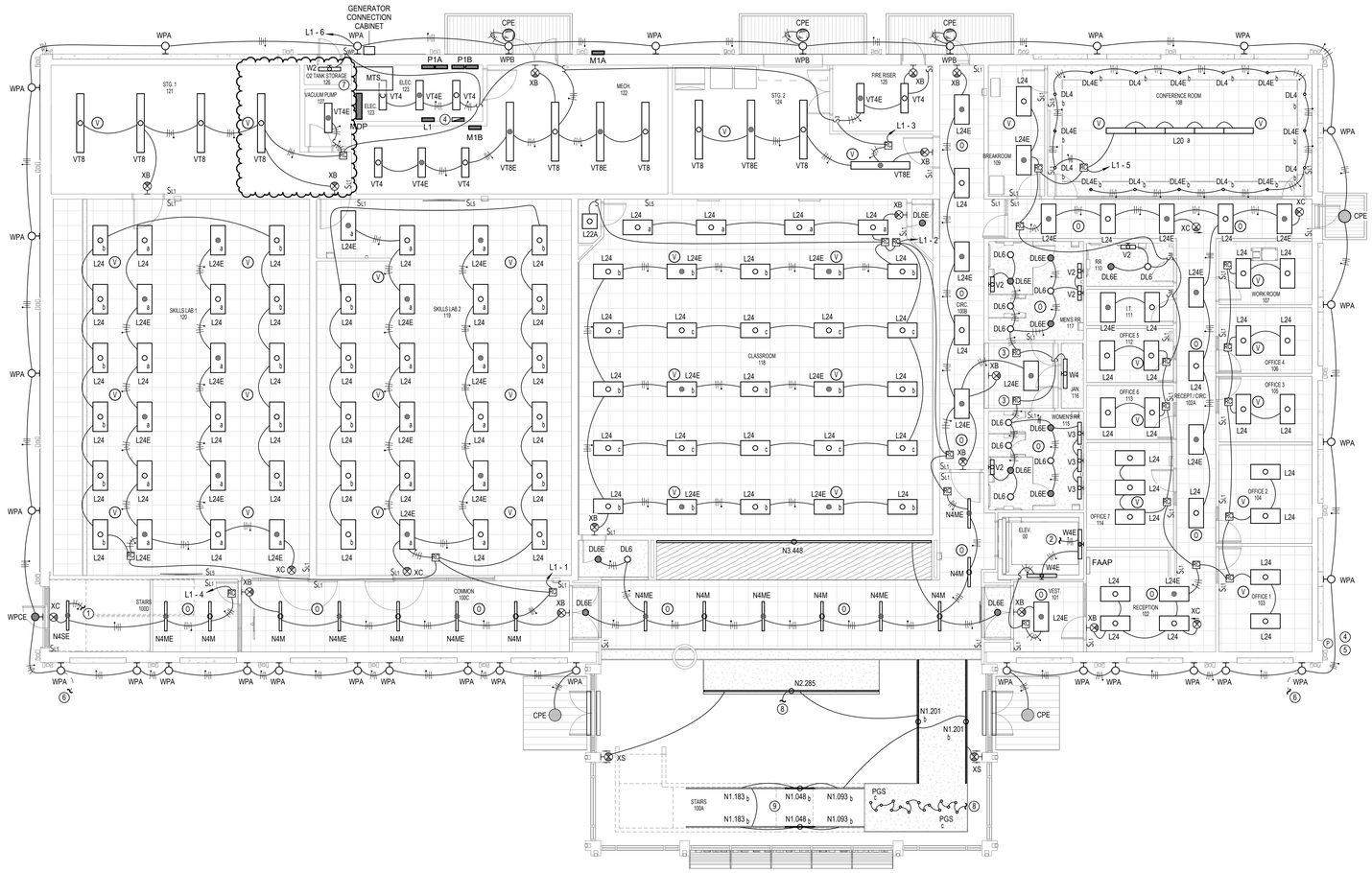
LEVEL 1 MISC SYSTEMS PLAN

E-113



LEVEL 1 - LIGHTING PLAN

1/8" = 1'-0"

0 4' 8' 16'

KEYNOTES	
1	CONTINUE STAIRWELL LIGHTING CIRCUIT TO SECOND FLOOR.
2	CONTINUE ELEVATOR LIGHTING CIRCUIT TO SECOND FLOOR.
3	ENSURE TO MOUNT ALL ROOM CONTROLLERS IN AN ACESSIBLE ABOVE-CEILING SPACE. IF ROOM CONTAINS A GYPSUM CEILING OR CONTAINS SOME OTHER OBSTRUCTION, INSTALLATION IN AN ADJACENT ACCESSIBLE SPACE IS PREFERRED.
4	EXTERIOR BUILDING AND SITE LIGHTING TO BE CONTROLLED VIA PHOTOCELL AND ASTRONOMICAL TIMECLOCK. COORDINATE WITH OWNER TO PROGRAM ACTIVATION SCHEDULE.
5	MOUNT PHOTOCELL ON NORTHERN WALL AS HIGH AS POSSIBLE BELOW BUILDING EAVE.
6	CONTINUE EXTERIOR BUILDING LIGHTING CIRCUIT TO SITE POLE FIXTURES.
7	PROVIDE CLASS 1, DIVISION 2 INSTALLATION IN THIS SPACE, INCLUDING ALL NECESSARY EXPLOSION-RESISTANT ENCLOSURE(S), DEVICE(S), SEAL-OFF(S), AND ANY OTHER REQUIREMENTS OF NEC CHAPTER 5.
8	UNDER-STAIR LIGHTING CIRCUIT TO RECEIVE POWER AND CONTROL FROM SECOND FLOOR.
9	UNDER-STAIR LINEAR LIGHTING LENGTHS TO BE COORDINATED WITH ARCHITECTURAL DRAWINGS AND MANUFACTURER CAPABILITIES PRIOR TO PROCURMENT. DESIGN INTENT IS TO MAINTAIN A NEAR-CONTINUOUS SET OF LINEAR FIXTURES WHICH TRANSITION TO AND FROM SLOPED AND LEVEL PLANES BENEATH THE LOBBY STAIRCASE.

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-814 FOR THE REVISED LIGHTING LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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LEVEL 1
LIGHTING PLAN

E-114

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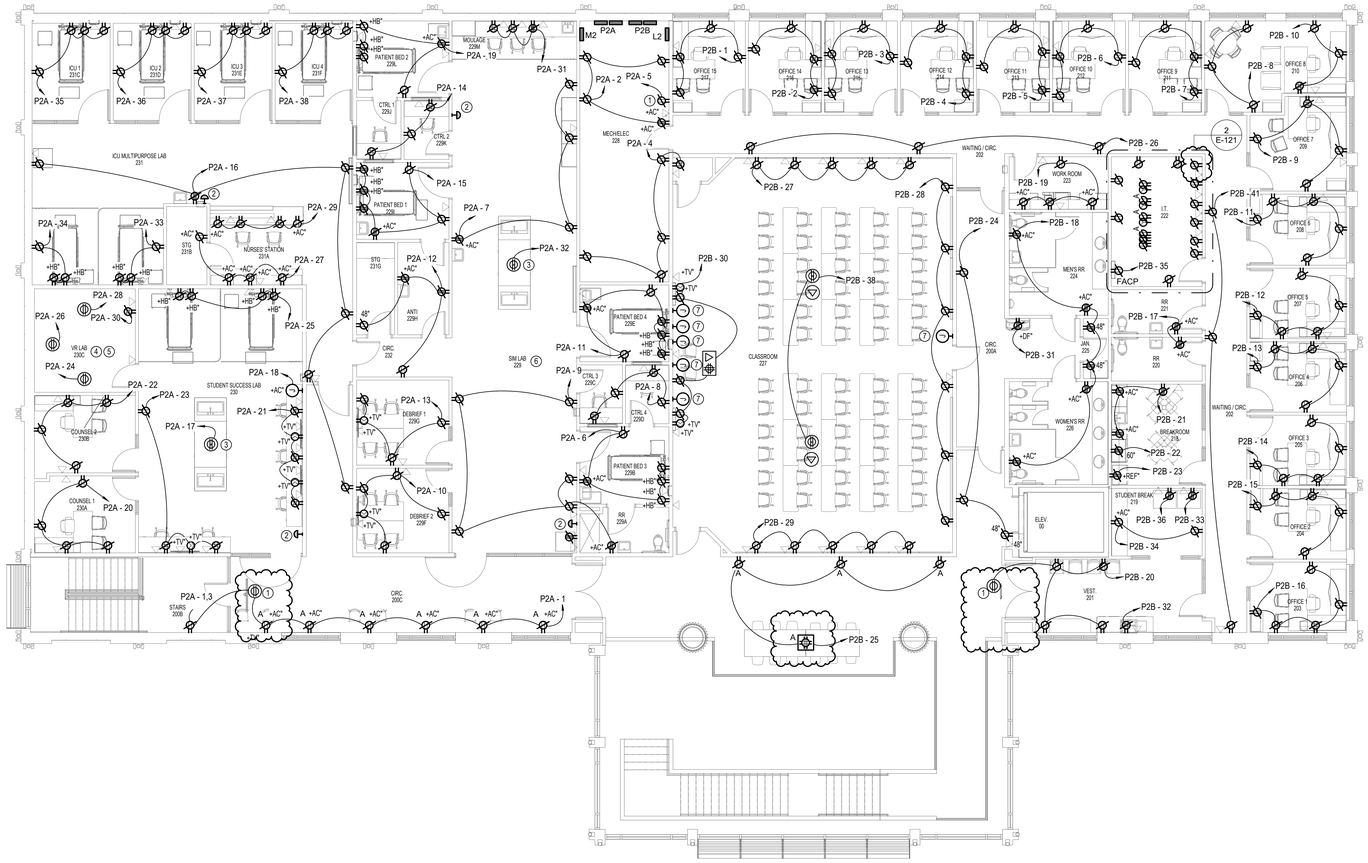
KEYNOTES

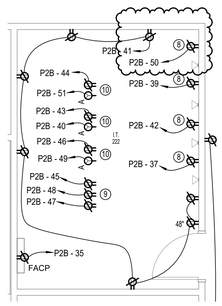
1	RECEPTACLE FOR EBS NOTIFICATION SYSTEM, COORDINATE LOCATION AND MOUNTING HEIGHT WITH CONTRACTOR.
2	PROVIDE RED EMERGENCY STOP PUSH BUTTON FOR DEACTIVATION OF ALL NON-LIGHTING LOADS WITHIN LAB SPACE. LOCATE CONTACTOR ABOVE CEILING FOR ALL CIRCUITS WITHIN THE RESPECTIVE ROOM.
3	PROVIDE CORD REELS WITHIN THIS SPACE. ALL SHALL BE PROVIDED WITH A MINIMUM LENGTH OF 25' AND NO SMALLER THAN #12 AWG COPPER WITH ONE (1) DUPLEX RECEPTACLE. CORD REELS SHALL BE CEILING-MOUNTED AND SUPPORTED FROM STRUCTURE BASED ON MANUFACTURER'S RECOMMENDATION. COORDINATE FINAL LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
4	PROVIDE POWER TO THIRD PARTY VR LAB PROJECTORS. COORDINATE MOUNTING HEIGHTS AND LOCATIONS WITH THIRD-PARTY VENDOR TO ENSURE PROPER INSTALLATION.
5	PROVIDE THREE (3) 2" CONDUITS WITH PULLSTRING FROM THIRD PARTY VR LAB SERVER RACK TO ACCESSIBLE ABOVE-CEILING SPACE.
6	PROVIDE JUNCTION BOX AND CONDUIT WITH PULLSTRING TO ABOVE ACCESSIBLE CEILING FOR EMS SYSTEM EQUIPMENT. SEE THIRD PARTY EMS DRAWINGS FOR ADDITIONAL DETAILS.
7	PROVIDE JUNCTION BOX, CONDUIT, AND/OR 120VAC CONNECTION FOR AV EQUIPMENT. SEE AV PLANS FOR MOUNTING HEIGHT, EQUIPMENT LOCATION, AND POWER REQUIREMENTS.
8	ACCESS CONTROL SYSTEM EQUIPMENT RACK. COORDINATE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.
9	EMERGENCY MANAGEMENT SYSTEM SERVER RACK. COORDIANTE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.
10	IT SERVER RACKS. COORDIANTE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.



LEVEL 2 - POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'



ENLARGED IT ROOM PLAN

1/4" = 1'-0"

0 2' 4' 8'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-814 FOR THE REVISED LIGHTING LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
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Project Number	**25004**
Dated	08.29.2025

LEVEL 2 POWER PLAN

E-121

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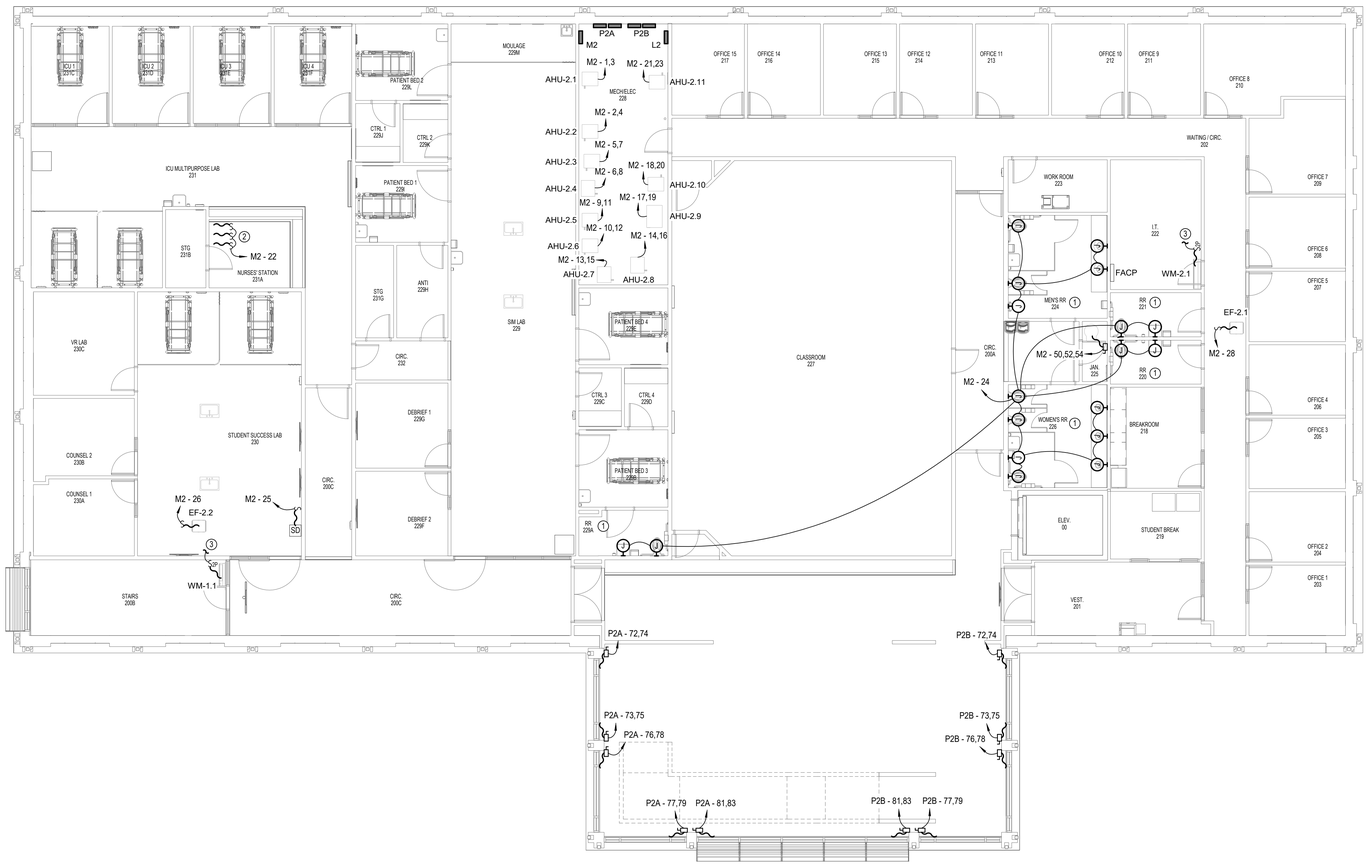
KEYNOTES

1	PROVIDE JUNCTION BOX AND 120VAC CONNECTION FOR AC/DC TRANSFORMER, CAPABLE OF POWERING A MAXIMUM OF EIGHT (8) AUTOMATED FIXTURES. PLUMBING CONTRACTOR TO PROVIDE ONE (1) TRANSFORMER PER RESTROOM. PROVIDE JUNCTION BOX, CONDUIT, AND WIRE FROM THE TRANSFORMER TO EVERY AUTOMATED FIXTURE WITHIN THIS SPACE. COORDINATE LOCATION OF TRANSFORMER WITH PLUMBING CONTRACTOR PRIOR TO INSTALLATION.
2	PROVIDE 120VAC POWER AND FIRE ALARM RELAY FOR MED GAS SOLENOID VALVES. VALVES SHALL BE TIED IN TO LOCAL EMERGENCY STOP BUTTON AND FIRE ALARM SYSTEM FOR DE-ENGERGIZATION UPON ACTIVATION OF EITHER SYSTEM.
3	INDOOR UNIT TO RECEIVE POWER FROM OUTDOOR UNIT ON FIRST FLOOR.



LEVEL 2 - MECH POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-812 FOR THE REVISED MECH POWER LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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Project Number	**25004**
Dated	08.29.2025

LEVEL 2 MECH POWER PLAN

E-122

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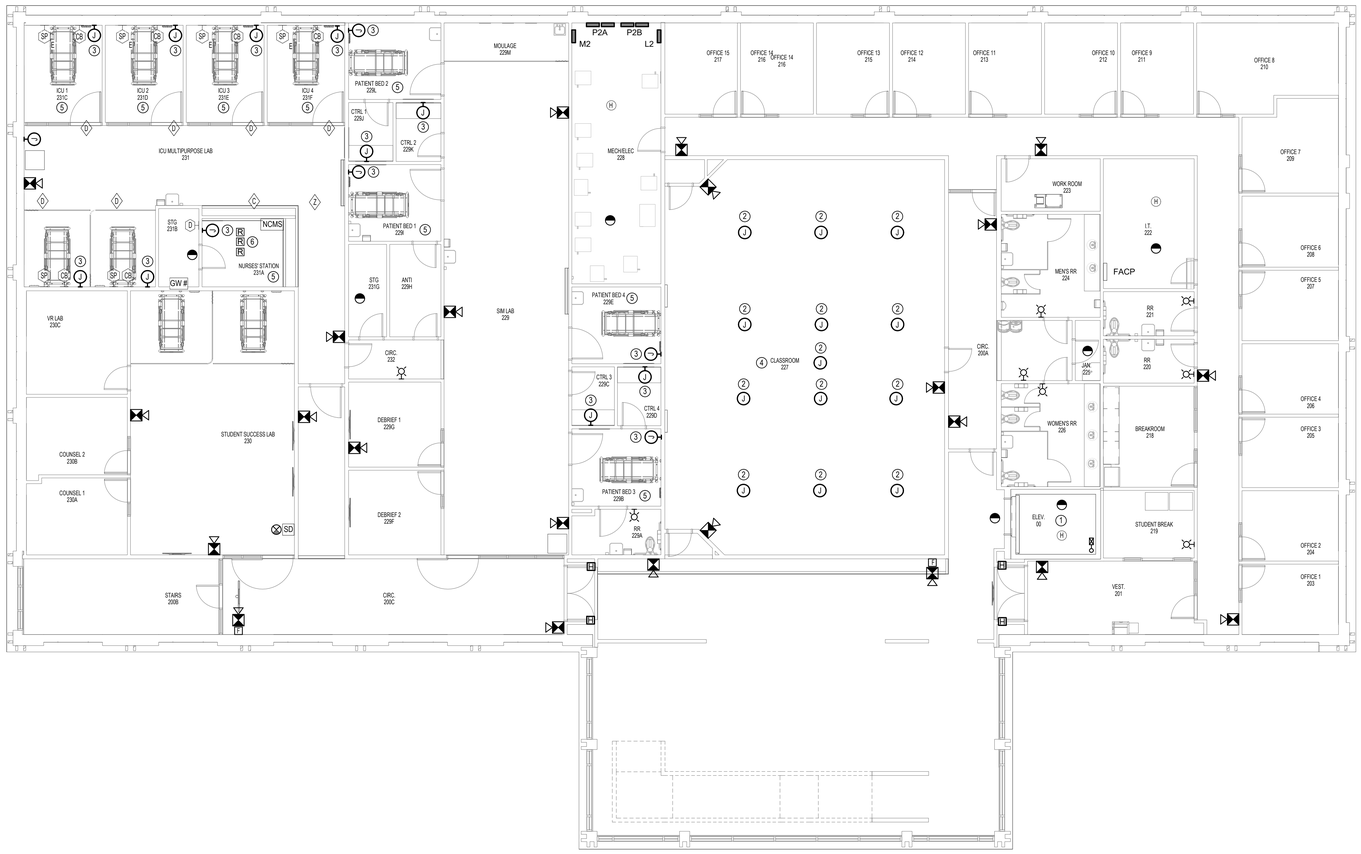
KEYNOTES

1	PROVIDE HEAT DETECTOR AT BOTTOM OF SHAFT AND SMOKE AND HEAT DETECTOR AT TOP OF SHAFT WITH ADDITIONAL NORMALLY CLOSED CONTACTS.
2	PROVIDE JUNCTION BOX, CONDUIT, AND/OR 120VAC CONNECTION FOR AV EQUIPMENT. SEE AV PLANS FOR MOUNTING HEIGHT, EQUIPMENT LOCATION, AND POWER REQUIREMENTS.
3	PROVIDE JUNCTION BOX AND CONDUIT WITH PULLSTRING TO ABOVE ACCESSIBLE CEILING FOR EMS SYSTEM EQUIPMENT. SEE THIRD PARTY EMS DRAWINGS FOR ADDITIONAL DETAILS.
4	PROVIDE TWO (2) 3" CONDUITS SLEEVES THROUGH CORRIDOR SMOKE WALLS FOR EMS SYSTEM CABLING. SEE THIRD PARTY EMS DRAWINGS FOR ADDITIONAL DETAILS ON DESIRED LOCATION(S).
5	PROVIDE 1" AND/OR 2" CONDUIT SLEEVES BETWEEN CONTROL ROOMS, PATIENT BEDS, AND NURSE STATION WHERE SMOKE AND/OR FIRE WALLS ARE PRESENT. IF CABLING CAN BE FREE-AIRED ABOVE THE WALLS, NO SLEEVES SHALL BE REQUIRED. SEE THIRD PARTY EMS DRAWINGS FOR ADDITIONAL DETAILS ON DESIRED LOCATION(S) FOR RESPECTIVE SIZES.
6	PROVIDE 120VAC POWER AND FIRE ALARM RELAY FOR MED GAS SOLENOID VALVES. VALVES SHALL BE TIED IN TO LOCAL EMERGENCY STOP BUTTON AND FIRE ALARM SYSTEM FOR DE-ENGERGIZATION UPON ACTIVATION OF EITHER SYSTEM.



LEVEL 2 - MISC SYSTEMS PLAN

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-813 FOR THE REVISED MISC SYSTEMS LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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LEVEL 2 MISC SYSTEMS PLAN

E-123

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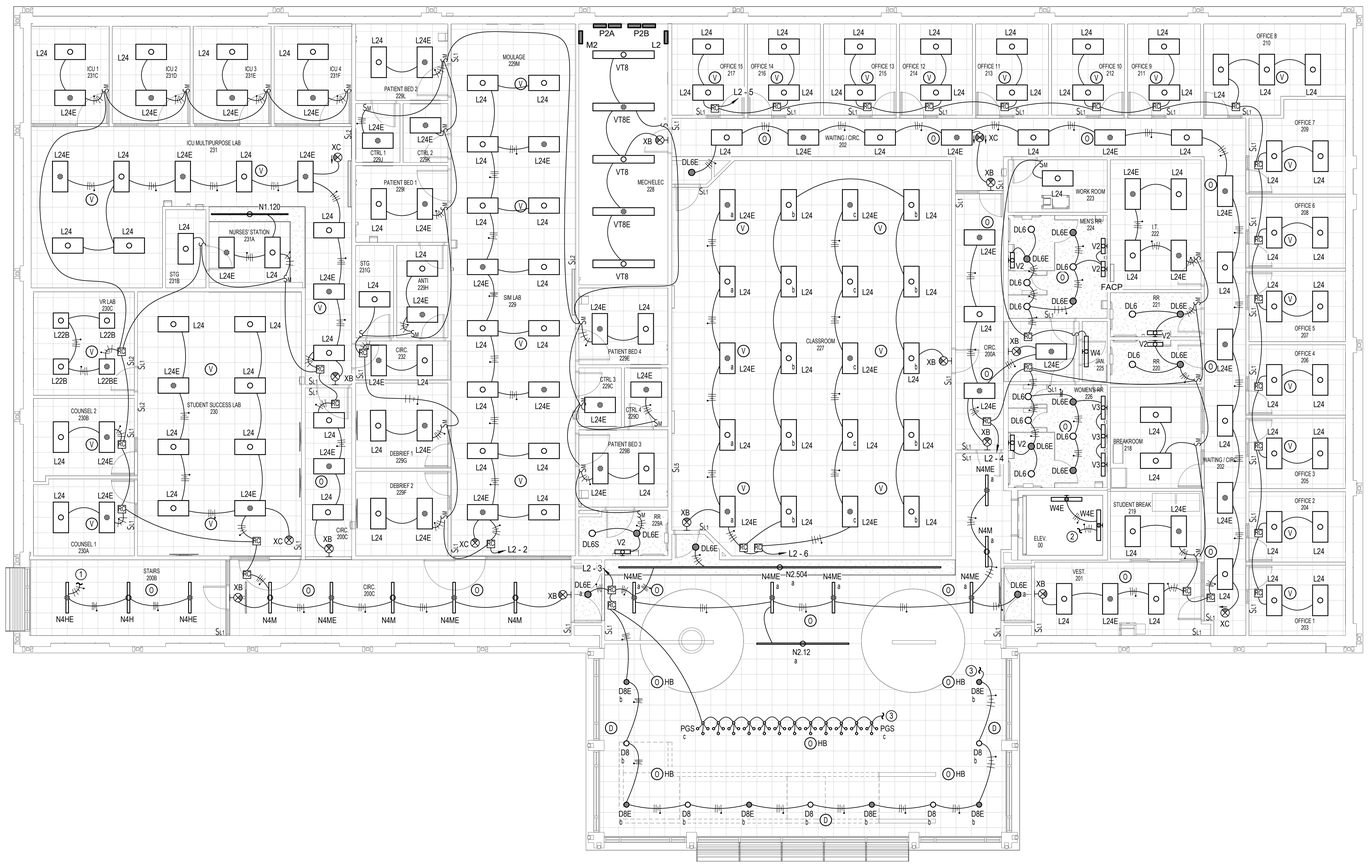
KEYNOTES

1	STAIRWELL LIGHTING CIRCUIT TO RECEIVE POWER FROM FIRST FLOOR.
2	ELEVATOR LIGHTING CIRCUIT TO RECEIVE POWER AND CONTROL FROM FIRST FLOOR.
3	CONTINUE LOBBY LIGHTING CIRCUIT TO FIRST FLOOR UNDER-STAIR LIGHTING.



LEVEL 2 - LIGHTING PLAN

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO SHEET E-814 FOR THE REVISED LIGHTING LAYOUT BASED ON THE DELETION AND RELOCATION OF ROOMS ON THE NORTHERN SIDE OF THE BUILDING.

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LEVEL 2
LIGHTING PLAN

E-124

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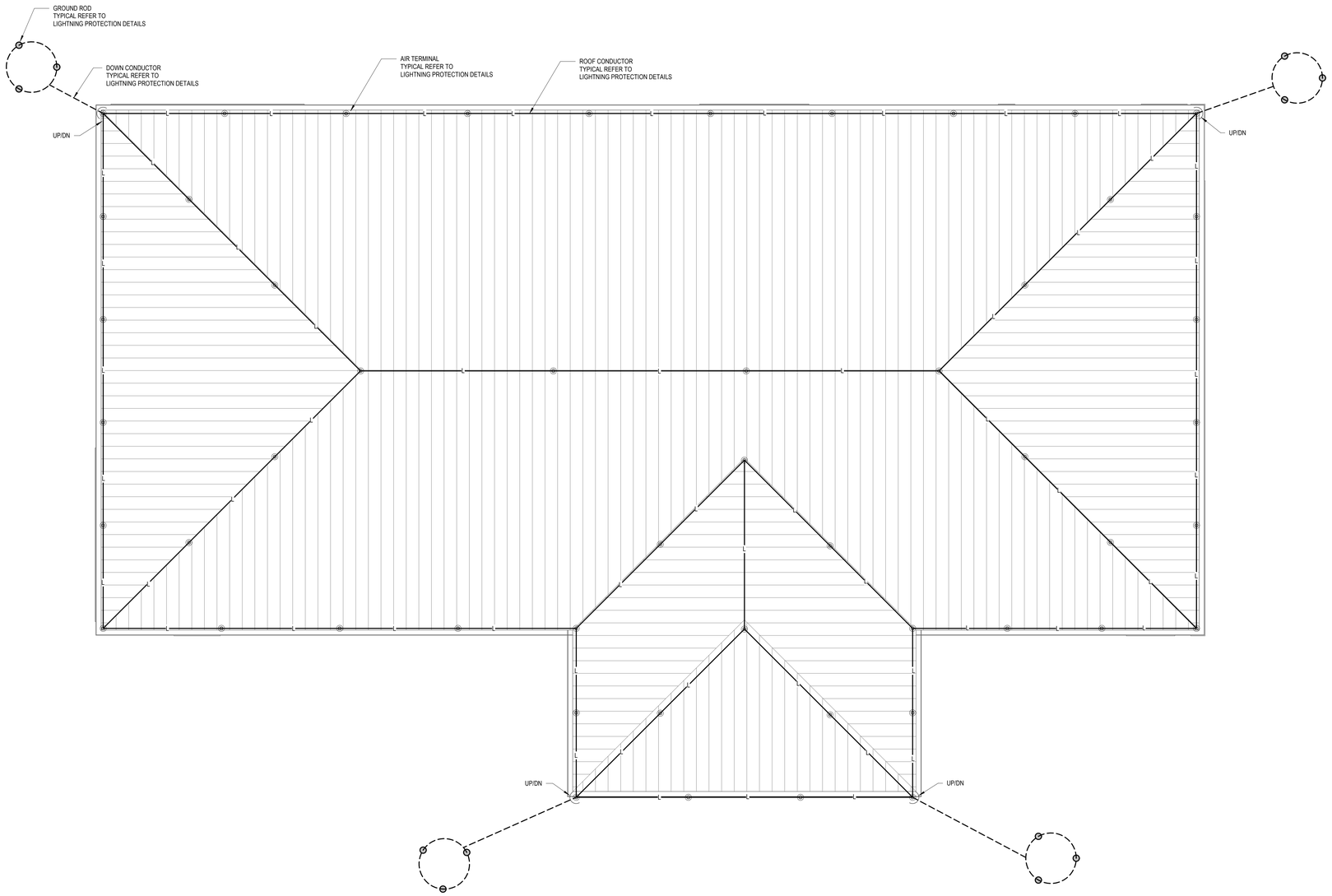

LEVEL ROOF - LIGHTNING PROTECTION PLAN

N

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 5:
PROVIDE DEDUCTIVE BID ALTERNATE FOR REMOVAL OF THE COMPLETE LIGHTNING PROTECTION SYSTEM.

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT SIZE REDUCTION OF ROOF. THE LIGHTNING PROTECTION SYSTEM SHALL BE SHORTENED ALONG THE NORTH-SOUTH AXIS ACCORDINGLY WHILE MAINTAINING A MINIMUM DISTANCE OF 20' BETWEEN AIR TERMINALS.

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ROOF LIGHTNING PROTECTION PLAN

E-131

MDP

MAIN 1200 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; INTEGRAL SMART METER

A.I.C. RATING 65kA
NEMA 1

LOCATION Space 107
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1				--	49744 VA								2
3	400A FUTURE PROVISION (SPACE ONLY)	--	3			--	48840 VA			3	400 A	PANEL M2	4
5								--	47434 VA				6
7				19301 VA	13994 VA								8
9	PANEL M1A	225 A	3			19301 VA	14150 VA			3	225 A	PANEL M1B	10
11								17538 VA	14360 VA				12
13				12828 VA	9180 VA								14
15	PANEL P1A	225 A	3			14580 VA	8720 VA			3	225 A	PANEL P1B	16
17								11608 VA	6360 VA				18
19				25270 VA	26270 VA								20
21	OAU-1	175 A	3			25270 VA	26270 VA			3	175 A	OAU-2	22
23								25270 VA	26270 VA				24
25				--	--								26
27	225A FUTURE PROVISION (SPACE ONLY)	--	3			--	--			3	--	225A FUTURE PROVISION (SPACE ONLY)	28
29								--	--				30
31				3297 VA	--								32
33	PANEL L1	60 A	3			1227 VA	--			3	--	100A FUTURE PROVISION (SPACE ONLY)	34
35								2588 VA	--				36
37				--	0 VA								38
39	100A FUTURE PROVISION (SPACE ONLY)	--	3			--	0 VA			3	60 A	SURGE PROTECTIVE DEVICE (SPD)	40
41								--	0 VA				42
		POWER/PHASE		159882 VA		158357 VA		151427 VA					
		AMPS/PHASE		1341 A		1329 A		1262 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Other	0 VA	0.00%	0 VA	**CONNECTED POWER** 469666 VA
Power	66132 VA	100.00%	66132 VA	**DEMAND POWER** 406606 VA
Lighting	15058 VA	100.00%	15058 VA	**CONNECTED AMPS** 1304 A
HVAC	251156 VA	100.00%	251156 VA	**DEMAND AMPS** 1127 A
Receptacle	137320 VA	53.64%	73660 VA	

NOTES:

M1A

MAIN 225 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS

A.I.C. RATING 35k
NEMA 3R

LOCATION
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1				2219 VA	2219 VA								2
3	HP-1 MODULE 1	40 A	3			2219 VA	2219 VA			3	40 A	HP-1 MODULE 2	4
5								2219 VA	2219 VA				6
7				2773 VA	2773 VA								8
9	HP-2 MODULE 1	60 A	3			2773 VA	2773 VA			3	60 A	HP-2 MODULE 2	10
11								2773 VA	2773 VA				12
13				3038 VA	--					1	--	SPACE ONLY	14
15	AC-1	60 A	3			3038 VA	--			1	--	SPACE ONLY	16
17								3038 VA	--	1	--	SPACE ONLY	18
19				2258 VA	2258 VA								20
21	OACU-1	30 A	3			2258 VA	2258 VA			3	30 A	OACU-2	22
23								2258 VA	2258 VA				24
25	MHP-1 & WM-1.1	30 A	2	800 VA	963 VA								26
27						800 VA	963 VA			2	30 A	MHP-2 & WM-2.1	28
29	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	30
31	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	32
33	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	34
35	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	36
37	SPACE ONLY	--	1	--	0 VA								38
39	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	40
41	SPACE ONLY	--	1					--	0 VA				42
		POWER/PHASE		19301 VA		19301 VA		17538 VA					
		AMPS/PHASE		163 A		163 A		146 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
HVAC	56139 VA	100.00%	56139 VA	**CONNECTED POWER** 56139 VA
				DEMAND POWER 56139 VA
				CONNECTED AMPS 156 A
				DEMAND AMPS 156 A

NOTES:

M1B

MAIN 200 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS

A.I.C. RATING 35k
NEMA 1

LOCATION Space 19
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	BATTERY CHARGER - FIRE RISER 125	20 A	1	200 VA	1176 VA					1	20 A	EF-1.1	2
3	HOT START CIRCUIT - FIRE RISER 125	20 A	1			200 VA	528 VA			1	15 A	EF-1.2	4
5	AUTOMATIC RESTROOM FIXTURES - 1ST FLOOR	15 A	1					720 VA	960 VA	1	20 A	ELEVATOR SUMP PUMP	6
7	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	8
9	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	10
11	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	12
13	AHU-1.1	15 A	2	343 VA	804 VA								14
15						343 VA	804 VA			2	15 A	AHU-1.2	16
17	AHU-1.3	15 A	2					250 VA	250 VA				18
19				250 VA	250 VA					2	15 A	AHU-1.4	20
21	AHU-1.5	15 A	2			343 VA	468 VA						22
23								343 VA	468 VA	2	15 A	AHU-1.6	24
25	AHU-1.7	15 A	2	250 VA	343 VA								26
27						250 VA	343 VA			2	15 A	AHU-1.8	28
29	AHU-1.9	15 A	2					250 VA	250 VA				30
31				250 VA	250 VA					2	15 A	AHU-1.10	32
33	BC-1	15 A	2			496 VA	496 VA						34
35								496 VA	496 VA	2	15 A	BC-2	36
37				937 VA	576 VA								38
39	VC-1	20 A	3			937 VA	576 VA			3	15 A	JOCKEY PUMP	40
41								937 VA	576 VA				42
43				3242 VA	5125 VA								44
45	ELEVATOR*	60 A	3			3242 VA	5125 VA			3	35 A	EWH-1	46
47								3242 VA	5125 VA				48
49	SPACE ONLY	--	1	--	0 VA								50
51	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	52
53	SPACE ONLY	--	1					--	0 VA				54
		POWER/PHASE		13994 VA		14150 VA		14360 VA					
		AMPS/PHASE		117 A		118 A		120 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Power	10447 VA	100.00%	10447 VA	**CONNECTED POWER** 42504 VA
HVAC	31097 VA	100.00%	31097 VA	**DEMAND POWER** 42504 VA
Receptacle	960 VA	100.00%	960 VA	**CONNECTED AMPS** 118 A
				DEMAND AMPS 118 A

NOTES:

P1A

MAIN 225 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

A.I.C. RATING 35k
NEMA 1

LOCATION Space 107
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC - STAIRS 100A	20 A	1	900 VA	540 VA					1	20 A	REC - LOBBY 100	2
3	REC - COMMON 100C, STAIRS 100D	20 A	1			720 VA	720 VA			1	20 A	REC - LOBBY 100	4
5	REC - DRINKING FOUNTAIN CIRC. 100B	20 A	1					180 VA	1080 VA	1	20 A	REC - COMMON 100C	6
7	REC - COPIER VEST. 101	20 A	1	360 VA	900 VA					1	20 A	REC - CIRC. 100B, RECEPT/ CIRC. 102A	8
9	REC - DRINKING FOUNTAIN VEST. 101	20 A	1			300 VA	1080 VA			1	20 A	REC - RECEPTION 102	10
11	REC - FAAP	20 A	1					360 VA	1080 VA	1	20 A	REC - OFFICE 1 103	12
13	REC - OFFICE 2 104	20 A	1	900 VA	720 VA					1	20 A	REC - OFFICE 3 105	14
15	REC - OFFICE 4 106	20 A	1			720 VA	720 VA			1	20 A	REC - OFFICE 5 112	16
17	REC - OFFICE 6 113	20 A	1					720 VA	900 VA	1	20 A	REC - OFFICE 7 114	18
19	REC - WORK ROOM 107, RECEPT/ CIRC. 102A, I.T. 111	20 A	1	1080 VA	900 VA					1	20 A	REC - CONFERENCE ROOM 108	20
21	REC - CONFERENCE ROOM 108	20 A	1			900 VA	180 VA			1	20 A	REC - COPIER WORK ROOM 107	22
23	REC - RR 110, MEN'S RR 117, WOMEN'S 115, JAN. 116	20 A	1					1080 VA	1080 VA	1	20 A	REC - BREAKROOM 109	24
25	REC - STG. 1 121	20 A	1	900 VA	1200 VA					1	20 A	REC - MICROWAVE BREAKROOM 109	26
27	REC - REFRIG BREAKROOM 109	20 A	1			500 VA	360 VA			1	20 A	REC - MECH. 122, ELEC. 123	28
29	REC - MECH. 122	20 A	1					180 VA	720 VA	1	20 A	REC - MECH. 122	30
31	REC - STG. 2 124	20 A	1	900 VA	1080 VA					1	20 A	REC - EXTERIOR NORTH, WEST, AND EAST	32
33	REC - STG. 2 124	20 A	1			900 VA	180 VA			1	20 A	REC - EMS/DDC SYSTEM CONNECTION	34
35	ICE MAKER - STG. 2 124	20 A	1					960 VA	1080 VA	1	20 A	REC - EXTERIOR SOUTH, WEST, AND EAST	36
37	WASHER - STG. 2 124	20 A	1	180 VA	1080 VA					1	20 A	REC - STG. 2 139	38
39	DRYER - STG. 2 124	30 A	2			4500 VA	800 VA			1	20 A	RECEPTACLE SPACE 20	40
41								0 VA	488 VA	1	20 A	ROLL UP DOOR - STG. 2 124	42
43	MOTORIZED SUN SHADE - CONFERENCE ROOM 108	20 A	1	1000 VA	188 VA					1	20 A	SPARE	44
45	MOTORIZED SUN SHADE - CONFERENCE ROOM 108	20 A	1			1000 VA	1000 VA			1	20 A	MOTORIZED SUN SHADE - CONFERENCE ROOM 108	46
47	MOTORIZED SUN SHADE - CONFERENCE ROOM 108	20 A	1					1000 VA	1000 VA	1	20 A	MOTORIZED SUN SHADE - CONFERENCE ROOM 108	48
49	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	50
51	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	52
53	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	54
55	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	56
57	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	58
59	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	60
61	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	62
63	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	64
65	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	66
67	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	68
69	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	70
71	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	72
73	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	74
75	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	76
77	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	78
79	SPACE ONLY	--	1	--	--								80
81	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	82
83	SPACE ONLY	--	1					--	0 VA				84
		POWER/PHASE		12828 VA		14580 VA		11608 VA					
		AMPS/PHASE		108 A		123 A		97 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Power	5375 VA	100.00%	5375 VA	**CONNECTED POWER** 39015 VA
Receptacle	33640 VA	64.86%	21820 VA	**DEMAND POWER** 27195 VA
				CONNECTED AMPS 108 A
				DEMAND AMPS 75 A

NOTES:

P1B

MAIN 225 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

A.I.C. RATING 35k
NEMA 1

LOCATION Space 107
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC - CLASSROOM 118	20 A	1	180 VA	180 VA					1	20 A	REC - CLASSROOM 118	2
3	REC - CLASSROOM 118	20 A	1			180 VA	180 VA			1	20 A	REC - CLASSROOM 118	4
5	REC - CLASSROOM 118	20 A	1					180 VA	180 VA	1	20 A	REC - CLASSROOM 118	6
7	REC - CLASSROOM 118	20 A	1	180 VA	180 VA					1	20 A	REC - CLASSROOM 118	8
9	REC - CLASSROOM 118	20 A	1			180 VA	180 VA			1	20 A	REC - CLASSROOM 118	10
11	REC - CLASSROOM 118	20 A	1					180 VA	180 VA	1	20 A	REC - CLASSROOM 118	12
13	REC - CLASSROOM 118	20 A	1	180 VA	180 VA					1	20 A	REC - CLASSROOM 118	14
15	REC - CLASSROOM 118	20 A	1			1260 VA	540 VA			1	20 A	REC - CLASSROOM 118	16
17	REC - SKILLS LAB 119	20 A	1					1560 VA	360 VA	1	20 A	REC - CEILING - CLASSROOM 118	18
19	REC - SKILLS LAB 119	20 A	1	1320 VA	540 VA					1	20 A	REC - SKILLS LAB 2 119	20
21	REC - SKILLS LAB 119	20 A	1			1140 VA	1560 VA			1	20 A	REC - SKILLS LAB 119	22
23	REC - CEILING - SKILLS LAB 119	20 A	1					180 VA	1560 VA	1	20 A	REC - SKILLS LAB 119	24
25	REC - SKILLS LAB 120	20 A	1	1560 VA	1560 VA					1	20 A	REC - SKILLS LAB 119	26
27	REC - SKILLS LAB 120	20 A	1			1560 VA	1560 VA			1	20 A	REC - SKILLS LAB 120	28
29	REC - SKILLS LAB 120	20 A	1					720 VA	960 VA	1	20 A	REC - SKILLS LAB 120	30
31	REC - SKILLS LAB 120	20 A	1	1560 VA	1560 VA					1	20 A	REC - SKILLS LAB 120	32
33	REC - CEILING - SKILLS LAB 120	20 A	1			180 VA	200 VA			1	20 A	ELEV .00	34
35	REC - ELEV. 00	20 A	1					300 VA	0 VA	1	20 A	SPARE	36
37	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	38
39	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	40
41	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	42
43	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	44
45	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	46
47	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	48
49	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	50
51	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	52
53	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	54
55	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	56
57	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	58
59	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	60
61	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	62
63	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	64
65	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	66
67	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	68
69	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	70
71	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	72
73	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	74
75	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	76
77	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	78
79	SPACE ONLY	--	1	--	0 VA								80
81	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	82
83	SPACE ONLY	--	1					--	0 VA				84
		POWER/PHASE		9180 VA		8720 VA		6360 VA					
		AMPS/PHASE		80 A		76 A		53 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Lighting	200 VA	100.00%	200 VA	**CONNECTED POWER** 24260 VA
Receptacle	24060 VA	70.78%	17030 VA	**DEMAND POWER** 17230 VA
				CONNECTED AMPS 67 A
				DEMAND AMPS 48 A

NOTES:
*PROVIDE SHUNT TRIP BREAKER CAPABLE OF BEING LOCKED IN THE OFF POSITION, EQUIVALENT TO RK1 FUSES, AND WITH TWO ADDITIONAL CONTACTS.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS	
DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

PANEL SCHEDULES

E-612

L1

MAIN 60 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS

A.I.C. RATING 22k
NEMA 1

LOCATION Space 107
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	LTG - COMMON 100C, SKILLS LAB 119 & 120	20 A	1	1672 VA	1625 VA					1	20 A	LTG - LOBBY 100, CLASSROOM 118	2
3	LTG - MECH 122, ELEC 123, WEST STORAGE ROOMS	20 A	1			1045 VA	183 VA			1	20 A	LTG - STAIRS 100D, 200B	4
5	LTG - CIRC 100B, VEST 101, RESTROOMS	20 A	1					1842 VA	746 VA	1	20 A	LTG - EXTERIOR	6
7	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	8
9	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	10
11	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	12
13	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	14
15	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	16
17	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	18
19	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	20
21	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	22
23	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	24
25	SPACE ONLY	--	1	--	0 VA								26
27	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	28
29	SPACE ONLY	--	1					--	0 VA				30
		POWER/PHASE		3297 VA		1227 VA		2588 VA					
		AMPS/PHASE		29 A		10 A		23 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Other	0 VA	0.00%	0 VA	**CONNECTED POWER** 7112 VA
Lighting	7112 VA	100.00%	7112 VA	**DEMAND POWER** 7112 VA
				CONNECTED AMPS 20 A
				DEMAND AMPS 20 A

NOTES:

M2

MAIN 400 A MCB
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS

A.I.C. RATING 42k
NEMA 1

LOCATION Space 76
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	AHU-2.1	15 A	2	250 VA	250 VA					2	15 A	AHU-2.2	2
3						250 VA	250 VA						4
5	AHU-2.3	15 A	2					250 VA	343 VA	2	15 A	AHU-2.4	6
7				250 VA	343 VA								8
9	AHU-2.5	15 A	2			250 VA	343 VA			2	15 A	AHU-2.6	10
11								250 VA	343 VA				12
13	AHU-2.7	15 A	2	250 VA	468 VA					2	15 A	AHU-2.8	14
15						250 VA	468 VA						16
17	AHU-2.9	15 A	2					804 VA	250 VA	2	15 A	AHU-2.10	18
19				804 VA	250 VA								20
21	AHU-2.11	15 A	2			468 VA	300 VA			1	15 A	MED GAS SOLENOID VALVES	22
23								468 VA	1200 VA	1	15 A	AUTOMATIC RESTROOM FIXTURES - 2ND FLOOR	24
25	SMOKE DAMPER	15 A	1	100 VA	528 VA					1	15 A	EF-2.1	26
27	SPACE ONLY	--	1			--	528 VA			1	15 A	EF-2.2	28
29	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	30
31	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	32
33	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	34
35	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	36
37	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	38
39	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	40
41	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	42
43	SPACE ONLY	--	1	--	0 VA								44
45	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	46
47	SPACE ONLY	--	1					--	0 VA				48
49				2923 VA	6250 VA								50
51	L2	60 A	3			3185 VA	6250 VA			3	45 A	EWH-2	52
53								1637 VA	6250 VA				54
55				17220 VA	19860 VA								56
57	P2A	225 A	3			15660 VA	20640 VA			3	225 A	P2B	58
59								15060 VA	20580 VA				60
		POWER/PHASE		49744 VA		48840 VA		47434 VA					
		AMPS/PHASE		416 A		409 A		395 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Power	50310 VA	100.00%	50310 VA	**CONNECTED POWER** 146017 VA
Lighting	7745 VA	100.00%	7745 VA	**DEMAND POWER** 111687 VA
HVAC	9302 VA	100.00%	9302 VA	**CONNECTED AMPS** 405 A
Receptacle	78660 VA	56.36%	44330 VA	**DEMAND AMPS** 310 A

NOTES:

L2

MAIN 60 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

A.I.C. RATING 10k
NEMA 1

LOCATION Space 76
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	LTG - CIRC 200C, LAB 230, LAB 231	20 A	1	1405 VA	1518 VA					1	20 A	LTG - MECH/ELEC 228, SIM LAB 229	2
3	LTG - LOBBY 200	20 A	1			1910 VA	1275 VA			1	20 A	LTG - CIRC 200A, RESTROOMS, WORKROOM	4
5	LTG - OFFICES 203 THRU 217	20 A	1					992 VA	645 VA	1	20 A	LTG - COMMON 200, CLASSROOM 227,	6
7	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	8
9	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	10
11	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	12
13	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	14
15	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	16
17	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	18
19	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	20
21	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	22
23	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	24
25	SPACE ONLY	--	1	--	0 VA								26
27	SPACE ONLY	--	1			--	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	28
29	SPACE ONLY	--	1					--	0 VA				30
		POWER/PHASE		2923 VA		3185 VA		1637 VA					
		AMPS/PHASE		26 A		28 A		14 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Lighting	7745 VA	100.00%	7745 VA	**CONNECTED POWER** 7745 VA
				DEMAND POWER 7745 VA
				CONNECTED AMPS 21 A
				DEMAND AMPS 21 A

NOTES:

P2A

MAIN 225 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

A.I.C. RATING 22k
NEMA 1

LOCATION Space 76
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC - CIRC 200C	20 A	1	1080 VA	720 VA					1	20 A	REC - MECH/ELEC 228	2
3	REC - STAIRS 200B	20 A	1			360 VA	900 VA			1	20 A	REC - MECH/ELEC 228	4
5	REC - MECH/ELEC 228	20 A	1					180 VA	1320 VA	1	20 A	REC - PATIENT BED 3 229B	6
7	REC - MECH/ELEC 228	20 A	1	720 VA	1080 VA					1	20 A	REC - CTRL 3 229C, CTRL 4 229D	8
9	REC - SIM LAB 229	20 A	1			1080 VA	900 VA			1	20 A	REC - DEBRIEF 2 229F	10
11	REC - PATIENT BED 4 229E	20 A	1					1500 VA	720 VA	1	20 A	REC - CIRC 232, ANTI 229H, STG 231G	12
13	REC - DEBRIEF 1 229G	20 A	1	720 VA	900 VA					1	20 A	REC - CTRL 1 229J, CTRL 2 229K	14
15	REC - PATIENT BED 1 229I	20 A	1			1500 VA	1080 VA			1	20 A	REC - ICU LAB 231	16
17	REC - CEILING - STUDENT SUCCESS LAB 230	20 A	1					180 VA	360 VA	1	20 A	EQUIP - STUDENT SUCCESS LAB 230	18
19	REC - PATIEN BED 2 229L	20 A	1	1320 VA	900 VA					1	20 A	REC - COUNSEL 1 230A	20
21	REC - STUDENT RESOURCE LAB 230	20 A	1			1440 VA	900 VA			1	20 A	REC - COUNSEL 2 230B	22
23	REC - STUDENT RESOURCE LAB 230	20 A	1					1080 VA	180 VA	1	20 A	REC - VR LAB 230C	24
25	REC - STUDENT RESOURCE LAB 230	20 A	1	1560 VA	180 VA					1	20 A	REC - VR LAB 230C	26
27	REC - NURSE STATION 231A	20 A	1			900 VA	180 VA			1	20 A	REC - VR LAB 230C	28
29	REC - NURSE STATION 231A	20 A	1					1080 VA	180 VA	1	20 A	REC - VR LAB 230C	30
31	REC - SIM LAB 229	20 A	1	1080 VA	180 VA					1	20 A	REC - CEILING - SIM LAB 229	32
33	REC - ICU 231A	20 A	1			960 VA	960 VA			1	20 A	REC - ICU 231B	34
35	REC - ICU 231C	20 A	1					1140 VA	1140 VA	1	20 A	REC - ICU 231D	36
37	REC - ICU 231E	20 A	1	1140 VA	1140 VA					1	20 A	REC - ICU 231F	38
39	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	40
41	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	42
43	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	44
45	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	46
47	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	48
49	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	50
51	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	52
53	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	54
55	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	56
57	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	58
59	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	60
61	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	62
63	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	64
65	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	66
67	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	68
69	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	70
71	SPACE ONLY	--	1					--	1500 VA				72
73	LOBBY SUN SHADE #1	30 A	2	1500 VA	1500 VA					2	30 A	LOBBY SUN SHADE #2	74
75						1500 VA	1500 VA						76
77	LOBBY SUN SHADE #3	30 A	2					1500 VA	1500 VA	2	30 A	LOBBY SUN SHADE #4	78
79				1500 VA	0 VA								80
81	LOBBY SUN SHADE #5	30 A	2			1500 VA	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	82
83								1500 VA	0 VA				84
		POWER/PHASE		17220 VA		15660 VA		15060 VA					
		AMPS/PHASE		144 A		131 A		126 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Power	15360 VA	100.00%	15360 VA	**CONNECTED POWER** 47940 VA
Receptacle	32580 VA	65.35%	21290 VA	**DEMAND POWER** 36650 VA
				CONNECTED AMPS 133 A
				DEMAND AMPS 102 A

NOTES:

P2B

MAIN 225 A MLO
SYSTEM 208Y/120V 3P 4W
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

A.I.C. RATING 22k
NEMA 1

LOCATION Space 76
MOUNTING Surface

LOAD PER PHASE

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC - OFFICE 15 217	20 A	1	900 VA	900 VA					1	20 A	REC - OFFICE 14 216	2
3	REC - OFFICE 13 215	20 A	1			900 VA	900 VA			1	20 A	REC - OFFICE 12 214	4
5	REC - OFFICE 11 213	20 A	1					900 VA	900 VA	1	20 A	REC - OFFICE 10 212	6
7	REC - OFFICE 9 211	20 A	1	900 VA	540 VA					1	20 A	REC - OFFICE 8 210	8
9	REC - OFFICE 7 209	20 A	1			900 VA	720 VA			1	20 A	REC - OFFICE 8 210	10
11	REC - OFFICE 6 208	20 A	1					1080 VA	1080 VA	1	20 A	REC - OFFICE 5 207	12
13	REC - OFFICE 4 206	20 A	1	1080 VA	1080 VA					1	20 A	REC - OFFICE 3 205	14
15	REC - OFFICE 2 204	20 A	1			1080 VA	1080 VA			1	20 A	REC - OFFICE 1 203	16
17	REC - RR 220, RR 221	20 A	1					360 VA	1080 VA	1	20 A	REC - RR 224, RR 225	18
19	REC - WORK ROOM 223	20 A	1	900 VA	720 VA					1	20 A	REC - VEST 201	20
21	REC - BREAKROOM 218	20 A	1			540 VA	180 VA			1	20 A	REC - MICROWAVE - BREAKROOM 218	22
23	REC - REFRIGERATOR - BREAKROOM 218	20 A	1					180 VA	540 VA	1	20 A	REC - CIRC 200A	24
25	REC - COMMON SPACE 200	20 A	1	900 VA	540 VA					1	20 A	REC - CIRC 202	26
27	REC - CLASSROOM 227	20 A	1			900 VA	1080 VA			1	20 A	REC - CLASSROOM 227	28
29	REC - CLASSROOM 227	20 A	1					900 VA	1260 VA	1	20 A	REC - CLASSROOM 227	30
31	REC - DF - CIRC 200A	20 A	1	180 VA	360 VA					1	20 A	REC - COPIER - VEST 201	32
33	REC - VESTIBULE 2F - DEBUT BREAK 219	20 A	1			360 VA	360 VA			1	20 A	REC - DEBUT BREAK 219	34
35	REC - FACP - IT 222 *	20 A	1					1000 VA	500 VA	1	20 A	REC - VENDING - STUDENT BREAK 219	36
37	REC - ACCESS CONTROL PANEL #1 - IT 222	20 A	1	1000 VA	360 VA					1	20 A	REC - CEILING - CLASSROOM 227	38
39	REC - ACCESS CONTROL PANEL #3 - IT 222	20 A	1			1000 VA	2000 VA			1	30 A	REC - TELECOM RACK #2 - IT 222	40
41	REC - IT 222	20 A	1					1800 VA	1000 VA	1	20 A	REC - ACCESS CONTROL PANEL #2 - IT 222	42
43	REC - TELECOM RACK #2 - IT 222	20 A	1	1000 VA	1000 VA					1	20 A	REC - TELECOM RACK #3 - IT 222	44
45	REC - EMS CABINET RECEPTACLE #1 - IT 222	20 A	1			1000 VA	1000 VA			1	20 A	REC - TELECOM RACK #1 - IT 222	46
47	REC - EMS CABINET RECEPTACLE #2 - IT 222	20 A	1					1000 VA	1000 VA	1	20 A	REC - EMS CABINET RECEPTACLE #3 - IT 222	48
49	REC - TELECOM RACK #1 - IT 222	30 A	1	2000 VA	1000 VA					1	20 A	REC - ACCESS CONTROL PANEL #4 - IT 222	50
51	REC - TELECOM RACK #3 - IT 222	30 A	1			2000 VA	0 VA			1	20 A	SPARE	52
53	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	54
55	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	56
57	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	58
59	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	60
61	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	62
63	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	64
65	SPACE ONLY	--	1					--	--	1	--	SPACE ONLY	66
67	SPACE ONLY	--	1	--	--					1	--	SPACE ONLY	68
69	SPACE ONLY	--	1			--	--			1	--	SPACE ONLY	70
71	SPACE ONLY	--	1					--	1500 VA				72
73	LOBBY SUN SHADE #6	20 A	2	1500 VA	1500 VA					2	20 A	LOBBY SUN SHADE #7	74
75						1500 VA	1500 VA						76
77	LOBBY SUN SHADE #8	20 A	2					1500 VA	1500 VA	2	20 A	LOBBY SUN SHADE #9	78
79				1500 VA	0 VA								80
81	LOBBY SUN SHADE #10	20 A	2			1500 VA	0 VA			3	30 A	SURGE PROTECTIVE DEVICE (SPD)	82
83								1500 VA	0 VA				84
		POWER/PHASE		19860 VA		20640 VA		20580 VA					
		AMPS/PHASE		166 A		173 A		172 A					

LOAD CLASS	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTALS
Power	15000 VA	100.00%	15000 VA	**CONNECTED POWER** 61080 VA
Receptacle	46080 VA	60.85%	28040 VA	**DEMAND POWER** 43040 VA
				CONNECTED AMPS 170 A
				DEMAND AMPS 119 A

NOTES:
* PROVIDE "RED" BREAKER LABELED "FIRE ALARM CIRCUIT", CAPABLE OF BEING LOCKED IN THE 'ON' POSITION. PER NFPA-70 - ARTICLE 760.121(B)

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number **25004**
Dated 08.29.2025

PANEL SCHEDULES

E-613

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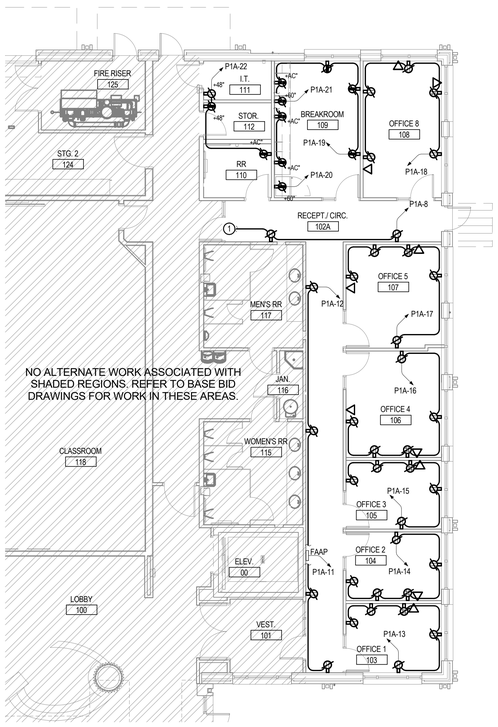
KEYNOTES

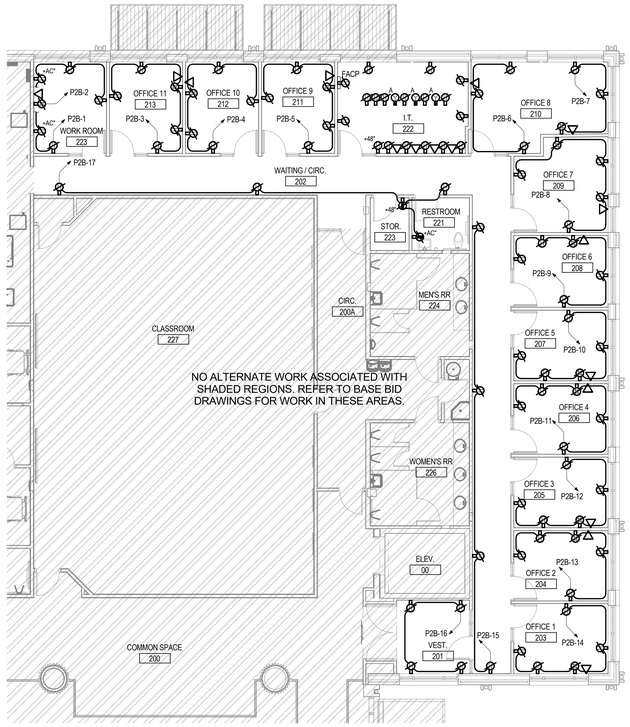
1	REFER TO BASE BID DRAWINGS FOR CIRCUIT CONTINUATION.
2	ACCESS CONTROL SYSTEM EQUIPMENT RACK. COORDINATE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.
3	EMERGENCY MANAGEMENT SYSTEM SERVER RACK. COORDIANTE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.
4	IT SERVER RACKS. COORDIANTE MOUNTING LOCATION AND SYSTEM REQUIREMENTS WITH SYSTEM INTEGRATOR PRIOR TO INSTALLATION.



LEVEL 1 - POWER PLAN - ALTERNATE

1/8" = 1'-0"

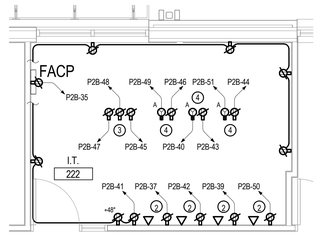
0 4' 8' 16'



LEVEL 2 - POWER PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'



LEVEL 2 - ENLARGED IT ROOM PLAN - ALTERNATE

1/4" = 1'-0"

0 2' 4' 8'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. THIS SHEET IDENTIFIES THE CHANGES ASSOCIATED WITH THE POWER SYSTEMS. ALL GREYED OUT OR OTHERWISE UNSHOWN LOCATIONS INDICIATE NO DEVIATION FROM BASE BID DRAWINGS; REFER TO RESEPCTIVE SHEETS FOR ASSOCIATED WORK IN THESE AREAS.

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PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	DATE
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Dated	08.29.2025

ALTERNATE POWER PLANS

E-811

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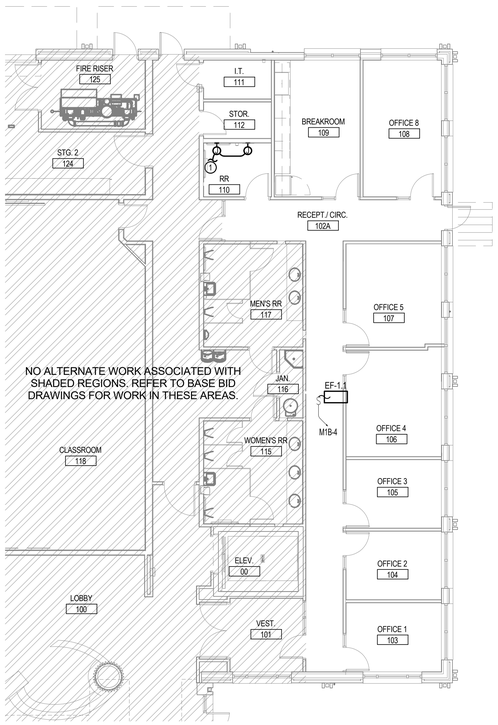
KEYNOTES

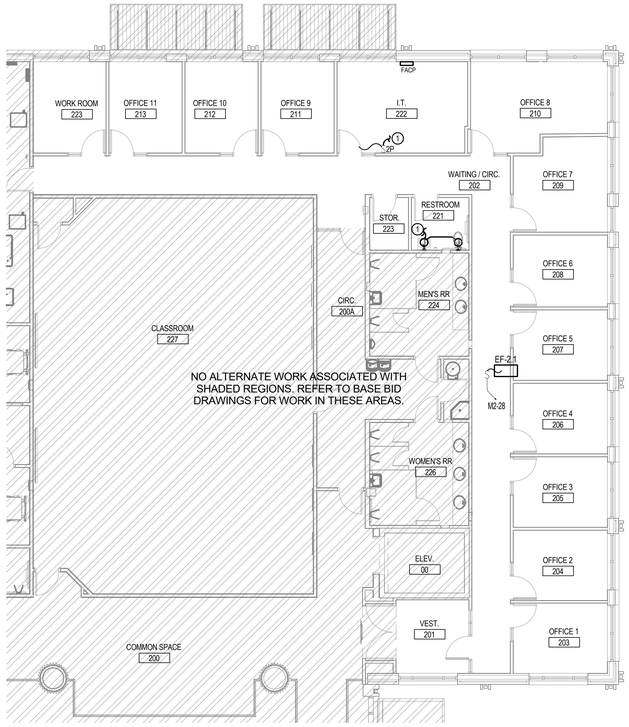
1	INDOOR UNIT TO RECEIVE POWER FROM OUTDOOR UNIT ON FIRST FLOOR.
2	REFER TO BASE BID DRAWINGS FOR CIRCUIT CONTINUATION.



LEVEL 1 - MECH POWER PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'



LEVEL 2 - MECH POWER PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. THIS SHEET IDENTIFIES THE CHANGES ASSOCIATED WITH THE MECH POWER SYSTEMS. ALL GREYED OUT OR OTHERWISE UNSHOWN LOCATIONS INDICIATE NO DEVIATION FROM BASE BID DRAWINGS; REFER TO RESEPCTIVE SHEETS FOR ASSOCIATED WORK IN THESE AREAS.

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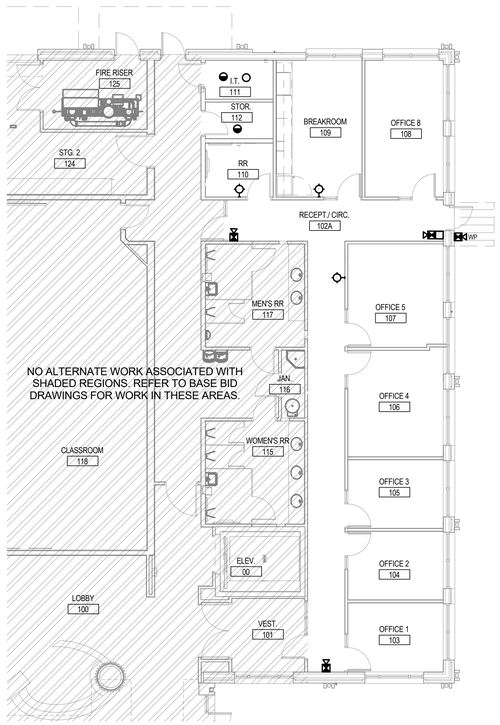
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

ALTERNATE MECH POWER PLANS

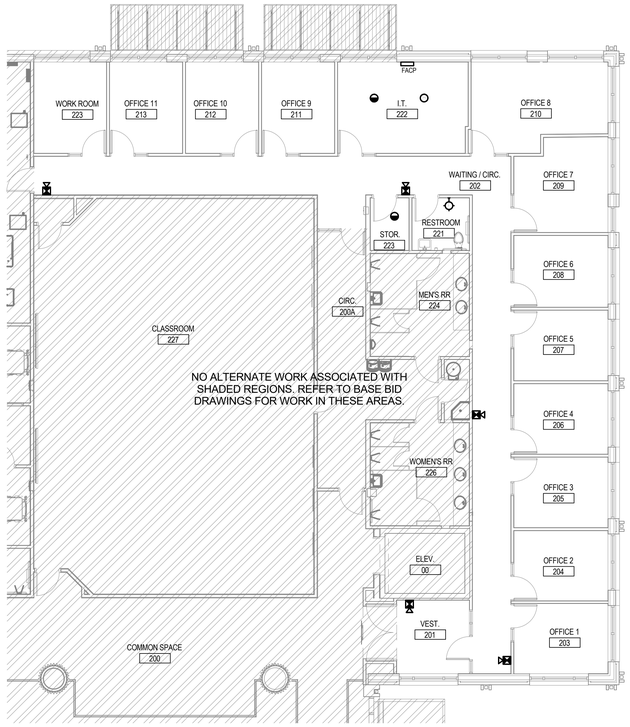
E-812



LEVEL 1 - MISC SYSTEMS PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'



LEVEL 2 - MISC SYSTEMS PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. THIS SHEET IDENTIFIES THE CHANGES ASSOCIATED WITH THE MISC SYSTEMS. ALL GREYED OUT OR OTHERWISE UNSHOWN LOCATIONS INDICIATE NO DEVIATION FROM BASE BID DRAWINGS; REFER TO RESEPCTIVE SHEETS FOR ASSOCIATED WORK IN THESE AREAS.

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GULF COAST STATE COLLEGE

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PANAMA CITY, FL, 32401

REVISIONS

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ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

ALTERNATE MISC SYSTEMS PLANS

E-813

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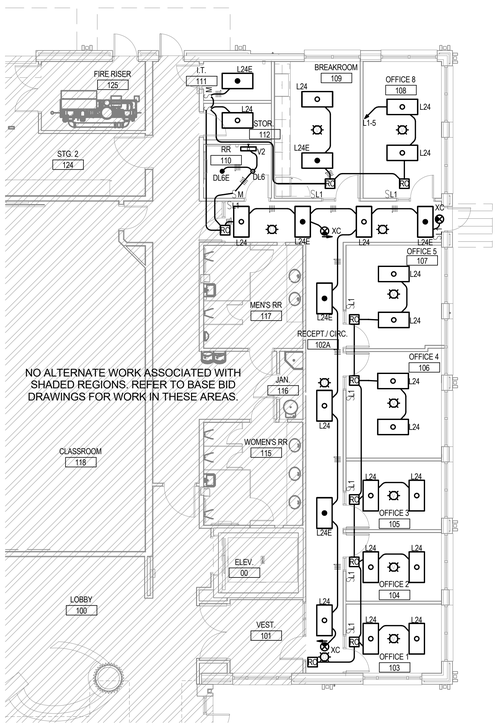
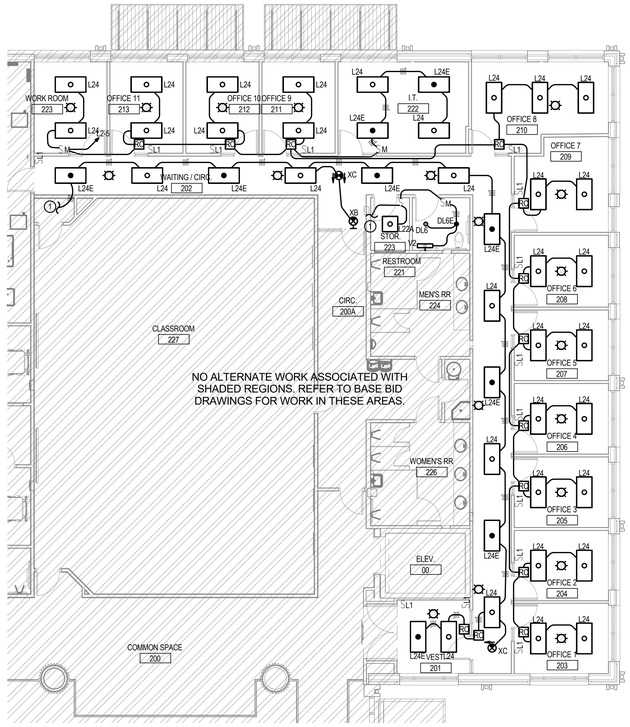


LEVEL 1 - LIGHTING PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'



LEVEL 2 - LIGHTING PLAN - ALTERNATE

1/8" = 1'-0"

0 4' 8' 16'

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. THIS SHEET IDENTIFIES THE CHANGES ASSOCIATED WITH THE LIGHTING SYSTEMS. ALL GREYED OUT OR OTHERWISE UNSHOWN LOCATIONS INDICIATE NO DEVIATION FROM BASE BID DRAWINGS; REFER TO RESEPCTIVE SHEETS FOR ASSOCIATED WORK IN THESE AREAS.

KEYNOTES

1. REFER TO BASE BID DRAWINGS FOR CIRCUIT CONTINUATION.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number	**25004**
Dated	08.29.2025

ALTERNATE LIGHTING PLANS

E-814

NEW POWER PANEL

P1A

SYSTEM 208/120V 3Φ 4W
RATING 225A M.L.O. 35,000 AIC MINIMUM
ENCLOSURE NEMA 1 SURFACE MOUNT
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

CKT #	SERVING	CKT BKR TRIP	CKT BKR POLE	CONNECTED LOAD (VA)		CKT BKR POLE	CKT BKR TRIP	SERVING	CKT #
1	REC - STAIRS 100A	20 A	1	900	540	1	20 A	REC - LOBBY 100	2
3	REC - COMMON 100C, STAIRS 100D	20 A	1	720	720	1	20 A	REC - LOBBY 100	4
5	REC - DRINKING FOUNTAIN - CIRC 100B	20 A	1	1080	1080	1	20 A	REC - COMMON 100C	6
7	REC - COPIER VEST. 101	20 A	1	360	900	1	20 A	REC - CIRC 100B, CIRC 102A	8
9	REC - DRINKING FOUNTAIN - VEST 101	20 A	1	360	1080	1	20 A	REC - CIRC PTSN 102	10
11	**FAAP***	20 A	1	**360**	**720**	1	20 A	**REC - CIRC 103A**	12
13	**REC - OFFICE 1 103**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 2 104**	14
15	**REC - OFFICE 3 105**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 4 106**	16
17	**REC - OFFICE 5 107**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 6 108**	18
19	**REC - BREAKROOM 109**	20 A	1	**1080**	**900**	1	20 A	**REC - REFRIGERATOR - BREAKROOM 109**	20
21	**REC - MICROWAVE - BREAKROOM 109**	20 A	1	**1200**	**540**	1	20 A	**REC - IT 111, STG 112, RR 110**	22
23	REC - RR 110, MENS RR 117, WOMENS RR 115, JAN 116	20 A	1	1080	**- - -**	1	20 A	**SPARE**	24
25	REC - STG 1 121	20 A	1	900	**- - -**	1	20 A	**SPARE**	26
27	**SPARE**	20 A	1	**- - -**	360	1	20 A	REC - MECH 122, ELEC 123	28
29	REC - MECH 122	20 A	1	180	720	1	20 A	REC - MECH 122	30
31	REC - STG 2 124	20 A	1	900	1080	1	20 A	REC - EXTERIOR NORTH, WEST, EAST	32
33	REC - STG 2 124	20 A	1	900	180	1	20 A	REC - EMS / DDC SYSTEM CONNECTION	34
35	ICE MAKER - STG 2 124	20 A	1	960	1080	1	20 A	REC - EXTERIOR SOUTH, WEST, EAST	36
37	WASHER - STG 2 124	20 A	1	180	1080	1	20 A	REC - STG 2 139	38
39	DRYER - STG. 2 124	30 A	2	4500	800	1	20 A	REC - SPACE 20	40
41									42
43	MOTORIZED SN SHADE - CONFERENCE ROOM 108	20 A	1	1000	375	2	30 A	ROLL UP DOOR - STG. 2 124	44
45	MOTORIZED SN SHADE - CONFERENCE ROOM 108	20 A	1	1000	1000	1	20 A	MOTORIZED SN SHADE - CONFERENCE ROOM 108	46
47	MOTORIZED SN SHADE - CONFERENCE ROOM 108	20 A	1	1000	1000	1	20 A	MOTORIZED SN SHADE - CONFERENCE ROOM 108	48
49	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	50
51	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	52
53	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	54
55	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	56
57	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	58
59	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	60
61	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	62
63	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	64
65	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	66
67	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	68
69	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	70
71	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	72
73	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	74
75	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	76
77	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	78
79	SPACE ONLY	- - -	- - -	- - -					80
81	SPACE ONLY	- - -	- - -	- - -	- - -	3	30 A	SURGE PROTECTION DEVICE	82
83	SPACE ONLY	- - -	- - -	- - -					84

TOTAL CONNECTED LOAD = 38835 VA / 360 = 107.9 A

NOTES:
* Provide "RED" breaker labeled "FIRE ALARM CIRCUIT", capable of being locked in the 'ON' position. Per NFPA-70 - Article 760.121(B)

NEW POWER PANEL

P2B

SYSTEM 208/120V 3Φ 4W
RATING 225A M.L.O. 22,000 AIC MINIMUM
ENCLOSURE NEMA 1 SURFACE MOUNT
OPTIONS BOLT ON BREAKERS; TWO EQUAL SECTIONS

CKT #	SERVING	CKT BKR TRIP	CKT BKR POLE	CONNECTED LOAD (VA)		CKT BKR POLE	CKT BKR TRIP	SERVING	CKT #
1	**REC - WORK ROOM 223**	20 A	1	**900**	**360**	1	20 A	**REC - COPIER - WORK ROOM 223**	2
3	**REC - OFFICE 11 213**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 10 212**	4
5	**REC - OFFICE 9 211**	20 A	1	**1080**	**540**	1	20 A	**REC - OFFICE 8 210**	6
7	**REC - OFFICE 8 210**	20 A	1	**720**	**1080**	1	20 A	**REC - OFFICE 7 209**	8
9	**REC - OFFICE 6 208**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 5 207**	10
11	**REC - OFFICE 4 206**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 3 205**	12
13	**REC - OFFICE 2 204**	20 A	1	**1080**	**1080**	1	20 A	**REC - OFFICE 1 203**	14
15	**REC - CIRC 202**	20 A	1	**720**	**720**	1	20 A	**REC - VEST 201**	16
17	**REC - CIRC 202, STG 223, RR 221**	20 A	1	**900**	1080	1	20 A	REC - TWO-PATTON, UNISEX, WOMENS RR 226	18
19	**SPARE**	20 A	1	**- - -**	**180**	1	20 A	**REC - TV - COMMON SPACE 200**	20
21	**SPARE**	20 A	1	**- - -**	**- - -**	1	20 A	**SPARE**	22
23	**SPARE**	20 A	1	**- - -**	540	1	20 A	REC - CIRC 200A	24
25	REC - COMMON SPACE 200	20 A	1	900	540	1	20 A	REC - CIRC 202	26
27	REC - CLASSROOM 227	20 A	1	900	1080	1	20 A	REC - CLASSROOM 227	28
29	REC - CLASSROOM 227	20 A	1	900	1260	1	20 A	REC - CLASSROOM 227	30
31	SPARE - CIRC 200A	20 A	1	180	**- - -**	1	20 A	**SPARE**	32
33	**SPARE**	20 A	1	**- - -**	**- - -**	1	20 A	**SPARE**	34
35	REC - FACP - IT 222 *	20 A	1	1000	- - -	1	20 A	SPARE	36
37	REC - ACCESS CONTROL PANEL #1 - IT 222	20 A	1	1000	180	1	20 A	REC - CEILING - CLASSROOM 227	38
39	REC - ACCESS CONTROL PANEL #3 - IT 222	20 A	1	1000	2000	1	30 A	REC - TELECOM RACK #2 - IT 222	40
41	REC - IT 222	20 A	1	1260	1000	1	20 A	REC - ACCESS CONTROL PANEL #2 - IT 222	42
43	REC - TELECOM RACK #2 - IT 222	20 A	1	1000	1000	1	20 A	REC - TELECOM RACK #3 - IT 222	44
45	REC - EMS CABINET RECEPTACLE #1 - IT 222	20 A	1	1000	1000	1	20 A	REC - TELECOM RACK #1 - IT 222	46
47	REC - EMS CABINET RECEPTACLE #2 - IT 222	20 A	1	1000	1000	1	20 A	REC - EMS CABINET RECEPTACLE #3 - IT 222	48
49	REC - TELECOM RACK #1 - IT 222	30 A	1	2000	1000	1	20 A	REC - ACCESS CONTROL PANEL #4 - IT 222	50
51	REC - TELECOM RACK #3 - IT 222	30 A	1	2000	- - -	1	20 A	SPARE	52
53	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	54
55	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	56
57	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	58
59	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	60
61	SPARE	20 A	1	- - -	- - -	1	20 A	SPARE	62
63	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	64
65	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	66
67	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	68
69	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	70
71	SPACE ONLY	- - -	- - -	- - -	- - -	- - -	- - -	SPACE ONLY	72
73	LOBBY SUN SHADE #6	20 A	2	3000	3000	2	20 A	LOBBY SUN SHADE #7	74
75									76
77	LOBBY SUN SHADE #8	20 A	2	3000				LOBBY SUN SHADE #9	78
79					3000	2	20 A		80
81	LOBBY SUN SHADE #10	20 A	2	3000		3	30 A	SURGE PROTECTIVE DEVICE (SPD)	82
83									84

TOTAL CONNECTED LOAD = 56660 VA / 360 = 157.4 A

NOTES:
* Provide "RED" breaker labeled "FIRE ALARM CIRCUIT", capable of being locked in the 'ON' position. Per NFPA-70 - Article 760.121(B)

BID ALTERNATE 4:
PROVIDE DEDUCTIVE BID ALTERNATE FOR BUILDING SIZE REDUCTION. THIS SHEET IDENTIFIES THE CHANGES ASSOCIATED WITH THE PANEL SCHEDULES. ALL GREYED OUT OR OTHERWISE UNSHOWN SCHEDULES INDICIATE NO DEVIATION FROM BASE BID DRAWINGS.

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

DESCRIPTION	*DATE*
ADDENDUM	09/19/2025

Project Number **25004**
Dated 08.29.2025

ALTERNATE PANEL SCHEDULES

E-861

INTERIOR WALL PENETRATION NOTES

FIRE-RATED WALLS AND FLOORS – SEE "FIRESTOPPING NOTES" THIS SHEET.

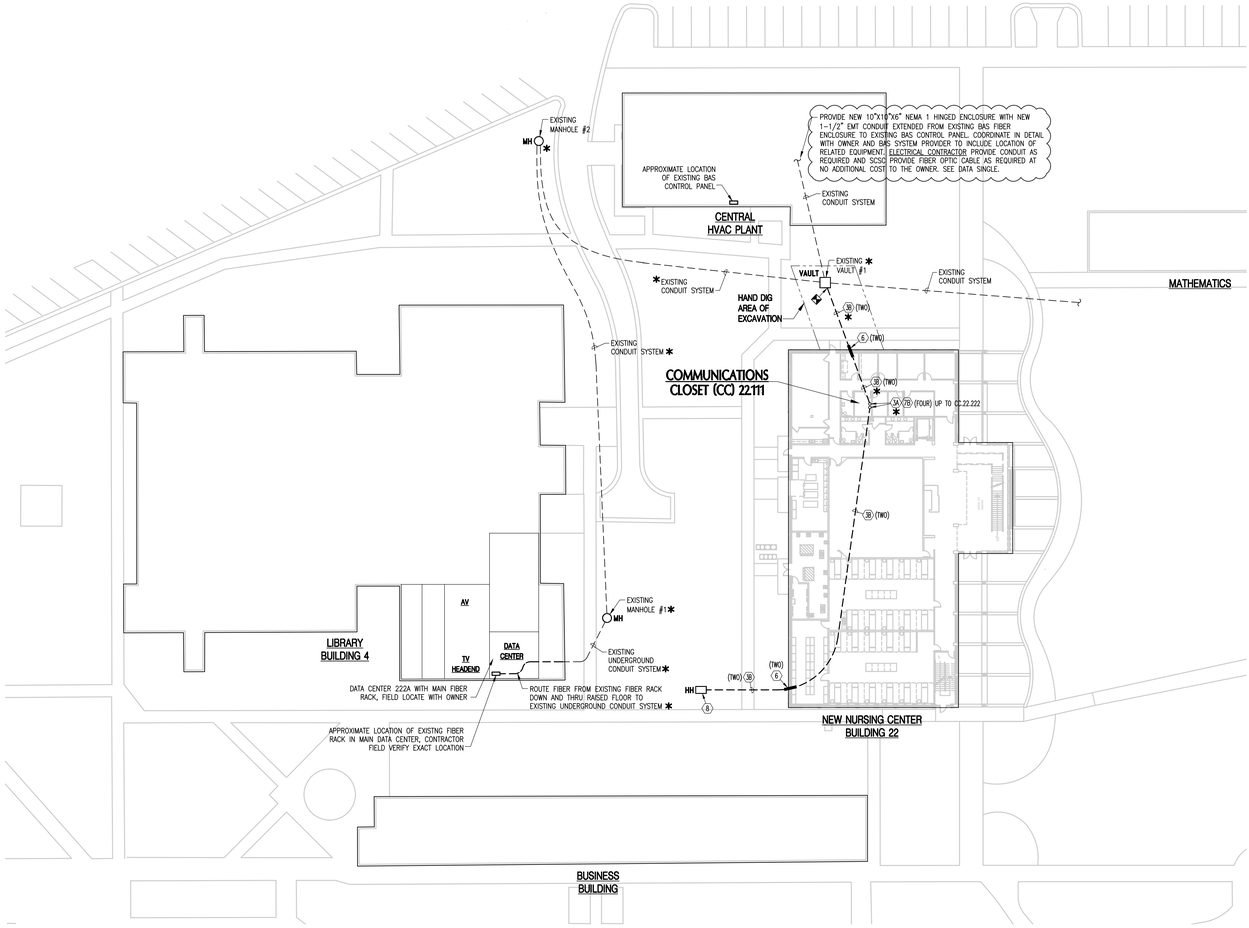
INTERIOR NON FIRE-RATED WALLS – ALL PENETRATIONS OF WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE AND ARE NOT IDENTIFIED AS FIRE RATED WALLS ON THE ARCHITECTURAL DRAWINGS SHALL BE SLEEVED, REPAIRED AND COMPLETELY SEALED WITH MATERIALS TO MATCH THE WALL CONSTRUCTION.

FIRESTOPPING NOTES

THE CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF SECOND FLOOR CONSTRUCTION, ALL PENETRATIONS OF WALLS THAT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE, AND ALL PENETRATIONS OF ALL WALLS INDICATED AS FIRE RATED ON THE ARCHITECTURAL DRAWINGS. ACCOMPLISH FIRESTOPPING USING UL CLASSIFIED SYSTEMS WITH FIRE RATING EQUAL TO OR GREATER THAN THE FIRE RATING OF THE FLOOR OR WALL ASSEMBLY PENETRATED. FIRESTOP SYSTEMS SHALL BE 3M, NELSON OR ENGINEER APPROVED EQUAL. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND THE CONDITIONS OF THE UL APPROVAL FOR EACH FIRESTOP SYSTEM USED.

ALL PENETRATIONS OF WALLS INDICATED AS SMOKE WALLS ON THE ARCHITECTURAL DRAWINGS AND ALL PENETRATIONS OF WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE SHALL BE SEALED SMOKETIGHT AND ACOUSTICALLY WITH SMOKE-SOUND CAULKING UL LISTED FOR THE PURPOSE SUCH AS USG FIRECODE, STI SMOKE 'N' SOUND, OR HILTI CP 506.

THE CONTRACTOR SHALL SUBMIT DETAILS FOR EACH DIFFERENT TYPE OF FIRESTOP ASSEMBLY REQUIRED FOR THIS PROJECT TO THE BUILDING OFFICIAL FOR APPROVAL PRIOR TO INSTALLATION. EACH DETAIL SHALL INCLUDE THE TEST ASSEMBLY NUMBER AND A DESCRIPTION OF THE MATERIALS TO BE USED. HAVE APPROVED FIRESTOPPING DETAILS AVAILABLE AT PROJECT SITE AT TIME OF THE BUILDING OFFICIAL INSPECTION.



NORTH

COMMUNICATIONS SITE PLAN

SCALE: 1" = 30'-0"

NOTE: SITE PLAN SCALE IS APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DISTANCES IN THE FIELD PRIOR TO BIDS.

COMMUNICATIONS SITE PLAN KEY NOTES:

(3A) 3" RIGID METALLIC CONDUIT (RMC OUTDOORS, RMC OR IMC INDOORS). PROVIDE WITH ONE 3" 3-CELL MAXCELL EDGE DETECTABLE INNERDUCT, MXED64283, AND WITH 3/8" MARKED PULL TAPE (CARLON TL382) IN EACH CELL ALONG WITH REQUIRED CABLES THE ENTIRE LENGTH OF EACH CONDUIT RUN. SEE "GENERAL ABOVEGROUND CONDUIT NOTES".

(3B) 3" PVC CONDUIT (UNDERGROUND), SCHEDULE 80, RUN UNDERGROUND DIRECT BURIED. MINIMUM BURIAL DEPTH 24" BELOW FINISHED GRADE. PROVIDE CONTINUOUS WARNING TAPE (ORANGE 3" WIDE – DETECTABLE – CARLON MAT3061) OVER ALL BURIED CONDUIT AT 6" BELOW FINISH GRADE. PROVIDE WITH ONE 3" 3-CELL MAXCELL EDGE DETECTABLE INNERDUCT, MXED64283, AND WITH 3/8" MARKED PULL TAPE (CARLON TL382) IN EACH CELL ALONG WITH REQUIRED CABLES THE ENTIRE LENGTH OF EACH CONDUIT RUN. SEE "GENERAL UNDERGROUND CONDUIT NOTES".

(6) SLEEVE CONDUIT WITH 8'-0" LONG SECTION OF SCHEDULE 80 PVC SLEEVE (4" SLEEVE FOR 2" CONDUIT) WHERE CONDUIT PENETRATES OR PASSES UNDER FOUNDATION/FOUNDATION WALL.

(7B) TURN SCHED 80 PVC CONDUIT (QUANTITY OF FOUR) UP IN FIRST FLOOR COMMUNICATIONS CLOSET, SLEEVE AND SEAL FLOOR PENETRATION AND CONVERT TO RIGID AT 4" A.F.F., THEN EXTEND UP SURFACE ATTACHED TO WALL THRU CEILING GRID (TRIM CEILING TILE NEATLY) AND CONTINUING UP THRU SECOND FLOOR CONSTRUCTION (FIRESTOP FLOOR PENETRATION) INTO SECOND FLOOR COMMUNICATIONS CLOSET. TERMINATE AT 4" A.F.F. WITH UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (O-Z/GEDNEY TYPE IBC-L-BC) PRIOR TO INSTALLING CABLING AND BOND TO CC GROUNDING BUSBAR WITH #6 AWG INSULATED (GREEN) COPPER GROUNDING CONDUCTOR. SEE ENLARGED FLOOR PLANS FOR LOCATION OF CONDUIT TURNING UP. FOR ROUTING OF CONDUIT UNDER BID ALTERNATE #4 SEE SHEETS T-801 AND T-802.

(8) LARGE COMMUNICATIONS HANDHOLE, SEE DETAIL.

GENERAL CONDUIT PATHWAYS NOTE

RUN ALL CABLING IN CONDUIT PATHWAYS AS INDICATED. THE CONTRACTOR AGREES TO USE THE CONDUIT SYSTEM AS SHOWN, OR SHALL PROVIDE ADDITIONAL CONDUIT AT NO ADDITIONAL COST TO THE OWNER AS REQUIRED TO PROPERLY INSTALL ALL CABLING INDICATED, WITHOUT DAMAGE TO CABLING. ALL CONDUIT SHALL CONFORM TO REQUIREMENTS OF THE CONTRACT DOCUMENTS, WHETHER SPECIFICALLY SHOWN ON THE DRAWINGS OR NOT.

DOCUMENTATION OF EXISTING CONDITIONS

THE PROJECT REQUIRES THAT THE CONTRACTOR WORK ABOVE CEILINGS IN EXISTING OCCUPIED BUILDINGS. IN ALL SUCH CASES, THE CONTRACTOR SHALL PROVIDE PHOTOGRAPHIC DOCUMENTATION OF THE CONDITIONS OF ALL EXISTING CEILINGS (TO REMAIN) WHERE WORK IS TO BE PERFORMED USING A HIGH RESOLUTION DIGITAL CAMERA PRIOR TO COMMENCING ANY WORK. THE CONTRACTOR SHALL PROVIDE DIGITAL FILES OF ALL PHOTOGRAPHS (WITH AREAS LABELED) TO THE OWNER'S PROJECT MANAGER. THE CONTRACTOR SHALL REPLACE ALL CEILING TILES OR REPAIR OTHER CEILING TYPE FINISHES (MATCH EXISTING) DAMAGED AS A RESULT OF WORK UNDER THIS CONTRACT.

NIGHT WORK NOTE:

ALL WORK WITHIN EXISTING OCCUPIED BUILDINGS SHALL BE ACCOMPLISHED ON WEEKDAYS OR AT NIGHT WHEN CLASSES ARE NOT IN REGULAR SESSION. EXACT TIMES SHALL BE AS DIRECTED BY THE OWNER'S PROJECT MANAGER. WORK DURING THE DAY AND ON WEEKENDS SHALL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE PROJECT MANAGER. ALL EXISTING SYSTEMS SHALL BE MAINTAINED IN FULL WORKING ORDER AT ALL TIMES.

COMMUNICATIONS SITE PLAN LEGEND:

- HH ☐ — COMMUNICATIONS HAND HOLE. SEE HAND HOLE DETAILS.
- – – – – — COMMUNICATIONS BACKBONE CONDUIT RUN UNDERGROUND, QUANTITY AS INDICATED.
- VAULT ☐ — EXISTING COMMUNICATIONS VAULT.
- MH ◯ — EXISTING COMMUNICATIONS MANHOLE.
- – – – – — EXISTING COMMUNICATIONS BACKBONE CONDUIT RUN UNDERGROUND, QUANTITY AS INDICATED.
- ◆ — POINT-OF-CONNECTION, NEW CONDUIT TO EXISTING VAULT, CONTRACTOR FIELD VERIFY.

RIGID CONDUIT NOTE

PROVIDE RIGID THREADED CONDUIT (RMC) WITH THREADED MALLEABLE IRON FITTINGS AS INDICATED FOR BACKBONE CONDUIT. MAINTAIN ELECTRICAL CONTINUITY FROM END-TO-END AND GROUND PER "CC GROUNDING NOTES" AND "GENERAL ABOVEGROUND CONDUIT NOTES".

PROJECT NOTE (ALL SHEETS):

ALL MATERIALS AND EQUIPMENT INDICATED AND REQUIRED FOR A COMPLETE AND FINISHED INSTALLATION SHALL BE NEW AND SHALL BE PROVIDED BY THE CONTRACTOR UNDER THIS PROJECT UNLESS SPECIFICALLY INDICATED TO BE EXISTING OR TO BE PROVIDED BY OTHERS.

CONDUIT WORK NOTE

ALL CONDUIT WORK INDICATED SHALL BE PROVIDED AS PART OF THIS CONTRACT AND SHALL BE PERFORMED BY A LICENSED CERTIFIED ELECTRICAL CONTRACTOR IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. PERMANENTLY LABEL ALL CONDUITS.

FIRE ALARM SYSTEM FIBER OPTIC CABLE

SEE ELECTRICAL DRAWINGS FOR CONDUIT WORK IN CENTRAL PLANT ASSOCIATED WITH FIRE ALARM SYSTEM FIBER OPTIC BACKBONE CABLE. FIRE ALARM BACKBONE CABLE IS PROVIDED BY ELECTRICAL CONTRACTOR AND TERMINATES DIRECTLY TO FIRE ALARM EQUIPMENT EACH END.

* THE OWNER HAS INDICATED THAT AN EXISTING CONTINUOUS FIBER OPTIC CABLE PATH IS AVAILABLE FROM EXISTING VAULT #1 THRU EXISTING CONDUIT TO EXISTING MANHOLE #2 AND EXISTING MANHOLE #1 AND INTO BUILDING 4 TO THE EXISTING FIBER RACK IN THE EXISTING DATA CENTER. THE EXISTING PATH CONSISTS OF UNDERGROUND CONDUIT WITH MAXCELL FLEXIBLE INNERDUCT. PULL CABLE THRU INNERDUCT ~~AS ALL ENDS PROVIDE CABLE SLACK IN EACH VAULT~~ AND MANHOLE AS DIRECTED BY THE OWNER. INSTALL 2500 POUND MULE TAPE WITH NEW CABLE.

Graphic Scale

30 15 0 30FT 60FT

SCALE: 1" = 30'-0"

BICSI Gregory A. Cook BICSI ID # 104998 Expires 12-31-27 RCDD — Registered Communications Distribution Designer

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NOT FOR CONSTRUCTION

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Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number 25004
Dated 08.29.2025

COMMUNICATIONS SITE PLAN

T-101

SPECIAL SERVICES NOTES

PROVIDE TWO CAT 6 CONNECTIONS TO
EACH OF THE FOLLOWING SPECIAL SERVICES UNLESS NOTED OTHERWISE:

- EMS/DDC – ROOM 122 (TWO DATA)
- LIGHTING CONTROL – ROOM 123 (TWO DATA)
- FIRE RISER – ROOM 125 (TWO DATA)
- ACCESS CONTROL – ROOM 222 (TWO DATA)
- ACCESS CONTROL – ROOM 222 (TWO DATA)
- ACCESS CONTROL – ROOM 222 (TWO DATA)
- ACCESS CONTROL – ROOM 222 (TWO DATA)
- EMS/DDC – ROOM 228 (TWO DATA)

COORDINATE LOCATIONS AND INTERFACE REQUIREMENTS WITH THE OWNER'S PROJECT MANAGER. HOMERUN CABLING CONTINUOUS IN 3/4" EMT CONDUIT FROM SERVING CER TO SERVICE POINT FOR EACH SYSTEM. SEE PLANS FOR LOCATIONS AND ADDITIONAL REQUIREMENTS. SEE DATA SINGLE LINE DIAGRAMS.

DUST CONTROL NOTE !

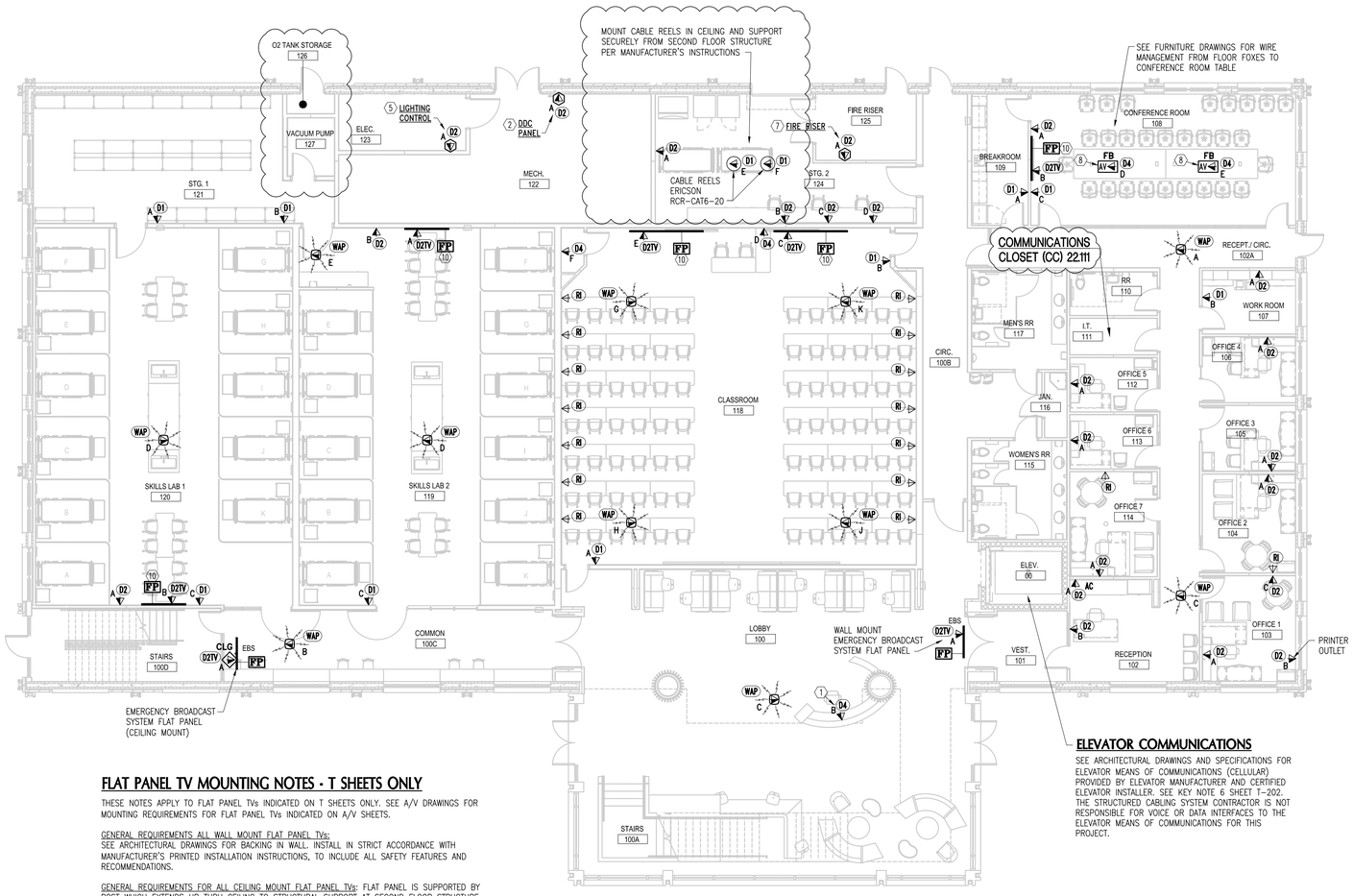
THE GENERAL CONTRACTOR AND THE STRUCTURED CABLING SYSTEM CONTRACTOR SHALL SHARE FULL RESPONSIBILITY FOR PROTECTING ALL COMMUNICATIONS OUTLETS AND THE CER/CC FROM DUST AND DEBRIS DURING CONSTRUCTION AND UNTIL FINAL COMPLETION OF THE PROJECT. THE SCS SHALL NOT INSTALL WIRE MANAGERS, PATCH PANELS, OR DRESS OUT AND TERMINATE CABLES UNTIL THE CER/CC ARE COMPLETELY ISOLATED FROM DUST INFILTRATION WITH PLASTIC SHEETING AND DUCT TAPE. ALL COS JACKS SHALL BE PROTECTED BY BAGGING AND SEALING DUST TIGHT AT ALL TIMES AFTER CONNECTIVITY DEVICES ARE INSTALLED. ALL SYSTEM COMPONENTS THAT, IN THE SOLE JUDGMENT OF THE ENGINEER, ARE EXPOSED TO EXCESSIVE ACCUMULATION OF CONSTRUCTION DUST/DEBRIS AT ANY STAGE OF THE PROJECT SHALL BE REMOVED AND REPLACED WITH NEW COMPONENTS AT NO ADDITIONAL COST TO THE OWNER.

USE OF SCS FACILITIES BY BY OTHER TRADES

CCs: THE CCs WITH ALL RELATED SPACE, BACKBOARDS, CABLE RUNWAY, ETC. ARE DEDICATED TO STRUCTURED CABLING SYSTEM COMPONENTS ONLY AND SHALL NOT BE USED IN ANY WAY BY ANY OTHER TRADE WITH THE EXCEPTION OF ELECTRICAL POWER AND HVAC WORK SPECIFICALLY ASSOCIATED WITH THAT SPACE.

J-HOOKS: CATEGORY 5 J-HOOKS INDICATED ON "I" DRAWINGS ARE DEDICATED TO SCS CABLING (HORIZONTAL CATEGORY 6 AND CATEGORY 6A CABLES) AND SHALL NOT BE USED FOR ANY OTHER TYPE OF CABLING.

CONDUITS: CONDUITS INDICATED ON "I" DRAWINGS ARE DEDICATED TO SCS CABLING AND SHALL NOT BE USED FOR ANY OTHER TYPE OF CABLING.



COMMUNICATIONS FLOOR PLAN - LEVEL 1

NORTH

SCALE: 1/8" = 1'-0"

FLAT PANEL TV MOUNTING NOTES - T SHEETS ONLY

THESE NOTES APPLY TO FLAT PANEL TVs INDICATED ON T SHEETS ONLY. SEE A/V DRAWINGS FOR MOUNTING REQUIREMENTS FOR FLAT PANEL TVs INDICATED ON A/V SHEETS.

GENERAL REQUIREMENTS ALL WALL MOUNT FLAT PANEL TVs:
SEE ARCHITECTURAL DRAWINGS FOR BACKING IN WALL. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, TO INCLUDE ALL SAFETY FEATURES AND RECOMMENDATIONS.

GENERAL REQUIREMENTS FOR ALL CEILING MOUNT FLAT PANEL TVs: FLAT PANEL IS SUPPORTED BY POST WHICH EXTENDS UP THRU CEILING TO STRUCTURAL SUPPORT AT SECOND FLOOR STRUCTURE OR ROOF STRUCTURE. GENERAL CONTRACTOR PROVIDE STRUCTURAL SUPPORT FROM SECOND FLOOR STRUCTURE OR ROOF STRUCTURE FOR FLAT PANELS SUPPORTED FROM STRUCTURE ABOVE CEILING. THE STRUCTURAL SUPPORT SHALL BRIDGE ACROSS STRUCTURAL STEEL MEMBERS, SHALL PROVIDE A FULL WIDTH ATTACHMENT SURFACE FOR CHIEF CMA115 HANGER BRACKET AND RIGIDLY SUPPORT THE FLAT PANEL SUPPORT POST AND MOUNT (ALLOW FOR 150 POUNDS EQUIPMENT AND MOUNT WEIGHT).

FLAT PANELS MOUNTED TO WALL:
MOUNT WITH BOTTOM OF FLAT PANEL (LOWEST PROJECTING POINT OF PANEL OR MOUNT) AT HEIGHT INDICATED ON THE ARCHITECTURAL DRAWINGS OR AS SPECIFICALLY DIRECTED BY OWNER. PROVIDE CHIEF MODEL RMT2 TILT WALL MOUNT. WALL MOUNT COMM AND POWER OUTLETS IN OPEN AREA OF UPPER LEFT CORNER OF MOUNT ON READILY ACCESSIBLE FROM SIDE BUT TOTALLY CONCEALED FROM VIEW WITH SPECIFIC LOCATIONS TO BE DETERMINED USING FLAT PANEL INFORMATION PROVIDED BY OWNER. SECURELY ATTACH TO WALL AT SUPPORT BLOCKING IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND ATTACHMENT NOTES SHEET T-302.

ALL FLAT PANELS SUPPORTED FROM STRUCTURE ABOVE CEILING:
MOUNT WITH BOTTOM OF FLAT PANEL (LOWEST PROJECTING POINT OF BOTTOM PANEL OR MOUNT) AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS OR AS SPECIFICALLY DIRECTED BY OWNER. PROVIDE CHIEF MODEL RMC1 TILT CEILING MOUNT. PROVIDE CHIEF CMS SERIES ADJUSTABLE PIPE COLOR BLACK, LENGTH AS REQUIRED TO CONNECT TO FLAT PANEL MOUNT AND MATE WITH UPPER FIXED PIPE USING MATCHING CHIEF CMA270 THREADED COUPLER AT APPROXIMATELY 6" BELOW CEILING. PROVIDE CHIEF CMS SERIES ADJUSTABLE UPPER EXTENSION COLUMN COLOR BLACK, LENGTH AS REQUIRED TO CONNECT TO LOWER EXTENSION COLUMN, EXTEND THRU CEILING (WITH CHIEF CP4640 DECORATIVE CEILING TILE RING AT CEILING PENETRATION) UP TO POINT OF CONNECTION TO SECOND FLOOR OR ROOF STRUCTURE ABOVE. PROVIDE CHIEF CMA115 PLATE SECURELY ATTACHED TO STRUCTURAL SUPPORT. SELECT UPPER EXTENSION COLUMN LENGTH AND INSTALL AND ADJUST SUCH THAT TOP OF CABLE ACCESS CUTOUT SLOT IS AT 2" BELOW CEILING, OUTER SLEEVE IS ABOVE CEILING, AND INNER SLEEVE PENETRATES CEILING WITH TILE RING AND CONNECTS WITH COUPLER TO LOWER EXTENSION COLUMN AS NOTED ABOVE. PROVIDE COMMUNICATIONS AND POWER OUTLETS IN UNDERSIDE OF CEILING WITHIN 6" OF PIPE AND ALIGNED WITH EACH OTHER. RUN COMMUNICATIONS AND POWER PATCH CORDS FROM OUTLETS THRU CABLE ACCESS CUTOUT IN UPPER COLUMN BELOW CEILING, DOWN CONCEALED IN EXTENSION COLUMN TO FLAT PANEL AND OTHERWISE NEATLY ROUTE AND SECURE WITH BLACK VELCRO.

OVERALL COORDINATION NOTE

THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR AND SCSC SHALL COORDINATE ALL COMMUNICATIONS AND AUDIO-VISUAL DEVICES AND EQUIPMENT FOR SPECIFIED ALIGNMENT, ELEVATION, AND SPACING CONDITIONS OUTLINED IN THE ARCHITECTURAL FLOOR PLANS, ELEVATIONS AND REFLECTED CEILING PLANS. ANY DISCREPANCIES AND/OR CONFLICTS CONTAINED WITHIN THE DRAWINGS AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND RESOLVED PRIOR TO COMMENCEMENT OF ANY ASSOCIATED WORK TO INCLUDE CONDUIT ROUGH-IN.

GENERAL LABELING NOTE

1. ALL COs, PROTECTOR BLOCKS, VOICE BLOCKS, AND HORIZONTAL PATCH PANELS SHALL BE LABELED USING THE FINAL ROOM NUMBERS USED FOR SIGNAGE. OBTAIN FINAL ROOM NUMBERS FROM THE ARCHITECT PRIOR TO LABELING.
2. ALL LABELS FOR COs, PROTECTOR BLOCKS, VOICE BLOCKS, AND HORIZONTAL PATCH PANELS SHALL BE PRODUCED USING FACTORY LABEL SHEETS FOR LASER PRINTERS MANUFACTURED FOR THE SPECIFIC DEVICE.

COMMUNICATIONS OUTLET NOTE

COMMUNICATIONS OUTLET LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF EACH OUTLET WITH THE ARCHITECT, THE GENERAL CONTRACTOR, THE OWNER'S PROJECT MANAGER AND THE ELECTRICAL CONTRACTOR PRIOR TO THE CONDUIT AND DEVICE BOX ROUGH-IN. PARTICULAR ATTENTION SHALL BE GIVEN TO COORDINATION OF OUTLET LOCATIONS RELATIVE TO WINDOWS, CASEWORK AND OTHER OBSTRUCTIONS. ALL COMMUNICATIONS OUTLETS (CO's) SHALL BE LOCATED AT 18" A.F.F. UNLESS INDICATED OTHERWISE ON FLOOR PLANS AND DETAILS OR SO DIRECTED BY THE OWNER ARCHITECT IN THE FIELD. THE SCSC SHALL PROVIDED A LETTER ON COMPANY LETTERHEAD STATING THAT THE LOCATION IN PLAN VIEW AND THE HEIGHT FOR EACH AND EVERY COMMUNICATIONS OUTLET HAS BEEN COORDINATED IN ACCORDANCE WITH THESE REQUIREMENTS AND ALL RELATED NOTES AND DETAILS.

ELEVATOR COMMUNICATIONS

SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ELEVATOR MEANS OF COMMUNICATIONS (CELLULAR) PROVIDED BY ELEVATOR MANUFACTURER AND CERTIFIED ELEVATOR INSTALLER. SEE KEY NOTE 6 SHEET T-202. THE STRUCTURED CABLING SYSTEM CONTRACTOR IS NOT RESPONSIBLE FOR VOICE OR DATA INTERFACES TO THE ELEVATOR MEANS OF COMMUNICATIONS FOR THIS PROJECT.

ABBREVIATIONS

CER	COMMUNICATIONS EQUIPMENT ROOM
CC	COMMUNICATIONS CLOSET
CO	COMMUNICATIONS OUTLET
A.F.F.	ABOVE FINISHED FLOOR
AC	ABOVE COUNTER
N.I.C.	NOT IN CONTRACT
HPP	HORIZONTAL PATCH PANEL
PB	PULLBOX
GALV	GALVANIZED STEEL
BAS	BUILDING AUTOMATION SYSTEM
DDC	DIRECT DIGITAL CONTROLS (HVAC)
EMS	ENERGY MANAGEMENT SYSTEM = DDC (HVAC)
IP	INTERNET PROTOCOL
RMC	RIGID METALLIC CONDUIT
IMC	INTERMEDIATE METALLIC CONDUIT
HH	HAND HOLE
WP	WATERPROOF
SS	STAINLESS STEEL
EBS	EMERGENCY BROADCASTING SYSTEM
SCED	SCHEDULE
TYP	TYPICAL
ARCH	ARCHITECTURAL
SCS	STRUCTURED CABLING SYSTEM
SCSC	STRUCTURED CABLING SYSTEM CONTRACTOR
WAN	WIDE AREA NETWORK
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
AV, A/V	AUDIO-VISUAL
WAP	WIRELESS ACCESS POINT
CM	CONSTRUCTION MANAGER
PM	PROJECT MANAGER
GC	GENERAL CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION SECURITY CAMERA SYSTEM\
MS	MEDIA SERVICES

COMMUNICATIONS LEGEND

- LOBBY 100 — ARCHITECT'S ROOM NUMBER, SEE "GENERAL LABELING NOTE."
- D1 A — COMMUNICATIONS OUTLET (CO), TYPE 'D1'. SEE DETAILS. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- D2 A — COMMUNICATIONS OUTLET (CO), TYPE 'D2'. SEE DETAILS. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- D2TV A — COMMUNICATIONS OUTLET (CO), TYPE 'D2TV'. SEE DETAILS. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- D4 A — COMMUNICATIONS OUTLET (CO), TYPE 'D4'. SEE DETAILS. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- D1MS A — COMMUNICATIONS OUTLET (CO) TYPE 'D1MS'. SEE DETAILS. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- CLG D2TV B — COMMUNICATIONS OUTLET (CO) FLUSH MOUNTED IN CEILING, TYPE 'D2TV'. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- RI — COMMUNICATIONS OUTLET (CO) ROUGH-IN ONLY, TYPE 'RI'. SEE DETAILS.
- FB D4 A — COMMUNICATIONS OUTLET (CO) MOUNTED IN FLOOR BOX, TYPE 'D4' AND POWER. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET. SEE DETAILS. SEE ELECTRICAL DRAWINGS.
- FB AV D4 A — COMMUNICATIONS OUTLET (CO) MOUNTED IN FLOOR BOX, TYPE 'D4', AV, AND POWER. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET. SEE DETAILS. SEE ELECTRICAL DRAWINGS.
- PT — POWER ONLY RECEPTACLE MOUNTED IN POKE-THRU. SEE ELECTRICAL DRAWINGS.
- WAP A — WIRELESS ACCESS POINT (WAP) MOUNTED IN CEILING OR ON WALL AS INDICATED. SEE WIRELESS ACCESS POINT (WAP) MOUNTING DETAILS. LETTER INDICATES DESIGNATION OF WAP IN ROOMS WITH MORE THAN ONE WAP. COORDINATE EXACT LOCATION WITH ARCHITECT.
- D2 A — SPECIAL SERVICE OUTLET (CO), TYPE 'D2'. SEE "SPECIAL SERVICES NOTE" AND PLANS. RUN CABLING CONTINUOUS TO SERVING CC IN CONDUIT. LETTER INDICATES DESIGNATION OF OUTLET IN ROOMS WITH MORE THAN ONE OUTLET.
- FP — FLAT PANEL, SEE DETAILS.

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

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PANAMA CITY, FL, 32401

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number 25004
Dated 08.29.2025

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER BICSI Gregory A. Cook BICSI ID # 184998 EXPIRES 12-31-27 RCDD

COMMUNICATIONS FLOOR PLAN LEVEL 1

T-201

NORTH

COMMUNICATIONS FLOOR PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"

COMMUNICATIONS FLOOR PLAN KEY NOTES

1. MOUNT CO IN KNEE SPACE BELOW COUNTER RECESSED IN BUILT-IN CASEWORK IN CLOSE PROXIMITY TO GROMMETS IN COUNTERTOP OR AS DIRECTED BY ARCHITECT IN THE FIELD. SEE ARCHITECTURAL DRAWINGS FOR FINAL CONFIGURATION AND LOCATION OF CASEWORK. COORDINATION IN THE FIELD WITH THE GENERAL CONTRACTOR, THE ELECTRICAL CONTRACTOR, THE ARCHITECT AND THE OWNER'S PROJECT MANAGER IS CRITICAL, AND SHALL BE COMPLETED PRIOR TO THE CONDUIT ROUGH-IN. PLACE DEVICE BOX AT EACH CO MOUNTED FOR FLUSH FACEPLATE INSTALLATION IN FINISHED FACE OF CASEWORK AND LOCATED FOR EASY ACCESS TO CONNECT USER DEVICES WITH PATCH CORDS. HOMERUN 1" SCHEDULE 80 PVC CONDUIT FROM EACH OUTLET UNDER SLAB CONTINUOUS TO SERVING CC. DO NOT LOOP CONDUITS TO OTHER OUTLETS OR SHARE CONDUITS FOR MULTIPLE OUTLETS IN ANY WAY. RUN UNDERGROUND CONDUIT STRAIGHT WITH NO BENDS DIRECTLY "AS THE CROW FLIES" FROM POINT OF TURNING DOWN THRU FLOOR SLAB TO RUN UNDERGROUND OVER TO POINT OF TURNING UP IN SERVING CC. IN CC TURN CONDUITS UP IN TIGHT RECTANGULAR GROUPING (DO NOT MIX WITH OTHER SYSTEMS) THRU FLOOR IN LOCATION SHOWN ON ENLARGED CC FLOOR PLAN AND TERMINATE AT 4" A.F.F. WITH END BELL (CARLON 997 SERIES). MAKE ALL UNDERGROUND JOINTS WATERTIGHT. PRIOR TO CONCRETE POUR ELECTRICAL CONTRACTOR VALIDATE CONTINUITY OF CONDUITS, BLOW OR VACUUM ALL WATER OUT OF CONDUITS, AND INSTALL HEAVY DUTY PULL STRING CONTINUOUS FROM END TO END OF EACH CONDUIT PRIOR TO FLOOR SLAB POUR. ELECTRICAL CONTRACTOR PROVIDE 10' OF PULL STRING SLACK AT EACH END. TEMPORARILY CAP CONDUIT ENDS TO PREVENT ENTRY OF WATER AND DIRT. STRUCTURED CABLING SYSTEM CONTRACTOR AGAIN BLOW OR VACUUM WATER OUT OF CONDUITS PRIOR TO INSTALLING CABLES. SCSC PROVIDE ALL BURIAL GRADE CATEGORY 6 CABLE. SEE CC ENLARGED FLOOR PLAN AND GENERAL ABOVEGROUND CONDUIT NOTES.
2. EMS/DDC SYSTEM CONNECTION: RUN CABLING CONTINUOUS IN CONDUIT. PROVIDE "BISCUIT" STYLE 'D2' OUTLET LABELED WITH "EMS/DDC" AND SERVING CLOSET. MOUNT OUTLET INSIDE THE EMS/DDC PANEL LOCATION AS DIRECTED BY THE DDC CONTRACTOR. FINAL LOCATION OF DDC PANEL IS UNKNOWN – COORDINATE WITH THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR AND THE EMS/DDC SYSTEM INSTALLER FOR FINAL DDC PANEL LOCATION. SEE DATA SINGLE LINE FOR CABLING.
3. ACCESS CONTROL PANEL CONNECTION: : RUN CABLING CONTINUOUS IN CONDUIT. PROVIDE "BISCUIT" STYLE 'D2' OUTLET LABELED WITH "ACCESS CONTROL PANEL" AND SERVING CLOSET. MOUNT OUTLET INSIDE THE ACCESS CONTROL PANEL AS DIRECTED BY THE ACCESS CONTROL SYSTEM CONTRACTOR. COORDINATE WITH GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR AND THE ACCESS CONTROL SYSTEM CONTRACTOR. ACCESS CONTROL SYSTEM CONTRACTOR IS RESPONSIBLE FOR ANY UL SECONDARY LISTED SURGE PROTECTION DEVICE REQUIRED TO PROTECT ACCESS CONTROL PANEL. SEE DATA SINGLE LINE FOR CABLING.
5. LIGHTING CONTROL PANEL CONNECTION: RUN CABLING CONTINUOUS IN CONDUIT. PROVIDE "BISCUIT" STYLE 'D2' OUTLET LABELED WITH "LIGHTING CONTROL" AND SERVING CLOSET. MOUNT OUTLET INSIDE THE LIGHTING CONTROL PANEL AS DIRECTED BY THE ELECTRICAL CONTRACTOR. FINAL LOCATION OF LCP PANEL IS UNKNOWN – COORDINATE WITH THE GENERAL CONTRACTOR AND THE ELECTRICAL CONTRACTOR FOR FINAL LCP PANEL LOCATION. SEE DATA SINGLE LINE FOR CABLING.
6. ELEVATOR COMMS CONNECTION: ELEVATOR INSTALLER CERTIFIED BY MANUFACTURER SHALL PROVIDE CELLULAR SERVICE FOR ELEVATOR "COMMUNICATIONS MEANS" AND ELEVATOR CAB CAMERA PACKAGE. THE INSTALLATION SHALL BE IN ACCORDANCE WITH ASME A17.1–2019 AND ALL OTHER APPLIABLE CODES. ELEVATOR INSTALLER COORDINATE WITH THE OWNER, GENERAL CONTRACTOR AND AHJ TO TEST/VALIDATE ELEVATOR VOICE COMMUNICATIONS AND CAMERA SYSTEM OPERATION. ELEVATOR INSTALLER AND GENERAL CONTRACTOR ARE RESPONSIBLE FOR INSTALLATION AND PROPER OPERATION OF SYSTEM. ELEVATOR INSTALLER TO PROVIDE CELLULAR ANTENNA(S) AS REQUIRED FOR ROBUST AND RELIABLE CELLULAR SIGNAL. PROVIDE ONE YEAR OF NO-COST ANSWERING AND MONITORING SERVICE BY A CERTIFIED THIRD PARTY SERVICE.
7. FIRE SPRINKLER SYSTEM CONTROL PANEL CONNECTION: RUN CABLING CONTINUOUS IN CONDUIT. PROVIDE "BISCUIT" STYLE 'D2' OUTLET LABELED WITH "FIRE SPRINKLER" AND SERVING CLOSET. MOUNT OUTLET INSIDE THE FIRE SPRINKLER CONTROL PANEL AS DIRECTED BY THE ELECTRICAL CONTRACTOR. FINAL LOCATION OF THE CONTROL PANEL IS UNKNOWN – COORDINATE WITH THE GENERAL CONTRACTOR AND THE ELECTRICAL CONTRACTOR FOR FINAL CONTROL PANEL LOCATION. SEE DATA SINGLE LINE FOR CABLING.
8. FLOOR BOX, SEE DETAILS SHEET T-303.
9. FIRE-RATED POKE-THRU POWER ONLY. SEE ELECTRICAL DRAWINGS.
10. FLAT PANEL AND MOUNT PROVIDED BY A/V CONTRACTOR AS PART OF DIGITAL SIGNAGE/MESSAGING OR AUDIO-VISUAL SYSTEM. CABLING SHALL BE PROVIDED AS PART OF DIGITAL SIGNAGE/MESSAGING OR A/V SYSTEM. SEE A/V DRAWINGS.
11. TURN SCHED 80 PVC CONDUIT (QUANTITY OF FOUR) UP IN FIRST FLOOR COMMUNICATIONS CLOSET ROOM 111, SLEEVE AND SEAL FLOOR PENETRATION AND CONVERT TO RIGID AT 4" A.F.F., PROVIDE PULL BOX AT CENTER OF WALL IN CONDUIT RISERS, THEN EXTEND UP SURFACE ATTACHED TO WALL THRU CEILING GRID (TRIM CEILING TILE NEATLY), TURN TO RUN ABOVE CEILING OVER TO LOCATION OF CONDUIT RISERS IN CC.22.222 ABOVE, TURN UP THRU SECOND FLOOR CONSTRUCTION (FIRESTOP FLOOR PENETRATION) INTO SECOND FLOOR COMMUNICATIONS CLOSET. TERMINATE AT 4" A.F.F. WITH UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (G-Z/GEDNEY TYPE IBC-L-BC) PRIOR TO INSTALLING CABLING AND BOND TO CC GROUNDING BUSBAR WITH #6 AWG INSULATED (GREEN) COPPER GROUNDING CONDUCTOR. SEE ENLARGED FLOOR PLANS FOR LOCATION OF CONDUITS TURNING UP.

CATEGORY 6 & CATEGORY 6A CABLE J-HOOK SCHEDULE

J-HOOK SIZE, ERICO CADDY CAT HP SERIES PART #	MAXIMUM BUNDLE SIZE (NUMBER OF CABLES)		NOTES
	CATEGORY 6	CATEGORY 6A	
CAT32HP	24	24	NOTES 1, 2, 3

NOTES:

1. USE CADDY CAT32HP SIZE J-HOOKS FOR ALL CABLE TYPES AND APPLICATIONS.
2. LIMIT BUNDLE SIZE TO 24 CABLES FOR ALL CABLE TYPES AND APPLICATIONS.
3. ALWAYS PROVIDE SEPARATE CABLE BUNDLES AND SEPARATE J-HOOK PATHWAYS AND FOR DIFFERENT SERVICES AS FOLLOWS:
   - NETWORK – SYSTEM COLOR BLUE
   - MEDIA SERVICES – SYSTEM COLOR YELLOW
   - WIRELESS ACCESS POINTS – SYSTEM COLOR GREEN
   - TELEVISION – SYSTEM COLOR PURPLE

SOUND ISOLATION NOTES

PUTTY PADS:

PROVIDE SOUND ISOLATION TREATMENT ON ALL WALL BOXES MOUNTED IN INTERIOR WALLS FOR ALL SYSTEMS AND SERVICES TO INCLUDE BUT NOT BE LIMITED TO COMMUNICATIONS OUTLETS.

PROVIDE STI SPECSEAL 'SSP' PUTTY PADS FOR THIS PURPOSE AND APPLY TO BACK, TOP, BOTTOM AND BOTH SIDES OF ALL BOXES. PROVIDE SPECSEAL 'SSP4S' PADS FOR SINGLE GANG BOXES AND SPEDSEAL 'SSP9S' FOR DOUBLE GANG BOXES.

APPLY PUTTY PADS IN MINIMUM FULL 3/16" THICKNESS ALL AROUND AND PRESS PADS INTO BOX SURFACES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

WALL BOX SEPARATION:

ON INTERIOR WALLS STAGGER PLACEMENT OF WALL BOXES FOR ELECTRICAL, COMMUNICATIONS AND SIMILAR DEVICES TO PROVIDE HORIZONTAL SEPARATION OF 16". COORDINATE WITH THE GC/CM AND THE WORK OF OTHER TRADES. PLACEMENT OF BOXES WHERE LOCATION IS CRITICAL SUCH AS AT INTERACTIVE FLAT PANELS SHALL TAKE PRECEDENCE OVER OTHER APPLICATIONS.

DEVICES ON OPPOSITE SIDES OF INTERIOR WALLS SHALL NOT BE INSTALLED WITHIN THE SAME STUD CAVITY TO MINIMIZE SOUND TRANSFER.

DEVICES ON THE SAME SIDE OF A WALL MAY BE IN THE SAME STUD CAVITY IF SEPARATED VERTICALLY BY 24" OR MORE.

FREE-ROUTED HORIZONTAL CABLING CONDUIT SLEEVES NOTE

CONDUIT SLEEVES FOR FREE-ROUTED HORIZONTAL CAT 6 AND CAT 6A CABLING: FINAL ROUTING PATHS FOR HORIZONTAL CABLING SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. FOR THIS REASON CONDUIT SLEEVES ARE NOT INDICATED ON THE DRAWINGS. THE STRUCTURED CABLING SYSTEM CONTRACTOR (SCSC) SHALL PROVIDE EMT CONDUIT SLEEVES IN THE QUANTITIES AND LOCATIONS REQUIRED TO SUIT THE SCSC SELECTED HORIZONTAL CABLE ROUTING AND AS REQUIRED FOR A COMPLETE INSTALLATION, REGARDLESS OF WHETHER THOSE SLEEVES ARE INDICATED ON THE DRAWINGS OR NOT, AND AT NO ADDITIONAL COST TO THE OWNER. AT ALL LOCATIONS WHERE HORIZONTAL CABLING RUNS THRU MECHANICAL OR ELECTRICAL EQUIPMENT ROOMS, STORAGE ROOMS, OR ANY OTHER TYPE OF ROOM WITH EXPOSED STRUCTURE CEILING, ALL SUCH CABLING SHALL BE RUN IN CONTINUOUS CONDUIT SLEEVES EXTENDING TO THE NEAREST ACCESSIBLE LAY-IN CEILING AT BOTH ENDS. IN ADDITION, THE CONTRACTOR SHALL PROVIDE CONDUIT SLEEVES TRAVERSING INACCESSIBLE (HARD) CEILING OR SOFFIT AREAS AND EXTENDING TO THE NEAREST ACCESSIBLE LAY-IN CEILING AT BOTH ENDS FOR CABLE PASS-THRU – PROVIDE ACCESS PANELS IN INACCESSIBLE CEILINGS AS REQUIRED TO INSTALL SLEEVES. SLEEVES SHALL BE SIZED FOR MAXIMUM 30 PERCENT CABLE FILL AND SHALL BE CONSTRUCTED AND PROVIDED WITH PULL BOXES AND ACCESS DOORS PER THE GENERAL ABOVEGROUND CONDUIT NOTES. GENERAL CONTRACTOR PAINT EXPOSED CONDUIT SLEEVES IN ALL FINISHED/OCCUPIED SPACES WITH NO CEILINGS TO MATCH ADJACENT SURFACES.

FREE-ROUTED HORIZONTAL CABLE ROUTING NOTE

ALL COMMUNICATIONS CABLE NOT SHOWN TO BE INSTALLED IN CONDUIT SHALL BE RUN ABOVE CEILINGS AND SHALL BE ROUTED UP HIGH DIRECTLY UNDER THE BUILDING ROOF STRUCTURE AND PROPERLY SUPPORTED WITH APPROVED HANGERS AT 4'-0" ON CENTER. DO NOT RUN CABLES CLOSER THAN 6" BELOW ROOF DECK (TO AVOID DAMAGE FROM LONG SCREWS USED IN FUTURE ROOF REPLACEMENTS). RUN ALL CABLING ABOVE DUCTWORK, PIPING, CONDUITS AND ALL OTHER WORK BY OTHER TRADES AND PLACE FOR MAXIMUM PHYSICAL PROTECTION. BUNDLE CABLES TOGETHER AND ROUTE PARALLEL AND PERPENDICULAR TO BUILDING LINES. HANGERS SHALL BE ERICO CADDY "CABLECAT" CATEGORY-5 WITH WIDE BASE LOOP. SEE 'CATEGORY 6 & CATEGORY 6A CABLE J-HOOK SCHEDULE' FOR MINIMUM J-HOOK SIZES AND MAXIMUM CABLE BUNDLE CABLE REQUIREMENTS. BUNDLE CABLES AT 4'-0" O.C. WITH VELCRO, PLENUM RATED COLOR BLACK FOR CATEGORY 6 CABLES ABOVE CEILINGS, PLENUM RATED COLOR CRANBERRY FOR CATEGORY 6A WAP CABLES ABOVE CEILINGS, AND COLOR BLACK FOR ALL CABLES IN EACH CC. ATTACH HANGERS TO THE BUILDING STRUCTURE. DO NOT ATTACH HANGERS TO CEILING GRID OR SUPPORT WIRES, CONDUITS, DUCTWORK, PIPING, OR ANY OTHER SYSTEM COMPONENT OR WORK OF OTHER TRADES. INSTALL CABLES TO AVOID ELECTROMAGNETIC INTERFERENCE FROM MOTORS, TRANSFORMERS, GENERATORS, ELEVATORS, POWER CABLES/CONDUITS, LIGHTING FIXTURES, ETC. DO NOT ROUTE CABLE THRU FIRE DAMPERS, HVAC DUCTS, VENTILATING SHAFTS, OR GRATES. DO NOT BLOCK ACCESS TO PULL/JUNCTION BOXES, HATCHES, DOORS, UTILITY ACCESS PANELS, MECHANICAL SERVICE AREAS, ELECTRICAL SERVICE AREAS, OR ANY OTHER SPACE ASSOCIATED WITH SERVICE OR ACCESS OF ANY TYPE. DO NOT RUN HORIZONTAL CABLING ABOVE CEILINGS OF CHEMICAL STORAGE ROOMS.

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

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REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number 25004
Dated 08.29.2025

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
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Gregory A. Cook
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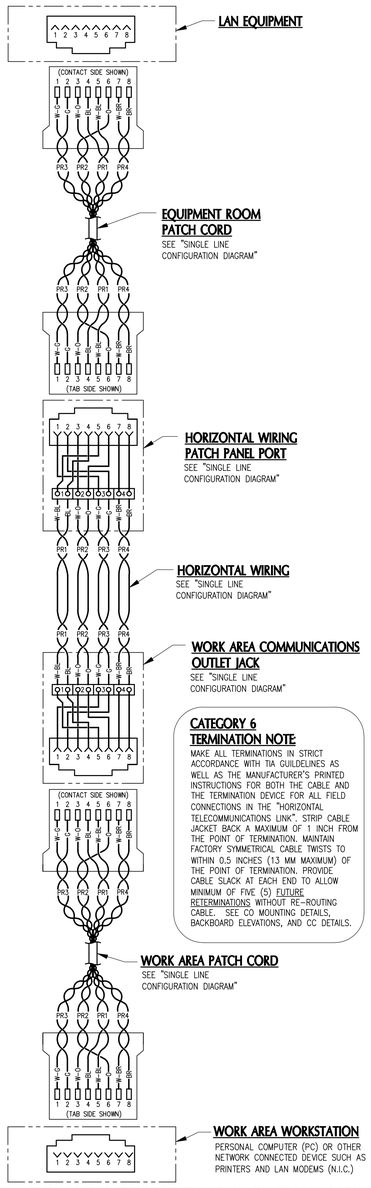
EXPIRES 12-31-27
RCDD

COMMUNICATIONS FLOOR PLAN LEVEL 2

T-202



TYPICAL POINT-TO-POINT WIRING DIAGRAM WORK AREA WORKSTATION TO LAN EQUIPMENT CATEGORY 6 "HORIZONTAL TELECOMMUNICATIONS CHANNEL"

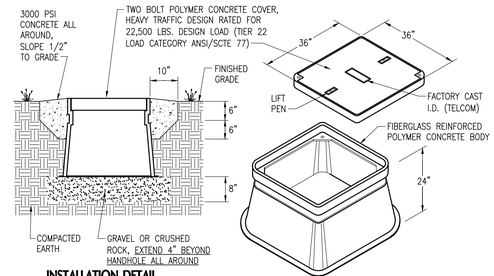
NOT TO SCALE

GENERAL UNDERGROUND CONDUIT NOTES

1. THE CONTRACTOR SHALL HAND DIG ALL TRENCHES FOR NEW UNDERGROUND CONDUIT AS SHOWN ON THE SITE PLAN T-101.
2. LOCATION AND ROUTING OF NEW UNDERGROUND CONDUIT IS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION AND ROUTING OF CONDUIT TO AVOID CONFLICTS WITH BURIED UTILITIES AND OTHER OBSTRUCTIONS. SIGNIFICANT CHANGES TO CONDUIT ROUTING SHALL REQUIRE THE APPROVAL OF THE ENGINEER.
3. ALL BURIED CONDUIT SHALL BE SCHEDULE 80 ELECTRICAL GRADE PVC CONDUIT. ALL PVC CONDUIT JOINTS SHALL BE CLEANED AND GLUED FOR A WATERTIGHT CONNECTION. TERMINATE ENDS OF PVC CONDUIT AT CLOSETS AND HANDHOLES WITH CARLON E997 SERIES END BELLS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION OF ALL EXISTING BURIED UTILITIES PRIOR TO COMMENCING ANY EXCAVATION REQUIRED FOR WORK UNDER THE PROJECT. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES THAT OCCURS AS A RESULT OF OPERATIONS PERFORMED UNDER THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER. REPAIRS SHALL BE MADE USING MATERIALS & METHODS TO MATCH EXISTING CONSTRUCTION AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO RE-COVERING.
5. LOCATION OF HANDHOLES SHOWN IS INTENDED TO PLACE HANDHOLES IN ACCESSIBLE SODDED, PLANTED OR PAVED AREAS. COORDINATE LOCATIONS WITH DRAINAGE STRUCTURES, SIDEWALKS, OTHER OUTSIDE STRUCTURES, AND LANDSCAPING TO AVOID CONFLICTS.
6. PROVIDE HANDHOLES IN UNDERGROUND CONDUIT AS INDICATED AND ADDITIONAL HANDHOLES AS REQUIRED DUE TO CHANGES IN CONDUIT DIRECTION. INSTALL A HANDHOLE IN EACH CONDUIT RUN OF LONGER THAN 500 FEET OR CONTAINING THE EQUIVALENT OF MORE THAN TWO 90° BENDS. INSTALL HANDHOLES AFTER BENDS AS INDICATED. DO NOT USE HANDHOLES TO MAKE A CHANGE IN DIRECTION.
7. RESTORE TO THEIR ORIGINAL ELEVATION AND CONDITION UNPAVED SURFACES DISTURBED DURING INSTALLATION OF UNDERGROUND CONDUIT. PRESERVE AND REPLACE SOD OR TOPSOIL AFTER INSTALLATION IS COMPLETED. REPLACE SOD THAT IS DAMAGED WITH SOD OF TYPE AND QUALITY EQUAL TO THAT REMOVED.
8. WHERE TRENCHES OR OTHER EXCAVATIONS ARE MADE IN AREAS OF EXISTING WALKWAYS WHERE SURFACE TREATMENT OF ANY KIND EXISTS, RESTORE SUCH SURFACE TREATMENT TO THE SAME THICKNESS AND IN THE SAME KIND AS PREVIOUSLY EXISTED (EXCEPT AS OTHERWISE INDICATED) AND TO MATCH AND TIE INTO THE ADJACENT AND SURROUNDING SURFACES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING SURFACE TREATMENT SUCH AS CONCRETE OR ASPHALTIC PAVING. THE DRAWINGS SHALL NOT BE CONSTRUED AS PROVIDING ACCURATE REPRESENTATION OF THE TYPE, LOCATION OR EXTENT OF SURFACE TREATMENT OF ANY KIND.
10. THE MINIMUM BEND RADIUS FOR ALL UNDERGROUND CONDUITS SHALL BE 10 TIMES THE INTERNAL CONDUIT DIAMETER.
11. BURIED WARNING AND IDENTIFICATION TAPE: PROVIDE CARLON 'MAT6061' OR PRO-LINE '103144063' CONTINUOUS DETECTABLE WARNING TAPE MANUFACTURED SPECIFICALLY FOR WARNING AND IDENTIFICATION OF BURIED UTILITIES. INSTALL TAPE DIRECTLY ABOVE EACH TRENCHED BURIED CONDUIT AT DEPTH OF 10 TO 12 INCHES BELOW GRADE FOR ENTIRE LENGTH OF CONDUIT. TAPE SHALL BE DETECTABLE BY ANY STANDARD NON-FERRIC METAL DETECTOR. TAPE SHALL BE 6 INCHES MINIMUM WIDTH, COLOR ORANGE, WITH WARNING AND IDENTIFICATION IMPRINTED IN BOLD BLACK LETTERS CONTINUOUSLY AND REPEATEDLY OVER ENTIRE TAPE LENGTH. WARNING AND IDENTIFICATION TAPE SHALL READ "CAUTION BURIED COMMUNICATIONS LINE BELOW". USE PERMANENT CODE AND LETTER COLORING UNAFFECTED BY MOISTURE AND OTHER SUBSTANCES CONTAINED IN BACKFILL MATERIAL. PROVIDE CONTINUOUS FACTORY UNCUT LENGTHS OF WARNING TAPE FROM END-TO-END.
12. UNDERGROUND CONDUIT VALIDATION – FOLLOWING INSTALLATION OF UNDERGROUND CONDUITS, PERFORM THE FOLLOWING OPERATION FOR EACH CONDUIT: CLEAN, LUBRICATE AND VALIDATE EACH INSTALLED CONDUIT FOR SERVICEABILITY BY RUNNING A FULL SIZE RUBBER DUCT SWAB THROUGH THE CONDUIT FROM END TO END. CONDUITS THAT ARE OBSTRUCTED MAY BE CLEANED USING A WIRE BRUSH MANDREL, THEN REVALIDATED WITH THE FULL SIZE RUBBER DUCT SWAB. CONDUITS THAT DO NOT ALLOW PASSAGE OF THE FULL SIZE RUBBER DUCT SWAB SHALL BE REPLACED.
13. PULL TAPES: AS BACKBONE CONDUITS ARE INSTALLED CONDUIT INSTALLER SHALL PROVIDE A CONTINUOUS MARKED PULL TAPE (MULE TAPE WP2500P 2500 LB. TENSILE STRENGTH) FOR THE FULL LENGTH OF THE END-TO-END CONDUIT RUN WITH 10 FEET OF SLACK AT EACH END. BUNDLE SLACK TAPE NEATLY OUTSIDE OF CONDUIT AND TIE OFF AT EACH END. PROVIDE CONTINUOUS FACTORY UNCUT LENGTHS OF PULL TAPE FROM END-TO-END – UNDER NO CIRCUMSTANCES SHALL PARTIAL LENGTH SECTIONS OF PULL TAPE BE TIED TOGETHER. AS BACKBONE CABLES ARE INSTALLED CABLE INSTALLER PROVIDE A CONTINUOUS MARKED PULL TAPE (MULE TAPE WP2500P 2500 LB. TENSILE STRENGTH) INSIDE CONDUIT ALONGSIDE CABLING FOR THE FULL LENGTH OF THE END-TO-END CONDUIT RUN WITH 10 FEET OF SLACK AT EACH END. BUNDLE SLACK TAPE NEATLY OUTSIDE OF CONDUIT AND TIE OFF AT EACH END. PROVIDE CONTINUOUS FACTORY UNCUT LENGTHS OF PULL TAPE FROM END-TO-END – UNDER NO CIRCUMSTANCES SHALL PARTIAL LENGTH SECTIONS OF PULL TAPE BE TIED TOGETHER.
14. SEAL ALL UNDERGROUND CONDUITS WATERTIGHT AT ALL BUILDING ENTRY POINTS FOLLOWING CABLE INSTALLATION TO PREVENT THE ENTRY OF WATER INTO BUILDINGS, AND TO PREVENT THE ENTRY OF WATER OR DEBRIS INTO THE CONDUITS FROM THE BUILDING SIDE. SEALANT SHALL BE POLYWATER FST-250 AND SHALL BE INSTALLED USING FACTORY CAULKING TUBE, MIXING NOZZLE AND DAMMING STRIPS (ALL INCLUDED IN FST-250KIT1 PACKAGE).
15. SPARE CONDUITS: FOR CONDUITS THAT ARE INDICATED AS SPARE, INSTALL A CONTINUOUS MARKED PULL TAPE (MULE TAPE WP25000P 2500 LB. TENSILE STRENGTH) FOR THE FULL LENGTH OF THE END-TO-END CONDUIT RUN WITH 10 FEET OF SLACK AT EACH END, TIE EACH END OF THE TAPE TO A BLANK DUCT PLUG WITH ROPE TIE TAB, PUSH SLACK TAPE BACK INTO CONDUIT, AND INSTALL A DUCT PLUG IN EACH CONDUIT END FOR A WATERTIGHT SEAL.

GENERAL ABOVEGROUND CONDUIT NOTES:

1. CONDUIT INSTALLER PROVIDE PULL STRINGS IN ALL HORIZONTAL CABLE CONDUITS AND PULL TAPE IN ALL BACKBONE CONDUITS FOR USE BY CABLING INSTALLER.
2. LOCATION AND ROUTING OF ABOVEGROUND CONDUITS IS APPROXIMATE AND DEPICTS DESIGN INTENT ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING FINAL CONDUIT ROUTING IN THE FIELD. THE CONTRACTOR SHALL COORDINATE THE FINAL ROUTING OF CONDUITS TO AVOID CONFLICTS WITH OTHER TRADES, WHILE MINIMIZING CHANGES IN DIRECTION AND OVERALL CONDUIT LENGTH. OBTAIN APPROVAL OF ENGINEER PRIOR TO ANY CHANGES IN ROUTING. CONDUIT INSTALLER – PROVIDE PULL TAPE IN ALL BACKBONE CABLING CONDUITS CONTINUOUS FROM END TO END.
3. FREE-ROUTE CATEGORY 6 AND CATEGORY 6A HORIZONTAL CABLES NOT OTHERWISE INDICATED TO BE HOMERUN IN CONDUIT. SEE "HORIZONTAL CABLE ROUTING NOTE" AND "HORIZONTAL CABLING CONDUIT SLEEVES NOTE".
4. PROVIDE A HOMERUN CONDUIT RUN CONTINUOUSLY CONCEALED IN WALLS AND OVERHEAD FROM EACH SPECIAL SERVICE OUTLET TO SERVING CC. EACH HOMERUN CONDUIT SHALL BE 1" TRADE SIZE. CONDUIT INSTALLER SHALL PROVIDE PULL STRINGS IN ALL HORIZONTAL CONDUITS CONTINUOUS FROM END TO END.
5. SEE "GENERAL CONDUIT NOTES – ACCESS CONTROL SYSTEM" SHEET ACS-301. RUN ALL ACCESS CONTROL SYSTEM CABLE CONTINUOUSLY IN CONDUIT. CONDUIT INSTALLER SHALL PROVIDE PULL STRINGS IN ALL HORIZONTAL CONDUITS CONTINUOUS FROM END TO END.
6. CONDUITS RUN INDOORS SHALL BE RUN CONCEALED OVERHEAD ABOVE CEILINGS UNLESS LOCATED IN SPACES WITHOUT CEILINGS, IN AN UNFINISHED SPACE SUCH AS EQUIPMENT ROOMS. INDOOR CONDUIT SHALL BE EMT WITH STEEL FITTINGS EXCEPT WHERE RIGID THREADED CONDUIT IS INDICATED. DIE CAST EMT FITTINGS ARE NOT ALLOWABLE. FITTINGS IN EXPOSED INDOOR LOCATIONS SHALL BE STEEL COMPRESSION TYPE. FITTINGS IN CONCEALED INDOOR LOCATIONS SHALL BE STEEL SET SCREW TYPE. SUPPORT EXPOSED CONDUIT AT A MINIMUM OF 4'-0" ON CENTER WITH 2-HOLE HEAVY DUTY GALVANIZED STEEL HARDWARE. DO NOT RUN CONDUITS BELOW SLAB EXCEPT AS SPECIFICALLY INDICATED.
7. WHERE RIGID CONDUIT (RMC) IS INDICATED, PROVIDE ALL THREADED WATERTIGHT RIGID GALVANIZED THREADED FITTINGS. IN ALL LOCATIONS WHERE INDICATED OUTDOORS PROVIDE RIGID CONDUIT ONLY (RMC). WHERE INDICATED INDOORS CONTRACTOR MAY PROVIDE IMC CONDUIT, BUT ALL FITTINGS SHALL BE THREADED RMC. MAINTAIN ELECTRICAL CONTINUITY FROM END-TO-END AND TERMINATE/GROUND WITH UL LISTED BONDING BUSHING.
8. SUPPORT CONDUIT DIRECTLY FROM BUILDING STRUCTURE USING APPROVED HARDWARE. DO NOT SUPPORT CONDUIT FROM OTHER SYSTEMS COMPONENTS OR SUPPORTS. ROUTE ALL CONDUITS AS HIGH AS POSSIBLE. WHERE CONDUIT IS EXPOSED RUN HARD AGAINST WALL OR UNDERSIDE OF ROOF/FLOOR DECK. RUN ALL CONDUITS PARALLEL/PERPENDICULAR AND PLUMB WITH BUILDING LINES.
9. CONDUIT BODIES SUCH AS 'LB' FITTINGS ARE NOT ALLOWABLE.
10. PROVIDE PULLBOXES OF THE SAME TYPE AND SIZE AS THOSE INDICATED ON DRAWINGS FOR EACH RUN OF CONDUIT AT EVERY 100 FEET ON CENTER AND AT EACH END OF CONDUIT RUNS CONTAINING A TOTAL OF TWO 90 deg BENDS OR A COMBINATION OF LESSER BENDS TOTALING 180 deg (MINIMUM REQUIREMENTS – PROVIDE WHETHER SPECIFICALLY INDICATED OR NOT). CONDUIT RUNS CONTAINING MORE THAN TWO 90 deg BENDS WITHOUT A PULLBOX ARE NOT ALLOWABLE. FACTORY CONDUIT ELBOWS AND ALL OTHER BENDS SHALL HAVE A MINIMUM RADIUS OF SIX TIMES THE INTERNAL CONDUIT DIAMETER. CONDUIT OFFSETS AND PULLBOXES REQUIRED TO SUIT FIELD CONDITIONS AND TO CONFORM TO THESE REQUIREMENTS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
11. PULLBOXES FOR BACKBONE CONDUITS SHALL BE AS INDICATED. PULL BOXES FOR HOMERUN CONDUITS SHALL BE 4" WIDE x 4" LONG x 2-1/8" DEEP NEMA 1 GALVANIZED STEEL WITH SCREW COVER. WHERE HOMERUN CONDUITS ARE TIGHTLY RACKED WITH UNIFORM SPACING, WIDER PULL BOXES MAY BE PROVIDED TO SERVE MULTIPLE CONDUITS. TERMINATE CONDUITS AT OPPOSITE ENDS OF PULLBOXES. DO NOT TERMINATE CONDUITS IN PULLBOXES AT RIGHT ANGLES TO EACH OTHER. HOMERUN CONDUITS SHALL NOT BE COMBINED INTO LARGER CONDUITS SERVING MULTIPLE OUTLETS.
12. WHERE CONDUIT AND PULLBOXES ARE LOCATED ABOVE NON-ACCESSIBLE CEILINGS OR SOFFITS (EXAMPLE PLASTER, METAL, OR GYPSUM BOARD), INSTALL AN 24"x 24" ALL ALUMINUM CEILING ACCESS DOOR IN CEILING DIRECTLY BELOW EACH SUCH PULLBOX. ACCESS DOORS SHALL BE LARSEN'S L-LCP, ALL ALUMINUM CONSTRUCTION AND FASTENERS. PROVIDE ACCESS DOORS FACTORY PRIMED FOR PAINTING. FINISH PAINT WITH TWO COATS ENAMEL AFTER INSTALLATION TO MATCH EXISTING CEILING, SOFFIT, OR WALL.
13. TERMINATE ALL CONDUIT ENDS WITH THREADED PLASTIC INSULATING BUSHINGS (PUSH-ON NOT ALLOWABLE). BUSHINGS MUST FIT TIGHTLY ON CONDUIT CONNECTOR THREADS. INSTALL ALL BUSHINGS PRIOR TO PULLING CABLE. CONDUIT INSTALLER PROVIDE PULL STRINGS IN ALL HORIZONTAL CABLE CONDUITS AND PULL TAPE IN ALL BACKBONE CONDUITS FOR USE BY CABLING INSTALLER. LEAVE 10'-0" OF PULL TAPE SLACK AT EACH END OF BACKBONE CONDUIT AND TAPE EXCESS INTO ROLL.
14. IDENTIFICATION: IDENTIFY ALL COMMUNICATIONS CONDUIT SLEEVES AND PULLBOXES ABOVE LAY-IN CEILINGS, ACCESS DOORS AND IN ROOF SPACE WITH BLUE PAINT AT EVERY PULLBOX AND ON CONDUIT AT EACH COUPLER (PAINT ENTIRE COUPLER). DO NOT PAINT CONDUIT COUPLERS AND ENCLOSURES IN CCs. IDENTIFY ALL BACKBONE CONDUIT PULLBOXES. PAINT WITH 1" TALL LETTER STENCIL (COLOR BLUE) THE WORDS "TELCOM" ON EACH PULLBOX COVER. LETTERING SHALL BE LEVEL AND SQUARE AND AT CENTER OF PULLBOX COVER.



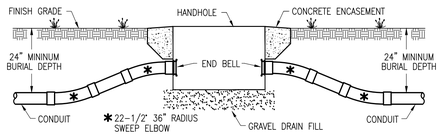
INSTALLATION DETAIL **CONSTRUCTION DETAIL**

COMMUNICATIONS HANDHOLE NOTES:

1) HANDHOLE SHALL BE 36"x36"x24" DEEP, OLDCASTLE H SERIES. COVER AND BODY SHALL BOTH BE HEAVY TRAFFIC RATED, 22,500 POUND DESIGN LOAD, ANSI/SCTE 77 TIER 22 LOAD CATEGORY. COVER LOGO SHALL BE "TELCOM" OR "COMMUNICATIONS". INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND THE REQUIREMENTS OF THIS PROJECT.
2) TERMINATE CONDUITS ENTERING HANDHOLE WITH END BELL (CARLON E997). CONSTRUCT CONDUIT RISE TO ENTER BOX FROM SIDE WITH 22-1/2° SWEEP ELBOWS. SEE "TYPICAL HANDHOLE CONDUIT ENTRY DETAIL". DO NOT ENTER HANDHOLE FROM BOTTOM.

LARGE COMMUNICATIONS HANDHOLE TYPICAL DETAILS

NOT TO SCALE



TYPICAL HANDHOLE CONDUIT ENTRY DETAIL

NOT TO SCALE

DAG Architects
AR0017640
455 Harrison Avenue
Suite I
Panama City, Florida 32401
850.387.1671
www.dagarchitects.com

NOT FOR CONSTRUCTION

BID DOCUMENTS

Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

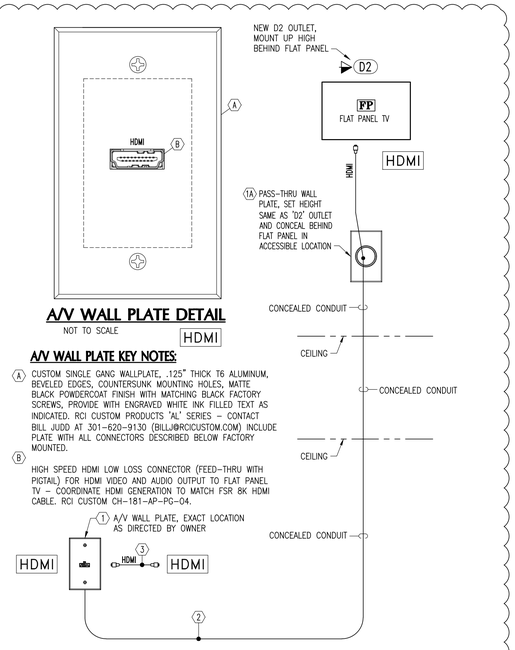
NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number	25004
Dated	08.29.2025

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Gregory A. Cook
BICSI ID # 1049998
EXPIRES 12-31-27
RCDD

COMMUNICATIONS TYPICAL DETAILS

T-301



A/V WALL PLATE DETAIL

NOT TO SCALE

A/V WALL PLATE KEY NOTES:

(A) CUSTOM SINGLE GANG WALLPLATE, .125" THICK T6 ALUMINUM, BEVELED EDGES, COUNTERSUNK MOUNTING HOLES, MATTE BLACK POWDERCOAT FINISH WITH MATCHING BLACK FACTORY SCREWS, PROVIDE WITH ENGRAVED WHITE INK FILLED TEXT AS INDICATED. RCI CUSTOM PRODUCTS 'AL' SERIES – CONTACT BILL JUDD AT 301-620-9130 (BILLJ@RCICUSTOM.COM) INCLUDE PLATE WITH ALL CONNECTORS DESCRIBED BELOW FACTORY MOUNTED.

(B) HIGH SPEED HDMI LOW LOSS CONNECTOR (FEED-THRU WITH PIGTAIL) FOR HDMI VIDEO AND AUDIO OUTPUT TO FLAT PANEL TV – COORDINATE HDMI GENERATION TO MATCH FSR 8K HDMI CABLE. RCI CUSTOM CH-181-AP-PG-04.

FLAT PANEL TV HDMI HOOK-UP DIAGRAM KEY NOTES

(1) CUSTOM A/V WALL PLATE, HDMI FEED-THRU, RCI CUSTOM PRE005-250320BJ-01. SEE DETAIL THIS SHEET. MOUNT USING FACTORY BLACK SCREWS.

(1A) CUSTOM A/V WALL PLATE, PASS-THRU, RCI CUSTOM 'AL' SERIES SINGLE GANG PLATE WITH 1.5" DIAMETER GROMMET, .125" THICK T6 ALUMINUM, BEVELED EDGES, MATTE BLACK POWDERCOAT FINISH. MOUNT USING FACTORY BLACK SCREWS.

(2) HDMI 2.1 8K DIGITAL RIBBON CABLE, MALE TO MALE, FACTORY CONNECTORIZED BOTH ENDS, HDMI 2.1, FSR DR-H2.1-xxM WHERE xx IS FACTORY LENGTH REQUIRED TO TERMINATE ON HDM FEED-THRU PIGTAIL CONNECTOR AT A/V WALL PLATE AND ON HDMI INPUT OF FLAT PANEL TV.

(3) HDMI ULTRA FLEXIBLE PATCH CORD, MALE TO MALE, FACTORY CONNECTORIZED BOTH ENDS, EXTRON HDMI ULTRA SERIES PART #26-663-XX WHERE XX IS FACTORY LENGTH REQUIRED TO MAKE CONNECTIONS WITHOUT EXCESS SLACK.

FLAT PANEL TV HDMI HOOK-UP DIAGRAM

NOT TO SCALE

STUDENT SUCCESS LAB 230 – TYPICAL FOR THREE FLAT PANELS
DEBRIEF 1 229G AND DEBRIEF 3 229F – ONE FLAT PANEL EACH

CATEGORY 6 & CATEGORY 6A CABLE J-HOOK SCHEDULE			
J-HOOK SIZE, ERICO CADDY CAT HP SERIES PART #	MAXIMUM BUNDLE SIZE (NUMBER OF CABLES)		NOTES
	CATEGORY 6	CATEGORY 6A	
CAT32HP	24	24	NOTES 1, 2, 3

NOTES:

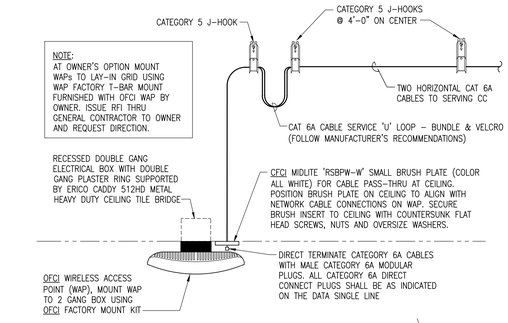
1. USE CADDY CAT32HP SIZE J-HOOKS FOR ALL CABLE TYPES AND APPLICATIONS.
2. LIMIT BUNDLE SIZE TO 24 CABLES FOR ALL CABLE TYPES AND APPLICATIONS.
3. ALWAYS PROVIDE SEPARATE CABLE BUNDLES AND SEPARATE J-HOOK PATHWAYS AND FOR DIFFERENT SERVICES AS FOLLOWS:
   - NETWORK – SYSTEM COLOR BLUE
   - MEDIA SERVICES – SYSTEM COLOR YELLOW
   - WIRELESS ACCESS POINTS – SYSTEM COLOR GREEN
   - TELEVISION – SYSTEM COLOR PURPLE

ATTACHMENT NOTES

ALL ATTACHMENTS TO BUILDING CONSTRUCTION SHALL BE MADE WITH HIGH STRENGTH/HIGH LOAD COMMERCIAL GRADE FASTENERS. TAP-CONS OR RAM-SET TYPE FASTENERS ARE NOT ALLOWABLE. ATTACHMENTS AT VARIOUS BUILDING CONSTRUCTIONS SHALL BE AS FOLLOWS AS A MINIMUM REQUIREMENT. COMPLY WITH MORE STRINGENT FASTENER SPECIFICATIONS WHEN REQUIRED BY THE LOADING APPLICATION OR RECOMMENDED BY THE MANUFACTURER OF EACH SYSTEM COMPONENT.

ALL FASTENERS SHALL BE FULL SIZE ACCOMMODATED BY EQUIPMENT HOLE SIZE (FULL SIZE THREADED AND 1/16" LESS THAN DIAMETER OF SMOOTH HOLES). ALL FASTENERS AND MISCELLANEOUS RELATED HARDWARE SHALL BE STAINLESS STEEL.

1. AT FRAMED WALLS AND AT OPEN CELLS OF CMU WALLS, PROVIDE STAINLESS STEEL "SNAP-TOGGLER" TOGGLE BOLTS. ATTACH TO FRAMING MEMBERS OF FRAMED WALLS.
2. AT METAL SOFFIT OR FASCIA CONSTRUCTION PROVIDE STAINLESS STEEL THRU BOLTS ALL THE WAY THRU SOFFIT OR FASCIA FRAMING. PROVIDE SUPPLEMENTARY FRAMING ON INTERIOR AS REQUIRED FOR SECURE MOUNTING.
3. AT BRICK WALLS, BLOCK WEBS AND FILLED CELLS OF CMU WALLS, AND AT CONCRETE WALLS, PROVIDE COMMERCIAL GRADE HIGH LOAD EXPANSION ANCHORS SUCH AS TOGGLER 'ALLIGATOR' SOLID-WALL ANCHORS WITH STAINLESS STEEL FASTENERS.



CEILING MOUNT WIRELESS ACCESS POINT (WAP) MOUNTING DETAIL

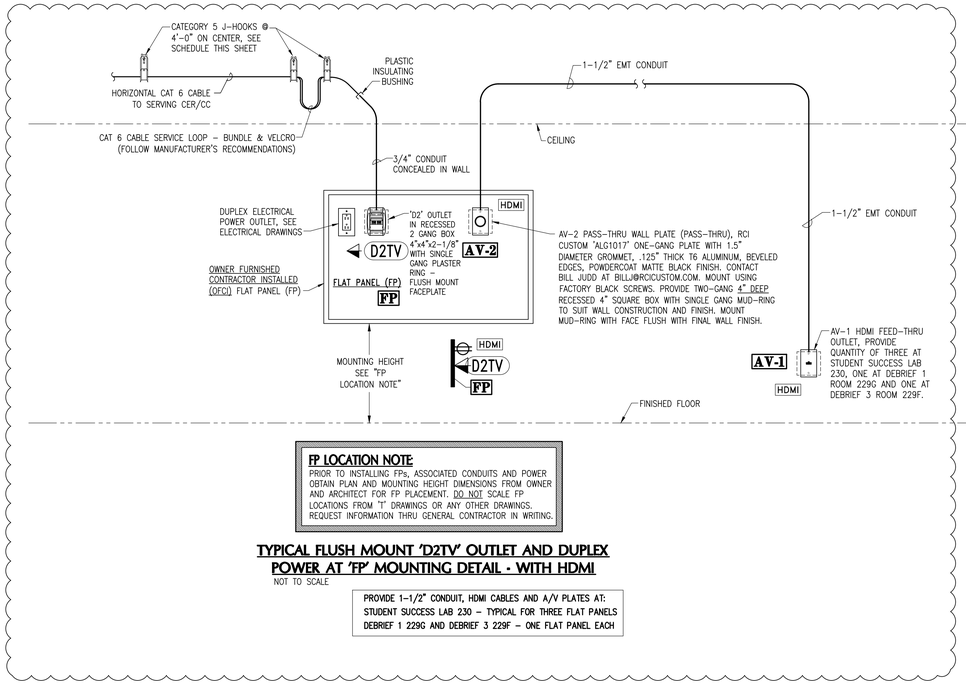
NOT TO SCALE

NOTE: CONTRACTOR SHALL INSTALL ALL WIRELESS ACCESS POINT (WAP) SUPPORTS, MOUNTS, MOUNTING HARDWARE AND ACCESSORIES IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS, TO INCLUDE INDEPENDENT SUPPORT FROM STRUCTURE ABOVE

WAP IS FURNISHED BY OWNER, COORDINATE WITH OWNER BEFORE SUBMITTING OBERON MOUNTING KIT FOR ENGINEER APPROVAL

WAP LOCATION NOTE

UNLESS OTHERWISE NOTED CEILING MOUNT WAPs SHALL BE INSTALLED ON THE SAME CENTERLINES AS MECHANICAL, ELECTRICAL, PLUMBING OR ARCHITECTURAL CEILING MOUNTED DEVICES WHEN IN RELATIVE PROXIMITY TO EACH OTHER. COORDINATE FINAL WAP LOCATIONS WITH ARCHITECT AND THE OWNER PRIOR TO COMMENCING INSTALLATION.

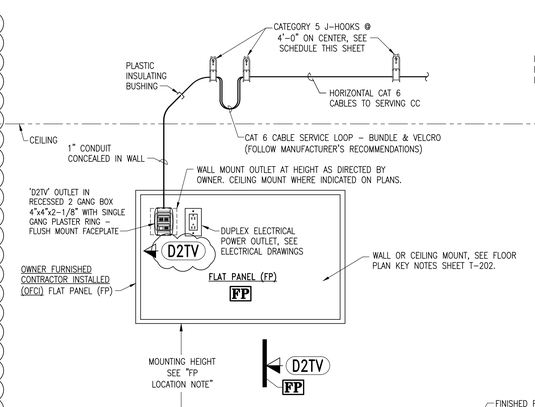


FP LOCATION NOTE:
PRIOR TO INSTALLING FPs, ASSOCIATED CONDUITS AND POWER OBTAIN PLAN AND MOUNTING HEIGHT DIMENSIONS FROM OWNER AND ARCHITECT FOR FP PLACEMENT. DO NOT SCALE FP LOCATIONS FROM 'T' DRAWINGS OR ANY OTHER DRAWINGS. REQUEST INFORMATION THRU GENERAL CONTRACTOR IN WRITING.

TYPICAL FLUSH MOUNT 'D2TV' OUTLET AND DUPLEX POWER AT 'FP' MOUNTING DETAIL - WITH HDMI

NOT TO SCALE

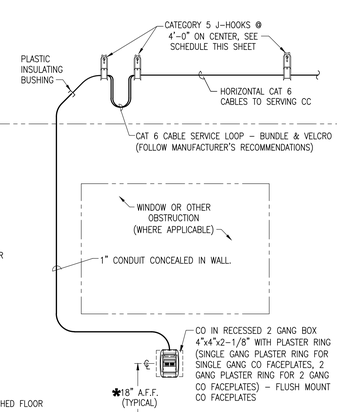
PROVIDE 1-1/2" CONDUIT, HDMI CABLES AND A/V PLATES AT:
STUDENT SUCCESS LAB 230 – TYPICAL FOR THREE FLAT PANELS
DEBRIEF 1 229G AND DEBRIEF 3 229F – ONE FLAT PANEL EACH



FP LOCATION NOTE:
PRIOR TO INSTALLING FPs, ASSOCIATED CONDUITS AND POWER OBTAIN PLAN AND MOUNTING HEIGHT DIMENSIONS FROM OWNER AND ARCHITECT FOR FP PLACEMENT. DO NOT SCALE FP LOCATIONS FROM 'T' DRAWINGS OR ANY OTHER DRAWINGS. REQUEST INFORMATION THRU GENERAL CONTRACTOR IN WRITING.

TYPICAL FLUSH MOUNT 'D2TV' OUTLET AND DUPLEX POWER AT 'FP' MOUNTING DETAIL

NOT TO SCALE



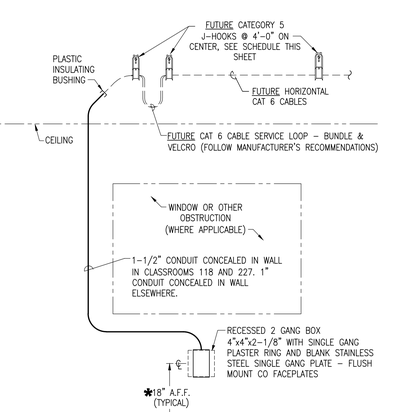
***NOTES:**

1) COMMUNICATIONS OUTLET (CO) MOUNTING HEIGHT MAY VARY AT CABINETS OR CASEWORK. LOCATE AND MOUNT CO's AS DIRECTED BY ARCHITECT IN FIELD. MATCH HEIGHT OF ADJACENT ELECTRICAL POWER OUTLETS.
2) MOUNTING HEIGHT OF COMMUNICATIONS OUTLET (CO) SHOWN TO BE MOUNTED ABOVE COUNTER (AC) SHALL BE COORDINATED WITH THE ARCHITECT AND THE GENERAL CONTRACTOR IN THE FIELD PRIOR TO ROUGH-IN.
3) REFER TO ARCHITECTURAL DRAWINGS INTERIOR ELEVATIONS FOR CASEWORK DRAWINGS.

TYPICAL FLUSH MOUNT COMMUNICATIONS OUTLET (CO) MOUNTING DETAIL

NOT TO SCALE

D1 D2 D4 D1MS



***NOTES:**

1) COMMUNICATIONS OUTLET (CO) MOUNTING HEIGHT MAY VARY AT CABINETS OR CASEWORK. LOCATE AND MOUNT CO's AS DIRECTED BY ARCHITECT IN FIELD. MATCH HEIGHT OF ADJACENT ELECTRICAL POWER OUTLETS.
2) MOUNTING HEIGHT OF COMMUNICATIONS OUTLET (CO) SHOWN TO BE MOUNTED ABOVE COUNTER (AC) SHALL BE COORDINATED WITH THE ARCHITECT AND THE GENERAL CONTRACTOR IN THE FIELD PRIOR TO ROUGH-IN.
3) REFER TO ARCHITECTURAL DRAWINGS INTERIOR ELEVATIONS FOR CASEWORK DRAWINGS.

TYPICAL FLUSH MOUNT COMMUNICATIONS OUTLET (CO) MOUNTING DETAIL - ROUGH-IN ONLY

NOT TO SCALE

RI

BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27
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NOT FOR CONSTRUCTION

BID DOCUMENTS

Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

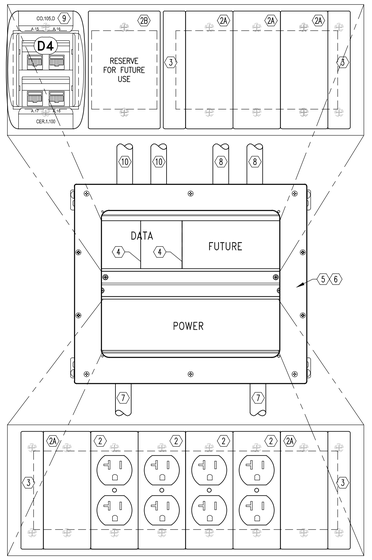
REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number	25004
Dated	08.29.2025

COMMUNICATIONS TYPICAL DETAILS

T-302



COMMUNICATIONS FLOOR BOX DETAIL

NOT TO SCALE

FB ◀ B (D4) 4 CAT 6 JACKS IN ONE 'D4' CO + POWER

FLOOR BOX KEY NOTES:

1. BY ELECTRICAL CONTRACTOR: AUDIO-VISUAL RECTANGULAR 11-GANG ON GRADE FLOOR BOX, WIREMOLD RFB11-OG. PROVIDE WITH FLANGED COVER AND DEVICE PLATES.

   INSTALL FLOOR BOX IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND AS FOLLOWS:

   SET FLOOR BOX ON TOP OF VAPOR BARRIER AND LEVEL WHILE MAINTAINING FULL SLAB THICKNESS BELOW AND AROUND FLOOR BOX. INSTALL FACTORY FURNISHED MUDCAP TO PREVENT ENTRY OF CONCRETE DURING POUR. SET TOP EDGE OF BOX FLUSH WITH TOP OF THE CONCRETE SLAB (COORDINATE WITH GENERAL CONTRACTOR).

   COMPLETE INSTALLATION OF DEVICES PER NOTES FOLLOWING.

2. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-SD SECTIONAL ONE-GANG DUPLEX RECEPTACLE DEVICE PLATE WITH DUPLEX POWER RECEPTACLE, QUANTITY AS INDICATED ON ELECTRICAL DRAWINGS. PROVIDE WIREMOLD RFB119-SB SECTIONAL BLANK DEVICE PLATE WHERE NUMBER OF DEVICES IN FLOOR BOX INDICATED ON ELECTRICAL DRAWINGS IS LESS THAN THAT INDICATED ON THIS DETAIL.

2A. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-B STANDARD WIDTH ONE-GANG BLANK OR RFB119-SB SECTIONAL ONE-GANG BLANK TO SUIT. PROVIDE FOR ALL UNUSED SPACES.

2B. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-2SB SECTIONAL TWO-GANG BLANK.

3. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-SPACER.

4. BY ELECTRICAL CONTRACTOR: WIREMOLD FACTORY POWER/COMMUNICATIONS PARTITION PLATE PER NEC.

5. BY ELECTRICAL CONTRACTOR: FLOOR BOX FLANGED COVER WITH FLOOR INSERT TO MATCH FLOORING, WIREMOLD RFB119CTCAL FOR CARPET, WIREMOLD RFB119BTCAL FOR TERRAZZO, TILE AND WOOD FLOORS. GENERAL CONTRACTOR PROVIDE SECTION OF FLOOR FINISH IN COVER INSET.

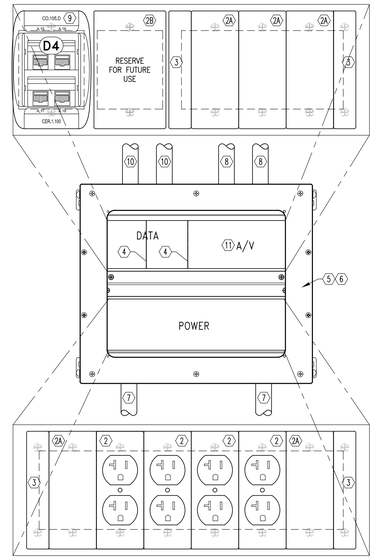
6. BY ELECTRICAL CONTRACTOR: PROVIDE SPACERS AS REQUIRED FOR FLOORING TYPE GREATER THAN 1/4" THICK, WIREMOLD RFB119-PAN AND RFB119-TS FOR TERRAZZO, WIREMOLD RFB119-TS FOR WOOD AND TILE. PROVIDE MULTIPLE QUANTITY OF SPACERS AS REQUIRED TO SET TOP SURFACE OF COVER ASSEMBLY FLUSH WITH FINISHED FLOOR SURFACE.

7. BY ELECTRICAL CONTRACTOR: PROVIDE QUANTITY AND SIZE OF POWER CONDUITS WITH WATERTIGHT FITTINGS INDICATED ON ELECTRICAL DRAWINGS AND SPECIFICATIONS.

8. BY ELECTRICAL CONTRACTOR: TWO 1" EMPTY SPARE CONDUITS WITH PULL STRING. RUN SCHDULE 80 PVC CONDUITS UNDER FLOOR, TURN UP CONCEALED IN WALL AND CONVERT TO EMT AT 4" A.F.F, THEN EXTEND UP IN WALL, RUN CONCEALED TO ACCESSIBLE LAY-IN CEILING AND TERMINATE WITH PLASTIC INSULATION BUSHING.

9. BY STRUCTURED CABLING SYSTEM CONTRACTOR: STANDARD 'D4' COMMUNICATION OUTLET. SEE FACEPLATE DETAILS. ALL CABLING RUN IN UNDERGROUND CONDUIT SHALL BE GEL FILLED BURIAL GRADE AS NOTED ON THE CATEGORY 6 CABLING SCHEDULE ON THE DATA SINGLE LINE DIAGRAM.

10. BY ELECTRICAL CONTRACTOR: TWO SCHEDULE 80 PVC 1" COMMUNICATIONS CONDUITS (ONE USED AND ONE SPARE EMPTY WITH PULLSTRING). HOMERUN BOTH CONDUITS UNDERGROUND DIRECT "AS THE CROW FLYS" TO CC AND TURN UP AS INDICATED ON CC.22.222 ENLARGED FLOOR PLAN SHEET T-501, SLEEVE AND SEAL FLOOR PENETRATION.



COMMUNICATIONS FLOOR BOX DETAIL

NOT TO SCALE

FB AV◀ B (D4) 4 CAT 6 JACKS IN ONE 'D4' CO + AV + POWER

FLOOR BOX KEY NOTES:

1. BY ELECTRICAL CONTRACTOR: AUDIO-VISUAL RECTANGULAR 11-GANG 6" DEEP ON GRADE FLOOR BOX, WIREMOLD RFB11-OG. PROVIDE WITH FLANGED COVER AND DEVICE PLATES.

   INSTALL FLOOR BOX IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND AS FOLLOWS:

   SET FLOOR BOX ON TOP OF VAPOR BARRIER AND LEVEL WHILE MAINTAINING FULL SLAB THICKNESS BELOW AND AROUND FLOOR BOX. INSTALL FACTORY FURNISHED MUDCAP TO PREVENT ENTRY OF CONCRETE DURING POUR. SET TOP EDGE OF BOX FLUSH WITH TOP OF THE CONCRETE SLAB (COORDINATE WITH GENERAL CONTRACTOR).

   COMPLETE INSTALLATION OF DEVICES PER NOTES FOLLOWING.

2. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-SD SECTIONAL ONE-GANG DUPLEX RECEPTACLE DEVICE PLATE WITH DUPLEX POWER RECEPTACLE, QUANTITY AS INDICATED ON ELECTRICAL DRAWINGS. PROVIDE WIREMOLD RFB119-SB SECTIONAL BLANK DEVICE PLATE WHERE NUMBER OF DEVICES IN FLOOR BOX INDICATED ON ELECTRICAL DRAWINGS IS LESS THAN THAT INDICATED ON THIS DETAIL.

2A. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-B STANDARD WIDTH ONE-GANG BLANK OR RFB119-SB SECTIONAL ONE-GANG BLANK TO SUIT. PROVIDE FOR ALL UNUSED SPACES.

2B. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-2SB SECTIONAL TWO-GANG BLANK.

3. BY ELECTRICAL CONTRACTOR: WIREMOLD RFB119-SPACER.

4. BY ELECTRICAL CONTRACTOR: WIREMOLD FACTORY POWER/COMMUNICATIONS PARTITION PLATE PER NEC.

5. BY ELECTRICAL CONTRACTOR: FLOOR BOX FLANGED COVER WITH FLOOR INSERT TO MATCH FLOORING, WIREMOLD RFB119CTCAL FOR CARPET, WIREMOLD RFB119BTCAL FOR TERRAZZO, TILE AND WOOD FLOORS. GENERAL CONTRACTOR PROVIDE SECTION OF FLOOR FINISH IN COVER INSET.

6. BY ELECTRICAL CONTRACTOR: PROVIDE SPACERS AS REQUIRED FOR FLOORING TYPE GREATER THAN 1/4" THICK, WIREMOLD RFB119-PAN AND RFB119-TS FOR TERRAZZO, WIREMOLD RFB119-TS FOR WOOD AND TILE. PROVIDE MULTIPLE QUANTITY OF SPACERS AS REQUIRED TO SET TOP SURFACE OF COVER ASSEMBLY FLUSH WITH FINISHED FLOOR SURFACE.

7. BY ELECTRICAL CONTRACTOR: PROVIDE QUANTITY AND SIZE OF POWER CONDUITS WITH WATERTIGHT FITTINGS INDICATED ON ELECTRICAL DRAWINGS AND SPECIFICATIONS.

8. BY ELECTRICAL CONTRACTOR: TWO 1" A/V CONDUITS (ONE USED AND ONE SPARE EMPTY WITH PULLSTRING). RUN UNDERGROUND TO NEAREST WALL, TURN CONDUIT UP CONCEALED IN WALL (SLEEVE AND SEAL FLOOR PENETRATION), THEN EXTEND CONDUIT UP CONCEALED IN WALL, STUB OUT ABOVE LAY-IN CEILING IN SAME ROOM AS FLOOR BOX AND TERMINATE WITH PLASTIC INSULATING BUSHING. SEE A/V DRAWINGS.

9. BY STRUCTURED CABLING SYSTEM CONTRACTOR: STANDARD 'D4' COMMUNICATION OUTLET. SEE FACEPLATE DETAILS. ALL CABLING RUN IN UNDERGROUND CONDUIT SHALL BE GEL FILLED BURIAL GRADE AS NOTED ON THE CATEGORY 6 CABLING SCHEDULE ON THE DATA SINGLE LINE DIAGRAM.

10. BY ELECTRICAL CONTRACTOR: TWO SCHEDULE 80 PVC 1" COMMUNICATIONS CONDUITS (ONE USED AND ONE SPARE EMPTY WITH PULLSTRING). HOMERUN BOTH CONDUITS UNDERGROUND DIRECT "AS THE CROW FLYS" TO CC AND TURN UP AS INDICATED ON CC.22.222 ENLARGED FLOOR PLAN SHEET T-501, SLEEVE AND SEAL FLOOR PENETRATION.

11. BY A/V CONTRACTOR: SEE A/V DRAWINGS.

FLOOR BOX UNDERGROUND CONDUITS - WATERTIGHT REQUIREMENTS

ALL UNDERGROUND CONDUITS FOR HORIZONTAL COMMUNICATIONS AND AUDIO-VISUAL CABLING SHALL HAVE FULLY GLUED JOINTS, SHALL HAVE CONDUIT ENTRY INTO FLOOR BOXES SEALED WITH LEXEL CAULK/ADHESIVE, AND SHALL OTHERWISE BE MADE FULLY WATERTIGHT TO PROTECT THE CABLES FROM WATER INTRUSION.

NO CABLES SHALL BE INSTALLED IN THE UNDERGROUND CONDUITS UNTIL THE ENTIRE BUILDING IS UNDER ROOF, FULLY ENCLOSED AND AIR CONDITIONED, AT WHICH TIME THE CONDUIT SHALL BE VACUUMED BY THE ELECTRICAL CONTRACTOR TO REMOVE ALL WATER AND THE CONDUITS LEFT TO DRY COMPLETELY.

AT THAT POINT THE STRUCTURED CABLING SYSTEM CONTRACTOR AND THE AUDIO-VISUAL CONTRACTOR SHALL VACUUM THE CONDUITS A SECOND TIME TO VERIFY THAT ALL WATER HAS BEEN REMOVED BEFORE INSTALLING ANY CABLES. CABLES PULLED INTO CONDUITS CONTAINING WATER OR CABLES INSTALLED IN CONDUITS FOUND TO CONTAIN WATER FOLLOWING THE CABLE INSTALLATION SHALL BE REMOVED AND REPLACED WITH NEW AT NO COST TO THE OWNER.

ALL COMMUNICATIONS CABLING RUN IN UNDERGROUND CONDUIT SHALL BE BURIAL GRADE – SEE DATA SINGLE LINE.

WIREMOLD FLOOR BOX REPLACEMENT

THE WIREMOLD RFB FLOOR BOX SPECIFIED THIS SHEET HAS BEEN OBSOLETED BY THE MANUFACTURER. INSTEAD PROVIDE WIREMOLD RFBA10R FLOOR BOX WITH EQUIVALENT FEATURES, FITTINGS AND CONDUIT CONNECTORS. OPTIONALLY PROVIDE FSR (WWW.FSRINC.COM) MODEL FL-60OP-6-B FLOOR BOX BOTTOM WITH STEEL CONSTRUCTION COVER, CONCRETE POUR PLAN AND FACTORY FINISH COVER. COVER SHALL BE UL LISTED SCRUB WATER RATED FOR TILE AND CARPET INSTALLATIONS. COVER STYLE AND FINISH SHALL BE SELECTED BY THE ARCHITECT AND SHALL BE ANY FACTORY OPTION FOR COVER STYLES 1, 2, 3, 4 OR 5. IF THE ARCHITECTS SELECT STYLE 1, 2 OR 3 WITH INSET FOR FLOORING THE CC SHALL PROVIDE FLOORING MATERIAL TO FILL THE INSET, THICKNESS AS REQUIRED TO MAKE FINISH FLUSH WITH TOP OF FLANGE AND FLUSH WITH THE SURROUNDING FLOOR FINISH. FOR PRODUCT SUBMITTALS THE MANUFACTURER'S REP SHALL PROVIDE A SUBMITTAL PACKAGE FOR THE CONTRACTOR THAT INCLUDES COMPLETE DATASHEETS WITH ALL COMPONENTS HIGHLIGHTED OR OTHERWISE IDENTIFIED.

FLOOR BOX LOCATION NOTE:

PRIOR TO INSTALLING FLOOR BOXES AND ASSOCIATED CONDUITS AND POWER OBTAIN DIMENSIONS FROM ARCHITECT FOR FLOOR BOX PLACEMENT. DO NOT SCALE FLOOR BOX LOCATIONS FROM 'TEL' SHEETS. FINAL FLOOR BOX LOCATIONS SHALL BE DETERMINED BY ARCHITECT BASED ON FINAL FURNITURE PLACEMENT. REQUEST INFORMATION THRU GENERAL CONTRACTOR IN WRITING.

DAG Architects
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Panama City, Florida 32401
850.387.1671
www.dagarchitects.com

NOT FOR CONSTRUCTION

BID DOCUMENTS

Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

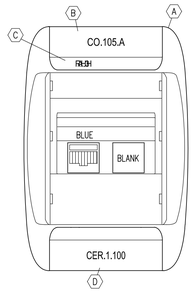
NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number 25004
Dated 08.29.2025

BICSI DESIGNED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27
RCDD

COMMUNICATIONS TYPICAL FLOOR BOX DETAILS

T-303



TYPE "D1" CO KEY NOTES:

(A) SINGLE GANG FACEPLATE, COLOR ALMOND, BELDEN AX101746. PROVIDE WITH FACTORY CLEAR TOP LABEL COVER AND ADDITIONAL BELDEN AX101773 CLEAR BOTTOM LABEL COVER. PROVIDE WITH ONE 2 PORT ANGLED INSERT, COLOR ALMOND, BELDEN AX102412, AND ONE TIA CATEGORY 6+ 8-PIN MODULAR JACK, COLOR BLUE, BELDEN REVCONNECT RV6MJKUBL, AND ONE BLANK JACK COVER, COLOR ALMOND. PROVIDE WITH ONE BELDEN AX101758 1-UNIT FILLER INSERT AND ONE BELDEN AX101762 2-UNIT FILLER INSERT, BOTH COLOR ALMOND.

(B) LASER PRINTED LABEL INDICATING OUTLET IDENTIFIER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

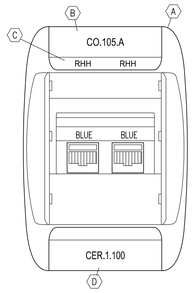
(C) LASER PRINTED LABEL INDICATING SERVING HORIZONTAL PATCH PANEL ALPHA IDENTIFIER AND JACK PORT NUMBER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

(D) LASER PRINTED LABEL INDICATING SERVING CP. TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

TYPE "D1" COMMUNICATIONS OUTLET (CO)

NOT TO SCALE

(D1 = ONE DATA/VOIP) ◀ D1



TYPE "D2" CO KEY NOTES:

(A) SINGLE GANG FACEPLATE, COLOR ALMOND, BELDEN AX101746. PROVIDE WITH FACTORY CLEAR TOP LABEL COVER AND ADDITIONAL BELDEN AX101773 CLEAR BOTTOM LABEL COVER. PROVIDE WITH ONE 2 PORT ANGLED INSERT, COLOR ALMOND, BELDEN AX102412, AND TWO TIA CATEGORY 6+ 8-PIN MODULAR JACKS, COLOR BLUE, BELDEN REVCONNECT RV6MJKUBL. PROVIDE WITH ONE BELDEN AX101758 1-UNIT FILLER INSERT AND ONE BELDEN AX101762 2-UNIT FILLER INSERT, BOTH COLOR ALMOND.

(B) LASER PRINTED LABEL INDICATING OUTLET IDENTIFIER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

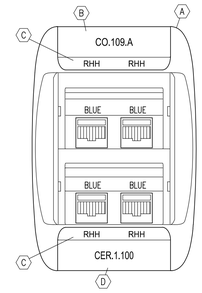
(C) LASER PRINTED LABEL INDICATING SERVING HORIZONTAL PATCH PANEL ALPHA IDENTIFIER AND JACK PORT NUMBER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

(D) LASER PRINTED LABEL INDICATING SERVING CP. TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

TYPE "D2" COMMUNICATIONS OUTLET (CO)

NOT TO SCALE

(D2 = TWO DATA/VOIP) ◀ D2



TYPE "D4" CO KEY NOTES:

(A) SINGLE GANG FACEPLATE, COLOR ALMOND, BELDEN AX101746. PROVIDE WITH FACTORY CLEAR TOP LABEL COVER AND ADDITIONAL BELDEN AX101773 CLEAR BOTTOM LABEL COVER. PROVIDE WITH TWO 2 PORT ANGLED INSERTS, COLOR ALMOND, BELDEN AX102412 AND FOUR TIA CATEGORY 6+ 8-PIN MODULAR JACKS, COLOR BLUE, BELDEN REVCONNECT RV6MJKUBL.

(B) LASER PRINTED LABEL INDICATING OUTLET IDENTIFIER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

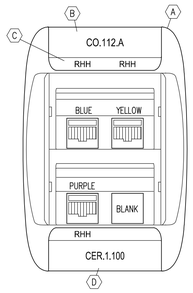
(C) LASER PRINTED LABEL INDICATING SERVING HORIZONTAL PATCH PANEL ALPHA IDENTIFIER AND JACK PORT NUMBER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

(D) LASER PRINTED LABEL INDICATING SERVING CP. TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

TYPE "D4" COMMUNICATIONS OUTLET (CO)

NOT TO SCALE

(D4 = FOUR DATA/VOIP) ◀ D4



TYPE "D2TV" CO KEY NOTES:

(A) SINGLE GANG FACEPLATE, COLOR ALMOND, BELDEN AX101746. PROVIDE WITH FACTORY CLEAR TOP LABEL COVER AND ADDITIONAL BELDEN AX101773 CLEAR BOTTOM LABEL COVER. PROVIDE WITH TWO 2 PORT ANGLED INSERTS, COLOR ALMOND, BELDEN AX102412, TWO TIA CATEGORY 6+ 8-PIN MODULAR JACKS, COLOR BLUE, BELDEN REVCONNECT RV6MJKUBL, ONE TIA CATEGORY 6+ 8-PIN MODULAR JACK, COLOR VIOLET/PURPLE, BELDEN REVCONNECT RV6MJKUPR, AND ONE BLANK JACK COVER, COLOR ALMOND.

(B) LASER PRINTED LABEL INDICATING OUTLET IDENTIFIER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

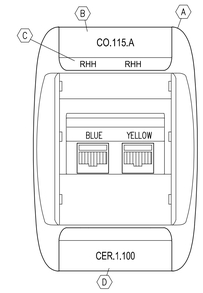
(C) LASER PRINTED LABEL INDICATING SERVING HORIZONTAL PATCH PANEL ALPHA IDENTIFIER AND JACK PORT NUMBER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

(D) LASER PRINTED LABEL INDICATING SERVING CP. TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

TYPE "D2TV" COMMUNICATIONS OUTLET (CO)

NOT TO SCALE

(D2TV = ONE DATA/VOIP, ONE MEDIA SERVICES, ONE TV) ◀ D2TV



TYPE "D1MS" CO KEY NOTES:

(A) SINGLE GANG FACEPLATE, COLOR ALMOND, BELDEN AX101746. PROVIDE WITH FACTORY CLEAR TOP LABEL COVER AND ADDITIONAL BELDEN AX101773 CLEAR BOTTOM LABEL COVER. PROVIDE WITH ONE 2 PORT ANGLED INSERT, COLOR ALMOND, BELDEN AX102412, ONE TIA CATEGORY 6+ 8-PIN MODULAR JACK, COLOR BLUE, BELDEN REVCONNECT RV6MJKUBL AND ONE TIA CATEGORY 6+ 8-PIN MODULAR JACK, COLOR YELLOW, BELDEN REVCONNECT RV6MJKUYL. PROVIDE WITH ONE BELDEN AX101758 1-UNIT FILLER INSERT AND ONE BELDEN AX101762 2-UNIT FILLER INSERT, BOTH COLOR ALMOND.

(B) LASER PRINTED LABEL INDICATING OUTLET IDENTIFIER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

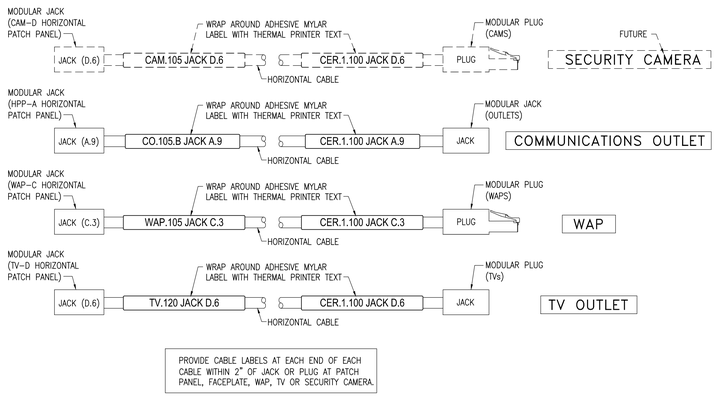
(C) LASER PRINTED LABEL INDICATING SERVING HORIZONTAL PATCH PANEL ALPHA IDENTIFIER AND JACK PORT NUMBER – SEE "CO IDENTIFICATION NOMENCLATURE". TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

(D) LASER PRINTED LABEL INDICATING SERVING CP. TEXT SHALL BE MINIMUM 12 POINT ARIAL NARROW FONT.

TYPE "D1MS" COMMUNICATIONS OUTLET (CO)

NOT TO SCALE

(D1MS = ONE DATA/VOIP, ONE MEDIA SERVICES) ◀ D1MS



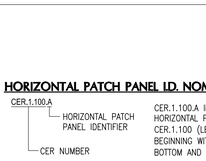
PROVIDE CABLE LABELS AT EACH END OF EACH CABLE WITHIN 2" OF JACK OR PLUG AT PATCH PANEL, FACEPLATE, WAP, TV OR SECURITY CAMERA.

HORIZONTAL CABLE IDENTIFIER LABELS

NOT TO SCALE

CATEGORY 6 and 6A HORIZONTAL PATCH PANEL TERMINATION/LABELING REQUIREMENTS

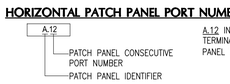
HORIZONTAL PATCH PANEL I.D. NOMENCLATURE



CER.1.100.A INDICATES THE FIRST HORIZONTAL PATCH PANEL IN CER.1.100 (LETTER PATCH PANELS BEGINNING WITH "A" TOP TO BOTTOM AND LEFT TO RIGHT)

1. TERMINATE CATEGORY 6 (COs AND FUTURE SECURITY CAMERAS) AND CATEGORY 6A (WAPS) HORIZONTAL CABLING ON HORIZONTAL PATCH PANELS IN NUMERICAL ORDER BY ROOM NUMBER AND OUTLET OR WAP ALPHA IDENTIFIER. REFER TO FLOOR PLANS FOR ROOM NUMBER AND OUTLET OR WAP ALPHA IDENTIFIER AND LOCATION. TERMINATE JACKS FOR EACH "CO" AND WAP SEQUENTIALLY IN ORDER OF ROOM NUMBER AND ASSIGNED PATCH PANEL PORT NUMBER. TERMINATE JACKS FOR SECURITY CAMERAS IN ORDER OF CAMERA IDENTIFIERS ASSIGNED BY THE OWNER.
2. PROVIDE OVERALL IDENTIFICATION TAG FOR EACH HORIZONTAL PATCH PANEL IN ACCORDANCE WITH "HORIZONTAL PATCH PANEL I.D. NOMENCLATURE". TAG CONSTRUCTION AND LAYOUT SHALL BE PER "TYPICAL HORIZONTAL PATCH PANEL LAMINATED I.D. TAG DETAIL".
3. PROVIDE ENGRAVED TAG FOR EACH HORIZONTAL PATCH PANEL INDICATING LETTER IDENTIFIER. SEE "TYPICAL HPP ENGRAVED TAG DETAIL."

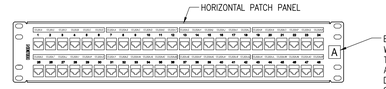
HORIZONTAL PATCH PANEL PORT NUMBER IDENTIFICATION



A.12 INDICATES "CO" OUTLET TERMINATED ON PATCH PANEL "A" PORT 12.

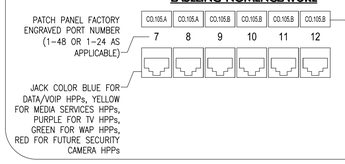
TYPICAL HPP ENGRAVED TAG DETAIL

NOT TO SCALE



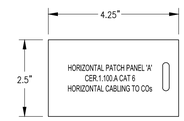
ENGRAVED PLASTIC TAG WITH 1/2" HIGH WHITE LETTER ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH, SECURE TAG WITH DOUBLE SIDED TAPE ON FAR RIGHT SIDE OF PATCH PANEL FRONT FACE. SEE DETAIL THIS SHEET

HORIZONTAL PATCH PANEL PORT LABELING NOMENCLATURE



LASER PRINTED LABEL INSIDE FACTORY LABEL HOLDER – PRINT WITH ROOM NUMBER AND OUTLET IDENTIFIER IN WHICH OUTLET IS LOCATED.

NOTE: FOR WAP LABELS, REPLACE "CO" WITH "WAP", FOR MEDIA SERVICES REPLACE "CO" WITH "MS", FOR TVs REPLACE "CO" WITH "TV", FOR FUTURE SECURITY CAMERAS REPLACE "CO" WITH "CAM"



I.D. TAG WITH 0.15" HIGH BLACK LETTERS ON WHITE BACKGROUND. GBC "DOCUSEAL" OR FELLOWES #52003 LAMINATING POUCH, LUGGAGE TAG SIZE WITH LOOP (AVAILABLE FROM OFFICE SUPPLY STORES). USE LOOP TO SECURE TO PROTECTOR.

TYPICAL HORIZONTAL PATCH PANEL LAMINATED I.D. TAG DETAIL

NOT TO SCALE

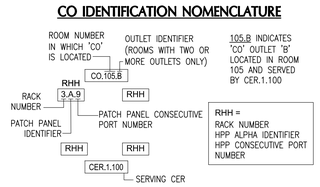
SYSTEM COLORS

BLUE	=	DATA/VOIP
YELLOW	=	MEDIA SERVICES
GREEN	=	WAP
PURPLE	=	TV
ORANGE	=	SPECIAL SERVICES
RED	=	SECURITY CAMERAS

DEDICATED HORIZONTAL PATCH PANELS

HORIZONTAL PATCH PANELS (HPPs) ARE DEDICATED BY SYSTEM WITH EACH HPP TOTALLY POPULATED WITH JACKS MATCHING THE SYSTEM COLOR. EACH CATEGORY 6 OR CATEGORY 6A HORIZONTAL CABLE SHALL BE TERMINATED IN ORDER ON A HPP OF THE CORRESPONDING SYSTEM/COLOR. TERMINATION OF A CATEGORY 6 OR CATEGORY 6A CABLE ON A HPP OF A DIFFERENT SYSTEM/COLOR IS NOT ALLOWED.

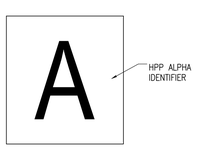
CO IDENTIFICATION NOMENCLATURE



105.B INDICATES "CO" OUTLET "B" LOCATED IN ROOM 105 AND SERVED BY CER.1.100

RHH =
RACK NUMBER
HPP ALPHA IDENTIFIER
HPP CONSECUTIVE PORT NUMBER

ENGRAVED PLASTIC TAG WITH 1/2" HIGH WHITE LETTER ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH, SECURE TAG WITH DOUBLE SIDED TAPE ON FAR RIGHT SIDE OF PATCH PANEL FRONT FACE



TYPICAL HORIZONTAL PATCH PANEL ENGRAVED TAG DETAIL

NOT TO SCALE

SEE "COMMUNICATIONS TYPICAL LABELING DETAILS"

GENERAL LABELING NOTES:

1. ROOM NUMBERS INDICATED THIS SHEET TO INCLUDE COMMUNICATIONS ROOM NUMBERS ARE PROTOTYPICAL TO INDICATE REQUIRED LABELING METHODS AND ARE NOT BASED ON ACTUAL ROOM NUMBERS FOR THIS PROJECT.
2. ALL LABELS SHALL BE BASED ON THE FINAL ROOM NUMBERS USED FOR ROOM SIGNAGE. OBTAIN FINAL ROOM NUMBERS FROM THE ARCHITECT PRIOR TO LABELING.
3. ALL LABELS FOR COMMUNICATIONS OUTLETS AND HORIZONTAL PATCH PANELS SHALL BE PRODUCED USING FACTORY NON-ADHESIVE LABEL SHEETS FOR LASER PRINTERS MANUFACTURED FOR THE SPECIFIC DEVICE AND USING LABELING SOFTWARE PROVIDED BY MANUFACTURER'S REPRESENTATIVE.
4. ALL LABELS SHALL BE HEIGHT OF PLASTIC LABEL HOLDERS AND SAME HEIGHT AND WIDTH AS INDIVIDUAL PAPER LABELS FACTORY FURNISHED WITH THE COMMUNICATIONS OUTLETS OR PATCH PANEL LABEL HOLDERS (LABELS SHALL COMPLETELY FILL PLASTIC LABEL HOLDERS).
5. ALL LABELS SHALL BE INSTALLED IN A NEAT AND PROFESSIONAL MANNER, STRAIGHT AND CENTERED ON LABEL HOLDERS.

GENERAL TEXT WIDTH NOTE:

USE ARIAL NARROW FONT, WHICH IS VERY COMPRESSED BY WIDTH. IF ADDITIONAL WIDTH COMPRESSION IS REQUIRED FOR UNUSUALLY LONG LABELS, USE THE MS WORD FORMAT-FONT-CHARACTER SPACING-SPACING-CONDENSED-BY X POINTS (USE POINT REDUCTIONS OF LESS THAN ONE IN TENTHS OF A POINT – USE NO MORE REDUCTION THAN REQUIRED TO FIT LABEL).

FACEPLATE AND DEVICE COLOR NOTE

VERIFY ALL FACEPLATE AND DEVICE COLORS WITH THE ARCHITECT AND OWNER'S PROJECT MANAGER PRIOR TO PRE-INSTALLATION SUBMITTALS. PROVIDE ALTERNATE COLOR STANDARD WITH THE MANUFACTURER AT NO ADDITIONAL COST TO THE OWNER IF SO DIRECTED. COORDINATE WITH THE ENGINEER PRIOR TO ORDERING MATERIALS.

DAG Architects
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455 Harrison Avenue
Suite I
Panama City, Florida 32401
850.387.1671
www.dagarchitects.com

NOT FOR CONSTRUCTION

BID DOCUMENTS

Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

Project Number 25004
Dated 08.29.2025

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27
RCDD

COMMUNICATIONS TYPICAL FACEPLATE & LABELING DETAILS

T-304

DATA SYSTEM SINGLE LINE KEY NOTES:

(2) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI): 24 OR 48 PORT POE ENABLED ETHERNET WORKGROUP SWITCH WITH FIBER UPLINK. MOUNT IN RACK AS DIRECTED BY OWNER'S PROJECT MANAGER AND COMPLETE ALL PATCHING – SEE SPECIFICATIONS.

(3) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI): Z-BAND ZBT0100054 16 PORT TV DISTRIBUTION HUB.

(3A) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI): WIRELESS ACCESS POINT.

(5) FIBER DRAWER FOR OS2 SINGLEMODE BACKBONE CABLING, SPECIFICATION GRADE, 48 STRAND CAPACITY (24 DUPLEX PORTS), RACK MOUNT 2U, BELDEN FX ECX-02U. PROVIDE WITH TWO (2) 12 FIBER SINGLEMODE 'SC' SHUTTERED FIBER SPLICE CASSETTES, COLOR BLUE, BELDEN FCSX06LDFP AND ONE (1) 6 FIBER SINGLEMODE 'SC/APC' SHUTTERED FIBER SPLICE CASSETTES, COLOR GREEN, BELDEN FCSX03SAFP. SPLICE CASSETTES SHALL BE FACTORY PRE-LOADED AND SHALL INCLUDE FACTORY 250 MICRON AND 900 MICRON PIGTAILS WITH HEAT SHRINK SLEEVES READY FOR FIELD FUSION SPLICING. SECURE FIBER OPTIC CABLE ASSEMBLY TO FIBER DRAWER USING FACTORY STRAIN RELIEF ATTACHMENTS. LABEL PORTS WITH SOURCE (CC.4.222), DESTINATION (CC.22.222) AND NUMERICAL PORT NUMBER. TERMINATE TWO STRANDS OF SINGLEMODE FIBER AT BOTH ENDS WITH 'SC/APC' (ANGLE POLISH CONNECTORS) FOR CONNECTION TO Z-BAND TV HUB AND Z-BAND HEADEND EQUIPMENT – COORDINATE WITH COLLEGE TV TECH.

(5A) FIBER DRAWER FOR OM4 MULTIMODE BACKBONE CABLING, SPECIFICATION GRADE, 24 STRAND CAPACITY (12 DUPLEX PORTS), RACK MOUNT 1U, BELDEN FX ECX-01U. PROVIDE WITH ONE (1) 12 FIBER (6 DUPLEX PORTS) 'SC' SHUTTERED 50 MICRON OM4 MM FIBER SPLICE CASSETTE, COLOR ERICA VIOLET, BELDEN FCX406SCFP AND ONE BLANK. SPLICE CASSETTES SHALL BE FACTORY PRE-LOADED AND SHALL INCLUDE FACTORY 250 MICRON AND 900 MICRON PIGTAILS WITH HEAT SHRINK SLEEVES READY FOR FIELD FUSION SPLICING. SECURE FIBER OPTIC CABLE ASSEMBLY TO FIBER DRAWER USING FACTORY STRAIN RELIEF ATTACHMENTS. LABEL PORTS WITH SOURCE (BAS CONTROL PANEL), DESTINATION (CC.22.222) AND NUMERICAL PORT NUMBER.

(5B) FIBER WALL MOUNT ENCLOSURE FOR OM4 MULTIMODE BACKBONE CABLING, SPECIFICATION GRADE, 24 STRAND CAPACITY (12 DUPLEX PORTS), WALL MOUNT, BELDEN FX ECX-2WM. PROVIDE WITH ONE (1) 12 FIBER (6 DUPLEX PORTS) 'SC' SHUTTERED 50 MICRON OM4 MM FIBER SPLICE CASSETTE, COLOR ERICA VIOLET, BELDEN FCX406SCFP AND ONE BLANK. SPLICE CASSETTES SHALL BE FACTORY PRE-LOADED AND SHALL INCLUDE FACTORY 250 MICRON AND 900 MICRON PIGTAILS WITH HEAT SHRINK SLEEVES READY FOR FIELD FUSION SPLICING. SECURE FIBER OPTIC CABLE ASSEMBLY TO ENCLOSURE USING FACTORY STRAIN RELIEF ATTACHMENTS. LABEL PORTS WITH SOURCE (BAS CONTROL PANEL), DESTINATION (CC.22.222) AND NUMERICAL PORT NUMBER.

(6) FIBER OPTIC PATCH CORD, DUPLEX FIBER, SINGLEMODE, DUAL 'SC' CONNECTORS AT ONE END AND DUAL 'LC' CONNECTORS OTHER END, BELDEN, COLOR YELLOW. PROVIDE QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. FOR FIBER PATCH CORDS CONNECTING OWNER FURNISHED EQUIPMENT, PROVIDE 'LC' ONE END x OTHER END AS REQUIRED TO SUIT EQUIPMENT. VERIFY END CONNECTORS REQUIRED PRIOR TO PURCHASING, SEE "FIBER PATCH CORD NOTE" THIS SHEET.

(6A) FIBER OPTIC PATCH CORD FOR Z-BAND TV DISTRIBUTION EQUIPMENT, SIMPLEX FIBER, SINGLEMODE, SINGLE 'SC/APC' CONNECTORS BOTH ENDS, BELDEN, COLOR YELLOW. PROVIDE QUANTITIES AND LENGTHS AS REQUIRED. VERIFY END CONNECTORS REQUIRED PRIOR TO PURCHASING, SEE "FIBER PATCH CORD NOTE" THIS SHEET.

(7) FIBER OPTIC PATCH CORD, DUPLEX FIBER, 50/125 OM4 MULTIMODE, DUAL 'SC' CONNECTORS AT ONE END AND DUAL CONNECTORS OTHER END TYPE TO MATCH TYPE OF EXISTING FIBER CONNECTIONS ON HVAC BAS EQUIPMENT, BELDEN, COLOR ERICA VIOLET. PROVIDE QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. FOR FIBER PATCH CORDS CONNECTING OWNER FURNISHED EQUIPMENT, PROVIDE 'LC' OR 'SC' x OTHER END AS REQUIRED TO SUIT EQUIPMENT. VERIFY END CONNECTORS REQUIRED PRIOR TO PURCHASING, SEE "FIBER PATCH CORD NOTE" THIS SHEET.

(8) EQUIPMENT ROOM DATA/VOIP PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6 MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR BLUE. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8A) EQUIPMENT ROOM TV PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR PURPLE. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8B) EQUIPMENT ROOM MEDIA SERVICES PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR YELLOW. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8C) EQUIPMENT ROOM IP SECURITY CAMERA PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR RED. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8D) EQUIPMENT ROOM SPECIAL SERVICE PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR ORANGE. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8E) EQUIPMENT ROOM WAP PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6A MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR GREEN. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011100xxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(8F) DIRECT TERMINATE CATEGORY 6A CABLES FOR WAPS WITH MALE CATEGORY 6 MODULAR PLUG, 8P8C, GOLD PLATED CONTACTS WITH INTEGRAL STRAIN RELIEF BOOT, BELDEN REVConnect 'RVAFPUBK' WITH CABLE DIAMETER RANGE MATCHING CATEGORY 6 CABLE PROVIDED. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS USING FACTORY FURNISHED DIE SET AND HAND CRIMP TOOL. CABLE JACKET MUST BE EXTENDED THRU THE STAIN RELIEF BOOT AND INTO THE CABLE JACKET STRAIN RELIEF CRIMP TABS AND PROPERLY SECURED.

(8G) DIRECT TERMINATE CATEGORY 6 CABLES FOR IP SECURITY CAMERAS WITH PLATINUM TOOLS ezEX-RJ45 TERMINATION SYSTEM WITH ezEX44 OR ezEX48 CONNECTOR AS REQUIRED TO SUIT CABLE CONDUCTOR AND OVERALL JACKET DIAMETERS. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS USING FACTORY EXO CRIMP FRAME WITH EXO-EX DIE (100061C). CABLE JACKET MUST BE EXTENDED INTO THE CONNECTOR FOR STRAIN RELIEF.

(9) HORIZONTAL UN-LOADED DATA/VOIP PATCH PANEL, 48 PORT, TIA 568A PINOUT, BELDEN RVMPPF2U48BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6+ 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RV6MJKUBU COLOR BLUE TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(9A) HORIZONTAL UN-LOADED TV DEDICATED PATCH PANEL, 24 PORT, TIA 568A PINOUT, BELDEN RVMPPF1U24BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6+ 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RV6MJKUPL COLOR PURPLE TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(9B) HORIZONTAL UN-LOADED MEDIA SERVICES DEDICATED PATCH PANEL, 24 PORT, TIA 568A PINOUT, BELDEN RVMPPF1U24BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6+ 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RV6MJKUYL COLOR YELLOW TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(9C) HORIZONTAL UN-LOADED IP SECURITY CAMERA DEDICATED PATCH PANEL, 24 PORT, TIA 568A PINOUT, BELDEN RVMPPF1U24BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6+ 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RV6MJKURD COLOR RED TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(9D) HORIZONTAL UN-LOADED SPECIAL SERVICES DEDICATED PATCH PANEL, 24 PORT, TIA 568A PINOUT, BELDEN RVMPPF1U24BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6+ 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RV6MJKUOR COLOR ORANGE TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(9E) HORIZONTAL UN-LOADED WAP DEDICATED PATCH PANEL, 48 PORT, TIA 568A PINOUT, BELDEN RVMPPF1U48BK-P. PROVIDE WITH FACTORY PLASTIC LABELING WINDOWS AND BELDEN AX107527 ACCESSORY NON-ADHESIVE LABEL SHEETS, FACTORY CABLE MANAGEMENT BAR, AND MOUNTING HARDWARE. PROVIDE WITH TIA CATEGORY 6A 10GX 8-PIN MODULAR JACKS IN ALL PORTS, BELDEN REVCONNECT RVAMJKUGN COLOR GREEN TO MATCH THE USER/SERVICE COLOR SCHEDULE.

(10) TIA CATEGORY 6 DATA/VOIP HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMP (PLENUM) JACKET, COLOR BLUE. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(10A) TIA CATEGORY 6 TV HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMP (PLENUM) JACKET, COLOR PURPLE. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(10B) TIA CATEGORY 6 MEDIA HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMP (PLENUM) JACKET, COLOR YELLOW. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(10C) TIA CATEGORY 6 IP SECURITY CAMERA HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMR (RISER) JACKET, COLOR RED. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(10D) TIA CATEGORY 6 SPECIAL SERVICE HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMR (RISER) JACKET, COLOR ORANGE. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(10E) TIA CATEGORY 6A WAP HORIZONTAL CABLING, 4 PAIR UTP, 23 GAGE SOLID COPPER CONDUCTORS. MAXIMUM INSTALLED LENGTH 90 METERS (295'). PROVIDE DOCUMENTATION OF CURRENT UL CERTIFICATION WITH SUBMITTALS. PROVIDE WITH CMR (PLENUM) JACKET, COLOR GREEN. SEE SCHEDULE THIS SHEET FOR APPROVED CABLES.

(11) TYPE "D1" COMMUNICATIONS OUTLET (CO) WITH ONE (1) CATEGORY 6+ 8-PIN MODULAR JACK. SEE PLANS AND DETAILS.

(11A) TYPE "D2" COMMUNICATIONS OUTLET (CO) WITH TWO (2) CATEGORY 6+ 8-PIN MODULAR JACKS. SEE PLANS AND DETAILS.

(11B) TYPE "D4" COMMUNICATIONS OUTLET (CO) WITH FOUR (4) CATEGORY 6+ 8-PIN MODULAR JACKS. SEE PLANS AND DETAILS.

(11C) TYPE "D2TV" COMMUNICATIONS OUTLET (CO) WITH TWO (2) CATEGORY 6+ 8-PIN MODULAR JACKS. SEE PLANS AND DETAILS.

(11D) TYPE "D1MS" COMMUNICATIONS OUTLET (CO) WITH TWO (2) CATEGORY 6+ 8-PIN MODULAR JACKS. SEE PLANS AND DETAILS.

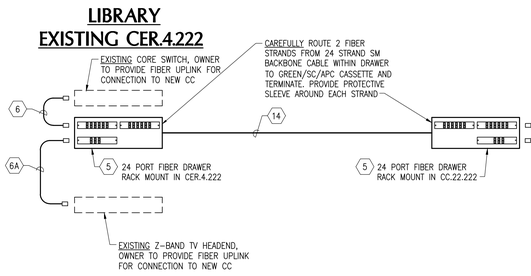
(12) WORKSTATION DATA/TV/MEDIA PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR BLACK. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C60110Dxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

(12A) WORKSTATION VOIP PATCH CORDS, FACTORY TERMINATED AND TESTED CATEGORY 6+ MODULAR PATCH CORD (UTP) 4-PAIR UNSHIELDED CABLE WITH 23 GAGE SOLID COPPER CONDUCTORS, COLOR GRAY. PROVIDE WITH 8-PIN MODULAR PLUG ON BOTH ENDS AND TIA 568A PIN/PAIR ASSIGNMENTS, BELDEN C6011xxxxx (NO EQUAL). FIELD BUILT OR ASSEMBLED PATCH CORDS WILL NOT BE ACCEPTED. PROVIDE PATCH CORD QUANTITIES AND LENGTHS AS SCHEDULED THIS SHEET. PROVIDE DOCUMENTATION OF FACTORY TESTING AT SUBMITTAL.

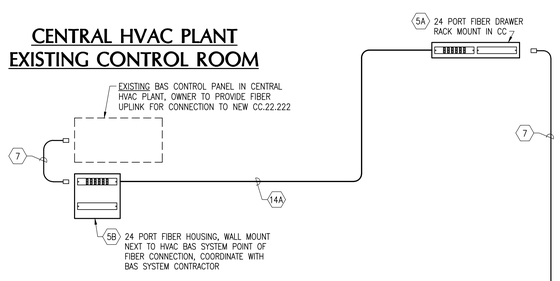
(14) FIBER OPTIC BACKBONE 'BLACK' CABLE, LOOSE TUBE PE JACKET DIRECT BURIAL GRADE OUTSIDE PLANT, DRY WATER BLOCK CABLE CORE, GEL FILLED BUFFER TUBES. 24 FIBER COUNT, 24 STRANDS SINGLEMODE (0.40 dB/km @ 1310nm, 0.30 dB/km @ 1550 nm). GENERAL CABLE AQ0244MA-DWB OR ENGINEER APPROVED EQUAL BY CORNING, BELDEN OR SUPERIOR ESSEX. AT BOTH ENDS PROVIDE SLACK IN CABLE BEHIND FIBER DRAWER TO ALLOW DRAWER PULL-OUT. SECURE FIBER OPTIC CABLE ASSEMBLY TO FIBER DRAWER USING FACTORY STRAIN RELIEF ATTACHMENTS. AT BOTH ENDS PROVIDE SLACK IN CABLE BEHIND FIBER DRAWER TO ALLOW DRAWER PULL-OUT. SECURE FIBER OPTIC CABLE ASSEMBLY TO FIBER DRAWER USING FACTORY STRAIN RELIEF ATTACHMENTS. AT BOTH ENDS TERMINATE FIBERS ON FUSION SPLICE PIGTAILS WITH HEAT SHRINK SLEEVES IN BELDEN UNLOADED CASSETTES USING FIELD FUSION SPLICER IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. NEATLY ORGANIZE TERMINATED FIBER WITHIN FIBER DRAWER AND SECURE. RUN CABLE CONTINUOUS FROM SOURCE TO DESTINATION WITH NO SPLICES OR TERMINATIONS.

(14A) FIBER OPTIC BACKBONE 'BLACK' CABLE, LOOSE TUBE PE JACKET DIRECT BURIAL GRADE OUTSIDE PLANT, DRY WATER BLOCK CABLE CORE, GEL FILLED BUFFER TUBES. 6 STRANDS 50/125 10 GIGABIT ETHERNET OPTIMIZED OM4 MULTIMODE (3.0 dB/km @ 850nm, 1.0 dB/km @ 1300 nm, 550 METER 10G BASE-SR ETHERNET DISTANCE @850nm). GENERAL CABLE BL0064M1A-DWB OR ENGINEER APPROVED EQUAL BY CORNING, BELDEN OR BERK-TEK. AT BOTH ENDS PROVIDE SLACK IN CABLE BEHIND FIBER DRAWER TO ALLOW DRAWER PULL-OUT. SECURE FIBER OPTIC CABLE ASSEMBLY TO FIBER DRAWER USING FACTORY STRAIN RELIEF ATTACHMENTS. AT BOTH ENDS TERMINATE FIBERS ON FUSION SPLICE PIGTAILS WITH HEAT SHRINK SLEEVES IN BELDEN UNLOADED CASSETTES USING FIELD FUSION SPLICER IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. NEATLY ORGANIZE TERMINATED FIBER WITHIN FIBER DRAWER AND SECURE. NEATLY ORGANIZE TERMINATED FIBER WITHIN FIBER DRAWER AND SECURE. RUN CABLE CONTINUOUS FROM SOURCE TO DESTINATION WITH NO SPLICES OR TERMINATIONS.

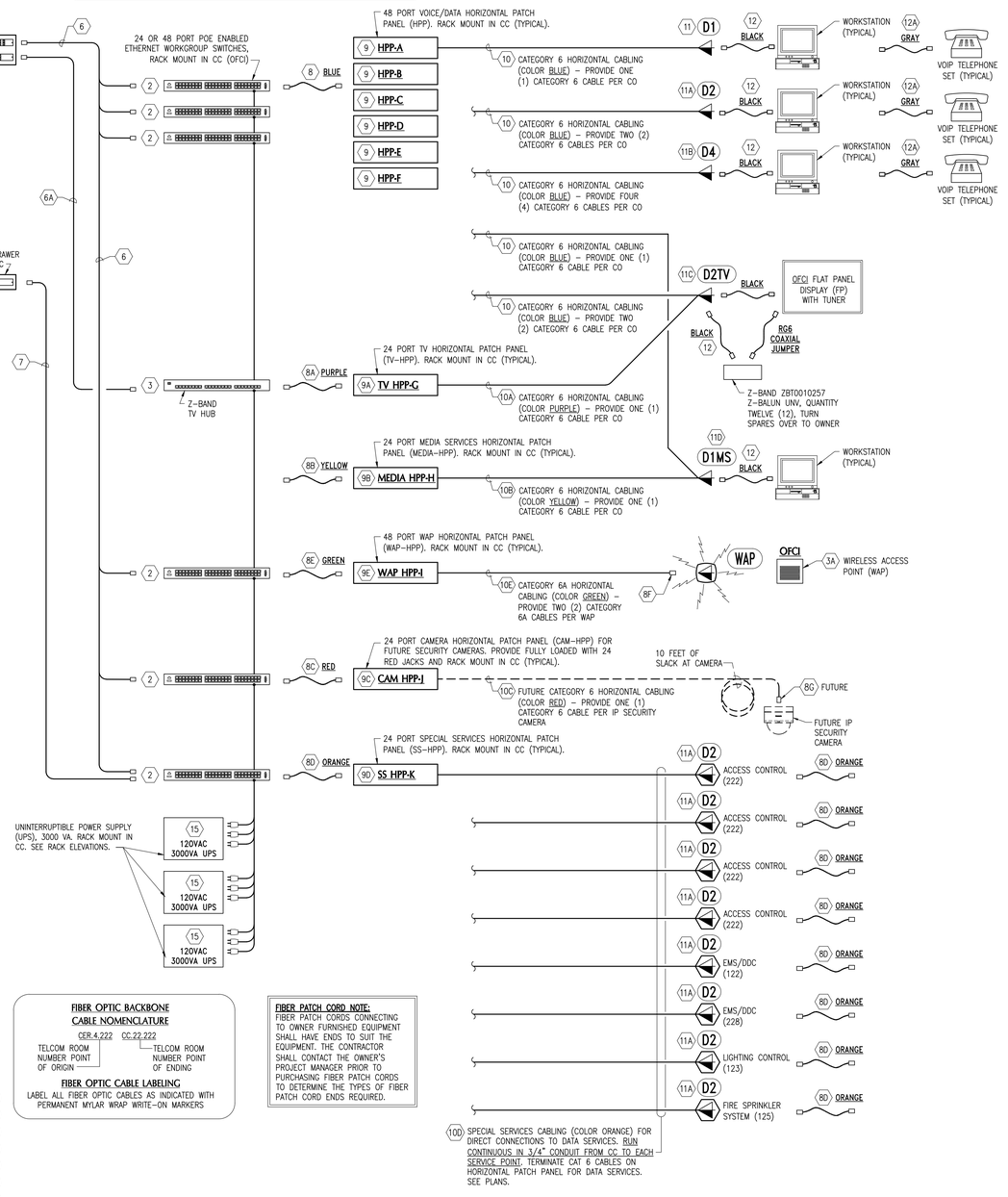
LIBRARY
EXISTING CER.4.222



CENTRAL HVAC PLANT
EXISTING CONTROL ROOM



COMMUNICATIONS CLOSET - CC.22.222



APPROVED CATEGORY 6 & CATEGORY 6A HORIZONTAL CABLES

APPLICATION	MANUFACTURER	PART NUMBER	UL JACKET	JACKET COLOR
PLENUM CAT 6 (DATA/VOIP)	MOHAWK	ADVANCENET M57193	CMP	BLUE
	BERK-TEK	LANMARK 2000 10163222	CMP	BLUE
	GENERAL	GENSPEED 6500 7131930	CMP	BLUE
	BELDEN	3600 SERIES 3613015	CMP	BLUE
PLENUM CAT 6 (TV)	MOHAWK	ADVANCENET M57201	CMP	PURPLE
	BERK-TEK	LANMARK 2000 10170672	CMP	PURPLE
	GENERAL	GENSPEED 6500 7131939	CMP	PURPLE
	BELDEN	3600 SERIES 3613007	CMP	PURPLE
PLENUM CAT 6 (MEDIA SERVICES)	MOHAWK	ADVANCENET M57195	CMP	YELLOW
	BERK-TEK	LANMARK 2000 10167308	CMP	YELLOW
	GENERAL	GENSPEED 6500 7131932	CMP	YELLOW
	BELDEN	3600 SERIES 3613004	CMP	YELLOW
PLENUM CAT 6 (FUTURE CAMERAS)	MOHAWK	ADVANCENET M57198	CMP	RED
	BERK-TEK	LANMARK 2000 10170684	CMP	RED
	GENERAL	GENSPEED 6500 7131934	CMP	RED
	BELDEN	3600 SERIES 3613002	CMP	RED
RISER CAT 6 (SPECIAL SERVICES IN CONDUIT)	MOHAWK	ADVANCENET M57208	CMR	ORANGE
	BERK-TEK	LANMARK 2000 10170689	CMR	ORANGE
	GENERAL	GENSPEED 6500 7133935	CMR	ORANGE
	BELDEN	3600 SERIES 3612003	CMR	ORANGE
PLENUM CAT 6A (WAP)	MOHAWK	GIGALAN10 SD M59150	CMP	GREEN
	BERK-TEK	LANMARK-SST 11140404	CMP	GREEN
	GENERAL	GENSPEED 10MTP 7151853	CMP	GREEN
	BELDEN	10GXS13005	CMP	GREEN
OSP BURIAL GRADE CAT 6	BERK-TEK	LANMARK-1000 OSP 11072213	NOT RATED	BLACK PE
	GENERAL	GENSPEED OSP 7136100	NOT RATED	BLACK PE
	BELDEN	OSP6U 010	NOT RATED	BLACK PE
OSP BURIAL GRADE CAT 6A	BERK-TEK	LANMARK-10G OSP 11094458	NOT RATED	BLACK PE
	GENERAL	GENSPEED OSP 8136100	NOT RATED	BLACK PE
	BELDEN	OSP6AU 010	NOT RATED	BLACK PE

DATA PATCH CORD SCHEDULE

TYPE	LENGTH/QT'Y	LENGTH/QT'Y	LENGTH/QT'Y	LENGTH/QT'Y	LENGTH/QT'Y	LENGTH/QT'Y
(6) FIBER	1M / 5	2M / 5	3M / 5	10M / 5	-- / --	-- / --
(6A) FIBER	1M / 2	2M / 2	3M / 2	10M / 2	-- / --	-- / --
(7) FIBER	1M / 2	2M / 2	3M / 2	10M / 2	-- / --	-- / --
(8) DATA/VOIP	1' / 200	3' / 100	5' / 25	-- / --	-- / --	-- / --
(8A) TV	1' / 20	3' /5	5' / 5	-- / --	-- / --	-- / --
(8B) MEDIA	1' / 10	3' / 5	5' / 5	-- / --	-- / --	-- / --
(8C) CAM	1' / 20	3' / 5	5' / 5	-- / --	-- / --	-- / --
(8D) SS	1' / 30	3' / 10	5' / 5	-- / --	-- / --	-- / --
(8E) WAP	1' / 50	3' / 20	5' / 5	-- / --	-- / --	-- / --
(12) DATA	-- / --	3' / 40	5' / 100	7' / 225	10' / 25	15' / 10
(12A) VOIP	-- / --	-- / --	5' / 30	7' / 15	10' / 5	-- / --

DATA PATCH CORD SCHEDULE NOTES:

1) FURNISH PATCH CORDS TO OWNER LOOSE PRIOR TO INSTALLATION. VERIFY ALL QUANTITIES AND LENGTHS
2) WITH THE OWNER'S PROJECT MANAGER AND PROVIDE SIGNED COPY OF RECEIPT TO ENGINEER AT PROJECT SUBSTANTIAL COMPLETION.

   SEE SPECIFICATIONS FOR DETAILED REQUIREMENTS FOR PATCH CORD DELIVERY AND INSTALLATION. ALL PATCH CORDS SHALL BE NEATLY ROUTED, BUNDLED AND SECURED AT 6" ON CENTER WITH BLACK
3) VELCRO STRAPS. BUNDLE DATA PATCH CORDS SEPARATELY, DO NOT BUNDLE WITH VOICE PATCH CORDS. BUNDLE FIBER OPTIC PATCH CORDS SEPARATELY FROM COPPER PATCH CORDS.

   PROVIDE EXCEL SPREADSHEET IDENTIFYING CONNECTIONS MADE, SEE SPECIFICATIONS.

FIBER OPTIC BACKBONE CABLE NOMENCLATURE

CER.4.222 — TELCOM ROOM NUMBER POINT OF ORIGIN
CC.22.222 — TELCOM ROOM NUMBER POINT OF ENDING

FIBER OPTIC CABLE LABELING

LABEL ALL FIBER OPTIC CABLES AS INDICATED WITH PERMANENT MYLAR WRAP WRITE-ON MARKERS

FIBER PATCH CORD NOTE:

FIBER PATCH CORDS CONNECTING TO OWNER FURNISHED EQUIPMENT SHALL HAVE ENDS TO SUIT THE EQUIPMENT. THE CONTRACTOR SHALL CONTACT THE OWNER'S PROJECT MANAGER PRIOR TO PURCHASING FIBER PATCH CORDS TO DETERMINE THE TYPES OF FIBER PATCH CORD ENDS REQUIRED.

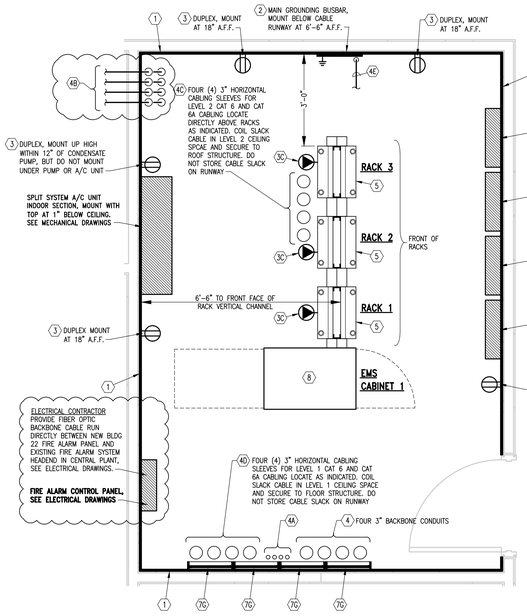
DATA SYSTEM SINGLE LINE CONFIGURATION DIAGRAM

NOT TO SCALE

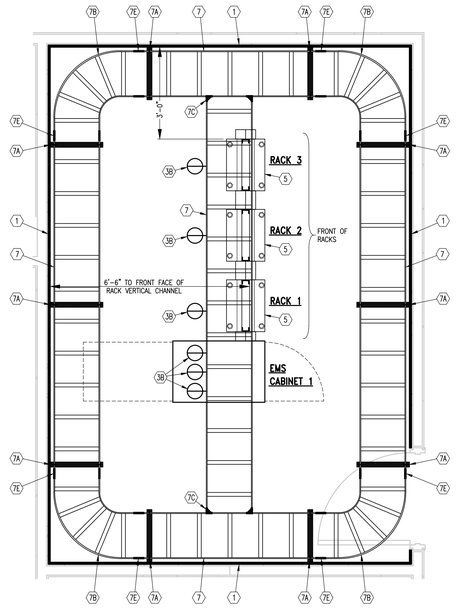
NOTE: RUN ALL CABLES CONTINUOUS BETWEEN TERMINATION POINTS INDICATED WITH NO INTERMEDIATE SLICES OR TERMINATIONS.

USER/SERVICE COLOR SCHEDULE

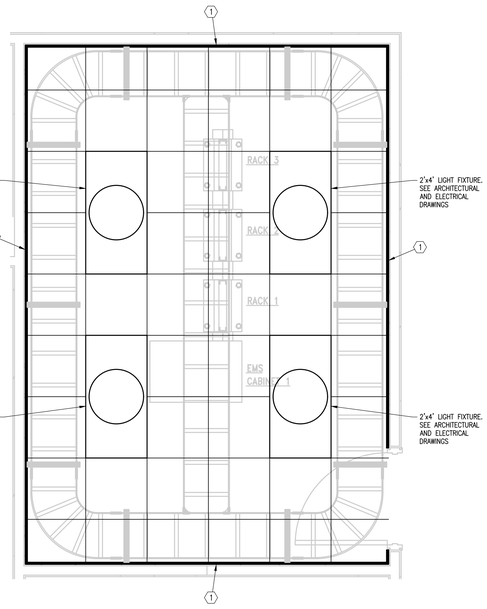
| SERVICE | EQUIPMENT ROOM PATCH CORDS | PATCH PANEL JACK COLOR | HORIZONTA



CC22.222 - CONDUITS AND ELECTRICAL



CC22.222 - CABLE RUNWAY



CC22.222 - LIGHT FIXTURE LAYOUT

CC ENLARGED FLOOR PLAN KEY NOTES:

1. PLYWOOD BACKBOARD, 8'-0" HIGH X FULL WIDTH OF WALL AS INDICATED, MOUNT WITH BOTTOM AT 6" ABOVE FINISH FLOOR. ROUGH ALL ELECTRICAL OUTLETS INTO SPACE BEHIND BACKBOARD FOR FLUSH MOUNT INSTALLATION OF FACEPLATES BACKBOARDS SHALL BE 3/4" THICK AC CABINET GRADE PLYWOOD (FACE 'A' SIDE INTO ROOM). COUNTERSINK ALL SCREWS, FILL AND SAND SMOOTH ALL SEAMS, COUNTERSUNK SCREW HOLES AND VOIDS. PRIME WITH TWO COATS PRIMER, SANDING SMOOTH AFTER EACH COAT. PRETREAT BARE PLYWOOD WITH FLAMECHECK M-111 AND ALLOW TO DRY BEFORE PAINTING. APPLY FIRST COAT WITH FIRE RETARDANT PAINT - ADD 8 OUNCES OF FLAMECHECK M-111PA TO ONE GALLON OF ACRYLIC PAINT, THOROUGHLY MIX AND APPLY TWO FULL COATS FOR 2 MIL THICKNESS PER MANUFACTURER'S PRINTED RECOMMENDATIONS. FINISH WITH THICK COAT OF SEMI-GLOSS ACRYLIC PAINT, COLOR BATTLESHIP GREY. FINAL SURFACE SHALL BE UNIFORMLY SMOOTH AND EVEN. TOUCH UP AT END OF PROJECT. COORDINATE WORK WITH ELECTRICAL CONTRACTOR TO ENSURE THAT POWER RECEPTACLES ARE PROPERLY LOCATED, POWER CONDUITS ARE RECESSED BEHIND BACKBOARD, AND FACEPLATES ARE FLUSH ON FACE OF BACKBOARD.

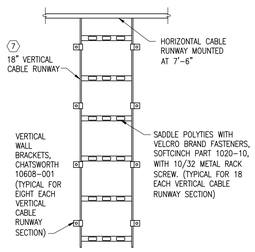
   SPECIAL BACKBOARD DUST CONTROL NOTE: COMPLETE ALL BACKBOARD WORK INCLUDING FINISH PAINTING PRIOR TO INSTALLATION OF RACKS AND BACKBOARD MOUNTED EQUIPMENT AND PRIOR TO PULLING CABLING INTO CCs.
2. CC GROUNDING BUSBAR, HARGER GBI-14420G WITH TWO ROWS OF 7/16"ø HOLES AT 1" SPACING EACH WAY. MAKE ALL CONNECTIONS WITH TWO HOLE LONG BARREL COMPRESSION LUGS (HARGER GECLB4-2C FOR #4 AWG, GECLB6-2C FOR #6 AWG) AND BOND TO BUSBAR WITH TWO 3/8"ø SS HEX HEAD CAP SCREWS WITH SS LOCKING NUTS. SEE "CC GROUNDING NOTES".
3. BY ELECTRICAL CONTRACTOR: 120 VAC 20 AMP DUPLEX POWER RECEPTACLE. ROUGH-IN WALL BOX FLUSH WITH FACE OF BACKBOARD. EXTEND EMT CONDUIT FROM BOX CONCEALED BEHIND BACKBOARD, SEE ELECTRICAL DRAWINGS.
3B. BY ELECTRICAL CONTRACTOR: 120 VAC 20 AMP SIMPLEX POWER RECEPTACLE WITH DEDICATED 120 VAC 20 AMP CIRCUIT. MOUNT ON BACKSIDE OF CABLE RUNWAY IN NON-METALLIC SINGLE GANG BOX TO SERVE RACK MOUNTED POWER SURGE SUPPRESSOR. PROVIDE 1/2" PVC ELECTRICAL CONDUIT FROM BACKBOARD ALONG UNDERSIDE OF CABLE RUNWAY, SAME AS REQUIRED FOR 30 AMP POWER OUTLET. PAINT FLAT BLACK. SEE ELECTRICAL DRAWINGS.
3C. ELECTRICAL CONTRACTOR: 120 VAC L5-30 30 AMP POWER RECEPTACLE WITH DEDICATED 120 VAC 30 AMP CIRCUIT. MOUNT ON HEAVY DUTY (3/16" THICK) BLANK FILLER PLATE ON REAR OF RACK AS INDICATED TO SERVE 3000 VA UPS. RUN POWER CIRCUIT FROM BACKBOARD IN PVC ELECTRICAL CONDUIT UNDER CABLE RUNWAY AND IN FLEXIBLE NON-METALLIC CONDUIT INSIDE OF RACK CHANNEL CONCEALED - MAINTAIN MINIMUM SEPARATION FROM DATA CABLING. PAINT ALL FLAT BLACK. SEE "TYPICAL POWER CONDUIT TO UPS 30 AMP POWER OUTLET DETAIL", "TYPICAL 3000 VA UPS 30 AMP POWER OUTLET MOUNTING DETAIL" AND "TYPICAL RACK POWER DISTRIBUTION DIAGRAM" DETAILS, THIS SHEET. SEE ELECTRICAL DRAWINGS.
4. UNDERGROUND BACKBONE CONDUIT. SEE "COMMUNICATIONS SITE PLAN" FOR CONDUIT REQUIREMENTS AND ROUTING. SEE SINGLE LINE CONFIGURATION DIAGRAMS SHEETS FOR CABLE REQUIREMENTS. TURN UP WITH CONDUIT TIGHT AGAINST WALL IN CC.22.111 AND CONVERT TO RIGID (RMC) AT 4" A.F.F., THEN EXTEND UP SURFACE MOUNTED ON WALL THRU CEILING GRID (TRIM CEILING TILE NEATLY) CONTINUE UP THRU SECOND LEVEL FLOOR CONSTRUCTION (FIRESTOP FLOOR PENETRATION) AND TERMINATE AT 4" A.F.F. IN CC.22.222 ON SECOND FLOOR WITH UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (0-Z/GEDNEY TYPE IBC-L-BC) PRIOR TO INSTALLING CABLING.
4A. UNDERGROUND HORIZONTAL CONDUIT (HORIZONTAL CABLING REQUIRED TO BE RUN UNDERGROUND). SEE "COMMUNICATIONS FLOOR PLAN" AND "COMMUNICATIONS FLOOR BOX DETAILS" FOR CONDUIT REQUIREMENTS. TURN UP WITH CONDUIT TIGHT AGAINST WALL IN CC.22.111 AND CONVERT TO RIGID (RMC) AT 4" A.F.F., THEN EXTEND UP SURFACE MOUNTED ON WALL, THRU CEILING GRID (TRIM CEILING TILE NEATLY) CONTINUE UP THRU SECOND LEVEL FLOOR CONSTRUCTION (FIRESTOP FLOOR PENETRATION) AND TERMINATE AT 4" A.F.F. IN CC.22.222 ON SECOND FLOOR WITH UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (0-Z/GEDNEY TYPE IBC-L-BC) PRIOR TO INSTALLING CABLING.
4B. 3/4" HOMERUN CONDUITS FOR DIRECT CONNECTIONS TO SPECIAL SERVICES. SEE "SPECIAL SERVICES NOTES" SHEET T-201. STUB CONDUITS THRU CEILING TILE (TRIM TILE CLOSE AROUND CONDUIT) AND TERMINATE AT 8" ABOVE CABLE RUNWAY.
4C. EMT CONDUIT SLEEVES UP INTO LEVEL 2 CEILING SPACE FOR HORIZONTAL CABLING FROM LEVEL 2 OUTLETS, SIZE AS INDICATED. STUB CONDUIT SLEEVE DOWN THRU CEILING TILE (TRIM TILE CLOSE AROUND CONDUIT) AND TERMINATE AT 8" ABOVE CABLE RUNWAY. SECURE EACH SLEEVE ABOVE AND BELOW CEILING. CONNECTORIZE EACH END OF CONDUIT AND INSTALL PLASTIC INSULATING BUSHINGS ON CONNECTORS BEFORE PULLING CABLING. LOCATE SLACK CABLE IN LEVEL 2 CEILING SPACE (NOT IN CABLE RUNWAY) IN NEAT ROLLS BUNDLED WITH VELCRO. BOND STRUT TO GROUNDING BUSBAR.
4D. EMT CONDUIT SLEEVES DOWN INTO LEVEL 1 CEILING SPACE FOR HORIZONTAL CABLING FROM LEVEL 1 OUTLETS, SIZE AS INDICATED. STUB CONDUIT SLEEVE UP THRU LEVEL 2 FLOOR CONSTRUCTION (SLEEVE AND FIRESTOP FLOOR) AND TERMINATE AT 4" A.F.F.. SECURE EACH SLEEVE ABOVE AND BELOW FLOOR. CONNECTORIZE EACH END OF CONDUIT AND INSTALL PLASTIC INSULATING BUSHINGS ON CONNECTORS BEFORE PULLING CABLING. LOCATE SLACK CABLE IN LEVEL 1 CEILING SPACE (NOT IN CABLE RUNWAY) IN NEAT ROLLS BUNDLED WITH VELCRO. BOND STRUT TO GROUNDING BUSBAR.
4E. BY ELECTRICAL CONTRACTOR: 3/4" EMT CONDUIT TO BUILDING MAIN ELECTRICAL PANEL FOR GROUNDING CONDUCTOR. PROVIDE WITH INSULATED GROUNDING BUSHING - MALLEABLE IRON, STEEL CITY #BG-80Z.
5. FLOOR MOUNT EQUIPMENT RACK. REFER TO RACK ELEVATION DETAILS.
7. 18" WIDE CABLE RUNWAY, CHATSWORTH 10250-718, COLOR BLACK. PROVIDE BUTT-SPLICE KIT, CHATSWORTH 11301-001 TO BUTT-SPLICE SECTIONS OF CABLE RUNWAY (PAINT BEFORE INSTALLING AND TOUCH UP AFTER INSTALLATION). INSTALL ALL CABLE RUNWAY, FITTINGS, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.
7A. 18" CABLE RUNWAY STEEL TRIANGULAR SUPPORT BRACKET KIT, COLOR BLACK, CHATSWORTH 11746-718.
7B. 18" CABLE RUNWAY E-BEND, CHATSWORTH 10822-718, COLOR BLACK.
7C. CABLE RUNWAY JUNCTION SPLICE KIT, CHATSWORTH 11302-001.
7E. CABLE RUNWAY BUTT-SPLICE KIT, CHATSWORTH 11301-001.
7G. 18" WIDE CABLE RUNWAY, MOUNTED VERTICALLY FROM CONDUIT ENTRANCE IN FLOOR TO 7'-6". SEE "TYPICAL VERTICAL CABLE RUNWAY DETAIL".
8. PROVIDE THREE CATEGORY 6 PATCH CORDS TO EMS CABINET FROM CAMPUS NETWORK ETHERNET SWITCH PORTS IDENTIFIED BY THE OWNER WITH SLACK, COLOR AS DIRECTED BY EMS AND OWNER.

CC LIGHT FIXTURE NOTE

LOCATE LIGHT FIXTURES TO CLEAR CABLE RUNWAY FOR LAMP CHANGE/FIXTURE MAINTENANCE, REGARDLESS OF FIXTURE LAYOUT INDICATED ON ELECTRICAL DRAWINGS. PROVIDE UNIFORM 50 FOOTCANDLE LIGHT LEVEL AT 48" A.F.F.

ELECTRICAL CONTRACTOR NOTE

IN CC, RECESS ALL POWER CONDUITS AND DEVICE BOXES INTO WALLS BEHIND BACKBOARD TO ALLOW FLUSH MOUNTING OF POWER OUTLET FACE PLATES. DO NOT SURFACE MOUNT CONDUITS ON BACKBOARDS

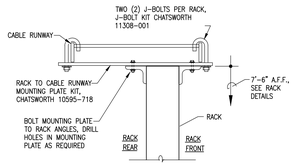


TYPICAL VERTICAL CABLE RUNWAY DETAIL

NOT TO SCALE

CABLE RUNWAY MOUNTING HEIGHT NOTE

BOTTOM OF CABLE RUNWAY MUST BE MOUNTED AT EXACTLY 7'-6" ABOVE THE FINSHED FLOOR TO ALLOW INSTALLATION OF 7'-6" HIGH RACKS. RACKS ARE 7'-6" HIGH TO ALLOW CABLE RUNWAY TO CLEAR DOOR FRAMES.



TYPICAL CABLE RUNWAY RACK SUPPORT DETAIL

NOT TO SCALE

CC GENERAL NOTES:

CABLE ROUTING: ROUTE CABLING IN CABLE RUNWAY. BUNDLE FIBER OPTIC, VOICE BACKBONE AND HORIZONTAL CABLING SEPARATELY. SECURE BUNDLES WITH BLACK VELCRO AT MINIMUM OF 12" ON CENTER IN CABLE RUNWAY AND AT MINIMUM OF 6" ON CENTER IN RACK VERTICAL CABLING SECTIONS. THE FINISHED INSTALLATION SHALL MEET THE APPROVAL OF THE ENGINEER FOR OVERALL QUALITY, ORGANIZATION, AND NEATNESS OF APPEARANCE. SEE SINGLE LINE CONFIGURATION DIAGRAMS FOR CABLE TYPES AND QUANTITIES.

BACKBOARD LAYOUT: BACKBOARD AND RACK ARRANGEMENT AND EQUIPMENT LOCATIONS INDICATED ARE DRAWN TO SCALE. DO NOT MODIFY LAYOUT WITHOUT PRIOR APPROVAL OF ENGINEER. USE ALL BLACK HARDWARE ON FACE OF RACKS.

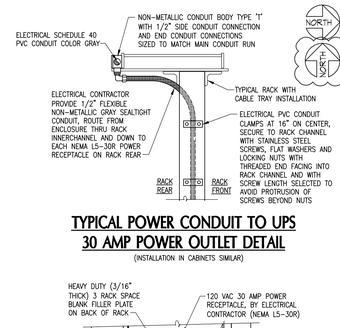
CC FASTENERS: ALL ATTACHMENTS MADE TO CABLE TRAY OR RACKS SHALL HAVE SCREWS, BOLTS OR ANY OTHER MOUNTING HARDWARE INSTALLED IN DIRECTION AWAY FROM ANY COMMUNICATIONS CABLING. SELF TAPPING SCREWS ARE NOT ACCEPTABLE. ALL MOUNTING SCREWS SHALL BE BLACK.

CC PAINTING: TOUCH-UP PAINT ALL NICKS AND SCRATCHES ON ALL RACKS, CABLE RUNWAY, BACKBOARDS, ETC. AFTER INSTALLATION IS COMPLETE. TOUCH-UP SHALL BE DONE USING MANUFACTURER PROVIDED PAINT TO MATCH. ALL SCREWS, NUTS, AND BOLTS SHALL BE PAINTED TO MATCH HARDWARE.

CATEGORY 6 TERMINATIONS: MAKE ALL TERMINATIONS IN STRICT ACCORDANCE WITH TIA GUIDELINES AS WELL AS THE MANUFACTURER'S PRINTED INSTRUCTIONS FOR BOTH THE CABLE AND THE TERMINATION DEVICE FOR ALL FIELD CONNECTIONS IN THE "HORIZONTAL TELECOMMUNICATIONS LINK". STRIP CABLE JACKET BACK A MAXIMUM OF 1 INCH FROM THE POINT OF TERMINATION. MAINTAIN FACTORY SYMMETRICAL CABLE TWISTS TO WITHIN 0.5 INCHES (13 MM MAXIMUM) OF THE POINT OF TERMINATION. PROVIDE CABLE SLACK AT EACH END TO ALLOW MINIMUM OF FIVE (5) FUTURE RETERMINATIONS WITHOUT RE-ROUTING CABLE. SEE CO MOUNTING DETAILS, BACKBOARD ELEVATIONS, AND CC DETAILS.

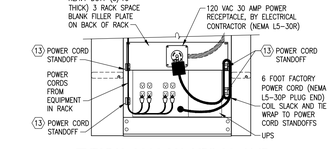
CC GROUNDING NOTES

1. ALL GROUND CONNECTIONS SHALL BE MADE WITH HEAVY DUTY 2 HOLE LONG BARREL COMPRESSION LUGS WITH INSPECTION PORT AND THREE CRIMP LINES (HARGER GECLB4-2C FOR #4AWG, GECLB6-2C FOR #6AWG) AND 3/8"ø SS HEX HEAD CAP SCREWS WITH TWO FLAT WASHERS AND SS LOCKING NUTS (TWO SETS PER 2 HOLE LUG). CONTRACTOR CRIMP USING HARGER MCT101/0 MECHANICAL COMPRESSION TOOLS AND COLOR CODED DIE FOR CONDUCTOR SIZE SPECIFIED (BLUE FOR #6 AWG AND GRAY FOR #4 AWG). PUSH COPPER CONDUCTOR FULLY INTO BARREL AND TIGHT AGAINST INSPECTION PORT AND PROFESSIONALLY CRIMP EACH LUG THREE TIMES AT FACTORY LINES ON BARREL.
2. PROVIDE GROUNDING BUSBAR IN 'CC' AS INDICATED. ELECTRICAL CONTRACTOR GROUND MAIN BUSBAR TO BUILDING MAIN ELECTRICAL SERVICE GROUND (BUILDING IN WHICH CC IS LOCATED) WITH #4 AWG INSULATED (GREEN) SOLID COPPER GROUNDING CONDUCTOR. RUN CONDUCTOR FROM BUSBAR LOCATION TO BUILDING MAIN ELECTRICAL SERVICE GROUND IN EMT CONDUIT. PROVIDE UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (0-Z/GEDNEY TYPE IBC-L-BC) AT BOTH CONDUIT ENDS AND GROUND EACH END PER NEC. GROUNDING TO BUILDING STRUCTURE, CONDUITS, UTILITY PIPING, OR ELECTRICAL SUBPANELS IN LIEU OF BONDING TO BUILDING MAIN ELECTRICAL SERVICE GROUND IS NOT ACCEPTABLE.
3. GROUND ALL COMMUNICATION RACKS WITH #6 AWG INSULATED (GREEN) SOLID COPPER GROUNDING CONDUCTOR TO MAIN GROUNDING BUSBAR. GROUND RACKS INDIVIDUALLY TO BUSBAR (DO NOT LOOP GROUNDS). ROUTE CONDUCTOR ALONG RACK REAR AND IN CABLE RUNWAY TO GROUNDING BUSBAR.
4. GROUND EACH CONDUIT AND CONDUIT SUPPORT STRUT WITH #6 AWG INSULATED (GREEN) SOLID COPPER GROUNDING CONDUCTOR TO GROUNDING BUSBAR. ROUTE CONDUCTOR IN CABLE RUNWAY TO GROUNDING BUSBAR.
5. GROUND CABLE RUNWAY WITH #6 AWG INSULATED (GREEN) SOLID COPPER GROUNDING CONDUCTOR TO GROUNDING BUSBAR. ROUTE CONDUCTOR IN CABLE RUNWAY TO GROUNDING BUSBAR.
6. PROVIDE UL LISTED RIGID CONDUIT THREADED MALLEABLE IRON INSULATED GROUNDING BUSHING WITH BRONZE LUG (0-Z/GEDNEY TYPE IBC-L-BC) ON END OF BACKBONE CONDUITS AND GROUND TO BUSBAR WITH #6 AWG INSULATED (GREEN) COPPER GROUNDING CONDUCTOR. PLASTIC INSULATING BUSHING IS ALSO REQUIRED.



TYPICAL POWER CONDUIT TO UPS 30 AMP POWER OUTLET DETAIL

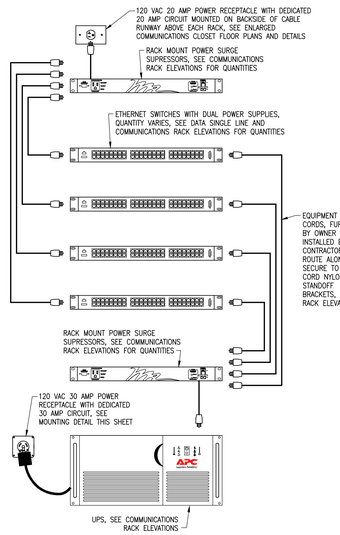
(INSTALLATION IN CABINETS SIMILAR)



TYPICAL 3000 VA UPS 30 AMP POWER OUTLET MOUNTING DETAIL

NOT TO SCALE

(VIEWED FROM REAR OF RACK)



TYPICAL RACK POWER DISTIBUTION DIAGRAM

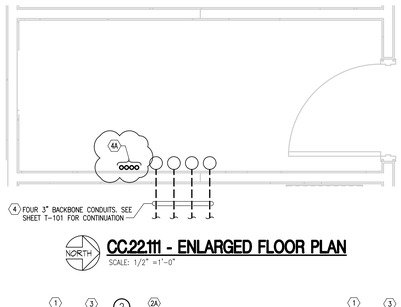
NOT TO SCALE

CC22222 - ENLARGED FLOOR PLAN

NORTH

SCALE: 1/2" =1'-0"

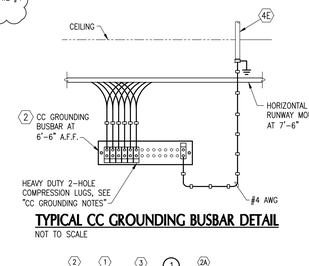
BID ALTERNATE #4



CC22111 - ENLARGED FLOOR PLAN

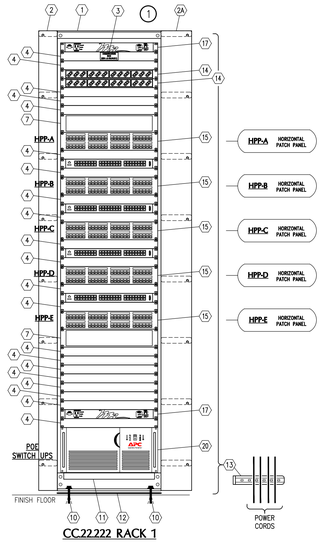
NORTH

SCALE: 1/2" =1'-0"

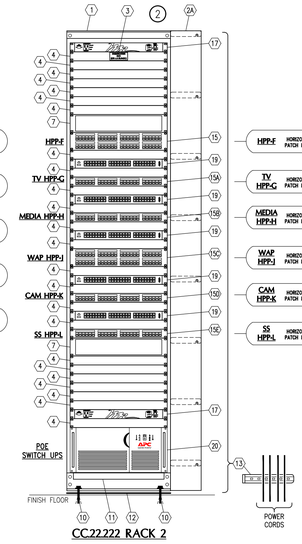


TYPICAL CC GROUNDING BUSBAR DETAIL

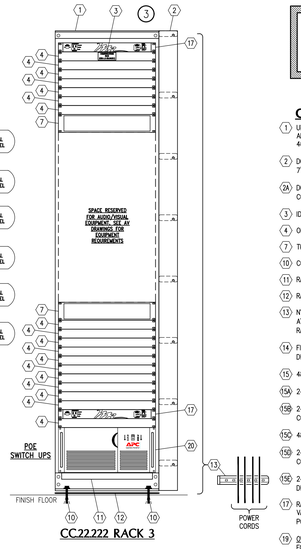
NOT TO SCALE



CC22.222 RACK 1



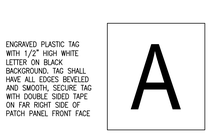
CC22.222 RACK 2



CC22.222 RACK 3

COMMUNICATIONS RACK ELEVATIONS

SCALE: 1" = 1'-0"

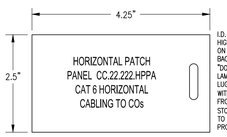


ENGRAVED PLASTIC TAG WITH 1/2" HIGH WHITE LETTER ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH, SECURE TAG WITH DOUBLE SIDED TAPE ON FAR RIGHT SIDE OF PATCH PANEL FRONT FACE

TYPICAL HORIZONTAL PATCH PANEL ENGRAVED TAG DETAIL

NOT TO SCALE

SEE "COMMUNICATIONS TYPICAL LABELING DETAILS"

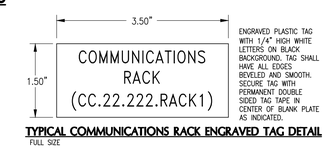


I.D. TAG WITH 0.15" HIGH BLACK LETTERS ON WHITE BACKGROUND. GBC "DOCUSEAL" LAMINATING POUCH, LUGGAGE TAG SIZE WITH LOOP (AVAILABLE FROM OFFICE SUPPLY STORES). USE LOOP TO SECURE TO PROTECTOR.

TYPICAL HORIZONTAL PATCH PANEL LAMINATED I.D. TAG DETAIL

NOT TO SCALE

SEE "COMMUNICATIONS TYPICAL LABELING DETAILS"



ENGRAVED PLASTIC TAG WITH 1/4" HIGH WHITE LETTERS ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH. SECURE TAG WITH PERMANENT DOUBLE SIDED TAG TAPE IN CENTER OF BLANK PLATE AS INDICATED.

TYPICAL COMMUNICATIONS RACK ENGRAVED TAG DETAIL

FULL SIZE

Graphic Scale

2 1 0 2FT 4FT

SCALE: 1/2" = 1'-0"

Graphic Scale

1 .5 0 1FT 2FT

SCALE: 1" = 1'-0"

COMMUNICATIONS RACK ELEVATION KEY NOTES:

1. UNIVERSAL 7'-6" HIGH x 19" WIDE ALUMINUM FLOOR MOUNT RACK WITH UNIVERSAL 5/8", 5/8", 1/2" ALTERNATING HOLE PATTERN FRONT AND BACK, AND BLACK BAKED ENAMEL FINISH, CHATSWORTH 46353-705. PROVIDE WITH GROUND TERMINAL BLOCK, CHATSWORTH 08009-001.
2. DOUBLE SIDED VERTICAL CABLE MANAGER WITH INTEGRAL HINGED FRONT DOOR/COVER, SIZE 3.65" x 7'-6", COLOR BLACK, CHATSWORTH 'CCS' 30161-705.
2A. DOUBLE SIDED VERTICAL CABLE MANAGER WITH INTEGRAL HINGED FRONT DOOR/COVER, SIZE 6" x 7'-6", COLOR BLACK, CHATSWORTH 'CCS' 30162-705.
3. IDENTIFICATION TAG AT TOP OF RACK, SEE "TYPICAL COMMUNICATIONS RACK ENGRAVED TAG DETAIL".
4. ONE RACK SPACE BLANK FILLER PLATE, COLOR BLACK, CHATSWORTH 30026-701.
7. TWO RACK SPACE HINGED HORIZONTAL CABLE MANAGER ON FRONT SIDE OF RACK, PANDUIT WMPHF2E.
10. CONCRETE FLOOR RACK MOUNTING KIT, CHATSWORTH 40604-001.
11. RACK BASE DUST COVER, BLACK ENAMEL FINISH, CHATSWORTH 41050-719.
12. RACK ISOLATION KIT, CHATSWORTH 10605-019.
13. NYLON CABLE STANDOFF BRACKET, CHATSWORTH 10001-001. MOUNT ON BACK LEFT SIDE OF ALL RACKS AT 12" ON CENTER FOR ROUTING GROUNDING CONDUCTORS AND POWER EXTENSION CORDS UP AND DOWN RACKS. TYWRAP EACH CONDUCTOR AND CORD INDIVIDUALLY ON STANDOFF. (NOT SHOWN ON ELEVATIONS)
14. FIBER DRAWER FOR BACKBONE CABLES, 24 PORT, RACK MOUNT. SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15. 48 PORT SHARED HORIZONTAL PATCH PANEL (HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15A. 24 PORT TV HORIZONTAL PATCH PANEL (TV-HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15B. 24 PORT MEDIA SERVICES HORIZONTAL PATCH PANEL (MEDIA-HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15C. 48 PORT WAP HORIZONTAL PATCH PANEL (WAP-HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15D. 24 PORT SECURITY CAMERA HORIZONTAL PATCH PANEL (CAM-HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
15E. 24 PORT SPECIAL SERVICES HORIZONTAL PATCH PANEL (SS-HPP), SEE "DATA SINGLE LINE CONFIGURATION DIAGRAM".
17. RACKMOUNT POWER SURGE SUPRESSOR, MIDDLE ATLANTIC PD-920R-SP, COLOR BLACK, WITH EIGHT 120 VAC POWER RECEPTACLES ON BACK OF UNIT, ONE 120 VAC CONVENIENCE OUTLET ON FRONT, FRONT POWER SWITCH, AND 9' POWER CORD.
19. OWNER FURNISHED CONTRACTOR INSTALLED (OFCI): 48 OR 24 PORT POE ETHERNET WORKGROUP SWITCH FOR DATA, VOIP, WAP AND IP SECURITY CAMERA CONNECTIONS. SEE "DATA SYSTEM SINGLE LINE CONFIGURATION DIAGRAM". WHERE EQUIPMENT VARIES IN SIZE OR QUANTITY FROM THAT INDICATED, PROVIDE BLANK FILLER PLATES TO COVER ALL UNUSED RACK SPACES.
20. SCSC PROVIDE: AMERICAN POWER CONVERSION SMX3000LVNC (4 RACK UNITS HIGH - 2 POST MOUNTING) 3000 VA RACK MOUNT UPS, (QUANTITY ONE PER RACK - FOR POE ETHERNET WORKGROUP SWITCHES), PROVIDE WITH FACTORY NETWORK CARD. ELECTRICAL CONTRACTOR PROVIDE RACK MOUNT 120 VAC L5-30R 30 AMP DEDICATED CIRCUIT RECEPTACLE FOR EACH UPS. SEE "TYPICAL POWER CONDUIT TO UPS 30 AMP POWER OUTLET DETAIL" AND "TYPICAL 3000 VA UPS 30 AMP POWER OUTLET MOUNTING DETAIL" DETAILS, THIS SHEET.

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NOT FOR CONSTRUCTION

BID DOCUMENTS

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Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

NO.	DESCRIPTION	DATE
	ADDENDUM	09/19/2025

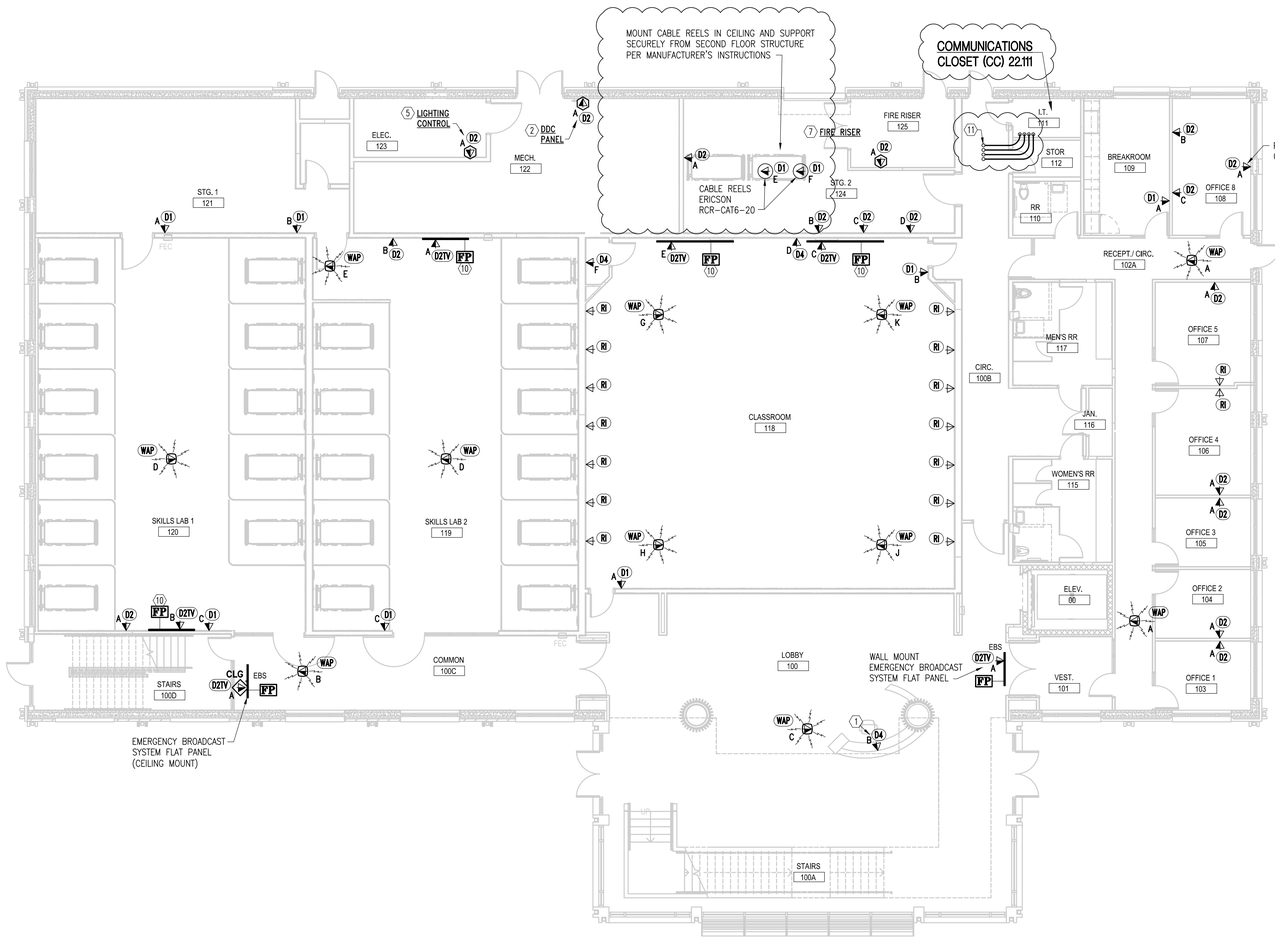
Project Number	25004
Dated	08.29.2025

BICSI Gregory A. Cook BICSI ID # 104998 EXPIRES 12-31-27

RECOGNIZED COMMUNICATIONS DISTRIBUTION DESIGNER RCDD

CC ENLARGED FLOOR PLANS & RACK ELEVATIONS

T-501



NORTH

COMMUNICATIONS FLOOR PLAN - LEVEL 1 - BID-ALT #4

SCALE: 1/8" = 1'-0"

BID ALTERNATE #4 NOTE

PROVIDE SEPARATE COST FOR BID ALTERNATE #4 BASED ON SHEETS T-801 AND T-802. ALL NOTES, LEGEND, ABBREVIATIONS AND KEY NOTES INDICATED ON T-201 AND T-202 APPLY TO WORK UNDER BID ALTERNATE #4. ALL WORK INDICATED ON OTHER SHEETS APPLIES TO WORK UNDER BID ALTERNATE #4 UNLESS SPECIFICALLY INDICATED OTHERWISE.

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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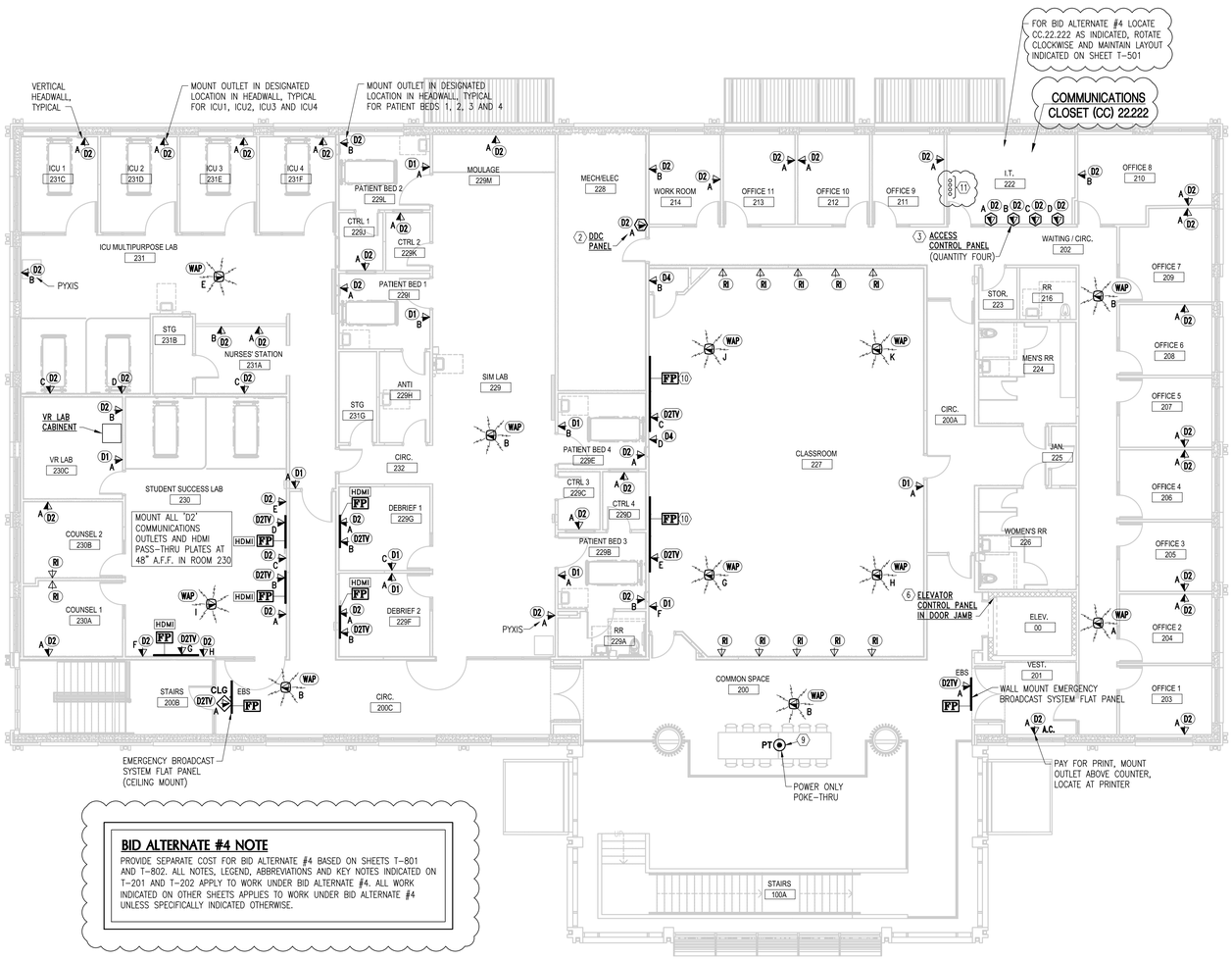
BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27
RCDD

COMMUNICATIONS FLOOR PLAN
LEVEL 1 - BID-ALT #4

T-801



BID ALTERNATE #4 NOTE

PROVIDE SEPARATE COST FOR BID ALTERNATE #4 BASED ON SHEETS T-801 AND T-802. ALL NOTES, LEGEND, ABBREVIATIONS AND KEY NOTES INDICATED ON T-201 AND T-202 APPLY TO WORK UNDER BID ALTERNATE #4. ALL WORK INDICATED ON OTHER SHEETS APPLIES TO WORK UNDER BID ALTERNATE #4 UNLESS SPECIFICALLY INDICATED OTHERWISE.

COMMUNICATIONS FLOOR PLAN - LEVEL 2 - BID-ALT #4

NORTH

SCALE: 1/8" = 1'-0"

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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BICSI Gregory A. Cook BICSI ID # 1049998 Expires 12-31-27 RCDD

COMMUNICATIONS FLOOR PLAN LEVEL 2 - BID-ALT #4

T-802

INTERIOR WALL PENETRATION NOTES

FIRE-RATED WALLS AND FLOORS – SEE "FIRESTOPPING NOTES" THIS SHEET.

INTERIOR NON FIRE-RATED WALLS – ALL PENETRATIONS OF WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE AND ARE NOT IDENTIFIED AS FIRE RATED WALLS ON THE ARCHITECTURAL DRAWINGS SHALL BE SLEEVED, REPAIRED AND COMPLETELY SEALED WITH MATERIALS TO MATCH THE WALL CONSTRUCTION.

FIRESTOPPING NOTES

THE CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF SECOND FLOOR CONSTRUCTION, ALL PENETRATIONS OF WALLS THAT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE, AND ALL PENETRATIONS OF ALL WALLS INDICATED AS FIRE RATED ON THE ARCHITECTURAL DRAWINGS. ACCOMPLISH FIRESTOPPING USING UL CLASSIFIED SYSTEMS WITH FIRE RATING EQUAL TO OR GREATER THAN THE FIRE RATING OF THE FLOOR OR WALL ASSEMBLY PENETRATED. FIRESTOP SYSTEMS SHALL BE 3M, NELSON OR ENGINEER APPROVED EQUAL. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND THE CONDITIONS OF THE UL APPROVAL FOR EACH FIRESTOP SYSTEM USED.

ALL PENETRATIONS OF WALLS INDICATED AS SMOKE WALLS ON THE ARCHITECTURAL DRAWINGS AND ALL PENETRATIONS OF WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE SHALL BE SEALED SMOKETIGHT AND ACOUSTICALLY WITH SMOKE-SOUND CAULKING UL LISTED FOR THE PURPOSE SUCH AS USG FIRECODE, STI SMOKE 'N' SOUND, OR HILTI CP 506.

THE CONTRACTOR SHALL SUBMIT DETAILS FOR EACH DIFFERENT TYPE OF FIRESTOP ASSEMBLY REQUIRED FOR THIS PROJECT TO THE BUILDING OFFICIAL FOR APPROVAL PRIOR TO INSTALLATION. EACH DETAIL SHALL INCLUDE THE TEST ASSEMBLY NUMBER AND A DESCRIPTION OF THE MATERIALS TO BE USED. HAVE APPROVED FIRESTOPPING DETAILS AVAILABLE AT PROJECT SITE AT TIME OF THE BUILDING OFFICIAL INSPECTION.

ADA ACCESSIBLE OPERATION - DOOR 100

THE GENERAL CONTRACTOR AND ALUMINUM STOREFRONT PROVIDER SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL HARDWARE REQUIRED TO MAKE SECURE DOOR 100 ADA WHEELCHAIR ACCESSIBLE, INCLUDING BUT NOT LIMITED TO INDOOR PUSHPLATE, OUTDOOR PUSHPLATE, AND ELECTRIC DOOR OPERATORS ALONG WITH ALL COMPONENTS, FEATURES AND FUNCTIONS AND ALL SAFETIES REQUIRED BY APPLICABLE CODES AND THE LOCAL AHJ. GC CLOSELY COORDINATE REQUIREMENTS WITH THE ARCHITECT, OWNER AND AHJ.

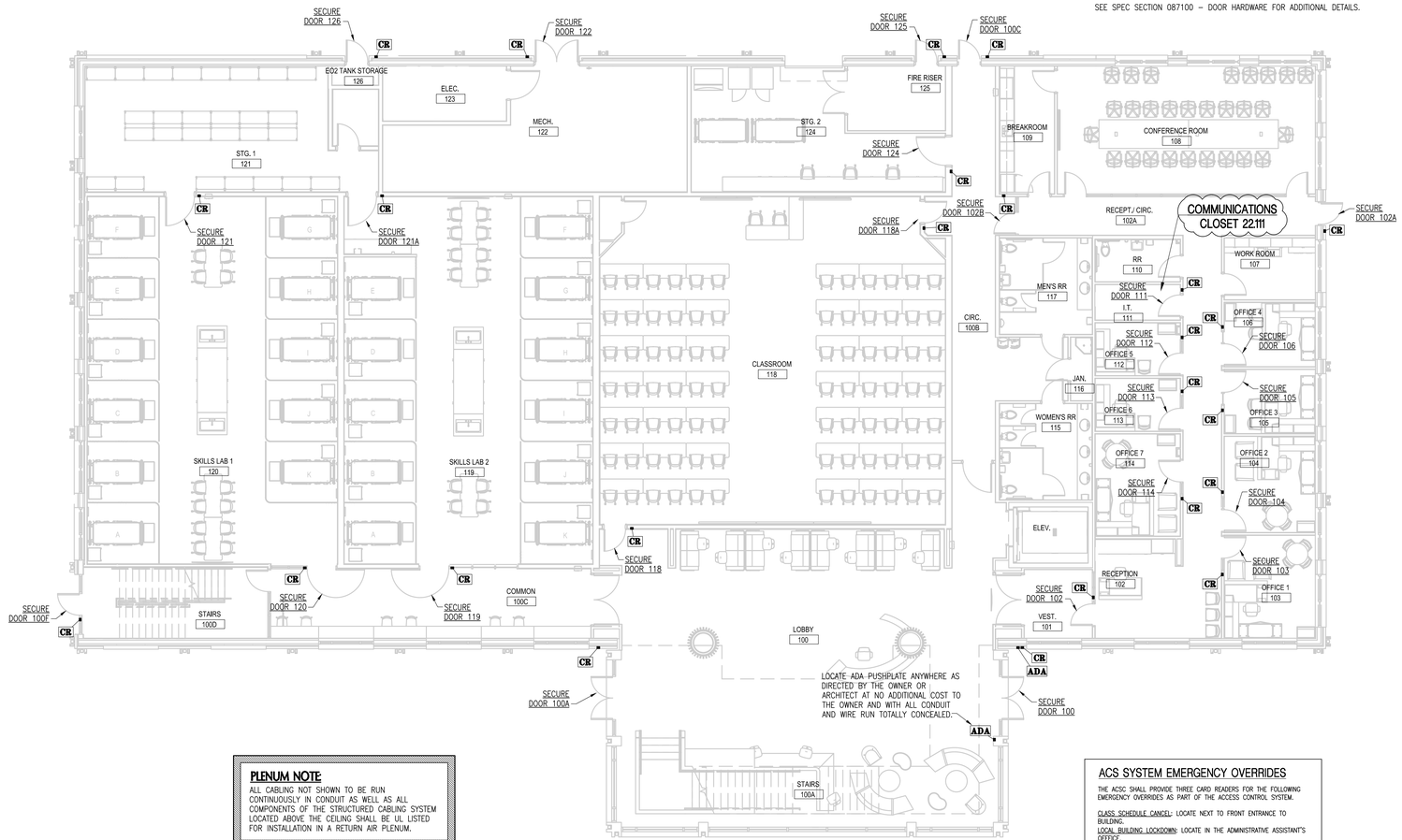
ADA ACCESSIBILITY SYSTEM IS NOT PART OF THE SECURITY ACCESS CONTROL SYSTEM BUT THE ACCESS CONTROL SYSTEM CONTRACTOR AND THE ELECTRICAL CONTRACTOR SHALL WORK TOGETHER TO PROVIDE AN INTERFACE TO THE ACCESS CONTROL SYSTEM AS DESCRIBED BELOW.

THE ELECTRICAL CONTRACTOR SHALL WIRE AUTOMATIC DOOR OPERATORS, WALL ACTUATORS (ADA PUSHPLATES), HEADER MOUNTED SAFETY SENSORS, DOOR MOUNTED SAFETY SENSORS, AND ANY AND ALL OTHER COMPONENTS AND SAFETIES REQUIRING ELECTRICAL CONNECTIONS, EXCEPT FOR LOW VOLTAGE ACCESS CONTROL SYSTEM WIRING PROVIDED BY THE ACCESS CONTROL SYSTEM CONTRACTOR (ACSC) FOR THE ACCESS CONTROL SYSTEM INTERFACE DESCRIBED BELOW, ALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED BY THE GENERAL CONTRACTOR AND THE DOOR HARDWARE SPECIALTY SUBCONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE AN INDUSTRIAL GRADE HOUSED INTERFACE RELAY FOR CONNECTION TO THE ACCESS CONTROL SYSTEM. SEE ELECTRICAL DRAWINGS.

THE ACSC SHALL PROVIDE AN INTERFACE BETWEEN THE ACCESS CONTROL SYSTEM AND DOOR 100 IN COORDINATION WITH THE GENERAL AND ELECTRICAL CONTRACTORS, FOR OPERATION OF THE DOORS AS FOLLOWS:

THE RIGHT HAND RETURN LEAF OF DOOR 100 SHALL OPEN AUTOMATICALLY UPON DEPRESSION OF INDOOR ADA PUSHPLATE, OR THE DOOR LEAF SHALL OPEN AUTOMATICALLY UPON DEPRESSION OF OUTDOOR ADA PUSHPLATE ONLY WHEN 1) A VALID CARD CREDENTIAL IS PRESENTED AT CARD READER AND ENTRY IS AUTHORIZED OR 2) THE DOOR IS ELECTRICALLY UNLOCKED BY REGULAR SCHEDULE OR 3) THE DOOR IS ELECTRICALLY OR MECHANICALLY (KEY) UNLOCKED FOR TIME LIMITED SPECIAL EVENTS.

SEE SPEC SECTION 087100 – DOOR HARDWARE FOR ADDITIONAL DETAILS.



PLENUM NOTE

ALL CABLING NOT SHOWN TO BE RUN CONTINUOUSLY IN CONDUIT AS WELL AS ALL COMPONENTS OF THE STRUCTURED CABLING SYSTEM LOCATED ABOVE THE CEILING SHALL BE UL LISTED FOR INSTALLATION IN A RETURN AIR PLENUM.

ACS SYSTEM EMERGENCY OVERRIDES

THE ACSC SHALL PROVIDE THREE CARD READERS FOR THE FOLLOWING EMERGENCY OVERRIDES AS PART OF THE ACCESS CONTROL SYSTEM.

CLASS SCHEDULE CANCEL: LOCATE NEXT TO FRONT ENTRANCE TO BUILDING.
LOCAL BUILDING LOCKDOWN: LOCATE IN THE ADMINISTRATIVE ASSISTANT'S OFFICE.
CAMPUS-WIDE LOCKDOWN: LOCATE IN THE BREAKROOM OR COPIER ROOM.

STOREFRONT NOTE

MOUNT CARD READERS FLUSH IN WALL EXCEPT WHERE SHOWN TO BE MOUNTED IN STOREFRONT OR WINDOW WALL FRAMING OR WHERE SPECIFICALLY DIRECTED TO BE MOUNTED IN STOREFRONT FRAMING BY THE OWNER. GENERAL CONTRACTOR AND ACSC REQUEST DIRECTION FROM THE OWNER PRIOR TO COMMENCEMENT OF ANY RELATED ROUGH-IN WORK AND REVIEW EACH SECURE DOOR INSTALLATION. WHERE STOREFRONT MOUNTING IS REQUIRED SEE "GENERAL CONDUIT NOTES – ACCESS CONTROL SYSTEM" NOTE 3 SHEET ACS-301 AND ACSC PROVIDE NARROW STILE CARD READER. THE GENERAL CONTRACTOR AND STOREFRONT OR WINDOW WALL SYSTEM INSTALLER SHALL PROVIDE THE ELECTRICAL CONTRACTOR ACCESS TO THE STOREFRONT OR WINDOW WALL FRAMING TO RUN ASSOCIATED CONDUIT AS EACH SECURE DOOR IS INSTALLED, AND SHALL PROVIDE THE ACSC ACCESS TO THE STOREFRONT OR WINDOW WALL FRAMING TO RUN ASSOCIATED WIRING AS EACH SECURE DOOR IS INSTALLED.

GENERAL LABELING NOTE

FINAL DOOR NUMBERS SHALL BE BASIS FOR SYSTEM LABELING AND PROGRAMMING AND SHALL BE THE SAME AS FINAL ROOM NUMBERS USED FOR ROOM SIGNAGE. FINAL NUMBERING/LABELING SCHEME FOR DOORS AND OTHER SECURITY DEVICES SHALL BE WORKED OUT IN CLOSE COORDINATION WITH THE OWNER'S PROJECT MANAGER AND ARCHITECT.

CR LOCATION NOTE

CARD READER LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND INTENDED ONLY TO SHOW DOOR SERVED AND UNSECURE SIDE MOUNTING. THE OWNER'S PROJECT MANAGER WILL LOCATE ALL CARD READERS IN THE FIELD ANYWHERE IN THE GENERAL VICINITY OF THE DOOR SERVED AT NO ADDITIONAL COST TO THE OWNER. GENERAL CONTRACTOR, EC AND ACCESS CONTROL SYSTEM CONTRACTOR COORDINATE FINAL LOCATIONS WITH OWNER AND ARCHITECT PRIOR TO BEGINNING ROUGH-IN. DEVICE HEIGHTS SHALL BE AS DIRECTED BY THE ARCHITECT.

CLASSROOM 227 — ARCHITECT'S ROOM NUMBER, SEE "GENERAL LABELING NOTE"

ACS — ACCESS CONTROL SYSTEM PANEL WITH INTEGRAL POWER SUPPLY, SEE T SHEETS FOR NETWORK CONNECTION SERVING EACH ACS PANEL

CR — CARD READER

LDC — LOCKDOWN – ENTIRE CAMPUS

LDB — LOCKDOWN – NURSING BUILDING ONLY

ADA — ADA ACCESSIBILITY PUSHPLATE

ACCESS CONTROL SYSTEM LEGEND

ABBREVIATIONS

CER	COMMUNICATIONS EQUIPMENT ROOM
CC	COMMUNICATIONS CLOSET
ACS	ACCESS CONTROL SYSTEM
ACSC	ACCESS CONTROL SYSTEM CONTRACTOR
SCSC	STRUCTURED CABLING SYSTEM CONTRACTOR
EC	ELECTRICAL CONTRACTOR
CM/GC	CONSTRUCTION MANAGER

LOCKDOWN & CLASS SCHEDULE CANCEL NOTES

TIE ALL SECURE DOORS INSTALLED UNDER THIS PROJECT TO THE SYSTEM LOCKDOWNS AND CLASS SCHEDULE CHANGE UNLESS OTHERWISE DIRECTED BY THE OWNER.

LOCAL BUILDING LOCKDOWN:
THE ACCESS CONTROL SYSTEM SHALL IMMEDIATELY ELECTRICALLY LOCK ALL SECURE DOORS IN THE NURSING SIMULATOR BUILDING UPON ACTIVATION OF THE LOCAL BUILDING LOCKDOWN CARD READER BY AUTHORIZED PERSONNEL. READER LOCATION ADMINISTRATIVE ASSISTANT'S OFFICE. EXACT LOCATION SHALL BE ANYWHERE AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

CAMPUS LOCKDOWN:
THE ACCESS CONTROL SYSTEM SHALL IMMEDIATELY ELECTRICALLY LOCK ALL SECURE DOORS CAMPUS-WIDE UPON ACTIVATION OF THE CAMPUS LOCKDOWN CARD READER BY AUTHORIZED PERSONNEL. READER LOCATION BREAKROOM OR COPIER ROOM. EXACT LOCATION SHALL BE ANYWHERE AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

CLASS SCHEDULE CANCEL:
THE ACCESS CONTROL SYSTEM SHALL IMMEDIATELY CANCEL THE CURRENT CLASS SCHEDULE FOR THE NURSING SIMULATOR BUILDING UPON ACTIVATION OF THE CLASS SCHEDULE CARD READER BY AUTHORIZED PERSONNEL. READER LOCATION NEAR FRONT ENTRANCE TO BUILDING. EXACT LOCATION SHALL BE ANYWHERE AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

LOCATE READERS ANYWHERE IN THE NURSING SIMULATOR BUILDING AS DIRECTED BY THE OWNER'S PROJECT MANAGER AT NO ADDITIONAL COST TO THE OWNER. INITIAL LOCATIONS LISTED ABOVE ARE SUBJECT TO CHANGE.

THE LOCKDOWNS SHALL BE RELEASED AND SECURE DOORS PLACED IN NORMAL STATUS FOR THE THEN CURRENT TIME ONLY WHEN SO COMMANDED THRU THE VANDERBILT ACCESS CONTROL SYSTEM.

ALL SECURE DOORS WITH ELECTRIC LOCKING DEVICES SHALL FAIL SECURE UPON LOSS OF POWER FOR ANY REASON. MECHANICAL FREE EGRESS SHALL ALWAYS BE AVAILABLE AT ALL SECURE DOORS.

ACCESS CONTROL SYSTEM FLOOR PLAN - LEVEL 1

NORTH

SCALE: 1/8" = 1'-0"

NO EXPOSED CONDUIT OR CABLE NOTE

EXPOSED CONDUIT, CABLE, POWER TRANSFERS, FLEX CONDUIT, OR FLEXIBLE DOOR CORDS ARE NOT ALLOWED AT ANY SECURE DOOR INSTALLATION. THE GC/CM SHALL WORK WITH THE ELECTRICAL CONTRACTOR AND ACCESS CONTROL SYSTEM CONTRACTOR TO PROVIDE A CONCEALED CONDUIT PATH FROM EACH DOOR TO THE SERVING CC AND SHALL INCLUDE ALL ASSOCIATED WORK IN THE BASE BID.

IN ADDITION SEE NOTES PROHIBITING EXPOSED CONDUIT OR CABLING AT AREAS WITH EXPOSED ROOF STRUCTURE OR ARCHITECTURAL ORNAMENTAL CEILING WITH NO CEILING CAVITY. PROVIDE BURIAL GRADE CABLES IN ALL UNDERGROUND CONDUITS.

PROJECT NOTE (ALL SHEETS)

ALL MATERIALS AND EQUIPMENT INDICATED AND REQUIRED FOR A COMPLETE AND FINISHED INSTALLATION SHALL BE NEW AND SHALL BE PROVIDED BY THE CONTRACTOR UNDER THIS PROJECT UNLESS SPECIFICALLY INDICATED TO BE PROVIDED BY OTHERS.

SECURE SIDE MOUNTING

ALL CABLE AND CONDUIT AT SECURE DOORS SHALL BE CONCEALED AND SHALL BE INSTALLED ON THE SECURE SIDE OF DOOR (SIDE OPPOSITE CARD READER).

CARD READER NOTES

CARD READERS SHALL BE HID 5395 WHERE INSTALLED IN WALLS AND HID 5365 NARROW STILE ONLY WHERE INSTALLED IN ALUMINUM STOREFRONT FRAMING OR OTHER SIMILAR NARROW APPLICATIONS. ALL CARD READERS SHALL BE INSTALLED USING FACTORY MOUNTING PLATE SUPPLIED WITH READER. PROVIDE CARD READERS STANDARD WITH THE COLLEGE AT THE TIME OF PROJECT MATERIAL SUBMITTALS AND FULLY COMPATIBLE WITH THE LIFE SAFETY POWER ACS PANELS, THE VANDERBILT SYSTEM, READER CARDS AND CONTROLLERS, THE OWNER ISSUED CARDS, AND THE SYSTEM AS A WHOLE AT NO ADDITIONAL COST TO THE OWNER. THE OWNER WILL PROVIDE FINAL DIRECTION ON THE CARD READERS TO USE – CONTRACTOR TO REQUEST THAT INFORMATION IN WRITING.

ELECTRICAL CONTRACTOR PROVIDE SINGLE GANG DEEP WALL BOX FOR ALL CARD READERS INSTALLED IN WALLS UNLESS OTHERWISE DIRECTED BY ACCESS CONTROL SYSTEM CONTRACTOR. PROVIDE MASONRY BOX WHERE MOUNTED IN BRICK. UNDER NO CIRCUMSTANCES SHALL OVERSIZE OPENINGS BE COVERED WITH PLATES AND THE DEVICES MOUNTED ON THE PLATES. BRICK AND ALL OTHER WALL FINISH OPENINGS SHALL BE COMPLETELY COVERED AND CONCEALED BY THE CARD READER. MAKE INSTALLATION OF ALL EXTERIOR CARD READERS WATERTIGHT.

Graphic Scale
8 4 0 8FT 16FT
SCALE: 1/8" = 1'-0"

BICSI COMMUNICATIONS DISTRIBUTION DESIGNER
Gregory A. Cook
BICSI ID # 104998
Expires 12-31-27
REGISTERED RCDD

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GULF COAST STATE COLLEGE

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PANAMA CITY, FL, 32401

REVISIONS

NO	DESCRIPTION	DATE
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Project Number 25004
Dated 08.29.2025

ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 1

ACS-101

NORTH

ACCESS CONTROL SYSTEM FLOOR PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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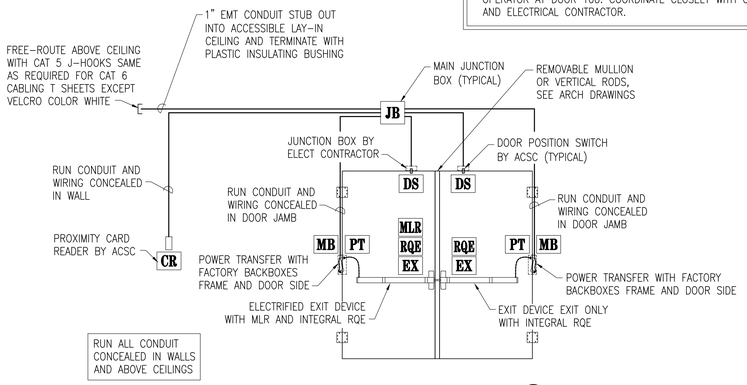
BICSI Registered Communications Distribution Designer RCDD
Gregory A. Cook
BICSI ID # 104998
Expires 12-31-27

ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 2

ACS-102

ADA ACCESSIBLE DOOR 100 NOTE

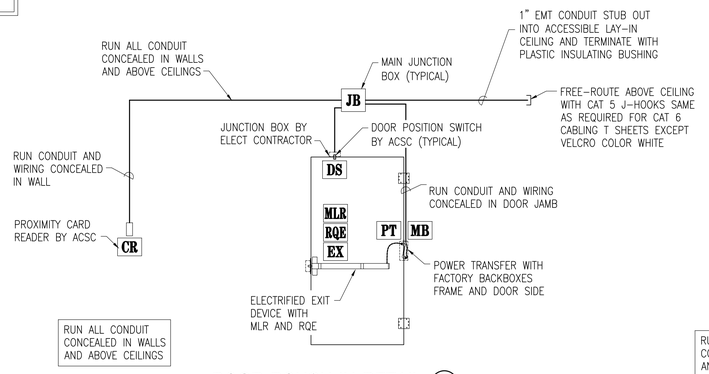
SEE "ADA ACCESSIBLE OPERATION – DOOR 100 SHEET ACS–101 FOR INTERFACE REQUIREMENTS BETWEEN THE ACCESS CONTROL SYSTEM AND THE ACTUATORS AND AUTOMATIC DOOR OPERATOR AT DOOR 100. COORDINATE CLOSELY WITH CM/GC AND ELECTRICAL CONTRACTOR.



DOOR ROUGH-IN DETAIL 1

N.T.S.

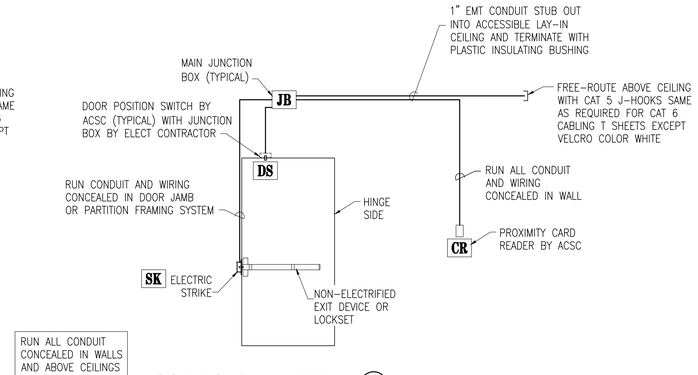
SECURE DOUBLE DOOR WITH ELECTRIFIED EXIT DEVICE



DOOR ROUGH-IN DETAIL 2

N.T.S.

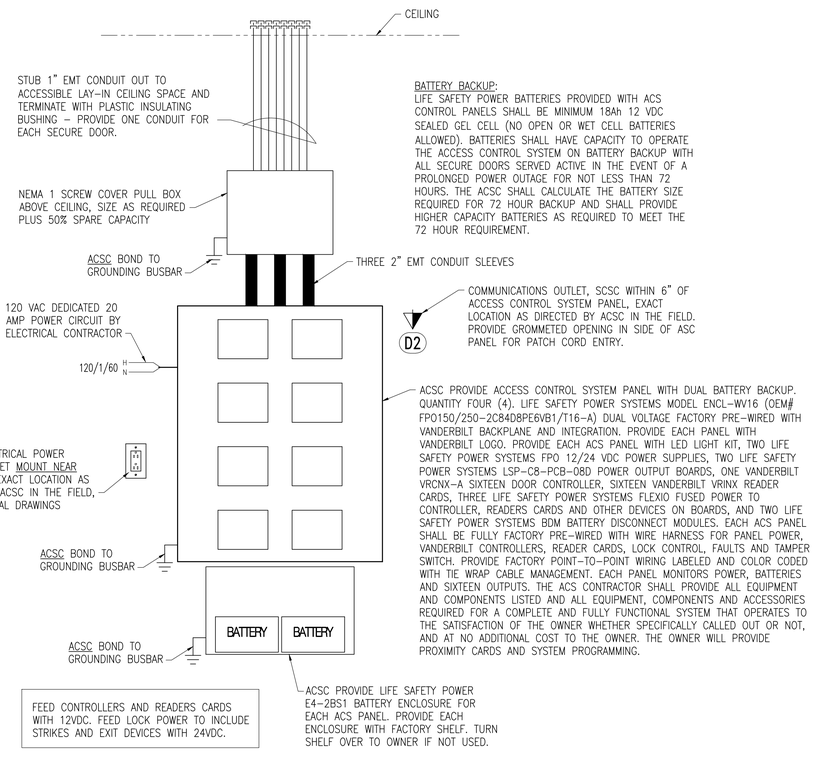
SECURE SINGLE DOOR WITH ELECTRIFIED EXIT DEVICE



DOOR ROUGH-IN DETAIL 3

N.T.S.

SECURE SINGLE DOOR WITH ELECTRIFIED STRIKE



BATTERY BACKUP:
LIFE SAFETY POWER BATTERIES PROVIDED WITH ACS CONTROL PANELS SHALL BE MINIMUM 18ah 12 VDC SEALED GEL CELL (NO OPEN OR WET CELL BATTERIES ALLOWED). BATTERIES SHALL HAVE CAPACITY TO OPERATE THE ACCESS CONTROL SYSTEM ON BATTERY BACKUP WITH ALL SECURE DOORS SERVED ACTIVE IN THE EVENT OF A PROLONGED POWER OUTAGE FOR NOT LESS THAN 72 HOURS. THE ACSC SHALL CALCULATE THE BATTERY SIZE REQUIRED FOR 72 HOUR BACKUP AND SHALL PROVIDE HIGHER CAPACITY BATTERIES AS REQUIRED TO MEET THE 72 HOUR REQUIREMENT.

TYPICAL ACCESS CONTROL SYSTEM PANEL DETAIL

NOT TO SCALE

SECURE SIDE MOUNTING

ALL CONDUIT AT SECURE DOORS SHALL BE INSTALLED ON THE SECURE SIDE (SIDE OPPOSITE CARD READER).

DOOR POSITION SWITCH NORMALLY OPEN

DOOR POSITION SWITCHES SHALL BE DORMAKABA MC4 OR SDC MC–4. DOOR POSITION SWITCHES SHALL BE NORMALLY OPEN. EACH DPS SHALL BE HELD IN CLOSED POSITION BY MAGNET WHEN DOOR IS CLOSED AND MAGNET IS WITHIN MANUFACTURER'S SPECIFIED GAP DISTANCE FROM SWITCH. DPS SHALL MOVE TO OPEN POSITION WHEN DOOR IS OPENED (CIRCUIT IS OPENED AND CURRENT DOES NOT FLOW). CIRCUIT IS ALSO OPENED IF WIRE IS CUT. OPEN CIRCUIT SHALL GENERATE ALARM STATE UNLESS RQE IS SIGNALED.

ACS ALL CONCEALED ROUGH-IN NOTE

THE ACCESS CONTROL SYSTEM ROUGH–IN AND WIRING SHALL BE INSTALLED TOTALLY CONCEALED AND RECESSED IN WALLS AND ABOVE CEILINGS. CARD READERS SHALL BE FLUSH MOUNTED ON WALL FINISH. UNDER NO CIRCUMSTANCES WILL EXPOSED WIRE, CONDUIT, SURFACE RACEWAY, SURFACE BOXES, OR FLEXIBLE DOOR LOOP CORDS BE ALLOWED.

TYPICAL SECURE SINGLE DOOR OPERATION

PRESENTING VALID CREDENTIAL TO CARD READER TIED TO ACCESS CONTROL SYSTEM SIGNALS TIMED ELECTRIC UNLOCKING OF THE ELECTRIFIED EXIT DEVICE OR ELECTRIFIED LOCKSET. ELECTRIC LOCKING MECHANISM SHALL ALWAYS FAIL SECURE (LOCKS ON LOSS OF POWER). DOOR POSITION SWITCH TIED TO THE INTRUSION ALARM SYSTEM MONITORS STATUS OF DOOR LEAF FOR DOOR HELD OPEN OR UNAUTHORIZED ENTRY. AT ALL EXTERIOR DORS REQUEST–TO–EXIT SWITCH INTERNAL TO EXIT DEVICE OR LOCKSET AND TIED TO THE INTRUSION ALARM SYSTEM IS ACTIVATED UPON EXITING THROUGH DOOR LEAF FROM THE SECURE SIDE SIGNALING AUTHORIZED EXITING. MECHANICAL FREE EGRESS FROM THE SECURE SIDE SHALL ALWAYS BE POSSIBLE.

TYPICAL SECURE DOUBLE DOOR OPERATION

PRESENTING VALID CREDENTIAL TO CARD READER TIED TO ACCESS CONTROL SYSTEM SIGNALS TIMED ELECTRIC UNLOCKING OF THE ACTIVE LEAF ELECTRIFIED EXIT DEVICE OR ELECTRIFIED LOCKSET. ELECTRIC LOCKING MECHANISM IN ACTIVE LEAF SHALL ALWAYS FAIL SECURE (LOCKS ON LOSS OF POWER). DOOR POSITION SWITCHES TIED TO THE INTRUSION ALARM SYSTEM MONITOR STATUS OF EACH DOOR LEAF FOR DOOR HELD OPEN OR UNAUTHORIZED ENTRY. AT ALL EXTERIOR DOORS REQUEST–TO–EXIT SWITCHES INTERNAL TO EXIT DEVICES OR LOCKSET AND TIED TO THE INTRUSION ALARM SYSTEM ARE ACTIVATED UPON EXITING THROUGH EITHER DOOR LEAF FROM THE SECURE SIDE SIGNALING AUTHORIZED EXITING. MECHANICAL FREE EGRESS FROM THE SECURE SIDE SHALL ALWAYS BE POSSIBLE THRU EITHER LEAF.

DOOR ORIENTATION NOTE:

RIGHT HAND/LEFT HAND ORIENTATION FOR EACH DOOR SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS – DOOR LAYOUTS INDICATED ON THIS SHEET ARE DIAGRAMMATIC AND NOT INTENDED TO PROVIDE CORRECT ORIENTATION.

MOUNTING HEIGHTS:

DOOR LAYOUTS INDICATED ON THIS SHEET ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW CORRECT HEIGHTS FOR DEVICES – COORDINATE MOUNTING HEIGHTS WITH ARCHITECT AND MOUNT AT CONSISTENT HEIGHTS – COMPLY WIITH ADA.

ABBREVIATIONS

CER	COMMUNICATIONS EQUIPMENT ROOM
CC	COMMUNICATIONS CLOSET
ACS	ACCESS CONTROL SYSTEM
ACSC	ACCESS CONTROL SYSTEM CONTRACTOR
SCSC	STRUCTURED CABLING SYSTEM CONTRACTOR
EC	ELECTRICAL CONTRACTOR
CM/GC	CONSTRUCTION MANAGER

ACCESS CONTROL SYSTEM LEGEND

BB	BATTERY BACKUP	MB	MORTAR BOX
CR	CARD READER	MLR	MOTORIZED LATCH RETRACTION
DS	DOOR POSITION SWITCH	PS	POWER SUPPLY
SK	ELECTRIFIED STRIKE	PT	POWER TRANSFER
EX	RIM EXIT DEVICE	RQE	REQUEST TO EXIT
JB	JUNCTION BOX	(1)	DOOR DETAIL NUMBER

EMERGENCY NOTIFICATION NOTE

THE ACS CONTRACTOR SHALL PROVIDE ALL WORK REQUIRED TO TIE THE ACCESS CONTROL SYSTEM INSTALLED UNDER THIS PROJECT TO THE CAMPUS INTRUSION ALARM SYSTEM TO IMMEDIATELY SEND EMERGENCY NOTIFICATION TO OWNER DESIGNATED RECEIVING STATIONS OF AN INTRUSION ALARM OR LOCKDOWN EVENT. IN ADDITION THE ACSC SHALL REPORT ALARM EVENTS TO OWNER DESIGNATED DISTRICT EMPLOYEES OR OTHER INDIVIDUALS OR COMPANIES BY ANY COMBINATION OF TEXT, EMAIL OR OTHER NOTIFICATION METHOD AS DIRECTED BY THE OWNER.

ALARM REPORTING

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NOT FOR CONSTRUCTION

BID DOCUMENTS

Premier Engineering Group, LLC
Florida Certificate of Authorization #9308
Premier Project #25012

GULF COAST STATE COLLEGE

GCSC NURSING SIM. CENTER

5230 US-98
PANAMA CITY, FL, 32401

REVISIONS

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	ADDENDUM	09/19/2025

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Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27

ACCESS CONTROL SYSTEM DETAILS

ACS-201

GENERAL CONDUIT NOTES - ACCESS CONTROL SYSTEM

1. RUN ALL ACCESS CONTROL SYSTEM CABLING CONTINUOUSLY IN CONDUIT AT DOOR ROUGH-IN, SEE ROUGH-IN DETAILS SHEET ACS-201. ALL INTERIOR CONDUIT SHALL BE EMT WITH STEEL SET SCREW FITTINGS (DIE CAST FITTINGS ARE NOT ALLOWABLE). CONDUIT SIZE SHALL BE 1" MINIMUM OR LARGER AS INDICATED, EXCEPT WHERE 1/2" CONDUIT IS SPECIFICALLY ALLOWED AT LOCAL DOOR DEVICES. WHERE CONDUIT SIZE IS NOT SPECIFICALLY INDICATED PROVIDE SIZE AS REQUIRED FOR EACH CONDUIT RUN WITH MAXIMUM 30% CONDUIT FILL RATE.
2. ELECTRICAL CONTRACTOR PROVIDE ALL CONDUIT AS INDICATED AND ALL ADDITIONAL CONDUIT AS REQUIRED FOR A COMPLETE SYSTEM, TO INCLUDE CONDUIT SLEEVES. THE ACS IS TO BE PROVIDED BY A SPECIALTY ACCESS CONTROL SYSTEM CONTRACTOR, SEE "ACCESS CONTROL SYSTEM CONTRACTOR" NOTE THIS SHEET. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE ASSOCIATED CONDUIT WORK TO INCLUDE ANY CONDUIT REQUIRED BY THE ACCESS CONTROL SYSTEM CONTRACTOR ALONG WITH ALL CONDUIT INDICATED ON THE DRAWINGS, AND SHALL INCLUDE AS PART OF THE BASE BID ALL SUCH CONDUIT WORK.
3. WHERE DOORS ARE MOUNTED IN A STOREFRONT SYSTEM MOUNT THE ASSOCIATED CARD READERS IN THE STOREFRONT SYSTEM UNLESS SHOWN TO BE MOUNTED IN AN ADJACENT WALL. RUN ALL WIRING IN CONDUIT PROVIDED BY THE ELECTRICAL CONTRACTOR CONCEALED IN STOREFRONT SYSTEM FRAMING. AT CONTRACTOR'S OPTION WIRING WITHIN THE STOREFRONT MAY BE RUN CONTINUOUSLY IN STAINLESS STEEL ARMORED FLEXIBLE CONDUIT, SIZE AS REQUIRED, CONNECTING TO THE EMT WITH A FITTING MADE FOR THAT PURPOSE CONCEALED IN A JUNCTION BOX ABOVE THE CEILING, BUT UNDER NO CIRCUMSTANCES SHALL ANY WIRING BE RUN WITHIN STOREFRONT FRAMING WITHOUT CONDUIT FOR PHYSICAL PROTECTION. CLOSELY COORDINATE REQUIREMENTS WITH GENERAL CONTRACTOR AND STOREFRONT SUPPLIER PRIOR TO MANUFACTURER OF STOREFRONT SYSTEM.
4. EXTEND 1" CONDUIT FROM EACH SECURE DOOR MAIN JUNCTION BOX MAIN JUNCTION BOX TO THE NEAREST ACCESSIBLE LAY-IN CEILING AND TERMINATE WITH PLASTIC INSULATING BUSHING. RUN 1/2" CONDUIT FROM MAIN JUNCTION BOX CONTINUOUS TO EACH POWER TRANSFER BACKBOX, EACH DOOR POSITION SWITCH JUNCTION BOX AND EACH CARD READER JUNCTION BOX. PROVIDE OTHER CONDUITS AS INDICATED IN DOOR DETAILS AND ELSEWHERE ON THE DRAWINGS AND AS REQUIRED BY THE ACSC.
5. RUN CONDUIT AND MOUNT MAIN JUNCTION BOXES AND POWER SUPPLIES FOR EACH SECURE DOOR ON THE SECURE SIDE OF THE DOOR SERVED IN AN ACCESSIBLE/SERVICABLE LOCATION ABOVE A LAY-IN CEILING AS CLOSE TO THE DOOR AS POSSIBLE OR IN A NEARBY ELECTRICAL EQUIPMENT ROOM. RUN ALL CONDUITS AT SECURE DOORS CONCEALED ABOVE CEILINGS AND IN WALLS. EXPOSED WIRING, SURFACE RACEWAY AND ARMORED DOOR LOOPS AND CABLES ARE NOT ALLOWED.
6. MOUNT ACS PANELS AND ASSOCIATED POWER SUPPLIES IN COMMUNICATIONS CLOSET ONLY. PROVIDE POWER SUPPLIES FACTORY MOUNTED IN ACS PANELS.
7. FIRESTOPPING: FIRESTOP ALL PENETRATIONS OF SECOND FLOOR CONSTRUCTION AND ALL FIRE RATED WALLS. FIRESTOP USING ASSEMBLY UL LISTED FOR THE SPECIFIC APPLICATION AND FLOOR OR WALL RATING. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND THE CONDITIONS OF THE UL LISTING.
8. SMOKE WALL PENETRATIONS AND PENETRATIONS OF NON-FIRE RATED WALLS EXTENDING UP TO THE STRUCTURE ABOVE: ALL CONDUIT PENETRATIONS OF ALL WALLS INDICATED ON THE ARCHITECTURAL DRAWINGS AS SMOKE WALLS/BARRIERS/PARITIONS AND ALL NON-FIRE RATED WALLS EXTENDING UP TO THE STRUCTURE ABOVE SHALL BE SEALED SMOKETIGHT WITH STI SMOKE 'N' SOUND SEALANT WITH UL LISTED 'L' SMOKE RATING AND 'ST' ACOUSTICAL RATING OF 62. SEALANT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS FOR 1/4" SEALANT CAULK ON BOTH SIDES OF THE WALL. SEALANT INSTALLATION ON ONLY ONE SIDE OF THE WALL IS NOT ACCEPTABLE. AT THE CONTRACTOR'S OPTION PROVIDE AN ALTERNATE ACOUSTICAL SEALANT WITH EQUAL 'ST' RATING AT THRU PENETRATIONS OF NON-SMOKE RATED WALLS THAT EXTEND UP TO THE STRUCTURE ABOVE FOR SOUND ISOLATION. INSTALL SAME AS INDICATED FOR STI SMOKE 'N' SOUND ABOVE.
9. EC PROVIDE HEAVY DUTY PULL STRINGS IN ALL CONDUITS SERVING SECURE DOORS AND DEVICES FOR USE BY CABLING INSTALLER – RUN CONTINUOUS FROM PULL POINT TO PULL POINT WITH NOT LESS THAN 10 FEET SLACK COILED AT EACH END.
10. SUPPORT CONDUIT DIRECTLY FROM BUILDING STRUCTURE USING APPROVED HARDWARE. DO NOT SUPPORT CONDUIT FROM OTHER SYSTEMS COMPONENTS OR SUPPORTS. RUN ALL CONDUITS PARALLEL/PERPENDICULAR AND PLUMB WITH BUILDING LINES.
11. CONDUIT BODIES SUCH AS 'LB' FITTINGS ARE NOT ALLOWABLE.
12. TERMINATE ALL CONDUIT ENDS WITH THREADED PLASTIC INSULATING BUSHINGS (PUSH-ON NOT ALLOWABLE). BUSHINGS MUST FIT TIGHTLY ON CONDUIT CONNECTOR THREADS. INSTALL ALL BUSHINGS PRIOR TO PULLING CABLE.
13. IDENTIFICATION: IDENTIFY ALL INDOOR ACS CONDUITS AND PULLBOXES ABOVE LAY-IN CEILINGS AT EVERY PULLBOX AND ON CONDUIT AT EACH COUPLER (PAINT ENTIRE COUPLER) WITH WHITE PAINT. DO NOT PAINT SLEEVES IN EQUIPMENT ROOMS.

ACCESS CONTROL SYSTEM CABLING REQUIREMENTS

1. PROVIDE CABLING WITH JACKET COLOR WHITE.
2. TERMINATE SHIELDS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. HOMERUN CABLE FROM SECURE DOOR TO THE SERVING ACCESS CONTROL SYSTEM PANEL. PROVIDE SLACK IN CABLE AT THE MAIN JUNCTION BOX AT EACH SECURE DOOR. MAKE ALL WIRING CONNECTIONS DIRECTLY TO CARD READERS AND OTHER DEVICES SERVED.
4. FOR PURPOSES OF BIDS THE ACS CONTRACTOR SHALL PROVIDE THE FOLLOWING WIRING HOMERUNNED TO EACH SECURE DOOR WITH NO JUNCTIONS OR SPLICES. FOLLOWING BIDS THE ACSC SHALL PROVIDE WIRING AS REQUIRED FOR EACH APPLICATION AT NO ADDITIONAL COST TO THE OWNER.
5. PROVIDE THE FOLLOWING WIRING TO EACH CARD READER: PROVIDE WINDY CITY WIRE PART NUMBER 4461030 COMPOSITE CABLE WITH OVERALL SHIELD AND WHITE OVERALL PLENUM RATED JACKET. CABLE SHALL HAVE INDIVIDUALLY JACKETED 18 AWG 4 CONDUCTOR STRANDED INSULATED LOCK POWER WIRE, 22 AWG 3 PAIR OAS (OVERALL SHIELD) CARD READER WIRE, 22 AWG 2 CONDUCTOR STRANDED INSULATED DOOR CONTACT WIRE, AND 22 AWG 4 CONDUCTOR STRANDED INSULATED REX WIRE. WIRE JACKETS SHALL BE FACTORY MARKED FOR 'LOCK POWER', 'CARD READER'. 'DOOR CONTACT' AND 'REX'. TERMINATE OVERALL SHIELD AS RECOMMENDED BY CARD READER AND CARD READER CONTROLLER MANUFACTURERS. RUN COMPOSITE CABLE TO THE DOOR MAIN JUNCTION BOX AT EACH CARD READER CONTROLLED DOOR. CUT OVERALL JACKET BACK IN DOOR MAIN JUNCTION BOX AND RUN INDIVIDUALLY ACKETED CABLES (LOCK POWER, CARD READER, DS AND REX) CONTINUOUS TO POINT OF CONNECTION WITH NO INTERMEDIATE CONNECTIONS OR SPLICES. ACSC DETERMINE IF LOCK POWER WIRE GAGE SPECIFIED IS TOO SMALL FOR ANY ELECTRIC LOCK LOAD UNDER ALL CONDITIONS AND CABLE LENGTH AND PROVIDE LARGER GAGE WIRE AS REQUIRED.
6. PROVIDE WIRING AS REQUIRED TO ALL OTHER ACCESS CONTROL AND INTRUSION ALARM SYSTEM DEVICES AND POWER SUPPLIES.
7. CONDUCTOR QUANTITIES AND GAUGES ARE MINIMUM, PROVIDE HIGHER CONDUCTOR COUNT AND LARGER GAUGES AS REQUIRED FOR EACH WIRED DEVICE PER MANUFACTURER'S INSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER.

INTRUSION ALARM NOTES

THE ACS CONTRACTOR SHALL SETUP THE INTRUSION ALARM SYSTEM AS AN EXTENSION OF AND FULLY INTEGRATED INTO THE OWNER'S ACCESS CONTROL SYSTEM FOR A SEAMLESS USER INTERFACE.

ALL SECURE DOORS ARE MECHANICAL FREE EGRESS AT ALL TIMES EXCEPT WHERE SPECIFICALLY NOTED IN DOOR HARDWARE SPECIFICATION. ALL SECURE DOORS SHALL FAIL SECURE (LOCKED) UPON A POWER FAILURE EXCEPT WHERE SPECIFICALLY NOTED IN DOOR HARDWARE SPECIFICATION. A FIRE ALARM EVENT SHALL NOT UNLOCK ANY SECURE DOOR EXCEPT WHERE SPECIFICALLY NOTED IN DOOR HARDWARE SPECIFICATION.

ALL SECURE DOORS SHALL HAVE REQUEST TO EXIT INTEGRAL TO THE DOOR HARDWARE SUCH THAT EGRESS THRU A SECURE DOOR FROM THE SECURE SIDE SHALL NOT GENERATE AN INTRUSION ALARM, EXCEPT WHERE SPECIFICALLY NOTED IN DOOR HARDWARE SPECIFICATION

THE INTRUSION ALARM SHALL OPERATE ON AN ARMED/DISARMED MODE BASIS, WITH THE MODE SET BY THE OWNER.

IN ADDITION THE OWNER SHALL HAVE THE ABILITY TO INDEX THE SYSTEM TO MULTIPLE SPECIAL EVENT MODES.

ARMED MODE – GENERAL:
IN THE ARMED MODE ALL SECURE DOORS OR A SUBSET OF SECURE DOORS IDENTIFIED BY THE OWNER ARE ELECTRICALLY LOCKED AND MAY BE ENTERED ONLY BY INDIVIDUALS WITH VALID CARD READER CREDENTIAL AND PERMISSION TO ENTER THE BUILDING DURING THE TIME WHEN THE SYSTEM IS ARMED.

UNARMED MODE – GENERAL:
IN THE UNARMED MODE ALL SECURE DOORS OR A SUBSET OF SECURE DOORS IDENTIFIED BY THE OWNER ARE ELECTRICALLY LOCKED AND MAY BE ENTERED ONLY BY INDIVIDUALS WITH VALID CARD READER CREDENTIAL AND PERMISSION TO ENTER THE BUILDING DURING THE TIME WHEN THE SYSTEM IS UNARMED. ALTERNATELY THE OWNER MAY CHOOSE TO HAVE ONE OR MORE SECURE DOORS ELECTRICALLY UNLOCKED DURING THE TIME WHEN THE SYSTEM IS UNARMED.

THE OWNER MAY ELECT TO SET SYSTEM ARMED AND UNARMED MODES BASED ON TIME OF DAY ONLY, OR TO KEEP THE SYSTEM IN ARMED MODE AT ALL TIMES.

AN INTRUSION ALARM SHALL BE GENERATED ANYTIME A SECURE DOOR IS ELECTRICALLY LOCKED AND IS FORCED OPEN AS SENSED BY THE DOOR POSITION SWITCH, EXCEPT FOR EXCEPTIONS ON A DOOR-BY-DOOR AND TIME-OF-DAY BASIS AS DIRECTED BY THE OWNER. IN ARMED MODE A DOOR-HELD-OPEN NOTIFICATION MAY BE GENERATED FIRST, FOLLOWED BY AN INTRUSION ALARM, AS DIRECTED BY THE OWNER.

AN INTRUSION ALARM SHALL AUTOMATICALLY INITIATE A LOCKDOWN, UNLESS OTHERWISE DIRECTED BY THE OWNER.

SEE 'EMERGENCY NOTIFICATION NOTE' FOR REQUIREMENTS RELATED TO EMERGENCY NOTIFICATION OF INTRUSION ALARMS. THE OWNER MAY ELECT TO HAVE MORE THAN ONE LEVEL OR TYPE OF ALARM NOTIFICATION FOR INTRUSION ALARMS.

THESE MODES OF OPERATION MAY VARY AT THE OWNER'S DIRECTION AND NO ADDITIONAL COST TO THE OWNER.

THESE OPERATING NOTES ARE FOR GENERAL INFORMATION ONLY AND ARE NOT INTENDED TO CONVEY THE FULL SCOPE OF ACS CONTRACTOR WORK. IT SHALL BE THE SOLE RESPONSIBILITY OF THE ACS CONTRACTOR TO COORDINATE ALL REQUIRED DETAILS OF BUILDING OPERATIONAL MODES ALONG WITH DETAILS OF SYSTEM OPERATION WITH THE OWNER'S PROJECT MANAGER AND OTHER OWNER PERSONNEL, AND SHALL INCORPORATE RELATED DETAILS IN THE CONTRACTOR'S AS-BUILT DRAWINGS. INTENDED SYSTEM OPERATION SHALL BE APPROVED BY THE OWNER'S PROJECT MANAGER PRIOR TO SYSTEM SETUP AND PROGRAMMING. PROVIDE A MINIMUM OF 4 HOURS TRAINING TO STAFF ACROSS THE FIRST YEAR OF OPERATION, WITH TIMES AND DURATION SET BY THE OWNER'S PROJECT MANAGER. FOLLOWING OCCUPANCY OF THE SCHOOL THE ACSC SHALL CONTINUE TO FINE TUNE OPERATING MODES WITH THE INVOLVEMENT OF THE THE OWNER'S PROJECT MANAGER FOR THE FIRST YEAR OF OPERATION.

HORIZONTAL CABLE ROUTING NOTE:

ALL ACCESS CONTROL SYSTEM HORIZONTAL CABLE NOT SHOWN TO BE INSTALLED IN CONDUIT SHALL BE FREE-ROUTED ABOVE CEILINGS AND SHALL BE ROUTED UP HIGH DIRECTLY UNDER THE BUILDING ROOF STRUCTURE AND PROPERLY SUPPORTED WITH APPROVED HANGERS AT 4'-0" ON CENTER, BUT DO NOT RUN CABLES CLOSER THAN 6" BELOW ROOF DECK (TO AVOID DAMAGE FROM LONG SCREWS USED IN FUTURE ROOF REPLACEMENTS). RUN ALL CABLING ABOVE DUCTWORK, PIPING, CONDUITS AND ALL OTHER WORK BY OTHER TRADES AND PLACE FOR MAXIMUM PHYSICAL PROTECTION. BUNDLE CABLES TOGETHER AND ROUTE PARALLEL AND PERPENDICULAR TO BUILDING LINES. HANGERS SHALL BE ERICO CADDY "CABLECAT" CATEGORY-5 WITH WIDE BASE LOOP. BUNDLE CABLES AT 4'-0" O.C. WITH VELCRO, COLOR WHITE. ATTACH HANGERS TO THE BUILDING STRUCTURE. DO NOT ATTACH HANGERS TO CEILING GRID OR SUPPORT WIRES, CONDUITS, DUCTWORK, PIPING, OR ANY OTHER SYSTEM COMPONENT OR WORK OF OTHER TRADES. INSTALL CABLES TO AVOID ELECTROMAGNETIC INTERFERENCE FROM MOTORS, TRANSFORMERS, GENERATORS, ELEVATORS, POWER CABLES/CONDUITS, LIGHTING FIXTURES, ETC. DO NOT ROUTE CABLE THRU FIRE DAMPERS, HVAC DUCTS, VENTILATING SHAFTS, OR GRATES. DO NOT BLOCK ACCESS TO PULL/JUNCTION BOXES, HATCHES, DOORS, UTILITY ACCESS PANELS, MECHANICAL SERVICE AREAS, ELECTRICAL SERVICE AREAS, OR ANY OTHER SPACE ASSOCIATED WITH SERVICE OR ACCESS OF ANY TYPE. DO NOT RUN HORIZONTAL CABLING ABOVE CEILINGS OF CHEMICAL STORAGE ROOMS.

HORIZONTAL CABLING CONDUIT SLEEVES NOTE:

CONDUIT SLEEVES FOR ACCESS CONTROL SYSTEM CABLING: FINAL ROUTING PATHS FOR FREE-ROUTED ACCESS CONTROL SYSTEM HORIZONTAL CABLING ABOVE CEILINGS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. FOR THIS REASON CONDUIT SLEEVES AT WALL AND SECOND FLOOR PENETRATIONS ARE NOT INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE EMT CONDUIT SLEEVES IN THE QUANTITIES AND LOCATIONS REQUIRED TO SUIT THE CONTRACTOR SELECTED HORIZONTAL CABLE ROUTING AS REQUIRED FOR A COMPLETE INSTALLATION, AND AT NO ADDITIONAL COST TO THE OWNER. AT ALL LOCATIONS WHERE HORIZONTAL CABLING RUNS THRU MECHANICAL OR ELECTRICAL EQUIPMENT ROOMS, OR ANY OTHER TYPE OF UNFINISHED SPACE WITH EXPOSED STRUCTURE CEILING, ALL SUCH CABLING SHALL BE RUN IN CONTINUOUS CONDUIT SLEEVES EXTENDING TO THE NEAREST ACCESSIBLE LAY-IN CEILING AT BOTH ENDS. IN ADDITION, THE CONTRACTOR SHALL PROVIDE CONDUIT SLEEVES TRAVERSING INACCESSIBLE (HARD) CEILING OR SOFFIT AREAS AND EXTENDING TO THE NEAREST ACCESSIBLE LAY-IN CEILING AT BOTH ENDS FOR CABLE PASS-THRU. SLEEVES SHALL BE SIZED FOR MAXIMUM 30 PERCENT CABLE FILL. TERMINATE ALL SLEEVES WITH PLASTIC INSULATING BUSHING AT EACH END.

ACCESS CONTROL SYSTEM CONTRACTOR

THE GENERAL CONTRACTOR SHALL INCLUDE A COMPLETE ACCESS CONTROL SYSTEM WITH INTEGRATED INTRUSION ALARM AND LOCKDOWN FOR THIS PROJECT PROVIDED BY ONE OF THE SPECIALIZED ACCESS CONTROL SYSTEM CONTRACTOR'S (ACSC) LISTED BELOW. THE ACCESS CONTROL SYSTEM CONTRACTOR SHALL BE VANDERBILT SMS CERTIFIED NOT LESS THAN ONE YEAR PRIOR TO BIDS. SHALL BE WELL EXPERIENCED IN THE INTEGRATION OF AN ACCESS CONTROL SYSTEM OF THE TYPE AND SIZE REQUIRED FOR THIS PROJECT INTO THE OWNER'S EXJISTING VANDERBILT SMS AND SHALL MEET ALL ADDITIONAL QUALIFICATIONS STATED IN THE SPECIFICATIONS.

THE SCOPE OF WORK SHALL INCLUDE THE ACCESS CONTROL SYSTEM WITH INTRUSION ALARM AND LOCKDOWN COMPLETE WITH ALL WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS, ALL DEVICES, EQUIPMENT AND WORK DESCRIBED IN THE ACCESS CONTROL SYSTEM CONTRACTOR'S COST PROPOSAL AND ASSOCIATED STATEMENT OF WORK, ALL OTHER DEVICES, EQUIPMENT AND WORK REQUIRED FOR A COMPLETE SYSTEM, ALL WIRING AND CABLING (EXCEPT AS INDICATED BELOW FOR CATEGORY 6 CABLING BY THE SCSC), AND ALL PROGRAMMING AND SETUP REQUIRED TO MAKE THE SYSTEM FULLY OPERATIONAL AND FUNCTIONAL TO THE SATISFACTION OF THE OWNER.

RELATED WORK TO BE PROVIDED BY OTHERS BUT NOT INCLUDED IN THE SCOPE OF WORK FOR THE ACCESS CONTROL SYSTEM CONTRACTOR SHALL INCLUDE CONDUIT FOR ALL ACCESS CONTROL SYSTEM WIRING AND CABLING AND ALL POWER AND GROUNDING REQUIRED FOR THE ACCESS CONTROL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE ASSOCIATED CONDUIT, POWER AND GROUNDING WORK WITH THE ACCESS CONTROL SYSTEM CONTRACTOR – BUT THE SCOPE OF CONDUIT, POWER AND GROUNDING WORK SHALL NOT BE LESS THAN THAT DESCRIBED ON THE DRAWINGS. THE SCSC SHALL PROVIDE CATEGORY 6 CABLING FOR NETWORK CONNECTIVITY TO EACH ACCESS CONTROL SYSTEM PANEL AS INDICATED ON THE DRAWINGS.

THE ACCESS CONTROL & INTRUSION ALARM SYSTEM CONTRACTOR SHALL BE A DIRECT SUBCONTRACTOR TO THE GENERAL CONTRACTOR AND SHALL HAVE BEEN CERTIFIED BY VANDERBILT FOR THE SAME SYSTEM TYPE AS REQUIRED FOR THIS PROJECT NOT LESS THAN ONE YEAR PRIOR TO THE TIME OF BIDS AMD THRUOUT THE PROJECT.

APPROVED ACCESS CONTROL & INTRUSION ALARM SYSTEM CONTRACTORS ARE LIMITED TO:

WARREN DOORS AND ACCESS CONTROL (CONTACT MATT GAINES AT matt.gaines@whmdoor.com OR 850-432-9821 EXT 119).
PINNACLE NETWORX (CONTACT TIM STEWART AT tim.stewart@pinnaclenetworx.com).

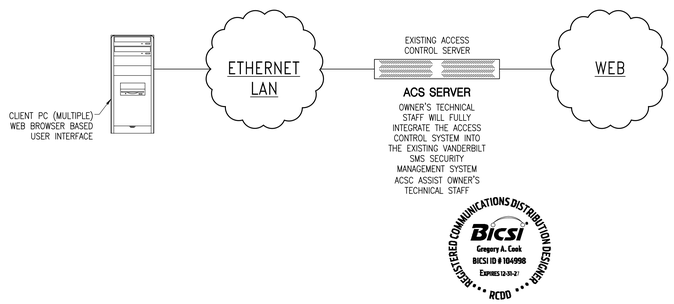
EACH CONTRACTOR PROVIDING A BID FOR THIS PROJECT SHALL LIST ON THE BID FORM THE NAME AND ADDRESS OF THE ACCESS CONTROL SYSTEM CONTRACTOR THEY INTEND TO USE FOR THIS WORK WITH CONTACT NAME, CELL PHONE NUMBER AND EMAIL ADDRESS AND PROOF OF QUALIFICATIONS.

ACSC, EC, SCSC AND GC/CM COORDINATION NOTES

1. THE ACSC SHALL PROVIDE THE ACCESS CONTROL SYSTEM NOTIFICATION OF ALARMS TO OWNER IDENTIFIED CENTRAL RECEIVING STATIONS, OTHER WORK SHOWN TO BE BY THE ACSC IN THE DRAWINGS AND SPECIFICATIONS, AND ALL OTHER WORK REQUIRED FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS.
2. THE OWNER WILL FULLY INTEGRATE THE ACCESS CONTROL SYSTEM INTO THE OWNER'S EXISTING VANDERBILT ACCESS CONTROL SYSTEM SOFTWARE FOR MANAGEMENT OF THE ACCESS CONTROL SYSTEM TO INCLUDE INTRUSION AND LOCKDOWN.
3. THE ACSC SHALL PROVIDE ALL LOW VOLTAGE WIRING ASSOCIATED WITH THE SYSTEM LISTED ABOVE.
4. THE ACSC SHALL PROVIDE A DETAILED STATEMENT OF WORK WITH INCLUSIONS AND EXCLUSIONS TO THE GC/CM AND EC FOR FINAL COORDINATION, ALONG WITH WIRING DIAGRAMS, INSTALLATION, OPERATION AND MAINTENANCE MANUALS, AND OTHER INFORMATION REQUIRED FOR THE GC AND EC TO COMPLETE THEIR ASSOCIATED WORK IN A TIMELY MANNER IN ACCORDANCE WITH THE OVERALL PROJECT SCHEDULE.
5. THE GC/CM SHALL PROVIDE OVERALL COORDINATION AND SCHEDULING FOR THE SYSTEM LISTED ABOVE TO INCLUDE DIRECT COORDINATION BETWEEN THE ACSC AND EC FOR ROUGH-IN AND OTHER WORK ITEMS THAT ARE TIME CRITICAL. THE GC/CM SHALL ALSO PROVIDE OVERALL COORDINATION OF EQUIPMENT LOCATIONS WITH THE ARCHITECT, OWNER, EC AND ACSC.
6. THE EC AND ACSC SHALL COORDINATE PROJECT REQUIREMENTS CONTINUALLY DURING THE COURSE OF THE PROJECT.
7. THE EC SHALL PROVIDE ALL CONDUIT AND CONDUIT SLEEVES, BOXES, ENCLOSURES, PULL STRINGS AND TAPES, SLEEVES, FIRESTOPPING, SMOKESTOPPING, POWER, GROUNDING, AND ALL OTHER WORK REQUIRED BY CODE OR FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS BUT NOT PROVIDED BY THE ACSC OR SPECIFICALLY IDENTIFIED AS PROVIDED BY OTHERS, WHETHER SPECIFICALLY SHOWN OR NOT.
8. THE EC SHALL WIRE AND MAKE ALL CONNECTIONS TO ALL ELECTRIFIED DOOR HARDWARE AND DOOR HARDWARE THAT REQUIRES ANY TYPE OF 120 VAC WIRING CONNECTION. SEE DOOR HARDWARE SPECIFICATION SECTION 087100 AND ARCHITECTURAL AND ELECTRICAL DRAWINGS.
9. ACCESS CONTROL SYSTEM PANELS – CATEGORY 6 OUTLET: CATEGORY 6 CABLING AND MODULAR OUTLETS FOR NETWORK CONNECTIONS TO ACSC PANELS SHALL BE PROVIDED BY THE STRUCTURED CABLING SYSTEM CONTRACTOR (SCSC) COMPLETE TO INCLUDE PATCH PANELS, TERMINATION, LABELING, TESTING, AND PATCHING TO ASSIGNED NETWORK CONNECTIONS. THE CATEGORY 6 CABLES SHALL BE TERMINATED ON A COMMUNICATIONS OUTLET BY THE SCSC OUTSIDE OF AND WITHIN 6" OF EACH ACSC PANEL. SCSC AND ACSC COORDINATE FINAL OUTLET LOCATIONS IN THE FIELD.

ACCESS CONTROL SYSTEM GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 087100 – DOOR HARDWARE TO CROSS REFERENCE DOOR HARDWARE SET NUMBERS TO INDIVIDUAL DOOR NUMBERS ALONG WITH OTHER INFORMATION FOR SECURE DOORS TO INCLUDE OPERATION. DOOR HARDWARE INDICATED ON ACS DRAWINGS IS FOR INFORMATION ONLY. SEE DOOR HARDWARE SPECIFICATION FOR FINAL DOOR HARDWARE REQUIREMENTS. ALL DOOR HARDWARE COMPONENTS LISTED IN SPECIFICATION SECTION 087100 – DOOR HARDWARE SHALL BE PROVIDED BY THE DOOR HARDWARE PROVIDER UNLESS SPECIFICALLY INDICATED TO BE PROVIDED BY OTHERS. CARD READERS AND DOOR POSITION SWITCHES (DORMAKABA MC4, SDC MC-4 OR POTTER AMS-25B) SHALL BE PROVIDED BY THE ACCESS CONTROL SYSTEM CONTRACTOR. ACCESS CONTROL SYSTEM PANELS WITH FACTORY POWER SUPPLIES SHALL BE PROVIDED BY THE ACCESS CONTROL SYSTEM CONTRACTOR AND SHALL BE WALL MOUNTED IN THE COMMUNICATIONS CLOSET. ALL POWER SUPPLIES SHALL HAVE DUAL BATTERY BACKUP WITH SEALED GEL TYPE BATTERIES. LOW VOLTAGE WIRING SHALL BE PROVIDED BY THE ACCESS CONTROL SYSTEM CONTRACTOR. ALL CONDUIT FOR LOW VOLTAGE WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. 120VAC POWER AND ALL CONDUIT FOR POWER SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
2. ALL DOORS SHALL FAIL SECURE UPON LOSS OF POWER TO LOCKING DEVICE FOR ANY REASON UNLESS SPECIAL CIRCUMSTANCES DICTATE OTHERWISE AS SPECIFICALLY DESCRIBED IN THE DOOR HARDWARE SPECIFICATIONS.
3. ALL DOORS SHALL HAVE MECHANICAL FREE EGRESS FROM SECURE SIDE TO UNSECURE SIDE UNLESS SPECIAL CIRCUMSTANCES DICTATE OTHERWISE AS SPECIFICALLY DESCRIBED IN THE DOOR HARDWARE SPECIFICATIONS.
4. ALL EXTERIOR DOORS SHALL HAVE FACTORY REQUEST TO EXIT SWITCH INTEGRAL TO THE ELECTRIFIED LOCKSET OR ELECTRIFIED EXIT DEVICE FURNISHED AS PART OF THE DOOR HARDWARE PACKAGE. EXTERIOR DOUBLE DOORS SHALL HAVE REQUEST TO EXIT SWITCH AT BOTH LEAFS (ELECTRIFIED LOCKSET OR ELECTRIFIED EXIT DEVICE) FURNISHED AS PART OF THE DOOR HARDWARE PACKAGE. REQUEST TO EXIT SWITCHES SHALL INDICATE AUTHORIZED EGRESS FROM SECURE SIDE TO UNSECURE SIDE AND PREVENT ACTIVATION OF THE INTRUSION ALARM.
5. ALL SECURE DOOR MAIN JUNCTION BOXES SHALL BE 12"x12"x6" NEMA 1 SCREW COVER AND SHALL BE INSTALLED IN ACCESSIBLE LOCATION ABOVE LAY-IN CEILING AS CLOSE TO DOOR SERVED AS POSSIBLE.
6. MOUNT ALL CARD READERS RECESSED IN WALL. WHERE STOREFRONT MOUNTING IS REQUIRED SEE "GENERAL CONDUIT NOTES" NOTE 3 THIS SHEET AND ACSC PROVIDE NARROW STILE CARD READER MOUNTED RECESSED IN FRAMING.
7. PROVIDE WEATHERPROOF CARD READERS, ROUGH-IN AND MOUNTING AT ALL EXTERIOR LOCATIONS.
8. CARD READER LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND INTENDED ONLY TO SHOW DOOR SERVED AND UNSECURE SIDE MOUNTING. THE OWNER'S PROJECT MANAGER AND ARCHITECT PROVIDE DIRECTION ON EXACT LOCATION OF ALL CARD READERS IN THE FIELD – WHICH MAY BE ANYWHERE IN THE VICINITY OF THE DOOR SERVED AT NO ADDITIONAL COST TO THE OWNER. THE GC SHALL REQUEST LOCATIONS WELL PRIOR TO COMMENCEMENT OF ROUGH-IN.
9. THE GC/CM SHALL PROVIDE OVERALL COORDINATION AND SCHEDULING FOR THE ACCESS CONTROL SYSTEM INCLUDING DIRECT COORDINATION BETWEEN THE ACSC AND EC FOR ROUGH-IN AND OTHER WORK ITEMS THAT ARE TIME CRITICAL. THE GC SHALL ALSO PROVIDE OVERALL COORDINATION OF EQUIPMENT LOCATIONS (CARD READERS) WITH THE ARCHITECT, OWNER, EC AND ACSC.
10. PROVIDE WALL/MORTAR/JUNCTION BOXES AT ALL POWER TRANSFERS AND DOOR POSITION SWITCHES REGARDLESS OF WALL TYPE AND WHETHER DOOR FRAMES ARE MORTAR FILLED OR NOT. CONNECT CONDUIT TO BOXES WITH MORTAR TIGHT COMPRESSION FITTINGS. PROVIDE GROMMETS WHERE WIRING PASSES THRU OPENINGS IN METAL COMPONENTS. COMPLY WITH CODE FOR PROTECTION OF CONDUITS IN CONTACT WITH MORTAR OR CONCRETE.
11. FINAL DOOR NUMBERS SHALL BE BASIS FOR SYSTEM LABELING AND PROGRAMMING SHALL BE BASED ON FINAL ROOM NUMBERS USED FOR ROOM SIGNAGE. FINAL NUMBERING/LABELING SCHEME FOR DOORS OTHER SECURITY DEVICES SHALL BE WORKED OUT IN CLOSE COORDINATION WITH THE OWNER'S PROJECT MANAGER AND ARCHITECT.



BICSI DESIGNED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI Gregory A. Cook
BICSI ID # 104998
EXPIRES 12-31-27
RCDD

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Premier Project #25012

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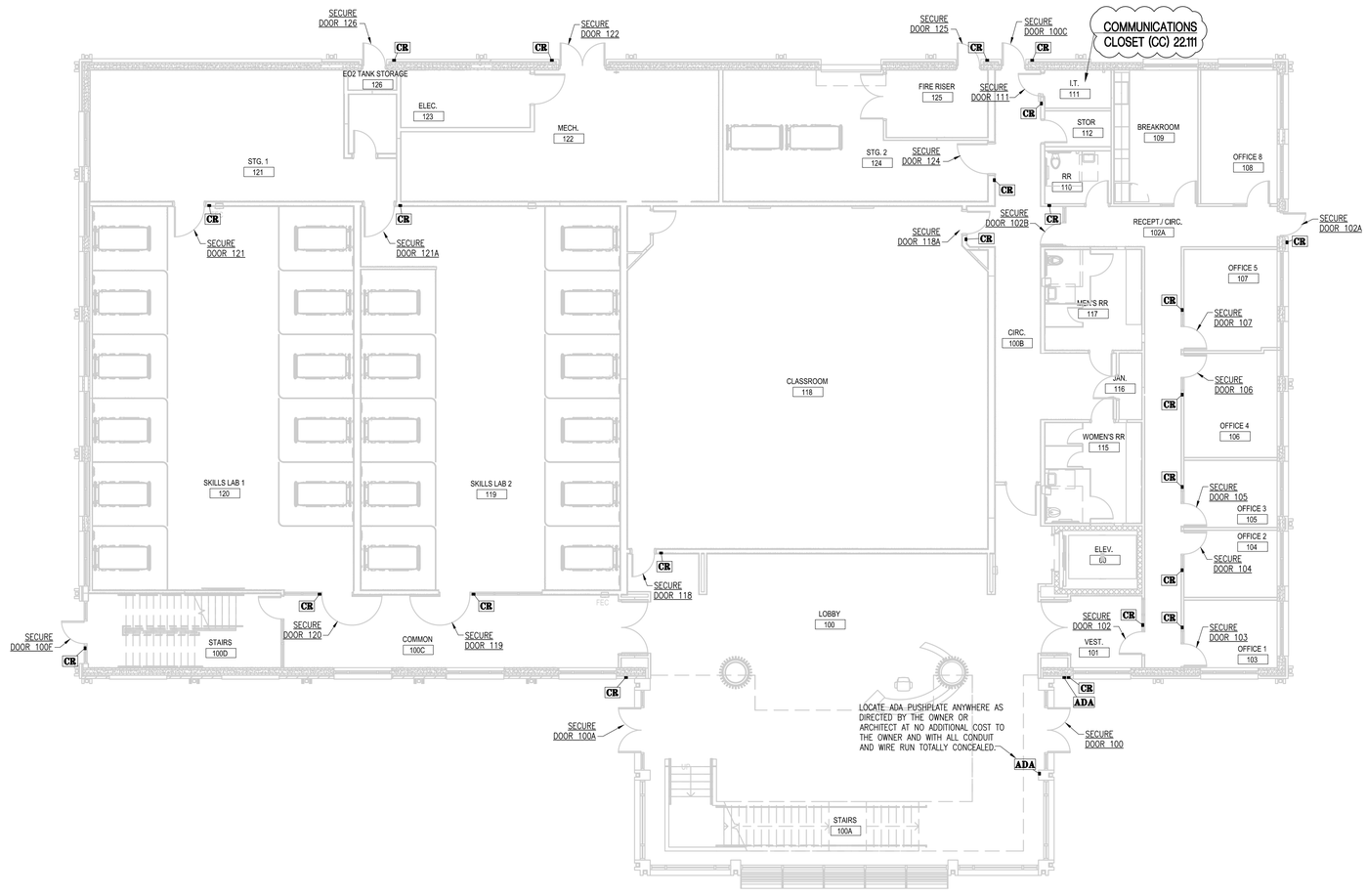
Dated 08.29.2025

ACCESS CONTROL SYSTEM DETAILS

ACS-301



NORTH

ACCESS CONTROL SYSTEM FLOOR PLAN - LEVEL 1 - BID-ALT #4

SCALE: 1/8" = 1'-0"

BID ALTERNATE #4 NOTE

PROVIDE SEPARATE COST FOR BID ALTERNATE #4 BASED ON SHEETS ACS-801 AND ACS-802. ALL NOTES, LEGEND, ABBREVIATIONS AND KEY NOTES INDICATED ON ACS-101 AND ACS-201 APPLY TO WORK UNDER BID ALTERNATE #4. ALL WORK INDICATED ON OTHER SHEETS APPLIES TO WORK UNDER BID ALTERNATE #4 UNLESS SPECIFICALLY INDICATED OTHERWISE.

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 1 - BID-ALT #4

ACS-801

ACCESS CONTROL SYSTEM FLOOR PLAN - LEVEL 2 - BID-ALT #4

NORTH

SCALE: 1/8" = 1'-0"

BID ALTERNATE #4 NOTE

PROVIDE SEPARATE COST FOR BID ALTERNATE #4 BASED ON SHEETS ACS-801 AND ACS-802. ALL NOTES, LEGEND, ABBREVIATIONS AND KEY NOTES INDICATED ON ACS-101 AND ACS-201 APPLY TO WORK UNDER BID ALTERNATE #4. ALL WORK INDICATED ON OTHER SHEETS APPLIES TO WORK UNDER BID ALTERNATE #4 UNLESS SPECIFICALLY INDICATED OTHERWISE.

Graphic Scale

8 4 0 8FT 16FT

SCALE: 1/8" = 1'-0"

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ACCESS CONTROL SYSTEM FLOOR PLAN LEVEL 2 - BID-ALT #4

ACS-802

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AV Keynote Legend	
Key Value	Keynote Text
01	FLAT PANEL DISPLAY [FPD]. MOUNT 10 X 10 X 6 JUNCTION BOX ON WALL ABOVE ACCESSIBLE CEILING WHERE SHOWN. ROUTE 2" CONDUIT FROM [FPD] ABOVE CEILING TO 6 X 6 X 6 BOX IN WALL BEHIND DISPLAY. SEE DETAIL ON AV300. ROUTE 2" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). PROVIDE 120V 20A CIRCUIT / RECEPTACLE IN WALL BEHIND DISPLAY. SEE DETAIL ON AV300. BOXES, CONDUIT AND POWER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV DISPLAY PROVIDED BY OWNER, INSTALLED BY AV CONTRACTOR. AV CABLING, WALL MOUNTING SYSTEM AND AV DEVICES PROVIDED AND INSTALLED BY AV CONTRACTOR. BACKING & FR BLOCKING PROVIDED AND INSTALLED BY GC.
03	FLAT PANEL DISPLAY [FPD]. MOUNT 10 X 10 X 6 JUNCTION BOX ON WALL ABOVE ACCESSIBLE CEILING WHERE SHOWN. ROUTE 2" CONDUIT FROM [FPD] ABOVE CEILING TO 6 X 6 X 6 BOX IN WALL BEHIND DISPLAY. SEE DETAIL ON AV300. ROUTE 1" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). ROUTE 1" CONDUIT FROM [FPD] TO FLOOR BOX UNDER CONFERENCE TABLE (SEE TELECOM SHEETS). PROVIDE 120V 20A CIRCUIT / RECEPTACLE IN WALL BEHIND DISPLAY. SEE DETAIL ON AV300. BOXES, CONDUIT AND POWER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV DISPLAY PROVIDED BY OWNER, INSTALLED BY AV CONTRACTOR. AV CABLING, WALL MOUNTING SYSTEM AND AV DEVICES PROVIDED AND INSTALLED BY AV CONTRACTOR. BACKING & FR BLOCKING PROVIDED AND INSTALLED BY GC.
04	AV WALL CONTROL AND HDMI INPUT. MOUNT 3 GANG BOX [AV] AT 18" A.F.F. AND 2 GANG BOX [RM] AT 48" A.F.F. IN WALL WHERE SHOWN. CONNECT [RM] AND [AV] WITH 1" CONDUIT. ROUTE 1" CONDUIT FROM [RM] TO [FPD] JUNCTION BOX ABOVE CEILING. BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV TOUCH PANEL AND HDMI PLATE ENCODER PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY / COORDINATE [AV] BOX LOCATION WITH FURNITURE - OWNER.
07	PTZ CAMERA. MOUNT 1 GANG BOX AT 84" A.F.F. IN WALL WHERE SHOWN. ROUTE 1" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. PTZ CAMERA, ISOLATION WALL MOUNT AND CABLING PROVIDED AND INSTALLED BY AV CONTRACTOR.
11	AV NETWORK BOX. MOUNT 1 GANG BOX [AV] AT 18" A.F.F. IN WALL WHERE SHOWN. ROUTE 1" CONDUIT FROM [AV] TO [FPD] JUNCTION BOX ABOVE CEILING. BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV RJ45 (D2) PLATE AND CABLING PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY / COORDINATE [AV] BOX LOCATION WITH FURNITURE - OWNER.
12	AV NETWORK BOX. PROVIDE (2) RJ45 PORT IN FLOOR BOX UNDER TABLE FOR AV DEVICE CONNECTION. ROUTE 1" CONDUIT FROM FLOOR BOX TO ABOVE ACCESSIBLE CEILING / CLEAR PATH TO I.T. 222. BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV RJ45 (D2) PLATE AND CABLING PROVIDED AND INSTALLED BY AV CONTRACTOR. FLOOR BOX BY OTHERS.

1 AV 1ST FLOOR PLAN

SCALE: 1/8" = 1'-0"

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NEW SHEET ADDED TO SET

AV 1ST FLOOR PLAN

AV100

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AV Keynote Legend	
Key Value	Keynote Text
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04	AV WALL CONTROL AND HDMI INPUT. MOUNT 3 GANG BOX [AV] AT 18" A.F.F. AND 2 GANG BOX [RM] AT 48" A.F.F. IN WALL WHERE SHOWN. CONNECT [RM] AND [AV] WITH 1" CONDUIT. ROUTE 1" CONDUIT FROM [RM] TO [FPD] JUNCTION BOX ABOVE CEILING. BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV TOUCH PANEL AND HDMI PLATE ENCODER PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY / COORDINATE [AV] BOX LOCATION WITH FURNITURE - OWNER.
07	PTZ CAMERA. MOUNT 1 GANG BOX AT 84" A.F.F. IN WALL WHERE SHOWN. ROUTE 1" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. PTZ CAMERA, ISOLATION WALL MOUNT AND CABLING PROVIDED AND INSTALLED BY AV CONTRACTOR.
11	AV NETWORK BOX. MOUNT 1 GANG BOX [AV] AT 18" A.F.F. IN WALL WHERE SHOWN. ROUTE 1" CONDUIT FROM [AV] TO [FPD] JUNCTION BOX ABOVE CEILING. BOXES AND CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV RJ45 (D2) PLATE AND CABLING PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY / COORDINATE [AV] BOX LOCATION WITH FURNITURE - OWNER.

1 AV 2ND FLOOR PLAN

SCALE: 1/8" = 1'-0"

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Project Number	**25004**
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NEW SHEET ADDED TO SET

AV 2ND FLOOR PLAN

AV101

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AV Keynote Legend	
Key Value	Keynote Text
06	CEILING MOUNTED ARRAY MICROPHONE. ROUTE 1" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. ARRAY MICROPHONE PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY COLOR WITH ARCHITECT.
08	CEILING LOUDSPEAKER. ROUTE 1" CONDUIT FROM LOUDSPEAKER (ACCESSIBLE CEILING) OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). AV CONTRACTOR TO CONNECT ADJACENT LOUDSPEAKERS WITH 16AWG PLENUM RATED CABLE IF ACCESSIBLE CEILING. IF GYP CEILING, CONNECT WITH 1" CONDUIT. CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. LOUDSPEAKERS AND COMPREHENSIVE PEXF S16-2 LOUDSPEAKER CABLE PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY COLOR WITH ARCHITECT.
10	SUSPENDED FLAT PANEL DISPLAY [FPD]. MOUNT 2 GANG JUNCTION BOX ABOVE ACCESSIBLE CEILING WHERE SHOWN. ROUTE 2" CONDUIT FROM [FPD] ABOVE CEILING TO 10 X 10 X 6 PULL BOX ABOVE DISPLAY/CEILING. SEE DETAIL ON AV300. PROVIDE 120V 20A CIRCUIT / RECEPTACLE IN CEILING FOR DISPLAY. BOXES, CONDUIT AND POWER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV DISPLAY PROVIDED BY OWNER, INSTALLED BY AV CONTRACTOR. SUSPENDED DISPLAY CEILING MOUNTING SYSTEM, AV CABLING AND AV DEVICES PROVIDED AND INSTALLED BY AV CONTRACTOR.

1 AV 1ST FLOOR REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

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AV 1ST FLOOR RCP

AV200

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AV Keynote Legend	
Key Value	Keynote Text
06	CEILING MOUNTED ARRAY MICROPHONE. ROUTE 1" CONDUIT OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. ARRAY MICROPHONE PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY COLOR WITH ARCHITECT.
09	CEILING LOUDSPEAKER. ROUTE 1" CONDUIT FROM LOUDSPEAKER (ACCESSIBLE CEILING)ROUTE OR CLEAR PATH, ABOVE CEILING(S), TO I.T. 222. (USE J-HOOKS / WIRE TRAY). AV CONTRACTOR TO CONNECT ADJACENT LOUDSPEAKERS WITH 16AWG PLENUM RATED CABLE IF ACCESSIBLE CEILING. IF GYP CEILING, CONNECT WITH 1" CONDUIT. CONDUIT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. LOUDSPEAKERS AND COMPREHENSIVE PEXF S16-2 LOUDSPEAKER CABLE PROVIDED AND INSTALLED BY AV CONTRACTOR. VERIFY COLOR WITH ARCHITECT.
10	SUSPENDED FLAT PANEL DISPLAY [FPD]. MOUNT 2 GANG JUNCTION BOX ABOVE ACCESSIBLE CEILING WHERE SHOWN. ROUTE 2" CONDUIT FROM [FPD] ABOVE CEILING TO 10 X 10 X 6 PULL BOX ABOVE DISPLAY/CEILING. SEE DETAIL ON AV300. PROVIDE 120V 20A CIRCUIT / RECEPTACLE IN CEILING FOR DISPLAY. BOXES, CONDUIT AND POWER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. AV DISPLAY PROVIDED BY OWNER, INSTALLED BY AV CONTRACTOR. SUSPENDED DISPLAY CEILING MOUNTING SYSTEM, AV CABLING AND AV DEVICES PROVIDED AND INSTALLED BY AV CONTRACTOR.

1 AV 2ND FLOOR REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

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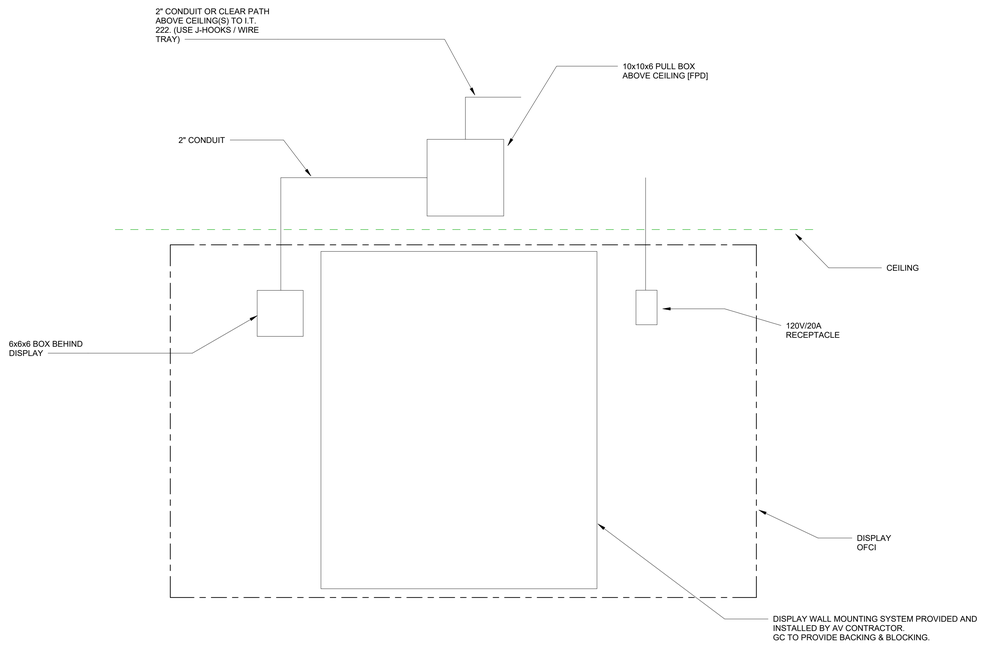
AV 2ND FLOOR RCP

AV201



1 DISPLAY WALL MOUNTING DETAIL

SCALE: 1 1/2" = 1'-0"

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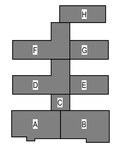

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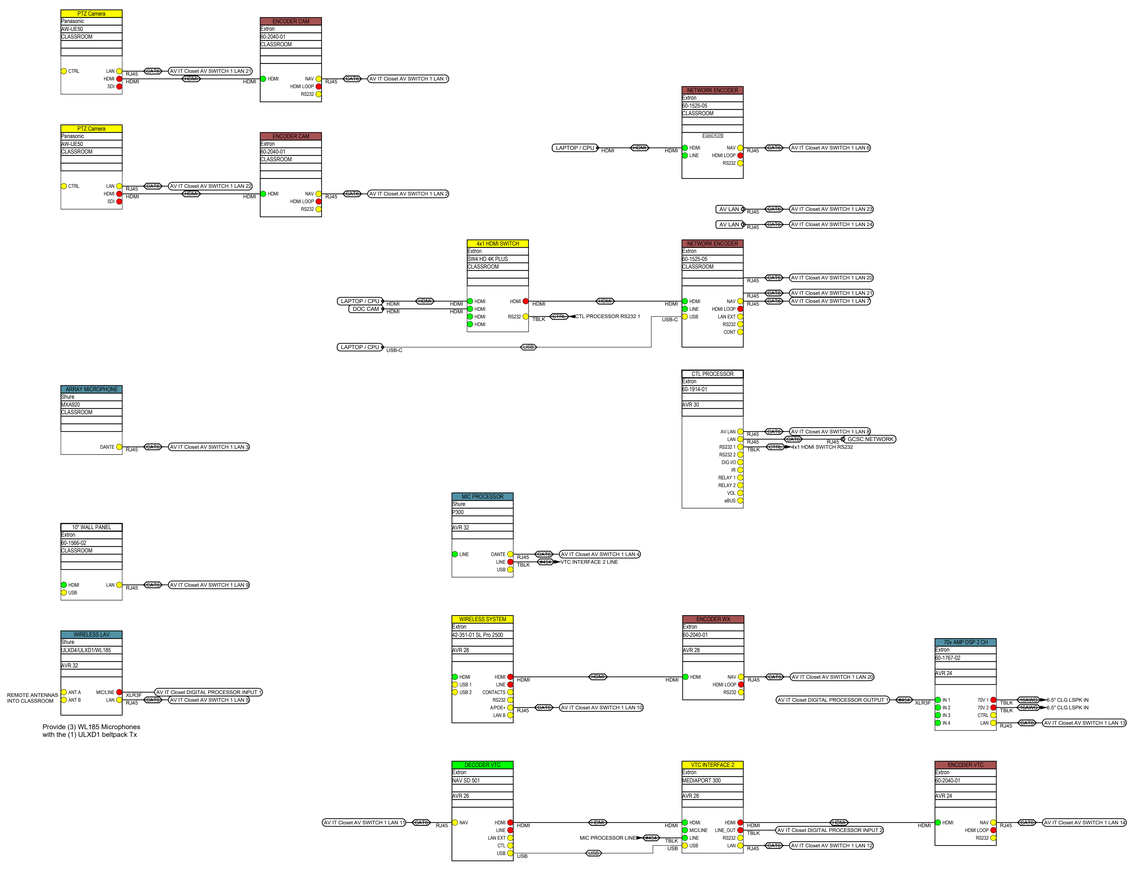
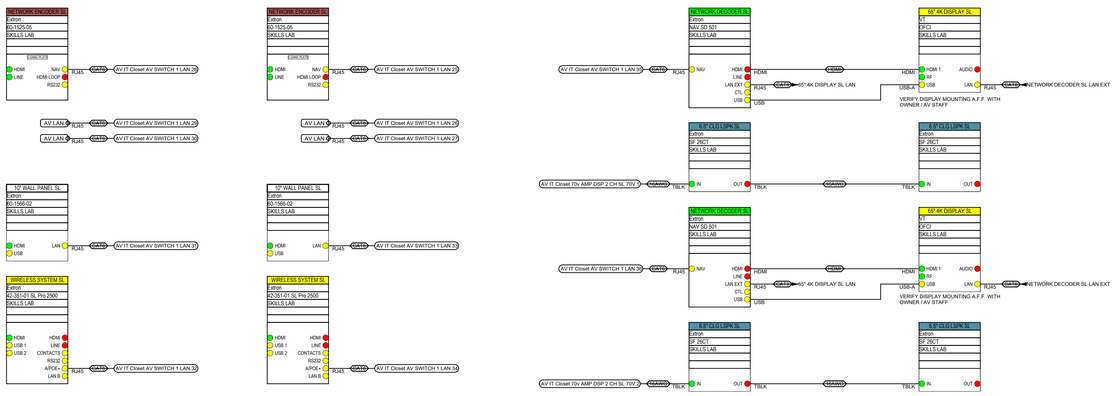
AV ELEVATIONS

AV300



1 AV SYSTEM - CLASSROOM (118)

SCALE: 12" = 1'-0"



2 AV SYSTEM - SKILLS LAB

SCALE: 12" = 1'-0"

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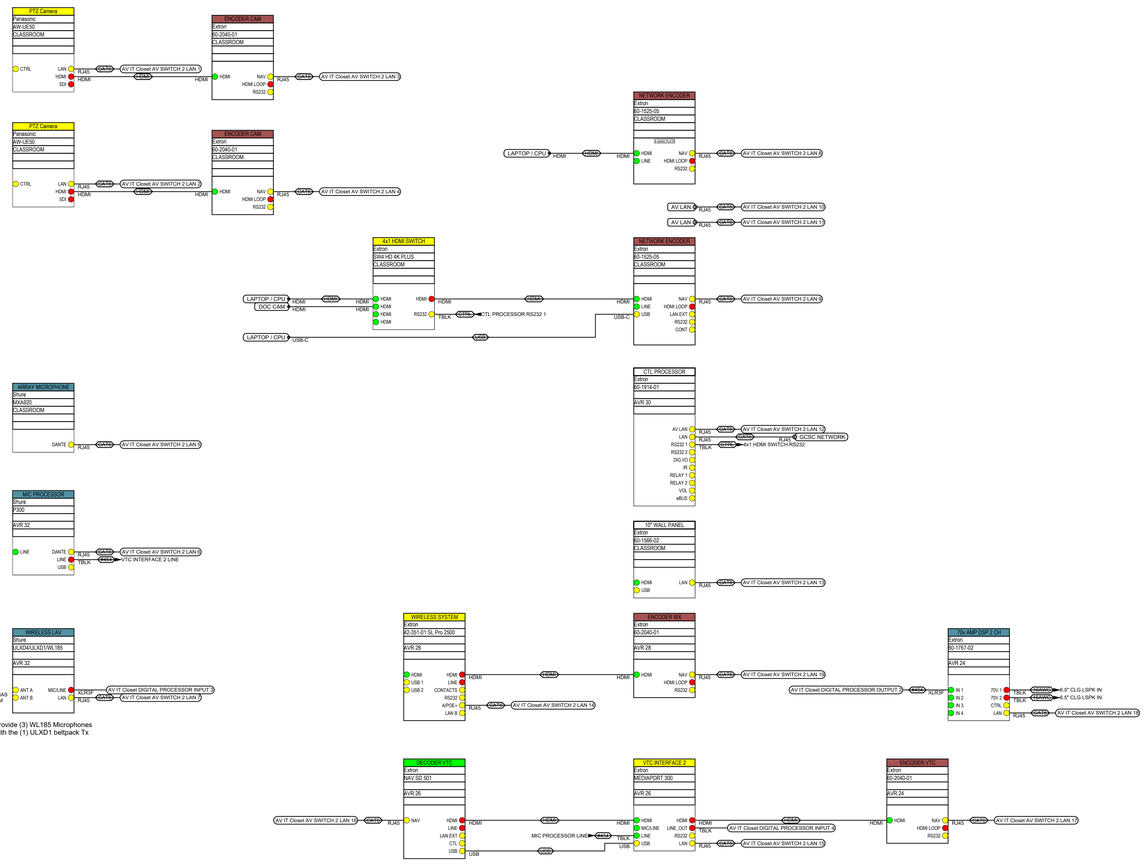
AV SYSTEM SCHEMATICS - PART 1

AV400



1 AV SYSTEM - CLASSROOM (227)

SCALE: 12" = 1'-0"

2 AV SYSTEM - IT CLOSET (RACK)

SCALE: 12" = 1'-0"

3 AV SYSTEM - CONFERENCE ROOM

SCALE: 12" = 1'-0"

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AV SYSTEM SCHEMATICS - PART 2

AV401