LEGEND

ALL MAY NOT APPLY

- SUPPLY DIFFUSER
- OPTIONAL AIR DISTRIBUTION CORE STYLE (REFER TO MANUFACTURER FOR MORE OPTIONS) — 2-WAY, 3-WAY
- RETURN GRILLE
- EXHAUST GRILLE
- AIR HANDLING UNIT (VERTICAL/HORIZONTAL)
- CEILING RECESSED AIR HANDLER
- WALL MOUNT AIR HANDLER
- 1 OR 4-WAY CEILING MOUNT CASSETTE AIR HANDLER
- BCU-# — BC CONTROLLER
- CU/HP-# — CONDENSING UNIT HEAT PUMP
- EF-# — CEILING MOUNTED EXHAUST FAN
- MANUAL BALANCING DAMPER
- SD — DUCT MOUNTED SMOKE DETECTOR
- TS — DUCT MOUNTED TEMPERATURE SENSOR
- M — DUCT MOUNTED MOTORIZED DAMPER
- BD — DUCT MOUNTED BACKDRAFT DAMPER
- BARO — DUCT MOUNTED BAROMETRIC DAMPER
- DUCT CONTINUES UP
- THERMOMETER
- PRESSURE GAUGE
- H — DUCT HUMIDITY SENSOR
- DUCT FLOW METER
- M — MOTORIZED CONTROL VALVE
- BALANCING VALVE
- SHUT-OFF/ISOLATION VALVE
- SA/RA TAKE-OFF WITH FLEX TAKE-OFF W/ DAMPER
- SA/RA TAKE-OFF WITH RIGID DUCT TAKE-OFF W/ DAMPER
- SQUARE TO ROUND
- DEMOLITION HATCH INDICATION

EQUIPMENT, PIPE, DUCT, FITTINGS, ETC TO BE DEMOLISHED WILL BE INDICATED SPECIFICALLY OR BY HATCHED MARKING.

AIR DISTRIBUTION DEVICE TAG

A — DEVICE TAG
110 — AIRFLOW (CFM)
6x6 — DEVICE SIZE

SUPPLY/RETURN DUCT
FIRST DIMENSION = WIDTH
SECOND DIMENSION =HEIGHT — W x H

SUPPLY/RETURN DUCT
ROUND PIPE
D=INSIDE DIAMETER DIMENSION — DØ

- # — DEMOLITION KEYNOTE
- (#) — KEYNOTE
- CONNECT TO EXISTING AT THIS POINT
- DEMOLISH BACK TO THIS POINT
- ACCESS PANEL
- UNION
- FLEXIBLE CONNECTION
- CHECK VALVE
- STRAINER
- PUMP
- T — TEMPERATURE SENSOR
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- FD/SD — COMBINATION FIRE/SMOKE DAMPER
- C — CONDENSATE DRAIN PIPE
- C — CLEAN-OUT IN CD
- CD TRAP (REFER TO DETAIL)
- REF — INSULATED REFRIGERANT LINES
- T — THERMOSTAT
- S — SENSOR - ZONE SENSOR
- TS — TEMPERATURE SENSOR
- CO — CARBON MONOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- DG / UC — DOOR GRILLE AND 1" UNDERCUT

ABBREVIATIONS

ALL MAY NOT APPLY

AHU	AIR HANDLING UNIT
BTU	BRITISH THERMAL UNIT
CD	CONDENSATE
CFM	CUBIC FEET PER MINUTE
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CRAH	COMPUTER ROOM AIR HANDLER
CRCU	COMPUTER ROOM CU
CHS	CONDENSING UNIT
CWS	CHILLED WATER SUPPLY
ΔP	DIFFERENCE IN PRESSURE
ΔT	DIFFERENCE IN TEMPERATURE
DB	DRY BULB TEMPERATURE (DEG. F)
DEG. F	DEGREES FAHRENHEIT
DDC	DISTRIBUTED DIGITAL CONTROLS
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE (In W.C.)
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
FD	FIRE DAMPER
FPI	FINS PER INCH
GPM	GALLONS PER MINUTE
HHWS	HEATING HOT WATER SUPPLY
HHWR	HEATING HOT WATER RETURN
HP	HEAT PUMP
HWS	HOT WATER SUPPLY
In W.C.	INCHES OF WATER COLUMN
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	1,000 BTUS PER HOUR
MFG.	MANUFACTURER
OA	OUTSIDE AIR
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RND	ROUND
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SD	SMOKE DAMPER
SM	SURFACE MOUNTED
SS	STAINLESS STEEL
TSP	TOTAL STATIC PRESSURE
UNO	UNLESS NOTED OTHERWISE
V/PZ	VOLT/PHASE
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE (DEG. F)

REFRIGERANT PIPING

1.BELOW FINISHED FLOOR: COPPER TUBING - TYPE "K" SOFT ANNEALED TEMPER, NO JOINTS BELOW GRADE.

2.ABOVE FINISHED FLOOR: COPPER TUBING - TYPE "L"HARD DRAWN TEMPER WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS AT 1100 DEG F; FLUX MATERIAL NOT ALLOWED.

3.SUCTION LINES SHALL BE INSULATED WITH MINIMUM 3/4" ARMAFLEX INSULATION WITH TAPED JOINTS. INSULATION SHALL ALWAYS COMPLY WITH FBC-EC 403.2.10. HANGERS STRAPS OR SADDLES SHALL NOT COMPRESS INSULATION BELOW REQUIRED SIZE.

4.EXTERIOR PIPING INSULATION SHALL BE PROTECTED FROM UV RADIATION. COVER ALL EXTERIOR REFRIGERANT LINES WITH ALUMINUM JACKET, INSTALLED TO SHED WATER AND SECURED WITH STAINLESS STEEL BANDS 12" O.C.

5.SYSTEMS SHALL BE PLACED UNDER A VACUUM FOR REMOVAL OF NON-CONDENSABLES PRIOR TO BEING PUT INTO SERVICE.

6.SYSTEMS SHALL BE PRESSURE TESTED USING NITROGEN PRIOR TO BEING PUT INTO SERVICE.

7.PIPES SHALL BE SIZED BY THE EQUIPMENT MFG.

CODE REFERENCE

ALL MAY NOT APPLY

THE LATEST EDITIONS OF THE ESTABLISHED STANDARDS OF THE FOLLOWING ORGANIZATIONS, AND INDIVIDUAL STANDARDS NAMED SHALL BE FOLLOWED THE SAME AS IF THEY WERE FULLY WRITTEN HEREIN AND CONSTITUTE A PART OF THE SPECIFICATION REQUIREMENTS EXCEPT WHERE OTHERWISE SPECIFIED:

FBC, BUILDING FLORIDA BUILDING CODE 8TH EDITION

FBC, MECHANICAL FLORIDA BUILDING CODE 8TH EDITION

FBC, EXISTING BUILDING FLORIDA BUILDING CODE 8TH EDITION

FBC, FUEL GAS FLORIDA BUILDING CODE 8TH EDITION

FBC, ENERGY CONSERVATION FLORIDA BUILDING CODE 8TH EDITION

FFPC FLORIDA FIRE PREVENTION CODE, 2023 8TH EDITION

NFPA 13 STANDARD FOR THE INSTALLATION OF FIRE SPRINKLER SYSTEMS

NFPA 51B STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING AND OTHER HOT WORK

NFPA 54 NATIONAL FUEL GAS CODE

NFPA 90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS

NFPA 90B STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS

NFPA 101 LIFE SAFETY CODE

NFPA 101A GUIDE ON ALTERNATIVE APPROACHES TO LIFE SAFETY

NFPA 101B CODE FOR MEANS OF EGRESS FOR BUILDINGS AND STRUCTURES

NFPA 900 BUILDING ENERGY CODE

ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE

ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS

ADA AMERICAN WITH DISABILITIES ACT

UL UNDERWRITERS LABORATORIES

THESE CODE AND STANDARDS SHALL BE CONSIDERED A MINIMUM REQUIREMENT. THE CONTRACTOR SHALL NOT RELIEVED FROM PROVIDING HIGHER GRADE MATERIALS, PRODUCTS AND WORKMANSHIP WHICH MAY BE SPECIFIED WITHIN THESE DOCUMENTS.

DUCTWORK SPECIFICATIONS

1.SHEET METAL DUCTWORK

1.1.DUCT MATERIAL CLASS "A" GALVANIZED STEEL OR ROLLED STEEL IN COMPLIANCE WITH SMACNA 205-3RD EDITION LOW/MEDIUM PRESSURE DUCT STANDARDS TABLE 1.1. DUCTS SHALL BE TESTED, VERIFIED AND RECORDED IN ACCORDANCE WITH ASHRAE 90.1-2013 REQUIREMENT BASED ON LEAKAGE RATE LESS THAN 4% PER 100SF OF DUCT.
1.2.SEALER: LOW VOC MASTIC PAINT.

2.GENERAL:

2.1.LINES SHALL BE RUN STRAIGHT, LEVEL, PLUMB, AND ROUTED AS INDICATED IN THESE DRAWINGS. ALL LABELED DUCT DIMENSIONS ARE INTERNAL SIZES AND INDICATE FULL INSIDE CLEAR FREE AREA.
2.2.MINOR MODIFICATIONS TO DUCT ROUTING DUE TO OBSTRUCTIONS OR COORDINATION WITH OTHER TRADES WILL BE FURNISHED WITHOUT ADDITIONAL COST TO THE OWNER. ANY CHANGES IN SIZE TO DUCTWORK MUST BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION AND INSTALLATION.
2.3.ALL MITERED RECTANGULAR DUCT 90 DEGREE ELBOWS SHALL BE PROVIDED WITH TURNING VANES.
2.4.ALL SUPPLY, RETURN AND EXHAUST DUCTS SHALL BE EXTERNALLY INSULATED UNLESS OTHERWISE NOTED. INSULATION SHALL BE EQUAL TO JOHNS MANVILLE MICROLIGHT XL 2" THICK 0.75 PCF R6.0 OUT OF THE BOX WITH FSK VAPOR BARRIER. SEAL WITH FIRE RATED MASTIC SEAL PER UL-181A-M AT ALL JOINTS AND SEAMS; OR APPROVED ACRYLIC FOIL PRESSURE SENSITIVE TAPE PER UL-181A-P APPLIED USING SQUEEGEE APPROVED METHOD AT JOINTS AND SEAMS. RUBBER BASE TAPES ARE NOT ALLOWED.
2.5.DUCTBOARD IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
2.6.DUCTS SHALL HAVE MINIMUM INSULATION VALUES AS LISTED IN FBC-EC 403.2.9.1.

3.FLEXIBLE DUCTS:

3.1.DUCT TO AIR TERMINALS SHALL BE LIMITED IN LENGTH AS SHOWN IN DETAILS.
3.2.SHALL BE UL LISTED AS A CLASS 1 AIR DUCT COMPLYING WITH UL STANDARD 181, NFPA 90A & 90B AND HAVE A FLAME SPREAD RATING OF NOT OVER 25 AND A SMOKE DEVELOPMENT RATING NOT OVER 50.
3.3.SHALL HAVE A POSITIVE OPERATING PRESSURE OF 10" MINIMUM. FLEXIBLE DUCT SHALL HAVE BEEN TESTED FOR A MAXIMUM INTERNAL OPERATING TEMPERATURE OF 200°F UNDER CONTINUOUS OPERATION.
3.4.SHALL BE RATED FOR A MINIMUM AIR VELOCITY OF 5000 FPM.
3.5.INSULATION SHALL BE A MINIMUM OF 2" THICK 3/4 PCF DENSITY FIBERGLASS. SUPPLY DUCTS SHALL HAVE INSULATION WITH A MINIMUM R-VALUE OF 4.2, BUT R-6 FOR SUPPLY DUCT IN ATTIC AND OUTDOOR SPACES. OUTER LINER SHALL BE A BI-DIRECTIONAL FIBERGLASS REINFORCED METALIZED VAPOR BARRIER. FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE, AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRIMPS OR OTHER AIR FLOW RESTRICTIONS.
3.6.PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHERE REQUIRED. FLEXIBLE DUCT SHALL HAVE A FULL 10-YEAR WARRANTY.
3.7.INNER LINER SHALL CONSIST OF A CPE CORE PERMANENTLY BONDED TO A COATED SPRING STEEL WIRE HELIX (MIN. 041" THICK).
3.8.SHALL BE THERMAFLEX TYPE M-KE, FLEXMASTER TYPE 8M OR EQUAL.
3.9.SHALL BE SUPPORTED SO THAT HORIZONTAL RUNS ARE STRAIGHT AND WITHOUT SAGS OR BENDS. SHEET METAL SADDLES SHALL BE PROVIDED AT ALL HANGERS FOR FLEX DUCTS TO PREVENT KINKING OF THE DUCTS AND EXCESSIVE COMPRESSION OF THE INSULATION.

ENERGY SYSTEMS - THERMOSTATS

1.HEATING AND COOLING TO EACH ZONE MUST BE CONTROLLED INDIVIDUALLY BY A THERMOSTAT CONTROL. AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL ALSO BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

2.THERMOSTATIC CONTROLS THAT CONTROL BOTH HEATING AND COOLING SHALL HAVE A DEADBAND OF 5°F MINIMUM WHERE WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM.

3.ZONES NOT CONTINUOUSLY OPERATED OR WITH FULL HVAC LOAD DEMAND EXCEEDING 6800 BTU/HR (2 KW) SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM. THE SETBACK CONTROLS SHALL BE IN ACCORDANCE WITH FBC CHAPTER 4, C403.2.4.2.

4.INSTALL THERMOSTAT WITHIN 48" A.F.F., AND ADJACENT TO LIGHT SWITCHES WHERE POSSIBLE.

HVAC GENERAL NOTES

1.ONLY NEW EQUIPMENT SHALL BE PROVIDED UNLESS INDICATED AS EXISTING TO REMAIN.

2.ALL CONNECTIONS TO EQUIPMENT SHALL BE MADE WITH FLEXIBLE REGIONS FOR VIBRATION ISOLATION.

3.ALL EQUIPMENT SHALL BE LABELED SO THAT USERS CAN IDENTIFY EACH PIECE OF EQUIPMENT. LABELS SHALL BE CONSISTENT WITH EQUIPMENT TAGS THAT ARE LISTED IN THE SCHEDULES WITHIN THESE DOCUMENTS. ANY ABOVE CEILING EQUIPMENT SHALL HAVE A LABEL PROVIDED ON THE CEILING BELOW THE UNIT FOR EASE OF LOCATING BY MAINTENANCE PERSONNEL.

4.ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.

5.INSTALL DUCTWORK AND PIPING AS HIGH AS POSSIBLE ABOVE CEILING.

6.COORDINATE THE INSTALLATION OF DUCTWORK AND PIPING WITH ELECTRICAL EQUIPMENT SO THAT THE REQUIRED CODE CLEARANCES TO ELECTRICAL EQUIPMENT IS MAINTAINED.

7.DUCTWORK AND PIPING INSTALLATIONS SHALL ALLOW FOR EQUIPMENT RECOMMENDED MAINTENANCE CLEARANCES. CONVENIENT ACCESS FOR REMOVAL OF FILTERS SHALL BE MAINTAINED.

8.MATERIALS INSTALLED WITHIN A RETURN AIR PLENUM SHALL BE NONCOMBUSTIBLE.

9.COORDINATE THE PLACEMENT AIR DISTRIBUTION EQUIPMENT WITH THE CEILING AND LIGHTING LAYOUT.

10.THE CEILING DIFFUSERS SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED.

11.AT THE ONSET OF TEST AND BALANCE ACTIVITIES PROVIDE NEW FILTERS TO ALL UNITS. DO NOT OPERATE UNITS WITHOUT FILTERS DURING CONSTRUCTION. SEAL ALL OPEN ENDED DUCTS DURING CONSTRUCTION.

12.ENSURE ALL EQUIPMENT HAS BEEN CLEANED AT THE END OF THE PROJECT.

13.DO NOT LOCATE AIR INTAKES CLOSER THAN 10 FEET FROM ANY VENT OR EXHAUST OUTLETS. ROUTE TOILET EXHAUST TO LOCATION SHOWN ON PLANS. WALL CAPS SHALL BE ALUMINUM CONSTRUCTION WITH BACKDRAFT DAMPER, BIRD AND INSECT SCREENS.

14.PROVIDE FIRE DAMPER IF SHOWN ON PLANS, WHERE DUCT PENETRATES FIRE-RATED CONSTRUCTION. ATTACH 1/2" OR LARGER TEXT LABELING THE DAMPER ACCESS LOCATION(S). EQUIVALENT APPLIES FOR SMOKE DAMPER AND FIRE/SMOKE DAMPER.

15.INSTALL DUCT MOUNTED SMOKE DETECTOR (FURNISHED BY DIVISION 26) IN SUPPLY AIR DUCT BEFORE ANY TAKE OFFS FOR AIR HANDLING UNITS WITH SUPPLY AIR CAPACITY OF 2000 CFM OR GREATER.

16.WHERE FIRE, SMOKE, COMBINATION FIRE SMOKE DAMPERS CONTROL DAMPERS, VALVES, COILS OR OTHER DEVICE NEEDING ACCESS ARE INSTALLED, PROVIDE DUCT ACCESS DOORS. WHERE INSTALLED IN INACCESSIBLE LOCATIONS, PROVIDE CEILING/WALL ACCESS PANELS. PANELS LOCATED IN RATED ASSEMBLIES SHALL BEAR A UL RATING. COORDINATE LOCATION OF SUCH ACCESS WITH ARCHITECT PRIOR TO INSTALLATION.

17.PROVIDE MEANS OF TEST AND BALANCE IN ALL TAKE OFF FITTINGS OF SUPPLY EXHAUST, RETURN SYSTEMS AND AT EACH POINT WHERE A BRANCH SERVES TWO OR MORE GRILLES, WHETHER SHOWN ON THE PLANS OR NOT.

18.WHERE CONFLICTS BETWEEN LIGHT SWITCHES AND THERMOSTAT/HUMIDISTAT LOCATIONS, THE LIGHT SWITCH TAKES PRECEDENCE. CONTROLLERS SHALL BE MOUNTED ADJACENT AND WITHIN 48" AFF.

19.PRODUCE MANUFACTURER'S INSTALLATION INSTRUCTION AT INSPECTION PER FBC-M304.1:

19.1.SPLIT A/C EQUIPMENT: LENNOX, TRANE, CARRIER, DAIKIN
19.2.DOAS -HIGH % OA A/C EQUIPMENT: AAON, ADDISON, DESERT AIRE, COMPUAIRE
19.3.AIR DISTRIBUTION: PRICE, METALAIRE, TITUS
19.4.FANS: PENNBERRY, GREENHECK, BROAN, PANASONIC, COOK
19.5.LOUVERS: GREENHECK, RUSKIN, POTTORFF

DESIGN CRITERIA

BUILDING TYPE: GROUP B, BUSINESS

CLIMATE ZONE 2A, GADSDEN COUNTY, FLORIDA

OUTDOOR DESIGN CONDITIONS (SUMMER): 96 DEG Fdb, 77 DEG Fwb

OUTDOOR DESIGN CONDITIONS (WINTER): 26 DEG Fdb

INTERIOR DESIGN CONDITIONS: 75 DEG F COOLING, 72 DEG F HEATING

ENERGY COMPLIANCE METHOD: TOTAL BUILDING PERFORMANCE

CONDENSATE PIPING

1.CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS.

2.ALL CONDENSATE DRAIN PIPE SYSTEMS SHALL HAVE A BUILT TRAP AT EACH PIECE OF EQUIPMENT PER DETAILS.

3.ALL LINES SHALL BE INSULATED WITH 1/2" ARMAFLEX FROM EQUIPMENT TO APPROVED DISPOSAL POINT OR OUTSIDE AT GRADE IN COMPLIANCE WITH FBC-M 307.2.1. OUTSIDE DISPOSAL AT EARTH SHALL BE MINIMUM 1 FOOT AWAY FROM BUILDING STRUCTURE AND FOUNDATION.

4.TRAP AIR CONDITIONING CONDENSATE AND RUN TO LOCATION SHOWN ON PLANS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIRST 12" OF CONDENSATE PIPE, INCLUDING TRAP. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDENSATE PIPE AFTER 12" OF PIPE FROM THE UNIT, UP TO AND INCLUDING CONDENSATE TERMINATION.

5.COVER ALL EXTERIOR CONDENSATE LINES WITH ALUMINUM JACKET, INSTALLED TO SHED WATER AND SECURED WITH STAINLESS STEEL BANDS 12" O.C.

6.IF OTHERWISE UNSPECIFIED, TERMINATE CONDENSATE INTO STORM CONNECTION, OR ARCHITECT-APPROVED GRAVEL OR GREEN PATCH AT LEAST 12" AWAY FROM BUILDING.

7.PROVIDE CONDENSATE SAFETY SWITCH AND UNIT SHUTOFF SEQUENCE IN THE EVENT OF CONDENSATE OVERFLOW OR BACKUP.

8.CONDENSATE DRAIN SIZING (PER FBC-M TABLE 307.2.2)

UP TO 20 TONS	3/4" DIAMETER
21 TO 40 TONS	1"DIAMETER
41 TO 90 TONS	1 1/4"DIAMETER
91 TO 125 TONS	1 1/2" DIAMETER
126 TO 250 TONS	2" DIAMETER

251 AND ABOVE SIZED BASED ON ACTUAL FLOW

GENERAL NOTES

1.THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR ANY MISUSE AND/OR MISREPRESENTATION OF THIS SET OF DOCUMENTS.

2.THE CONTRACTOR ASSUMES RESPONSIBILITY FOR THE USE OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL MAKE THEMSELVES AWARE OF PROJECT CONDITIONS AND OWNER REQUIREMENTS PRIOR TO PROCUREMENT OF EQUIPMENT AND SERVICES. CHANGES IN PROJECT COST WILL NOT BE GRANTED DUE TO FIELD CONFLICTS AND OR PROJECT CONDITIONS.

3.THIS SET OF DRAWINGS AND SPECIFICATIONS SHALL NOT BE CONSIDERED A SET OF CONSTRUCTION DOCUMENTS UNLESS A SIGNATURE AND DATE ARE AFFIXED TO THE DRAWINGS AND SPECIFICATIONS BY THE ENGINEER OF RESPONSIBLE CHARGE OF THE GIVEN DISCIPLINE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED UNLESS EMBOSSED AND THE SHA AUTHENTICATION CODE MUST BE VERIFIED ON ELECTRONIC COPIES.

4.CONFLICTS BETWEEN THIS SET OF DRAWINGS AND THE CONTRACT SPECIFICATIONS SHALL BE RESOLVED BY THE ENGINEER OF RECORD. THE CONTRACTOR DOES NOT HAVE THE AUTHORITY TO INTERPRET CONFLICTS AND RESOLVE ISSUES WITHOUT WRITTEN DIRECTION FROM THE ENGINEER OF RECORD.

5.ANY CONFLICTS IN THE FIELD OR WITHIN THESE DOCUMENTS SHALL BE RECORDED AND PROVIDED TO THE ENGINEER OF RECORD ON THE CONTRACTOR'S STANDARD LETTERHEAD. WRITTEN DIRECTION RESOLVING CONFLICT WILL BE ISSUED BY THE ENGINEER OF RECORD.

6.PRIOR TO INSTALLATION, COORDINATE AND ADJUST THE FINAL LOCATION OF ALL WALL MOUNTED DEVICES AND EQUIPMENT WITH ALL CASEWORK, SHELVING OR OTHER WALL MOUNTED FURNISHINGS.

7.PLANS ARE DIAGRAMMATIC IN NATURE AND INTENDED TO SHOW THE GENERAL SCOPE OF THE WORK TO BE PERFORMED. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL DIMENSIONS.

8.DUE TO THE SMALL SCALE OF THE DRAWINGS, AND TO UNFORESEEN JOB CONDITIONS, ALL REQUIRED OFFSETS, TRANSITIONS AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AT NO ADDITIONAL COST.

9.THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND EXISTING EQUIPMENT TO ENSURE THE EQUIPMENT SPECIFIED WILL WORK FOR THE SPACES PROVIDED. FINAL DIMENSIONS OF SYSTEMS SHOWN ON THESE PLANS SHALL BE COORDINATED IN THE FIELD. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR PROVIDING OFFSETS AND TRANSITIONS TO FIT IN SPACES PROVIDED AND AT NO COST TO THE OWNER.

10.THE CONTRACTOR IS RESPONSIBLE FOR ANY SPECIAL REQUIREMENTS INVOLVED IN INSTALLING EQUIPMENT IN THE BUILDING. DISMANTLING AND REASSEMBLING OF ANY EQUIPMENT SHALL BE DONE AS REQUIRED TO BRING INTO THE BUILDING AND EQUIPMENT ROOMS.

11.ALL WORK PERFORMED AS PART OF THIS PROJECT SHALL BE PERFORMED BY EXPERIENCED TRADESMEN WHO ARE TRAINED, EXPERIENCED, AND SKILLED IN THE TASKS INCIDENTAL TO THE PROJECT.

12.ALL WORK SHALL COMPLY WITH APPLICABLE OSHA AND EPS REGULATIONS AND GUIDELINES.

13.THE CONTRACTOR PERFORMING WORK ON THIS PROJECT WILL BE RESPONSIBLE FOR REGULARLY CLEANING THE WORK AREA OF ANY DEBRIS ASSOCIATED WITH THE WORK BEING PERFORMED. THE SITE SHALL BE CLEAN OF ALL CONSTRUCTION DEBRIS AT THE COMPLETION OF THE JOB, BEFORE FINAL PAYMENT IS MADE.

14.REASONABLE PRECAUTIONS SHALL BE MADE FOR SAFETY AND HEALTH INCLUDING BUT NOT LIMITED TO WARNING SIGNS, SAFETY PRECAUTIONS, AND BARRICADES FOR PEDESTRIANS.

15.COORDINATE ALL DEMOLITION, CLEANING, AND CONSTRUCTION WORK. CONTRACTOR SHALL PROVIDE OWNER A FULL CONSTRUCTION SCHEDULE.

16.CONTRACTOR SHALL BE HELD TO PROVIDED SCHEDULE. THEY SHALL BE RESPONSIBLE FOR PROVIDING SUFFICIENT MANPOWER AND EQUIPMENT TO COMPLETE THE WORK IN THE TIME INDICATED.

17.THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND SECURITY OF ALL EQUIPMENT AND MATERIALS. THE LOCATION OF STORAGE SHALL BE RESTRICTED SPECIFICALLY TO THE AREA ALLOTTED BY THE OWNER.

18.ALL ITEMS INSTALLED UNDER THE SCOPE OF THIS PROJECT SHALL BE NEW, CLEAN, AND FREE OF DEFECTS.

19.IF DRAWING CHANGES ARE NEEDED FOR INSPECTION DUE TO FIELD CHANGES MADE BY THE CONTRACTOR WITHOUT PRIOR APPROVAL OF THE ENGINEER AND AGREED UPON TERMS, THEN THE CONTRACTOR SHALL PAY HOURLY RATES TO THE ENGINEER OF RECORD FOR MAKING NECESSARY CHANGES.

20.SUPPORTS, HANGERS, WIRING, AND PIPING SHALL BE INSTALLED IN A NEAT FASHION AND IN AN ORDERLY APPEARANCE.

21.ALL ROOF EQUIPMENT SHALL BE SECURED TO STRUCTURE TO RESIST A 160 MPH WIND LOAD.

22.PROTECT THE ROOF FROM DAMAGE WHENEVER ANY WORK ON THE ROOF IS REQUIRED.

23.CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL PARTITIONS LABELED WITH A SPECIAL LISTING ON THE ARCHITECTURAL PLANS. THIS INCLUDES FIRE, SMOKE ACOUSTICAL AND OTHER UL WALL OR CEILING ASSEMBLIES.

24.STRUCTURAL PENETRATIONS INCLUDING BUT NOT LIMITED TO WALL, FLOOR, OR BEAM SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. ALL BEAM SLEEVES AND REINFORCING APPROVED BY STRUCTURAL ENGINEER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

25.CONTRACTOR SHALL GUARANTEE THE WORK AND MATERIALS FOR PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE. THIS GUARANTEE SHALL BE IN ADDITION TO THE WARRANTIES PROVIDED BY THE MATERIAL SUPPLIES AND MANUFACTURERS.

26.VALUE ENGINEERING OR CHANGES TO PLANS MUST BE APPROVED BY THE ENGINEER OF RECORD AND RESUBMITTED THROUGH THE BUILDING DEPARTMENT PRIOR TO BEING INSTALLED.

MECHANICAL SHEET INDEX

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Robert E Gelhardt II 2025.05.23
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Submittal

Phase	Date	Drw	Chk
100% Construction Doc.	5/26/25	BK	RG
100% Review Documents	12/16/24	BK	RG
Design Development	7/31/24	BK	RG
Schematic Design	6/25/24	BK	RG
-	-		
-	-		

Revision

#	Description	Date

CRA Project # 23065

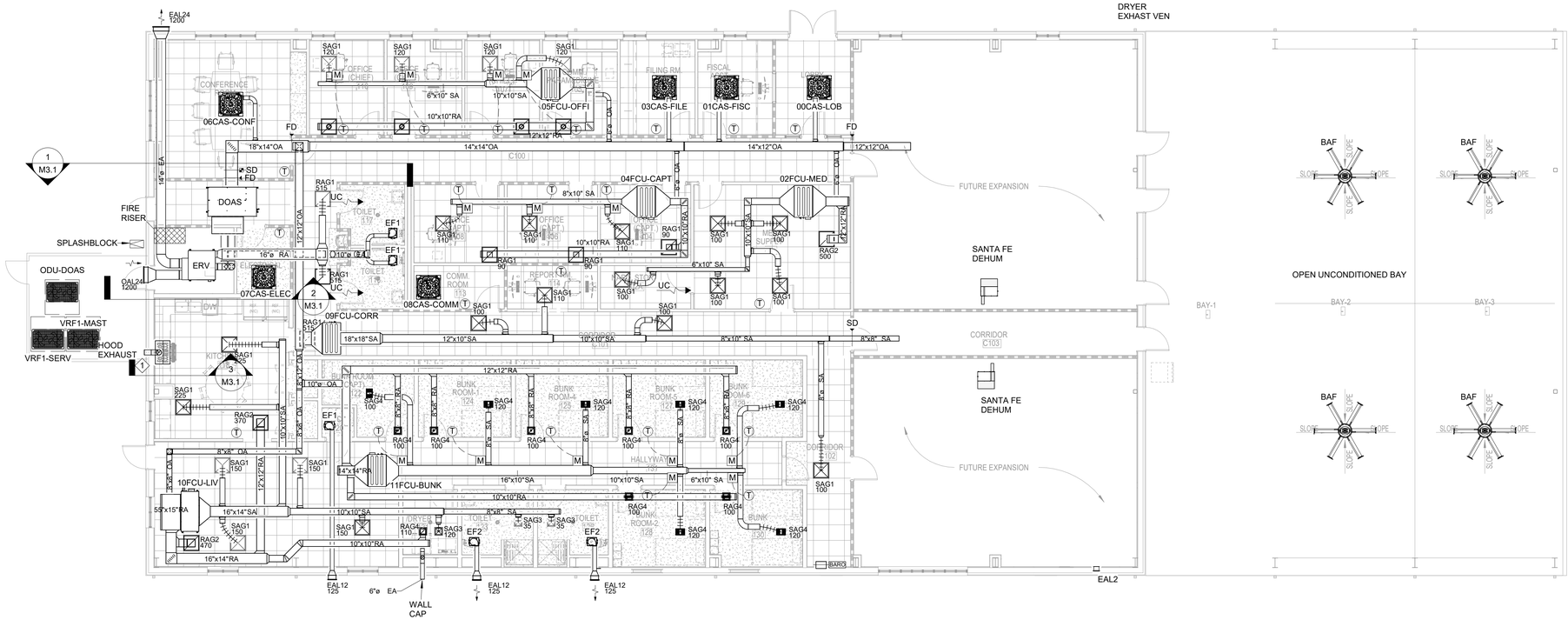
Phase: 100% Construction Documents

SHEET TITLE

HVAC NOTES & LEGENDS

M0.1

Robert E. Gelhardt II, P.E., State of Florida, Professional Engineer, License No. FL 77568. This item has been digitally signed and sealed by Robert E. Gelhardt II, P.E. on the date indicated here. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



1 PHASE 1 MECHANICAL FLOOR PLAN

1 / M1.1

Scale: 1/8" = 1'-0"

HVAC GENERAL NOTES

1. CONTRACTOR SHALL ROUTE NEW DUCTS WITHIN CEILING SPACE UNDER AND AROUND STRUCTURE, AND OVER OTHER DUCTS.
2. NEW DUCT WORK SHALL USE SHEET METAL DUCTS.
3. CONTRACTOR SHALL PROVIDE ALL NEW GRILLES WHERE SHOWN ON FLOOR PLAN.
4. CONTRACTOR SHALL VENT DRYER EXHAUST UP TO ROOF WITH ROOF CAP AND INSECT SCREEN.

MECHANICAL RENOVATION KEYED NOTES

1	PROVIDE RANGE HOOD SWITCH FOR ODOR CONTROL.

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ROBERT E GELHARDT II LICENSEE NO. 77568 STATE OF FLORIDA PROFESSIONAL ENGINEER

Robert E. Gelhardt II, PE#77568

Submittal

Phase	Date	Drw	Chk
100% Construction Doc.	5/26/25	BK	RG
100% Review Documents	12/16/24	BK	RG
Design Development	7/31/24	BK	RG
Schematic Design	6/25/24	BK	RG
-	-		
-	-		

Revision

#	Description	Date

CRA Project # 23065

Phase: 100% Construction Documents

SHEET TITLE

HVAC FLOOR PLAN

M1.1

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HVAC GENERAL NOTES

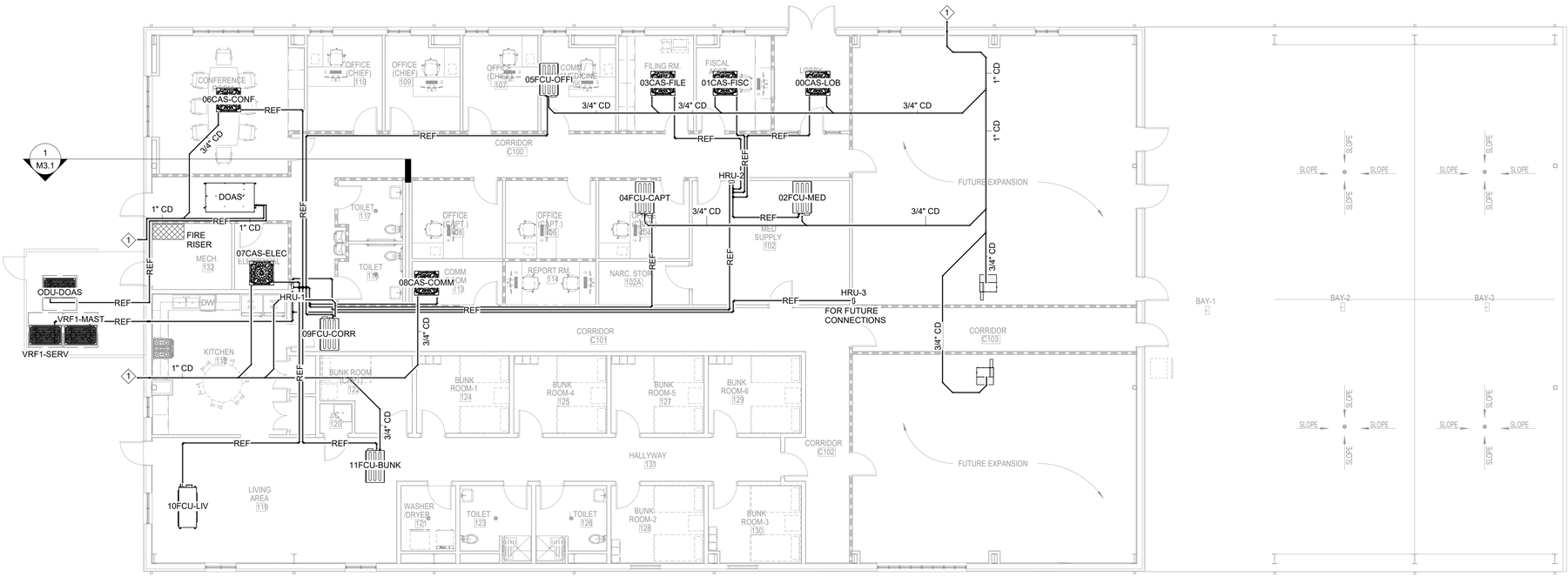
1. CONTRACTOR SHALL ROUTE NEW DUCTS WITHIN CEILING SPACE UNDER AND AROUND STRUCTURE, AND OVER OTHER DUCTS.

2. NEW DUCT WORK SHALL USE SHEET METAL DUCTS.

3. CONTRACTOR SHALL PROVIDE ALL NEW GRILLES WHERE SHOWN ON FLOOR PLAN.

4. CONTRACTOR SHALL VENT DRYER EXHAUST UP TO ROOF WITH ROOF CAP AND INSECT SCREEN.

X	HVAC PIPING RENOVATION KEYED NOTES
1	CONTRACTOR SHALL ROUTE CONDESATE DISCHARGE MINIMUM 18" AWAY FROM BUILDING FOUNDATION ONTO SPLASH BLOCK.



1 M3.1

1 M1.2

PHASE 1 MECHANICAL PIPING FLOORPLAN

Scale: 1/8" = 1'-0"

FSM Engineering
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FL CA 28968

GADSDEN CO. BOCC

Gadsden Co EMS Facility

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Quincy, FL 32351

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Robert E Gelhardt II 2025.05.23

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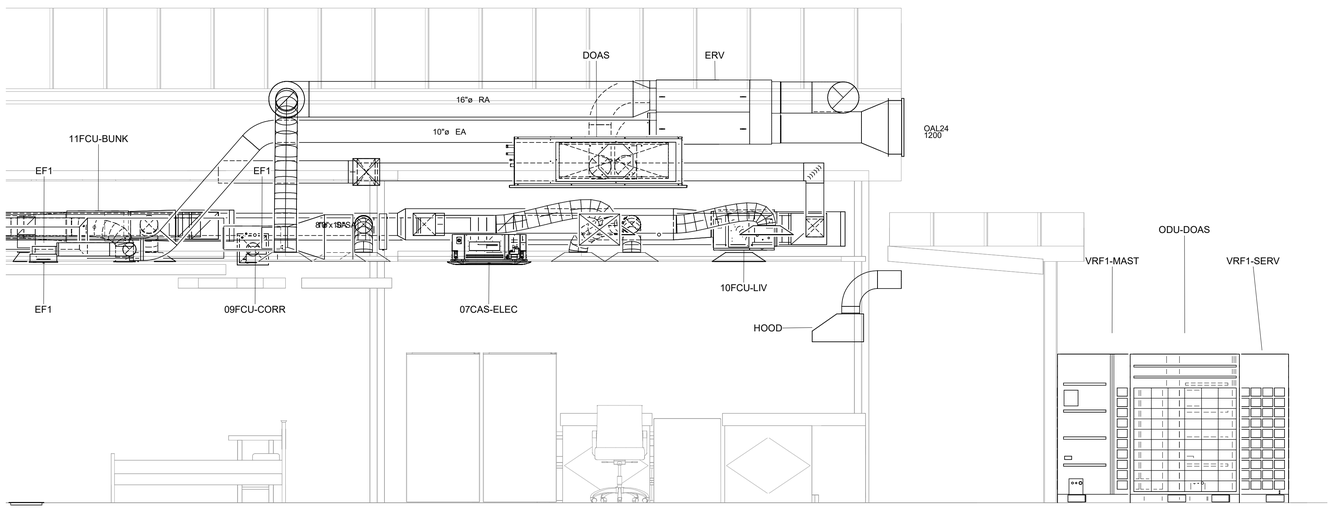
SHEET TITLE

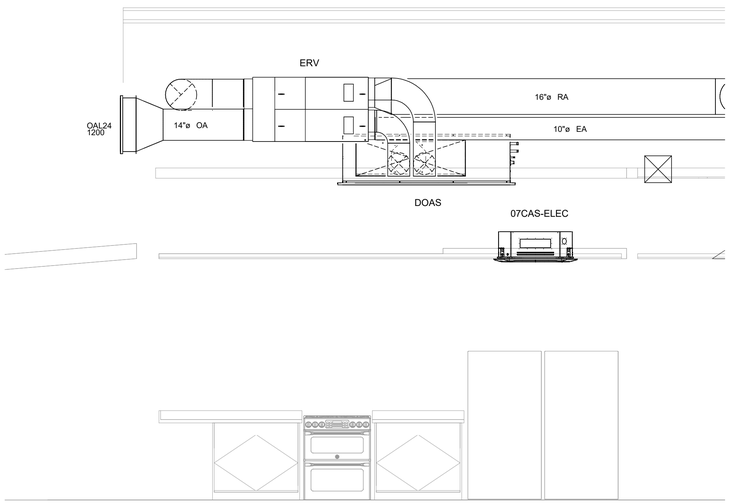
HVAC PIPING FLOOR PLAN

M1.2



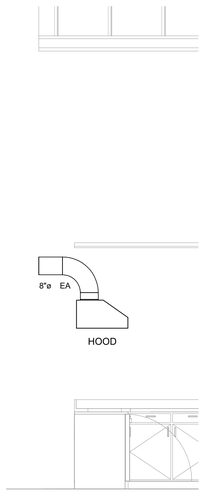
1 M3.1 MECHANICAL CROSS-SECTION

Scale: 3/8" = 1'-0"



2 M3.1 MECHANICAL & ELECTRICAL ROOM SECTION

Scale: 3/8" = 1'-0"



3 M3.1 KITCHEN SECTION

Scale: 3/8" = 1'-0"

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HVAC SECTIONS

M3.1

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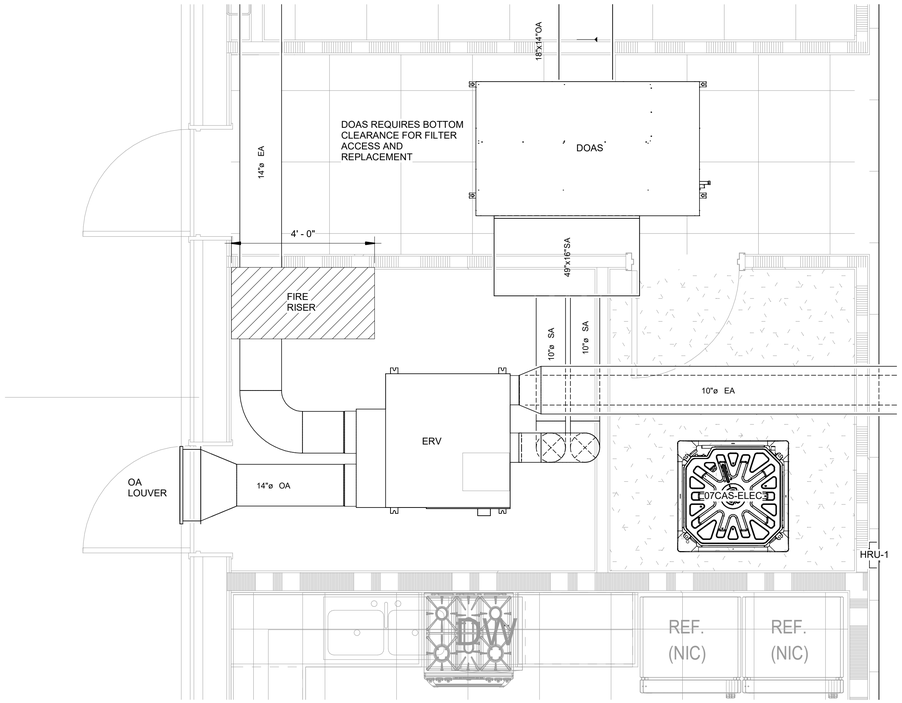
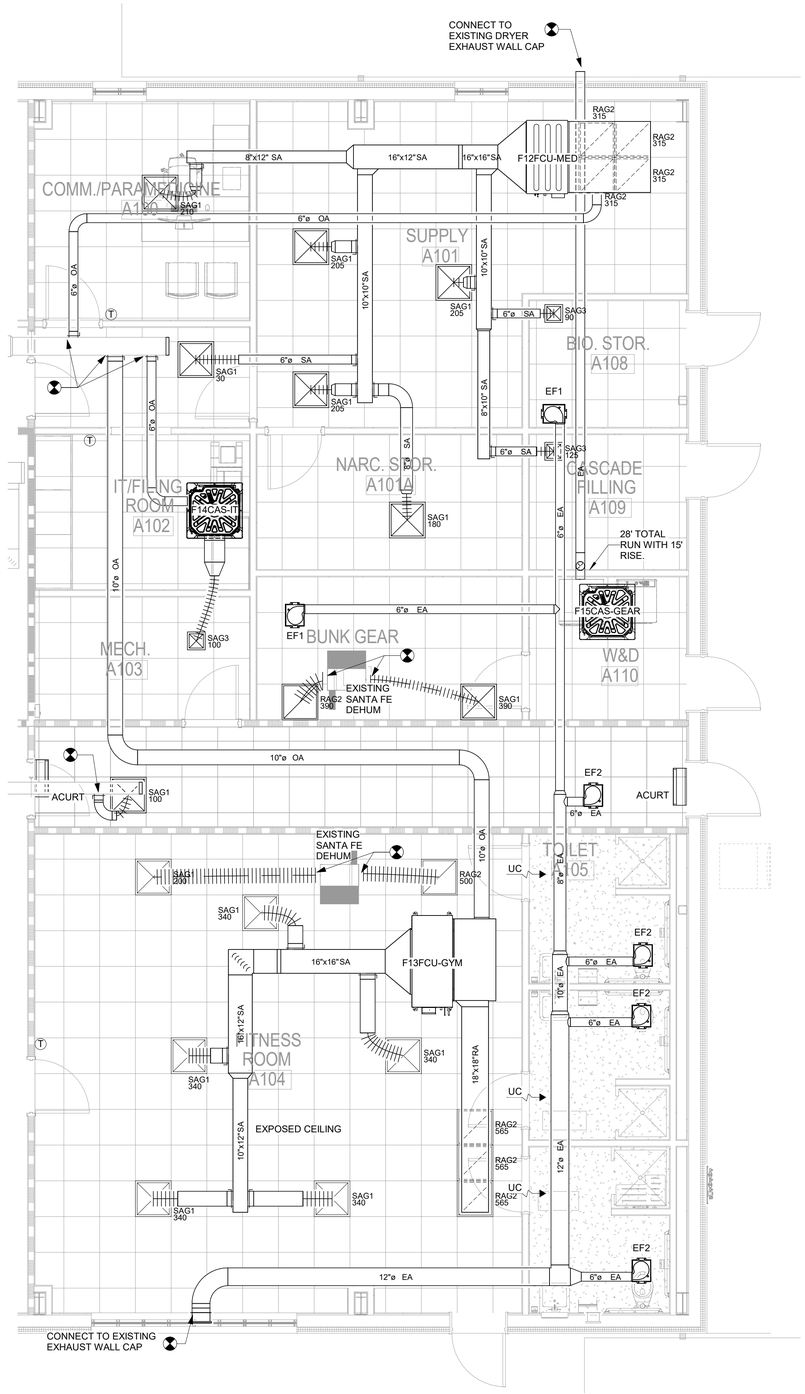


1 M4.1 ENLARGED FLOOR PLAN - MECHANICAL ROOM

Scale: 1/2" = 1'-0"



2 M4.1 ENLARGED FLOOR PLAN - FUTURE BUILDOUTS

Scale: 1/4" = 1'-0"

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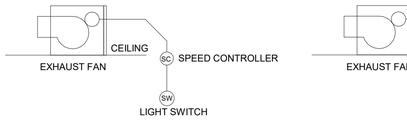
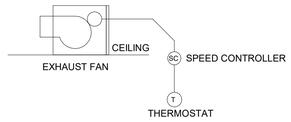
SHEET TITLE

HVAC ENLARGED PLANS

M4.1

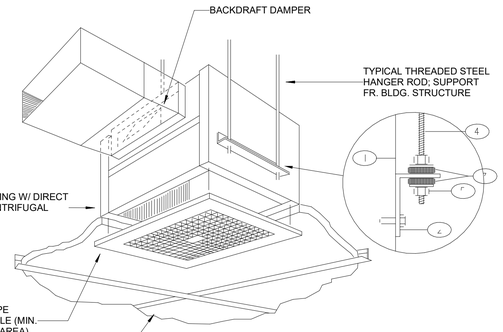


EXHAUST FAN - LIGHT SWITCH CONTROL



EXHAUST FAN - THERMOSTAT CONTROL

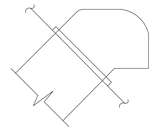
SPEED CONTROL (SOLID STATE)
MOUNT ADJACENT TO FAN



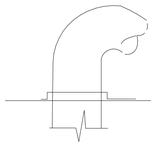
GENERAL NOTES:

* PROVIDE BACKDRAFT DAMPER AT FAN AND BIRD SCREEN AT OUTLET.
* PROVIDE INTERNAL ISOLATION AND SOUND INSULATION, AS NECESSARY.

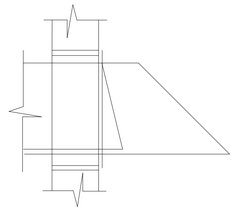
1. GALVANIZED STEEL HOUSING
2. ADJUSTABLE MOUNTING FLANGE
3. VIBRATION ISOLATOR, TOP AND BOTTOM
4. 3/16" DIAMTER THREADED HANGER RODS, TOTAL OF FOUR, SUPPORT FROM BUILDING STRUCTURE. PROVIDE SECONDARY FRAMING AS NECESSARY
5. LOCKING NUT AND WASHER



TYPICAL SLOPED ROOF CAP



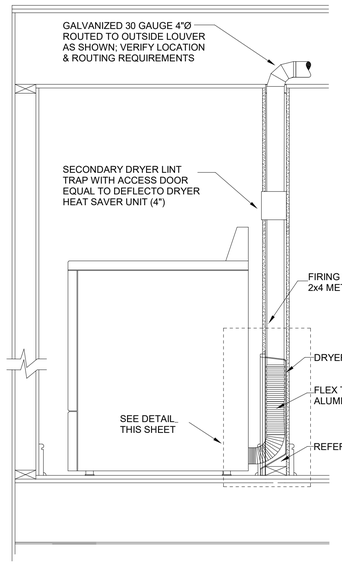
TYPICAL FLAT ROOF CAP



TYPICAL WALL CAP

1 EXHAUST FAN DETAIL

M5.1 SCALE: NTS



DRYERBOX INSTALLATION

DYER VENTING: MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RUNNING ALL DUCTWORK FOR THE DRYER EXHAUST SYSTEM. ALL CONCEALED DRYER DUCTING MUST BE RIGID METAL (GALVANIZED OR ALUMINUM) MINIMUM OF 4" IN DIAMETER. SMOOTH 30 GA. CLEAN, UNOBSTRUCTED, FRICTIONLESS DUCTS (NO FLEXIBLE DUCT ALLOWED IN CONCEALED AREAS). SEAL ALL JOINTS WITH FOIL BACKED PRESSURE SENSITIVE DUCT TAPE MEETING THE REQUIREMENTS OF UL 181. DUCT JOINTS SHALL BE INSTALLED SO THAT THE MALE END OF THE DUCT POINTS IN THE DIRECTION OF THE AIRFLOW. DO NOT USE RIVETS OR SCREWS IN THE JOINTS OR ANYWHERE ELSE IN THE DUCT AS THESE WILL ENCOURAGE LINT COLLECTION.

DRYERBOX RECEPTACLE SHALL BE METAL AND BE INSTALLED AS LOW AS POSSIBLE AS TO PERMIT THE PROPER AND SAFE COLLECTION OF THE DRYER TRANSITION HOSE. DRYERBOX SHOULD BE RESTING ON THE BOTTOM PLATE AND BE LOCATED AT OR NEAR THE CENTERLINE OF THE PROPOSED DRYER APPLIANCE. RIGID DUCT SHOULD PENETRATE DRYERBOX PORT 2 INCHES TO PROVIDE FOR FUTURE CONNECTION AND STORAGE OF TRANSITION HOSE. BASEBOARD SHALL BE "BUTTED" UP TO THE FIXED EXTENSION RIM AND SLIGHTLY BACK-CUT. DRYERBOX SHOULD BE CAULKED AND THEN PAINTED WITH THE TRIM PAINT. FOR USAGE IN A ONE-HOUR WALL ASSEMBLY UL REQUIRES THAT BATT INSULATION BE STUFFED AROUND THE DRYERBOX AND IN THE ENTIRE WALL CAVITY CELL.

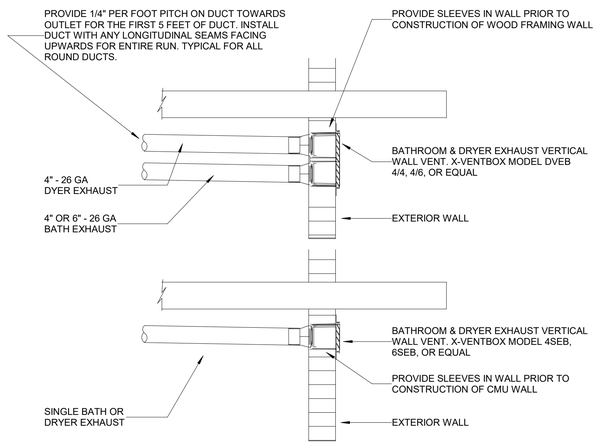
LENGTH OF CONCEALED RIGID METAL DUCTING SHALL NOT EXCEED 35 FEET. DEDUCT FIVE FEET FROM THE ALLOWABLE LENGTH FOR EVERY 3.5" RADIUS 90 DEGREE ELBOW AND TWO AND A HALF FEET FOR EVERY 45 DEGREE FITTING. DRYER VENTING SHALL BE INDEPENDENT OF ANY OTHER SYSTEMS (CHIMNEYS OR EXHAUST VENTS). TERMINATION OF DRYER VENTING MUST BE TO THE EXTERIOR WITH A PROPER HOOD OR ROOF JACK EQUIPPED WITH A BACK-DRAFT DAMPER. SMALL ORIFICE METAL SCREENING SHOULD NOT BE PART OF THE HOOD OR ROOF JACK AS THIS WILL ACCELERATE LINT ACCUMULATION AND BLOCKAGE. THE HOOD OPENING SHOULD POINT DOWN AND EXHIBIT 12 INCHES OF CLEARANCE BETWEEN THE BOTTOM OF THE HOOD AND THE GROUND OR OTHER OBSTRUCTION. VERIFY APPLIANCE MANUFACTURER'S RECOMMENDATIONS FOR ANY OTHER FACTORS.

PERMANENTLY AFFIX AN ENGRAVED PHENOLIC TAG WITHIN 6 FEET OF THE EXHAUST DUCT CONNECTION WHICH STATES THE FOLLOWING WITH ACTUAL INSTALLED VALUES:

"THE INSTALLED DRYER VENT IS "X" FEET LONG WITH "Y" 90° ELBOWS AND "Z" 45° ELBOWS. TO AVOID FIRE HAZARD, ANY DRYER INSTALLED HERE SHOULD BE RATED BY THE MANUFACTURER TO VENT THRU AT LENGTH PLUS THE OCCUPANT INSTALLED FLEXIBLE CONNECTIONS LENGTH AND ELBOWS"

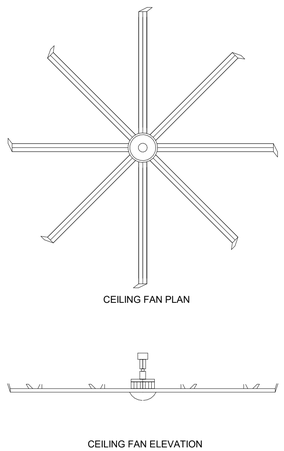
2 RESIDENTIAL DRYER VENTING DETAIL

M5.1 SCALE: NTS



3 BATHROOM AND DRYER EXHAUST DETAIL

M5.1 SCALE: NTS



CEILING FAN PLAN

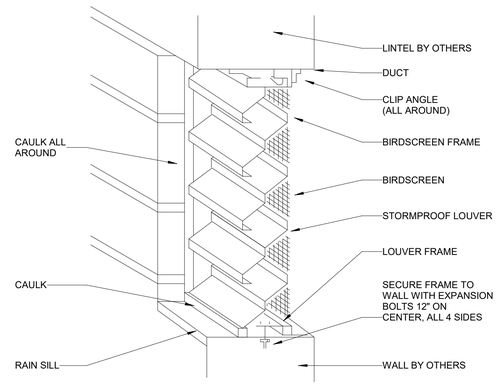
CEILING FAN ELEVATION

NOTES:

1. VERIFY EXTENSION TUBE LENGTH AND MOUNTING BRACKET WITH MANUFACTURER PRIOR TO ORDERING.
2. FAN(S) TO BE TIED INTO FIRE SUPPRESSION SYSTEM PER NFPA 13 REQUIREMENTS.
3. FAN(S) TO BE INSTALLED TO MEET ALL BAF FAN CLEARANCE GUIDELINES.
4. SYSTEM DESIGN AND PERFORMANCE ANALYSIS TO BE DEPENDENT ON CFD MODELING, CONSISTENT WITH METHODS IN ASHRAE STANDARD 55, AND TAKING INTO ACCOUNT MAJOR OBSTRUCTIONS TO AIRFLOW AT GROUND LEVEL.
5. FACTORY WARRANTY EQUAL TO 15 YEARS MECHANICAL, 7 YEARS ELECTRICAL, 1 YEAR LABOR. SEE THE COMPLETE WARRANTY FOR MORE DETAILS.
6. FAN SHALL BE CAPABLE OF CONTINUOUS OPERATION IN 32F - 122F AMBIENT CONDITIONS
7. FAN GEARBOX SHALL BE EQUIPPED WITH A HOLLOW, STATIC SHAFT THROUGH WHICH ELECTRICAL WIRING CAN BE ROUTED BELOW THE FAN AND TO WHICH AN LED LIGHT OR OCCUPANCY SENSOR CAN BE ATTACHED.
8. OPTIONAL IP65-RATED LED LIGHT KIT CAPABLE OF PROVIDING UP TO 20,780 LUMENS.
9. OPTIONAL OCCUPANCY SENSOR POWERED BY FAN DRIVE WITH 5 PROGRAMMABLE TIMEOUT SETTINGS.

4 BIG ASS 'ELEMENT' CEILING FAN DETAIL

M5.1 SCALE: NTS



5 TYPICAL WALL LOUVER DETAIL

M5.1 SCALE: NTS

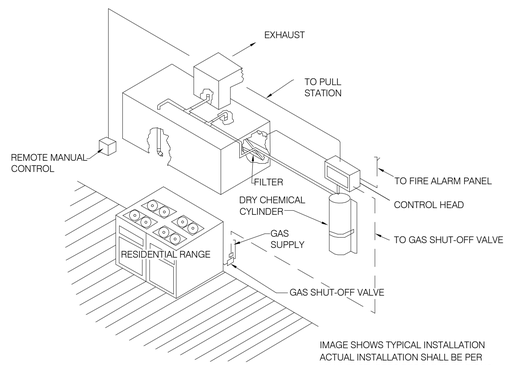


IMAGE SHOWS TYPICAL INSTALLATION ACTUAL INSTALLATION SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

GENERAL NOTES:

1 CONTRACTOR SHALL PROVIDE RESIDENTIAL FIRE SUPPRESSION SYSTEM "GUARDIAN 1384B" OR EQUAL.

2 HOOD SHALL BE BROAN 40000 SERIES HOOD SIZED AS APPROPRIATE FOR EQUIPMENT BEING SERVED. MINIMUM WIDTH SHALL MATCH EQUIPMENT. FAN SHALL NOT EXCEED 399 CFM WITHOUT MAKE UP AIR.

3 SYSTEM TO COME COMPLETE WITH AUDIBLE SONIC SHUTOFF OF POWER TO RANGE AND WITH ALARM SIGNAL.

4 INSTALL IN ACCORDANCE WITH MFR. RECOMMENDATIONS.

5 KITCHEN HOOD FIRE PROTECTION SYSTEM TO BE DESIGNED & INSTALLED IN ACCORDANCE WITH NFPA 86 AND NFPA 17A.

6 FIRE PROTECTION SYSTEM TO BE ANSUL DRY CHEMICAL PRE-ENGINEERED FIRE SUPPRESSION SYSTEM, OR APPROVED EQUAL.

6 FIRE PROTECTED RANGE HOOD

M5.1 SCALE: NTS

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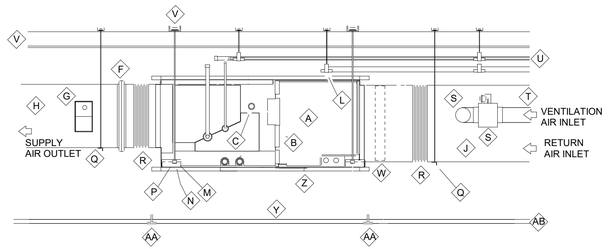
SHEET TITLE

HVAC DETAILS

M5.1



A. DUCTED DX TYPE FAN-COIL UNIT WITH UL APPROVED FACTORY OR FIELD INSTALLED ELECTRICAL DISCONNECT. UNIT TO BE SUPPORTED AS INDICATED IN DETAIL PER FACTORY INSTALLATION INSTRUCTIONS.

B. LOW VOLTAGE TO AHU SECONDARY DRAIN LEVEL SENSOR IN PAN WITH CONTROLLER & ALARM PANEL TO DISENGAGE FAN-COIL UNIT WHEN HIGH WATER IS DETECTED IN CONDENSATE DRAIN PER VENDOR.

C. 3/4" SCHEDULE 80 CPVC CONDENSATE DISCHARGE LINE WITH 3/4" ARMAFLEX UNICELLULAR CLOSED CELL FOAM; LINE TO BE SLOPED AT 1/8" PER FOOT. SEE P-TRAP DETAIL.

F. "DUCTMATE" GASKET TYPE FITTING FOR RECTANGULAR DUCTS SIZED AT 24" AND UP. DUCT MAY BE SUPPORTED FROM THIS FITTING PER VENDOR & 2005 SMACNA REQUIREMENTS.

G. UL APPROVED IN-LINE SMOKE DETECTOR IN SUPPLY; DEVICES ARE REQUIRED IN FREE PULLING AIR PLENUMS WHEN ALL UNITS EXCEED 2000 CFMS TOTAL AIR CAPACITY OR SINGLE AHU AT 2000 CFMS AND HIGHER. SEE SPEC'S FOR ADDITIONAL INFORMATION. CONNECT TO BUILDING FIRE ALARM PANEL.

H. SUPPLY AIR GALVANIZED METAL DUCT PER 2005 SMACNA DUCT STANDARDS BASED ON GAUGE THICKNESS IN COMPLIANCE WITH SCHEDULES; DUCT SHALL BE WRAPPED WITH INSULATED BLANKET PER SPECS, MECHANICAL MATERIAL SCHEDULES & DETAILS.

J. SAME AS NOTE ABOVE FOR RETURN AIR DUCT.

L. TYPICAL CLEVIS HANGER WITH THREADED ROD, STEEL CHANNEL & METAL SADDLE UNDER INSULATED LINE AS SHOWN. SEE DETAILS FOR ADDITIONAL INFORMATION.

M. NEOPRENE COMPRESSOR MOUNT BY MASON INDUSTRIES; TYPICAL FOR EACH UNIT BRACKET SHOWN.

N. FLAT STEEL WASHER SIZED BASED ON NEOPRENE ISOLATOR.

P. LOCKING NUT FOR ADJUSTMENT; TYPICAL FOR ALL NUTS USED FOR HANGING OR UNIT SUPPORT.

Q. SUPPORT "L" STEEL SIZED PER 2005 SMACNA DUCT STANDARDS WITH ALL THREAD ROD, STEEL FLAT WASHER & LOCKING UNIT.

R. UL 181 APPROVED FLEXIBLE DUCT CONNECTOR WITH SUPPORT FLANGE & SEALED CONNECTION; DEVICE TO BE PROPERLY SEALED AIR TIGHT AS REQUIRED PER SPECS.

S. VENTILATION DUCT CONNECTION TO MIXED AIR PLENUM WITH BACKDRAFT DAMPER

T. OPPOSED BLADE AIR BALANCING DAMPER AS INDICATED.

U. ROUTE REFRIGERANT LINES TO OUTDOOR UNIT AS REFLECTED IN PIPING SCHEMATIC DRAWING IN COMPLIANCE WITH VENDOR INSTALLATION INSTRUCTIONS

V. ROOF OR STRUCTURE SUPPORT; VERIFY EXACT TYPE, LOCATION, MATERIAL COMPONENT, HEIGHT FROM FINISHED FLOOR, ETC.

W. UNIT AIR FILTER RACK RATED AT MERV 13 WITH ACCESSIBLE GASKET DOOR.

Y. FAN-COIL OR AIR-HANDLING-UNIT ACCESS VIA APPROVED LAY-IN CEILING TILE AS SHOWN; IF HARD SHEET-ROCKTYPE CEILING APPLIED CONTRACTOR MUST USE FIXED TYPE HINGED ACCESS DOOR WITH VANISHING HINGE & LATCH-SCREWS; HATCH MUST BE PAINTED TO MATCH SURROUNDINGS; ACCESSIBLE HATCH TO BE SIZED BASED ON UNIT DIMENSIONS REQUIRED SERVICE REQUIREMENTS; COORDINATE WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.

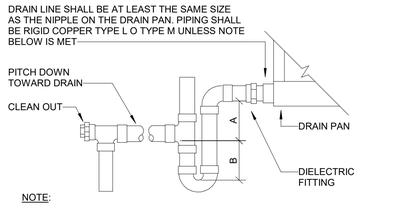
Z. FAN-COIL UNIT TO BE LOCATED ABOVE FINISHED CEILING BASED ON AVAILABLE SPACE & OTHER TRADES; BOTTOM OF UNIT SHALL NOT EXCEED 14'-0" AFF FOR ACCESSIBLE SERVICE ACCESS.

AA. TYPICAL LAY-IN CEILING GRID (BY OTHERS) OR SUPPORT FOR FIXED CEILING; VERIFY ACTUAL CONDITIONS PRIOR TO EFFORT.

AB. FINISHED CEILING MATERIAL; SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION & REQUIREMENTS.

1 HORIZONTAL DX TYPE FAN-COIL UNIT DETAIL

M5.2 SCALE: NTS



NOTE:

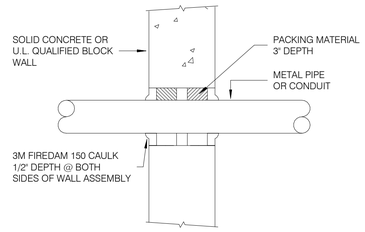
1.CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS
2.DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.
3.TERMINATE AT CODE ALLOWED GREEN SPACE INTO GRAVEL PIT MINIMUM 12" FROM BUILDING.

UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

2 AHU DRAIN TRAP

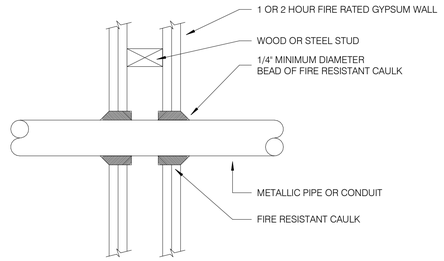
M5.2 SCALE: NTS



NOTES:

1. THE MAXIMUM ANNULAR SPACE TO BE FILLED IS 1". THE MINIMUM ANNULAR SPACE IS 1/4".
2. INSTALL THE FIRESTOP SYMMETRICALLY ON BOTH SIDES OF THE WALL ASSEMBLY.
3. RECESS A NOMINAL 3" THICKNESS OF 4 PCF. MINERAL WOOD SAFING, 1/2" FROM THE SURFACE OF THE WALL.
4. FILL THE ANNULAR SPACE AROUND THE PIPE WITH A MINIMUM 1/2" DEPTH OF 3M FIRE DAM 150 CAULK.
5. APPLY AN ADDITIONAL BEAD OF CAULK AROUND THE PERIMETER OF THROUGH OPENING LAPPING 1/4" TO 1/2" ONTO THE WALL.

FIRE RATED
2 HOUR RATING - U.L.# 161



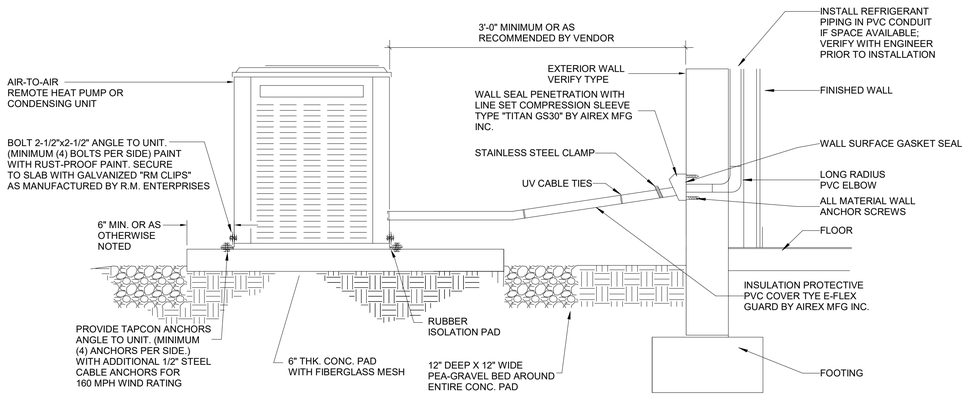
NOTES:

1. THE CAULK IS TO BE FORCED INTO THE ANNULAR SPACE TO THE MAXIMUM EXTENT POSSIBLE FLUSH WITH THE EXTERIOR OF THE PENETRATION SURFACE.
2. FINISH CAULKING WITH A 1/4" MINIMUM BEAD OF FIRE RESISTANT CAULK APPLIED TO THE PERIMETER OF THE CONDUIT,PIPE AT ITS EGRESS FROM THE WALL.
3. THE MAXIMUM ANNULAR SPACE IS NOT TO EXCEED 3/16".
4. THESE RECOMMENDTIONS ARE BASED ON PRODUCT PERFORMANCE PER ASTM E-814(UL 1479) FIRE TEST AND UL THROUGH-PENETRATION FIRESTOP SYSTEM WL1001 (FORMERLY SYSTEM #147)

FIRE RATED
1 HOUR & 2 HOUR RATING

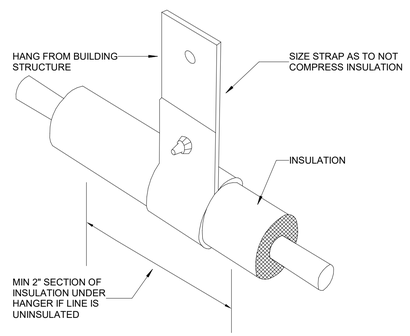
3 FIRE RATED ASSEMBLY - PIPE PENETRATION

M5.2 SCALE: NTS



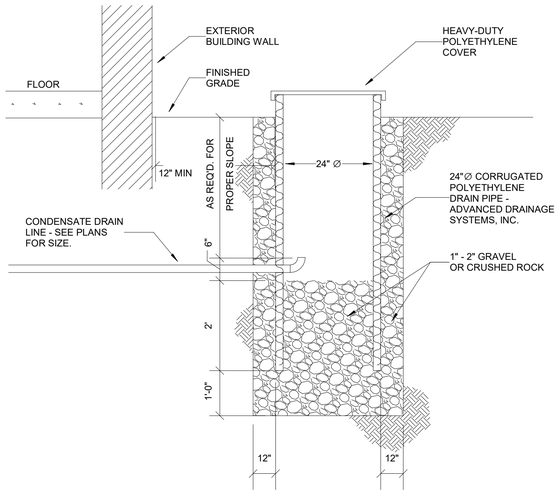
4 CONDENSING/HEAT PUMP UNIT OUTDOOR INSTALLATION DETAIL

M5.2 SCALE: NTS



5 REFRIGERANT PIPE HANGER DETAIL

M5.2 SCALE: NTS



6 CONDENSATE DRY WELL DETAIL

M5.2 SCALE: NTS

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150 John Knox Road
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GADSDEN CO. BOCC

Gadsden Co EMS Facility

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2027 Thomasville Road
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ROBERT E GELHARDT II LICENSEE No. 77568 STATE OF FLORIDA PROFESSIONAL ENGINEER

Robert E. Gelhardt II, PE#77568

Submittal

Phase	Date	Drw	Chk
100% Construction Doc.	5/26/25	BK	RG
100% Review Documents	12/16/24	BK	RG
Design Development	7/31/24	BK	RG
Schematic Design	6/25/24	BK	RG
-	-		
-	-		

Revision

#	Description	Date

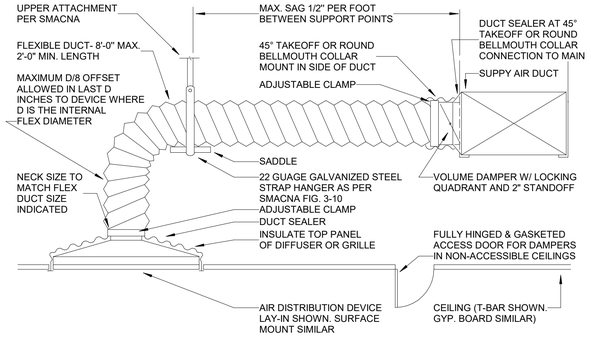
CRA Project # 23065

Phase: 100% Construction Documents

SHEET TITLE

HVAC DETAILS

M5.2

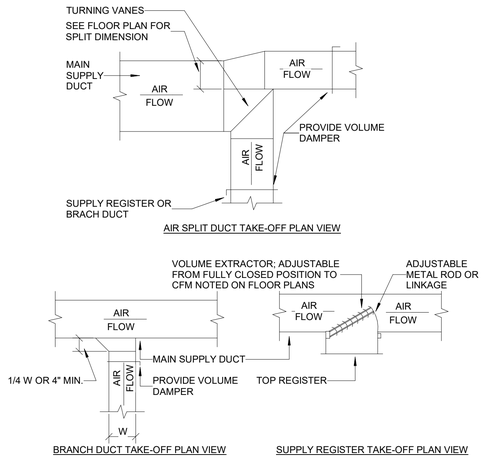


NOTES:

1. FLEXIBLE DUCTS SHALL BE IN ONE PIECE AND SHALL NOT BE SPLICED TOGETHER.
2. EXTEND FLEXIBLE DUCT INSULATION TO DUCT/DIFFUSER PANEL INSULATION AND SEAL WITH MASTIC.
3. FLEXIBLE AIR DUCT SHALL NOT EXCEED 8 FT. WHEN EXTENDED. ELBOW RADIUS SIZED FOR NO LESS THAN R/D = 1.0.
4. FLEXIBLE AIR DUCT SHALL NOT BE LESS THAN 5 FEET FOR ACOUSTICAL PURPOSES.

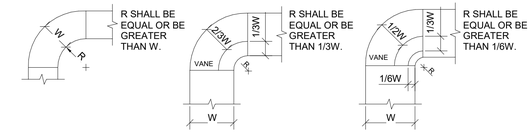
1 FLEXIBLE DUCT TAKEOFF DETAIL

M5.3 SCALE: NTS



2 SUPPLY DUCTWORK TAKE-OFF DETAIL

M5.3 SCALE: NTS



STANDARD RADIUS OR LONG RADIUS ELBOW

SHORT RADIUS ELBOW WITH ONE VANE

SHORT RADIUS ELBOW WITH TWO VANES

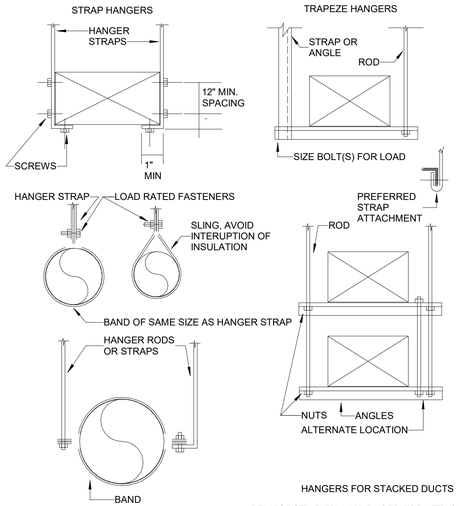
NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

3 DUCTWORK RADIUS ELBOW DETAIL

M5.3 SCALE: NTS

DUCT HANGER DETAILS



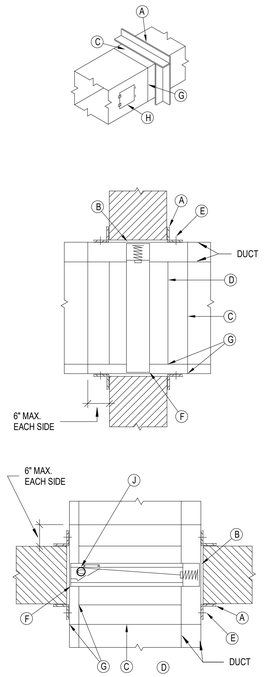
HANGERS FOR STACKED DUCTS

REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUCTS

DO NOT EXCEED LOAD RATING FOR METHOD USED.

4 HANGER DETAILS

M5.3 SCALE: NTS



(A) RETAINING ANGLES: MINIMUM 1 1/2" x 1 1/2" x 0.054 (16 GAUGE). RETAINING ANGLES MUST LAP STRUCTURAL OPENING 1" MINIMUM AND COVER OPENINGS OF CORNERS. CAULK THE EXTERIOR PERIMETER OF FIRE DAMPER RETAINING ANGLES WITH A THIN FILLET OF AN APPROVED CAULKING MATERIAL TO PREVENT THE PASSAGE OF SMOKE AND ALLOW MOVEMENT OF ANGLE.

(B) CLEARANCE: 1/8" PER LINEAR FOOT IN BOTH DIMENSIONS (SEE NOTE 1 BELOW).

(C) STEEL SLEEVE: 14 GAUGE, OR AS ALLOWED BY U.L. STANDARD 555.

(D) APPROVED FIRE DAMPER: CURTAIN OR BLADE TYPE.

(E) SECURE RETAINING ANGLES TO SLEEVE: ON 8" CENTERS WITH 1/2" LONG WELDS, OR 1/4" BOLTS AND NUTS, OR #10 STEEL SCREWS, OR MINIMUM 3/16" STEEL RIVETS.

(F) SECURE FIRE DAMPER TO SLEEVE: ON 8" CENTERS WITH 1/2" LONG WELDS, OR 1/4" BOLTS AND NUTS, OR #10 STEEL SCREWS, OR MINIMUM 3/16" STEEL RIVETS.

(G) CONNECT DUCT TO SLEEVE OR FIRE DAMPER: WITH BREAKAWAY CONNECTION.

(H) INSTALL HINGED ACCESS DOOR

(J) NEGATOR CLOSURE SPRING

NOTES:

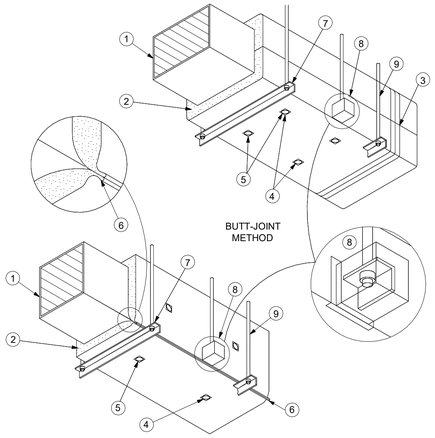
1. CLEARANCE REQUIREMENTS FOR FIRE DAMPER SLEEVES WITHIN OPENING IS BASED ON 1/8" PER FOOT OF WIDTH (OR HEIGHT) UNLESS OTHERWISE STATED IN THE LISTING OF THE ASSEMBLY. THE SLEEVE MAY REST ON THE BOTTOM OF THE OPENING, AND NEED NOT BE CENTERED. (FRACTIONAL DIMENSIONS SHALL BE TAKEN AS THE NEXT LARGER WHOLE FOOT). EXAMPLE: A 30" x 24" FIRE DAMPER SLEEVE IS INSTALLED IN A WALL/FLOOR OPENING. THE OPENING SHALL BE 30 3/8" WIDE (1/8" x 3') BY 24 1/4" HIGH (1/8" x 2').

   THE SLEEVE IS RETAINED IN THE WALL/FLOOR BY THE USE OF STEEL RETAINING ANGLES A . THESE MUST OVERLAP THE EDGE OF THE FRAMING BY A MINIMUM OF ONE (1) INCH OVER AND BEYOND ALL MATERIAL IN THE OPENING. THIS MEANS THAT THE MINIMUM WIDTH OF THE RETAINING ANGLE WOULD BE 1 3/8". (GOOD PRACTICE CALLS FOR AN ADDITIONAL SAFETY FACTOR BY MAKING THE ANGLE IN THIS CASE 1 1/2" WIDE).

   THE DIMENSIONS REQUIRED FOR THE OPENING SHALL BE THOSE REMAINING AFTER THE OPENING HAS BEEN FRAMED AND THE FIRE RESISTIVE MATERIALS PROVIDED WHERE REQUIRED. THE FIRE RESISTIVE MATERIALS SHALL BE EQUAL TO THE REQUIREMENTS FOR FIRE RESISTIVE MATERIALS USED IN THE CONSTRUCTED WALL SO THAT A CONTINUOUS RATING EXISTS AT THE WALL/FLOOR PENETRATION. THE CONTRACTOR ERECTING THE WALL/FLOOR IS RESPONSIBLE FOR PROVIDING THE FIRE RESISTIVE MATERIAL AND CORRECT SIZE OPENINGS TO ACHIEVE THE REQUIRED CLEARANCE.
2. THE FIRE DAMPER MANUFACTURER'S INSTALLATION DETAILS AND INSCTRUCIONS AS TESTED AND APPROVED BY U.L. MUST BE USED IN LIEU OF THE ABOVE DETAILS WHERE APPLICABLE.

5 FIRE DAMPER INSTALLATION

M5.3 SCALE: NTS



STAPLE-STITCHING METHOD

NOTES:

1. GALVANIZED METAL DUCT WITH SEALED SEAMS AND JOINTS USING PS-S POLY TYPE NO.P-301 PRODUCT.
2. BLANKET INSULATION WITH FACTORY-APPLIED VAPOR-RETARDER JACKET, 2" THICK R-6, 3/4 LB. CU. FT. DENSITY.
3. FACTORY LAP ALL SEALS (SEALED WITH ADHESIVE AND/OR STAPLES AND VAPOR-RETARDER TAPE). TAPE ALLOWS ALL JOINTS WITH FASON (SMANCA) ALUMINUM REINFORCED PRESSURE SENSITIVE TAPE; COAT EDGES, SEAMS, AND JOINTS WITH INSUL-COUSTIC PRODUCT BY "SURE-COAT M1-110" PRODUCT FIRE RESISTANT MASTIC.
4. MECHANICAL FASTENERS SUPPORTING INSULATION ON UNDERSIDE OF DUCTS OVER 24" WIDE (SPACE 3" MAXIMUM FROM THE BUTT JOINT).
5. VAPOR-RETARDER TAPE OVER TEARS AND PENETRATIONS OF THE VAPOR-RETARDER JACKET TO KEEP AIR TIGHT CONDITION.
6. ALTERNATE METHOD OF LAP SEAL - LONGITUDINAL JOINT LAPPED AND FOLDED, THEN STAPLED SECURELY IN PLACE.
7. HANGER ON EXTERIOR OF INSULATION. ENCAPSULATE EXPOSED END OF ANGLE. SEAL WITH ADHESIVE OR VAPOR-RETARDER TAPE.
8. HANGER EMBEDDED IN INSULATION. ENCAPSULATE EXPOSED END OF ANGLE. SEAL WITH ADHESIVE OR VAPOR RETARDER TAPE.
9. COMPLETELY ENCAPSULATE HANGER ROD AND ANGLE. SEAL TOP PENETRATION. ENCAPSULATE AND SEAL STRAP HANGERS IN A SIMILAR MANNER.

6 BLANKET FIBERGLASS INSULATION DETAIL

M5.3 SCALE: NTS

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ROBERT E GELHARDT II LICENSEE NO. 77568 STATE OF FLORIDA PROFESSIONAL ENGINEER

Robert E Gelhardt 2025.05.23

Robert E. Gelhardt II, PE#77568

Submittal

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-	-		
-	-		

Revision

#	Description	Date

CRA Project # 23065

Phase: **100% Construction Documents**

SHEET TITLE

HVAC DETAILS

M5.3

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DOAS Equipment Schedule

Location	Tag	Model Name	Type	Quantity	Nominal Capacity(BTU/h)			Corrected Capacity(BTU/h)				Entering Air Temp(°F)				Leaving Air Temp(°F)					Efficiency		Supply Air Fan		Piping Connections(inch)			Power Supply					Remarks
					Total Cooling	Reheat	Heating	Total Cooling	Sensible Cooling	Reheat	Heating	Cooling DBT	Cooling WBT	Heating DBT	Heating WBT	Cooling DBT	Cooling WBT	Reheat DBT	Reheat WBT	Heating DBT	ISMRE	ISCOP	Air flow rate(CFM)	ESP (inchAq)	Liquid	LP Gas	HP Gas	Volts	Phase	Hz	MCA (A)	MOP (A)	
MECH	DOAS	ARND153DCR4	SPLIT COMPACT DOAS	1	120000	24000	78500	102495	48291	18874	63883	95.0	80.0	27.0	25.7	54.8	54.1	70.0	60.0	76.3	7.8	3.6	1200	2	1/2	1-1/8	3/4	208/230 V	1 Phase	60Hz	7.5 A	15.0 A	1

ERV SCHEDULE

LOCATION	MARK.	MFG./ MODEL	TYPE	NOM. CFM	POWER IMPUT (W)	VOLTAGE/HZ/PHASE	AMPERAGE
MECH	ERV	LG/ ARVU123ZFA2	CROSS FLOW FIXED CORE	1180	980	208-230/60/1	6.82

Multi V Indoor Unit (IDU) Equipment Schedule

Outdoor Unit	Tag	Room Name	Model Name	Type	Quantity	Nominal Capacity(BTU/h)			Corrected Capacity(BTU/h)			Room Design Temp.(°F)			Air flow rate(CFM)	OA (CFM)	Piping (inch)		Power Supply			
						Total Cooling	Sensible Cooling	Heating	Total Cooling	Sensible Cooling	Heating	Cooling DBT	Cooling WBT	Heating DBT			Liquid	Gas	Volts	Phase	Hz	RLA (A)
VRF-1	00CAS	LOBBY	ARNU073TAA4	DUALVANE CST 4WAY	1	7500	5600	8500	7117	5194	8788	78.0	65.0	68.0	653/556/468	10	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	01CAS	FISC	ARNU073TAA4	DUALVANE CST 4WAY	1	7500	5600	8500	7117	5194	8788	78.0	65.0	68.0	653/556/468	15	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	02FCU	MED SUPPLY	ARNU123M2A4	DUCT HIGH STATIC	1	12300	9600	13600	11642	8836	14056	78.0	65.0	68.0	512/425/337	25	1/4	1/2	208~230V	1Ph	60Hz	2.3
VRF-1	03CAS	FILING	ARNU073TAA4	DUALVANE CST 4WAY	1	7500	5600	8500	7117	5194	8788	78.0	65.0	68.0	653/556/468	10	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	04FCU	OFFICE - CAPT	ARNU093M2A4	DUCT HIGH STATIC	1	9600	7600	10900	9036	6967	11269	78.0	65.0	68.0	468/381/294	45	1/4	1/2	208~230V	1Ph	60Hz	2.3
VRF-1	05FCU	OFFICE	ARNU123M2A4	DUCT HIGH STATIC	1	12300	9600	13600	11642	8836	14056	78.0	65.0	68.0	512/425/337	60	1/4	1/2	208~230V	1Ph	60Hz	2.3
VRF-1	06CAS	CONFERENCE	ARNU153TAA4	DUALVANE CST 4WAY	1	15400	11400	17100	14588	10531	17677	78.0	65.0	68.0	711/615/547	75	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	07CAS	ELECTRICAL	ARNU123TAA4	DUALVANE CST 4WAY	1	12300	9100	13600	11670	8389	14056	78.0	65.0	68.0	687/599/515	0	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	08CAS	COMM	ARNU123TAA4	DUALVANE CST 4WAY	1	12300	9100	13600	11670	8389	14056	78.0	65.0	68.0	687/599/515	0	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	09FCU	CORRIDOR	ARNU243M2A4	DUCT HIGH STATIC	1	24200	18900	27300	22640	16883	28219	78.0	65.0	68.0	673/512/425	210	3/8	5/8	208~230V	1Ph	60Hz	2.3
VRF-1	10FCU	LIVING	ARNU363B8A4	DUCT HIGH STATIC	1	36200	26100	40600	34258	24167	41942	78.0	65.0	68.0	1730/1317/1066	220	3/8	3/4	208~230V	1Ph	60Hz	5.2
VRF-1	11FCU	BUNK	ARNU283M3A4	DUCT HIGH STATIC	1	28000	22400	31500	26434	20554	32559	78.0	65.0	68.0	1250/1017/837	160	3/8	5/8	208~230V	1Ph	60Hz	2.5
VRF-1	F12FCU	FUTURE MED	ARNU283M3A4	DUCT HIGH STATIC	1	28000	22400	31500	26434	20554	32559	78.0	65.0	68.0	1250/1017/837	115	3/8	5/8	208~230V	1Ph	60Hz	2.5
VRF-1	F13FCU	FUTURE GYM	ARNU363B8A4	DUCT HIGH STATIC	1	36200	26100	40600	34258	24167	41942	78.0	65.0	68.0	1730/1317/1066	255	3/8	3/4	208~230V	1Ph	60Hz	5.2
VRF-1	F14CAS	FUTURE IT	ARNU073TAA4	DUALVANE CST 4WAY	1	7500	5600	8500	7117	5194	8788	78.0	65.0	68.0	653/556/468	0	3/8	5/8	208~230V	1Ph	60Hz	1.67
VRF-1	F15CAS	FUTURE GEAR	ARNU073TAA4	DUALVANE CST 4WAY	1	7500	5600	8500	7117	5194	8788	78.0	65.0	68.0	653/556/468	0	3/8	5/8	208~230V	1Ph	60Hz	1.67

DOAS AND IDU REMARKS:
1. INSTALL WITH MERV13 FILTER, MANUFACTURER'S THERMOSTAT, & CONDENSATE OVERFLOW SWITCH.
2. PROVIDE SINGLE POINT POWER CONNECTION WITH INTEGRAL DISCONNECT.
3. INCLUDE UNOCCUPIED SETBACK AND OPTIMAL START SEQUENCES.
4. [DOAS ONLY] MOTORIZED OUTSIDE AIR DAMPER. EQUIVALENT R-32/A2L RESELECTION IS ALSO ACCEPTABLE.
5. [04FCU-CAPT, 05FCU-OFFICE, AND 11FCU-BUNK ONLY] INCLUDE WITH AIRZONE VAF THERMOSTATS, MOTORIZED DAMPERS, AND AZVAFCB2LGE CONTROL GATEWAYS COMPATIBLE WITH VRF LG EQUIPMENT FOR INDIVIDUAL SPACE FLOW CONTROL AND ENERGY SAVINGS.
CONTACT CHRIS FOWLER CFOWLER@NCJAX.COM (904) 613-4453 FOR COMPONENTS AND INSTALL REQUIREMENTS.

RESIDENTIAL RANGE HOOD

MARK	MAN.	MODEL	FIRE SUPPRESSION	CFM	LBS	HOOD DIMS (WxLxH)
HOOD	GREENHECK	GRRS-W30TGDX	YES	250	90	23.5x30x12.5"

MANUFACTURER'S REQUIREMENTS			GAS DISCONNECT	HOOD ELEC		
TOP CONNECT	MIN DUCT SIZE	FAN CONNECT	OUTLET TYPE	VAC	BREAKER	FAN POWER
8"Ø	10"Ø	12"Ø	115VAC 5-15	115	15A	FROM HOOD

NOTES
1. THE SYSTEM SHALL BE CONFIGURED ACCORDING TO FBC-M505.1, WITH INDEPENDENT AIR-TIGHT SMOOTH SHEET METAL DUCTS AND A BACKDRAFT DAMPER.
2. THE SYSTEM SHALL HAVE AN EXHAUST OF 400CFM OR LESS, OR ELSE COMPLY WITH FBC-M505.2 MAKE-UP AIR REQUIREMENTS.
3. MANUAL PULL STATION, SOURCE CUT-OFF, INTEGRAL FIRE SUPPRESSION, ALARM, GREASE FILTER, AND INLINE FAN INCLUDED.
4. INSTALL WITH ROOF CAP, SECURE FOR WIND RATING DENOTED ON THE PROJECT NOTES PAGE.
5. THIS SYSTEM SHALL NOT BE USED IN HEALTH OR INSTITUTIONAL FACILITIES WITHOUT RESELECTION.
6. THE RANGE HOOD SHALL BE INSTALLED 24-36" ABOVE THE COOKING SURFACE.

Multi V Outdoor Unit (ODU) Equipment Schedule - Air

Location	Mark	Model Name	Type	Quantity	Total Capacity(BTU/h)		Corrected Capacity(BTU/h)		Power Input(kW)	Outdoor Temperature(°F)			Efficiency		Refrigerant	Piping (inch)			Power Supply					Sound Power (dB(A))
					Total Cooling	Total Heating	Total Cooling	Total Heating	Cooling	Heating	Cooling DBT	Cooling WBT	Heating DBT	Cooling IEER (SEER)	Heating COP (HSPF)		Liquid	LP Gas	HP Gas	Volts	Phase	Hz	MCA (A)	MOP (A)	
MECH YARD	VRF1	ARUM264BTE5	HR_MULTI V 5	1	264000	297000	254874	296776	17.6	29.7	95.0	80.0	27.0	18.4	3.6	R410A	3/4	1-3/8	1-1/8	208~230V	3Ph	60Hz	28.5+53.6	40+70	86
MECH YARD	ODU-DOAS	ARUM121BTE5	HR_MULTI V 5	1	119700	135000	113027	119755	5.2	9.7	95.0	80.0	27.0	25.6	4.0	R410A	1/2	1-1/8	3/4	208~230V	3Ph	60Hz	31	40	79

ODU REMARKS:
1. INTEGRAL DISCONNECT.
2. FOLLOW EQUIPMENT MANUFACTURER'S GUIDELINES FOR UNIT CLEARANCE AND REFRIGERANT LINE SIZING.
3. COMPRESSOR SOUND BLANKET, 500-HR SALT SPRAY ON CONDENSER COILS, CRANKCASE HEATER. SECURED FOR 160MPH WIND RATING.
4. VRF1 ALTERNATE ARUM241BTE5 IS ALSO ACCEPTABLE.

Multi V HR Boxes

ODU	Tag	Model Name	Quantity	Power Supply			
				Volts	Phase	Hz	RLA
VRF-1	HRU-1	PRHR083A	1	208 / 230V	1Ph	60Hz	0.2
VRF-1	HRU-2	PRHR043A	1	208 / 230V	1Ph	60Hz	0.2
VRF-1	HRU-3	PRHR043A	1	208 / 230V	1Ph	60Hz	0.2

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	AREAS SERVED	DRIVE TYPE	MOTOR (W)	STATIC PRESSURE	LwA	SONES	UNIT WEIGHT	VOLTS/PHASE	NOTES
EF1	LOREN COOK	GC-128	75	RR+MISC	DIRECT	0.04	0.20 in-wg	47	1	15	115/1	1
EF2	LOREN COOK	GC-148	125	BATH+HALL	DIRECT	0.04	0.20 in-wg	55	2	15	115/1	1

EF REMARKS:
1. TIE EXHAUST FAN CONTROL TO LIGHT SWITCH. PROVIDE FAN SPEED CONTROLLER AND BACKDRAFT DAMPER.

100% OA VENTILATION SCHEDULE

DOAS

Space No. Name	Zone Area, Az (ft²)	Zone Population, Pz (People)	People Outdoor Airflow Rate, Rp (CFM/Person)	Area Outdoor Airflow Rate, Ra (CFM/ft²)	Unoccupied Zone Outdoor Airflow Rate (CFM)	Breathing Zone Outdoor Airflow Rate, Vbz (CFM)	Zone Outdoor Airflow Rate, Voz (CFM)
100 LOBBY	118	0	5	0.06	9	7	9
101 FISCAL ASST.	113	1	5	0.06	8	12	15
102 MED SUPPLY	322	0	5	0.06	24	19	24
103 FILING ROOM	117	0	5	0.06	9	7	9
104 CAPT. OFFICE	116	1	5	0.06	9	12	15
105 PARAMEDICINE	109	1	5	0.06	8	12	14
106 CAPT. OFFICE	116	1	5	0.06	9	12	15
107 CHIEF OFFICE	117	1	5	0.06	9	12	15
108 CAPT. OFFICE	116	1	5	0.06	9	12	15
109 CHIEF OFFICE	112	1	5	0.06	8	12	15
110 CHIEF OFFICE	117	1	5	0.06	9	12	15
111 CONFERENCE	362	8	5	0.06	27	62	77
113 REPORT RM.	64	2	5	0.06	5	14	17
114 REPORT RM.	64	2	5	0.06	5	14	17
115 NARC. STORAGE	64	0	5	0.06	5	4	5
118 KITCHEN	276	6	5	0.12	41	63	79
119 LIVING AREA	504	15	5	0.06	38	105	132
121 WASH/DRYER	60	0	5	0.12	9	7	9
122 CAPT. BUNK	100	1	5	0.06	8	11	14
124 BUNK RM-1	117	2	5	0.06	9	17	21
125 BUNK RM-4	117	2	5	0.06	9	17	21
127 BUNK RM.-5	117	2	5	0.06	9	17	21
128 BUNK RM.-2	117	2	5	0.06	9	17	21
129 BUNK RM.-6	117	2	5	0.06	9	17	21
130 BUNK RM.-3	117	2	5	0.06	9	17	21
130M MECH	865	0	5	0.06	65	52	65
C100.1 WEST CORRIDOR	187	0	0	0.06	14	11	14
C100.2 NORTH CORRIDOR	410	0	0	0.06	31	25	31
C101.1 MID CORRIDOR	410	0	0	0.06	31	25	31
C101.2 BAY CORRIDOR	205	0	0	0.06	15	12	15
C102 EAST CORRIDOR	166	0	0	0.06	12	10	12
C103 SOUTH HALLWAY	276	0	0	0.06	21	17	21
F100A COMM PARAMED	145	1	5	0.06	11	14	17
F100B VEST.	79	0	0	0.06	6	5	6
F101A MED SUPPLY	368	1	5	0.06	28	27	34
F101B NARC. STOR.	112	0	5	0.06	8	7	8
F102A IT/ FILING ROOM	190	0	5	0.06	14	11	14
F103A FITNESS ROOM	729	8	20	0.06	55	204	255
F104A CASCADE FILLING	66	0	5	0.06	5	4	5
F105A BUNK GEAR STOR.	119	0	5	0.06	9	7	9
F106A BIO STOR.	60	0	5	0.12	9	7	9
F107A BUNK GEAR W&D	70	0	5	0.12	11	8	11
Max	865	15	20	0.12	65	204	255
Totals	8126	64			644	956	1194
OUTDOOR AIR INTAKE FLOW RATE, Vot (CFM):						1194	

Notes:
Ventilation calculations are formatted to satisfy FBC Mech Section 403. Refer to Section 403 for more details.

Equation 4-1: Vbz = Rp*Pz + Ra*Az

Equation 4-2: Voz = Vbz/Ez — Zone Effectiveness, Ez: 0.8

Ceiling supply of warm air and ceiling return has an Ez of 0.8. Refer to Table 403.1.1.1.2 for Zone Effectiveness Values.

Equation 4-4: Vot = ΣVoz

BAF SCHEDULE

MARK	MANUFACTURER	MODEL	AREAS SERVED	WEIGHT (LBS)	VOLTS/PHASE	AMPS	NOTES
BAF	BIGASSFAN	POWERFOIL D-8	OPEN BAY	212	208/1	10	200 RPM MAX SPEED

LOUVER SCHEDULE

MARK	NECK SIZE	DETAILS
EAL12	12"x12"	RUSKIN EME3625 WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER. MINIMUM FREE AREA 1.2 SQUARE FEET.
EAL24	24"x24"	RUSKIN EME3625 WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER. MINIMUM FREE AREA 1.2 SQUARE FEET.
OAL24	24"x24"	RUSKIN EME3625 WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER. MINIMUM FREE AREA 1.2 SQUARE FEET.

AIR DISTRIBUTION DEVICE SCHEDULE

MARK	SERVICE	MFG	MODEL	CFM RANGE	NECK SIZE	FACE SIZE	DETAILS	IMAGE
RAG1	RETURN	PRICE	PDDR	105-210	8"ø	2' - 0"x2' - 0"	LAYIN OR SURFACE MOUNTED; ALUMINUM MATERIAL; PERFORATED FACE; DUCTED RETURN;	
RAG2	RETURN	PRICE	PDDR	350-550	12"ø	2' - 0"x2' - 0"	LAYIN OR SURFACE MOUNTED; ALUMINUM MATERIAL; PERFORATED FACE; DUCTED RETURN;	
RAG3	RETURN	PRICE	635 SERIES	0-430	14"x12"	1' - 0"x1' - 2"	SIDEWALL LOUVERED GRILLE RETURN; 635L MODEL; ALUMINUM MATERIAL	
RAG4	RETURN	PRICE	PDDR	0-100	8"ø	1' - 0"x1' - 0"	LAYIN OR SURFACE MOUNTED; ALUMINUM MATERIAL; PERFORATED FACE; DUCTED RETURN;	
SAG1	SUPPLY	PRICE	SCD	100-250	8"ø	2' - 0"x2' - 0"	4 WAY DIRECTIONAL; LAYIN OR SURFACE MOUNTED DIFFUSER; ALUMINIMUM MATERIAL.	
SAG3	SUPPLY	PRICE	SCD	0-100	6"ø	1' - 0"x1' - 0"	4 WAY DIRECTIONAL; LAYIN OR SURFACE MOUNTED DIFFUSER; ALUMINIMUM MATERIAL.	
SAG4	SUPPLY	PRICE	620L	0-360	8"x12"	1' - 0"x8"	LOUVERED FACE GRILLE SUPPLY; SIDEWALL GRILLE; ALUMINUM; SINGLE DEFLECTION GRILLE	

BUILDING PRESSURIZATION TABLE

MARK	SA CFM	EA CFM	OA CFM	AIR BALANCE
00CAS-LOB	650	0	0	0
01CAS-FISC	650	0	0	0
02FCU-MED	500	0	0	0
03CAS-FILE	650	0	0	0
04FCU-CAPT	450	0	0	0
05FCU-OFFI	500	0	0	0
06CAS-CONF	700	0	0	0
07CAS-ELEC	675	0	0	0
08CAS-COMM	675	0	0	0
09FCU-CORR	675	0	0	0
10FCU-LIV	1725	0	0	0
11FCU-BUNK	1250	0	0	0
DEHUM	390	0	0	0
DEHUM	390	0	0	0
DOAS	1200	0	1200	1200
EF1	0	75	0	-75
EF1	0	75	0	-75
EF1	0	75	0	-75
EF1	0	75	0	-75
EF1	0	75	0	-75
EF2	0	125	0	-125
EF2	0	125	0	-125
EF2	0	125	0	-125
EF2	0	125	0	-125
EF2	0	125	0	-125
EF2	0	125	0	-125
F12FCU-MED	1250	0	0	0
F13FCU-GYM	1725	0	0	0
F14CAS-IT	650	0	0	0
F15CAS-GEAR	650	0	0	0
HOOD	0	250	0	-250
TOTAL	15355	1375	1200	-175

DEHUMIDIFIER SCHEDULE

MARK	MANUF.	MODEL	CAPACITY	BLOWER (CFM)	SIZE (SQFT)	VOLTAGE/PHASE	AMPERAGE	DIMENSION (WxHxD)	WEIGHT	PICTURE
DEHUM	SANTE FE	ULTRA 120V	124 PINTS/DAY	390 CFM @ 0.2" WG	3000	115/1	15	26.75"x43.5"x18.75"	120 LBS	

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Submittal

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-	-		
-	-		

Revision

#	Description	Date

CRA Project # 23065

Phase: 100% Construction Documents

SHEET TITLE

HVAC SCHEDULES

M6.1

LEGEND

ALL MAY NOT APPLY

AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
CO_2	CARBON DIOXIDE SENSOR/TRANSMITTER
DPS	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
FS	FLOW SENSOR/TRANSMITTER
HS	HUMIDITY SENSOR/TRANSMITTER
TS	TEMPERATURE SENSOR/TRANSMITTER
PS	PRESSURE SENSOR/TRANSMITTER
C/C	HYDRONIC COOLING COIL
H/C	HYDRONIC HEATING COIL
D/X	DIRECT EXPANSION COIL
	SHUT OFF VALVE
	CHECK VALVE
	2-WAY MOTORIZED CONTROL VALVE
	3-WAY MOTORIZED CONTROL VALVE
VFD	VARIABLE FREQUENCY DRIVE
FAN	FAN
STR	STARTER
	FILTER
Elec	ELECTRIC HEATER
M	3 POSITION MOTORIZED DAMPER
M	MODULATING DAMPER
M	MOTORIZED DAMPER ON/OFF

ABBREVIATIONS

ALL MAY NOT APPLY

AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AVG	AVERAGING SENSOR
BI	BINARY INPUT
BO	BINARY OUTPUT
C	RELAY COIL
C/C	HYDRONIC COOLING COIL
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CNT	CONTACTOR
CO_2	CARBON DIOXIDE SENSOR / TRANSMITTER
CR	CONDENSATE RETURN
CS	CURRENT SWITCH
CTE	CURRENT SENSOR / TRANSMITTER
D	DAMPER
DPS	DIFF. PRESSURE SENSOR / TRANSMITTER
DTE	DEWPOINT SENSOR / TRANSMITTER
EA	EXHAUST AIR
ETE	ENTHALPY SENSOR / TRANSMITTER
FA	FIRE ALARM MODULE
FS	FLOW SWITCH
FLS	FLOAT SWITCH
FTE	FLOW SENSOR / TRANSMITTER
H/C	HYDRONIC HEATING COIL
HTE	HUMIDITY SENSOR / TRANSMITTER
LAN	LOCAL AREA NETWORK
LPS	LOW PRESSURE STEAM SUPPLY
LTF	LOW TEMPERATURE FREEZESTAT
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SENSOR / TRANSMITTER
R	RELAY
RA	RETURN AIR
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SMD	SMOKE DAMPER
STR	STARTER
TS	TEMPERATURE SENSOR / TRANSMITTER
V	VALVE
VFD	VARIABLE FREQUENCY DRIVE

COMMISSIONING

1.BUILDING MECHANICAL SYSTEMS SHALL BE COMMISSIONED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, ENERGY CONSERVATION, SECTION C408 "SYSTEM COMMISSIONING".

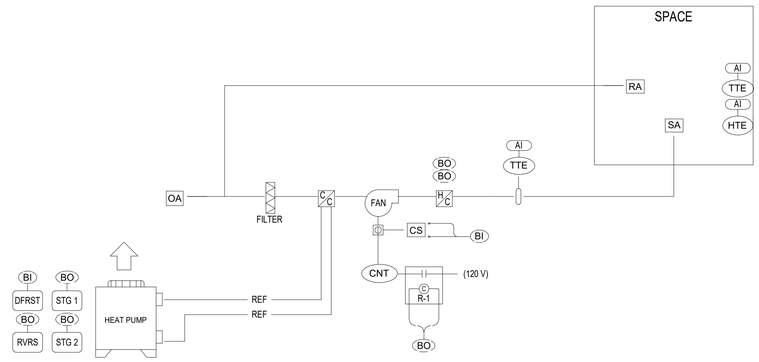
2.BUILDING POWER AND LIGHTING SYSTEMS SHALL BE COMMISSIONED IN ACCORDANCE WITH FLORIDA BUILDING CODE, ENERGY CONSERVATIONS, SECTION C408 "SYSTEMS COMMISSIONING". TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. TESTING SHALL BE PERFORMED ON SYSTEMS, INCLUDING OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTO SENSORS, AND DAYLIGHT CONTROLS.

3.A COMMISSIONING PLAN SHALL BE DEVELOPED BY AN APPROVED COMMISSIONING AUTHORITY (REGISTERED DESIGN PROFESSIONAL OR AGENCY) AND SHALL INCLUDE THE FOLLOWING ITEMS: (1) A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES; (2) A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTING AND A DESCRIPTION OF THE TESTS TO BE PERFORMED; (3) FUNCTIONS TO BE TESTED, INCLUDING BUT NOT LIMITED TO, CALIBRATIONS AND CONTROLS; CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING BUT NOT LIMITED TO, AFFIRMING WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS; (5) MEASURABLE CRITERIA FOR PERFORMANCE.

4.PRIOR TO PASSING THE FIRST MECHANICAL INSPECTION, THE COMMISSIONING AUTHORITY SHALL PROVIDE EVIDENCE OF MECHANICAL SYSTEMS COMMISSIONING AND COMPLETION. PROVIDE A COMPLETED PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS TO THE OWNER, CERTIFIED BY COMMISSIONING AUTHORITY. THE REPORT SHALL BE IDENTIFIED AS "PRELIMINARY COMMISSIONING REPORT" AND SHALL IDENTIFY: (1) ITEMIZATION OF DEFICIENCIES FOUND DURING TESTING THAT HAVE NOT BEEN CORRECTED AT THE TIME OF THE REPORT PREPARATION; (2) DEFERRED TESTS THAT CANNOT BE PERFORMED

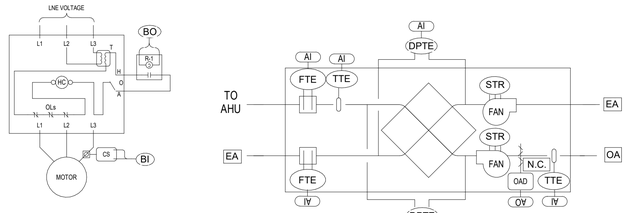
5.PROVIDE FINAL COMMISSIONING REPORT TO OWNER WITHIN 90 DAYS OF CERTIFICATE OF OCCUPANCY. THE REPORT SHALL BE IDENTIFIED AS "FINAL COMMISSIONING REPORT" AND SHALL INCLUDE: (1) RESULTS OF FUNCTIONAL PERFORMANCE TESTS; (2) DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED; (3) FUNCTIONAL PERFORMANCE TEST ACCEPTANCE, PROVIDE FOR REPEATABILITY. EXCEPTION: DEFERRED TESTS WHICH CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION FOR CLIMATIC CONDITIONS.

6.THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SITE SERVICE AND TESTING REQUIREMENTS WITH THE APPROVED COMMISSIONING AUTHORITY.



1 M7.1 SPLIT UNIT OUTDOOR INSTALLATION DETAIL

SCALE: NTS



2 M7.1 ENERGY RECOVERY UNIT CONTROL DIAGRAM

SCALE: NTS

ENERGY SYSTEMS - GENERAL

1.PROVIDE A TEST AND BALANCE OF THE SYSTEM IN COMPLIANCE WITH FBC-EC SECTION 408.2.2 IN ACCORDANCE WITH THE LATEST NEBB, ASHRAE, OR EQUIVALENT GUIDELINES FOR SUCH WORK. TAB CONTRACTORS SHALL BE PRE APPROVED BY THE ENGINEER OF RECORD.

2.PROVIDE OWNER A COMPLETE SET OF OPERATIONS AND MAINTENANCE MANUALS FOR ALL COOLING AND VENTILATION EQUIPMENT WITHIN 90 DAYS OF SYSTEM ACCEPTANCE.

3.HVAC EQUIPMENT EFFICIENCY MUST BE VERIFIED PER TABLES C403.2.3(1-11) UNDER FBC CHAPTER 4, C403.2.3.

4.PROVIDE MOTORIZED OR GRAVITY DAMPERS MEETING LEAKAGE REQUIREMENTS OUTLINED IN FBC CHAPTER 4, C403.2.4.3 ON ALL OUTDOOR AIR AND EXHAUST SYSTEMS.

5.PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE DUE TO SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE, WIND, SOLAR RADIATION WHICH MAY CAUSE DEGRADATION TO THE PIPING MATERIAL, AND OTHER NATURAL FACTORS. ADHESIVE TAPE SHALL NOT BE PERMITTED.

6.ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH MINIMUM R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND MINIMUM R-8 INSULATION WHERE LOCATED OUTSIDE THE BUILDING. WITHIN THE BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR, UNCONDITIONED SPACES, OR EXEMPT SPACES BY A MINIMUM R-8 INSULATION. DUCTS AND PLENUMS LOCATED WITHIN EQUIPMENT OR WHERE THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15°F ARE EXEMPT.

7.HVAC DUCTS AND PLENUMS ARE TO BE SEALED BASED ON STATIC PRESSURE AND LOCATION AS OUTLINED IN FBC CHAPTER 4, C403.2.9 AND ITS SUB-SECTIONS.

8.PROVIDE SUPPLY AIR OUTLETS AND ZONE TERMINAL DEVICES WITH AIR BALANCING MEANS IN ACCORDANCE WITH CHAPTER 6 OF THE INTERNATIONAL MECHANICAL CODE. FANS WITH MOTORS OF 1HP OR LESS ARE EXEMPT.

9.EXHAUST AIR ENERGY RECOVERY SYSTEMS ARE TO BE PROVIDED PER FBC-EC CHAPTER 4, TABLE C403.2.7(1).

10.PLANS, SPECIFICATIONS, AND CALCULATIONS MUST PROVIDE ALL INFORMATION FROM WHICH COMPLIANCE CAN BE DETERMINED FOR THE MECHANICAL SYSTEMS AND EQUIPMENT, AND FOR COMPLIANCE WITH ADDITIONAL ENERGY EFFICIENCY PACKAGE OPTIONS. EXCEPTIONS TO THE STANDARD MUST BE DOCUMENTED.

11.DRAWINGS, MANUALS, SYSTEM BALANCING REPORTS, AND A FINAL COMMISSIONING REPORT SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

12.A COMMISSIONING PLAN SHALL BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY IN ACCORDANCE WITH FBC CHAPTER 4, C408.2.1.

13.HVAC EQUIPMENT SHALL UNDERGO FUNCTIONAL PERFORMANCE TESTING AS SPECIFIED UNDER FBC CHAPTER 4, SECTIONS C408.2.3.1-3. THIS INCLUDES ALL CONTROL SYSTEMS AND ECONOMIZERS. TESTING SHALL SHOW EFFECTIVE OPERATION IN ACCORDANCE WITH ALL APPROVED PLANS AND SPECIFICATIONS.

14.ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH FBC CHAPTER 4, TABLE C403.2.10. WHERE PIPING IS INSTALLED IN OR UNDER A SLAB, VERIFICATION MAY NEED TO OCCUR DURING FOUNDATION INSPECTION.

15.FOR SYSTEMS WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONE BOXES REPORTING TO THE CENTRAL CONTROL PANEL, THE STATIC PRESSURE SET POINT SHALL BE RESET BASED ON THE ZONE REQUIRING THE MOST PRESSURE. I.E., THE SET POINT IS RESET LOWER UNTIL ONE ZONE DAMPER IS NEARLY WIDE OPEN.

16.AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

17.HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTARY HEAT OPERATION WHERE THE HEAT PUMP CAN MEET THE HEATING LOAD.

18. ZONE CONTROLS SHALL LIMIT SIMULTANEOUS COOLING AND HEATING, AND SEQUENCE HEATING AND COOLING TO EACH ZONE IN ACCORDANCE WITH FBC CHAPTER 4, C403.2.4.

19.HVAC AND SERVICE WATER-HEATING CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT, AND SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO DOCUMENT THEY OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

20.HVAC PERFORMANCE EFFICIENCY AND LIGHTING SYSTEM EFFICIENCY SHALL BE CONSISTENT WITH WHAT IS SHOWN IN THE APPROVED PLANS.

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Submittal

Phase	Date	Drw	Chk
100% Construction Doc.	5/26/25	BK	RG
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Design Development	7/31/24	BK	RG
Schematic Design	6/25/24	BK	RG
-	-		
-	-		

Revision

#	Description	Date

CRA Project # 23065

Phase: **100% Construction Documents**

SHEET TITLE

HVAC CONTROLS

M7.1

Note :
Power wiring, breaker size, and disconnects should follow local code and NEC.
Multi-frame outdoor units require a separate power connection for each frame.
Refer to the most up-to-date submittal sheets for applicable electrical data.
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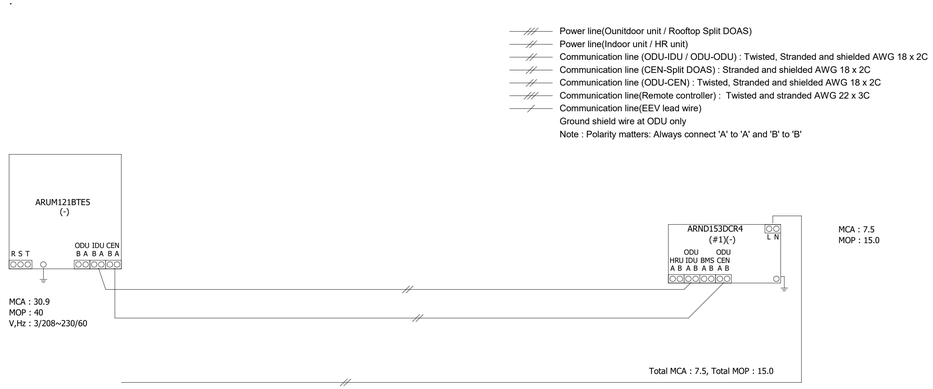
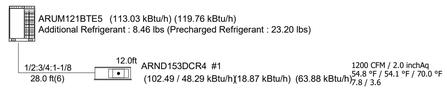
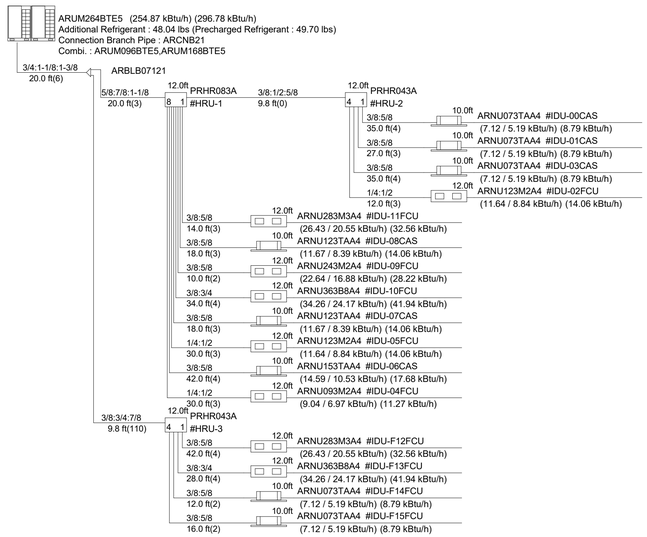
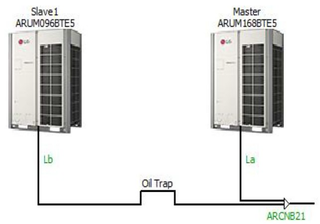
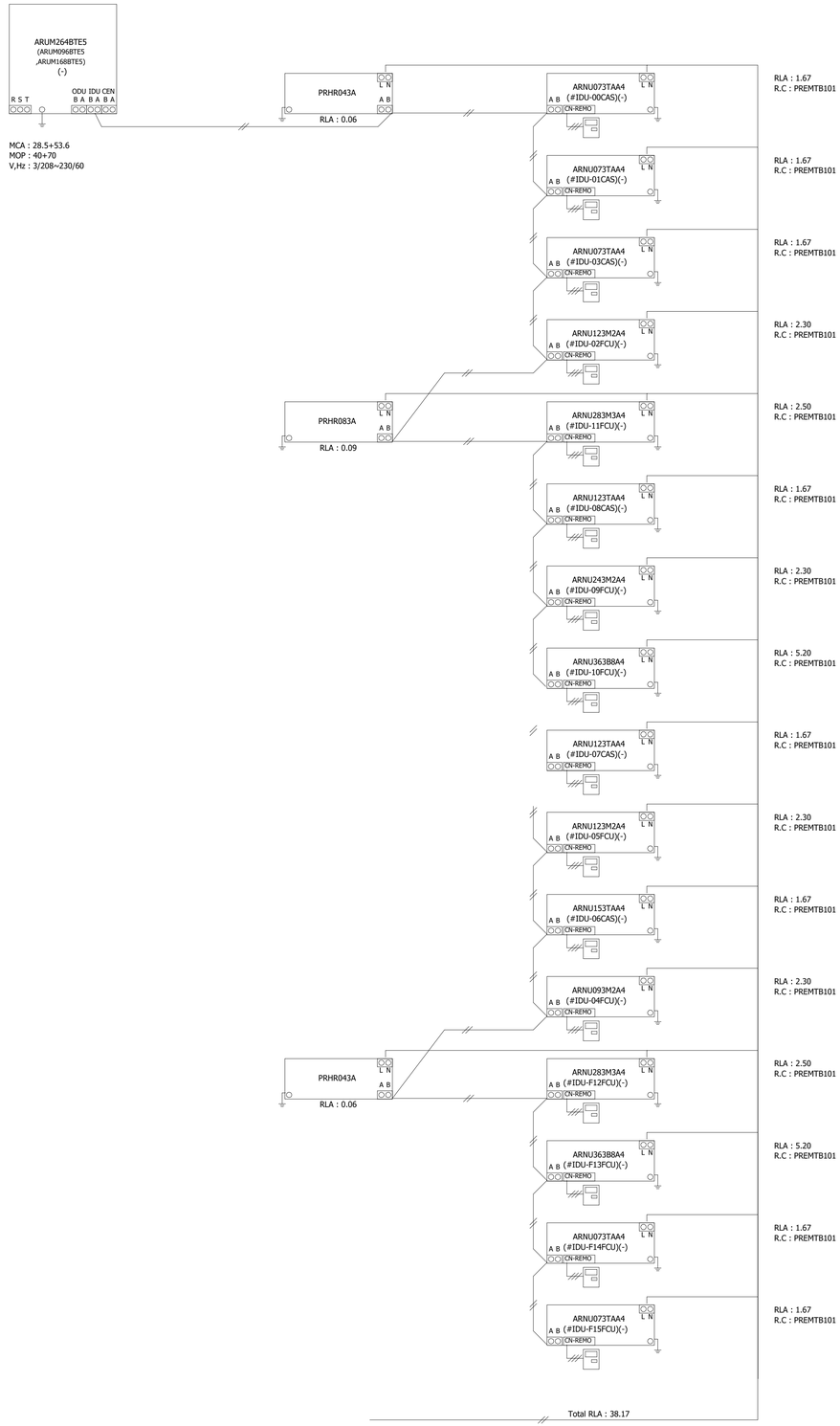








* Oil Trap : Apply when height difference or distance between the ODUs is over 2m(6.6ft).



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#	Description	Date

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Phase: 100% Construction Documents

SHEET TITLE

HVAC SCHEMATICS

M8.1