OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR MIDDLE SCHOOL
CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT
FORT WALTON BEACH, FLORIDA

CONSTRUCTION DOCUMENTS
MARCH 20, 2026

INDEX OF DRAWINGS

GENERAL

MECHANICAL

M0.1	GENERAL NOTES, LEGENDS & DETAILS
M1.0	ROOF PLAN DEMOLITION
M1.1AB	AREA A & B FLOOR PLAN DEMOLITION
M1.1CD	AREA C & D FLOOR PLAN DEMOLITION
M1.2	CHILLER PLANT FLOOR PLAN DEMOLITION
M2.0	ROOF PLAN RENOVATION
M2.1AB	AREA A & B FLOOR PLAN RENOVATION
M2.1CD	AREA C & D FLOOR PLAN RENOVATION
M2.2	CHILLER PLANT FLOOR PLAN RENOVATION
M4.1	SCHEDULES
M4.2	SCHEDULES
M5.1	DETAILS
M5.2	DETAILS

CONTROLS

IC0.1	GENERAL NOTES & LEGENDS
IC1.0	ROOF PLAN
IC1.1AB	AREA A & B FLOOR PLAN
IC1.1CD	AREA C & D FLOOR PLAN
IC1.2	CHILLER PLANT FLOOR PLAN
IC2.1	CONTROLS - CHILLED WATER SYSTEMS
IC2.2	CONTROLS - VAV AIR HANDLING UNITS
IC2.3	CONTROLS - SUPPLPY AIR TERMINAL UNITS
IC5.1	DETAILS

ELECTRICAL

E0.1	GENERAL NOTES & LEGENDS
E1.0	ROOF PLAN DEMOLITION
E1.1AB	AREA A & B FLOOR PLAN DEMOLTION
E1.1CD	AREA C & D FLOOR PLAN DEMOLTION
E1.2	CHILLER PLANT FLOOR PLAN DEMOLITION
E2.0	ROOF PLAN RENOVATION
E2.1AB	AREA A & B FLOOR PLAN RENOVATION
E2.1CD	AREA C & D FLOOR PLAN RENOVATION
E2.2	CHILLER PLANT FLOOR PLAN RENOVATION

SCHOOL BOARD MEMBERS

LINDA EVANCHYK (CHAIRMAN)

PARKER DESTIN (VICE-CHAIRMAN)

TIM BRYANT (BOARD MEMBER)

MR. BRETT HINELY (BOARD MEMBER)

DR. LAMAR WHITE (BOARD MEMBER)

APPLICABLE CODES

PERFORM WORK IN ACCORDANCE WITH THE FOLLOWING CODES AND ANY APPLICABLE STATUTES, ORDINANCES, CODES, AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.

1. ASHRAE
   - a. STANDARD 15 — SAFETY STANDARD FOR REFRIGERATION SYSTEMS - 2019
   - b. STANDARD 55 — THERMAL ENVIRONMENTAL CONDITIONS FOR HUMAN OCCUPANCY
   - c. STANDARD 62.1 — VENTILATION STANDARD FOR ACCEPTABLE INDOOR AIR QUALITY - 2022
   - d. STANDARD 90.1 — ENERGY STANDARD FOR BUILDINGS EXCEPT LOW RISE RESIDENTIAL BUILDINGS
2. OCCUPATIONAL SAFETY AND HEALTH REGULATIONS (OSHA).
3. NATIONAL FIRE CODES
   - a. NFPA 1 — UNIFORM FIRE CODE - 2021 (FLORIDA EDITION)
   - b. NFPA 70 — NATIONAL ELECTRICAL CODE - 2020
   - c. NFPA 72 — NATIONAL FIRE ALARM AND SIGNALING CODE - 2019
   - d. NFPA 90A — STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS - 2021
   - e. NFPA 90B — STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS - 2021
   - f. NFPA 101 — LIFE SAFETY CODE - 2021 (FLORIDA EDITION)
4. 2023 FLORIDA BUILDING CODE, 8TH EDITION
   - a. BUILDING CODE
   - b. EXISTING BUILDING CODE
   - c. ENERGY CONSERVATION CODE
   - d. MECHANICAL CODE
   - e. PLUMBING CODE
5. FLORIDA STATUTES
   - a. CHAPTER 471 — ENGINEERING
   - b. CHAPTER 533.80 — BUILDING CONSTRUCTION STANDARDS; FLORIDA BUILDING CODE - ENFORCEMENT
6. FLORIDA ADMINISTRATIVE CODE
   - a. CHAPTER 6A-2.0010 — EDUCATIONAL FACILITIES - 2014 EDITION
   - b. CHAPTER 61G15-33 — RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF ELECTRICAL SYSTEMS
   - c. CHAPTER 61G15-34 — RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF MECHANICAL SYSTEMS
   - d. CHAPTER 69A-58 — FIRE SAFETY IN EDUCATIONAL FACILITIES
   - e. CHAPTER 69A-60 — THE FLORIDA FIRE PREVENTION CODE - 8TH 2023 EDITION

RESOLVE, IN WRITING, ANY CODE VIOLATION DISCOVERED IN CONTRACT DOCUMENTS WITH THE ENGINEER PRIOR TO BIDDING. AFTER AWARD OF THE CONTRACT, MAKE ANY CORRECTION OR ADDITION NECESSARY FOR COMPLIANCE WITH APPLICABLE CODES AT NO ADDITIONAL COST TO OWNER.

THE CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, AND DRAWINGS REQUIRED TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, AND REGULATIONS.

WHERE THERE IS CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, THE CODES SHALL GOVERN, EXCEPT WHERE THE REQUIREMENTS OF THE CONTRACT DOCUMENTS ARE MORE STRINGENT.

WHERE IN ANY SPECIFIC CASE, SECTIONS 449 THROUGH 469, FBC-BUILDING 2020, SPECIFY DIFFERENT MATERIALS, METHODS OF CONSTRUCTION, DESIGN CRITERIA OR OTHER REQUIREMENTS THAN FOUND IN THIS CODE, THE REQUIREMENTS OF SECTIONS 449 THROUGH 469 SHALL BE APPLICABLE IN ACCORDANCE WITH SECTION 401.2.2, FBC-BUILDING 2020.

LOCATION

ADDRESS:
322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

MAX BRUNER JR.
MIDDLE SCHOOL
CHILLER CH-1 AND RTU 13
& 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

COVER SHEET

DRAWING NO.

G0.1

FIRESTOP SCHEDULE OF THROUGH PENETRATION SYSTEMS. BASIS OF DESIGN: HILTI, INC.

TYPE OF PENETRANT	F-RATING (HR)	CONCRETE FLOORS	CONCRETE OR BLOCK WALLS	GYPSUM WALLS	HILTI PRODUCTS
		BASIS OF DESIGN UL SYSTEM			
CIRCULAR BLANK OPENINGS (0000-0999)	1	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	CP 680, CP 618, FS-ONE MAX, CFS- BL
	2	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	
METAL PIPES OR CONDUIT (1000-1999)	1	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020	W-L-1054, W-L-1058, W-L-1164, W-L-1506	CP 680, FS-ONE MAX, CP 606, CFS-S SIL GG, CFS-D, MINERAL WOOL
	2	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020, W-J-1248	W-L-1054, W-L-1058, W-L-1164, W-L-1506	
NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, ENT) (2000-2999)	1	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	CP 680, CP 643N, MINERAL WOOL, CP 644, FS-ONE MAX, CFS-S SIL SL, CFS-S SIL CG, CP 648
	2	F-A 2053, F-A 2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2371, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	
SINGLE OR BUNDLED CABLES (3000-3999)	1	F-A-3007, C-AJ-3095, C-AJ-3180, C-AJ-3283	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	CP 680, CP 653, FS-ONE MAX, CP 618, CP 606, CFS-D, CFS-CC
	2	F-A-3007, C-AJ-3095, C-AJ-3334, F-A-3060	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167, W-J-3189	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	
CABLE TRAY (4000-4999)	1	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	CFS-BL, FS-ONE MAX, CP 620, CP 618
	2	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	
ELECTRICAL BUSWAY (6000-6999)	1	C-AJ-6006, C-AJ-6017, F-A-6002, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	CP 637, FS-ONE MAX, CP 620, CFS-BL, MINERAL WOOL, CFS-S SIL GG, CFS-S SIL SL
	2	C-AJ-6006, C-AJ-6017, F-A 6042, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	

NOTES:

1. JOBSITE CONDITIONS OF EACH THROUGH-PENETRATION FIRESTOP SYSTEM MUST MEET ALL DETAILS OF THE UL-CLASSIFIED SYSTEM SELECTED.
2. IF JOBSITE CONDITIONS DO NOT MATCH ANY UL-CLASSIFIED SYSTEMS IN THE SCHEDULES ABOVE, CONTACT FIRESTOP MANUFACTURER FOR ALTERNATIVE SYSTEMS OR ENGINEER JUDGMENT DRAWINGS.
3. WHERE MORE THAN ONE APPLICABLE UL-CLASSIFIED SYSTEM IS LISTED IN THE SCHEDULES, CHOOSE THE UL SYSTEM WHICH IS MOST ECONOMICAL FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM.
4. COORDINATE WORK WITH OTHER TRADES TO ENSURE THAT PENETRATION OPENING SIZES ARE APPROPRIATE FOR PENETRANT LOCATIONS, AND VICE-VERSA.
5. ALL THROUGH-PENETRATION FIRESTOPS SHALL BE PROVIDED BY ONE MANUFACTURER. APPROVED MANUFACTURERS: HILTI, RECTORSEAL, 3M, STI.

DESIGN CONDITIONS

OUTDOOR CONDITIONS - DESIGN DAY (DESTIN / FT WALTON, FLORIDA)				
	COOLING (0.4% ANNUAL)	°Fdb - °Fwb	94.0 -	78.0
	HEATING (99.6% ANNUAL)	°Fdb	28.0	
	ENTHALPY (0.4% ANNUAL)	°Fdb - °Fwb	88.1 -	80.6
	DEHUMIDIFICATION (0.4% ANNUAL)	°Fdb - °Fwb	84.4 -	80.4
	EVAPORATION (0.4% ANNUAL)	°Fdb - °Fwb	87.9 -	80.8
	HUMIDIFICATION (99% ANNUAL)	GR / LB	13.0	
INDOOR CONDITIONS - SUMMER				
	OFFICE AREAS (EXCEPT AS NOTED BELOW)	°Fdb - %RH	74 -	55
	CLASSROOMS	°Fdb - %RH	74 -	50
INDOOR CONDITIONS - WINTER				
	OFFICE AREAS (EXCEPT AS NOTED BELOW)	°Fdb - %RH	70 -	30
	CLASSROOMS	°Fdb - %RH	70 -	30

AIR DISTRIBUTION

	SUPPLY AIR DUCTWORK SECTION
	RETURN AIR DUCTWORK SECTION
	DUCTWORK FLEXIBLE CONNECTION
	DUCT MOUNTED SMOKE DETECTOR INSTALLED BY DIV 23 CONTRACTOR, (PROVIDED AND WIRED BY FIRE ALARM CONTRACTOR)

PIPING AND FITTINGS

	CONDENSATE DRAIN PIPING FROM COOLING COIL
CHWS	CHILLED WATER SUPPLY PIPING
CHWR	CHILLED WATER RETURN PIPING
HHWS	HEATING HOT WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
	CAP
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	NEW PIPE
	EXISTING PIPE TO REMAIN
	EXISTING PIPE TO BE REMOVED

VALVES

N.O. N.C.	BALL VALVE (WITH QUARTER TURN HANDLE)
N.O. N.C.	BUTTERFLY VALVE (WITH QUARTER TURN HANDLE)

MISCELLANEOUS

	POINT OF CONNECTION, NEW TO EXISTING
	POINT INDICATED LIMIT OF DEMOLITION

COORDINATION NOTES

1. AT EXTERIOR LOCATIONS AND IN SPACES WITH EXPOSED STRUCTURE EXPOSED UTILITIES (INCLUDING PIPING, DUCTWORK, RACEWAYS, ETC.) SHALL BE INSTALLED NEATLY, BUNDLED TOGETHER TO EXTENT POSSIBLE AND RUN AT RIGHT ANGLES TO BUILDING LINES. THESE UTILITIES SHALL BE PAINTED TO MATCH ADJACENT SURFACE OR AS DIRECTED BY ENGINEER. HANGERS, STEEL SHAPES AND SLOTTED STEEL SUPPORTS SHALL BE PAINTED TO MATCH RACEWAY OR AS DIRECTED BY ENGINEER. TO EXTENT POSSIBLE CONTRACTOR SHALL AVOID EXPOSED RACEWAYS BY INSTALLING UTILITIES BELOW GRADE, IN WALL, OR ABOVE ADJACENT CONCEALED CEILING SPACES UNO.
2. PROVIDE ACCESS PANELS IN CEILING WHERE ANY DEVICE OR EQUIPMENT REQUIRING SERVICE (INCLUDING DAMPERS, VALVES, JUNCTION BOXES, CONTROLLERS, SMOKE DETECTORS, ETC.) IS LOCATED ABOVE OR BEHIND AN INACCESSIBLE CEILING OR WALL. ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR APPROPRIATE UL LABEL. COORDINATE LOCATION AND TYPE OF ACCESS PANEL WITH ENGINEER PRIOR TO INSTALLATION.
3. PROVIDE SELF-ADHESIVE IDENTIFICATION LABELS (CLEAR WITH BLACK LETTERS) ON CEILING WHERE VALVES, MECHANICAL EQUIPMENT, OR ELECTRICAL EQUIPMENT ARE LOCATED ABOVE CEILINGS. AT ACCESSIBLE CEILINGS APPLY LABEL TO CEILING GRID WITHIN REACH OF DEVICE; AT INACCESSIBLE CEILINGS APPLY LABEL TO ACCESS PANEL.
4. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.

COORDINATION AND/OR SHOP DRAWING NOTES

1. COORDINATION AND SHOP DRAWINGS, INCLUDING ANY BIM MODEL CREATED BY THE CONTRACTOR AND OR A THIRD PARTY FOR COORDINATION PURPOSES ARE NOT CONSTRUCTION DOCUMENTS AND DO NOT SUPERCEDE ANY REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS.
2. CHANGES TO EQUIPMENT OR SYSTEM LAYOUTS FROM THAT DEPICTED IN THE CONSTRUCTION DOCUMENTS THAT ARE REQUIRED FOR COORDINATION, SUBSTITUTIONS, OR OTHERWISE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR APPROVAL.
3. CHANGES SHALL BE CLOUDED AND NOTED ON THE COORDINATION OR SHOP DRAWING IN RED OR OTHER COLOR THAT CLEARLY DIFFERENTIATES THE NOTE FROM THE REMAINDER OF THE SUBMITTED DOCUMENT.
4. ONLY NOTED CHANGES SPECIFICALLY CALLED OUT WILL BE REVIEWED BY THE ENGINEER DURING THE SUBMITTAL PROCESS. THE ENGINEER WILL NOT REVIEW EVERY DETAIL OF THE ENTIRE DOCUMENT PACKAGE TO LOCATE CHANGES MADE BY THE CONTRACTOR. CHANGES NOT SPECIFICALLY NOTED ARE AUTOMATICALLY "NOT APPROVED" REGARDLESS OF APPROVAL STATUS ON THE RETURNED SUBMITTAL.
5. CHANGES TO THE CONTRACT DOCUMENTS MADE BY THE CONTRACTOR THAT ARE NOT NOTED AND BROUGHT TO THE ATTENTION OF THE ENGINEER AND THUS "NOT APPROVED" WHICH RESULT IN A COST OR SCHEDULE CHANGE TO THE PROJECT SHALL BE BURDONED TO THE CONTRACTOR WHO MADE THE CHANGE WITHOUT ANY RENUMERATION FROM THE OWNER.
6. A COORDINATION DRAWING PACKAGE OR BIM MODEL USED IN THE FIELD BY THE INSTALLING CONTRACTOR IS NOT A CONSTRUCTION DOCUMENT AND DOES NOT INCLUDE ALL NOTES AND DETAILS NECESSARY FOR A COMPLETE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING INSTALLERS WITH A COMPLETE SET OF APPROVED COORDINATION DRAWINGS INCLUSIVE OF ALL NOTES, DETAILS, ETC. INCLUDED IN THE CONSTRUCTION DOCUMENTS.

CEILING SUPPLY DIFFUSERS

SYMBOL	CFM	NECK SIZE	MINIMUM - MAXIMUM 1/2 SPACING	FACE DIMENSION	
				HARD CEILING	LAY-IN CEILING
O	40-80	6"Ø	4' - 5'	12x12	24x24
	85-180	8"Ø	4' - 8'	12x12	24x24
	185-340	10"Ø	8' - 10'	24x24	24x24
	345-500	12"Ø	9' - 10'	24x24	24x24
	505-600	14"Ø	10' - 12'	24x24	24x24

NOTE:
1. RUNOUT DUCTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE INDICATED NECK SIZE.

HVAC NOTES

1. PRESSURE TEST PIPING SYSTEMS WITH WATER AT 100 PSI FOR A MINIMUM OF 4 HOURS. PRESSURE SHALL REMAIN ON SYSTEM UNTIL INSPECTED BY ENGINEER.
2. TRAP AIR CONDITIONING CONDENSATE AND RUN TO SAFEWASTE AT LOCATION SHOWN ON PLANS.
3. COMPLETELY FLUSH AND CLEAN THE CHILLED WATER AND HEATING HOT WATER SYSTEMS. SEE WATER TREATMENT SPECIFICATIONS.
4. PROVIDE AUTOMATIC AIR VENTS AT HIGH POINTS OF CHILLED WATER AND HEATING HOT WATER PIPING SYSTEMS.
5. COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK AND PIPING INSTALLATIONS WITH ELECTRICAL TO PROVIDE THE REQUIRED CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT.
6. INSTALLATION OF EQUIPMENT AND PIPING SHALL PROVIDE CONVENIENT ACCESS FOR REMOVAL OF FILTERS AND FOR MAINTENANCE.
7. DUCT SIZES GIVEN ARE SHEET METAL SIZES.
8. PROVIDE NEW AIR FILTERS IN EACH UNIT REQUIRING FILTERS WHEN THE PROJECT IS READY FOR TEST AND BALANCE. DO NOT OPERATE UNITS WITHOUT FILTERS DURING CONSTRUCTION. REPLACE FILTERS DURING CONSTRUCTION ACCORDING TO FILTER MANUFACTURER'S RECOMMENDATIONS. SEAL ALL OPEN ENDS OF DUCT WORK DURING CONSTRUCTION.
9. VACUUM CLEAN THE INTERIOR OF ALL NEW HVAC EQUIPMENT.
10. PROVIDE FLEXIBLE DUCT CONNECTIONS AT EACH EQUIPMENT CONNECTION.
11. OUTSIDE AIR INTAKES SHALL NOT BE LOCATED ANY CLOSER THAN 10 FEET FROM ANY CHIMNEY OR EXHAUST OUTLET OR PLUMBING VENT TERMINAL.
12. INSTALL DUCT MOUNTED SMOKE DETECTOR (FURNISHED BY DIV. 29) IN SUPPLY TRUNK DUCT BEFORE ANY TAKE-OFFS FOR AIR HANDLING UNITS WITH SUPPLY AIR CAPACITY GREATER THAN 2000 CFM AND WHERE INDICATED ON PLANS.
13. WHERE DUCT MOUNTED SMOKE DETECTORS ARE REQUIRED, PROVIDE DUCT ACCESS DOORS TO ALLOW VIEWING AND SERVICING. PROVIDE CEILING/WALL ACCESS PANELS WHERE INSTALLED IN INACCESSIBLE LOCATIONS; ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL.
14. WHERE CONTROL DAMPERS OR COILS ARE INSTALLED IN DUCTWORK, PROVIDE DUCT ACCESS DOORS TO ALLOW INSPECTION OF DEVICE. PROVIDE CEILING/WALL ACCESS PANELS WHERE INSTALLED IN INACCESSIBLE LOCATIONS; PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL.
15. IT IS RECOMMENDED THAT DUCTWORK BE FABRICATED FROM FIELD MEASUREMENTS TAKEN AS THE BUILDING STRUCTURE AND SPACE COMPETING SYSTEMS ARE PROGRESSIVELY INSTALLED. THE DUCTWORK AS SHOWN ON THE CONSTRUCTION DOCUMENTS IS DIAGRAMMATIC AND DOES NOT NECESSARILY INCLUDE ALL MODIFICATIONS REQUIRED TO AVOID THESE INTERFERENCES. BEFORE FABRICATING ANY DUCTWORK, CHECK THE PHYSICAL CONDITIONS AT THE JOB SITE AND MAKE CHANGES IN CROSS SECTIONS, ROUTING, OFFSETS AND SIMILAR ITEMS WHETHER SPECIFICALLY INDICATED OR NOT. VERIFY THAT SUFFICIENT CLEARANCES ARE AVAILABLE FOR INSTALLING DUCTWORK, PIPING, LIGHT FIXTURES, CEILING SYSTEMS AND TO PROVIDE EQUIPMENT SERVICE. COSTS REQUIRED TO CHANGE DUCTWORK TO FIT THE SPACE AVAILABLE AND AVOID INTERFERENCES CAUSED BY SPACE COMPETING SYSTEMS SHALL BE BORNE BY THE CONTRACTOR. NO ADDITIONAL REMUNERATION WILL BE PAID BY THE OWNER.
16. APPLY EXTERNAL INSULATION TO SINGLE WALL SUPPLY DUCTS, RETURN DUCTS AND OUTSIDE AIR DUCTS PER SPECIFICATIONS.
17. SECTIONS OF PIPE STORED ON SITE OR PLACED IN TRENCHES SHALL HAVE EACH OPEN END COVERED AT ALL TIMES EXCEPT WHILE MAKING CONNECTIONS. IF DEBRIS IS FOUND INSIDE PIPE, IT SHALL BE COMPLETELY REMOVED PRIOR TO ASSEMBLY.
18. COORDINATE ALL DUCT TEST WITNESSING WITH LOCAL MECHANICAL INSPECTOR.
19. PRIOR TO FINAL INSPECTION, PROVIDE CERTIFIED TEST & BALANCE REPORT AND OPERATIONS & MAINTENANCE MANUALS TO THE OWNER.
20. DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESSES, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS, AND HANGERS AND SUPPORTS, SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE DUCT."
21. LOCATIONS OF EXISTING EQUIPMENT ARE BASED ON REFERENCE MATERIALS PROVIDED TO THE ENGINEER AND CONCEALED ELEMENTS HAVE NOT BEEN VERIFIED. CONTRACTOR SHALL LOCATE CONCEALED ELEMENTS AND NOTIFY ENGINEER IF VARIANCES BETWEEN THESE DOCUMENTS AND ACTUAL FIELD CONDITIONS EXIST AND MAY MATERIALLY AFFECT THE DESIGN INTENT.

DELEGATED DESIGN CALCULATION REQUIREMENTS

1. THESE MECHANICAL SYSTEM ENGINEERING DOCUMENTS REPRESENT THE DESIGN INTENT FOR ROOF CURBS AND ROOF MOUNTED PIPING SUPPORTS BASED ON DESIGN CRITERIA BELOW. THE DELEGATED ENGINEER IS RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. DESIGN CRITERIA:
   WIND SPEED: 170 MPH.
   RISK CATEGORY: III
   EXPOSURE CATEGORY: B
   WEIGHT: PER APPROVED SUBMITTALS AND SHOP DRAWINGS.
   DEFLECTION LIMITS: PER MANUFACTURER'S REQUIREMENTS IN APPROVED SUBMITTALS AND SHOP DRAWINGS.
3. DELEGATED ENGINEER SHALL PROVIDE SIGNED AND SEALED DATA TO THE ENGINEER OF RECORD AND AUTHORITY HAVING JURISDICTION INCLUDING THE FOLLOWING AS APPLICABLE, BUT NOT LIMITED TO:
   1). DETAIL FABRICATION AND ASSEMBLY OF SUPPORT STRUCTURE.
   2). DESIGN CALCULATIONS FOR STATIC AND DYNAMIC LOADING DUE TO EQUIPMENT WEIGHT AND OPERATION AND WIND FORCES REQUIRED TO SELECT WIND RESTRAINT.
   3.). SECUREMENT DETAILS WITH ANCHORAGES AND ATTACHMENTS TO STRUCTURE AND TO SUPPORTED EQUIPMENT.

COMMISSIONING NOTES

1. COMMISSIONING REQUIREMENT:
   A. THE BUILDING MECHANICAL SYSTEMS SHALL BE COMMISSIONED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE – ENERGY CONSERVATION, SECTION C408 "SYSTEMS COMMISSIONING" .
2. COMMISSIONING PROVIDER:
   A. THE CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR PROVIDING THE SERVICES OF AN APPROVED COMMISSIONING PROVIDER
3. COMMISSIONING SCOPE:
   A. MECHANICAL SYSTEM TESTING SHALL ENSURE THAT COMPONENTS, EQUIPMENT, SYSTEMS, AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS ARE CALIBRATED, ADJUSTED, AND OPERATE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. TESTING SHALL INCLUDE ALL MODES AND SEQUENCES OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD, AND EMERGENCY CONDITIONS.
   B. A COMMISSIONING PLAN SHALL BE DEVELOPED BY THE COMMISSIONING PROVIDER 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 TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED; (3) FUNCTIONS TO BE TESTED, INCLUDING BUT NOT LIMITED TO, CALIBRATIONS AND CONTROLS; (4) 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.
   C. PRIOR TO PASSING THE FINAL INSPECTIONS, THE COMMISSIONING PROVIDER SHALL PROVIDE EVIDENCE OF SYSTEMS COMMISSIONING AND COMPLETION. A COMPLETED PRELIMINARY REPORT THE COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE PROVIDED TO THE OWNER, CERTIFIED BY THE COMMISSIONING PROVIDER. 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 DUE TO CLIMATIC CONDITIONS; AND (3) CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF DEFERRED TESTS. THE PRELIMINARY COMMISSIONING REPORT SHALL BE MADE AVAILABLE TO THE CODE OFFICIAL AT THEIR REQUEST.
   D. WITHIN 90 DAYS OF CERTIFICATE OF OCCUPANCY, PROVIDE THE FINAL COMMISSIONING REPORT TO OWNER. 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 PROCEDURES USED DURING THE COMMISSIONING PROCESS, INCLUDING MEASURED CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY. EXCEPTION: DEFERRED TESTS WHICH CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION FOR CLIMATIC CONDITIONS.
   E. HVAC, CONTROLS AND TAB CONTRACTORS SHALL ASSIST WITH COMMISSIONING EFFORTS INCLUDING (NOT LIMITED TO) PERFORMING PRE-TESTING OF FUNCTIONAL PERFORMANCE TEST (TEST CRITERIA PROVIDED BY COMMISSIONING AUTHORITY) PRIOR TO COMMISSIONING AUTHORITY PERFORMING FUNCTION PERFORMANCE TEST VERIFICATION WITH AFOREMENTIONED CONTRACTORS.

GENERAL NOTES

1. INSTALL ALL WORK IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2023, THE FLORIDA FIRE PREVENTION CODE, THE NATIONAL ELECTRICAL CODE 2020 EDITION, AND ALL CODES, ORDINANCES, RULES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION AT THIS SITE. WHERE CONFLICTS OCCUR BETWEEN CODES AND THE CONSTRUCTION DOCUMENTS, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN.
2. DRAWINGS ARE DIAGRAMMATIC, INDICATIVE OF WORK TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT.
3. FIELD VERIFY DIMENSIONS AND CONDITIONS. IF THE CONTRACTOR IS UNABLE TO INTERPRET THE CONTRACT DOCUMENTS, CONTRACTOR IS RESPONSIBLE TO REQUEST CLARIFICATION IN WRITING TO THE ENGINEER. IF CONTRACTOR PROCEEDS WITH ANY WORK BEFORE OBTAINING CLARIFICATION, CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DEFICIENCIES ASSOCIATED THEREWITH.
4. BEFORE SUBMITTING FOR THE WORK, EACH BIDDER WILL BE RESPONSIBLE TO EXAMINE THE PREMISES AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS UNDER WHICH CONTRACTOR WILL BE OBLIGED TO OPERATE AND COMPLETE THE WORK UNDER THIS CONTRACT. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR OMISSION ON CONTRACTOR'S PART.
5. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION PERMITS, CERTIFICATES, CONNECTION FEES, SYSTEM DEMAND CHARGES AND LICENSE FEES IN CONNECTION WITH CONTRACTOR'S WORK.
6. CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR SEQUENCING AND COORDINATING WORK OF SUBCONTRACTORS TO AVOID INTERFERENCES.
7. WORK SHALL COMPLY WITH APPLICABLE O.S.H.A. AND E.P.A. REGULATIONS AND GUIDELINES.
8. ERECT AND MAINTAIN ALL REASONABLE PRECAUTIONS FOR SAFETY AND HEALTH INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS INCLUDING PROMULGATING SAFETY REGULATIONS. PROVIDE SAFETY PRECAUTIONS AND BARRICADES FOR PEDESTRIANS AT CONSTRUCTION VEHICLE ACCESS AND EGRESS LOCATIONS.
9. THE CONTRACTOR SHALL PROVIDE MANPOWER AND EQUIPMENT NECESSARY TO MAINTAIN THE PROJECT SCHEDULE.
10. THE CONTRACTOR SHALL BE RESTRICTED TO AREAS DESIGNATED BY THE OWNER FOR ON-SITE STORAGE OF CONSTRUCTION MATERIALS AND IS RESPONSIBLE FOR THE PROTECTION AND SECURITY OF ALL EQUIPMENT AND MATERIALS.
11. THE CONTRACTOR SHALL MAINTAIN A CLEAN WORK ENVIRONMENT AND SHALL CLEAN CONSTRUCTION SITE OF ALL DEBRIS AT COMPLETION OF THE JOB AND BEFORE FINAL PAYMENT IS MADE.
12. THE CONTRACTOR SHALL FURNISH "AS-BUILT" RECORD DOCUMENTS TO THE OWNER AT COMPLETION OF CONSTRUCTION.
13. CONTRACTOR SHALL GUARANTEE THE WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. THIS GUARANTEE SHALL BE IN ADDITION TO THE WARRANTIES PROVIDED BY MATERIAL SUPPLIERS AND MANUFACTURERS.
14. CONTRACTOR'S APPROVAL STAMP ON SUBMITTALS AND SHOP DRAWINGS CERTIFIES THAT THE CONTRACTOR HAS REVIEWED THE DOCUMENTS AND THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN ADHERED TO.
15. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE ARCHITECT/ENGINEER'S APPROVAL THEREOF.
16. ENTRY AND/OR REMOVAL OF EQUIPMENT FROM THE BUILDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DISMANTLE AND REASSEMBLE EQUIPMENT AS NECESSARY FOR ENTRY INTO THE BUILDING AND/OR EQUIPMENT ROOMS. CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGED MATERIALS TO MATCH THE ADJACENT UNDAMAGED SURFACES.
17. PROTECT THE ROOF FROM DAMAGE WHENEVER ANY WORK ON THE ROOF IS REQUIRED.
18. SUPPORTS AND HANGERS SHALL PRESENT A NEAT, ORDERLY APPEARANCE.
19. ALL EXTERIOR STRUCTURES AND EQUIPMENT SHALL BE INSTALLED TO RESIST 170 MPH WIND LOAD.
20. THE BUILDING WILL REMAIN OCCUPIED DURING CONSTRUCTION. THE OWNER WILL MAKE ALL REASONABLE EFFORTS TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. COORDINATE ALL WORK WITH THE OWNER'S DESIGNATED REPRESENTATIVE.
21. EXIT WAYS SHALL BE KEPT CLEAR. IF AN EXIT MUST BE TEMPORARILY BLOCKED, PROVIDE THE REQUIRED BARRICADE AND DIRECTIONAL SIGNS FOR TEMPORARY EXITING AND SAFETY.
22. REMOVE AND REPAIR OR RE-INSTALL EXISTING CEILING ASSEMBLIES AS REQUIRED. REPLACE ANY ASSEMBLIES DAMAGED OR SOILED DURING CONSTRUCTION.
23. PROVIDE PROPER PROTECTIVE MEASURES TO PROTECT EXISTING FURNITURE, CARPET AND FINISHES DURING THE COURSE OF CONSTRUCTION. TAKE CARE NOT TO DAMAGE EXISTING SURFACES. REPAIR TO MATCH EXISTING CONDITIONS AS REQUIRED.
24. SEAL ALL HOLES IN WALLS, CEILINGS, FLOORS, ETC. TO MATCH EXISTING ADJACENT SURFACES WHERE EQUIPMENT, CONDUIT AND/OR PIPING ARE REMOVED.
25. EXISTING EQUIPMENT IS THE PROPERTY OF THE OWNER AND SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER. DISPOSE OF ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED IN ACCORDANCE WITH LOCAL REGULATIONS.
26. REMOVE ALL SHRUBBERY, PLANTS, ETC. WHICH INTERFERE WITH WORK UNDER THIS CONTRACT. REPLANT AND/OR REPLACE ALL PLANTS. SHRUBBERY, ETC. AT COMPLETION OF JOB. ALL DISTURBED AREAS OF SOIL SHALL BE RE-SODDED. REPLACEMENT OR REPLANTING TO BE GUARANTEED FOR ONE YEAR.
27. ITEMS REMOVED AND SAVED FOR REUSE SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL IDENTIFY ANY DEFECTIVE MATERIALS PRIOR TO DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO MATERIALS AT PROJECT COMPLETION NOT IDENTIFIED PRIOR TO DEMOLITION.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	HHWS	HEATING HOT WATER SUPPLY PIPING
ATU	AIR TERMINAL UNIT	HHWR	HEATING HOT WATER RETURN PIPING
BAS	BUILDING AUTOMATION SYSTEM	HP	HORSEPOWER
BD	BALANCING DAMPER	IN	INCHES
BHP	BRAKE HORSEPOWER	MCA	MINIMUM CIRCUIT AMPACITY
BTUH	BRITISH THERMAL UNITS PER HOUR	MOCP	MAXIMUM OVERLOAD PROTECTION
C	CONDENSATE	N/A	NOT APPLICABLE
CC	COOLING COIL	N.C.	NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIS	NOT IN SCOPE
CHW	CHILLED WATER	N.O.	NORMALLY OPEN
CHWS	CHILLED WATER SUPPLY PIPING	OA	OUTSIDE AIR
CHWR	CHILLED WATER RETURN PIPING	RA	RETURN AIR
CWS	CONDENSER WATER SUPPLY PIPING	RPM	REVOLUTIONS PER MINUTE
CWR	CONDENSER WATER RETURN PIPING	RTU	ROOF TOP UNIT
CT	COOLING TOWER	SA	SUPPLY AIR
CUP	CENTRAL UTILITY PLANT	SF	SUPPLY FAN
CV	CONSTANT VOLUME	SMS	SHEET METAL SIZE
DDC	DIRECT DI

DEMOLITION KEYNOTES

1. DEMOLISH ROOF TOP UNIT, CONDENSATE PIPING, AND EXTENDED ROOF CURB. DEMOLISH EXISTING ROOFING IF NECESSARY TO ACCOMMODATE DIMENSIONS OF NEW CURB DOWN TO DECK AND BACK TO LIMITS OF NEW ROOF CURB - SEE RENOVATION PLAN.
2. DEMOLISH CHWS/R AND HHWS/R PIPING , SUPPORTS, VALVES AND ACCESSORIES, INSULATION AND PROTECTIVE JACKET FROM LIMIT INDICATED TO ROOF TOP UNIT CONNECTIONS.
3. DEMOLISH HHWS/R BRANCH PIPING, SUPPORTS, INSULATION, AND PROTECTIVE JACKET THROUGH ROOF TO VAV TERMINALS BELOW UP TO LIMIT INDICATED ON SHEET M1.1.
4. EXISTING ROOF CONSTRUCTION IS LIGHTWEIGHT INSULATING CONCRETE DECK ON CORRUGATED METAL FORM DECK. EXISTING STEEL FRAME METAL CHANNELS (MC 10X21.9) ON TOP CHORD OF STEEL JOISTS (SJ-32LH08) AT 4'-0" O.C FOR EXISTING RTU SUPPORT SHALL REMAIN TO SUPPORT NEW RTU ROOF CURB. NOTE: CONCRETE AND METAL DECK WERE CUT BACK TO LIMITS OF ORIGINAL 1970 RTU CURB DURING ORIGINAL CONSTRUCTION; INTENT OF THIS PROJECT IS TO UTILIZE THE EXISTING FRAMING BUT TO PATCH ROOF AND OPENING BACK TO NEW ROOF CURB.
5. DEMOLISH EXISTING CHILLER 1 (CH-1) INCLUDING ASSOCIATED VALVES AND PIPING ACCESSORIES. REPLACE CHILLER AS SHOWN IN RENOVATION PLAN.
6. DEMOLISH EXISTING PRIMARY CHILLED WATER PUMPS FOR CHILLER 1 AND CHILLER 2 INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
7. DEMOLISH EXISTING CONDENSER WATER PUMPS INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
8. DEMOLISH EXISTING SUPPLY AIR TERMINAL AND ASSOCIATED DUCTWORK TO LIMITS INDICATED. DEMOLISH HYDRONIC PIPING INCLUDING ISOLATION VALVES, STRAINER, BALANCING VALVES AND CONTROL VALVE. REPLACE WITH NEW AS SHOWN ON RENOVATION PLAN.
9. CONVERT CHILLED WATER 3-WAY CONTROL VALVE TO 2-WAY VALVE FOR ROOFTOP UNIT BY REMOVING BYPASS LINE, BALANCING VALVE IN BYPASS AND CAPPING BYPASS INLET ON CONTROL VALVE.
10. DEMOLISH RETURN AIR DUCT CONNECTION TO RTU. INCLUDING DUCT MOUNTED SMOKE DETECTOR.
11. DEMOLISH SUPPLY AIR DUCT CONNECTION TO RTU.
12. DEMOLISH HHWS AND HHWR RISERS UP TO LIMIT OF DEMOLITION INDICTED ON ROOF PLAN.
13. DEMOLISH DUCT MOUNT SMOKE DETECTOR.
14. DEMOLISH RETURN AIR GRILLE IN CEILING.

MECHANICAL GENERAL NOTES

1. EXISTING ROOF IS UNDER ACTIVE WARRANTY; CONTRACTOR SHALL ENGAGE OWNER'S ROOFING SUB-CONTRACTOR FOR ALL ROOF WORK AND FLASHING TO MAINTAIN EXISTING WARRANTY.
2. SUPPORT OF ROOFTOP PIPING AND EQUIPMENT SHALL BE ENGINEERED BY DELEGATED DESIGN BY A LICENSED PROFESSIONAL ENGINEER FOR 170 MPH WIND LOADING. ROOFTOP MOUNTED CHW AND HHW PIPING AND ATTACHMENTS SHALL UTILIZE ADJUSTABLE-HEIGHT, STRUCTURE-MOUNTED PIPE SUPPORTS OR CURB-MOUNTED PIPE SUPPORTS TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOF CURBS, CURB TIE DOWNS, AND EQUIPMENT ATTACHMENTS SHALL BE PROVIDED AS NECESSARY TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOFTOP MOUNTED CONDENSATE PIPING TO ROOF DRAINS MAY USE FIXED-HEIGHT CRADLE-TYPE, NON PENETRATING PIPE SUPPORTS.
3. EXISTING PIPE SIZES INDICATED HAVE BEEN TAKEN FROM AS-BUILT DRAWINGS AND BEST ENGINEERING JUDGEMENT BASED ON EQUIPMENT SIZING. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY DIMENSIONS OF ALL PIPING PRIOR TO ORDERING MATERIALS.
4. AFTER NEW WORK IS COMPLETE BUT PRIOR TO TEST AND BALANCE PIPING SHALL BE FLUSHED CONTINUALLY FOR 24-HOURS OR UNTIL WATER IS CLEAR. PROVIDE TEMPORARY FLUSHING CONNECTIONS AS NECESSARY TO CIRCULATE WATER. BLOW DOWN STRAINERS AT CHILLER, BOILER, COILS AND PUMPS UNTIL ALL REMAINING DEBRIS IS REMOVED. ONCE FLUSHED, TREAT CLOSED WATER SYSTEM PER SPECIFICATIONS.
5. PROVIDE MINIMUM 30" HIGH DOUBLE WALL, FULLY WELDED, INSULATED ROOF CURBS WITH 2X6 PRESSURE TREATED NAILER FOR ALL ROOF MOUNTED EQUIPMENT. HEIGHT SHALL BE EXTENDED BEYOND 30" AS NECESSARY FOR INSULATION THICKNESS AND PROPER FLASHING AS DETERMINED BYROOFING CONTRACTOR. CURB SHALL BE RATED FOR WIND SPEED AND EXPOSURE CATEGORY FOR PROJECT LOCATION PER FLORIDA BUILDING CODE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ATTACHMENT SIGNED & SEALED BY STRUCTURAL ENGINEER LICENSED IN FLORIDA. ATTACHMENT SHALL BE THE MORE STRINGENT REQUIREMENT AS DETERMINED BY ENGINEER OR THE FOLLOWING:
   A. PROVIDE #10 TEK SCREWS (METAL DECK) OR 1/4" TAPCONS (CONCRETE DECK) AT MAXIMUM 24" O.C. (MINIMUM 2 EACH SIDE) AROUND PERIMETER TO SECURE CURB TO ROOF. PROVIDE MGM STANDARD CLIPS MAXIMUM 36" O.C. (MINIMUM 1 EACH SIDE) TO SECURE EQUIPMENT TO CURB WITH #10 TEK SCREWS ON EACH SIDE OF CLIP.
6. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.
7. CONTRACTOR SHALL MEASURE AND RECORD WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PRIOR TO START OF WORK. WHERE FLOWS ARE INDICATED ON PLANS VALUES HAVE BEEN TAKEN FROM AS-BUILT PLANS. WHERE NOT SHOWN, AS-BUILT DRAWINGS WERE NOT AVAILABLE INDICATING FLOWS. PROVIDE REPORT TO ENGINEER OF MEASURED FLOW RATES, FLOW RATES FROM AS-BUILT PLANS AND DELTA BETWEEN VALUES. SEE NEW WORK FOR WATER BALANCE SCOPE POST CONSTRUCTION.
8. CONTRACTOR SHALL BALANCE WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PIPING AFTER NEW WORK COMPLETE. BALANCE FLOW RATES TO VALUES INDICATED ON PLANS FOR EXISTING UNITS AND SCHEDULED VALUES FOR NEW UNITS. BASED ON PRE-DEMOLITION MEASUREMENTS, ENGINEER MAY ADJUST FINAL FLOW RATE TARGETS; CONFIRM WITH ENGINEER AFTER PRE-DEMOLITION REPORT HAS BEEN SUBMITTED AND PRIOR TO FINAL TEST AND BALANCE WORK. TAB CONTRACTOR SHALL BALANCE FLOW AT CHW AND HHW PUMPS AS NECESSARY TO ACHIEVE FLOWS AT COILS.

CENTRAL CHILLER PLANT
SEE SHEET M1.2

CT-1 CT-2

RTU-15
CHW - 20 GPM
HHW - 1.8 GPM
VAV BRANCH
HHW - 4.5 GPM

RTU-16
CHW - 25 GPM
HHW - 6.0 GPM

RTU-17
CHW - 50 GPM
HHW - 4.3 GPM
VAV BRANCH
HHW - 7.6 GPM

RTU-14
CHW - 75 GPM
HHW - 9.2 GPM
VAV BRANCH
HHW - 10.4 GPM

RTU-13
CHW -73 GPM
HHW - 13.4 GPM
VAV BRANCH
HHW - 5.6 GPM

RTU-18
CHW - 21.2 GPM
HHW - 14.2 GPM

RTU-10
CHW - 57 GPM
HHW - 10.6 GPM
VAV BRANCH
HHW - 18.8 GPM

RTU-G2
CHW - 15.0 GPM
HHW - 6.0 GPM

RTU-G3
CHW - 15.0 GPM
HHW - 6.0 GPM

RTU-G1
CHW - 15.0 GPM
HHW - 6.0 GPM

RTU-G4
CHW - 15.0 GPM
HHW - 6.0 GPM

HIGHER ROOF ABOVE GYM

CHWS/R & HHWS/R INSIDE GYM AREA BELOW ROOF.

RTU-2
CHW - 28.7 GPM
HHW - 20.0 GPM

RTU-1
CHW - 17.0 GPM
HHW - 3.0 GPM

1 1/4" CHWS/R & 1 "HHWS/R DN TO AIR HANDLING UNIT BELOW ROOF. NO WORK BELOW ROOF HERE

AHU-H
CHW - 10 GPM
HHW - 4.7 GPM

RTU-20
CHW - 10.7 GPM
HHW - 2.0 GPM

RTU-19

DX UNIT TO REMAIN.

RTU-3
CHW - 24.8 GPM
HHW - 4.9 GPM
VAV BRANCH
HHW - 10.3 GPM

OPEN TO COURTYARD

DX UNIT TO REMAIN.

RTU-4

RTU-5
CHW - 62 GPM
HHW - 12.6 GPM

4" HHWR
3" HHWR
4" HHWS

4" HHWS/R DOWN TO BOILERS. NO WORK BELOW ROOF HERE.

RTU-7
CHW - 6 GPM
HHW - 2.7 GPM

RTU-12
CHW - 73 GPM
HHW - 5.0 GPM
VAV BRANCH
HHW - 9.2 GPM

RTU-11
CHW - 86 GPM
HHW - 8.0 GPM
VAV BRANCH
HHW - 11.3 GPM

RTU-9
CHW - 23 GPM
HHW - 5.7 GPM
VAV BRANCH
HHW - 5.3 GPM

RTU-8
CHW - 30 GPM
HHW - 10 GPM
VAV BRANCH
HHW - 12.6 GPM

RTU-6
CHW - 21.8 GPM
HHW - 6.9 GPM

EF-26 EF-28

ROOF PLAN - DEMOLITION

1/16" = 1'-0"

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

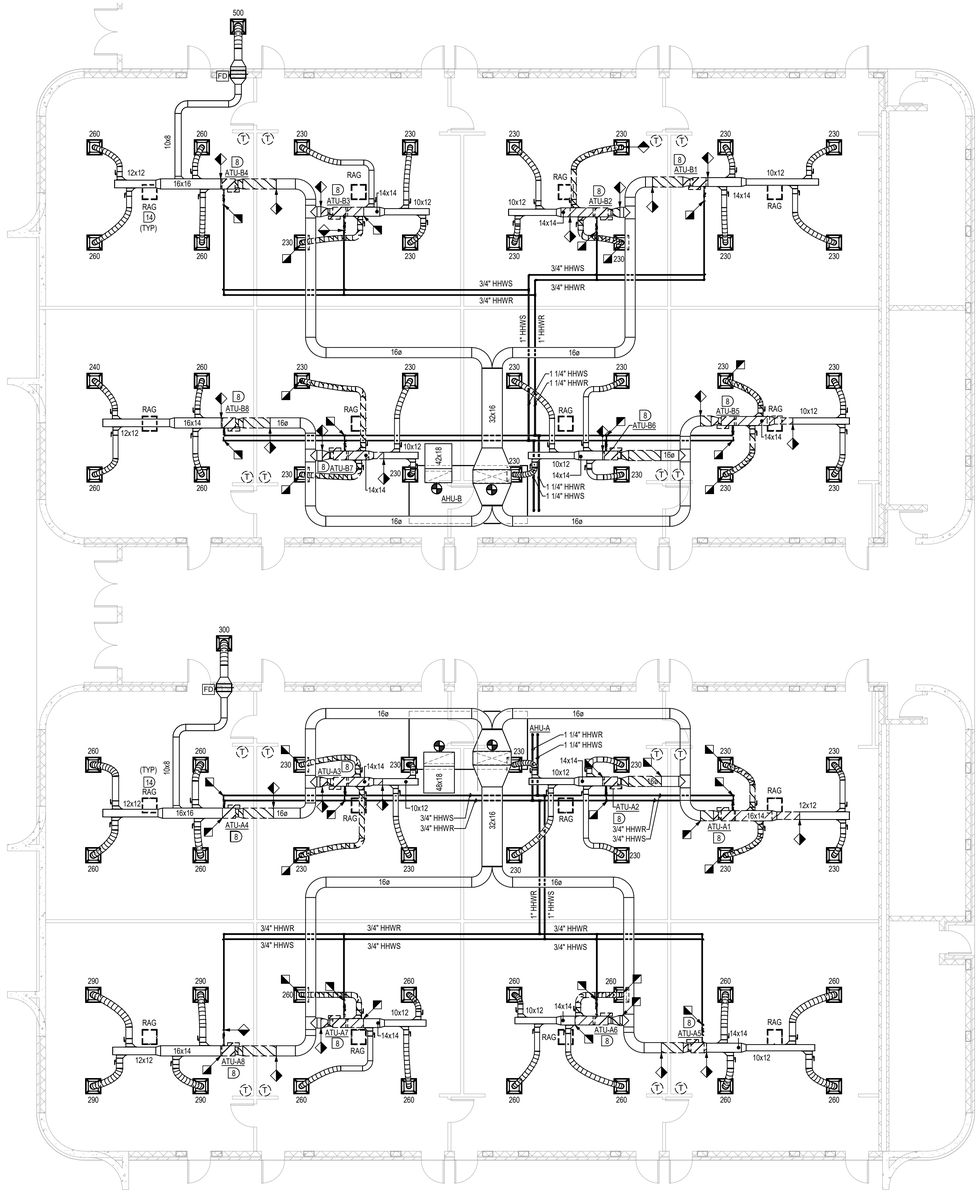
#	Description	Date

SHEET TITLE

ROOF PLAN DEMOLITION

DRAWING NO.

M1.0



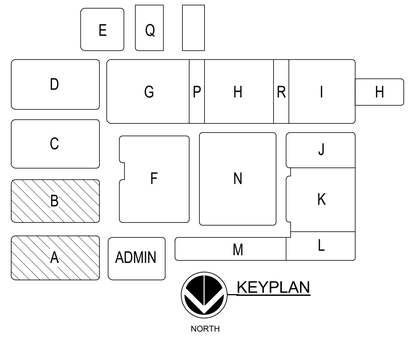
CLASSROOM AREA A & B FLOOR PLAN - DEMOLITION

1/8" = 1'-0"

NORTH

DEMOLITION KEYNOTES

1. DEMOLISH ROOF TOP UNIT, CONDENSATE PIPING, AND EXTENDED ROOF CURB. DEMOLISH EXISTING ROOFING IF NECESSARY TO ACCOMMODATE DIMENSIONS OF NEW CURB DOWN TO DECK AND BACK TO LIMITS OF NEW ROOF CURB - SEE RENOVATION PLAN.
2. DEMOLISH CHWS/R AND HHWS/R PIPING , SUPPORTS, VALVES AND ACCESSORIES, INSULATION AND PROTECTIVE JACKET FROM LIMIT INDICATED TO ROOF TOP UNIT CONNECTIONS.
3. DEMOLISH HHWS/R BRANCH PIPING, SUPPORTS, INSULATION, AND PROTECTIVE JACKET THROUGH ROOF TO VAV TERMINALS BELOW UP TO LIMIT INDICATED ON SHEET M1.1.
4. EXISTING ROOF CONSTRUCTION IS LIGHTWEIGHT INSULATING CONCRETE DECK ON CORRUGATED METAL FORM DECK. EXISTING STEEL FRAME METAL CHANNELS (MC 10X21.9) ON TOP CHORD OF STEEL JOISTS (SJ-32LH08) AT 4'-0" O.C FOR EXISTING RTU SUPPORT SHALL REMAIN TO SUPPORT NEW RTU ROOF CURB. NOTE: CONCRETE AND METAL DECK WERE CUT BACK TO LIMITS OF ORIGINAL 1970 RTU CURB DURING ORIGINAL CONSTRUCTION; INTENT OF THIS PROJECT IS TO UTILIZE THE EXISTING FRAMING BUT TO PATCH ROOF AND OPENING BACK TO NEW ROOF CURB.
5. DEMOLISH EXISTING CHILLER 1 (CH-1) INCLUDING ASSOCIATED VALVES AND PIPING ACCESSORIES. REPLACE CHILLER AS SHOWN IN RENOVATION PLAN.
6. DEMOLISH EXISTING PRIMARY CHILLED WATER PUMPS FOR CHILLER 1 AND CHILLER 2 INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
7. DEMOLISH EXISTING CONDENSER WATER PUMPS INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
8. DEMOLISH EXISTING SUPPLY AIR TERMINAL AND ASSOCIATED DUCTWORK TO LIMITS INDICATED. DEMOLISH HYDRONIC PIPING INCLUDING ISOLATION VALVES, STRAINER, BALANCING VALVES AND CONTROL VALVE. REPLACE WITH NEW AS SHOWN ON RENOVATION PLAN.
9. CONVERT CHILLED WATER 3-WAY CONTROL VALVE TO 2-WAY VALVE FOR ROOFTOP UNIT BY REMOVING BYPASS LINE, BALANCING VALVE IN BYPASS AND CAPPING BYPASS INLET ON CONTROL VALVE.
10. DEMOLISH RETURN AIR DUCT CONNECTION TO RTU. INCLUDING DUCT MOUNTED SMOKE DETECTOR.
11. DEMOLISH SUPPLY AIR DUCT CONNECTION TO RTU.
12. DEMOLISH HHWS AND HHWR RISERS UP TO LIMIT OF DEMOLITION INDICTED ON ROOF PLAN.
13. DEMOLISH DUCT MOUNT SMOKE DETECTOR.
14. DEMOLISH RETURN AIR GRILLE IN CEILING.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

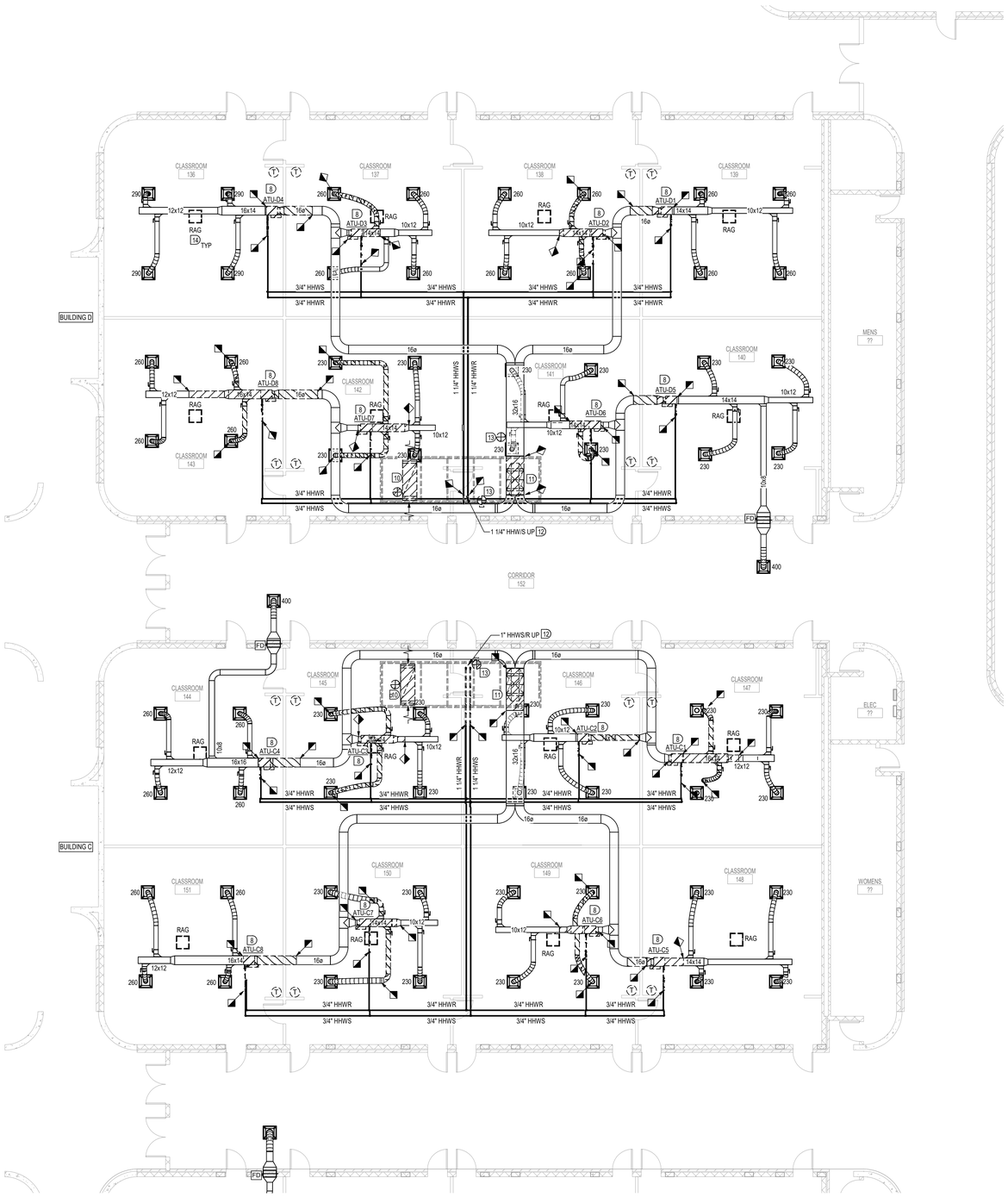
#	Description	Date

SHEET TITLE

AREA A & B FLOOR PLAN DEMOLITION

DRAWING NO.

M1.1AB



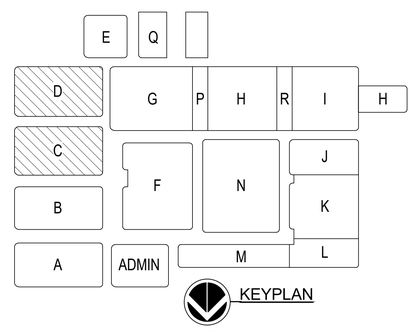
CLASSROOM AREA C & D FLOOR PLAN - DEMOLITION

1/8" = 1'-0"

NORTH

DEMOLITION KEYNOTES

1. DEMOLISH ROOF TOP UNIT, CONDENSATE PIPING, AND EXTENDED ROOF CURB. DEMOLISH EXISTING ROOFING IF NECESSARY TO ACCOMMODATE DIMENSIONS OF NEW CURB DOWN TO DECK AND BACK TO LIMITS OF NEW ROOF CURB - SEE RENOVATION PLAN.
2. DEMOLISH CHWS/R AND HHWS/R PIPING , SUPPORTS, VALVES AND ACCESSORIES, INSULATION AND PROTECTIVE JACKET FROM LIMIT INDICATED TO ROOF TOP UNIT CONNECTIONS.
3. DEMOLISH HHWS/R BRANCH PIPING, SUPPORTS, INSULATION, AND PROTECTIVE JACKET THROUGH ROOF TO VAV TERMINALS BELOW UP TO LIMIT INDICATED ON SHEET M1.1.
4. EXISTING ROOF CONSTRUCTION IS LIGHTWEIGHT INSULATING CONCRETE DECK ON CORRUGATED METAL FORM DECK. EXISTING STEEL FRAME METAL CHANNELS (MC 10X21.9) ON TOP CHORD OF STEEL JOISTS (SJ-32LH08) AT 4'-0" O.C FOR EXISTING RTU SUPPORT SHALL REMAIN TO SUPPORT NEW RTU ROOF CURB. NOTE: CONCRETE AND METAL DECK WERE CUT BACK TO LIMITS OF ORIGINAL 1970 RTU CURB DURING ORIGINAL CONSTRUCTION; INTENT OF THIS PROJECT IS TO UTILIZE THE EXISTING FRAMING BUT TO PATCH ROOF AND OPENING BACK TO NEW ROOF CURB.
5. DEMOLISH EXISTING CHILLER 1 (CH-1) INCLUDING ASSOCIATED VALVES AND PIPING ACCESSORIES. REPLACE CHILLER AS SHOWN IN RENOVATION PLAN.
6. DEMOLISH EXISTING PRIMARY CHILLED WATER PUMPS FOR CHILLER 1 AND CHILLER 2 INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
7. DEMOLISH EXISTING CONDENSER WATER PUMPS INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
8. DEMOLISH EXISTING SUPPLY AIR TERMINAL AND ASSOCIATED DUCTWORK TO LIMITS INDICATED. DEMOLISH HYDRONIC PIPING INCLUDING ISOLATION VALVES, STRAINER, BALANCING VALVES AND CONTROL VALVE. REPLACE WITH NEW AS SHOWN ON RENOVATION PLAN.
9. CONVERT CHILLED WATER 3-WAY CONTROL VALVE TO 2-WAY VALVE FOR ROOFTOP UNIT BY REMOVING BYPASS LINE, BALANCING VALVE IN BYPASS AND CAPPING BYPASS INLET ON CONTROL VALVE.
10. DEMOLISH RETURN AIR DUCT CONNECTION TO RTU. INCLUDING DUCT MOUNTED SMOKE DETECTOR.
11. DEMOLISH SUPPLY AIR DUCT CONNECTION TO RTU.
12. DEMOLISH HHWS AND HHWR RISERS UP TO LIMIT OF DEMOLITION INDICTED ON ROOF PLAN.
13. DEMOLISH DUCT MOUNT SMOKE DETECTOR.
14. DEMOLISH RETURN AIR GRILLE IN CEILING.



KEYPLAN

NORTH

H2E ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

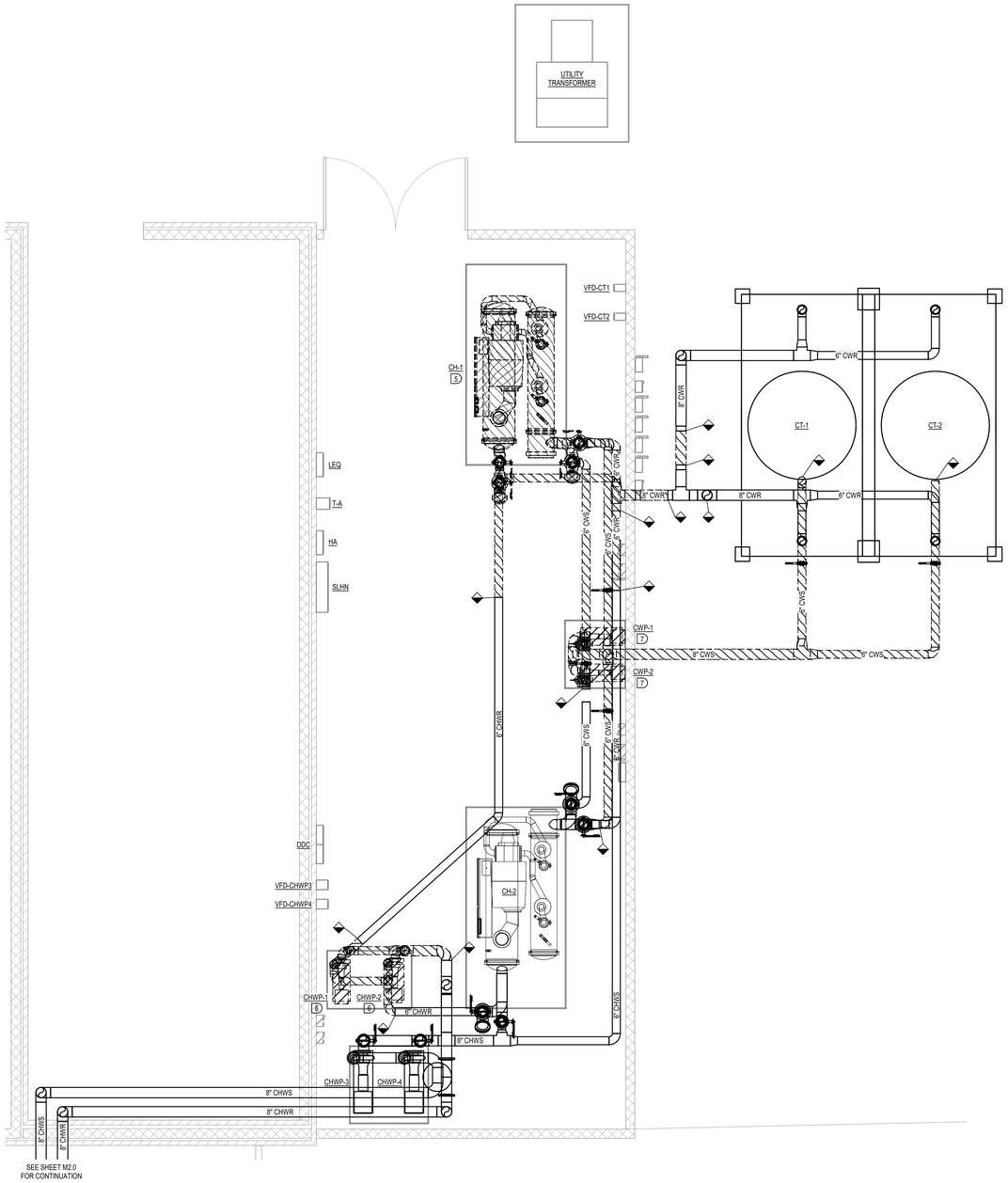
AREA C & D FLOOR PLAN DEMOLITION

DRAWING NO.

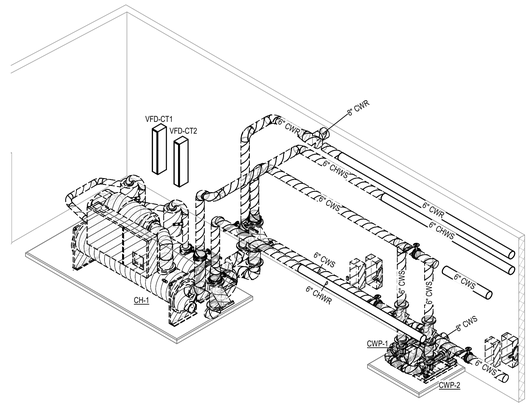
M1.1CD

DEMOLITION KEYNOTES

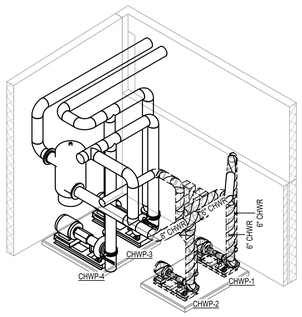
1. DEMOLISH ROOF TOP UNIT, CONDENSATE PIPING, AND EXTENDED ROOF CURB. DEMOLISH EXISTING ROOFING IF NECESSARY TO ACCOMMODATE DIMENSIONS OF NEW CURB DOWN TO DECK AND BACK TO LIMITS OF NEW ROOF CURB - SEE RENOVATION PLAN.
2. DEMOLISH CHWS/R AND HHWS/R PIPING , SUPPORTS, VALVES AND ACCESSORIES, INSULATION AND PROTECTIVE JACKET FROM LIMIT INDICATED TO ROOF TOP UNIT CONNECTIONS.
3. DEMOLISH HHWS/R BRANCH PIPING, SUPPORTS, INSULATION, AND PROTECTIVE JACKET THROUGH ROOF TO VAV TERMINALS BELOW UP TO LIMIT INDICATED ON SHEET M1.1.
4. EXISTING ROOF CONSTRUCTION IS LIGHTWEIGHT INSULATING CONCRETE DECK ON CORRUGATED METAL FORM DECK. EXISTING STEEL FRAME METAL CHANNELS (MC 10X21.9) ON TOP CHORD OF STEEL JOISTS (SJ-32LH08) AT 4'-0" O.C FOR EXISTING RTU SUPPORT SHALL REMAIN TO SUPPORT NEW RTU ROOF CURB. NOTE: CONCRETE AND METAL DECK WERE CUT BACK TO LIMITS OF ORIGINAL 1970 RTU CURB DURING ORIGINAL CONSTRUCTION; INTENT OF THIS PROJECT IS TO UTILIZE THE EXISTING FRAMING BUT TO PATCH ROOF AND OPENING BACK TO NEW ROOF CURB.
5. DEMOLISH EXISTING CHILLER 1 (CH-1) INCLUDING ASSOCIATED VALVES AND PIPING ACCESSORIES. REPLACE CHILLER AS SHOWN IN RENOVATION PLAN.
6. DEMOLISH EXISTING PRIMARY CHILLED WATER PUMPS FOR CHILLER 1 AND CHILLER 2 INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
7. DEMOLISH EXISTING CONDENSER WATER PUMPS INCLUDING ASSOCIATED SUCTION DIFFUSER AND VALVES. REPLACE PUMPS AS SHOWN IN RENOVATION PLAN.
8. DEMOLISH EXISTING SUPPLY AIR TERMINAL AND ASSOCIATED DUCTWORK TO LIMITS INDICATED. DEMOLISH HYDRONIC PIPING INCLUDING ISOLATION VALVES, STRAINER, BALANCING VALVES AND CONTROL VALVE. REPLACE WITH NEW AS SHOWN ON RENOVATION PLAN.
9. CONVERT CHILLED WATER 3-WAY CONTROL VALVE TO 2-WAY VALVE FOR ROOFTOP UNIT BY REMOVING BYPASS LINE, BALANCING VALVE IN BYPASS AND CAPPING BYPASS INLET ON CONTROL VALVE.
10. DEMOLISH RETURN AIR DUCT CONNECTION TO RTU. INCLUDING DUCT MOUNTED SMOKE DETECTOR.
11. DEMOLISH SUPPLY AIR DUCT CONNECTION TO RTU.
12. DEMOLISH HHWS AND HHWR RISERS UP TO LIMIT OF DEMOLITION INDICTED ON ROOF PLAN.
13. DEMOLISH DUCT MOUNT SMOKE DETECTOR.
14. DEMOLISH RETURN AIR GRILLE IN CEILING.



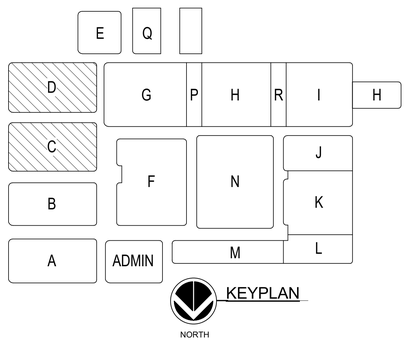
CHILLER PLANT FLOOR PLAN - DEMOLITION
1/4" = 1'-0"
NORTH



1 M1.2 ISOMETRIC CHILLER VIEW - DEMOLITION



2 M1.2 ISOMETRIC PUMP VIEW - DEMOLITION



KEYPLAN
NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE
CHILLER PLANT FLOOR PLAN DEMOLITION

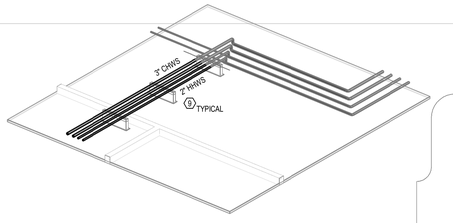
DRAWING NO.
M1.2

MECHANICAL KEYNOTES

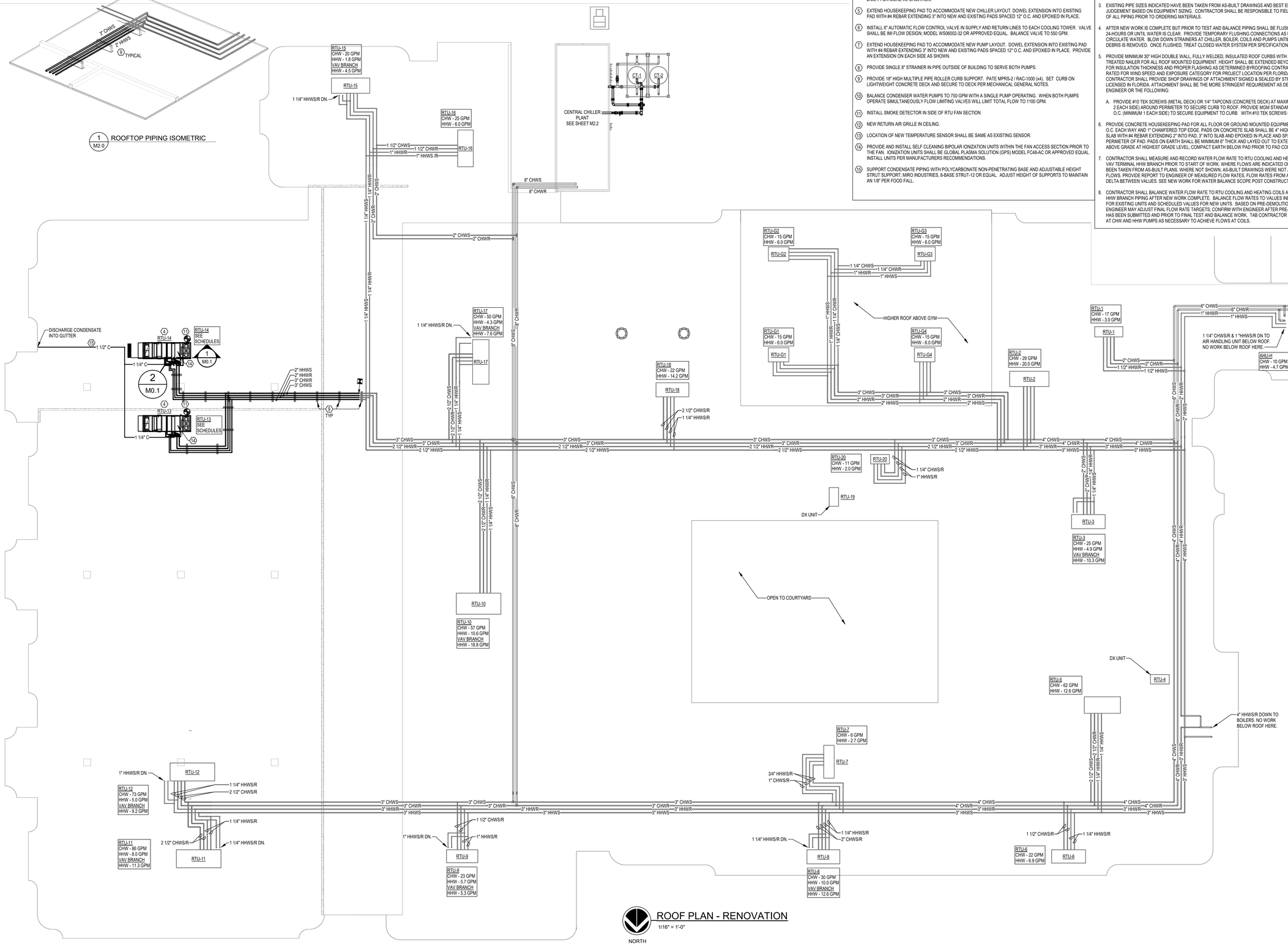
1. PROVIDE AND INSTALL NEW SUPPLY AIR TERMINAL IN PLACE OF EXISTING TERMINAL. PROVIDE NEW HWS RETURN VALVES, ACCESSORIES AND CONNECTION TO VAV TERMINAL. SEE DETAIL D/M5.2.
2. PIPE STAND SUPPORT - SEE DETAIL G/M5.1.
3. EXISTING ROOF TOP UNITS TO REMAIN IN AREA A AND B.
4. INSTALL NEW ROOF TOP UNIT ON NEW CURB. DUCTWORK LOCATION AND SIZES SHOWN ARE BASED ON CURRENT AS BUILTS. CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF DUCT PRIOR TO COMMENCING WORK. PROVIDE NEW VALVES AND RUNOUT PIPING FOR ROOF TOP UNIT AS SHOWN ON PLAN SEE DETAILS 1 & 2/M0.1 FOR MORE INFORMATION.
5. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW CHILLER LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE.
6. INSTALL 6" AUTOMATIC FLOW CONTROL VALVE IN SUPPLY AND RETURN LINES TO EACH COOLING TOWER. VALVE SHALL BE IMI FLOW DESIGN; MODEL WS06002-32 OR APPROVED EQUAL. BALANCE VALVE TO 550 GPM.
7. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMP LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE. PROVIDE AN EXTENSION ON EACH SIDE AS SHOWN.
8. PROVIDE SINGLE 8" STRAINER IN PIPE OUTSIDE OF BUILDING TO SERVE BOTH PUMPS.
9. PROVIDE 18" HIGH MULTIPLE PIPE ROLLER CURB SUPPORT. PATE MPRS-2 / RAC-1000 (x4). SET CURB ON LIGHTWEIGHT CONCRETE DECK AND SECURE TO DECK PER MECHANICAL GENERAL NOTES.
10. BALANCE CONDENSER WATER PUMPS TO 750 GPM WITH A SINGLE PUMP OPERATING. WHEN BOTH PUMPS OPERATE SIMULTANEOUSLY FLOW LIMITING VALVES WILL LIMIT TOTAL FLOW TO 1100 GPM.
11. INSTALL SMOKE DETECTOR IN SIDE OF RTU FAN SECTION.
12. NEW RETURN AIR GRILLE IN CEILING.
13. LOCATION OF NEW TEMPERATURE SENSOR SHALL BE SAME AS EXISTING SENSOR.
14. PROVIDE AND INSTALL SELF CLEANING BIPOLAR IONIZATION UNITS WITHIN THE FAN ACCESS SECTION PRIOR TO THE FAN. IONIZATION UNITS SHALL BE GLOBAL PLASMA SOLUTION (GPS) MODEL FC48-AC OR APPROVED EQUAL. INSTALL UNITS PER MANUFACTURERS RECOMMENDATIONS.
15. SUPPORT CONDENSATE PIPING WITH POLYCARBONATE NON-PENETRATING BASE AND ADJUSTABLE HEIGHT STRUT SUPPORT; MIRO INDUSTRIES, 8-BASE STRUT-12 OR EQUAL. ADJUST HEIGHT OF SUPPORTS TO MAINTAIN AN 1/8" PER FOOD FALL.

MECHANICAL GENERAL NOTES

1. EXISTING ROOF IS UNDER ACTIVE WARRANTY; CONTRACTOR SHALL ENGAGE OWNER'S ROOFING SUB-CONTRACTOR FOR ALL ROOF WORK AND FLASHING TO MAINTAIN EXISTING WARRANTY.
2. SUPPORT OF ROOFTOP PIPING AND EQUIPMENT SHALL BE ENGINEERED BY DELEGATED DESIGN BY A LICENSED PROFESSIONAL ENGINEER FOR 170 MPH WIND LOADING. ROOFTOP MOUNTED CHW AND HHW PIPING AND ATTACHMENTS SHALL UTILIZE ADJUSTABLE-HEIGHT, STRUCTURE-MOUNTED PIPE SUPPORTS OR CURB-MOUNTED PIPE SUPPORTS TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOF CURBS, CURB TIE DOWNS, AND EQUIPMENT ATTACHMENTS SHALL BE PROVIDED AS NECESSARY TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOFTOP MOUNTED CONDENSATE PIPING TO ROOF DRAINS MAY USE FIXED-HEIGHT CRADLE-TYPE, NON PENETRATING PIPE SUPPORTS.
3. EXISTING PIPE SIZES INDICATED HAVE BEEN TAKEN FROM AS-BUILT DRAWINGS AND BEST ENGINEERING JUDGEMENT BASED ON EQUIPMENT SIZING. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY DIMENSIONS OF ALL PIPING PRIOR TO ORDERING MATERIALS.
4. AFTER NEW WORK IS COMPLETE BUT PRIOR TO TEST AND BALANCE PIPING SHALL BE FLUSHED CONTINUALLY FOR 24-HOURS OR UNTIL WATER IS CLEAR. PROVIDE TEMPORARY FLUSHING CONNECTIONS AS NECESSARY TO CIRCULATE WATER. BLOW DOWN STRAINERS AT CHILLER, BOILER, COILS AND PUMPS UNTIL ALL REMAINING DEBRIS IS REMOVED. ONCE FLUSHED, TREAT CLOSED WATER SYSTEM PER SPECIFICATIONS.
5. PROVIDE MINIMUM 30" HIGH DOUBLE WALL, FULLY WELDED, INSULATED ROOF CURBS WITH 2X4 PRESSURE TREATED NAILER FOR ALL ROOF MOUNTED EQUIPMENT. HEIGHT SHALL BE EXTENDED BEYOND 30" AS NECESSARY FOR INSULATION THICKNESS AND PROPER FLASHING AS DETERMINED BYROOFING CONTRACTOR. CURB SHALL BE RATED FOR WIND SPEED AND EXPOSURE CATEGORY FOR PROJECT LOCATION PER FLORIDA BUILDING CODE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ATTACHMENT SIGNED & SEALED BY STRUCTURAL ENGINEER LICENSED IN FLORIDA. ATTACHMENT SHALL BE THE MORE STRINGENT REQUIREMENT AS DETERMINED BY ENGINEER OR THE FOLLOWING:
   A. PROVIDE #10 TEK SCREWS (METAL DECK) OR 1/4" TAPCONS (CONCRETE DECK) AT MAXIMUM 24" O.C. (MINIMUM 2 EACH SIDE) AROUND PERIMETER TO SECURE CURB TO ROOF. PROVIDE MGM STANDARD CLIPS MAXIMUM 36" O.C. (MINIMUM 1 EACH SIDE) TO SECURE EQUIPMENT TO CURB WITH #10 TEK SCREWS ON EACH SIDE OF CLIP.
6. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.
7. CONTRACTOR SHALL MEASURE AND RECORD WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PRIOR TO START OF WORK. WHERE FLOWS ARE INDICATED ON PLANS VALUES HAVE BEEN TAKEN FROM AS-BUILT PLANS. WHERE NOT SHOWN, AS-BUILT DRAWINGS WERE NOT AVAILABLE INDICATING FLOWS. PROVIDE REPORT TO ENGINEER OF MEASURED FLOW RATES. FLOW RATES FROM AS-BUILT PLANS AND DELTA BETWEEN VALUES. SEE NEW WORK FOR WATER BALANCE SCOPE POST CONSTRUCTION.
8. CONTRACTOR SHALL BALANCE WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PIPING AFTER NEW WORK COMPLETE. BALANCE FLOW RATES TO VALUES INDICATED ON PLANS FOR EXISTING UNITS AND SCHEDULED VALUES FOR NEW UNITS. BASED ON PRE-DEMOLITION MEASUREMENTS, ENGINEER MAY ADJUST FINAL FLOW RATE TARGETS; CONFIRM WITH ENGINEER AFTER PRE-DEMOLITION REPORT HAS BEEN SUBMITTED AND PRIOR TO FINAL TEST AND BALANCE WORK. TAB CONTRACTOR SHALL BALANCE FLOW AT CHW AND HHW PUMPS AS NECESSARY TO ACHIEVE FLOWS AT COILS.



1 M2.0 ROOFTOP PIPING ISOMETRIC



ROOF PLAN - RENOVATION
1/16" = 1'-0"
NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

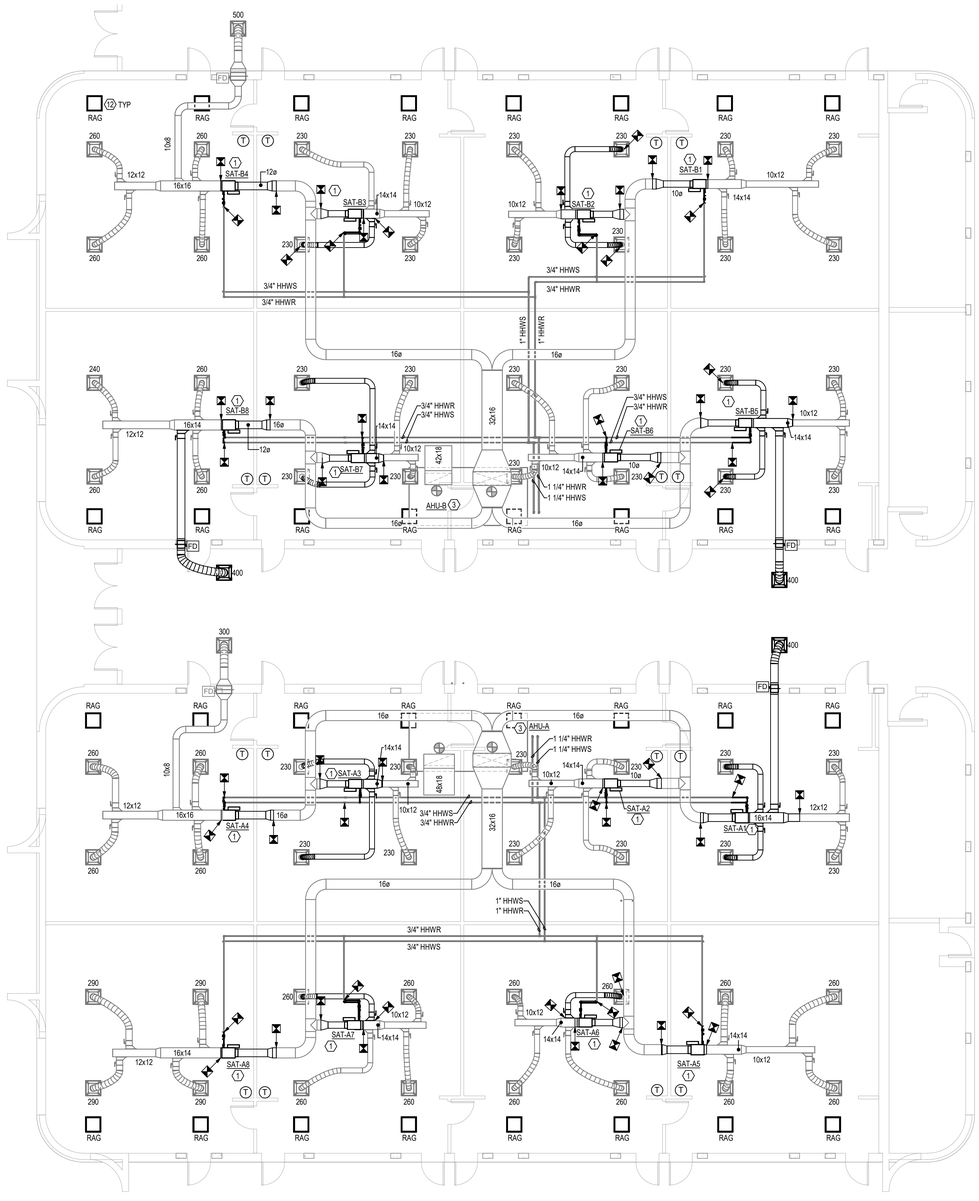
#	Description	Date

SHEET TITLE

ROOF PLAN RENOVATION

DRAWING NO.

M2.0



CLASSROOM AREA A & B FLOOR PLAN - RENOVATION

1/8" = 1'-0"

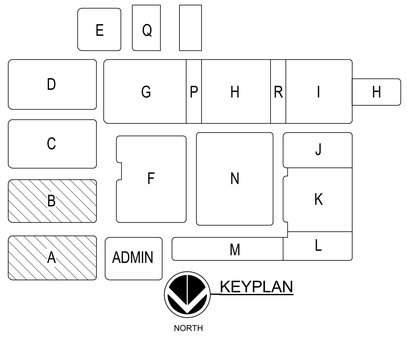
NORTH

MECHANICAL KEYNOTES

1. PROVIDE AND INSTALL NEW SUPPLY AIR TERMINAL IN PLACE OF EXISTING TERMINAL. PROVIDE NEW HWS RETURN VALVES, ACCESSORIES AND CONNECTION TO VAV TERMINAL. SEE DETAIL D/M5.2.
2. PIPE STAND SUPPORT - SEE DETAIL G/M5.1.
3. EXISTING ROOF TOP UNITS TO REMAIN IN AREA A AND B.
4. INSTALL NEW ROOF TOP UNIT ON NEW CURB. DUCTWORK LOCATION AND SIZES SHOWN ARE BASED ON CURRENT AS BUILTS. CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF DUCT PRIOR TO COMMENCING WORK. PROVIDE NEW VALVES AND RUNOUT PIPING FOR ROOF TOP UNIT AS SHOWN ON PLAN SEE DETAILS 1 & 2/M0.1 FOR MORE INFORMATION.
5. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW CHILLER LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE.
6. INSTALL 6" AUTOMATIC FLOW CONTROL VALVE IN SUPPLY AND RETURN LINES TO EACH COOLING TOWER. VALVE SHALL BE IMI FLOW DESIGN; MODEL WS06002-32 OR APPROVED EQUAL. BALANCE VALVE TO 550 GPM.
7. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMP LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE. PROVIDE AN EXTENSION ON EACH SIDE AS SHOWN.
8. PROVIDE SINGLE 8" STRAINER IN PIPE OUTSIDE OF BUILDING TO SERVE BOTH PUMPS.
9. PROVIDE 18" HIGH MULTIPLE PIPE ROLLER CURB SUPPORT. PATE MPRS-2 / RAC-1000 (x4). SET CURB ON LIGHTWEIGHT CONCRETE DECK AND SECURE TO DECK PER MECHANICAL GENERAL NOTES.
10. BALANCE CONDENSER WATER PUMPS TO 750 GPM WITH A SINGLE PUMP OPERATING. WHEN BOTH PUMPS OPERATE SIMULTANEOUSLY FLOW LIMITING VALVES WILL LIMIT TOTAL FLOW TO 1100 GPM.
11. INSTALL SMOKE DETECTOR IN SIDE OF RTU FAN SECTION.
12. NEW RETURN AIR GRILLE IN CEILING.
13. LOCATION OF NEW TEMPERATURE SENSOR SHALL BE SAME AS EXISTING SENSOR.
14. PROVIDE AND INSTALL SELF CLEANING BIPOLAR IONIZATION UNITS WITHIN THE FAN ACCESS SECTION PRIOR TO THE FAN. IONIZATION UNITS SHALL BE GLOBAL PLASMA SOLUTION (GPS) MODEL FC48-AC OR APPROVED EQUAL. INSTALL UNITS PER MANUFACTURERS RECOMMENDATIONS.
15. SUPPORT CONDENSATE PIPING WITH POLYCARBONATE NON-PENETRATING BASE AND ADJUSTABLE HEIGHT STRUT SUPPORT; MIRO INDUSTRIES, 8-BASE STRUT-12 OR EQUAL. ADJUST HEIGHT OF SUPPORTS TO MAINTAIN AN 1/8" PER FOOD FALL.

MECHANICAL GENERAL NOTES

1. EXISTING ROOF IS UNDER ACTIVE WARRANTY; CONTRACTOR SHALL ENGAGE OWNER'S ROOFING SUB-CONTRACTOR FOR ALL ROOF WORK AND FLASHING TO MAINTAIN EXISTING WARRANTY.
2. SUPPORT OF ROOFTOP PIPING AND EQUIPMENT SHALL BE ENGINEERED BY DELEGATED DESIGN BY A LICENSED PROFESSIONAL ENGINEER FOR 170 MPH WIND LOADING. ROOFTOP MOUNTED CHW AND HHW PIPING AND ATTACHMENTS SHALL UTILIZE ADJUSTABLE-HEIGHT, STRUCTURE-MOUNTED PIPE SUPPORTS OR CURB-MOUNTED PIPE SUPPORTS TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOF CURBS, CURB TIE DOWNS, AND EQUIPMENT ATTACHMENTS SHALL BE PROVIDED AS NECESSARY TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOFTOP MOUNTED CONDENSATE PIPING TO ROOF DRAINS MAY USE FIXED-HEIGHT CRADLE-TYPE, NON PENETRATING PIPE SUPPORTS.
3. EXISTING PIPE SIZES INDICATED HAVE BEEN TAKEN FROM AS-BUILT DRAWINGS AND BEST ENGINEERING JUDGEMENT BASED ON EQUIPMENT SIZING. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY DIMENSIONS OF ALL PIPING PRIOR TO ORDERING MATERIALS.
4. AFTER NEW WORK IS COMPLETE BUT PRIOR TO TEST AND BALANCE PIPING SHALL BE FLUSHED CONTINUALLY FOR 24-HOURS OR UNTIL WATER IS CLEAR. PROVIDE TEMPORARY FLUSHING CONNECTIONS AS NECESSARY TO CIRCULATE WATER. BLOW DOWN STRAINERS AT CHILLER, BOILER, COILS AND PUMPS UNTIL ALL REMAINING DEBRIS IS REMOVED. ONCE FLUSHED, TREAT CLOSED WATER SYSTEM PER SPECIFICATIONS.
5. PROVIDE MINIMUM 30" HIGH DOUBLE WALL, FULLY WELDED, INSULATED ROOF CURBS WITH 2X4 PRESSURE TREATED NAILER FOR ALL ROOF MOUNTED EQUIPMENT. HEIGHT SHALL BE EXTENDED BEYOND 30" AS NECESSARY FOR INSULATION THICKNESS AND PROPER FLASHING AS DETERMINED BYROOFING CONTRACTOR. CURB SHALL BE RATED FOR WIND SPEED AND EXPOSURE CATEGORY FOR PROJECT LOCATION PER FLORIDA BUILDING CODE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ATTACHMENT SIGNED & SEALED BY STRUCTURAL ENGINEER LICENSED IN FLORIDA. ATTACHMENT SHALL BE THE MORE STRINGENT REQUIREMENT AS DETERMINED BY ENGINEER OR THE FOLLOWING:
   A. PROVIDE #10 TEK SCREWS (METAL DECK) OR 1/4" TAPCONS (CONCRETE DECK) AT MAXIMUM 24" O.C. (MINIMUM 2 EACH SIDE) AROUND PERIMETER TO SECURE CURB TO ROOF. PROVIDE MGM STANDARD CLIPS MAXIMUM 36" O.C. (MINIMUM 1 EACH SIDE) TO SECURE EQUIPMENT TO CURB WITH #10 TEK SCREWS ON EACH SIDE OF CLIP.
6. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.
7. CONTRACTOR SHALL MEASURE AND RECORD WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PRIOR TO START OF WORK. WHERE FLOWS ARE INDICATED ON PLANS VALUES HAVE BEEN TAKEN FROM AS-BUILT PLANS. WHERE NOT SHOWN, AS-BUILT DRAWINGS WERE NOT AVAILABLE INDICATING FLOWS. PROVIDE REPORT TO ENGINEER OF MEASURED FLOW RATES. FLOW RATES FROM AS-BUILT PLANS AND DELTA BETWEEN VALUES. SEE NEW WORK FOR WATER BALANCE SCOPE POST CONSTRUCTION.
8. CONTRACTOR SHALL BALANCE WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PIPING AFTER NEW WORK COMPLETE. BALANCE FLOW RATES TO VALUES INDICATED ON PLANS FOR EXISTING UNITS AND SCHEDULED VALUES FOR NEW UNITS. BASED ON PRE-DEMOLITION MEASUREMENTS, ENGINEER MAY ADJUST FINAL FLOW RATE TARGETS; CONFIRM WITH ENGINEER AFTER PRE-DEMOLITION REPORT HAS BEEN SUBMITTED AND PRIOR TO FINAL TEST AND BALANCE WORK. TAB CONTRACTOR SHALL BALANCE FLOW AT CHW AND HHW PUMPS AS NECESSARY TO ACHIEVE FLOWS AT COILS.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

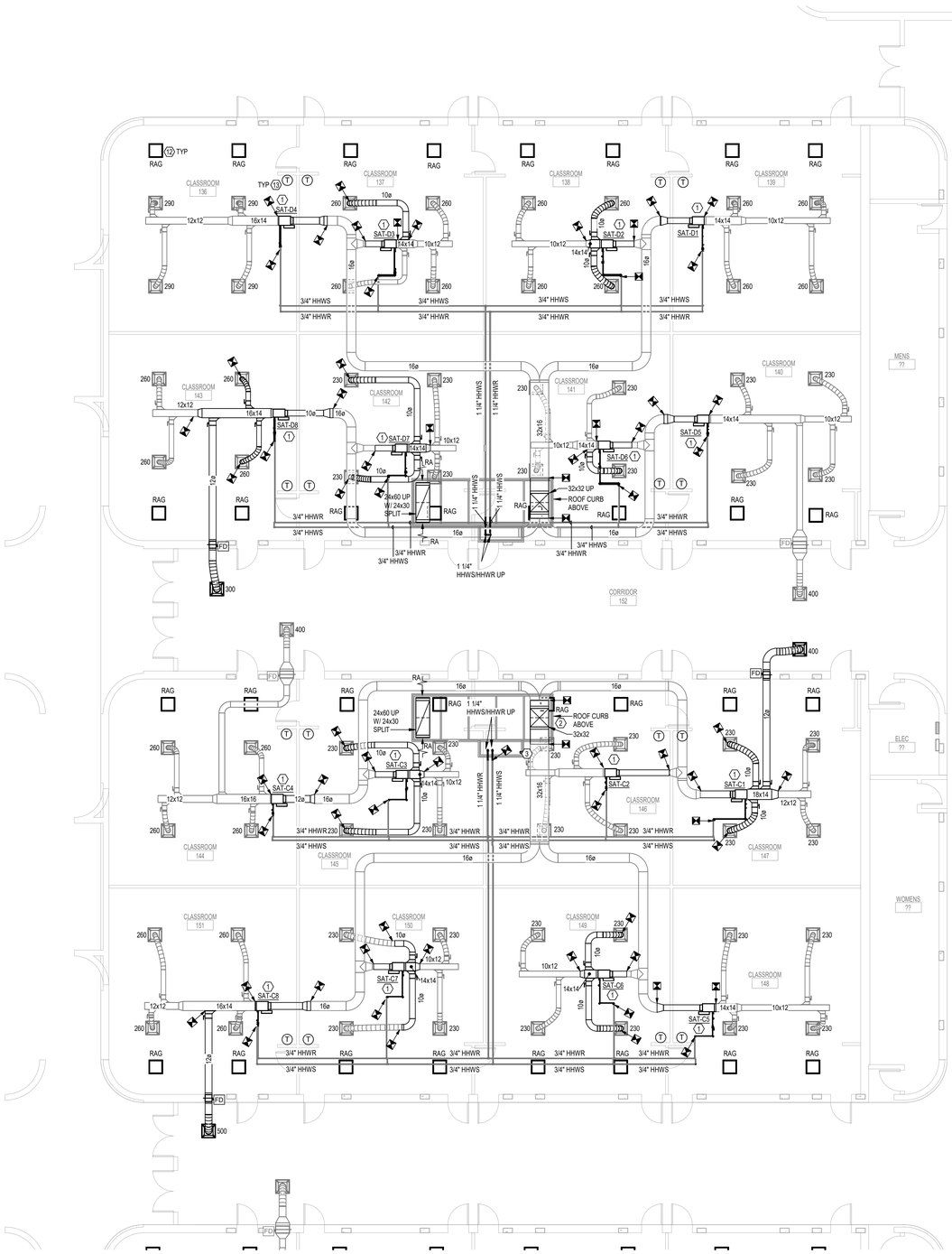
#	Description	Date

SHEET TITLE

AREA A & B FLOOR PLAN RENOVATION

DRAWING NO.

M2.1AB



CLASSROOM AREA C & D FLOOR PLAN - RENOVATION

1/8" = 1'-0"

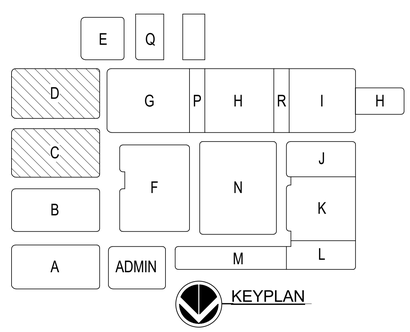
NORTH

MECHANICAL KEYNOTES

1. PROVIDE AND INSTALL NEW SUPPLY AIR TERMINAL IN PLACE OF EXISTING TERMINAL. PROVIDE NEW HWS RETURN VALVES, ACCESSORIES AND CONNECTION TO VAV TERMINAL. SEE DETAIL D/M5.2.
2. PIPE STAND SUPPORT - SEE DETAIL G/M5.1.
3. EXISTING ROOF TOP UNITS TO REMAIN IN AREA A AND B.
4. INSTALL NEW ROOF TOP UNIT ON NEW CURB. DUCTWORK LOCATION AND SIZES SHOWN ARE BASED ON CURRENT AS BUILTS. CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF DUCT PRIOR TO COMMENCING WORK. PROVIDE NEW VALVES AND RUNOUT PIPING FOR ROOF TOP UNIT AS SHOWN ON PLAN SEE DETAILS 1 & 2/M0.1 FOR MORE INFORMATION.
5. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW CHILLER LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE.
6. INSTALL 6" AUTOMATIC FLOW CONTROL VALVE IN SUPPLY AND RETURN LINES TO EACH COOLING TOWER. VALVE SHALL BE IMI FLOW DESIGN; MODEL WS06002-32 OR APPROVED EQUAL. BALANCE VALVE TO 550 GPM.
7. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMP LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE. PROVIDE AN EXTENSION ON EACH SIDE AS SHOWN.
8. PROVIDE SINGLE 8" STRAINER IN PIPE OUTSIDE OF BUILDING TO SERVE BOTH PUMPS.
9. PROVIDE 18" HIGH MULTIPLE PIPE ROLLER CURB SUPPORT. PATE MPRS-2 / RAC-1000 (x4). SET CURB ON LIGHTWEIGHT CONCRETE DECK AND SECURE TO DECK PER MECHANICAL GENERAL NOTES.
10. BALANCE CONDENSER WATER PUMPS TO 750 GPM WITH A SINGLE PUMP OPERATING. WHEN BOTH PUMPS OPERATE SIMULTANEOUSLY FLOW LIMITING VALVES WILL LIMIT TOTAL FLOW TO 1100 GPM.
11. INSTALL SMOKE DETECTOR IN SIDE OF RTU FAN SECTION.
12. NEW RETURN AIR GRILLE IN CEILING.
13. LOCATION OF NEW TEMPERATURE SENSOR SHALL BE SAME AS EXISTING SENSOR.
14. PROVIDE AND INSTALL SELF CLEANING BIPOLAR IONIZATION UNITS WITHIN THE FAN ACCESS SECTION PRIOR TO THE FAN. IONIZATION UNITS SHALL BE GLOBAL PLASMA SOLUTION (GPS) MODEL FC48-AC OR APPROVED EQUAL. INSTALL UNITS PER MANUFACTURERS RECOMMENDATIONS.
15. SUPPORT CONDENSATE PIPING WITH POLYCARBONATE NON-PENETRATING BASE AND ADJUSTABLE HEIGHT STRUT SUPPORT; MIRO INDUSTRIES, 8-BASE STRUT-12 OR EQUAL. ADJUST HEIGHT OF SUPPORTS TO MAINTAIN AN 1/8" PER FOOD FALL.

MECHANICAL GENERAL NOTES

1. EXISTING ROOF IS UNDER ACTIVE WARRANTY; CONTRACTOR SHALL ENGAGE OWNER'S ROOFING SUB-CONTRACTOR FOR ALL ROOF WORK AND FLASHING TO MAINTAIN EXISTING WARRANTY.
2. SUPPORT OF ROOFTOP PIPING AND EQUIPMENT SHALL BE ENGINEERED BY DELEGATED DESIGN BY A LICENSED PROFESSIONAL ENGINEER FOR 170 MPH WIND LOADING. ROOFTOP MOUNTED CHW AND HHW PIPING AND ATTACHMENTS SHALL UTILIZE ADJUSTABLE-HEIGHT, STRUCTURE-MOUNTED PIPE SUPPORTS OR CURB-MOUNTED PIPE SUPPORTS TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOF CURBS, CURB TIE DOWNS, AND EQUIPMENT ATTACHMENTS SHALL BE PROVIDED AS NECESSARY TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOFTOP MOUNTED CONDENSATE PIPING TO ROOF DRAINS MAY USE FIXED-HEIGHT CRADLE-TYPE, NON PENETRATING PIPE SUPPORTS.
3. EXISTING PIPE SIZES INDICATED HAVE BEEN TAKEN FROM AS-BUILT DRAWINGS AND BEST ENGINEERING JUDGEMENT BASED ON EQUIPMENT SIZING. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY DIMENSIONS OF ALL PIPING PRIOR TO ORDERING MATERIALS.
4. AFTER NEW WORK IS COMPLETE BUT PRIOR TO TEST AND BALANCE PIPING SHALL BE FLUSHED CONTINUALLY FOR 24-HOURS OR UNTIL WATER IS CLEAR. PROVIDE TEMPORARY FLUSHING CONNECTIONS AS NECESSARY TO CIRCULATE WATER. BLOW DOWN STRAINERS AT CHILLER, BOILER, COILS AND PUMPS UNTIL ALL REMAINING DEBRIS IS REMOVED. ONCE FLUSHED, TREAT CLOSED WATER SYSTEM PER SPECIFICATIONS.
5. PROVIDE MINIMUM 30" HIGH DOUBLE WALL, FULLY WELDED, INSULATED ROOF CURBS WITH 2X4 PRESSURE TREATED NAILER FOR ALL ROOF MOUNTED EQUIPMENT. HEIGHT SHALL BE EXTENDED BEYOND 30" AS NECESSARY FOR INSULATION THICKNESS AND PROPER FLASHING AS DETERMINED BYROOFING CONTRACTOR. CURB SHALL BE RATED FOR WIND SPEED AND EXPOSURE CATEGORY FOR PROJECT LOCATION PER FLORIDA BUILDING CODE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ATTACHMENT SIGNED & SEALED BY STRUCTURAL ENGINEER LICENSED IN FLORIDA. ATTACHMENT SHALL BE THE MORE STRINGENT REQUIREMENT AS DETERMINED BY ENGINEER OR THE FOLLOWING:
   A. PROVIDE #10 TEK SCREWS (METAL DECK) OR 1/4" TAPCONS (CONCRETE DECK) AT MAXIMUM 24" O.C. (MINIMUM 2 EACH SIDE) AROUND PERIMETER TO SECURE CURB TO ROOF. PROVIDE MGM STANDARD CLIPS MAXIMUM 36" O.C. (MINIMUM 1 EACH SIDE) TO SECURE EQUIPMENT TO CURB WITH #10 TEK SCREWS ON EACH SIDE OF CLIP.
6. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.
7. CONTRACTOR SHALL MEASURE AND RECORD WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PRIOR TO START OF WORK. WHERE FLOWS ARE INDICATED ON PLANS VALUES HAVE BEEN TAKEN FROM AS-BUILT PLANS. WHERE NOT SHOWN, AS-BUILT DRAWINGS WERE NOT AVAILABLE INDICATING FLOWS. PROVIDE REPORT TO ENGINEER OF MEASURED FLOW RATES. FLOW RATES FROM AS-BUILT PLANS AND DELTA BETWEEN VALUES. SEE NEW WORK FOR WATER BALANCE SCOPE POST CONSTRUCTION.
8. CONTRACTOR SHALL BALANCE WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PIPING AFTER NEW WORK COMPLETE. BALANCE FLOW RATES TO VALUES INDICATED ON PLANS FOR EXISTING UNITS AND SCHEDULED VALUES FOR NEW UNITS. BASED ON PRE-DEMOLITION MEASUREMENTS, ENGINEER MAY ADJUST FINAL FLOW RATE TARGETS; CONFIRM WITH ENGINEER AFTER PRE-DEMOLITION REPORT HAS BEEN SUBMITTED AND PRIOR TO FINAL TEST AND BALANCE WORK. TAB CONTRACTOR SHALL BALANCE FLOW AT CHW AND HHW PUMPS AS NECESSARY TO ACHIEVE FLOWS AT COILS.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL
CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

AREA C & D FLOOR PLAN RENOVATION

DRAWING NO.

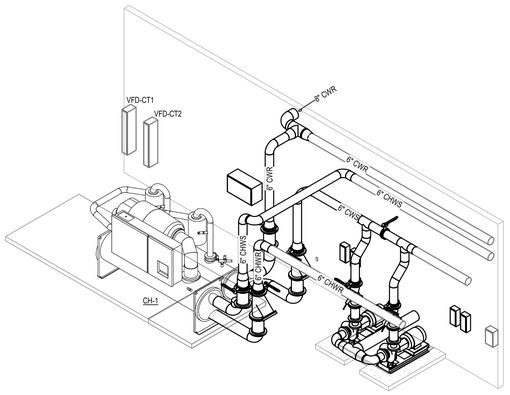
M2.1CD

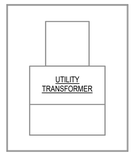
MECHANICAL KEYNOTES

1. PROVIDE AND INSTALL NEW SUPPLY AIR TERMINAL IN PLACE OF EXISTING TERMINAL. PROVIDE NEW HWS RETURN VALVES, ACCESSORIES AND CONNECTION TO VAV TERMINAL. SEE DETAIL D/M5.2.
2. PIPE STAND SUPPORT - SEE DETAIL G/M5.1.
3. EXISTING ROOF TOP UNITS TO REMAIN IN AREA A AND B.
4. INSTALL NEW ROOF TOP UNIT ON NEW CURB. DUCTWORK LOCATION AND SIZES SHOWN ARE BASED ON CURRENT AS BUILTS. CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF DUCT PRIOR TO COMMENCING WORK. PROVIDE NEW VALVES AND RUNOUT PIPING FOR ROOF TOP UNIT AS SHOWN ON PLAN SEE DETAILS 1 & 2/M0.1 FOR MORE INFORMATION.
5. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW CHILLER LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE.
6. INSTALL 6" AUTOMATIC FLOW CONTROL VALVE IN SUPPLY AND RETURN LINES TO EACH COOLING TOWER. VALVE SHALL BE IMI FLOW DESIGN; MODEL WS06002-32 OR APPROVED EQUAL. BALANCE VALVE TO 550 GPM.
7. EXTEND HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMP LAYOUT. DOWEL EXTENSION INTO EXISTING PAD WITH #4 REBAR EXTENDING 3" INTO NEW AND EXISTING PADS SPACED 12" O.C. AND EPOXIED IN PLACE. PROVIDE AN EXTENSION ON EACH SIDE AS SHOWN.
8. PROVIDE SINGLE 8" STRAINER IN PIPE OUTSIDE OF BUILDING TO SERVE BOTH PUMPS.
9. PROVIDE 18" HIGH MULTIPLE PIPE ROLLER CURB SUPPORT. PATE MPRS-2 / RAC-1000 (x4). SET CURB ON LIGHTWEIGHT CONCRETE DECK AND SECURE TO DECK PER MECHANICAL GENERAL NOTES.
10. BALANCE CONDENSER WATER PUMPS TO 750 GPM WITH A SINGLE PUMP OPERATING. WHEN BOTH PUMPS OPERATE SIMULTANEOUSLY FLOW LIMITING VALVES WILL LIMIT TOTAL FLOW TO 1100 GPM.
11. INSTALL SMOKE DETECTOR IN SIDE OF RTU FAN SECTION.
12. NEW RETURN AIR GRILLE IN CEILING.
13. LOCATION OF NEW TEMPERATURE SENSOR SHALL BE SAME AS EXISTING SENSOR.
14. PROVIDE AND INSTALL SELF CLEANING BIPOLAR IONIZATION UNITS WITHIN THE FAN ACCESS SECTION PRIOR TO THE FAN. IONIZATION UNITS SHALL BE GLOBAL PLASMA SOLUTION (GPS) MODEL FC48-AC OR APPROVED EQUAL. INSTALL UNITS PER MANUFACTURERS RECOMMENDATIONS.
15. SUPPORT CONDENSATE PIPING WITH POLYCARBONATE NON-PENETRATING BASE AND ADJUSTABLE HEIGHT STRUT SUPPORT; MIRO INDUSTRIES, 8-BASE STRUT-12 OR EQUAL. ADJUST HEIGHT OF SUPPORTS TO MAINTAIN AN 1/8" PER FOOD FALL.

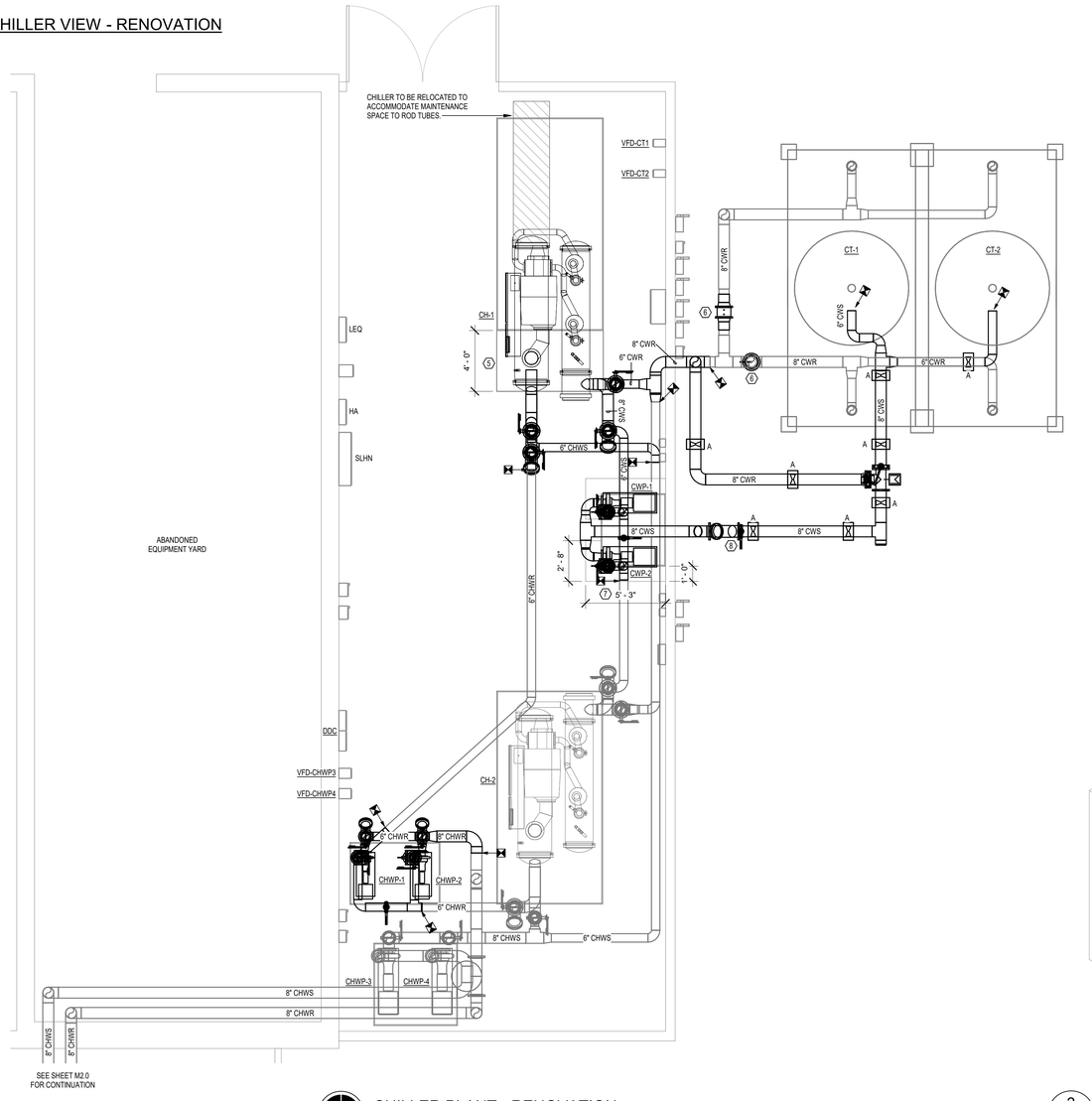
MECHANICAL GENERAL NOTES

1. EXISTING ROOF IS UNDER ACTIVE WARRANTY; CONTRACTOR SHALL ENGAGE OWNER'S ROOFING SUB-CONTRACTOR FOR ALL ROOF WORK AND FLASHING TO MAINTAIN EXISTING WARRANTY.
2. SUPPORT OF ROOFTOP PIPING AND EQUIPMENT SHALL BE ENGINEERED BY DELEGATED DESIGN BY A LICENSED PROFESSIONAL ENGINEER FOR 170 MPH WIND LOADING. ROOFTOP MOUNTED CHW AND HHW PIPING AND ATTACHMENTS SHALL UTILIZE ADJUSTABLE-HEIGHT, STRUCTURE-MOUNTED PIPE SUPPORTS OR CURB-MOUNTED PIPE SUPPORTS TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOF CURBS, CURB TIE DOWNS, AND EQUIPMENT ATTACHMENTS SHALL BE PROVIDED AS NECESSARY TO PROTECT AGAINST UPLIFT UNDER WIND LOADING. ROOFTOP MOUNTED CONDENSATE PIPING TO ROOF DRAINS MAY USE FIXED-HEIGHT CRADLE-TYPE, NON PENETRATING PIPE SUPPORTS.
3. EXISTING PIPE SIZES INDICATED HAVE BEEN TAKEN FROM AS-BUILT DRAWINGS AND BEST ENGINEERING JUDGEMENT BASED ON EQUIPMENT SIZING. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY DIMENSIONS OF ALL PIPING PRIOR TO ORDERING MATERIALS.
4. AFTER NEW WORK IS COMPLETE BUT PRIOR TO TEST AND BALANCE PIPING SHALL BE FLUSHED CONTINUALLY FOR 24-HOURS OR UNTIL WATER IS CLEAR. PROVIDE TEMPORARY FLUSHING CONNECTIONS AS NECESSARY TO CIRCULATE WATER. BLOW DOWN STRAINERS AT CHILLER, BOILER, COILS AND PUMPS UNTIL ALL REMAINING DEBRIS IS REMOVED. ONCE FLUSHED, TREAT CLOSED WATER SYSTEM PER SPECIFICATIONS.
5. PROVIDE MINIMUM 30" HIGH DOUBLE WALL, FULLY WELDED, INSULATED ROOF CURBS WITH 2X4 PRESSURE TREATED NAILER FOR ALL ROOF MOUNTED EQUIPMENT. HEIGHT SHALL BE EXTENDED BEYOND 30" AS NECESSARY FOR INSULATION THICKNESS AND PROPER FLASHING AS DETERMINED BYROOFING CONTRACTOR. CURB SHALL BE RATED FOR WIND SPEED AND EXPOSURE CATEGORY FOR PROJECT LOCATION PER FLORIDA BUILDING CODE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ATTACHMENT SIGNED & SEALED BY STRUCTURAL ENGINEER LICENSED IN FLORIDA. ATTACHMENT SHALL BE THE MORE STRINGENT REQUIREMENT AS DETERMINED BY ENGINEER OR THE FOLLOWING:
   A. PROVIDE #10 TEK SCREWS (METAL DECK) OR 1/4" TAPCONS (CONCRETE DECK) AT MAXIMUM 24" O.C. (MINIMUM 2 EACH SIDE) AROUND PERIMETER TO SECURE CURB TO ROOF. PROVIDE MCM STANDARD CLIPS MAXIMUM 36" O.C. (MINIMUM 1 EACH SIDE) TO SECURE EQUIPMENT TO CURB WITH #10 TEK SCREWS ON EACH SIDE OF CLIP.
6. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL. COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.
7. CONTRACTOR SHALL MEASURE AND RECORD WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PRIOR TO START OF WORK. WHERE FLOWS ARE INDICATED ON PLANS VALUES HAVE BEEN TAKEN FROM AS-BUILT PLANS. WHERE NOT SHOWN, AS-BUILT DRAWINGS WERE NOT AVAILABLE INDICATING FLOWS. PROVIDE REPORT TO ENGINEER OF MEASURED FLOW RATES. FLOW RATES FROM AS-BUILT PLANS AND DELTA BETWEEN VALUES. SEE NEW WORK FOR WATER BALANCE SCOPE POST CONSTRUCTION.
8. CONTRACTOR SHALL BALANCE WATER FLOW RATE TO RTU COOLING AND HEATING COILS AND TO VAV TERMINAL HHW BRANCH PIPING AFTER NEW WORK COMPLETE. BALANCE FLOW RATES TO VALUES INDICATED ON PLANS FOR EXISTING UNITS AND SCHEDULED VALUES FOR NEW UNITS. BASED ON PRE-DEMOLITION MEASUREMENTS, ENGINEER MAY ADJUST FINAL FLOW RATE TARGETS; CONFIRM WITH ENGINEER AFTER PRE-DEMOLITION REPORT HAS BEEN SUBMITTED AND PRIOR TO FINAL TEST AND BALANCE WORK. TAB CONTRACTOR SHALL BALANCE FLOW AT CHW AND HHW PUMPS AS NECESSARY TO ACHIEVE FLOWS AT COILS.

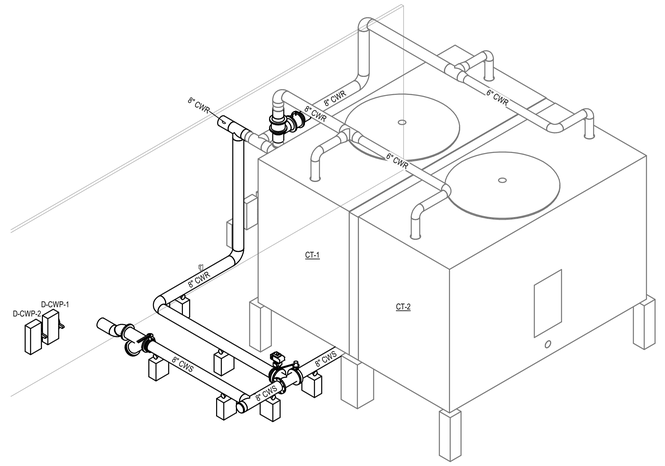




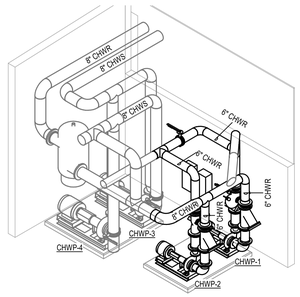
2 / M2.2 ISOMETRIC CHILLER VIEW - RENOVATION



CHILLER PLANT - RENOVATION
1/4" = 1'-0"
NORTH



1 / M2.2 ISOMETRIC MECHANICAL YARD VIEW - RENOVATION



3 / M2.2 ISOMETRIC PUMPS VIEW - RENOVATION

KEYPLAN
NORTH

ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE
CHILLER PLANT FLOOR PLAN RENOVATION

DRAWING NO.
M2.2

ROOF TOP AIR HANDLING UNITS

DESIGNATION			RTU-13	RTU-14
AIR FLOW RATES				
	TOTAL SUPPLY AIR	CFM	9,000	9,000
	OUTSIDE AIR	CFM	1,800	1,800
	RETURN AIR	CFM	7,200	7,200
	MINIMUM SUPPLY FAN SPEED SETTING	%	30	30
	MINIMUM OUTSIDE AIR FLOW SETTING	CFM	1,800	1,800
FILTER SECTION				
	DAMPERS		OA & RA	OA & RA
	FILTER ORIENTATION		ANGLED	ANGLED
	TYPE OF FILTER		2" THICK PLEATED	2" THICK PLEATED
PREHEAT COIL DATA - HYDRONIC				
	HEATING AIRFLOW	CFM	2,700	2,700
	HEATING CAPACITY	MBTUH	22.6	22.6
	AIR ENTERING HEATING COIL	°F	41.3	41.3
	AIR LEAVING HEATING COIL	°F	49.0	49.0
	HHW ENTERING & LEAVING TEMPERATURE	°F - °F	160 – 140	160 – 140
	WATER FLOW	GPM	2.3	2.3
	RUNOUT PIPE SIZE	IN.	3/4	3/4
PREHEAT CONTROL VALVE				
	TYPE		CCV BALL	CCV BALL
	CONFIGURATION		2-WAY	2-WAY
	DIFFERENTIAL PRESSURE AT DESIGN FLOW	PSI	4.0	4.0
	Cv (NOTE 16)	MIN - MAX	1.1 – 1.4	1.1 – 1.4
COOLING COIL DATA - HYDRONIC				
	TOTAL COOLING CAPACITY	MBTUH	365	365
	SENSIBLE COOLING CAPACITY	MBTUH	237	237
	AIR ENTERING COOLING COIL	°Fdb - °Fwb	78.0 – 66.9	78.0 – 66.9
	AIR LEAVING COOLING COIL	°Fdb - °Fwb	54.0 – 53.5	54.0 – 53.5
	CHW ENTERING & LEAVING TEMPERATURE	°F - °F	45 – 57	45 – 57
	WATER FLOW	GPM	61	61
	MINIMUM FACE AREA (@ 450 FPM)	SQ. FT.	22.5	22.5
	GLYCOL CONCENTRATION	%	0	0
	RUNOUT PIPE SIZE	IN.	2 1/2	2 1/2
	CONDENSATE DRAIN SIZE	IN.	1 1/4	1 1/4
COOLING CONTROL VALVE				
	TYPE		CCV BALL	CCV BALL
	CONFIGURATION		2-WAY	2-WAY
	DIFFERENTIAL PRESSURE AT DESIGN FLOW	PSI	6.0	6.0
	Cv (NOTE 16)	MIN - MAX	24.9 – 27.3	24.9 – 27.3
SUPPLY FAN SECTION				
	FAN TYPE		FAN ARRAY	FAN ARRAY
	DRIVE TYPE		DIRECT	DIRECT
	MINIMUM FAN EFFICIENCY		65%	65%
	FAN ENERGY INDEX (FEI)		1.26	1.26
	FAN QUANTITY (INCLUDING REDUNDANCY)	#	2	2
	REDUNDANCY		NONE	NONE
	EXTERNAL STATIC PRESSURE	IN. WG	1.5	1.5
	MAXIMUM TOTAL STATIC PRESSURE (INCLUDING DIRTY FILTER)	IN. WG	3.7	3.7
	DIRTY FILTER ALLOWANCE	IN. WG	0.7	0.7
	FAN MOTOR HORSEPOWER (PER FAN)	HP - BHP	5 – 4	7 1/2 – 4
	FAN MOTOR HORSEPOWER (UNIT TOTAL @ DESIGN)	HP - BHP	10 – 8	15 – 8
	ELECTRICAL CHARACTERISTICS & NO. OF CIRCUITS	V / PH - #	460 / 3 – 1	460 / 3 – 1
	VARIABLE FREQUENCY DRIVE		1 PER UNIT	1 PER UNIT
MANUFACTURER / MODEL			TRANE CSAA025	TRANE CSAA025

NOTES:

1. BRAKE HORSEPOWER INDICATED IS MAXIMUM ALLOWED.
2. UNIT CASING SHALL BE DOUBLE-WALL, INSULATED CONSTRUCTION. OUTER CASING WALL: G90 GALVANIZED STEEL, MINIMUM 22 GA. THICKNESS. INSIDE CASING WALL: SOLID G90 GALVANIZED STEEL, MINIMUM 22 GA. THICKNESS. CASING INSULATION: 2-INCHES THICK, MINIMUM R-13. PROVIDE OUTER ROOM WITH 1/8-INCH / FT SLOPE AND 1-1/2" OVERHANG..
3. PROVIDE VENTILATED INTEGRAL CONTROL CABINET FOR CONTROLS AND VFD.
4. PROVIDE ACCESS/INSPECTION SECTION UPSTREAM AND DOWNSTREAM OF EACH COIL SECTION.
5. PROVIDE FACTORY MOUNTED VFD.
6. PROVIDE FACTOR MOUNTED CONTROLLER WITH BACNET/IP PROTOCOL - SEE IC DRAWINGS FOR REQUIREMENTS. CONTROL VALVES, ACTUATORS, DEVICES, ETC. SHALL BE PROVIDED AS SPECIFIED IN DIVISION 25 SPECIFICATIONS.
7. PROVIDE SINGLE POINT POWER CONNECTION WITH POWER SUPPLY FOR UNIT MOUNTED CONTROLS.
8. PROVIDE THERMAL BREAK CASING AND THERMAL BREAK DOUBLE-WALL ACCESS DOORS.
9. PROVIDE COIL COATINGS - SEE SPECIFICATION SECTION 230546
10. PROVIDE 2-INCH SPRING ISOLATORS FOR FAN AND MOTOR.
11. PROVIDE PIPE CABINET.
12. PROVIDE TREADPLATE FLOOR.
13. ROOF TOP UNIT AND CURB ATTACHMENTS SHALL BE ENGINEERING FOR WIND LOADING AT 170 MPH ULTIMATE WIND SPEED.
14. UNIT SHALL HAVE 24" FIELD FABRICATED ROOF CURB WITH DUCT ADAPTER TO MAKE CONNECTIONS TO EXISTING DUCTWORK.
15. PROVIDE TWO SELF CLEANING BIPOLAR IONIZATION UNITS MOUNTED IN ACCESS SECTION BEFORE FAN SECTION. GPS, GPS-FC48-AC OR APPROVED EQUAL.
16. IF AVAILABLE Cv IS NOT WITHIN RANGE THEN PROVIDE NEXT HIGHER Cv AVAILABLE.
17. ROOF TOP UNITS SHALL BE PURCHASED AS PART OF EARLY EQUIPMENT PACKAGE. PIPING, VALVES, CONTROLS AND INSTALLATION SHALL BE BY CONTRACTOR.

PUMPS

DESIGNATION			CHWP-1	CHWP-2	CWP-1	CWP-2
APPLICATION						
	SERVICE		CHW	CHW	CW	CW
	DISTRIBUTION TYPE		PRIMARY	PRIMARY	PRIMARY	PRIMARY
	LOCATION TYPE		INTERIOR	INTERIOR	EXTERIOR	EXTERIOR
DESIGN CRITERIA						
	TOTAL SYSTEM DESIGN FLOW	GPM	500	500	750	750
	PUMP SEQUENCING		DUTY	DUTY	DUTY	DUTY
	PUMP QUANTITY (INCLUDING REDUNDANCY)	#	1	1	1	1
PERFORMANCE						
	PUMP TYPE		CLOSE-COUPLED END SUCTION	CLOSE-COUPLED END SUCTION	CLOSE-COUPLED END SUCTION	CLOSE-COUPLED END SUCTION
	PERCENT OF DESIGN FLOW	%	100	100	75	75
	CAPACITY	GPM	500	500	750	750
	TOTAL DYNAMIC HEAD	FT.	35	35	45	45
	EFFICIENCY	%	78	78	79	79
	SHUT-OFF HEAD	FT.	43	43	52	52
	IMPELLER DIAMETER	IN.	6.8	6.8	8.1	8.1
	PUMP SEAL		MECHANICAL	MECHANICAL	MECHANICAL	MECHANICAL
	MOTOR SPEED	RPM	1,760	1,760	1,760	1,760
	MOTOR HORSEPOWER	HP - BHP	7 1/2 - 6.3	7 1/2 - 6.3	15 - 12	15 - 12
	MOTOR ENCLOSURE		ODP	ODP	TEFC	TEFC
	MOTOR WINDING		FULL	FULL	FULL	FULL
	ELECTRICAL CHARACTERISTICS	V / PH	460 / 3	460 / 3	460 / 3	460 / 3
	MCA / MOCP	AMPS - AMPS	13.8 – 20	13.8 – 20	26.3 – 45	26.3 – 45
	VARIABLE FREQUENCY DRIVE		NO	NO	NO	NO
	NOTES		N/A	N/A	N/A	N/A
MANUFACTURER			TACO	TACO	TACO	TACO
MODEL NUMBER			C4007D	C4007D	C4009D	C4009D
DETAIL REFERENCE			A/M5.1	A/M5.1	A/M5.1	A/M5.1

NOTES:

1. PROVIDE BRONZE WEAR RING
2. PROVIDE BASE SUPPORT STAND.

WATER COOLED CHILLER SCHEDULE

DESIGNATION			CH - 1
CHILLER UNIT DATA			
	NOMINAL CAPACITY	TONS	250
	REFRIGERATION CAPACITY TOTAL	TONS	250
	TYPE OF REFRIGERANT		R-513A
	REFRIGERANT CHARGE	LBS.	490
	OPERATING WEIGHT	LBS.	13,673
EVAPORATOR DATA			
	WATER SUPPLY TEMPERATURE	°F	44
	WATER RETURN TEMPERATURE	°F	56
	FLOW RATE	GPM	498
	PASSES	#	2
	PRESSURE DROP	FT.	4
	TUBE THICKNESS	IN.	0.028
	WATER BOX TYPE		MARINE
	WORKING PRESSURE	PSIG	150
	FOULING FACTOR	HR*SF*DEG/BTU	0.00010
	PERCENT ETHYLENE GLYCOL	%	0
CONDENSER DATA			
	WATER SUPPLY TEMPERATURE	°F	85
	WATER RETURN TEMPERATURE	°F	100
	FLOW RATE	GPM	494
	PASSES	#	2
	PRESSURE DROP	FT.	12
	TUBE THICKNESS	IN.	0.028
	WATER BOX TYPE		MARINE
	WORKING PRESSURE	PSIG	150
	FOULING FACTOR	HR*SF*DEG/BTU	0.00025
	PERCENT ETHYLENE GLYCOL	%	0
PERFORMANCE DATA			
	IPLV	kW / TON	0.576
	CHILLER EFFICIENCY @ 100% LOAD (FULL LOAD)	kW / TON	0.686
	CHILLER EFFICIENCY @ 75% LOAD	kW / TON	0.608
	CHILLER EFFICIENCY @ 50% LOAD	kW / TON	0.517
	CHILLER EFFICIENCY @ 25% LOAD	kW / TON	0.747
ELECTRICAL DATA			
	COMPRESSOR STARTER TYPE		WYE-DELTA
	ELECTRICAL CHARACTERISTICS	V / PH	460 / 3
	MINIMUM CIRCUIT AMPACITY	AMPS	328
	MAXIMUM OVERCURRENT PROTECTION	AMPS	500
	TOTAL POWER	kW	171
MANUFACTURER			TRANE
MODEL			RTHDUC1FX
DETAIL REFERENCE			E/M5.1

NOTES:

1. PROVIDE NON-FRAGMENTING RUPTURE DISC WITH RE-SEATING PRESSURE RELIEF VALVE.
2. PROVIDE REFRIGERANT ISOLATION VALVES
3. PROVIDE OIL COOLER
4. PROVIDE FACTORY INSULATION ON COLD PARTS
5. PROVIDE RIGHT HAND EVAPORATOR CONNECTION
6. PROVIDE INTERNALLY AND EXTERNALLY ENHANCED EVAPORATOR TUBE - WATER ONLY
7. PROVIDE ENHANCED FIN-COPPER CONDENSER COILS 0.028" WALL THICKNESS
8. RIGHT HAND CONDENSER CONNECTION
9. WYE-DELTA CLOSED TRANSITION STARTER
10. UNDER/OVER VOLTAGE PROTECTION
11. BACnet INTERFACE
12. CHILLER SHALL BE PURCHASED AS PART OF EARLY EQUIPMENT PACKAGE. PIPING, VALVES, CONTROLS AND INSTALLATION SHALL BE BY CONTRACTOR

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

SCHEDULES

DRAWING NO.

M4.1

SUPPLY AIR TERMINALS - SHUTOFF WITH HOT WATER REHEAT

DESIGNATION (SAT-)			SAT- D1, SAT-A5	SAT- D2, SAT-A6	SAT- D3, SAT-A7	SAT- D4, SAT-A8	SAT- D5, SAT-A1	SAT- D6, SAT-A2	SAT- D7, SAT-A3	SAT- D8, SAT-A4	SAT- C1, SAT-B5	SAT- C2, SAT-B6	SAT- C3, SAT-B7	SAT- C4, SAT-B8	SAT- C5, SAT-B1	SAT- C6, SAT-B2	SAT- C7, SAT-B3	SAT- C8, SAT-B4
AIR VALVE																		
	NOMINAL DIAMETER	IN.	10	10	10	10	10	10	10	10	10	10	10	12	10	10	10	12
	MAX TOTAL UNIT PRESSURE DROP	IN. WG	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.40	0.40	0.40	0.30
AIR FLOW RATES																		
	MAXIMUM COOLING	CFM	1,080	1,080	1,080	1,160	1,320	920	920	1,340	1,320	920	920	1,440	920	920	920	1,540
	MINIMUM COOLING	CFM	330	330	330	350	400	280	280	410	400	280	280	440	280	280	280	470
	MAXIMUM HEATING	CFM	450	450	450	650	400	280	280	560	400	280	280	560	280	280	280	560
	MINIMUM HEATING	CFM	330	330	330	350	400	280	280	410	400	280	280	440	280	280	280	470
HEATING COIL DATA - HYDRONIC																		
	HEATING CAPACITY	MBTUH	20.3	20.3	20.3	29.3	18.0	12.6	12.6	25.3	18.0	12.6	12.6	25.3	12.6	12.6	12.6	25.3
	AIR ENTERING HEATING COIL	°F	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	AIR LEAVING HEATING COIL	°F	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	HHW ENTERING & LEAVING TEMPERATURE	°F - °F	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140	160 – 140
	WATER FLOW	GPM	2	2	2	2.9	1.8	1.3	1.3	2.5	1.8	1.3	1.3	2.5	1.3	1.3	1.3	2.5
	RUNOUT PIPE SIZE	IN.	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	MINIMUM # OF ROWS	#	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CONTROL VALVE																		
	TYPE		CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL	CCV BALL
	CONFIGURATION		2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY
	DIFFERENTIAL PRESSURE AT DESIGN FLOW	PSI	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Cv (NOTE 2)	MIN - MAX	1.0 – 1.2	1.0 – 1.2	1.0 – 1.2	1.4 – 1.7	0.9 – 1.1	0.6 – 0.8	0.6 – 0.8	1.2 – 1.5	0.9 – 1.1	0.6 – 0.8	0.6 – 0.8	1.2 – 1.5	0.6 – 0.8	0.6 – 0.8	0.6 – 0.8	1.2 – 1.5
SOUND CRITERIA - (NOTE 1)																		
	INTEGRAL SILENCER		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	MAX DISCHARGE SOUND RATING	NC	30	30	30	30	30	30	30	30	30	30	30	25	30	30	30	25
	MAX RADIATED SOUND RATING	NC	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

NOTES:
1. BASED ON 1.0 IN. WG PRESSURE DROP ACROSS UNIT
2. IF AVAILABLE Cv IS NOT WITHIN RANGE THEN PROVIDE NEXT HIGHER Cv AVAILABLE

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR.
MIDDLE SCHOOL
CHILLER CH-1 AND RTU 13
& 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

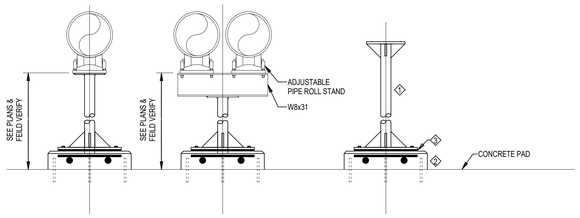
#	Description	Date

SHEET TITLE

SCHEDULES

DRAWING NO.

M4.2



TYPE A TYPE B TYPICAL SUPPORT BASE

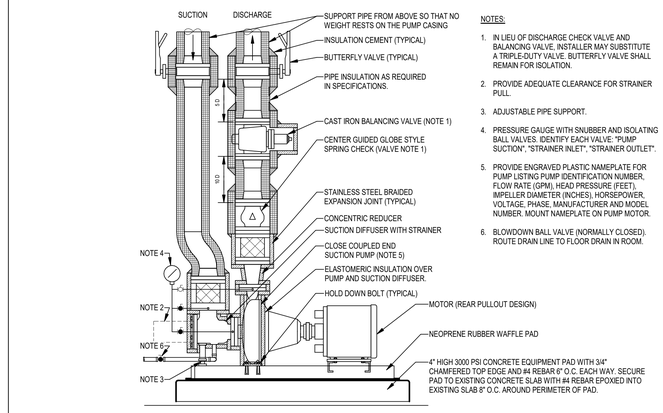
NOTES:

1. PIPE SUPPORT: 3" SCHEDULE 40 PIPE STAND WITH 10"x10"x1/2" TOP PLATE AND 12"x12"x1/2" BASE PLATE WELDED TO PIPE STAND WITH FOUR WELDED GUSSETT PLATES. BOLT BASE PLATE TO CONCRETE PAD WITH FOUR 5/8" x 3" ANCHOR BOLTS AND EXPANSION SLEEVES. PAINT SUPPORT WITH PRIMER AND TWO COATS BLACK ENAMEL PAINT.
2. 4" HIGH 16"x16" CONCRETE EQUIPMENT PAD WITH 3/4" CHAMFERED CORNERS AND #4 REBAR 8" O.C. EACH WAY. SECURE PAD TO CONCRETE SLAB WITH #4 REBAR EPOXIED INTO SLAB. 8" O.C. AROUND PERIMTER OF PAD.
3. 12"x12"x1/2" NEPRENE RUBBER WAFFLE PAD BETWEEN SUPPORT BASE AND PAD.

M107

G PIPE SUPPORT SADDLE

D -



NOTES:

1. IN LIEU OF DISCHARGE CHECK VALVE AND BALANCING VALVE, INSTALLER MAY SUBSTITUTE A TRIPLE-DUTY VALVE. BUTTERFLY VALVE SHALL REMAIN FOR ISOLATION.
2. PROVIDE ADEQUATE CLEARANCE FOR STRAINER PULL.
3. ADJUSTABLE PIPE SUPPORT.
4. PRESSURE GAUGE WITH SNUBBER AND ISOLATING BALL VALVES. IDENTIFY EACH VALVE: "PUMP SUCTION", "STRAINER INLET", "STRAINER OUTLET".
5. PROVIDE ENGRAVED PLASTIC NAMEPLATE FOR PUMP LISTING PUMP IDENTIFICATION NUMBER, FLOW RATE (GPM), HEAD PRESSURE (FEET), IMPELLER DIAMETER (INCHES), HORSEPOWER, VOLTAGE, PHASE, MANUFACTURER AND MODEL NUMBER. MOUNT NAMEPLATE ON PUMP MOTOR.
6. BLOWDOWN BALL VALVE (NORMALLY CLOSED). ROUTE DRAIN LINE TO FLOOR DRAIN IN ROOM.

M105

A BASE MOUNTED END SUCTION PUMP

ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

DETAILS

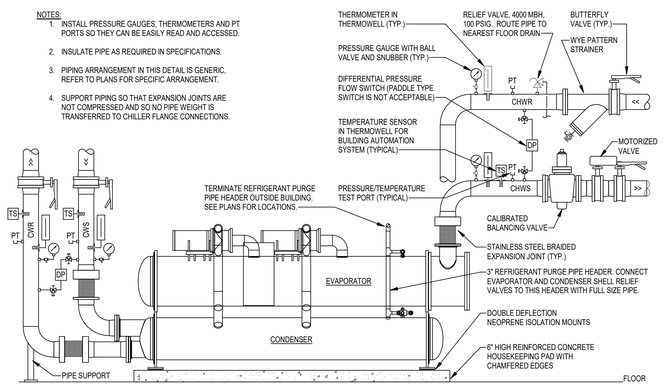
DRAWING NO.

M5.1

H TYPICAL PRESSURE GAUGE/THERMOMETER INSTALLATION

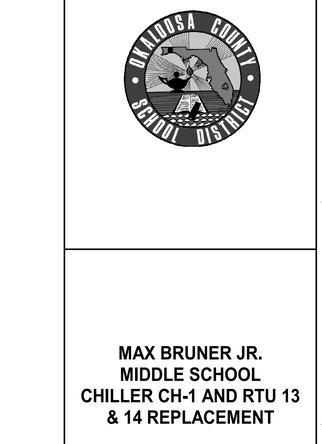
NOTES:

1. INSTALL PRESSURE GAUGES, THERMOMETERS AND PT PORTS SO THEY CAN BE EASILY READ AND ACCESSED.
2. INSULATE PIPE AS REQUIRED IN SPECIFICATIONS.
3. PIPING ARRANGEMENT IN THIS DETAIL IS GENERIC, REFER TO PLANS FOR SPECIFIC ARRANGEMENT.
4. SUPPORT PIPING SO THAT EXPANSION JOINTS ARE NOT COMPRESSED AND SO NO PIPE WEIGHT IS TRANSFERRED TO CHILLER FLANGE CONNECTIONS.



M206.3

E WATER COOLED CHILLER PIPING SCHEMATIC



NOTES:

1. INSTALL PIPING TO FACILITATE REMOVAL OF COIL WITHOUT DECONSTRUCTION OF PIPING ACCESSORIES.
2. LOCATE THERMOWELLS IN ELBOWS OR TEES TO PROVIDE ADEQUATE INSERTION DEPTH.

M201.1

B RTU HEATING COIL PIPING (2" AND SMALLER)

NOTES:

1. SECURE CURB TO ROOF WITH SHEET METAL SCREWS, LAG BOLTS OR OTHER METHOD CONSISTENT WITH ROOF CONSTRUCTION.
2. SECURE COVER TO WOOD NAILING STRIP WITH 3/8" CADMIUM PLATED LAG BOLTS ON 12" MAX. CENTERS.
3. PROVIDE CONTINUOUS FOAM RUBBER GASKET APPLIED TO UNDERSIDE OF CURB CAP.

M475.1

I ROOF PIPE CURB

NOTES:

1. PROVIDE PIPING SUPPORTS AT MAXIMUM SPACING ALLOWED BY TABLE 4 OF ANSI/MSS SP-58 FOR SMALLEST PIPE INSTALLED IN MULTIPLE PIPE RUN.
2. PROVIDE ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION AS REQUIRED BY ANSI/MSS SP-58 OR AS REQUIRED BY DELEGATED DESIGN FOR WIND LOADING AT PROJECT SITE.

M408.2

F TYPICAL PIPE HANGERS

NOTES:

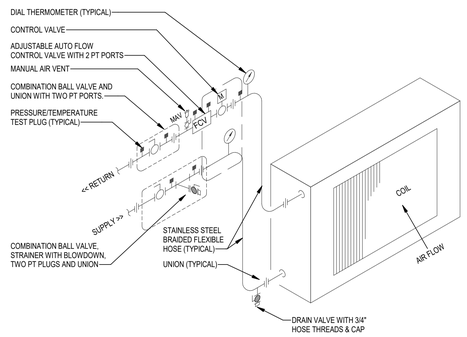
1. DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE CONNECTION ON THE DRAIN PAN (1" MIN.)
2. DRAIN LINE SHALL SLOPE 1/8" PER FOOT (MIN.)
3. SEE SPECIFICATIONS FOR PIPE AND INSULATION MATERIALS.

UNIT TYPE	A	B
DRAW-THRU	X PLUS 2"	X
BLOW-THRU	1" MIN.	2X

WHERE X=STATIC PRESSURE IN PAN

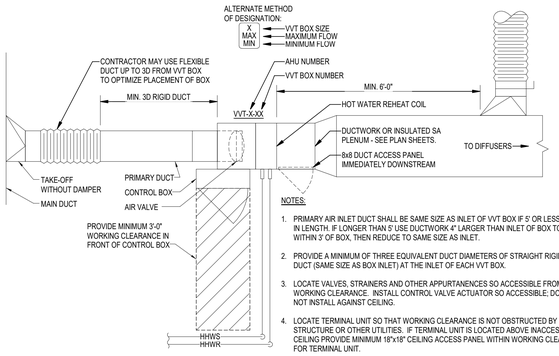
M406.4

C CONDENSATE DRAIN



N012

G SAT HEATING COIL PIPING

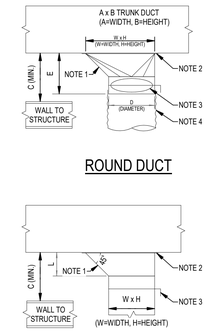


NOTES:

1. PRIMARY AIR INLET DUCT SHALL BE SAME SIZE AS INLET OF VVT BOX IF 5' OR LESS IN LENGTH. IF LONGER THAN 5' USE DUCTWORK 4" LARGER THAN INLET OF BOX TO WITHIN 3' OF BOX, THEN REDUCE TO SAME SIZE AS INLET.
2. PROVIDE A MINIMUM OF THREE EQUIVALENT DUCT DIAMETERS OF STRAIGHT RIGID DUCT (SAME SIZE AS BOX INLET) AT THE INLET OF EACH VVT BOX.
3. LOCATE VALVES, STRAINERS AND OTHER APPURTANENCES SO ACCESSIBLE FROM WORKING CLEARANCE. INSTALL CONTROL VALVE ACTUATOR SO ACCESSIBLE; DO NOT INSTALL AGAINST CEILING.
4. LOCATE TERMINAL UNIT SO THAT WORKING CLEARANCE IS NOT OBSTRUCTED BY LIGHTS, STRUCTURE OR OTHER UTILITIES. IF TERMINAL UNIT IS LOCATED ABOVE INACCESSIBLE CEILING PROVIDE MINIMUM 18"x18" CEILING ACCESS PANEL WITHIN WORKING CLEARANCE FOR TERMINAL UNIT.
5. PROVIDE MINIMUM 6'-0" OF DUCT BETWEEN TERMINAL UNIT AND FIRST BRANCH TAKE-OFF.

N024.1

D SUPPLY AIR TERMINAL UNIT



ROUND DUCT

D	E (NOTE 5)	WxH (NOTE 5)	TRUNK DUCT HEIGHT (B MIN.)	C	
				NO FIRE DAMPER	WITH FIRE DAMPER
6	8.5	12 x 6	8	9	12
8	8.5	12 x 6	8	9	12
10	9.5	16 x 6.75	10	10	13
12	10.5	18 x 8.5	12	11	14
14	10.5	20 x 9.5	12	11	14
16	12	24 x 12	14	13	16

DIMENSIONS BASED ON CROWN PRODUCTS CO., INC.

RECTANGULAR DUCT

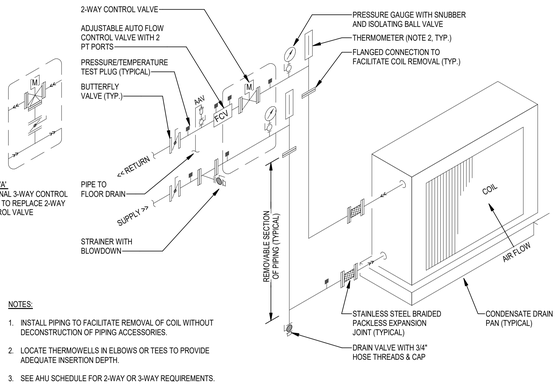
NOTES:

1. 45° ENTRY.
2. 1" WIDE FLANGE WITH GASKET SEAL AROUND ENTIRE PERIMETER.
3. PROVIDE MANUAL BALANCING DAMPER. OPERATOR SHALL PENETRATE INSULATION.
4. USE ROUND TYPE TAKE-OFF FOR SUPPLY AIR TO NOT MORE THAN ONE TERMINAL.
5. USE ROUND TYPE TAKE-OFF FOR SUPPLY AIR TO NOT MORE THAN ONE TERMINAL DIAMETER, PROVIDE TRANSITION FITTING OF EQUIVALENT AREA TO THE RUNOUT DUCT.

L = W/4 (4"MIN.)
H = B-2 (MAX.)
C = L+4 (WITH FIRE DAMPER)
C = L+2 (WITHOUT FIRE DAMPER)

M102

A TYPICAL DUCT TAKE-OFF FITTINGS



NOTES:

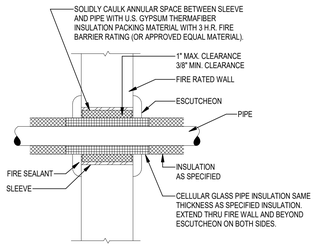
1. INSTALL PIPING TO FACILITATE REMOVAL OF COIL WITHOUT DECONSTRUCTION OF PIPING ACCESSORIES.
2. LOCATE THERMOWELLS IN ELBOWS OR TEES TO PROVIDE ADEQUATE INSERTION DEPTH.
3. SEE AHU SCHEDULE FOR 2-WAY OR 3-WAY REQUIREMENTS.

M013

H RTU CHILLED WATER COIL PIPING (2½" AND LARGER)

NOTE:

REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALLS.

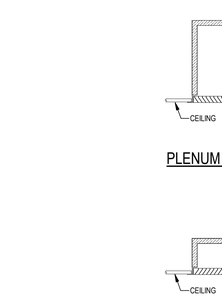


NOTE:

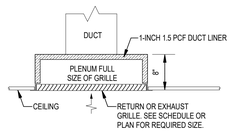
THIS DETAIL IS SHOWN AS AN EXAMPLE OF THE WORK SCOPE REQUIRED. FIRE STOPPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE U.L. LISTED FIRE RATED ASSEMBLY. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE RATED ASSEMBLIES.

M140.1

E PIPE PENETRATION OF FIRE RATED WALL



PLENUM RETURN GRILLES



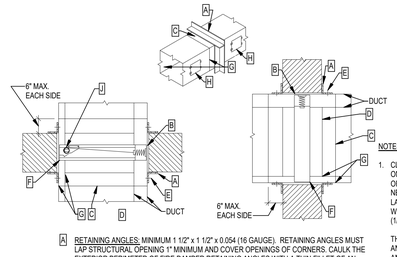
DUCTED TOP ENTRY

NOTES:

1. INSTALL BLADES OF GRILLE SO SIGHT LINE INTO PLENUM IS OBSCURED FROM ROOM.
2. PROVIDE APPROPRIATE MOUNTING HARDWARE FOR GRILLE TO ACCOMMODATE CEILING TYPE.

M151.2

B RETURN OR EXHAUST CEILING GRILLE



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 THE 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 6" 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:

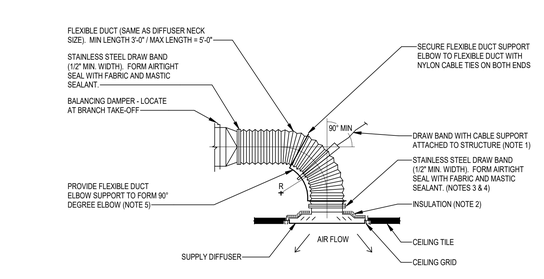
1. CLEARANCE REQUIREMENTS FOR FIRE DAMPER SLEEVES WITHIN OPENING IS BASED ON 1/8" PER FOOT OF WIDTH (OR HEIGHT) UNLESS OTHERWISE STATED IN THE LISTING OF THE ASSEMBLY. THE SLEEVE MAY REST ON THE BOTTOM OF THE OPENING, AND NEED NOT BE CENTERED. (FRACTIONAL DIMENSIONS SHALL BE TAKEN AS THE NEXT LARGER WHOLE FOOT). EXAMPLE: A 30" x 24" FIRE DAMPER SLEEVE IS INSTALLED IN 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 ANGLES A. THESE MUST OVERLAP THE EDGES 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 WERE 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 INSTRUCTIONS AS TESTED AND APPROVED BY U.L. MUST BE USED IN LIEU OF THE ABOVE DETAILS WHERE APPLICABLE.

M087.1

F FIRE DAMPER INSTALLATION



NOTES:

1. FLEXIBLE DUCT SHALL NOT HAVE MORE THAN 1/2" SAG PER FOOT.
2. PROVIDE INSULATION ON BACK OF DIFFUSERS (SEE SPECIFICATIONS). SEAL VAPOR TIGHT WITH FABRIC AND MASTIC.
3. PULL INNER LINER OF FLEXIBLE DUCT OVER DIFFUSER COLLAR AND SECURE WITH DRAW BAND.
4. SECURE FLEXIBLE DUCT INSULATION AND OUTER JACKET WITH DRAW BAND.
5. MAINTAIN MINIMUM RADIUS (R) OF 1.5 TIMES THE DUCT DIAMETER.

M045

C FLEXIBLE DUCT CONNECTION TO SUPPLY DIFFUSER

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JDR	MTS
CONSTRUCTION DRAWINGS	03/20/26	JDR	MTS

REVISIONS

#	Description	Date

SHEET TITLE

DETAILS

DRAWING NO.

M5.2

FIRESTOP SCHEDULE OF THROUGH PENETRATION SYSTEMS. BASIS OF DESIGN: HILTI, INC.

TYPE OF PENETRANT	F-RATING (HR)	CONCRETE FLOORS	CONCRETE OR BLOCK WALLS	GYPSUM WALLS	HILTI PRODUCTS
		BASIS OF DESIGN UL SYSTEM			
CIRCULAR BLANK OPENINGS (0000-0999)	1	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	–	CP 680, CP 618, FS-ONE MAX, CFS- BL
	2	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	–	
METAL PIPES OR CONDUIT (1000-1999)	1	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020	W-L-1054, W-L-1058, W-L-1164, W-L-1506	CP 680, FS-ONE MAX, CP 606, CFS-S SIL CG, CFS-D, MINERAL WOOL
	2	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020, W-J-1248	W-L-1054, W-L-1058, W-L-1164, W-L-1506	
NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, ENT) (2000-2999)	1	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	CP 680, CP 643N, MINERAL WOOL, CP 644, FS-ONE MAX, CFS-S SIL SL, CFS-S SIL CG, CP 648
	2	F-A 2053, F-A 2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2371, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	
SINGLE OR BUNDLED CABLES (3000-3999)	1	F-A-3007, C-AJ-3095, C-AJ-3180, C-AJ-3283	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167	W-L-3055, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	CP 680, CP 653, FS-ONE MAX, CP 618, CP 606, CFS-D, CFS-CC
	2	F-A-3007, C-AJ-3095, C-AJ-3334, F-A-3060	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167, W-J-3189	W-L-3055, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	
CABLE TRAY (4000-4999)	1	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	CFS-BL, FS-ONE MAX, CP 620, CP 618
	2	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	
MIXED PENETRANTS (8000-8999)	1	C-AJ-8099, C-AJ-8056, C-AJ-8143	C-AJ-8099, C-AJ-8056, W-J-8007, C-AJ-8143	W-L-1095, W-L-8013	FS-ONE MAX, CFS-BL, CP 620, CP 618
	2	C-AJ-8099, C-AJ-8056, C-AJ-8143, C-AJ-8252	C-AJ 8099, C-AJ-8056, W-J-8007, C-AJ-8143, C-AJ-8252	W-L-1095, W-L-8013	

NOTES:

1. JOBSITE CONDITIONS OF EACH THROUGH-PENETRATION FIRESTOP SYSTEM MUST MEET ALL DETAILS OF THE UL-CLASSIFIED SYSTEM SELECTED.
2. IF JOBSITE CONDITIONS DO NOT MATCH ANY UL-CLASSIFIED SYSTEMS IN THE SCHEDULES ABOVE, CONTACT FIRESTOP MANUFACTURER FOR ALTERNATIVE SYSTEMS OR ENGINEER JUDGMENT DRAWINGS.
3. WHERE MORE THAN ONE APPLICABLE UL-CLASSIFIED SYSTEM IS LISTED IN THE SCHEDULES, CHOOSE THE UL SYSTEM WHICH IS MOST ECONOMICAL FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM.
4. COORDINATE WORK WITH OTHER TRADES TO ENSURE THAT PENETRATION OPENING SIZES ARE APPROPRIATE FOR PENETRANT LOCATIONS, AND VICE-VERSA.
5. ALL THROUGH-PENETRATION FIRESTOPS SHALL BE PROVIDED BY ONE MANUFACTURER. APPROVED MANUFACTURERS: HILTI, RECTORSEAL, 3M, STL.

SYMBOLS, NOTES, ABBREVIATIONS, ETC.

IDENTIFICATION LETTERS

	FIRST - LETTER	SUCCEEDING - LETTERS	
	MEASURED OR INITIATING VARIABLE	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION
A	ANALYSIS	ALARM	.
B	BURNER, COMBUSTION	USER'S CHOICE (*)	USER'S CHOICE (*)
C	USER'S CHOICE (*)	.	CONTROL
D	USER'S CHOICE (*)	DIFFERENTIAL	.
E	VOLTAGE	SENSOR (PRIMARY ELEMENT)	.
F	FLOW RATE, FLOW	.	.
G	GAS	GLASS, VIEWING DEVICE	.
H	HAND (MANUAL)	.	.
I	CURRENT (ELECTRICAL)	INDICATE	.
J	POWER	.	.
K	TIME, SCHEDULE	.	.
L	LEVEL	LIGHT (PILOT)	.
M	MOISTURE, HUMIDITY	.	.
N	USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
O	USER'S CHOICE (*)	ORIFICE, RESTRICTION	.
P	PRESSURE, VACUUM	POINT (TEST) CONNECTION	.
Q	QUANTITY	INTEGRATE / TOTALIZE	.
R	RADIATION	RECORD	.
S	SPEED, FREQUENCY	.	SWITCH
T	TEMPERATURE	.	TRANSMIT
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS	.	VALVE, DAMPER, LOUVER
W	WEIGHT, FORCE	WELL, PROBE	.
X	SMOKE, FIRE	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	.	RELAY, COMPUTE, CONVERT
Z	POSITION, DIMENSION	.	DRIVER, ACTUATOR, UNCLASS - IFIED FINAL CONTROL ELEMENT

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL.

GENERAL INSTRUMENT / FUNCTION SYMBOLS

CONTROL DEVICE / INSTRUMENT

XX / ## — YY

XX = VARIABLE OR FUNCTION
YY = MODIFIER OR SETPOINT
= INSTRUMENT NUMBER

INPUT / OUTPUT PARAMETER

XY

X = ANALOG (A) OR DIGITAL (D)
Y = INPUT (I) OR OUTPUT (O)

EXAMPLES:

TS / 01 — LOW TEMPERATURE SWITCH

GTE / 01 — CO2 GAS TRANSMITTER & ELEMENT FOR CO2

MODIFIERS:

AVG	AVERAGE
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
DPT	DEWPOINT TEMPERATURE
ENT	ENTHALPY
EX	EXISTING
FC	FAIL CLOSED
FO	FAIL OPEN
FTL	FAIL TO LAST POSITION
HIGH	HIGH LIMIT
HUM	RELATIVE HUMIDITY
LOW	LOW LIMIT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
O2	OXYGEN
SCR	SILICONE CONTROLLED RECTIFIER
VOC	VOLATILE ORGANIC COMPOUND
WBT	WET BULB TEMPERATURE

X — KEY NOTE

SEQUENCE OF OPERATION DEFINITIONS

ENABLE	ALLOW AN OPERATION TO START
START	REQUIRE AN OPERATION TO START
DISABLE	PREVENT AN OPERATION FROM STARTING
STOP	REQUIRE AN OPERATION TO STOP
PROVE	COMMAND EQUALS STATUS
100%	MAXIMUM COMMAND OR FULLY OPEN
0%	MINIMUM COMMAND OR FULLY CLOSED

AIR DISTRIBUTION

FSD	COMBINATION FIRE SMOKE DAMPER IN DUCT (PROVIDED BY OTHERS)
SD	SMOKE DAMPER IN DUCT PROVIDED BY OTHERS)
CD	CONTROL DAMPER IN DUCT (DAMPER PROVIDED BY OTHERS, ACTUATOR PROVIDED BY DIVISION 25)
AP	DUCT ACCESS PANEL
	NEW DUCT
	DUCT MOUNTED SMOKE DETECTOR (PROVIDED BY OTHERS)

ELECTRICAL AND CONTROL WIRING

	120 VAC WIRING
	24 VAC WIRING
	CONTROL SIGNAL VDC WIRING

PIPING AND FITTINGS

CHWS	CHILLED WATER SUPPLY PIPING
CHWR	CHILLED WATER RETURN PIPING
CWS	CONDENSER WATER SUPPLY PIPING
CWR	CONDENSER WATER RETURN PIPING
G	GAS PIPING
HHWS	HEATING HOT WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
2D	2 DIAMETERS OF STRAIGHT PIPE
5D	5 DIAMETERS OF STRAIGHT PIPE
	FLOW DIRECTION IN PIPE
MWS	MAKE-UP WATER STATION (PROVIDED BY OTHERS)
	NEW PIPE

VALVES

N.O. N.C.	BALL VALVE
N.O. N.C.	BUTTERFLY VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	CONTROL VALVE (2-WAY)
	CONTROL VALVE (3-WAY)
VALVE ACTUATORS:	
	QUARTER TURN LEVER
M	ELECTRIC MOTOR

ELECTRICAL COMPONENTS & CONTROLLER (SHOWN IN DIAGRAMS)

VFD	VARIABLE FREQUENCY DRIVE (PROVIDED BY OTHERS) - SEE WIRING DETAIL D/IC5.01
STR	MOTOR STARTER (PROVIDED BY OTHERS) - SEE WIRING DETAIL F/IC5.01
CNT	MOTOR RATED CONTACTOR (PROVIDED BY DIV. 25) - SEE WIRING DETAIL E/IC5.01
	RELAY (NORMALLY OPEN)
	RELAY (NORMALLY CLOSED)
PEM	POWER ENERGY MONITOR
	TRANSFORMER
	PILOT LIGHT
LAN	NETWORK COMMUNICATION LINK TO BAS
M	ELECTRIC MOTOR

MECHANICAL COMPONENTS (SHOWN IN DIAGRAMS)

	FAN
	FAN ARRAY (COORDINATE WITH DIVISION 23 FOR FAN QUANTITY)
	PUMP
X / C	COIL X = COOLING (C), HEATING HOT WATER (H), STEAM (S), REFRIGERANT (R), HEAT PIPE (HP), ELECTRIC HEATING (EH), RUN-AROUND LOOP (RL), GAS HEATING (GH), HOT GAS REHEAT(HG)
	DAMPER
	FILTER
	PRESSURE GAUGE OR DISPLAY

INSTRUMENTATION AND CONTROL NOTES

1. THE INTENT OF THE INSTRUMENTATION AND CONTROL DRAWINGS IS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE SEQUENCE(S) OF OPERATION. THE DIAGRAMS, POINTS LISTS, AND SEQUENCES OF OPERATION INCLUDED HEREIN DESCRIBE THE INTENDED SEQUENCES OF OPERATION FOR SYSTEMS AND MAJOR COMPONENTS BUT DO NOT DEFINE IN DETAIL THE OPERATION OF MINOR COMPONENTS, RELAYS, SWITCHES, WIRING, OR OTHER SMALL DEVICES REQUIRED FOR THE PROPER OPERATION OF THE CONTROL SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS AND/OR WIRING TO ACHIEVE THE SEQUENCE OF OPERATION.
2. PROVIDE ALL CONTROL WIRING, CONDUIT, RELAYS, AND ELECTRICAL WORK REQUIRED AS INTEGRAL PART OF THE INSTRUMENTATION AND CONTROL SYSTEM UNLESS NOTED OTHERWISE. WORK SHALL COMPLY WITH REQUIREMENTS OF DIVISIONS 26, 27, AND 28 DRAWINGS AND SPECIFICATIONS.
3. ALL BAS CONFIGURATIONS (SETPOINTS, TIME DELAYS, RESET LIMITS, TUNING PARAMETERS, ETC.) SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH BAS WORKSTATION OR PORTABLE OPERATOR TERMINAL WITHOUT ANY HARDWARE OR SOFTWARE REVISIONS.
4. COORDINATE ALL WORK WITH OTHER TRADES INVOLVED. INTERFACE EQUIPMENT AND WIRING SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
5. COORDINATE BUILDING OCCUPANCY SCHEDULES (OCCUPIED AND UNOCCUPIED) WITH BUILDING OWNER.
6. COORDINATE INSTALLATION LOCATION OF ALL CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO: SENSORS, METERS, SWITCHES, VALVES, DAMPERS, ETC. COORDINATE AND ENSURE CONTROL DEVICES ARE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING UPSTREAM AND DOWNSTREAM DIAMETERS FOR FLOW METERS, PROPER ORIENTATION TO PREVENT MOISTURE INTRUSION, AND DISTANCES FROM AIR OUTLETS TO ENSURE PROPER TEMPERATURE READINGS.
7. LOCATE THERMOSTATS AND OTHER WALL-MOUNTED CONTROL DEVICES REQUIRING OCCUPANCY MONITORING OR ADJUSTMENT AT AN ELEVATION 4'-0" ABOVE FINISHED FLOOR, IN ACCORDANCE WITH ADA REGULATIONS.
8. IF FIELD ADJUSTMENTS ARE MADE TO THE BAS CONFIGURATIONS DURING FINAL TESTING / VERIFICATION /COMMISSIONING, SET THE FACTORY DEFAULT VALUES IN THE CONTROLLERS TO MATCH FINAL VALUES.
9. PROVIDE ACCESS PANEL AT EACH LOCATION WHERE A VALVE, DAMPER, OR OTHER DEVICE REQUIRING SERVICE IS LOCATED ABOVE AN INACCESSIBLE CEILING OR INSIDE A WALL. ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL. COORDINATE ACCESS PANEL LOCATION WITH ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
10. PROVIDE DUCT ACCESS DOOR AT EACH AIRFLOW MEASURING STATION.
11. CONTROLLED SYSTEMS SHALL AUTOMATICALLY RESET ON EMERGENCY POWER AND RESTORATION OF NORMAL POWER, UNLESS NOTED OTHERWISE. PROVIDE TIME DELAYS ON RESTART, AS NECESSARY, TO STAGGER THE START OF EQUIPMENT SO THAT ALL MOTORS DO NOT ATTEMPT TO START AT THE SAME TIME.
12. SAFETIES SHALL BE HARDWIRED UNLESS NOTED OTHERWISE.
13. WHERE VFD'S ARE LOCATED DIRECTLY UNDER PIPING, PROVIDE GALVANIZED SHEET METAL DIP SHIELDING AT 18" ABOVE VFD'S SLOPED 1% FROM THE MOUNTING SURFACE TOWARD THE FRONT OF THE DRIVES, AND EXTENDING TO 12" BEYOND EACH DRIVE FACE.

COMMISSIONING NOTES

1. COMMISSIONING REQUIREMENT:
   A. THE BUILDING MECHANICAL SYSTEMS SHALL BE COMMISSIONED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE – ENERGY CONSERVATION, SECTION C408 "SYSTEMS COMMISSIONING".
2. COMMISSIONING PROVIDER:
   A. THE CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR PROVIDING THE SERVICES OF AN APPROVED COMMISSIONING PROVIDER
3. COMMISSIONING SCOPE:
   A. MECHANICAL SYSTEM TESTING SHALL ENSURE THAT COMPONENTS, EQUIPMENT, SYSTEMS, AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS ARE CALIBRATED, ADJUSTED, AND OPERATE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. TESTING SHALL INCLUDE ALL MODES AND SEQUENCES OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD, AND EMERGENCY CONDITIONS.
   B. A COMMISSIONING PLAN SHALL BE DEVELOPED BY THE COMMISSIONING PROVIDER 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 TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED; (3) FUNCTIONS TO BE TESTED, INCLUDING BUT NOT LIMITED TO, CALIBRATIONS AND CONTROLS; (4) 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.
   C. PRIOR TO PASSING THE FINAL INSPECTIONS, THE COMMISSIONING PROVIDER SHALL PROVIDE EVIDENCE OF SYSTEMS COMMISSIONING AND COMPLETION. A COMPLETED PRELIMINARY REPORT THE COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE PROVIDED TO THE OWNER, CERTIFIED BY THE COMMISSIONING PROVIDER. 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 DUE TO CLIMATIC CONDITIONS; AND (3) CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF DEFERRED TESTS. THE PRELIMINARY COMMISSIONING REPORT SHALL BE MADE AVAILABLE TO THE CODE OFFICIAL AT THEIR REQUEST.
   D. WITHIN 90 DAYS OF CERTIFICATE OF OCCUPANCY, PROVIDE THE FINAL COMMISSIONING REPORT TO OWNER. 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 PROCEDURES USED DURING THE COMMISSIONING PROCESS, INCLUDING MEASURED CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY. EXCEPTION: DEFERRED TESTS WHICH CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION FOR CLIMATIC CONDITIONS.
   E. HVAC, CONTROLS AND TAB CONTRACTORS SHALL ASSIST WITH COMMISSIONING EFFORTS INCLUDING (NOT LIMITED TO) PERFORMING PRE-TESTING OF FUNCTIONAL PERFORMANCE TEST (TEST CRITERIA PROVIDED BY COMMISSIONING AUTHORITY) PRIOR TO COMMISSIONING AUTHORITY PERFORMING FUNCTION PERFORMANCE TEST VERIFICATION WITH AFOREMENTIONED CONTRACTORS.

COORDINATION AND/OR SHOP DRAWING NOTES

1. COORDINATION AND SHOP DRAWINGS, INCLUDING ANY BIM MODEL CREATED BY THE CONTRACTOR AND OR A THIRD PARTY FOR COORDINATION PURPOSES ARE NOT CONSTRUCTION DOCUMENTS AND DO NOT SUPERCEDE ANY REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS.
2. CHANGES TO EQUIPMENT OR SYSTEM LAYOUTS FROM THAT DEPICTED IN THE CONSTRUCTION DOCUMENTS THAT ARE REQUIRED FOR COORDINATION, SUBSTITUTIONS, OR OTHERWISE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR APPROVAL.
3. CHANGES SHALL BE CLOUDED AND NOTED ON THE COORDINATION OR SHOP DRAWING IN RED OR OTHER COLOR THAT CLEARLY DIFFERENTIATES THE NOTE FROM THE REMAINDER OF THE SUBMITTED DOCUMENT.
4. ONLY NOTED CHANGES SPECIFICALLY CALLED OUT WILL BE REVIEWED BY THE ENGINEER DURING THE SUBMITTAL PROCESS. THE ENGINEER WILL NOT REVIEW EVERY DETAIL OF THE ENTIRE DOCUMENT PACKAGE TO LOCATE CHANGES MADE BY THE CONTRACTOR. CHANGES NOT SPECIFICALLY NOTED ARE AUTOMATICALLY "NOT APPROVED" REGARDLESS OF APPROVAL STATUS ON THE RETURNED SUBMITTAL.
5. CHANGES TO THE CONTRACT DOCUMENTS MADE BY THE CONTRACTOR THAT ARE NOT NOTED AND BROUGHT TO THE ATTENTION OF THE ENGINEER AND THUS "NOT APPROVED" WHICH RESULT IN A COST OR SCHEDULE CHANGE TO THE PROJECT SHALL BE BURDONED TO THE CONTRACTOR WHO MADE THE CHANGE WITHOUT ANY RENUMERATION FROM THE OWNER.
6. A COORDINATION DRAWING PACKAGE OR BIM MODEL USED IN THE FIELD BY THE INSTALLING CONTRACTOR IS NOT A CONSTRUCTION DOCUMENT AND DOES NOT INCLUDE ALL NOTES AND DETAILS NECESSARY FOR A COMPLETE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING INSTALLERS WITH A COMPLETE SET OF APPROVED COORDINATION DRAWINGS INCLUSIVE OF ALL NOTES, DETAILS, ETC. INCLUDED IN THE CONSTRUCTION DOCUMENTS.

GENERAL NOTES

1. INSTALL ALL WORK IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2023, THE FLORIDA FIRE PREVENTION CODE, THE NATIONAL ELECTRICAL CODE 2020 EDITION, AND ALL CODES, ORDINANCES, RULES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION AT THIS SITE. WHERE CONFLICTS OCCUR BETWEEN CODES AND THE CONSTRUCTION DOCUMENTS, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN.
2. DRAWINGS ARE DIAGRAMMATIC, INDICATIVE OF WORK TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT.
3. FIELD VERIFY DIMENSIONS AND CONDITIONS. IF THE CONTRACTOR IS UNABLE TO INTERPRET THE CONTRACT DOCUMENTS, CONTRACTOR IS RESPONSIBLE TO REQUEST CLARIFICATION IN WRITING TO THE ENGINEER. IF CONTRACTOR PROCEEDS WITH ANY WORK BEFORE OBTAINING CLARIFICATION, CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DEFICIENCIES ASSOCIATED THEREWITH.
4. BEFORE SUBMITTING FOR THE WORK, EACH BIDDER WILL BE RESPONSIBLE TO EXAMINE THE PREMISES AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS UNDER WHICH CONTRACTOR WILL BE OBLIGED TO OPERATE AND COMPLETE THE WORK UNDER THIS CONTRACT. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR OMISSION ON CONTRACTOR'S PART.
5. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION PERMITS, CERTIFICATES, CONNECTION FEES, SYSTEM DEMAND CHARGES AND LICENSE FEES IN CONNECTION WITH CONTRACTOR'S WORK.
6. CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR SEQUENCING AND COORDINATING WORK OF SUBCONTRACTORS TO AVOID INTERFERENCES.
7. WORK SHALL COMPLY WITH APPLICABLE O.S.H.A. AND E.P.A. REGULATIONS AND GUIDELINES.
8. ERECT AND MAINTAIN ALL REASONABLE PRECAUTIONS FOR SAFETY AND HEALTH INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS INCLUDING PROMULGATING SAFETY REGULATIONS. PROVIDE SAFETY PRECAUTIONS AND BARRICADES FOR PEDESTRIANS AT CONSTRUCTION VEHICLE ACCESS AND EGRESS LOCATIONS.
9. THE CONTRACTOR SHALL PROVIDE MANPOWER AND EQUIPMENT NECESSARY TO MAINTAIN THE PROJECT SCHEDULE.
10. THE CONTRACTOR SHALL BE RESTRICTED TO AREAS DESIGNATED BY THE OWNER FOR ON-SITE STORAGE OF CONSTRUCTION MATERIALS AND IS RESPONSIBLE FOR THE PROTECTION AND SECURITY OF ALL EQUIPMENT AND MATERIALS.
11. THE CONTRACTOR SHALL MAINTAIN A CLEAN WORK ENVIRONMENT AND SHALL CLEAN CONSTRUCTION SITE OF ALL DEBRIS AT COMPLETION OF THE JOB AND BEFORE FINAL PAYMENT IS MADE.
12. THE CONTRACTOR SHALL FURNISH "AS-BUILT" RECORD DOCUMENTS TO THE OWNER AT COMPLETION OF CONSTRUCTION.
13. CONTRACTOR SHALL GUARANTEE THE WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. THIS GUARANTEE SHALL BE IN ADDITION TO THE WARRANTIES PROVIDED BY MATERIAL SUPPLIERS AND MANUFACTURERS.
14. CONTRACTOR'S APPROVAL STAMP ON SUBMITTALS AND SHOP DRAWINGS CERTIFIES THAT THE CONTRACTOR HAS REVIEWED THE DOCUMENTS AND THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN ADHERED TO.
15. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE ARCHITECT/ENGINEER'S APPROVAL THEREOF.
16. ENTRY AND/OR REMOVAL OF EQUIPMENT FROM THE BUILDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DISMANTLE AND REASSEMBLE EQUIPMENT AS NECESSARY FOR ENTRY INTO THE BUILDING AND/OR EQUIPMENT ROOMS. CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGED MATERIALS TO MATCH THE ADJACENT UNDAMAGED SURFACES.
17. PROTECT THE ROOF FROM DAMAGE WHENEVER ANY WORK ON THE ROOF IS REQUIRED.
18. SUPPORTS AND HANGERS SHALL PRESENT A NEAT, ORDERLY APPEARANCE.
19. ALL EXTERIOR STRUCTURES AND EQUIPMENT SHALL BE INSTALLED TO RESIST 170 MPH WIND LOAD.
20. THE BUILDING WILL REMAIN OCCUPIED DURING CONSTRUCTION. THE OWNER WILL MAKE ALL REASONABLE EFFORTS TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. COORDINATE ALL WORK WITH THE OWNER'S DESIGNATED REPRESENTATIVE.
21. EXIT WAYS SHALL BE KEPT CLEAR. IF AN EXIT MUST BE TEMPORARILY BLOCKED, PROVIDE THE REQUIRED BARRICADE AND DIRECTIONAL SIGNS FOR TEMPORARY EXITING AND SAFETY.
22. REMOVE AND REPAIR OR RE-INSTALL EXISTING CEILING ASSEMBLIES AS REQUIRED. REPLACE ANY ASSEMBLIES DAMAGED OR SOILED DURING CONSTRUCTION.
23. PROVIDE PROPER PROTECTIVE MEASURES TO PROTECT EXISTING FURNITURE, CARPET AND FINISHES DURING THE COURSE OF CONSTRUCTION. TAKE CARE NOT TO DAMAGE EXISTING SURFACES. REPAIR TO MATCH EXISTING CONDITIONS AS REQUIRED.
24. SEAL ALL HOLES IN WALLS, CEILINGS, FLOORS, ETC. TO MATCH EXISTING ADJACENT SURFACES WHERE EQUIPMENT, CONDUIT AND/OR PIPING ARE REMOVED.
25. EXISTING EQUIPMENT IS THE PROPERTY OF THE OWNER AND SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER. DISPOSE OF ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED IN ACCORDANCE WITH LOCAL REGULATIONS.
26. REMOVE ALL SHRUBBERY, PLANTS, ETC. WHICH INTERFERE WITH WORK UNDER THIS CONTRACT. REPLANT AND/OR REPLACE ALL PLANTS, SHRUBBERY, ETC. AT COMPLETION OF JOB. ALL DISTURBED AREAS OF SOIL SHALL BE RE-SODDED. REPLACEMENT OR REPLANTING TO BE GUARANTEED FOR ONE YEAR.
27. ITEMS REMOVED AND SAVED FOR REUSE SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL IDENTIFY ANY DEFECTIVE MATERIALS PRIOR TO DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO MATERIALS AT PROJECT COMPLETION NOT IDENTIFIED PRIOR TO DEMOLITION.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	IN	INCHES
AHAP	AS HIGH AS POSSIBLE	IOT	INTERNET OF THINGS
BAS	BUILDING AUTOMATION SYSTEM	LAN	LOCAL AREA NETWORK
BTUH	BRITISH THERMAL UNITS PER HOUR	N/A	NOT APPLICABLE
C	CONDENSATE	OA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	P	PUMP
CH	CHILLER	RA	RETURN AIR
CHW	CHILLED WATER	RF	RETURN FAN
CT	COOLING TOWER	RPM	REVOLUTIONS PER MINUTE
CWS	CONDENSER WATER SUPPLY	RTU	ROOF TOP UNIT
CWR	CONDENSER WATER RETURN	SA	SUPPLY AIR
DDC	DIRECT DIGITAL CONTROL PANEL	SAT	SUPPLY AIR TERMINAL UNIT
DN	DOWN	SQ FT	SQUARE FEET
EF	EXHAUST FAN	SD	SMOKE DAMPER
EX	EXISTING	SF	SUPPLY FAN
°Fdb	DEGREES FAHRENHEIT DRY BULB	TYP	TYPICAL
°Fwb	DEGREES FAHRENHEIT WET BULB	UNO	UNLESS NOTED OTHERWISE
FPM	FEET PER MINUTE	V	VALVE
FSD	COMBINATION FIRE/SMOKE DAMPER	VAV	VARIABLE AIR VOLUME
FT	FEET	VFD	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VPM	VENTURI FLOW METER
HHW	HEATING HOT WATER	VVT	VARIABLE VOLUME TERMINAL UNIT
HP	HORSEPOWER	WG	WATER GAUGE

DRAWING INDEX

IC0.1	GENERAL NOTES & LEGENDS
IC1.0	ROOF PLAN
IC1.1AB	AREA A & B FLOOR PLAN
IC1.1CD	AREA C & D FLOOR PLAN
IC1.2	CHILLER PLANT FLOOR PLAN
IC2.1	CONTROLS - CHILLED WATER SYSTEMS
IC2.2	CONTROLS - VAV AIR HANDLING UNITS
IC2.3	CONTROLS - SUPPLPY AIR TERMINAL UNITS
IC5.1	DETAILS

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

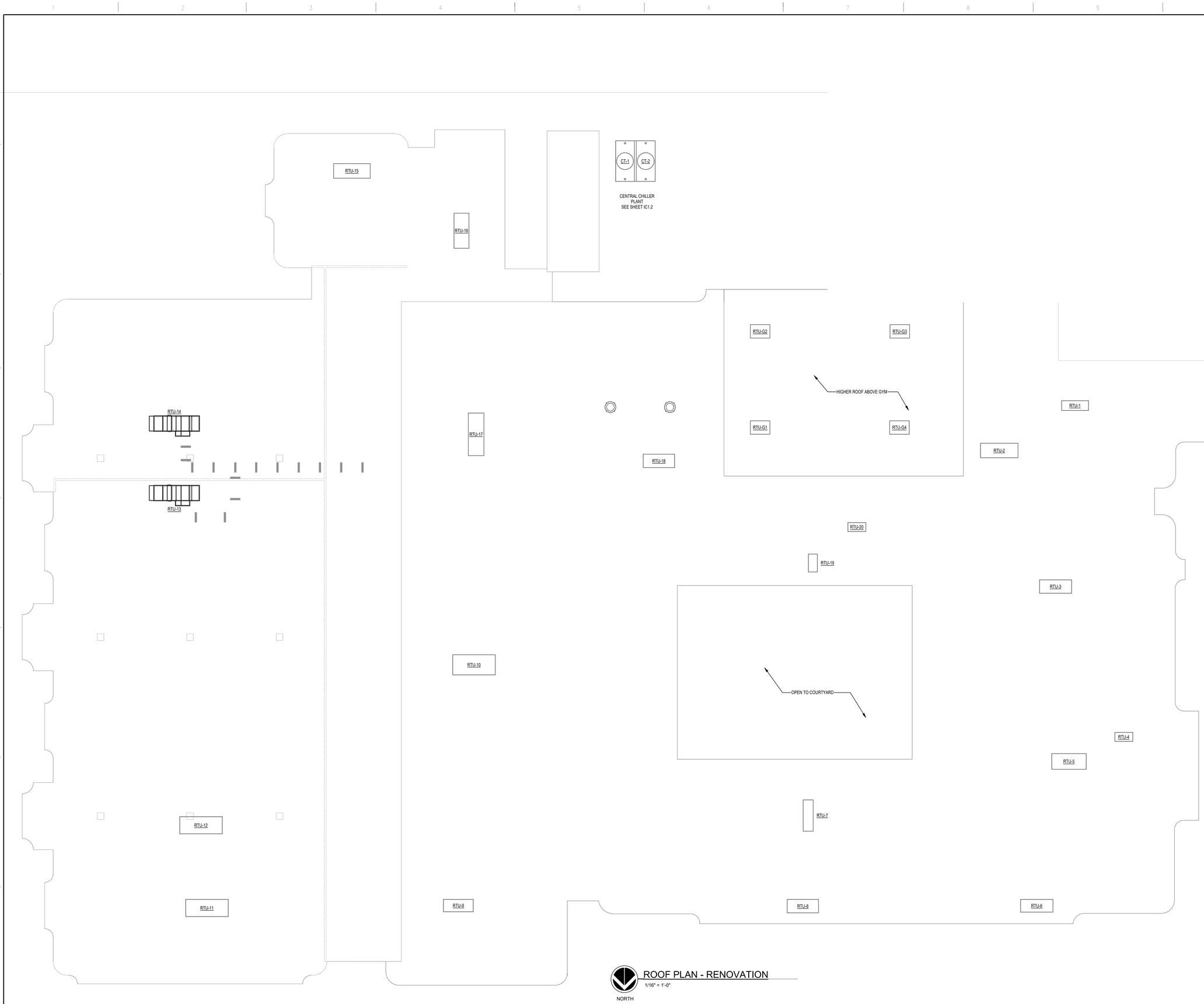
OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26



ROOF PLAN - RENOVATION

1/16" = 1'-0"

NORTH

ENGINEERING

114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

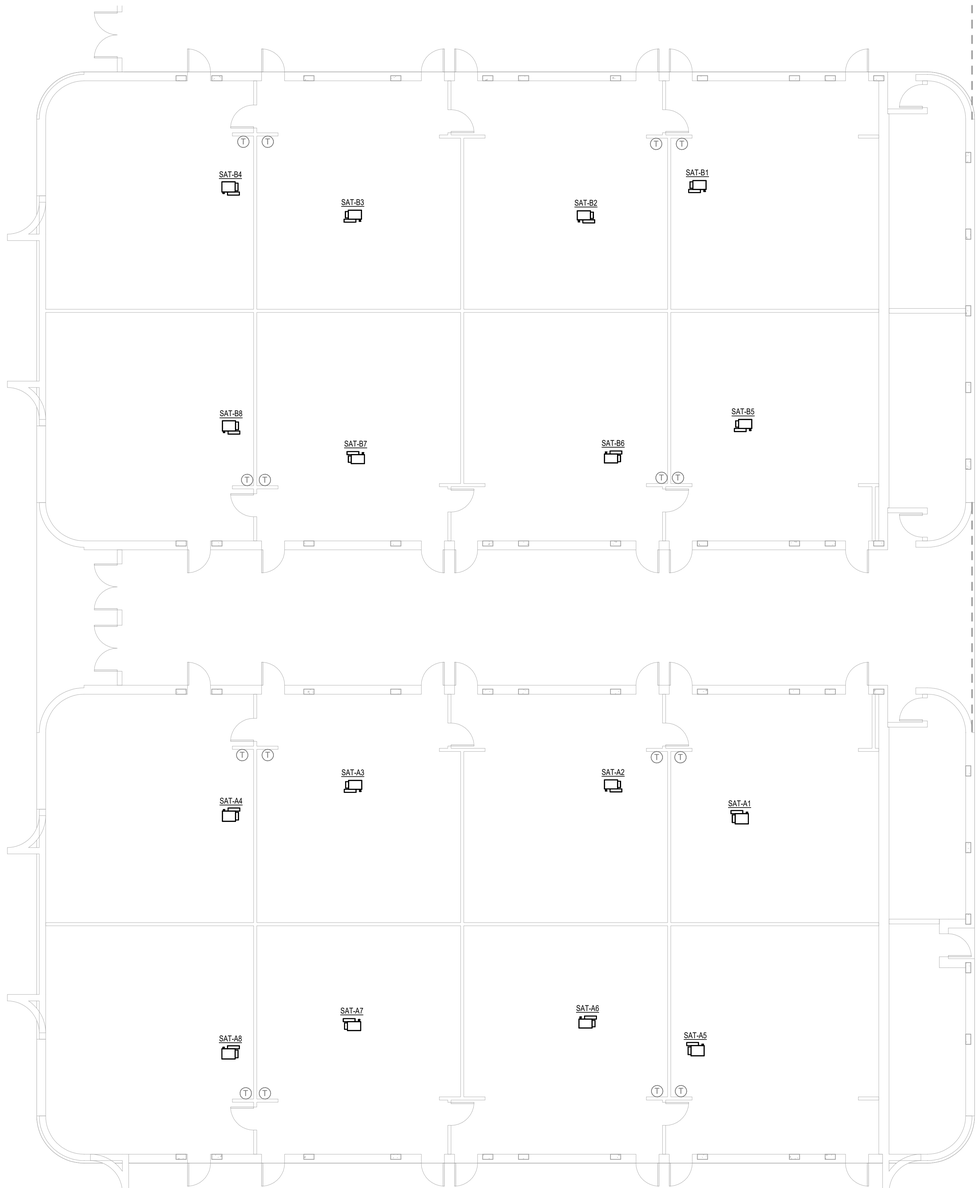
#	Description	Date

SHEET TITLE

ROOF PLAN

DRAWING NO.

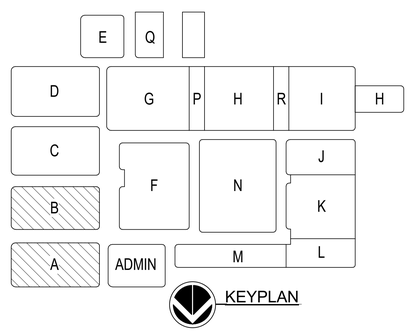
IC1.0



CLASSROOM AREA A & B FLOOR PLAN - RENOVATION

1/8" = 1'-0"

NORTH



KEYPLAN

NORTH

ENGINEERING

114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

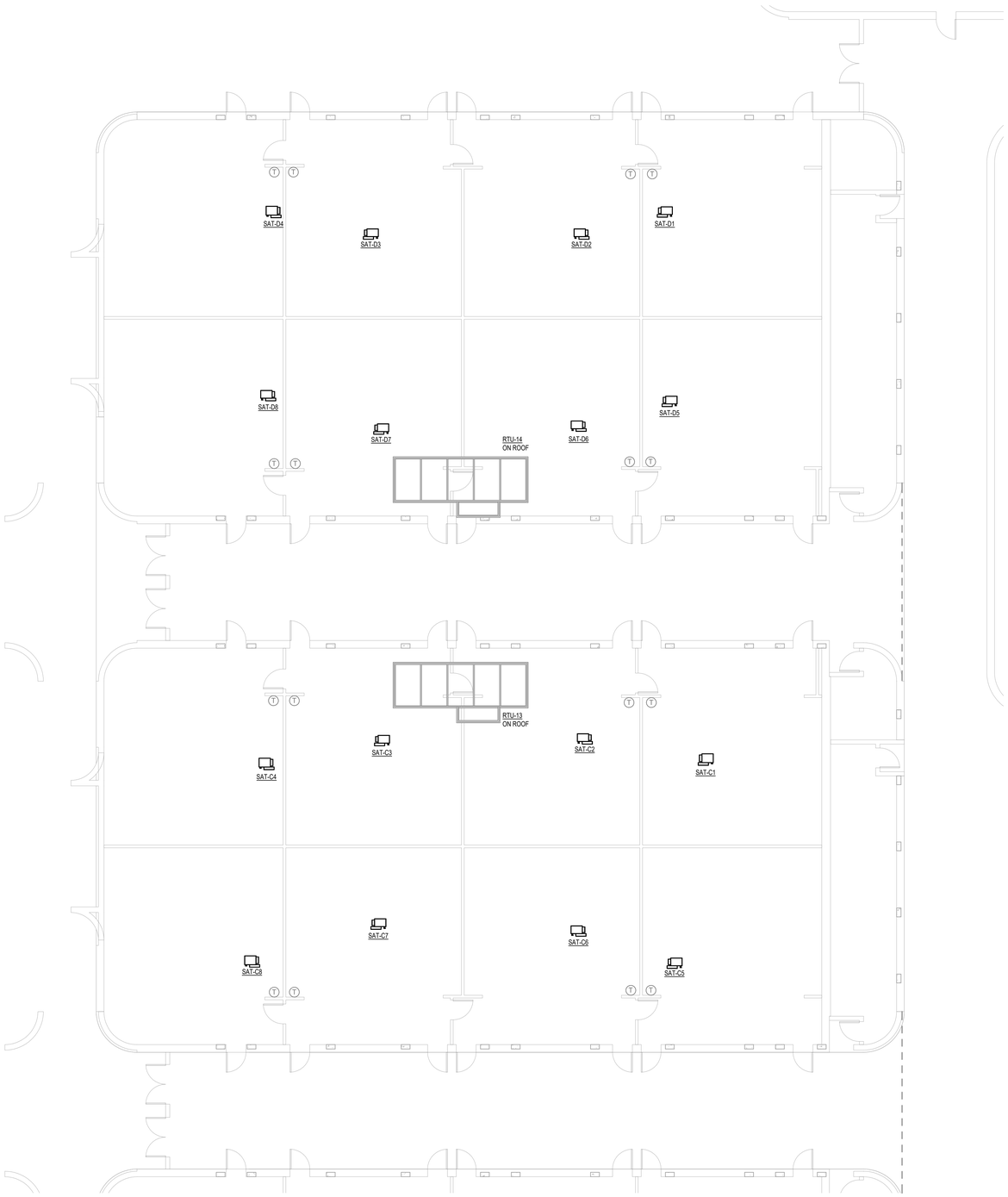
#	Description	Date

SHEET TITLE

AREA A & B FLOOR PLAN

DRAWING NO.

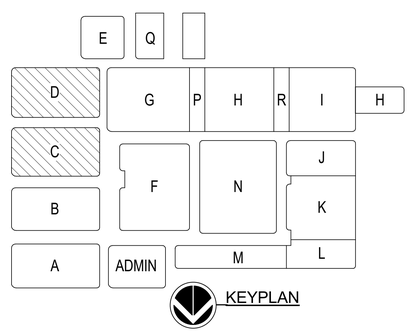
IC1.1AB



CLASSROOM AREA C & D FLOOR PLAN - RENOVATION

1/8" = 1'-0"

NORTH



KEYPLAN

NORTH

H2 ENGINEERING

114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

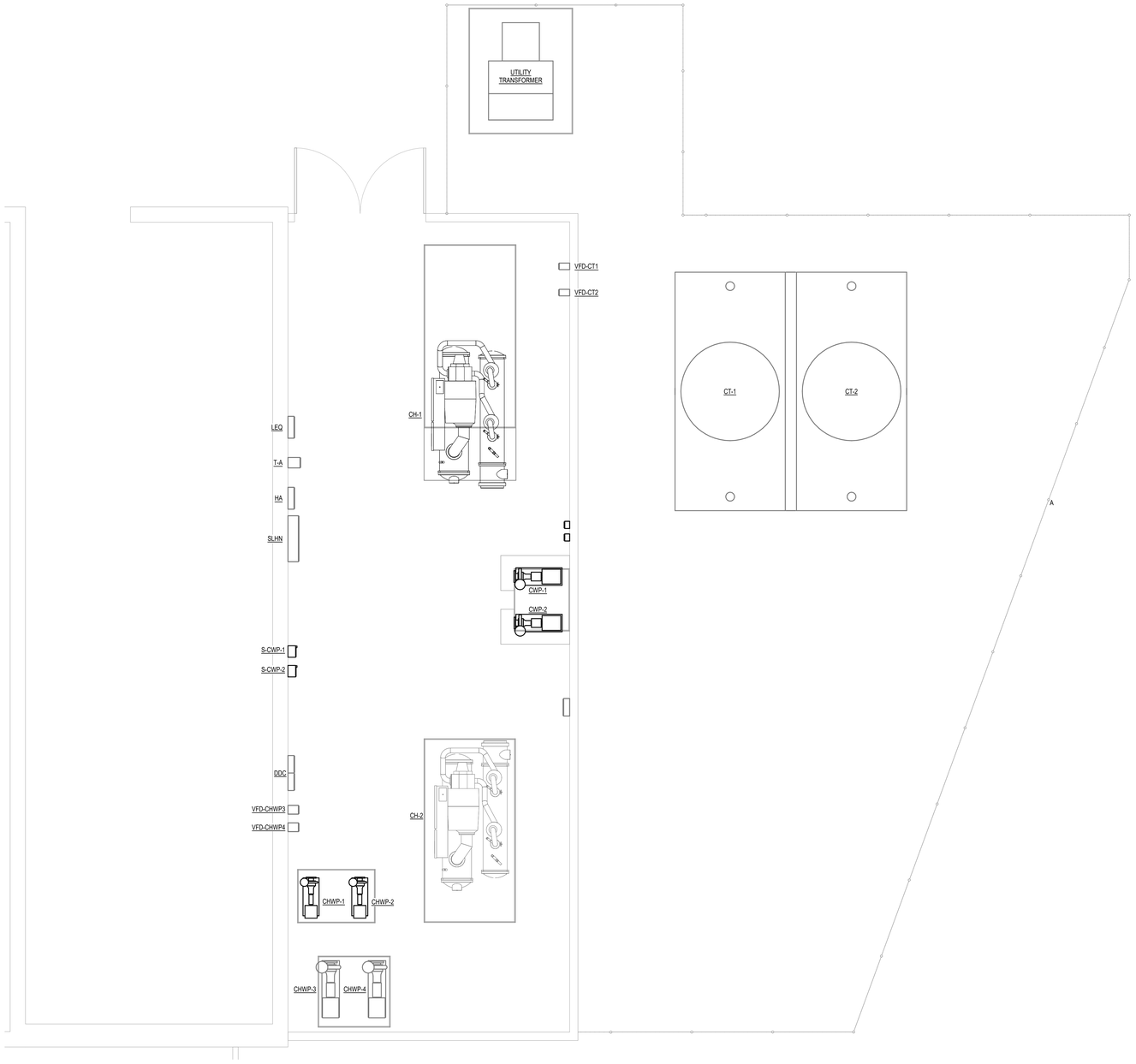
#	Description	Date

SHEET TITLE

AREA C & D FLOOR PLAN

DRAWING NO.

IC1.1CD



CHILLER PLANT - RENOVATION

1/4" = 1'-0"

NORTH

ENGINEERING

114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

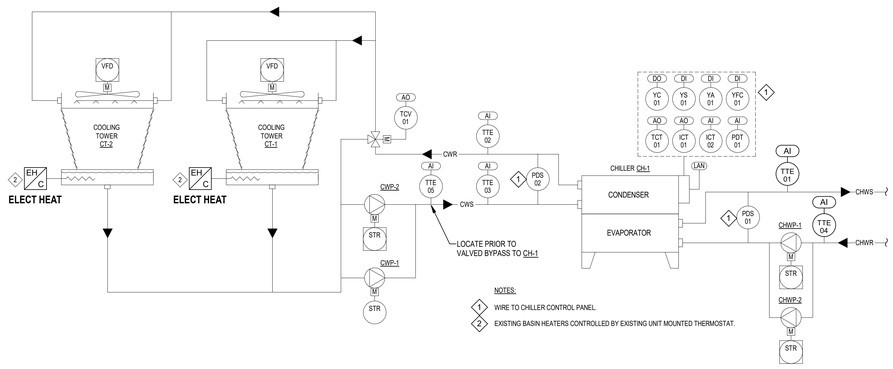
#	Description	Date

SHEET TITLE

CHILLER PLANT FLOOR PLAN

DRAWING NO.

IC1.2



CHILLED WATER SYSTEM (CH-1) SEQUENCE

1. GENERAL

   A. THE CHILLED WATER SYSTEM SHALL BE CONTROLLED BY AN EXISTING NETWORK CONTROLLER. CONTRACTOR SHALL INTEGRATE NEW CHILLER CH-1 AND ASSOCIATED COOLING TOWER CT-1 AND PUMPS INTO EXISTING BAS WITH THE FOLLOWING SEQUENCE. ADDITIONAL CONTROLLERS, EQUIPMENT, HARDWARE, WIRING, ETC. REQUIRED TO ACCOMPLISH SEQUENCE OF OPERATION IS THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR AND SHALL BE INCLUDED IN THE SCOPE OF WORK AS NECESSARY TO MAKE SYSTEM COMPLETE.

   B. ALL SET-POINTS, TIME DELAYS, DEAD-BANDS, RESET LIMITS, SELECTABLE POINTS, AND OBJECTS SHALL BE AVAILABLE TO THE USER VIA DYNAMIC GRAPHICS OR TEXT-BASED INTERFACE WITHOUT REQUIRING THE USER TO EDIT THE APPLICATION PROGRAM.

   C. THE CHILLED WATER SYSTEM CONSISTS OF TWO WATER-COOLED CHILLERS PIPED IN PARALLEL WITH A PRIMARY/SECONDARY DISTRIBUTION SYSTEM. EACH CHILLER HAS A DEDICATED PRIMARY PUMP TO CONTROL WATER FLOW THROUGH THE EVAPORATOR. THE CHILLED WATER DISTRIBUTION SYSTEM CONSISTS OF TWO VARIABLE SPEED PUMPS.

   D. THE CONDENSER WATER SYSTEM CONSISTS OF ONE COOLING TOWER SERVED BY TWO VARIABLE VOLUME CONDENSER WATER PUMPS PIPED IN PARALLEL. EACH CHILLER HAS TWO DEDICATED PRIMARY PUMPS TO CONTROL WATER FLOW THROUGH THE CONDENSER.

   E. NEW CHILLER CH-1 ENABLE/DISABLE MODE OF OPERATION SHALL BE INTEGRATED INTO THE EXISTING OVERALL CHILLER PLANT SEQUENCE.

2. CHILLER (CH-1) – CHILLER SHALL BE OWNER PROVIDED AND CONTRACTOR INSTALLED. CONTROLS EXTERNAL TO THE CHILLER SHALL BE PROVIDED BY AND INSTALLED BY THE CONTRACTOR.

   A. THE CHILLER CONTROL PANEL SHALL MONITOR AND CONTROL THE CHILLER IN A STAND-ALONE MODE OR AS DIRECTED BY THE BAS.

   B. THE CONTROLS CONTRACTOR SHALL PROVIDE HARD-WIRED CONNECTIONS FROM THE BAS TO THE CHILLER CONTROL PANEL TO ALLOW FOR THE FOLLOWING FUNCTIONS:

1.	EXTERNAL START / STOP CONTACT	(1)	DO
2.	COMPRESSOR STATUS	(1)	DI
3.	ALARM INDICATION	(1)	DI
4.	CHW PUMP START/STOP	HARDWIRED TO PUMP STARTER	
5.	CW PUMP START/STOP	(1)	DI
6.	CURRENT LIMIT SET-POINT	(1) AO	(4-20 MA)
7.	CHW SET-POINT ADJUST	(1) AO	(4-20 MA)
8.	PERCENT RLA	(1) AI	(0-10 VDC)
9.	CONDENSER REFRIGERANT PRESSURE	(1) AI	(0-10 VDC)

   C. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING AND COMPONENTS NECESSARY TO INTEGRATE WITH THE BACNET INTERFACE, PROVIDED BY THE CHILLER MANUFACTURER. MAP ALL POINTS FROM THE CHILLER TO THE BAS.

   D. START / STOP: A DIFFERENTIAL PRESSURE SWITCH SHALL BE PROVIDED BY THE CHILLER MANUFACTURER TO BE INSTALLED BY THE CONTROL CONTRACTOR IN THE CHILLED WATER AND THE CONDENSER WATER SUPPLY PIPING TO EACH CHILLER. PROVIDE WIRING (110 VOLT) FROM DIFFERENTIAL PRESSURE SWITCH TO CHILLER CONTROL PANEL. CHILLER CONTROL PANEL SHALL ENABLE CHILLER START ONLY AFTER THE STATUS OF CHILLED WATER AND CONDENSER WATER FLOW IS PROVEN, TO PREVENT SHORT CYCLING. CHILLER SHALL RUN FOR A MINIMUM-ON TIME DELAY (10 MIN. ADJ) AND BE OFF FOR A MINIMUM-OFF TIME DELAY (10 MIN. ADJ), UNLESS SHUTDOWN ON SAFETIES.

   E. STATUS: IF CHILLER STATUS IS NOT PROVEN WITHIN A MINIMUM TIME DELAY (2 MIN, ADJ) AFTER CHILLER START IS INITIATED, THEN PROVIDE ALARM AND CHANGE CHILLER STATUS TO "FAILED".

   F. DEMAND LIMIT: CHILLER SHALL HAVE A DEMAND LIMIT SET-POINT (100%, ADJ), DISPLAYED TO THE USER AS A PERCENT OF NOMINAL CAPACITY.

3. COOLING TOWER (CT-1 / CT-2)

   A. FAN START / STOP: ENABLE TOWER FANS WITH ASSOCIATED CHILLER. START / STOP OF FANS SHALL BE CONTROLLED THROUGH THE H-O-A SWITCH ON THE VARIABLE FREQUENCY DRIVE (VFD).

      1. FAN START SEQUENCE: IF THE CONDENSER WATER SUPPLY TEMPERATURE IS ABOVE THE MAXIMUM CONDENSER WATER TEMPERATURE SET-POINT (85°F, ADJ), THEN START THE FAN.
      2. FAN STOP SEQUENCE: IF THE CONDENSER WATER SUPPLY TEMPERATURE IS BELOW THE MAXIMUM CONDENSER WATER TEMPERATURE SET-POINT MINUS A DEAD-BAND (5°F, ADJ), THEN STOP THE FAN.

   B. FAN STATUS: FAN OPERATION SHALL BE PROVED THROUGH A CURRENT SWITCH. UPON FAILURE, THE BAS SHALL ANNUNCIATE ONE OF THE FOLLOWING ALARMS:
      1. FAN FAILURE: IF THE FAN IS COMMANDED ON, BUT THE STATUS IS OFF.
      2. FAN IN HAND MODE: IF THE FAN IS COMMANDED OFF, BUT THE STATUS IS ON.

   C. FAN SPEED: MODULATE FAN SPEED TO MAINTAIN THE MAXIMUM CONDENSER WATER SUPPLY TEMPERATURE SET-POINT.

   D. COOLING TOWER BASIN HEATERS: EACH BASIN HEATER SHALL MAINTAIN A MINIMUM BASIN TEMPERATURE SET-POINT (40°F, ADJ) BY ITS OWN INTERNAL CONTROLS (PROVIDED BY THE COOLING TOWER MANUFACTURER).

   E. VIBRATION CUTOUT: WIRE VIBRATION SWITCH TO SHUT-DOWN SAFETY CIRCUIT ON VFD.

4. CONDENSER WATER BYPASS VALVE

   A. MODULATE THE CONDENSER WATER BYPASS VALVE TO MAINTAIN A MINIMUM CONDENSER SUPPLY WATER SET-POINT (65°F, ADJ).

5. PRIMARY CHILLED WATER PUMPS (CHWP-1 & CHWP-2)

   A. START / STOP: START / STOP OF THE PUMP SHALL BE CONTROLLED BY THE CHILLER CONTROL PANEL THROUGH THE H-O-A SWITCH ON THE MOTOR STARTER.

   B. STATUS: PUMP OPERATION SHALL BE PROVED THROUGH A CURRENT SWITCH. UPON FAILURE, THE BAS SHALL ANNUNCIATE ONE OF THE FOLLOWING ALARMS:
      1. PUMP FAILURE: IF THE CHILLER IS COMMANDED ON, BUT THE STATUS IS OFF.
      2. PUMP IN HAND MODE: IF THE CHILLER IS COMMANDED OFF, BUT THE STATUS IS ON.

6. PRIMARY CONDENSER WATER PUMPS (CWP-1 & CWP-2)

   A. START / STOP: UPON SIGNAL FROM THE CHILLER CONTROL PANEL, THE BAS SHALL SELECT AND START THE PUMP.

   B. STATUS: PUMP OPERATION SHALL BE PROVED THROUGH A CURRENT SWITCH. UPON FAILURE, THE BAS SHALL ANNUNCIATE ONE OF THE FOLLOWING ALARMS:
      1. PUMP FAILURE: IF THE CHILLER IS COMMANDED ON, BUT THE STATUS IS OFF.
      2. PUMP IN HAND MODE: IF THE CHILLER IS COMMANDED OFF, BUT THE STATUS IS ON.

   C. PUMP SEQUENCING: PUMPS SHALL OPERATE ON A LEAD/LAG SEQUENCE. BOTH PUMPS WILL OPERATE SIMULTANEOUSLY IF THE CONDENSER WATER SUPPLY TEMPERATURE RISES ABOVE THE MAXIMUM CONDENSER WATER SUPPLY TEMP SET-POINT (85°F, ADJ).
      1. LEAD/LAG ROTATION: THE LEAD/LAG SEQUENCE SHALL BE ROTATED ON A WEEKLY BASIS TO EQUALIZE RUNTIME ON PUMPS.
      2. FAILED CONDITION: IF PUMP STATUS IS NOT PROVEN WITHIN A MINIMUM TIME DELAY (2 MIN. ADJ) AFTER PUMP START COMMAND IS INITIATED, THEN PROVIDE ALARM AND CHANGE PUMP STATUS TO "FAILED". IF LEAD PUMP STATUS IS "FAILED" THEN ROTATE LEAD/LAG SEQUENCE AND RESTART START-UP SEQUENCE. FAILED PUMP SHALL BE DISABLED SO THAT IT IS NOT CONSIDERED IN ANY FURTHER SEQUENCING.

7. REQUIRED REPORTS

   A. CHILLER FAILURE
      1. FREQUENCY: UPON FAILURE OF CHILLER
      2. DATA: INSTANTANEOUS VALUE OF ALL POINTS ON CHILLED WATER SYSTEM.

   B. RUNTIME REPORT
      1. FREQUENCY: WEEKLY
      2. DATA: RUNTIME HOURS PER DAY FOR THE CHILLER(S), TOWER FAN(S), AND PUMP(S)

CHILLED WATER SYSTEM		POINT TYPE					CONTROL TYPE			EQUIP. DESIG.	SCHEM. DESIG.	NOTES
		ANALOG		DIGITAL		INTEG. POINT						
POINT DESCRIPTION	UNITS	IN	OUT	IN	OUT		P	I	D			
CHILLER START/STOP	ON/OFF				1					CH-1	YC-01	1
CHILLER STATUS	ON/OFF			1						CH-1	YS-01	1
CHILLER ALARM	ON/OFF			1						CH-1	YA-01	1
CHILLER CHW DIFFERENTIAL PRESSURE SWITCH										CH-1	PDS-01	1
CHILLER CW DIFFERENTIAL PRESSURE SWITCH										CH-1	PDS-02	1
CHILLER LEAVING CHW TEMPERATURE	DEG F	1								CH-1	TTE-01	
CHILLER ENTERING CHW TEMPERATURE	DEG F	1								CH-1	TTE-04	
CHILLER LEAVING CW TEMPERATURE	DEG F	1								CH-1	TTE-02	
CHILLER ENTERING CW TEMPERATURE	DEG F	1								CH-1	TTE-03	
CHILLER CHW SUPPLY TEMPERATURE SET-POINT	DEG F		1							CH-1	TCT-01	1
CHILLER CURRENT LIMIT SET-POINT	%		1							CH-1	ICT-01	1
CHILLER PERCENT RLA	%	1								CH-1	ICT-02	1
CHILLER REFRIGERANT PRESSURE	PSI	1								CH-1	PDT-01	1
CONDENSER WATER PUMP/FLOW REQUEST	ON/OFF			1						CH-1	YFC-01	1
COOLING TOWER FAN START/STOP	ON/OFF				1					CT-1	YC-	3
COOLING TOWER FAN STATUS	ON/OFF			1						CT-1	IS-	3
COOLING TOWER FAN SPEED	%		1				X	X		CT-1	SCT-	3
COOLING TOWER VIBRATION SWITCH	ON/OFF									CT-1	VS-	3
CONDENSER WATER BYPASS VALVE	% OPEN		1				X	X		CV-1	TCV-01	
PRIMARY CHW PUMP START/STOP	ON/OFF									CHWP-1		1, 2
PRIMARY CHW PUMP STATUS	ON/OFF			1						CHWP-1	IS-	3
PRIMARY CW PUMP START/STOP	ON/OFF				2					CWP-1,2	YC-	3
PRIMARY CW PUMP STATUS	ON/OFF			2						CWP-1,2	IS-	3
CONDENSER WATER SUPPLY TEMPERATURE	DEG F	1									TTE-05	
POINTS (SUB-TOTAL)	#	7	4	7	4							
POINTS (TOTAL WITH SPARE)	#	8	5	8	5							

NOTES:
1 HARDWIRED TO CHILLER
2 WIRE PUMP START/STOP FROM CHILLER CONTROL PANEL DIRECTLY TO PUMP STARTER. NOT CONTROLLED BY BAS
3 SEE MOTOR CONTROLLER DETAILS (VFD, MOTOR STARTER, OR MOTOR CONTACTOR)

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

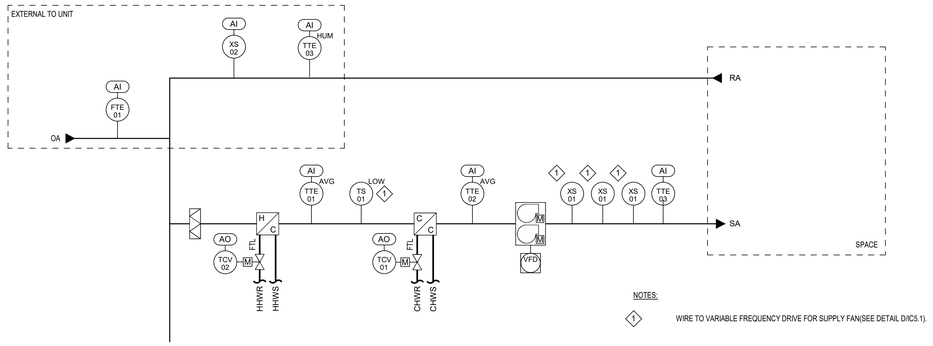
#	Description	Date

SHEET TITLE

CONTROLS - CHILLED WATER SYSTEMS

DRAWING NO.

IC2.1



VAV ROOF TOP UNIT		POINT TYPE					CONTROL TYPE			EQUIP. DESIG.	SCHEM. DESIG.	NOTES
		ANALOG		DIGITAL		INTEG. POINT						
POINT DESCRIPTION	UNITS	IN	OUT	IN	OUT		P	I	D			
SUPPLY FAN START/STOP	ON/OFF				1						YC-01	1
SUPPLY FAN STATUS	ON/OFF			1							IS-01	1
SUPPLY FAN SPEED	%		1				X	X			SCT-01	1
OUTSIDE AIR DAMPER	% OPEN		1				X	X			FCV-01	
RETURN AIR DAMPER	% OPEN		1				X	X			FCV-02	
COOLING VALVE	% OPEN		1				X	X			TCV-01	
PREHEAT VALVE	% OPEN		1				X	X			TCV-02	
SMOKE DETECTOR	NORMAL / ALARM										XS-01	1
HIGH PRESSURE SWITCH	NORMAL / ALARM										PDS-01	1
LOW TEMPERATURE FREEZESTAT	NORMAL / ALARM										TS-01	1
FLOAT SWITCH	NORMAL / ALARM										LS-01	1
MIXED AIR TEMPERATURE	DEG F	1									TTE-01	
COOLING COIL LEAVING AIR TEMPERATURE	DEG F	1									TTE-02	
SUPPLY AIR TEMPERATURE	DEG F	1									TTE-03	
RETURN AIR TEMPERATURE	DEG F	1									TTE-04	
RETURN AIR HUMIDITY	%	1									MTE-01	
SUPPLY AIR STATIC PRESSURE	INCH WG	1									PDTE-01	
OUTSIDE AIRFLOW	CFM	1									FTE-01	
POINTS (SUB-TOTAL)	#	7	5	1	1							
POINTS (TOTAL WITH SPARE)	#	8	6	2	2							

NOTES:
1 SEE MOTOR CONTROLLER DETAILS (VFD, MOTOR STARTER, OR MOTOR CONTACTOR)

VAV ROOFTOP UNITS (RTU-13 -14)

1. GENERAL
   A. THE AIR HANDLING UNIT SHALL BE CONTROLLED BY A SEPARATE, STAND-ALONE, BACNET NETWORK CONTROLLER (NC) OR PROGRAMMABLE APPLICATION CONTROLLER (PAC). SEQUENCE OF OPERATION SHALL NOT RELY ON A COMMUNICATION INTERFACE WITH A REMOTE PANEL; ALL CONTROL LOGIC SHALL RESIDE IN CONTROL PANEL SERVING EQUIPMENT.
   B. THE UNIT CONTROLLER SHALL RESIDE ON THE PRIMARY IP LEVEL NETWORK WITH OTHER PACS AND NCS AS DEFINED IN ARTICLE "SYSTEM ARCHITECTURE" OF SPECIFICATION SECTION 250910.
   C. ALL SET-POINTS, TIME DELAYS, DEAD-BANDS, RESET LIMITS, SELECTABLE POINTS, AND OBJECTS SHALL BE AVAILABLE TO THE USER VIA DYNAMIC GRAPHICS OR TEXT-BASED INTERFACE WITHOUT REQUIRING THE USER TO EDIT THE APPLICATION PROGRAM.

2. RUN CONDITIONS
   A. RETURN AIR HUMIDITY SET-POINTS:
      1. PROVIDE AN OCCUPIED RETURN AIR HUMIDITY SET-POINT (55%, ADJ). PROVIDE AN UNOCCUPIED RETURN AIR HUMIDITY SET-POINT (60%, ADJ).
   B. OCCUPIED MODE: ENABLE THE UNIT BASED ON AN OCCUPIED TIME SCHEDULE, COORDINATE SCHEDULE WITH OWNER, (ADJ).
   C. UNOCCUPIED MODE: THE UNIT IS OFF EXCEPT AS FOLLOWS:
      1. TEMPERATURE CONTROL: DURING UNOCCUPIED HOURS, IF UNOCCUPIED COOLING OR HEATING MODE IS INITIATED FROM ANY TERMINAL UNIT, THEN ENABLE THE SUPPLY FAN AND TEMPERATURE CONTROL UNTIL THE SPACE TEMPERATURE IS BELOW SET-POINT MINUS A DEAD-BAND (3°F, ADJ) FOR COOLING MODE AND ABOVE SET-POINT PLUS A DEAD-BAND (3°F, ADJ) FOR HEATING MODE.
      2. TENANT OVERRIDE: DURING UNOCCUPIED HOURS, IF THE OVERRIDE BUTTON IS ACTIVATED AT ANY TERMINAL UNIT, THEN INITIATE AN OCCUPIED MODE OF OPERATION FOR A MINIMUM TIME DELAY (2 HOURS, ADJ).
      3. OPTIMAL START MODE: BASED ON SPACE AND OUTSIDE AIR TEMPERATURES, THE BAS SHALL CALCULATE THE TIME PRIOR TO THE SCHEDULED START OF OCCUPIED MODE REQUIRED TO BRING THE SPACE TEMPERATURE TO SET-POINT AND SHALL ENABLE THE SYSTEM AT SUCH TIME, UP TO AN ALLOWABLE TIME SET-POINT (2 HOURS, ADJ) BEFORE THE SCHEDULED START.
      4. ASSOCIATED EQUIPMENT: IF SYSTEM IS INITIATED DURING UNOCCUPIED HOURS, THEN ALL OTHER EQUIPMENT (PUMPS, BOILERS, CHILLERS, ETC.) THAT IS REQUIRED FOR OCCUPIED OPERATION SHALL BE PLACED INTO A MODE OF OCCUPIED OPERATION AS DEFINED IN THEIR RESPECTIVE SEQUENCES OF OPERATION.

3. SUPPLY FANS
   A. START / STOP: START / STOP OF THE SUPPLY FANS SHALL BE CONTROLLED THROUGH THE H-O-A SWITCH ON THE VARIABLE FREQUENCY DRIVE (VFD)]. ENABLE THE SUPPLY FANS BASED ON AN OCCUPIED TIME SCHEDULE, INTERLOCKS, OR UNOCCUPIED OVERRIDES.
   B. STATUS: SUPPLY FAN OPERATION SHALL BE PROVED THROUGH A CURRENT SWITCH FOR EACH FAN IN THE ARRAY. UPON FAILURE, THE BAS SHALL ANNUNCIATE ONE OF THE FOLLOWING ALARMS:
      1. FAN FAILURE: IF THE FAN IS COMMANDED ON, BUT THE STATUS IS OFF.
   C. SPEED: PROGRAM A MINIMUM SPEED (30%) AND A RAMP TIME (60 SEC) INTO THE VFD. COORDINATE MINIMUM SPEED SET-POINT IN VFD WITH THE TAB CONTRACTOR TO ENSURE OUTSIDE AIRFLOW RATE IS MAINTAINED DURING ALL MODES.
      1. SUPPLY AIR STATIC PRESSURE CONTROL: MODULATE SUPPLY FAN SPEED TO MAINTAIN A DUCT STATIC PRESSURE SET-POINT, MEASURED APPROXIMATELY 2/3 DOWN THE LONGEST DUCT RUN OR AS INDICATED ON THE DRAWINGS. THE STATIC PRESSURE SENSOR[**S**] SHALL BE WIRED DIRECTLY BACK TO THE AIR HANDLING UNIT CONTROLLER. WHERE MULTIPLE SENSORS ARE INDICATED, PROVIDE A SEPARATE SET-POINT AT EACH LOCATION AND CONTROL TO THE MINIMUM READING.
         a. STATIC PRESSURE SET-POINT RESET: CONTINUOUSLY POLL ALL OF THE AIR TERMINAL UNITS SERVED BY THE SYSTEM. CALCULATE A SLIDING WINDOW AVERAGE (2 MIN) OF THE MAXIMUM 3 DAMPER POSITIONS. RESET THE DIFFERENTIAL PRESSURE SET-POINT BETWEEN MINIMUM (0.5 INCH WG, ADJ) AND MAXIMUM (1.5 INCH WG, ADJ) LIMITS AS THE AVERAGE OF THE MAXIMUM 3 DAMPER POSITIONS VARIES BETWEEN MINIMUM (85%, ADJ) AND MAXIMUM (95%) OPEN, RESPECTIVELY. COORDINATE THE MINIMUM AND MAXIMUM STATIC PRESSURE LIMITS WITH THE TAB CONTRACTOR.
         b. COMMUNICATION FAILURE: IF COMMUNICATION BETWEEN THE AHU AND THE TERMINAL UNITS IS FAILED, THEN REVERT TO A DEFAULT VALUE (1.0 INCH WG, ADJ).

4. OUTSIDE AIR DAMPER
   A. OCCUPIED MODE: PROVIDE OUTSIDE AIRFLOW SET-POINT (SEE AHU SCHEDULE). MODULATE THE OUTSIDE AIR DAMPER TO MAINTAIN AN OUTSIDE AIRFLOW SET-POINT.
   B. UNOCCUPIED MODE: CLOSE DAMPER.
   C. SUPPLY FANS OFF: CLOSE DAMPER.

5. RETURN AIR DAMPER
   A. OCCUPIED MODE:
      1. OUTSIDE AIR DAMPER < 100% OPEN: RETURN AIR DAMPER 100% OPEN.
      2. OUTSIDE AIR DAMPER 100% OPEN: MODULATE THE RETURN AIR DAMPER FROM 100% TO 30% (ADJ) TO MAINTAIN THE OUTSIDE AIRFLOW SET-POINT.
   B. UNOCCUPIED MODE: OPEN DAMPER.
   C. SUPPLY FANS OFF: OPEN DAMPER.

6. PREHEAT VALVE
   A. SUPPLY FAN ON: MODULATE THE PREHEAT VALVE TO MAINTAIN THE PREHEAT COIL LEAVING AIR TEMPERATURE SET-POINT. SET THE PREHEAT COIL TEMPERATURE SET-POINT TO THE COOLING COIL LEAVING AIR TEMPERATURE SET-POINT MINUS A DEAD-BAND (5°F, ADJ).
   B. SUPPLY FAN OFF: CLOSE VALVE.

7. COOLING VALVE
   A. SUPPLY FAN ON:
      1. SUPPLY TEMPERATURE CONTROL: MODULATE THE COOLING VALVE TO MAINTAIN A SUPPLY AIR TEMPERATURE SET-POINT.
         a. SUPPLY AIR TEMPERATURE SET-POINT RESET: SET THE SUPPLY AIR TEMPERATURE SET-POINT TO THE MOST DEMANDING OUTPUT OF THE FOLLOWING RESET SCHEMES:
            1) CONTINUOUSLY POLL ALL OF THE TERMINAL UNITS SERVED BY THE AIR HANDLING UNIT AND CALCULATE A SLIDING WINDOW AVERAGE (2 MIN, ADJ) OF THE DEVIATIONS FROM SET-POINT (DEVIATION = SPACE TEMPERATURE – SPACE TEMPERATURE COOLING SET-POINT). RESET THE SUPPLY AIR TEMPERATURE BETWEEN MAXIMUM (60°F, ADJ) AND MINIMUM (52°F, ADJ) LIMITS AS THE AVERAGE DEVIATION VARIES FROM MINIMUM (-3°F, ADJ) TO MAXIMUM (+1°F, ADJ).

2) RESET THE SUPPLY AIR TEMPERATURE SET-POINT BETWEEN MAXIMUM (60°F, ADJ) AND MINIMUM (52°F, ADJ) LIMITS AS THE RETURN AIR HUMIDITY VARIES BETWEEN THE FOLLOWING MINIMUM AND MAXIMUM LIMITS:
   a) RETURN AIR HUMIDITY SET-POINT = 55% (ADJ)
   b) MAXIMUM LIMIT = RAH SET-POINT + 5% (ADJ)
   c) MINIMUM LIMIT = RAH SET-POINT – 5% (ADJ)
   B. SUPPLY FAN OFF: CLOSE VALVE.

8. SAFETIES
   A. SMOKE DETECTOR(S): SMOKE DETECTOR(S) ARE PROVIDED BY OTHERS BUT SHALL BE WIRED TO AN AUXILIARY CONTACT ON THE VFD TO OVERRIDE ALL CONTROLS AND SHUT DOWN THE AIR HANDLER UNIT UPON DETECTION OF SMOKE.
   B. HIGH PRESSURE SWITCH: PROVIDE A HIGH PRESSURE SWITCH AT THE SUPPLY FAN DISCHARGE, WIRED TO AN AUXILIARY CONTACT ON THE VFD TO OVERRIDE ALL CONTROLS AND SHUT DOWN THE AIR HANDLING UNIT IF THE STATIC PRESSURE EXCEEDS 3.0 INCH W.G.
   C. LOW TEMPERATURE FREEZESTAT: PROVIDE A LOW TEMPERATURE FREEZESTAT DIRECTLY UPSTREAM OF THE CHILLED WATER COIL WIRED TO AN AUXILIARY CONTACT ON THE VFD TO OVERRIDE ALL CONTROLS AND SHUT DOWN THE AIR HANDLING UNIT IF THE CHILLED WATER COIL ENTERING AIR TEMPERATURE IS LESS THAN 32°F.
   D. FLOAT SWITCH: PROVIDE A FLOAT SWITCH IN THE AUXILIARY DRAIN PAN WIRED TO AN AUXILIARY CONTACT ON THE VFD TO OVERRIDE ALL CONTROLS AND SHUT DOWN THE AIR HANDLING UNIT UPON DETECTION OF A HIGH WATER LEVEL IN THE DRAIN PAN.

9. REQUIRED REPORTS
   A. AIR HANDLING UNIT FAILURE:
      1. FREQUENCY: UPON FAILURE OF SUPPLY FAN
      2. DATA: INSTANTANEOUS VALUE OF ALL POINTS ON AIR HANDLING UNIT.

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL
CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

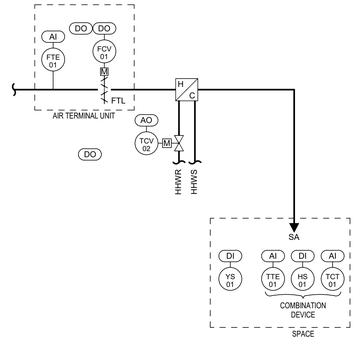
PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

#	Description	Date

SHEET TITLE
CONTROLS - VAV AIR HANDLING UNITS

DRAWING NO.
IC2.2



SINGLE DUCT SUPPLY AIR TERMINAL WITH HEAT (SAT-#.#)

1. GENERAL
   - A. THE TERMINAL UNIT SHALL BE CONTROLLED BY A STAND-ALONE [BACNET] APPLICATION SPECIFIC CONTROLLER (ASC). THE ASC SHALL MONITOR AND CONTROL THE UNIT IN A STAND-ALONE MODE OR AS DIRECTED BY THE BAS.
   - B. THE ASC SHALL RESIDE ON A SUB-NETWORK OF THE PROGRAMMABLE APPLICATION CONTROLLERS AS DEFINED IN ARTICLE "SYSTEM ARCHITECTURE" OF SPECIFICATION SECTION 250910.
   - C. ALL SET-POINTS, TIME DELAYS, DEAD-BANDS, RESET LIMITS, SELECTABLE POINTS, AND OBJECTS SHALL BE AVAILABLE TO THE USER VIA DYNAMIC GRAPHICS OR TEXT-BASED INTERFACE WITHOUT REQUIRING THE USER TO EDIT THE APPLICATION PROGRAM.
2. RUN CONDITIONS
   - A. SPACE TEMPERATURE SET-POINTS: PROVIDE OCCUPIED SPACE TEMPERATURE COOLING (74°F, ADJ) AND HEATING (70°F, ADJ) SET-POINTS. PROVIDE UNOCCUPIED SPACE TEMPERATURE COOLING (80°F, ADJ) AND HEATING (65°F, ADJ) SET-POINTS. PROVIDE A MINIMUM DEAD-BAND BETWEEN COOLING AND HEATING SET-POINTS OF 3°F; IF USER SETS ONE SET-POINT WITHIN DEAD-BAND, AUTOMATICALLY ADJUST OTHER SET-POINT UP/DOWN TO MAINTAIN DEAD-BAND.
   - B. OCCUPIED MODE: ENABLE THE TERMINAL UNIT BASED ON AN OCCUPIED TIME SCHEDULE. ENABLE COOLING AND HEATING MODES OF OPERATION TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SET-POINTS.
   - C. UNOCCUPIED MODE:
     1. TEMPERATURE CONTROL: DURING UNOCCUPIED HOURS RESET THE COOLING AND HEATING SPACE TEMPERATURE SET-POINTS EQUAL TO THE RESPECTIVE UNOCCUPIED TEMPERATURE SET-POINTS, AND RESET THE MINIMUM AIRFLOW SET-POINTS TO THE RESPECTIVE UNOCCUPIED AIRFLOW SET-POINTS. ENABLE COOLING AND HEATING MODES OF OPERATION TO MAINTAIN THE UNOCCUPIED TEMPERATURE SET-POINT[**S**]. SEND SIGNAL TO RESPECTIVE AIR HANDLER TO INITIATE UNOCCUPIED MODE OF OPERATION.
     2. TENANT OVERRIDE: IF THE OVERRIDE BUTTON IS ACTIVATED AT THE SPACE SENSOR, THEN INITIATE AN OCCUPIED MODE OF OPERATION FOR A MINIMUM TIME DELAY (2 HOURS, ADJ). SEND SIGNAL TO ASSOCIATED AIR HANDLER TO INITIATE AN OCCUPIED MODE OF OPERATION UNTIL TENANT OVERRIDE EXPIRES.
   - D. COOLING MODE: IF THE SPACE TEMPERATURE RISES ABOVE COOLING SET-POINT MINUS A DEAD-BAND (1°F, ADJ) FOR A TIME DELAY (2 MIN, ADJ), THEN INITIATE COOLING MODE. IF THE SPACE TEMPERATURE FALLS BELOW HEATING SET-POINT PLUS A DEAD-BAND (1°F, ADJ) FOR A TIME DELAY (2 MIN, ADJ), THEN DISABLE COOLING MODE.
   - E. HEATING MODE: IF THE SPACE TEMPERATURE FALLS BELOW HEATING SET-POINT PLUS A DEAD-BAND (1°F, ADJ) FOR A TIME DELAY (2 MIN, ADJ), THEN INITIATE HEATING MODE. IF THE SPACE TEMPERATURE RISES ABOVE COOLING SET-POINT MINUS A DEAD-BAND (1°F, ADJ) FOR A TIME DELAY (2 MIN, ADJ), THEN DISABLE HEATING MODE.
3. INLET DAMPER
   - A. AIRFLOW SET-POINTS: PROVIDE COOLING AIRFLOW SET-POINTS (MAXIMUM, UNOCCUPIED MINIMUM, AND OCCUPIED MINIMUM). PROVIDE HEATING AIRFLOW SET-POINTS (MAXIMUM AND MINIMUM). (INITIAL VALUES: SEE EQUIPMENT SCHEDULE).
   - B. COOLING MODE: MODULATE THE INLET DAMPER BETWEEN MINIMUM AND MAXIMUM COOLING AIRFLOW SET-POINTS TO MAINTAIN THE SPACE TEMPERATURE COOLING SET-POINT..
   - C. HEATING MODE: MODULATE THE INLET DAMPER IN BETWEEN MINIMUM AND MAXIMUM HEATING AIRFLOW SET-POINTS TO MAINTAIN THE SPACE TEMPERATURE HEATING SET-POINT..
4. HEATING VALVE
   - A. COOLING MODE: CLOSE VALVE.
   - B. HEATING MODE: MODULATE VALVE TO MAINTAIN SPACE TEMPERATURE HEATING SET-POINT.
5. REQUIRED REPORTS
   - A. SPACE TEMPERATURE
   - 1. FREQUENCY: WEEKLY
   - 2. DATA: LOW, HIGH, AND AVERAGE SPACE TEMPERATURE PER DAY

SHUTOFF TYPE AIR TERMINAL UNIT (SAT)		POINT TYPE					CONTROL TYPE			EQUIP. DESIG.	SCHEM. DESIG.	NOTES
		ANALOG		DIGITAL		INTEG. POINT						
POINT DESCRIPTION	UNITS	IN	OUT	IN	OUT		P	I	D			
INLET DAMPER	% OPEN				2						FCV-01	1
ELECTRIC HEAT (SCR)	%				2						TCV-01, 02	
SPACE HUMIDITY	%	1									MTE-01	
SPACE TEMPERATURE	DEG F	1									TTE-01	
SPACE TEMPERATURE SET-POINT ADJUST	DEG F	1									TCT-01	
TENANT OVERRIDE	ON/OFF			1							HS-01	
SUPPLY AIR TEMPERATURE	DEG F	1									TTE-02	
SUPPLY AIRFLOW	CFM	1									FTE-01	
OCCUPANCY SENSOR STATUS	ON/OFF			1							YS-01	
POINTS (SUB-TOTAL)	#	5	0	2	4							
POINTS (TOTAL WITH SPARE)	#	6	0	3	5							

NOTES:
1 FLOATING CONTROL

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

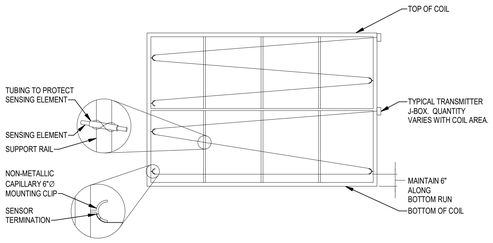
#	Description	Date

SHEET TITLE

CONTROLS - SUPPLPY AIR TERMINAL UNITS

DRAWING NO.

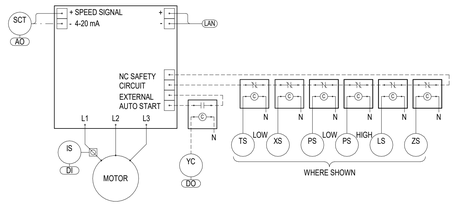
IC2.3



NOTES:

1. PROVIDE 5 LINEAR FT. OF SENSING ELEMENT FOR EVERY 10 SQ. FT. OF COIL CROSS-SECTIONAL AREA.
2. PROVIDE MINIMUM 20 FT. LONG ELEMENT FOR LOWM TEMPERATURE THERMOSTATS (FREEZE STAT).

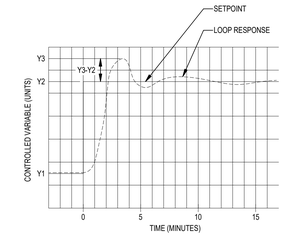
G AVERAGING TEMPERATURE SENSOR DETAIL



NOTES:

1. FIELD VERIFY ALL WIRING TERMINATIONS.
2. FIELD VERIFY ALL CONNECTIONS.
3. VARIABLE FREQUENCY DRIVE FURNISHED BY DIVISION 26.
4. ELECTRICAL POWER CONNECTIONS TO VFD AND MOTOR PROVIDED BY DIVISION 26.
5. CONTROL COMPONENTS AND ASSOCIATED WIRING PROVIDED BY DIVISION 25.

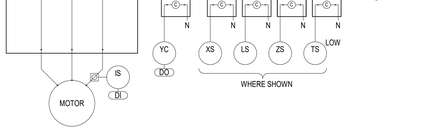
D VARIABLE FREQUENCY DRIVE - WIRING DETAIL



CONTROL LOOP TUNING NOTES:

1. TEST EACH CONTROL LOOP TO VERIFY STABLE MODE OF OPERATION AND COMPLIANCE WITH SEQUENCE OF OPERATION.
2. ADJUST PROPORTIONAL-INTEGRAL-DERIVATIVE (PID) ACTIONS USING EITHER ZIEGLER-NICHOLS METHODS (EITHER ULTIMATE OSCILLATION OR FIRST-ORDER-PLUS-DEAD-TIME) OR TRIAL AND ERROR.
3. EACH PROPORTIONAL, INTEGRAL, AND DERIVATIVE GAIN SHALL UTILIZE A LINEAR RESET BASED ON ERROR FROM SETPOINT. CONTRACTOR SHALL DETERMINE MAXIMUM AND MINIMUM RANGE FOR EACH GAIN TO ACHIEVE SPECIFIED PERFORMANCE. MODEL-FREE ADAPTIVE CONTROL LOOPS AND SELF-LEARNING CONTROL LOOPS SHALL NOT BE USED.
4. BEGIN WITH MEASURED VALUE AT SETPOINT (Y1). ADJUST SETPOINT OR MANUAL OUTPUT OF CONTROLLER TO CREATE A STEP CHANGE (Y2-Y1). PI CONTROL LOOPS SHALL EXCEED NO MORE THAN A 25% MAXIMUM OVERSHOOT IN A STEP RESPONSE. $|(Y3-Y2)/(Y2-Y1)| \leq 0.25$
5. INITIAL RESPONSE, INCLUDING OVERSHOOT AND DAMPENING SHALL OCCUR WITHIN APPROXIMATELY 5 MINUTES FROM STEP CHANGE. MEASURED VALUE SHALL ACHIEVE SETPOINT WITHIN APPROXIMATELY 15 MINUTES FROM STEP CHANGE.
6. SUPPLY GRAPHICAL TREND DATA OUTPUT TO ENGINEER SHOWING EACH DDC LOOP'S RESPONSE TO A SET POINT CHANGE REPRESENTING AN END DEVICE CHANGE OF AT LEAST 25% OF FULL RANGE. TREND SAMPLING RATE SHALL BE FROM 10 SECONDS TO 1 MINUTE, DEPENDING ON LOOP SPEED. EACH SAMPLE'S TREND DATA SHALL SHOW SETPOINT, END DEVICE RESPONSE, AND CONTROLLED VARIABLE VALUES.

A CONTROL LOOP TUNING DETAIL



NOTES:

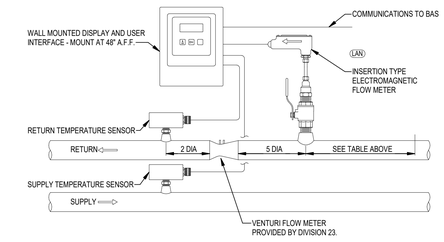
1. FIELD VERIFY ALL WIRING TERMINATIONS.
2. FIELD VERIFY ALL CONNECTIONS.
3. ELECTRICAL POWER CONNECTIONS TO MOTOR BY DIVISION 26.
4. MOTOR RATED CONTACTOR, AND CONTROL COMPONENTS, AND ASSOCIATED WIRING BY DIVISION 25.

E MOTOR RATED CONTACTOR - WIRING DETAIL

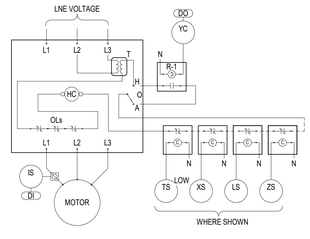
NOTES:

1. SEE MECHANICAL PLANS FOR VENTURI FLOW METER LOCATION TO BE USED TO CALIBRATE ELECTRONIC FLOW METER.
2. GROUND COMPONENTS PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH DIVISION 26.

MINIMUM UPSTREAM STRAIGHT RUN REQUIRED	
OBSTRUCTION	UPSTREAM
SINGLE BEND PRECEDED BY GREATER THAN (>) 9 DIAMETERS OF STRAIGHT PIPE RUN	10 DIA
PIPE SIZE REDUCTION / EXPANSION IN STRAIGHT RUN	10 DIA
SINGLE BEND PRECEDED BY LESS THAN (<) 9 DIAMETERS OF STRAIGHT PIPE RUN	15 DIA
OUTFLOWING TEE / PUMP OUTFLOW	20 DIA
MULTIPLE BENDS OUT OF PLANE	30 DIA
INFLOWING TEE	30 DIA
CONTROL / MODULATING VALVE	30 DIA



B THERMAL ENERGY METER DETAIL



NOTES:

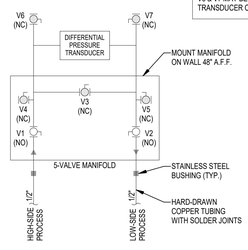
1. FIELD VERIFY ALL WIRING TERMINATIONS.
2. FIELD VERIFY ALL CONNECTIONS.
3. MOTOR STARTER AND ELECTRICAL POWER CONNECTIONS TO MOTOR STARTER AND MOTOR PROVIDED BY DIVISION 26.
4. CONTROL COMPONENTS AND ASSOCIATED WIRING PROVIDED BY DIVISION 25.

F STARTER - WIRING DETAIL

VALVES:

- V1: HIGH-SIDE PROCESS ISOLATION
- V2: LOW-SIDE PROCESS ISOLATION
- V3: PRESSURE EQUALIZATION
- V4: HIGH-SIDE ISOLATION FOR EXTERNAL GAUGE
- V5: LOW-SIDE ISOLATION FOR EXTERNAL GAUGE
- V6: HIGH-SIDE BLEED VALVE
- V7: LOW-SIDE BLEED VALVE

NOTE:
V6 & V7 MAY BE OMITTED IF DIFFERENTIAL PRESSURE TRANSDUCER CONTAINS INTEGRAL BLEED DEVICES.



C DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD DETAIL

ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JLT	MTS
CONSTRUCTION DRAWINGS	03/20/26	JLT	MTS

REVISIONS

#	Description	Date

SHEET TITLE

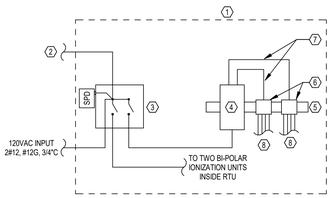
DETAILS

DRAWING NO.

IC5.1

KEYNOTES

1. ROOF TOP UNIT CONTROL ENCLOSURE. ALL EQUIPMENT SHALL BE MOUNTED WITHIN ENCLOSURE UNLESS NOTED OTHERWISE.
2. EXTEND 2#12, #12G, 3/4"C UNSWITCHED 120VAC OUTPUT FROM JUNCTION BOX TO WEATHERPROOF GFI PROVIDED WITH ROOF TOP UNIT.
3. 20A TOGGLE SWITCH DISCONNECTS FOR SUPPLY AIR TERMINAL POWER SUPPLY AND BI-POLAR IONIZATION UNITS. EXTEND 2# 12, 1#12G WITH PLENUM RATED PVC INSULATION IN OVERALL PLENUM RATED PVC JACKET (BEST WIRE 4170PL OR EQUAL) TO POWER SUPPLY FROM SECONDARY SIDE OF DISCONNECT AND TO EACH BI-POLAR IONIZATION UNIT.
4. 240W, 120VAC/24VDC DIN RAIL MOUNTED POWER SUPPLY WITH ACTIVE POWER FACTOR CORRECTION FUNCTION. MEAN WELL SDR-240-24 OR APPROVED EQUAL.
5. 12" LONG, 35MM DIN RAIL.
6. DIN RAIL MOUNTED POWER DISTRIBUTION TERMINAL BLOCKS. 2-IN / 8-OUT. PROVIDE WITH SCREW OR LEVER CLOSING MECHANISM.
7. PROVIDE 2#14 AWG WITH PLENUM RATED PVC INSULATION WITH OVERALL PLENUM RATED PVC JACKET (BEST WIRE 4060PL OR EQUAL) FROM POWER SUPPLY OUTPUT TO POSITIVE AND NEGATIVE INPUTS ON THE LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK.
8. PROVIDE 2#14 AWG WITH PLENUM RATED PVC INSULATION WITH OVERALL PLENUM RATED PVC JACKET (BEST WIRE 4060PL OR EQUAL) FROM LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK TO EACH SUPPLY AIR TERMINAL (SAT) FED FROM ASSOCIATED ROOF TOP UNIT. EACH SAT SHALL HAVE A DEDICATED CIRCUIT FROM THE TERMINAL BLOCK. BUNDLE AND TRAIN CONTROL WIRING AND RUN IN BUNDLES PARALLEL OR PERPENDICULAR TO BUILDING LINES SUPPORTED IN J-HOOKS SPACED A MAXIMUM OF 4'-0" ON CENTER. PROVIDE PLENUM RATED VELCRO STRAPS TO BUNDLE CABLES TOGETHER AT MAXIMUM 24" CENTERS AND TO J-HOOK SUPPORTS.



A ROOFTOP UNIT CONTROL ENCLOSURE AND 24VDC CONTROL WIRING TO TERMINAL UNITS

MECHANICAL EQUIPMENT SCHEDULE

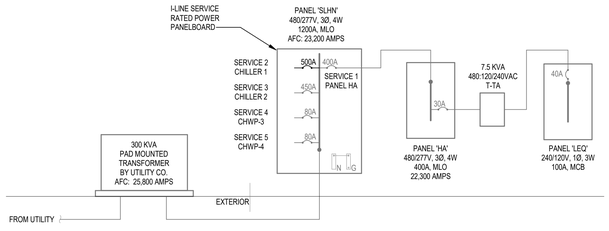
DESIGNATION	LOCATION	ELECTRICAL VOLTAGE	HP	FLA	MCA	BRANCH CIRCUIT OCPD	BRANCH CIRCUIT PANEL	DISCONNECT / STARTER: STARTER SIZE	STARTER TYPE	COIL VOLTAGE	SOLID STATE OVERLOAD	NON-FUSED DISCONNECT	RED RUN LIGHT	DISCONNECT	AMP RATING	POLES	OCPD	OCPD RATING	NEMA ENCLOSURE	BY OTHERS	NOTES
CH-1	CHILLER PLANT	480V / 3PH		262	328	500	SLHN													X	INTERGRAL W/ UNIT
CHMP-1	CHILLER PLANT	480V / 3PH	7 1/2	11	14	30	HA	1	FVNR	24	X	X	X	X	30	3	NONE		TYPE 1		COMBINATION STARTER / DISCONNECT
CHMP-2	CHILLER PLANT	480V / 3PH	7 1/2	11	14	30	HA	1	FVNR	24	X	X	X	X	30	3	NONE		TYPE 1		COMBINATION STARTER / DISCONNECT
CWP-1	MECH YARD	480V / 3PH	15	21	26	50	HA		SSRV	24	X	X	X	X	37	3	NONE		TYPE 1		COMBINATION STARTER / DISCONNECT
CWP-2	MECH YARD	480V / 3PH	15	21	26	50	HA		SSRV	24	X	X	X	X	37	3	NONE		TYPE 1		COMBINATION STARTER / DISCONNECT
RTU-13	ROOF	480V / 3PH	2 - 5	16	19	30	LHD							X	30	3	NONE		TYPE 4X		DISCONNECT BY DIV 26 WIRED TO UNIT MOUNTED VFD PROVIDED BY DIV 23.
RTU-14	ROOF	480V / 3PH	2 - 5	16	19	30	LHD							X	30	3	NONE		TYPE 4X		DISCONNECT BY DIV 26 WIRED TO UNIT MOUNTED VFD PROVIDED BY DIV 23.

NOTES:
1 REFER TO FLOOR PLANS FOR EQUIPMENT LOCATIONS.

FIRESTOP SCHEDULE OF THROUGH PENETRATION SYSTEMS. BASIS OF DESIGN: HILTI, INC.

TYPE OF PENETRANT	F-RATING (HR)	CONCRETE FLOORS	CONCRETE OR BLOCK WALLS	GYPSUM WALLS	HILTI PRODUCTS
		BASIS OF DESIGN UL SYSTEM			
CIRCULAR BLANK OPENINGS (0000-0999)	1	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	CP 680, CP 618, FS-ONE MAX, CFS- BL
	2	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	
METAL PIPES OR CONDUIT (1000-1999)	1	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020	W-L-1054, W-L-1058, W-L-1164, W-L-1506	CP 680, FS-ONE MAX, CP 606, CFS-S SIL GG, CFS-D, MINERAL WOOL
	2	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020, W-J-1248	W-L-1054, W-L-1058, W-L-1164, W-L-1506	
NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, ENT) (2000-2999)	1	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	CP 680, CP 643N, MINERAL WOOL, CP 644, FS-ONE MAX, CFS-S SIL SL, CFS-S SIL GG, CP 648
	2	F-A 2053, F-A 2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2371, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	
SINGLE OR BUNDLED CABLES (3000-3999)	1	F-A-3007, C-AJ-3095, C-AJ-3180, C-AJ-3283	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	CP 680, CP 653, FS-ONE MAX, CP 618, CP 606, CFS-D, CFS-CC
	2	F-A-3007, C-AJ-3095, C-AJ-3334, F-A-3060	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167, W-J-3189	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	
CABLE TRAY (4000-4999)	1	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	CFS-BL, FS-ONE MAX, CP 620, CP 618
	2	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	
ELECTRICAL BUSWAY (6000-6999)	1	C-AJ-6006, C-AJ-6017, F-A-6002, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	CP 637, FS-ONE MAX, CP 620, CFS-BL, MINERAL WOOL, CFS-S SIL GG, CFS-S SIL SL
	2	C-AJ-6006, C-AJ-6017, F-A 6042, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	

NOTES:
1. JOBSITE CONDITIONS OF EACH THROUGH-PENETRATION FIRESTOP SYSTEM MUST MEET ALL DETAILS OF THE UL-CLASSIFIED SYSTEM SELECTED.
2. IF JOBSITE CONDITIONS DO NOT MATCH ANY UL-CLASSIFIED SYSTEMS IN THE SCHEDULES ABOVE, CONTACT FIRESTOP MANUFACTURER FOR ALTERNATIVE SYSTEMS OR ENGINEER JUDGMENT DRAWINGS.
3. WHERE MORE THAN ONE APPLICABLE UL-CLASSIFIED SYSTEM IS LISTED IN THE SCHEDULES, CHOOSE THE UL SYSTEM WHICH IS MOST ECONOMICAL FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM.
4. COORDINATE WORK WITH OTHER TRADES TO ENSURE THAT PENETRATION OPENING SIZES ARE APPROPRIATE FOR PENETRANT LOCATIONS, AND VICE-VERSA.
5. ALL THROUGH-PENETRATION FIRESTOPS SHALL BE PROVIDED BY ONE MANUFACTURER. APPROVED MANUFACTURERS: HILTI, RECTORSEAL, 3M, STI.



NOTES
1. EXISTING EQUIPMENT IS SHOWN HALFTONED. ALL NEW EQUIPMENT IS SHOWN BOLD.

1 EXISTING POWER RISER DIAGRAM
SCALE: NONE

DEMOLITION

	ELECTRICAL DEVICES TO BE REMOVED

POWER

	DUPLEX RECEPTACLE - 120 VOLT, 20 AMP, 2 POLE, 3-WIRE GROUNDING TYPE, MOUNT 18" AFF WITH GROUND PRONG UP UNLESS NOTED OTHERWISE.
	DUPLEX RECEPTACLE - GFCI - 120 VOLT, 20 AMP, 2 POLE, 3-WIRE GROUNDING TYPE, MOUNT 18" AFF WITH GROUND PRONG UP UNLESS NOTED OTHERWISE.
SPD	SPD DUPLEX RECEPTACLE - 120 VOLT, 20 AMP, 2 POLE, 3-WIRE GROUNDING TYPE, MOUNT 18" AFF WITH GROUND PRONG UP UNLESS NOTED OTHERWISE. COLOR: BLUE
S	30A TOGGLE DISCONNECT SWITCH. PROVIDE 1, 2 OR 3 POLE AS NECESSARY TO MATCH CONTROLLED CIRCUIT.
	WIRE IN CONDUIT - CONCEALED IN FLOOR OR UNDERGROUND.
	HOMERUN TO PANEL - ARROW INDICATE NUMBER OF CIRCUITS. SHORT SLASH MARK(S) INDICATE NUMBER OF PHASE CONDUCTORS. LONG SLASH MARK(S) INDICATE NEUTRAL CONDUCTOR(S). LONG SLASH MARK WITH HOOK INDICATES GREEN GROUND WIRE; WHERE NOT SHOWN GROUND WIRE IS STILL REQUIRED IN EACH FEEDER, LIGHTING, RECEPTACLE, AND POWER BRANCH CIRCUIT. NO SLASH MARKS INDICATE 2 CURRENT CARRYING CONDUCTORS AND GROUND WIRE. THERE SHALL BE NO SHARED NEUTRALS BETWEEN MULTIPLE CIRCUITS.
	ELECTRICAL PANEL - 120/208 VOLT
	ELECTRICAL PANEL - 277/480 VOLT
	DISCONNECT SWITCH - SEE DRAWING OR MECHANICAL EQUIPMENT SCHEDULE FOR SIZE
	COMBINATION DISCONNECT SWITCH & MAGNETIC MOTOR STARTER - WHEN SERVING MOTOR 15HP OR LARGER, REDUCED VOLTAGE STARTER IS REQUIRED. (SEPARATE ITEMS ACCEPTABLE IN PLACE OF COMBINATION) - SEE DRAWING FOR SIZE *
	ADJUSTABLE FREQUENCY DRIVE (AFD) - FURNISHED BY DIVISION 23, INSTALLED & WIRED BY DIVISION 26.
REL	RELOCATE EXISTING DEVICE TO POSITION SHOWN
PGB	POWER GROUNDING BAR

* EQUIPMENT SIZES WILL BE INDICATED AS FOLLOWS:

ELECTRICAL GENERAL NOTES

1. WIRING SHALL BE COPPER, TYPE THHN/THWN-2 IN RACEWAY UNLESS NOTED OTHERWISE. RIGID ELECTRICAL NON-METALLIC SCHEDULE 40 PVC SHALL BE USED IN SLABS AND BELOW GRADE ; RIGID STEEL CONDUIT (RSC) SHALL BE USED WHERE EXPOSED TO PHYSICAL DAMAGE; ELECTRICAL METALLIC TUBING (EMT) MAY BE USED ELSEWHERE WHERE APPROVED BY N.E.C. AND LOCAL CODES. FLEXIBLE METAL CONDUIT (FMC) SHALL BE STEEL AND SHALL BE USED TO CONNECT MOVEABLE EQUIPMENT AND/OR SUBJECT TO VIBRATION; LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) SHALL BE USED OUTDOORS OR WHERE SUBJECT TO MOISTURE.
2. CONDUIT SHALL BE STRAPPED IN ACCORDANCE WITH REQUIREMENTS OF N.E.C.
3. CONTRACTOR SHALL BOND AND GROUND SYSTEMS AND EQUIPMENT PER ARTICLE 250 OF N.E.C. PROVIDE A GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH ARTICLE 250-122 N.E.C. ON ALL RECEPTACLES AND POWER BRANCH CIRCUITS.
4. THE CONTRACTOR SHALL COORDINATE THE CIRCUIT REQUIREMENTS WITH THE MANUFACTURER OF THE ACTUAL EQUIPMENT FURNISHED UNDER OTHER DIVISIONS OF WORK. THE CIRCUIT BREAKER, WIRE AND CONDUIT SHALL BE SIZED AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
5. CIRCUIT BREAKERS SHALL BE BOLT-IN TYPE.
6. PROVIDE A LAMINATED PLASTIC NAMEPLATE IDENTIFYING EACH NEW PANELBOARD, MOTOR STARTER AND DISCONNECT SWITCH. LETTERING SHALL BE 1/2" MINIMUM AND SHALL IDENTIFY EQUIPMENT SERVED, FEEDER ORIGINATION AND CIRCUIT NUMBER. SECURE NAMEPLATE WITH SCREWS TO EQUIPMENT TO BE IDENTIFIED. PLASTIC TAPE IS NOT APPROVED.
7. ELECTRICAL CONNECTIONS AND ASSOCIATED ROUGH-IN FOR EQUIPMENT FURNISHED BY OWNER OR OTHER TRADE CONTRACTORS SHALL BE CONSTRUCTED BY ELECTRICAL CONTRACTOR. VERIFY CONNECTION SIZE, RATING, AND LOCATION WITH EQUIPMENT PROVIDER PRIOR TO ROUGH-IN.
8. A 120V/20A GFI RECEPTACLE SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR-CONDITIONING, AND REFRIGERATION EQUIPMENT. THE RECEPTACLE SHALL BE LOCATED ON THE SAME LEVEL AND WITHIN 25 FT OF THE HEATING, AIR-CONDITIONING, AND REFRIGERATION EQUIPMENT. THE OUTLET SHALL NOT BE CONNECTED TO THE LOAD SIDE OF THE EQUIPMENT DISCONNECTING MEANS.
9. DEVICE MOUNTING HEIGHTS INDICATED SHALL BE TO DEVICE CENTER LINE.
10. RELOCATE, AS REQUIRED, ANY EXISTING WIRE AND CONDUIT WHICH INTERFERES WITH INSTALLATION OF THE NEW WORK.
11. EXTERIOR DEVICES SHALL BE WEATHER PROOF ENCLOSURES AND GFI RATED IN ACCORDANCE WITH N.E.C. INSTALLER REQUIRED TO VERIFY PRIOR TO ORDERING MATERIALS.
12. EACH FEEDER, UNGROUNDED CONDUCTOR, AND GROUNDED CONDUCTOR SHALL BE IDENTIFIED BY PHASE OR LINE AND SYSTEM AT ALL TERMINATION, CONNECTION, AND SPLICE POINTS. IDENTIFICATION MEANS SHALL BE PERMANENTLY POSTED AT EACH PANEL-BOARD OR SIMILAR DISTRIBUTION EQUIPMENT WITH LABEL. LABEL SHALL BE 1/8-INCH THICK PLASTIC WITH BLACK BACKGROUND AND 1/4-INCH HIGH WHITE LETTERS ATTACHED WITH CONTACT TYPE PERMANENT ADHESIVE. SEE FIGURE BELOW FOR TYPICAL LABEL DESIGN.

VOLTAGE 208Y/120V		VOLTAGE 480Y/277V	
PHASE A	BLACK	PHASE A	BROWN
PHASE B	RED	PHASE B	ORANGE
PHASE C	BLUE	PHASE C	YELLOW
NEUTRAL	WHITE	NEUTRAL	GRAY

ELECTRICAL DEMOLITION NOTES

1. AFTER DEMOLITION OF WIRING, REMOVE ABOVE GRADE PATHWAY (CONDUIT AND BOXES) WHERE EXPOSED, LOCATED ABOVE AN ACCESSIBLE CEILING AND WHERE INACCESSIBLE CEILINGS OR WALLS ARE BEING DEMOLISHED AS PART OF WORK. ABANDONED BELOW GRADE CONDUIT AND CONDUIT INSIDE WALLS AND ABOVE INACCESSIBLE CEILINGS TO REMAIN THAT DOES NOT INTERFERE WITH NEW WORK MAY REMAIN IN PLACE; SEAL ENDS OF ABANDONED PATHWAYS BEHIND FINISHED SURFACES.
2. WIRING AND CONDUIT SERVING DEVICES OR EQUIPMENT TO BE DEMOLISHED SHALL BE REMOVED BACK TO THE NEAREST JUNCTION OR PULL BOX. REMAINING DEVICES AND EQUIPMENT OUTSIDE SCOPE OF WORK SHALL REMAIN OPERABLE; UPON COMPLETION OF WORK CONTRACTOR SHALL VERIFY CIRCUITS ARE IN PROPER WORKING CONDITION.
3. REMOVE ELECTRICAL EQUIPMENT (CONDUIT, POWER & CONTROL WIRING, DISCONNECT SWITCHES, STARTERS, ETC.) RELATED TO EQUIPMENT BEING REMOVED BY OTHER TRADES.

COORDINATION NOTES

1. AT EXTERIOR LOCATIONS AND IN SPACES WITH EXPOSED STRUCTURE EXPOSED UTILITIES (INCLUDING PIPING, DUCTWORK, RACEWAYS, ETC.) SHALL BE INSTALLED NEATLY, BUNDLED TOGETHER TO EXTENT POSSIBLE AND RUN AT RIGHT ANGLES TO BUILDING LINES. THESE UTILITIES SHALL BE PAINTED TO MATCH ADJACENT SURFACE OR AS DIRECTED BY ENGINEER. HANGERS, STEEL SHAPES AND SLOTTED STEEL SUPPORTS SHALL BE PAINTED TO MATCH RACEWAY OR AS DIRECTED BY ENGINEER. TO EXTENT POSSIBLE CONTRACTOR SHALL AVOID EXPOSED RACEWAYS BY INSTALLING UTILITIES BELOW GRADE, IN WALL, OR ABOVE ADJACENT CONCEALED CEILING SPACES UNO.
2. PROVIDE ACCESS PANELS IN CEILING WHERE ANY DEVICE OR EQUIPMENT REQUIRING SERVICE (INCLUDING DAMPERS, VALVES, JUNCTION BOXES, CONTROLLERS, SMOKE DETECTORS, ETC.) IS LOCATED ABOVE OR BEHIND AN INACCESSIBLE CEILING OR WALL. ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR APPROPRIATE UL LABEL. COORDINATE LOCATION AND TYPE OF ACCESS PANEL WITH ENGINEER PRIOR TO INSTALLATION.
3. PROVIDE SELF-ADHESIVE IDENTIFICATION LABELS (CLEAR WITH BLACK LETTERS) ON CEILING WHERE VALVES, MECHANICAL EQUIPMENT, OR ELECTRICAL EQUIPMENT ARE LOCATED ABOVE CEILINGS. AT ACCESSIBLE CEILINGS APPLY LABEL TO CEILING GRID WITHIN REACH OF DEVICE; AT INACCESSIBLE CEILINGS APPLY LABEL TO ACCESS PANEL.
4. PROVIDE CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR OR GROUND MOUNTED EQUIPMENT WITH #4 REBAR 6" O.C. EACH WAY AND 1" CHAMFERED TOP EDGE. PADS ON CONCRETE SLAB SHALL BE 4" HIGH AND DOWELED INTO SLAB WITH #4 REBAR EXTENDING 2" INTO PAD, 3" INTO SLAB AND EPOXIED IN PLACE AND SPACED 12" O.C. AROUND PERIMETER OF PAD. PADS ON EARTH SHALL BE MINIMUM 6" THICK AND LAYED OUT TO EXTEND A MINIMUM OF 4" ABOVE GRADE AT HIGHEST GRADE LEVEL; COMPACT EARTH BELOW PAD PRIOR TO PAD CONSTRUCTION.

COORDINATION AND/OR SHOP DRAWING NOTES

1. COORDINATION AND SHOP DRAWINGS, INCLUDING ANY BIM MODEL CREATED BY THE CONTRACTOR AND OR A THIRD PARTY FOR COORDINATION PURPOSES ARE NOT CONSTRUCTION DOCUMENTS AND DO NOT SUPERCEDE ANY REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS.
2. CHANGES TO EQUIPMENT OR SYSTEM LAYOUTS FROM THAT DEPICTED IN THE CONSTRUCTION DOCUMENTS THAT ARE REQUIRED FOR COORDINATION, SUBSTITUTIONS, OR OTHERWISE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR APPROVAL.
3. CHANGES SHALL BE CLOUDED AND NOTED ON THE COORDINATION OR SHOP DRAWING IN RED OR OTHER COLOR THAT CLEARLY DIFFERENTIATES THE NOTE FROM THE REMAINDER OF THE SUBMITTED DOCUMENT.
4. ONLY NOTED CHANGES SPECIFICALLY CALLED OUT WILL BE REVIEWED BY THE ENGINEER DURING THE SUBMITTAL PROCESS. THE ENGINEER WILL NOT REVIEW EVERY DETAIL OF THE ENTIRE DOCUMENT PACKAGE TO LOCATE CHANGES MADE BY THE CONTRACTOR. CHANGES NOT SPECIFICALLY NOTED ARE AUTOMATICALLY "NOT APPROVED" REGARDLESS OF APPROVAL STATUS ON THE RETURNED SUBMITTAL.
5. CHANGES TO THE CONTRACT DOCUMENTS MADE BY THE CONTRACTOR THAT ARE NOT NOTED AND BROUGHT TO THE ATTENTION OF THE ENGINEER AND THUS "NOT APPROVED" WHICH RESULT IN A COST OR SCHEDULE CHANGE TO THE PROJECT SHALL BE BURDONED TO THE CONTRACTOR WHO MADE THE CHANGE WITHOUT ANY RENUMERATION FROM THE OWNER.
6. A COORDINATION DRAWING PACKAGE OR BIM MODEL USED IN THE FIELD BY THE INSTALLING CONTRACTOR IS NOT A CONSTRUCTION DOCUMENT AND DOES NOT INCLUDE ALL NOTES AND DETAILS NECESSARY FOR A COMPLETE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING INSTALLERS WITH A COMPLETE SET OF APPROVED COORDINATION DRAWINGS INCLUSIVE OF ALL NOTES, DETAILS, ETC. INCLUDED IN THE CONSTRUCTION DOCUMENTS.

GENERAL NOTES

1. INSTALL ALL WORK IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2023, THE FLORIDA FIRE PREVENTION CODE, THE NATIONAL ELECTRICAL CODE 2020 EDITION, AND ALL CODES, ORDINANCES, RULES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION AT THIS SITE. WHERE CONFLICTS OCCUR BETWEEN CODES AND THE CONSTRUCTION DOCUMENTS, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN.
2. DRAWINGS ARE DIAGRAMMATIC, INDICATIVE OF WORK TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT.
3. FIELD VERIFY DIMENSIONS AND CONDITIONS. IF THE CONTRACTOR IS UNABLE TO INTERPRET THE CONTRACT DOCUMENTS, CONTRACTOR IS RESPONSIBLE TO REQUEST CLARIFICATION IN WRITING TO THE ENGINEER. IF CONTRACTOR PROCEEDS WITH ANY WORK BEFORE OBTAINING CLARIFICATION, CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DEFICIENCIES ASSOCIATED THEREWITH.
4. BEFORE SUBMITTING FOR THE WORK, EACH BIDDER WILL BE RESPONSIBLE TO EXAMINE THE PREMISES AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS UNDER WHICH CONTRACTOR WILL BE OBLIGED TO OPERATE AND COMPLETE THE WORK UNDER THIS CONTRACT. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR OMISSION ON CONTRACTOR'S PART.
5. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION PERMITS, CERTIFICATES, CONNECTION FEES, SYSTEM DEMAND CHARGES AND LICENSE FEES IN CONNECTION WITH CONTRACTOR'S WORK.
6. CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR SEQUENCING AND COORDINATING WORK OF SUBCONTRACTORS TO AVOID INTERFERENCES.
7. WORK SHALL COMPLY WITH APPLICABLE O.S.H.A. AND E.P.A. REGULATIONS AND GUIDELINES.
8. ERECT AND MAINTAIN ALL REASONABLE PRECAUTIONS FOR SAFETY AND HEALTH INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS INCLUDING PROMULGATING SAFETY REGULATIONS. PROVIDE SAFETY PRECAUTIONS AND BARRICADES FOR PEDESTRIANS AT CONSTRUCTION VEHICLE ACCESS AND EGRESS LOCATIONS.
9. THE CONTRACTOR SHALL PROVIDE MANPOWER AND EQUIPMENT NECESSARY TO MAINTAIN THE PROJECT SCHEDULE.
10. THE CONTRACTOR SHALL BE RESTRICTED TO AREAS DESIGNATED BY THE OWNER FOR ON-SITE STORAGE OF CONSTRUCTION MATERIALS AND IS RESPONSIBLE FOR THE PROTECTION AND SECURITY OF ALL EQUIPMENT AND MATERIALS.
11. THE CONTRACTOR SHALL MAINTAIN A CLEAN WORK ENVIRONMENT AND SHALL CLEAN CONSTRUCTION SITE OF ALL DEBRIS AT COMPLETION OF THE JOB AND BEFORE FINAL PAYMENT IS MADE.
12. THE CONTRACTOR SHALL FURNISH "AS-BUILT" RECORD DOCUMENTS TO THE OWNER AT COMPLETION OF CONSTRUCTION.
13. CONTRACTOR SHALL GUARANTEE THE WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. THIS GUARANTEE SHALL BE IN ADDITION TO THE WARRANTIES PROVIDED BY MATERIAL SUPPLIERS AND MANUFACTURERS.
14. CONTRACTOR'S APPROVAL STAMP ON SUBMITTALS AND SHOP DRAWINGS CERTIFIES THAT THE CONTRACTOR HAS REVIEWED THE DOCUMENTS AND THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN ADHERED TO.
15. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE ARCHITECT/ENGINEER'S APPROVAL THEREOF.
16. ENTRY AND/OR REMOVAL OF EQUIPMENT FROM THE BUILDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DISMANTLE AND REASSEMBLE EQUIPMENT AS NECESSARY FOR ENTRY INTO THE BUILDING AND/OR EQUIPMENT ROOMS. CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGED MATERIALS TO MATCH THE ADJACENT UNDAMAGED SURFACES.
17. PROTECT THE ROOF FROM DAMAGE WHENEVER ANY WORK ON THE ROOF IS REQUIRED.
18. SUPPORTS AND HANGERS SHALL PRESENT A NEAT, ORDERLY APPEARANCE.
19. ALL EXTERIOR STRUCTURES AND EQUIPMENT SHALL BE INSTALLED TO RESIST 170 MPH WIND LOAD.
20. THE BUILDING WILL REMAIN OCCUPIED DURING CONSTRUCTION. THE OWNER WILL MAKE ALL REASONABLE EFFORTS TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. COORDINATE ALL WORK WITH THE OWNER'S DESIGNATED REPRESENTATIVE.
21. EXIT WAYS SHALL BE KEPT CLEAR. IF AN EXIT MUST BE TEMPORARILY BLOCKED, PROVIDE THE REQUIRED BARRICADE AND DIRECTIONAL SIGNS FOR TEMPORARY EXITING AND SAFETY.
22. REMOVE AND REPAIR OR RE-INSTALL EXISTING CEILING ASSEMBLIES AS REQUIRED. REPLACE ANY ASSEMBLIES DAMAGED OR SOILED DURING CONSTRUCTION.
23. PROVIDE PROPER PROTECTIVE MEASURES TO PROTECT EXISTING FURNITURE, CARPET AND FINISHES DURING THE COURSE OF CONSTRUCTION. TAKE CARE NOT TO DAMAGE EXISTING SURFACES. REPAIR TO MATCH EXISTING CONDITIONS AS REQUIRED.
24. SEAL ALL HOLES IN WALLS, CEILINGS, FLOORS, ETC. TO MATCH EXISTING ADJACENT SURFACES WHERE EQUIPMENT, CONDUIT AND/OR PIPING ARE REMOVED.
25. EXISTING EQUIPMENT IS THE PROPERTY OF THE OWNER AND SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER. DISPOSE OF ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED IN ACCORDANCE WITH LOCAL REGULATIONS.
26. REMOVE ALL SHRUBBERY, PLANTS, ETC. WHICH INTERFERE WITH WORK UNDER THIS CONTRACT. REPLANT AND/OR REPLACE ALL PLANTS, SHRUBBERY, ETC. AT COMPLETION OF JOB. ALL DISTURBED AREAS OF SOIL SHALL BE RE-SODDED. REPLACEMENT OR REPLANTING TO BE GUARANTEED FOR ONE YEAR.
27. ITEMS REMOVED AND SAVED FOR REUSE SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL IDENTIFY ANY DEFECTIVE MATERIALS PRIOR TO DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO MATERIALS AT PROJECT COMPLETION NOT IDENTIFIED PRIOR TO DEMOLITION.

ABBREVIATIONS

AFC	AVAILABLE FAULT CURRENT	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR	GFI	GROUND FAULT INTERRUPTER
AFG	ABOVE FINISHED GRADE	G	GROUND
C	CONDUIT	GRC	GALVANIZED RIGID CONDUIT
CNT	CONTACTOR	PNL	ELECTRICAL PANEL
DISC	DISCONNECT	SSRV	SOLID STATE REDUCED VOLTAGE
DN	DOWN	TYP	TYPICAL
EC	ELECTRICAL CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
EX	EXISTING DEVICE TO REMAIN	WP	WEATHERPROOF
FVNR	FULL VOLTAGE NON-REVERSING		

DRAWING INDEX

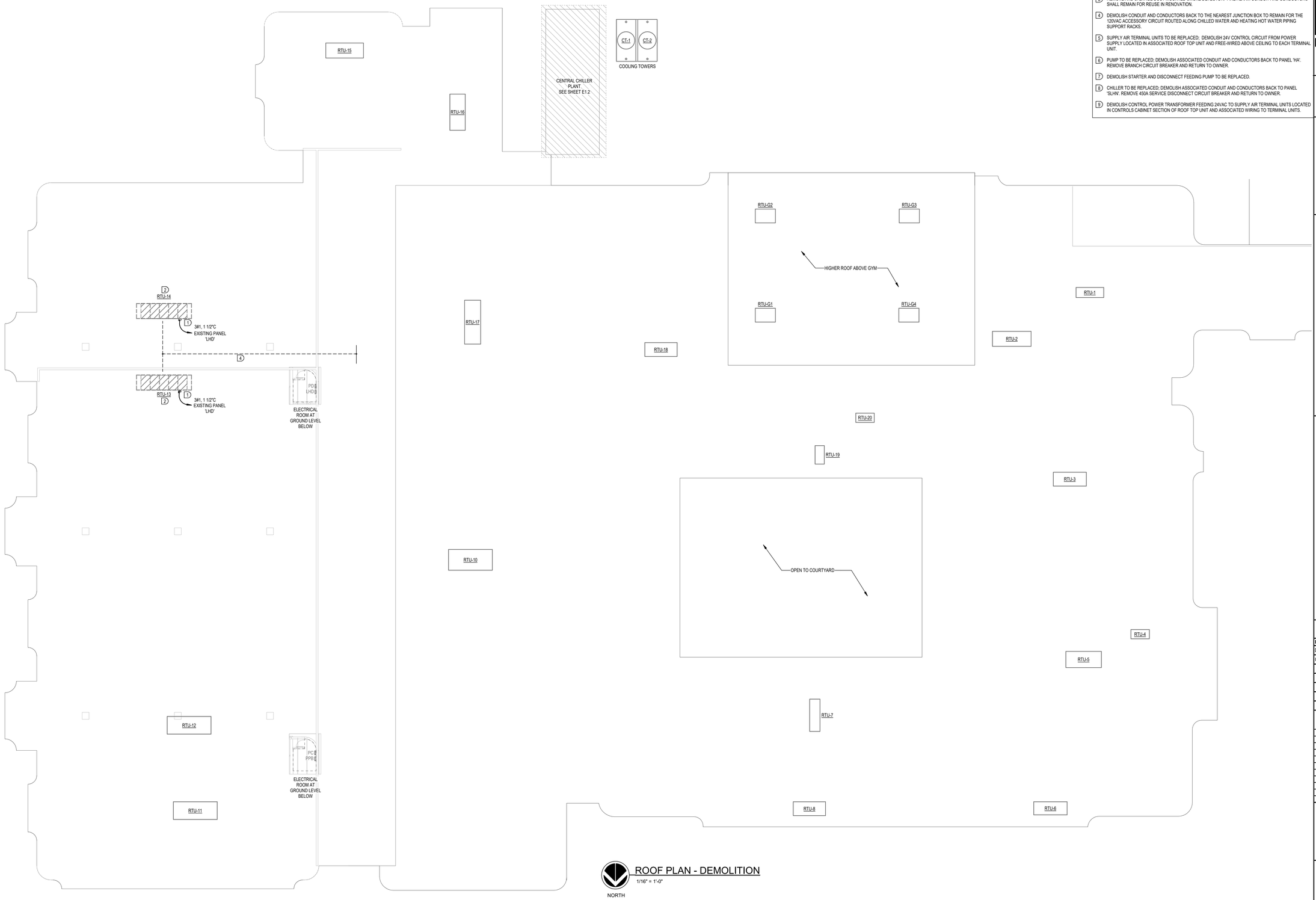
E0.1	GENERAL NOTES & LEGENDS
E1.0	ROOF PLAN DEMOLITION
E1.1AB	AREA A & B FLOOR PLAN DEMOLTION
E1.1CD	AREA C & D FLOOR PLAN DEMOLTION
E1.2	CHILLER PLANT FLOOR PLAN DEMOLITION
E2.0	ROOF PLAN RENOVATION
E2.1AB	AREA A & B FLOOR PLAN RENOVATION

DEMOLITION GENERAL NOTES

1. ALL DEVICES SHOWN DASHED OR HATCHED SHALL BE DEMOLISHED. ALL OTHER DEVICES ARE EXISTING TO REMAIN.
2. FIELD VERIFY ALL ELECTRICAL CONNECTIONS PRIOR TO PROCEEDING WITH WORK. NOTIFY ENGINEER IF FIELD CONDITIONS DO NOT MATCH CONSTRUCTION DRAWINGS.

DEMOLITION KEYNOTES

1. DEMOLISH FUSED DISCONNECT, CONDUIT, AND CONDUCTORS FEEDING ROOF TOP UNIT BACK TO PANEL 'LHD'.
2. ROOF TOP UNIT TO BE DEMOLISHED. SEE MECHANICAL PLANS FOR MORE INFORMATION.
3. REMOVE AND SALVAGE DUCT MOUNTED SMOKE DETECTOR. FIRE ALARM CONDUIT AND CONDUCTORS SHALL REMAIN FOR REUSE IN RENOVATION.
4. DEMOLISH CONDUIT AND CONDUCTORS BACK TO THE NEAREST JUNCTION BOX TO REMAIN FOR THE 120VAC ACCESSORY CIRCUIT ROUTED ALONG CHILLED WATER AND HEATING HOT WATER PIPING SUPPORT RACKS.
5. SUPPLY AIR TERMINAL UNITS TO BE REPLACED; DEMOLISH 24V CONTROL CIRCUIT FROM POWER SUPPLY LOCATED IN ASSOCIATED ROOF TOP UNIT AND FREE-WIRED ABOVE CEILING TO EACH TERMINAL UNIT.
6. PUMP TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'HA'. REMOVE BRANCH CIRCUIT BREAKER AND RETURN TO OWNER.
7. DEMOLISH STARTER AND DISCONNECT FEEDING PUMP TO BE REPLACED.
8. CHILLER TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'SLHV'. REMOVE 450A SERVICE DISCONNECT CIRCUIT BREAKER AND RETURN TO OWNER.
9. DEMOLISH CONTROL POWER TRANSFORMER FEEDING 24VAC TO SUPPLY AIR TERMINAL UNITS LOCATED IN CONTROLS CABINET SECTION OF ROOF TOP UNIT AND ASSOCIATED WIRING TO TERMINAL UNITS.



ROOF PLAN - DEMOLITION
1/16" = 1'-0"

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

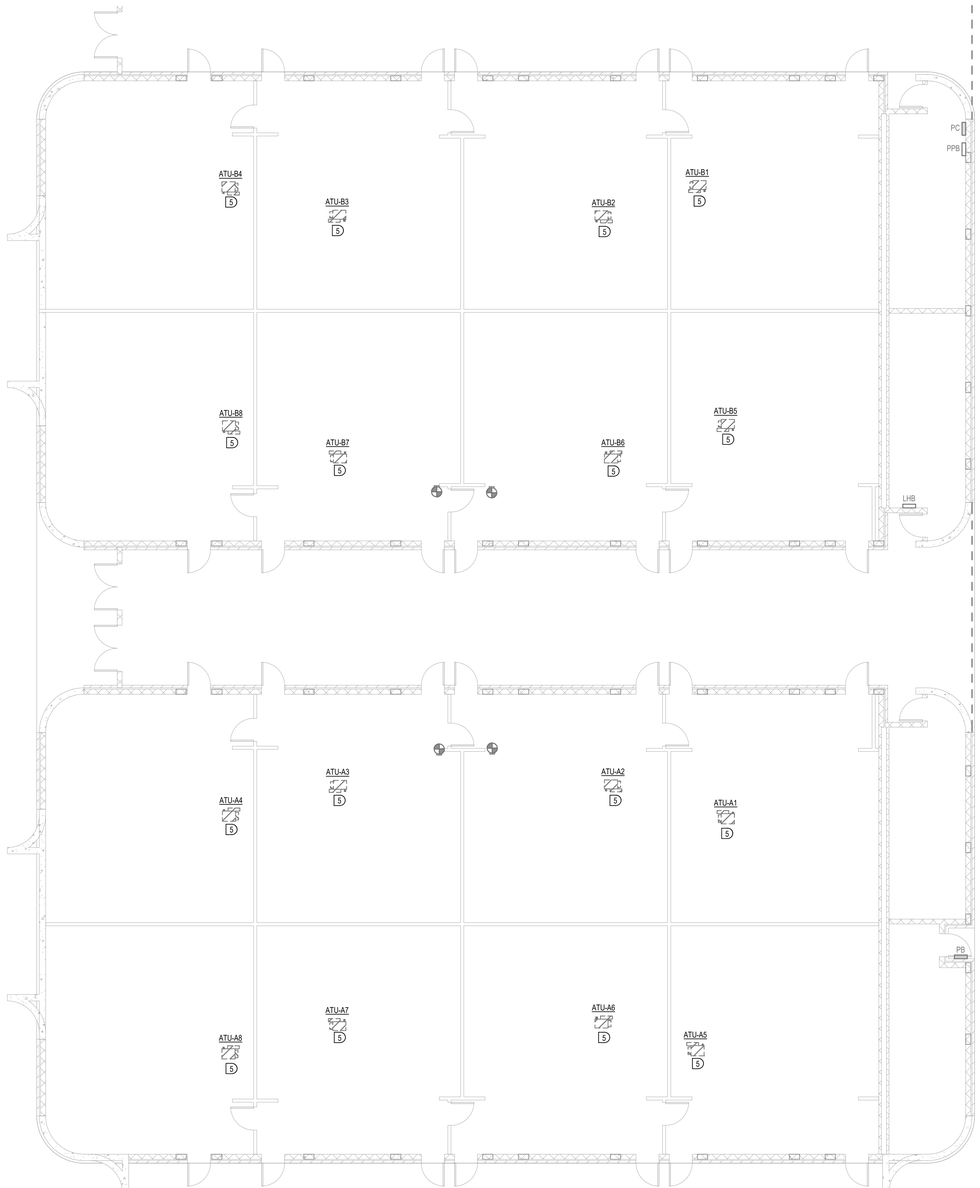
#	Description	Date

SHEET TITLE

ROOF PLAN DEMOLITION

DRAWING NO.

E1.0



CLASSROOM AREA A & B FLOOR PLAN - DEMOLITION

1/8" = 1'-0"

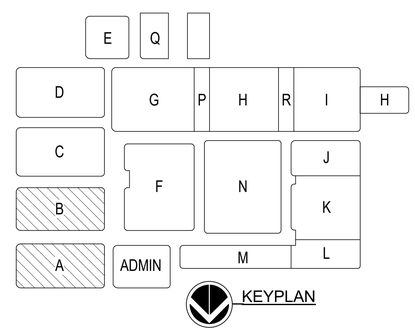
NORTH

DEMOLITION GENERAL NOTES

1. ALL DEVICES SHOWN DASHED OR HATCHED SHALL BE DEMOLISHED. ALL OTHER DEVICES ARE EXISTING TO REMAIN.
2. FIELD VERIFY ALL ELECTRICAL CONNECTIONS PRIOR TO PROCEEDING WITH WORK. NOTIFY ENGINEER IF FIELD CONDITIONS DO NOT MATCH CONSTRUCTION DRAWINGS.

DEMOLITION KEYNOTES

1. DEMOLISH FUSED DISCONNECT, CONDUIT, AND CONDUCTORS FEEDING ROOF TOP UNIT BACK TO PANEL 'LHD'.
2. ROOF TOP UNIT TO BE DEMOLISHED. SEE MECHANICAL PLANS FOR MORE INFORMATION.
3. REMOVE AND SALVAGE DUCT MOUNTED SMOKE DETECTOR. FIRE ALARM CONDUIT AND CONDUCTORS SHALL REMAIN FOR REUSE IN RENOVATION.
4. DEMOLISH CONDUIT AND CONDUCTORS BACK TO THE NEAREST JUNCTION BOX TO REMAIN FOR THE 120VAC ACCESSORY CIRCUIT ROUTED ALONG CHILLED WATER AND HEATING HOT WATER PIPING SUPPORT RACKS.
5. SUPPLY AIR TERMINAL UNITS TO BE REPLACED; DEMOLISH 24V CONTROL CIRCUIT FROM POWER SUPPLY LOCATED IN ASSOCIATED ROOF TOP UNIT AND FREE-WIRED ABOVE CEILING TO EACH TERMINAL UNIT.
6. PUMP TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'HA'. REMOVE BRANCH CIRCUIT BREAKER AND RETURN TO OWNER.
7. DEMOLISH STARTER AND DISCONNECT FEEDING PUMP TO BE REPLACED.
8. CHILLER TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'SLHV'. REMOVE 450A SERVICE DISCONNECT CIRCUIT BREAKER AND RETURN TO OWNER.
9. DEMOLISH CONTROL POWER TRANSFORMER FEEDING 24VAC TO SUPPLY AIR TERMINAL UNITS LOCATED IN CONTROLS CABINET SECTION OF ROOF TOP UNIT AND ASSOCIATED WIRING TO TERMINAL UNITS.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

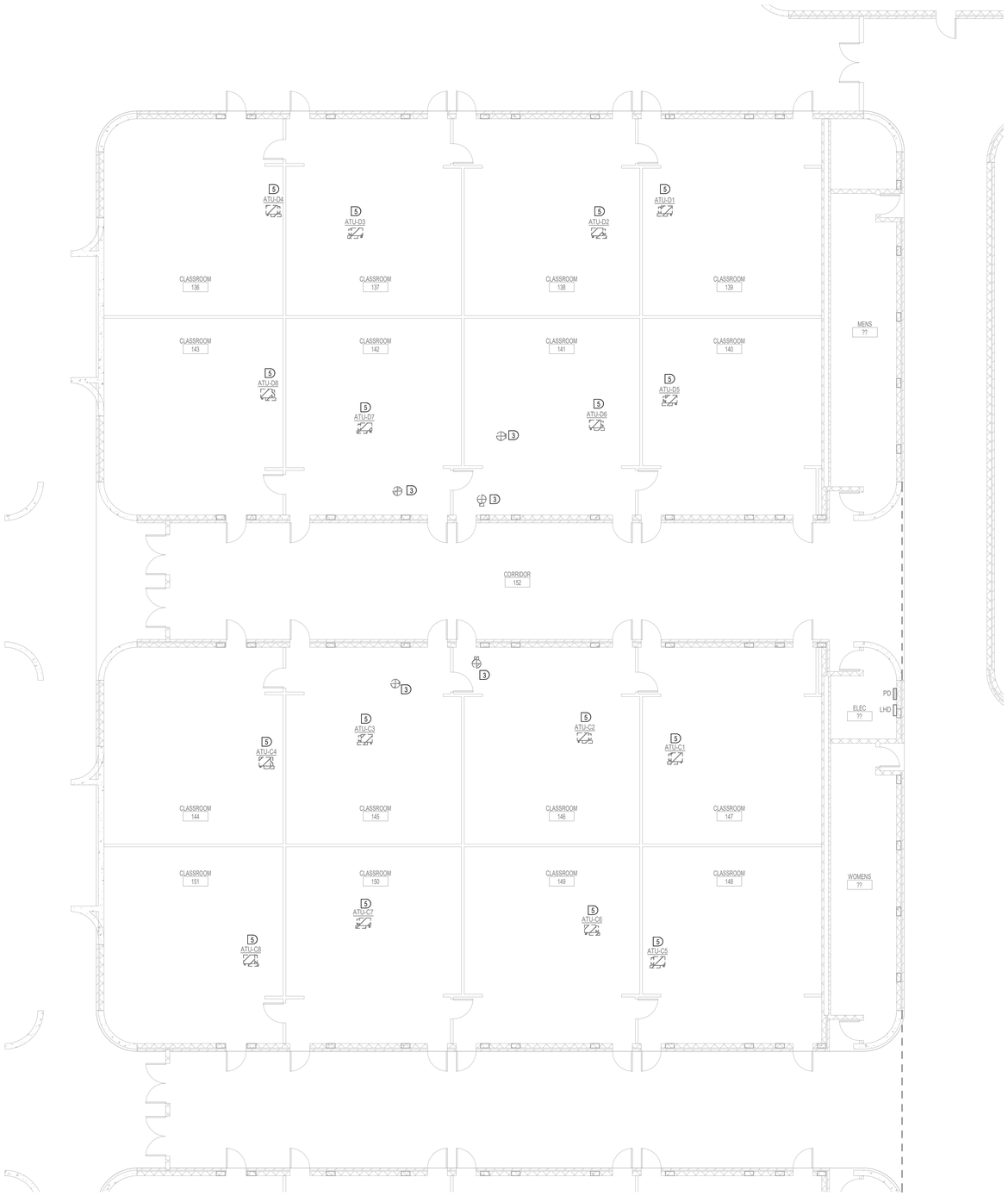
#	Description	Date

SHEET TITLE

AREA A & B FLOOR PLAN DEMOLTION

DRAWING NO.

E1.1AB



CLASSROOM AREA C & D FLOOR PLAN - DEMOLITION

1/8" = 1'-0"

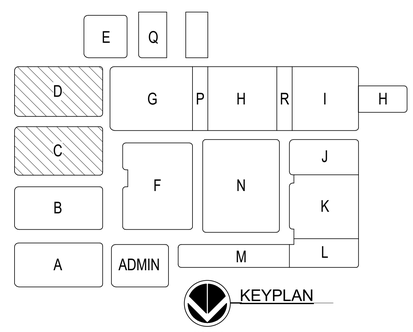
NORTH

DEMOLITION GENERAL NOTES

1. ALL DEVICES SHOWN DASHED OR HATCHED SHALL BE DEMOLISHED. ALL OTHER DEVICES ARE EXISTING TO REMAIN.
2. FIELD VERIFY ALL ELECTRICAL CONNECTIONS PRIOR TO PROCEEDING WITH WORK. NOTIFY ENGINEER IF FIELD CONDITIONS DO NOT MATCH CONSTRUCTION DRAWINGS.

DEMOLITION KEYNOTES

1. DEMOLISH FUSED DISCONNECT, CONDUIT, AND CONDUCTORS FEEDING ROOF TOP UNIT BACK TO PANEL 'LHD'.
2. ROOF TOP UNIT TO BE DEMOLISHED. SEE MECHANICAL PLANS FOR MORE INFORMATION.
3. REMOVE AND SALVAGE DUCT MOUNTED SMOKE DETECTOR. FIRE ALARM CONDUIT AND CONDUCTORS SHALL REMAIN FOR REUSE IN RENOVATION.
4. DEMOLISH CONDUIT AND CONDUCTORS BACK TO THE NEAREST JUNCTION BOX TO REMAIN FOR THE 120VAC ACCESSORY CIRCUIT ROUTED ALONG CHILLED WATER AND HEATING HOT WATER PIPING SUPPORT RACKS.
5. SUPPLY AIR TERMINAL UNITS TO BE REPLACED; DEMOLISH 24V CONTROL CIRCUIT FROM POWER SUPPLY LOCATED IN ASSOCIATED ROOF TOP UNIT AND FREE-WIRED ABOVE CEILING TO EACH TERMINAL UNIT.
6. PUMP TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'HA'. REMOVE BRANCH CIRCUIT BREAKER AND RETURN TO OWNER.
7. DEMOLISH STARTER AND DISCONNECT FEEDING PUMP TO BE REPLACED.
8. CHILLER TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'SLHV'. REMOVE 450A SERVICE DISCONNECT CIRCUIT BREAKER AND RETURN TO OWNER.
9. DEMOLISH CONTROL POWER TRANSFORMER FEEDING 24VAC TO SUPPLY AIR TERMINAL UNITS LOCATED IN CONTROLS CABINET SECTION OF ROOF TOP UNIT AND ASSOCIATED WIRING TO TERMINAL UNITS.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

#	Description	Date

SHEET TITLE

AREA C & D FLOOR PLAN DEMOLTION

DRAWING NO.

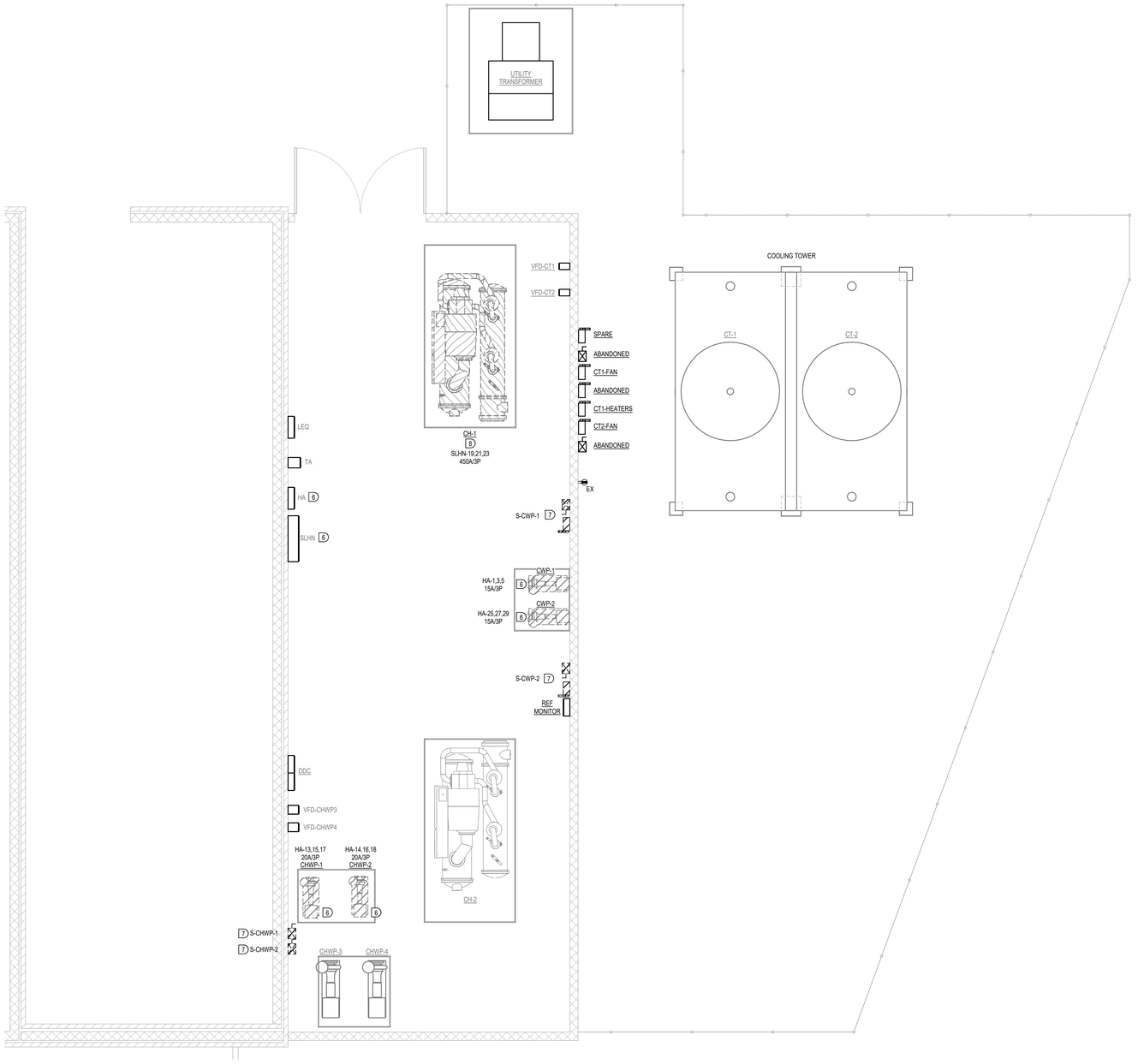
E1.1CD

DEMOLITION GENERAL NOTES

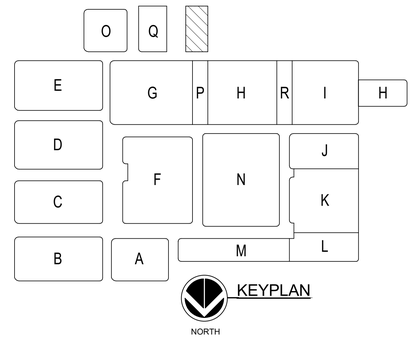
1. ALL DEVICES SHOWN DASHED OR HATCHED SHALL BE DEMOLISHED. ALL OTHER DEVICES ARE EXISTING TO REMAIN.
2. FIELD VERIFY ALL ELECTRICAL CONNECTIONS PRIOR TO PROCEEDING WITH WORK. NOTIFY ENGINEER IF FIELD CONDITIONS DO NOT MATCH CONSTRUCTION DRAWINGS.

DEMOLITION KEYNOTES

1. DEMOLISH FUSED DISCONNECT, CONDUIT, AND CONDUCTORS FEEDING ROOF TOP UNIT BACK TO PANEL 'LHD'.
2. ROOF TOP UNIT TO BE DEMOLISHED. SEE MECHANICAL PLANS FOR MORE INFORMATION.
3. REMOVE AND SALVAGE DUCT MOUNTED SMOKE DETECTOR. FIRE ALARM CONDUIT AND CONDUCTORS SHALL REMAIN FOR REUSE IN RENOVATION.
4. DEMOLISH CONDUIT AND CONDUCTORS BACK TO THE NEAREST JUNCTION BOX TO REMAIN FOR THE 120VAC ACCESSORY CIRCUIT ROUTED ALONG CHILLED WATER AND HEATING HOT WATER PIPING SUPPORT RACKS.
5. SUPPLY AIR TERMINAL UNITS TO BE REPLACED; DEMOLISH 24V CONTROL CIRCUIT FROM POWER SUPPLY LOCATED IN ASSOCIATED ROOF TOP UNIT AND FREE-WIRED ABOVE CEILING TO EACH TERMINAL UNIT.
6. PUMP TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'HA'. REMOVE BRANCH CIRCUIT BREAKER AND RETURN TO OWNER.
7. DEMOLISH STARTER AND DISCONNECT FEEDING PUMP TO BE REPLACED.
8. CHILLER TO BE REPLACED; DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO PANEL 'SLHN'. REMOVE 450A SERVICE DISCONNECT CIRCUIT BREAKER AND RETURN TO OWNER.
9. DEMOLISH CONTROL POWER TRANSFORMER FEEDING 24VAC TO SUPPLY AIR TERMINAL UNITS LOCATED IN CONTROLS CABINET SECTION OF ROOF TOP UNIT AND ASSOCIATED WIRING TO TERMINAL UNITS.



CHILLER PLANT FLOOR PLAN DEMOLITION
1/4" = 1'-0"
NORTH



KEYPLAN
NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

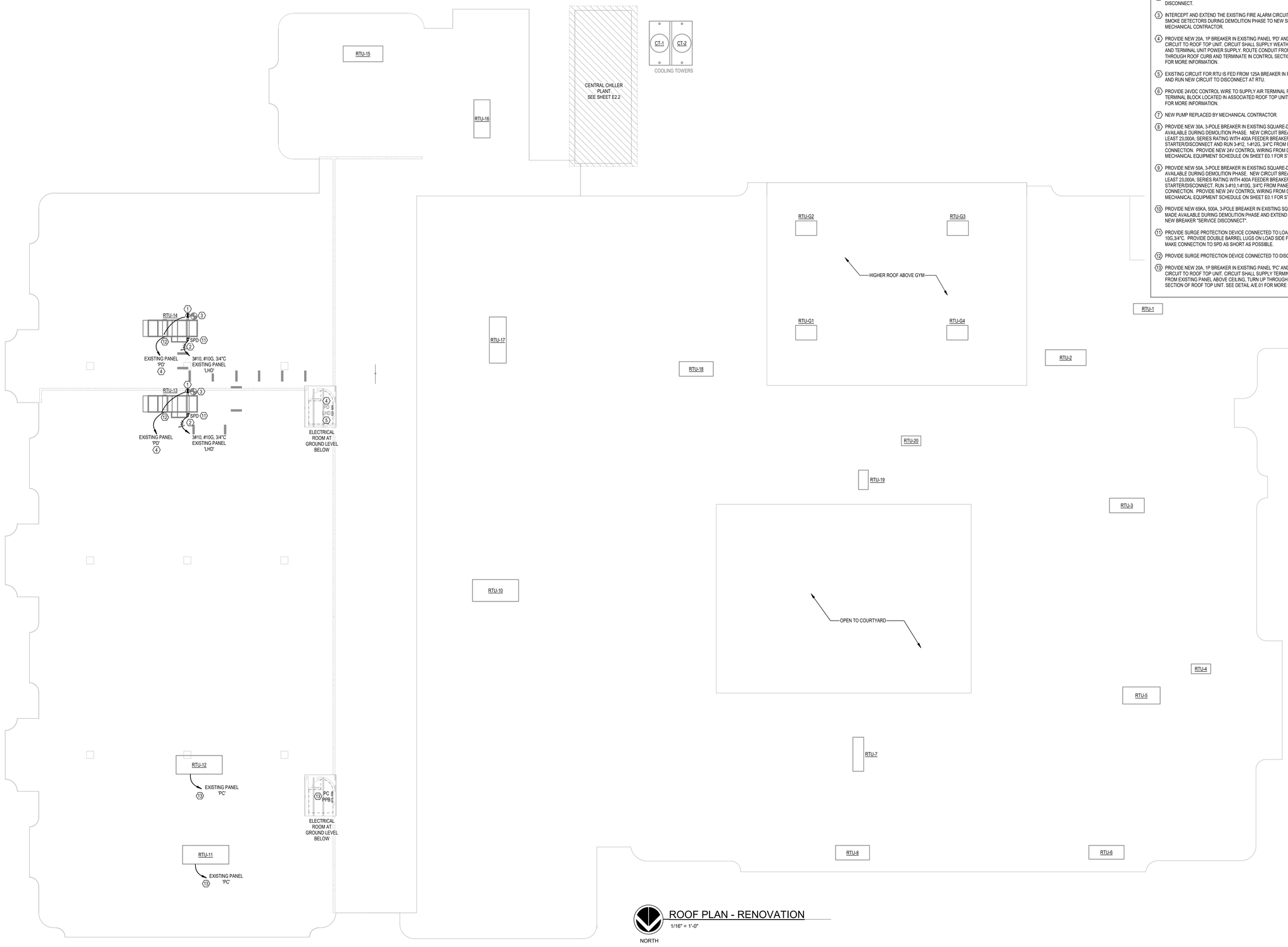
#	Description	Date

SHEET TITLE

CHILLER PLANT FLOOR PLAN DEMOLITION

DRAWING NO.

E1.2



ROOF PLAN - RENOVATION

1/16" = 1'-0"

POWER PLAN NOTES

1. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR BRANCH CIRCUIT AND DISCONNECT SWITCH REQUIREMENTS. MECHANICAL EQUIPMENT DISCONNECTS SHOWN ON PLANS ARE DIAGRAMMATIC AND SHOWN FOR CLARITY. LOCATE DISCONNECTS SO ACCESSIBLE AND WITH REQUIRED WORKING CLEARANCE PER THE NEC.
2. MARK REQUIRED WORKING CLEARANCE BOUNDARY AT ELECTRICAL EQUIPMENT WITH 45-DEG CROSSHATCH IN FRONT OF GEAR WITH YELLOW PAINT. STENCIL "ELECTRICAL WORKING CLEARANCE, KEEP CLEAR" IN YELLOW WITHIN BOUNDARY.

POWER PLAN KEYNOTES

1. UNWIRED WEATHER PROOF GFI RECEPTACLE PROVIDED WITH UNIT.
2. ROUTE NEW CIRCUIT THROUGH ROOF CURB AND TERMINATE ON THE LINE SIDE OF THE UNIT MOUNTED DISCONNECT.
3. INTERCEPT AND EXTEND THE EXISTING FIRE ALARM CIRCUIT MADE AVAILABLE FROM DEMOLITION OF SMOKE DETECTORS DURING DEMOLITION PHASE TO NEW SMOKE DETECTOR INSTALLED BY MECHANICAL CONTRACTOR.
4. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PD' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY WEATHER PROOF GFI RECEPTACLE, UV LIGHTS, AND TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.
5. EXISTING CIRCUIT FOR RTU IS FED FROM 125A BREAKER IN PANEL 'LHD'. REPLACE BREAKER IN PANEL AND RUN NEW CIRCUIT TO DISCONNECT AT RTU.
6. PROVIDE 24VDC CONTROL WIRE TO SUPPLY AIR TERMINAL FROM LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK LOCATED IN ASSOCIATED ROOF TOP UNIT CONTROL ENCLOSURE. SEE DETAIL A/E.01 FOR MORE INFORMATION.
7. NEW PUMP REPLACED BY MECHANICAL CONTRACTOR.
8. PROVIDE NEW 30A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT AND RUN 3-#12, 1-#12G, 3/4"C FROM PANEL THROUGH STARTER AND TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
9. PROVIDE NEW 50A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT. RUN 3-#10,1-#10G, 3/4"C FROM PANEL THROUGH STARTER TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
10. PROVIDE NEW 65KA, 500A, 3-POLE BREAKER IN EXISTING SQUARE D I-LINE PANELBOARD 'SLHN' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE AND EXTEND 4-#500,1- #2G, 3"C TO NEW CHILLER. LABEL NEW BREAKER "SERVICE DISCONNECT".
11. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO LOAD SIDE LUGS OF DISCONNECT WITH 3-#10,1-#10G,3/4"C. PROVIDE DOUBLE BARREL LUGS ON LOAD SIDE FOR CONNECTION OF CIRCUIT AND SPD. MAKE CONNECTION TO SPD AS SHORT AS POSSIBLE.
12. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO DISCONNECT WITH 2-#12,1-#12G,3/4"C.
13. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PC' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.

H2 ENGINEERING

114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

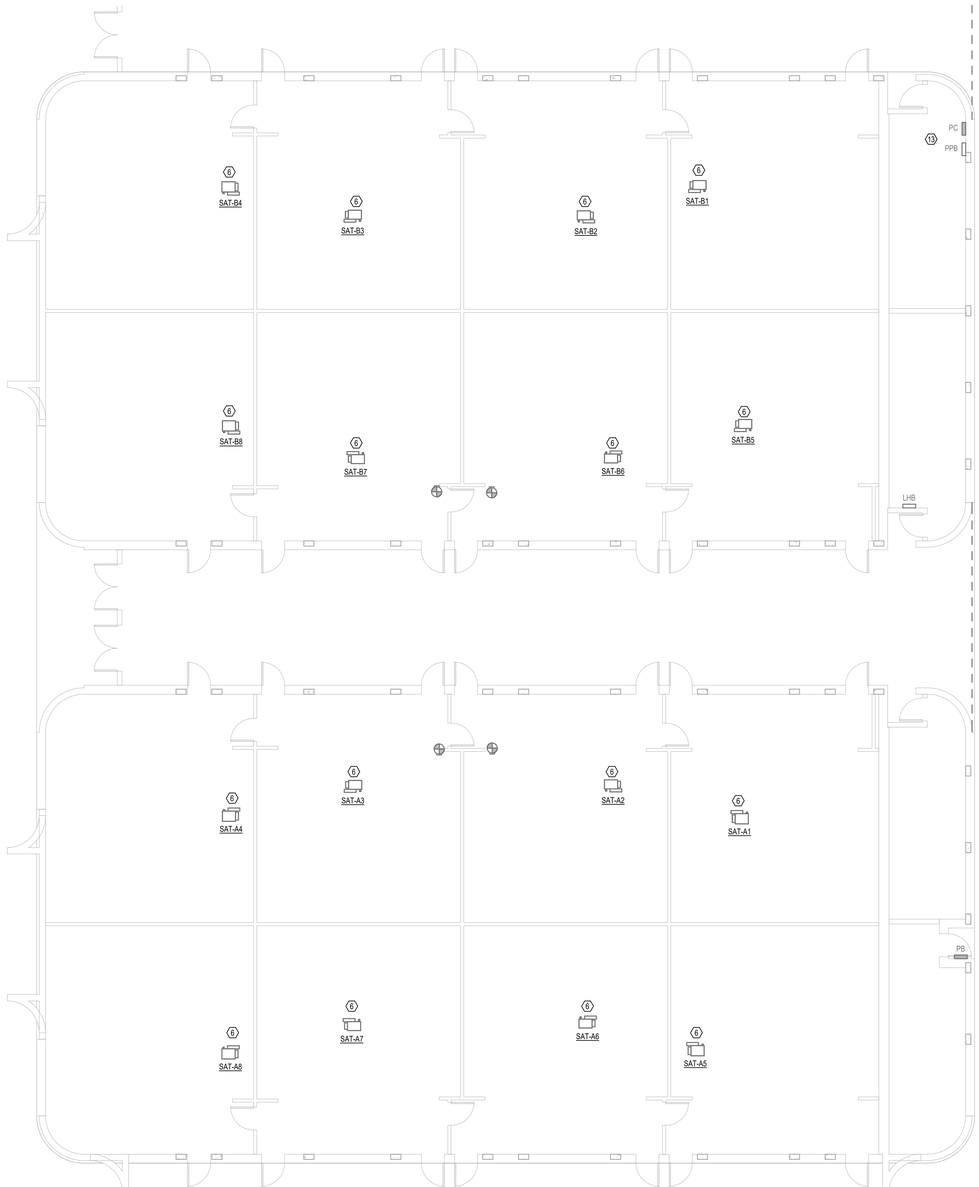
#	Description	Date

SHEET TITLE

ROOF PLAN RENOVATION

DRAWING NO.

E2.0



CLASSROOM AREA A & B FLOOR PLAN - RENOVATION

1/8" = 1'-0"

NORTH

POWER PLAN NOTES

1. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR BRANCH CIRCUIT AND DISCONNECT SWITCH REQUIREMENTS. MECHANICAL EQUIPMENT DISCONNECTS SHOWN ON PLANS ARE DIAGRAMMATIC AND SHOWN FOR CLARITY. LOCATE DISCONNECTS SO ACCESSIBLE AND WITH REQUIRED WORKING CLEARANCE PER THE NEC.
2. MARK REQUIRED WORKING CLEARANCE BOUNDARY AT ELECTRICAL EQUIPMENT WITH 45-DEG CROSSHATCH IN FRONT OF GEAR WITH YELLOW PAINT. STENCIL "ELECTRICAL WORKING CLEARANCE, KEEP CLEAR" IN YELLOW WITHIN BOUNDARY.

POWER PLAN KEYNOTES

(1) UNWIRED WEATHER PROOF GFI RECEPTACLE PROVIDED WITH UNIT.

(2) ROUTE NEW CIRCUIT THROUGH ROOF CURB AND TERMINATE ON THE LINE SIDE OF THE UNIT MOUNTED DISCONNECT.

(3) INTERCEPT AND EXTEND THE EXISTING FIRE ALARM CIRCUIT MADE AVAILABLE FROM DEMOLITION OF SMOKE DETECTORS DURING DEMOLITION PHASE TO NEW SMOKE DETECTOR INSTALLED BY MECHANICAL CONTRACTOR.

(4) PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PD' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY WEATHER PROOF GFI RECEPTACLE, UV LIGHTS, AND TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.

(5) EXISTING CIRCUIT FOR RTU IS FED FROM 125A BREAKER IN PANEL 'LHD'. REPLACE BREAKER IN PANEL AND RUN NEW CIRCUIT TO DISCONNECT AT RTU.

(6) PROVIDE 24VDC CONTROL WIRE TO SUPPLY AIR TERMINAL FROM LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK LOCATED IN ASSOCIATED ROOF TOP UNIT CONTROL ENCLOSURE. SEE DETAIL A/E.01 FOR MORE INFORMATION.

(7) NEW PUMP REPLACED BY MECHANICAL CONTRACTOR.

(8) PROVIDE NEW 30A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT AND RUN 3-#12, 1-#12G, 3/4"C FROM PANEL THROUGH STARTER AND TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.

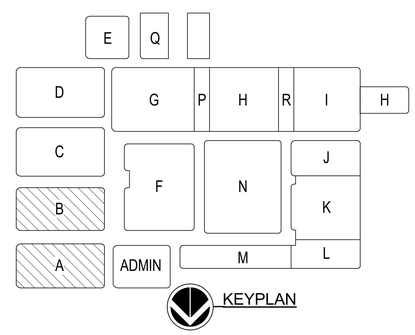
(9) PROVIDE NEW 50A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT. RUN 3-#10,1-#10G, 3/4"C FROM PANEL THROUGH STARTER TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.

(10) PROVIDE NEW 65KA, 500A, 3-POLE BREAKER IN EXISTING SQUARE D I-LINE PANELBOARD 'SLHN' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE AND EXTEND 4-#500,1- #2G, 3"C TO NEW CHILLER. LABEL NEW BREAKER "SERVICE DISCONNECT".

(11) PROVIDE SURGE PROTECTION DEVICE CONNECTED TO LOAD SIDE LUGS OF DISCONNECT WITH 3-#10,1-#10G,3/4"C. PROVIDE DOUBLE BARREL LUGS ON LOAD SIDE FOR CONNECTION OF CIRCUIT AND SPD. MAKE CONNECTION TO SPD AS SHORT AS POSSIBLE.

(12) PROVIDE SURGE PROTECTION DEVICE CONNECTED TO DISCONNECT WITH 2-#12,1-#12G,3/4"C.

(13) PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PC' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

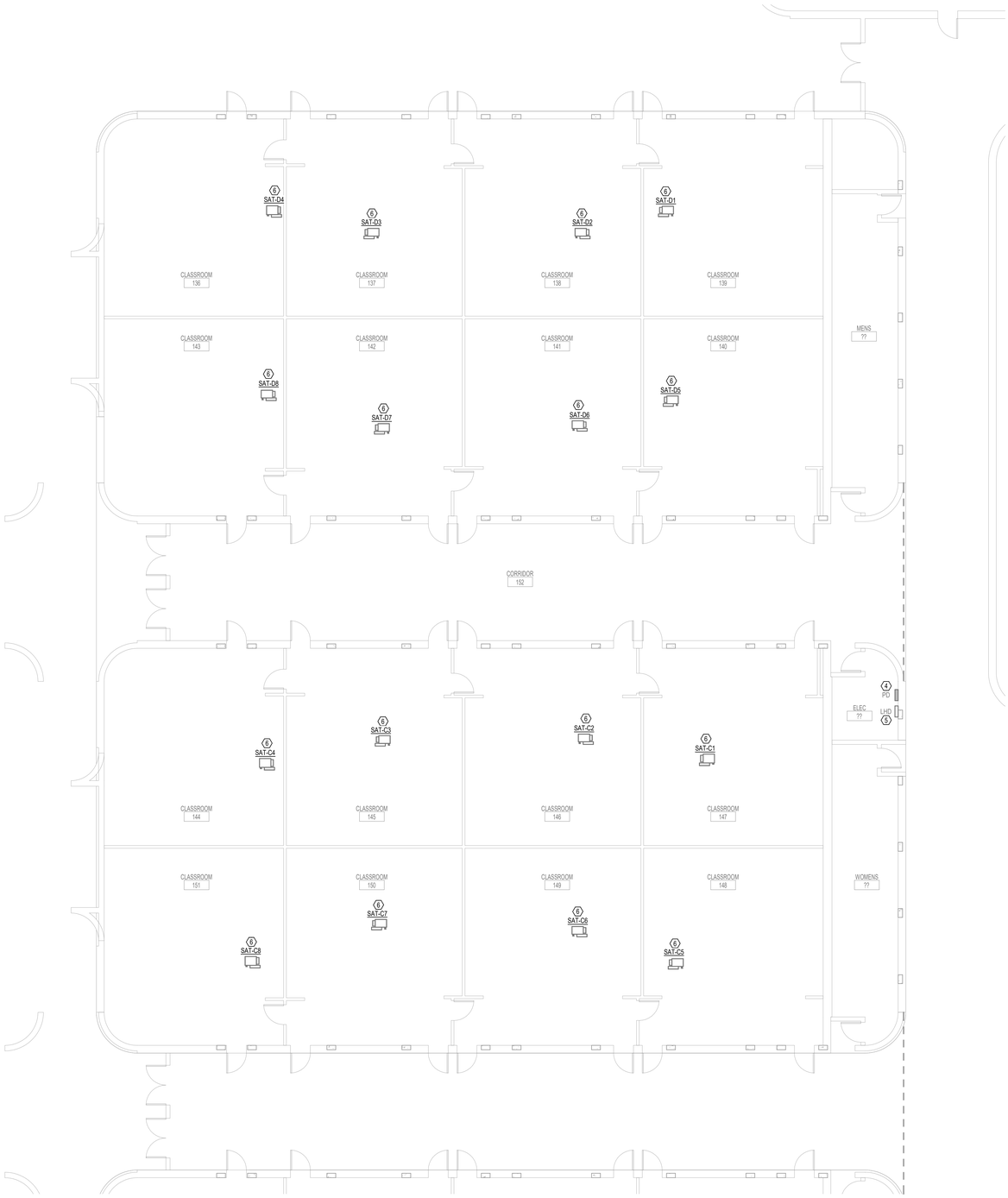
#	Description	Date

SHEET TITLE

AREA A & B FLOOR PLAN RENOVATION

DRAWING NO.

E2.1AB



CLASSROOM AREA C & D FLOOR PLAN - RENOVATION

1/8" = 1'-0"

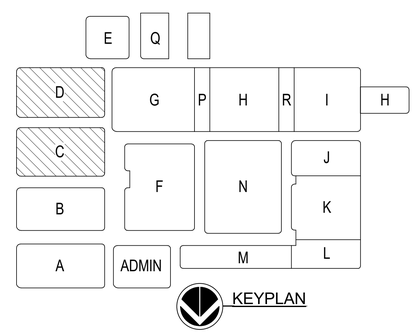
NORTH

POWER PLAN NOTES

1. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR BRANCH CIRCUIT AND DISCONNECT SWITCH REQUIREMENTS. MECHANICAL EQUIPMENT DISCONNECTS SHOWN ON PLANS ARE DIAGRAMMATIC AND SHOWN FOR CLARITY. LOCATE DISCONNECTS SO ACCESSIBLE AND WITH REQUIRED WORKING CLEARANCE PER THE NEC.
2. MARK REQUIRED WORKING CLEARANCE BOUNDARY AT ELECTRICAL EQUIPMENT WITH 45-DEG CROSSHATCH IN FRONT OF GEAR WITH YELLOW PAINT. STENCIL "ELECTRICAL WORKING CLEARANCE, KEEP CLEAR" IN YELLOW WITHIN BOUNDARY.

POWER PLAN KEYNOTES

1. UNWIRED WEATHER PROOF GFI RECEPTACLE PROVIDED WITH UNIT.
2. ROUTE NEW CIRCUIT THROUGH ROOF CURB AND TERMINATE ON THE LINE SIDE OF THE UNIT MOUNTED DISCONNECT.
3. INTERCEPT AND EXTEND THE EXISTING FIRE ALARM CIRCUIT MADE AVAILABLE FROM DEMOLITION OF SMOKE DETECTORS DURING DEMOLITION PHASE TO NEW SMOKE DETECTOR INSTALLED BY MECHANICAL CONTRACTOR.
4. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PD' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY WEATHER PROOF GFI RECEPTACLE, UV LIGHTS, AND TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.
5. EXISTING CIRCUIT FOR RTU IS FED FROM 125A BREAKER IN PANEL 'LHD'. REPLACE BREAKER IN PANEL AND RUN NEW CIRCUIT TO DISCONNECT AT RTU.
6. PROVIDE 24VDC CONTROL WIRE TO SUPPLY AIR TERMINAL FROM LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK LOCATED IN ASSOCIATED ROOF TOP UNIT CONTROL ENCLOSURE. SEE DETAIL A/E.01 FOR MORE INFORMATION.
7. NEW PUMP REPLACED BY MECHANICAL CONTRACTOR.
8. PROVIDE NEW 30A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT AND RUN 3-#12, 1-#12G, 3/4"C FROM PANEL THROUGH STARTER AND TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
9. PROVIDE NEW 50A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT. RUN 3-#10,1-#10G, 3/4"C FROM PANEL THROUGH STARTER TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
10. PROVIDE NEW 65KA, 500A, 3-POLE BREAKER IN EXISTING SQUARE D I-LINE PANELBOARD 'SLHN' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE AND EXTEND 4-#500,1- #2G, 3"C TO NEW CHILLER. LABEL NEW BREAKER "SERVICE DISCONNECT".
11. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO LOAD SIDE LUGS OF DISCONNECT WITH 3-#10,1-#10G,3/4"C. PROVIDE DOUBLE BARREL LUGS ON LOAD SIDE FOR CONNECTION OF CIRCUIT AND SPD. MAKE CONNECTION TO SPD AS SHORT AS POSSIBLE.
12. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO DISCONNECT WITH 2-#12,1-#12G,3/4"C.
13. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PC' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.



KEYPLAN

NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

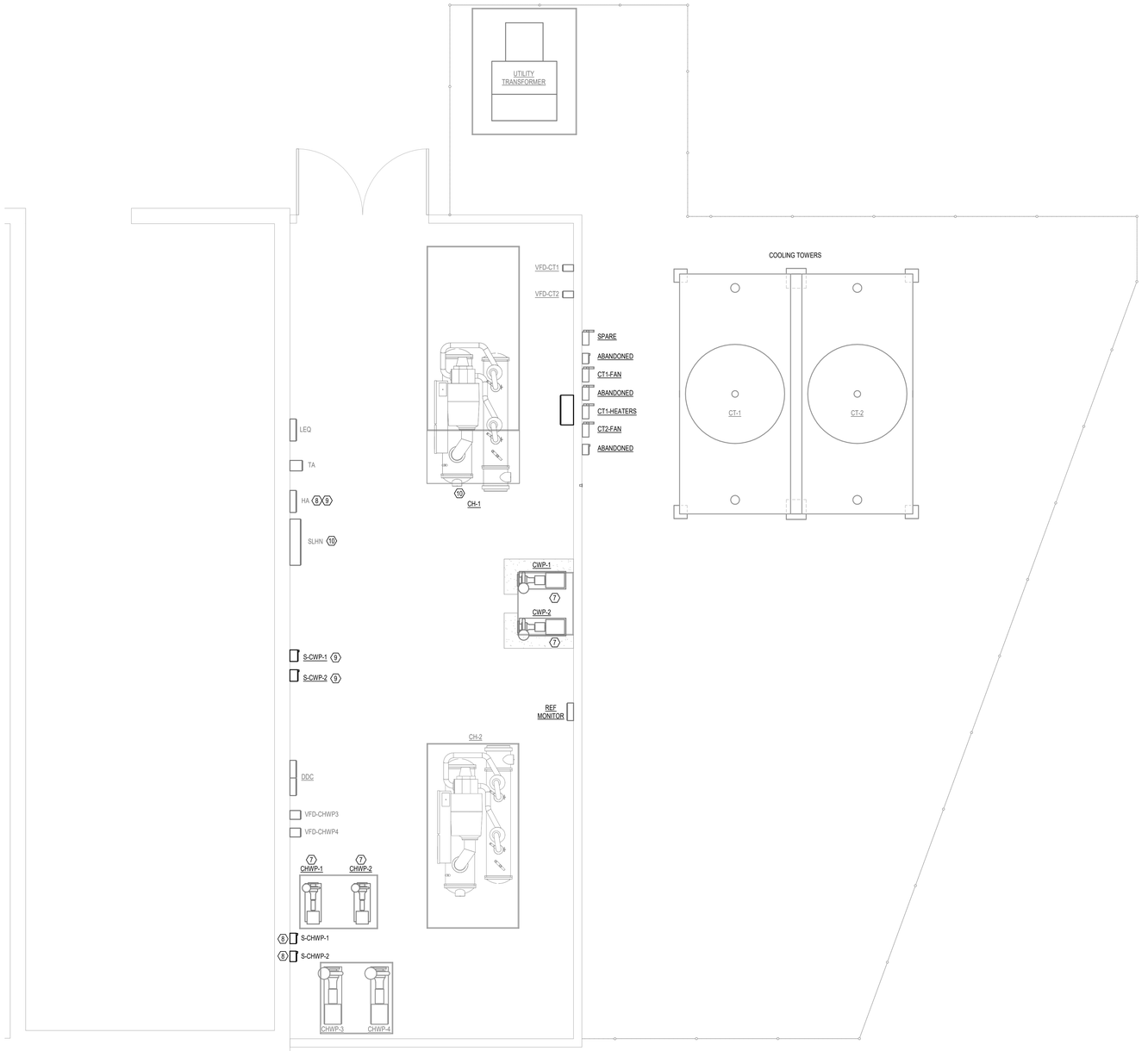
#	Description	Date

SHEET TITLE

AREA C & D FLOOR PLAN RENOVATION

DRAWING NO.

E2.1CD



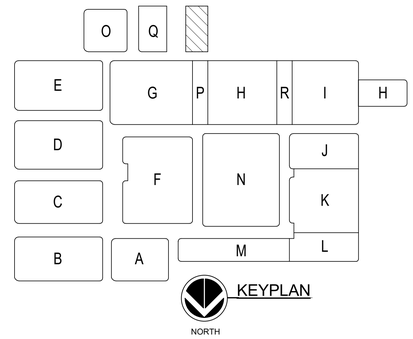
CHILLER PLANT FLOOR PLAN RENOVATION
1/4" = 1'-0"
NORTH

POWER PLAN NOTES

1. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR BRANCH CIRCUIT AND DISCONNECT SWITCH REQUIREMENTS. MECHANICAL EQUIPMENT DISCONNECTS SHOWN ON PLANS ARE DIAGRAMMATIC AND SHOWN FOR CLARITY. LOCATE DISCONNECTS SO ACCESSIBLE AND WITH REQUIRED WORKING CLEARANCE PER THE NEC.
2. MARK REQUIRED WORKING CLEARANCE BOUNDARY AT ELECTRICAL EQUIPMENT WITH 45-DEG CROSSHATCH IN FRONT OF GEAR WITH YELLOW PAINT. STENCIL "ELECTRICAL WORKING CLEARANCE, KEEP CLEAR" IN YELLOW WITHIN BOUNDARY.

POWER PLAN KEYNOTES

1. UNWIRED WEATHER PROOF GFI RECEPTACLE PROVIDED WITH UNIT.
2. ROUTE NEW CIRCUIT THROUGH ROOF CURB AND TERMINATE ON THE LINE SIDE OF THE UNIT MOUNTED DISCONNECT.
3. INTERCEPT AND EXTEND THE EXISTING FIRE ALARM CIRCUIT MADE AVAILABLE FROM DEMOLITION OF SMOKE DETECTORS DURING DEMOLITION PHASE TO NEW SMOKE DETECTOR INSTALLED BY MECHANICAL CONTRACTOR.
4. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PD' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY WEATHER PROOF GFI RECEPTACLE, UV LIGHTS, AND TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.
5. EXISTING CIRCUIT FOR RTU IS FED FROM 125A BREAKER IN PANEL 'LHD'. REPLACE BREAKER IN PANEL AND RUN NEW CIRCUIT TO DISCONNECT AT RTU.
6. PROVIDE 24VDC CONTROL WIRE TO SUPPLY AIR TERMINAL FROM LOW VOLTAGE DISTRIBUTION TERMINAL BLOCK LOCATED IN ASSOCIATED ROOF TOP UNIT CONTROL ENCLOSURE. SEE DETAIL A/E.01 FOR MORE INFORMATION.
7. NEW PUMP REPLACED BY MECHANICAL CONTRACTOR.
8. PROVIDE NEW 30A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT AND RUN 3-#12, 1-#12G, 3/4"C FROM PANEL THROUGH STARTER AND TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
9. PROVIDE NEW 50A, 3-POLE BREAKER IN EXISTING SQUARE-D TYPE-NF PANELBOARD 'HA' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE. NEW CIRCUIT BREAKER SHALL HAVE AN AIC RATING OF AT LEAST 23,000A; SERIES RATING WITH 400A FEEDER BREAKER ALLOWED. PROVIDE NEW COMBINATION STARTER/DISCONNECT. RUN 3-#10,1-#10G, 3/4"C FROM PANEL THROUGH STARTER TO MOTOR CONNECTION. PROVIDE NEW 24V CONTROL WIRING FROM DDC PANEL TO STARTER COIL. SEE MECHANICAL EQUIPMENT SCHEDULE ON SHEET E0.1 FOR STARTER INFORMATION.
10. PROVIDE NEW 65KA, 500A, 3-POLE BREAKER IN EXISTING SQUARE D I-LINE PANELBOARD 'SLHN' IN SPACE MADE AVAILABLE DURING DEMOLITION PHASE AND EXTEND 4-#500,1- #2G, 3"C TO NEW CHILLER. LABEL NEW BREAKER "SERVICE DISCONNECT".
11. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO LOAD SIDE LUGS OF DISCONNECT WITH 3-#10,1-#10G,3/4"C. PROVIDE DOUBLE BARREL LUGS ON LOAD SIDE FOR CONNECTION OF CIRCUIT AND SPD. MAKE CONNECTION TO SPD AS SHORT AS POSSIBLE.
12. PROVIDE SURGE PROTECTION DEVICE CONNECTED TO DISCONNECT WITH 2-#12,1-#12G,3/4"C.
13. PROVIDE NEW 20A, 1P BREAKER IN EXISTING PANEL 'PC' AND EXTEND 2#12, #12G, 3/4"C FOR 120VAC CIRCUIT TO ROOF TOP UNIT. CIRCUIT SHALL SUPPLY TERMINAL UNIT POWER SUPPLY. ROUTE CONDUIT FROM EXISTING PANEL ABOVE CEILING, TURN UP THROUGH ROOF CURB AND TERMINATE IN CONTROL SECTION OF ROOF TOP UNIT. SEE DETAIL A/E.01 FOR MORE INFORMATION.



KEYPLAN
NORTH

H2 ENGINEERING
114 EAST 5th AVENUE
TALLAHASSEE, FL 32303
PHONE 850.224.7922
www.H2Engineering.com

H2E PROJECT No. 25108

Florida Registry #2485
Matthew T. Scaringe, P.E. #54639

SEAL

OKALOOSA COUNTY SCHOOL DISTRICT

MAX BRUNER JR. MIDDLE SCHOOL CHILLER CH-1 AND RTU 13 & 14 REPLACEMENT

322 HOLMES BLVD NW
FORT WALTON BEACH, FL 32548

SUBMITTAL

PHASE	DATE	DRAWN	CHECK
DESIGN DEVELOPMENT	11/07/25	JZB	MTS
CONSTRUCTION DRAWINGS	03/20/26	JZB	MTS

REVISIONS

#	Description	Date

SHEET TITLE
CHILLER PLANT FLOOR PLAN RENOVATION

DRAWING NO.
E2.2