LEGEND

AHU-1	EQUIPMENT TAG
1 / M3	DETAIL TAG (*1* INDICATES IDENTIFICATION NUMBER; *M3* INDICATES THE SHEET NUMBER DRAWN ON)
1	SHEET NOTE
	SUPPLY DUCT SECTION POSITIVE PRESSURE
	RETURN OR EXHAUST DUCT NEGATIVE PRESSURE
AxB	RECTANGULAR DUCT SIZE (*A* INDICATES SIDE SHOWN; *B* INDICATES SIDE NOT SHOWN)
	INDICATES RISE IN ELEVATION OF DUCT.
	EXTERNALLY INSULATED DUCTWORK
	INTERNALLY INSULATED DUCTWORK
	EXTERNALLY INSULATED ROUND FLEXIBLE DUCTWORK
	DUCT ELBOW WITH TURNING VANES
	RADIUSED DUCT ELBOW
	FLEXIBLE DUCT CONNECTION
L	MANUAL VOLUME BALANCING DAMPER
M	MOTORIZED DAMPER
FD	FIRE DAMPER WITH ACCESS DOORS
BD	BACKDRAFT DAMPER
	TEE WITH TURNING VANES
	TRANSITION
	FLEX DUCT TAKE OFF TO DIFFUSER WITH MVD ARROWS INDICATE THROW PATTERN; NO ARROWS INDICATES TYPICAL 4 WAY THROW PATTERN
	BRANCH DUCT TAKEOFF WITH MVD

SR-1 / 100	AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM
(2)SR-1 / 100	AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM (2) INDICATES TYPICAL OF TWO DEVICES
WHP	WALL MOUNTED HEAT PUMP
DP	DEW POINT
TYP	TYPICAL
TEMP	TEMPERATURE
SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
OA	OUTDOOR AIR
TA	TRANSFER AIR
EF	EXHAUST FAN
CD	CEILING DIFFUSER
RG	RETURN GRILLE
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
CREF	CEILING ROOF EXHAUST FAN
AHU	INDOOR AIR HANDLING UNIT
HP	OUTDOOR HEAT PUMP UNIT
T / 1	THERMOSTAT *1* INDICATES UNIT CONTROLLED
S	DUCT MOUNTED SMOKE DETECTOR
FD	FLOOR DRAIN
UC	UNDERCUT DOOR ¾"
AFF	ABOVE FINISHED FLOOR
CD-E / 100	EXISTING AIR DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM
RR	RETURN REGISTER-GRILLE WITH OPPOSED BLADE BALANCING DAMPER
XFR	TRANSFER AIR
RLF	RELIEF AIR
	ADJUSTABLE BAROMETRIC RELIEF DAMPER
ESP	EXTERNAL STATIC PRESSURE
TAB	TESTING, ADJUSTING AND BALANCING
NOM	NOMINAL
TC	TIME CLOCK SWITCH
FD	FIRE DAMPER AT CEILING DIFFUSER OR GRILLE

GENERAL NOTES

1. ALL DUCT DIMENSIONS ARE NET INSIDE.
2. VERIFY COLLAR SIZES ON ALL AIR TERMINALS, EQUIPMENT OUTLETS AND INLETS, TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE TRANSITIONS AT EQUIPMENT CONNECTIONS.
3. FIELD VERIFY CLEAR SPACE AVAILABLE, ROUTING PATH, AND CONFLICTS WITH STRUCTURE AND THE WORK OF OTHER TRADES PRIOR TO FABRICATING DUCTWORK. PROVIDE OFFSETS IN DUCTWORK AS REQUIRED, WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT. SUBMIT SHOP DRAWINGS ON DUCTWORK LAYOUT PRIOR TO COMMENCING WORK. MAINTAIN CLEARANCE AROUND ALL LIGHT FIXTURES AS REQUIRED TO REMOVE AND SERVICE FIXTURES. COORDINATE WITH ROOF TRUSSES/STRUCTURE. PRESSURE TEST ALL DUCTWORK FOR LEAKS. SEE SPECIFICATIONS.
4. CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PIPING, AND DUCTWORK SUCH THAT MANUFACTURERS' RECOMMENDED CLEARANCES ARE MET FOR ALL ACCESS PANELS, MOTORS, FANS, BELTS, FILTERS AND AIR INTAKES. CONDENSATE LINES SHALL BE CLEAR OF FILTER RACK ACCESS.
5. PROVIDE DUCT FLEX CONNECTIONS & VIBRATION ISOLATION FOR ALL UNITS NOT INTERNALLY ISOLATED.
6. ALL SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR INTAKE DUCTWORK SHALL BE GALVANIZED SHEET METAL.
7. ALL AHU FILTERS SHALL BE OF A READILY AVAILABLE SIZE, OF DISPOSABLE TYPE, AND BE ACCESSIBLE WITHOUT THE USE OF SCREWS OR OTHER MECHANICAL DEVICES REQUIRING TOOLS.
8. PROVIDE ACCESS PANELS IN CEILINGS AS REQUIRED FOR MAINTENANCE AND ADJUSTMENT OF EQUIPMENT LOCATED ABOVE CEILING.
9. ALL WORK SHALL COMPLY WITH EIGHTH EDITION OF FLORIDA BUILDING CODE (2023).
10. THIS PROJECT SHALL INCLUDE COMMISSIONING OF THE HVAC, CONTROLS, AND RELATED ELECTRICAL SYSTEMS. THE SERVICES OF THE COMMISSIONING AGENT ARE PROVIDED UNDER SEPARATE CONTRACT. UNDER THIS CONTRACT, THE PRIME CONTRACTOR, SUBCONTRACTORS, AND EQUIPMENT MANUFACTURERS SHALL PROVIDE LABOR AND MATERIAL AS REQUIRED TO ASSIST AND PARTICIPATE IN THE COMMISSIONING PROCESS FOR THE SCOPE OF WORK AS DESCRIBED IN SECTION 23 08 00 OF THE PROJECT SPECIFICATIONS.

DUCTWORK NOTES

1. ALL ROUND FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 8M ACOUSTICAL FLEX, OR ENGINEER APPROVED EQUAL. MAXIMUM LENGTH OF ANY FLEXIBLE DUCT RUNOUT SHALL BE 5'-0". WHERE LENGTH REQUIRED EXCEEDS 5'-0", INSTALL EXTERNALLY INSULATED ROUND SNAPLOCK DUCT FOR BALANCE OF DISTANCE TO SPIN-IN TAP AT MAIN DUCT TRUNK.
2. SEAL ALL DUCT PENETRATIONS OF WALLS AIRTIGHT, REGARDLESS OF WHETHER WALLS ARE FIRE RATED OR NOT.
3. ALL SUPPLY AIR DUCTWORK FROM AHU'S (EXCEPT TAKEOFFS TO SUPPLY AIR DIFFUSERS) SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED WITH 2" FLEXIBLE INSULATION CONFORMING TO ASTM C553, TYPE 1, CLASS B-3 WITH 1 PCF DENSITY AND UL RATED ALUMINUM FOIL VAPOR BARRIER (FSK) UNLESS OTHERWISE INDICATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
4. ALL RETURN AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A. EXTERNALLY INSULATED WITH 2" FLEXIBLE INSULATION CONFORMING TO ASTM C553, TYPE 1, CLASS B-3 WITH 1 PCF DENSITY AND UL RATED ALUMINUM FOIL VAPOR BARRIER (FSK) UNLESS OTHERWISE INDICATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
5. ALL OUTSIDE AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A. EXTERNALLY INSULATED WITH 2" FLEXIBLE INSULATION CONFORMING TO ASTM C553, TYPE 1, CLASS B-3 WITH 1 PCF DENSITY AND UL RATED ALUMINUM FOIL VAPOR BARRIER (FSK) UNLESS OTHERWISE INDICATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
6. STANDARD EXHAUST AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 1/2" W.G., SEAL CLASS A.
7. WHEN ROUTING DUCTWORK OVER LIGHTS, PROVIDE A MINIMUM 6" CLEARANCE BETWEEN DUCT AND LIGHTS.
8. PROVIDE DUCT ACCESS DOORS AT ALL CONTROL DAMPERS, SMOKE DETECTORS, FIRE DAMPERS, AND SMOKE DAMPERS. MINIMUM SIZE OF ACCESS DOOR SERVING FIRE DAMPERS IS 12x12.
9. PROVIDE REMOVABLE DUCT SECTIONS IN DUCTWORK CONTAINING FIRE DAMPERS IF FULL 12X12 ACCESS DOOR CAN NOT BE PROVIDED.

VENTILATION SCHEDULE

SPACE TYPE	VENTILATION CFM/S.F.	VENTILATION CFM/PERSON	EXHAUST CFM
RESTROOM (CONTINUOUS)	0.00	0	50 CFM/WC
JANITORS CLOSETS	0.00	0	1 CFM/S.F.
CORRIDOR	0.00	0	0
STORAGE	0.06	5	0
CLASSROOM	0.12	5	0

NOTE:
VENTILATION RATES IN COMPLIANCE WITH ASHRAE STANDARD 62.1-2019 INDOOR AIR QUALITY METHOD. THE INDOOR AIR QUALITY METHOD IS UTILIZED AS A MEANS OF REDUCTION IN OUTDOOR AIR AND IS SUBMITTED FOR APPROVAL AS AN ALTERNATE DESIGN IN ACCORDANCE WITH FBC 104.11. BIPOLAR IONIZATION IS UTILIZED TO CLEAN INDOOR AIR AND MAINTAIN ACCEPTABLE INDOOR AIR QUALITY WITH A REDUCTION IN OUTDOOR AIRFLOW.

AIR DEVICE SCHEDULE

MARK	MAX AIRFLOW CFM	AIR DEVICE SIZE	DUCT CONNECTION SIZE	TITUS MODEL
CD-1 / CFM	80	9x9	6Ø	TDC
CD-2 / CFM	245	12x12	8Ø	TDC
CD-3 / CFM	325	12x12	10Ø	TDC
CD-4 / CFM	470	15x15	12Ø	TDC
SWG-1 / CFM	150	6x6	6x6	272RL
RG,EG,SG,TG,RR,ER				
xx-1 / CFM	450	12x12	12x12	350FL
xx-2 / CFM	1325	36x16	36x16	350FL
xx-3 / CFM	135	6x6	6x6	272RL

NOTES:
1. MAX NC=20
2. PROVIDE 2x2 LAY IN PANEL FOR AIR DEVICES IN LAY IN CEILINGS.
3. PROVIDE BEVELED MOUNTING FRAME FOR CEILING DIFFUSERS IN HARD CEILINGS.
4. PROVIDE FLAT MOUNTING FRAME FOR GRILLES LOCATED IN HARD CEILINGS.
5. PROVIDE INSECT SCREEN FOR 'SG'.
6. PAINT ALL DUCT VISIBLE THROUGH GRILLES FLAT BLACK.

LOUVER SCHEDULE

MARK	AIRFLOW CFM (MAX)	LOUVER SIZE (WxH) INCHES	FREE AREA FT² (MIN)	PRESSURE DROP IN. WG (MAX)
LVR-1 / CFM	240	12x12	0.29	0.10
LVR-2 / CFM	1500	36x18	2.21	0.10

1. PROVIDE RUSKIN HZ700MD (OR EQUAL) EXTRUDED ALUMINUM, WIND-DRIVEN RAIN RESISTANT, STATIONARY LOUVER WITH BIRDSCREEN AND FLORIDA PRODUCT APPROVAL.
2. FINISH TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.
3. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS.

MINI SPLIT SYSTEM CONDENSING UNIT SCHEDULE

UNIT	BASIS OF DESIGN	MODEL	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING OUTDOOR TEMP DB	SEER2	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING OUTDOOR TEMP DB	HSPF2	VOLTS/PHASE	MCA (AMPS)	MOCP (AMPS)	NOTES
MHP-1	MITSUBISHI	PUZ-A18NKA7	18000	95	20.2	18000	25	9.2	208/1	11	28	1,2,3
MHP-2	MITSUBISHI	PUZ-A12NKA7	12000	95	21.3	12000	25	10.2	208/1	11	28	1,2,3

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°(WB)
3. EFFICIENCY VALUES FOR EER, IEER, AND COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED AND NON-DUCTED INDOOR UNITS.

FAN SCHEDULE

UNIT	TYPE	CFM	MAX. FAN RPM	ESP (IN. H2O)	MAX. MOTOR POWER	SONES/db (MAX.)	BASIS OF DESIGN	MODEL	CONTROL	ELECTRICAL VOLTS/PHASE	NOTES
EF-1	INLINE	800	765	0.5	1-1/2 HP	5.0	COOK	195SQNH17D	CONT. DURING OCCUPANCY BY DDC	208/3	1,2,3,4,5,6
EF-2	CEILING	80	865	0.3	9 W	1.5	COOK	GCVF-100	INTERLOCK W/ LIGHTS	115/1	1,2,3,4,5,6

1. PROVIDE DISCONNECT.
2. PROVIDE SOLID STATE SPEED CONTROLLER.
3. PROVIDE BACKDRAFT DAMPER
4. PROVIDE THERMAL OVERLOAD
5. PROVIDE DIRECT DRIVE FAN WITH EC MOTOR
6. PROVIDE RUBBER IN SHEAR VIBRATION ISOLATION.

MINI SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

UNIT	BASIS OF DESIGN	MODEL	TYPE	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING EAT °F DB/WB	RATED COOLING CAPACITY (BTUH)		NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING TOTAL CAPACITY (BTUH)	DESIGN HEATING EAT °F DB	AIRFLOW (CFM)	VOLTS/PHASE	FAN (WATTS)	FAN FLA (AMPS)	NOTES
						COOLING TOTAL	COOLING SENSIBLE								
WM-1.1	MITSUBISHI	PKA-A18LA1	WALL-MOUNT	18000	72.5/44.7	15700	15700	18000	1200	69.6	375	FED FROM MHP-1	30	0.19	1,2,3,4,5,6,7,8,9,10,11
WM-2.1	MITSUBISHI	PKA-A12LA1	WALL-MOUNT	12000	72.0/44.5	2900	2900	12000	2700	69.8	375	FED FROM MHP-1	30	0.19	1,2,3,4,5,6,7,8,9,10,11

1. PROVIDE 2 " 30% FILTERS AND FILTER HOUSING SHOWN IN DETAILS.
2. EFFICIENCIES IN ACCORDANCE WITH ARI STANDARD 210/240.
3. ESP DOES NOT INCLUDE FILTER, CASING, ETC.
4. PROVIDE CONTROL KIT TO INCLUDE BLOWER CONTACTOR OR STARTER, TRANSFORMER, ELECTRIC HEATER INTERLOCKS. ELECTRICAL SERVICE SHALL BE A SINGLE POINT OF CONNECTION.
5. PROVIDE THERMAL EXPANSION VALVES.
6. DIRECT DRIVE AHU FAN.
7. COOLING CAPACITY IS NET AND DOES NOT INCLUDE FAN HEAT.
8. PROVIDE UNIT MOUNTED CIRCUIT BREAKER FOR INDOOR AIR HANDLERS.
9. COP LISTED IS AT 47°F.
10. PROVIDE EPA APPROVED REFRIGERANT.
11. PROVIDE REFRIGERANT MONITORING SYSTEM.

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David N Watford, State of Florida, Professional Engineer, License No. 58208
This item has been digitally signed and sealed by David N Watford on the date indicated here.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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DAVID N. WATFORD LICENSE NO. 58208 STATE OF FLORIDA PROFESSIONAL ENGINEER

Drawn By: JFG

REVISION

#	Description	Date

HVAC LEGEND, NOTES, AND SCHEDULES

06/06/2025

M0.1

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Project Number: 2025-039
Checked By: DNW
Drawn By: JFG

CONTRACT DOCUMENT DWGS

ROSENWALD

WALL MOUNT HEAT PUMP SCHEDULE

UNIT DESIGNATION	WHP-1	WHP-2	WHP-3	WHP-4	WHP-5	WHP-6	WHP-7	WHP-8	WHP-9	WHP-10	WHP-11	WHP-12	WHP-13	WHP-14
MANUFACTURER	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD	BARD
MODEL NUMBER	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB	T36S1DB
VOLTS/PHASE	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3
MCA (AMPS)	42	42	42	42	42	42	42	42	42	42	42	42	42	42
MOCP (AMPS)	45	45	45	45	45	45	45	45	45	45	45	45	45	45
COOLING														
ENTERING CONDITIONS °F (DB/WB)	75.3/64.3	74.7/65.0	74.9/63.4	74.4/64.8	74.7/65.0	74.4/64.8	75.2/65.3	74.7/64.2	74.9/64.9	74.9/64.8	75.3/64.7	75.2/63.3	74.9/64.8	75.0/64.6
TOTAL CAPACITY (BTUH)	32000	27800	30600	27800	27800	27800	27700	29800	28300	27900	28300	31700	27900	29400
SENSIBLE CAPACITY (BTUH)	23600	20500	23800	20400	20500	20400	20500	22300	2100	20900	21000	24800	20900	22000
EER	11	11	11	11	11	11	11	11	11	11	11	11	11	11
IPLV	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.6	14.7
HEATING TOTAL CAPACITY (BTUH)	13100	9700	12500	10700	9700	10700	11300	13300	9700	9600	9700	13100	9600	11100
COP	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
SUPPLEMENTARY ELECTRIC HEAT (KW)	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW
TOTAL AIR FLOW (CFM)	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
OUTSIDE AIR FLOW (CFM)	140	125	125	125	125	125	125	125	125	125	125	125	125	125
EXTERNAL STATIC PRESSURE (IN WG.)	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
FAN HP	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
DEHUMIDIFICATION														
RATED AIRFLOW (CFM)	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
LATENT CAPACITY (BTUH)	17211	17211	17211	17211	17211	17211	17211	17211	17211	17211	17211	17211	17211	17211
SENSIBLE CAPACITY (BTUH)	957	957	957	957	957	957	957	957	957	957	957	957	957	957
NOTES	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13	1,2,3,4,5,6,7, 8,9,10,11,12,13

1. DOES NOT INCLUDE FILTER, FILTER LOADING, ELECTRIC HEAT, CASING, ETC.
2. PROVIDE VARIABLE SPEED DIRECT DRIVE FAN WITH ECM MOTOR.
3. ALL WHP'S SHALL BE PROVIDED WITH THERMAL EXPANSION VALVES.
4. PROVIDE CONTROL KIT TO INCLUDE BLOWER CONTRACTOR OR STARTER, TRANSFORMER, ELECTRIC HEATER INTERLOCKS AND LOCKOUTS. ELECTRICAL SERVICE SHALL BE SINGLE POINT OF CONNECTION.
5. HORIZONTAL DISCHARGE AND RETURN CONFIGURATION.
6. PROVIDED FACTORY FURNISHED AND WIRED DISCONNECT.
7. PROVIDE UNIT WITH SS IAQ DRAIN PAN.
8. RATED IN ACCORDANCE WITH ARI STANDARD 390.
9. REHEAT CAPACITY AT 75F OUTDOOR, 75.0/65.5F DB/WB INDOOR.
10. PROVIDE FACTORY MOTORIZED OA DAMPER.
11. HEAT PUMP CAPACITY (WITHOUT ELECTRIC HEAT) AT 47F AMBIENT AT ARI CONDITIONS.
12. ELECTRIC HEAT RATED CAPACITY AT 460 V.
13. PROVIDE UNITS COMPLYING WITH 2023 FLORIDA ENERGY CONSERVATION CODE.

AIR PURIFICATION EQUIPMENT SCHEDULE

ZONE	SUPPLY CFM	OA CFM	PRESS. IN. W.C.	BASIS OF DESIGN	MODEL	QUANTITY	ELECTRICAL		NOTES
							VOLTS/PHASE	WATTS	
WHP-1	1100	140	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-2	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-3	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-4	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-5	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-6	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-7	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-8	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-9	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-10	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-11	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-12	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-13	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5
WHP-14	1100	125	0.05	GPS	DM48-AC	1	24/1	12	1,2,3,4,5

1. PROVIDE BASIS OF DESIGN OR EQUAL BY PLASMA AIR OR ACTIVE AIR SOLUTIONS.
2. BI-POLAR IONIZATION SYSTEMS REQUIRING PERISHABLE GLASS TUBES ARE NOT ACCEPTABLE.
3. MANUFACTURER MUST PASS UL-867-2007 OZONE CHAMBER TESTING BY EITHER UL OR ETL.
4. ELECTRICAL INPUT SHALL BE FROM FAN CONTROL TERMINALS.
5. UNIT SHALL BE MOUNTED IN SUPPLY AIR DUCT.

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DAVID N. WATFORD LICENSE NO. 58208 STATE OF FLORIDA PROFESSIONAL ENGINEER

Drawn By:
JFG

REVISION

#	Description	Date

HVAC SCHEDULES

06/06/2025

M0.2

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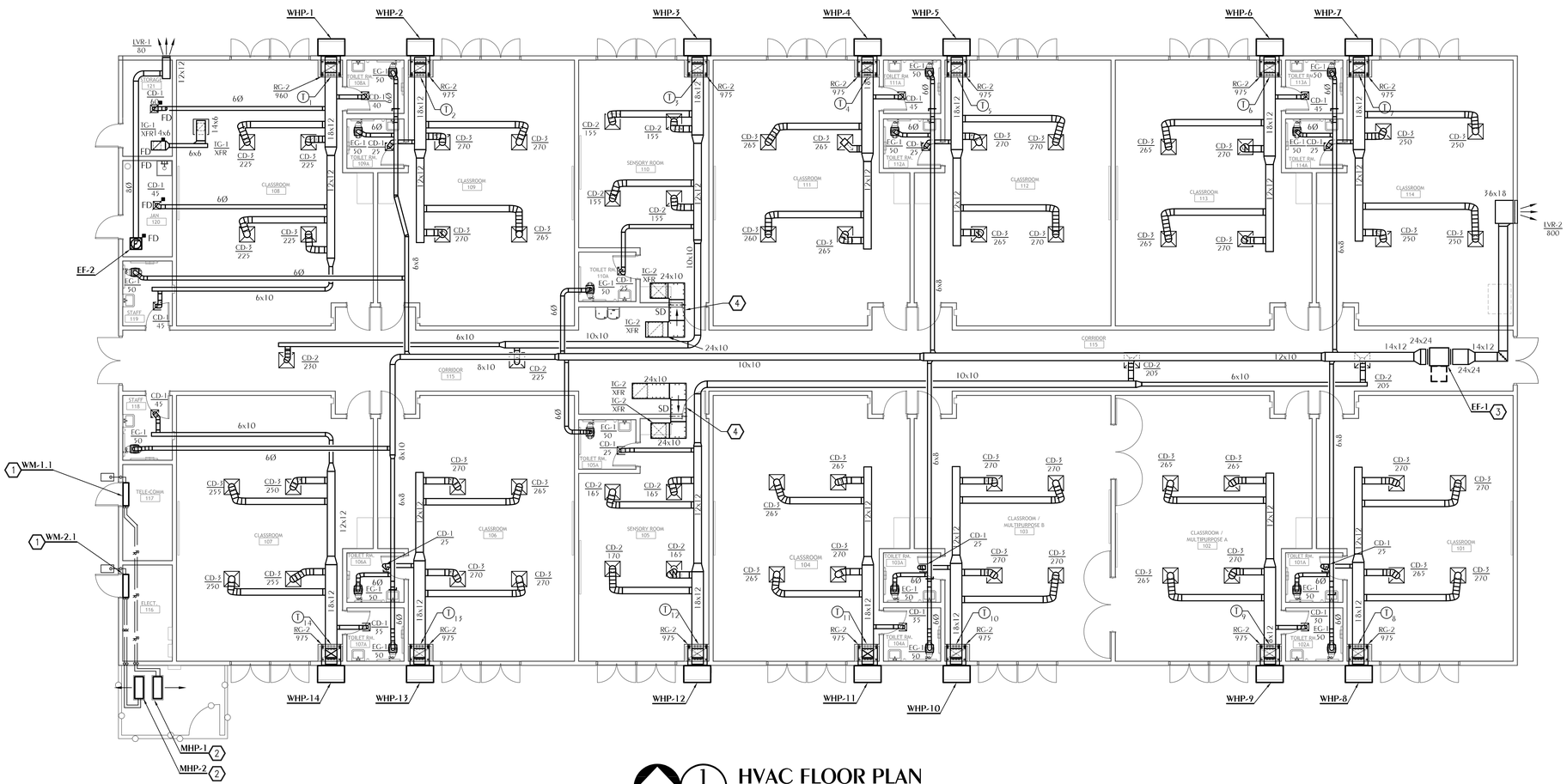
Project Number: 2025-039
Checked By: DNW
Drawn By: JFG

CONTRACT DOCUMENT DWGS

ROSENWALD

SHEET NOTES

1. ROUTE CONDENSATE IN EXTERIOR WALL AND PENETRATE WALL AT 18"AFF. DISCHARGE OVER ARCHITECTURAL SPLASHBLOCK.
2. COORDINATE FINAL EQUIPMENT LOCATION WITH EQUIPMENT CLEARANCES, FENCE AND ELECTRICAL PANELS.
3. MAINTAIN CLEAR SERVICE AREA. COORDINATE WITH ELECTRICAL AND TELECOMM.
4. PROVIDE BACKDRAFT DAMPER TO LIMIT FLOW OF AIR OUT OF CORRIDOR ONLY.



HVAC FLOOR PLAN

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

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ROSENWALD ACADEMY

924 BAY AVENUE, PANAMA CITY, FL 32401

FOR BAY DISTRICT SCHOOLS - 1311 BALBOA AVE., PANAMA CITY, FL 32401

DAVID N. WATFORD LICENSE NO. 58208 STATE OF FLORIDA PROFESSIONAL ENGINEER

Drawn By:
JFG

REVISION

#	Description	Date

HVAC FLOOR PLAN

06/06/2025

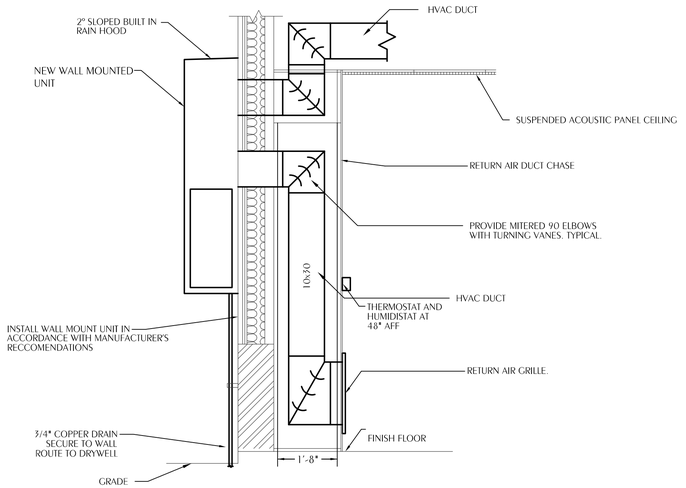
M1.1

WATFORD ENGINEERING
4452 Clinton Street Marianna, Florida 32446
2449 Moores Mill Rd, Suite 100 Auburn, AL 36830

Florida CA Number: 27825
David N. Watford, PE
Florida License Number: 58208
850.526.3447 / 334.209.0212
Project Number: 2025-039
Checked By: DNW
Drawn By: JFG

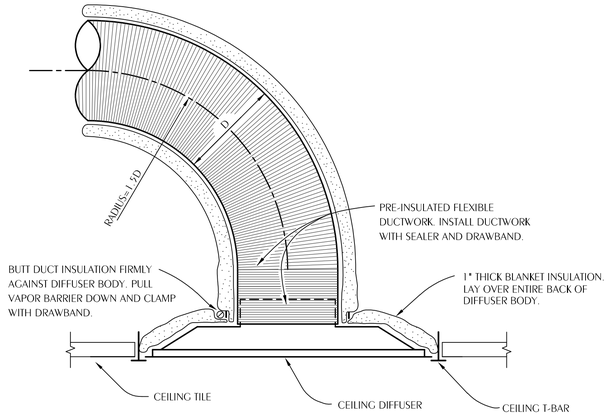
CONTRACT DOCUMENT DWGS

ROSENWALD



1 M2.1 TYPICAL WHU MOUNTING DETAIL - TYPICAL CLASSROOM WING

SCALE: NONE



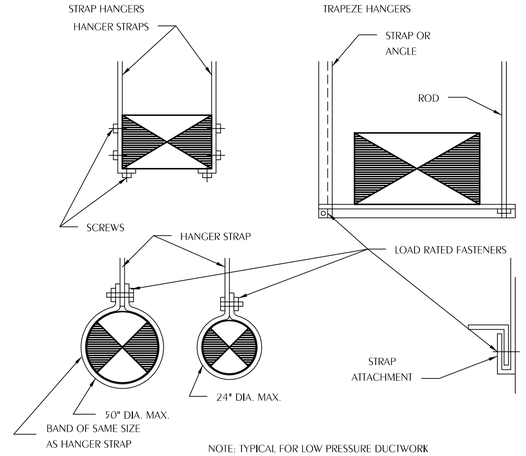
NOTES:
FLEX DUCT SHALL BE NO LONGER THAN 5'-0". FLEXIBLE DUCT SHALL HAVE REINFORCED, METALIZED POLYESTER JACKET WITH NO FIBERGLASS EROSION IN THE AIRSTREAM AND AN ENCAPSULATED WIRE HELIX. FLEX DUCT SHALL HAVE OPERATING PRESSURE OF 6" W.G. AND NEGATIVE OPERATING PRESSURE OF 0.75" W.G. FLEX DUCT SHALL HAVE R-VALUE OF R-6 AND MEET REQUIREMENTS OF UL-181, 2023 FLORIDA ENERGY CODE, NFPA 90A AND NFPA 90B. ATCO 36 OR APPROVED EQUAL.

PROVIDE 24x24 LAY IN PANEL FOR DIFFUSERS IN LAY IN CEILINGS.

PROVIDE BEVELED MOUNTING FRAME FOR DIFFUSERS IN HARD CEILINGS.

2 M2.1 TYPICAL CEILING DIFFUSER DETAIL

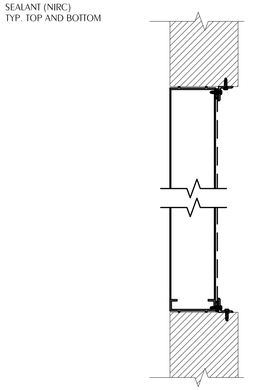
SCALE: NONE



NOTE: TYPICAL FOR LOW PRESSURE DUCTWORK

3 M2.1 DUCT HANGER DETAILS

SCALE: NONE



STRUCTURE (NIRC)

1-1/2" x 1-1/2" x 1/4" x CONT. CLIP ANGLE, ATTACH TO STRUCTURE WITH 1/4"Ø A307 BOLT OR 1/4"-14 GRADE 2 SELF DRILLING SCREWS AT 2-1/2" FROM ENDS AND 3-1/2" MAX. C-C.

1-1/2" x 1-1/2" x 1/4" x CONT. CLIP ANGLE, ATTACH TO HEAD WITH 12-14 x 1-1/2" GRADE 2 SELF DRILLING SCREWS AT 2" FROM ENDS AND 1-3/4" MAX. C-C.

BIRD SCREEN

1-1/2" x 1-1/2" x 1/4" x CONT. CLIP ANGLE, ATTACH TO HEAD WITH 12-14 x 1-1/2" GRADE 2 SELF DRILLING SCREWS AT 2" FROM ENDS AND 1-3/4" MAX. C-C.

HEAD AND SILL DETAIL
N.T.S.

NOTES:
1. THE INSTALLATION SHOWN HEREIN MUST BE FOLLOWED STRICTLY TO ENSURE COMPLIANCE WITH FLORIDA BUILDING CODE PRODUCT APPROVAL.
2. CONTINUOUS INSTALLATION ANGLES AND FASTENERS ARE SHIPPED LOOSE AND REQUIRE INSTALLATION IN THE FIELD.
3. SHIMS MAY BE REQUIRED TO ACHIEVE CONSISTENT CLEARANCE BETWEEN LOUVER AND OPENING ON ALL SIDES.

1-1/2" x 1-1/2" x 1/4" x 2" CLIP ANGLE AT 3" FROM ENDS AND 22" MAX. C-C. ATTACH ANGLE TO JAMB WITH (2) #10-16 x 1-1/2" GRADE 2 SELF DRILLING SCREWS AND TO STRUCTURE WITH (1)1/4"Ø A307 BOLT OR (1)1/4"-14 GRADE 2 SELF DRILLING SCREW.

BIRDSCREEN

SEALANT (NIRC) TYP. BOTH SIDES

LOUVER REF

LOUVER JAMB FRAME REF

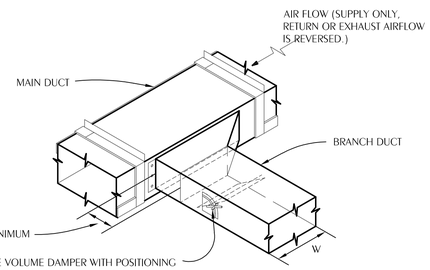
S.S.D.

LOUVER SECTION AT JAMB
N.T.S.

4 M2.1 WALL LOUVER DETAIL

SCALE: NONE RUSKIN EME3625MD OR EQUAL

MIAMI-DADE NOA NO. 23-1116.02

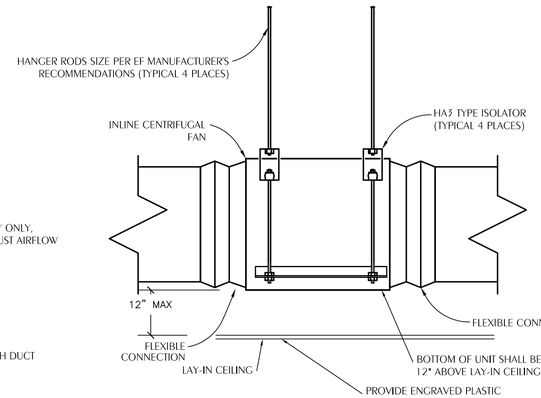


NOTES:
PROVIDE CABLE ACTIVATED DAMPER WITH ADJUSTMENT IN FACE OF AIR DEVICE FOR INACCESSIBLE TAKEOFFS LOCATED ABOVE HARD CEILINGS.

FLEXIBLE INSULATION SHALL BE 2" THICK, ASTM C553, TYPE 1, CLASS B-3 WITH 1 PCF DENSITY AND UL RATED ALUMINUM FOIL VAPOR BARRIER (FSK)

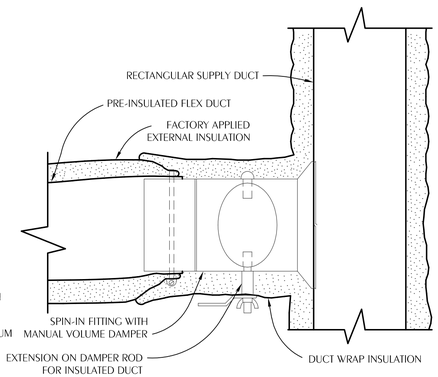
5 M2.1 TYPICAL BRANCH DUCT TAKEOFF

SCALE: NONE



6 M2.1 INLINE FAN DETAIL

SCALE: NONE



NOTES:
CONNECT FLEXIBLE DUCT TO FITTING WITH DRAWBAND AND SEALER.

ROUND HARD DUCT RUNOUTS SHOULD START WITH SPIN-IN FITTINGS SIMILAR TO THIS DETAIL.

PROVIDE CABLE ACTIVATED DAMPER WITH ADJUSTMENT IN FACE OF CEILING DIFFUSER FOR INACCESSIBLE TAKEOFFS.

FLEXIBLE INSULATION SHALL BE 2" THICK, ASTM C553, TYPE 1, CLASS B-3 WITH 1 PCF DENSITY AND UL RATED ALUMINUM FOIL VAPOR BARRIER (FSK)

7 M2.1 TYPICAL FLEX DUCT TAKEOFF DETAIL

SCALE: NONE

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Design - Build Contractor
230 West 5th Street
Panama City, FL 32401
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495 Grand Blvd., Suite 206
Miramar Beach, FL 32550
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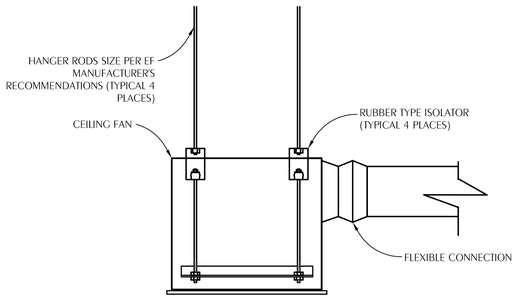
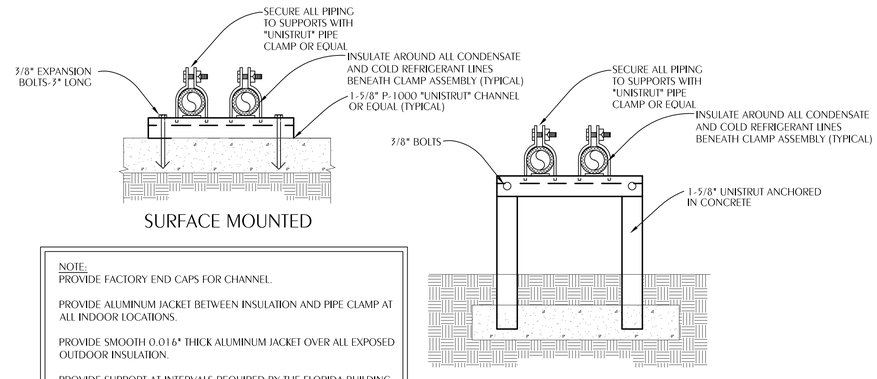


1 CEILING FAN DETAIL
M2.2 SCALE: NONE



NOTE:
PROVIDE FACTORY END CAPS FOR CHANNEL.

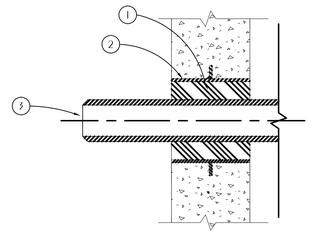
PROVIDE ALUMINUM JACKET BETWEEN INSULATION AND PIPE CLAMP AT ALL INDOOR LOCATIONS.

PROVIDE SMOOTH 0.016" THICK ALUMINUM JACKET OVER ALL EXPOSED OUTDOOR INSULATION.

PROVIDE SUPPORT AT INTERVALS REQUIRED BY THE FLORIDA BUILDING CODE.

INSULATE ALL REFRIGERANT PIPING WITH 3/4" UNICELLULAR INSULATION.

2 TYPICAL EXTERIOR PIPING SUPPORT DETAIL
M2.2 SCALE: NONE



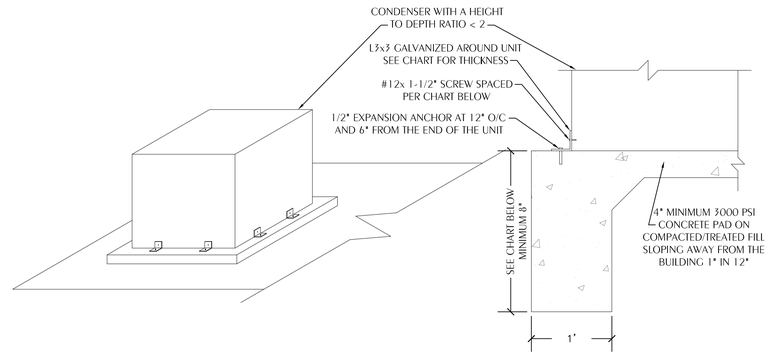
1 WALL SEAL AS DESCRIBED BELOW

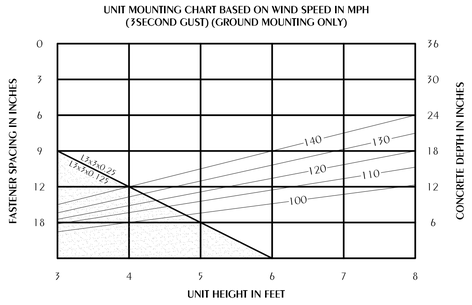
FILL, VOID OR CAVITY MATERIALS*—FIRE CAULK—MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS ON BOTH SIDES OF WALL ASSEMBLY. THICKNESS FOR FILL MATERIAL FOR NOM 3 IN. DIAM (OR SMALLER) STEEL PIPES OR CONDUITS MAY BE REDUCED TO A MIN 1/2 IN. A NOM 1/4 IN. DIAM CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY.

MINNESOTA MINING & MFG. CO.—CP 25WB+
*BEARING THE UL CLASSIFICATION MARKING

2 PIPE SLEEVE PER SPECIFICATIONS

3 METALLIC PIPE - STEEL





DESIGN CRITERIA:

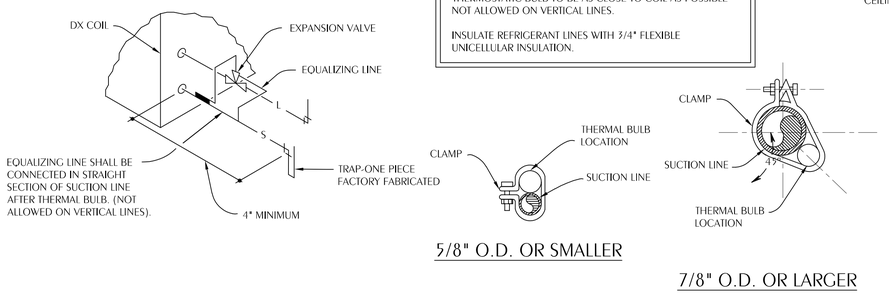
CODE:	ASCE 7-05
VELOCITY:	SEE BELOW
Kz:	0.70
Kzt:	1.00
Kd:	0.85
IMPORTANCE:	I 1.15
EXPOSURE:	B
Cf:	1.3
Gf:	0.85
qz:	
100 mph	17.52 psf
110 mph	21.20 psf
120 mph	25.22 psf
130 mph	29.60 psf
140 mph	34.33 psf
Pdesign:	
100 mph	19.36 psf
110 mph	23.42 psf
120 mph	27.87 psf
130 mph	32.71 psf
140 mph	37.94 psf

3 OUTDOOR MECHANICAL UNIT MOUNTING DETAIL
M2.2 SCALE: NONE

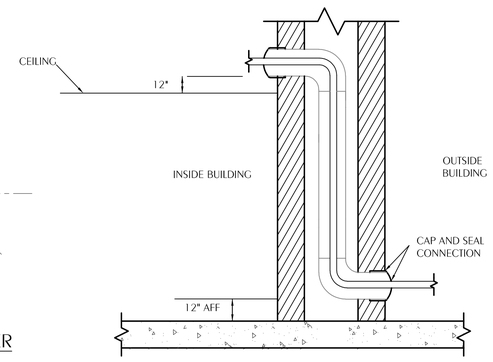
4 TYPICAL PIPE PENETRATION OF SMOKE WALL
M2.2 SCALE: NONE

NOTES:
THERMOSTATIC BULB TO BE AS CLOSE TO COIL AS POSSIBLE NOT ALLOWED ON VERTICAL LINES.

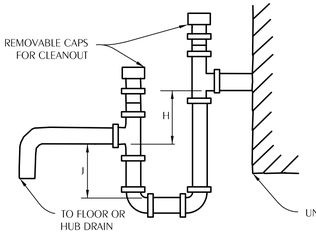
INSULATE REFRIGERANT LINES WITH 3/4" FLEXIBLE UNICELLULAR INSULATION.



5 REFRIGERANT COIL CONNECTION DETAIL
M2.2 SCALE: NONE



6 REFRIGERANT PIPE THROUGH WALL DETAIL
M2.2 SCALE: NONE



NOTES:
PIPE TYPE 'L' HARD DRAWN COPPER CONDENSATE LINE AT FULL SIZE OF UNIT CONNECTION, BUT IN NO CASE SMALLER THAN 3/4" . CONDENSATE LINES SHALL BE INSULATED WITH 1/2" FLEXIBLE UNICELLULAR INSULATION.

LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.

H = AIR UNIT TOTAL STATIC PRESSURE + 1"

J = H/2

CONDENSATE PIPE SHALL BE PROVIDED BY THE HVAC CONTRACTOR.

7 NEGATIVE PRESSURE CONDENSATE DRAIN TRAP
M2.2 SCALE: NONE

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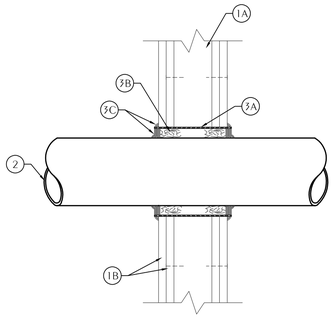
REVISION

#	Description	Date

HVAC DETAILS

06/06/2025

M2.2



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. *FIRE RESISTANCE DIRECTORY* FOR DETAILS.
UL SYSTEM WL1003

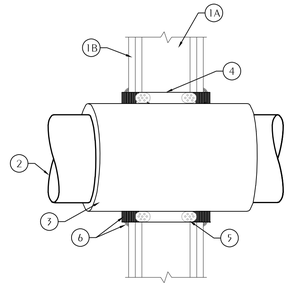
1. **WALL ASSEMBLY**—THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. **STUDS**—WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-1/2 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
   B. **WALLBOARD, GYPSUM***—NOM 5/8 IN. THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 15 IN.

   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. **THROUGH-PENETRANT**—ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE SPACE BETWEEN PIPES, CONDUITS OR TUBING AND THE STEEL SLEEVE (ITEM 3A) SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 2-3/8 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. **STEEL PIPE**—NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. **IRON PIPE**—NOM 12 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN. DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
   C. **CONDUIT**—NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
   D. **COPPER TUBING**—NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   E. **COPPER PIPE**—NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. **FIRESTOP SYSTEM**—INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS.
   A. **STEEL SLEEVE**—CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.019 IN. THICK (NO. 28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 2 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS 1 TO 4 IN. SUCH THAT, WHEN INSTALLED, THE ENDS OF THE SLEEVE WILL PROJECT APPROXIMATELY 1/2 TO 2 IN. BEYOND THE SURFACE OF THE WALL ON BOTH SIDES OF THE WALL ASSEMBLY.
      SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM
      WALLBOARD LAYERS.
   B. **PACKING MATERIAL**—MIN 1 IN. THICKNESS OF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO STEEL SLEEVE ON BOTH SIDES OF THE WALL ASSEMBLY AS PERMANENT FORMS. PACKING MATERIAL TO BE RECESSED MIN 1/2 IN. FROM END OF STEEL SLEEVE (FLUSH WITH OR RECESSED INTO GYPSUM WALLBOARD SURFACE) ON BOTH SIDES OF WALL ASSEMBLY.

   B1. **PACKING MATERIAL**—(NOT SHOWN)—AS AN ALTERNATE TO ITEM B, NOM 1 IN. THICK POLYETHYLENE BACKER ROD MAY BE USED. THE BACKER ROD IS TO BE RECESSED WITHIN THE STEEL SLEEVE A MIN OF 1 IN. FROM EACH SURFACE OF WALL ASSEMBLY.
   C. **FILL, VOID OR CAVITY MATERIALS***—**CAULK**—WHEN MINERAL WOOL BATT INSULATION IS USED, APPLIED TO FILL THE STEEL SLEEVE TO A MIN DEPTH OF 1/2 IN. ON BOTH SIDES OF WALL ASSEMBLY. WHEN BACKER ROD IS USED, A MIN THICKNESS OF 1 IN. OF CP-25WB+ CAULK IS REQUIRED FLUSH WITH SURFACE OF WALL. A NOM 1/4 IN. DIAM CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY. **MINNESOTA MINING & MFG. CO.**—CP 25WB+

*BEARING THE UL CLASSIFICATION MARKING

1 TYPICAL FIRE RATED WALL PENETRATION
M3.1 SCALE: NONE — BARE METALLIC PIPE

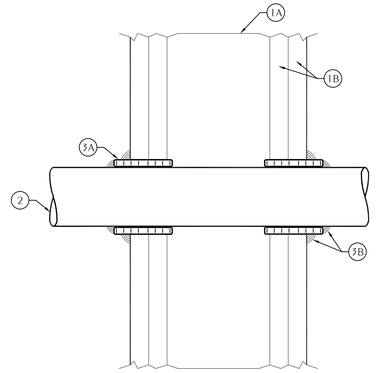


CONSULT CURRENT UNDERWRITERS LABORATORIES *FIRE RESISTANCE DIRECTORY* FOR DETAILS
UL SYSTEM WL5011

1. **WALL ASSEMBLY**—THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALLASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. **STUDS**—WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 DEEP CHANNELS SPACED MAX 24 IN. OC.
   B. **WALLBOARD, GYPSUM***—NOM 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 14-1/2 IN. FOR WOOD STUD WALLS AND 17 IN. FOR STEEL STUD WALLS.
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 1 HR WHEN INSTALLED IN A 1 HR FIRE RATED WALL AND 2 HR WHEN INSTALLED IN A 2 HR FIRE RATED WALL.
2. **THROUGH PENETRANTS**—ONE METALLIC PIPE, CONDUIT OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. **STEEL PIPE**—NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. WHEN STEEL PIPE IS USED, T RATING IS 1 HR.
   B. **CONDUIT**—NOM 3 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. WHEN STEEL CONDUIT IS USED, T RATING IS 1/4 HR.
   C. **COPPER TUBING**—NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. WHEN COPPER TUBING IS USED, T RATING IS 1/2 AND 1 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALLS, RESPECTIVELY.
   D. **COPPER PIPE**—NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. WHEN COPPER PIPE IS USED, T RATING IS 1/2 AND 1 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALLS, RESPECTIVELY.
3. **PIPE COVERING***—NOM 1 OR 1-1/2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORYAPPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SEALED WITH METAL FASTENER STRIP TAPE SUPPLIED WITH THE PRODUCT.
   SEE **PIPE AND EQUIPMENT COVERINGS—MATERIALS**—(BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
4. **STEEL SLEEVE**—CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.019 IN. THICK (NO. 28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 2 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS 1 IN. SUCH THAT, WHEN INSTALLED, THE ENDS OF THE SLEEVE WILL PROJECT APPROX 1/2 IN. BEYOND THE SURFACE OF THE WALL ON BOTH SIDES OF THE WALL ASSEMBLY. THE DIAM OF THE OPENINGS CUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL ASSEMBLY (CONCENTRIC WITH PIPE) TO BE 2 TO 2-1/2 IN. LARGER THAN OUTSIDE DIAM OF PIPE INSULATION SUCH THAT, WHEN THE STEEL SLEEVE IS INSTALLED, A 1 TO 1-1/4 IN. ANNULAR SPACE WILL BE PRESENT BETWEEN THE STEEL SLEEVE AND THE PIPE INSULATION AROUND THE ENTIRE CIRCUMFERENCE OF THE PIPE. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM WALLBOARD LAYERS.
5. **PACKING MATERIAL**—POLYETHYLENE BACKER ROD OR MIN 1 IN. THICKNESS OF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO STEEL SLEEVE ON BOTH SIDES OF THE WALL ASSEMBLY AS PERMANENT FORMS. PACKING MATERIAL TO BE RECESSED MIN 1 IN. FROM END OF STEEL SLEEVE (RECESSED MIN 1/2 IN. INTO GYPSUM WALLBOARD SURFACE) ON BOTH SIDES OF WALL ASSEMBLY.
6. **FILL, VOID OR CAVITY MATERIALS***—**CAULK**—MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS ON BOTH SIDES OF WALL ASSEMBLY. THICKNESS FOR FILL MATERIAL FOR NOM 3 IN. DIAM (OR SMALLER) STEEL PIPES OR CONDUITS MAY BE REDUCED TO A MIN 1/2 IN. A NOM 1/4 IN. DIAM CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY. **MINNESOTA MINING & MFG. CO.**—CP 25WB+

*BEARING THE UL CLASSIFICATION MARKING

2 TYPICAL FIRE RATED WALL PENETRATION
M3.1 SCALE: NONE — INSULATED METALLIC PIPE



CONSULT CURRENT UNDERWRITERS LABORATORIES *FIRE RESISTANCE DIRECTORY* FOR DETAILS
UL SYSTEM WL2003

1. **WALL ASSEMBLY**—THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. **STUDS**—WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
   B. **WALLBOARD, GYPSUM***—5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 3-1/8 IN.
2. **THROUGH PENETRANTS**—ONE NONMETALLIC PIPE OR CONDUIT TO BE CENTERED INTHE THROUGH OPENING. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 1/4 IN. AND MAX 3/8 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES OR CONDUITS MAY BE USED:
   A. **POLYVINYL CHLORIDE (PVC) PIPE**—NOM 2 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
   B. **RIGID NONMETALLIC CONDUIT++**—NOM 4 IN. DIAM (OR SMALLER)(SCHEDULE 40 OR 80) PVC CONDUIT INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NATIONAL ELECTRIC CODE (NFPA NO. 70).
   C. **CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE**—NOM 2 IN. DIAM (OR SMALLER) SDR17 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
   D. **CELLULAR CORE POLYVINYL CHLORIDE (CCPVC) PIPE**—NOM 2 IN. DIAM (OR SMALLER) SCHEDULE 40 CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
   E. **ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE**—NOM 2 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
   F. **CELLULAR CORE ACRYLONITRILE BUTADIENE STYRENE (CCABS) PIPE**—NOM 2 IN. DIAM (OR SMALLER) SCHEDULE 40 CELLULAR CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
3. **FIRESTOP SYSTEM**—INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F AND T RATINGS FOR THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS.
   A. **FILL, VOID OR CAVITY MATERIALS***—**WRAP STRIP**—NOM 1/4 IN. THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. WIDE STRIPS. NOM 2 IN. WIDE STRIP TIGHTLY WRAPPED AROUND NONMETALLIC PIPE (FOIL SIDE OUT) WITH SEAM BUTTED. WRAP STRIP LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROX 1-1/4 IN. SUCH THAT APPROX 3/4 IN. OF THE WRAP STRIP PROTRUDES FROM THE WALL SURFACE.
      MINNESOTA MINING & MFG. CO.—FS-195+
   B. **FILL, VOID OR CAVITY MATERIALS***—**CAULK OR PUTTY**—MIN 5/8 IN. THICKNESS OF CAULK OR PUTTY APPLIED INTO ANNULAR SPACE BETWEEN WRAP STRIP AND PERIPHERY OF OPENING. A NOM 1/4 IN. DIAM BEAD OF CAULK OR PUTTY TO BE APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP STRIP LAYERS APPROX 3/4 IN. FROM THE WALL SURFACE. MINNESOTA MINING & MFG CO.—CP 25WB+ CAULK OR MPS-2+ PUTTY. (NOTE: L RATINGS APPLY ONLY WHEN TYPE CP-25 WB+ CAULK IS USED.)
   C. **FOIL TAPE**—(NOT SHOWN)—NOM 4 IN. WIDE, 3 MIL THICK ALUMINUM TAPE WRAPPED AROUND PIPE PRIOR TO THE INSTALLATION OF THE WRAP STRIP (ITEM 3A). MIN OF ONE WRAP, FLUSH WITH BOTH SIDES OF WALL AND PROCEEDING OUTWARD. TAPE IS NOT REQUIRED FOR PIPES SHOWN IN ITEMS 2A, 2B AND 2C.

*BEARING THE UL CLASSIFICATION MARKING

3 TYPICAL FIRE RATED WALL PENETRATION
M3.1 SCALE: NONE — BARE PLASTIC PIPE 2" DIAMETER OR SMALLER

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FOR BAY DISTRICT SCHOOLS - 1311 BALBOA AVE., PANAMA CITY, FL 32401

DAVID N. WATFORD LICENSE NO. 58208 STATE OF FLORIDA PROFESSIONAL ENGINEER

Drawn By: JFG

REVISION

#	Description	Date

FIRE/SMOKE RATED PENETRATION DETAILS

06/06/2025

M3.1

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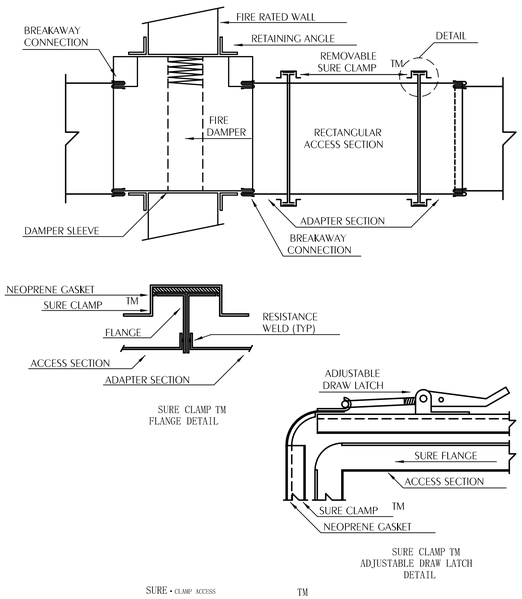
Project Number: 2025-039
Checked By: DNW
Drawn By: JFG

CONTRACT DOCUMENT DWGS

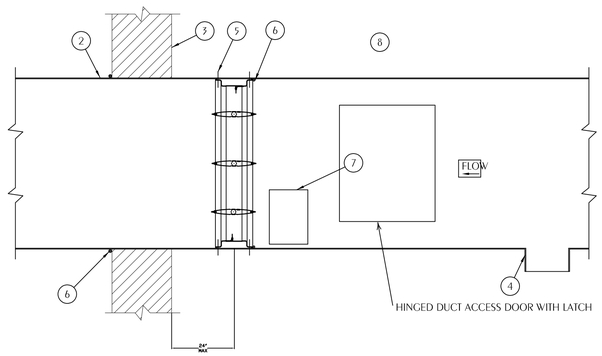
ROSENWALD



1 M3.2 RECTANGULAR REMOVABLE DUCTWORK SECTION FIRE DAMPER ACCESS

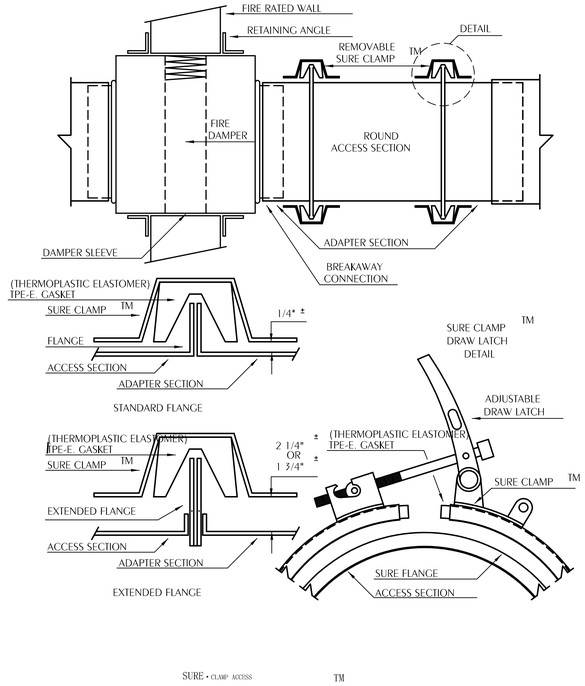
SCALE: NONE

ITEM.	DESCRIPTION
1.	DAMPER
2.	DUCT (SLEEVE)
3.	SMOKE BARRIER
4.	DUCT OUTLET
5.	#8 MIN FASTENER
6.	CAULKING MATERIAL
7.	24V/1 PHASE OPERATOR/ACTUATOR
8.	REFER TO ELECTRICAL DRAWINGS FOR SMOKE DETECTOR LOCATIONS



2 M3.2 TYPICAL SMOKE DAMPER DETAIL

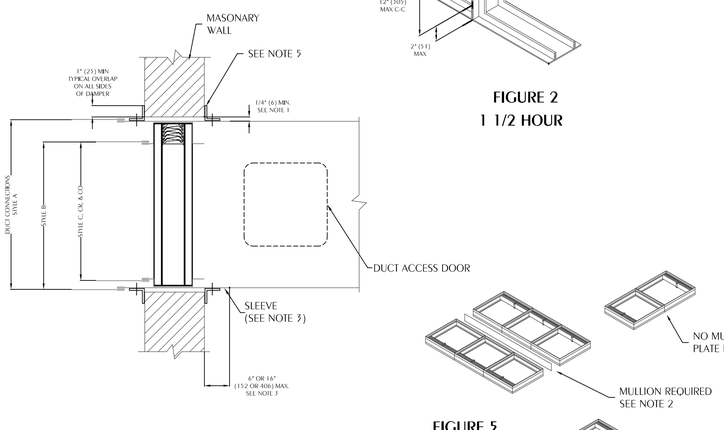
SCALE: NONE

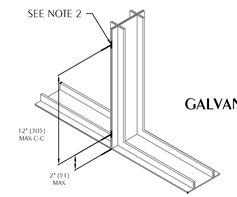


3 M3.2 ROUND REMOVABLE DUCTWORK SECTION FIRE DAMPER ACCESS

SCALE: NONE

VERTICAL INSTALLATION





GALVANIZED DAMPERS

FIGURE 2
1 1/2 HOUR

FIGURE 5

4 M3.2 TYPICAL VERTICAL FIRE DAMPER DETAIL

SCALE: NONE

1. Opening Clearance
The opening in the wall or floor shall be larger than the damper/sleeve assembly to permit installation or expansion. For two angle installations the opening shall be a minimum of 1/8" per foot (3 per 305) larger than the overall size of the damper/sleeve assembly. The maximum opening size shall not exceed 1/8" per foot (3 per 305) plus 2" (51), nor shall the opening be less than 1/4" (6) larger than the damper/sleeve assembly. For one angle installations, the opening shall be a minimum of 1/4" (6) to a maximum of 1" (25) larger than the overall size of the damper/sleeve assembly. The opening may be as much as 2" (51) larger than the damper/sleeve assembly if a 16ga (1.6) mounting angles is utilized.

2. Fasteners and Multiple Section Assembly
Use No. 10 (M5) bolts or screws, 3/16" (5) rivets, tack welds or spot welds as depicted in figures 3 and 4 and spaced as follows when joining individual dampers to make multiple section damper assemblies or when fastening damper to the sleeve:

Vertical Mount (In wall)	
Galvanized steel dampers	12" (305) spacing
Stainless steel dampers	6" (152) spacing
Horizontal Mount (In floor)	
All dampers	6" (152) spacing

Multiple section horizontal mount dampers require a 14 gage thick x 41/2" (2 x 114) wide steel reinforcing plate sandwiched between the damper frames with 1/2" (13) long welds staggered intermittently and spaced on maximum 6" (152) centers. The reinforcing plate must be the same material as the dampers. The length must be equal to the damper width of two or more adjoining damper sections. Reinforcing plates are not required for assemblies consisting of two dampers attached end-to-end or three dampers attached side-to-side as depicted in figure 5.

3. Damper Sleeve
Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gage requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA90A. If a breakaway style duct/sleeve connection is not used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gage (1.9) for dampers exceeding 36" (914) wide by 24" (610) high. Damper sleeve shall not extend more than 6" (152) beyond the fire wall or partition unless damper is equipped with a factory installed access door. Sleeve may extend up to 16" (406) beyond the fire wall or partition on sides equipped with a factory installed access door. Sleeve shall terminate at both sides of wall within dimensions shown.

4. Damper Orientation
Use "Air Flow" and "Mount with Arrow Up" labels on Dynamic DIBD and DIBDX models for proper damper orientation. For Static IBD models use only "Mount With Arrow Up" label on damper for proper damper orientation.

5. Mounting Angles
Mounting angles shall be a minimum of 11/2" x 11/2" x 20 gage steel (38 x 38 x 1.0). For openings in metal stud, wood stud walls or concrete/masonry walls and floors of sizes 90" x 49" or 49" x 90" (2286 x 1245 or 1245 x 2286) and less mounting angles are only required on one side of the wall or top side of the floor and must be attached to both the sleeve and the wall or floor. Mounting angles may be installed directly to the metal stud under the wall board on metal stud wall installations only. Larger openings require mounting angles on both sides of the partition and must be attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1" (25). Do not weld or fasten angles together at corners of dampers. Ruskin fire dampers may be installed using Ruskin FAST angle for one angle installation or Ruskin PFMA for two angle installations.

a. Mounting Angle Fasteners
Sleeve: #10 bolts or screws, 3/16" (5) steel rivets or 1/2" (13) long welds.
Masonry/Wall or Floor: #10 self-tapping concrete screws.
Wood/Steel Stud Wall: #10 screws

b. Mounting Angle Fastener Spacing
For one angle installations the sleeve fasteners shall be spaced at 6" (152) o.c. and the wall or floor fasteners shall be spaced at 12" (305) o.c. with a minimum of 2 fasteners on each side, top and bottom. Screw fasteners used in metal stud must engage the metal stud a minimum of 1/2" (13). Screw fasteners used in wood stud must engage the wood stud a minimum of 3/4" (19). Screw fasteners used in masonry walls or floors must engage the wall a minimum of 11/2" (38). For two angle installations the fasteners shall be spaced at 8" (203) o.c.

6. Duct/Sleeve Connections
a. Break-away Duct/Sleeve Connections
Rectangular ducts must use one or more of the connections: plain "S" slip, hemmed "S" slip, double "S" slip, inside slip joint, standing S, standing S (angle reinforced), standing, standing S (bar reinforced), standing S (angle reinforced, or drive slip joint.
A maximum of two #10 sheet metal screws on each side and the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used. Connections using these slip joints on the top and bottom with flat drive slips up to 20" (508) long on the sides may also be used.

b. Round and Oval Break-away Connections
Round and flat oval break-away connections must use either a 4" (102) wide drawband or #10 sheet metal screws spaced equally around the circumference of the duct as follows:
- Duct diameters 22" (559) and smaller – Maximum 3 screws.
- Duct diameters over 22" (559) and including 36" (914) – Maximum 5 screws.
- Duct diameters over 36" (914) and up to and including 191" (4851) total perimeter – Maximum 8 screws. For flat oval ducts, the diameter is considered the largest (major) dimension of the duct.

Note: When optional sealing of these joints is desired, the following sealants may be applied in accordance with the sealant manufacturer's instructions:

Hardcast, Inc. – Iron Grip 601	Precision –PA2084T
Eco Duct Seal 44-52	Design Polymerics – DP 1010

c. Flanged Break-away Style Duct Sleeve Connections.
Flanged connection systems manufactured by Ductmate, Nexus or Ward are approved break-away connections when installed as shown on the Flanged System Breakaway Connections Supplement. TDC and TDF roll-formed flanged connections using 3/8" (10) steel bolts and nuts, and metal cleats, as tested by SMACNA, are approved break-away connections when installed as shown on the Flanged System Breakaway Connections Supplement.

d. Non-Break-away Duct/Sleeve Connections
If other duct sleeve connections are used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gage (2.0) for dampers exceeding 36" (914) wide x 24" (610) high.

7. Installation and Maintenance
To ensure optimum operation and performance, the damper must be installed so it is square and free from racking. Each fire damper should be maintained and tested on a regular basis and in accordance with the latest editions of NFPA 90A and local codes. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.

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Drawn By:
JFG

REVISION

#	Description	Date

HVAC FIRE AND SMOKE DAMPER DETAILS

06/06/2025

M3.2

DDC SYSTEM LEGEND

DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DV	DIGITAL VALUE
AV	ANALOG VALUE

DDC SYSTEM GENERAL NOTES

1. THE DDC CONTRACTOR SHALL PROVIDE A NEW DDC CONTROLLERS TO PERFORM THE INDICATED SEQUENCES, ALL OTHER FUNCTIONS REQUIRED BY THE CONTRACT DOCUMENTS, AND ALL OTHER FUNCTIONS REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM. THE CONTROLLERS SHALL TIE INTO EXISTING CAMPUS DDC SYSTEM. CONTRACTOR SHALL FIELD VERIFY EXISTING SYSTEM. CONTRACTOR SHALL UPDATE SOFTWARE AND GRAPHICS WITHIN EXISTING SYSTEM TO COLLECT DATA, TREND, ALARM, AND DISPLAY GRAPHICS FOR NEW WORK.
2. THE CONTROLS CONTRACTOR SHALL PROVIDE A DDC SYSTEM FOR THE NEW EQUIPMENT THAT MEETS ALL REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS. THIS SHALL INCLUDE ALL GRAPHICS, AREA CONTROL MEMBERS, TIME SCHEDULING, ETC. ALL WORK SHALL BE THE RESPONSIBILITY OF THIS CONTROLS CONTRACTOR.
3. ALL SEQUENCES ARE SUBJECT TO SAFETIES. DDC CONTRACTOR SHALL PROVIDE ALL NECESSARY AND CUSTOMARY SAFETIES.
4. ALL WIRING SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS, REQUIREMENTS FOR 120 VAC CIRCUITS.
5. ALL CONTROL TUBING SHALL BE RUN IN CONDUIT. ALL CONDUIT SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS, REQUIREMENTS FOR 120 VAC CIRCUITS.
6. CONDUIT SHALL BE RUN PERPENDICULAR AND PARALLEL TO BUILDING LINES IN A FIRST CLASS WORKMANSHIP LIKE MANNER.
7. NO EXPOSED CONDUIT SHALL BE USED IN FINISHED SPACES.
8. DDC CONTRACTOR SHALL PROVIDE ALL CONFIGURATION, SET UP, AND TRAINING FOR BACNET THERMOSTAT.

SEQUENCE OF OPERATION
TYPICAL WHU

GENERAL: THE UNIT SHALL BE CONTROLLED BY A FACTORY PROVIDED PROGRAMMABLE THERMOSTAT WITH BACNET INTERFACE. THE SYSTEM SHALL INCLUDE A 7 DAY PROGRAMMABLE SCHEDULE, ACCESSIBLE FROM THE SPACE SENSOR THROUGH PASSWORD PROTECTED SCREENS FOR STAND ALONE OPERATION, AND BACNET COMMUNICATED OCCUPIED/UNOCCUPIED COMMAND FOR CENTRAL CONTROL BY THE DDC SYSTEM. THE SPACE SENSOR SHALL INCLUDE AN LCD DISPLAY WITH 5 BUTTONS FOR DATA SELECTION AND ENTRY. THE DDC SYSTEM SHALL INTERFACE WITH THE FACTORY BACNET CONTROL AND READ ALL FACTORY POINTS AND ALARMS READ BY THE FACTORY THERMOSTAT, IN ADDITION TO THE POINTS SHOWN IN THE TYPICAL CONTROL DIAGRAM. THE FACTORY PROGRAMMABLE BACNET THERMOSTAT SHALL RESPOND TO GLOBAL SCHEDULE (OCCUPIED/UNOCCUPIED) INPUT AND SET POINT LIMITS (UPPER AND LOWER).

INTERLOCKED EXHAUST FANS: THE DDC CONTRACTOR SHALL UTILIIZE THE FACTORY BACNET THERMOSTAT TO CONTROL AND MONITOR BUILDING EXHAUST FANS INDICATED IN THE EXHAUST FAN SCHEDULE.

THE FOLLOWING SEQUENCE OF OPERATIONS SHALL BE BY THE UNIT MANUFACTURER:

GENERAL: STARTING AND STOPPING OF EQUIPMENT SHALL BE BY THE FACTORY PROVIDED BACNET THERMOSTAT. WHEN ENABLED BY THE DDC SYSTEM, THE UNIT SHALL BE STARTED AUTOMATICALLY BY THE UNIT CONTROLS AND PROGRAMMABLE BACNET THERMOSTAT, AND ALL CONTROLS ACTIVATED SUBJECT TO THE FIRE ALARM RELAY, SAFETIES AND OVERLOADS. ZONE TEMPERATURE SENSORS SHALL BE PROVIDED WITH A COMMUNICATIONS JACK.

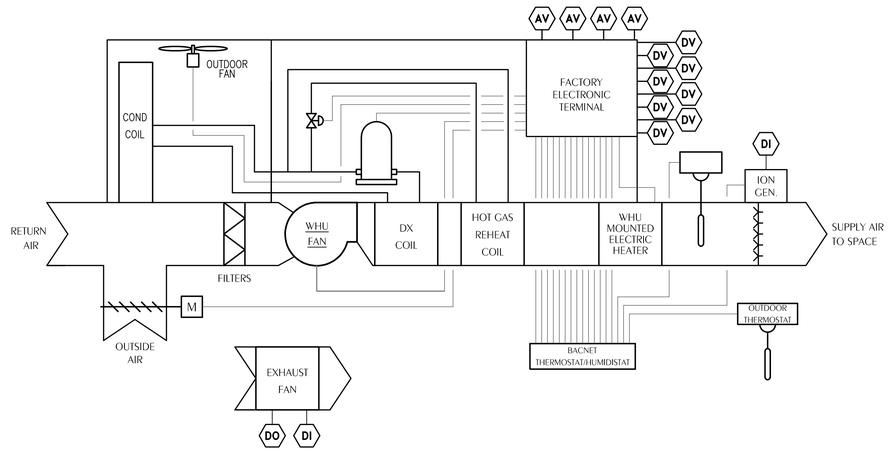
OCCUPIED MODE: THE MOTORIZED OA DAMPER SHALL OPEN TO THE BALANCED POSITION AND THE INDOOR FAN SHALL RUN CONTINUOUSLY AT LOW SPEED. UPON A CALL FOR COOLING OR HEATING, THE UNIT SHALL STAGE FAN AND COMPRESSOR SPEED TO MATCH SPACE LOAD. THE FIRST STAGE OF COOLING SHALL OPERATE FOR A MINIMUM OF TEN MINUTES BEFORE THE SECOND STAGE IS ENABLED. THE CONDENSING UNIT SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE. THE SETPOINT FOR COOLING IS 75° F ADJUSTABLE. THE SETPOINT FOR HEATING IS 70° F ADJUSTABLE. THE SUPPLEMENTAL ELECTRIC HEAT SHALL OPERATE AS A THIRD STAGE OF HEAT. THE SUPPLEMENTAL ELECTRIC HEAT IS LOCKED OUT DURING COOLING, DEHUMIDIFICATION, AND WHEN OUTDOOR TEMPERATURE IS BELOW 40°F, ADJUSTABLE.

UNOCCUPIED MODE: THE MOTORIZED OA DAMPER SHALL CLOSE. THE INDOOR FAN AND CONDENSING UNIT SHALL CYCLE TO MAINTAIN SETPOINT TEMPERATURE. THE SETPOINT FOR COOLING IS 80°F ADJUSTABLE. THE SETPOINT FOR HEATING IS 65°F ADJUSTABLE.

OVERRIDE MODE: THE OVERRIDE MODE SHALL PLACE THE SYSTEM IN OCCUPIED MODE AND THE OUTSIDE AIR DAMPER FOR THE UNIT IN OVERRIDE SHALL OPEN TO THE BALANCED POSITION.

HUMIDITY CONTROL:

UPON A RISE IN SPACE RELATIVE HUMIDITY ABOVE SETPOINT (55%, ADJUSTABLE) AND NO CALL FOR COOLING, THE UNIT CONTROLLER SHALL PLACE THE UNIT IN COOLING MODE, ADJUST FAN SPEED TO THE DEHUMIDIFICATION AIRFLOW, AND UTILIZE THE HOT GAS REHEAT TO DEHUMIDIFY AND REHEAT SUPPLY AIR TO NEUTRAL CONDITIONS UNTIL THE CALL FOR DEHUMIDIFICATION HAS BEEN SATISFIED.



1 M4.1 **TYPICAL WHU CONTROL DIAGRAM**
SCALE: NONE

HEAT PUMP POINTS LIST

	HARDWARE POINTS				SOFTWARE POINTS					
POINT NAME	AI	AO	DI	DO	AV	DV	SCHED	TREND	ALARM	GRAPHIC
ZONE TEMP SETPOINT					X					X
ZONE TEMP					X				X	X
ZONE RH SETPOINT					X					X
ZONE RH					X				X	X
OUTDOOR TEMP					X					X
SUPPLY AIR TEMP					X					X
ELECTRIC HEAT						X				X
REVERSING VALVE						X				X
COMPRESSOR						X				X
FAN START/STOP						X				X
FAN STATUS						X			X	X
DEHUMIFICATION						X				X
OCCUPANCY SCHEDULE						X				X
IONIZATION DEVICE						X			X	X
EXHAUST FAN			X	X						X

RELIANT SOUTH Construction Group

Design - Build Contractor

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ROSENWALD CLASSROOM BUILDING

ROSENWALD ACADEMY
924 BAY AVENUE, PANAMA CITY, FL 32401

FOR BAY DISTRICT SCHOOLS - 1311 BALBOA AVE., PANAMA CITY, FL 32401

DAVID N. WATFORD LICENSE NO. 58208 STATE OF FLORIDA PROFESSIONAL ENGINEER

Drawn By:
JFG

REVISION

#	Description	Date

HVAC CONTROLS

06/06/2025

M4.1

WATFORD ENGINEERING
4452 Clinton Street Marianna, Florida 32446
2449 Moores Mill Rd. Suite 100 Auburn, AL 36830

Florida CA Number: 27825
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ROSENWALD

CONTRACT DOCUMENT DWGS