LEGEND

RTU-1 — EQUIPMENT TAG

1 / M3 — DETAIL TAG("1" INDICATES IDENTIFICATION NUMBER; "M3" INDICATES SHEET NUMBER DRAWN ON)

1 — SHEET NOTE

SUPPLY DUCT SECTION POSITIVE PRESSURE

RETURN OR EXHAUST DUCT NEGATIVE PRESSURE

A×B — RECTANGULAR DUCT SIZE ("A" INDICTES SIDE SHOWN; "B" INDICATES SIDE NOT SHOWN)

A/B — FLAT OVAL DUCT SIZE ("A" INDICATES SIDE SHOWN;"B" INDICATES SIDE NOT SHOWN)

AØ — ROUND DUCT SIZE

EXTERNALLY INSULATED DUCTWORK

DUCT ELBOW WITH TURNING VANES

RADIUSED DUCT ELBOW

FLEXIBLE DUCT CONNECTION

MANUAL VOLUME BALANCING DAMPER

HIGH PRESSURE DUCTWORK

DOUBLE WALL HIGH PRESSURE DUCTWORK

DUCTWORK TO BE DEMOLISHED

EXISTING DUCTWORK TO REMAIN

DOUBLE WALL SPIRAL DUCTWORK

INTERNALLY INSULATED DUCTWORK

GATE VALVE

BUTTERFLY VALVE

TWO-WAY CONTROL VALVE

THREE-WAY CONTROL VALVE

STRAINER WITH BLOW DOWN VALVE AND CAP

THERMOMETER

THERMOMETER WELL OR PRESSURE TEMPERATURE PORT AS INDICATED

VFD — VARIABLE FREQUENCY DRIVE

DDC — DIGITAL CONTROLS ENCLOSURE

BUTTERFLY VALVE- VALVE HANDLE OPENS IN DIRECTION OF FLOW HANDLE

BALL VALVE- VALVE HANDLE OPENS IN DIRECTION OF FLOW

MOTORIZED DAMPER

FD — FIRE DAMPER WITH ACCESS DOOR

SD — SMOKE DAMPER WITH ACCESS DOOR

FSD — FIRE/SMOKE DAMPER WITH ACCESS DOOR

BD — BACKDRAFT DAMPER

TEE WITH TURNING VANES AND BALANCING DAMPERS IN EACH LEG

FLEX DUCT TAKEOFF WITH MVD. RUNOUT SIZE EQUALS DIFFUSER NECK SIZE UNLESS OTHERWISE INDICATED

BRANCH DUCT TAKEOFF WITH MVD

AUTOMATIC AIR VENT

PRESSURE GAUGE AND 1/4" BALL VALVE

AFM — AIRFLOW MEASURING STATION

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

SR-E / 100 — EXISTING AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE. BOTTOM LINE INDICATES AIRFLOW IN CFM.

UNION

LPS — LOW PRESSURE SUPPLY
HPS — HIGH PRESSURE SUPPLY
XFR — TRANSFER
EH — ELETRIC HEATER
TF — TRANSFER FAN
APD — AIR PRESSURE DROP

POINT OF CONNECTION TO EXISTING

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
SWG	SIDEWALL SUPPLY GRILLE
LVR	LOUVER
CEF	CEILING EXHAUST FAN
AHU	INDOOR AIR HANDLING UNIT
CHWP	CHILLED WATER PUMP
HWP	HEATING HOT WATER PUMP

1 / T — THERMOSTAT, "1" INDICATES UNIT CONTROLLED. MOUNT WITH TOP AT 48" AFF.

S — DUCT MOUNTED SMOKE DETECTOR

UC — UNDERCUT DOOR 3/4"

16x16 DOOR GRILL

N.I.C	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR
FD	FLOOR DRAIN
TG	TRANSFER GRILLE
SG	SOFFIT GRILLE
SWS	SIDEWALL SUPPLY GRILLE
SWR	SIDEWALL RETURN GRILLE
DDC	DIRECT DIGITAL CONTROL
CHW	CHILLED WATER
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HW	HOT WATER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
VFM	VENTURI FLOW METER
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
TAB	TESTING, ADJUSTING AND BALANCING
TU	TERMINAL UNIT
NOM	NOMINAL
VFD	VARIABLE FREQUENCY DRIVE
E	EXISTING
FCU	FAN COIL UNIT

FD — HORIZONTAL FIRE DAMPER
BCU — BLOWER COIL UNIT
MVD — MANUAL VOLUME DAMPER
UH — UNIT HEATER
H — HUMIDITY SENSOR

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. WASTE VENT STACKS, EXHAUST FANS, ETC. SHALL BE A MINIMUM OF 10 FT. FROM OUTSIDE AIR INTAKES.
7. ALL SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR INTAKE DUCTWORK SHALL BE GALVANIZED SHEET METAL.
8. 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.
9. PROVIDE ACCESS PANELS IN HARD CEILINGS AS REQUIRED FOR MAINTENANCE AND ADJUSTMENT OF EQUIPMENT LOCATED ABOVE CEILING.
10. ALL BIRD AND INSECT SCREENS SHALL BE ANODIZED ALUMINUM.
11. BECAUSE OF THE SMALL SCALE OF CONTRACT DOCUMENTS IT IS NOT POSSIBLE TO SHOW ALL OFFSETS, TRANSITIONS, ETC. THE CONTRACT DOCUMENTS ARE ESSENTIALLY DIAGRAMATIC. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS COORDINATED WITH THE STRUCTURE AND ARCHITECTURAL WORK FOR REVIEW PRIOR TO COMMENCING WORK
12. ALL WORK SHALL COMPLY WITH *2023* FLORIDA BUILDING CODE.
13. 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 MATERIALS 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 AND INSULATION GENERAL NOTES

1. ALL ROUND FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 8M 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 AND FLOORS AIRTIGHT, REGARDLESS OF WHETHER WALLS AND FLOORS ARE FIRE RATED OR NOT.
3. UNLESS OTHERWISE INDICATED, ALL SUPPLY AIR DUCTWORK UPSTREAM OF TERMINAL UNITS SHALL BE OVAL OR ROUND, SMACNA STATIC PRESSURE CLASS 3" W.G., SEAL CLASS A. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
4. ALL SUPPLY AIR DUCTWORK UPSTREAM OF TERMINAL UNITS WITHIN 40' OF AHU DISCHARGE SHALL BE DOUBLE WALL SPIRAL WITH PERFORATED INNER LINER.
5. ALL SUPPLY AIR DUCTWORK DOWNSTREAM OF TERMINAL UNITS (EXCEPT TAKEOFFS TO SUPPLY AIR DIFFUSERS) SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
6. ALL RETURN AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
7. ALL AHU RETURN DUCT WITHIN 40' OF AHU RETURN PLENUM SHALL BE LINED WITH 2" DUCT LINER PER PROJECT SPECIFICATIONS.
8. ALL AHU RETURN PLENUMS SHALL BE LINED WITH 2" DUCT LINER PER PROJECT SPECIFICATIONS.
9. ALL OUTSIDE AIR INTAKE DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
10. STANDARD EXHAUST AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 1/2" W.G., SEAL CLASS A, INSULATION NOT REQUIRED.
11. AVOID ROUTING DUCTWORK AND TU'S WITHIN 6" OF TOP OF LIGHT FIXTURES WHEREVER POSSIBLE. MAINTAIN CLEARANCE BETWEEN TU'S AND DUCT INSULATION TO TOP OF LIGHTS. PROVIDE CLEARANCE ALL AROUND AIR TERMINAL UNITS AS REQUIRED FOR ROUTINE MAINTENANCE.
12. PROVIDE MVD'S AT ALL TAKEOFFS FROM MAIN DUCTS.
13. CONTRACTOR SHALL SUBMIT COORDINATED DUCTWORK SHOP DRAWINGS INDICATING COORDINATION WITH ELECTRICAL AND PLUMBING PRIOR TO BEGINNING WORK. SHOP DRAWINGS SHALL INCLUDE LOCATIONS OF THERMOSTATS, ACCESS PANELS, AIR DEVICES, DUCTWORK, ETC.
14. 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.
15. PROVIDE REMOVABLE DUCT SECTIONS IN DUCTWORK CONTAINING FIRE DAMPERS IF FULL 12X12 ACCESS DOOR CANNOT BE PROVIDED.

LOUVER SCHEDULE

MARK	AIRFLOW CFM (MAX)	LOUVER SIZE (WxH) INCHES	FREE AREA FT (MIN)
LVR-4 CFM	905	24x24	1.7
LVR-10 CFM	920	40x16	1.7

1. PROVIDE GREENHECK MODEL "EHV-901D" (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. COORDINATE ELEVATIONS WITH ARCHITECT.
4. MAXIMUM PRESSURE DROP SHALL BE 0.10".

VARIABLE VOLUME TERMINAL UNIT SCHEDULE

MARK	TOTAL CFM	COOL CFM MIN.	HEATING CFM MAX.	HEATING COIL EAT (°F)	HEATING COIL LAT (°F)	HEATING COIL MBH (MIN.)	HEATING COIL EWT (°F)	HEATING COIL LWT (°F)	HEATING COIL GPM	HEATING COIL MAX UNIT APD (IN.)	HEATING COIL MAX WPD (FT)	HEATING COIL CONTROL VALVE TYPE & RUNOUT SIZE	HEATING COIL CONTROL VALVE PRESSURE DROP	SOUND POWER AT 1.0" REF. CFM	SOUND POWER AT 1.0" DISCHARGE NC	SOUND POWER AT 1.0" RADIATED NC	INLET SIZE (IN.)	MANUFACTURER	DESV NUMBER
D2-1	230	230	230	63.6	84	9.1	160	140	0.9	0.08	0.08	2-WAY, 0.5"	11.5 FT	230	27	20	5	TITUS	05
D2-2	245	205	245	63.6	84	8.0	160	140	0.8	0.06	0.58	2-WAY, 0.5"	11.5 FT	245	27	16	6	TITUS	06
D2-3	1185	365	650	63.6	84	14.3	160	140	1.4	0.04	0.07	2-WAY, 0.5"	11.5 FT	1185	24	19	14	TITUS	14
D2-4	460	140	220	63.6	84	4.8	160	140	0.5	0.06	0.10	2-WAY, 0.5"	11.5 FT	460	28	19	8	TITUS	08
D2-5	615	260	465	63.6	84	10.2	160	140	1.0	0.08	0.07	2-WAY, 0.5"	11.5 FT	615	28	17	9	TITUS	09
D2-6	1020	430	430	63.6	84	5.3	160	140	0.5	0.07	0.08	2-WAY, 0.5"	11.5 FT	1020	28	20	12	TITUS	12
D2-7	410	395	410	63.6	84	15.6	160	140	1.6	0.09	0.13	2-WAY, 0.5"	11.5 FT	410	28	20	7	TITUS	07
D2-8	475	355	475	63.6	84	14.1	160	140	1.4	0.13	0.08	2-WAY, 0.5"	11.5 FT	475	27	19	8	TITUS	08
D2-9	245	205	245	63.6	84	8.0	160	140	0.8	0.06	0.58	2-WAY, 0.5"	11.5 FT	245	27	16	6	TITUS	06

TERMINAL UNIT SCHEDULE NOTES:

1. ALL VAV TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT.
2. PROVIDE ALL VAV TERMINAL UNITS WITH ACCESS PANEL TO ALLOW SERVICING OF AIR VALVE WITHOUT DISCONNECTING DUCT WORK.
3. PROVIDE ALL VAV TERMINAL UNITS WITH 1.5 PCF CLOSED CELL FOAM INSULATION.
4. SOUND DATA FOR DISCHARGE NC BASED ON 10 dB ROOM ABSORPTION, 5' LINED DUCT (12"x12") WITH 1" THICK FIBERGLASS INSULATION, 6' LINED FLEX DUCT (8") TO DIFFUSER, AND MAX 300 CFM PER DIFFUSER. CALCULATED PER AHRI 880-2011.
5. SOUND DATA FOR RADIATED NC BASED ON 10 dB ROOM ABSORPTION, 3' DEEP CEILING CAVITY, AND 5/8" THICK, 3.5 LB/CU. FT. FIBER CEILING TILE.
6. PROVIDE VAV TERMINAL UNITS WITH FACTORY MULTIPOINT FLOW SENSOR.
7. PROVIDE FACTORY MOUNTED 120V CONTROLS TRANSFORMER TO SUPPLY 24 VOLT POWER TO DAMPER ACTUATOR AND CONTROLS.

FAN SCHEDULE

UNIT	TYPE	CFM	MAX. FAN RPM	ESP (IN. H20)	MAX. MOTOR POWER	SONES/db (MAX)	BASIS OF DESIGN	MODEL	CONTROL	ELECRICAL VOLTS/PHASE	NOTES
EF-D1	INLINE	855	1005	0.25	0.079 HP	5.3	COOK	120SQN10D	INTERLOCK WITH AHU-D2 OA DAMPER	120/1	1,2,3,4,5,6
EF-D2	INLINE	780	710	0.25	0.078 HP	3.0	COOK	GN-960	INTERLOCK WITH AHU-D2 OA DAMPER	120/1	1,2,3,4,6
EF-D3	ROOF	215	1010	0.25	59W	3.2	COOK	90C15DH	INTERLOCK WITH AHU-D1 OA DAMPER	120/1	1,2,3,4,5,6
EF-D4	ROOF	365	1000	0.25	0.030 HP	3.7	COOK	101C15D	INTERLOCK WITH AHU-D1 OA DAMPER	120/1	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.

VENTILATION SCHEDULE

SPACE TYPE	VENTILATION CFM/S.F.	VENTILATION CFM/PERSON	EXHAUST CFM
CORRIDOR	0	5	0
CLASSROOM	0	5	0
RESTROOM	0	5	60/FIXTURE
STORAGE	0	5	0
JANITORS CLOSET	0	5	1/SF

NOTE:

VENTILATION RATES IN COMPLIANCE WITH ASHRAE STANDARD 62.1-2016. BIPOLAR IONIZATION IS UTILIZED TO CLEAN INDOOR AIR AND MAINTAIN ACCEPTABLE INDOOR AIR QUALITY WITH A REDUCTION IN OUTDOOR AIRFLOW.

AIR PURIFICATION EQUIPMENT SCHEDULE

ZONE/ AHU	SA (CFM)	OA (CFM)	PRESS.(IN W.C.)	BASIS OF DESIGN	MODEL	QUANTITY	ELECTRICAL VOLTS/PHASE	ELECTRICAL WATTS	NOTES
D1	24490	3100	<0.01	GPS	IMOD	1	120/1	12	1,2,3,4
D2	4230	425	<0.01	GPS	FC48-AC	1	24/1	10	1,2,3,4

1. BI-POLAR IONIZATION SYSTEMS REQUIRING PERISHABLE GLASS TUBES ARE NOT ACCEPTABLE.
2. MANUFACTURER MUST PASS UL-867-2007 OZONE CHAMBER TESTING BY EITHER UL OR ETL.
3. UNIT SHALL BE MOUNTED IN SUPPLY AIR DUCT.
4. PROVIDE 12V DC POWER SUPPLY FOR CONTROL PANEL.

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	230	12x12	8Ø	TDC
CD-3 CFM	350	12x12	10Ø	TDC
SWG-1 CFM	310	12x6	12x6	272RL
RG, EG, SG, TG, RR ER				
xx-1 CFM	530	12x12	12x12	350FL
xx-2 CFM	1800	22x22	22x22	350FL
xx-5 CFM	21790	126x60	126x60	350FL

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. PAINT ALL DUCT VISIBLE THROUGH GRILLES FLAT BLACK.

CUSTOM AIR HANDLING UNIT SCHEDULE

UNIT DESIG-NATION	TYPE	FAN TYPE	AIR VOLUME CONTROL	MAX AIRFLOW (CFM)	MIN. AIRFLOW (CFM)	MIN. OA DAMPER (CFM)	APPROX. ESP (IN. W.G.)	TOTAL SP (IN. W.G.)	MAXIMUM FAN MOTOR HORSEPOWER	NOM. MOTOR RPM	MAX FACE VELOCITY (FPM)	CHILLED WATER COIL DATA: UNIT TOTAL CAPACITY (MBH)	UNIT SENSIBLE CAPACITY (MBH)	AIR SIDE EAT (°F) DB	AIR SIDE EAT (°F) WB	AIR SIDE LAT (°F) DB	AIR SIDE LAT (°F) WB	WATER SIDE FLOW (GPM)	WATER SIDE EWT (°F)	WATER SIDE LWT (°F)	WATER SIDE MAX. WPD (FT H20)	WATER SIDE CONTROL VALVE (BY DDC CONTRACTOR)	WATER SIDE CONTROL VALVE PRESSURE DROP	COIL POSITION	HEATING COIL DATA: TOTAL CAPACITY (MBH)	AIR SIDE EAT (°F)	WATER SIDE FLOW (GPM)	WATER SIDE EWT (°F)	WATER SIDE LWT (°F)	WATER SIDE MAX. WPD (FT H20)	WATER SIDE CONTROL VALVE (BY DDC CONT.)	WATER SIDE CONTROL VALVE PRESSURE DROP	FILTER SECTION TYPE	FILTER EFF. (%)	THICK-NESS (IN)	NOTES
AHU-D1	HDT	PF	SZVAV	24415	3935	3100	0.45	2.75	10	1200	435	879.3	605.4	74.9	63.7	51.8	50.9	117.0	42	57	7.1	2-WAY	11.5 FT	REHEAT	224.7	49.8	22.9	160	140	8.2	2-WAY	11.5 FT	CARTRIDGE	95	12	1,2,3,4,5,6,7
AHU-D2	HDT	PF	VAV	4710	1415	470	2.10	4.45	5	1800	510	147.7	105.3	74.1	63.1	52.3	51.4	19.7	42	57	7.3	2-WAY	11.5 FT	-	-	-	-	-	-	-	-	-	CARTRIDGE	95	12	1,2,3,4,5,6,7

SCHEDULE LEGEND:

HDT - HORIZONTAL DRAW THRU
SDU - STACKED DEHUMIDIFICATION UNIT
FC - FORWARD CURVED
PF - PLENUM FAN
BC - BACKWARD CURVED

SZVAV - VARIABLE AIR VOLUME, SINGLE ZONE
VAV - VARIABLE AIR VOLUME, MULTIPLE ZONES
CV - CONSTANT VOLUME

SCHEDULE NOTES:

1. ESP DOES NOT INCLUDE PRESSURE DROP THROUGH AHU CASING OR COILS.
2. TOTAL SP INCLUDES PRESSURE DROP THROUGH CASING AND COILS.
3. AVERAGE ATMOSPHERIC DUST SPOT EFFICIENCY BASED ON ASHRAE 52-76.
4. BASIS OF DESIGN: TRANE CSAA.
5. 30% PRE FILTERS AND MERV 13 FINAL FILTERS.
6. VARIABLE FREQUENCY DRIVE WITH 3 CONTACT BYPASS AND BUILT IN DISCONNECT FOR FAN MOTOR PROVIDED BY ~~DDC~~ CONTRACTOR HVAC
7. 480V/3 PHASE

MINI SPLIT SYSTEM CONDENSING UNIT SCHEDULE

UNIT HP	BASIS OF DESIGN	MODEL	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING OUTDOOR TEMP DB	SEER	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING OUTDOOR TEMP DB	HSPF	VOLTS/PHASE	MCA (AMPS)	MFA (AMPS)	NOTES
D1	MITSUBISHI	PUZ-AK18NL	18000	95	19.5	23600	47	8.9	208/1	16	27	1,2,3
D2	MITSUBISHI	PUZ-AK18NL	18000	95	19.5	23600	47	8.9	208/1	16	27	1,2,3

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

MINI SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

UNIT	BASIS OF DESIGN	MODEL	TYPE	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING EAT °F DB/WB	DESIGN COOLING CAPACITY (BTUH): COOLING TOTAL	DESIGN COOLING CAPACITY (BTUH): COOLING SENSIBLE	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING TOTAL CAPACITY (BTUH)	DESIGN HEATING EAT °F DB	AIRFLOW (CFM)	VOLTS/PHASE	MCA (AMPS)	MOP (AMPS)	NOTES
WM-D1.1	MITSUBISHI	PKA-AL18NL	WALL-MOUNTED	18000	95	17300	10900	23600	21400	70.0	300	208/1	N/A	N/A	1,2,3,4,5,6,7,8
WM-D2.1	MITSUBISHI	PKA-AK24NL	WALL-MOUNTED	24000	95	25100	16900	26000	25700	70.0	450	208/1	N/A	N/A	1,2,3,4,5,6,7,8

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
3. DESIGN COOLING CONDITIONS ARE AT 95°F AMBIENT; DESIGN HEATING CONDITIONS ARE AT 25°F AMBIENT.
4. DESIGN CAPACITY IS NET CAPACITY FOR INSTALLATION ACCOUNTING FOR 65 FT PIPE RUN LEGNTHS, ETC.
5. CALCULATE REFRIGERANT LINE SIZES BASED UPON FINAL FIELD PIPING LAYOUT.
6. EXPOSED (INDOOR OR OUTDOOR) REF PIPING SHALL BE HARD DRAWN COPPER.
7. PROVIDE BAC-NET MODULE.

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Digital Signature

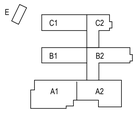
PERMIT DOCUMENTS

GADSDEN COUNTY SCHOOL BOARD
New Quincy K-8 School

GADSDEN COUNTY SCHOOL DISTRICT — FL

1400 W. KING STREET
QUINCY, FL 32351

KEY PLAN



REVISIONS

NO.	DESCRIPTION	DATE

RECEIVED
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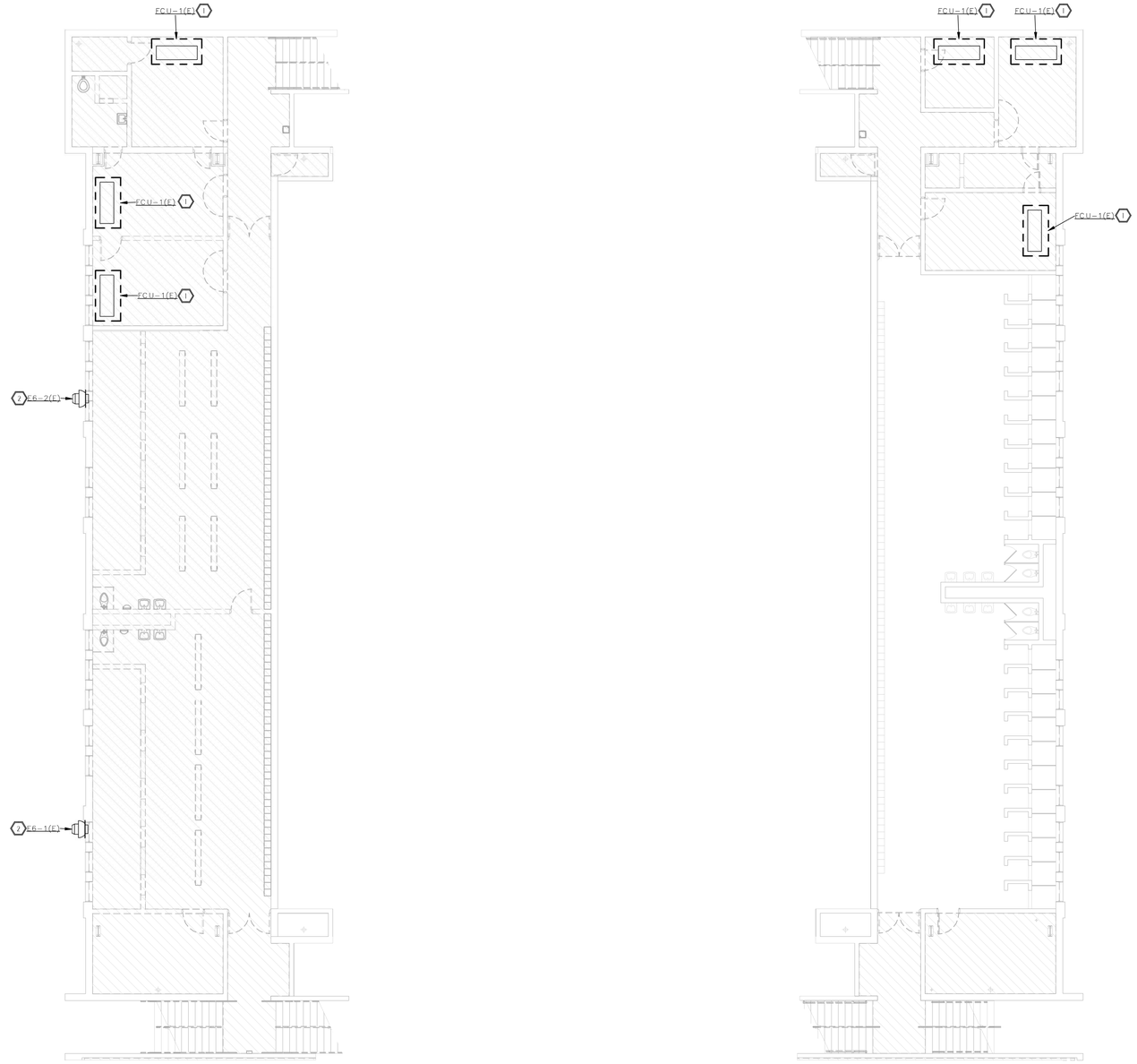
HVAC LEGEND, SCHEDULES, AND NOTES

MG-001



SHEET NOTES

1. FCU TO BE DEMOLISHED. DEMOLISH ASSOCIATED PIPING.
2. EXHAUST FAN TO BE DEMOLISHED.

1 HVAC DEMOLITION PLAN - BASEMENT LEVEL

MG-111 SCALE: 1/8" = 1'-0"

DAG Architects
AR0017640
850 South Gadsden Street
Suite 140
Tallahassee, Florida 32301
850.656.7506
www.dagarchitects.com

FITZGERALD COLLABORATIVE GROUP, LLC.
AA26001957

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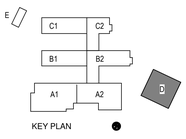
PERMIT DOCUMENTS

GADSDEN COUNTY SCHOOL BOARD
New Quincy K-8 School

1400 W. KING STREET
QUINCY, FL 32351



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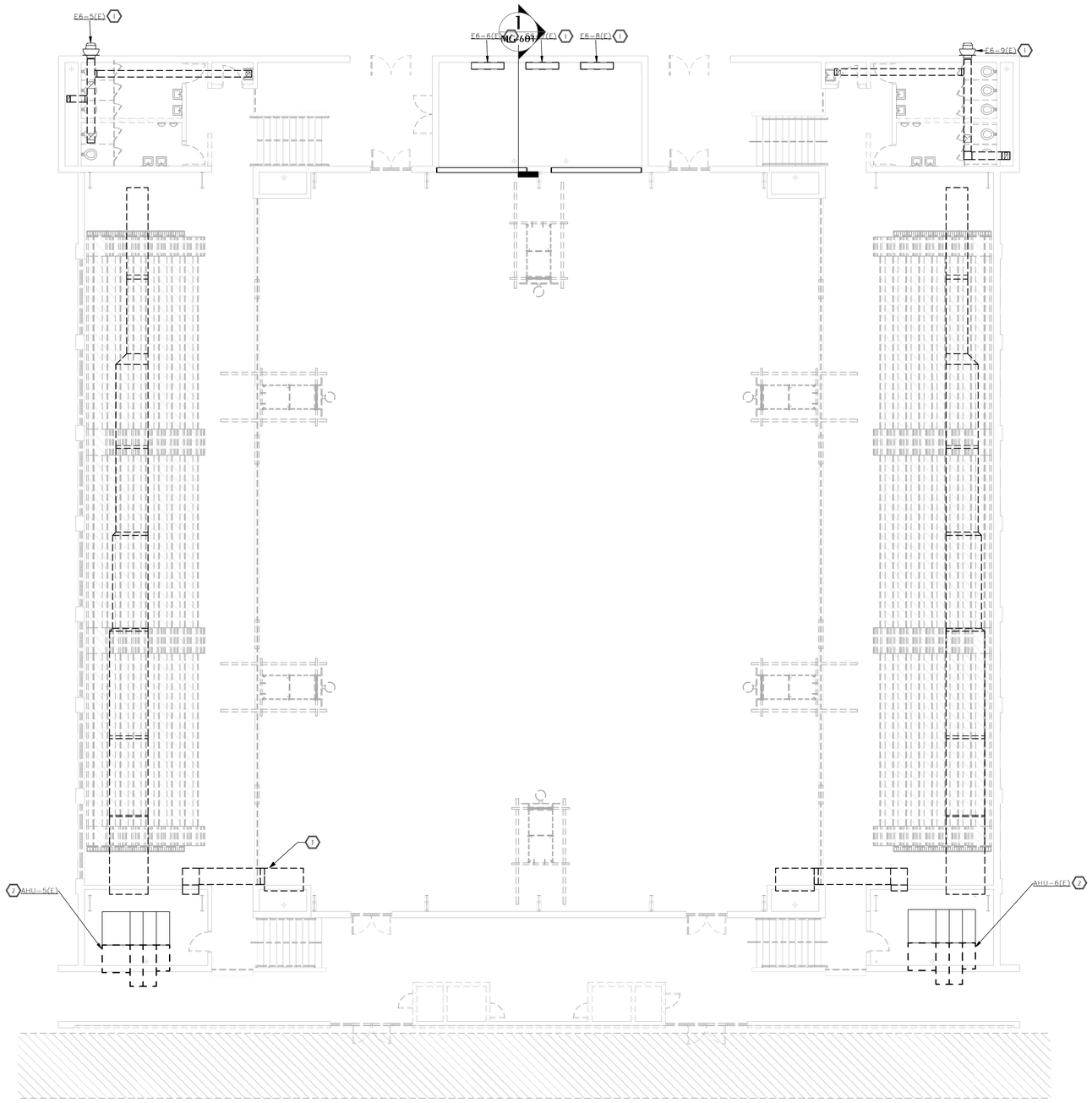
HVAC DEMOLITION PLAN - BASEMENT LVL

MG-111

WATFORD ENGINEERING
4402 Clinton Street Marianna, Florida 32446
Florida CA Number: 27825
Keith A. Johnson, PE
Florida License Number: 86457
850.526.3447
Project Number: 2022-041
Checked By: KAJ
Drawn By: IVB



SHEET NOTES

1. EXHAUST FAN TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK AND AIR DEVICES.
2. AHU TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK, AIR DEVICES, AND PIPING.
3. DUCTWORK TO BE DEMOLISHED. TYPICAL.

1 HVAC DEMOLITION PLAN - BLEACHER LEVEL

MG-121 SCALE: 1/8" = 1'-0"

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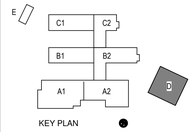

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HVAC DEMOLITION PLAN - BLEACHER LVL

MG-121

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4452 Clinton Street Marianna, Florida 32446
Florida CA Number: 37825
Keith A. Johnson, PE
Florida License Number: 89457
850.526.3447
Project Number: 2022-041
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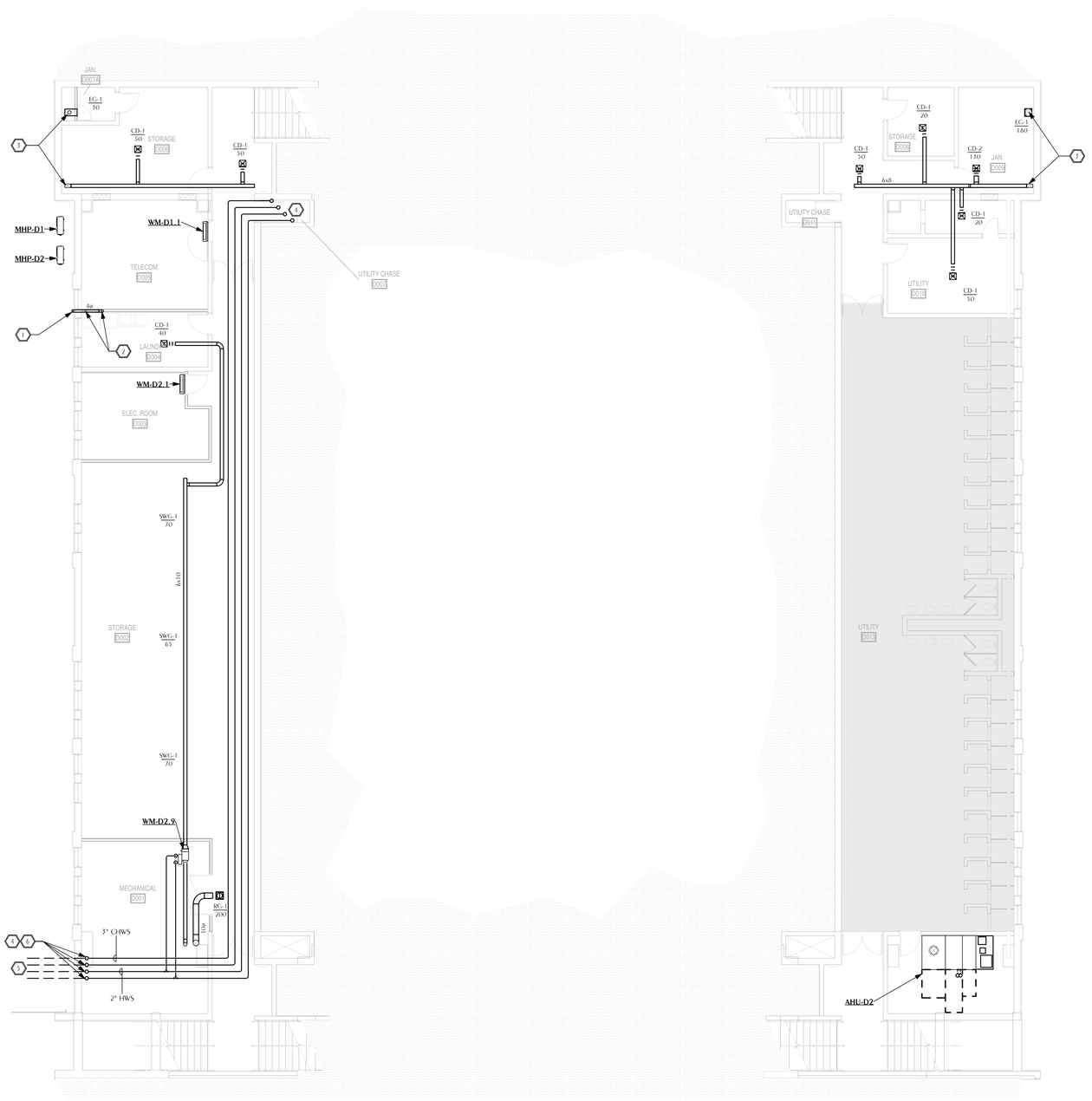

SHEET NOTES

1. PROVIDE VENT CAP FOR EACH DRYER EXHAUST.
2. PROVIDE UTILITY BOX IN WALL TO ALLOW DRYER EXHAUST TO RISE UP IN WALL CAVITY. BOX SHALL HAVE CONNECTION FOR 4" ROUND DUCT. BOX SHALL BE 22 GAUGE ALUMINIZED STEEL. DRYERBOX 425 OR APPROVED EQUAL.
3. DUCT TRAVELS UP THROUGH CHASE TO BLEACHER LEVEL. REFER TO MG-221 FOR CONTINUATION.
4. PIPE TRAVELS UP TO BLEACHER LEVEL. REFER TO MG-221.1 FOR CONTINUATION.
5. UNDERGROUND PIPE FROM NEW CLASSROOM BUILDING.
6. PROVIDE BUTTERFLY VALVE IN VERTICAL SECTION OF PIPE.

1 HVAC NEW WORK PLAN - BASEMENT LEVEL

MG-211 SCALE: 1/8" = 1'-0"

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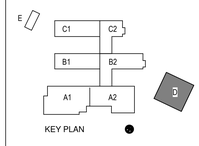

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HVAC NEW WORK PLAN - BASEMENT AND GROUND LEVEL

MG-211

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Florida CA Number: 37825
Keith A. Johnson, PE
Florida License Number: 86457
850.526.3447
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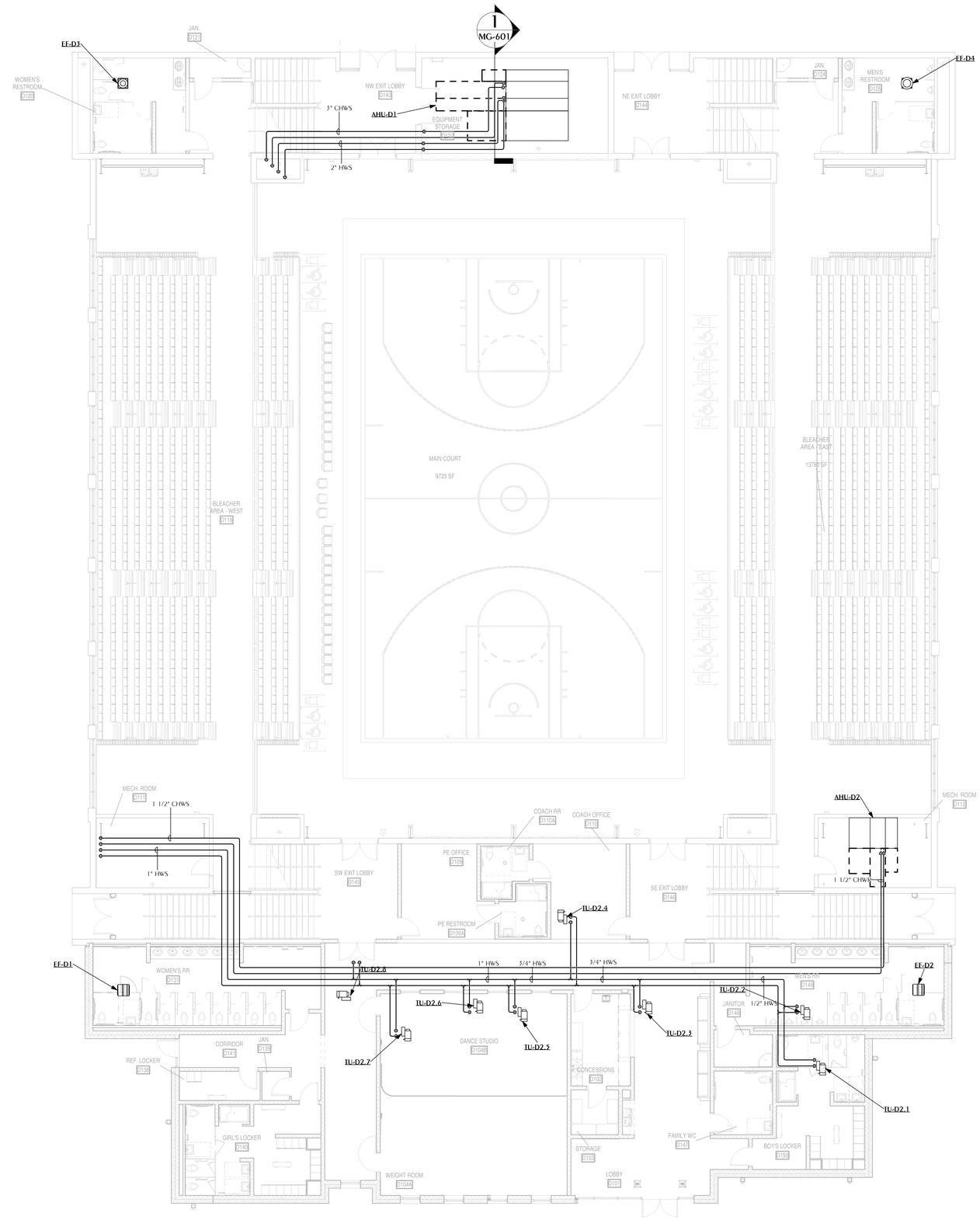

N 1 MG-221 HVAC NEW WORK PIPING PLAN - BLEACHER LEVEL

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

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E
C1 C2
B1 B2
A1 A2
D
KEY PLAN

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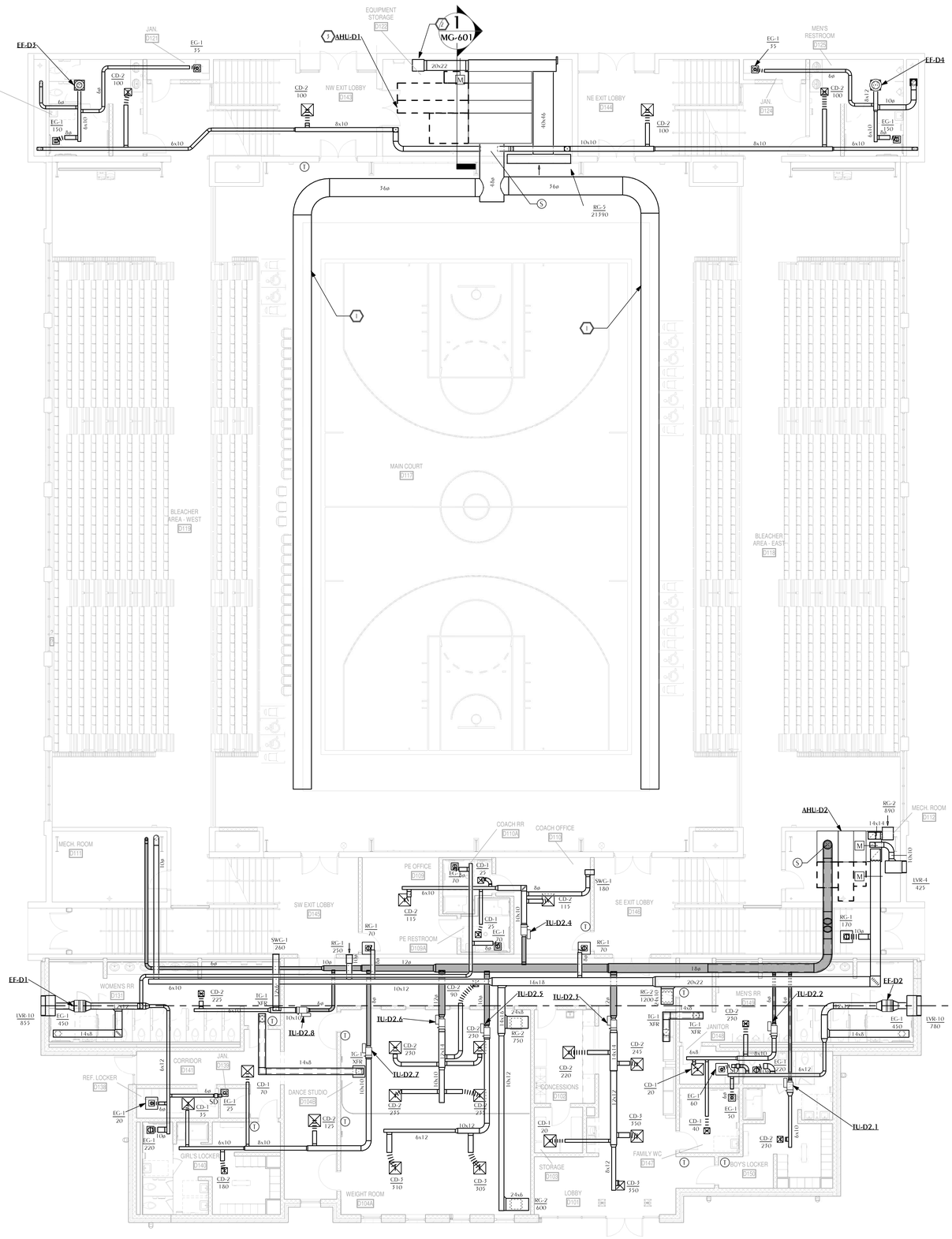
HVAC NEW WORK PIPING PLAN - BLEACHER LEVEL

MG-221.1

WATFORD ENGINEERING
4452 Clinton Street Marianna, Florida 32446
Florida CA Number: 27825
Keith A. Johnson, PE
Florida License Number: 86457
850.326.3447
Project Number: 2022-041
Checked By: KAJ
Drawn By: IVB



SHEET NOTES

1. FABRIC DUCT TO DISPERSE 11860 CFM OF AIR.
2. 24x80 OUTSIDE AIR PLENUM TO ATTACH TO EXISTING LOUVER. UNUSED SECTIONS OF EXISTING LOUVER TO BE BLANKED OFF.
3. AIR HANDLER TO BE ON MEZZANINE.

HVAC NEW WORK PLAN - BLEACHER LEVEL

1 MG-221 SCALE: 1/8" = 1'-0"

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KEY PLAN

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HVAC NEW WORK PLAN - BLEACHER LEVEL

MG-221

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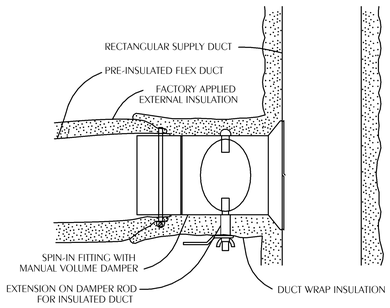


NOTES:

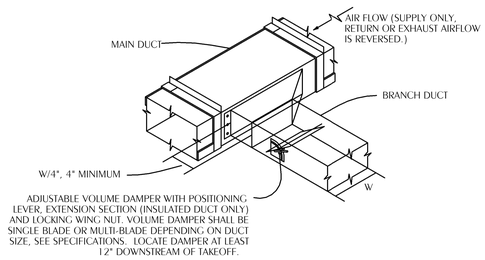
CONNECT FLEXIBLE DUCT TO FITTING WITH DRAWBAND AND SEALER.

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

PROVIDE REMOTE CABLE ACTUATOR FOR AIR DEVICE IN HARD CEILINGS WITHOUT ACCESS. MOUNT ACTUATOR IN FACE OF AIR DEVICE.

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)

1 TYPICAL FLEX DUCT TAKEOFF DETAIL
MG-301 SCALE: NONE

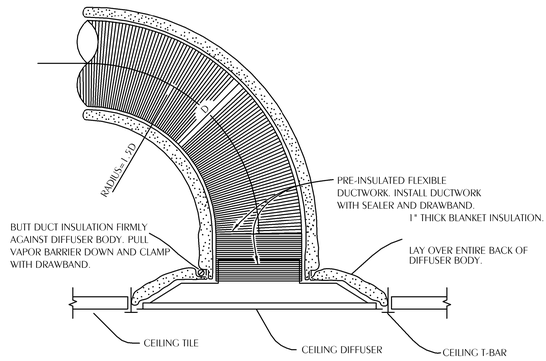


NOTES:

PROVIDE REMOTE CABLE ACTUATOR FOR AIR DEVICE IN HARD CEILINGS WITHOUT ACCESS. MOUNT ACTUATOR IN FACE OF AIR DEVICE.

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)

2 TYPICAL BRANCH DUCT TAKEOFF
MG-301 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 ENCAPUSLATED 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.

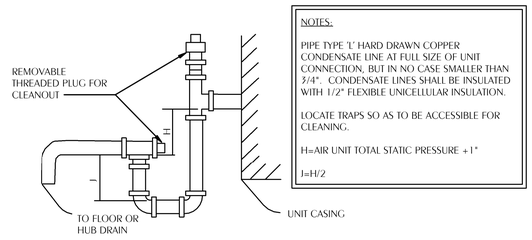
PROVIDE BEVELED MOUNTING FRAME FOR DIFFUSERS IN HARD CEILINGS.

3 TYPICAL CEILING DIFFUSER DETAIL
MG-301 SCALE: NONE

NOTE: TYPICAL FOR LOW PRESSURE DUCTWORK

4 TYPICAL DUCT HANGER DETAILS
MG-301 SCALE: NONE

5 INLINE FAN DETAIL
MG-301 SCALE: NONE



NOTES:

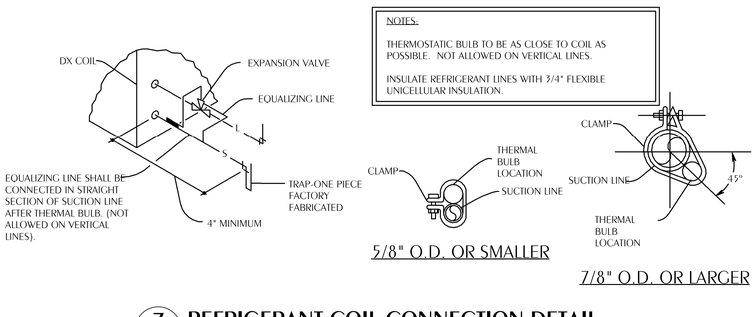
PIPE TYPE 'L' HARD DRAWN COPPER CONDENSATE LINE AT FULL SIZE OF UNIT CONNECTION, BUT IN NO CASE SMALLER THAN 3/4". CONDENSATE LINES SHALL BE INSULATED WITH 1/2" FLEXIBLE UNICELLULAR INSULATION.

LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.

H=AIR UNIT TOTAL STATIC PRESSURE +1"

I=H/2

6 NEGATIVE PRESSURE CONDENSATE DRAIN TRAP DETAIL
MG-301 SCALE: NONE

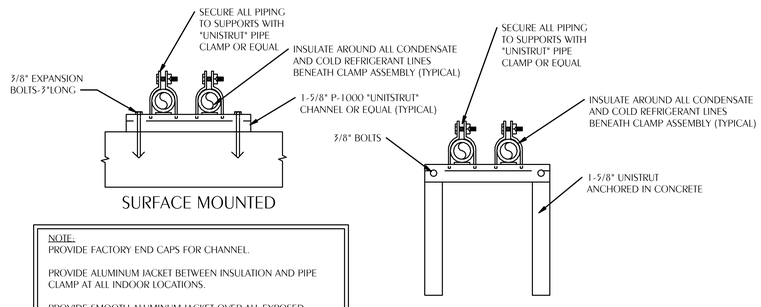


NOTES:

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

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

7 REFRIGERANT COIL CONNECTION DETAIL
MG-301 SCALE: NONE



NOTE:
PROVIDE FACTORY END CAPS FOR CHANNEL.

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

PROVIDE SMOOTH ALUMINUM JACKET OVER ALL EXPOSED OUTDOOR INSULATION.

PROVIDE SUPPORT AT INTERVALS REQUIRED BY THE FLORIDA BUILDING CODE.

8 TYPICAL EXTERIOR PIPING SUPPORT DETAIL
MG-301 SCALE: NONE

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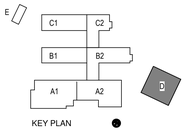

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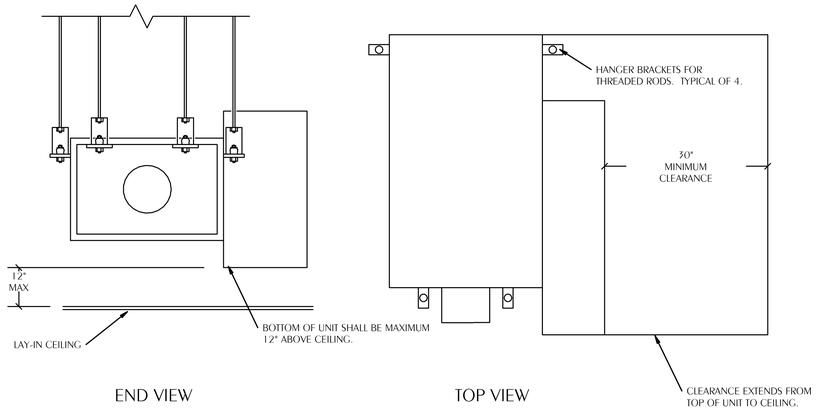
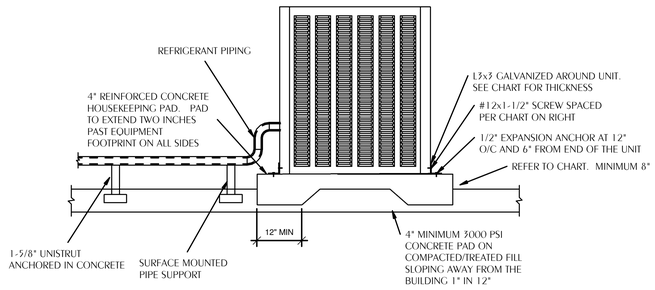
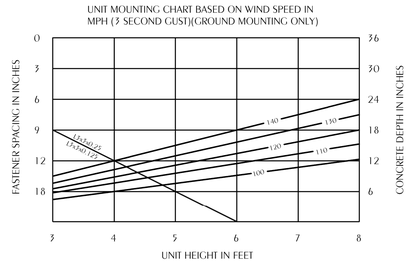
HVAC DETAILS
MG-301



1 TERMINAL UNIT MOUNTING DETAIL

MG-302 SCALE: NONE





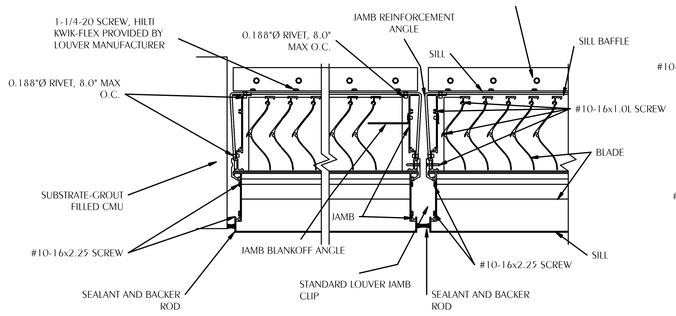
DESIGN CRITERIA:

CODE:	ASCE 7-10
VELOCITY:	SEE BELOW
Kz:	0.70
Kzt:	1.00
Kd:	0.85
IMPORTANCE:	1.15
EXPOSURE:	B
GI:	1.3
GI:	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

2 TYPICAL OUTDOOR MECHANICAL UNIT MOUNTING DETAIL

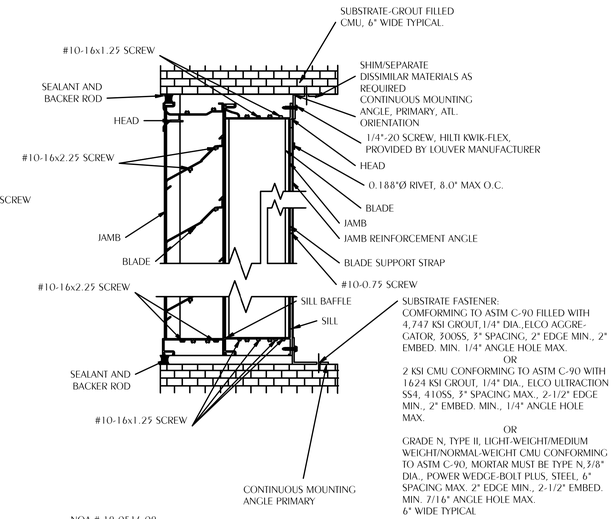
MG-302 SCALE: NONE

SUBSTRATE FASTENER:
CONFORMING TO ASTM C-90 FILLED WITH 4,747 KSI GROUT, 1/4" DIA.,ELCO AGGRE-GATOR, 300SS, 3" SPACING, 2" EDGE MIN., 2" EMBED. MIN. 1/4" ANGLE HOLE MAX.
OR
2 KSI CMU CONFORMING TO ASTM C-90 WITH 1624 KSI GROUT, 1/4" DIA., ELCO ULTRACTION SS4, 410SS, 3" SPACING MAX., 2-1/2" EDGE MIN., 2" EMBED. MIN., 1/4" ANGLE HOLE MAX.
OR
GRADE N, TYPE II, LIGHT-WEIGHT/MEDIUM WEIGHT/NORMAL-WEIGHT CMU CONFORMING TO ASTM C-90, MORTAR MUST BE TYPE N, 3/8" DIA., POWER WEDGE-BOLT PLUS, STEEL, 6" SPACING MAX. 2" EDGE MIN., 2-1/2" EMBED. MIN. 7/16" ANGLE HOLE MAX.
6" WIDE TYPICAL



3 WALL LOUVER DETAIL

MG-302 SCALE: NONE



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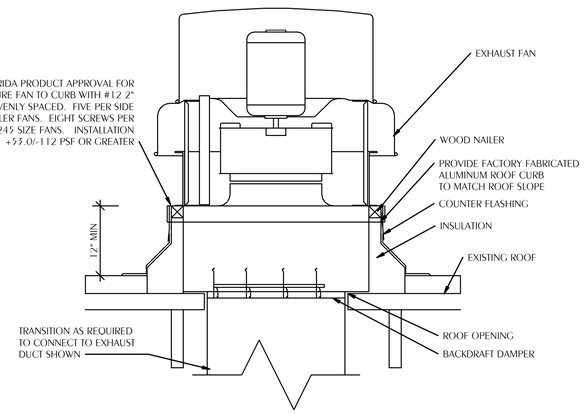
6" WIDE TYPICAL

NOA # 19-0516.09

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.
4. INSTALLATION DETAIL IS BASED UPON GREENHECK MODEL "EHV-901D", IF AN ALTERNATE MANUFACTURER'S LOUVER IS USED, IT MUST BE INSTALLED WITH ITS FLORIDA PRODUCT APPROVAL.

FAN SHALL HAVE A FLORIDA PRODUCT APPROVAL FOR THE INSTALLATION. SECURE FAN TO CURB WITH #12 2" SELF DRILLING SCREWS EVENLY SPACED. FIVE PER SIDE FOR SIZE 135 AND SMALLER FANS. EIGHT SCREWS PER SIDE FOR SIZE 180-245 SIZE FANS. INSTALLATION SHALL BE DESIGNED FOR +53.0/-112 PSF OR GREATER



NOTES:
CURB SHALL BE INSTALLED LEVEL AS REQUIRED BY MANUFACTURER'S FLORIDA PRODUCT APPROVAL.

CURB SHALL BE A MINIMUM OF 12" ABOVE FINISHED ROOF SURFACE.

PROVIDE ALUMINUM INSECT SCREEN.

4 ROOF MOUNTED EXHAUST FAN DETAIL

MG-302 SCALE: NONE

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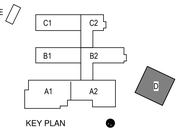

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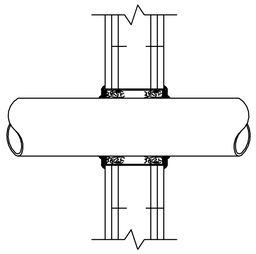
MG-302



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.

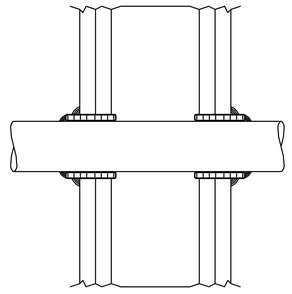
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

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 5A) SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 2-5/8 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.
   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 CYPSUM 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
MG-401 SCALE: NONE



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "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.

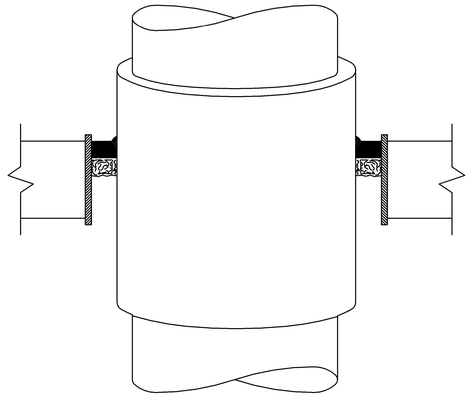
2. **THROUGH PENETRANTS**—ONE NONMETALLIC PIPE OR CONDUIT TO BE CENTERED INTHE THROUGH OPENING. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 1/4 IN. AND MAX 3/8 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES 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

2 TYPICAL FIRE RATED WALL PENETRATION
MG-401 SCALE: NONE

NOTE: ALL SYSTEMS DETAILED ON MECHANICAL PENETRATIONS SHEETS ARE BASED ON THE MANUFACTURERS SPECIFIED AS BASIS OF DESIGN AND APPLY TO MECHANICAL AND PLUMBING. THE CONTRACTOR SHALL SUBMIT A PENETRATIONS PACKAGE DETAILING EACH PENETRATION AND PRODUCTS TO BE USED TO THE PERMITTING AUTHORITY FOR THE ACTUAL SYSTEMS TO BE USED.



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "FIRE RESISTANCE DIRECTORY" FOR DETAILS.
UL SYSTEM CA15001

1. **FLOOR OR WALL ASSEMBLY**—MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150) PCF CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED **CONCRETE BLOCKS***. MAX DIAM OF OPENING IS 18 IN. SEE **CONCRETE BLOCKS** (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

   1A. **STEEL SLEEVE**—NOM 10 IN. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY. SLEEVE MAY EXTEND A MAX OF 2 IN. ABOVE TOP OF FLOOR OR BEYOND EITHER SURFACE OF WALL. **T RATING IS 0 HR WHEN SLEEVE IS USED.**

2. **THROUGH PENETRANT**—NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE, NOM 12 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN. DIAM (OR SMALLER) CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE OR NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CENTERED IN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.

3. **PIPE COVERING***—NOM 1/2 TO 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 FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT. SEE PIPE AND EQUIPMENT COVERING—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. **FIRESTOP SYSTEM**—THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:

   A. **PACKING MATERIAL**—MIN 1 IN. THICKNESS OF FIRMLY PACKED MINERAL WOOL BATT INSULATION USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR SLEEVE OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM B).
   B. **FILL, VOID OR CAVITY MATERIAL***—CAULK—APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH THE TOP SURFACE OF THE FLOOR OR SLEEVE OR FLUSH WITH BOTH SURFACES OF WALL. WHEN NOM PIPE COVERING THICKNESS IS 2 IN., MIN THICKNESS OF CAULK FILL MATERIAL IS 2 IN. WHEN NOM PIPE COVERING THICKNESS IS 1-1/2 IN. OR LESS, MIN THICKNESS OF CAULK FILL MATERIAL IS 1 IN. THE HOURLY F AND T RATINGS OF THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE THICKNESS OF THE FLOOR OR WALL, THE SIZE OF PIPE, THE THICKNESS OF PIPE COVERING MATERIAL AND THE SIZE OF THE ANNULAR SPACE (BETWEEN THE PIPE COVERING MATERIAL AND THE EDGE OF THE CIRCULAR THROUGH OPENING), AS SHOWN IN THE FOLLOWING TABLE:

MIN FLOOR OR WALL THKNS IN.	MAX PIPE DIAM IN.	NOM PIPE COVERING THKNS IN.	ANNULAR SPACE IN.	F RATING HR	T RATING HR
2-1/2	4	1 OR 1-1/2	1/2 TO 2-3/8	2	1
4-1/2	4	2	1/4 TO 3-5/8	2	1-1/2
2-1/2	12	1	1/2 TO 1-1/2	2	1/2
4-1/2	12	1	1/2 TO 2-3/8	3	1
2-1/2	12	1/2	1/2 TO 2-3/8	2	0

MINNESOTA MINING & MFG. CO.—CP 25WB+.

*BEARING THE UL CLASSIFICATION MARKING

3 TYPICAL FIRE RATED WALL/FLOOR PENETRATION
MG-401 SCALE: NONE

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850.656.7506
www.dagarchitects.com

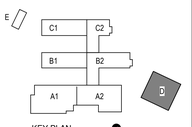
FITZGERALD COLLABORATIVE GROUP, LLC.
AA26001957

Digital Signature

PERMIT DOCUMENTS

GADSDEN COUNTY SCHOOL BOARD
New Quincy K-8 School

1400 W. KING STREET
QUINCY, FL 32351



REVISIONS

NO.	DESCRIPTION	DATE

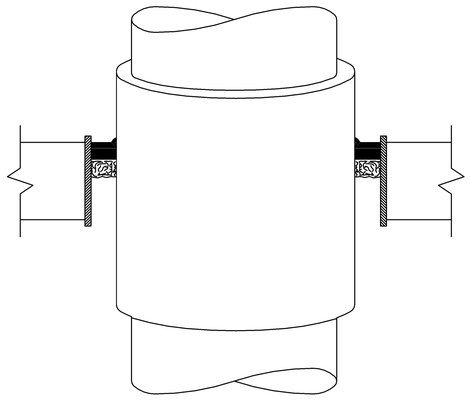
RECEIVED
ALLSTATE CONSTRUCTION
09-18-2025

Project Number	22023
Dated	09-18-2025

WATFORD ENGINEERING
4452 Clinton Street Marianna, Florida 32446
Florida CA Number: 27825
Keith A. Johnson, PE
Florida License Number: 86457
850.526.3447
Project Number: 2022-041
Checked By: KAJ
Drawn By: IVB

HVAC FIRE PENETRATION DETAILS

MG-401



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "FIRE RESISTANCE DIRECTORY" FOR DETAILS.
UL SYSTEM CAJ5060

1. **FLOOR OR WALL ASSEMBLY**—MIN 2-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED **CONCRETE BLOCKS***. F RATINGS AND T RATINGS ARE DEPENDENT ON THE MIN THICKNESS OF FLOOR OR WALL, AS WELL AS THE MAX SIZE OF THE PIPE AND THE NOM THICKNESS OF THE CELLULAR GLASS INSULATION, AS NOTED IN ITEM 3. MAX DIAM OF THROUGH OPENING IS 28-1/2 IN.
SEE **CONCRETE BLOCKS** (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAME OF MANUFACTURERS.

1A. **STEEL SLEEVE**—MAX 15 IN. ID (OR SMALLER), MIN 0.25 IN. WALL THICKNESS (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY. SLEEVE MAY EXTEND A MAX OF 2 IN. ABOVE TOP OF FLOOR OR BEYOND EITHER SURFACE OF WALL. T RATING IS 0 HR WHEN SLEEVE IS USED.

2. **THROUGH PENETRANTS**—ONE METALLIC PIPE OR TUBING TO BE POSITIONED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
A. **STEEL PIPE**—NOM 20 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. **COPPER TUBING**—NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
C. **COPPER PIPE**—NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. **PIPE COVERING MATERIALS*—CELLULAR GLASS INSULATION**—NOM 1-1/2 TO 3 IN. THICK CELLULAR GLASS UNITS SIZED TO THE OUTSIDE DIAM OF THE STEEL PIPE AND SUPPLIED IN NOM 24 IN. LONG HALF SECTIONS OR NOM 18 IN. LONG SEGMENTS. PIPE INSULATION INSTALLED ON PIPE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. F RATINGS AND T RATINGS ARE DEPENDENT ON THE ITEMS NOTED IN THE FOLLOWING TABLE:

MIN FLOOR OR WALL THKNS IN.	MAX PIPE DIAM IN.	NOM GLASS INSUL THKNS IN.	F RATING HR	T RATING HR
2-1/2	6	1-1/2 AND 3	2	3/4
4-1/2	6	1-1/2	3	1
4-1/2	6	3	3	1-1/2
4-1/2	20	1-1/2	2	1/2
4-1/2	20	3	2	1

PITTSBURGH CORNING CORP.—FOAMGLAS

4. **PACKING MATERIAL**—MIN 1 IN. THICKNESS OF TIGHTLY-PACKED MINERAL WOOL BATT INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED MIN 1 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL TO ACCOMMODATE THE CAULK FILL MATERIAL (ITEM 5).

5. **FILL, VOID OR CAVITY MATERIALS*—CAULK**—INSTALLED TO FILL ANNULAR SPACE TO A MIN DEPTH OF 1 IN., FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. A MIN 1/2 IN. DIAM BEAD OF CAULK SHALL BE APPLIED TO THE PIPE INSULATION/CONCRETE INTERFACE AT THE POINT CONTACT LOCATION ON THE TOP SURFACE OF THE FLOOR AND ON BOTH SIDES OF WALLS.
MINNESOTA MINING & MFG. CO.—CP 25WB+

6. **METAL JACKET**—MIN 12 IN. LONG JACKET FORMED OF MIN 0.010 IN. THICK STEEL OR ALUMINUM SHEET CUT TO WRAP TIGHTLY AROUND THE PIPE INSULATION WITH A MIN 2 IN. LAP AND SECURED USING BANDS AND SEALS OF SIMILAR MATERIAL. BANDS TO BE LOCATED WITHIN 2 IN. OF EACH END OF THE JACKET AND SPACED MAX 10 IN. O.C. JACKET TO BE INSTALLED WITH EDGE ABUTTING SURFACE OF CAULK FILL MATERIAL (ITEM 5) ON TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. METAL JACKET TO BE USED IN ADDITION TO ANY OTHER JACKETING MATERIAL WHICH MAY BE REQUIRED OR DESIRED ON THE PIPE INSULATION.

*BEARING THE UL CLASSIFICATION MARKING

VERTICAL INSTALLATION

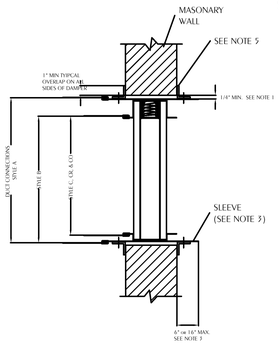
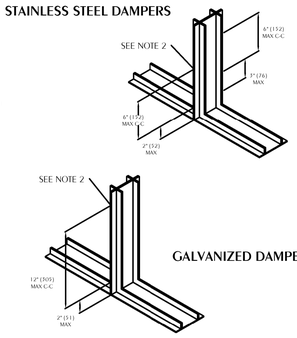


FIGURE 1

STAINLESS STEEL DAMPERS



GALVANIZED DAMPERS

FIGURE 2
1 1/2 HOUR

HORIZONTAL INSTALLATION

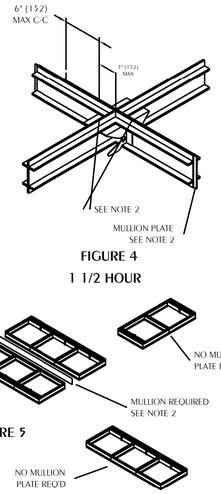


FIGURE 4
1 1/2 HOUR

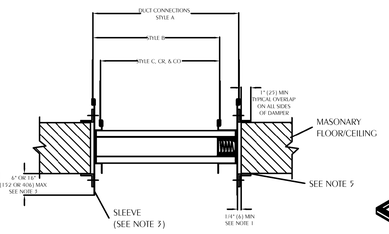
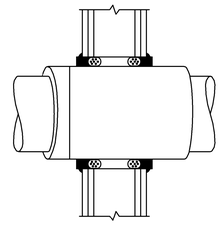


FIGURE 3

FIGURE 5

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 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 Waied 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 either 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.



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "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

1 TYPICAL FIRE RATED WALL/FLOOR PENETRATION
MG-402 SCALE: NONE

2 TYPICAL HORIZONTAL AND VERTICAL FIRE DAMPER DETAIL
MG-402 SCALE: NONE

3 TYPICAL FIRE RATED WALL PENETRATION
MG-402 SCALE: NONE

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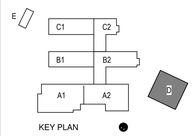

REVISIONS
NO. DESCRIPTION DATE

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ALLSTATE CONSTRUCTION
09-18-2025

Project Number 22023
Dated 09-18-2025

WATFORD ENGINEERING
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Project Number: 2022-041
Checked By: KAJ
Drawn By: IVB

HVAC FIRE PENETRATION DETAILS
MG-402

DIRECT DIGITAL CONTROLS GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE 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.
2. ALL SEQUENCES ARE SUBJECT TO SAFETIES. DDC CONTRACTOR SHALL PROVIDE ALL NECESSARY AND CUSTOMARY SAFETIES.
3. ALL WIRING SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS, REQUIREMENTS FOR 120 VAC CIRCUITS.
4. ALL CONTROL TUBING SHALL BE RUN IN CONDUIT. ALL CONDUIT SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS, REQUIREMENTS FOR 120 VAC CIRCUITS.
5. ALL WELLS SHALL BE 316 STAINLESS STEEL AND SHALL BE INSTALLED IN NEW THREDOLETS WHETHER INSTALLED IN NEW OR EXISTING PIPING. IN CHILLED WATER PIPING PROVIDE NEW WELLS WITH EXTENDED NECK TO SUIT INSULATION THICKNESS.
6. THE DDC CONTRACTOR IS CO-RESPONSIBLE, ALONG WITH THE TAB CONTRACTOR FOR COORDINATING THE PROPER INSTALLATION OF WELLS, PRESSURE TAPS, AND P/T TAPS IN ALL LOCATIONS INDICATED AND OTHERWISE AS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
7. THE DDC CONTRACTOR AND THE TAB CONTRACTOR SHALL UTILIZE P/T'S TO CALIBRATE INSTRUMENTS TO CERTIFIED PRESSURE GAGES, PRESSURE METERS AND THERMOMETERS.
8. CONDUIT SHALL BE RUN PERPENDICULAR AND PARALLEL TO BUILDING LINES IN A FIRST CLASS WORKMANSHIP LIKE MANNER.

SEQUENCE OF OPERATION SINGLE DUCT TERMINAL UNIT

EACH TERMINAL UNIT SHALL BE PROVIDED WITH A UNIT CONTROL MODULE (UCM). THE UCM SHALL BE FIELD OR FACTORY MOUNTED. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 277V POWER TO EACH TERMINAL UNIT. PROVIDE 120V TO 24V CONTROLS TRANSFORMER FOR EACH TU.

UNIT AIRFLOW SHALL BE MONITORED BY AN INTEGRAL, MULTIPLE POINT, AVERAGING FLOW SENSING DEVICE AND A TRANSDUCER TO MAINTAIN AIRFLOW WITHIN 5% OF RATED CFM DOWN TO A MINIMUM CFM AS SCHEDULED, INDEPENDENT OF CHANGES IN SYSTEM STATIC PRESSURE.

COOLING MODE: THE UCM SHALL MONITOR THE ZONE TEMPERATURE AGAINST ITS SET POINT (74°F ADJUSTABLE) AND MODULATE THE DAMPER TO MEET THE ZONE SETPOINT. IF THE TU CALLS FOR FULL COOLING AND CANNOT REACH MAXIMUM AIRFLOW FOR FIVE MINUTES, THE DDC SHALL RESET THE AHU STATIC PRESSURE UP 0.15".

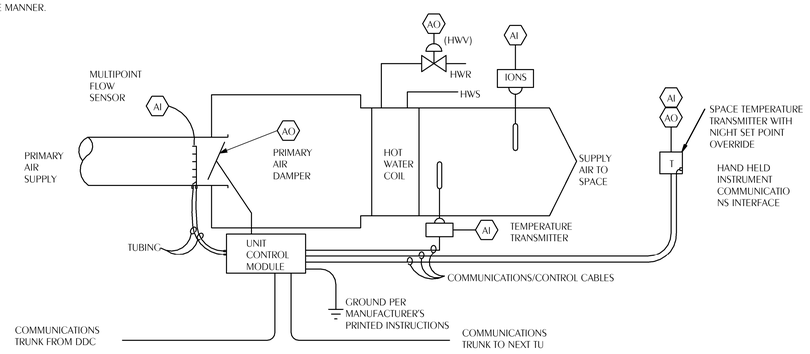
HEATING MODE: THE HOT WATER VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE (COOLING SETPOINT MINUS 3°F). THE MAXIMUM HEATING AIR TEMPERATURE SHALL BE 85°F. UPON REACHING THE MAXIMUM HEATING AIR TEMPERATURE, THE DDC SHALL INCREASE THE TERMINAL UNIT AIRFLOW AND MAINTAIN THE DISCHARGE AIR TEMPERATURE OF 85°F UNTIL THE CALL FOR HEATING IS SATISFIED. WHEN THE CALL FOR HEATING IS SATISFIED, THE DDC SHALL REVERSE THE SEQUENCE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE AT SETPOINT.

THE ZONE TEMPERATURE SENSOR WITH SET POINT ADJUSTMENT SHALL BE PROVIDED WITH NIGHT SETBACK OVERRIDE, AND A COMMUNICATIONS JACK. UPPER AND LOWER ZONE TEMPERATURE SET POINTS SHALL BE SET BY THE DDC.

OCCUPIED/UNOCCUPIED MODE: CONTROLS CONTRACTOR SHALL CONSULT WITH OWNER FOR SPACE TEMPERATURE SETPOINTS.

OVERRIDE MODE: THE OVERRIDE TIMER SHALL PLACE THE TU AND AHU IN OCCUPIED MODE FOR ONE HOUR (ADJUSTABLE).

ION SENSOR: TU-9.11 SHALL BE EQUIPPED WITH A SUPPLY AIR MOUNTED ION SENSOR WITH ADJUSTABLE SETPOINT AND ANALOG INPUT. THE DDC SHALL POST AN ALARM WHEN THE ION COUNT FALLS BELOW THE SETPOINT. INITIAL SETPOINT MINIMUM SHALL BE 5000 IONS/CC/SEC. DUCT SETPOINT SHALL BE CONFIRMED BY SPACE ION MEASUREMENTS AT A MINIMUM OF 2000 IONS/CC/SEC IN THE SPACE SERVED.



SINGLE DUCT TU POINTS LIST

SYSTEM POINT DESCRIPTION	ANALOG INPUT: GRAPHIC	TEMPERATURE	PERCENT	CFM	ION COUNT	DDC	ANALOG OUTPUT: VARIABLE FREQ. DRIVE	SETPOINT ADJ.	DIGITAL INPUT: SMALL TRANSDUCER	STATUS	FILTER STATUS	SMOKE	DIGITAL OUTPUT: START/STOP	OPEN/CLOSE	LOCK OUT	ENABLE/DISABLE	SYSTEM FEATURES ALARMS: HIGH ANALOG	LOW ANALOG	SENSOR FAIL	COMM. FAIL	DIAGNOSTICS	LATCHING	PROGRAMS: TIME SCHEDULING	RUN TIME	TIMED OVERRIDE	MODE CONTROL
CONTROL PANEL																			X	X	X	X	X	X	X	X
SUPPLY AIR TO SPACE		X			X												X	X	X							
ZONE TEMPERATURE		X						X									X	X	X							
HEATING VALVE							X																			
DAMPER							X																			
FLOW SENSOR					X														X							

3 SINGLE DUCT TU CONTROL DIAGRAM

MG-501 SCALE: NONE

SEQUENCE OF OPERATION VARIABLE VOLUME AHU

STARTING AND STOPPING OF EQUIPMENT SHALL BE ACCOMPLISHED THROUGH A "HAND-OFF-AUTO" SWITCH LOCATED ON FACE OF DDC CONTROL PANEL. AN ALARM SHALL BE POSTED TO THE DDC SYSTEM ANYTIME THE HOA SWITCH IS INDEXED TO THE "HAND" OR "OFF" POSITIONS. WITH THE HOA SWITCH IN THE "AUTO" POSITION, THE UNIT SHALL BE STARTED AUTOMATICALLY BY THE DDC SYSTEM AND ALL CONTROLS ACTIVATED SUBJECT TO FIRE ALARM RELAY, SAFETIES AND OVERLOADS.

OCCUPIED MODE:

OPEN OUTSIDE AIR DAMPER AND START EXHAUST FANS INDICATED WHENEVER THE BUILDING IS IN OCCUPIED MODE.

COOLING COIL FREEZE PROTECTION: THE DDC SYSTEM SHALL CLOSE THE OUTSIDE AIR DAMPER ANYTIME THE COOLING COIL ENTERING AIR TEMPERATURE FALLS BELOW 40°F LONGER THAN 5 MINUTES. THE LOW LIMIT FREEZE STAT SHALL STOP THE AHU FAN MOTOR ANYTIME THE COOLING COIL ENTERING AIR TEMPERATURE FALLS BELOW 35°F.

DISCHARGE TEMPERATURE CONTROL: THE DDC SYSTEM SHALL MODULATE THE CHILLED WATER VALVE AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT SET POINT (REFER TO AHU SCHEDULE). WHEN MINIMUM SPEED IS REACHED AND THERE IS A CALL FOR HEATING FROM ANY ZONE, THE DDC SHALL RESET SUPPLY AIR TEMPERATURE UP IN 2°F INCREMENTS EVERY FIVE MINUTES TO A MAXIMUM OF 65°F. THE DDC SHALL REVERSE SUPPLY AIR RESET UPON A CALL FOR COOLING OR WHEN RETURN AIR RH RISES ABOVE 60%.

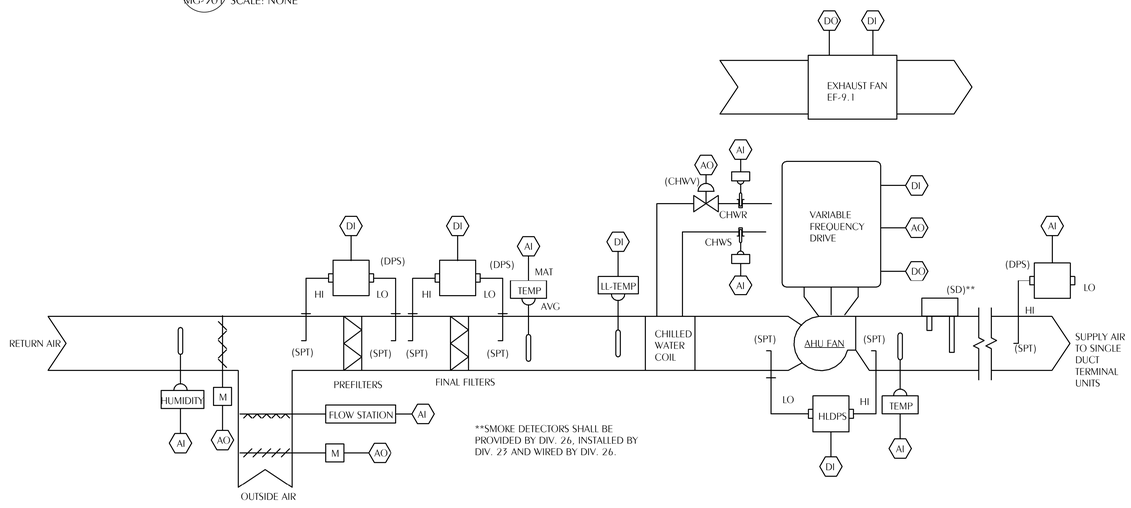
FAN SPEED CONTROL: SUBJECT TO THE DUCT MOUNTED HIGH LIMIT STATIC PRESSURE SENSORS, THE ADJUSTABLE VARIABLE FREQUENCY DRIVE SHALL MODULATE FAN SPEED AS REQUIRED TO MAINTAIN A CONSTANT STATIC PRESSURE AT THE DUCT MOUNTED STATIC PRESSURE SENSOR. THE DUCT STATIC PRESSURE SET POINT SHALL BE SET AT THE MINIMUM REQUIRED FOR TEST AND BALANCE. WHEN NONE OF THE TU'S ASSOCIATED WITH THE AHU HAVE BEEN IN FULL COOLING MODE FOR FIVE MINUTES, THE DDC SHALL RESET THE DUCT STATIC PRESSURE DOWN 0.15". AHU AIRFLOW SHALL BE LIMITED TO SCHEDULED MAXIMUM AND MINIMUM VALUES. AHU FAN SHALL RUN CONTINUOUSLY.

OUTSIDE AIR CONTROL: THE DDC SYSTEM, WITH OA DUCT MOUNTED FLOW MEASURING STATION, SHALL MODULATE RA DAMPER AS REQUIRED TO MAINTAIN OUTSIDE AIR QUANTITY AT SET POINT REGARDLESS OF THE TOTAL AIR FLOW OF THE AIR HANDLING UNIT AT ANYTIME. READOUT OF OUTSIDE AIR QUANTITY SHALL BE IN CFM. OUTSIDE AIR DAMPER SHALL BE OPENED TO ITS BALANCED POSITION DURING OCCUPIED CYCLES. UPON FAILURE THE OA DAMPER SHALL BE NORMALLY CLOSED. WHENEVER THE AHU OPERATES DURING UNOCCUPIED MODE, THE OA DAMPER SHALL REMAIN CLOSED.

UNOCCUPIED MODE: THE OA DAMPER SHALL SHUT AND THE FAN SHALL CYCLE UPON A CALL FOR COOLING OR HEATING FROM ANY SPACE.

THE DDC SYSTEM SHALL MODULATE THE CHILLED WATER VALVE AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT SET POINT (REFER TO AHU SCHEDULE).

INTERLOCKED EXHAUST FANS: INTERLOCKED EXHAUST FANS SHALL OPERATE ONLY DURING OCCUPIED TIMES AND MONITOR STATUS VIA CURRENT SENSOR.



4 VAV AHU CONTROL DIAGRAM

MG-501 SCALE: NONE

VARIABLE VOLUME AHU POINTS LIST

SYSTEM POINT DESCRIPTION	ANALOG INPUT: GRAPHIC	TEMPERATURE	CFM	STATIC PRESSURE	HUMIDITY	ION COUNT	DDC	ANALOG OUTPUT: VARIABLE FREQ. DRIVE	SETPOINT ADJ.	DIGITAL INPUT: FAULT	STATUS	FILTER STATUS	SMOKE	DIGITAL OUTPUT: START/STOP	OPEN/CLOSE	LOCK OUT	ENABLE/DISABLE	SYSTEM FEATURES ALARMS: HIGH ANALOG	LOW ANALOG	SENSOR FAIL	COMM. FAIL	DIAGNOSTICS	LATCHING	PROGRAMS: TIME SCHEDULING	RUN TIME	TIMED OVERRIDE	MODE CONTROL
CONTROL PANEL	X																						X	X	X	X
FAN CONTROL							X			X	X		X						X							
RETURN AIR				X														X	X	X						
MIXED AIR		X																X	X	X						
CHWC DISCHARGE AIR		X																X	X	X						
COOLING VALVE (CHWV)							X																			
CHWS		X																X	X	X						
CHWR		X																X	X	X						
FILTERS												X						X		X						
OUTSIDE AIR		X																X	X	X						
RETURN AIR DAMPER							X																			
OUTSIDE AIR DAMPER							X																			
HLDPS																		X	X							
EXHAUST FAN										X			X							X						

BACNET MONITORED SYSTEMS

DIVISION 26 SYSTEMS

THE DDC SHALL MONITOR SYSTEM CONTROLLERS BY OTHERS THROUGH A FACTORY BACNET INTERFACE. THE DDC SHALL READ AND IDENTIFY ALL POINTS TRANSMITTED BY THE FACTORY CONTROLLER. THE DDC SHALL INCLUDE A SYSTEM GRAPHIC FOR EACH CONTROLLED DEVICE WITH BACNET ADJUSTABLE SET POINTS IDENTIFIED AND ADJUSTABLE FROM THE GRAPHIC. THE FOLLOWING SYSTEMS ARE TO BE INCLUDED:

LIGHTING CONTROL PANEL

COORDINATE WITH THE EQUIPMENT AND CONTROLLERS PROVIDED BY OTHERS.

DIVISION 23 SYSTEMS

IN ADDITION TO SYSTEMS NOTED IN SPECIFIC CONTROL DIAGRAMS ON THESE DRAWINGS, THE DDC SHALL MONITOR MULTIZONE DUCTLESS SPLIT SYSTEM CONTROLLERS SERVING TELECOM AND ELECTRICAL ROOMS. THE DDC SHALL READ AND IDENTIFY ALL POINTS TRANSMITTED BY THE FACTORY CONTROLLER. THE DDC SHALL INCLUDE A SYSTEM GRAPHIC FOR EACH CONTROLLED DEVICE WITH SPACE SET POINTS IDENTIFIED AND ADJUSTABLE FROM THE GRAPHIC.

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PERMIT DOCUMENTS

GADSDEN COUNTY SCHOOL BOARD
New Quincy K-8 School

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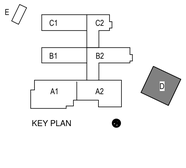
QUINCY, FL 32351



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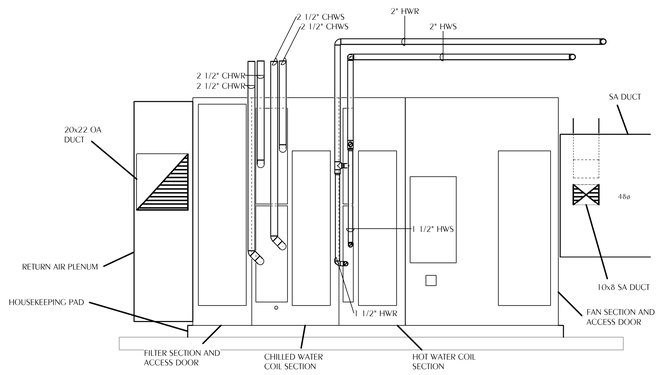
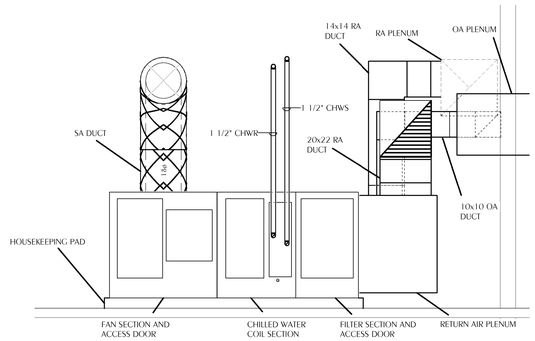
HVAC CONTROLS
MG-501



1 AHU-D1 ELEVATION
MG-601 SCALE: 1/2" = 1'-0"



2 AHU-D2 ELEVATION
MG-601 SCALE: 1/2" = 1'-0"

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GADSDEN COUNTY SCHOOL DISTRICT — FL —

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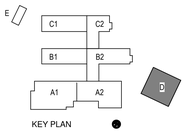

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Project Number: 2022-041
Checked By: KAJ
Drawn By: IVB

HVAC AHU ELEVATIONS

MG-601