

GENERAL MECHANICAL NOTES

1.

ALL MECHANICAL WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING:
- A.

FLORIDA BUILDING CODE (FBC) 8TH EDITION (2023) (EFFECTIVE DECEMBER 31, 2023): THIS CODE INCLUDES THE 2023 FBC BUILDING, MECHANICAL, PLUMBING, ENERGY CONSERVATION, FUEL GAS, ACCESSIBILITY, AND TEST PROTOCOLS VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC BUILDING CHAPTER 35; FBC MECHANICAL CHAPTER 15; FBC PLUMBING CHAPTER 15; FBC ENERGY CONSERVATION CHAPTER 6; AND FBC FUEL GAS CHAPTER 8).
- B.

8TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101. (EFFECTIVE DECEMBER 31, 2023).
- C.

2020 NATIONAL ELECTRIC CODE.
- D.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION RULES.
- E.

FDOT BUILDING FACILITIES DESIGN MANUAL 625-202-016-F - REVISED MAY 2020.
2.

VERIFY, BY VISITING THE SITE, THE LOCATION OF UTILITIES IN ALL AREAS BEFORE COMMENCING WORK.
3.

COORDINATE ALL WORK WITH OTHER AFFECTED TRADES. THE MECHANICAL CONTRACTOR SHALL FORWARD TO THE ELECTRICAL CONTRACTOR AN APPROVED COPY OF ALL EQUIPMENT SHOP DRAWINGS FOR ELECTRICAL POWER/CONTROL INTERFACE.
4.

COVER ALL ELECTRICAL AND MECHANICAL EQUIPMENT TO PROTECT THEM FROM DUST AND DAMAGE DURING CONSTRUCTION. RESTORE ALL FACTORY PAINTED SURFACES TO NEW CONDITION, REPAIR ALL SCRATCHES, DENTS AND ABRASIONS. THOROUGHLY CLEAN ALL SURFACES OF DUST DEBRIS, AND FOREIGN MATTER. THE EQUIPMENT, WHEN TURNED OVER TO THE OWNER, SHALL BE CLEAN AND FREE OF DEFECTS.
5.

THE CONDENSATE DRAIN LINE SHALL HAVE A TRAP AT THE AIR HANDLING UNIT. TRAP SHALL BE FULL SIZE OF UNIT CONNECTION AND SHALL BE AS DETAILED. PROVIDE CLEAN OUTS IN ALL CHANGES OF DIRECTION. MINIMUM PITCH 1/8" PER FOOT. CONDENSATE DRAIN LINE SHALL RUN TO A FLOOR DRAIN. INSULATE ALL INTERIOR CONDENSATE PIPING WITH FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION TO PREVENT SWEATING. CONDENSATE DRAIN LINES AND TRAPS IN MECHANICAL ROOMS SHALL BE INSULATED COPPER AND SHALL BE RIGIDLY SUPPORTED.
6.

FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION SHALL BE 25/50 FLAME SPREAD/SMOKE DEVELOPED. REFRIGERANT PIPING SHALL BE INSULATED WITH FLEXIBLE UNICELLULAR FOAM INSULATION COMPLYING WITH ASTM C534, TYPE 1. PROVIDE ALUMINUM CLADDING FOR ALL INSULATION EXPOSED TO THE SUN AND WEATHER.
7.

REFRIGERANT LINES SHALL BE SIZED AND REFRIGERANT SPECIALTIES SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR STATIC LIFTS AND TOTAL LENGTHS REQUIRED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8.

AIR HANDLING UNITS SHALL HAVE AN AUXILIARY DRAIN PAN 3" LARGER THAN UNIT EACH WAY. DRAIN PAN SHALL HAVE A FLOAT SWITCH TO DE-ENERGIZE THE AHU IN EVENT OF A CONDENSATE OVERFLOW CONDITION.
9.

AIR HANDLING UNITS SHALL BE PLACED ON A 1/4" NEOPRENE PAD WITHIN THE AUXILIARY DRAIN PAN.
10.

AIR HANDLING UNITS SHALL BE PLACED A MINIMUM OF 30" AWAY FROM WALLS.
11.

HOUSEKEEPING PADS SHALL BE A MINIMUM OF 4" HIGH AND SHALL EXTEND AT LEAST 6" BEYOND THE EQUIPMENT IT SUPPORTS. AIR HANDLER AND CHILLER PADS SHALL BE A MINIMUM OF 6" THICK, AND PUMP PADS SHALL BE A MINIMUM OF 8" THICK. ALL HOUSEKEEPING PADS SHALL HAVE 3/4" CHAMFERED EDGES.
12.

IN GENERAL, PLANS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
13.

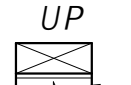

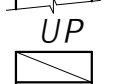

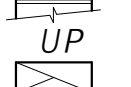

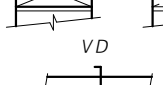

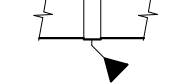
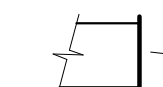
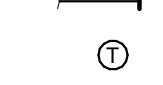
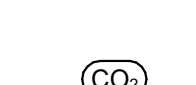
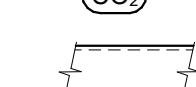
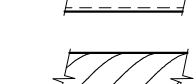
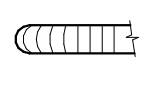
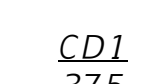
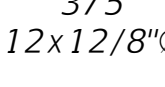

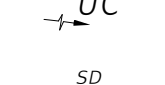
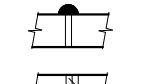
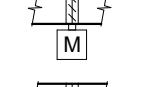
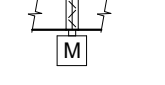
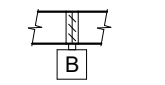


ALL DUCTWORK SHALL MEET THE STANDARDS SET FORTH BY THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE FABRICATED FROM SHEET METAL. ALL ROUND DUCT SHALL BE SHEET METAL UNLESS OTHERWISE NOTED. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
14.

SUPPLY AIR DUCT FULL SIZE OF UNIT DISCHARGE. TRANSITION TO SIZE INDICATED ON DRAWINGS. RETURN AIR DUCT IS TO TRANSITION FROM SIZE INDICATED ON DRAWINGS TO FULL SIZE OF UNIT INLET.
15.

ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS (FREE AREA).
16.


VERIFY ALL CLEARANCES AND DIMENSIONS BEFORE FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSETS TO MEET FIELD CONDITIONS. ADJUST LOCATIONS OF ALL EQUIPMENT AND DUCTWORK, AS NECESSARY TO AVOID INTERFERENCES WITH STRUCTURAL AND OTHER BUILDING COMPONENTS.
17.

UNLESS NOTED OTHERWISE, INSTALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO UNDERSIDE OF STRUCTURE. COORDINATE DUCT ELEVATION WITH RAIN LEADERS, WATER PIPING, DRAINS, AND MAJOR ELECTRICAL CONDUITS AND LIGHTS. PROVIDE OFFSETS AND TRANSITIONS AS REQUIRED TO KEEP DUCTWORK TIGHT TO THE STRUCTURE AND MAINTAIN CEILING ELEVATIONS AS INDICATED IN THE ARCHITECTURAL DRAWINGS. DUCTWORK MAY BE FLATTENED TO A 4:1 HEIGHT RATIO MAINTAINING THE DUCT FREE AREA SIZE AS INDICATED IN THE DRAWINGS. DUCTWORK SHAPE MAY HAVE TO BE ADJUSTED (I.E. ROUND TO RECTANGULAR) AS SPACE DICTATES. MULTIPLE SMALLER RUNS MAY BE REQUIRED IN PLACE OF A SINGLE RUN. DUCT RECONFIGURATION SHALL BE INDICATED IN THE DUCT FABRICATION DRAWINGS AND FIELD VERIFIED PRIOR TO SUBMITTAL FOR ENGINEER'S REVIEW.
- (SEE AM-002 FOR CONTINUATION)

HVAC LEGEND			
	UP		DOWN
	UP		DOWN
	UP		DOWN
	VOLUME DAMPER		
	FIRE DAMPER - REFER TO DETAIL		
	SIDEWALL GRILLE		
	WALL MTD THERMOSTAT OR TEMPERATURE SENSOR		
	CO2 SENSOR		
	DOUBLE WALL STEEL DUCTWORK		
	EXPOSED DUCTWORK (PAINTED)		
	BELLMOUTH "SPIN-IN" FITTING WITH LOCKING QUADRANT DAMPER		
	FLEX DUCT		
	AIR DEVICE MARK. TOP LINE INDICATES TYPE, REFER TO SCHEDULE. SECOND LINE INDICATES AIR QUANTITY CFM. THIRD LINE INDICATES NECK SIZE AND DUCT CONNECTION SIZE.		
	UNDERCUT DOOR BY 3/4" AFF UNLESS OTHERWISE INDICATED COORDINATE WITH ARCHITECTURAL DRAWINGS.		
	DUCT MOUNTED SMOKE DETECTOR		
	MOTORIZED DAMPER (24 VOLT UNLESS NOTED OTHERWISE)		
	OPPOSED BLADE MOTORIZED DAMPER (24 VOLT UNLESS NOTED OTHERWISE)		
	BACKDRAFT DAMPER EQUIVALENT TO RUSKIN BD2A1. DAMPER SHALL START TO OPEN AT 0.03" W.G. PRESSURE		
	BOTTOM OF SIDEWALL GRILLE ELEVATION		
	TOP OF SIDEWALL GRILLE ELEVATION		
	DUCT IS LOCATED BETWEEN JOIST OR THROUGH JOIST WEB.		
	ELEVATION		

DESIGN CRITERIA	
Location (Weather Data):	PENSACOLA, FL
Latitude:	30.4°
Longitude:	87.3°
Elevation:	30 ft.
Barometric Pressure:	29.9 in. Hg
County:	ESCAMBIA
Climate Zone:	2A
DESIGN TEMPERATURES:	
Ambient Summer Design Dry Bulb:	93°F
Ambient Summer Design Wet Bulb:	78°F
Ambient Winter Design Dry Bulb:	28°F
Space Setpoint - cooling	75°F
Space Setpoint - heating	68°F
Space Setpoint - humidity	55% RH (±5%)
NOTE: 75°F SPACE SETPOINT FOR COOLING IS THE MINIMUM ALLOWED AND 72°F IS THE MAXIMUM FOR HEATING PER FBC ENERGY CONSERVATION SECTION C302.1.	

MECHANICAL DRAWING INDEX	
SHEET NUMBER	SHEET NAME
AM-001	HVAC DESIGN CRITERIA, LEGEND, AND GENERAL NOTES
AM-002	HVAC GENERAL NOTES (CONTINUED)
AM-003	HVAC BUILDING AIR BALANCE AND VENILATION TABULATION
AM-100	HVAC SITE PLAN
AM-101	OVERALL HVAC PLAN
AM-111	HVAC PLAN QUAD A
AM-112	HVAC PLAN QUAD B
AM-113	HVAC PLAN QUAD C
AM-114	HVAC PLAN QUAD D
AM-401	ENLARGED HVAC PLANS
AM-402	ENLARGED HVAC PLANS
AM-501	HVAC DETAILS
AM-502	HVAC DETAILS
AM-503	HVAC DETAILS
AM-601	HVAC SCHEDULES
AM-602	HVAC SCHEDULES
AM-603	HVAC SCHEDULES
AM-604	HVAC SCHEDULES
AM-605	HVAC SCHEDULES
AM-606	HVAC SCHEDULES
AM-701	HVAC CONTROLS - CHILLED WATER PLANT SEQUENCES
AM-702	HVAC CONTROLS - CHILLED WATER PLANT SCHEMATIC
AM-703	HVAC CONTROLS - AIRSIDE SEQUENCES
AM-704	HVAC CONTROLS - AIRSIDE FLOW SCHEMATIC
AM-705	HVAC CONTROLS - POINT SCHEDULE
SHEETS: 25	

No.	Date	Issue / Revision		STEPHEN R. FORKNER, PE PE 80532  WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574	FLORIDA-ALABAMA TPO			HVAC DESIGN CRITERIA, LEGEND, AND GENERAL NOTES	DWG NO.		
							AM-001				
							SHEET NO.				
						ROAD NO.	COUNTY		FINANCIAL PROJECT ID		
						NORTH W STREET	ESCAMBIA		451524-1-38-01		



GENERAL MECHANICAL NOTES (CONTINUED FROM AM-001)

18. DUCTWORK, DIFFUSERS, REGISTERS, GRILLES, AND OTHER ITEMS OF THE AIR HANDLING SYSTEM SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM.
19. ALL SUPPLY DUCTWORK BETWEEN THE DISCHARGE OF THE PRIMARY AIR HANDLER AND THE INLETS TO THE VAV BOXES SHALL BE 3" W.G. PRESSURE CLASS. ALL OTHER DUCTWORK SHALL BE 1" W.G. ALL SHEET METAL DUCTWORK SHALL HAVE A CLASS C SEAL.
20. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO INSTALL MECHANICAL EQUIPMENT AND MATERIALS.
21. PROVIDE ADDITIONAL VOLUME DAMPERS AS REQUIRED BY THE TEST AND BALANCE CONTRACTOR TO ACHIEVE AIRFLOWS INDICATED ON THE DRAWINGS. MAINTAIN NEGATIVE PRESSURE IN ALL DESIGNATED CONSTRUCTION AREAS.
22. IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE AIR HANDLERS MAY ONLY BE STARTED IF THE FOLLOWING CONDITIONS ARE MET:

A. ALL OPENINGS FROM THE CONDITIONED SPACE DIRECTLY TO THE OUTSIDE MUST BE CLOSED. TEMPORARY CLOSURE METHODS MAY BE USED SUCH AS THE UTILIZATION OF PLASTIC SHEETS AND DUCT TAPE.

B. MOP CLEAN ALL CONSTRUCTION DEBRIS AND DUST FROM THE FLOOR. PROVIDE DOOR MATS AT ALL ENTRANCES INTO THE BUILDING.

C. TEMPORARY BARRIERS ARE TO BE PROVIDED AROUND AREAS THAT WILL HAVE ANY CONCRETE GRINDING OPERATION, DRYWALL WORK, PAINTING OR ANY OTHER PARTICULATE PRODUCING PROCESSES. ALL AIR DISTRIBUTION DEVICES IN THESE AREAS OF CONTAINMENT ARE TO BE COVERED AND SEALED AIR TIGHT.

D. ALL RETURN GRILLES SHALL HAVE MERV-8 FILTER MEDIA TAPED OVER THEM PRIOR TO AIR HANDLER STARTUP AND SHALL REMAIN IN PLACE UNTIL ALL DUST PRODUCING OPERATIONS HAVE BEEN COMPLETED AND PRIOR TO TEST AND BALANCE. CLEAN ALL TAPE RESIDUE FROM THE GRILLES.

E. ONCE THE UNIT IS STARTED, FILTERS IN THE AIR HANDLERS ARE TO BE SHAKEN CLEAN DAILY.
23. ALL REQUIRED FIRE DAMPERS MAY NOT BE INDICATED HEREIN. PROVIDE FIRE DAMPERS AS REQUIRED AT RATED WALLS AND FLOORS PER FLORIDA BUILDING - MECHANICAL CODE. REFER TO ARCHITECTURAL DRAWINGS FOR RATED PARTITION LOCATIONS.
24. OMIT INSULATION ON TRANSFER DUCT SYSTEM. TRANSFER DUCT SYSTEMS ARE CONNECTED TO "XG#" TYPE AIR DISTRIBUTION DEVICES.
25. RUST COAT ALL CHILLED WATER PIPING AND FITTINGS PER SPECIFICATION (SPECIFICALLY SMALL FITTINGS) INSTALL AIR BLEED IN APPROPRIATE LOCATIONS.
26. SUBMIT DUCT FABRICATION DRAWINGS AND MECHANICAL ROOM LAYOUTS PER SPECIFICATIONS PRIOR TO ANY FRAMING WORK. ALL CHASE SIZES, FLOOR DRAINS IN MECHANICAL ROOMS/CLOSETS, AND ELECTRICAL PANEL LOCATIONS SHALL BE FIELD VERIFIED, COORDINATED, AND INDICATED IN THE SUBMITTAL.
27. ALL DUCT MOUNTED MANUAL BALANCING DAMPERS SHALL HAVE A TWO FOOT LONG, YELLOW STRIP OF MATERIAL ATTACHED TO THE DAMPER HANDLE FOR EASY VISUAL IDENTIFICATION.
28. ALL FIRE STOPPING SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S U.L. DETAILS OF THE PRODUCTS USED SPECIFICALLY ON THIS PROJECT. APPLICABLE U.L. DETAILS SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW AND A COPY SHALL BE AVAILABLE ON SITE FOR USE BY THE AUTHORITY HAVING JURISDICTION.
29. CONCRETE SLAB/PAD IS TO HAVE NO CONTACT WITH ANY METAL PORTION OF THE EQUIPMENT OR THAT EQUIPMENT'S SUPPORT. PROVIDE 1/4" THICK RED, OR BLACK, RUBBER PAD UNDER THE ENTIRE METAL SURFACE INTENDED TO REST ON THE CONCRETE PAD.
30. THE TEMPERATURE CONTROLS (INCLUDING GRAPHICS) SHALL BE IN OPERATION AND EXERCISED IN THE PRESENCE OF THE ENGINEER OF RECORD AT TIME OF SUBSTANTIAL COMPLETION. THE CONSTRUCTION MANAGER SHALL SCHEDULE A MEETING BETWEEN THE CONTROL'S CONTRACTOR AND THE ENGINEER ONE WEEK PRIOR. THIS SHALL OCCUR PRIOR TO OWNER TRAINING.
31. PROVIDE DIELECTRIC UNIONS/PROTECTION AT ALL POINTS OF CONNECTION BETWEEN DISSIMILAR METALS; PIPE, PIPE HANGERS, CONNECTIONS TO STRUCTURAL STEEL, ETC.
32. ROUND FLEX DUCT SHALL BE A MAXIMUM LENGTH OF 6 FEET. ALL RUNS OF FLEX DUCT ARE TO BE SUPPORTED WITH THE APPROPRIATE HANGERS. FLEX DUCT SHALL NOT SAG OR BE CRIMPED.
33. AIR CONDITIONING FILTERS ARE TO BE PROVIDED AND CHANGED BY THE CONTRACTOR UP TO AND ON THE DATE OF FINAL COMPLETION ACCEPTANCE. FROM THAT TIME ON, THE OWNER WILL RETAIN ALL RESPONSIBILITY FOR FILTER MAINTENANCE. FILTERS SHALL BE CLEAN AT THE TIME OF SUBSTANTIAL COMPLETION.
34. VAV TERMINAL BOXES SHALL BE MOUNTED WITH THE BOTTOM AT 8" ABOVE THE CEILING. THE CONTROL PANEL AND THE HEATER SERVICE PANEL SHALL BE UNOBSTRUCTED AS REQUIRED BY NEC AND AS RECOMMENDED BY THE TERMINAL MANUFACTURER. VAV BOXES ARE TO BE INSTALLED WITH A 4 FT. LONG STRAIGHT SECTION OF ROUND DUCT AT THE INLET AND SHALL BE THE SAME SIZE AS THE BOX CONNECTION. ALL DUCTWORK BETWEEN THE VAV INLET AND THE AIR HANDLER IS TO BE RIGID (NO FLEX).
35. LOCATE ALL AIR DISTRIBUTION DEVICES AND CEILING MOUNTED EQUIPMENT IN CONFORMANCE WITH THE REFLECTED CEILING PLANS INCLUDED IN THE ARCHITECTURAL DRAWINGS FOR THIS PROJECT. COORDINATE DUCTWORK TO ALLOW FOR LOCATIONS OF THESE ITEMS. PROVIDE REVISED DUCTWORK LAYOUT WHERE REQUIRED. ANY MECHANICAL ITEMS EXPOSED TO VIEW SHALL BE PLACED PER THE ARCHITECTURAL DRAWINGS.

36. ALL EXTERIOR FASTENERS, ANCHORS, SUPPORTS, AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
37. PROVIDE COMMISSIONING SERVICES THROUGH A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY IN ACCORDANCE WITH THE PROVISIONS OF FLORIDA BUILDING CODE/ ENERGY CONSERVATION SECTION C408 ON BUILDINGS WITH TOTAL MECHANICAL EQUIPMENT CAPACITY GREATER THAN 480,000 BTUH (40 TONS). THE SECTION STATES THAT PRIOR TO PASSING THE FINAL MECHANICAL INSPECTION, EVIDENCE OF THE MECHANICAL SYSTEM'S COMMISSIONING AND COMPLETION SHALL BE PROVIDED. COPIES OF COMMISSIONING DOCUMENT SHALL BE GIVEN TO THE OWNER AND MADE AVAILABLE TO THE CODE OFFICIAL UPON REQUEST.
38. PRIOR TO SUBSTANTIAL COMPLETION, A COMPLETE CERTIFIED TEST AND BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS.
39. DUCTS SHOWN PENETRATING SMOKE PARTITIONS SHALL BE SEALED AIR TIGHT BETWEEN THE DUCT OR ITS INSULATION AND THE WALL IT PENETRATES.
40. ALL THERMOSTAT/WALL SENSORS SHALL BE LABELED WITH THE UNIT MARK OF THE ITEM BEING CONTROLLED.
41. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL HAVE VIBRATION ISOLATION. ALL MECHANICAL SYSTEM COMPONENTS SHALL BE INSTALLED IN A VIBRATION FREE MANNER. ALL DUCT AND PIPES WILL HAVE FLEX CONNECTORS INSTALLED.
42. PIPE INSULATION AND VAPOR BARRIERS SHALL BE INSTALLED CONTINUOUS THROUGH HANGERS.
43. ALL DUCT AND PIPE PENETRATIONS THROUGH ANY WALL, REGARDLESS OF FIRE RATING, SHALL BE SEALED AIRTIGHT.
44. ALL EXPOSED CONTROL WIRING IN MECHANICAL AND ELECTRICAL ROOMS SHALL BE INSTALLED IN CONDUIT. ALL CONTROL WIRING SHALL BE PLENUM RATED CABLE. CONDUITS SHALL CONFORM TO ALL REQUIREMENTS FOR DIVISION 26 CONDUITS. REFER TO DIVISION 26 SPECIFICATIONS AND DRAWINGS.
45. SEE TSP FOR ADDITIONAL REQUIREMENTS.

DUCTWORK MATERIALS

1. ALL EXPOSED DUCTWORK SHALL HAVE A "PAINT GRIP" GALVANIZED STEEL FINISH AND SHALL BE FIELD PAINTED. PAINTED AS DIRECTED BY THE ARCHITECT. COORDINATE COLOR WITH ARCHITECT.
2. UNLESS NOTED OTHERWISE, ALL EXPOSED SUPPLY AND RETURN AIR DUCTWORK SHALL BE DOUBLE WALL CONSTRUCTION WITH 1-1/2" (1.5 PCF DENSITY) INSULATION AND SOLID LINER. EXPOSED DUCTWORK SHALL BE SEALED WITHIN THE LAP (MASTIC SHALL NOT BE VISIBLE).
3. FLEX DUCT SHALL BE EQUIVALENT TO FLEXMASTER 1M WITH A POLYETHYLENE FABRIC (PE) CORE AND SHALL HAVE PRESSURE RATINGS OF 10" W.G. POSITIVE, 5" W.G. NEGATIVE THROUGH 16" DIA., AND 1" W.G. NEGATIVE FOR 18" AND 20" DUCTS.
4. ALL TRANSFER DUCT SHALL BE UNINSULATED SHEET METAL DUCTWORK.
5. FLEXIBLE DUCT RUNOUTS SHALL NOT EXCEED 6 FEET.
6. THE USE OF SNAP LOCK DUCT IS NOT PERMITTED.

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC GENERAL NOTES (CONTINUED)

DWG NO.
AM-002
SHEET NO.



## HVAC LOAD CALCULATIONS

## Air System Sizing Summary for AH1

Project Name: 9345 RTMC Escambia  
Prepared by: WGI, Inc.

## Air System Information

Air System Name	AH1	Number of zones	30
Equipment Class	CW AHU	Floor Area	16765.0 ft²
Air System Type	VAV	Location	Pensacola, Florida

## Sizing Calculation Information

Calculation Months .....	Jan to Dec	Zone CFM Sizing .....	Peak zone sensible load
Sizing Data .....	Calculated	Space CFM Sizing .....	Individual peak space loads

### Central Cooling Coil Sizing Data

Total coil load .....	54.5	Tons	Load occurs at .....	Jul 1600	
Total coil load .....	654.5	MBH	OA DB / WB .....	92.5 / 77.9	°F
Sensible coil load .....	557.3	MBH	Entering DB / WB .....	75.5 / 61.5	°F
Coil CFM at Jul 1600 .....	21823	CFM	Leaving DB / WB .....	51.9 / 50.6	°F
Max block CFM at Jul 1700 .....	23653	CFM	Coil ADP .....	49.2	°F
Turn of peak zone CFM .....	23650	CFM	Bypass .....	0.100	
Sensible heat ratio .....	0.852		Resulting RH .....	43	%
CFM/Ton .....	400.1		Design supply temp. ....	55.0	°F
ft <sup>3</sup> /Ton .....	307.4		Zone T-stat Check .....	30 of 30	OK
BTU/(hr-ft <sup>2</sup> ) .....	39.0		Max zone temperature deviation .....	0.0	°F
Water flow @ 14.0 °F rise .....	93.55	gpm			

### Central Heating Coil Sizing Data

**No central heating coil loads occurred during this calculation.**

### Supply Fan Sizing Data

Actual max CFM at Jul 1700 .....	<b>23653</b>	CFM	Fan motor BHP .....	<b>33.31</b>	BHP
Standard CFM .....	<b>23627</b>	CFM	Fan motor kW .....	<b>26.43</b>	kW
Actual max CFM/ft² .....	<b>1.41</b>	CFM/ft²	Fan static .....	<b>4.00</b>	in wg

## Outdoor Ventilation Air Data

Design airflow CFM .....	<b>2974</b> CFM	CFM/person .....	<b>21.09</b> CFM/person
CFM/ft <sup>2</sup> .....	<b>0.18</b> CFM/ft <sup>2</sup>		

## Air System Design Load Summary for AH1

Project Name: 9345 RTMC Escambia	02/19/2023
Prepared by: WGI, Inc.	09:20AM


	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB	92.5 °F / 77.9 °F		HEATING OA DB / WB	28.0 °F / 23.6 °F	
<b>ZONE LOADS</b>	<b>Details</b>	<b>Sensible (BTU/hr)</b>	<b>Latent (BTU/hr)</b>	<b>Details</b>	<b>Sensible (BTU/hr)</b>	<b>Latent (BTU/hr)</b>
Window & Skylight Solar Loads	1819 R²	3685	-	1819 R²	-	-
Wall Transmission	6106 R²	16182	-	6106 R²	30665	-
Roof Transmission	16767 R²	13117	-	16767 R²	22970	-
Window Transmission	1819 R²	15577	-	1819 R²	38199	-
Skylight Transmission	0 R²	0	-	0 R²	0	-
Door Loads	0 R²	0	-	0 R²	0	-
Floor Transmission	16765 R²	0	-	16765 R²	11281	-
Partitions	345 R²	1055	-	345 R²	1725	-
Ceiling	0 R²	0	-	0 R²	0	-
Overhead Lighting	11736 W	40041	-	0	0	-
Task Lighting	9479 W	32340	-	0	0	-
Electric Equipment	13728 W	46840	-	0	0	-
People	141	34545	28905	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	214050	0	-	0	0
Safety Factor	10% / 5%	41743	1445	10%	10484	0
<b>&gt;&gt; Total Zone Loads</b>	<b>-</b>	<b>459173</b>	<b>30350</b>	<b>-</b>	<b>115324</b>	<b>0</b>
Zone Conditioning	-	453877	30350	-	112132	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	21823 CFM	0	-	8564 CFM	0	-
Ventilation Load	2974 CFM	29295	66790	2974 CFM	131602	0
Supply Fan Load	21823 CFM	74129	-	8564 CFM	-12842	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
<b>&gt;&gt; Total System Loads</b>	<b>-</b>	<b>557301</b>	<b>97140</b>	<b>-</b>	<b>230892</b>	<b>0</b>
Central Cooling Coil	-	557301	97168	-	-10761	0
Central Heating Coil	-	0	-	-	0	-
Terminal Reheat Coils	-	0	-	-	241652	-
<b>&gt;&gt; Total Conditioning</b>	<b>-</b>	<b>557301</b>	<b>97168</b>	<b>-</b>	<b>230892</b>	<b>0</b>
<b>Key:</b>	Positive values are ckg loads Negative values are htg loads			Positive values are htg loads Negative values are ckg loads		

DESCRIPTION OF AREA	FBC TABLE 403.3.1.1 CLASSIFICATION	OCC DENSITY (# / 1000 SF)	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE (CFM/PERSON)	x	OCCUPANTS EACH	=	PEOPLE OA AIRFLOW (CFM)	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE (CFM / SF)	x	TOTAL SF	=	AREA OA AIRFLOW (CFM)	REQUIRED OUTSIDE AIR (CFM)
AH01													
101 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	148	=	8.9	14
102 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	145	=	8.7	14
103 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	145	=	8.7	14
104 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	195	=	11.7	17
105 Exec Dir Office	Offices; Office spaces	5	5.0	x	2	=	10	0.06	x	215	=	12.9	23
106 File Sto	Retail stores; Storage	0	-	x	-	=	-	0.12	x	310	=	37.2	37
107 Media Rm	Offices; Conference rooms	50	5.0	x	16	=	80	0.06	x	317	=	19.0	99
108 Auto Conf	Offices; Conference rooms	50	5.0	x	30	=	150	0.06	x	592	=	35.5	186
109 Nexus Conf	Offices; Conference rooms	50	5.0	x	22	=	110	0.06	x	425	=	25.5	136
111 Mail / Supplies	Retail stores; Storage	0	-	x	-	=	-	0.12	x	156	=	18.7	19
113 Supplies / Tech	Retail stores; Storage	0	-	x	-	=	-	0.12	x	43	=	5.2	5
115.1 Immersive Space	Offices; Office spaces	5	5.0	x	2	=	10	0.06	x	237	=	14.2	24
115.2 Immersive Support	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	102	=	6.1	11
118 Digital Recpt	Offices; Reception areas	30	5.0	x	2	=	10	0.06	x	56	=	3.4	13
119 Vestibule	Public spaces; Corridors	0	-	x	-	=	-	0.06	x	767	=	46.0	46
120 Open Off	Offices; Office spaces	5	5.0	x	10	=	50	0.06	x	1,808	=	108.5	158
120.2,3,4,5 CORR	Public spaces; Corridors	0	-	x	-	=	-	0.06	x	639	=	38.3	38
121 Collab Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	86	=	5.2	10
122 Collab Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	86	=	5.2	10
123 Collab Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	86	=	5.2	10
124 Food Sto	Retail stores; Storage	0	-	x	-	=	-	0.12	x	87	=	10.4	10
125 Coffee bar	Food & beverage service; Kitchens (cooking)	20	7.5	x	6	=	45	0.12	x	288	=	34.6	80
130 Corridor	Public spaces; Corridors	0	-	x	-	=	-	0.06	x	321	=	19.3	19
132(1) TP0 Board Rm	Offices; Conference rooms	50	5.0	x	53	=	265	0.06	x	1,059	=	63.5	329
132(2) TP0 Board Rm	Offices; Conference rooms	50	5.0	x	53	=	265	0.06	x	1,059	=	63.5	329
134 Furniture Sto	Public spaces; Corridors	0	-	x	-	=	-	0.06	x	263	=	31.6	32
135 Break Rm	Food & beverage service; Kitchens (cooking)	20	7.5	x	8	=	60	0.12	x	394	=	47.3	107
137 Food Sto	Retail stores; Storage	0	-	x	-	=	-	0.12	x	61	=	7.3	7
138 Corridor	Public spaces; Corridors	0	-	x	-	=	-	0.06	x	115	=	6.9	7
139 Media Coverage	Offices; Office spaces	5	5.0	x	2	=	10	0.06	x	202	=	12.1	22
140 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	153	=	9.2	14
141 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	147	=	8.8	14
142 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	147	=	8.8	14
143 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	150	=	9.0	14
144 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	149	=	8.9	14
145 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	154	=	9.2	14
146 Office	Offices; Office spaces	5	5.0	x	1	=	5	0.06	x	146	=	8.8	14
148(1) Control	Offices; Telephone/data entry	60	5.0	x	40	=	200	0.06	x	651	=	39.1	239
148(2) Control	Offices; Telephone/data entry	60	5.0	x	32	=	160	0.06	x	527	=	31.6	192
148(3) Control	Offices; Telephone/data entry	60	5.0	x	34	=	170	0.06	x	554	=	33.2	203
148(4) Control	Offices; Telephone/data entry	60	5.0	x	30	=	150	0.06	x	485	=	29.1	179
148(5) Control	Offices; Telephone/data entry	60	5.0	x	20	=	100	0.06	x	318	=	19.1	119
										Required Outside Air:		2,855	
										Outside Air Provided:		2,980	

# BUILDING AIR BALANCE

OUTSIDE AIR INTO BUILDING		EXHAUST AIR OUT OF BUILDING		CFM NET
SOURCE	CFM	SOURCE	CFM	
AH1 (AT MAXIMUM DEMAND LOAD VENTILATION)	2,980	EF11 & EF12	625	220
-	-	EXFILTRATION **	395	
-	-	ERU RELIEF	1,740	
	2,980		2,760	
ZONE PRESSURIZATION ((2,980 OA - 2,760 EXH) / 21,835 SA) x 100 = 1.01%				
AH1 (AT MINIMUM DEMAND LOAD VENTILATION)	1,300	EF11 & EF12	625	220
-	-	EXFILTRATION **	395	
-	-	ERU RELIEF	60	
	1,300		1,080	
ZONE PRESSURIZATION ((1,300 OA - 1,080 EXH) / 21,825 SA) x 100 = 1.01%				

\*\* EXFILTRATION ASSUMED TO BE A MAXIMUM OF 0.05 CFM / SF FOR EXTERIOR WALL ENVELOPE.

No.	Date	Issue / Revision	 <p>STEPHEN R. FORKNER, PE PE 80532</p> <p>WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574</p>	FLORIDA-ALABAMA TPO			HVAC BUILDING AIR BALANCE AND VENILATION TABULATION	DWG NO.
				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		AM-003
				NORTH W STREET	ESCAMBIA	451524-1-38-01		SHEET NO.





No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC SITE PLAN

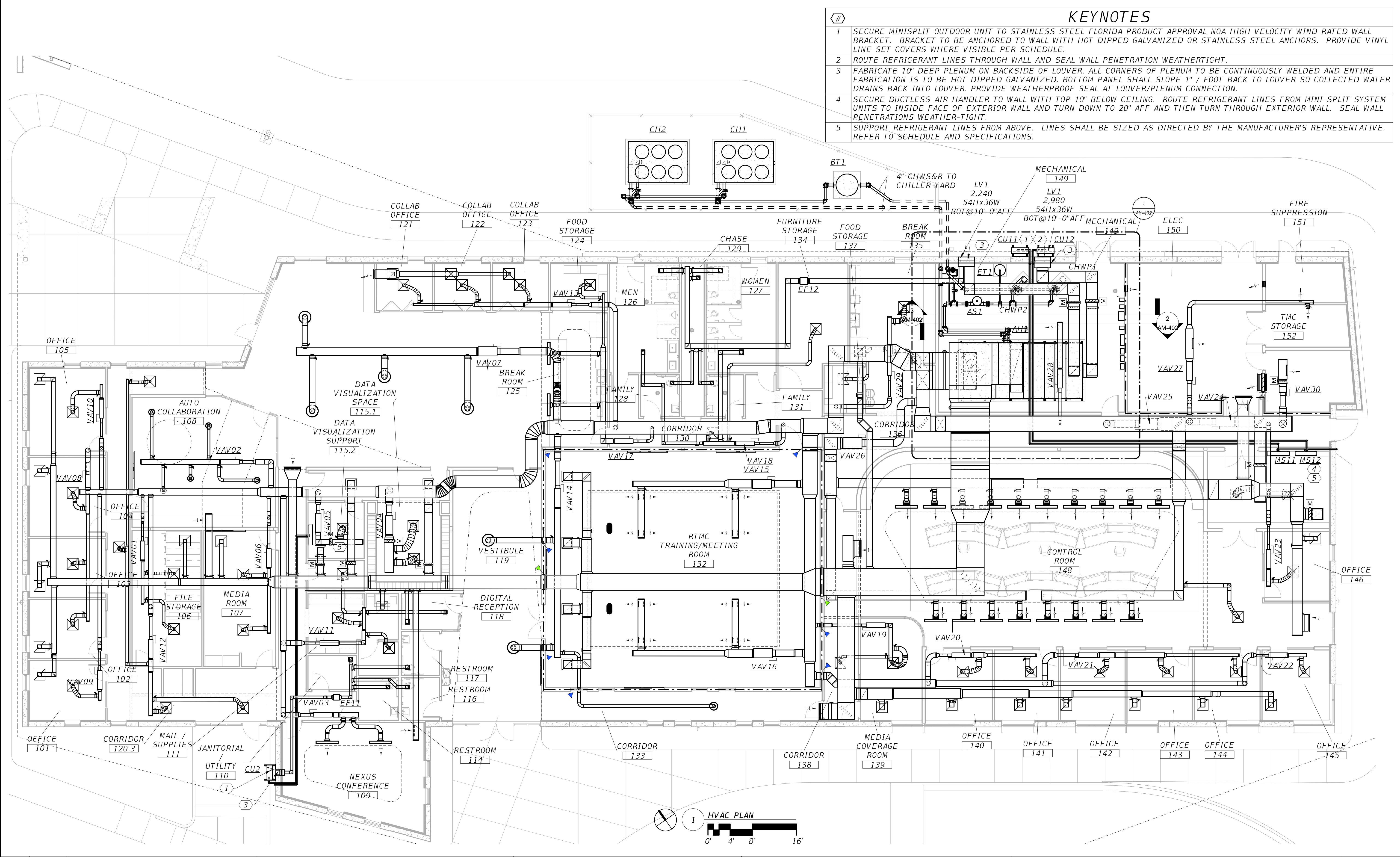
DWG NO.
AM-100
SHEET NO.

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CODES AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH FBC 1108.4.4 AND CHAPTER 63, FLORIDA STATUTES.



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- 1
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- 3
- 4
- 5
- KEYNOTES
- SECURE MINISPLIT OUTDOOR UNIT TO STAINLESS STEEL FLORIDA PRODUCT APPROVAL NOA HIGH VELOCITY WIND RATED WALL BRACKET. BRACKET TO BE ANCHORED TO WALL WITH HOT DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS. PROVIDE VINYL LINE SET COVERS WHERE VISIBLE PER SCHEDULE.
- ROUTE REFRIGERANT LINES THROUGH WALL AND SEAL WALL PENETRATION WEATHERTIGHT.
- FABRICATE 10" DEEP PLENUM ON BACKSIDE OF LOUVER. ALL CORNERS OF PLENUM TO BE CONTINUOUSLY WELDED AND ENTIRE FABRICATION IS TO BE HOT DIPPED GALVANIZED. BOTTOM PANEL SHALL SLOPE 1" / FOOT BACK TO LOUVER SO COLLECTED WATER DRAINS BACK INTO LOUVER. PROVIDE WEATHERPROOF SEAL AT LOUVER/PLENUM CONNECTION.
- SECURE DUCTLESS AIR HANDLER TO WALL WITH TOP 10" BELOW CEILING. ROUTE REFRIGERANT LINES FROM MINI-SPLIT SYSTEM UNITS TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO 20" AFF AND THEN TURN THROUGH EXTERIOR WALL. SEAL WALL PENETRATIONS WEATHER-TIGHT.
- SUPPORT REFRIGERANT LINES FROM ABOVE. LINES SHALL BE SIZED AS DIRECTED BY THE MANUFACTURER'S REPRESENTATIVE. REFER TO SCHEDULE AND SPECIFICATIONS.

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532

WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
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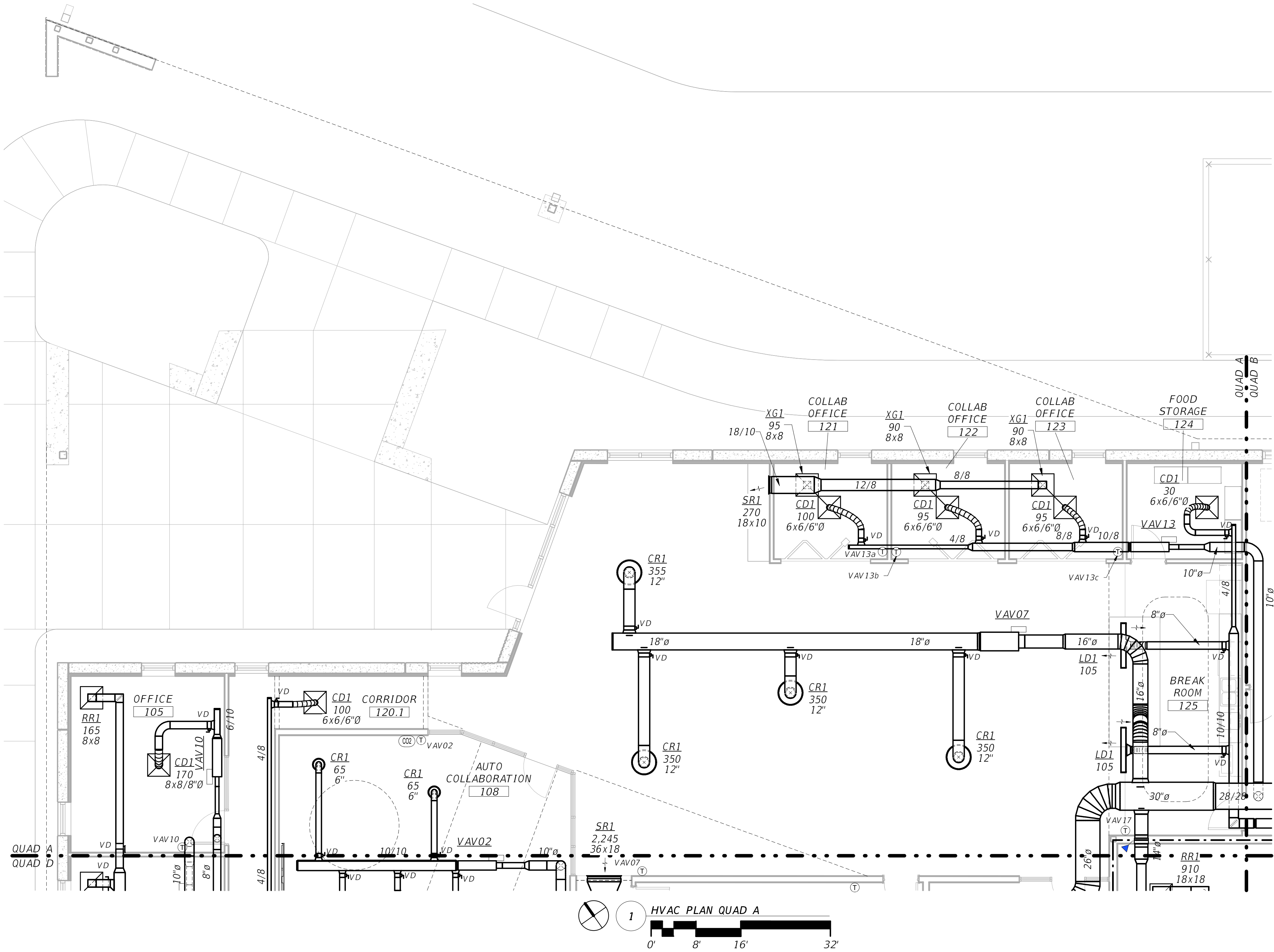
FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

OVERALL HVAC PLAN	

DWG NO.
AM-101
SHEET NO.

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#	KEYNOTES
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No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

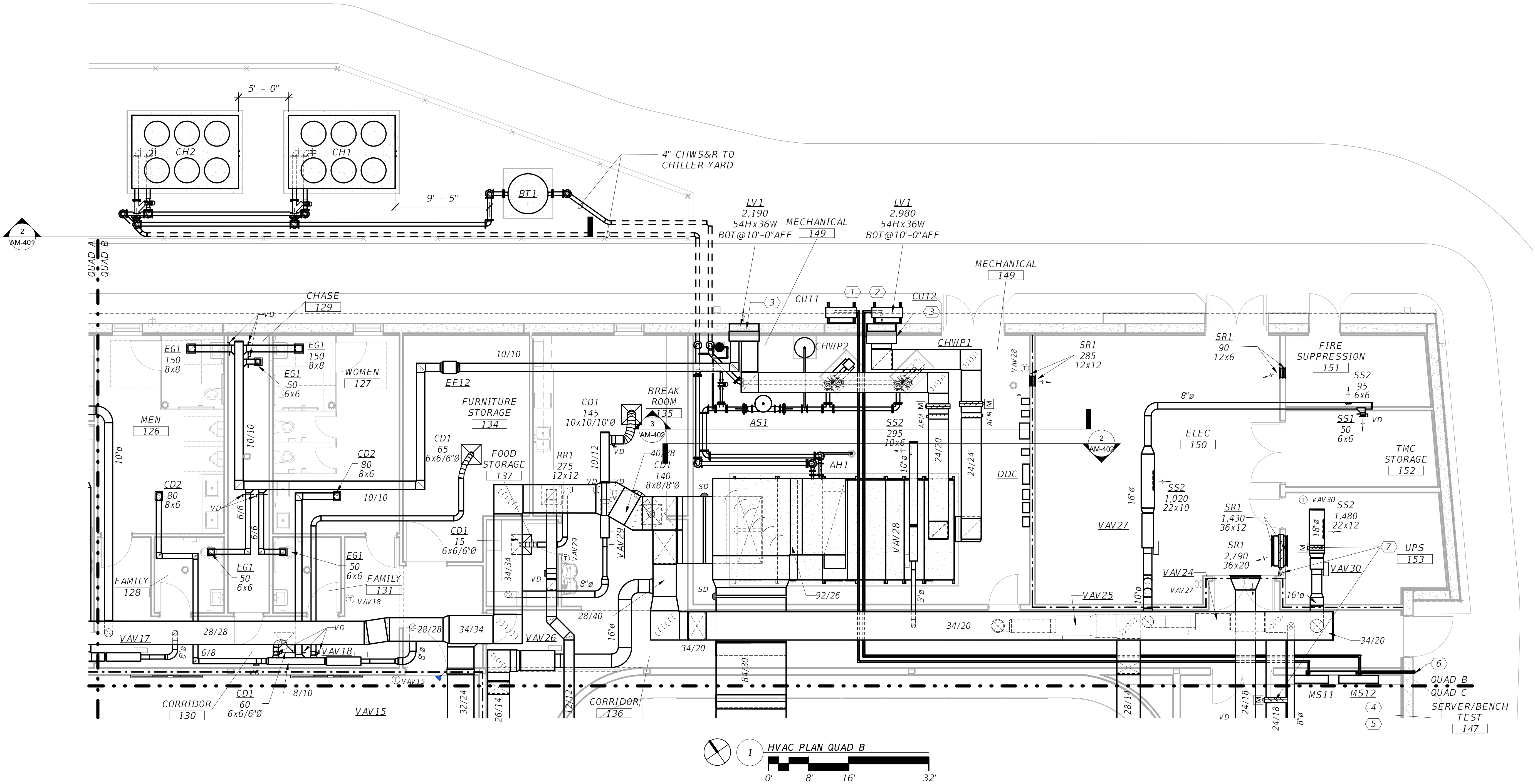
HVAC PLAN QUAD A

DWG NO.
AM-111
SHEET NO.

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#	KEYNOTES
1	SECURE MINISPLIT OUTDOOR UNIT TO STAINLESS STEEL FLORIDA PRODUCT APPROVAL NOA HIGH VELOCITY WIND RATED WALL BRACKET. BRACKET TO BE ANCHORED TO WALL WITH HOT DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS. PROVIDE VINYL LINE SET COVERS WHERE VISIBLE PER SCHEDULE.
2	ROUTE REFRIGERANT LINES THROUGH WALL AND SEAL WALL PENETRATION WEATHERTIGHT.
3	FABRICATE 10" DEEP PLENUM ON BACKSIDE OF LOUVER. ALL CORNERS OF PLENUM TO BE CONTINUOUSLY WELDED AND ENTIRE FABRICATION IS TO BE HOT DIPPED GALVANIZED. BOTTOM PANEL SHALL SLOPE 1" / FOOT BACK TO LOUVER SO COLLECTED WATER DRAINS BACK INTO LOUVER. PROVIDE WEATHERPROOF SEAL AT LOUVER/PLENUM CONNECTION.
4	SECURE DUCTLESS AIR HANDLER TO WALL WITH TOP 10" BELOW CEILING. ROUTE REFRIGERANT LINES FROM MINI-SPLIT SYSTEM UNITS TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO 20" AFF AND THEN TURN THROUGH EXTERIOR WALL. SEAL WALL PENETRATIONS WEATHER-TIGHT.
5	SUPPORT REFRIGERANT LINES FROM ABOVE. LINES SHALL BE SIZED AS DIRECTED BY THE MANUFACTURER'S REPRESENTATIVE. REFER TO SCHEDULE AND SPECIFICATIONS.
6	DRIP CONDENSATE ONTO 12" LONG CONCRETE SPLASH BLOCK.
7	MOTORIZED DAMPER INTERLOCKED TO FIRE SUPPRESSION PRE-ACTION SYSTEM.

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC PLAN QUAD B

DWG NO.
AM-112
SHEET NO.

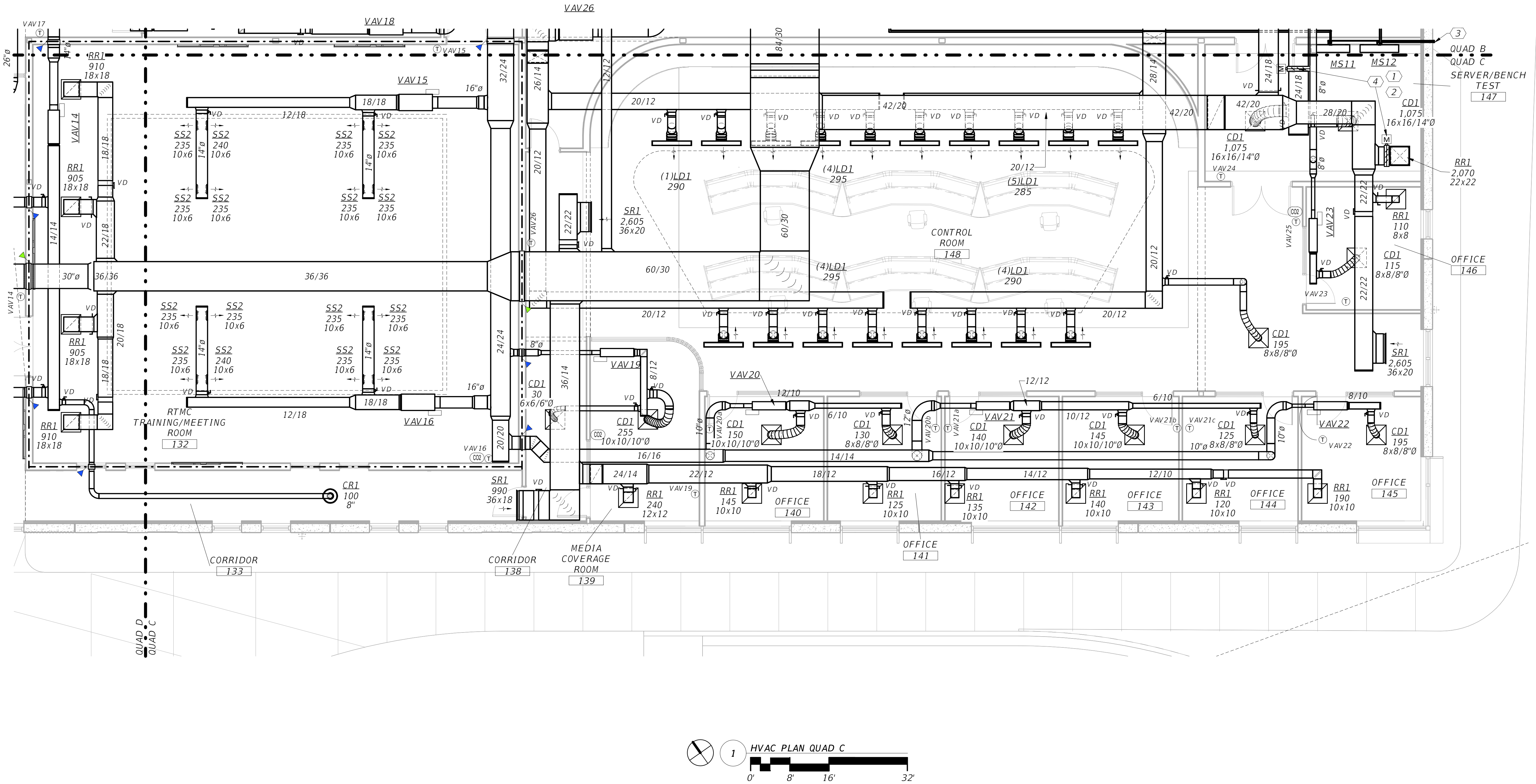
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#	KEYNOTES
1	SECURE DUCTLESS AIR HANDLER TO WALL WITH TOP 10" BELOW CEILING. ROUTE REFRIGERANT LINES FROM MINI-SPLIT SYSTEM UNITS TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO 20" AFF AND THEN TURN THROUGH EXTERIOR WALL. SEAL WALL PENETRATIONS WEATHER-TIGHT.
2	SUPPORT REFRIGERANT LINES FROM ABOVE. LINES SHALL BE SIZED AS DIRECTED BY THE MANUFACTURER'S REPRESENTATIVE. REFER TO SCHEDULE AND SPECIFICATIONS.
3	DRIP CONDENSATE ONTO 12" LONG CONCRETE SPLASH BLOCK.
4	MOTORIZED DAMPER INTERLOCKED TO FIRE SUPPRESSION PRE-ACTION SYSTEM.



1 HVAC PLAN QUAD C

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC PLAN QUAD C

DWG NO.
AM-113
SHEET NO.

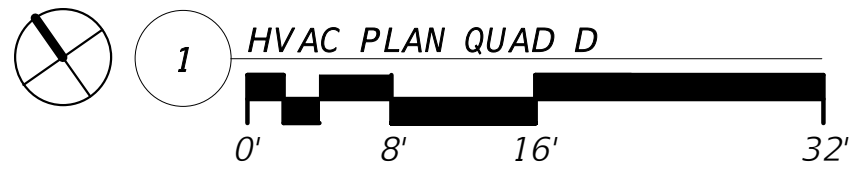
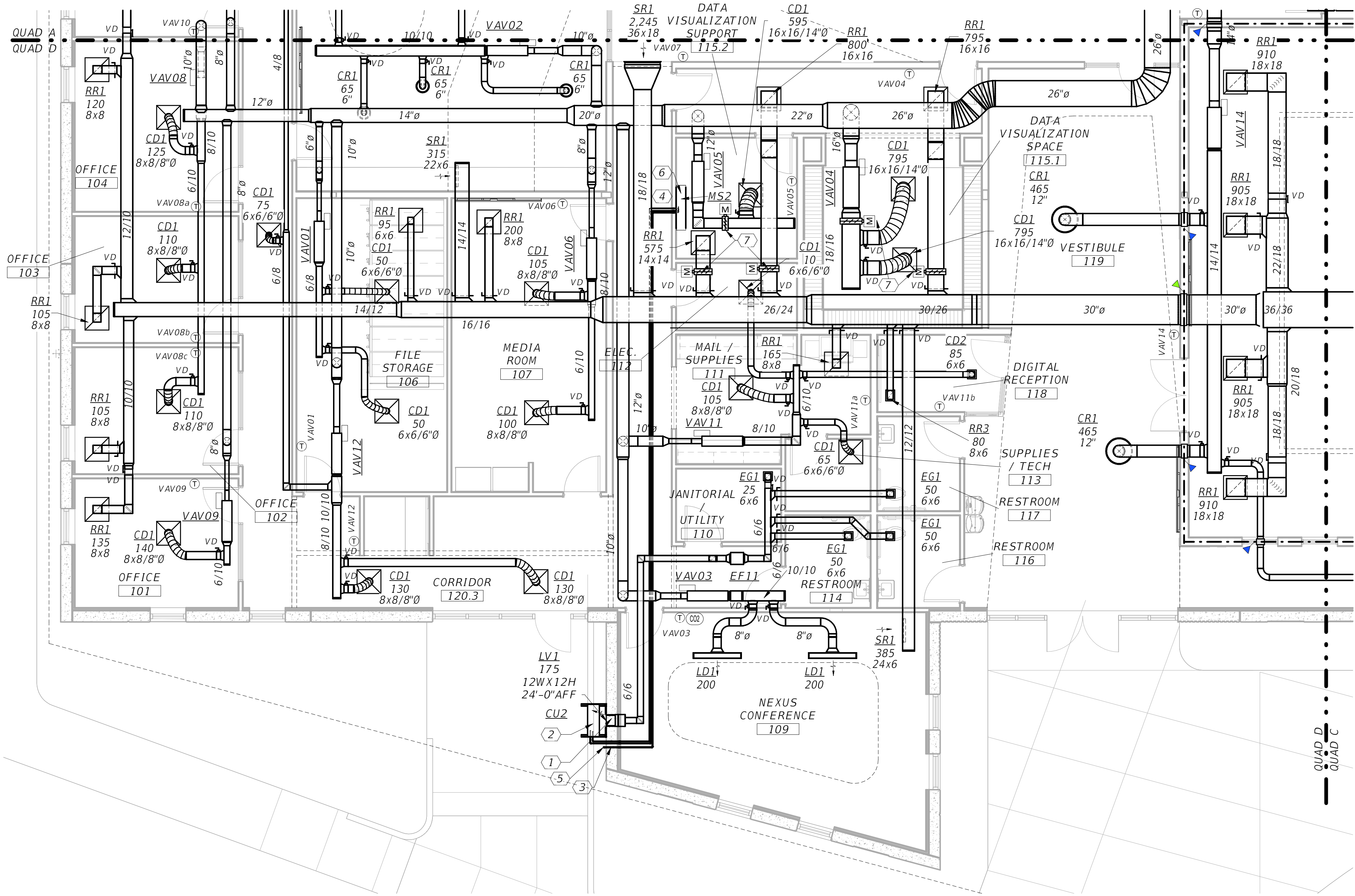
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KEYNOTES	
1	FABRICATE 10" DEEP PLENUM ON BACKSIDE OF LOUVER. ALL CORNERS OF PLENUM TO BE CONTINUOUSLY WELDED AND ENTIRE FABRICATION IS TO BE HOT DIPPED GALVANIZED. BOTTOM PANEL SHALL SLOPE 1" / FOOT BACK TO LOUVER SO COLLECTED WATER DRAINS BACK INTO LOUVER. PROVIDE WEATHERPROOF SEAL AT LOUVER/PLENUM CONNECTION.
2	SECURE MINISPLIT OUTDOOR UNIT TO STAINLESS STEEL FLORIDA PRODUCT APPROVAL NOA HIGH VELOCITY WIND RATED WALL BRACKET. BRACKET TO BE ANCHORED TO WALL WITH HOT DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS. PROVIDE VINYL LINE SET COVERS WHERE VISIBLE PER SCHEDULE.
3	ROUTE REFRIGERANT LINES THROUGH WALL AND SEAL WALL PENETRATION WEATHERTIGHT.
4	SUPPORT REFRIGERANT LINES FROM ABOVE. LINES SHALL BE SIZED AS DIRECTED BY THE MANUFACTURER'S REPRESENTATIVE. REFER TO SCHEDULE AND SPECIFICATIONS.
5	DRIP CONDENSATE ONTO 12" LONG CONCRETE SPLASH BLOCK.
6	SECURE DUCTLESS AIR HANDLER TO WALL WITH TOP 10" BELOW CEILING. ROUTE REFRIGERANT LINES FROM MINI-SPLIT SYSTEM UNITS TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO 20" AFF AND THEN TURN THROUGH EXTERIOR WALL. SEAL WALL PENETRATIONS WEATHER-TIGHT.
7	MOTORIZED DAMPER INTERLOCKED TO FIRE SUPPRESSION PRE-ACTION SYSTEM.



No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

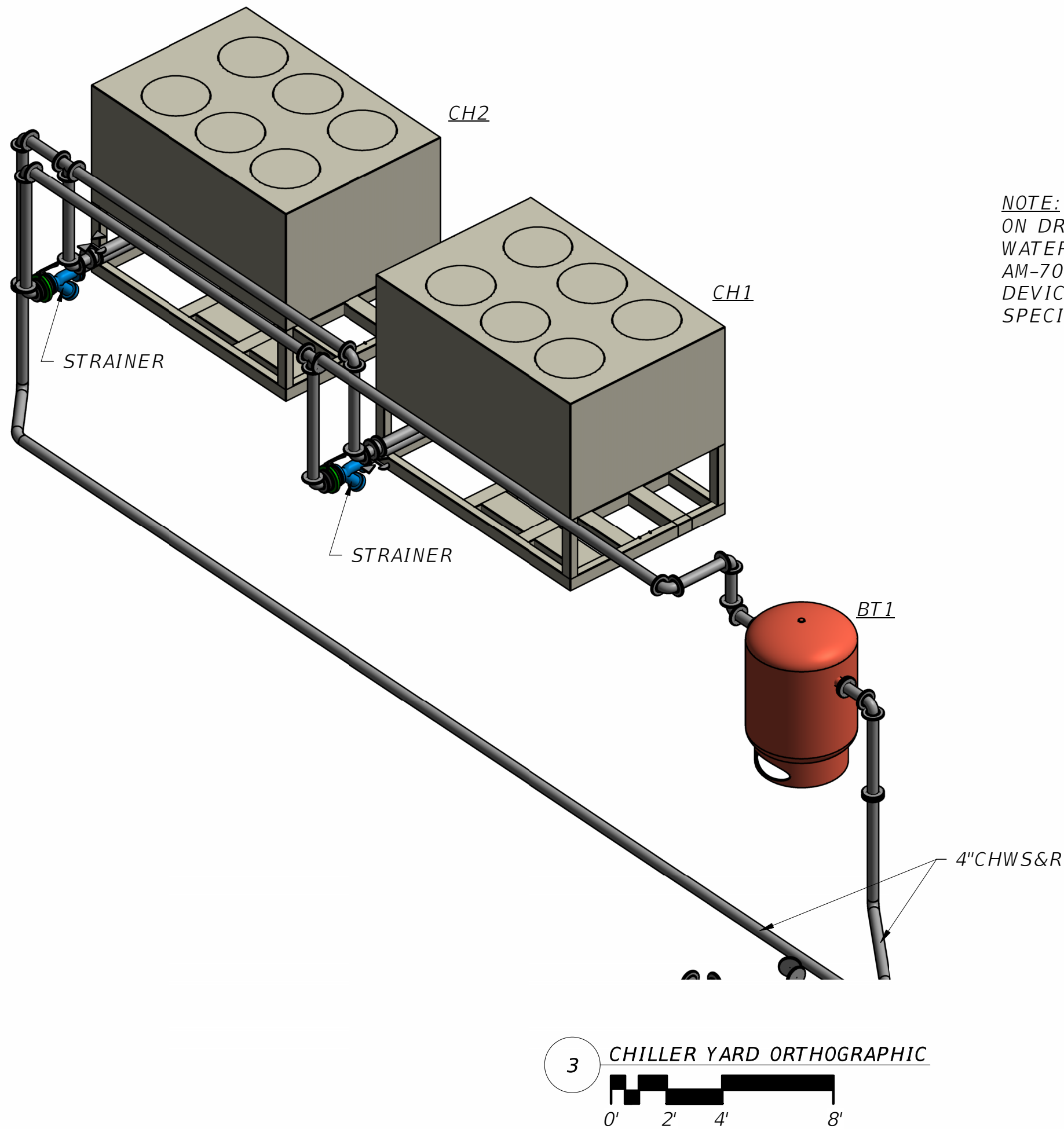
HVAC PLAN QUAD D

DWG NO.
AM-114
SHEET NO.

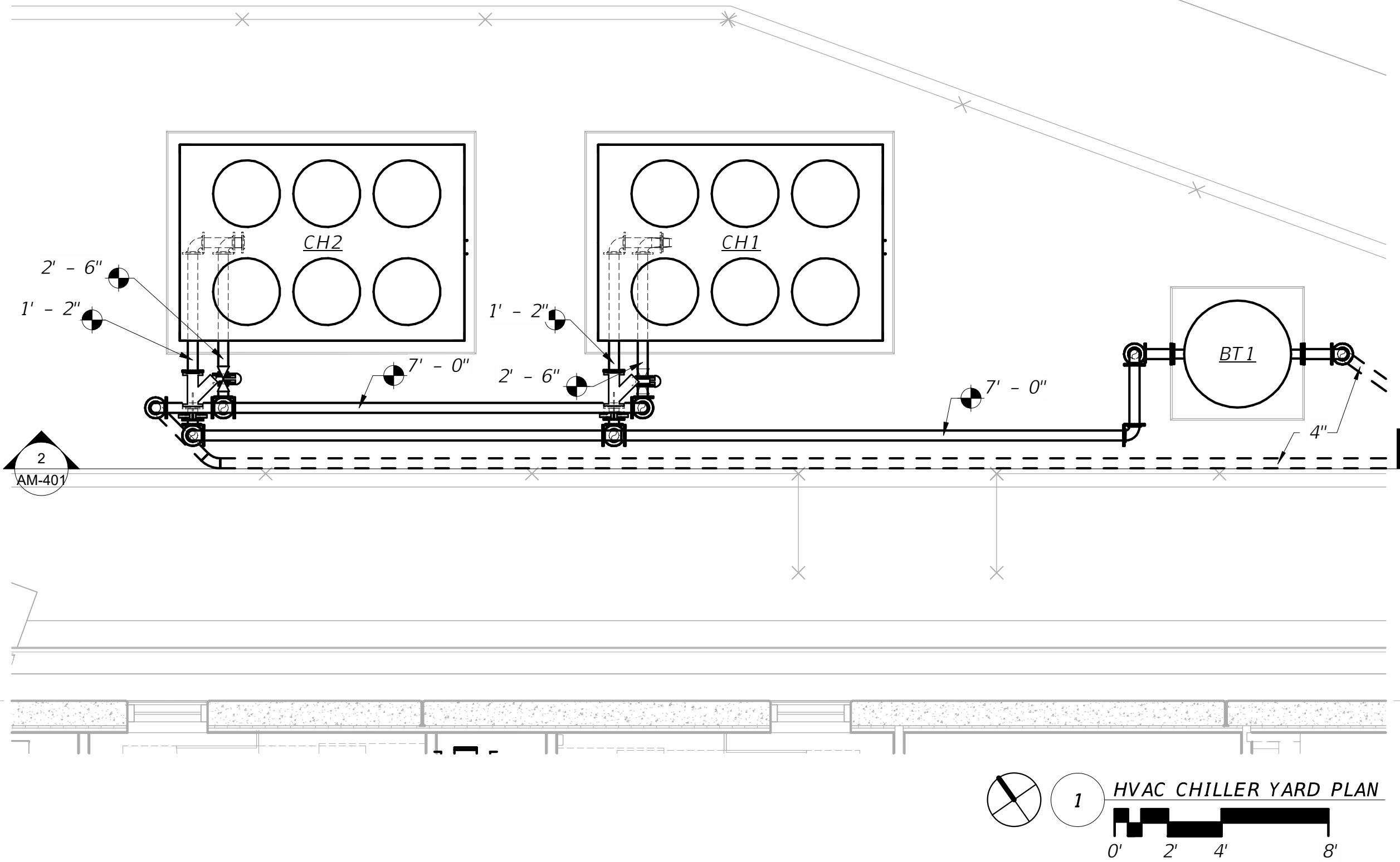
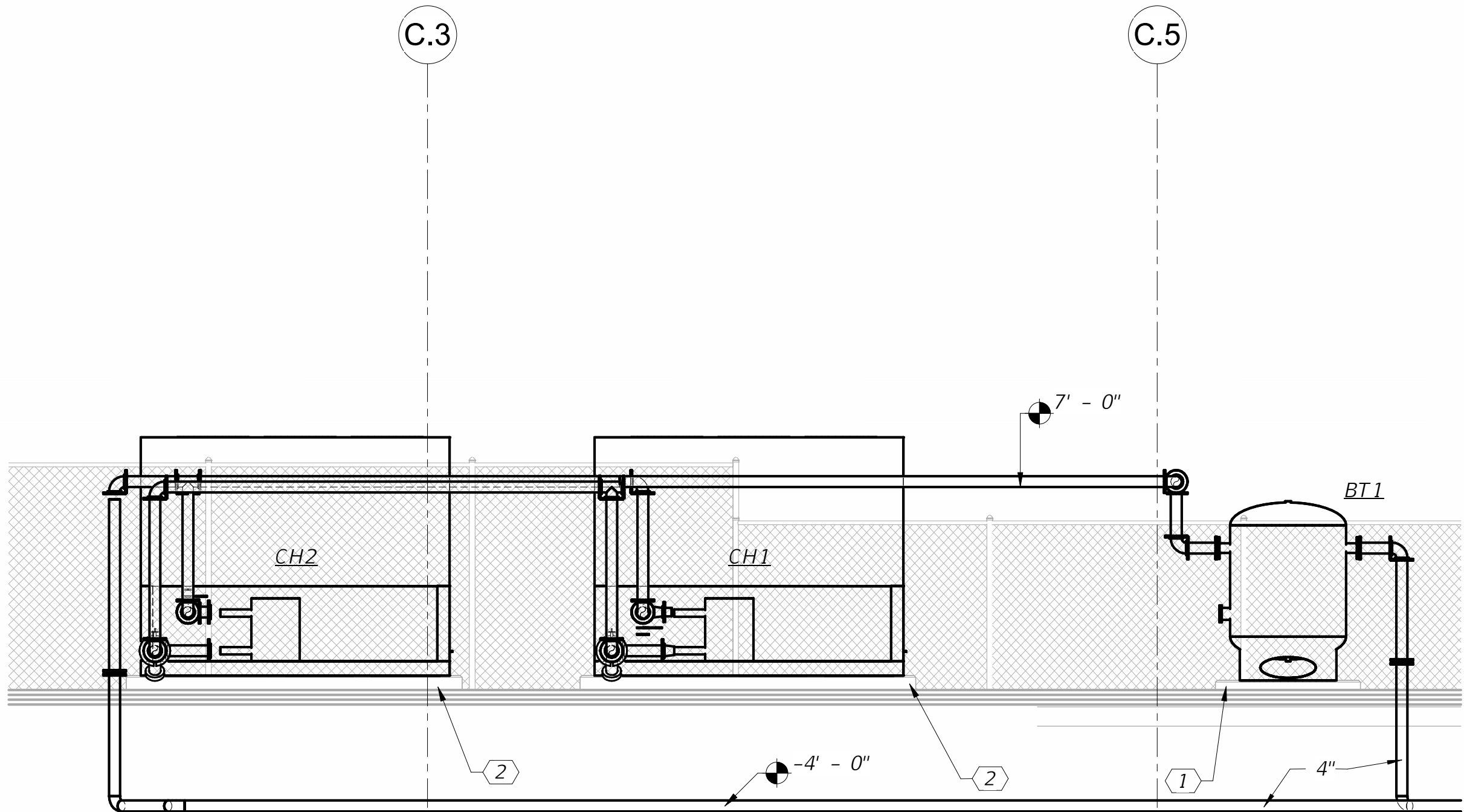
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KEYNOTES	
1	PROVIDE 4" HIGH HOUSEKEEPING PAD, 6" LARGER THAN EQUIPMENT EACH WAY. PAD SHALL HAVE 3/4" CHAMFERED EDGES.
2	PLACE CHILLER ON 6" THICK CONCRETE HOUSEKEEPING PAD 6" LARGER THAN UNIT EACH WAY (TYPICAL). CONCRETE PAD SHALL HAVE 3/4" CHAMFERED EDGES. PROVIDE NEOPRENE PADS BETWEEN CONCRETE AND CHILLER BASE.



NOTE: REFER TO CHILLER PIPING DETAIL ON DRAWING AM-503 AND THE CHILLED WATER PIPING SCHEMATIC ON DRAWING AM-702 FOR PLACEMENT OF CONTROLS DEVICES AND OTHER HYDRONIC SPECIALTY COMPONENTS.



No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

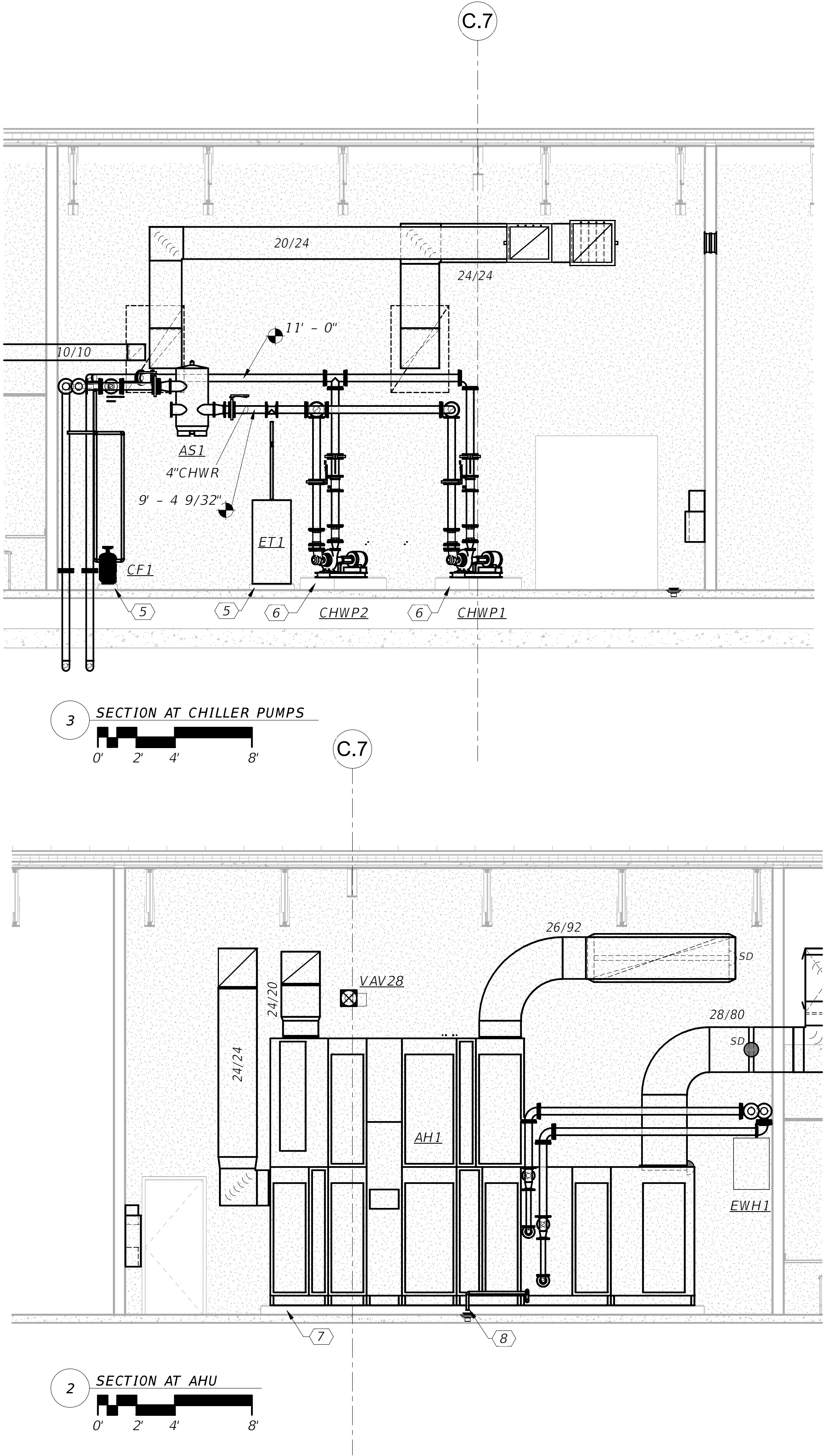
FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

ENLARGED HVAC PLANS

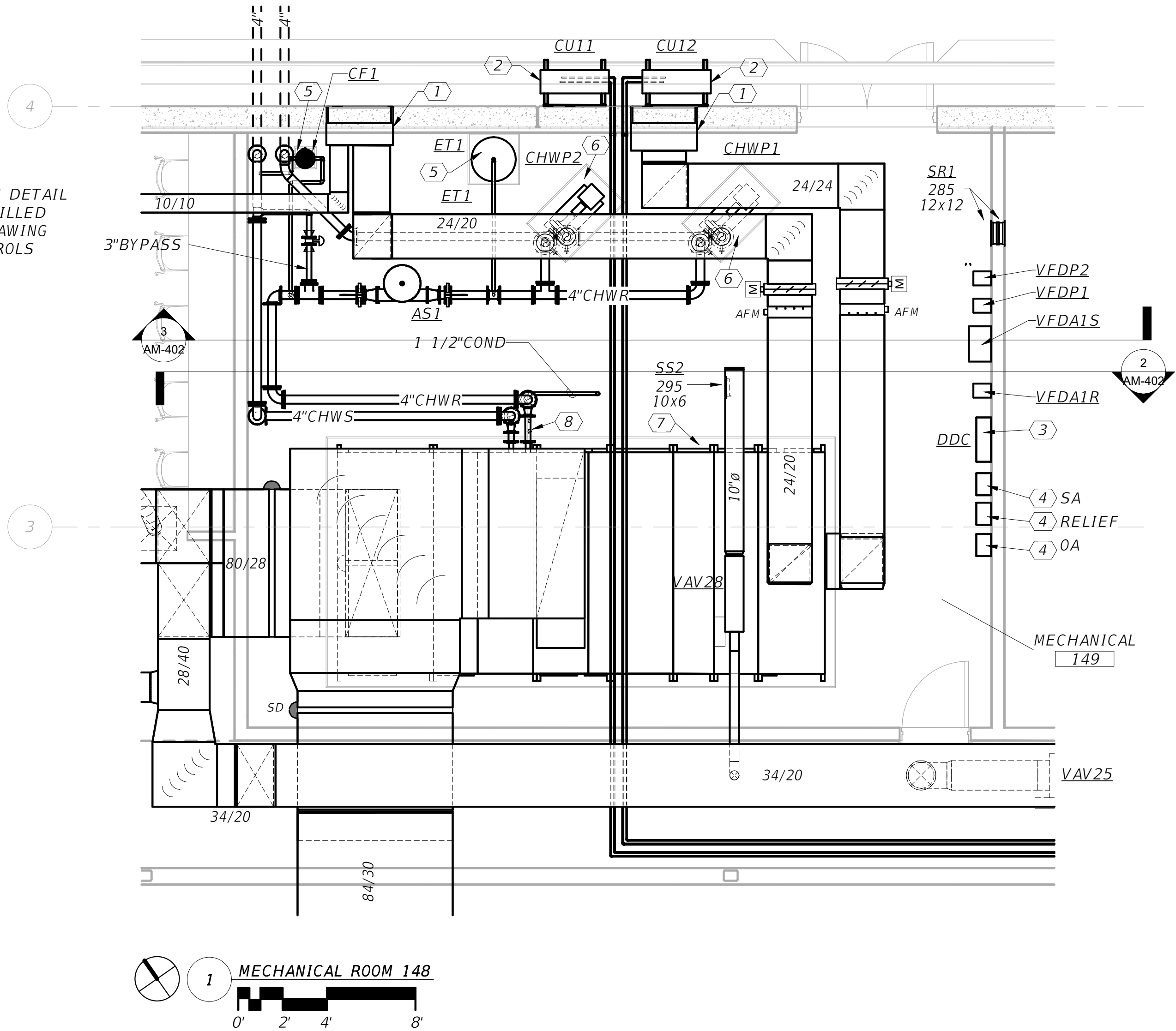
DWG NO.
AM-401
SHEET NO.





NOTE: REFER TO CHILLER PIPING DETAIL ON DRAWING AM-503 AND THE CHILLED WATER PIPING SCHEMATIC ON DRAWING AM-702 FOR PLACEMENT OF CONTROLS DEVICES AND OTHER HYDRONIC SPECIALITY COMPONENTS.

#	
1	FABRICATE 10" DEEP PLENUM ON BACKSIDE OF LOUVER. ALL CORNERS OF PLENUM TO BE CONTINUOUSLY WELDED AND ENTIRE FABRICATION IS TO BE HOT DIPPED GALVANIZED. BOTTOM PANEL SHALL SLOPE 1" / FOOT BACK TO LOUVER SO COLLECTED WATER DRAINS BACK INTO LOUVER. PROVIDE WEATHERPROOF SEAL AT LOUVER/PLENUM CONNECTION.
2	SECURE MINISPLIT OUTDOOR UNIT TO STAINLESS STEEL FLORIDA PRODUCT APPROVAL NOA HIGH VELOCITY WIND RATED WALL BRACKET. BRACKET TO BE ANCHORED TO WALL WITH HOT DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS. PROVIDE VINYL LINE SET COVERS WHERE VISIBLE PER SCHEDULE.
3	LOCAL DDC CONTROL PANEL WITH CONTROLS TRANSFORMER. CONTROLS CONTRACTOR TO EXTEND 120V FROM THE NEARBY DEDICATED CIRCUIT AT J-BOX TO PANEL. REFER TO ELECTRICAL DRAWINGS.
4	LOCATE AIRFLOW MONITOR CONTROLLER ON WALL AT 60" AFF. COORDINATE CABLE LENGTH BETWEEN CONTROLLER AND AIR FLOW MEASURING SENSOR WITH AFM VENDOR.
5	PROVIDE 4" HIGH HOUSEKEEPING PAD, 6" LARGER THAN EQUIPMENT EACH WAY. PAD SHALL HAVE 3/4" CHAMFERED EDGES.
6	PUMP ON CONCRETE PAD (8" MIN.). REFER TO DETAIL ON DRAWING AM-502. PAD SHALL HAVE 3/4" CHAMFERED EDGES.
7	THE AIR HANDLER SHALL BE PLACED ON A 6" THICK, REINFORCED CONCRETE PAD (6" LARGER EACH WAY THAN THE UNIT) AND AUXILIARY DRAIN PAN WITH FLOAT SWITCH. PROVIDE CONDENSATE TRAP AS DETAILED AND ROUTE INSULATED COPPER CONDENSATE DRAIN LINE TO CONDENSATE HUB DRAIN. SUPPORT DRAIN LINE FROM FLOOR. COORDINATE EQUIPMENT SUPPORT RAIL HEIGHT OF AIR HANDLER TO ALLOW FOR PROPER TRAP DEPTH. PROVIDE CLEANING/OPERATION VALVES ON CONDENSATE LINE (REFER TO THE CONDENSATE CLEANING AND OPERATION VALVE DETAIL).
8	ROUTE INSULATED COPPER CONDENSATE DRAIN LINE TO CONDENSATE DRAIN. SUPPORT DRAIN LINE FROM FLOOR. COORDINATE EQUIPMENT SUPPORT RAIL HEIGHT OF AIR HANDLER TO ALLOW FOR PROPER TRAP DEPTH. COORDINATE DRAIN LOCATION WITH PLUMBING CONTRACTOR AND SHOW IN THE MECHANICAL ROOM DUCT FABRICATION SHOP DRAWING SUBMITTAL.



No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
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3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
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TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

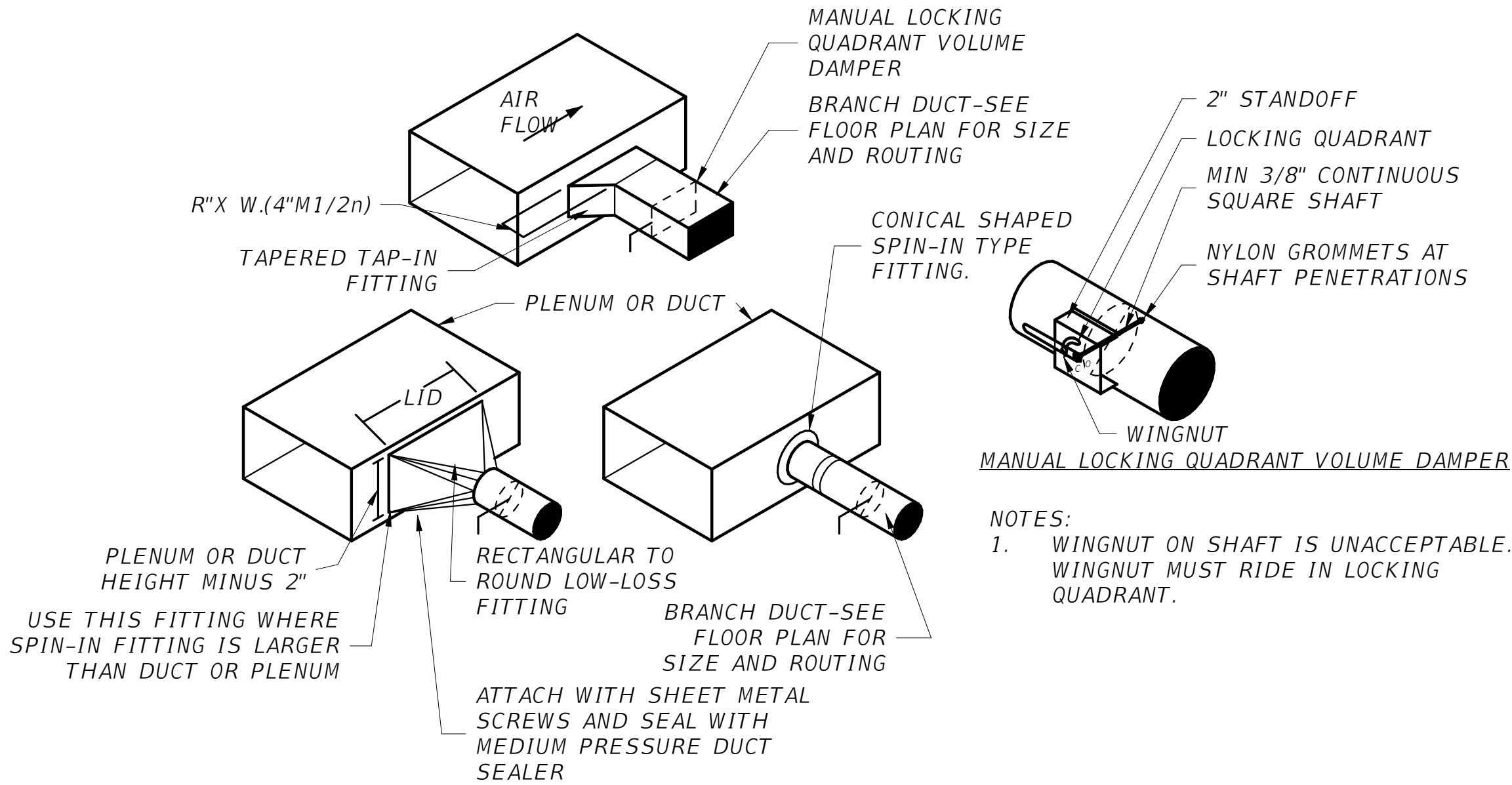
FLORIDA-ALABAMA TPO		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

ENLARGED HVAC PLANS

DWG NO.
AM-402
SHEET NO.

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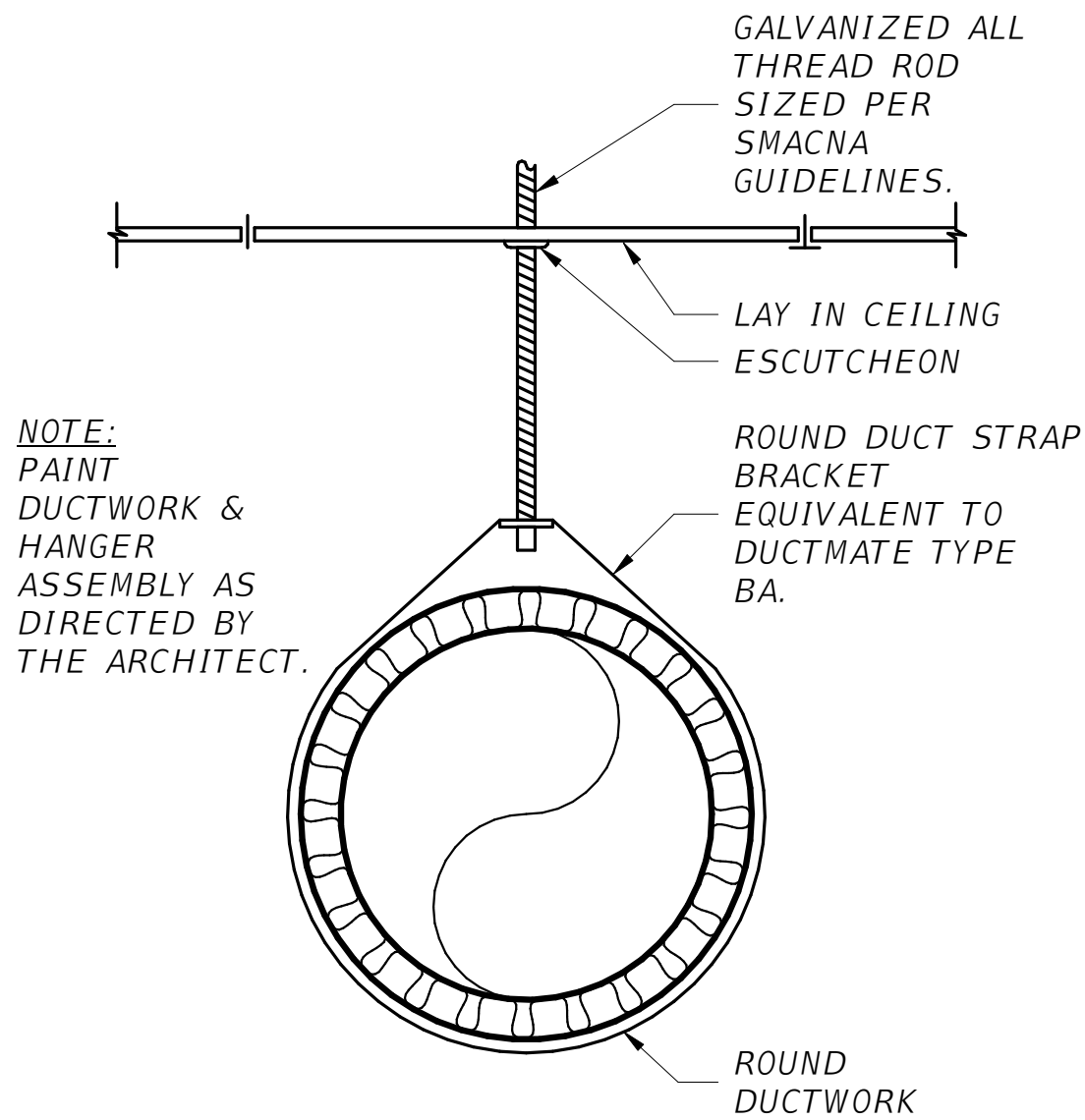


**BRANCH DUCT TAKE-OFF DETAIL**

NOT TO SCALE

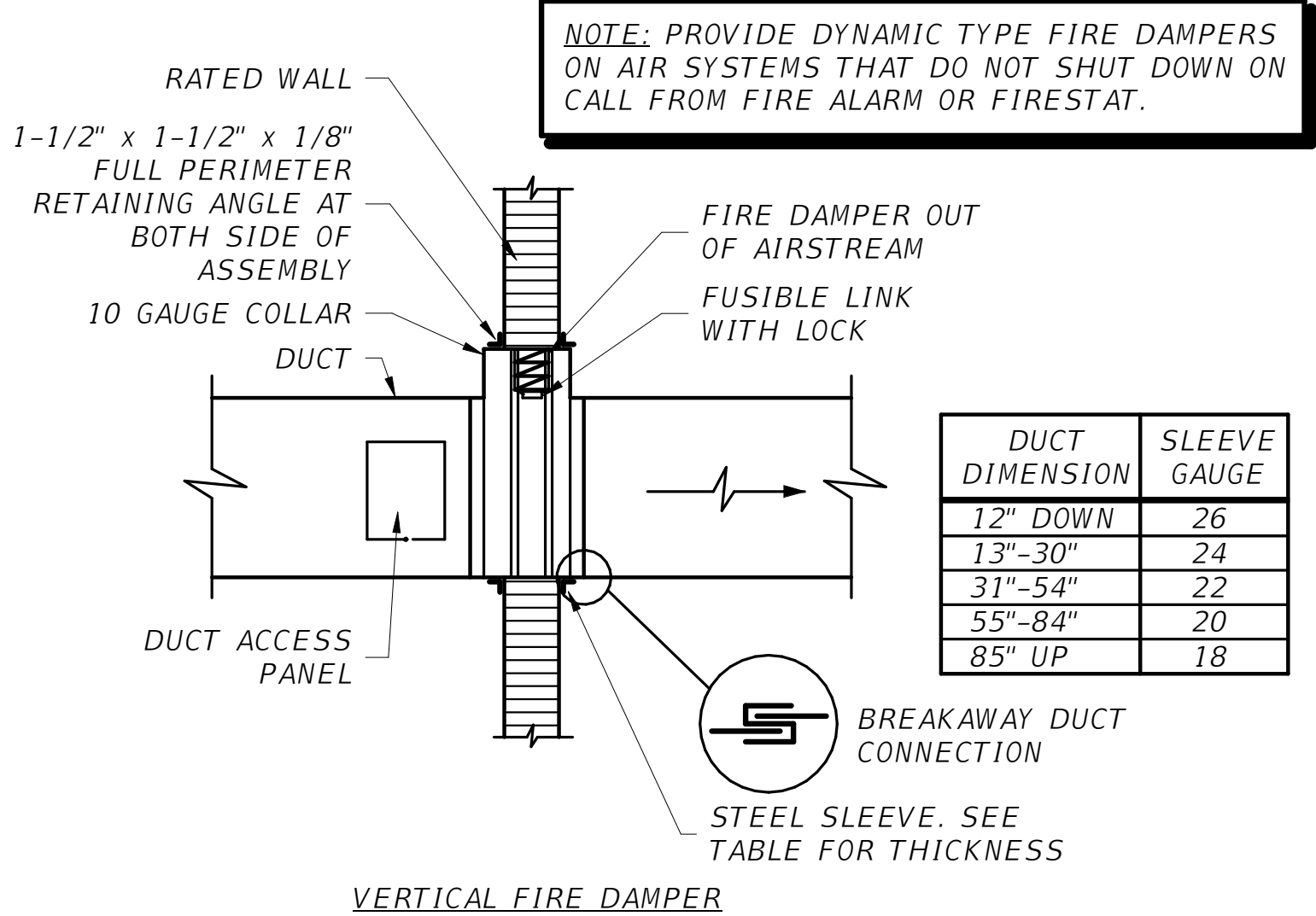
NOTES:

1. PROVIDE FITTING WITH 1" WIDE FLANGE WITH GASKET.
2. MUST MEET SMACNA GUAGE STANDARDS AND 2" W.G. STATIC PRESSURE.
3. CONTINUOUS WELD LONGITUDINAL SEAM FOR NO LEAKAGE AT 2" W.G. STATIC PRESSURE.



**EXPOSED DUCTWORK HANGER**

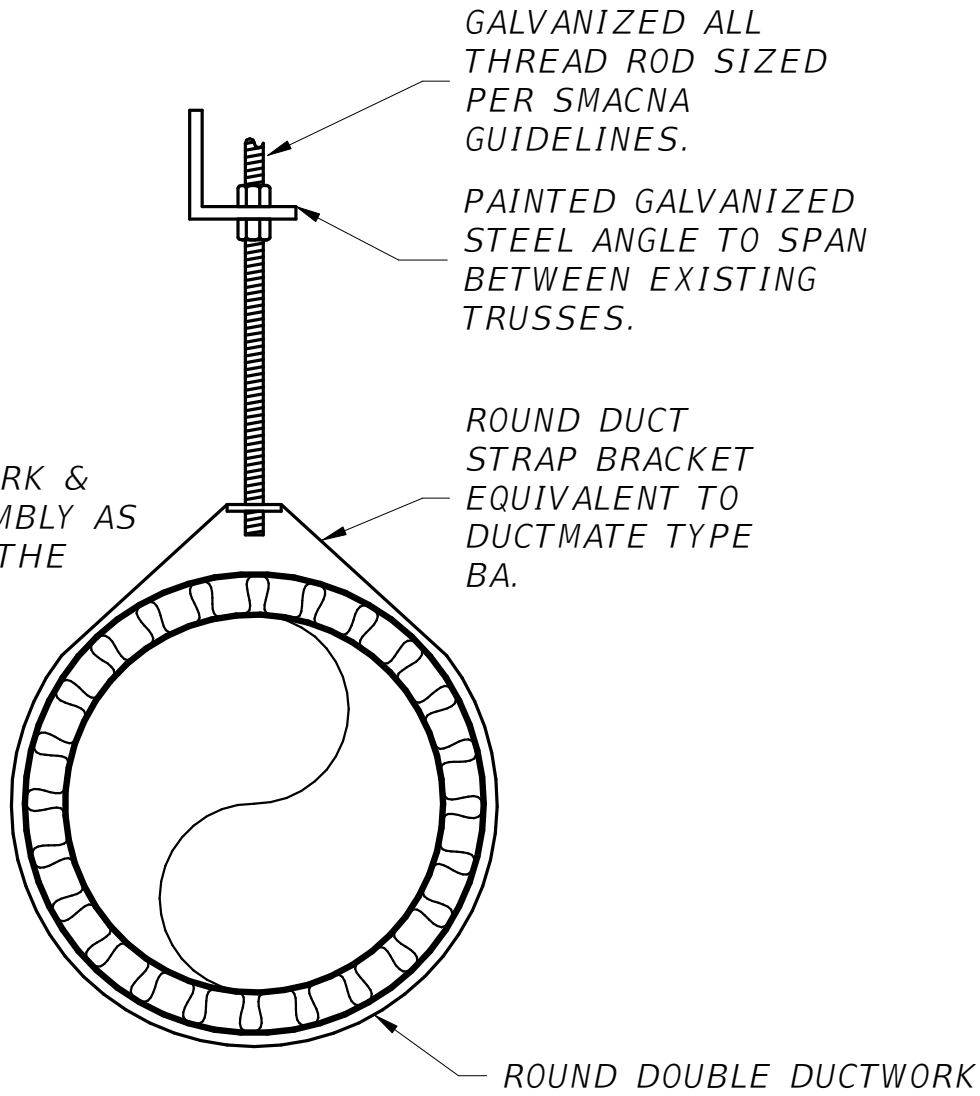
NOT TO SCALE



**FIRE DAMPER DETAILS**

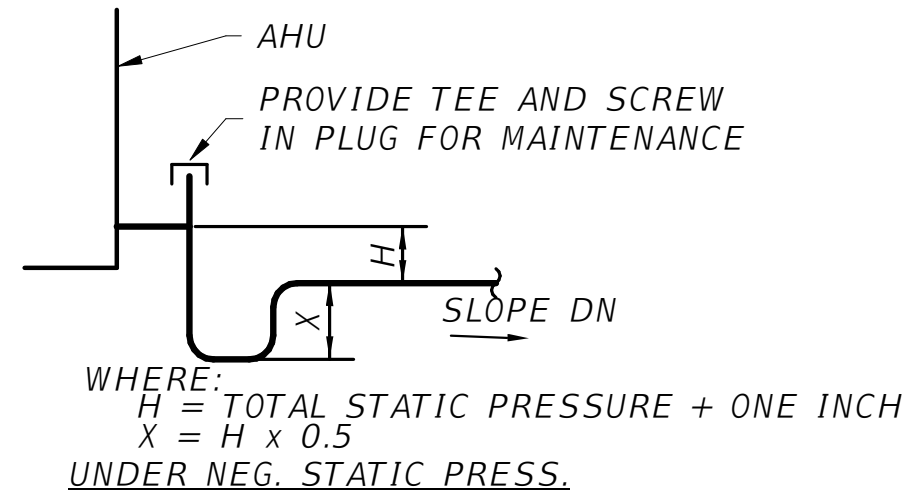
NOT TO SCALE

NOTE:  
PAINT DUCTWORK &  
HANGER ASSEMBLY AS  
DIRECTED BY THE  
ARCHITECT.



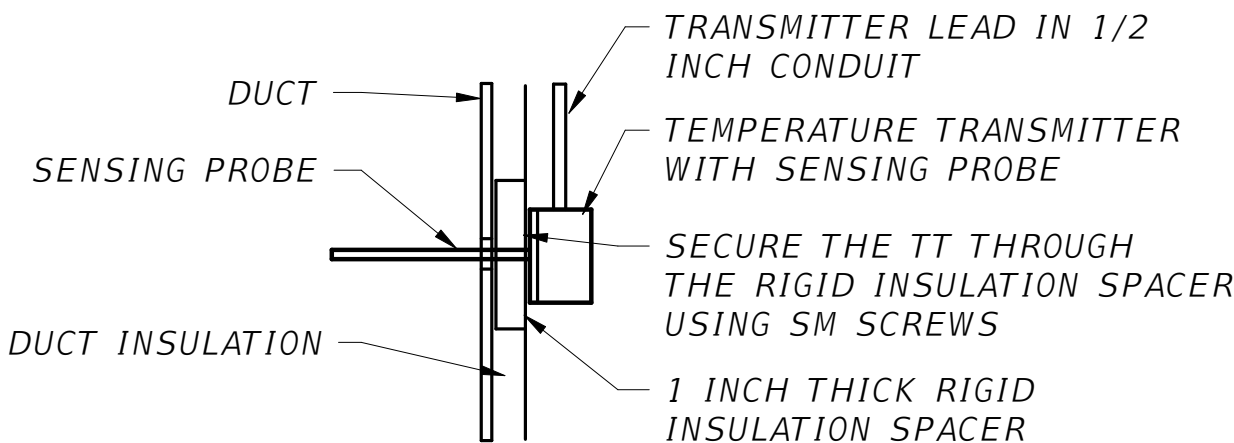
**DOUBLE WALL DUCTWORK HANGER**

NOT TO SCALE



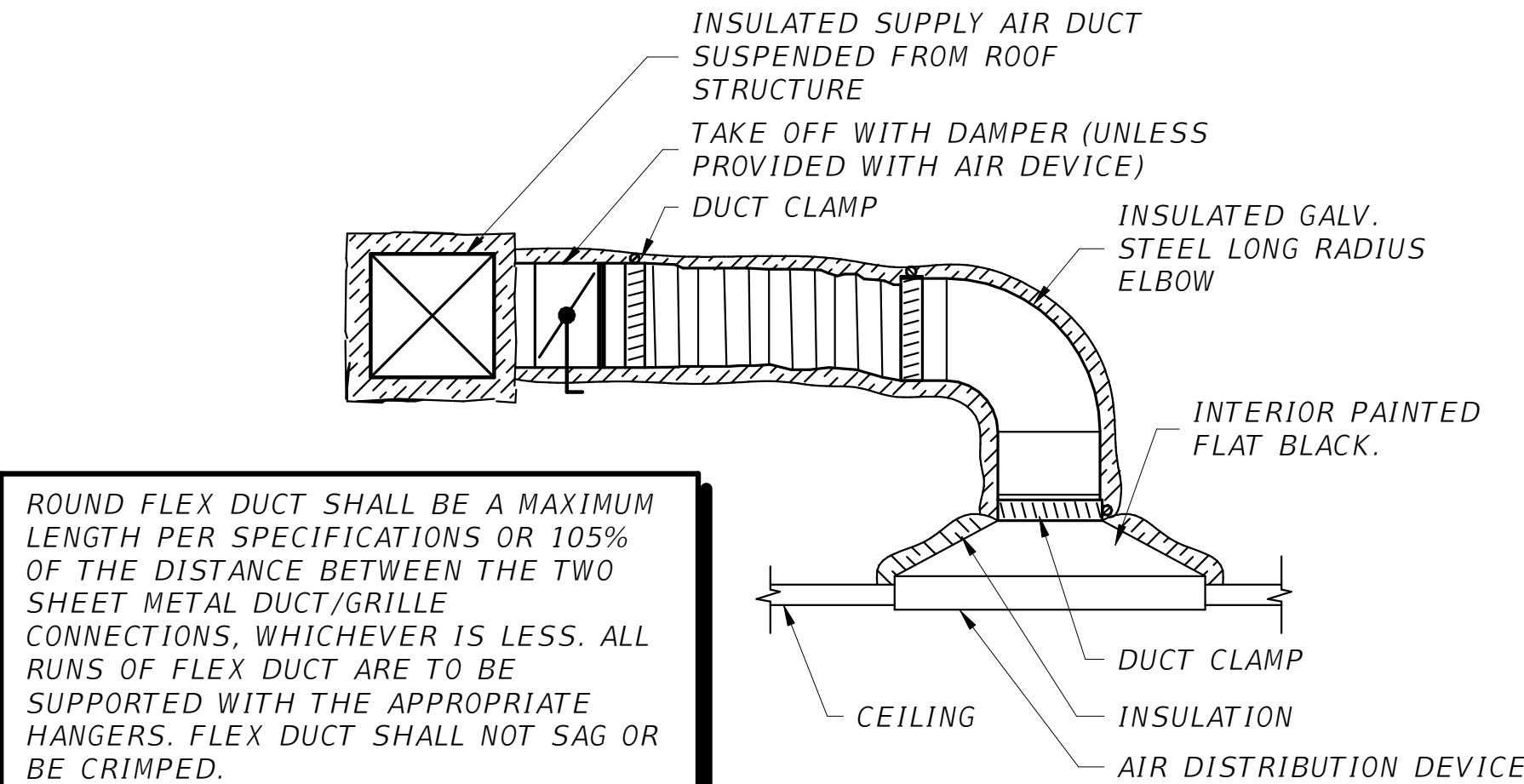
**CONDENSATE DRAIN TRAP**

NOT TO SCALE



**DUCT MOUNTED  
TEMPERATURE TRANSMITTER**

NOT TO SCALE



NOTES:

1. REFER TO THE AIR DISTRIBUTION DEVICE SCHEDULE FOR ADDITIONAL REQUIREMENTS.
2. REFER TO SPECIFICATIONS FOR MAXIMUM FLEXIBLE DUCT LENGTH.
3. SUSPEND AIR DEVICE FROM ABOVE, DO NOT SUPPORT FROM CEILING.
4. INTERIOR OF DEVICE TO BE PAINTED FLAT BLACK.

**FLEXIBLE DUCT RUN-OUTS TO AIR DEVICE**

NOT TO SCALE

No.	Date	Issue / Revision



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SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

**FLORIDA-ALABAMA TPO**

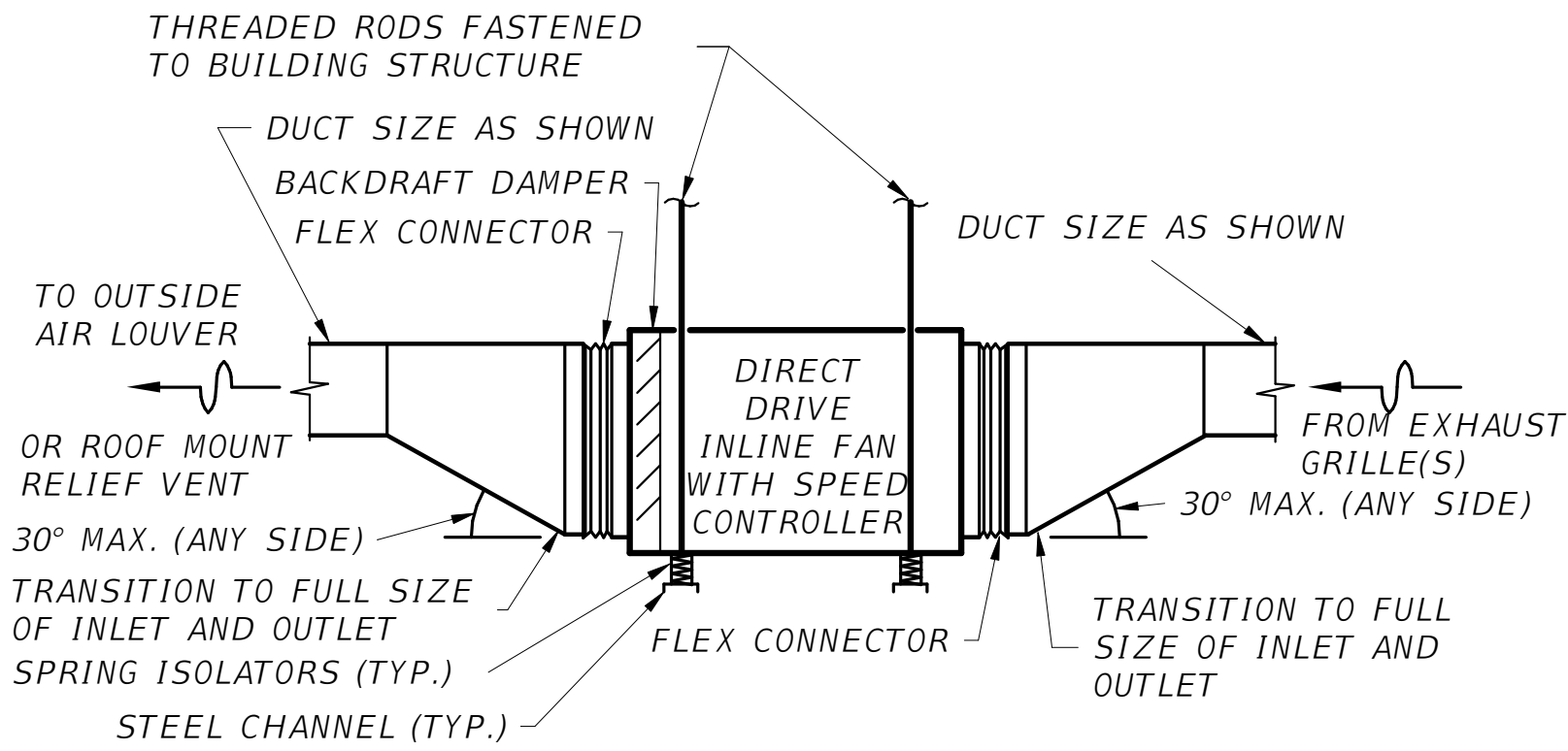
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

**HVAC DETAILS**

DWG NO.
AM-501
SHEET NO.

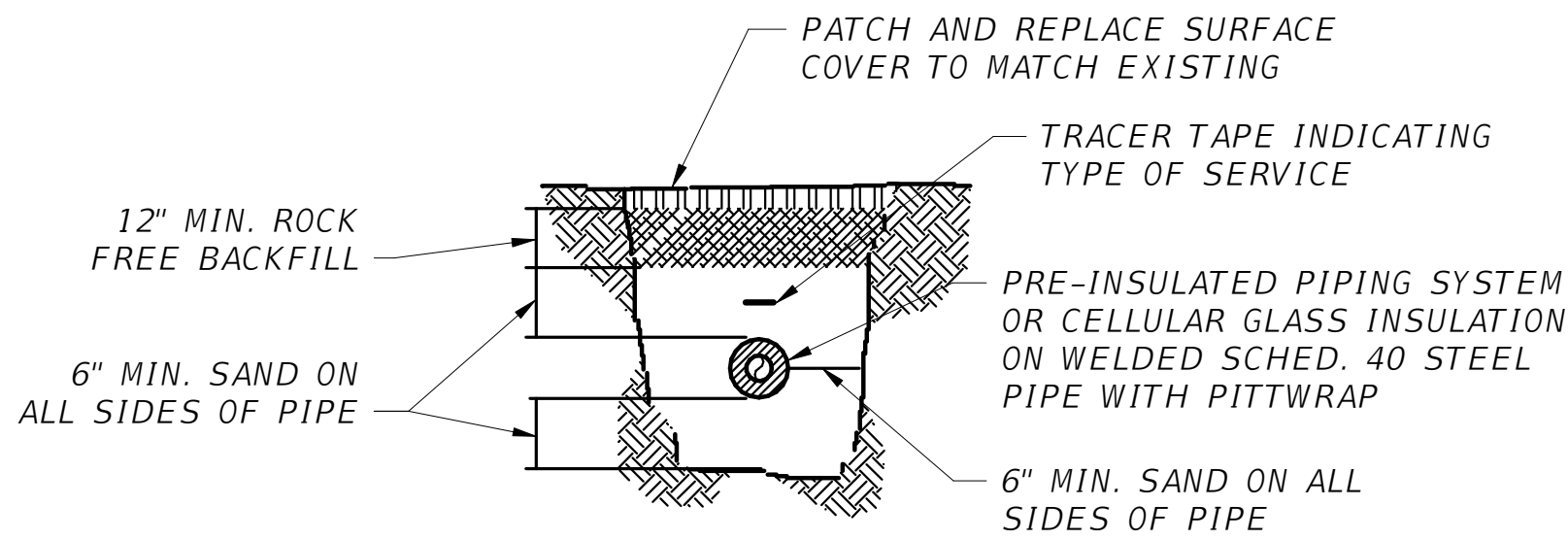


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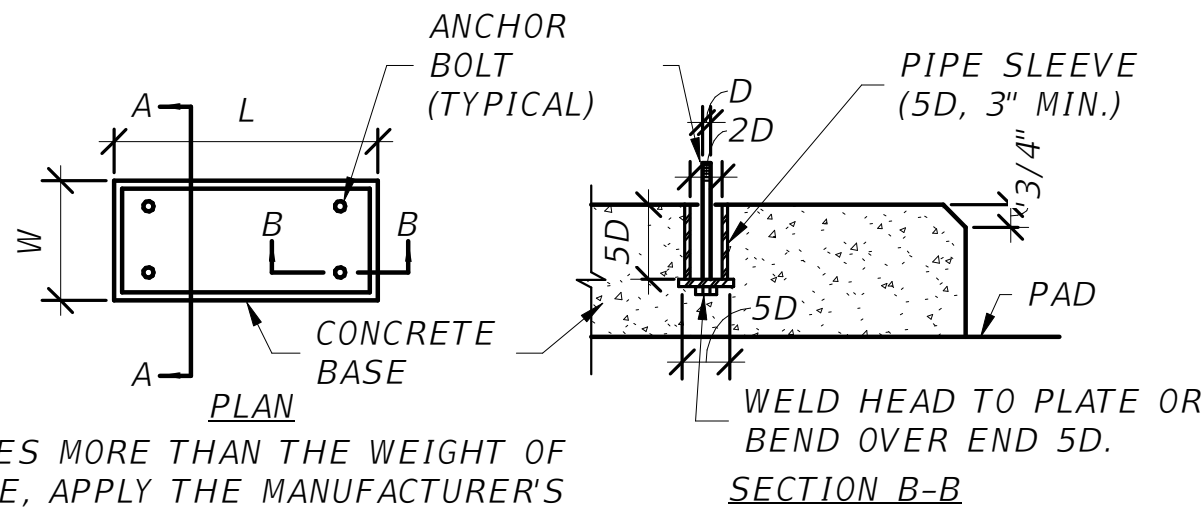
### INLINE FAN DETAIL

NOT TO SCALE



### CHILLED WATER PIPING TRENCH DETAIL

NOT TO SCALE



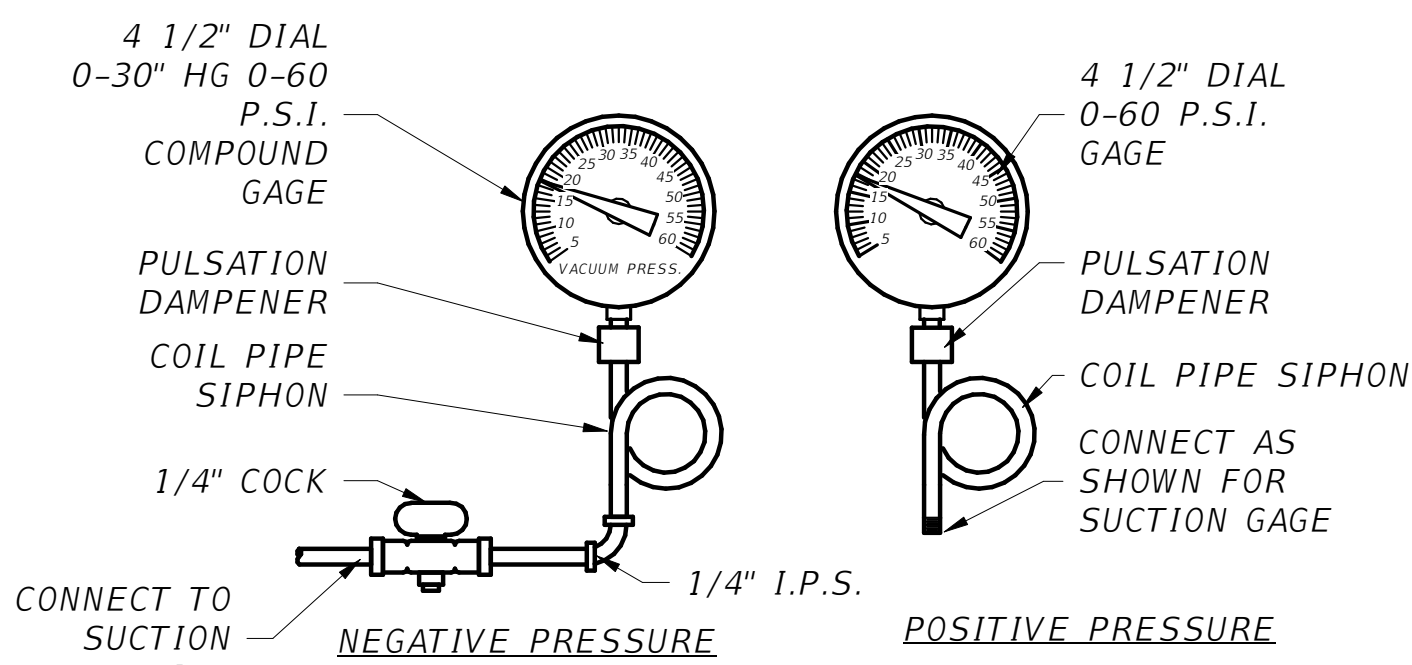
CONCRETE BASE TO WEIGH 2.5 TIMES MORE THAN THE WEIGHT OF THE PUMP ASSEMBLY. TO CALCULATE, APPLY THE MANUFACTURER'S LISTED PUMP WEIGHT (WT.), BASE LENGTH(L) AND BASE WIDTH(W): THICKNESS = (((PUMP WT. x 2.5) / 150) x 1.728) / (L"+12) x (W"+12).

### SECTION A-A (BASE POURED ON TOP OF SLAB)

NOTE:  
1. L AND W DIMENSIONS SHALL BE 6 INCHES GREATER THAN THE EQUIPMENT BASE PLATE.

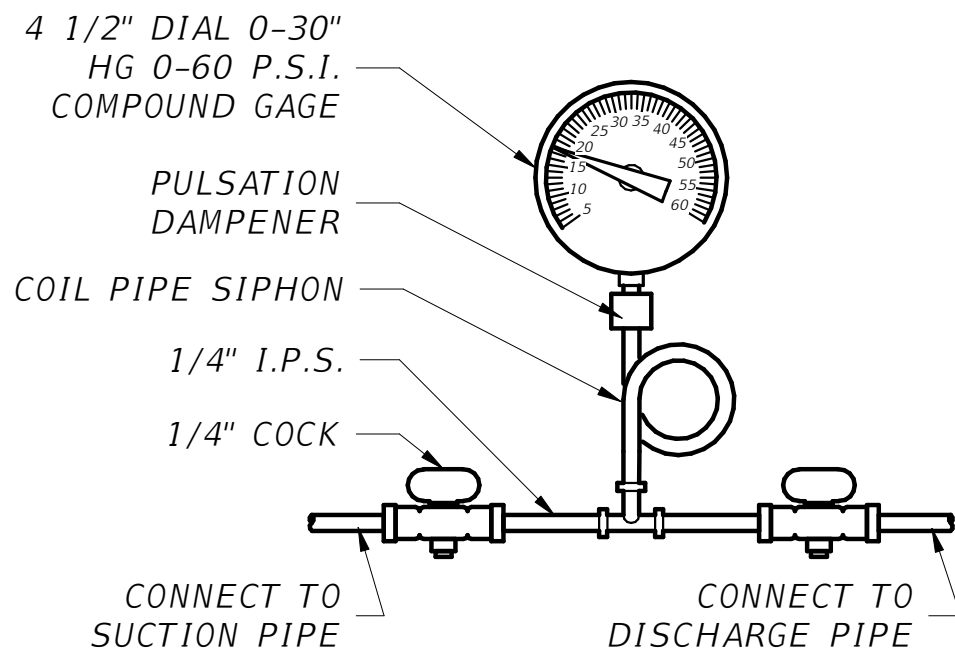
### PUMP BASE

NOT TO SCALE



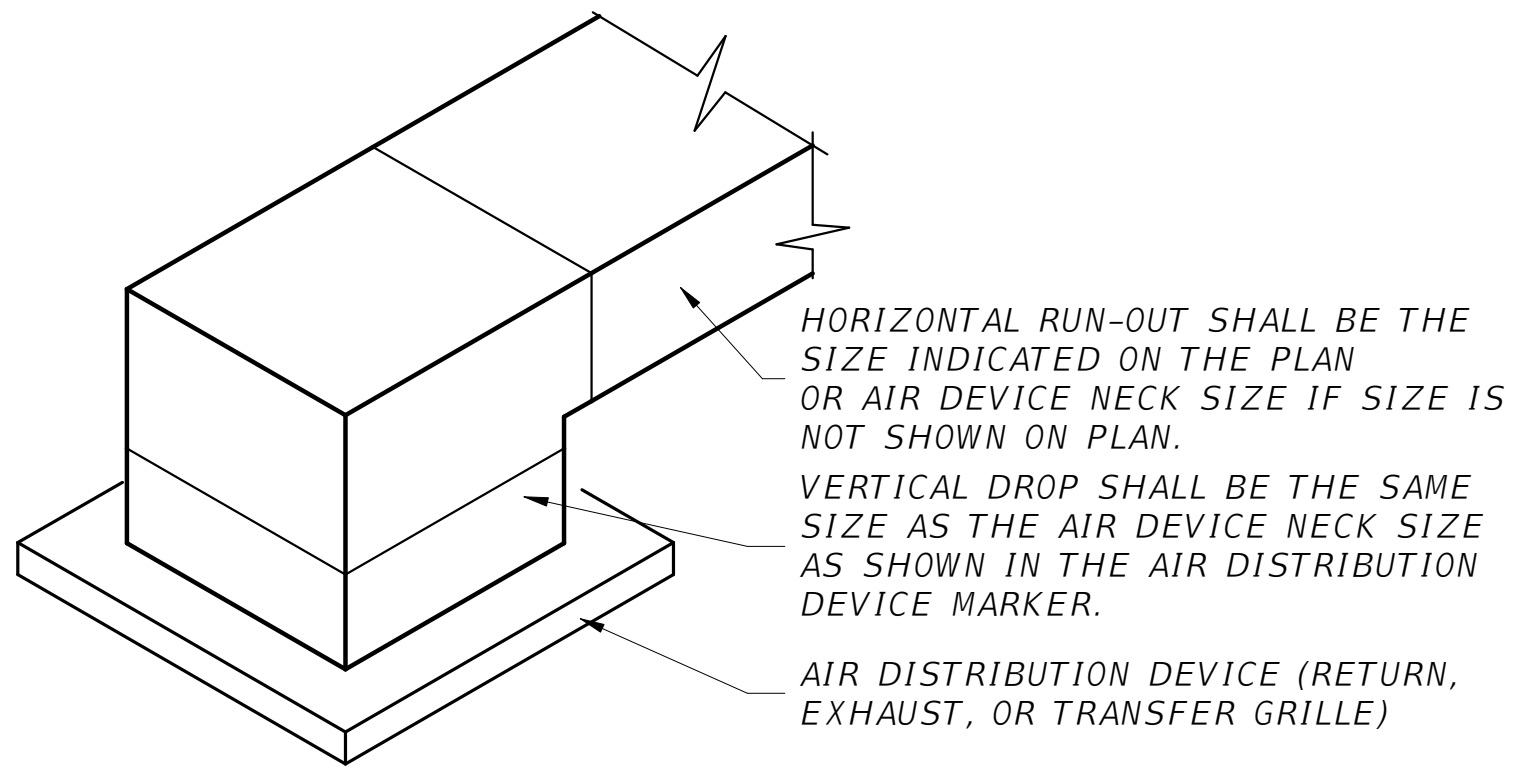
### COIL PRESSURE GAGE DETAIL

NOT TO SCALE



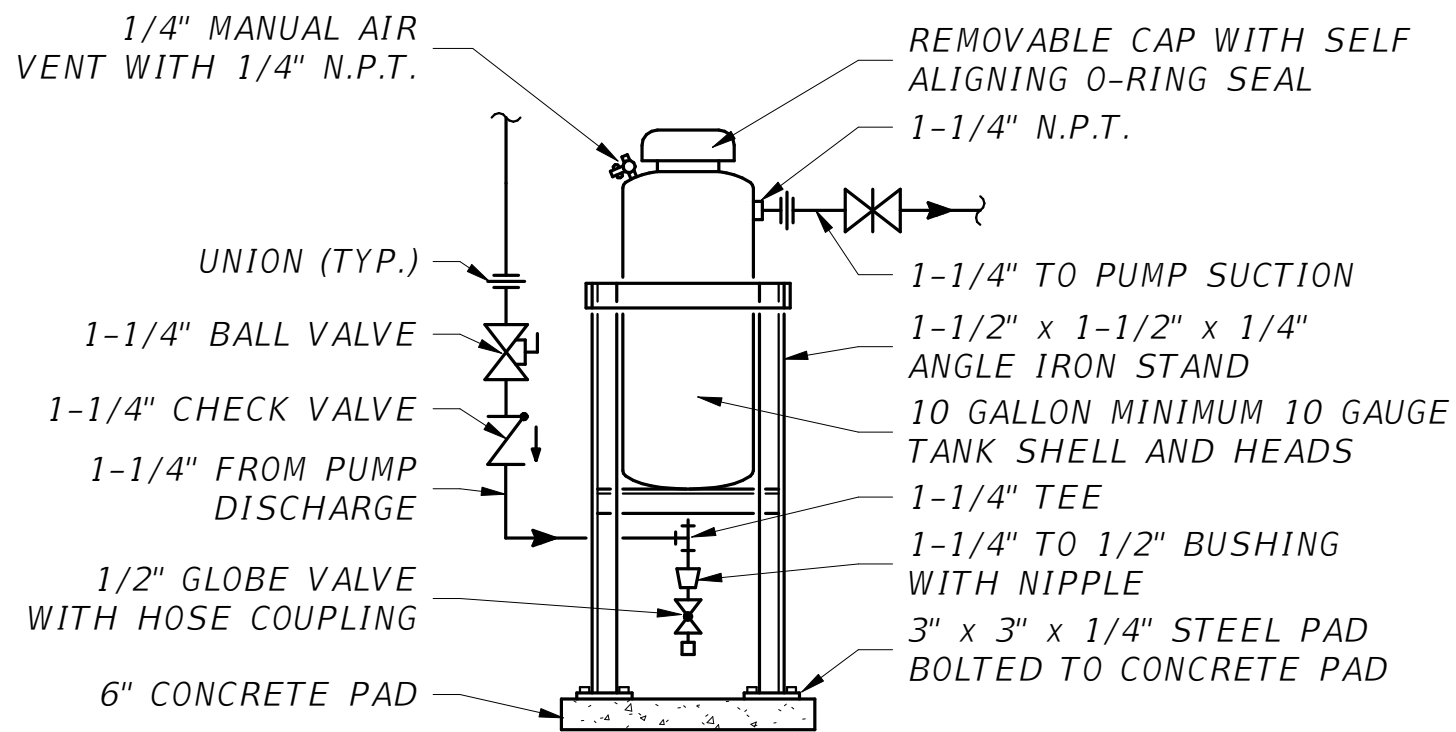
### PUMP PRESSURE GAGE DETAIL

NOT TO SCALE



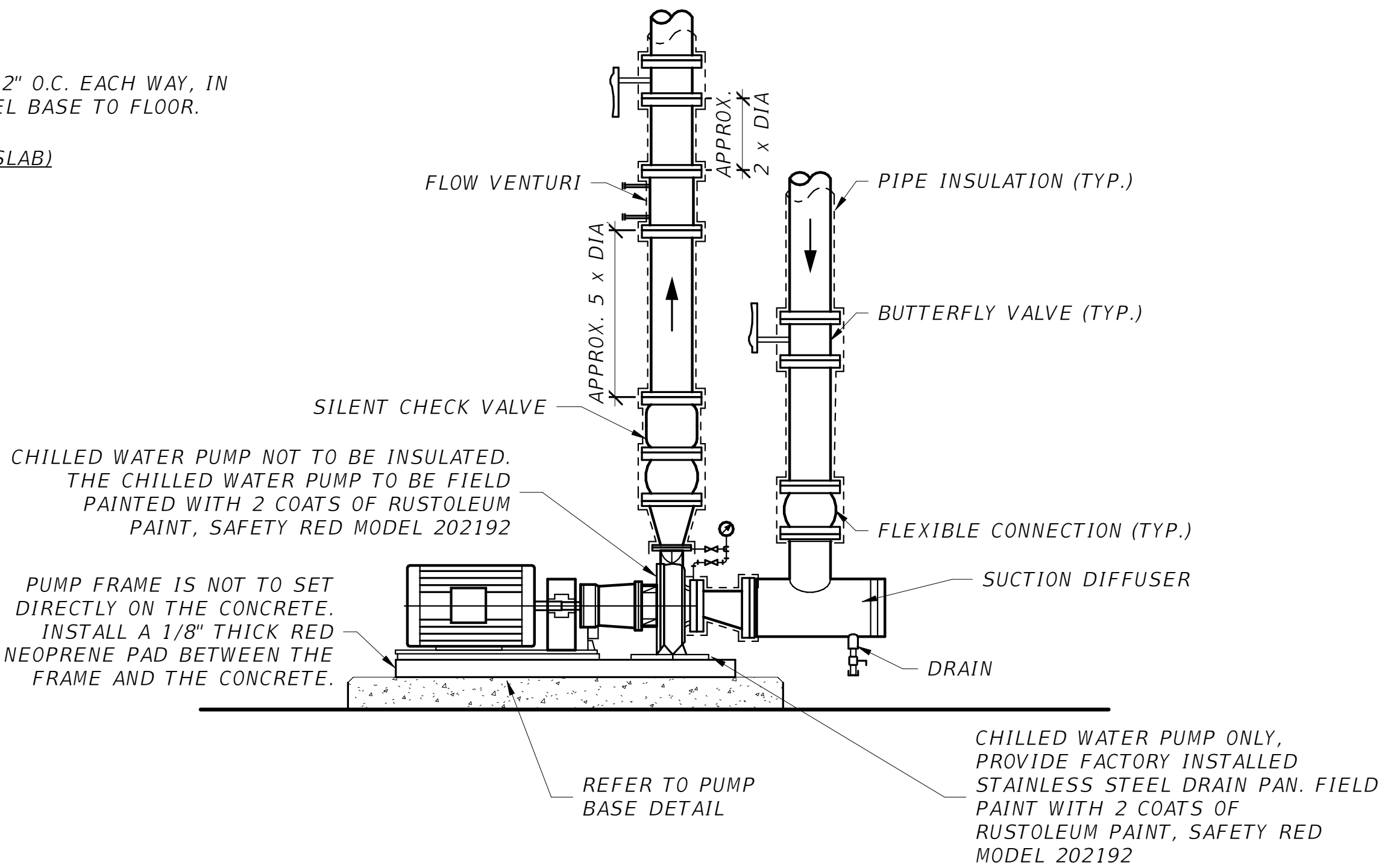
### RETURN, EXHAUST AND TRANSFER DUCT CONNECTIONS

NOT TO SCALE




### WATER TREATMENT CHEMICAL SHOT FEEDER DETAIL

NOT TO SCALE



### CHILLED WATER END SUCTION PUMP DETAIL

NOT TO SCALE

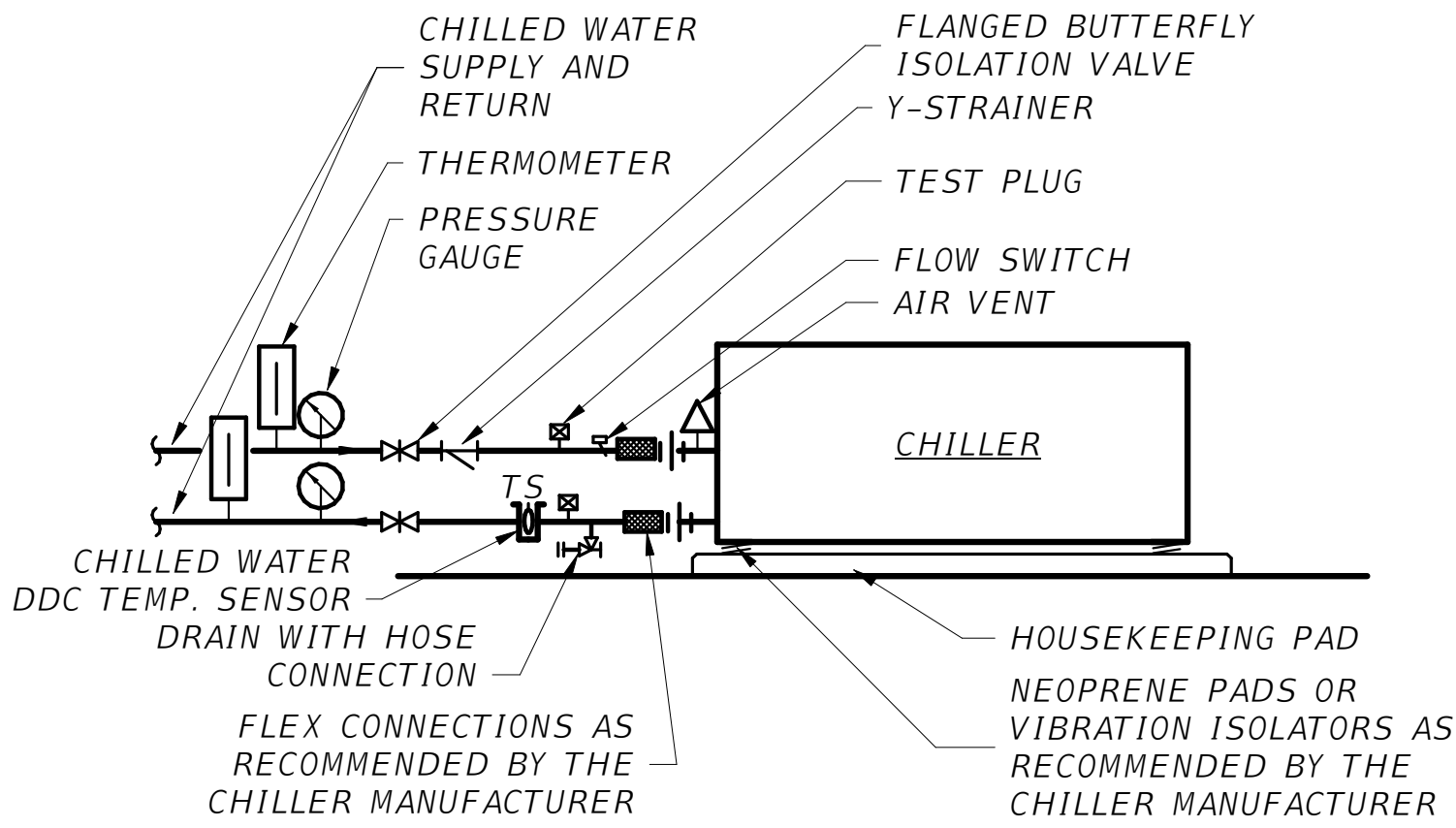
No.	Date	Issue / Revision							DWG NO.
						STEPHEN R. FORKNER, PE PE 80532  WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574			AM-502
						FLORIDA-ALABAMA TPO			SHEET NO.
						ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						NORTH W STREET	ESCAMBIA	451524-1-38-01	

### HVAC DETAILS

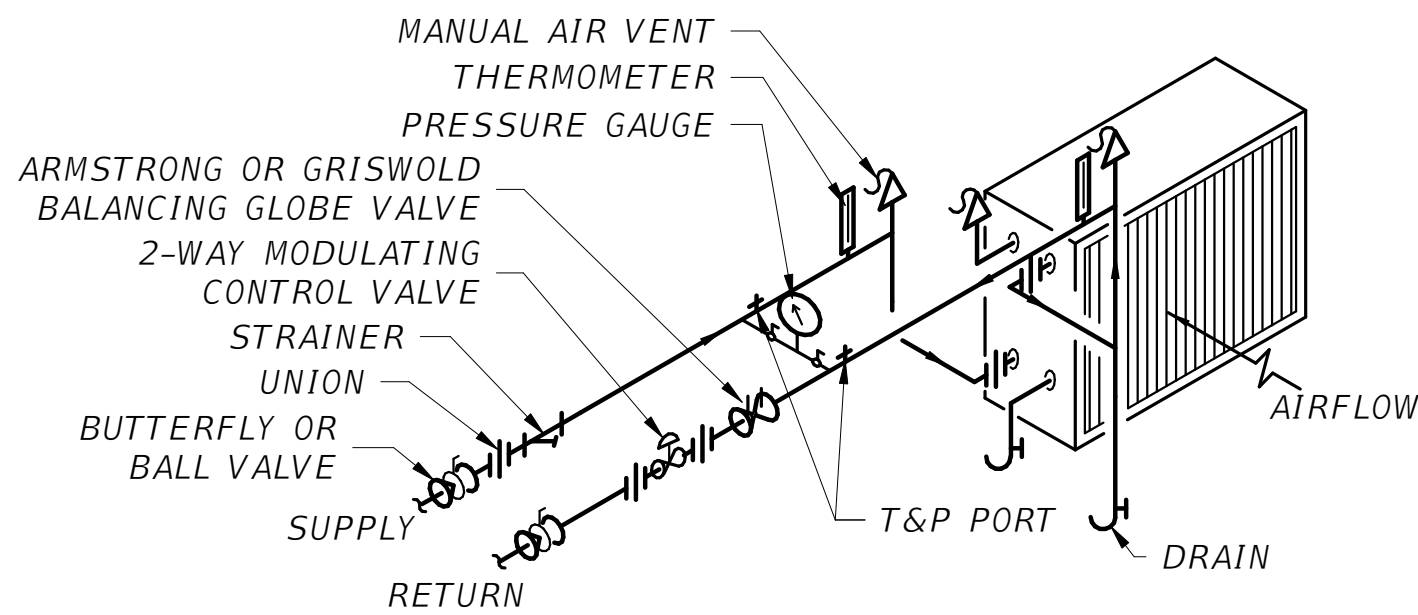
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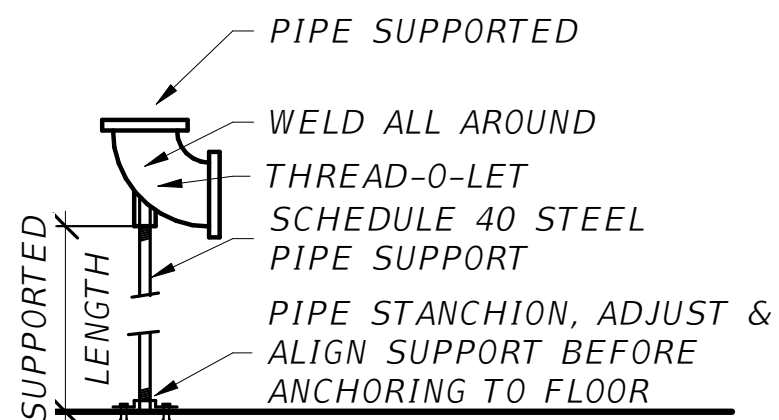




CHILLER PIPING DETAIL  
NOT TO SCALE

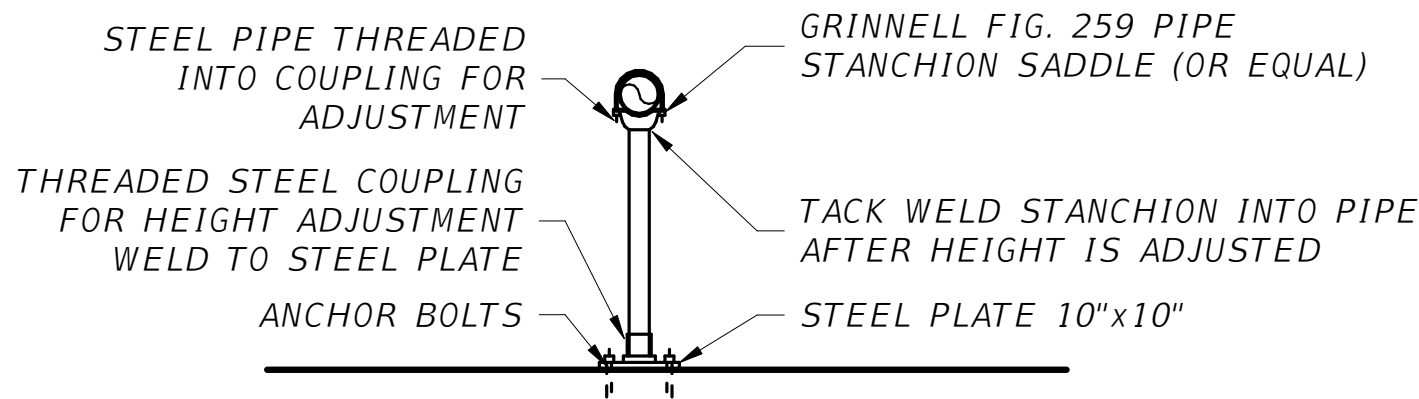


AIR HANDLER COIL PIPING (2-WAY VALVE)  
NOT TO SCALE  
2 WAY MODULATING CONTROL VALVE ON AH1.



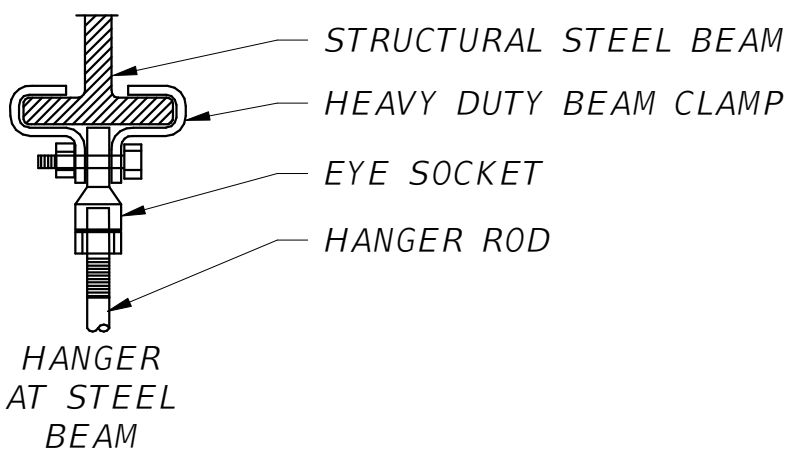
NOTES:  
INSULATE STANCHION AND PIPE SUPPORT ON COLD WATER APPLICATIONS.

SPACING BETWEEN SUPPORTS SHALL CONFORM TO MSS-SP58.

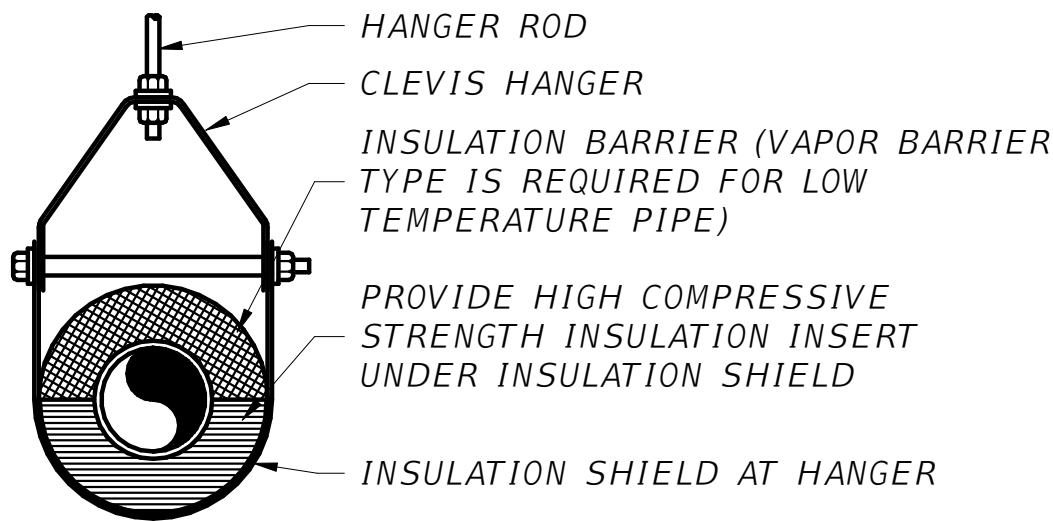


STANCHION SCHEDULE		
PIPE SUPPORTED	SUPPORTED LENGTH	
	1'-0" TO 3'-0"	3'-1" TO 6'-0"
4" & BELOW	1"	2"
5" & ABOVE	2"	4"

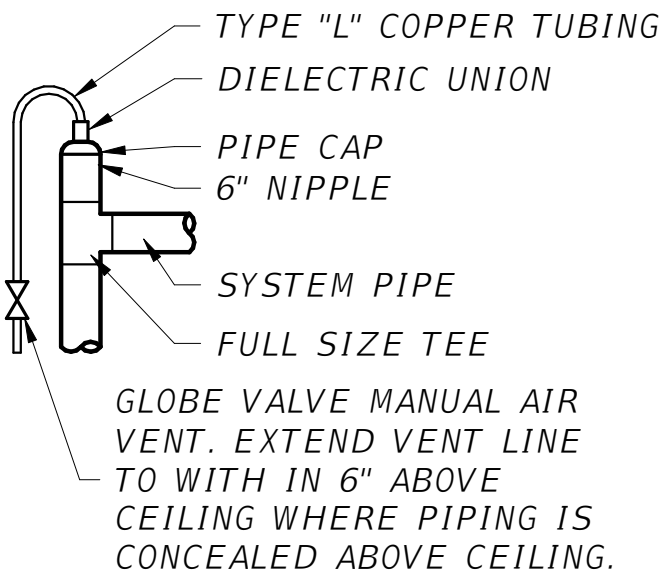
PIPE SUPPORT STANCHION  
NOT TO SCALE



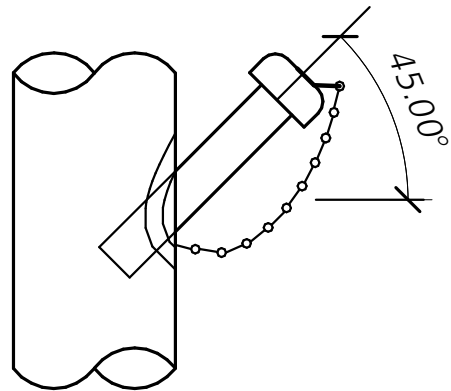
HANGER TO STRUCTURE ATTACHMENT  
NOT TO SCALE



INSULATED PIPE HANGER SUPPORT  
NOT TO SCALE



MANUAL AIR VENT  
NOT TO SCALE



- NOTES:
- LOCATE A TEST WELL AT EACH POINT OF TEMPERATURE SENSING AND TEMPERATURE CONTROL.
  - THERMOMETER WELLS MUST BE MOUNTED AT 45 DEGREES FROM HORIZONTAL OR VERTICAL WHERE POSSIBLE, FILL WELLS WITH OIL.

THERMOMETER WELL  
NOT TO SCALE

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
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WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
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ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC DETAILS

DWG NO.
AM-503
SHEET NO.




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AIR DISTRIBUTION DEVICE SCHEDULE													
MARK		CD1	CD2	CR1	SS1	SS2	SR1	RR1	EG1	XG1	XG2	LD1	LV1
NECK SIZE	INCH	-	-	-	-	-	-	22x22	-	22x22	-	12"	REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. (BOD GREENHECK EHV-901D)
MODULE/FACE SIZE	INCH	24x24/-	-/-	-/-	-/-	-/-	-/-	24x24/23x23	-/-	24x24/23x23	-/-	48" LONG	
MANUFACTURER **	-	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	
MODEL NUMBER	-	OMNI-AA-DB	301FL	R-OMNI-AA	300FS	S300FS	350RL	355RL	50F	PAR-AA	50F	MLT-38	
CONSTRUCTION	-	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	STEEL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
NOTES	-	1, 2, 4	1, 4, 8	1, 4	4	3, 4	1, 4, 6	4, 5, 9	1, 4, 8, 10	1, 4, 8	4, 8, 10	4, 7	11
<div>NOTES:</div> <div><div>1. NECK SIZE OF DEVICE IS EQUAL TO THE DUCT SIZE INDICATED ON THE DRAWING.</div><div>2. PROVIDE WITH SQUARE TO ROUND ADAPTER. REFER TO PLANS FOR SIZE.</div><div>3. THIS AIR DEVICE HAS A CURVED FACE. REFER TO CONNECTING DUCT SIZED FOR FACE DIAMETER. PROVIDE WITH "ASD" AIR SCOOP DEVICE FOR BALANCING.</div><div>4. SEE PLANS FOR SIZE.</div><div>5. PROVIDE WITH OPPOSED BLADE DAMPER WITH SCREW ADJ. FROM DIFFUSER FACE WHERE LOCATED ABOVE HARD CEILINGS WHERE INDICATED WITH OBD'S.</div><div>6. WHERE FIRE DAMPER IS INDICATED TO BE ADJACENT TO THE GRILLE, THE GRILLE SHALL BE SECURED TO THE FIRE DAMPER IN ACCORDANCE WITH THE FIRE DAMPER MANUFACTURER'S WRITTEN INSTRUCTION. THE FIRE DAMPER FOR THIS APPLICATION SHALL BE EQUIVALENT TO RUSKIN IBD20G UL 555 CLASSIFIED DAMPER.</div><div>7. LINEAR DIFFUSER WITH TWO 3/4" SLOTS - PROVIDE END-CAPS AND INSULATED PLENUM BOOT. COORDINATE BOOT HEIGHT WITH ADJACENT CEILING FRAMMING.</div><div>8. WHERE GRILLE IS INDICATED TO BE LOCATED IN LAY-IN CEILINGS, PROVIDE 24x24 LAY-IN PANEL BORDER, WHITE IN COLOR.</div><div>9. LOUVERED FACE OF GRILLE SHALL BE AS INDICATED IN THE FACE SIZE. THE BLADES SHALL APPEAR ACROSS THE ENTIRE FACE OF THE GRILLE. CONTRACTOR TO FABRICATE INSULATED PLENUM FULL-SIZE OF DEVICE NECK AND CONNECT DUCT TO PLENUM. SIZE OF CONNECTING DUCT TO BE AS SHOWN IN PLAN.</div><div>10. PAINT INSIDE OF DUCT &amp; GRILLE FLAT BLACK WHEN CAN BE SEEN THROUGH FACE OF GRILLE.</div><div>11. LOUVER WIND-DRIVEN RAIN PERFORMANCE SHALL BE WITHOUT A DAMPER: 99.9% EFFECTIVE AT PREVENTING WATER PENETRATION THROUGH LOUVER WHEN AMCA-500L TESTED AT 50 MILES PER HOUR WIND WITH 8 INCHES PER HOUR RAINFALL AND 2,155 FEET PER MINUTE AIRFLOW THROUGH THE FREE AREA. PENETRATION CLASS 'A' WITH DISCHARGE CLASS (INTAKE) '3' IN ACCORDANCE WITH AMCA 500-L WIND DRIVEN RAIN TEST. THE LOUVER SHALL BE ANSI/AMCA 540 AND ANSI/AMCA 550 LISTED AND SHALL A FLORIDA PRODUCT APPROVAL.</div></div> <div><div>REMARKS:</div><div><div>A. REFER TO PLANS FOR EXACT LOCATIONS OF ALL DIFFUSERS, GRILLES AND REGISTERS.</div><div>B. COORDINATE FRAME STYLES WITH CEILING SYSTEM ACTUALLY FURNISHED.</div><div>C. NC VALUES FOR DIFFUSERS, GRILLES AND REGISTERS SHALL NOT EXCEED 35 WITH A ROOM ABSORPTION RATE OF 10db ie.. 10-12 WATTS.</div><div>D. REFER TO THE MECHANICAL LEGEND FOR A DESCRIPTION OF THE AIR DEVICE MARK.</div><div>E. WHERE THE CONNECTING DUCT OR PLENUM CAN BE OBSERVED THROUGH THE FACE OF THE GRILLE, THE VISIBLE DUCTWORK SHALL BE PAINTED FLAT BLACK.</div><div>F. LOUVERS ARE PROVIDED UNDER DIVISION 08. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.</div></div></div>													

\*\* REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS

AIR PURIFICATION DEVICE SCHEDULE										
UNIT MARK	AHU	SUPPLY AIR FLOW CFM	OUTSIDE AIR FLOW CFM	BASIS OF DESIGN MANUFACTURER **	MODEL	ION OUTPUT (IONS/CC)	VOLTS	WATTS	MOUNTING LOCATION	NOTES
BP11	MS11	770	-	GLOBAL PLASMA SYSTEMS	GPS-CI-2	>160M	24	4	AHU BEFORE EVAPORATOR COIL	1,2,3,4,5
BP12	MS12	770	-	GLOBAL PLASMA SYSTEMS	GPS-CI-2	>160M	24	4	AHU BEFORE EVAPORATOR COIL	1,2,3,4,5
BP1	AH1	21,835	2,980	GLOBAL PLASMA SYSTEMS	GPS-IM0D	>160M	120	12	BETWEEN FILTER AND COIL	1,2,3,4,6,7
<div><div>NOTES:</div><div><div>1. SHALL BE UL 2998 OZONE FREE COMPLIANT.</div><div>2. UNIT SHALL BE SELF CLEANING.</div><div>3. PROVIDE WITH ON/OFF INDICATOR LIGHT.</div><div>4. PROVIDE WITH INTEGRAL DDC SYSTEM ALARM CONTACT.</div><div>5. POWERED THROUGH UNIT'S 24 VOLT TRANSFORMER.</div><div>6. POWERED THROUGH 120 VOLT CIRCUIT TO UNIT. COORDINATE WITH ELECTRICAL.</div><div>7. COORDINATE BAR LENGTH AND QUANTITY REQUIRED WITH AIR HANDLER SHOP DRAWING SUBMITTAL.</div></div></div> <div><div>** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS</div></div>										


No.	Date	Issue / Revision		STEPHEN R. FORKNER, PE PE 80532		FLORIDA-ALABAMA TPO			HVAC SCHEDULES	DWG NO.
				WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574						AM-601
						ROAD NO.	COUNTY	FINANCIAL PROJECT ID		SHEET NO.
						NORTH W STREET	ESCAMBIA	451524-1-38-01		

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FAN SCHEDULE																		
MARK	SERVES	AIRFLOW (CFM)	DRIVE	TIP SPEED (FT/MIN)	MOTOR SPEED (RPM)	FAN SPEED (RPM)	STATIC EFF. (%)	INLET TEMP. (°F)	EXTERNAL S.P. (IN. H2O)	ELECTRICAL		SONES	MANUFACTURER **	MODEL NUMBER	MOUNTING LOCATION	WEIGHT (LBS)	INTERLOCK	NOTES
										V/PH/HZ	BHP/HP							
EF11	GENERAL EXHAUST	175	DIRECT	3,710	1,750	1,744	25	76	0.375	120/1/60	0.03 / 0.07	5.2	GREENHECK	SQ-70-VG	INLINE	20	AH1	1,2,3,4,5,6,7
EF12	GENERAL EXHAUST	450	DIRECT	4,400	1,725	1,545	40	76	0.375	120/1/60	0.07 / 0.10	6.3	GREENHECK	SQ-90-VG	INLINE	41	AH1	1,2,3,4,5,6,7
<div>NOTES:</div> <div><div>1.</div><div>COORDINATE WITH ELECTRICAL DRAWINGS.</div></div> <div><div>2.</div><div>PROVIDE WITH FACTORY DISCONNECT.</div></div> <div><div>3.</div><div>INTERLOCK VIA DDC SYSTEM. PROVIDE ALL REQUIRED CONTACTS AND RELAYS.</div></div> <div><div>4.</div><div>PROVIDE REQUIRED CONTACTS AND RELAYS FOR INTERLOCKING FAN WITH OTHER DEVICES AS SCHEDULED.</div></div> <div><div>5.</div><div>PROVIDE WITH 0-10 VDC EC "VG" MOTOR CONTROLLER, AND SET FAN SPEED THROUGH THE DDC SYSTEM.</div></div> <div><div>6.</div><div>PROVIDE BACKDRAFT DAMPER.</div></div> <div><div>7.</div><div>PROVIDE WITH DUCT FLANGE, FLEX CONNECTORS, SPRING VIBRATION ISOLATORS, AND LUBRICATION LINES.</div></div> <div>** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS</div>																		

No.	Date	Issue / Revision

	STEPHEN R. FORKNER, PE PE 80532  WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574	FLORIDA-ALABAMA TPO			HVAC SCHEDULES	DWG NO.
						AM-602
						SHEET NO.
		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
		NORTH W STREET	ESCAMBIA	451524-1-38-01		



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MINI-SPLIT UNIT SCHEDULE								
MARK		MS11/CU11	MS12/CU12	MS2/CU2				
AREA SERVED	-	147 SERVER	147 SERVER	115.2 DATA VIS SPT				
COOLING TOTAL CAPACITY	BTUH	33,200	33,200	31,400				
AIR QUANTITY (HIGH)	CFM	770	770	650				
ENERGY EFFICIENCY	SEER2/EER2	15.9/9.5	15.9/9.5	17.5/9.85				
REFRIGERANT	-	R-32	R-32	R-32				
MANUFACTURER	-	DAIKIN	DAIKIN	DAIKIN				
INDOOR MODEL	-	FTX36WVJU9	FTX36WVJU9	FTX30WVJU9				
DIMENSIONS (HxWxD)	IN.	14x48x11	14x48x11	14x48x11				
OUTDOOR MODEL	-	RK36WMVJU9	RK36WMVJU9	RK30WMVJU9				
DIMENSIONS (HxWxD)	IN.	29x48x13	29x48x13	29x48x13				
REF. LINE LENGTH (APROX)	L.F.	74	74	58				
ELECTRICAL	V/PH	208/1	208/1	208/1				
MCA/MAX FUSE	AMP/AMP	16.6/20	16.6/20	16.6/20				
NOTES		1,2,3,4,5	1,2,3,4,5	1,2,3,4,5				
<div><div>NOTES:</div><div><div>1. DUCTLESS SPLIT AIR CONDITIONING UNIT WITH REMOVABLE FRONT GRILLE, WASHABLE REUSABLE FILTERS, AUTO-RESTART. PROVIDE POWER SUPPLY CORD AND ACCESSORIES FOR WALL MOUNTING, WIRELESS REMOTE CONTROL WITH 24 HOUR TIMER, FOUR SPEED FAN CONTROL, AUTO-COOL-DRY-FAN MODE. UL LISTED.</div><div>2. ALL REFRIGERANT LINES SHALL BE RIGIDLY SUPPORTED. CONCEAL LINES AS MUCH AS POSSIBLE. THE CONTRACTOR SHALL OBTAIN OWNER APPROVAL FOR PIPING THAT IS PROPOSED TO BE RUN EXPOSED.</div><div>3. INSULATE ALL SUCTION LINES.</div><div>4. PROVIDE WITH INLINE CONDENSATE PUMP POWERED THROUGH THE AIR HANDLER.</div><div>5. THERMOSTAT ON UNIT SERVING MDF DATA ROOM SHALL BE SET AND LOCKED TO 74°F.</div></div><div><div>COMPONENTS FOR MINI-SPLIT SYSTEM INSTALLATION:</div><div><div>1. INTERIOR LINESET COVER: ALL EXPOSED LINESETS, WHICH ARE INSTALLED INSIDE THE BUILDING, SHALL BE ENCLOSED IN AN EXTRUDED PVC LINESET COVER SYSTEM, WHICH SHALL CONSIST OF COMPONENTS THAT DISASSEMBLE EASILY TO PROVIDE RAPID INSTALLATION AND FACILITATE FUTURE ACCESS FOR TESTING AND/OR REPAIRS AND SHALL HAVE NO EXPOSED FIXINGS OR CLOSURE MECHANISMS. THEY SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. LINESET COVERS FABRICATED FROM FOLDED METAL OR FROM PLASTIC OR METAL DOWNSPOUTS ARE NOT ACCEPTABLE. ENCLOSURE SYSTEM SHALL BE SLIMDUCT MD SERIES OR EQUIVALENT WITH COMPATIBLE AND APPROPRIATE ELBOWS, COUPLERS, CEILING TRIM, WALL INLETS, AND END COVERS.</div><div>2. EXTERIOR LINESET COVER: ALL EXPOSED LINESETS, WHICH ARE INSTALLED OUTSIDE THE BUILDING, SHALL BE ENCLOSED IN AN EXTRUDED PVC LINESET ENCLOSURE SYSTEM, WHICH SHALL CONSIST OF COMPONENTS THAT DISASSEMBLE EASILY TO PROVIDE RAPID INSTALLATION AND FACILITATE FUTURE ACCESS FOR TESTING AND/OR REPAIRS. ALL CLOSURE SCREWS AND ANY EXPOSED FIXING HARDWARE SHALL BE STAINLESS STEEL. NO EXTERNAL FIXINGS SHALL BE VISIBLE EXCEPT IN THE CASE OF SPECIFIC COMPONENTS THAT CANNOT BE FIXED INTERNALLY. ALL LINESET COVERS SHALL BE CORRECTLY SIZED TO ACCOMMODATE THE LINESET ITSELF AND ANY DRAIN HOSE OR ELECTRICAL WIRING WHICH MAY ALSO BE ENCLOSED. LINESET COVERS SHALL BE APPROPRIATELY COLORED TO FIT IN WITH BUILDING ARCHITECTURE AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. LINESET COVERS FABRICATED FROM FOLDED METAL OR FROM PLASTIC OR METAL DOWNSPOUTS ARE NOT ACCEPTABLE LINESET COVERS SHALL BE SLIMDUCT SD SERIES OR EQUIVALENT WITH COMPATIBLE AND APPROPRIATE ELBOWS, COUPLERS, WALL INLETS, AND END COVERS. ALL ASSOCIATED ANCHORAGE AND CONNECTING HARDWARE SHALL BE EITHER STAINLESS STEEL OR HOT DIPPED GALVANIZED.</div><div>3. CONDENSATE DRAIN HOSE: CONDENSATE DRAIN HOSE SHALL BE ADEQUATELY SIZED AND INSTALLED WITH SUFFICIENT SLOPE TO ENSURE GRAVITY FLOW OF CONDENSATE WATER TO OUTSIDE THE BUILDING. WHERE GRAVITY FLOW IS NOT POSSIBLE, A SUITABLY SIZED PUMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DRAIN LINES SHALL BE INSTALLED WITHOUT KINKS OR RESTRICTIONS, WHICH COULD INHIBIT THE FREE FLOW OF CONDENSATE WATER. WHERE CONDENSATE DRAIN LINE IS RUN INSIDE AN INTERIOR LINESET COVER, THE LINE SHALL BE SLIMDUCT DRAIN HOSE MODEL DSH-14 OR EQUIVALENT. WHERE CONDENSATE DRAIN LINES ARE CONCEALED IN WALLS OR ABOVE CEILINGS, THE CONDENSATE DRAIN LINES SHALL BE TYPE L COPPER INSULATED WITH FLEXIBLE UNICELLULAR FOAM INSULATION.</div><div>4. OUTDOOR UNIT MOUNTING BRACKETS: MINISPLIT OUTDOOR UNITS SHALL BE FIRMLY MOUNTED IN AN AREA, WHICH IS EASILY ACCESSIBLE FOR PERIODIC MAINTENANCE AND/OR REPAIRS. OUTDOOR UNIT BRACKETS SHALL BE PRESSED STAINLESS STEEL. ALL BOLTS AND FIXINGS SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL AND ALL BRACKETS SHALL BE FITTED WITH RUBBER ANTI VIBRATION MOUNTINGS UNDERNEATH THE OUTDOOR UNIT. BRACKETS SHALL BE CORRECTLY SIZED FOR PHYSICAL DIMENSIONS OF OUTDOOR UNIT AND WEIGHT CAPABILITY AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUITABILITY OF BOTH MOUNTING SURFACE AND FIXING BOLTS TO HANDLE COMBINED LOAD SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO INSTALLATION.<div><div>A. WALL MOUNTED: OUTDOOR UNITS, WHICH MUST BE HUNG FROM BUILDING SURFACES, SHALL BE MOUNTED ON A HIGH VELOCITY WIND ZONE (HVWZ) RATED PURPOSE MADE STAINLESS STEEL BRACKET EQUIVALENT TO DIVERSITECH QUICKSLING QSWB4000SS (FLORIDA PRODUCT APPROVAL No. FL-22529). SUBMIT WITH FLORIDA PRODUCT APPROVAL / INSTALLATION INFORMATION.</div></div></div><div>5. CONDENSATE PUMP: WHERE CONDENSATE DISCHARGE TERMINATES ABOVE AC UNIT ELEVATION, A CONDENSATE DRAIN PUMP EQUIVALENT TO ASPEN WHITE UNIVOLT (120 THROUGH 240 VOLT) PUMP WITH INSTALLATION KIT PROVIDED. PUMP IS FITTED BELOW THE INDOOR UNIT AND HAS A SNAP-ON/OFF COVER FOR FILTER MAINTENANCE. THE INSTALLATION KIT SHALL INCLUDE PUMP/CABLE ASSEMBLY, PVC ELBOW AND LINESET COVER, CEILING FLASHING, INLET AND DISCHARGE HOSE, WALLPLUGS AND SCREWS.<div><div>A. THE PUMP SHALL BE SELF PRIMING AND SELF LEVELING, OPERATES AUTOMATICALLY ON WATER RISE, HAS A CAPACITY OF 0.8 GPH. @ 26 FOOT HEAD, OPERATES EXTREMELY QUIETLY AT 23 DB(A) AND SHALL BE RATED FOR MINISPLITS UP TO 30,000 BTU/HR. THE PUMP SHALL BE THERMALLY PROTECTED, POTTED FOR WATER RESISTANCE, INCLUDES WATERPROOF TERMINATION OF ELECTRICAL AND ALARM WIRING AND IS UL LISTED. THE PUMP AND WATER LEVEL SENSOR SHALL BE CONSOLIDATED INTO ONE SINGLE UNIT IN WHICH THE PUMP IS MOUNTED DIRECTLY ABOVE THE SENSOR HOUSING/RESERVOIR WHICH IS TRANSPARENT TO FACILITATE INSPECTION. THE SENSOR HOUSING/RESERVOIR DISASSEMBLES EASILY FROM THE PUMP TO FACILITATE CLEANING AND MAINTENANCE AND INCLUDES A STAINLESS STEEL MESH FILTER WHICH EASILY REMOVABLE FOR CLEANING. IT ALSO INCLUDES VOLT FREE NO &amp; NC CONTACTS RATED AT 5 AMP INDUCTIVE AND 8 AMP RESISTIVE AT LINE VOLTAGE. THESE CONTACTS WILL ENERGIZE THE PUMP ON RISE OF WATER LEVEL, HOWEVER, IF THE WATER LEVEL CONTINUES TO RISE BECAUSE WATER IS NOT BEING EVACUATED FOR ANY REASON, THEY WILL CUT POWER TO PUMP AND EVAPORATOR.</div></div></div></div></div><div>** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS</div></div>								

No.	Date	Issue / Revision	<div><div><div><div></div><div>WGI</div></div></div><div><div>STEPHEN R. FORKNER, PE PE 80532</div><div>WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574</div></div></div>	FLORIDA-ALABAMA TPO			HVAC SCHEDULES	DWG NO.
						AM-603		
						SHEET NO.		
			ROAD NO.	COUNTY	FINANCIAL PROJECT ID			
			NORTH W STREET	ESCAMBIA	451524-1-38-01			

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VARIABLE AIR VOLUME TERMINAL SCHEDULE														
MARK	AIRFLOW (CFM)			SIZE	NC		HEATING COIL				APD	BASIS OF DESIGN MANUFACTURER **	MODEL	NOTES
	MAX	MIN HEAT	MIN		DISCH	RAD	HEAT (MBH)	KW	STEPS	Power				
VAV01	100	75	45	4	18	20	3.3	1.0	SCR	277/1	0.02	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV02	325	190	190	6	20	18	8.3	2.5	SCR	277/1	0.17	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV03	400	235	235	6	22	23	10.2	3.0	SCR	277/1	0.20	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV04	1,590	475	475	12	20	24	20.6	6.0	SCR	480/3	0.32	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV05	595	190	180	8	22	21	8.2	2.5	SCR	277/1	0.30	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV06	205	95	95	5	19	20	4.1	1.0	SCR	277/1	0.03	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV07	1,405	530	530	12	20	23	23.0	6.5	SCR	480/3	0.28	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV08	345	165	165	6	21	20	7.2	2.0	SCR	277/1	0.18	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV09	140	95	95	4	20	20	4.2	1.0	SCR	277/1	0.03	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV10	170	115	115	4	21	20	5.0	1.5	SCR	277/1	0.03	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV11	265	85	85	5	22	20	3.8	1.0	SCR	277/1	0.04	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV12	435	230	230	6	22	24	10.0	3.0	SCR	277/1	0.21	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV13	290	150	150	5	21	20	6.5	2.0	SCR	277/1	0.07	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV14	1,030	340	340	10	22	22	14.8	4.5	SCR	480/3	0.30	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV15	1,885	565	565	14	20	20	24.5	7.0	SCR	480/3	0.26	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV16	1,885	565	565	14	20	20	24.5	7.0	SCR	480/3	0.26	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV17	240	115	105	5	20	20	5.0	1.5	SCR	277/1	0.05	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV18	285	225	225	5	21	20	9.8	3.0	SCR	277/1	0.06	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV19	285	130	130	5	21	20	5.6	1.5	SCR	277/1	0.06	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV20	280	165	165	5	21	20	7.2	2.0	SCR	277/1	0.06	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV21	410	240	240	6	22	24	10.4	3.0	SCR	277/1	0.20	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV22	195	155	155	4	21	20	6.8	2.0	SCR	277/1	0.04	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV23	115	75	60	4	19	20	3.3	1.0	SCR	277/1	0.02	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV24	2,150	645	645	14	20	20	28.0	8.0	SCR	480/3	0.30	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV25	2,780	835	835	16	6	6	36.2	10.5	SCR	480/3	0.36	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV26	2,650	795	795	16	9	9	34.5	10.0	SCR	480/3	0.34	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV27	1,165	350	350	10	24	24	15.2	4.5	SCR	480/3	0.34	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV28	295	235	235	5	21	20	10.2	3.0	SCR	277/1	0.07	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV29	300	190	180	5	21	20	8.2	2.5	SCR	277/1	0.07	ENVIROTEC	SDR-EH	1,2,3,4,5,6,7,8
VAV30	1,480	370	370	12	20	23	0.0	0.0	SCR	-	0.30	ENVIROTEC	SDR	1,2,4,5,7,8
TOTALS	23,695	8,625	8,550					104.0						
<div>NOTES:</div> <div>** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS</div> <div>1. DDC CONTROLS BY CONTROLS CONTRACTOR.</div> <div>2. PROVIDE REINFORCED NON-POROUS FOIL LAMINATE FOR MICROBIAL PROTECTION. LINER SHALL BE SECURED BY STEEL Z CLIPS OR OVERLAPPING PANEL CONSTRUCTION TO SEAL ALL EDGES. THE INSULATION SHALL BE RIGID COMPRESSED GLASS FIBERS, SIX POUND DENSITY, WITH R3.5 R-VALUE, AND SHALL COMPLY WITH ASTM C665, UL 181, AND NFPA90A.</div> <div>3. CONTRACTOR SHALL VERIFY PROPER CLEARANCES IN FRONT OF CONTROL HEATER PANELS. PROVIDE WITH INTEGRAL FACTORY MOUNTED SAFETY DISCONNECT, PRIMARY FUSING AND ALL REQUIRED CONTACTS AND RELAYS. COORDINATE WITH ELECTRICAL. PROVIDE FACTORY WIRED CONTROL TRANSFORMER. VAV TERMINAL SHALL HAVE SINGLE POINT POWER CONNECTION.</div> <div>4. PROVIDE APPROPRIATE DIFFERENTIAL PRESSURE SWITCH TO PROPERLY CONTROL THE HEATER. THE EQUIPMENT SUPPLIER SHALL REVIEW THE DRAWINGS PRIOR TO ORDERING TO ASCERTAIN DUCT PRESSURES.</div> <div>5. ALL PERFORMANCE DATA SHALL BE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2008. ALL NC LEVELS DETERMINED USING AHRI 8855-2008, APPENDIX E RATED WITH 1" WG PRESSURE AT THE TERMINAL INLET.</div> <div>6. PROVIDE MAGNETIC HEATER CONTACTORS.</div> <div>7. VAV TERMINAL SHALL BE PRESSURE INDEPENDENT.</div> <div>8. REFER TO TSP FOR ADDITIONAL REQUIREMENTS.</div>														

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					ROAD NO.	COUNTY	FINANCIAL PROJECT ID		AM-604		
					NORTH W STREET	ESCAMBIA	451524-1-38-01		SHEET NO.		

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AIR COOLED CHILLER SCHEDULE			
MARK		CH1	CH2
TYPE	-	SCROLL	SCROLL
NOMINAL CAPACITY (AHRI)	TONS	76.9	76.9
MAX. CHILLED WATER FLOW	GPM	131.6	131.6
MINIMUM CHILLED WATER FLOW	GPM	90.0	90.0
PRESSURE DROP	FT. HEAD	5.7	5.7
ENTERING / LEAVING WATER TEMP.	°F/°F	57 / 43	57 / 43
AMBIENT AIR TEMPERATURE	°F DB	95	95
REFRIGERANT TYPE	-	R-32	R-32
NO. OF COMPRESSORS	-	4	4
STEPS OF CAPACITY	-	VARIABLE	VARIABLE
NO. OF CONDENSER FANS	-	6	6
UNIT EFFICIENCY	EER/IPLV	11.28 / 17.53	11.28 / 17.53
100% LOAD (@ 95°F AMBIENT)	EER	11.28	11.28
75% LOAD (@ 95°F AMBIENT)	EER	14.77	14.77
50% LOAD (@ 95°F AMBIENT)	EER	19.29	19.29
25% LOAD (@ 95°F AMBIENT)	EER	20.36	20.36
ELECTRICAL	VOLT/Ø/Hz	460/3/60 & 120	460/3/60 & 120
CONTROLS	-	DDC (BACNET)	DDC (BACNET)
UNIT POWER	MCA/MOCP	166 / 200	166 / 200
OPERATING WEIGHT	LBS	4,335	4,335
MAXIMUM DIMENSIONS	L"xW"xH"	128 x 88 x 99	128 x 88 x 99
BASIS OF DESIGN MANUFACTURER **	-	DAIKIN	DAIKIN
MODEL	-	AGZ006F	AGZ006F
NOTES	-	1-10	1-10
NOTES: 1. PROVIDE DUAL POINT POWER CONNECTION (120/480V) WITH FACTORY MOUNTED DOOR INTERLOCKING NON-FUSED DISCONNECT SWITCH AND FACTORY MOUNTED CONTACTORS AND STARTERS TO START ALL MOTORS, CONTROL VOLTAGE TRANSFORMER FOR ALL CONTROL POWER REQUIREMENTS, PHASE VOLTAGE MONITOR FOR UNDER/ OVERVOLTAGE PROTECTION, SUCTION, DISCHARGE, AND OIL PRESSURE GAUGES. 2. PROVIDE FULL START-UP AND OWNER'S INSTRUCTION PERIOD BY MANUFACTURER'S FACTORY AUTHORIZED SERVICE. REFER TO SPECIFICATIONS FOR WARRANTY REQUIREMENTS. 3. PROVIDE SUCTION LINE ISOLATION SHUT-OFF VALVES FOR EACH CIRCUIT. 4. PROVIDE OPEN PROTOCOL COMMUNICATION HARDWARE AND SOFTWARE AND DDC BASED WATER TEMPERATURE CONTROLS. PROVIDE INTERFACE PANEL TO CHILLER. CHILLER FAULTS AND ALARMS SHALL BE INDICATED AT THE DDC SYSTEM HEAD END. 5. PROVIDE AUXILIARY CONTACT TO NOTIFY THE DDC SYSTEM THAT THE CHILLED WATER PUMP SHALL RUN. 6. MAXIMUM WEIGHTED SOUND PRESSURE IS 65.0 DBA AT 30.0 FEET FROM SIDES OF UNIT, MAXIMUM WEIGHTED SOUND POWER IS 92.0 DBA. SOUND PRESSURE LEVELS RATED IN ACCORDANCE WITH ARI STANDARD 370. SOUND PRESSURE RATINGS ARE VALUES AT 30.0 FT. FROM SIDES OF UNIT. PROVIDE COMPRESSOR SOUND ENCLOSURES AND QUIET FANS IF REQUIRED TO MEET THESE LEVELS. 7. CAPACITIES LISTED ARE MINIMUM REQUIRED AT DESIGN CONDITIONS LISTED. 8. SHOULD THE CHILLER'S CONTROLLER DETECT LOSS OF EVAPORATOR WATER FLOW, THE CHILLER SHALL BE LATCHED OUT OF OPERATION UNTIL CLEARED AT THE CHILLER'S CONTROL PANEL. LOSS OF POWER AT THE CHILLER SHALL NOT CLEAR ITS CONTROLLER'S OPERATIONAL STATUS OR CONTROL LATCHED-OUT STATES. 9. UPON POWER LOSS, STAGE COMPRESSORS AND CONDENSER FANS ON TO LIMIT SURGE CURRENT ON GENERATORS. 10. THIS UNIT HAS ONE 480/3/60 AND ONE 120/1/60 POWER FEEDS. 11. REFER TO TSP FOR ADDITIONAL REQUIREMENTS.			

MODULAR AIR HANDLER SCHEDULE					
MARK		AH1		** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS	
TOTAL SUPPLY AIR		CFM	21,825		
TOTAL OF CONNECTED DEVICES DOWNSTREAM		CFM	23,695	NOTES:  1. PROVIDE POSITIVE SLOPED (IN MIN OF TWO PLANES) STAINLESS STEEL DRAIN PAN WITH DRAIN OUTLET IN BOTTOM OF PAN. DRAIN PAN SHALL EXTEND 8" BEYOND COOLING COIL OR FAN SECTIONS SHALL HAVE DRAIN PANS. COIL CASING, INCLUDING CROSS BRACING, SHALL BE STAINLESS STEEL CONSTRUCTION. PROVIDE RED BRASS (NON-FERROUS) COIL CONNECTIONS, VENTS AND DRAINS AND EXTEND THROUGH THE COIL CASING.  2. PROVIDE DOUBLE WALL UNIT, MINIMUM 2" THROUGHOUT UNIT (INCLUDING BELOW DRAIN PAN) WITH A SOLID INNER LINER. UNIT SHALL HAVE FACTORY FABRICATED DOUBLE WALL FILTER PLENUM MIXING BOX. PROVIDE FULL SIZED HINGED ACCESS DOORS AT PLENUM SECTION, FILTER SECTION, COIL SECTION(S), AND FAN SECTION. PROVIDE 18" ACCESS SECTION BETWEEN FILTER AND COIL SECTION WITH DOORS ON BOTH SIDES. PROVIDE ACCESS DOORS ON BOTH SIDES OF FILTER BANK AND CHILLED WATER COIL. COOLING COILS SHALL BE ACCESSIBLE ON THE UPSTREAM AND DOWNSTREAM SIDE. PROVIDE FLAT FILTER BANKS AND NOT V BANK TYPE FILTER SECTIONS. PROVIDE 18" CLEAR ACCESS SPACE BETWEEN THE FLAT FILTER AND THE CHILLED WATER COIL.  3. PROVIDE PREMIUM EFFICIENCY MOTORS.  4. PROVIDE OVERSIZED FANS NOT TO EXCEED RADIATED SOUND POWER PER ASHRAE.  5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.  6. UNITS SHALL HAVE INTERNAL VIBRATION ISOLATORS WITH 2" DEFLECTION. UNIT SHALL HAVE 1" NEOPRENE PADS BETWEEN THE BASE RAILS AND THE 6" HOUSEKEEPING PAD.  7. PROVIDE SINGLE HEADER ON AFTER FILTERS FOR EFFECTIVE SEALING.  8. PROVIDE MINIHELIC DIFFERENTIAL PRESSURE GAGE AT FILTER.  9. FAN RPM AND OUTLET VELOCITY ARE MAXIMUM. PROVIDE OVERSIZED FANS NOT TO EXCEED VALUES INDICATED.  10. PROVIDE DIRECT DRIVE PLENUM FANS. PROVIDE MULTIPLE FAN ARRAY AS REQUIRED TO LIMIT THE MAXIMUM MOTOR SIZE TO 20 HP.  11. CHILLED WATER COILS SHALL NOT EXCEED 10 FINS PER INCH.  12. VAV SYSTEM WITH VARIABLE FREQUENCY DRIVE FOR FAN CONTROL. FAN MOTOR SHALL BE VFD DUTY. SEE VARIABLE FREQUENCY DRIVE SCHEDULE.  13. PROVIDE 120 VOLT POWER FOR THE ENERGY RECOVERY WHEEL AND BIPOLAR IONIZATION UNIT.  14. PROVIDE ONE ELECTRICAL CONNECTION FOR THE SUPPLY FAN(S) AND ONE ELECTRICAL CONNECTION FOR THE EXHAUST FAN.	
RELIEF AIR		CFM	1,740		
STATIC PRESSURE (EXT/TOTAL)		IN. H2O	2.9 / 5.25      1.25 / 2.05		
ENERGY RECOVERY WHEEL	AIR QUANTITY	CFM	2,980		2,016
	PURGE	CFM			226
	ENTERING TEMPERATURE SUMMER DB/WB	°F/°F	93.0 / 78.0		74.0 / 63.0
	LEAVING TEMPERATURE SUMMER DB/WB	°F/°F	82.7 / 70.7		90.9 / 76.3
	ENTERING TEMPERATURE WINTER DB/WB	°F/°F	28.0 / 23.6		72.0 / 60.0
	LEAVING TEMPERATURE WINTER DB/WB	°F/°F	51.7 / 45.5		33.9 / 29.9
	MAX. WHEEL AIR PRESS. DROP	IN. H2O	0.66		0.39
	FILTER PRESSURE DROP (CLEAN)	IN. H2O	0.59	0.20	
	FILTERS	TYPE/EFF.	2" MERV 8 PREFILTER	2" MERV 8 PREFILTER	
	BASIS OF DESIGN MANUFACTURER **		-	NOVEL AIRE TECH	
MODEL		-	ECW 484-3A		
ELECTRICAL CHARACTERISTICS		V/Ø/Hz	120/1/60 (0.5 HP)		
OUTSIDE AIR QUANTITY		CFM	2,980		
MIXED AIR QUANTITY		CFM	21,825		
ENTERING TEMPERATURE DB/WB		°F/°F	75.1 / 64.1		
COOLING COIL TOTAL CAPACITY (NET)		MBH	858.0		
COOLING COIL SENSIBLE CAPACITY (NET)		MBH	546.8		
COOLING COIL		ROWS/FPI/MIN.TUBEØ	8 / 10 / 0.625		
COOLING COIL MAX AIR PRESS. DROP		IN. H2O	0.79		
COOLING COIL MAX. FACE VELOCITY		FPM	445		
COOLING COIL WATER FLOW		GPM	122.6		
CHILLED WATER TEMP., ENT/LVG		°F/°F	43 / 57		
COOLING COIL MAX. WATER PRESSURE DROP		IN. H2O	9.0		
LEAVING TEMPERATURE COOLING DB/WB		°F/°F	51.9 / 50.6		
FILTERS		TYPE/EFF.	30% PLEATED PRE FILTER & MERV 13 PLEATED IN 2 CHANNEL FLAT RACK	30% PLEATED PRE FILTER & MERV 13 PLEATED IN 2 CHANNEL FLAT RACK	
MAX. FAN SPEED		RPM	1,897	1,987	
FAN MOTOR		HP / BHP	(2) 20 / 26.2 total	(1) 2.0 / 1.25	
ELECTRICAL CHARACTERISTICS		V/Ø/Hz	480 / 3 / 60	480 / 3 / 60	
FAN ARRANGEMENT/TYPE		-	(2) 24.5" PLENUM	(1) 14.0" PLENUM	
UNIT ARRANGEMENT		-	STACKED WITH OPPOSED AIR FLOWS		
MIN INVERT TO CONDENSATE CONNECTION ABOVE PAD		-	10		
UNIT WEIGHT		LBS	14,037		
RADIATED SOUND POWER LEVELS (A weighted)		dBA	81/75/69/71/71/60/47/51		
DISCHARGE SOUND POWER LEVELS (A weighted)		dBA	91/85/87/92/93/88/85/78		
UNIT LOCATION		-	MECH 149		
SPACE SERVED		-	GENERAL OFFICES		
BASIS OF DESIGN MANUFACTURER **		-	DAIKIN		
MODEL		-	CAH050GDGM		
NOTES		-	1-14		

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

HVAC SCHEDULES

DWG NO.
AM-605
SHEET NO.



VARIABLE FREQUENCY DRIVE SCHEDULE					
MARK		VFDP1	VFDP2	VFDA1S	VFDA1R
SERVICE	-	CHWP1	CHWP2	AH1	AH1(RELIEF FAN)
MOTOR	HP	5	5	(2)20	2
OPEN PROTOCOL	-	SEE CONTR0LS SPECIFICATION	SEE CONTR0LS SPECIFICATION	SEE CONTR0LS SPECIFICATION	SEE CONTR0LS SPECIFICATION
ELECTRICAL	VOLT/Ø/60	480/3/60	480/3/60	480/3/60	480/3/60
MCA	AMPS	8.2	8.2	52	3.4
LOCATION	-	MECH RM 149	MECH RM 149	MECH RM 149	MECH RM 149
ENCLOSURE	-	NEMA 1	NEMA 1	NEMA 1	NEMA 1
DIMENSIONS	H"xW"xD"	31.8x7.6x9.6	31.8x7.6x9.6	25.6x19.1x12	31.8x7.6x9.6
BASIS OF DESIGN MANUFACTURER **	-	DANF0S	DANF0S	DANF0S	DANF0S
MODEL	-	FC-102P4K0T4	FC-102P4K0T4	FC-102P30T4	FC-102P1K5T4
NOTES	-	1-6	1-6	1-7	1-6
NOTES: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS					
1. PROVIDE FULL SPEED MANUAL BYPASS WITH BOTH AN INTERLOCKING MAIN DISCONNECT SWITCH AND A DRIVE DISCONNECT SWITCH.					
2. PROVIDE INTEGRAL FACTORY WIRED DC LINK REACTORS.					
3. PROVIDE INTEGRAL FACTORY WIRED EMI FILTERS.					
4. PROVIDE REMOTE START/STOP CAPABILITY IN BOTH DRIVE AND BYPASS MODE.					
5. DRIVE AND BYPASS SHALL BE RATED AT 100,000 AMP MAXIMUM INPUT INTERRUPTING CAPABILITY, NO EXCEPTIONS.					
6. DIVISION 23 SHALL FURNISH THE DRIVE. DRIVE INSTALLED BY DIVISION 26. SEE DIVISION 23 AND 26 SPECIFICATIONS.					
7. THIS DRIVE SERVES TWO AHU MOTORS. PROVIDE INTERNAL FUSING FOR EACH MOTOR.					

PUMP SCHEDULE			
MARK		CHWP1	CHWP2
TYPE	-	END-SUCTION	END-SUCTION
FLUID FLOW	GPM	136	136
TOTAL DYNAMIC HEAD	FT. WTR.	55	55
MOTOR	HP	5	5
SPEED	RPM	1,574	1,574
TWO POINTS OF OPERATION DEFINING CURVE	GPM/HEAD	145 / 55.0	145 / 55.0
	GPM/HEAD	161 / 68.1	161 / 68.1
MINIMUM EFFICIENCY	%	73.2	73.2
MOTOR TYPE	-	ODP	ODP
BASE TYPE	-	145T	145T
MAXIMUM IMPELLER DIA.	INCHES	8.5	8.5
DESIGN IMPELLER DIA.	INCHES	8.5	8.5
SUCTION DIA.	INCHES	2.5	2.5
DISCHARGE DIA.	INCHES	2	2
ELECTRICAL	VOLT/Ø/60	460/3/60	460/3/60
WEIGHT	LBS.	240	240
BASIS OF DESIGN MANUFACTURER **	-	BELL&GOSSETT	BELL&GOSSETT
MODEL	-	e-1510 2BD	e-1510 2BD
NOTES	-	1-6	1-6
NOTES: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS			
1. PUMP POWERED WITH VARIABLE FREQUENCY DRIVE. PROVIDE VFD DUTY MOTOR. SEE VARIABLE FREQUENCY DRIVE SCHEDULE.			
2. MOTOR SHALL HAVE A 125% SERVICE FACTOR AND SHALL BE NON-OVERLOADING.			
3. PROVIDE PHASE LOSS PROTECTION.			
4. FULL VOLTAGE, NON-REVERSING STARTER PROVIDED BY DIV. 26.			
5. PROVIDE WITH SUCTION DIFFUSER WITH STAINLESS STEEL BASKET.			
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.			

AIR SEPARATOR SCHEDULE		
MARK		AS1
SERVICE	-	CHILLED WATER
INLET SIZE	INCHES	4
OUTLET SIZE	INCHES	4
MAX. WATER PRESS. DROP	FT. H2O	2.0
WEIGHT (EMPTY/FULL)	LBS	120/-
BASIS OF DESIGN MANUFACTURER **	-	WIENMAN
MODEL	-	W4ASL
NOTES	-	1
NOTES: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS		
1. PROVIDE WITHOUT STRAINER.		

EXPANSION TANK SCHEDULE		
MARK		ET1
SERVICE	-	CHILLED WATER
DIMENSIONS	INCHES	52h x 24w
ACCEPTANCE VOLUME (MIN.)	GALLONS	73
TANK VOLUME (MINIMUM)	GALLONS	90
TYPE	-	VERTICAL
WEIGHT (EMPTY/FULL)	LBS	266/977
BASIS OF DESIGN MANUFACTURER **	-	BELL & GOSSETT
MODEL	-	D-180V
NOTES	-	1
NOTE: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS		
1. HEAVY DUTY BUTYL DIAPHRAGM TYPE IN STEEL TANK.		

SHOT FEEDER SCHEDULE		
MARK		CF1
CAPACITY	GALLONS	10
SERVICE	-	CHILLED WATER
WEIGHT	LBS	20
BASIS OF DESIGN MANUFACTURER **	-	CLAYPOOL
MODEL NUMBER	-	-
NOTES	-	1
NOTE: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS		
1. PROVIDE WITH REMOVABLE SOCK.		

BUFFER TANK SCHEDULE		
MARK		BT1
SERVICE	-	CHILLED WATER
DIMENSIONS	INCHES	65h x 48w
CONNECTION SIZE (MIN.)	INCHES	4
TANK VOLUME (MINIMUM)	GALLONS	400
TYPE	-	VERTICAL
WEIGHT (EMPTY/FULL)	LBS	823/4,155
BASIS OF DESIGN MANUFACTURER **	-	TACO
MODEL	-	BTH0400F4-150NN
NOTES	-	1, 2, 3, 4
NOTE: ** REFER TO TSP SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS		
1. THE TANK SHALL INCORPORATE A BAFFLE TO PROMOTE TANK WATER STORAGE TEMPERATURE STRATIFICATION. THE SYSTEM WATER CONNECTIONS SHALL BE FLANGED AND HAVE HIGH CONNECITONS. THE TANK SHALL BE CONSTRUCTED WITH CARBON STEEL IN ACCORDANCE WITH THE MOST RECENT ADDENDUM OF SECTION VIII DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE AND CONSTRUCTED AND STAMPED FOR 150 PSI WORKING PRESSURE @ 450°F. THE TANK SHALL HAVE AN INTERNAL BAFFLE.		
2. PROVIDE WITH 5" INSPECTION OPENING.		
3. PROVIDE WITH 3/4" NTP AUTOMATIC AIR VENT, AND 2" NPT DRAIN PLUG. AND LIFTING LUG RINGS.		
4. FIELD APPLY INSULATION PER TSP WITH REMOVAL SECTION AT INSPECTION OPENING.		



WATERSIDE TEMPERATURE CONTROL SEQUENCES

CHILLERS AND PUMPS:

- A.

SYSTEM CONTROL CONFIGURATION OVERVIEW – CONTROL OF THE SYSTEM COMPONENTS SHALL BE AS FOLLOWS:
1.

ONE CHILLER IS PRIMARY AND THE OTHER IS STANDBY. PRIMARY AND STANDYBY DESIGNATION SHALL ALTERNATE BASED ON RUN HOURS. THE PLANT SHALL ONLY RUN RUN CHILLER AT A TIME.
2.

THE CHILLERS SHALL RECEIVE ENABLE/DISABLE SIGNALS EITHER THROUGH A COMMAND VIA A COMMUNICATION LINK OR VIA A HARDWIRED BINARY INPUT.
3.

A CHILLER BINARY OUTPUT SHALL CONTROL THE OPERATION OF THE CHILLER EVAPORATOR ISOLATION VALVE AND/OR CALL FOR PUMP OPERATION.
4.

THE PUMP(S) SPEED SHALL BE MODULATED TO CONTROL THE CHILLED WATER SYSTEM SUPPLY / RETURN PRESSURE DIFFERENTIAL TO THE REQUIRED SETPOINT.
5.

THE SYSTEM MINIMUM FLOW BY-PASS VALVE SHALL BE A NORMALLY OPEN VALVE.
6.

THE SYSTEM MINIMUM FLOW BY-PASS VALVE SHALL BE MODULATED TO THE FULLY OPEN POSITION WHENEVER THE SYSTEM IS SHUTDOWN TO ENSURE MINIMUM FLOW AND PREVENT THE POSSIBILITY OF WATER HAMMER WHENEVER A PUMP IS STARTED.
7.

THE SYSTEM MINIMUM FLOW BY-PASS VALVE POSITION SHALL BE MODULATED TO ENSURE OPERATING CHILLER'S FLOW DOES NOT DROP BELOW THE MANUFACTURER'S MINIMUM RECOMMENDED FLOW. CONTROL SHALL BE BASED ON FLOW THROUGH THE CHILLER EVAPORATOR BY MEASURING PRESSURE DROP ACROSS THE EVAPORATOR AND CALCULATING EVAPORATOR FLOW FROM MANUFACTURER'S DATA.
8.

FLOW RATE FLUCTUATION THROUGH THE CHILLER SHALL NOT EXCEED 30 PERCENT OF THE DESIGN FLOW RATE PER MINUTE.
9.

THE CHILLER AND CHILLED WATER PUMPS SHALL BE ENABLED WHEN ANY OF THE AIR HANDLERS ARE ENABLED. THE CHILLERS SHALL NOT START UNTIL WATER FLOW HAS BEEN PROVEN THROUGH THE EVAPORATOR BY BOTH THE DIFFERENTIAL PRESSURE SENSOR AND THE FLOW SWITCH AND THE AUXILIARY "PUMP RUN" CONTACT IN THE CHILLER. THE CHILLED WATER WILL BE MAINTAINED AT A CONSTANT 43°F BY THE INTERNAL CONTROLLERS ON THE CHILLERS. SHOULD EITHER THE DDC SYSTEM OR THE CHILLER'S CONTROLLER DETECT LOSS OF EVAPORATOR WATER FLOW, THE CHILLER SHALL BE LATCHED OUT OF OPERATION UNTIL CLEARED AT THE CHILLER'S CONTROL PANEL. LOSS OF POWER AT THE CHILLER SHALL NOT CLEAR ITS CONTROLLER'S OPERATIONAL STATUS OR CONTROL LATCHED-OUT STATES.
- B.

SYSTEM START/STOP – THE CHILLED WATER SYSTEM SHALL START IN RESPONSE TO A NEED FOR CHILLED WATER FROM ANY SYSTEM LOAD, WITH THE OPTION TO USE OUTSIDE AMBIENT TEMPERATURE LOCKOUT.
- C.

SEQUENCING – THE CHILLER PLANT CONTROL SYSTEM WILL START AND STOP THE CHILLED WATER PUMPS AND CHILLERS BASED UPON SYSTEM LOAD.
1.

WHEN THE CHILLED WATER SYSTEM IS ENABLED THE CHILLER PLANT CONTROL SYSTEM SHALL:

a.

SEND AND ENABLE SIGNAL TO THE LEAD CHILLER. UPON RECEIVING THE ENABLE SIGNAL THE CHILLER SHALL ENABLE THE CHILLER EVAPORATOR ISOLATION VALVE.

b.

THE ISOLATION VALVE SHALL BE CONTROLLED TO 100% OPEN. WHEN THE ISOLATION VALVE IS CONFIRMED TO BE 100% OPEN, THE CHILLER PLANT CONTROL SYSTEM SHALL START ASSOCIATED CHILLED WATER PUMP.

c.

THE CHILLED WATER PUMP SHALL BE CONTROLLED TO MAINTAIN THE DESIGN PRESSURE SETPOINT FOR THE SYSTEM.

d.

UPON CONFIRMATION OF CHILLED WATER FLOW, THE CHILLER SHALL CONTINUE ITS PRE-START SEQUENCE AND START ITS COMPRESSOR(S).
2.

THE CHILLER PLANT CONTROL SYSTEM SHALL INITIATE THE START OF THE BACKUP SYSTEM CHILLED WATER PUMP WHEN THE PRESSURE SETPOINT IS NOT MET FOR 5 MINUTES.
3.

UPON SENSING A CHILLER FAILURE THE CHILLER PLANT CONTROL SYSTEM SHALL SHUT DOWN THE FAILED CHILLER IMMEDIATELY AND INITIATE THE START OF THE NEXT CHILLER IN THE ROTATION SEQUENCE.
4.

THE CHILLER PLANT CONTROL SYSTEM SHALL CONTROL INDIVIDUAL CHILLER SETPOINTS TO MAINTAIN THE SYSTEM SUPPLY WATER TEMPERATURE AT SETPOINT.
5.

THE DESIGN SYSTEM CHILLED WATER SETPOINT SHALL BE 43°F AND EDITABLE BY THE OPERATOR.

- D.

CHILLER MINIMUM FLOW BY-PASS VALVE CONTROL
1.

THE CHILLER MINIMUM FLOW BY-PASS LINE AND VALVE SHALL BE SIZED TO ALLOW FOR THE MANUFACTURER'S RECOMMENDED MINIMUM FLOW, WITH ALL LOAD CONTROL VALVES CLOSED, FOR THE CHILLER WITH THE LARGEST MINIMUM FLOW RATE IN THE SYSTEM.
2.

THE CHILLER MINIMUM FLOW BY-PASS VALVE" SHALL BE A NORMALLY OPEN VALVE.
3.

THE "CHILLER MINIMUM FLOW BY-PASS VALVE" SHALL BE MODULATED TO THE FULLY OPEN POSITION WHEN THE SYSTEM IS SHUTDOWN. THIS SHALL BE DONE TO PREVENT WATER HAMMER WHEN A PUMP IS STARTED AND TO ALLOW FOR MINIMUM FLOW IN THE EVENT THE CHILLER CALLS FOR PUMP OPERATION.
4.

FOLLOWING THE CONFIRMED START OF THE LEAD CHILLER AND WHENEVER SYSTEM IS ENABLED, THE CHILLER PLANT CONTROL SYSTEM SHALL MODULATE THE "CHILLER MINIMUM FLOW BY-PASS VALVE" SUCH THAT THE CHILLED WATER FLOW THROUGH ANY OPERATING CHILLER(S) SHALL NOT DROP BELOW THE MANUFACTURER'S RECOMMENDED MINIMUM FLOW.
5.

THE CHILLER MINIMUM FLOW SHALL BE DETERMINED BASED ON THE PRESSURE DROP ACROSS THE CHILLER EVAPORATOR BARREL USING A HIGH ACCURACY PRESSURE DIFFERENTIAL SENSOR. THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE DETERMINED BASED ON THE MANUFACTURER'S CHILLER PRESSURE DROP RATING CURVES.
- E.

SYSTEM SOFT START – THE CHILLER PLANT CONTROL SYSTEM WILL INITIATE A "SOFT START" MODE WHENEVER THE SYSTEM CHILLED WATER TEMPERATURE EXCEEDS THE SPECIFIED CHILLED WATER SYSTEM SETPOINT BY 20°F AT SYSTEM START-UP. THE CHILLER PLANT CONTROL APPLICATION WILL ADD COOLING CAPACITY DURING SOFT START MODE ONLY IF RETURN WATER TEMPERATURE IS NOT DECLINING AT A RATE OF AT LEAST 0.5°F PER MINUTE. THIS PREVENTS THE UNNECESSARY OPERATION OF CHILLERS AND LIMITS SYSTEM ELECTRICAL DEMAND DURING CHILLED WATER LOOP PULL DOWN.
- F.

AUTOMATIC ROTATION OF CHILLERS
1.

CHILLER ROTATION SHALL BE INITIATED BASED ON AN OPERATOR ENTERED DAY INTERVAL OR BY THE CYCLING OF A BINARY POINT. THE METHOD OF SEQUENCE SHALL BE OPERATOR SELECTABLE. CHILLER CYCLING CAUSED BY NORMAL SYSTEM LOAD FLUCTUATIONS SHALL CAUSE THE CHILLERS TO CHANGE ROTATION SEQUENCE OR AT THE OPERATOR'S OPTION CHILLERS MAY BE FORCED INTO THE NEW ROTATION SEQUENCE AT THE TIME OF SEQUENCE CHANGE.
- G.

AIR HANDLER COIL FREEZE PROTECTION
1.

IN THE EVENT THAT THE OUTDOOR AIR TEMPERATURE IS BELOW 34°F (ADJUSTABLE), THEN A SINGLE BUILDING CHILLED WATER PUMP (CHWP1 OR CHWP2) SHALL OPERATE AT 50% FLOW TO PREVENT A COIL FREEZING CONDITION. THE DDC SHALL ALARM THIS OCCURRENCE TO THE MAINTENANCE OPERATOR.
2.

THE OUSIDE AIR DAMPER SHALL CLOSE AND THE RELIEF AIR FAN SHALL BE DE-ENERGIZED WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 38°F.
- H.

ALARMS
1.

ALL ALARMS SHALL BE DISPLAYED AT THE HEAD END COMPUTER AND AN ALARM NOTIFICATION SHALL BE ELECTRONICALLY (EMAIL, INSTANT MESSAGE, PAGER AS DETERMINED BY OWNER) SENT TO THE OWNER'S DESIGNATED PLANT MANAGER.
2.

IF AT ANYTIME, ANY TEMPERATURE SENSOR READS LESS THAN 0°F OR GREATER THAN 120° F INDICATING A POTENTIALLY FAULTY SENSOR, THE DDC SYSTEM SHALL ALARM THIS OCCURRENCE TO THE MAINTENANCE OPERATOR.
3.

IF AT ANYTIME, ANY SENSOR VALUES ARE AT OR EXCEED THE LIMIT VALUES SHOWN IN THE TEMPERATURE POINTS SCHEDULE, THE DDC SYSTEM SHALL ALARM THIS OCCURRENCE TO THE MAINTENANCE OPERATOR.
- I.

PUMP EFFICIENCY CONTROL
1.

THE CONTROLS CONTRACTOR SHALL OBTAIN PUMP CURVES FROM THE CHW PUMP MANUFACTURER, AND FLOW MAPS FOR THE CHILLERS FROM THE MANUFACTURER. WITH THESE FLOW MAPS AND PUMP CURVES, THE CONTROL CONTRACTOR SHALL CREATE A SITE SPECIFIC CHILLED WATER PUMP CONTROL ALGORITHM, WHICH SHALL ENSURE THAT CHILLED WATER FLOW AND/OR HEAD PRESSURES ARE NOT EXCEEDED OR ARE TOO SMALL FOR THE INTENDED OPERATION. SUBMIT A PRINTOUT OF THE SUPERIMPOSED CURVES AND MAPS FOR APPROVAL BY THE ENGINEER AND THE CHILLER MANUFACTURER. PROVIDE AN OPTIMIZATION ROUTINE, BASED ON THE PUMP CURVES/VFD OUTPUT TO DETERMINE AT WHAT POINT THE SECOND CHILLED WATER PUMP WILL BE ENERGIZED AGAIN. AGAIN, STRICT COMPLIANCE WITH THE LIMITATIONS OF THE CHILLER FLOW MAPS AND PUMP CURVES ARE REQUIRED.

- J.

CHILLER STATUS REPORT
1.

PROVIDE AN OPERATING STATUS REPORT FOR EACH CHILLER. THE REPORT(S) SHALL PROVIDE THE PRESENT STATUS FOR THE FOLLOWING INFORMATION TO PROVIDE THE OPERATOR WITH CRITICAL CHILLER OPERATING DATA. AS A MINIMUM, PROVIDE:

a.

COMPRESSOR ON/OFF STATUS

b.

COMPRESSOR STARTS/RUN HOURS

c.

COMPRESSOR PHASE 1/2/3 PERCENT RLA – SEPARATE FOR EACH COMPRESSOR

d.

COMPRESSOR CURRENT DRAW – RLA PERCENT

e.

ACTIVE CHILLER DIAGNOSTICS OR ALARMS

f.

LEAVING CHILLED WATER TEMPERATURE

g.

ENTERING CHILLED WATER TEMPERATURE

h.

CHILLED WATER SETPOINT

i.

REFRIGERANT TEMPERATURE EVAPORATOR/CONDENSER

j.

OPERATING MODE
- K.

UPON LOSS OF POWER AND GENERATOR START-UP – PROVIDE A SEQUENCED START-UP OF ALL MOTORS. ALL MOTORS SHALL NOT START AT THE SAME TIME.

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
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ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

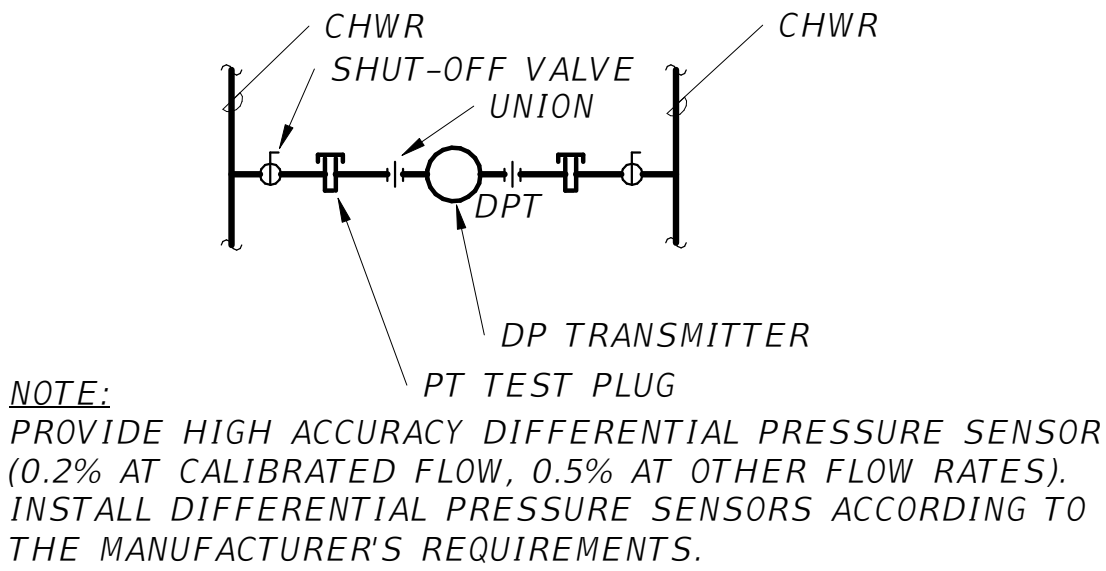
HVAC CONTROLS - CHILLED WATER PLANT SEQUENCES

DWG NO.
AM-701
SHEET NO.

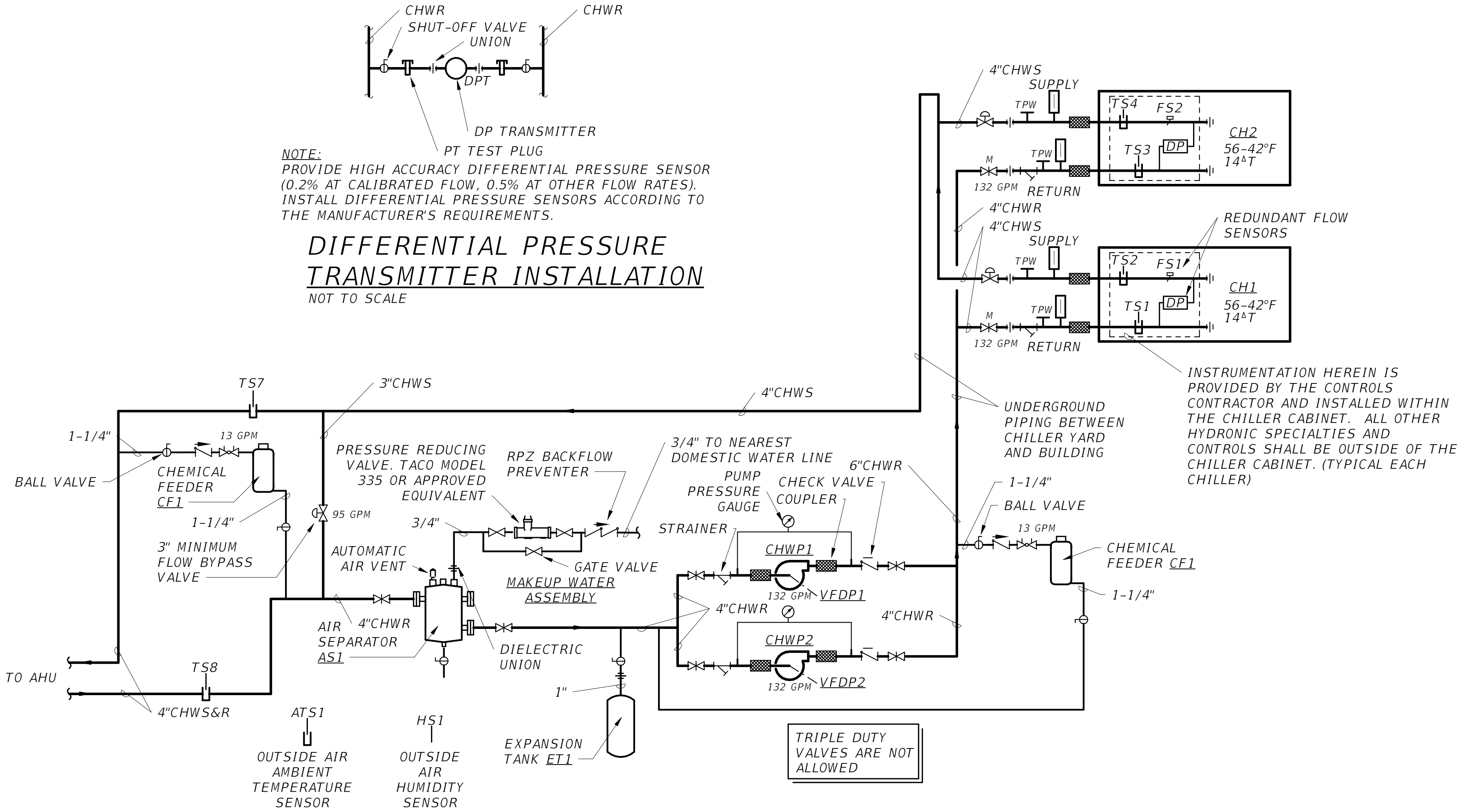


MECHANICAL LEGEND


GENERAL	VALVES
DIRECTION OF FLOW	GATE VALVE
STRAINER	GLOBE VALVE
THERMOMETER	CHECK VALVE
PRESSURE GAGE	BUTTERFLY VALVE (MANUAL)
FLOWMETER (PADDLE TYPE)	TWO POSITION CONTROL VALVE (BUTTERFLY)
FLOW SWITCH	STRAIGHT-THRU MODULATING CONTROL VALVE
FLEXIBLE PIPING CONNECTION	FLOW VENTURI/CIRCUIT BALANCING VALVE
PUMP	BALL VALVE
PRESSURE SENSOR	BUTTERFLY VALVE WITH MEMORY STOP(MANUAL)
DIFFERENTIAL PRESSURE SENSOR	THREE-WAY MODULATING CONTROL VALVE
TEMPERATURE SENSOR	
TEMPERATURE & PRESSURE TEST WELL	



DIFFERENTIAL PRESSURE TRANSMITTER INSTALLATION  
NOT TO SCALE



CHILLED WATER PIPING SCHEMATIC  
NOT TO SCALE

No.	Date	Issue / Revision		STEPHEN R. FORKNER, PE PE 80532  WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574	FLORIDA-ALABAMA TPO			HVAC CONTROLS - CHILLED WATER PLANT SCHEMATIC	DWG NO.		
					ROAD NO.	COUNTY	FINANCIAL PROJECT ID		AM-702		
					NORTH W STREET	ESCAMBIA	451524-1-38-01		SHEET NO.		



AIRSIDE TEMPERATURE CONTROL SEQUENCES

NOTE - ALL SETPOINTS, TIME DELAYS, AND TIME-OF-DAY SCHEDULES LISTED BELOW ARE USER ADJUSTABLE.

VAV AHU WITH HYDRONIC COOLING, ENERGY RECOVERY WHEEL AND EXHAUST FAN:

- A. BUILDING AUTOMATION SYSTEM INTERFACE:

1. THE BUILDING AUTOMATION SYSTEM (BAS) WILL START AND STOP THE AIR HANDLER UNIT BASED ON A TIME-OF-DAY SCHEDULE AS DIRECTED BY THE OWNER. THE BAS WILL ALSO SEND THE DISCHARGE AIR TEMPERATURE SETPOINT, THE DUCT STATIC PRESSURE SETPOINT, THE RETURN AND EXHAUST AIRFLOW SETPOINT, EACH CALCULATED BY OPTIMIZATION ROUTINES IN THE BAS. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER WILL OPERATE USING DEFAULT MODES AND SETPOINTS.

2. WHEN THE AIR HANDLER UNIT IS NOT RUNNING, THE MODULATING TWO WAY CHILLED WATER VALVES WILL BE OPEN. THE BAS WILL ENABLE THE AIR HANDLER SUPPLY AIR FAN. THE OUTSIDE AIR DAMPER WILL OPEN WHEN THE AIR HANDLING IS RUNNING AFTER A 20 MINUTE (ADJ.) TIME DELAY FOR MORNING WARM UP/COOL DOWN CYCLE AND WILL CLOSE WHEN THE AIR HANDLER IS DISABLED.
- B. COOLING MODE:

1. IN THE COOLING MODE, THE CHILLED WATER WILL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT INDICATED IN THE AIR HANDLER SCHEDULE AS SENSED BY THE SUPPLY AIR TEMPERATURE SENSOR. THE MODULATING DAMPERS IN THE OUTSIDE AIR DUCT AND RETURN AIR DUCT WILL MODULATE TO MAINTAIN A CONSTANT FRESH AIR SUPPLY TO THE AIR HANDLER AS INDICATED IN THE AIR HANDLER SCHEDULE.
- C. DISCHARGE AIR TEMPERATURE RESET CONTROL:

1. THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS WILL RESET THE DISCHARGE AIR TEMPERATURE SETPOINT BASED ON THE CURRENT OUTSIDE DRY-BULB TEMPERATURE, BUT WILL OVERRIDE THIS RESET FUNCTION AND RETURN THE DISCHARGE AIR TEMPERATURE SETPOINT TO 55 °F (ADJ.) IF EITHER 1) TWO (ADJ.) OR MORE ZONES BEGIN TO OVERHEAT, OR 2) THE OUTDOOR DEW POINT IS HIGHER THAN 60 °F (ADJ.).

2. IF THE DISCHARGE AIR TEMPERATURE DROPS BELOW THE MINIMUM LIMIT, A LOW TEMPERATURE ALARM WILL BE ANNUNCIATED AND THE AHU WILL SHUT DOWN. IF THE DISCHARGE AIR TEMPERATURE RISES ABOVE THE MAXIMUM LIMIT, A HIGH TEMPERATURE ALARM WILL BE ANNUNCIATED.
- D. DISCHARGE DUCT STATIC PRESSURE CONTROL:

1. THE VARIABLE FREQUENCY DRIVE ON THE SUPPLY AIR FAN WILL MODULATE THE SUPPLY AIR VOLUME TO MAINTAIN A CONSTANT PRESSURE AT THE DUCT STATIC PRESSURE SENSORS (TWO PER SYSTEM). ONE OF DUCT STATIC PRESSURE SENSOR WILL BE LOCATED AT THE DISCHARGE OF THE AIR HANDLER AND THE OTHER WILL BE LOCATED AT 2/3RDS DOWN OF THE LONGEST RUN. THE DUCT STATIC PRESSURE SETPOINT WILL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS WILL RESET THE DUCT STATIC PRESSURE SETPOINT BASED ON THE POSITION OF THE FURTHEST OPEN VAV DAMPER.
- E. SUPPLY AND EXHAUST FAN OPERATION:

1. WHEN THE AIR HANDLER UNIT IS RUNNING, THE SUPPLY FAN WILL OPERATE CONTINUOUSLY AND ITS SPEED WILL BE MODULATED TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT. THE DUCT STATIC PRESSURE SETPOINT WILL BE SENT BY THE BAS AND IS RESET BETWEEN THE MINIMUM AND MAXIMUM STATIC PRESSURE LIMITS TO MAINTAIN THE CRITICAL ZONE VAV AIR DAMPER IN A POSITION BETWEEN 65% AND 75% OPEN.

2. A CURRENT SENSING SWITCH WILL MONITOR THE RUNNING STATUS OF EACH FAN. IF THE FAN FAILS TO PROVE STATUS AFTER 30 SECONDS (ADJ.), THE FAN WILL BE COMMANDED OFF, THE OUTSIDE AIR DAMPER WILL CLOSE, CHILLED WATER VALVE WILL OPEN, EXHAUST FAN WILL BE DISABLED AND AN ALARM WILL BE ANNUNCIATED AT THE BAS. A MANUAL RESET WILL BE REQUIRED TO RESTART THE FANS. A HARDWIRED, HIGH STATIC PRESSURE CUT-OFF SWITCH WILL BE ELECTRICALLY INTERLOCKED WITH THE VARIABLE SPEED DRIVE. IF THE HIGH STATIC PRESSURE CUT-OFF SWITCH IS TRIPPED THE FAN WILL STOP, THE OUTSIDE AIR DAMPER WILL CLOSE, CHILLED WATER VALVE WILL OPEN AND AN ALARM WILL BE ANNUNCIATED AT THE BAS. A MANUAL RESET OF THE HIGH STATIC PRESSURE CUT-OFF SWITCH WILL BE REQUIRED TO RESTART THE FAN.
- F. CRITICAL VAV ZONE RESET / FAN PRESSURIZATION OPTIMIZATION:

1. THE BUILDING AUTOMATION SYSTEM (DDC SYSTEM) SHALL CONTINUOUSLY MONITOR THE DAMPER POSITION OF ALL VAV TERMINAL UNITS IN A VAV AIR SYSTEM. A VAV AIR SYSTEM IS A GROUP OF VAV BOXES WORKING WITH ONE AIR HANDLING UNIT. THE DISCHARGE DUCT STATIC PRESSURE SHALL BE SENSED DIRECTLY AT THE DISCHARGE OF EACH AIR HANDLER. THE SENSOR MUST BE MOUNTED IN A NON-TURBULENT LOCATION.

2. WHEN ANY VAV DAMPER IS MORE THAN 75% (ADJ.) OPEN, THE SUPPLY FAN DISCHARGE DUCT STATIC PRESSURE SETPOINT SHALL BE RESET UPWARD BY 0.1 IN W.C. (ADJ.), AT A FREQUENCY OF 5 MINUTES (ADJ.), UNTIL NO DAMPER IS MORE THAN 75% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET UPWARD TO THE SYSTEM'S EXTERNAL STATIC PRESSURE VALUE (SHOWN IN THE AIR HANDLER SCHEDULE) OR THE AHU VARIABLE-FREQUENCY DRIVE IS AT THE MAXIMUM SPEED SETTING.

3. WHEN ALL VAV DAMPERS ARE LESS THAN 65% (ADJ.) OPEN, THE SUPPLY FAN DISCHARGE DUCT STATIC PRESSURE SETPOINT SHALL BE RESET DOWNWARD BY 0.1 IN W.C.(ADJ.), AT A FREQUENCY OF 5 MINUTES (ADJ.), UNTIL AT LEAST ONE DAMPER IS MORE THAN 65% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET DOWNWARD TO THE SYSTEM MINIMUM DUCT STATIC PRESSURE SETPOINT OR THE AHU VARIABLE-FREQUENCY DRIVE IS AT THE MINIMUM SPEED SETTING (15% OF 60HZ).

4. THE CONTROL BANDS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES AND ADJUSTMENT FREQUENCIES SHALL BE ADJUSTED TO MAINTAIN MAXIMUM STATIC PRESSURE OPTIMIZATION WITH STABLE SYSTEM CONTROL AND MAXIMUM COMFORT CONTROL.

5. THE DDC SYSTEM SHALL HAVE THE CAPABILITY TO ALLOW THE OPERATOR TO EXCLUDE "PROBLEM" ZONES THAT SHOULD NOT BE CONSIDERED WHEN DETERMINING THE OPTIMIZED SETPOINT.

6. THE DDC SYSTEM SHALL ALSO READ THE STATUS OF THE SUPPLY AIR STATIC PRESSURE SENSOR AND DISPLAY THE ACTIVE DUCT STATIC PRESSURE READING ON THE STATUS SCREEN.

7. THE DDC SYSTEM SHALL DISPLAY THE VAV BOX TAG THAT SERVES THE CRITICAL ZONE (THAT IS, THE ZONE WITH THE MOST WIDE-OPEN VAV DAMPER), ALONG WITH SUPPLY FAN DISCHARGE STATIC PRESSURE. THIS INFORMATION SHALL UPDATE DYNAMICALLY AS THE LOCATION OF THE CRITICAL ZONE CHANGES BASED ON BUILDING LOAD, AND DUCT STATIC PRESSURE SETPOINT OPTIMIZATION CONTROL.

- G. DEHUMIDIFICATION MODE:

1. WHEN THE RETURN AIR HUMIDITY EXCEEDS 55% RH AS SENSED BY THE RETURN AIR HUMIDITY SENSOR, CHILLED WATER CONTROL VALVE WILL MODULATE TO MAINTAIN THE LEAVING COIL TEMPERATURE AS INDICATED IN THE AIR HANDLER SCHEDULE. THE SILICON CONTROLLED RECTIFIER (SCR) HEATER AT THE VAV BOXES WILL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT IN THE ZONES. THE CHILLED WATER CONTROL VALVE WILL CLOSE WHEN THE SPACE HUMIDITY IS SATISFIED.

- A. OUTDOOR AIR FLOW CONTROL SEQUENCE:

1. THE OUTDOOR AIR DAMPER MODULATES TO MAINTAIN THE OUTDOOR AIR FLOW SETPOINT DETERMINED BY THE DEMAND CONTROL VENTILATION SEQUENCE. SEE MINIMUM / MAXIMUM VENTILATION RATE TABLE ON THE AIRFLOW SCHEMATIC.
- B. DEMAND CONTROL VENTILATION:

1. EVERY 15 MINUTES (ADJ), THE OUTDOOR AIR FLOW AND RELIEF AIR FLOW SETPOINT RESETS WITHIN THE MINIMUM AND MAXIMUM LIMITS.

2. IF RETURN AIR CO2 PPM IS BELOW 1,100 PPM (ADJ), THE OUTDOOR AIR FLOW AND RELIEF AIR FLOW SETPOINT DECREASES IN INCREMENTS OF 100 CFM (ADJ). OUTDOOR AIR DAMPER SHALL MODULATE AND RELIEF FAN VFD SHALL MODULATE TO MAINTAIN NEW SETPOINT.

3. IF RETURN AIR CO2 PPM IS ABOVE 1,100 PPM (ADJ), THE OUTDOOR AIR FLOW AND RELIEF AIR FLOW SETPOINT INCREASES IN INCREMENTS OF 100 CFM (ADJ). OUTDOOR AIR DAMPER SHALL MODULATE AND RELIEF FAN VFD SHALL MODULATE TO MAINTAIN NEW SETPOINT.

4. ON UNIT STARTUP, THE VENTILATION RATE SHALL BE RESET TO THE BASE VENTILATION RATE. SEE MINIMUM / MAXIMUM VENTILATION RATE TABLE ON THE AIRFLOW SCHEMATIC.
- C. VARIABLE AIR VOLUME TERMINAL BOXES:

1. THE DDC SYSTEM SHALL MONITOR AIR VOLUME THROUGH THE BOX AND SUPPLY AIR TEMPERATURE AFTER THE HEATING COIL. THE VAV BOXES SHALL BE CONTINUOUSLY CONTROLLED AND MONITORED FROM THE EMS.

2. THE VARIABLE AIR VOLUME DAMPER SHALL MODULATE FROM FULLY OPEN AT 76°F (ADJUSTABLE) TO THE MINIMUM POSITION AT 74°F (ADJUSTABLE) IN THE COOLING MODE. THE VARIABLE AIR VOLUME DAMPER SHALL CLOSE TO THE MINIMUM (FOR HEATING) AIR VOLUME AS SCHEDULED. THE SCR AT THE HEATER SHALL MODULATE TO MAINTAIN THE SPACE HEATING TEMPERATURE AT 68°F (ADJUSTABLE).

3. FOR BOXES SERVING A SINGLE SPACE WITH A SINGLE THERMOSTAT: THE VARIABLE AIR VOLUME DAMPER SHALL MODULATE BASED UPON THE READINGS MEASURED AT THE SPACE THERMOSTAT.

4. FOR BOXES SERVING MULTIPLE SPACES WITH MULTIPLE THERMOSTATS:

a. THE DDC SYSTEM SHALL CALCULATE A WEIGHTED ZONE TEMPERATURE OF SPACE TEMPERATURES FOR THE ROOMS THAT ARE OCCUPIED IN THE GIVEN ZONE. WEIGHTING SHALL BE PROPORTIONED BASED ON AIRFLOW WHERE;  
  
((OCCUPIED SPACE TEMP1 X SPACE1 MAXIMUM CFM) + (OCCUPIED SPACE TEMP2 X SPACE2 MAXIMUM CFM) +...) / SUM OF OCCUPIED SPACE MAXIMUM CFMS = WEIGHTED ZONE TEMP.

b. THE BOX SHALL MODULATE THE DAMPER POSITION AND MODULATE THE SCR AT THE HEATER TO MAINTAIN THE WEIGHTED ZONE TEMPERATURE AS INDICATED IN E.2 ABOVE.
- K. OCCUPIED OR UNOCCUPIED SPACE STATUS SHALL BE DETERMINED BY THE STATUS OF THE SPACE OCCUPANCY SENSOR (PROVIDED BY THE ELECTRICAL CONTRACTOR). REFER TO ELECTRICAL DRAWINGS AND COORDINATE WITH THE ELECTRICAL CONTRACTOR.
- L. ENERGY RECOVERY WHEEL:

1. ENERGY RECOVERY MODE: THE RELIEF FAN (RFX) SHALL BE INTERLOCKED TO RUN WHENEVER THE AIR HANDLER (AHX) SUPPLY FAN RUNS AND THE OUTSIDE AIR AND RELIEF AIR DAMPERS HAVE BEEN VERIFIED TO BE OPEN.
- M. FILTER STATUS:

1. A DIFFERENTIAL PRESSURE SWITCH WILL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSES DURING NORMAL OPERATION A DIRTY FILTER ALARM WILL BE ANNUNCIATED AT THE BAS.
- N. UPON LOSS OF POWER AND GENERATOR START-UP:

1. PROVIDE A SEQUENCED START-UP OF ALL MOTORS. ALL MOTORS SHALL NOT START AT THE SAME TIME.

No.	Date	Issue / Revision



STEPHEN R. FORKNER, PE  
PE 80532  
  
WGI, INC.  
3111 W. DR. MARTIN LUTHER KING JR. BLVD.  
SUITE 375  
TAMPA, FL 33607  
ENGINEERING BUSINESS LICENSE NO.: 33574

FLORIDA-ALABAMA TPO

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
NORTH W STREET	ESCAMBIA	451524-1-38-01

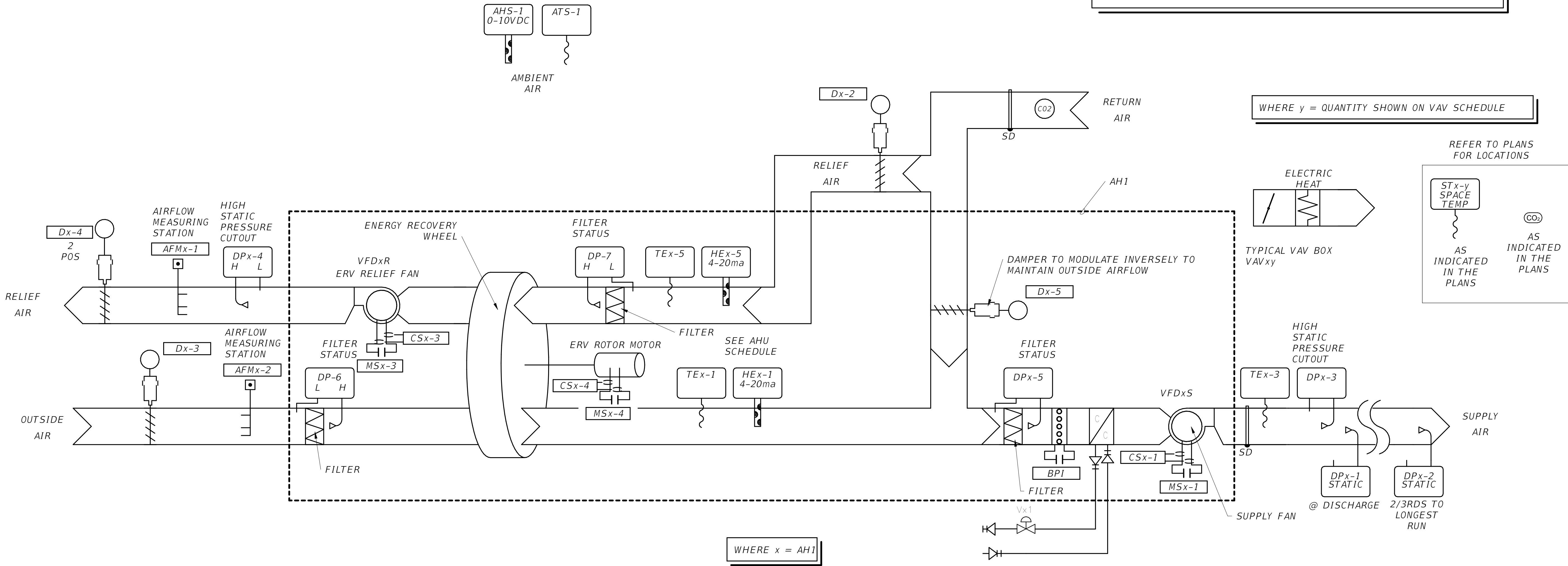
HVAC CONTROLS - AIRSIDE SEQUENCES

DWG NO.
AM-703
SHEET NO.




AIR HANDLING UNIT	DEMAND LOAD VENTILATION MINIMUM / MAXIMUM AIRFLOW		MAXIMUM OUTDOOR AIRFLOW (CFM)	MAXIMUM RELIEF AIRFLOW (CFM)
	MINIMUM OUTDOOR AIRFLOW (CFM)	MINIMUM RELIEF AIRFLOW (CFM)		
AH1	1,300	60	2,980	1,740

- ALL SETPOINTS, TIME DELAYS, AND TIME-OF-DAY SCHEDULES LISTED BELOW SHALL BE USER ADJUSTABLE.
  - WHERE THE SUBSCRIPT (X) IS USED FOR DEVICES (SUCH AS FANS, DAMPERS, SENSORS, ETC.), SUBSTITUTE THE AIR HANDLER NUMBER. FOR EXAMPLE, IF AH1 IS SERVED BY A RELIEF FAN RFX, THEN THE RELIEF FAN NUMBER WOULD BE RF1.



AIRSIDE FLOW SCHEMATIC (AH1)  
NOT TO SCALE

No.	Date	Issue / Revision		STEPHEN R. FORKNER, PE PE 80532  WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574	FLORIDA-ALABAMA TPO			HVAC CONTROLS - AIRSIDE FLOW SCHEMATIC	DWG NO.		
					ROAD NO.	COUNTY	FINANCIAL PROJECT ID		AM-704		
					NORTH W STREET	ESCAMBIA	451524-1-38-01		SHEET NO.		



TEMPERATURE CONTROLS POINT SCHEDULE																																					
SYSTEM		HARDWARE														SOFTWARE																					
		OUTPUT				INPUT				ALARMS		DDC SYSTEM FUNCTIONS																									
		DIGITAL	ANALOG	DIGITAL	ANALOG	DIGITAL	ANALOG																														
POINT DESCRIPTION	CONTROL RELAY	SOLENOID E/P	CONTACTOR (AS REQ'D.)	PNEUMATIC TRANSDUCER	ELECTRICAL TRANSDUCER	0-20 mA MODULE	PRESSURE SWITCH STATUS	FLOW SWITCH	SWITCH CLOSURE	AUXILIARY CONTACT	CURRENT RELAY	RELATIVE HUMIDITY	PRESSURE SENSOR	CO2	GPM	CURRENT SENSOR	EQUIPMENT STATUS	MAINTENANCE	HIGH LIMIT	LOW LIMIT	RUN TIME	SCHEDULED START/STOP	OPTIMUM START/STOP	DUTY CYCLING	DEMAND LIMITING	ECONOMIZER	DEMAND LOAD VENTILATION	TEMPERATURE CONTROL	HOT/COLD DECK RESET	STEAM COIL RESET	HW WATER BOILER OPTIMIZATION	HW OA RESET	CHILLER BOILER OPTIMIZATION	CHILLED WATER RESET	CHILLER WATER RESET	VAV DEMAND LIMIT	NOTES
SINGLE PATH VAV SYSTEM (AHx)																																					
AHx RETURN AIR TEMP (TEx-1)																																					
AHx RETURN HUMIDITY (HEx-1)																																					
AHx CHILLED WATER VALVE (Vx-1)																																					
AHx SUPPLY FAN STATUS (CSx-1)																																					
AHx SUPPLY START/STOP (MSx-1)																																					
AHx SUPPLY FAN VARIABLE FREQUENCY DRIVE (AOx-1)																																					
AHx UNIT LVG AIR TEMP (TEx-3)																																					
AHx RETURN AIR MODULATING DAMPER (Dx-5)																																					
AHx OUTSIDE AIR MODULATING DAMPER (Dx-3)																																					
AHx OUTSIDE AIRFLOW CFM (AFMx-2)																																					
AHx DUCT STATIC PRESSURE (Px-1)																																					
AHx DUCT STATIC PRESSURE (Px-2)																																					
AHx RELIEF AIR DAMPER (Dx-2)																																					
AHx RELIEF AIR AIRFLOW (AFMx-1)																																					
AHx RELIEF AIR TEMP (TEx-5)																																					
AHx RELIEF AIR HUMIDITY (HEx-1)																																					
AHx RELIEF AIR DAMPER (Dx-4)																																					
AHx RELIEF FAN START/STOP (MSx-3)																																					
AHx RELIEF FAN STATUS (CSx-3)																																					
AHx RELIEF FAN VARIABLE FREQUENCY DRIVE (AOx-2)																																					
AHx ERV MOTOR START/STOP (MSx-4)																																					
AHx ERV MOTOR STATUS (CSx-4)																																					
AHx MIXED AIR FILTER STATUS (DPx-5)																																					
AHx RELIEF AIR FILTER STATUS (DPx-6)																																					
AHx OUTDOOR AIR FILTER STATUS (DPx-7)																																					
AHx RELIEF HIGH SP CUTOUT (DPx-4)																																					
AHx SUPPLY HIGH SP CUTOUT (DPx-3)																																					
AHx BIPOLAR IONIZATION UNIT STATUS (BP1)																																					
VAVy VAV ZONE TEMP SENSOR (# POINTS)																																					
VAVy VAV BOX DAMPER (# POINTS)																																					
VAVy VAV BOX HEATER (# POINTS)																																					
EFx START/STOP (MSx-1)																																					
EFx STATUS (CSx-1)																																					
CENTRAL PLANT CONTROLS																																					
CHWP1 (ON/OFF)																																					
CHWP1 STATUS																																					
VFDP1 VARIABLE FREQUENCY DRIVE																																					
CHWP2 (ON/OFF)																																					
CHWP2 STATUS																																					
VFDP2 VARIABLE FREQUENCY DRIVE																																					
PLANT CHWS TEMP SENSOR (TS7)																																					
PLANT CHWR TEMP SENSOR (TS8)																																					
CH1 CHWS TEMP SENSOR (TS1)																																					
CH1 CHWR TEMP SENSOR (TS2)																																					
CHILLER CH1 FLOW SWITCH (FS1)																																					
CHILLER CH1 DIFFERENTIAL PRESSURE SWITCH (DP1)																																					
ALARM FROM CHILLER CH1 CONTROLLER INTERFACE																																					
CHILLER CH1 AUXILIARY "PUMP RUN" CONTACT																																					
CH2 CHWS TEMP SENSOR (TS3)																																					
CH2 CHWR TEMP SENSOR (TS4)																																					
CHILLER CH2 FLOW SWITCH (FS2)																																					
CHILLER CH2 DIFFERENTIAL PRESSURE SWITCH (DP2)																																					
ALARM FROM CHILLER CH2 CONTROLLER INTERFACE																																					
OUTSIDE AMBIENT TEMP (ATS1)																																					
AMBIENT AIR HUMIDITY (AHS1)																																					
NOTES: 1. PROVIDE STARTING RELAY AND CONTACTOR IN CONTROL PANEL RATED FOR MOTOR LOAD. 2. ROUTE CIRCUIT THROUGH THE MOTOR STARTER. 3. REMOTE BULB THERMOSTAT WITH BULB IN RA DUCT. THERMOSTAT LOCATION INDICATED ON PLANS. 4. REFER TO FAN SCHEDULE NOTE 3 TO IDENTIFY APPLICABLE POINTS. 5. PROVIDE OPEN PROTOCOL INTERFACE AND ALL HARDWARE TO ALLOW FULL USER INTERFACE BETWEEN DIGITAL CHILLER CONTROL PANEL AND CAMPUS DDC SYSTEM. 6. DDC SYSTEM TO COMMUNICATE WITH CHILLER'S INTERFACE AND AUXILIARY CONTACT. INTERFACE AND AUXILIARY CONTACT PROVIDED WITH CHILLER. 7. PROVIDE HARD-WIRE BASED HIGH LIMIT STATIC PRESSURE CONTROL TO SHUT DOWN THE FAN IF THE DUCT STATIC PRESSURE EXCEEDS THE RATING OF THE DUCTWORK. PROVIDE HIGH PRESSURE EMERGENCY SENSOR IN THE SUPPLY DUCT THAT WILL DE-ENERGIZE THE AIR HANDLER WHEN EXCESSIVE AIR PRESSURE OCCURS. I.E. ALL VAV BOXES CLOSE AND THE VFD HAS A PROBLEM. PROVIDE A YELLOW JEWELLED LIGHT RESTART SWITCH ADJACENT TO THE VFD. THE RESTART SWITCH SHALL HAVE A SIGN THAT READS, "DUCT HIGH PRESSURE FAULT RESET. LIGHT ON INDICATES FAULT". 8. CHILLER START COMMAND SHALL BE VIA SOFTWARE AND BINARY INPUT. 9. PROVIDE CURRENT TRANSDUCER ON POWER CIRCUIT. SHALL BE USED TO DETERMINE AMPS. 10. REFER TO SCHEMATIC DIAGRAMS FOR AIR SYSTEM DUCT STATIC PRESSURE SENSOR(S) REQUIREMENTS.																																					

FOR EACH AIR HANDLER UNIT WHERE x = 1

FOR EACH VAV BOX

FOR EACH FAN INDICATED IN THE SCHEDULE

EFx

MSx-1

CSx-1

EXHAUST FAN

No.	Date	Issue / Revision	<div><div><div>W</div><div>WGI</div></div></div>	<div>STEPHEN R. FORKNER, PE PE 80532</div> <div>WGI, INC. 3111 W. DR. MARTIN LUTHER KING JR. BLVD. SUITE 375 TAMPA, FL 33607 ENGINEERING BUSINESS LICENSE NO.: 33574</div>	<div>FLORIDA-ALABAMA TPO</div> <table><tr><td>ROAD NO.</td><td>COUNTY</td><td>FINANCIAL PROJECT ID</td></tr><tr><td>NORTH W STREET</td><td>ESCAMBIA</td><td>451524-1-38-01</td></tr></table>	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	NORTH W STREET	ESCAMBIA	451524-1-38-01	<div>HVAC CONTROLS - POINT SCHEDULE</div> <div>DWG NO. AM-705 SHEET NO.</div>
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