DINWIDDIE COUNTY

DINWIDDIE AND MCKENNEY FIRE STATION MECHANICAL HVAC EQUIPMENT REPLACEMENT

13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872
100% DESIGN SUBMITTAL

CONTACTS

CLIENT

DINWIDDIE COUNTY
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DINWIDDIE, VA 23841

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ENGINEERS/ARCHITECTS

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449 McLAWS CIRCLE
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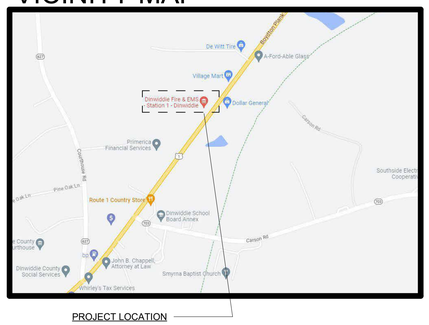
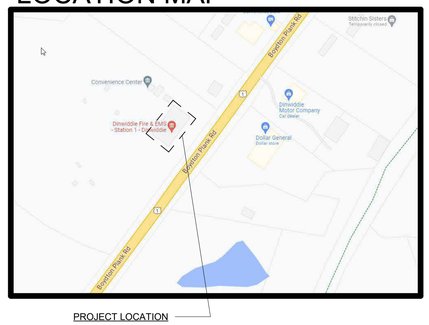
DINWIDDIE - STATION

VICINITY MAP



PROJECT LOCATION
13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

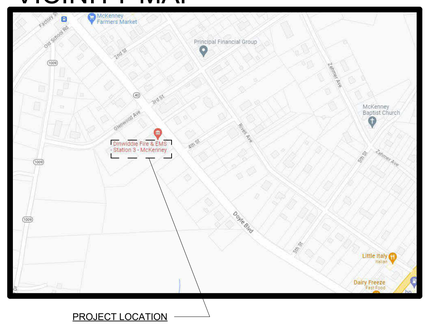
LOCATION MAP



PROJECT LOCATION
13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

MCKENNEY - STATION

VICINITY MAP



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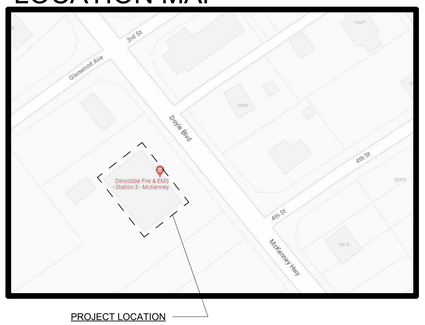
10507 DOYLE BLVD, MCKENNEY, VA 23872

LOCATION MAP



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Design like YOU mean it!

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REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	AS NOTED
DESIGNED:	MAW
DRAWN:	MAL
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

SHEET TITLE
COVER SHEET

SHEET NUMBER
G001

SHEET # 1 OF 20

GENERAL SYMBOL LEGEND

SHEET NUMBER
A-100
SHEET NUMBER
DISCIPLINE CODE

VIEW TITLE
?
?
DRAWING SCALE
DRAWING NUMBER

VIEW TITLE WITH REFERENCES
DRAWING NUMBER
?
?
DRAWING SCALE
SHEET NUMBER
REFERENCE SHEET NUMBER

EXTERIOR ELEVATIONS
POSITION ON SHEET
SHEET NUMBER

INTERIOR ELEVATIONS
A1
B2
A2
B1
POSITION ON SHEET
SHEET NUMBER

MATCH LINES
MATCHLINE
SEE: ?/?
SHEET NUMBER
POSITION ON SHEET

AREA REFERENCE
A
SEE: (?/?)
REFERENCE TO AREA
VIEW REFERENCE TO ADDITIONAL INFORMATION

BUILDING SECTION
POSITION ON SHEET
SHEET NUMBER

WALL SECTION
POSITION ON SHEET
SHEET NUMBER

EXISTING TO REMAIN ITEMS
PROJECTION OR SURFACE LINES
CUT LINES

ITEMS TO BE DEMOLISHED
PROJECTION OR SURFACE LINES
CUT LINES

COLUMN GRID LINES
1
2
A
B
COLUMN GRID LINES (NEW)
COLUMN GRID LINES (EXISTING)

LEVEL DATUM
LEVEL NAME
LEVEL ELEVATION

SPOT ELEVATION
0'-0"
SPOT ELEVATION

ROOM TAG/AREA TAG
ROOM OR AREA NAME
ROOM OR AREA NUMBER

DRAWING REVISIONS
3
REVISION NUMBER

NORTH ARROW
PLAN NORTH
PLAN NORTH
TRUE NORTH

GRAPHIC SCALE
0 4' 8' 16'
SCALE: 1/8"=1'-0"

DETAIL - SECTION
POSITION ON SHEET
SHEET NUMBER

DETAIL - PLAN/RCP
POSITION ON SHEET
SHEET NUMBER

NEW WORK KEYNOTE

DEMOLITION KEYNOTE

NEW TO EXISTING DESIGNATION

NOTE: SYMBOLS AND ABBREVIATIONS ARE SHOWN FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST REQUIRED BY THE CONTRACT

LIFE SAFETY LEGEND

1 HOUR RATED WALL ASSEMBLY

2 HOUR RATED WALL ASSEMBLY

PROJECT SUMMARY

THE FOLLOWING DRAWINGS CONTAIN DESIGN INFORMATION TO RENOVATE BOTH DINWIDDIE AND MCKENNEY FIRE STATIONS HVAC SYSTEMS. BOTH STATION'S HVAC EQUIPMENT WILL BE REPLACED IN THEIR ENTIRETY. EXISTING CEILINGS, CEILING FIXTURES, DIFFUSERS, AND LIGHTING WILL REMAIN. ALL AREAS WHERE THE HVAC SYSTEM WILL BE RENOVATED, THE CEILING GRID SYSTEM WILL BE REMOVED, STORED, AND RE-INSTALLED. CONTRACTORS ARE TO ENSURE THAT ALL CEILINGS ARE REINSTALLED IN THE EXACT LOCATIONS AS TAKEN DOWN.

TOTAL PROJECT AREA: DINWIDDIE = 3,875 SQ. FT.
MCKENNEY = 3,875 SQ. FT.

CONSTRUCTION TYPE: EXISTING NOT BEING ALTERED
OCCUPANCY GROUPS: EXISTING NOT BEING ALTERED
FULLY SUPPRESSED: NO

APPLICABLE BUILDING CODES AND REGULATIONS

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND BUILDING CODES GOVERNING THIS PROJECT. SUCH COMPLIANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE LATEST ADOPTED VERSIONS OF:

2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, PART I, VIRGINIA CONSTRUCTION CODE (VCC)
2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, PART II, EXISTING BUILDINGS (VEBC)
2018 VIRGINIA MECHANICAL CODE
2018 VIRGINIA PLUMBING CODE
2017 NATIONAL ELECTRICAL CODE (NFPA 70)
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ASAD)

WHERE LAWS AND CODES ARE IN DIRECT CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL PREVAIL.

IN ACCORD WITH THE HIGH PERFORMANCE BUILDINGS ACT, THE BUILDING IS EXEMPT FROM COMPLIANCE BECAUSE THE COST OF THE RENOVATIONS DOES NOT EXCEED 50% OF THE VALUE OF THE BUILDING.

IN ACCORD WITH THE VIRGINIA ENERGY CONSERVATION CODE (VECC), THE BUILDING SHALL COMPLY WITH VECC SECTIONS C402 THROUGH C405 AND C408.

GENERAL INFORMATION:

AN ASBESTOS INSPECTION WAS NOT PERFORMED BECAUSE ALL PORTIONS OF THE EXISTING BUILDING THAT MAY BE AFFECTED BY THE WORK WERE ORIGINALLY CONSTRUCTED AFTER JANUARY 1, 1985.

AN INSPECTION TO IDENTIFY LEAD CONTAINING OR COATED BUILDING COMPONENTS HAS NOT BEEN CONDUCTED BECAUSE THE BUILDING WAS CONSTRUCTED AFTER JANUARY 1, 1985 AND THE OWNER HAS NO KNOWLEDGE OF LEAD CONTAINING OR COATED BUILDING COMPONENTS IN THE BUILDING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL VIRGINIA OCCUPATIONAL SAFETY AND HEALTH (VOSH) REGULATIONS AS THEY PERTAIN TO EMPLOYEE EXPOSURES TO LEAD. ALL LEAD AND LEAD-COATED BUILDING COMPONENTS SHALL BE RECYCLED TO THE EXTENT POSSIBLE.

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO STARTING DEMOLITION.
2. DEMOLITION INDICATED ON THE DRAWINGS IS CONCEPTUAL AND NOT INTENDED TO CONVEY FULL EXTENT. DEMOLISH EXISTING CONSTRUCTION WITHIN DEMOLITION LIMITS TO FULL EXTENT, TO FULLY ACCEPT NEW WORK WITH CLEAN, FLUSH, AND NEAT TRANSITIONS. PATCH EXISTING WORK TO PRODUCE FLUSH AND SMOOTH SURFACES SUCH THAT OLD AND NEW CONSTRUCTION IS INDISTINGUISHABLE.
3. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IF, AFTER DEMOLITION, HE FINDS CONDITIONS WHICH MAY BE DAMAGED OR CODE DEVIANT. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO CONSTRUCTION. VARIANCES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER IN WRITING PRIOR TO COMMENCING WORK OR ORDERING MATERIALS FOR THAT AREA.
4. CARE SHALL BE EXERCISED DURING DEMOLITION, REMOVAL AND NEW CONSTRUCTION WORK TO PROTECT EXISTING AREAS NOT IN CONTRACT BUT ADJACENT TO WORK.
5. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO EXAMINE ANY WORK PERFORMED ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AS INTENDED AND INTERPRETED BY THE ARCHITECT/ENGINEER.
6. WHERE DISSIMILAR METALS ARE IN DIRECT PHYSICAL CONTACT, PROVIDE ADEQUATE SEPARATION TO PREVENT GALVANIC ACTION.
7. COORDINATE ALL SCHEDULING ISSUES AND SEQUENCES WITH OCCUPANTS. PROVIDE MINIMUM 48 HOURS NOTICE FOR PROPOSED UTILITY OUTAGES. FACILITY IS ACTIVE, PROVIDING EMERGENCY RESPONSE SERVICES FOR COUNTY. RESPONSE TEAMS WILL BE ON DUTY THROUGHOUT CONSTRUCTION, 24 HOURS PER DAY.
8. CONTRACTOR TO COMPLETE CONSTRUCTION ON ONE FIRE STATION BEFORE BEING PERMITTED TO BEGIN CONSTRUCTION ON SECOND FIRE STATION.

SHEET LIST

Sheet Number	Sheet Name
G001	COVER SHEET
G002	GENERAL INFORMATION
M-001	MECHANICAL LEGEND AND ABBREVIATIONS
M-002	MECHANICAL SPECIFICATIONS
M-003	MECHANICAL SPECIFICATIONS
MD101	MECHANICAL DUCT & EQUIPMENT DEMOLITION PLAN
MD201	MECHANICAL PIPING DEMOLITION PLAN
M-101	MECHANICAL NEW DUCTWORK PLAN
M-201	MECHANICAL NEW PIPING PLAN
M-501	MECHANICAL DETAILS
M-502	MECHANICAL DETAILS
M-601	MECHANICAL SCHEDULES
M-801	MECHANICAL CONTROLS
M-802	MECHANICAL CONTROLS
M-803	MECHANICAL CONTROLS
E-001	ELECTRICAL LEGEND AND NOTES
ED101	ELECTRICAL DEMOLITION
E-101	ELECTRICAL NEW WORK PLAN
E-501	ELECTRICAL PANELBOARD SCHEDULES
E-502	ELECTRICAL PANELBOARD SCHEDULES

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SHEET NUMBER
G002

SHEET # 2 OF 20

MECH ABBREVIATIONS

ABBREV	DESCRIPTION
(A)	ABANDON(ED)
(D)	DEMOLISH
(E)	EXISTING
(N)	NEW
(R)	RETAIN, PROTECT, AND REUSE/RELOCATE
A	AMPS
AC	AIR CONDITIONING
ACT	ACOUSTIC CEILING TILE
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
ALM	ALARM
ALT	ALTERNATE
ALUM	ALUMINUM
AO	ANALOG OUTPUT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AV	ANALOG VALUE
BAS	BUILDING AUTOMATION SYSTEM
BD	BALANCING DAMPER, BOARD
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTU/H	BRITISH THERMAL UNIT PER HOUR
BV	BALANCING VALVE
C	CELCIUS
CA	COMBUSTION AIR
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CD	CONDENSATE DRAIN
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COMP	COMPRESSOR, COMPRESSED
COND	CONDENSER, CONDENSATE
COP	COEFFICIENT OF PERFORMANCE
COV	CHANGE OF VALUE
CU	CONDENSING UNIT
CU FT	CUBIC FEET
DA	DRY COMPRESSED AIR
DB	DRY BULB
DI	DIGITAL INPUT
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DO	DIGITAL OUTPUT
DP	DIFFERENTIAL PRESSURE
DTL	DETAIL
DWG	DRAWING
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
ENCL	ENCLOSURE
EQPT	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EVAP	EVAPORATE, EVAPORATOR
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXP	EXPANSION, EXPOSED
F	FARENHEIGHT
FD	FIRE DAMPER
FF	FINISHED FLOOR, FACTORY FINISH
FLA	FULL LOAD AMPS
FLR	FLOOR
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FREQ	FREQUENCY
FRZ	FREEZESTAT
FT	FEET
G	GAS, NATURAL GAS
GA	GAUGE
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GWH	GAS-FIRED WATER HEATER
HB	HOSE BIB
HC	HEATING COIL
HD	HEAD, HEAVY DUTY, HUB DRAIN
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SWITCH
HPSF	HEATING SEASONAL PERFORMANCE FACTOR
HR	HOUR
HT	HEIGHT
HTG	HEATING
HUM	HUMIDITY
ID	INSIDE DIAMETER
IN	INCH(ES)
ISP	INTERNAL STATIC PRESSURE
IW	INDIRECT WASTE
K	KELVIN
KW	KILOWATT
L	LENGTH, LOUVER
LAT	LEAVING AIR TEMPERATURE
LAT	LATENT HEAT
LB(S)	POUNDS
LP	LIQUIFIED PROPANE
LPS	LOW PRESSURE SWITCH
LRA	LOCK ROTOR AMPS
LT	LIGHT
LVL	LEVEL
LVR	LEVER, LOUVER
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAX	MAXIMUM
MBH	1.000 BRITISH THERMAL UNITS PER HOUR

MECH ABBREVIATIONS

ABBREV	DESCRIPTION
MCA	MINIMUM CIRCUIT AMPACITY
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOP,MOCP	MAXIMUM OVERCURRENT PROTECTION
MSV	MULTI-STATE VALUE
MTL	METAL
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NITROGEN OXIDE
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
OAH	OUTDOOR AIR HUMIDITY
OAT	OUTDOOR AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OBS	OBSOLETE, OBSCURE
OCC	OCCUPANCY/ OCCUPANCY SWITCH
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
OPNG	OPENING
OPP	OPPOSITE
P.A.	PIPE ANCHOR
P.G.	PIPE GUIDE
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORMANCE, PREFORATED
PERI	PERIMETER
PG	PRESSURE GAUGE
PH	PHASE
PHC	PREHEAT COIL
PI	PROPORTIONAL-INTEGRAL
PID	PROPORTIONAL-INTEGRAL-DIFFERENTIAL
PLF	POUNDS PER LINEAR FOOT
PNL	PANEL
PPB	PARTS PER BILLION
PPM	PARTS PER MILLION
PRES	PRESSURE
PRV	PRESSURE REDUCING VALVE, PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, PRESSURE TRANSMITTER
PV	PROCESS VENT, PRESSURE VENT
PVMT	PAVEMENT
QTY	QUANTITY
R	RISER
R	RANKINE
RA	RETURN AIR
RAD	RADIUS
RCP	SUPPLY AIR
RD	ROOF DRAIN
REF	REFERENCE, REFRIGERATOR, REFRIGERANT
REG	REGULAR, REGULATOR
REL	RELIEF
RET	RETURN
REV	REVISION
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY, RIGHT HAND
RLA	RUNNING LOAD AMPS
RM	ROOM
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE (BACKFLOW PREVENTOR)
S/S	START/STOP
SA	SUPPLY AIR
SCHED	SCHEDULE
SD	SMOKE DETECTOR, SUPPLY DIFFUSER
SEC	SECTION
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS	SENSIBLE HEAT
SF	SUPPLY FAN
SHT	SHEET
SIM	SIMILAR
SK	SINK
SP	STATIC PRESSURE
SPD	SPEED
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STG	STAGE
STOR	STORAGE
STR	STRUCTURE, COMBINATION STARTER DISCONNECT
STS	STATUS
SUSP	SUSPENDED
T	TEMPERATURE
T.O.P.	TOP OF PIPE
TA	TRANSFER AIR
TD	TRENCH DRAIN
TEMP	TEMPERATURE
THK	THICKNESS
TOD	TOP OF DUCT
TOS	TOP OF STRUCTURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDERCUT
V	VOLT(AGE)
VAR	VARIES
VAV	VARIABLE AIR VOLUME
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WIDTH, WIDE
W	WATT
W.C.	WATER COLUMN
W/	WITH
W/O	WITHOUT
WB	WET BULB
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
WP	WATERPROOF, WEATHERPROOF
WR	WATER RESISTANT, WEATHER RESISTANT
°	DEGREES
ø	DIAMETER

MECHANICAL HVAC SYMBOL LEGEND

ABBR.	SYMBOL	REMARKS
	SD CFM	HORIZONTALLY MOUNTED SUPPLY AIR DIFFUSER/REGISTER/GRILLE
	RG CFM	HORIZONTALLY MOUNTED RETURN/EXHAUST, AIR REGISTER/GRILLE
	RG CFM	IN WALL MOUNTED LOUVER
	DOWN / UP	
		RECTANGULAR DUCTWORK SUPPLY/OUTSIDE AIR ELBOW
		ROUND DUCTWORK SUPPLY/OUTSIDE AIR ELBOW
		RECTANGULAR DUCTWORK RETURN AIR ELBOW
		ROUND DUCTWORK RETURN AIR ELBOW
		RECTANGULAR DUCTWORK EXHAUST/RELIEF AIR ELBOW
		ROUND DUCTWORK EXHAUST/RELIEF AIR ELBOW
FD		FIRE DAMPER WITH ACCESS DOOR
VD		VOLUME DAMPER
AD	M	AUTOMATIC (MOTORIZED) DAMPER
DSD	SD	DUCT MOUNTED SMOKE DETECTOR
SA	* SA	SUPPLY AIR (* DUCT SIZE)
RA	* RA	RETURN AIR (* DUCT SIZE)
EA	* EA	EXHAUST AIR (* DUCT SIZE)
OA	* OA	OUTSIDE AIR (* DUCT SIZE)
		FLEX DUCT WITH TAP CONNECTION
	24x12	RECTANGULAR DUCT SIZE,FIRST NUMBER INDICATES SIZE FOR SIDE SHOWN
	24"	ROUND DUCT SIZE
	H	HUMIDISTAT OR HUMIDITY SENSOR
	T	THERMOSTAT OR TEMPERATURE SENSOR
	P	PRESSURE SWITCH OR PRESSURE SENSOR
	S_{CO}	CARBON MONOXIDE DETECTOR
	CO_2	CARBON DIOXIDE DETECTOR
		NEW TO EXISTING
		DEMO TO EXISTING
R	R	REFRIGERANT PIPE
A	A	COMPRESSED AIR
CD	CD	CONDENSATE DRAIN
LP	LP	PROPANE

	2-LINE SYMBOL: TOP VIEW	2-LINE SYMBOL: SIDE VIEW	1-LINE SYMBOL	REMARKS
ISV				ISOLATION VALVE (BALL/BUTTERFLY/GATE - SEE SPECIFICATIONS)
BLV				BALL VALVE
BTV				BUTTERFLY VALVE
GTV				GATE VALVE
GLV				GLOBE VALVE
PLV				PLUG VALVE
CHV				CHECK VALVE (ARROW INDICATES DIRECTION OF FLOW)
				ARROW INDICATES DOWNWARD PITCH OF PIPE
				ARROW INDICATES DIRECTION OF FLOW
				PIPE ECCENTRIC REDUCER
				PIPE CONCENTRIC REDUCER
				CAPPED END
				PIPE ELBOW UP
				PIPE ELBOW DOWN
				PIPE TEE UP
				PIPE TEE DOWN
				FLEXIBLE CONNECTOR
			EJ	EXPANSION JOINT
CO			CO	CLEAN-OUT
FCO			FCO	FLOOR CLEAN-OUT

CODES AND STANDARDS

2018 VIRGINIA CONSTRUCTION CODE
2018 VIRGINIA STATEWIDE FIRE PREVENTION CODE
2018 VIRGINIA ENERGY CONSERVATION CODE
2018 VIRGINIA MECHANICAL CODE
2018 VIRGINIA FUEL GAS CODE
2018 VIRGINIA PLUMBING CODE
2018 VIRGINIA EXISTING BUILDING CODE
NFPA 70-2017: NATIONAL ELECTRICAL CODE
NFPA 72-2016: NATIONAL FIRE ALARM AND SIGNALING CODE
NFPA 101-2018: LIFE SAFETY CODE

MECHANICAL GENERAL NOTES

1. ALL WORK TO BE IN ACCORDANCE WITH THE CODES AND STANDARDS INDICATED.
2. CONTRACTOR IS ENCOURAGED TO VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH THE PROJECT AND EXISTING CONDITIONS.
3. DRAWINGS HAVE BEEN GENERATED BASED ON ORIGINAL CONSTRUCTION DOCUMENTS AND WHAT IS VISIBLE ON THE SITE.
4. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DO NOT SHOW ALL TRANSITIONS, OFFSETS, OR FITTINGS. CONTRACTOR SHALL PROVIDE ALL MATERIAL TO PROVIDE FOR A COMPLETE AND FUNCTIONAL SYSTEM.
5. COORDINATE LOCATION OF ALL DUCTWORK, SUPPLY AND RETURN DEVICES, EXHAUST FANS, THERMOSTATS, AND OTHER WALL AND CEILING MOUNTED EQUIPMENT WITH LIGHT FIXTURES AND ACCESSORIES INSTALLED BY OTHER TRADES SO AS TO PRESENT A NEAT AND ATTRACTIVE INSTALLATION THROUGHOUT.
6. ARRANGE PIPING AND DUCTWORK ABOVE CEILING AND IN EXPOSED AREAS AS REQUIRED TO CLEAR STRUCTURE, CONDUIT, LIGHTS, ETC., ALLOWING SPACE FOR HANGERS, SUPPORTS, INSULATION, ETC.
7. ALL ITEMS NECESSARY FOR THE COMPLETION OF THE WORK AND THE SUCCESSFUL OPERATION OF A PRODUCT SHALL BE PROVIDED EVEN THOUGH NOT FULLY SPECIFIED OR INDICATED ON THE DRAWINGS.
8. CONTRACTOR SHALL MOUNT ALL WALL MOUNTED DEVICES AVAILABLE FOR PUBLIC ACCESS AT 48" AFF TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE IN ARCHITECTURAL DRAWINGS. ALL OTHER SENSORS / DEVICES SHALL BE MOUNTED AT 60" AFF UNLESS NOTED OTHERWISE IN ARCHITECTURAL DRAWINGS.
9. INSTALL ALL EQUIPMENT SO THAT CODE REQUIRED AND MANUFACTURER RECOMMENDED CLEARANCES ARE PROVIDED. UNLESS OTHERWISE DIRECTED, EQUIPMENT SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
10. MATERIAL SHALL BE THE BEST OF THEIR RESPECTIVE KINDS. MATERIALS SHALL BE NEW UNLESS EXPLICITLY INDICATED OTHERWISE.
11. ALL WORK IN THIS DIVISION SHALL BE CAREFULLY INTERFACED WITH THE WORK OF OTHER DIVISIONS TO ASSURE A COMPLETE, FUNCTIONING SYSTEM(S).
12. MATERIAL FURNISHED UNDER THIS DIVISION SHALL BE STANDARD CATALOGUED PRODUCTS OF RECOGNIZED MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH MATERIALS AND SHALL BE OF THE LATEST DESIGN.
13. PROVIDE MATERIAL AND LABOR TO PERFORM START-UP OF EACH RESPECTIVE ITEM OF EQUIPMENT AND SYSTEM PRIOR TO THE BEGINNING OF TEST, ADJUST, AND BALANCE PROCEDURES.
14. COMPLY STRICTLY WITH MANUFACTURER'S RECOMMENDED PROCEDURES IN STARTING OF MECHANICAL SYSTEMS.
15. WHERE APPLICABLE, FURNISH MANUFACTURER'S WRITTEN WARRANTY FOR MATERIALS AND EQUIPMENT.
16. DUCT SIZES INDICATED ARE INTERNAL CLEAR DIMENSIONS, NOT INCLUDING INSULATION OR LINER.
17. NON-FIRE RATED SEALANTS SHALL BE CLEAR OR WHITE OR OTHER COLOR SELECTED BY THE ARCHITECT.
18. FIREPROOFING SEALANTS SHALL BE RED.
19. INSTALL HOUSEKEEPING PADS FOR ALL GROUND / FLOOR MOUNTED EQUIPMENT. PAD SIZE SHALL BE 4" THICK AND EXTEND MINIMUM 4" BEYOND ALL SIDES OF EQUIPMENT.
20. TEST AND BALANCE ALL EFFECTED SYSTEMS IN ACCORDANCE WITH ASHRAE 111. ALL BALANCED AIRFLOW AND WATER FLOWS SHALL BE WITHIN +/-5% OF THE INDICATED VALUES.

SPACE DESIGN CONDITIONS

ZONE TYPE	OCC HEATING	OCC COOLING	UNOCC HEATING	UNOCC COOLING	MIN RH	MAX RH
OPEN OFFICE	70°F	68°F	65°F	85°F	-	55%
OFFICE	70°F	68°F	65°F	85°F	-	55%
RECEPTION	70°F	75°F	65°F	85°F	-	55%
RESTROOMS	70°F	75°F	65°F	85°F	-	55%
CONFERENCE ROOMS	70°F	75°F	65°F	85°F	-	55%
BREAK ROOMS	70°F	75°F	65°F	85°F	-	55%
SERVER ROOMS	65°F	75°F	65°F	75°F	30%	55%
ELEC/MECH ROOMS	65°F	80°F	65°F	85°F	-	55%
BUNK ROOM	70°F	68°F	65°F	85°F	-	55%

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DINWIDDIE AND MCKENNEY FIRE STATION MECHANICAL HVAC EQUIPMENT REPLACEMENT

13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	AS NOTED
DESIGNED:	MAW
DRAWN:	DEG
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

SHEET TITLE
MECHANICAL LEGEND AND ABBREVIATIONS

SHEET NUMBER
M-001

SHEET # 3 OF 20

8/16/2023 10:09:50 AM Autodesk Docs://Dinwiddie & McKenney FS HVAC Replacement/2240040 - Dinwiddie-McKenney FS Mechanical Replacement - MEP.rvt

MECHANICAL SPECIFICATIONS:

SECTION 230000: HEATING VENTILATION AND AIR CONDITIONING

1. GENERAL REQUIREMENTS:

   A. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, CONTROLS, ETC.) IS SUBCONTRACTED, IT SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL AND WHO IS ULTIMATELY RESPONSIBLE FOR ALL SUBCONTRACTOR'S WORK.

   B. ALL CONTRACTORS FOR THIS WORK SHALL VERIFY EQUIPMENT LOCATIONS, WEIGHTS, AND CLEARANCES IN THE FIELD TO VERIFY CONDITIONS, INTERFERENCES WITH OTHER TRADES, AND DIMENSIONAL CONSTRAINTS.

   C. SPECIFICATIONS AND DRAWINGS ARE INTENDED TO BE COOPERATIVE. WHAT IS CALLED FOR BY EITHER SHALL BE AS BINDING AS IF CALLED FOR BY BOTH. ANY WORK OR MATERIALS NOT SPECIFICALLY MENTIONED THOUGH REQUIRED TO MAKE THE JOB COMPLETE SHALL BE PROVIDED BY THE CONTRACTOR.

2. SCOPE OF WORK:

   A. PROVIDE ALL LABOR AND MATERIALS, EQUIPMENT, FACILITIES, TRANSPORTATION AND SERVICES NECESSARY TO FURNISH, INSTALL AND COMPLETE THE WORK INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. THE WORKMANSHIP SHALL BE COMPLETE IN EVERY RESPECT, BE TESTED AND APPROVED. WORK SHALL BE SATISFACTORY TO THE ENGINEER AND SHALL BE IN ACCORDANCE WITH LOCAL AND STATE LAWS GOVERNING THIS INSTALLATION, INCLUDING FIRE MARSHAL REQUIREMENTS.

   B. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT AND LOCATION OF THE WORK INCLUDED. WORK INDICATED, BUT HAVING DETAILS OMITTED, SHALL BE PROVIDED, INCLUDING THESE DETAILS, WITHOUT ADDITIONAL COST TO THE CONTRACT.

   C. INTENT: IT IS THE DECLARED AND ACKNOWLEDGED INTENT OF THESE SPECIFICATIONS TO PROVIDE SYSTEMS, INCLUSIVE OF ALL REQUIRED PARTS, CONTROLS, AND ACCESSORIES COMPLETE AND READY FOR USE.

3. WORKMANSHIP AND MATERIALS:

   A. ALL MATERIALS SHALL BE NEW AND OF FIRST QUALITY. ALL LABOR SHALL BE EXECUTED IN A NEAT, WORKMANLIKE MANNER AND SHALL BE PERFORMED BY WORKERS SKILLED IN THEIR RESPECTIVE TRADES. THE ENGINEER SHALL DECIDE ALL MATTERS PERTAINING TO THE QUALITY OF WORKMANSHIP AND MATERIALS.

   B. CERTIFICATES: THE CONTRACTOR SHALL MAINTAIN COPIES OF CERTIFICATES AS REQUIRED FOR WELDING, RIGGING, TESTING, ADJUSTING, AND BALANCING (TAB), AND OTHER SPECIALTY WORKMANSHIP TO VERIFY THE QUALIFICATIONS OF ALL SPECIALTY WORKERS.

   C. ALL EQUIPMENT SHALL BE INSTALLED AND STARTED BY CERTIFIED PERSONNEL. ALL EQUIPMENT MANUFACTURER WARRANTIES SHALL BE MAINTAINED.

   D. OPERATING INSTRUCTIONS: THE CONTRACTOR SHALL SUBMIT OPERATION AND MAINTENANCE (O&M) DATA FOR ALL EQUIPMENT PROVIDED UNDER THIS CONTRACT, ORGANIZE AND PRESENT INFORMATION IN SUFFICIENT DETAIL TO CLEARLY EXPLAIN O&M REQUIREMENTS AT THE SYSTEM, EQUIPMENT, COMPONENT, AND SUBASSEMBLY LEVEL. DOCUMENTS MUST BE FULLY LEGIBLE. POOR QUALITY SCANS, ILLEGIBLE TEXT, AND MATERIAL WITH HOLE PUNCHES OBLITERATING TEXT WILL NOT BE ACCEPTED.

   E. WARRANTY: CONTRACTOR SHALL WARRANT ALL LABOR AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION. ALL REPAIRS AND CORRECTIONS MADE DURING THIS PERIOD SHALL BE MADE WITHOUT COST TO THE OWNER.

4. VERIFICATION OF EXISTING CONDITIONS AND DIMENSIONS:

   A. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL EXISTING TO REMAIN EQUIPMENT AFFECTED BY THE PROJECT, AS WELL AS DIMENSIONS, SIZES, ETC., AND SHALL ASSUME FULL RESPONSIBILITY FOR THE FITTING-IN OF NEW EQUIPMENT AND MATERIALS TO OTHER PARTS OF THE EQUIPMENT AND TO THE NEW AND EXISTING STRUCTURES AND EQUIPMENT.

   B. WHERE APPARATUS AND EQUIPMENT HAS BEEN INDICATED ON THE DRAWINGS, DIMENSIONS HAVE BEEN TAKEN FROM SPECIFIC EQUIPMENT OF THE CLASS INDICATED. THE CONTRACTOR SHALL CAREFULLY CHECK THE DRAWINGS TO SEE THAT THE EQUIPMENT HE CONSIDERS INSTALLING WILL FIT INTO THE SPACE PROVIDED.

5. RUBBISH:

   A. CONTRACTOR SHALL NOT ALLOW WASTE MATERIAL OR RUBBISH CAUSED BY HIS EMPLOYEES TO ACCUMULATE IN OR ABOUT THE PREMISES. AT THE COMPLETION OF THE WORK CONTRACTOR SHALL REMOVE ALL RUBBISH, TOOLS, SCAFFOLDING AND SURPLUS MATERIALS FROM ABOUT THE BUILDING AND SHALL LEAVE THE PROJECT AREA CLEANED AND READY FOR USE. IN CASE OF A DISPUTE AS TO RESPONSIBILITY OF RUBBISH, THE OWNER WILL REMOVE THE RUBBISH AND CHARGE THE COST OF SUCH WORK TO THE CONTRACTOR.

6. PROTECTION:

   A. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL MATERIALS AND EQUIPMENT PROVIDED UNDER THIS CONTRACT FROM DAMAGE DUE TO BUILDING OPERATIONS, WEATHER, VANDALS, ETC. CONTRACTOR WILL BE HELD STRICTLY RESPONSIBLE FOR ANY DAMAGE INCURRED TO MATERIALS, EQUIPMENT, ETC., DUE TO HIS FAILURE TO TAKE NECESSARY PRECAUTIONS OR PROVIDING PROPER PROTECTION.

   B. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING TO REMAIN FINISHES AND THE WORK OF OTHERS. IN THE EVENT OF DAMAGE TO EXISTING TO REMAIN FINISHES OR OTHER WORK CAUSED BY THIS CONTRACTOR, HIS OR HER EMPLOYEES, OR HIS OR HER APPARATUS, HE OR SHE SHALL MAKE REPAIRS AT HIS OR HER OWN EXPENSE WITH THE REPAIRS CONDUCTED BY A CONTRACTOR THAT SPECIALIZES IN THE TRADE OF THE REPAIRS (i.e. DRYWALL, PAINTING, ETC.).

   C. CONTRACTOR SHALL PROVIDE TEMPORARY FILTERS ON EXISTING AIR DUCTS, GRILLES, REGISTERS, AND DIFFUSERS TO PROTECT THEM FROM GATHERING DUST.

   D. CONTRACTOR SHALL PROTECT ALL PASSAGEWAYS USED BY WORKERS TO INHIBIT DAMAGE TO DOORS, WALLS, FLOORS, STAIRS, CEILINGS, FIXTURES, ETC. ANY BUILDING ELEMENTS DAMAGED BY CONSTRUCTION TRAFFIC SHALL BE REPAIRED OR REPLACED. REPAIRS TO DRYWALL, PAINTING, FLOORING, AND OTHER ARCHITECTURAL SYSTEMS SHALL BE REPAIRED BY SKILLED TRADES IN THE DAMAGED ELEMENT FIELD.

   E. AT ALL TIMES THE SITE IS UNSUPERVISED, THE CONTRACTOR MUST LOCK/SECURE ALL EXTERIOR DOORS AND PROVIDE VANDAL RESISTANT TEMPORARY COVERS/BARRIERS FOR ALL TEMPORARY BUILDING OPENINGS UTILIZED FOR PROJECT WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE INTERIOR OF THE FACILITY DUE TO FAILURE TO SECURE THE BUILDING OPENINGS AND MECHANICAL ROOM DOORS.

7. ACCESS DOORS:

   A. ACCESS DOORS SHALL BE A MINIMUM OF 24"X24" OR LARGEST SIZE PRACTICAL FOR DUCT AND INSTALLED FOR ALL EQUIPMENT, VALVES, DAMPERS, OR OTHER WORKING PARTS REQUIRING MAINTENANCE OR ADJUSTMENT. FURNISH ALL SUCH ACCESS DOORS AND ADVISE OF THE LOCATION OF ALL ACCESS DOORS REQUIRED THROUGHOUT THE CONSTRUCTION. ACCESS DOORS SHALL BE FINISHED TO MATCH ADJACENT SURFACES.

8. DEFECTIVE WORK AND MATERIALS:

   A. ALL MATERIALS OR WORK FOUND TO BE DEFECTIVE, OR NOT IN STRICT CONFORMANCE WITH THE DRAWINGS, OR DIFFERENT FROM THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, OR DEFACED OR INJURED THROUGH NEGLIGENCE OF THIS CONTRACTOR OR HIS EMPLOYEES, OR THROUGH THE ACTION OF FIRE OR WEATHER OR ANY OTHER CAUSE, WILL BE REJECTED AND SHALL BE IMMEDIATELY REMOVED FROM THE PREMISES BY THIS CONTRACTOR AND SATISFACTORY MATERIAL AND WORK SUBSTITUTED THEREOF WITHOUT DELAY.

   B. ANY DEFECTIVE WORK OR POOR QUALITY WORK WHICH MAY BE DISCOVERED SHALL BE CORRECTED IMMEDIATELY UPON NOTICE FROM THE OWNER OR ENGINEER. OWNER SHALL DETERMINE WHAT IS CONSIDERED POOR QUALITY.

   C. NO PREVIOUS INSPECTION OR CERTIFICATIONS ON ACCOUNT SHALL BE HELD TO RELIEVE THIS CONTRACTOR FROM THE OBLIGATION TO FURNISH SOUND MATERIALS AND TO PERFORM GOOD AND SATISFACTORY WORK FOR THIS PROJECT.

9. BUILDING STANDARDS:

   A. MAINTAIN AESTHETIC STANDARDS FOR VISIBLE PIPING, DUCTWORK, DIFFUSERS, GRILLES, REGISTERS, TEMPERATURE CONTROLS, LABELING, AND OTHER EQUIPMENT TO MATCH ARCHITECTURAL DESIGN INTENT.

SECTION 230593: TESTING AND BALANCING FOR HVAC

1. GENERAL

   A. QUALIFIED SERVICE TECHNICIAN WILL PERFORM FACTORY START-UP ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND SUBMIT SIGNED START-UP REPORTS TO THE ENGINEER.

   B. NEGOTIATE A CONTRACT WITH A QUALIFIED AND CERTIFIED AGENCY TO COMPLETELY BALANCE ALL SYSTEMS IN ACCORDANCE WITH ASHRAE 111, AS SPECIFIED IN THIS SECTION AND AS REQUIRED BY CODE. AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). ALL SYSTEMS SHALL BE BALANCED TO +/- 10% OF STATED DESIGN VALUES.

   C. SUBMIT A PROJECT CERTIFICATION GUARANTEE AND CERTIFIED BALANCE REPORT TO THE ENGINEER BEFORE PROJECT FINAL ACCEPTANCE.

   D. THE BALANCING CONTRACTOR SHALL REPORT ANY DEFICIENCIES TO THE ENGINEER AND MECHANICAL CONTRACTOR. THE BALANCING CONTRACTOR SHALL ALSO RECOMMEND POSSIBLE ACTIONS TO REMEDY THE DEFICIENCIES.

   E. CONTRACTOR SHALL CHANGE FAN SHEAVES, DRIVES, ETC. TO REMEDY DEFICIENCIES AT NO EXTRA COST TO THE CONTRACT.

2. CLEANING AND ADJUSTING:

   A. AFTER COMPLETION OF ALL REQUIRED WORK, THE CONTRACTOR SHALL OPERATE AND MAKE ANY REQUIRED ADJUSTMENT TO EQUIPMENT, DUCTWORK, ETC., AS MAY BE NECESSARY TO PUT THE SYSTEMS IN PROPER OPERATING CONDITION.

   B. UPON COMPLETION OF WORK AND TESTING, REMOVE ALL TEMPORARY LABELS, TAGS, ETC., FROM ANY SPECIALTIES, EQUIPMENT, ETC., AND REMOVE ALL GREASE, PLASTIC, OR OTHER PROTECTIVE COATING FROM ALL MACHINERY, EQUIPMENT, ETC. CONTRACTOR SHALL LEAVE THE MECHANICAL SYSTEM AND PROJECT SITE IN A MANNER ACCEPTABLE TO THE OWNER.

SECTION 230553: IDENTIFICATION

1. GENERAL

   A. PROVIDE IDENTIFICATION FOR EQUIPMENT, PIPING, AND DUCT SYSTEMS. COMPLY WITH ANSI A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS AND VIEWING ANGLES OF IDENTIFICATION DEVICES.

2. EQUIPMENT

   A. FOR EACH PIECE OF MECHANICAL EQUIPMENT, PROVIDE NAMEPLATES INDICATING MARK, CAPACITY, AIRFLOW RATE, EXTERNAL STATIC PRESSURE, HORSEPOWER, VOLTAGE, PHASE, FULL LOAD AMPS, MANUFACTURER, MODEL NUMBER, SERIAL NUMBER AND OTHER SERVICE INFORMATION. NAMEPLATES NOT PROVIDED BY EQUIPMENT MANUFACTURER SHALL BE "SETON VENTMARK" OR EQUAL.

SECTION 233113: DUCTS

1. GENERAL

   A. ACTION SUBMITTALS:PRODUCT DATA FOR EACH TYPE OF PRODUCT.

2. PRODUCTS

   A. ALL DUCTWORK TO BE G90 GALVANIZED STEEL. PROVIDE DUCTWORK IN ACCORDANCE WITH THE DUCT CONSTRUCTION SCHEDULE AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS (2005).

   B. DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. INCREASE DUCT SIZE WHEN LINING OR DOUBLE WALL CONSTRUCTION IS USED.

   C. ALL JOINTS, LONGITUDINAL & TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES) AND MASTIC PLUS EMBEDDED FABRIC SYSTEMS. MASTICS AND MASTIC/TAPE DUCT SEALANTS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCT. ALL FLEXIBLE DUCT CONNECTORS TO BE METALLIC DRAW BANDS.

   D. FLEXIBLE DUCT CONNECTORS SHALL MEET OR EXCEED THE REQUIREMENTS OF NFPA 90A AND BE CONSTRUCTED OF A UL CLASSIFIED COATED FABRIC PREASSEMBLED WITH GALVANIZED STEEL FLANGES.

SECTION 232113: PIPING

1. GENERAL

   A. ACTION SUBMITTALS: PRODUCT DATA FOR EACH TYPE OF PRODUCT.

2. PRODUCTS

   A. REFRIGERANT PIPING SHALL BE ACR COPPER TYPE 'L' (ASTM B280) BRAZED IN ACCORDANCE WITH ASME B16.5 AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR R-410A BASED SYSTEMS.

   B. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE-40 PVC (ASTM D1785) WITH SOLVENT-WELDED PVC JOINTS.

   C. ALL VALVES, STRAINERS, AND ACCESSORIES SHALL BE OF SIMILAR MATERIAL AS THE PIPING MATERIAL THEY ARE INSTALLED IN. PROVIDE FERROUS BODY VALVES FOR STEEL PIPING AND BRONZE OR BRASS FOR COPPER PIPING.

   D. INSTALL PIPING FREE OF SAGS, BENDS, AND KINKS.

   E. REAM ALL PIPING AND CLEAN OUT BEFORE ASSEMBLY.

   F. PROVIDE DIELECTRIC FITTINGS, UNIONS, ETC. FOR ALL CONNECTIONS OF DISSIMILAR METALS. ALL DIELECTRIC FITTINGS SHALL BE SUITABLE FOR THE SYSTEM FLUID CHEMISTRY AND PRESSURE.

   G. PROVIDE 3-ELBOW "Z" SHAPE CONNECTION FOR BRANCH PIPING TO PROVIDE FLEXIBILITY FOR PIPE EXPANSION.

   H. PROVIDE MANUAL AIR VENTS AT HIGH POINTS AND DRAINS AT LOW POINTS IN NEW PIPING SYSTEMS.

SECTION 230529: HANGERS AND SUPPORTS:

1. GENERAL:

   A. INSTALL HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS TO SUPPORT PIPING & DUCTWORK PROPERLY FROM BUILDING STRUCTURE; COMPLY WITH VPC-2018, VMC-2018, AND MSS SP-69. ARRANGE FOR GROUPING OF PARALLEL HORIZONTAL RUNS TO BE SUPPORTED TOGETHER ON TRAPEZE TYPE HANGERS WHERE POSSIBLE. INSTALL SUPPORTS WITH MAXIMUM SPACING AS NOTED IN VPC-2018, VMC-2018 AND/OR COMPLYING WITH MSS SP-69 WHICHEVER HAS THE SHORTEST MAXIMUM SPACING DISTANCE.

   B. WHERE VARIOUS SIZES ARE TO BE SUPPORTED TOGETHER BY TRAPEZE HANGERS, SPACE HANGERS FOR SMALLEST PIPE SIZE OR INSTALL INTERMEDIATE SUPPORTS FOR SMALLER ELEMENTS. DO NOT USE WIRE OR PERFORATED METAL TO SUPPORT PIPING AND DO NOT SUPPORT PIPING FROM OTHER PIPING.

   C. INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY INSERTS, BOLTS, RODS, NUTS, WASHERS, AND OTHER ACCESSORIES.

   D. PROVISIONS FOR MOVEMENT: INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED MOVEMENT OF PIPING AND DUCT SYSTEMS TO PERMIT FREEDOM OF MOVEMENT AND TO FACILITATE ACTION OF EXPANSION JOINTS, EXPANSION LOOPS, EXPANSION BENDS AND SIMILAR UNITS. ALL EQUIPMENT WITH VIBRATING EQUIPMENT SUCH AS MOTORS, FANS, PUMPS, ETC. SHALL BE PROVIDED WITH MINIMUM 1" NOMINAL DEFLECTION SPRING ISOLATION HANGERS WITH ELASTOMERIC INSERTS. ALL DUCT AND PIPING CONNECTIONS SHALL BE PROVIDED FLEXIBLE CONNECTORS. NO DUCT AND PIPING LOADS SHALL BE TRANSMITTED TO THE EQUIPMENT.

   E. LOAD DISTRIBUTION: INSTALL HANGERS AND SUPPORTS SO THAT PIPING LIVE AND DEAD LOADING AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.

   F. PIPE SLOPES: INSTALL HANGERS AND SUPPORTS TO PROVIDE INDICATED PIPE SLOPES AND SO THAT MAXIMUM PIPE DEFLECTIONS ALLOWED BY ANSI B31 PRESSURE PIPING CODES ARE NOT EXCEEDED.

SECTION 230713: MECHANICAL INSULATION:

1. GENERAL

   A. INDOOR SUPPLY, RETURN, AND OUTDOOR AIR INTAKE DUCT SHALL BE PROVIDED WITH INSULATION AS SCHEDULED ON SHEET M-601.

   B. PROVIDE REMOVABLE INSULATING COVERS FOR ALL EXPOSED METAL VALVE HANDLES, STRAINER BLOW-DOWNS, AND OTHER LOCATIONS REQUIRING MAINTENANCE ACCESS.

   C. PROVIDE FACTORY FABRICATED ONE-PIECE PVC INSULATION COVERS AND INSERTS OF THE SAME THICKNESS AS PIPING INSULATION FOR FITTINGS, VALVES, AND UNIONS.

2. INSTALLATION

   A. CLEAN EXTERIOR OF MECHANICAL SYSTEMS PRIOR TO THE APPLICATION OF FIELD-APPLIED INSULATION. INSTALL FIELD-APPLIED INSULATION IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS SPECIFIED HEREIN. THE COMPLETED INSTALLATION SHALL HAVE A FIRE HAZARD RATING IN ACCORDANCE WITH ASTM E 84; FLAME-SPREAD RATING SHALL NOT EXCEED 25 AND SMOKE DEVELOPED RATING SHALL NOT EXCEED 50.

   B. INSULATION SHALL BE CLEAN AND DRY WHEN INSTALLED AND PRIOR TO THE APPLICATION OF JACKETS AND COATINGS. DO NOT USE SHORT PIECES OF INSULATION MATERIALS WHERE A FULL LENGTH SECTION WILL FIT. PROVIDE INSULATION MATERIALS AND JACKETS WITH SMOOTH AND EVEN SURFACES, WITH JACKETS DRAWN TIGHT, AND SMOOTHLY SECURED ON LONGITUDINAL LAPS AND END LAPS. INSULATE FITTINGS AND PIPING ACCESSORIES WITH PREMOLDED, PRECUT, OR FIELD FABRICATED INSULATION OF THE SAME MATERIAL AND THICKNESS AS THE ADJOINING PIPE INSULATION.

   C. PROVIDE A COMPLETE MOISTURE AND VAPOR SEAL WHEREVER INSULATION TERMINATES AGAINST HANGERS, ANCHORS, AND OTHER PROJECTIONS THROUGH INSULATION ON COLD SURFACES; FILL JOINTS, BREAKS, PUNCTURES, AND VOIDS WITH VAPOR BARRIER COMPOUND AND COVER WITH VAPOR SEALED MATERIAL. DO NOT CONCEAL EQUIPMENT NAMEPLATES. COVER ENDS OF EXPOSED INSULATION WITH WATERPROOF MASTIC.

SECTION 230933: CONTROLS

1. GENERAL

   A. CONTRACTOR SHALL COORDINATE POWER REQUIREMENTS BETWEEN THE CONTROLS CONTRACTOR AND THE ELECTRICAL CONTRACTOR. ALL POWER, WIRING, CONDUIT, TRANSFORMER, SWITCH, AND OTHER ELECTRICAL APPURTENANCES REQUIRED FOR EQUIPMENT OPERATION SHALL BE INCLUDED WITH THIS CONTRACT. ALL CONTROL WIRING WILL BE INSTALLED PER THE NEC. ALL WALL MOUNTED DEVICES WILL BE INSTALLED AT 48"AFF, UNLESS OTHERWISE NOTED.

2. PRODUCTS

   A. CONTROL DEVICES

      a. PROGRAMMABLE THERMOSTATS: 7-DAY PROGRAMMABLE TYPE.

   B. PNEUMATIC CONTROLS AND COMPONENTS ARE NOT ACCEPTABLE.

   C. WIRING: ALL CONTROL WIRING ABOVE 24V WILL BE A MINIMUM OF 12 GAUGE, AND 600V INSULATION. ALL CONTROL WIRING 24V AND BELOW WILL BE A MINIMUM OF 18 GAUGE, CLASS 2, AND 300V INSULATION. COMMUNICATION BUS WIRING SHALL BE MINIMUM 22 GAUGE AND RATED IN COMPLIANCE WITH COMMUNICATION PROTOCOL. CABLES CONTAINING CONTROL SIGNAL WIRING ARE TO BE SHIELDED.

   D. ALL CONTROL SIGNAL WIRING TO BE CONTINUOUS. WIRE NUTS AND OTHER FORMS OF SPLICING CONTROL SIGNAL WIRING IS NOT PERMITTED.

   E. ALL CONTROL WIRING PENETRATING RATED ASSEMBLIES SHALL BE IN ACCORDANCE WITH PENETRATION DETAILS TO MAINTAIN THE ASSEMBLY RATING.

   F. CONDUIT CONTAINING CONTROL WIRING SHALL NOT INTERFERE WITH AIR HANDLING UNIT ACCESS DOOR OPERATION OR REMOVABLE PANEL REMOVAL.

   G. DEVICE ENCLOSURE RATINGS SHALL BE MET UNLESS THE CONTROL DEVICE IS MOUNTED WITHIN A CONTROL ENCLOSURE. ENCLOSURES CONTAINING DEVICES WITH DIAL GAUGES, LCD, OR OTHER LOCAL DISPLAYS SHALL PERMIT VIEWING OF THESE DISPLAYS WITHOUT OPENING THE ENCLOSURE. INDOOR ENCLOSURES SHALL BE NEMA 1 RATED. OUTDOOR ENCLOSURES SHALL BE NEMA 3R RATED.

   H. IDENTIFICATION: COMPLY WITH LABELING REQUIREMENTS INDICATED ON ELECTRICAL DRAWINGS.

SECTIONS 231126: FACILITY LIQUEFIED-PETROLEUM GAS PIPING

1. LP GAS PIPING SHALL BE ASTM A53 SCHEDULE 40 BLACK STEEL WITH ASME B16.3 MALLEABLE IRON THREADED FITTINGS. EXPOSED INTERIOR GAS PIPING SHALL BE PAINTED YELLOW WITH LATEX OVER ALKYD PRIMER SYSTEM (MPI INT 5.1Q). EXPOSED EXTERIOR GAS PIPING SHALL BE PAINTED GRAY WITH AN EXTERIOR ALYKD SYSTEM (MPI EXT 5.1D).

2. SERVICE PRESSURE REGULATOR SHALL COMPLY WITH ANSI Z21.80. APPLIANCE PRESSURE REGULATOR SHALL COMPLY WITH ANSI Z21.18. COORDINATE SERVICE METER ASSEMBLY LOCATION WITH UTILITY PROVIDER. PROVIDE ANODELESS SERVICE-LINE RISER WITH TRACER WIRE CONNECTION. PROVIDE SHUTOFF VALVE UPSTREAM FROM SERVICE REGULATOR. PROVIDE SERVICE REGULATOR MOUNTED OUTSIDE WITH VENT OUTLET HORIZONTAL OR FACING DOWN. PROVIDE SHUTOFF VALVE UPSTREAM FROM SERVICE METER. PROVIDE MANUAL GAS VALVE, UNION AND SEDIMENT TRAP FOR EACH GAS FIRED APPLIANCE.

3. UPON COMPLETION OF INSTALLATION OF GAS PIPING, PURGE ALL GAS PIPING IN ACCORDANCE WITH THE PROCEDURES LISTED IN THE 2018 VIRGINIA FUEL GAS CODE SECTION 406.

SECTIONS 233416: HVAC FANS

1. GENERAL

   A. ACTION SUBMITTALS: PRODUCT DATA FOR EACH TYPE OF PRODUCT AND ACCESSORY.

   B. CLOSEOUT SUBMITTALS: OPERATION AND MAINTENANCE DATA: FOR CENTRIFUGAL FANS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

2. INSTALLATION

   A. INSTALL FANS LEVEL AND PLUMB.

   B. DISASSEMBLE AND REASSEMBLE UNITS, AS REQUIRED FOR MOVING TO THE FINAL LOCATION, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

   C. LIFT AND SUPPORT UNITS WITH MANUFACTURER'S DESIGNATED LIFTING OR SUPPORTING POINTS.

   D. SUSPENDED VIBRATION ISOLATION: PROVIDE 2 " NOMINAL DEFLECTION COMBINATION SPRING AND ELASTOMERIC-INSERT VIBRATION ISOLATION HANGER SUPPORT AT EACH MANUFACTURER DESIGNATED SUPPORTING POINT. SELECT ISOLATOR BASED ON POINT LOAD AT EACH SUPPORTING POINT.

   E. INSTALL UNITS WITH CLEARANCES FOR SERVICE AND MAINTENANCE.

   F. CONNECTIONS: MAKE FINAL DUCT CONNECTIONS WITH FLEXIBLE CONNECTORS. INSTALL DUCTS ADJACENT TO FANS TO ALLOW SERVICE AND MAINTENANCE.

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PROFESSIONAL ENGINEER

SHEET TITLE
MECHANICAL SPECIFICATIONS

SHEET NUMBER
M-002

SHEET # 4 OF 20

MECHANICAL SPECIFICATIONS:

SECTION 233713: GRILLES, REGISTERS, AND DIFFUSERS

1. GENERAL
   A. ACTION SUBMITTALS: PRODUCT DATA, FOR EACH TYPE OF PRODUCT.
2. PRODUCTS: SEE AIR DEVICE SCHEDULE.
3. INSTALLATION
   A. INSTALL DEVICES LEVEL AND PLUMB.
   B. CEILING-MOUNTED OUTLETS AND INLETS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET AND INLET LOCATIONS HAVE BEEN INDICATED TO ACHIEVE DESIGN REQUIREMENTS FOR AIR VOLUME, NOISE CRITERIA, AIRFLOW PATTERN, THROW, AND PRESSURE DROP. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ARCHITECT FOR A DETERMINATION OF FINAL LOCATION.
   C. INSTALL DEVICES WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS.
   D. ADJUSTING: AFTER INSTALLATION, ADJUST DIFFUSERS TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

SECTION 237433: DEDICATED OUTDOOR-AIR UNITS

1. GENERAL
   A. SECTION INCLUDES FACTORY-ASSEMBLED, DEDICATED OUTDOOR AIR-HANDLING UNITS, INCLUDING MULTIPLE COMPONENTS, CAPABLE OF HEATING AND COOLING 100 PERCENT OUTDOOR AIR.
2. ACTION SUBMITTALS
   A. PRODUCT DATA: FOR EACH DEDICATED OUTDOOR-AIR UNIT.
      1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES.
      2. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES.
      3. INCLUDE UNIT DIMENSIONS AND WEIGHT.
      4. INCLUDE CABINET MATERIAL, METAL THICKNESS, FINISHES, INSULATION, AND ACCESSORIES.
      5. FANS:
         A. CERTIFIED FAN-PERFORMANCE CURVES WITH SYSTEM OPERATING CONDITIONS INDICATED.
         B. CERTIFIED FAN-SOUND POWER RATINGS.
         C. FAN CONSTRUCTION AND ACCESSORIES.
         D. MOTOR RATINGS, ELECTRICAL CHARACTERISTICS, AND MOTOR ACCESSORIES.
      6. INCLUDE CERTIFIED COIL-PERFORMANCE RATINGS WITH SYSTEM OPERATING CONDITIONS INDICATED.
      7. INCLUDE FILTERS WITH PERFORMANCE CHARACTERISTICS.
      8. INCLUDE HEAT EXCHANGERS WITH PERFORMANCE CHARACTERISTICS.
      9. INCLUDE DAMPERS, INCLUDING HOUSINGS, LINKAGES, AND OPERATORS.
3. CLOSEOUT SUBMITTALS
   A. OPERATION AND MAINTENANCE DATA: FOR DEDICATED OUTDOOR-AIR UNITS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.
4. WARRANTY
   A. WARRANTY: MANUFACTURER AGREES TO REPLACE COMPONENTS OF DEDICATED OUTDOOR-AIR UNITS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
5. PERFORMANCE REQUIREMENTS
   A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY AN "NRTL" (NATIONALLY RECOGNIZED TESTING LABORATORY), AND MARKED FOR INTENDED LOCATION AND APPLICATION.
   B. NFPA COMPLIANCE: COMPLY WITH NFPA 90A FOR DESIGN, FABRICATION, AND INSTALLATION OF UNITS AND COMPONENTS.
   C. ASHRAE 62.1 COMPLIANCE: APPLICABLE REQUIREMENTS IN ASHRAE 62.1, SECTION 5 - "SYSTEMS AND EQUIPMENT" AND SECTION 7 - "CONSTRUCTION AND STARTUP."
   D. ASHRAE 15 AND ASHRAE 34 COMPLIANCE: FOR REFRIGERATION SYSTEM SAFETY.
   E. ASHRAE/IES 90.1 COMPLIANCE: APPLICABLE REQUIREMENTS IN ASHRAE/IES 90.1, SECTION 6 - "HEATING, VENTILATING, AND AIR-CONDITIONING."
   F. ASHRAE 84 COMPLIANCE: COMPLY WITH CAPACITY RATINGS FOR FIXED PLATE ENERGY-RECOVERY EQUIPMENT.

SECTION 238126: SPLIT-SYSTEM AIR-CONDITIONERS:

1. GENERAL
   A. ACTION SUBMITTALS: PRODUCT DATA FOR EACH PRODUCT AND ACCESSORY INDICATED.
   B. CLOSEOUT SUBMITTALS: OPERATION AND MAINTENANCE DATA.
   C. QUALITY ASSURANCE
      1. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
      2. FABRICATE AND LABEL REFRIGERATION SYSTEM TO COMPLY WITH ASHRAE 15, "SAFETY STANDARD FOR REFRIGERATION SYSTEMS."
      3. ASHRAE COMPLIANCE: APPLICABLE REQUIREMENTS IN ASHRAE 62.1, SECTION 4 - "OUTDOOR AIR QUALITY," SECTION 5 - "SYSTEMS AND EQUIPMENT," SECTION 6 - " PROCEDURES," AND SECTION 7 - "CONSTRUCTION AND SYSTEM START-UP."
      4. ASHRAE/IESNA COMPLIANCE: APPLICABLE REQUIREMENTS IN ASHRAE/IESNA 90.1.
2. PRODUCTS: SEE SPLIT-SYSTEM AIR CONDITIONER SCHEDULE.
3. INSTALLATION
   A. INSTALL UNITS LEVEL AND PLUMB.
   B. INSTALL EVAPORATOR-FAN COMPONENTS USING MANUFACTURER'S STANDARD MOUNTING DEVICES SECURELY FASTENED TO BUILDING STRUCTURE.
   C. EQUIPMENT MOUNTING: INSTALL GROUND-MOUNTED, COMPRESSOR-CONDENSER COMPONENTS ON CAST-IN-PLACE CONCRETE EQUIPMENT BASE(S).
   D. INSTALL AND CONNECT PRECHARGED REFRIGERANT TUBING TO COMPONENT'S QUICK-CONNECT FITTINGS. INSTALL TUBING TO ALLOW ACCESS TO UNIT.
4. CONNECTIONS
   A. PIPING INSTALLATION REQUIREMENTS ARE SPECIFIED IN OTHER SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.
   B. WHERE PIPING IS INSTALLED ADJACENT TO UNIT, ALLOW SPACE FOR SERVICE AND MAINTENANCE OF UNIT.
5. FIELD QUALITY CONTROL
   A. PERFORM TESTS AND INSPECTIONS.
   B. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS, AND TO ASSIST IN TESTING.
   C. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
   D. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
   E. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
   F. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST AS SPECIFIED ABOVE.
   G. PREPARE AND SUBMIT TEST AND INSPECTION REPORTS.

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13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	AS NOTED
DESIGNED:	MAW
DRAWN:	DEG
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

SHEET TITLE
MECHANICAL SPECIFICATIONS

SHEET NUMBER
M-003

SHEET # 5 OF 20

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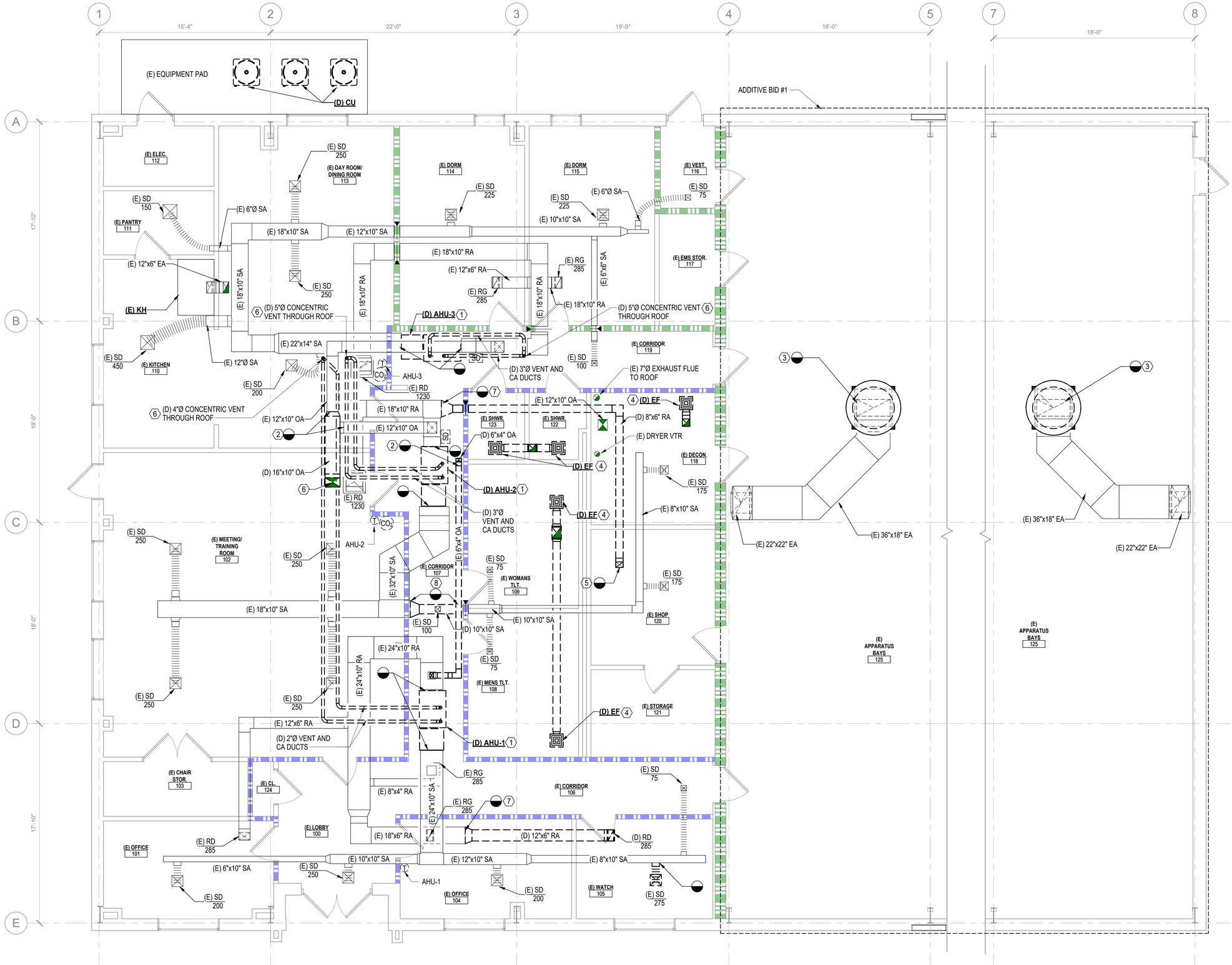

FIRST FLOOR MECHANICAL DEMOLITION PLAN

1/4" = 1'-0"

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

PLAN NORTH

MCKENNEY

PLAN NORTH

DINWIDDIE

GENERAL NOTES

1. WHERE DEMOLITION OF A COMPONENT IS INDICATED, DEMOLISH ALL ASSOCIATED APPURTENANCES.
2. WHERE COMPONENTS ARE IDENTIFIED TO BE RETAINED AND REUSED, PHOTOGRAPHS SHALL BE TAKEN PRE-REMOVAL OF THE COMPONENT, THE COMPONENT SHALL THEN BE STORED AND PROTECTED AND CLEANED PRIOR TO REINSTALLATION. ALL DAMAGED COMPONENTS SHALL BE REPLACED AT NO COST TO THE OWNER UNLESS DAMAGE WAS PRE-EXISTING.
3. WHERE REQUIRED TO FACILITATE THE REMOVAL AND REINSTALLATION OF EQUIPMENT, DUCTWORK, AND MECHANICAL PIPING, CONTRACTOR TO NOTE AND PHOTGRAPH THE LOCATION AND LAYOUT OF CEILING GRIDS, TILES, AND LIGHTING PRIOR TO REMOVAL. CEILING GRIDS, TILES, AND LIGHTING TO BE RETAINED, PROTECTED DURING RENOVATION AND REUSED.
4. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHU'S WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHU'S WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
5. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS, ARE SEPERATE FROM THE BASE BID.

KEY NOTES

1. DEMOLISH EXISTING FURNACE AND ALL APPURTENANCES INCLUDING (BUT NOT LIMITED TO) FURNACE, COOLING COIL, CONDENSATE PAN, CONDENSATE DRAINS, REFRIGERANT LINESET (AND COVER), DUCTWORK AS NECESSARY TO FIT NEW UNIT, COMBUSTION AIR INTAKE DUCTWORK, EXHAUST FLUE DUCTWORK, THERMOSTAT AND WIRING, SUPPORTS, AND CONDENSING UNIT. REFRIGERANT LINESETS INTERIOR TO WALLS SHALL BE ABANDONED IN-PLACE.
2. FRESH AIR/OUTDOOR AIR DUCTWORK TO BE DEMOLISHED FROM ROOF PENETRATION TO THE POINTS INDICATED ON PLAN. PREPARE DUCT FOR NEW CONNECTION. FRESH AIR INTAKE/ROOF PENETRATIONS TO STAY.
3. DEMOLISH EXHAUST FAN TO ROOF CURB INCLUDING DAMPERS AND CONTROLS. PREPARE ROOF CURB FOR NEW EXHAUST FAN.
4. DEMOLISH EXHAUST FAN AND ALL APPURTENANCES INCLUDING (BUT NOT LIMITED TO) FAN, DUCTWORK UP TO ROOF PENETRATION, HANGERS, DAMPERS, AND CONTROLS. ROOF PENETRATION TO STAY.
5. EXISTING RETURN GRILL TO REMAIN, PREPARE FOR NEW CONNECTION.
6. PROVIDE TEMPORARY COVER OF ROOF PENETRATION, AS NEEDED, UNTIL NEW CONCENTRIC VENT IS INSTALLED.
7. PROVIDE BLANKING PLATE AT END OF DUCTWORK.

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DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
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SHEET TITLE

MECHANICAL DUCT & EQUIPMENT DEMOLITION PLAN

SHEET NUMBER

MD101

SHEET # 6 OF 20

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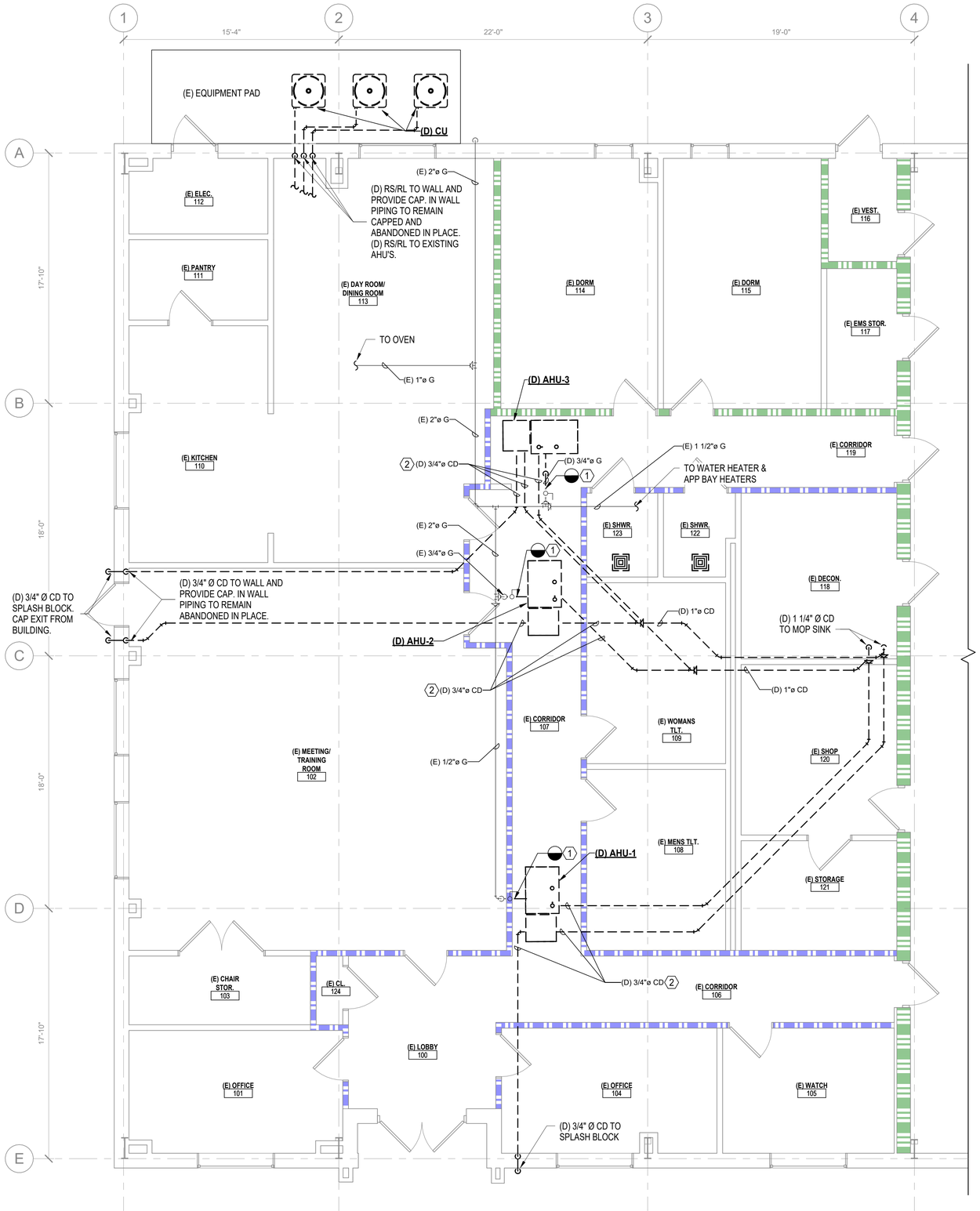

FIRST FLOOR MECHANICAL PIPING DEMOLITION PLAN

1/4" = 1'-0"

GENERAL NOTES

1. WHERE DEMOLITION OF A COMPONENT IS INDICATED, DEMOLISH ALL ASSOCIATED APPURTENANCES.
2. WHERE COMPONENTS ARE IDENTIFIED TO BE RETAINED AND REUSED, PHOTOGRAPHS SHALL BE TAKEN PRE-REMOVAL OF THE COMPONENT, THE COMPONENT SHALL THEN BE STORED AND PROTECTED AND CLEANED PRIOR TO REINSTALLATION. ALL DAMAGED COMPONENTS SHALL BE REPLACED AT NO COST TO THE OWNER UNLESS DAMAGE WAS PRE-EXISTING.
3. WHERE REQUIRED TO FACILITATE THE REMOVAL AND REINSTALLATION OF EQUIPMENT, DUCTWORK, AND MECHANICAL PIPING, CONTRACTOR TO NOTE AND PHOTGRAPH THE LOCATION AND LAYOUT OF CEILING GRIDS, TILES, AND LIGHTING PRIOR TO REMOVAL. CEILING GRIDS, TILES, AND LIGHTING TO BE RETAINED, PROTECTED DURING RENOVATION AND REUSED.
4. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHU'S WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHU'S WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
5. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS, ARE SEPERATE FROM THE BASE BID.

KEY NOTES

1. DEMOLISH GAS PIPING TO THE POINT INDICATED AND PREPARE FOR NEW CONNECTION TO NEW FURNACE.
2. DEMOLISH ALL PVC CONDENSATE DRAIN LINES FROM EXISTING UNIT TO MOP SINK/EXTERIOR SPLASH BLOCK. CONDENSATE DRAIN LINES INTERIOR TO WALLS SHALL BE ABANDONED IN-PLACE.

PLAN NORTH
MCKENNEY

PLAN NORTH
DINWIDDIE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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08/16/2023
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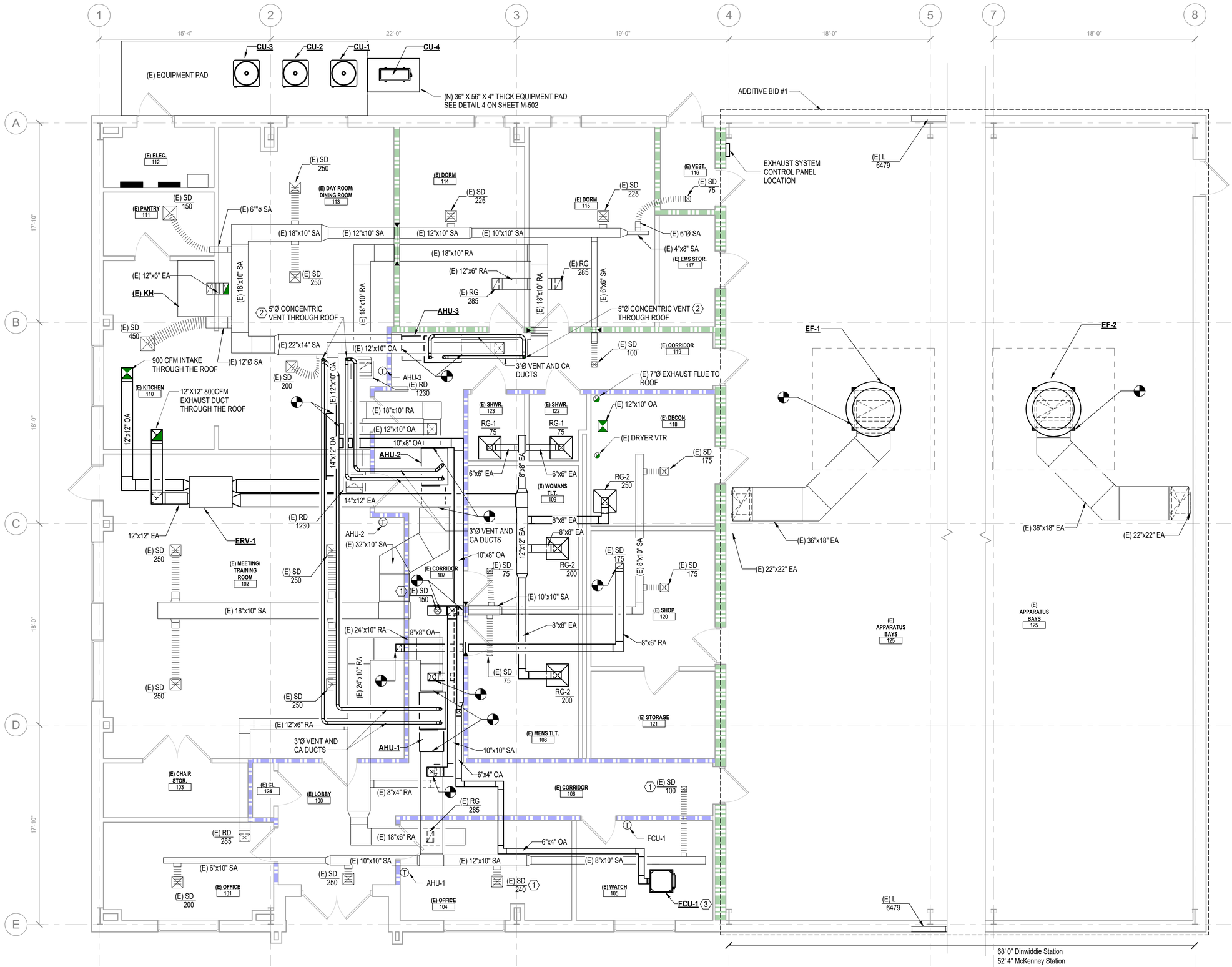
SHEET TITLE
MECHANICAL PIPING DEMOLITION PLAN

SHEET NUMBER
MD201

SHEET # 7 OF 20



FIRST FLOOR MECHANICAL NEW DUCTWORK PLAN

1/4" = 1'-0"

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

PLAN NORTH
MCKENNEY

PLAN NORTH
DINWIDDIE

GENERAL NOTES

1. REINSTALL ALL CEILING GRIDS, TILES, AND LIGHTING TO ORIGINAL LOCATION AND LAYOUT ONCE DUCTWORK AND MECHANICAL PIPING IS COMPLETE.
2. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHUS WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHUS WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
3. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS, ARE SEPERATE FROM THE BASE BID.

KEY NOTES

1. REBALANCE EXISTING DIFFUSER TO INDICATED VALUE.
2. UTILIZE EXISTING ROOF PENETRATIONS FOR NEW CONCENTRIC VENT.
3. INSTALL FCU-1 IN LOCATION OF DEMOLISHED SUPPLY DIFFUSER.

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SHEET TITLE
MECHANICAL NEW DUCTWORK PLAN

SHEET NUMBER
M-101

SHEET # 8 OF 20

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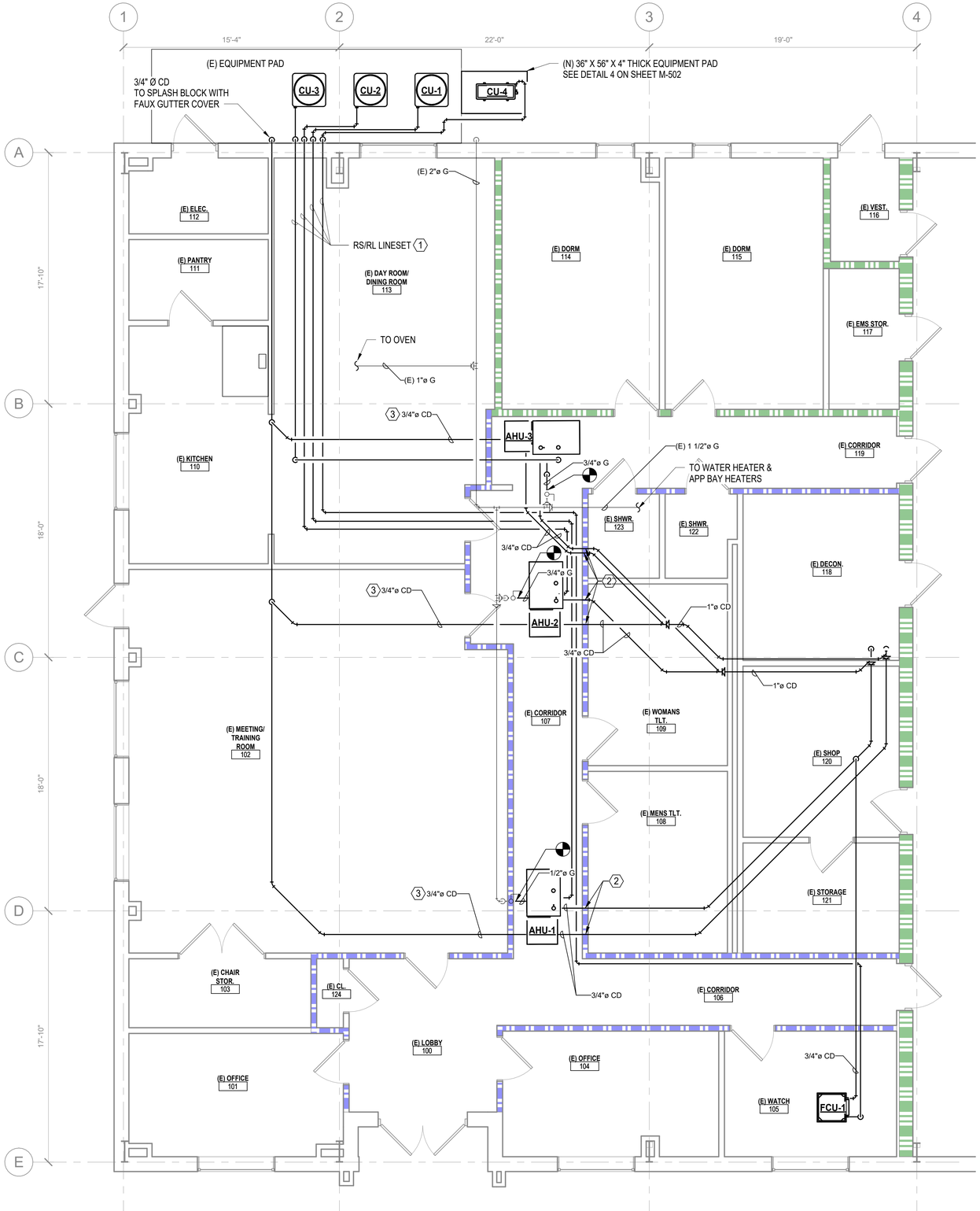
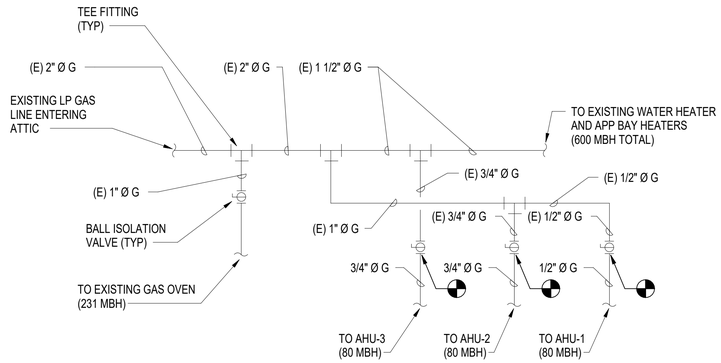


1 FIRST FLOOR MECHANICAL NEW PIPING PLAN
1/4" = 1'-0"



NOTES:
1. TOTAL LOAD AT BUILDING REGULATOR IS 1,071 MBH.
2. GAS PIPE SIZING BASED ON TABLE 402.4(27) OF THE 2018 VIRGINIA FUEL GAS CODE.

2 GAS SYSTEM RISER
NTS

GENERAL NOTES

1. REINSTALL ALL CEILING GRIDS, TILES, AND LIGHTING TO ORIGINAL LOCATION AND LAYOUT ONCE DUCTWORK AND MECHANICAL PIPING IS COMPLETE.
2. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHUS WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHU'S WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
3. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS, ARE SEPERATE FROM THE BASE BID.

KEY NOTES

1. RS/RL LINESETS TO EXIT BUILDING THROUGH SOFFIT AND COVERED BY FAUX DOWNSPOUT.
2. UTILIZE EXISTING FIRE PENETRATIONS. ENSURE FINAL PENETRATION MEETS REQUIREMENTS OF FIRE RATED PIPE PENETRATION DETAIL ON SHEET M-502.
3. AHU AUXILIARY CONDENSATE DRAIN PAN PIPED TO EXTERNAL SPLASH BLOCK.

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

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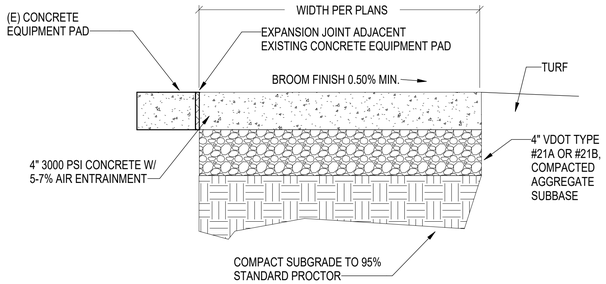
SHEET TITLE
MECHANICAL NEW PIPING PLAN

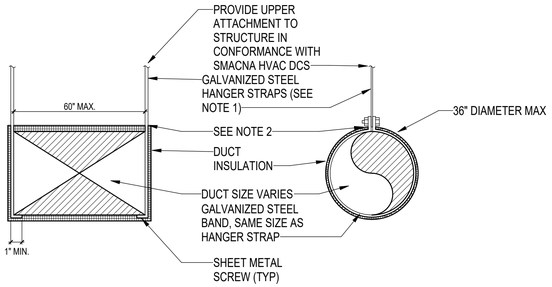
SHEET NUMBER
M-201

SHEET # 9 OF 20

PLAN NORTH
MCKENNEY
PLAN NORTH
DINWIDDIE

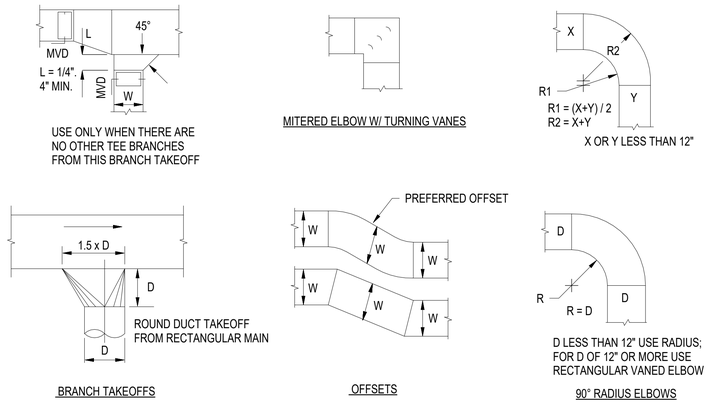


1 CONDENSING UNIT EQUIPMENT PAD DETAIL
NTS

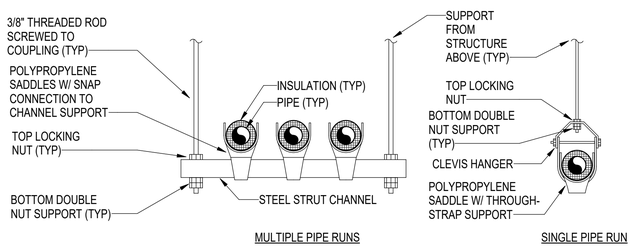


NOTES:
1. GALVANIZED STEEL HANGER STRAP WIDTH AND SHEET METAL GAUGE SHALL BE SELECTED IN CONFORMANCE WITH SMACNA HVAC DCS.
2. HORIZONTAL DUCTS SHALL HAVE A SUPPORT WITHIN 2 FT OF EACH ELBOW AND WITHIN 4 FT OF EACH BRANCH INTERSECTION.
3. WHERE HANGERS PENETRATE DUCT INSULATION VAPOR BARRIER, SEAL WITH VAPOR-BARRIER MASTIC.

2 DUCT HANGER DETAILS
NTS

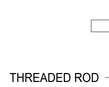


3 DUCT CONNECTION DETAIL
NTS

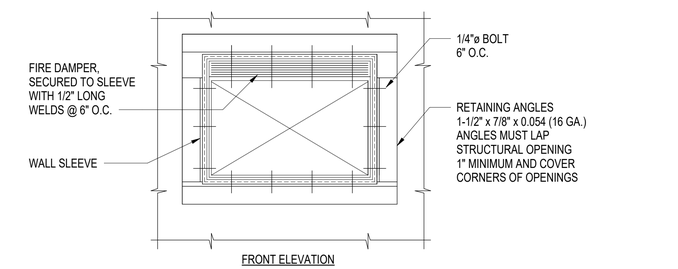


NOTES:
1. PROVIDE STEEL STRUT ASSEMBLIES, FASTENERS, THREADED RODS, AND CLEVIS HANGERS.
2. PROVIDE ASTM E84 LISTED SADDLES AND SINGLE PIECE SUPPORTS SHALL BE A MINIMUM OF 12" LONG.
3. SPACE SUPPORTS IN ACCORDANCE WITH VIRGINIA MECHANICAL CODE REQUIREMENTS.
4. PROVIDE SUPPORTS AT PIPING ELBOWS AND EQUIPMENT CONNECTIONS.

4 PIPING SUPPORT DETAIL
NTS



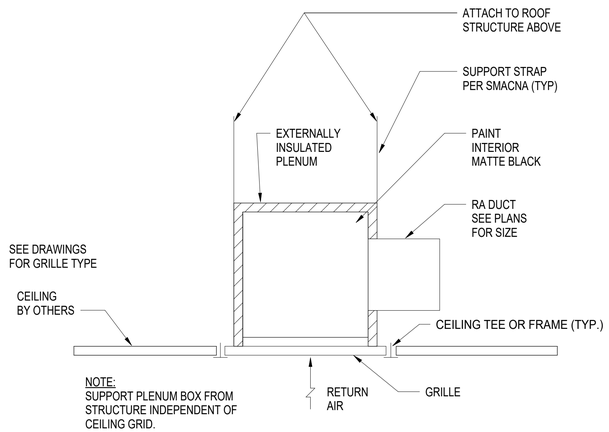
5 BEAM CLAMP ATTACHMENT DETAIL
NTS



NOTE:
1. WALL SLEEVES NOT EXCEEDING 36"W x 24"H SHALL BE 16 GA. ALL LARGER SIZES SHALL BE 14 GA.
2. THIS DETAIL IS BASED ON CESCO PRODUCTS. ALL FIRE DAMPERS SHALL BE INSTALLED INACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MODELS USED.
3. FIRE DAMPERS SHALL BE DYNAMIC RATED.

8 FIRE DAMPER DETAIL, TYPE B DETAIL
NTS

6 CEILING MOUNTED AIR TERMINAL DETAIL
NTS



7 RETURN AIR GRILLE PLENUM DETAIL
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REVISIONS

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DESIGNED:	MAW
DRAWN:	DEG
CHECKED:	JAM
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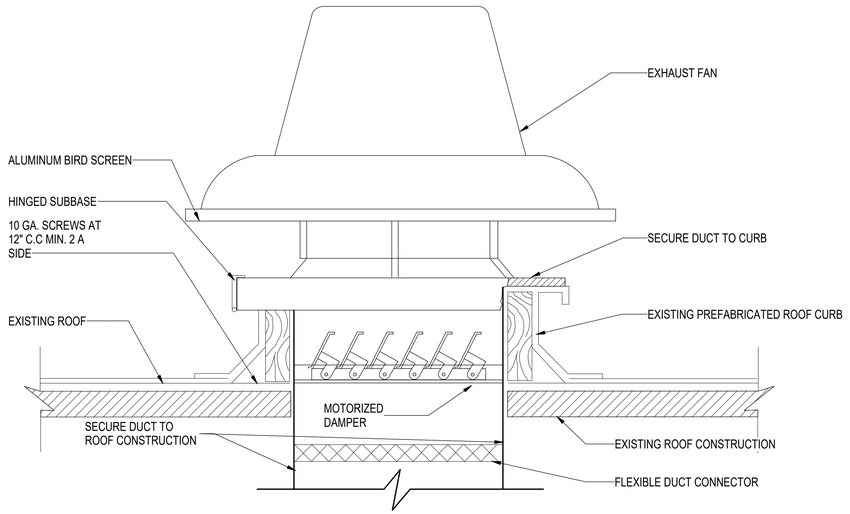
COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

SHEET TITLE
MECHANICAL DETAILS

SHEET NUMBER
M-501

SHEET # 10 OF 20

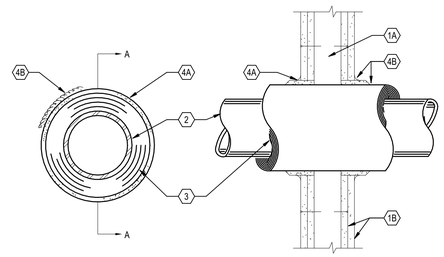


1 ROOF-MOUNTED, DOWNBLAST EXHAUST FAN DETAIL

NTS

SYSTEM NO. WL5001

(FORMERLY SYSTEM NO. 147)
F RATINGS- 1 AND 2 HR (SEE ITEM 4)
T RATINGS- 1 AND 1-1/2 HR (SEE ITEM 4)
L RATING AT AMBIENT-2 CFM/SQ FT (SEE ITEM 4B)
L RATING AT 400 F-LESS THAN 1 CFM/SQ FT (SEE ITEM 4B)



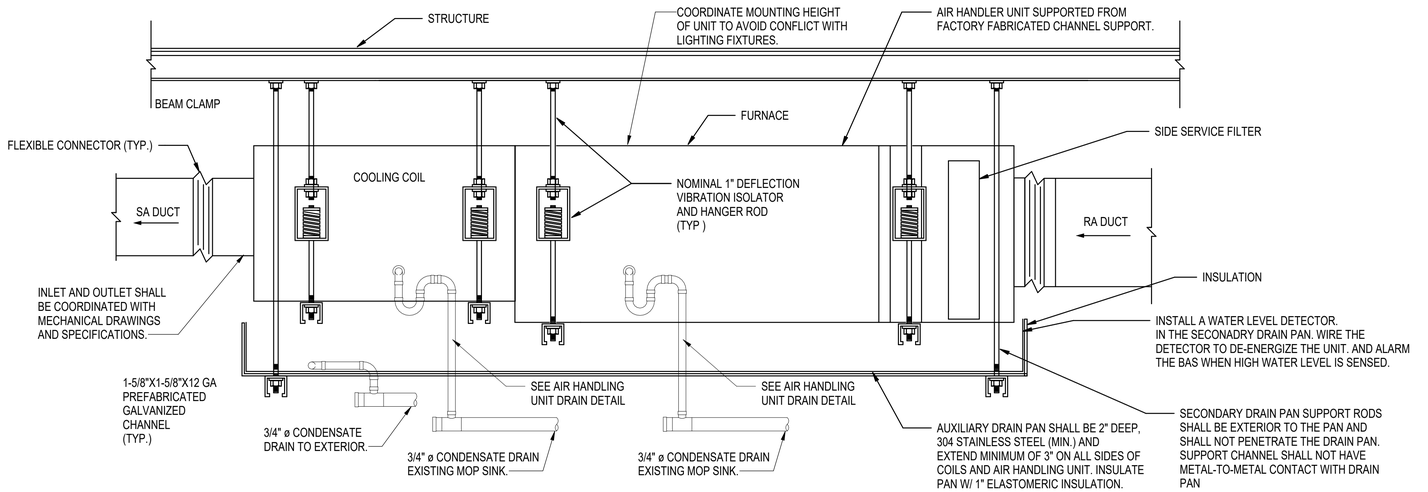
SECTION A-A

MINNESOTA MINING & MFG. CO.-FS-195+
MINNESOTA MINING & MFG. CO.-CP 25 WB+
*BEARING THE UL CLASSIFICATION ,MARKING.

1. WALL ASSEMBLY-THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING:
   A. STUDS-WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR METAL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN. 3 5/8 IN. WIDE BY 1 3/16 IN. DEEP CHANNELS SPACED MAX. 24 IN. OC.
   B. WALLBOARD GYPSUM*-NOM 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENERS,(TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAMETER OF OPENING IS 14 1/2 IN. FOR WOOD STUD WALLS AND 18 IN. FOR STEEL STUD WALLS. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 1 HR WHEN INSTALLED IN A 1 HR FIRE RATED WALL AND 2 HR WHEN INSTALLED IN A 2 HR FIRE RATED WALL.
2. THROUGH PENETRANTS-ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
   A. STEEL PIPE-NOM 12 IN. DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. COPPER TUBING-NOM 6 IN. DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   C. COPPER PIPE-NOM 6 IN. DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. PIPE COVERING*-NOM 1 OR 2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT. WHEN NOM 1 IN. THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN. 1/4 IN. TO MAX. 3/8 IN. WHEN NOM 2 IN. THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN. 1/2 IN. TO MAX. 3/4 IN. SEE-PIPE AND EQUIPMENT COVERING-MATERIALS (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS 3/4 HR WHEN NOM 1 IN. THICK PIPE COVERING IS USED. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS 1 HR AND 1 1/2 HR WHEN NOM 2 IN. THICK PIPE COVERING IS USED WITH 1 HR AND 2 HR FIRE RATED WALL RESPECTIVELY.
4. FIRESTOP SYSTEM-INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
   A. FILL, VOID, OR CAVITY MATERIALS*-WRAP STRIP -NOM 1/4 IN. THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. WIDE STRIPS. NOM 2 IN. WIDE STRIP TIGHTLY WRAPPED AROUND PIPE V=COVERING (FOIL SIDE OUT) WITH SEAM BUTTED. WRAP STRIP LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROX 1 1/4 IN. SUCH THAT APPROX 3/4 IN. OF THE WRAP STRIP WIDTH PROTRUDES FROM THE WALL SURFACE. ONE LAYER OF WRAP STRIP IS REQUIRED WHEN NOM 1 IN. THICK PIPE COVERING IS USED. TWO LAYERS OF WRAP STRIP ARE REQUIRED WHEN NOM 2 IN. THICK PIPE COVERING IS USED.
   B. FILL, VOID, OR CAVITY MATERIALS*-CAULK -MIN. 1/4 IN. DIAMETER CONTINUOUS BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER APPROX.3/4 IN. FROM THE WALL SURFACE.

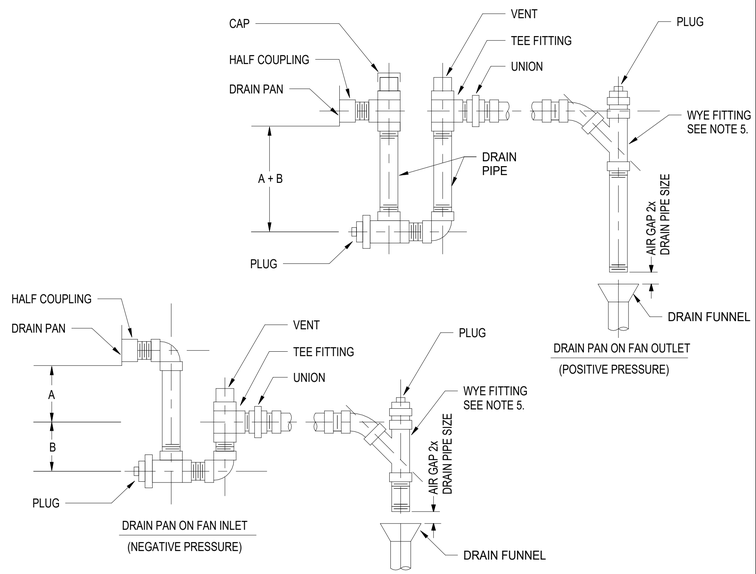
2 FIRE RATED PIPE PENETRATION DETAIL (SYSTEM NO. WL5001)

NTS



3 SUSPENDED AIR HANDLING UNIT DETAIL

NTS



NOTES:
1. DRAIN PIPE TO BE SAME SIZE AS UNIT OUTLET, BUT NO LESS THAN 3/4" PIPE SIZE.
2. "A" = SYSTEM STATIC PRESSURE IN INCHES AT DRAIN POINT.
3. "B" = 1/2 SYSTEM STATIC PRESSURE IN INCHES AT DRAIN POINT.
4. TRAP TO BE INSTALLED PARALLEL TO AIR HANDLING UNIT BASE.
5. ALL CONDENSATE FITTINGS TO BE DWV (DRAIN WASTE VENT) FITTINGS.
6. INSTALL CLEAN OUT AT EVERY CHANGE IN DIRECTION, MAX. 20'-0" BETWEEN CLEANOUTS.

4 AIR HANDLING UNIT DRAIN DETAIL

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PROFESSIONAL ENGINEER

SHEET TITLE
MECHANICAL DETAILS

SHEET NUMBER
M-502

SHEET # 11 OF 20

SPLIT-SYSTEM AIR CONDITIONING UNIT SCHEDULE

INDOOR UNIT TAG	OUTDOOR UNIT TAG	SERVICE TO	INDOOR UNIT DATA										OUTDOOR UNIT DATA						UNIT ELECTRIC DATA					SELECTION BASED ON		REMARKS
			SUPPLY FAN			COOLING COIL				FURNACE				AMBIENT COOLING DESIGN (°F)	AMBIENT HEATING DESIGN (°F)	TYPE	REFRIGERANT	EFFICIENCY (EER)	EFFICIENCY (SEER)	EQUIPMENT	VOLT/PH	KW	MCA	MOCP	MANUFACTURER	MODEL	
			AIRFLOW (CFM)	ESP (INWG)	OUTDOOR AIRFLOW (CFM)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	ENTERING AIR TEMP (°F DB / °F WB)	LEAVING AIR TEMP (°F DB / °F WB)	EAT (°F)	INPUT MBH	OUTPUT MBH	AFUE %													
AHU-1	CU-1	SEE PLAN	1465	0.5	200	36	27	76 / 63.5	53 / 51.8	70	80	76	96	95	14	SCROLL	R-410A	12.3	16	INDOOR	-	-	-	-	TRANE	4TXCB006DS3	SEE NOTES #1- #8
																				FURNACE	120/1	5.7	10.8	15		S9V2B080U4PSB	
																				OUTDOOR	208/1	-	28	45		4TTR6048N	
AHU-2	CU-2	SEE PLAN	1000	0.5	150	38	23	76 / 63.5	53 / 51.8	70	80	78	96	95	14	SCROLL	R-410A	12.3	16	INDOOR	-	-	-	-	TRANE	4TXCB006DS3	SEE NOTES #1- #8
																				FURNACE	120/1	5.7	10.8	15		S9V2B080U4PSB	
																				OUTDOOR	208/3	-	18	30		4TTA7048A3	
AHU-3	CU-3	SEE PLAN	1925	0.5	450	56	35	78 / 66	57 / 56	70	80	76	96	95	14	SCROLL	R-410A	12.5	16.5	INDOOR	-	-	-	-	TRANE	4TXCC009DS3	SEE NOTES #1- #8
																				FURNACE	120/1	5.7	13.9	15		S9V2C080U5PSB	
																				OUTDOOR	208/3	-	22	35		4TTA7060A3	

NOTES:

1) PROVIDE INDOOR AND OUTDOOR UNITS WITH NOMINAL 1" DEFLECTION SPRING ISOLATORS.
2) WALL-MOUNTED THERMOSTAT TO BE PROVIDED BY THE CONTROLS CONTRACTOR AND TO BE CONTROLLED AND MONITORED BY THE CENTRAL BAS.
3) PROVIDE WITH LP CONVERSION KIT.
4) PROVIDE WITH INTEGRAL 208V CONDENSATE PUMP.
5) PROVIDE WALL MOUNTED , TOUCHSCREEN, 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTO CHANGE OVER.
6) PROVIDE HAIL GUARDS FOR THE OUTDOOR UNIT.
7) PROVIDE CONCENTRIC VENT KIT.
8) THERMOSTAT SHALL HAVE INTEGRAL HUMIDITY TRANSMITTER.

ENERGY RECOVERY VENTILATOR SCHEDULE

UNIT TAG	FAN	AIRFLOW (CFM)	EXT. STATIC PRESSURE (IN. H2O)	FAN RPM	MOTOR DATA			COOLING PERFORMANCE				HEATING PERFORMANCE				ELECTRICAL DATA			OPERATING WEIGHT (LBS)	SELECTION BASED ON		REMARKS
					BHP	HP	RPM	AIRFLOW (CFM)	EAT (°F DB / °F WB)	LAT (°F DB / °F WB)	ENTHALPY RECOVERY RATIO %	AIRFLOW (CFM)	EAT (°F DB / °F WB)	LAT (°F DB / °F WB)	ENTHALPY RECOVERY RATIO %	VOLT / PH	MCA	MOCP		MANUFACTURER	MODEL	
ERV-1	OUTDOOR / SUPPLY AIR	900	0.5	1328	0.48	3/4	1725	900	95.0 / 78.0	80.8 / 67.9	69	900	14.0 / 11.3	50.9 / 39.7	68	208 / 1	17.4	25	245	GREENHECK	ERV-10	SEE NOTES #1 - #10
	RETURN / EXHAUST AIR	800	0.8	1454	0.67	3/4	1725	800	75.0 / 62.5	90.5 / 74.8		800	68.0 / 50.1	25.6 / 21.8								

NOTES:

1) PROVIDE UNIT WITH DOUBLE WALL FOAM INSULATED CONSTRUCTION.
2) PROVIDE UNIT WITH MODULATING VFDS.
3) PROVIDE HINGED ACCESS DOORS.
4) PROVIDE OUTDOOR AIR INTAKE WITH MERV 8 PLEATED MEDIA FILTERS.
5) PROVIDE EXHAUST AIR INTAKE WITH MERV 8 PLEATED MEDIA FILTERS.
6) PROVIDE UNIT WITH NOMINAL 1" DEFLECTION SPRING ISOLATORS.
7) PROVIDE UNIT WITH ODP MOTOR.
8) PROVIDE UNIT WITH DIRECT DRIVE FAN.
9) PROVIDE UNIT WITH ER WHEEL AND POLYMER MEDIA.
10) PROVIDE UNIT WITH LOW LEAKAGE OUTDOOR AIR DAMPER.

FAN SCHEDULE

UNIT TAG	SERVICE TO	TYPE	AIR FLOW (CFM)	EXTERNAL STATIC PRES. (IN. H20)	DRIVE	MOTOR DATA			ELECTRICAL DATA			SELECTION BASED ON		REMARKS
						HP	BHP	RPM	VOLT/PH	MCA	MOCP	MANUFACTURER	MODEL	
EF-1	APP BAY	CENTRIFUGAL ROOF EXHAUST FAN	6,500	0.5	DIRECT	2	1.48	819	208/3	9.4	20	GREENHECK	G-240-VG	SEE NOTES #1 - #4
EF-2	APP BAY	CENTRIFUGAL ROOF EXHAUST FAN	6,500	0.5	DIRECT	2	1.48	819	208/3	9.4	20	GREENHECK	G-240-VG	SEE NOTES #1 - #4

NOTES:

1) PROVIDE ADAPTER AS NEEDED TO MOUNT TO EXISTING ROOF CURB.
2) PROVIDE ALUMINUM BIRDSCREEN.
3) PROVIDE HINGED SUBBASE.
4) PROVIDE EC CONTROLLER WITH WALL MOUNTED HOA SWITCH. SEE SHEET M-803.

SPLIT HEAT PUMP SYSTEM AIR CONDITIONING UNIT SCHEDULE

INDOOR UNIT								OUTDOOR UNIT						MANUFACTURER	NOTES
UNIT TAG	LOCATION	FLOW (CFM)	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	TYPE	ELECTRICAL V/P/HZ	MODEL	UNIT TAG	ELECTRICAL V/PH/HZ	MCA	MOCP	WEIGHT (LBS)	MODEL		
FCU-1	102 WATCH	380	12	19.7	R-410A	208/1/60	SLZ-KF18NA	CU-4	208/1/60	14	25	127	SUZ-KA18NA2	MITSUBISHI ELETRIC	SEE NOTES #1-#5

NOTES:

1) PROVIDE WITH INTEGRAL 208V CONDENSATE PUMP.
2) PROVIDE INDOOR AND OUTDOOR UNITS WITH NOMINAL 1" DEFLECTION SPRING ISOLATORS.
3) PROVIDE WALL MOUNTED , TOUCHSCREEN, 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTO CHANGE OVER.
4) CAPACITY SHOWN FOR: COOLING, INDOOR 80°F DB / 67°F WB, COOLING OUTDOOR 95°F DB / 75°F WB.
5) PROVIDE HAIL GUARDS FOR THE OUTDOOR UNIT.

DUCTWORK SCHEDULE

SYSTEM	ABBREVIATION	LOCATION	WALL TYPE	MAXIMUM PRESSURE (IN WC)	SEAL CLASS	LEAK CLASS	DUCT MATERIAL	DUCT INSULATION	REMARKS
SUPPLY AIR	SA	INDOOR	SINGLE WALL	2"	A	4	G90 GALVANIZED STEEL	2", 1.0 PCF, FIBERGLASS DUCT WRAP, FSK FACE, R-6 INSTALLED	SEE NOTE #1
RETURN AIR	RA	INDOOR	SINGLE WALL	2"	A	4	G90 GALVANIZED STEEL	2", 1.0 PCF, FIBERGLASS DUCT WRAP, FSK FACE, R-6 INSTALLED	SEE NOTE #1
EXHAUST AIR	EA	INDOOR	SINGLE WALL	2"	A	4	G90 GALVANIZED STEEL	2", 1.0 PCF, FIBERGLASS DUCT WRAP, FSK FACE, R-6 INSTALLED	SEE NOTE #1
OUTSIDE AIR	OA	INDOOR	SINGLE WALL	2"	A	4	G90 GALVANIZED STEEL	2", 1.0 PCF, FIBERGLASS DUCT WRAP, FSK FACE, R-6 INSTALLED	SEE NOTE #1

NOTES:

1) ALL DUCTWORK TO BE PROVIDED LABELS INCLUDING DUCT TYPE AND AIRFLOW DIRECTION INDICATION.

ROOF VENT SCHEDULE

UNIT TAG	SERVICE TO	LOCATION	TYPE	MAX AIRFLOW (CFM)	EXTERNAL STATIC PRES. (IN. H20)	SELECTION BASED ON		REMARKS
						MANUFACTURER	MODEL	
RV-1	ERV-1 INTAKE	KITCHEN ROOF	ROOF MOUNTED	900	0.05	LOREN COOK	PR-16	SEE NOTES #1 - #4
RV-2	ERV-1 EXHAUST	KITCHEN ROOF	ROOF MOUNTED	800	0.05	LOREN COOK	PR-16	SEE NOTES #1 - #4

NOTES:

1) PROVIDE MODULATING ACTUATOR DAMPER.
2) PROVIDE WITH 12" HIGH ROOF CURB SLOPED TO MATCH ROOF PITCH.
3) PROVIDE ALUMINUM BIRDSCREEN.
4) PROVIDE CLASS-1A LOW LEAKAGE BACKDRAFT DAMPER.

PIPING AND PIPING INSULATION SCHEDULE

SYSTEM	ABBREVIATION	NOMINAL OPERATING TEMPERATURE (°F)	OPERATING PRESSURE (PSIG)	LOCATION	PIPE SIZES	PIPING MATERIAL	JOINT TYPE	PIPE INSULATION	INSULATION JACKET	REMARKS
REGRIGERANT	RS/RL	35-220	120-410	INDOOR	ALL	COPPER TYPE ACR	BRAZED	1" ELASTOMERIC	-	SEE NOTE #1- #3
				OUTDOOR	ALL	COPPER TYPE ACR	BRAZED	2" ELASTOMERIC	ALUMINUM	SEE NOTE #1- #3
CONDENSATE DRAIN	CD	40-60	0.5	INDOOR	ALL	DWV COPPER	SOLDERED	1" ELASTOMERIC	-	SEE NOTE #1- #3
				OUTDOOR	ALL	DWV COPPER	SOLDERED	2" ELASTOMERIC	-	SEE NOTE #1- #3

NOTES:

1) ALL PIPING EXPOSED TO OUTDOORS SHALL BE PROTECTED WITH METAL JACKETING.
2) PIPING INSULATION THROUGH FIRESTOP PENETRATIONS SHALL MATCH THE MATERIALS LISTED IN THE FIRESTOPPING LISTING.
3) PROVIDE FAUX GUTTER COVER FOR ALL EXTERIOR LINESETS AND DRAINS.

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Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

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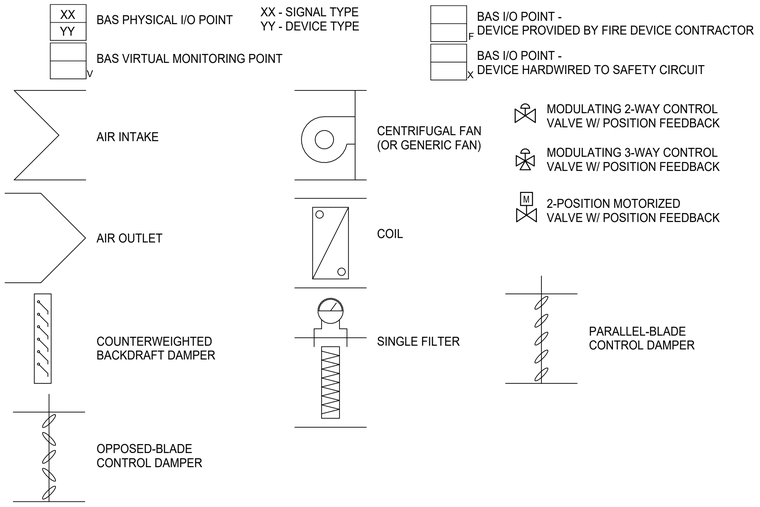
MECHANICAL SCHEDULES

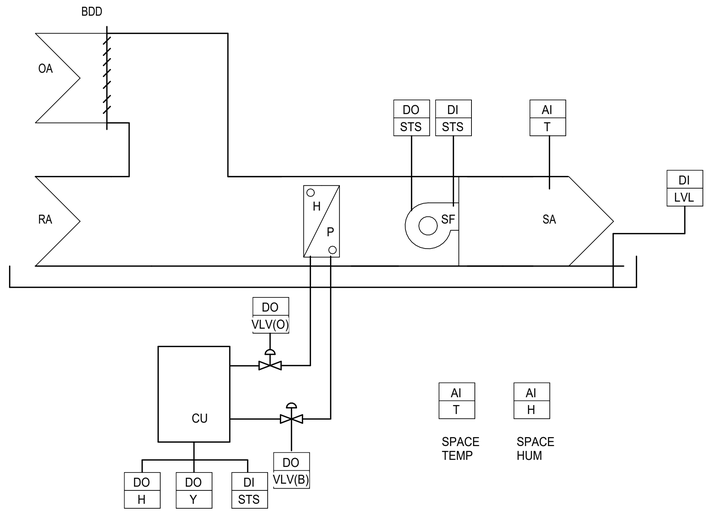
SHEET NUMBER
M-601

SHEET # 12 OF 20

CONTROL DEVICE LEGEND



1 CONTROL DEVICE LEGEND
NTS

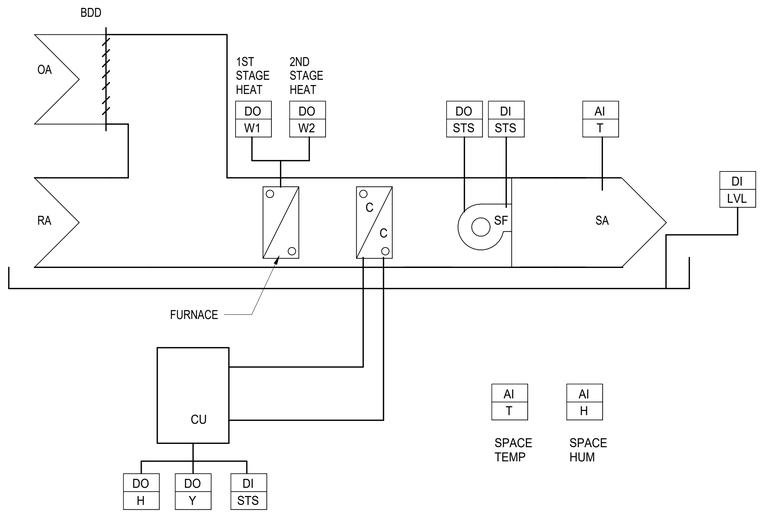


SINGLE ZONE HEAT PUMP SEQUENCE OF OPERATION

1. THE HEAT PUMP SHALL OPERATE ON A 24-HR, 7-DAY TIME-OF-DAY SCHEDULE FOR OCCUPIED AND UNOCCUPIED PERIODS.
2. OCCUPIED MODE:
   A. THE SPACE HEATING SETPOINT SHALL BE 65°F AND THE SPACE COOLING SETPOINT SHALL BE 75°F.
   B. THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY.
   C. COOLING MODE: ON A RISE IN SPACE TEMPERATURE ABOVE THE SPACE COOLING SETPOINT, THE FOLLOWING SHALL OCCUR UNTIL THE SPACE TEMPERATURE SETPOINT IS MET:
      a. THE REVERSING VALVE HEATING COMMAND SHALL BE OFF.
      b. THE REVERSING VALVE COOLING COMMAND SHALL BE ON.
      c. THE CONDENSING UNIT HEATING COMMAND SHALL BE OFF.
      d. THE CONDENSING UNIT COOLING COMMAND SHALL BE ON.
   D. HEATING MODE: ON A DROP IN SPACE TEMPERATURE BELOW THE SPACE HEATING SETPOINT, THE FOLLOWING SHALL OCCUR UNTIL THE SPACE TEMPERATURE SETPOINT IS MET:
      a. THE REVERSING VALVE HEATING COMMAND SHALL BE ON.
      b. THE REVERSING VALVE COOLING COMMAND SHALL BE OFF.
      c. THE CONDENSING UNIT HEATING COMMAND SHALL BE ON.
      d. THE CONDENSING UNIT COOLING COMMAND SHALL BE OFF.
   E. THE HEATER SHALL STAGE AS NECESSARY TO MAINTAIN THE SPACE HEATING TEMPERATURE SETPOINT.
   F. FAN-ONLY MODE: IF THE SPACE TEMPERATURE SETPOINTS AND SPACE HUMIDITY SETPOINTS ARE SATISFIED THE FOLLOWING SHALL OCCUR UNTIL ONE OF THE SETPOINTS IS NO LONGER SATISFIED.
      a. THE FAN SHALL OPERATE CONTINUOUSLY.
      b. THE REVERSING VALVE HEATING COMMAND SHALL BE OFF.
      c. THE REVERSING VALVE COOLING COMMAND SHALL BE OFF.
      d. THE CONDENSING UNIT HEATING COMMAND SHALL BE OFF.
      e. THE CONDENSING UNIT COOLING COMMAND SHALL BE OFF.
   A. THE BAS SYSTEM SHALL BE ABLE TO MANUALLY COMMAND ANY MODE OPERATION ON DEMAND.
3. SAFETIES AND ALARMS
   A. THE COMPRESSOR SHALL BE PROVIDED A HARDWIRE ANTI-SHORT CYCLE TIMER TO ALLOW A MINIMUM OFF TIME OF 5 MINUTES.
   B. THERE SHALL BE A MINIMUM TIME DELAY SWITCHING BACK AND FORTH BETWEEN HEATING AND COOLING MODES OF 2 MINUTES.
   C. UPON DETECTION OF WATER IN THE SECONDARY DRAIN PAN AN ALARM SHALL BE GENERATED AT THE BAS AND THE ASSOCIATED SYSTEM DISABLED.
   D. AN ALARM SHALL GENERATED IF HEATING MODE IS ENABLED AND THE SUPPLY AIR TEMPERATURE IS LESS THAN 60°F FOR 10 MINUTES OR MORE.
   E. AN ALARM SHALL GENERATED IF COOLING OR FAN-ONLY MODE IS ENABLED AND THE SUPPLY AIR TEMPERATURE IS GREATER THAN 85°F 10 MINUTES OR MORE.
   F. AN ALARM SHALL BE GENERATED IF THE SPACE TEMPERATURE IS BELOW 60°F OR GREATER THAN 85°F.

2 CASSETTE CONTROL DIAGRAM
NTS

FCU-1



SINGLE ZONE FURNACE SEQUENCE OF OPERATION

1. THE FURNACE SHALL OPERATE ON A 24-HR, 7-DAY TIME-OF-DAY SCHEDULE FOR OCCUPIED AND UNOCCUPIED PERIODS.
2. OCCUPIED MODE:
   A. THE SPACE HEATING SETPOINT SHALL BE 70°F AND THE SPACE COOLING SETPOINT SHALL BE 72°F.
   B. THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY.
   C. COOLING MODE: ON A RISE IN SPACE TEMPERATURE ABOVE THE SPACE COOLING SETPOINT, THE FOLLOWING SHALL OCCUR UNTIL THE SPACE TEMPERATURE SETPOINT IS MET:
      a. THE HEATING COMMAND SHALL BE OFF.
      b. THE COOLING COMMAND SHALL BE ON.
   D. HEATING MODE: ON A DROP IN SPACE TEMPERATURE BELOW THE SPACE HEATING SETPOINT, THE FOLLOWING SHALL OCCUR UNTIL THE SPACE TEMPERATURE SETPOINT IS MET:
      a. THE HEATING COMMAND SHALL BE ON.
      b. THE COOLING COMMAND SHALL BE OFF.
      c. THE CONDENSING UNIT COOLING COMMAND SHALL BE OFF.
   E. THE HEATER SHALL STAGE AS NECESSARY TO MAINTAIN THE SPACE HEATING TEMPERATURE SETPOINT.
   F. FAN-ONLY MODE: IF THE SPACE TEMPERATURE SETPOINTS AND SPACE HUMIDITY SETPOINTS ARE SATISFIED THE FOLLOWING SHALL OCCUR UNTIL ONE OF THE SETPOINTS IS NO LONGER SATISFIED.
      a. THE FAN SHALL OPERATE CONTINUOUSLY.
      b. THE HEATING COMMAND SHALL BE OFF.
      c. THE COOLING COMMAND SHALL BE OFF.
      d. THE CONDENSING UNIT COOLING COMMAND SHALL BE OFF.
   G. THE BAS SYSTEM SHALL BE ABLE TO MANUALLY COMMAND ANY MODE OPERATION ON DEMAND.
3. SAFETIES AND ALARMS
   A. THE COMPRESSOR SHALL BE PROVIDED A HARDWIRE ANTI-SHORT CYCLE TIMER TO ALLOW A MINIMUM OFF TIME OF 5 MINUTES.
   B. THERE SHALL BE A MINIMUM TIME DELAY SWITCHING BACK AND FORTH BETWEEN HEATING AND COOLING MODES OF 2 MINUTES.
   C. UPON DETECTION OF WATER IN THE SECONDARY DRAIN PAN AN ALARM SHALL BE GENERATED AT THE BAS AND THE ASSOCIATED SYSTEM DISABLED.
   D. AN ALARM SHALL GENERATED IF HEATING MODE IS ENABLED AND THE SUPPLY AIR TEMPERATURE IS LESS THAN 60°F FOR 10 MINUTES OR MORE.
   E. AN ALARM SHALL GENERATED IF COOLING OR FAN-ONLY MODE IS ENABLED AND THE SUPPLY AIR TEMPERATURE IS THAN 85°F 10 MINUTES OR MORE.
   F. AN ALARM SHALL BE GENERATED IF THE SPACE TEMPERATURE IS BELOW 60°F OR GREATER THAN 85°F.

3 FURNACE CONTROL DIAGRAM AND SEQUENCE OF OPERATION
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AHU-1 THRU AHU-3

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CHECKED:	JAM
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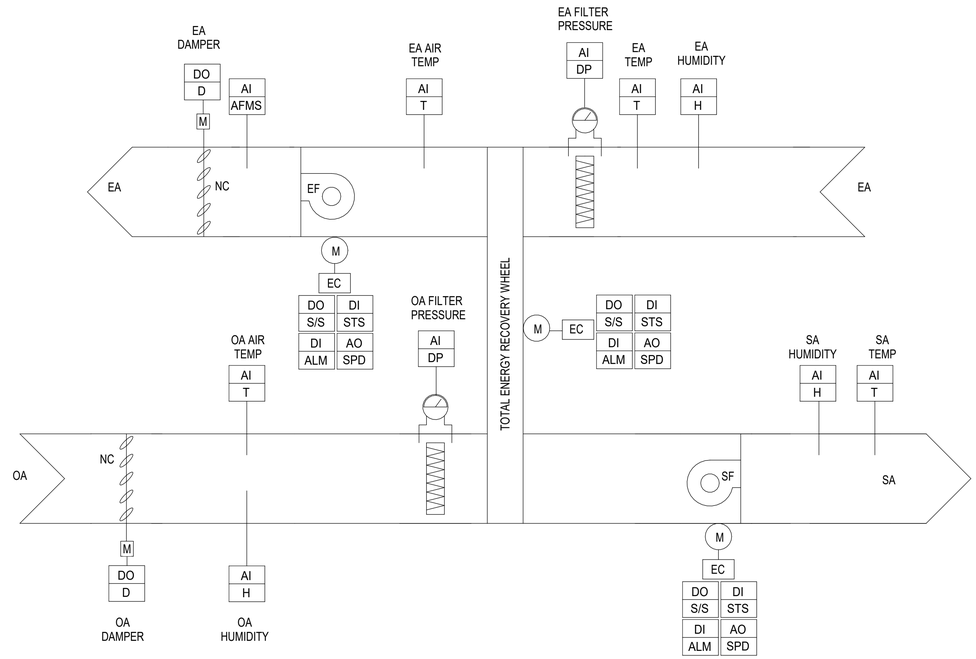
COMMONWEALTH OF VIRGINIA
Matthew A. Wilson
Lic. No. 0402049270
08/16/2023
PROFESSIONAL ENGINEER

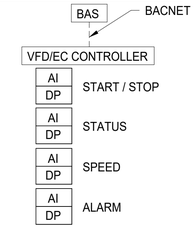
SHEET TITLE
MECHANICAL CONTROLS

SHEET NUMBER
M-801

SHEET # 13 OF 20



EC CONTROLLER CONTROL DIAGRAM



UNITARY PACKAGED DEDICATED OUTDOOR AIR HANDLING SEQUENCE OF OPERATION

A. GENERAL

1. THE UNITARY PACKAGED DEDICATED OUTDOOR AIR HANDLING UNIT SHALL BE PROVIDED WITH EQUIPMENT MANUFACTURER'S UNIT-LEVEL CONTROLLER. CONTROLLER SHALL BE FACTORY PROGRAMMED, MOUNTED, AND TESTED. CONTROLLER SHALL HAVE A REMOTE LCD USER INTERFACE LOCATED IN THE MECHANICAL ROOM FOR CHANGING SETPOINTS AND MONITORING UNIT OPERATION.

2. THE OCCUPANCY MODE (OCCUPIED OR UNOCCUPIED) SHALL BE BASED ON A 7-DAY TIME CLOCK INTERNAL TO THE UNIT-LEVEL CONTROLLER. THE SCHEDULE SHALL BE INITIALLY SET FOR FULL-TIME OCCUPANCY.

B. OCCUPIED MODE (VENTILATION SYSTEM ON)

1. THE OUTDOOR AIR DAMPER AND EXHAUST DAMPER SHALL STROKE TO THE FULLY OPEN POSITION. THE SUPPLY FAN SHALL BE ENERGIZED. FAN SPEED SHALL BE CONSTANT - VFD FOR BALANCING PURPOSES.

2. THE UNIT SHALL OPTIMIZE THE ERW ROTATIONAL SPEED TO RECOVER THE MOST ENERGY POSSIBLE, WITHOUT OVERHEATING/OVER COOLING THE SUPPLY AIR.

C. UNOCCUPIED MODE (VENTILATION SYSTEM OFF)

1. THE SUPPLY FAN, EXHAUST FAN, AND ENERGY WHEEL SHALL BE DE-ENERGIZED. THE OUTDOOR AIR DAMPER SHALL STROKE TO THE FULLY CLOSED POSITION.

2. THE SYSTEM SHALL SHUT DOWN UNTIL THE UNIT IS PLACED INTO OCCUPIED MODE.

D. ALARMS

1. DIRTY FILTER ALARM: IF THE FILTER DIFFERENTIAL PRESSUREEXCEEDS ITS SETPOINT.

2. TEMPERATURE SENSOR ALARM: IF AIR TEMPERATURE SENSOR FAILS.

3. DAMPER SWITCH: DAMPER NOT IN CORRECT POSITION.

1 UNITARY PACKAGED DEDICATED OUTDOOR AIR HANDLING CONTROL DIAGRAM AND SEQUENCE OF OPERATION

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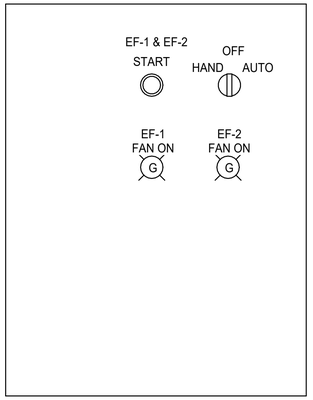
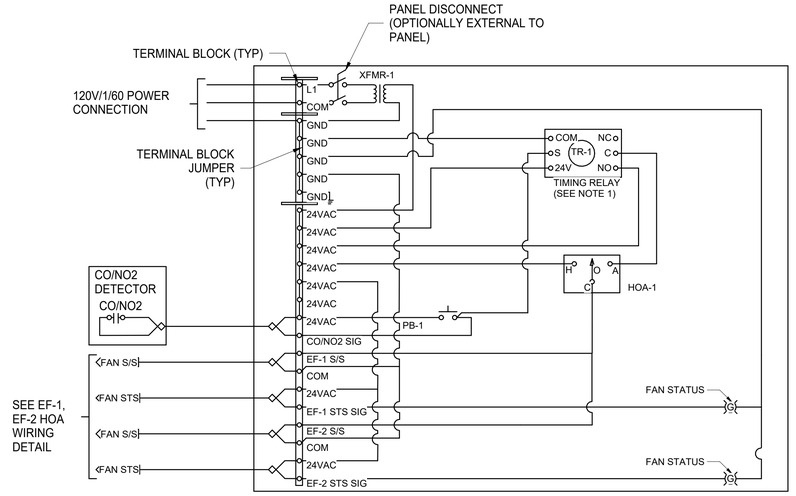
SHEET # 14 OF 20



1 APPARTUS BAY EXHAUST SYSTEM CONTROL DOOR DIAGRAM
NTS



XFMR-1 CLASS 2 100VA 120VAC:24VAC INTEGRAL PRIM AND SEC C/B

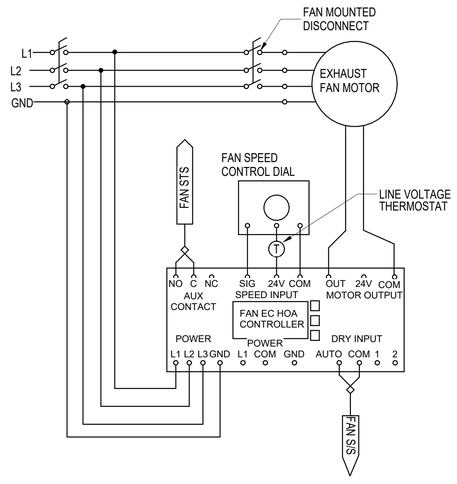
PB-1: START MOMENTARY PUSH BUTTON

TR-1 UNIVERSAL TIMING RELAY

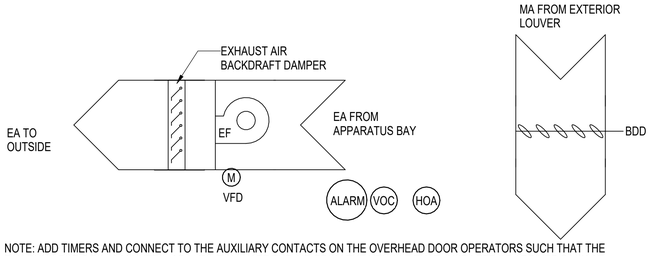
CR-# UNIVERSAL RELAY

2-WIRE, CLASS 2, TWISTED PAIR CABLE

2 APPARTUS BAY EXHAUST SYSTEM CONTROL PANEL WIRING DIAGRAM
NTS



4 EXHAUST FAN HAND-OFF-AUTO CONTROLLER WIRING DIAGRAM
NTS
EF-1 , EF-2



NOTE: ADD TIMERS AND CONNECT TO THE AUXILIARY CONTACTS ON THE OVERHEAD DOOR OPERATORS SUCH THAT THE FAN RUNS FOR 5 TO 10 MINUTES (ADJ.) TO EVACUATE THE AIR FROM THE VEHICLE THAT JUST LEFT OF ARRIVED BACK AT THE STATION.

SEQUENCE OF OPERATION

RUN CONDITIONS:
THE FANS SHALL BE ENERGIZED VIA AN HOA (HAND-OFF-AUTO) SWITCH LOCATED WITHIN THE BAY. THE BACK DRAFT DAMPERS SHALL BE INTERLOCKED WITH THE EXHAUST FAN SUCH TO BE OPEN WHEN THE FAN IS ENGAGED AND CLOSE WHEN THE FAN IS DISENGAGED. UPON FAILURE OF A BACK DRAFT DAMPER TO OPEN, THE FAN SHALL BE PREVENTED FROM ACTIVATING.

IN "HAND" MODE, THE BACK DRAFT DAMPERS SHALL OPEN AND THE FAN SHALL RUN CONTINUOUSLY.

IN "OFF" MODE, THE BACK DRAFT DAMPERS SHALL CLOSE AND THE FAN DE-ENERGIZED.

IN "AUTO" MODE, THE EXHAUST FAN SHALL ENERGIZE AND BACK DRAFT DAMPERS SHALL OPEN WHEN THE VOC SENSOR DETECTS EITHER CARBON MONOXIDE LEVELS ABOVE 25 PPM OR NITROGEN DIOXIDE LEVELS ABOVE 1 PPM. FAN SHALL RUN CONTINUOUSLY UNTIL ALL MEASURED VOLATILE ORGANIC COMPOUND LEVELS IN THE SPACE HAVE FALLEN BELOW THE THRESHOLDS INDICATED ABOVE. UPON DE-ENERGIZING THE FAN, THE BACK DRAFT DAMPERS SHALL RETURN TO THE CLOSED POSITION.

ALARM CONDITIONS:
UPON DETECTION OF EITHER CARBON MONOXIDE LEVELS ABOVE 100 PPM OR NITROGEN DIOXIDE LEVELS ABOVE 3 PPM, THE VOC SENSOR SHALL TRIGGER AN AUDIO-VISUAL ALARM. ALARM SHALL RUN CONTINUOUSLY UNTIL MANUALLY RESET OR UNTIL VOC LEVELS HAVE FALLEN BELOW THE INDICATED THRESHOLDS.

5 APPARATUS BAY EXHAUST FAN CONTROL DIAGRAM AND SEQUENCE OF OPERATION
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MECHANICAL CONTROLS

SHEET NUMBER
M-803

SHEET # 15 OF 20

ELECTRICAL GENERAL NOTES

1. VISIT AND EXAMINE THE SITE PRIOR TO CONSTRUCTION TO ASCERTAIN THE EXISTING CONDITIONS AND LIMITS OF DEMOLITION AND CONSTRUCTION.
2. LAY OUT WORK IN ADVANCE. EXERCISE CARE WHERE CUTTING, CHANNELING, CHASING, OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILING, OR OTHER SURFACES AS NECESSARY FOR INSTALLATION, SUPPORT OR ANCHORAGE OF CONDUIT, RACEWAYS, OR OTHER ELECTRICAL WORK. REPAIR DAMAGE TO BUILDINGS, PIPING, AND EQUIPMENT USING SKILLED CRAFTSMEN OF TRADES INVOLVED.
3. THE REMOVAL OF EXISTING ELECTRICAL DEVICES AND EQUIPMENT INCLUDES THE EQUIPMENT'S ASSOCIATED WIRING, INCLUDING CONDUCTORS, CABLES, EXPOSED CONDUIT, SURFACE METAL RACEWAYS, BOXES, AND FITTINGS, BACK TO THE DEVICES AND EQUIPMENT'S POWER SOURCE.
4. WHERE EQUIPMENT AND CONDUIT HAVE BEEN REMOVED FROM EXISTING SURFACES, REPAIR HOLES LEFT BY MOUNTING HARDWARE. PATCH, PAINT, AND FINISH WALLS, FLOORS AND CEILINGS TO MATCH EXISTING ADJACENT SURFACES.
5. MAINTAIN CONTINUITY OF EXISTING CIRCUITS OF EQUIPMENT TO REMAIN. MAINTAIN EXISTING CIRCUITS OF EQUIPMENT ENERGIZED. RESTORE CIRCUITS WIRING AND POWER WHICH ARE TO REMAIN BUT WERE DISTURBED DURING DEMOLITION BACK TO ORIGINAL CONDITION.
6. DISCONNECT AND REMOVE ALL EXISTING BOXES, CONDUIT, AND WIRE SCHEDULED TO BE DEMOLISHED.
7. CONTRACTOR MAY REUSE EXISTING BOXES AND CONDUIT WHERE POSSIBLE. CONTRACTOR SHALL PROVIDE ADDITIONAL BOXES, FITTINGS, CONDUIT, AND WIRE AS NECESSARY. CONDUIT SHALL BE SUPPORTED AND SECURED IN ACCORDANCE WITH THE NEC.
8. WHERE EXTENSION OF AN EXISTING CIRCUIT IS REQUIRED, RUN CONDUIT AND WIRE (CONCEALED WHERE POSSIBLE) FROM THE CIRCUITS EXISTING LOCATION TO ITS NEW LOCATION.
9. PROPERLY SEAL ALL NEW AND EXISTING FLOOR, CEILING, AND WALL PENETRATIONS.
10. FURNISH NEW UPDATED PANELBOARD DIRECTORIES FOR PANELS AFFECTED BY THIS WORK.
11. ELECTRICAL EQUIPMENT AND CIRCUITS SHALL BE MARKED AND LABELED FOR IDENTIFICATION PURPOSES IN ACCORDANCE WITH THE NEC AND SPECIFICATIONS.
12. ANY ELECTRICAL OUTAGES REQUIRED BY THIS WORK SHALL BE COORDINATED WITH THE OWNER AND CONFIRMED IN WRITING.
13. SHARED NEUTRAL CONDUCTORS ARE NOT ALLOWED.
14. EXISTING CIRCUIT NUMBERS SHOWN ON DRAWING ARE FROM EXISTING DRAWINGS DATED 08/16/1999 CONTRACTOR MUST FIELD VERIFY AND DOCUMENT ON AS-BUILT DRAWINGS.

ABBREVIATIONS

A	AMPERES, AMPS
ACT	ABOVE COUNTER TOP
AFF	ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE UON
C	CONDUIT
CB	MOLDED-CASE CIRCUIT BREAKER
(E)	EXISTING
EM	EMERGENCY POWER
EMT	ELECTRICAL METALLIC TUBING
EC	EMPTY CONDUIT WITH PULL WIRE OR TAPE
EF	EXHAUST FAN
OFOI	OWNER FURNISHED OWNER INSTALLED
GND	GROUND
HP	HORSEPOWER
IDS	INTRUSION DETECTION SYSTEM
KAIC	ONE-THOUSAND AMPERE INTERRUPTING CAPACITY SYMMETRICAL AT CIRCUIT BREAKER OPERATING VOLTAGE
KW	KILOWATT
LTS	LIGHTS
MLO	MAIN LUGS ONLY
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEC	NATIONAL ELECTRICAL CODE
PH,Ø	PHASE
RECPT(S)	RECEPTACLE(S)
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UTP	UNSHIELDED, TWISTED PAIR
V	VOLTAGE, VOLTS
W	WIRE OR WATTS
W/	WITH
1P	SINGLE POLE

ELECTRICAL LEGEND

(E)	ELECTRICAL EQUIPMENT CONNECTION
WP GFI	20A, 125V DUPLEX CONVENIENVE RECEPTACLE, SUBSCRIPT "GFI", WHEN SHOWN, INDICATES RECEPTACL WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTING PROTECTION, "WP", WHEN SHOWN, INDICATES WEATHERPROOF ENCLOSURE; MOUNT 24" AFG UON
3P 60/40 3R, NF	DISCONNECT SWITCH, 240V IN NEMA-1 HEAVY DUTY ENCLOSURE UON; 3P=No. OF POLES, 60=SWITCH RATIN, 40=FUSE RATING; 3R INDICATES NEMA-3R ENCLOSURE; SN INDICATES SOLID NEUTRAL BAR; 4X INDICATES NEMA 4X ENCLOSURE; NF INDICATES NON-FUSIBLE.
	BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT, NO TICK MARKS INDICATE 2#12 CONDUCTORS AND 1#12 GROUND IN 1/2" CONDUIT UON. TICK MARKS, WHEN SHOWN, INDICATE NUMBER OF #12 CONDUCTORS IF OTHER THAN THREE; (|) INDICATES GROUND. CONDUIT LARGER THAN 1/2" AND WIRE LARGER THAN #12, SHALL BE AS INDICATED.
A-1,3,5	HOMERUNS TO PANEL. PANEL AND CIRCUIT DESIGNATION AS INDICATED.
▬	SURFACE MOUNTED PANELBOARD, 208Y/120V, 3Ø, 4W UON

LEGEND NOTES

1. LIGHTER LINE WEIGHTS INDICATE EXISTING ITEMS, HEAVIER LINE WEIGHTS INDICATE NEW ITEMS, DASHED LINE WEIGHTS INDICATE ITEMS TO BE DEMOLISHED UNDER THIS CONTRACT.

LIFE SAFETY LEGEND

1 HOUR RATED WALL ASSEMBLY	
2 HOUR RATED WALL ASSEMBLY	

ELECTRICAL SPECIFICATIONS

16.101. THE WORK INCLUDES PROVIDING A COMPLETE AND OPERABLE ELECTRICAL SYSTEM AS WELL AS MODIFICATION TO THE EXISTING ELECTRICAL SYSTEMS IN ACCORDANCE WITH THESE SPECIFICATIONS AND ASSOCIATED DRAWINGS.

16.201. ALL WORK SHALL BE PERFORMED IN A FIRST CLASS MANNER AND SHALL BE IN ACCORDANCE WITH THE BEST COMMERCIAL PRACTICE.

16.202. ALL MATERIAL SHALL BE NEW, UNLESS OTHERWISE NOTED, AND SHALL BE UNDERWRITER'S LABORATORIES, INC., LISTED AND LABELED.

16.203. THIS CONTRACTOR SHALL HAVE ALL WORK INSPECTED AND APPROVED BY THE LOCAL ELECTRICAL INSPECTOR, AND PAY ALL APPLICABLE FEES.

16.204. THE SYSTEM DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL DETAILS. ACCESSORIES SHALL BE PROVIDED WHERE REQUIRED TO OBTAIN A COMPLETE AND OPERABLE SYSTEM; THIS PARTICULARLY REFERS TO SMALLER DETAILS NECESSARY FOR A WORKMANLIKE JOB.

16.205. EQUIPMENT AND MATERIALS SHOWN TO BE REMOVED AND NOT REUSED MAY REMAIN PROPERTY OF OWNER; OTHERWISE IT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE OWNER'S PROPERTY. THE OWNER WILL NOT BE RESPONSIBLE FOR THE CONDITION OR LOSS OF, OR DAMAGE TO, SUCH PROPERTY AFTER NOTICE TO PROCEED. MATERIALS AND EQUIPMENT SHALL NOT BE VIEWED BY PROSPECTIVE PURCHASERS OR SOLD ON THE SITE.

16.206. CONTRACTORS ACKNOWLEDGE AND AGREE THAT THEY HAVE CAREFULLY EXAMINED AND UNDERSTAND PLANS, SPECIFICATIONS, AND ADDENDA THERETO. CONTRACTORS SHALL VISIT THE SITE AND SATISFY THEMSELVES AS TO THE NATURE AND LOCATION OF WORK; GENERAL AND LOCAL CONDITIONS: TRANSPORTATION, DISPOSAL, HANDLING, AND STORAGE OF MATERIALS, AVAILABILITY TO WATER, ELECTRIC POWER, AND OTHER FACILITIES IN THE AREA WHICH WILL HAVE BEARING ON PERFORMANCE OF THEIR WORK. FAILURE BY THE CONTRACTORS TO ACQUAINT THEMSELVES WITH THE ABOVE INFORMATION SHALL NOT RELIEVE THEM FROM ANY RESPONSIBILITY IN FULFILLING THIS CONTRACT.

16.207. BEFORE PLACING ORDERS FOR MATERIALS OR EQUIPMENT TO BE FURNISHED, CONTRACTORS SHALL SATISFY THEMSELVES AND VERIFY THAT EQUIPMENT WILL PROPERLY FIT IN ALLOCATED SPACES WITH PROPER AREA ALLOWED FOR SERVICING AND THAT ELECTRICAL APPARATUS IS OF PROPER VOLTAGE, PHASE, AND CURRENT RATING, AND WILL FUNCTION PROPERLY.

16.208. WITHIN THIRTY (30) CALENDAR DAYS AFTER AWARD OF CONTRACT, SUBMIT PRODUCT DATA OF ALL PROPOSED MATERIALS AND EQUIPMENT, FOR APPROVAL, BEFORE ANY PURCHASES ARE MADE. SEE SPECIFICATION SECTION 013300 SUBMITTAL PROCEDURES.

16.301. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE 2017 NATIONAL ELECTRICAL CODE.

16.302. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL DEMONSTRATE TO THE OWNER OR THEIR DESIGNATED REPRESENTATIVE THAT ALL SYSTEM COMPONENTS ARE INSTALLED AND OPERABLE.

16.303. CONTRACTORS SHALL GUARANTEE FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE, ALL APPARATUS INSTALLED BY THEM TO BE FREE FROM MECHANICAL AND ELECTRICAL DEFECTS OR DEFECTS IN WORKMANSHIP (WEAR AND TEAR EXCEPTED) AND TO REPLACE ANY APPARATUS IF, IN THE OPINION OF THE OWNER OR THEIR DESIGNATED REPRESENTATIVE, THE RESPONSIBILITY LIES WITH THE CONTRACTOR.

16.401. WIRE SHALL BE COPPER WITH TYPE THHN/THWN 600 VOLT INSULATION. MINIMUM SIZE SHALL BE #12 AWG.

16.402. NO. 12 AND NO. 10 WIRES MAY BE SPLICED WITH WIRE NUTS. NO. 8 AND LARGER WIRES SHALL BE SPLICED OR TERMINATED WITH PRESSURE OR BOLTED TYPE CONNECTORS.

16.403. EXCEPT WHERE INDICATED WIRING SHALL BE INDIVIDUALLY INSULATED CONDUCTORS IN INTERMEDIATE METAL CONDUIT OR ELECTRICAL METALLIC TUBING.

16.501. CONDUIT SHALL BE INTERMEDIATE METAL CONDUIT (IMC) OR ELECTRICAL METALLIC TUBING (EMT) UON, WITH SET SCREW STEEL FITTINGS.

16.502. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE OF INTERLOCKED STEEL CONSTRUCTION WITH PVC JACKET.

16.503. MINIMUM SIZE OF CONDUIT SHALL BE 1/2" WITH LARGER SIZES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

16.504. FLEXIBLE RACEWAYS SHALL BE PROVIDED FOR EQUIPMENT CONNECTIONS WHERE SUBJECT TO MOVEMENT OR VIBRATION.

16.505. CONDUIT SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND SHALL BE PARALLEL OR PERPENDICULAR TO WALLS OR STRUCTURAL MEMBERS.

16.506. BOXES SHALL BE GALVANIZED SHEET METAL.

16.507. CONDUIT PENETRATIONS THROUGH WALLS AND SLABS SHALL BE PROPERLY SEALED.

16.508. BOXES IN DAMP LOCATIONS SHALL BE CAST METAL WITH WEATHERPROOF COVERS AND GASKETS.

16.601. WIRING DEVICES SHALL BE HEAVY DUTY TYPE, SIDE-WIRING-ONLY. COLOR OF WIRING DEVICES AND WALL PLATES SHALL BE STAINLESS STEEL.

16.602. A WALL PLATE OR COVER, AS APPROPRIATE, SHALL BE PROVIDED FOR EACH NEW DEVICE.

16.603. WHERE MULTIPLE DEVICES ARE INSTALLED ADJACENT TO ONE ANOTHER, THEY SHALL BE INSTALLED TOGETHER IN A MULTIPLE-GANG BOX UNDER A SINGLE WALL PLATE.

16.701. DISCONNECT SWITCHES SHALL BE THE HEAVY DUTY TYPE.

16.702. FUSES SHALL BE TYPE CLASS "R".

16.801. PANELBOARDS SHALL BE OF THE MOLDED CASE BOLT-ON CIRCUIT BREAKER TYPE WITH COPPER BUS AND COPPER GROUND BUS. ENCLOSURE SHALL BE NEMA TYPE 1. PROVIDE A TYPED PANEL SCHEDULE; MOUNT 72" AFF AT TOP.

16.901. PROVIDE IDENTIFICATION PLATES FOR EACH PANELBOARD AND DISCONNECT SWITCH, AN ENGRAVED, THREE-LAYER LAMINATED PLASTIC IDENTIFICATION PLATE WITH 3/16" BLACK LETTERS ON A WHITE BACKGROUND.

16.902. PANELBOARD PLATE SHALL INDICATE THE PANEL'S DESIGNATION, POWER SOURCE, & VOLTAGE.

16.903. DISCONNECT SWITCH PLATES SHALL INDICATE THE POWER SOURCE, VOLTAGE, AND EQUIPMENT SERVED.

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COMMONWEALTH OF VIRGINIA
JOSEPH ADAM MICKIEWICZ
Lic. No. 038888
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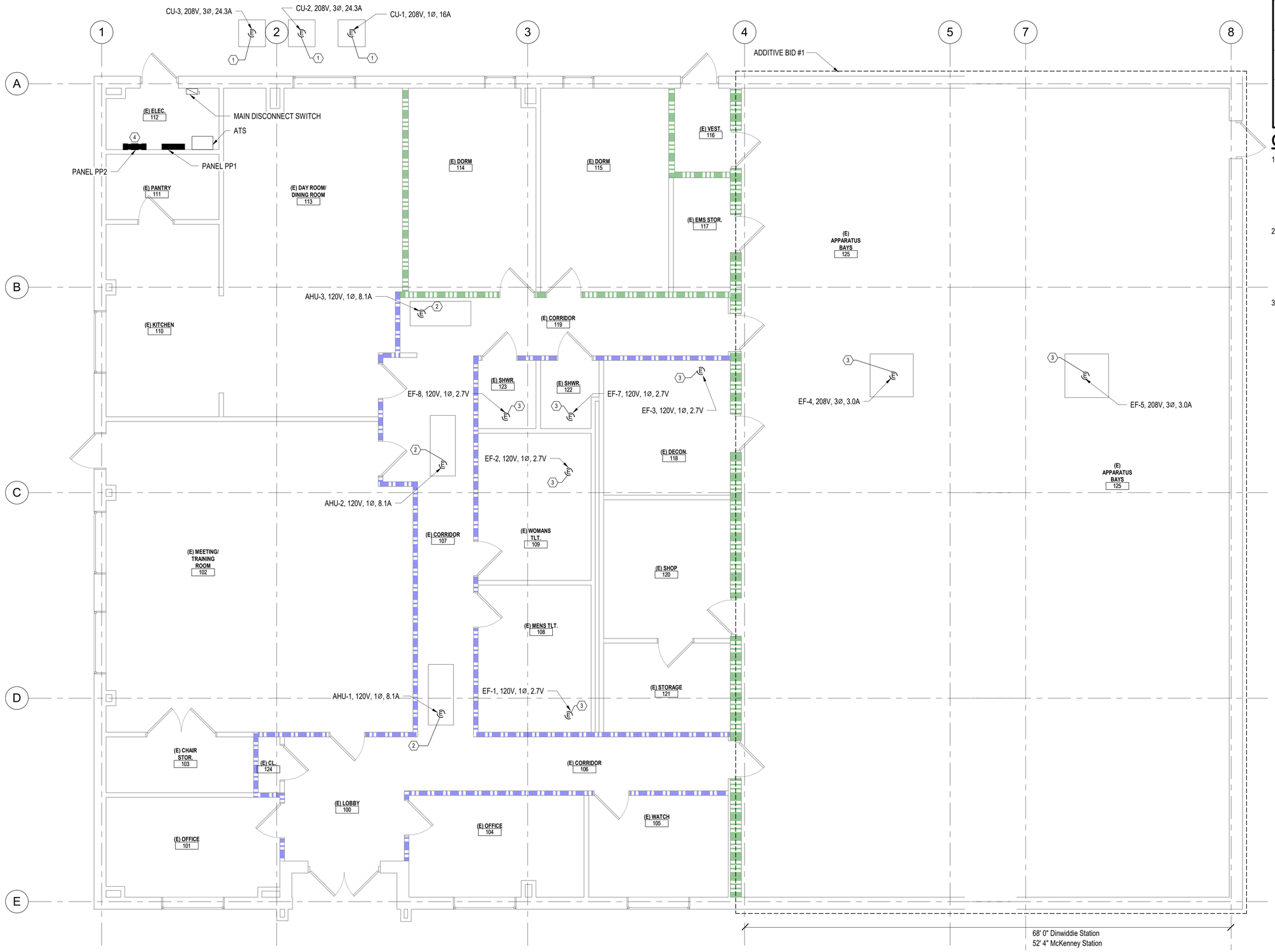
SHEET TITLE
ELECTRICAL LEGEND AND NOTES

SHEET NUMBER
E-001

SHEET # 16 OF 20



ELECTRICAL KEYNOTES

1	DISCONNECT AND REMOVE CONDENSING UNIT AND DISCONNECT SWITCH WITH BOXES, WIRE, AND CONDUIT.
2	DISCONNECT AND REMOVE AIR HANDLING UNIT WITH BOXES, WIRE, AND CONDUIT.
3	DISCONNECT AND REMOVE EXHAUST FAN AND DISCONNECT SWITCH WITH BOXES, WIRE, AND CONDUIT.
4	DISCONNECT AND REPLACE EXISTING PANELBOARD, CONDUIT AND WIRE SHALL REMAIN FOR CONNECTION TO NEW PANELBOARD. SEE SCHEDULING NOTES ON SHEETS E-501 AND E-502.

GENERAL NOTES

1. AS NEEDED FOR DEMOLITION DISCONNECT AND REMOVE LIGHTING FIXTURES DURING CEILING REMOVAL. STORE IN SAFE LOCATION FOR REINSTALLATION IN EXISTING LOCATIONS WHEN CEILINGS ARE REINSTALLED AS AT PRESENT.
2. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHUS WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHUS WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
3. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS.

ELECTRICAL DEMOLTION PLAN

1/4" = 1'-0"

PLAN NORTH
MCKENNEY

PLAN NORTH
DINWIDDIE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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DINWIDDIE COUNTY

100% DESIGN SUBMITTAL

DINWIDDIE AND MCKENNEY FIRE STATION MECHANICAL HVAC EQUIPMENT REPLACEMENT

13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	1/4" = 1'-0"
DESIGNED:	JAM
DRAWN:	DBR
CHECKED:	JAM
DATE:	08/16/2023

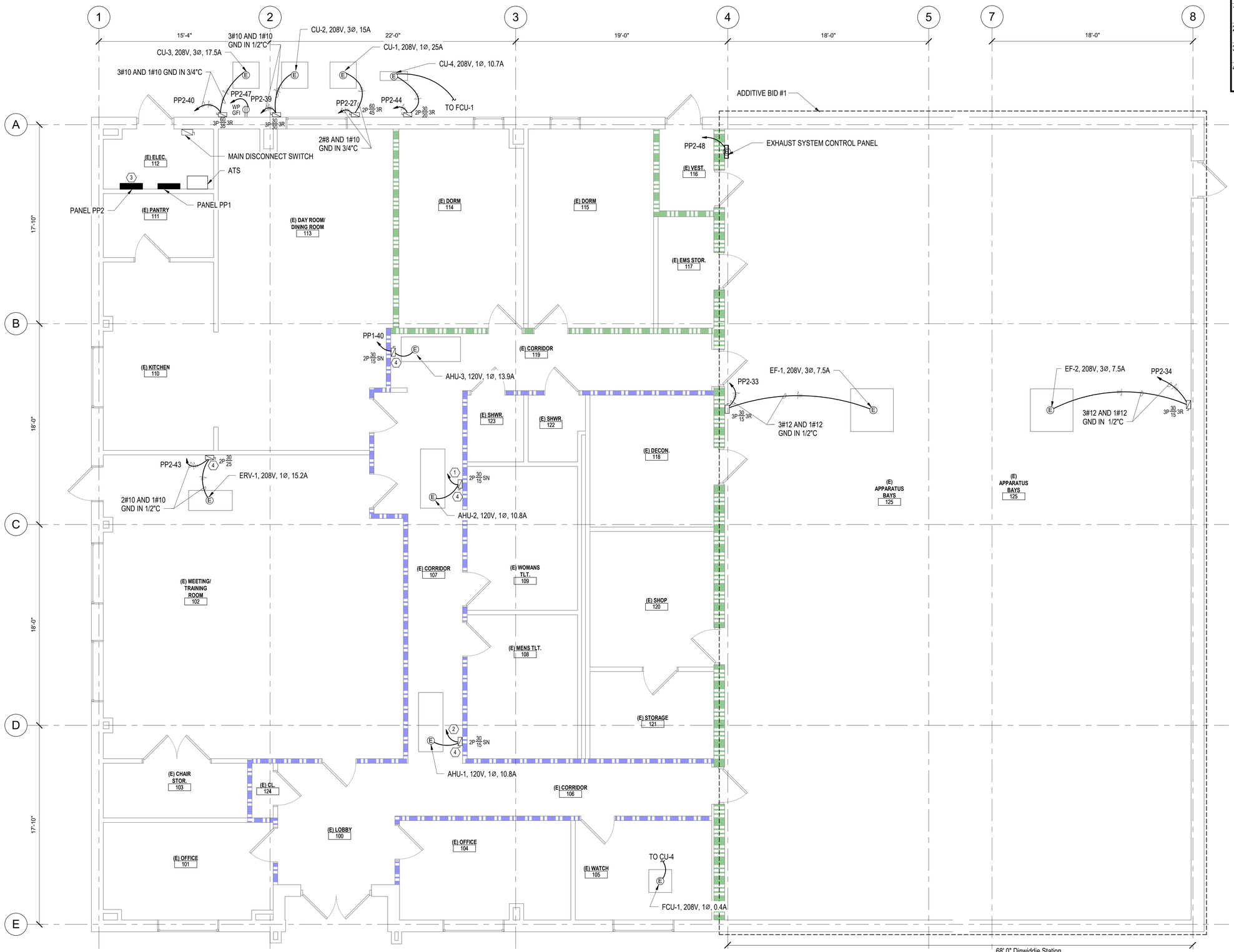
COMMONWEALTH OF VIRGINIA
JOSEPH ADAM MICKIEWICZ
Lic. No. 038888
08/16/23
PROFESSIONAL ENGINEER

SHEET TITLE
ELECTRICAL DEMOLITION

SHEET NUMBER
ED101

SHEET # 17 OF 20

8/16/2023 9:52:32 AM Autodesk Docs://Dinwiddie & McKenney FS HVAC Replacement/2240040 - Dinwiddie-McKenney FS Mechanical Replacement - MEP.rvt



FIRST FLOOR ELECTRICAL NEW WORK PLAN

1/4" = 1'-0"

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

PLAN NORTH
MCKENNEY

PLAN NORTH
DINWIDDIE

ELECTRICAL KEYNOTES

1	CONNECT TO CIRCUIT PP1-38 AT DINWIDDIE FS AND CIRCUIT PP1-37 AT MCKENNEY FS.
2	CONNECT TO CIRCUIT PP1-37 AT DINWIDDIE FS AND CIRCUIT PP1-35 AT MCKENNEY FS.
3	EXTEND AND CONNECT EXISTING CIRCUITS TO NEW 54 POLE PANELBOARD.
4	MOUNT DISCONNECT SWITCH ABOVE CEILING ADJACENT TO MECHANICAL EQUIPMENT.

GENERAL NOTES

1. **BASE BID:** ALL WORK ASSOCIATED WITH DEMOLITION OF EXISTING AHUS WITH FURNACES, BATHROOM EXHAUST SYSTEMS, CONDENSERS AND REPLACEMENT WITH NEW AHUS WITH FURNACES, CONDENSERS, FCU, AND ERV FOR THE OFFICE SIDE OF THE BUILDING.
2. **ADDITIVE BID ITEM 1:** ALL WORK ASSOCIATED WITH THE DEMOLITION AND REPLACMENT OF THE EXISITING APP BAY EXHAUST FANS, INCLUDING NEW CONTROLS AND SENSORS.

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13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	1/4" = 1'-0"
DESIGNED:	JAM
DRAWN:	DBR
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
JOSEPH ADAM MICKIEWICZ
Lic. No. 038888
08/16/23
PROFESSIONAL ENGINEER

SHEET TITLE
ELECTRICAL NEW WORK PLAN

SHEET NUMBER
E-101

SHEET # 18 OF 20

8/16/2023 9:52:34 AM Autodesk Docs://Dinwiddie & McKenney FS HVAC Replacement/2240040 - Dinwiddie-McKenney FS Mechanical Replacement - MEP.rvt

EXISTING PANELBOARD SCHEDULE

PANEL "PP1"

400A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — DINWIDDIE FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
RECEPT.TELE. BOARD	3.0			10	20	12	1		2	12	20	10	8.0			DAY ROOM RECEPT
KITCHEN RECEPT		3.0		10	20	12	3		4	12	20	10		6.0		DORM. ROOM.RECEPT
KITCHEN RECEPT			4.5	10	20	12	5		6	12	20	10			10.6	MEETING/TRAIN RECEPT
KITCHEN REFRIG.	7.3			10	20	12	7		8	12	20	10	10.6			OFFICE RECEPT
KITCHEN RANGE		2.2		10	20	12	9		10	12	20	10		3.0		CHARGING RECEPT
RESTROOM RECEPT			3.0	10	20	12	11		12	12	20	10			6.0	WATCH RECEPT
SHOP RECEPT	3.0			10	20	12	13		14	12	20	10	6.0			APPARATUS ROOM RECEPT
SHOP RECEPT		4.5		10	20	12	15		16	8	20	10		13.9		DRYER RECEPT
HWH CONTROL			3.0	10	20	12	17								13.9	
WASHER RECEPT	4.0			10	20	12	19		20	10	20	10	12.6			OVERHEAD DOORS
OVERHEAD DOORS		12.6		10	20	12	21		22	10	20	10		6.4		OVERHEAD DOORS
OVERHEAD DOORS			6.4	10	20	12	23		24	10	20	10			8.4	GENERATOR HEATER
APPARATUS RM RECEPT	6.0			10	20	10	25		26	10	20	10	4.5			GENERATOR CHARGER
OUTDOOR RECEPT		3.0		10	20	10	27		28	10	20	10		3.0		CHARGING RECEPT
			-						30	12	20	10			-	FLAG POLE LIGHT
AIR COMPRESSOR	-			10	25	10	31		32	12	20	10	-			SIGN OUT FRONT
		-							34	12	20	10		-		TUMBLER DRYER
RHT-2			2.0	10	20	12	35		36	12	20	10			-	MOTOROLA RECEPT
~~F-1 (AHU-1)~~	~~8.1~~			10	20	~~12~~	37		38	~~12~~	20	10	8.1			~~F-2 (AHU-2)~~
SUB PANEL BAY DOORS		-		10	100	3	39		40	~~12~~	20	10		8.1		~~F-3 (AHU-3)~~
			-						42	12	20	10			-	
TOTAL	31.4	25.3	18.9										49.8	40.4	38.9	TOTAL

TOTAL CONNECTED AMPS A= 81.2 B= 65.7 C= 57.8

UPDATED PANELBOARD SCHEDULE

PANEL "PP1"

400A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — DINWIDDIE FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
RECEPT.TELE. BOARD	3.0			10	20	12	1		2	12	20	10	8.0			DAY ROOM RECEPT
KITCHEN RECEPT		3.0		10	20	12	3		4	12	20	10		6.0		DORM. ROOM. RECEPT
KITCHEN RECEPT			4.5	10	20	12	5		6	12	20	10			10.6	MEETING/TRAIN RECEPT
KITCHEN REFRIG.	7.3			10	20	12	7		8	12	20	10	10.6			OFFICE RECEPT
KITCHEN RANGE		2.2		10	20	12	9		10	12	20	10		3.0		CHARGING RECEPT
RESTROOM RECEPT			3.0	10	20	12	11		12	12	20	10			6.0	WATCH RECEPT
SHOP RECEPT	3.0			10	20	12	13		14	12	20	10	6.0			APPARATUS ROOM RECEPT
SHOP RECEPT		4.5		10	20	12	15		16	8	20	10		13.9		DRYER RECEPT
HWH CONTROL			3.0	10	20	12	17								13.9	
WASHER RECEPT	4.0			10	20	12	19		20	10	20	10	12.6			OVERHEAD DOORS
OVERHEAD DOORS		12.6		10	20	12	21		22	10	20	10		6.4		OVERHEAD DOORS
OVERHEAD DOORS			6.4	10	20	12	23		24	10	20	10			8.4	GENERATOR HEATER
APPARATUS RM RECEPT	6.0			10	20	10	25		26	10	20	10	4.5			GENERATOR CHARGER
OUTDOOR RECEPT		3.0		10	20	10	27		28	10	20	10		3.0		CHARGING RECEPT
			-						30	12	20	10			-	FLAG POLE LIGHT
AIR COMPRESSOR	-			10	25	10	31		32	12	20	10	-			SIGN OUT FRONT
		-							34	12	20	10		-		TUMBLER DRYER
RHT-2			2.0	10	20	12	35		36	12	20	10			-	MOTOROLA RECEPT
AHU-1	**10.8**			10	20	**12**	37		38	**12**	20	10	**7.9**			**AHU-2**
SUB PANEL BAY DOORS		-		10	100	3	39		40	**12**	20	10		**13.9**		**AHU-3**
			-						42	12	20	10			-	
TOTAL	34.1	25.3	18.9										49.6	46.2	38.9	TOTAL

TOTAL CONNECTED AMPS A= 83.7 B= 71.5 C= 57.8

TOTAL CONNECTED AMPS INCLUDING SUBFED PANEL PP2 BREAKER A= 229.9 B= 243.3 C= 190.6

EXISTING PANELBOARD SCHEDULE

PANEL "PP2"

225A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — DINWIDDIE FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
LTS. DORM ROOMS	7.3			10	20	12	1		2	10	20	10	14.5			LTS. APPARATUS RM
LTS. DAYROOM/KITCHEN		8.7		10	20	12	3		4	10	20	10		14.5		LTS. APPARATUS RM
LTS. TRAINING RM			5.4	10	20	12	5		6	10	20	10			14.5	LTS. APPARATUS RM
LTS TRAINING RM	5.4			10	20	12	7		8	12	20	10	8.2			LTS. HALL
LTS. OFFICE		6.3		10	20	12	9		10	12	20	10		6.3		LTS. DECON/SHOP
LTS. RESTROOMS			4.9	10	20	12	11		12	10	20	10			7.7	FRONT LTS. CANOPY
LTS. REAR WALL	9.6			10	20	12	13		14	12	20	10	--			PANTRY REC.
		16.7							16	10	25	10		--		DISHWASHER
CORNER WASHER			16.7	10	25	10	17		18	10	25	10			--	ICE MAKER
	16.7								20	10	25	10	--			TRUCK BAY CEILING
SPARE				10	20		21							11.1		
SPARE				10	20		23		24	1	100	10			11.1	WH PANEL
~~EF 7 & 8~~	~~4.5~~			10	20	12	25						11.1			
~~CU-1~~		~~16.0~~		~~10~~	~~30~~	~~10~~	27		28	12	20	10		9.8		EF-6
			~~16.0~~						30	12	20	10				SHUNT TRIP
	~~3.0~~												~~3.0~~			
~~EF-4~~		~~3.0~~		10	20	12	33		34	~~12~~	20	10		~~3.0~~		~~EF-5~~
			~~3.0~~												~~3.0~~	
	~~24.3~~												~~24.3~~			
~~CU-2~~		~~24.3~~		~~10~~	~~35~~	~~8~~	39		40	~~8~~	35	10		~~24.3~~		~~CU-3~~
			~~24.3~~												~~24.3~~	
TOTAL	70.8	75.0	70.3										61.1	59.0	60.6	TOTAL

TOTAL CONNECTED AMPS A= 131.9 B= 134.0 C= 130.9

NEW PANELBOARD SCHEDULE

PANEL "PP2"

225A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — DINWIDDIE FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
LTS. DORM ROOMS	7.3			**10**	**20**	12	1		2	10	**20**	**10**	14.5			LTS. APPARATUS RM
LTS. DAYROOM/KITCHEN		8.7		**10**	**20**	12	3		4	10	**20**	**10**		14.5		LTS. APPARATUS RM
LTS. TRAINING RM			5.4	**10**	**20**	12	5		6	10	**20**	**10**			14.5	LTS. APPARATUS RM
LTS TRAINING RM	5.4			**10**	**20**	12	7		8	12	**20**	**10**	8.2			LTS. HALL
LTS. OFFICE		6.3		**10**	**20**	12	9		10	12	**20**	**10**		6.3		LTS. DECON/SHOP
LTS. RESTROOMS			4.9	**10**	**20**	12	11		12	10	**20**	**10**			7.7	FRONT LTS. CANOPY
LTS. REAR WALL	9.6			**10**	**20**	12	13		14	12	**20**	**10**	--			PANTRY REC.
		16.7							16	10	**25**	**10**		--		DISHWASHER
CORNER WASHER			16.7	**10**	**25**	10	17		18	10	**25**	**10**			--	ICE MAKER
	16.7								20	10	**25**	**10**	--			TRUCK BAY CEILING
SPARE				**10**	**20**		21							11.1		
SPARE				**10**	**20**		23		24	1	**100**	**10**			11.1	WH PANEL
SPARE	--			**10**	**20**		25						11.1			
CU-1		**25.0**		**10**	**45**	8	27		28	12	**20**	**10**		9.8		EF-6
			25.0						30	12	**20**	**10**				SHUNT TRIP
	7.5												**7.5**			
EF-1		**7.5**		**10**	**20**	**12**	33		34	**12**	**20**	**10**		**7.5**		**EF-2**
			7.5												**7.5**	
	15.0												**17.5**			
CU-2		**15.0**		**10**	**30**	**10**	39		40	10	**35**	**10**		**17.5**		**CU-3**
			15.0												**17.5**	
ERV-1	**15.2**			**10**	**25**	**10**	43		44	**12**	**20**	**10**	**10.7**			**CU-4**
		15.2												**10.7**		
EXTERIOR RECEPTACLE			**1.5**	**10**	**20**	**12**	47		48	**12**	**20**	**10**			--	**EXHAUST FAN CONTROL PAN**
SPARE	--			**10**	**20**		49		50		**20**	**10**	--			**SPARE**
SPACE ONLY		--					51		52					--		**SPACE ONLY**
SPACE ONLY			--				53		54						--	**SPACE ONLY**
TOTAL	76.7	94.4	76.0										69.5	77.4	58.3	TOTAL

TOTAL CONNECTED AMPS A= 146.2 B= 171.8 C= 134.3

NOTE: CONTRACTOR SHALL COORDINATE THE REPLACEMENT OF PANEL PP2 WITH THE OWNER. ONCE THE CONTRACTOR STARTS THE PANEL REPLACEMENT, WORK SHALL CONTINUE AROUND THE CLOCK UNTIL THE NEW PANEL IS OPERATIONAL FOR THE EXISTING CIRCUITS TO FACILITATE THE OWNER'S CONTINUED USE OF THE STATION.

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DINWIDDIE AND MCKENNEY FIRE STATION MECHANICAL HVAC EQUIPMENT REPLACEMENT

13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER
2240040

SCALE:	AS NOTED
DESIGNED:	JAM
DRAWN:	DBR
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
JOSEPH ADAM MICKIEWICZ
Lic. No. 038888
08/16/23
PROFESSIONAL ENGINEER

SHEET TITLE
ELECTRICAL PANELBOARD SCHEDULES

SHEET NUMBER
E-501

SHEET # 19 OF 20

PANELBOARD SCHEDULE

PANEL "PP1"

400A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — MCKENNEY FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
RECEPT TELEPHONE	3.0			10	20	12	1		2	12	20	10	8.0			DAY ROOM RECEPT
KITCHEN RECEPT		3.0		10	20	12	3		4	12	20	10		6.0		DORM. ROOM.RECEPT
KITCHEN RECEPT			4.5	10	20	12	5		6	12	20	10			10.6	MEETING/TRAIN RECEPT
KITCHEN REFRIG.	7.3			10	20	12	7		8	12	20	10	10.6			OFFICE RECEPT
KITCHEN RANGE		2.2		10	20	12	9		10	12	20	10		3.0		CHARGING RECEPT
RESTROOM RECEPT			3.0	10	20	12	11		12	12	20	10			6.0	WATCH RECEPT
SHOP RECEPT	3.0			10	20	12	13		14	12	20	10	6.0			APPARATUS ROOM RECEPT
SHOP RECEPT		4.5		10	20	12	15		16	8	20	10		13.9		DRYER RECEPT
HWH CONTROL			3.0	10	20	12	17				20	10			13.9	
WASHER RECEPT	4.0			10	20	12	19		20	10	20	10	12.6			OVERHEAD DOORS
OVERHEAD DOORS		12.6		10	20	12	21		22	10	20	10		6.4		OVERHEAD DOORS
OVERHEAD DOORS			6.4	10	20	12	23		24	10	20	10			8.4	GENERATOR HEATER
APPARATUS RM RECEPT	6.0			10	20	10	25		26	10	20	10	4.5			GENERATOR CHARGER
OUTDOOR RECEPT		3.0		10	20	10	27		28	10	20	10		3.0		CHARGING RECEPT
			-						30	12	20	10			-	ATTIC LIGHT
CORNER WASHER	-			10	25	10	31		32	12	20	10	-			DISHWASHER
		-							34	12	20	10		-		ISCE MAKER
~~F-1 (AHU-1)~~			~~8.1~~	10	20	~~12~~	35		36	12	20	10			-	FLAG POLE LIGHT
~~F-2 (AHU-2)~~	~~8.1~~			10	20	~~12~~	37		38	12	20	10	-			OUTSIDE SIGN
NEW DRYER		-		10	35	3	39		40	~~12~~	20	10		8.1		~~F-3 (AHU-3)~~
			-	10	35		41		42	12	20	10			-	
TOTAL	**31.4**	**25.3**	**18.9**										**41.7**	**32.3**	**38.9**	**TOTAL**

TOTAL CONNECTED AMPS A= 73.1 B= 57.6 C= 57.8

PANELBOARD SCHEDULE

PANEL "PP2"

225A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — MCKENNEY FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
LTS. DORM ROOMS	7.3			10	20	12	1		2	10	20	10	14.5			LTS. APPARATUS RM
LTS. DAYROOM/KITCHEN		8.7		10	20	12	3		4	10	20	10		14.5		LTS. APPARATUS RM
LTS. TRAINING RM			5.4	10	20	12	5		6	10	20	10			14.5	LTS. APPARATUS RM
LTS TRAINING RM	5.4			10	20	12	7		8	12	20	10	8.2			LTS. HALL
LTS. OFFICE		6.3		10	20	12	9		10	12	20	10		6.3		LTS. DECON/SHOP
LTS. RESTROOMS			4.9	10	20	12	11		12	10	20	10			7.7	LTS. CANOPY/FRONT
LTS. REAR WALL	9.6			10	20	12	13		14	12	20	10	--			RECEPT FOR TV
		16.7							16	10	25	10		--		ICE MAKER
AIR COMPRESSOR			16.7	10	25	12	17		18	10	25	10			--	FUEL PUMP
	16.7								20	10	25	10	--			BAY HEAT BACK
SPARE		--		10	20	12	21		22		20	10				SPARE
MOTOROLA RECEPT			--	10	20	12	23									
~~EF-7 & 8~~	~~4.5~~			10	35	12	25		26	12	20	10	9.8			EF-6
~~CU-1~~		~~16.0~~		10	35	12	27	X						9.8		
			~~16.0~~				29	X	30		20	10				SPARE
	~~3.0~~												~~3.0~~			
~~EF-4~~		3.0		10	20	~~12~~	33		34	~~12~~	20	10		~~3.0~~		~~EF-5~~
			~~3.0~~												~~3.0~~	
	~~24.3~~							X					~~24.3~~			
~~CU-2~~		24.3		10	35	12	39	X	40	~~8~~	35	10		~~24.3~~		~~CU-3~~
			~~24.3~~												~~24.3~~	
TOTAL	**70.8**	**75.0**	**70.3**										**59.8**	**38.2**	**49.6**	**TOTAL**

TOTAL CONNECTED AMPS A= 131.9 B= 134.0 C= 130.9

UPDATED PANELBOARD SCHEDULE

PANEL "PP1"

400A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — MCKENNEY FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
RECEPT.TELE. BOARD	3.0			10	20	12	1		2	12	20	10	8.0			DAY ROOM RECEPT
KITCHEN RECEPT		3.0		10	20	12	3		4	12	20	10		6.0		DORM. ROOM.RECEPT
KITCHEN RECEPT			4.5	10	20	12	5		6	12	20	10			10.6	MEETING/TRAIN RECEPT
KITCHEN REFRIG.	7.3			10	20	12	7		8	12	20	10	10.6			OFFICE RECEPT
KITCHEN RANGE		2.2		10	20	12	9		10	12	20	10		3.0		CHARGING RECEPT
RESTROOM RECEPT			3.0	10	20	12	11		12	12	20	10			6.0	WATCH RECEPT
SHOP RECEPT	3.0			10	20	12	13		14	12	20	10	6.0			APPARATUS ROOM RECEPT
SHOP RECEPT		4.5		10	20	12	15		16	8	20	10		13.9		DRYER RECEPT
HWH CONTROL			3.0	10	20	12	17								13.9	
WASHER RECEPT	4.0			10	20	12	19		20	10	20	10	12.6			OVERHEAD DOORS
OVERHEAD DOORS		12.6		10	20	12	21		22	10	20	10		6.4		OVERHEAD DOORS
OVERHEAD DOORS			6.4	10	20	12	23		24	10	20	10			8.4	GENERATOR HEATER
APPARATUS RM RECEPT	6.0			10	20	10	25		26	10	20	10	4.5			GENERATOR CHARGER
OUTDOOR RECEPT		3.0		10	20	10	27		28	10	20	10		3.0		CHARGING RECEPT
			-						30	12	20	10			-	ATTIC LIGHT
CORNER WASHER	-			10	25	10	31		32	12	20	10	-			DISHWASHER
		-							34	12	20	10		-		ISCE MAKER
AHU-1			**10.8**	10	20	**12**	35		36	12	20	10			-	FLAG POLE LIGHT
AHU-2	**7.9**			10	20	**12**	37		38	12	20	10	--			OUTSIDE SIGN
NEW DRYER		-		10	35	3	39		40	**12**	20	10		**13.9**		**AHU-3**
			-						42	12	20	10			-	
TOTAL	**31.2**	**25.3**	**27.7**										**41.7**	**46.2**	**38.9**	**TOTAL**

TOTAL CONNECTED AMPS A= 72.9 B= 71.5 C= 66.6

TOTAL CONNECTED AMPS INCLUDING SUBFED PANEL PP2 BREAKER A= 217.5 B= 231.9 C= 188.3

NEW PANELBOARD SCHEDULE

PANEL "PP2"

225A MLO, 208Y/120V, 3Ø, 4W, SURFACE MOUNTED, GROUND BUS, 10 KAIC — MCKENNEY FS

LOAD SERVED	LOAD (AMPS) A	B	C	CKT KAIC	BKR TRIP	WIRE SIZE	CKT NO.	PHASE A B C	CKT NO.	WIRE SIZE	CKT BKR TRIP	CKT BKR KAIC	LOAD (AMPS) A	B	C	LOAD SERVED
LTS. DORM ROOMS	7.3			**10**	**20**	12	1		2	10	**20**	**10**	14.5			LTS. APPARATUS RM
LTS. DAYROOM/KITCHEN		8.7		**10**	**20**	12	3		4	10	**20**	**10**		14.5		LTS. APPARATUS RM
LTS. TRAINING RM			5.4	**10**	**20**	12	5		6	10	**20**	**10**			14.5	LTS. APPARATUS RM
LTS TRAINING RM	5.4			**10**	**20**	12	7		8	12	**20**	**10**	8.2			LTS. HALL
LTS. OFFICE		6.3		**10**	**20**	12	9		10	12	**20**	**10**		6.3		LTS. DECON/SHOP
LTS. RESTROOMS			4.9	**10**	**20**	12	11		12	10	**20**	**10**			7.7	FRONT LTS. CANOPY
LTS. REAR WALL	9.6			**10**	**20**	12	13		14	12	**20**	**10**	--			RECEPT FOR TV
		16.7							16	10	**25**	**10**		--		ICE MAKER
AIR COMPRESSOR			16.7	**10**	**25**	10	17		18	10	**25**	**10**			--	FUEL PUMP
	16.7								20	10	**25**	**10**	--			BAY HEAT BACK
SPARE				**10**	**20**		21		22		**20**	**10**				SPARE
MOTOROLA RECEPT				**10**	**20**		23									
SPARE	--			**10**	**20**		25		26		**20**	**10**	9.8			EF-6
CU-1		**25.0**		**10**	**45**	**8**	27							9.8		
			25.0						30		**20**	**10**				SPARE
	7.5												**7.5**			
EF-1		**7.5**		**10**	**20**	**12**	33		34	**12**	**20**	**10**		**7.5**		**EF-2**
			7.5												**7.5**	
	15.0												**17.5**			
CU-2		**15.0**		**10**	**30**	**10**	39		40	8	**35**	**10**		**17.5**		**CU-3**
			15.0												**17.5**	
ERV-1	**15.2**			**10**	**25**	**10**	43		44	**12**	**20**	**10**	**10.4**			**CU-4**
		15.2												**10.4**		
EXTERIOR RECEPTACLE			**1.5**	**10**	**20**	**12**	47		48	**12**	**20**	**10**			--	**EXHAUST FAN CONTROL PAN**
SPARE	--			**10**	**20**		49		50		**20**	**10**	--			**SPARE**
SPACE ONLY		--					51		52					--		**SPACE ONLY**
SPACE ONLY			--				53		54						--	**SPACE ONLY**
TOTAL	**76.7**	**94.4**	**74.5**										**67.9**	**66.0**	**47.2**	**TOTAL**

TOTAL CONNECTED AMPS A= 144.6 B= 160.4 C= 121.7

NOTE: CONTRACTOR SHALL COORDINATE THE REPLACEMENT OF PANEL PP2 WITH THE OWNER. ONCE THE CONTRACTOR STARTS THE PANEL REPLACEMENT, WORK SHALL CONTINUE AROUND THE CLOCK UNTIL THE NEW PANEL IS OPERATIONAL FOR THE EXISTING CIRCUITS TO FACILITATE THE OWNER'S CONTINUED USE OF THE STATION.

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DINWIDDIE COUNTY

100% DESIGN SUBMITTAL

DINWIDDIE AND MCKENNEY FIRE STATION MECHANICAL HVAC EQUIPMENT REPLACEMENT

13516 BOYDTON PLANK RD, DINWIDDIE, VA 23841

10507 DOYLE BLVD, MCKENNEY, VA 23872

REVISIONS

MARK	DATE	DESCRIPTION

COMMISSION NUMBER 2240040

SCALE:	AS NOTED
DESIGNED:	JAM
DRAWN:	DBR
CHECKED:	JAM
DATE:	08/16/2023

COMMONWEALTH OF VIRGINIA
JOSEPH ADAM MICKIEWICZ
Lic. No. 038888
08/16/23
PROFESSIONAL ENGINEER

SHEET TITLE
ELECTRICAL PANELBOARD SCHEDULES

SHEET NUMBER
E-502

SHEET # 20 OF 20