
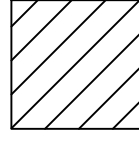



































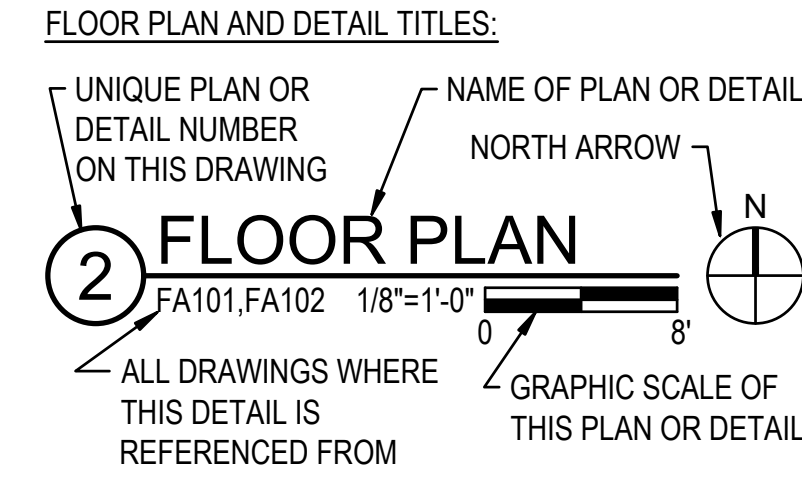
ABBREVIATIONS

A	AMPERES.
AC	ABOVE CEILING
ADS	ACOUSTICALLY DISTINGUISHABLE SPACE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPLIFIER
AS	ASPIRATING SMOKE
AWG	AMERICAN WIRE GAUGE
C	CEILING MOUNT
CA	CLEAN AGENT
CL	CEILING LEVEL
CONT.	CONTINUED
D	DRAIN
DN	DOWN
ELEV.	ELEVATOR
EMT	ELECTRICAL METALLIC TUBING
ER	ELEVATOR RECALL
ETR	EXISTING TO REMAIN
(E)	EXISTING
F	FIRE LINE
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FARP	FIRE ALARM RELEASING PANEL
FMCP	FIRE ALARM / MASS NOTIFICATION CONTROL PANEL
FATC	FIRE ALARM TERMINAL CABINET
LOC	LOCAL OPERATING CONSOLE
MNS	MASS NOTIFICATION SYSTEM
NAC	NOTIFICATION APPLIANCE CIRCUIT
N.I.C.	NOT IN CONTRACT
P	PHOTOELECTRIC
PA	PRE-ACTION
(R)	RELOCATE
SLC	SIGNALING LINE CIRCUIT
SP	SPRINKLER PIPING
SPD	SURGE PROTECTIVE DEVICE
TYP.	TYPICAL
U	UNDER FLOOR
VEWSD	VERY EARLY WARNING SMOKE DETECTION
WP	WEATHERPROOF
ZCA	SPRINKLER ZONE CONTROL ASSEMBLY

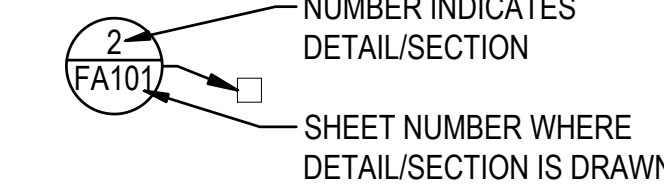
SYMBOLS

	AREA OF WORK / FIRE ALARM ZONE
	MODIFICATION OF THE FIRE ALARM SYSTEM IN THIS AREA IS NOT IN CONTRACT (N.I.C.)
	MANUAL PULL STATION
	WATERFLOW SWITCH
	TAMPER SWITCH
	PRESSURE SWITCH
	FIRE DEPT. TELEPHONE
	DOOR HOLD DEVICE
	ADDRESSABLE INPUT (MONITOR) MODULE
	ADDRESSABLE OUTPUT (CONTROL) MODULE
	SURGE PROTECTIVE DEVICE
	FIRE ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM TERMINAL CABINET
	BATTERY CABINET
	NOTIFICATION APPLIANCE PANEL
	AMPLIFIER RACK
	LIQUID CRYSTAL DISPLAY / ANNUNCIATOR
	RADIO TRANSMITTER
	DEDICATED OUTSIDE AIR SYSTEM
	DIGITAL ALARM COMMUNICATION RECEIVER
	DIGITAL ALARM COMMUNICATION TRANSMITTER
	TYPE
	SMOKE DETECTOR - CEILING MOUNTED
	TYPE
	SMOKE DETECTOR - WALL MOUNTED
	DUCT SMOKE DETECTOR
	HEAT DETECTOR - CEILING MOUNTED
	HEAT DETECTOR - WALL MOUNTED
	STROBE - WALL MOUNTED CD = CANDELA RATING
	STROBE - CEILING MOUNTED CD = CANDELA RATING
	HORN - WALL MOUNTED
	HORN / STROBE - WALL MOUNTED CD = CANDELA RATING
	HORN - CEILING MOUNTED
	HORN / STROBE - CEILING MOUNTED CD = CANDELA RATING

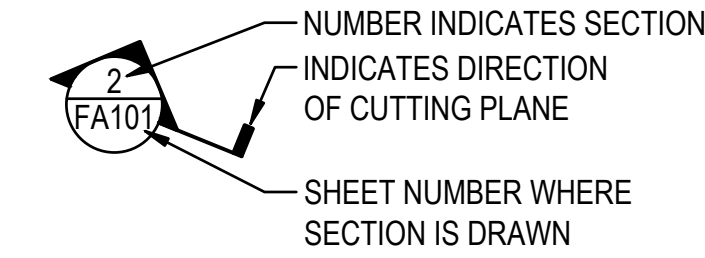
GENERAL SYMBOLS



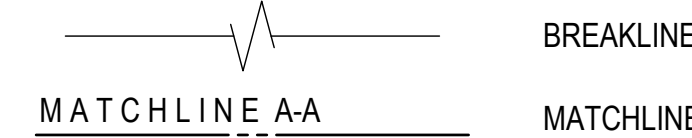
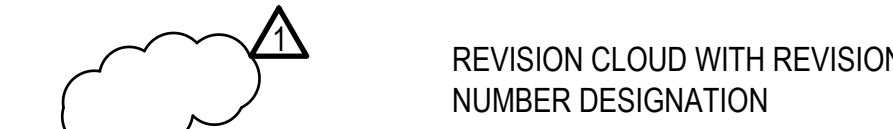
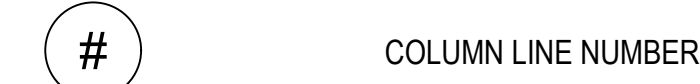
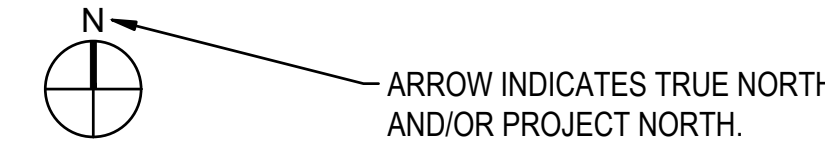
2-PART REFERENCE DETAIL IDENTIFICATION:



SECTION IDENTIFICATION



NORTH ARROW



FIRE ALARM REQUIREMENTS

1. A DIRECT NOTE SUCH AS "PROVIDE" OR "MODIFY" INDICATES THAT THE FIRE ALARM CONTRACTOR IS TO PROVIDE THE EQUIPMENT, MODIFY THE SYSTEM, ETC.
2. PROVIDE A COMPLETE FIRE ALARM AND DETECTION SYSTEM AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS. PROVIDE A 700 DELAWARE STATE FIRE PREVENTION COMMISSION AND NFPA 72 2019 EDITION COMPLIANT SYSTEM.
3. PROVIDE CLASS B WIRING FOR RISER, SLC, AND NAC CIRCUIT. PROVIDE MINIMUM 18 AWG FOR SLC AND MINIMUM 16 FOR NAC.
4. PROVIDE SURVIVABILITY LEVEL 0 WIRING.
5. INSTALL FIRE ALARM CONDUCTORS IN MINIMUM 3/4-INCH DIAMETER EMT CONDUIT WHERE INSTALLED EXPOSED BELOW 7 FEET. CONDUIT MUST BE RED AND MUST NOT EXCEED THE NATIONAL ELECTRICAL CODE MAXIMUM FILL CAPACITY.
6. PLACE CEILING-MOUNTED EQUIPMENT AT CENTER OF ACOUSTICAL CEILING TILES.
7. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE USED FOR COMPLETE SYSTEM DESIGN. COORDINATE SYSTEM COMPONENTS WITH ALL OTHER DISCIPLINES AND TRADES.
8. PROVIDE A FIRE ALARM SYSTEM DESIGNER WITH A MINIMUM NICET LEVEL III CERTIFICATION IN FIRE ALARM SYSTEM TECHNOLOGY OR A LICENSED PROFESSIONAL FIRE PROTECTION ENGINEER RESPONSIBLE FOR THE FIRE ALARM SYSTEM DESIGN.
9. CHANGES TO THE DESIGN INTENT IS THE RESPONSIBILITY OF CONTRACTOR.
10. PROVIDE A LABEL FOR EACH WIRE/CIRCUIT (WITHIN ALL PANELS, CABINETS AND JUNCTION BOXES) INDICATING ITS PURPOSE AND LOCATION. LABELS MUST BE A MINIMUM FONT SIZE OF 1/4" AND ARIAL NARROW. EXAMPLE OF A FIRST FLOOR SIGNALING LINE CIRCUIT ONE OF TWO IS SLC-CIR1-FL1.
11. PANELS MUST BE FACTORY PAINTED RED.

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HARRINGTON, MARYLAND 21074
410.343.1441

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn.By: EA
Proj No.: 0586B053.A01

SYMBOLS & ABBREVIATIONS

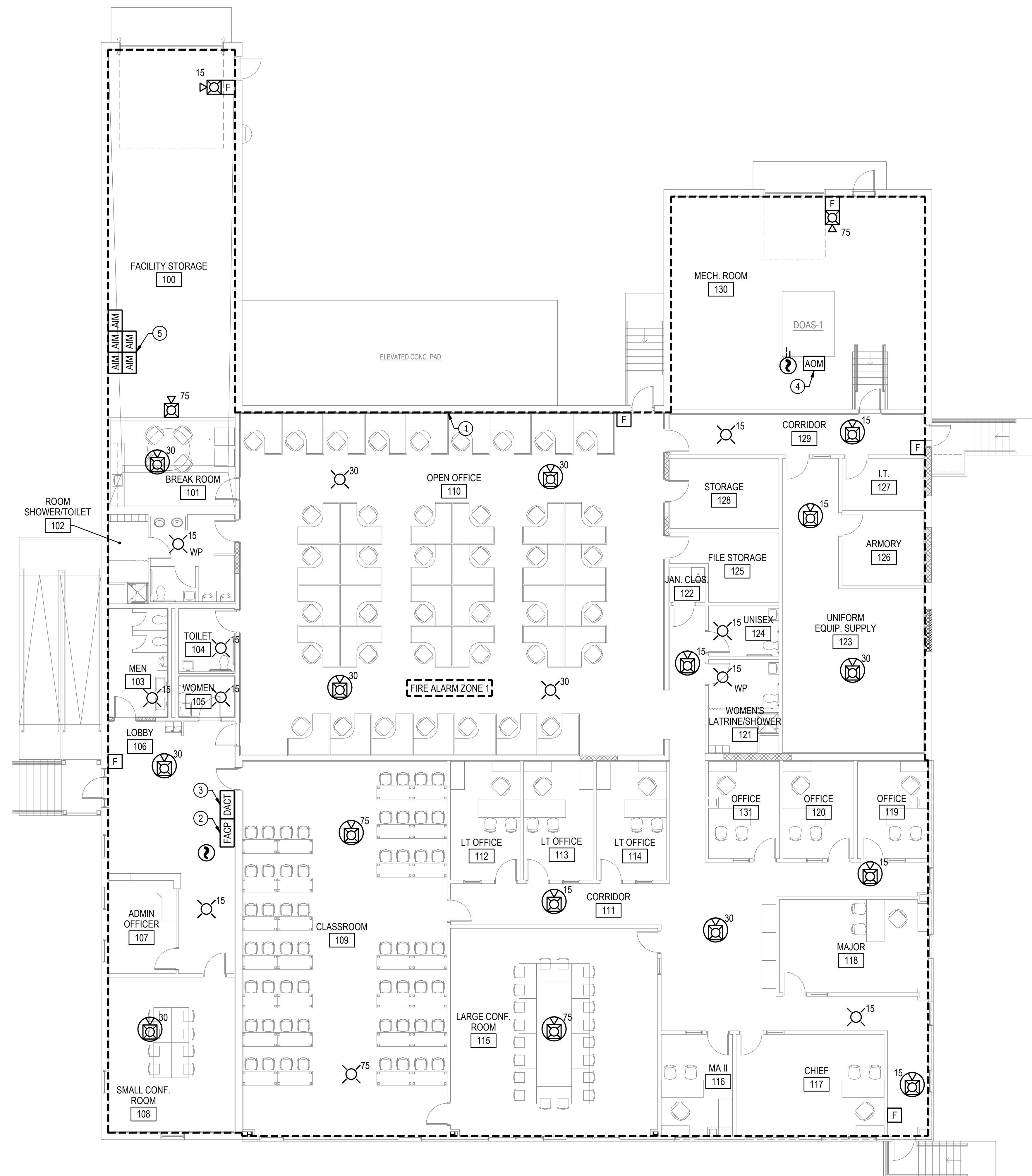
Dwg No.: **FA001**

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. PROVIDE FIRE ALARM NOTIFICATION THROUGHOUT IN ACCORDANCE WITH NFPA 72.
- 2. PROVIDE ADDRESSABLE FIRE ALARM CONTROL PANEL.
- 3. PROVIDE DIGITAL FIRE ALARM TRANSMITTER TO SEND FIRE ALARM SIGNALS TO THE FIRE DEPARTMENT.
- 4. PROVIDE CONTROL MODULE TO SHUT DOWN DOAS ON DUCT SMOKE DETECTION.
- 5. PROVIDE MONITOR MODULES FOR SPRINKLER SYSTEM FLOW AND TAMPER SWITCHES.



1 FIRST FLOOR PLAN
1/8"=1'-0"
0 8' 16'

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HARRINGTON, MARYLAND 410.343.9911

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn. By: EA
Proj No.: 0586B053.A01

FIRST FLOOR PLAN

Dwg No.: **FA101**

ABBREVIATIONS

AC	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
ATC	ACOUSTIC TILE CEILING
BFP	BACKFLOW PREVENTER
CA	CLEAN AGENT
CL	CEILING LEVEL
CONT.	CONTINUED
D	DRAIN
DN	DOWN
ELEV.	ELEVATOR
E.M.R.	ELEVATOR MACHINE ROOM
ETR	EXISTING TO REMAIN
(E)	EXISTING
F	FIRE SPRINKLER PIPE
FDC	FIRE DEPARTMENT CONNECTION
FH	FIRE HYDRANT
FHV	FIRE HOSE VALVE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
PA	PRE-ACTION
(R)	RELOCATE
TYP.	TYPICAL
VEWSD	VERY EARLY WARNING SMOKE DETECTION
W	WATER PIPE
WP	WEATHERPROOF
ZCA	SPRINKLER ZONE CONTROL ASSEMBLY

SYMBOLS

	LIGHT HAZARD DISCHARGE DENSITY REMOTE AREA	0.1 GPM/SF 1500 SF
	ORDINARY HAZARD GROUP I DISCHARGE DENSITY REMOTE AREA	0.15 GPM/SF 1500 SF
	MODIFICATION OF THE SPRINKLER SYSTEM IN THIS AREA IS NOT IN CONTRACT (N.I.C.)	
	AREA OF WORK / SPRINKLER ZONE	
	WATERFLOW SWITCH	
	TAMPER SWITCH	
	WATERFLOW BELL	
	ZONE CONTROL ASSEMBLY	
	DOUBLE CHECK BACKFLOW PREVENTER	
	FIRE HYDRANT	
	FIRE SUPPRESSION PIPE	
	WATER PIPE	
	GATE VALVE	
	GLOBE VALVE	
	SWING CHECK VALVE	
	OS&Y VALVE	
	BALL VALVE	
	BUTTERFLY VALVE	
	BACKFLOW PREVENTER	
	PIPE TURN UP	
	PIPE TURN DOWN	
	CONCENTRIC PIPE REDUCER	
	ECCENTRIC PIPE REDUCER	
	PIPE CAP	
	SPRINKLER RISER	
	EXISTING SPRINKLER	
	UPRIGHT SPRINKLER	
	PENDENT SPRINKLER	
	SIDEWALL SPRINKLER	

GENERAL SYMBOLS

FLOOR PLAN AND DETAIL TITLES:

UNIQUE PLAN OR DETAIL NUMBER ON THIS DRAWING: 2 FA101, FA102

NAME OF PLAN OR DETAIL: FLOOR PLAN

NORTH ARROW

1/8"=1'-0"

GRAPHIC SCALE OF THIS PLAN OR DETAIL

ALL DRAWINGS WHERE THIS DETAIL IS REFERENCED FROM

2-PART REFERENCE DETAIL IDENTIFICATION:

NUMBER INDICATES DETAIL/SECTION: 2 FA101

SHEET NUMBER WHERE DETAIL/SECTION IS DRAWN

SECTION IDENTIFICATION:

NUMBER INDICATES SECTION: 2 FA101

INDICATES DIRECTION OF CUTTING PLANE

SHEET NUMBER WHERE SECTION IS DRAWN

NORTH ARROW:

ARROW INDICATES TRUE NORTH AND/OR PROJECT NORTH.

COLUMN LINE NUMBER

REVISION CLOUD WITH REVISION NUMBER DESIGNATION

BREAKLINE

MATCHLINE A-A

(E) EXISTING

POINT OF CONNECTION TO EXISTING

POINT OF TERMINATION OF REMOVAL

NOTE NUMBER

ROOM NUMBER

FIRE SUPPRESSION REQUIREMENTS

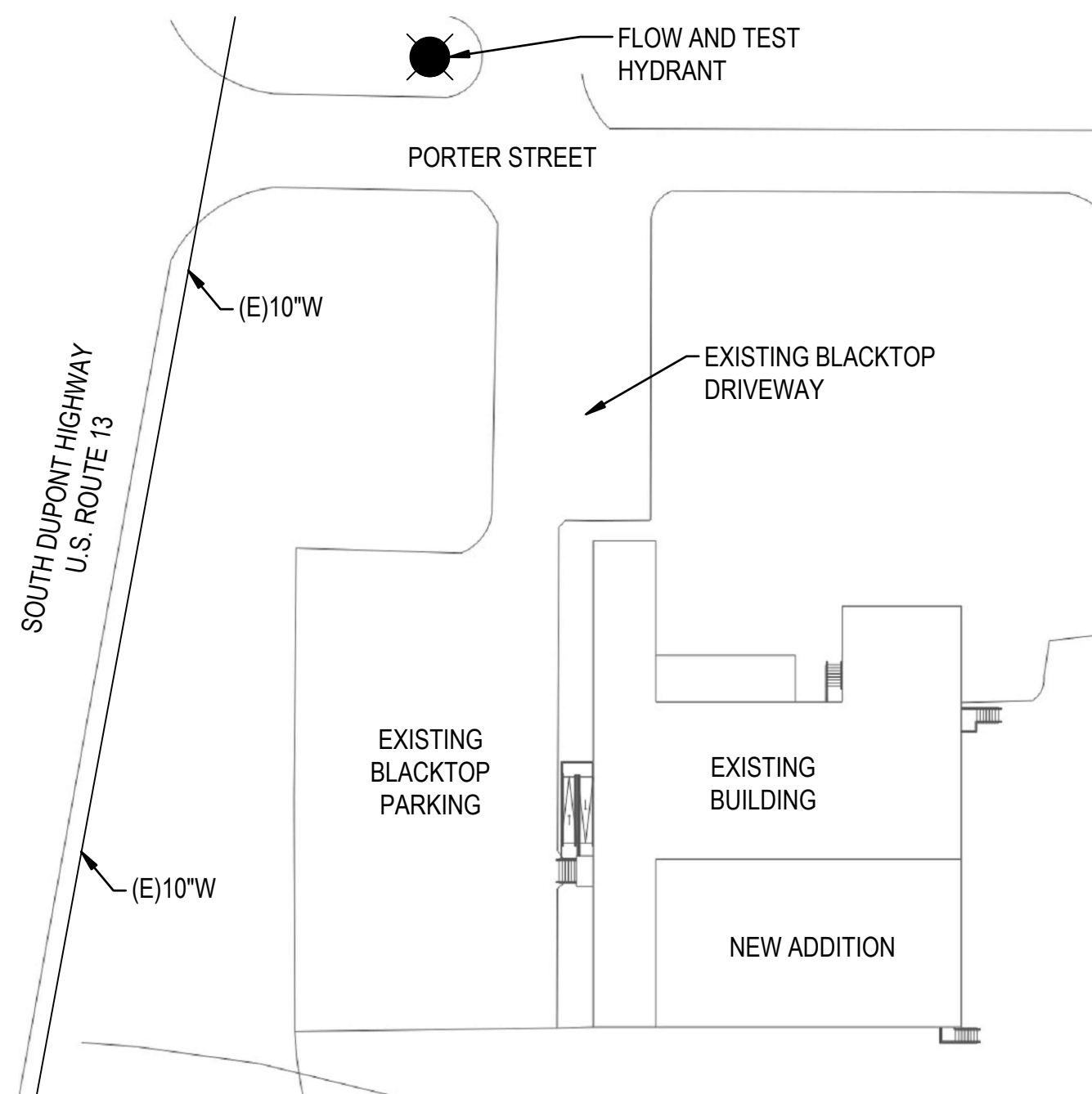
1. A DIRECT NOTE SUCH AS "PROVIDE" OR "MODIFY" INDICATES THAT THE FIRE SPRINKLER CONTRACTOR IS TO PROVIDE THE EQUIPMENT, MODIFY THE SYSTEM, ETC.
2. PROVIDE A COMPLETE AUTOMATIC WET-PIPE SPRINKLER SYSTEM DESIGNED AND INSTALLED PER 700 DELAWARE STATE FIRE PREVENTION COMMISSION AND NFPA 13 2019 EDITION CRITERIA.
3. UNLESS OTHERWISE NOTED BY HATCHING, PROVIDE SPRINKLER SYSTEM DESIGN IN ACCORDANCE WITH LIGHT HAZARD CRITERIA.
4. DESIGN SPRINKLER SYSTEM BASED UPON HYDRAULIC CALCULATIONS. PROVIDE RECENT WATER FLOW TEST FOR BASIS OF HYDRAULIC CALCULATIONS.
5. PROVIDE WHITE CONCEALED QUICK RESPONSE SPRINKLERS IN AREAS WITH FINISHED CEILINGS. PROVIDE BRASS UPRIGHT QUICK RESPONSE SPRINKLERS IN AREAS WITHOUT FINISHED CEILINGS. PROVIDE A MINIMUM SPRINKLER TEMPERATURE OF 155 FAHRENHEIT FOR ORDINARY TEMPERATURE SPRINKLERS.
6. PROVIDE SPRINKLERS IN CENTER OF ACOUSTIC CEILING TILES.
7. PROVIDE BLACK STEEL SPRINKLER PIPE. PIPE MUST BE MINIMUM SCHEDULE 10. SCHEDULE 10 PIPE MUST NOT BE THREADED.
8. DO NOT PROVIDE SPRINKLER VALVES ABOVE HARD CEILINGS. DO NOT PROVIDE SPRINKLERS BELOW RAISED FLOOR. PROVIDE IDENTIFICATION SIGNAGE FOR ALL VALVES LOCATED ABOVE SUSPENDED CEILINGS.

WATER FLOW TEST REPORT

HYDRANT # Holiday Inn -corner
 LOCATION: Rt14/and Dupont Hwy
 DATE: 2/2/2024
 TEST BY: DRWA-HV/AB

	Hydrant # 1	Hydrant # 2	Hydrant # 3
SIZE OPENING:	2.5		
COEFFICIENT:	0.9		
PITOT READING:	50		
GPM:	1186		
TOTAL FLOW DURING TEST:	1186 GPM		
STATIC READING:	60 PSI	RESIDUAL:	40 PSI

WATER FLOW TEST MAP



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 410.776.7444

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 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: EA
 Proj No.: 0586B053.A01

SYMBOLS & ABBREVIATIONS

Dwg No.: **FX001**

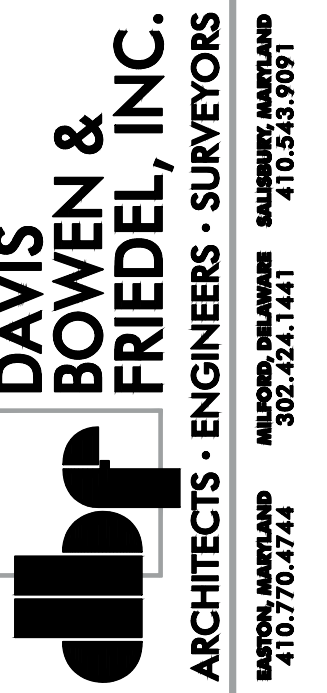
FILE NAME: 2016.18_FX001.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:11:52 PM

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. PROVIDE SPRINKLER PROTECTION THROUGHOUT IN ACCORDANCE WITH NFPA 13.
- 2. PROVIDE SPLASH BLOCK FOR FIRE DEPARTMENT CONNECTION, BACKFLOW PREVENTER TEST HEADER, AND SPRINKLER SYSTEM DRAIN.
- 3. PROVIDE SIDEWALL SPRINKLER PROTECTION BELOW OVERHEAD DOOR.
- 4. PROVIDE EXTERIOR WATERFLOW BELL AT LOCATION OF FIRE DEPARTMENT CONNECTION.



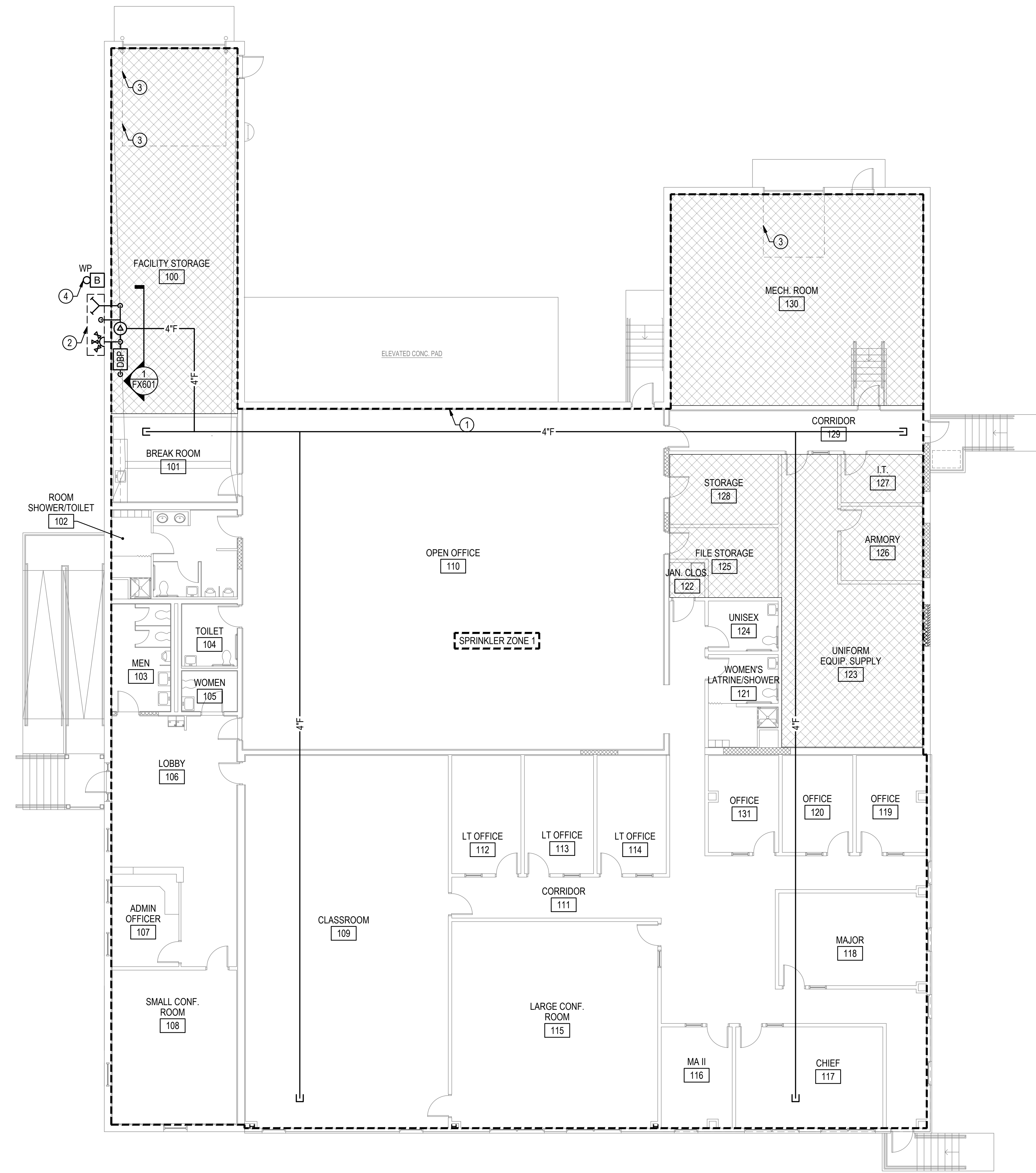
HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

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11/09/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
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05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

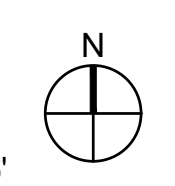
Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: EA
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN

Dwg No.: **FX101**



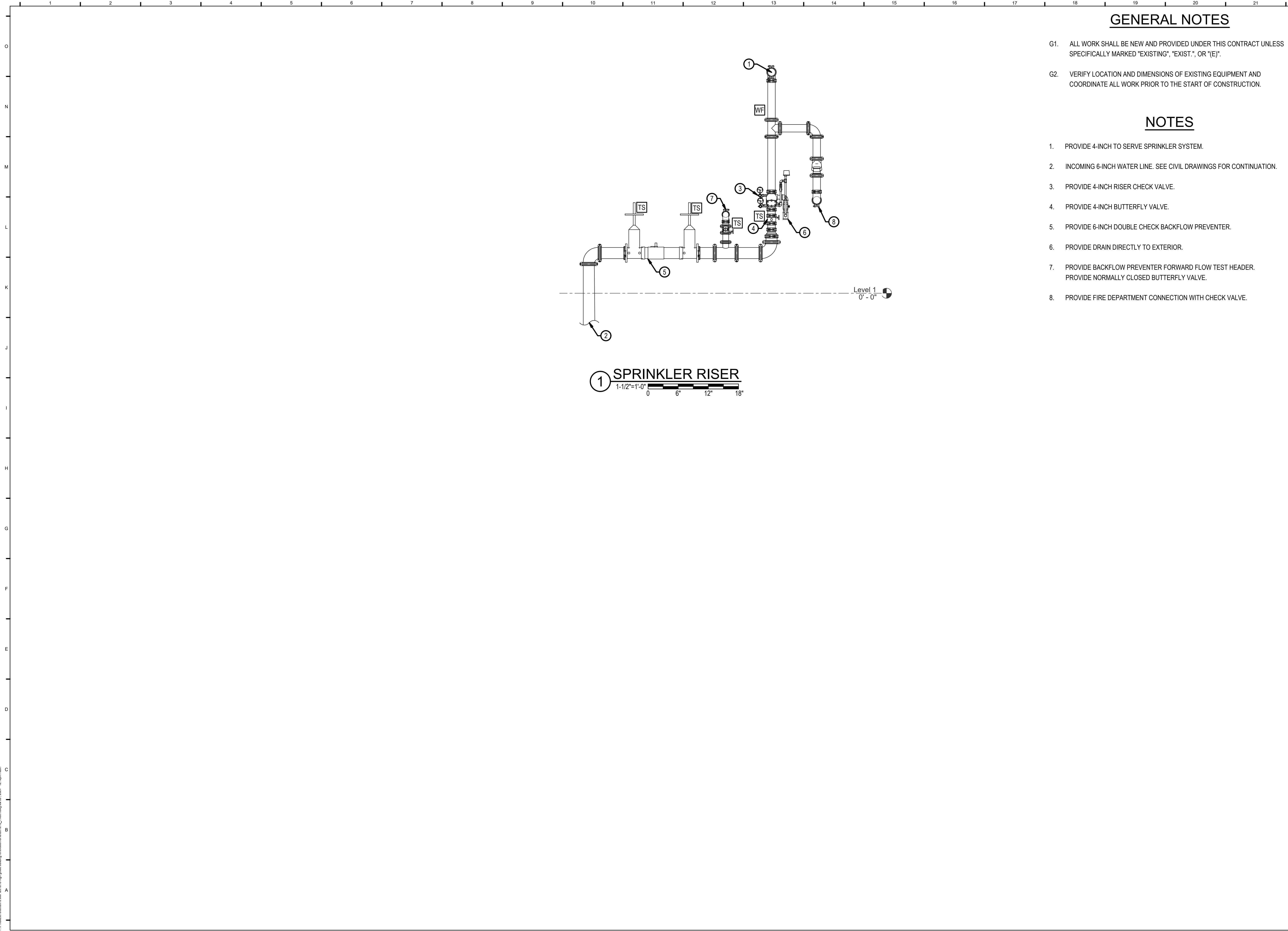
1 FIRST FLOOR PLAN
 1/8" = 1'-0"
 0 8' 16'



FILE NAME: 2016.18_FX101.DWG
 OUR REF: 2016.18
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FILE NAME: 2016.18_FX601.DWG
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GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST.", OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.

NOTES

- 1. PROVIDE 4-INCH TO SERVE SPRINKLER SYSTEM.
- 2. INCOMING 6-INCH WATER LINE. SEE CIVIL DRAWINGS FOR CONTINUATION.
- 3. PROVIDE 4-INCH RISER CHECK VALVE.
- 4. PROVIDE 4-INCH BUTTERFLY VALVE.
- 5. PROVIDE 6-INCH DOUBLE CHECK BACKFLOW PREVENTER.
- 6. PROVIDE DRAIN DIRECTLY TO EXTERIOR.
- 7. PROVIDE BACKFLOW PREVENTER FORWARD FLOW TEST HEADER. PROVIDE NORMALLY CLOSED BUTTERFLY VALVE.
- 8. PROVIDE FIRE DEPARTMENT CONNECTION WITH CHECK VALVE.

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HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

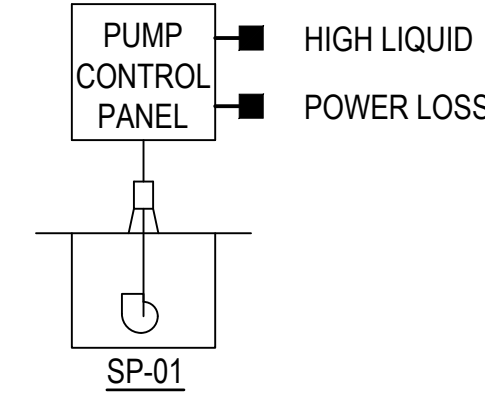
Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: EA
 Proj No.: 0586B053.A01

SPRINKLER RISER

Dwg No.: **FX601**

FILE NAME: 2016.18_P-001.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:12:14 PM

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FLOW DIAGRAM

GENERAL
 THE HIGH LIQUID ALARM OUTPUT SHALL INDICATE AN ALARM AT THE OWS.
 THE POWER LOSS OUTPUT SHALL INDICATE AN ALARM AT THE OWS.

SEQUENCE OF OPERATION

CONTROLS BAS INTEGRATION
 THE CONTROLS INTEGRATION POINT IS LOCATED IN THE MECHANICAL ROOM.

MECH. ROOM SUMP PUMP

ABBREVIATIONS

ABV.	ABOVE
A.F.F.	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
A.P.	ACCESS PANEL
BFP	REDUCED PRESSURE BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
CFH	CUBIC FEET PER HOUR
CIRC.	CIRCULATING
C.O.	CLEANOUT
CONC.	CONCRETE
CW	DOMESTIC COLD WATER
D	DRAIN
DDC	DIRECT DIGITAL CONTROL
DIA.	DIAMETER
DN.	DOWN
DWH	DOMESTIC WATER HEATER
(E)	EXISTING
E.A.	EXHAUST AIR
ENT.	ENTERING
ETPV	ELECTRONIC TRAP PRIMING VALVE
E.W.T.	ENTERING WATER TEMPERATURE
EXIST.	EXISTING
°F	DEGREES FAHRENHEIT
F.C.O.	FLOOR CLEANOUT
F.D.C.	FIRE DEPARTMENT CONNECTION
FLA.	FULL LOAD AMPS
FL.D.	FLOOR DRAIN
FLR.	FLOOR
FS	FLOOR SINK
FT.	FEET
GAL.	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR.	HOUR
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATING
Hz	HERTZ
INV.	INVERT
IN.	INCH(ES)
JAN.	JANITORS CLOSET
L	LENGTH
LAV	LAVATORY
LBS.	POUNDS
LVG.	LEAVING
L.W.T.	LEAVING WATER TEMPERATURE
M.A.V.	MANUAL AIR VENT
MAX.	MAXIMUM
M.B.H.	THOUSANDS BTUH
MECH.	MECHANICAL
M.E.R.	MECHANICAL EQUIPMENT ROOM
MIN.	MINIMUM
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
O.C.	ON CENTER
O.S.D.	OPEN SITE DRAIN
P.D.	PRESSURE DROP
PRV	PRESSURE RELIEF VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SAN	SANITARY
SS	SERVICE SINK
S.S.	STAINLESS STEEL
ST	STORM
TMV	THERMOSTATIC MIXING VALVE
TPV	TRAP PRIMING VALVE
TW	TEMPERED WATER
TYP.	TYPICAL
UR	URINAL
V	VENT/VOLTS
VTR	VENT THRU ROOF
W	WASTE / WIDTH
W/	WITH
W.C.	WATERCOLUMN
WC	WATER CLOSET
W.C.O.	WALL CLEANOUT
W.G.	WATER GAUGE
WHA	WATER HAMMER ARRESTOR

PLUMBING SYMBOLS CONT.

	CHECK VALVE
	REDUCED PRESSURE BACKFLOW PREVENTER
	WATER HAMMER ARRESTOR, PDI SIZE "A"
	PRESSURE REDUCING VALVE
	UNION
	RELIEF VALVE
	BALANCING VALVE
	GAS COCK
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
	PRESSURE GAUGE
	THERMOMETER AND WELL
	VERTICAL IN-LINE CIRCULATING PUMP
	WALL HYDRANT, NON FREEZE/HOSE BIBB
	FIRE DEPARTMENT CONNECTION, SIAMESE
	PIPE CAP
	PIPE CLEANOUT
	WALL PIPE CLEANOUT
	FLOOR CLEANOUT
	FLOOR DRAIN

GENERAL SYMBOLS

FLOOR PLAN AND DETAIL TITLES:

2-PART REFERENCE DETAIL IDENTIFICATION:

SECTION IDENTIFICATION:

NORTH ARROW:

#: COLUMN BUBBLE DESIGNATION

REVISION CLOUD WITH REVISION NUMBER DESIGNATION

MATCHLINE A-A: MATCHLINE DESIGNATION

DEMOLITION LINETYPE

CENTERLINE

CENTERLINE SYMBOL EXISTING

POINT OF CONNECTION TO EXISTING

POINT OF TERMINATION OF REMOVAL

NOTE NUMBER

PLUMBING SYMBOLS

	CW	DOMESTIC COLD WATER
	D	CONDENSATE DRAIN PIPING
	F	FIRE PROTECTION WATER SUPPLY
	G	GAS PIPING
	HW	DOMESTIC HOT WATER
	HWC	DOMESTIC HOT WATER CIRCULATION
	PD	PUMPED DISCHARGE
	SAN	SANITARY/WASTE PIPE
	SAN	SANITARY/WASTE PIPE BELOW GRADE
	SP	SPRINKLER PIPING
	ST	STORM PIPE
	ST	STORM PIPE BELOW GRADE
	V	VENT PIPE
	W	WASTE/SANITARY PIPE
	W	WASTE/SANITARY PIPE BELOW GRADE
		PIPE TURN UP
		PIPE TURN DOWN
		STRAINER
		GATE VALVE
		TWO-WAY CONTROL VALVE
	TMV	THERMOSTATIC MIXING VALVE
		BALL VALVE

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 302.241.1441
 410.543.9911

HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: FS
 Proj No.: 0586B053.A01

SYMBOLS AND ABBREVIATIONS

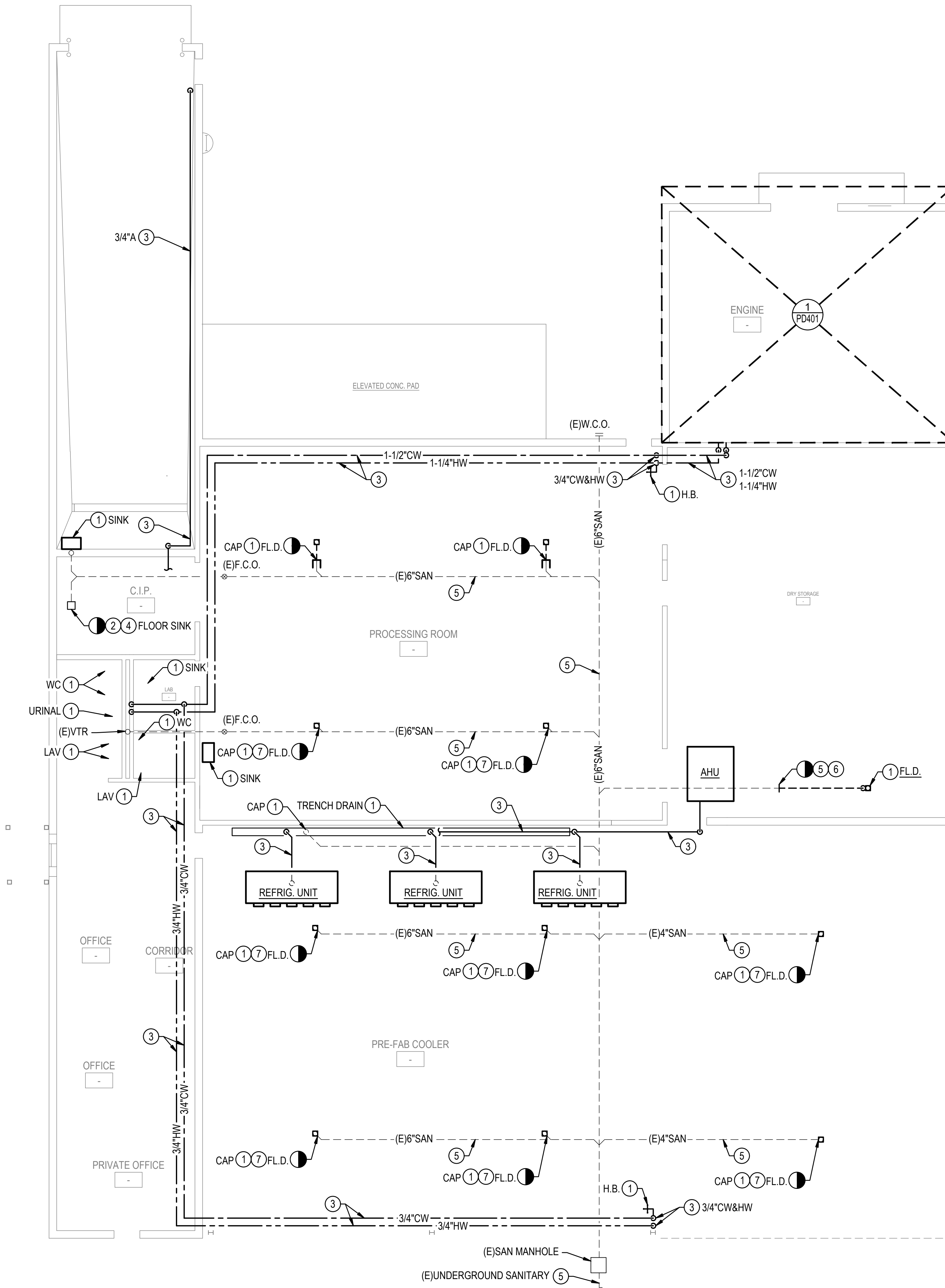
Dwg No.: **P-001**

GENERAL NOTES

G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

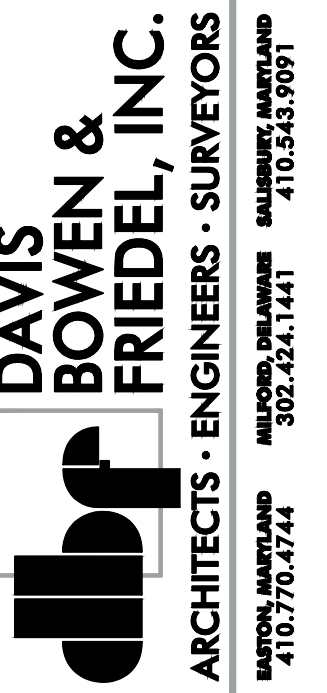
NOTES

1. REMOVE PLUMBING FIXTURE AND ASSOCIATED PIPING, INSULATION, FITTINGS, VALVES, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE.
2. REMOVE PLUMBING FIXTURE AND ASSOCIATED PIPING, INSULATION, FITTINGS, VALVES, SUPPORTS, HANGERS, AND APPURTENANCES TO POINT INDICATED.
3. REMOVE PIPING AND ASSOCIATED VALVES, INSULATION, FITTINGS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE.
4. PATCH, REPAIR, AND SEAL PENETRATION TO MATCH ADJACENT SURFACE. PREPARE SURFACE TO RECEIVE NEW FINISHES.
5. SIZES AND ROUTING OF THE EXISTING BELOW-SLAB SANITARY PIPING ARE UNKNOWN, AND ARE IMPLIED FROM VISIBLE ABOVE-GRADE FIELD CONDITIONS. VERIFY ALL BELOW-GRADE PIPING IN FIELD PRIOR TO COMPLETION OF DEMOLITION WORK.
6. REMOVE PIPING AND ASSOCIATED VALVES, INSULATION, FITTINGS, SUPPORTS, HANGERS, AND APPURTENANCES TO POINT INDICATED.
7. CAP AND SEAL PIPING TO BELOW SLAB.



1 FIRST FLOOR PLAN - DEMOLITION

1/8"=1'-0"



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: FS
 Proj No.: 0586B053.A01

FIRST FLOOR - DEMOLITION

Dwg No.: **PD101**

GENERAL NOTES

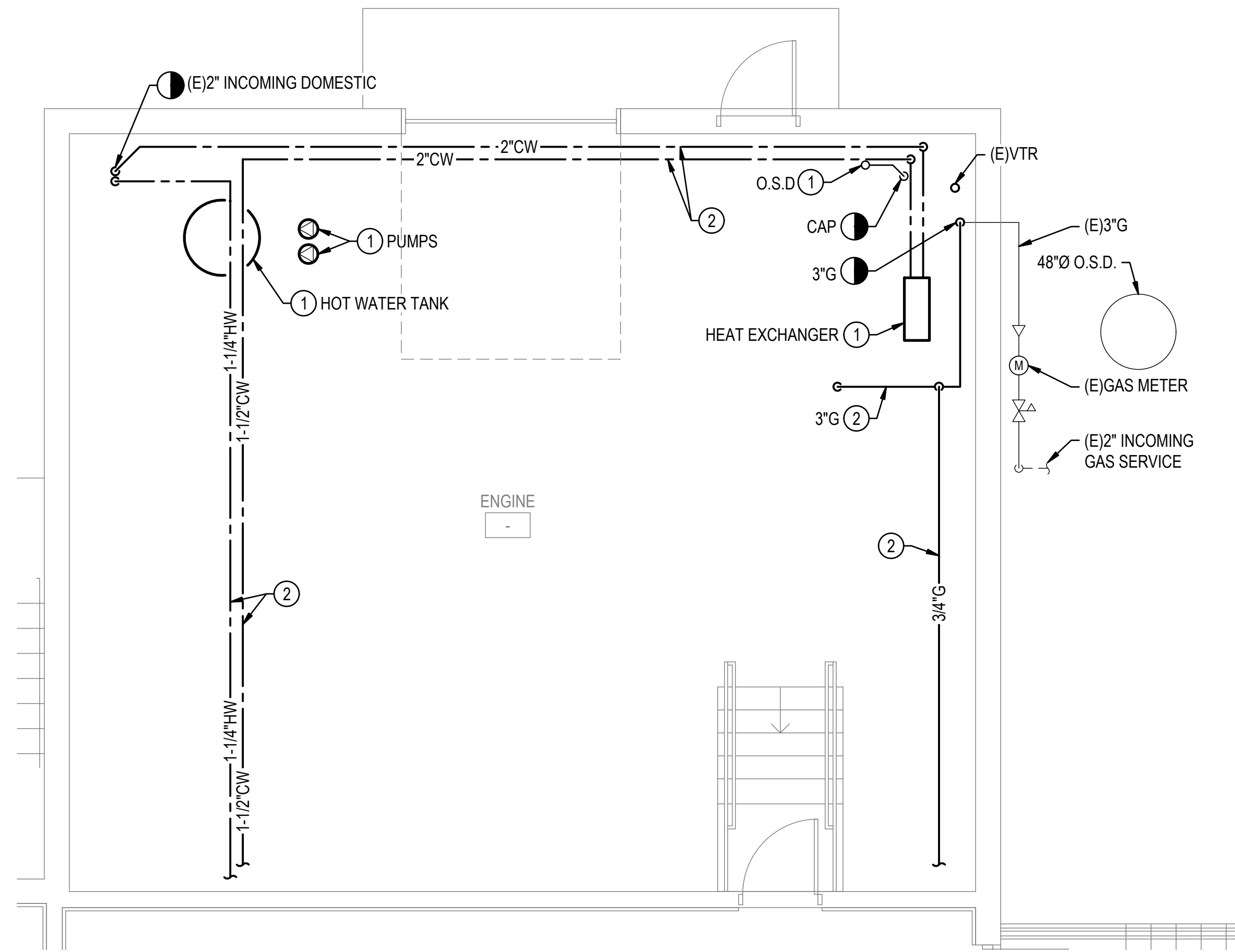
- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

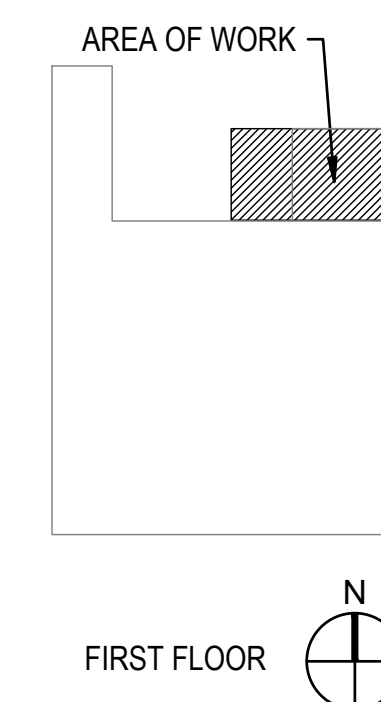
- 1. REMOVE PLUMBING EQUIPMENT AND ASSOCIATED PIPING, INSULATION, FITTINGS, VALVES, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE.
- 2. REMOVE PIPING AND ASSOCIATED VALVES, INSULATION, FITTINGS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE.



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



1 ENLARGED PLAN MECHANICAL ROOM - DEMOLITION
 MD101 1/4" = 1'-0" 0 4 8' N



DATE	COMMENTS
11/09/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: FS
 Proj No.: 0586B053.A01

ENLARGED PLAN - MECHANICAL ROOM - DEMOLITION

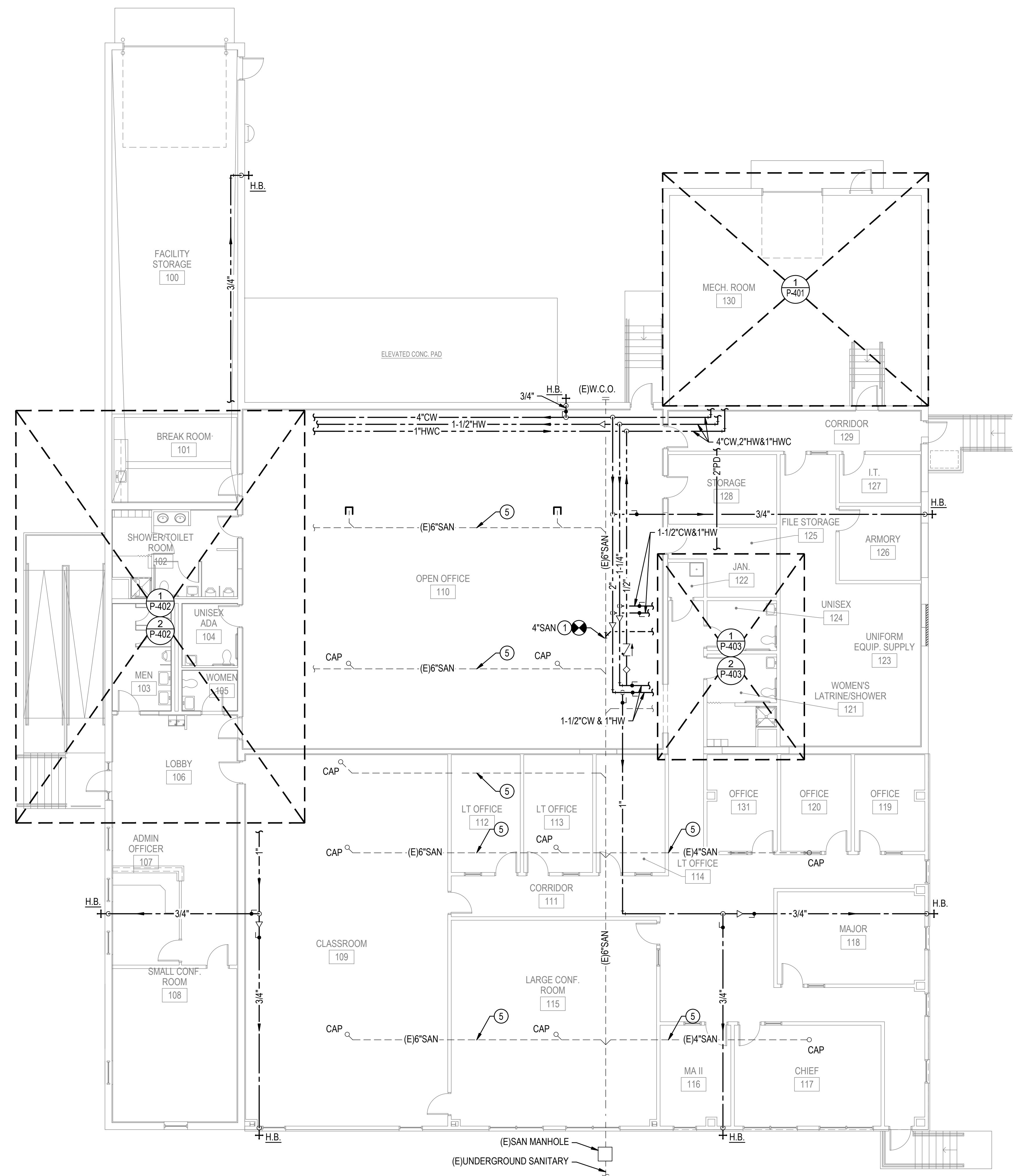
Dwg No.: **PD401**

GENERAL NOTES

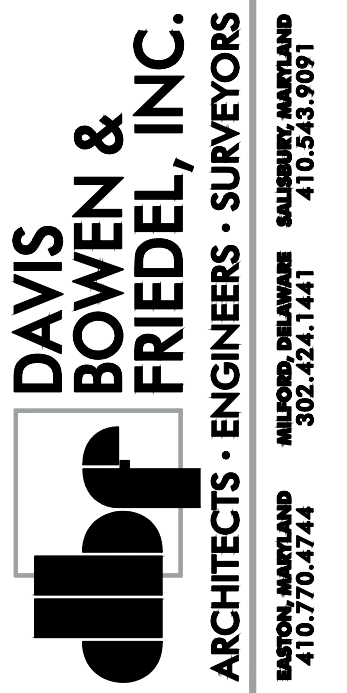
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G3. ALL SANITARY PIPING SHOWN ON DRAWINGS IS LOCATED BELOW SLAB. EXISTING BELOW SLAB SANITARY PIPING ROUTING IS UNKNOWN. CONTRACTOR TO VERIFY ROUTING IN FIELD.

NOTES

- 1. PROVIDE NEW SANITARY PIPING BELOW SLAB ON GRADE. SAW CUT EXISTING SLAB TO FACILITATE PIPING INSTALLATION. PATCH, REPAIR, AND SEAL SAW CUT TO MATCH ADJACENT SURFACE.



1 FIRST FLOOR PLAN
 1/8"=1'-0"
 0 8' 16'



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: VSS
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN

Dwg No.: **P-101**

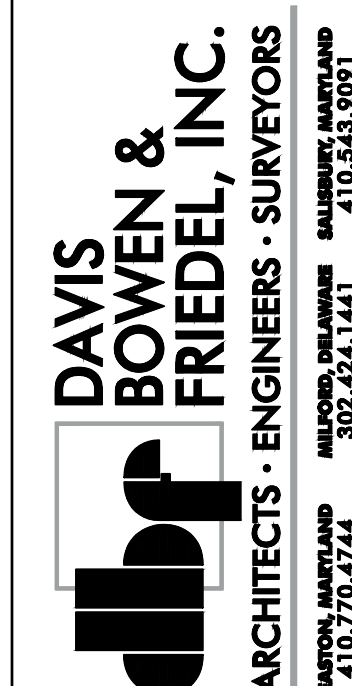
FILE NAME: 2016.18_P-101.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:12:45 PM

GENERAL NOTES

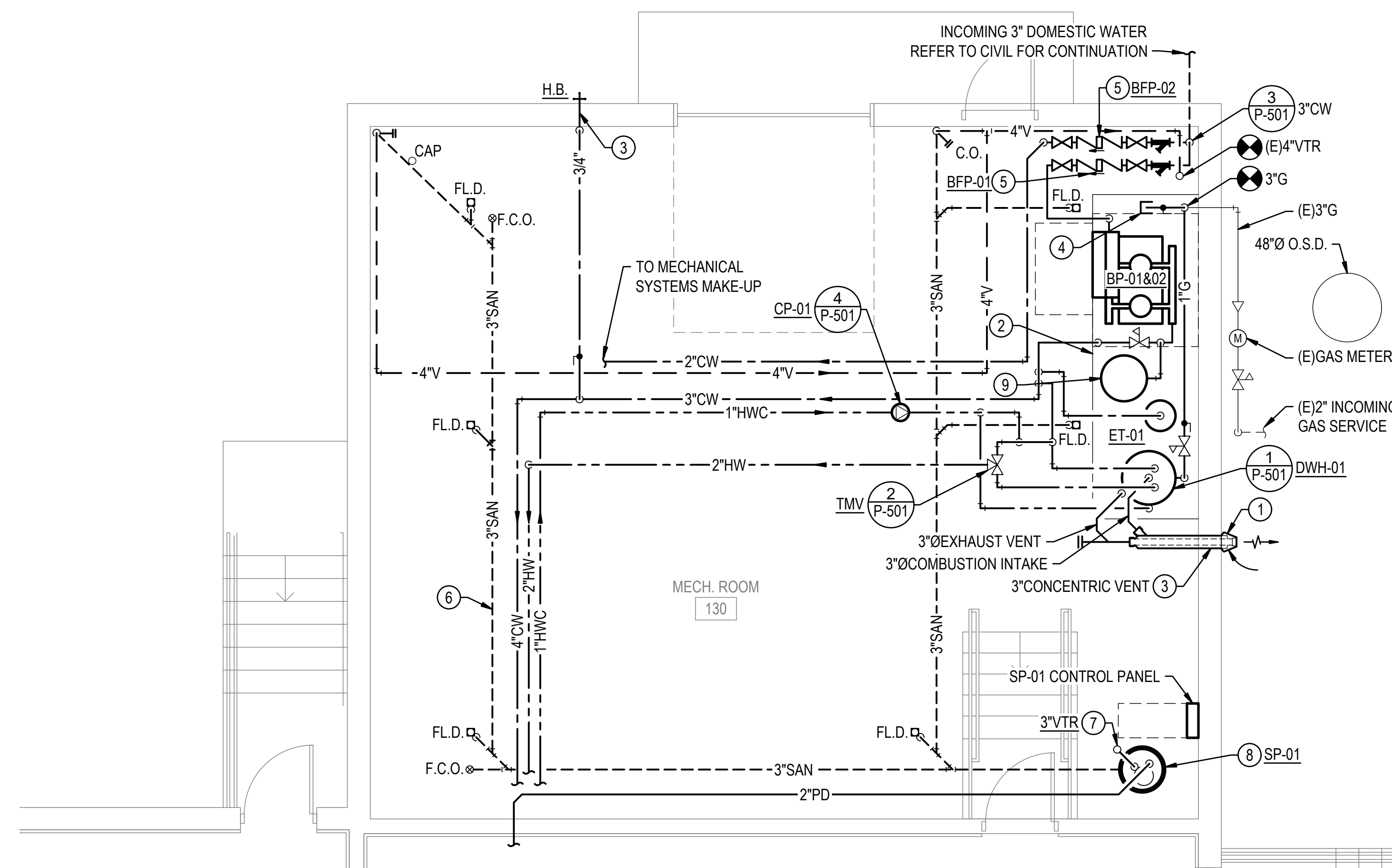
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION
- G3. ALL SANITARY PIPING SHOWN ON DRAWINGS IS LOCATED BELOW SLAB. EXISTING BELOW SLAB SANITARY PIPING ROUTING IS UNKNOWN. CONTRACTOR TO VERIFY ROUTING IN FIELD.

NOTES

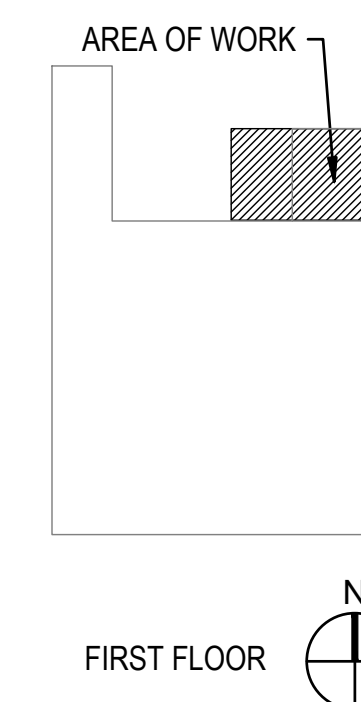
1. PROVIDE CONCENTRIC WALL VENT KIT TERMINATION PER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE EQUIPMENT PAD. REFER TO ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION.
3. PROVIDE CORE DRILL THROUGH EXISTING EXTERIOR WALL. SEAL PENETRATION WEATHER-TIGHT.
4. CAP PIPE FOR FUTURE CONNECTION.
5. PROVIDE OPEN-SITE FUNNEL DRAIN FOR BACKFLOW PREVENTER. EXTEND RELIEF DRAIN TO NEAREST FLOOR DRAIN.
6. SAW-CUT EXISTING FLOOR SLAB TO FACILITATE INSTALLATION OF SANITARY PIPING.
7. PROVIDE PIPING PENETRATION THROUGH ROOF. SEAL PENETRATION WEATHER-TIGHT.
8. SAW-CUT EXISTING FLOOR SLAB AND EXPAND OPENING TO FACILITATE INSTALLATION OF SEWAGE EJECTOR PUMP.
9. PROVIDE HYDRO-PNEUMATIC TANK. REFER TO PACKAGED BOOSTER PUMP SCHEDULE FOR ADDITIONAL INFORMATION.



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



ENLARGED PLAN
MECHANICAL ROOM
 1 P-101 1/4"=1'-0" 0 4' 8'



DATE	COMMENTS
11/09/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: VSS
 Proj No.: 0586B053.A01

ENLARGED PLAN - MECHANICAL ROOM

Dwg No.: **P-401**

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. PIPING LOCATED ABOVE SLAB WITHIN WALL CAVITY
- 2. PROVIDE NEW SANITARY PIPING BELOW SLAB ON GRADE. SAW CUT EXISTING SLAB TO FACILITATE PIPING INSTALLATION. PATCH, REPAIR, AND SEAL SAW CUT TO MATCH ADJACENT SURFACE.
- 3. LOCATE WATER HAMMER ARRESTOR ON COLD WATER PIPE IN ACCESSIBLE LOCATION TO ALLOW FOR MAINTENANCE. REFER TO RISER ON ##### FOR LOCATION AND SIZE OF ARRESTOR.
- 4. PROVIDE MINIMUM 18x18 ACCESS DOOR IN WALL FOR INSTALLATION AND ACCESS TO WATER HAMMER ARRESTOR. COORDINATE ARRESTOR LOCATION WITH ACCESS DOOR. INSTALL ACCESS DOOR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

DAVIS BOWEN & FRIEDEL, INC.
 ARCHITECTS - ENGINEERS - SURVEYORS
 1400 W. BROADWAY SUITE 200 BALTIMORE, MARYLAND 21201
 410.767.7444

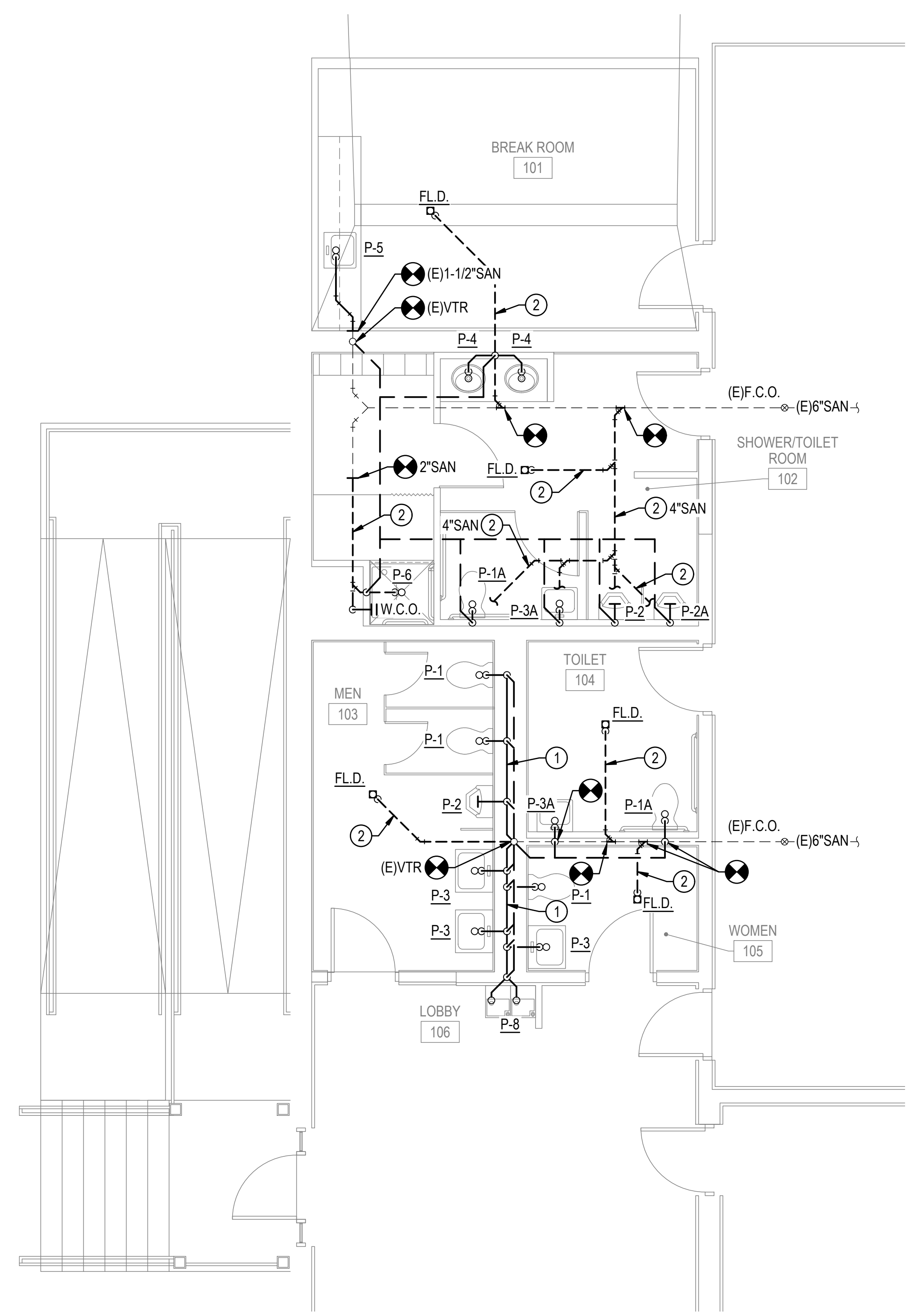
HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/29/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

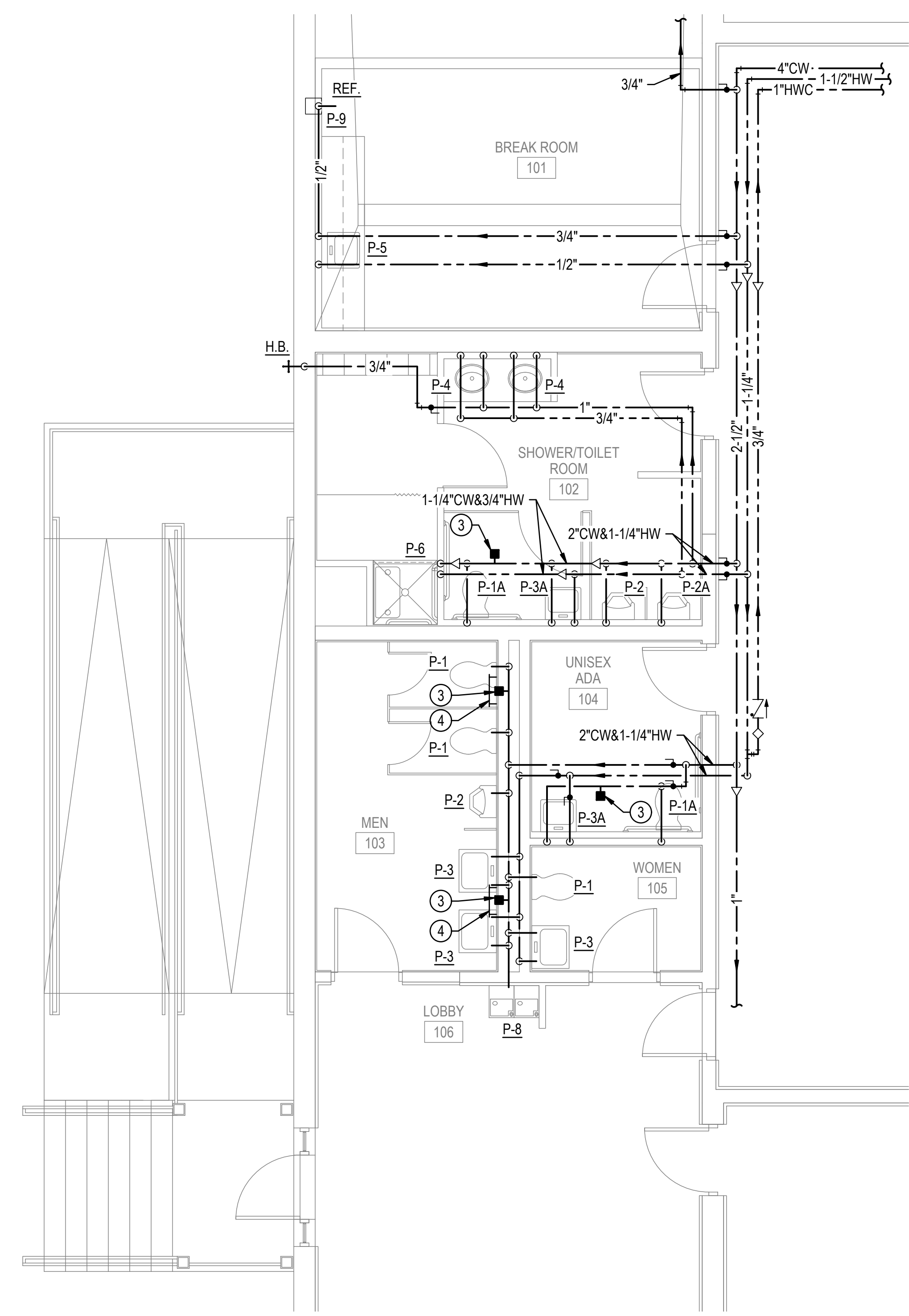
Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: VSS
 Proj No.: 0586B053.A01

ENLARGED PLANS - TOILET ROOMS

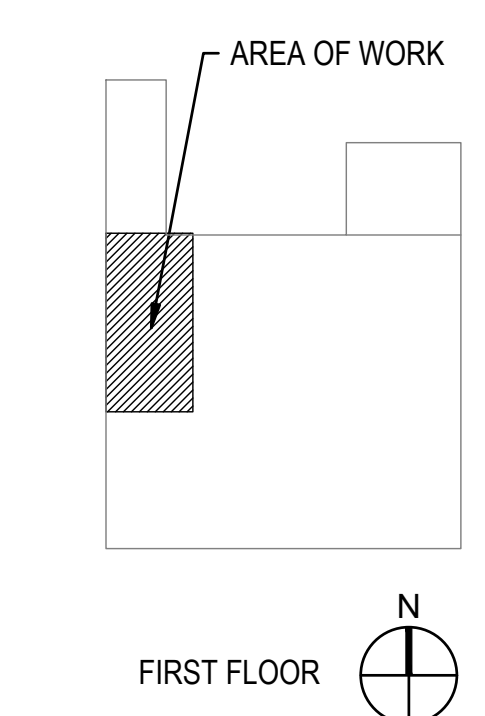
Dwg No.: **P-402**



**ENLARGED PLAN
 TOILET ROOMS - SANITARY & VENT**
 ② P-101
 1/4"=1'-0"
 0 4 8'



**ENLARGED PLAN
 TOILET ROOMS - DOMESTIC WATER**
 ① P-101
 1/4"=1'-0"
 0 4 8'



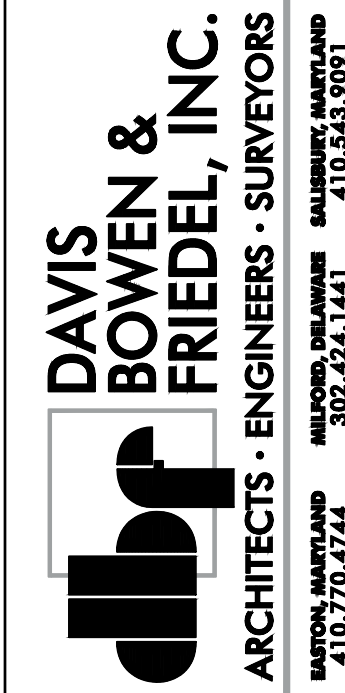
FILE NAME: 2016.18_P-401, P-402, P-403.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:13:00 PM

GENERAL NOTES

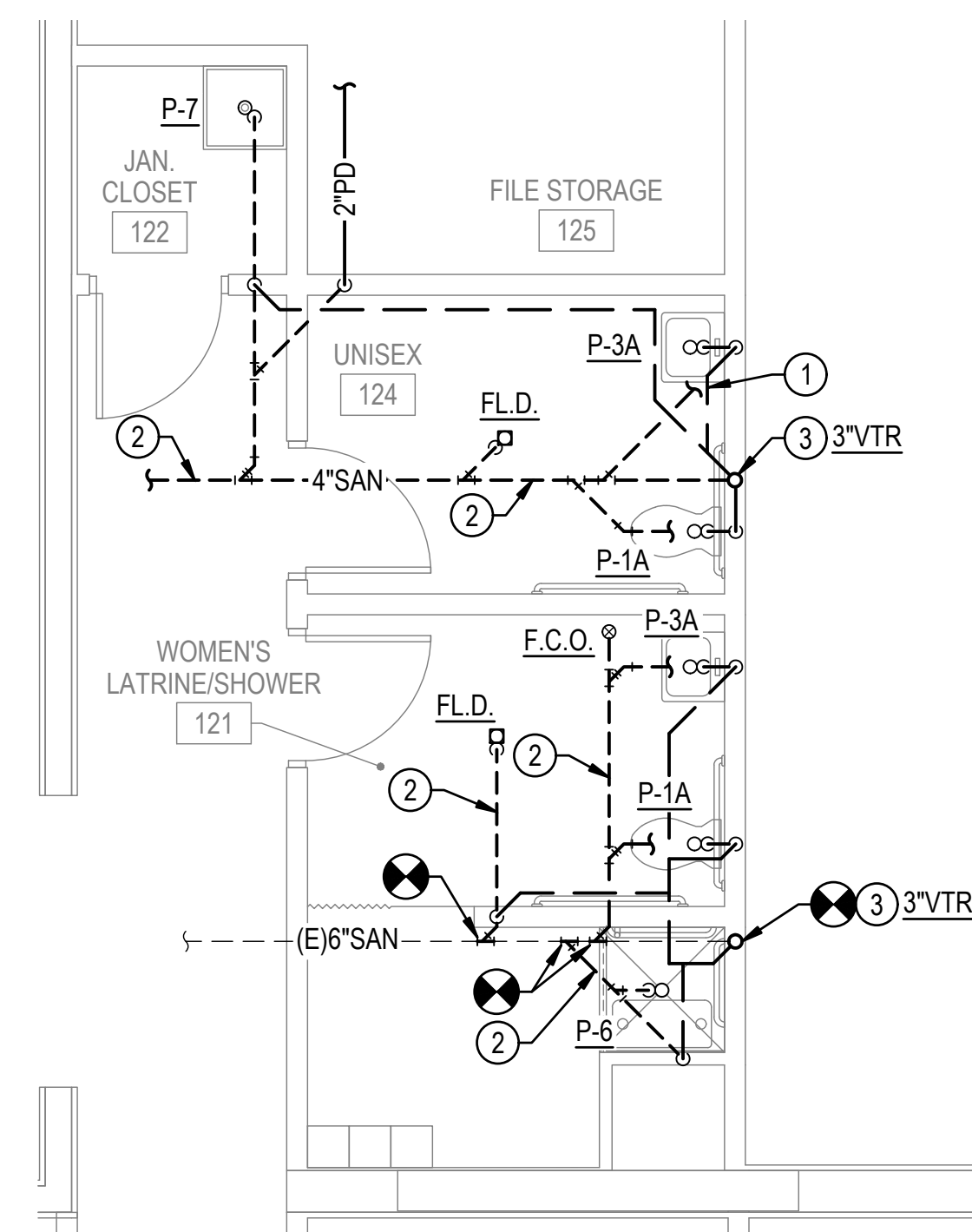
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

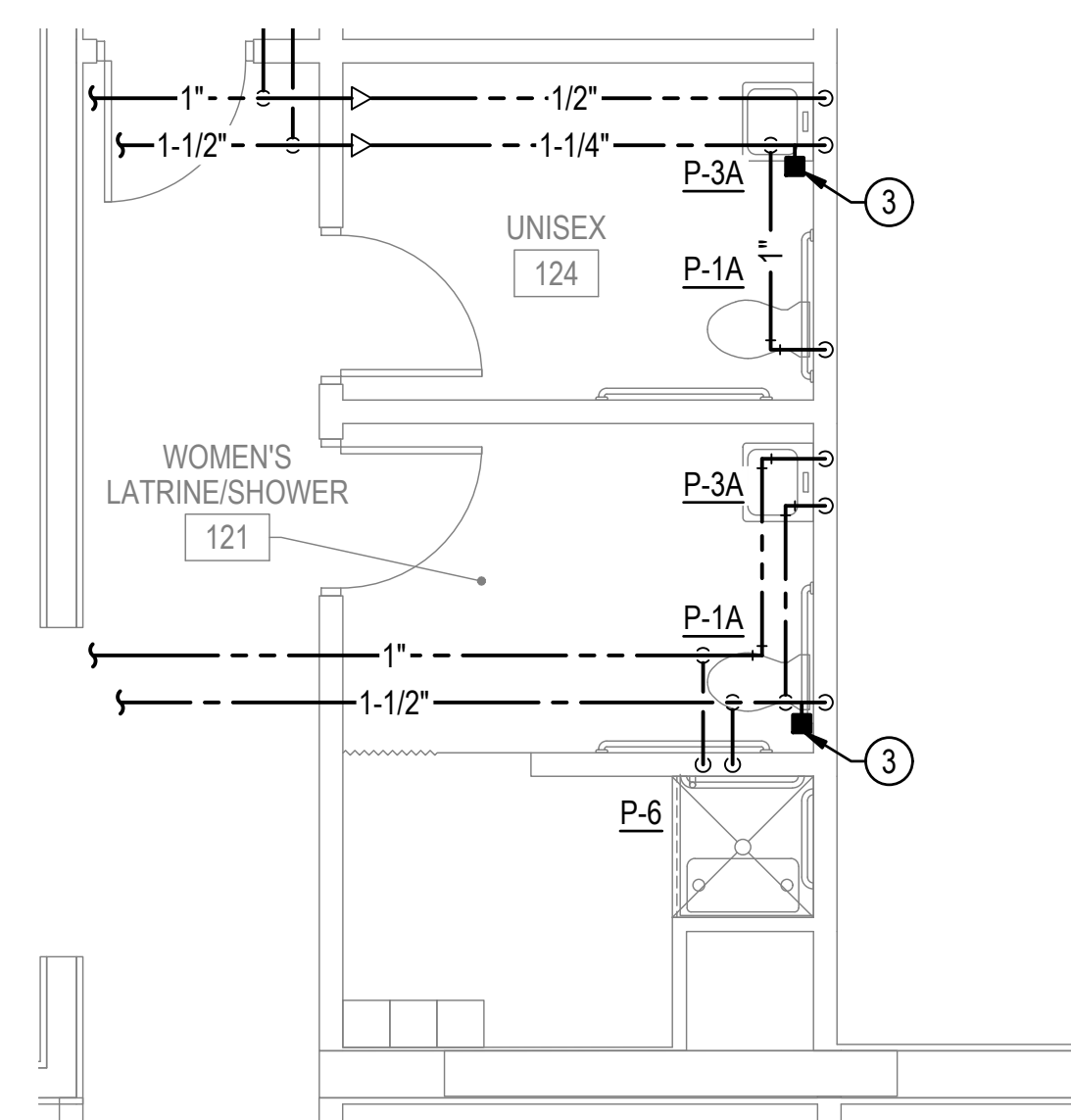
- 1. PROVIDE NEW SANITARY PIPING BELOW SLAB ON GRADE. SAW CUT EXISTING SLAB TO FACILITATE PIPING INSTALLATION. PATCH, REPAIR, AND SEAL SAW CUT TO MATCH ADJACENT SURFACE.
- 2. PROVIDE PIPING PENETRATION THROUGH EXISTING ROOF. SEAL PENETRATION WEATHER-TIGHT.
- 3. LOCATE WATER HAMMER ARRESTOR ON COLD WATER PIPE IN ACCESSIBLE LOCATION TO ALLOW FOR MAINTENANCE. REFER TO RISER ON ##### FOR LOCATION AND SIZE OF ARRESTOR.
- 4. PROVIDE MINIMUM 18x18 ACCESS DOOR IN WALL FOR INSTALLATION AND ACCESS TO WATER HAMMER ARRESTOR. COORDINATE ARRESTOR LOCATION WITH ACCESS DOOR. INSTALL ACCESS DOOR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



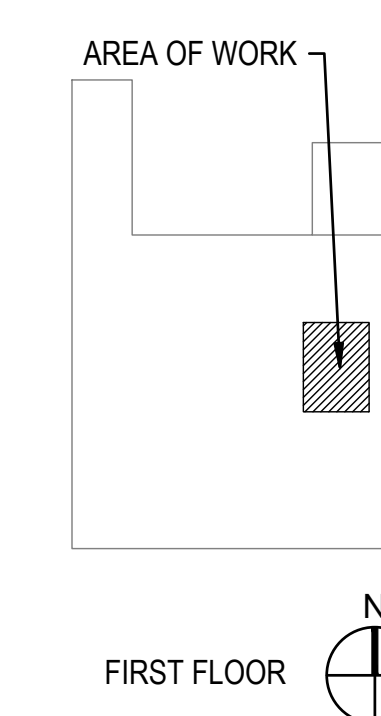
HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



ENLARGED PLAN
TOILET ROOMS - SANITARY & VENT
 P-101 1/4"=1'-0" 0 4' 8'



ENLARGED PLAN
TOILET ROOMS - DOMESTIC WATER
 P-101 1/4"=1'-0" 0 4' 8'

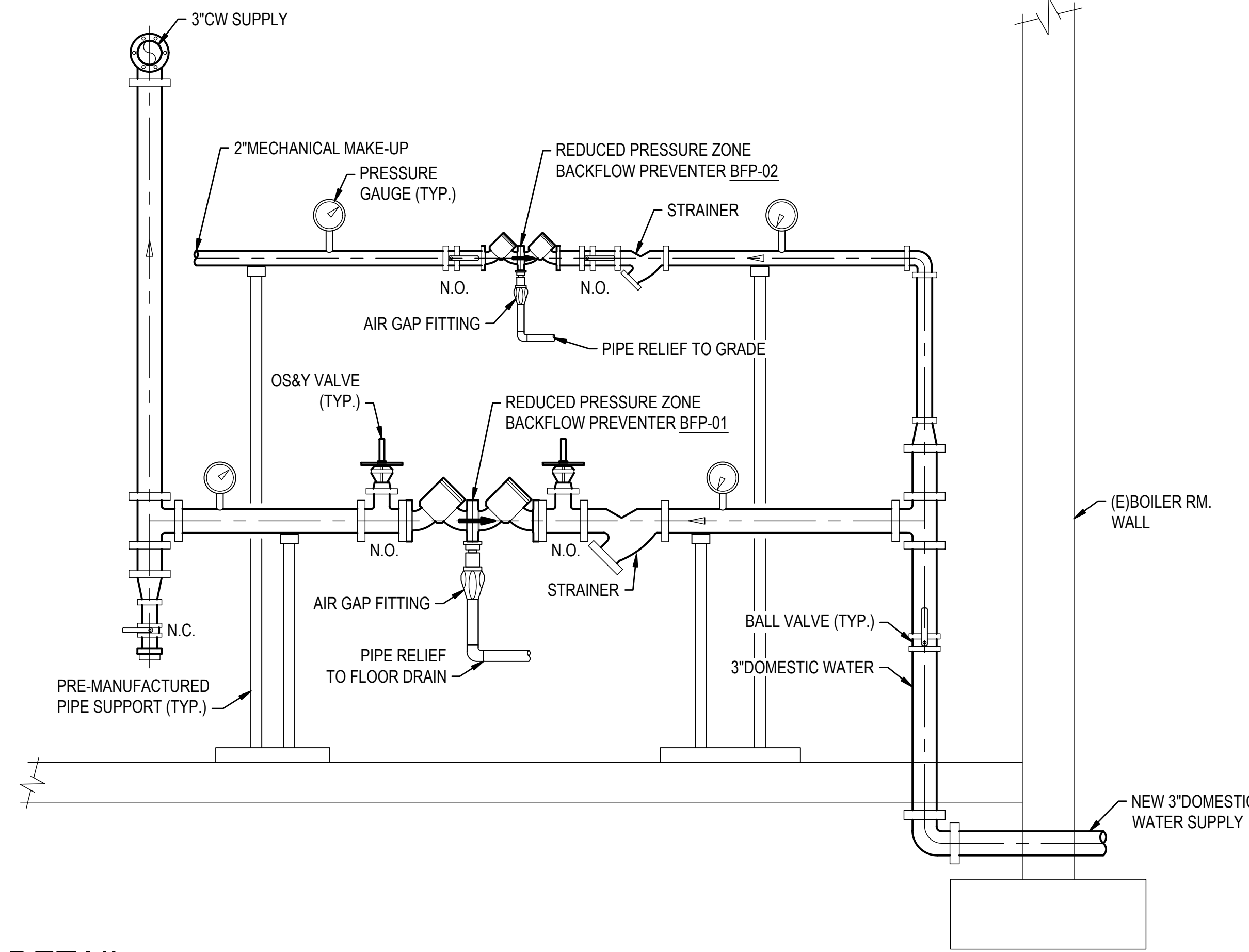


DATE	COMMENTS
11/09/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

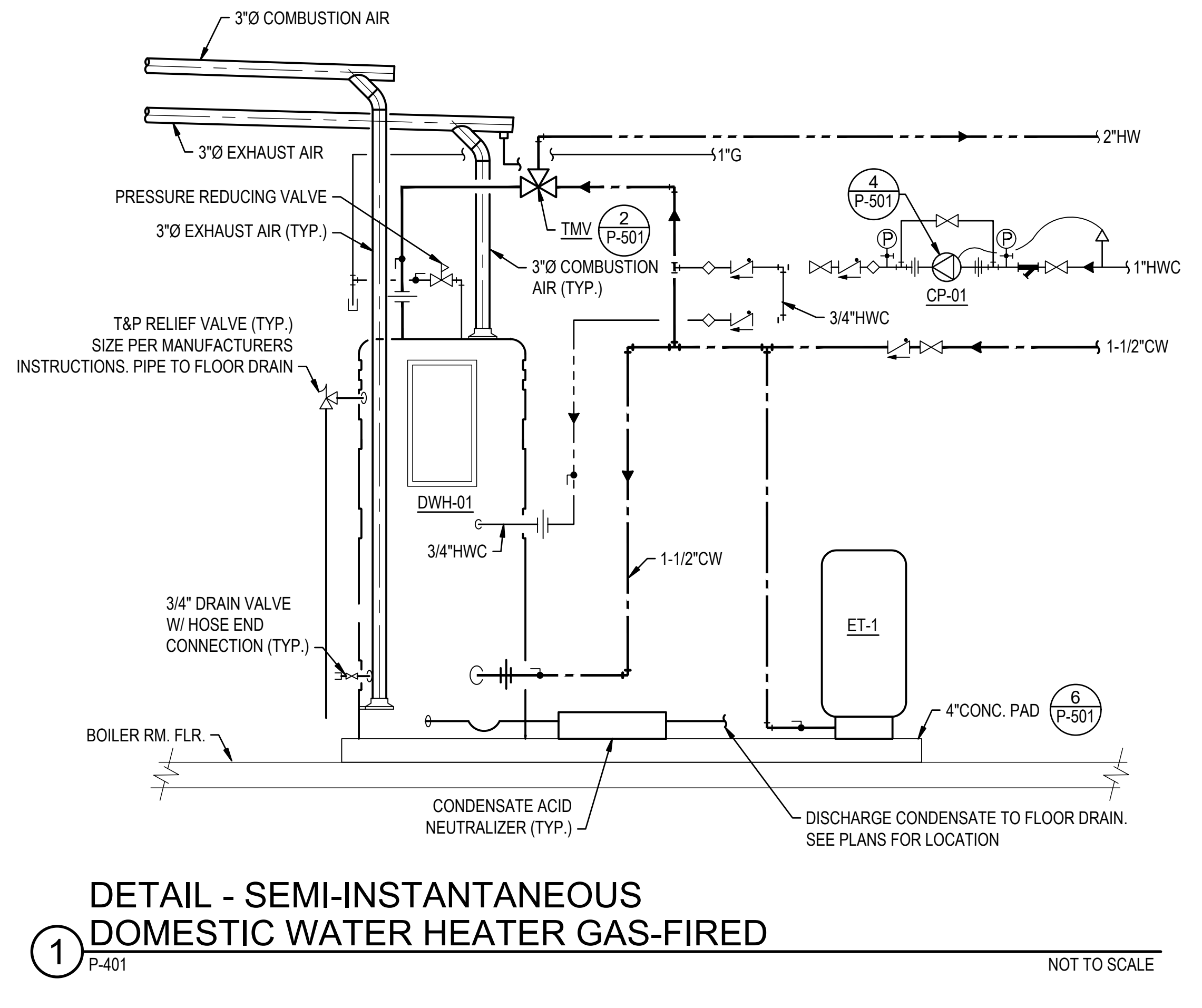
Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: VSS
 Proj No.: 0586B053.A01

ENLARGED
PLANS - TOILET
ROOMS

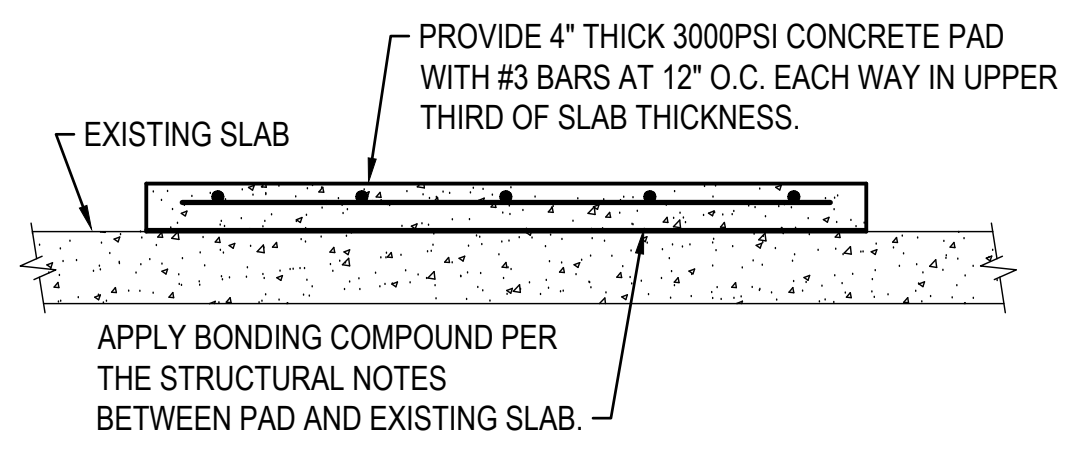
Dwg No.:
P-403



3 **DETAIL INCOMING WATER SERVICE**
P-401 NOT TO SCALE



1 **DETAIL - SEMI-INSTANTANEOUS DOMESTIC WATER HEATER GAS-FIRED**
P-401 NOT TO SCALE



STRUCTURAL NOTES

CAST IN PLACE CONCRETE CONSTRUCTION: PROVIDE CONCRETE CONFORMING TO ALL REQUIREMENTS OF ACI 301-99, ACI 318-02 AND THE ACI DETAILING MANUAL. PROVIDE CONCRETE CONSTRUCTION CONFORMING TO THE FOLLOWING CRITERIA:

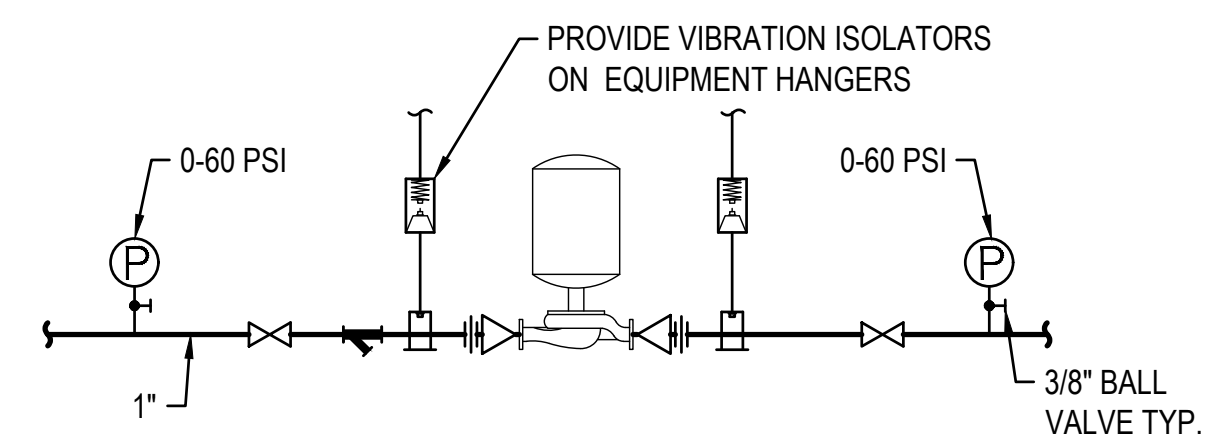
STRUCTURE TYPE	MINIMUM ULTIMATE COMPRESSIVE STRENGTH @ 28 DAYS F'c (PSI)	MAXIMUM WATER/CEMENT RATIO	ENTRAINED AIR RANGE (%)
EQUIPMENT PAD	3,000	0.55	2-4%

PROVIDE CEMENT CONFORMING WITH ASTM C 150, TYPE 1. USE DRINKABLE WATER. PROVIDE AGGREGATE CONFORMING WITH ASTM C 33. PROVIDE CONCRETE ADMIXTURES CONTAINING NO MORE THAN 0.1 PERCENT CHLORIDE IONS. PROVIDE AIR ENTRAINING ADMIXTURE CONFORMING TO ASTM C 260. USE 3 INCH MAXIMUM SLUMP. PROVIDE A WATER BASED EPOXY RESIN/PORTLAND CEMENT BONDING AGENT SUCH AS SIKA ARMATEC 110 OR EQUIVALENT. PROVIDE SURFACE PREPARATION AND PRODUCT APPLICATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. APPLY A SMOOTH TROWEL FINISH TO THE TOP OF THE EQUIPMENT PAD.

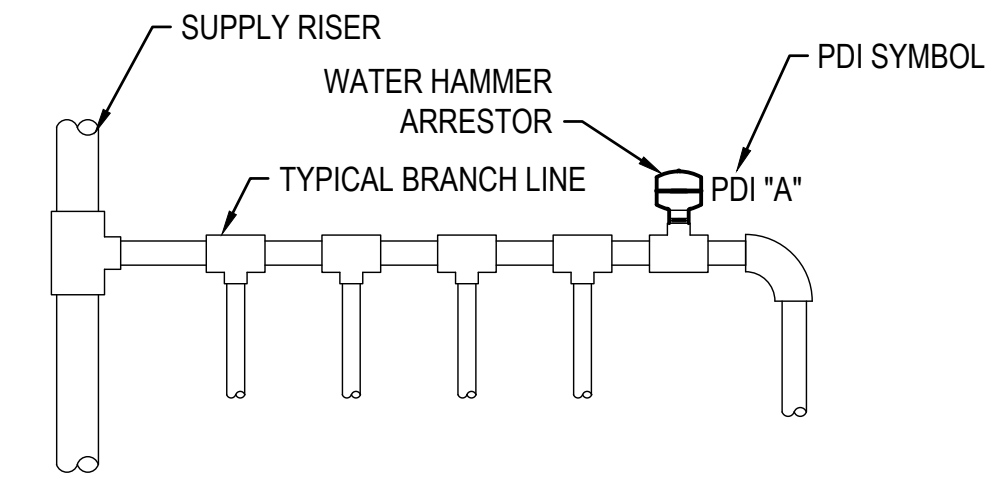
CONCRETE REINFORCEMENT: PROVIDE HIGH STRENGTH NEW BILLET DEFORMED STEEL REINFORCEMENT CONFORMING TO ASTM A615, GRADE 60. PROVIDE DETAILS OF STEEL REINFORCEMENT CONFORMING TO ACI 318-89 AND CRSI STANDARDS. PROVIDE A MINIMUM OF 1 INCH CONCRETE PROTECTION FOR STEEL REINFORCEMENT OF CAST-IN-PLACE CONCRETE.

CONTRACTOR: FIELD VERIFY ALL DIMENSIONS OF EXISTING CONSTRUCTION. IF DEVIATIONS ARE FOUND, PROVIDE A WRITTEN REPORT TO THE CONTRACTING OFFICER.

6 **DETAIL CONCRETE PAD**
P-401, P-501 NOT TO SCALE



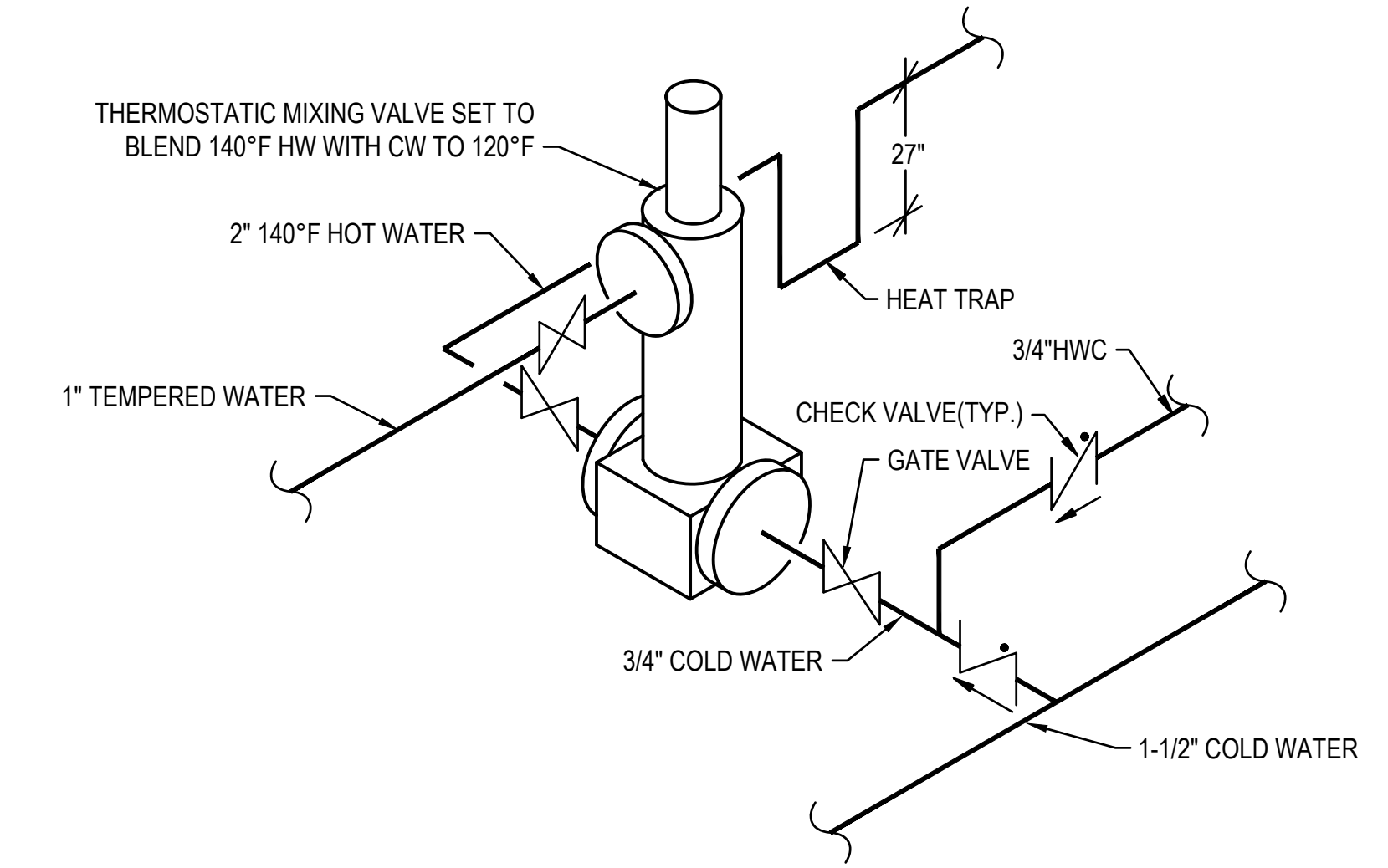
4 **DETAIL VERTICAL IN-LINE PUMP**
P-501 NO SCALE



5 **DETAIL WATER HAMMER ARRESTOR**
P-501 NO SCALE

- NOTES:
- PREFERRED INSTALL WATER HAMMER ARRESTORS AT THE END OF BRANCH LINE BETWEEN THE LAST TWO FIXTURES SERVED.
 - ONE WATER HAMMER ARRESTOR PER 20' LINE, AND ANOTHER FOR BRANCHES OVER 20' IN LENGTH.
 - THE SUM OF FIXTURE UNIT RATING OF UNITS OVER 20' IN LENGTH SHALL BE EQUAL TO OR GREATER THAN THE DEMAND OF THE BRANCHES.

WATER HAMMER ARRESTOR SCHEDULE						
PDI SYMBOL	A	B	C	D	E	F
FIXTURE UNIT RATING	1-11	12-32	33-60	61-113	114-154	155-330



THERMOSTATIC MIXING VALVE							
MARK	ASSE RATING	MAX. PRESSURE DROP		MIN. FLOW GPM	OUTLET SETPOINT °F	MIN. COLD WATER BYPASS GPM	SERVICE
		PSI	GPM				
TMV-1	1017	10.0	25.0	1.0	120	1.0	120°F HW

2 **DETAIL THERMOSTATIC MIXING VALVE**
P-501 NOT TO SCALE

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/10/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/10/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: VSS
Proj No.: 0586B053.A01

DOMESTIC WATER HEATER SCHEDULE													
DESIG.	TANK CAP. (GAL.)	MIN. RECOVERY GPH @ 100°F RISE	MIN. INPUT RATING (MBH)	SET POINT (°F)	CONNECTION SIZE, INCHES				ELECTRICAL		LOCATION	BASIS OF DESIGN	NOTES
					G	V	CW	HW	AMPS	V/PH/Hz			
DWH-01	100.0	90.0	75.0	140.0	3/4"	3"	1-1/2"	1-1/2"	3.1	115/1/60	MECH. ROOM	BRADFORD WHITE MODEL EF-100T-150E-3N(A)	A B C D E F
NOTES A. NATURAL GAS: 4.5"W.C. MIN. & 14.0"W.C. MAX. B. PROVIDE EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. C. REFER TO DETAIL 1 ON SHEET P-501 FOR INSTALLATION. D. PROVIDE EQUIPMENT WITH MANUFACTURER'S RECOMMENDED CONCENTRIC VENT KIT TERMINATION. E. EQUIPMENT THERMAL EFFICIENCY: MINIMUM 95%. F. PROVIDE EQUIPMENT WITH CONDENSATE NEUTRALIZER KIT.													

CIRCULATING PUMP SCHEDULE												
DESIG.	TYPE	FLUID	GPM	HEAD (FT. W.G.)	RPM	MOTOR (HP)	ELECTRICAL (V/PH/Hz)	SERVICE	LOCATION	BASIS OF DESIGN	NOTES	
												A
CP-01	IL	WATER	2.0	10.0	3300	1/6	115/1/60	DOM. HOT WATER	MECH. ROOM	B&G MODEL PL-36	B C	
NOTES A. IL: IN-LINE CIRCULATOR. B. PROVIDE EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. C. REFER TO DETAIL 5 ON SHEET P-501 FOR INSTALLATION.												

EXPANSION TANK SCHEDULE									
DESIG.	TANK VOL. (GAL.)	ACCEPTANCE VOL. (GAL.)	INITIAL CHARGE (PSIG)	TANK SIZE (IN. ØxIN.H)	SERVICE	LOCATION	BASIS OF DESIGN	NOTES	
ET-01	5	3	35	12"Ø x 14	DOM. HOT WATER	MECH. ROOM	WATTS MODEL DETA 12	A B	
NOTES A. PROVIDE EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. B. PROVIDE 3/4" DRAIN, VALVE, HOSE CONNECTION AND CAP.									

BACKFLOW PREVENTER SCHEDULE							
DESIG.	GPM	MAX. P.D. (PSI)	SIZE (IN.)	SERVICE	LOCATION	BASIS OF DESIGN	NOTES
BFP-01	100	12.0	3"	INCOMING DOM. WATER	MECH ROOM	WATTS MODEL LF009	A B
BFP-02	10	12.0	1-1/2"	MECH. SYSTEMS MAKE-UP	MECH ROOM	WATTS MODEL LF009	A B
NOTES A. PROVIDE EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. B. TYPE: REDUCED PRESSURE ASSEMBLY.							

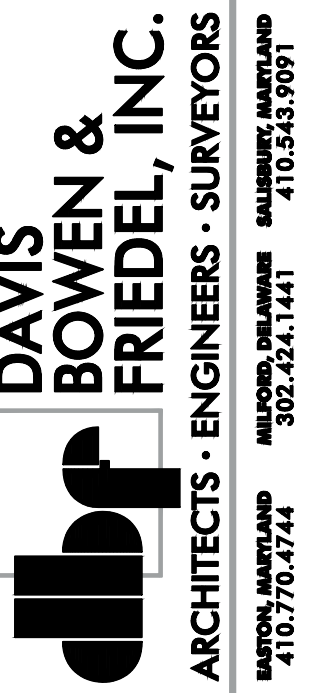
SUBMERSIBLE, EFFLUENT SUMP PUMP (SP-01)

PROVIDE SUBMERSIBLE SUMP PUMP SYSTEM INCLUDING SUMP PUMP, 25-GPM, 3/4-HP MOTOR AT 115V/1Ø/60HZ, CONTROL PANEL AND POWER CORD, 2 MULTIPIN CONNECTORS, JUNCTION BOX AND SIGNAL CORD, POWER CABLE, HIGH LIQUID ALARM FLOAT SWITCH AND PUMP ON/PUMP OFF FLOAT SWITCH. COORDINATE TOTAL POWER AND CONTROL WIRING LENGTHS WITH PUMP AND CONTROL PANEL LOCATIONS INDICATED. INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. PROVIDE RELAYS FOR HIGH LIQUID ALARM AND LOSS OF POWER. PROVIDE A MINIMUM OF 5' ADDITIONAL SLACK CABLE OF EACH TYPE ROLLED AND CLAMPED TO DISCHARGE PIPE FOR REMOVAL OF PUMP FROM PIT. PROVIDE 18"-DIAx22"H HEAVY DUTY POLYETHYLENE SUMP PUMP BASIN WITH RIGID POLYETHYLENE COVER. BASIS OF DESIGN: ZOELLER MODEL BN-145

MINIMUM CLEAR RADIUS: 22"
 MAXIMUM HEIGHT: 20"

A PLUMBING FIXTURE SCHEDULE									
UNIT NO.	FIXTURE	CONNECTION SIZE, INCHES					REMARKS		
		W	V	CW	HW	TW			
P-1	WATER CLOSET	4"	2"	1"	-	-	WHITE VITREOUS CHINA, FLOOR-MOUNTED, REAR OUTLET, HIGH-EFFICIENCY, EXPOSED 1-1/2" TOP SPUD INLET, ELONGATED FLUSHOMETER BOWL TOILET. PROVIDE WITH WHITE, HEAVY DUTY, ELONGATED, OPEN FRONT, TOILET SEAT LESS COVER. PROVIDE WITH EXPOSED, SENSOR ACTIVATED, HARD-WIRED WITH TRANSFORMER, 1.28-GPF FLUSH, 1-1/2" TOP SPUD FLUSHOMETER VALVE. BASIS OF DESIGN: SLOAN ST-2229 TOILET, AND SLOAN ROYAL 111 ESS-1.28 FLUSHOMETER VALVE.		
P-1A	ADA WATER CLOSET	4"	2"	1"	-	-	ADA COMPLIANT, WHITE VITREOUS CHINA, FLOOR-MOUNTED, REAR OUTLET, HIGH-EFFICIENCY, EXPOSED 1-1/2" TOP SPUD INLET, ELONGATED FLUSHOMETER BOWL TOILET. PROVIDE WITH WHITE, HEAVY DUTY, ELONGATED, OPEN FRONT, TOILET SEAT LESS COVER. PROVIDE WITH EXPOSED, SENSOR ACTIVATED, HARD-WIRED WITH TRANSFORMER, 1.28-GPF FLUSH, 1-1/2" TOP SPUD FLUSHOMETER VALVE. BASIS OF DESIGN: SLOAN ST-2039 TOILET, AND SLOAN ROYAL 111 ESS-1.28 FLUSHOMETER VALVE.		
P-2	URINAL	2"	1-1/2"	3/4"	-	-	WALL MOUNTED, VITREOUS CHINA, ELONGATED RIM, EXTENDED SIDES, EXPOSED 3/4" TOP SPUD INLET URINAL. PROVIDE WITH 0.125 GPF, EXPOSED, MANUALLY OPERATED, 3/4" TOP SPUD FLUSHOMETER VALVE. BASIS OF DESIGN: SLOAN SU-1009 URINAL AND ROYAL 186 FLUSHOMETER.		
P-2A	URINAL	2"	1-1/2"	3/4"	-	-	ADA COMPLIANT, WALL MOUNTED, VITREOUS CHINA, ELONGATED RIM, EXTENDED SIDES, EXPOSED 3/4" TOP SPUD INLET URINAL. PROVIDE WITH 0.125 GPF, EXPOSED, MANUALLY OPERATED, 3/4" TOP SPUD FLUSHOMETER VALVE. BASIS OF DESIGN: SLOAN SU-1009 URINAL AND ROYAL 186 FLUSHOMETER.		
P-3	LAVATORY	1-1/2"	1-1/4"	1/2"	-	1/2"	WALL HUNG, LEDGEBACK, VITREOUS CHINA LAVATORY WITH SINGLE CENTER FAUCET HOLE. PROVIDE WITH 0.5 GPM, DOUBLE INFRARED SENSOR-ACTIVATED ELECTRONIC FAUCET, SOLAR POWERED WITH BATTERY BACK-UP, AND INTEGRAL SIDE MIXER. BASIS OF DESIGN: SLOAN SS-3106 LAVATORY AND SLOAN BASYS EFX-375 FAUCET.		
P-3A	LAVATORY	1-1/2"	1-1/4"	1/2"	-	1/2"	ADA COMPLIANT, WALL HUNG, LEDGEBACK, VITREOUS CHINA LAVATORY WITH SINGLE CENTER FAUCET HOLE. PROVIDE WITH 0.5 GPM, DOUBLE INFRARED SENSOR-ACTIVATED ELECTRONIC FAUCET, SOLAR POWERED WITH BATTERY BACK-UP, AND INTEGRAL SIDE MIXER. BASIS OF DESIGN: SLOAN SS-3106 LAVATORY AND SLOAN BASYS EFX-375 FAUCET.		
P-4	LAVATORY	1-1/2"	1-1/4"	1/2"	-	1/2"	ADA COMPLIANT, OVAL, WHITE VITREOUS CHINA, DROP-IN, FRONT OVERFLOW, COUNTER MOUNTED LAVATORY. PROVIDE WITH SINGLE FAUCET HOLE. PROVIDE WITH 0.5 GPM, DOUBLE INFRARED SENSOR-ACTIVATED ELECTRONIC FAUCET, SOLAR POWERED WITH BATTERY BACK-UP, AND INTEGRAL SIDE MIXER. BASIS OF DESIGN: SLOAN SS-3102 LAVATORY AND SLOAN BASYS EFX-375 FAUCET.		
P-5	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	-	1/2"	ADA COMPLIANT, 18 GAUGE STAINLESS STEEL, DOUBLE SINGLE BOWL, DROP-IN SINK WITH REAR CENTER DRAIN PLACEMENT. PROVIDE WITH SINGLE HOLE, DECK MOUNTED, SINGLE LEVER HANDLE HIGH ARC PULL-OUT KITCHEN FAUCET WITH 1.75 GPM AERATOR. PROVIDE 1/2 HP CONTINUOUS FEED GARBAGE DISPOSAL. BASIS OF DESIGN: ELKAY MODEL DLR332210PD SINK AND ELKAY MODEL LKGT1041 FAUCET.		
P-6	SHOWER	2"	2"	1/2"	1/2"	-	PROVIDE ADA COMPLIANT TERRAZZO SHOWER RECEPTOR WITH WALL MOUNTED, POLISHED CHROME THERMOSTATIC AND PRESSURE BALANCED SHOWER VALVE WITH WALL MOUNTED, 2.5 GPM, POLISHED CHROME HANDSHOWER WITH 5' CHROME SHOWER HOSE AND WALL MOUNTED 2.5 GPM SHOWERHEAD. BASIS OF DESIGN: FIAT MODEL ADAWN3636 RECEPTOR, SPEAKMAN SM-3060 SHOWER COMBINATION.		
P-7	MOP SINK	3"	1-1/2"	3/4"	3/4"	-	36"x36"x10"DEEP, FLOOR MOUNTED, MOLDED STONE MOP SERVICE BASIN. PROVIDE WITH EXPOSED, YOKE WALL MOUNTED, 2.2 GPM, CAST BRASS, VANDAL RESISTANT FAUCET WITH HOLD AND MOP HOOKS. BASIS OF DESIGN: FIAT MODEL 26EFS MOP SINK AND FIAT MODEL 830-AA FAUCET.		
P-8	DRINKING FOUNTAIN	1-1/2"	1-1/4"	1/2"	-	-	ADA COMPLIANT, WALL MOUNTED, BI-LEVEL, STAINLESS STEEL CONSTRUCTION, ELECTRIC WATER COOLER WITH INTEGRAL BOTTLE FILLER, COOLER TO PRODUCE 8 GPH OF 50°F WATER AT AN AMBIENT AIR TEMPERATURE OF 90°F. PROVIDE COOLER WITH HERMETICALLY-SEALED RECIPROCATING COMPRESSOR AND R-134a REFRIGERANT. ELECTRICAL: 115V/60Hz, 7.2 FLA. BASIS OF DESIGN: ELKAY MODEL LZSTL8WSLK.		
P-9	ICE MAKER WALL BOX	-	-	1/2"	-	-	UL LISTED, FIRE RATED BOX WITH COLD WATER SUPPLY VALVE RECESSED INTO WALL WITH WATER HAMMER ARRESTOR AND ISOLATION VALVE OPTION. PROVIDE SUPPLY CONNECTION TO EQUIPMENT WITH ASSE 1024 BACKFLOW PREVENTOR. BASIS OF DESIGN: OATEY 38689.		
FL.D.	FLOOR DRAIN	3"	-	-	-	-	CAST IRON BODY WITH 6"Ø NICKEL BRONZE STRAINER AND BARRIER TRAP SEAL DEVICE. BASIS OF DESIGN: WATTS FD-100-A DRAIN AND ZURN Z1072 TRAP SEAL.		
NOTES A. INSTALL ALL FIXTURES AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE PIPING CONNECTIONS PER FIXTURE CONNECTION SCHEDULE. B. ALL ADA RIM MOUNTING HEIGHTS IN ACCORDANCE WITH IPC AND ABAAS REQUIREMENTS.									

PACKAGED BOOSTER PUMP SCHEDULE															
UNIT NO.	TYPE	GPM	INLET PRESSURE (PSI)	DISCHARGE PRESSURE (PSI)	MOTOR (HP)	ELECTRICAL (V/PH/Hz)	DIMENSIONS (IN.)	HYDRO-PNEUMATIC TANK				SERVICE	LOCATION	BASIS OF DESIGN	NOTES
								TANK VOL. (GAL.)	DRAWDOWN VOL (GAL.)	INITIAL CHARGE PRESSURE (PSIG)	TANK PRESSURIZATION SETTING (PSIG)				
BP-01&02	VERT	20-70 EA.	36.0	80.0	5.0 EA.	200/3/60	48"Lx47"Dx62"H	100	20	60	80	BUILDING DOM. WATER	MECH. EQUIP. ROOM	TIGERFLOW PACKAGE EVMSU15-2	B
NOTES A. VERT = DUPLEX, VERTICAL MULTISTAGE PUMP PACKAGE WITH VARIABLE FREQUENCY DRIVES. B. PROVIDE SKID-MOUNTED, PACKAGED, DUPLEX BOOSTER PUMP SYSTEM WITH HYDRO-PNEUMATIC TANK, CONTROLS, AND ALL OTHER ITEMS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.															



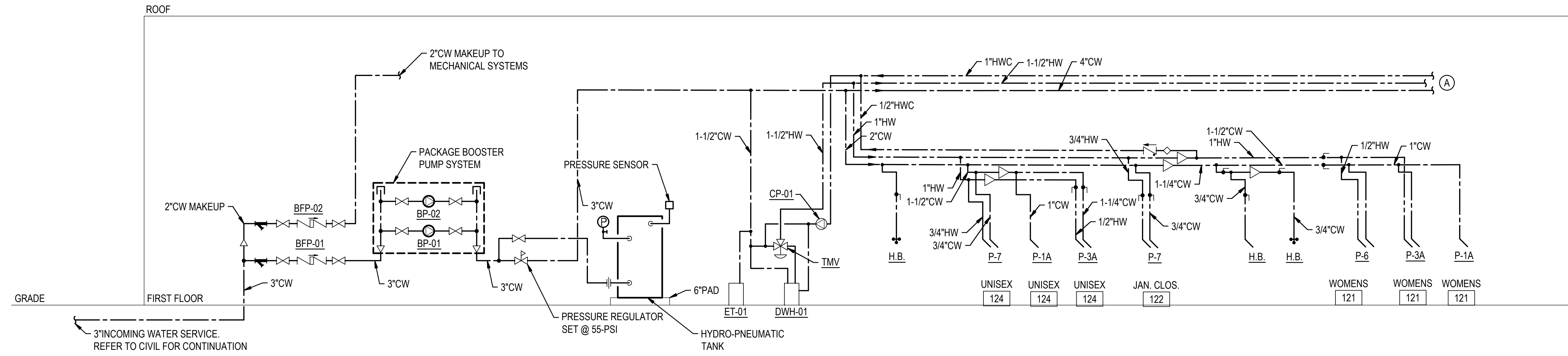
HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

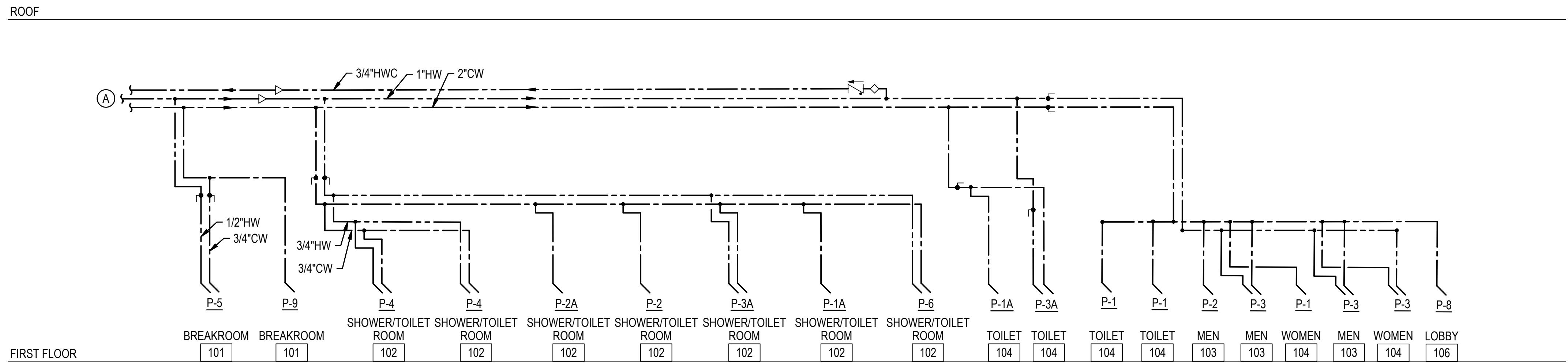
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 Proj.No.: 0586B053.A01

SCHEDULES

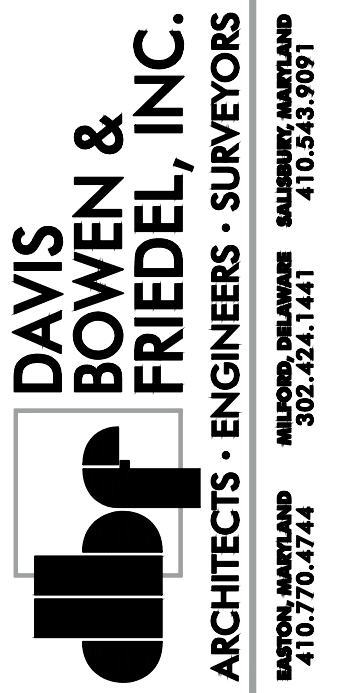
Dwg.No.: **P-601**



① DOMESTIC WATER RISER DIAGRAM
NO SCALE



② DOMESTIC WATER RISER DIAGRAM
NO SCALE



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

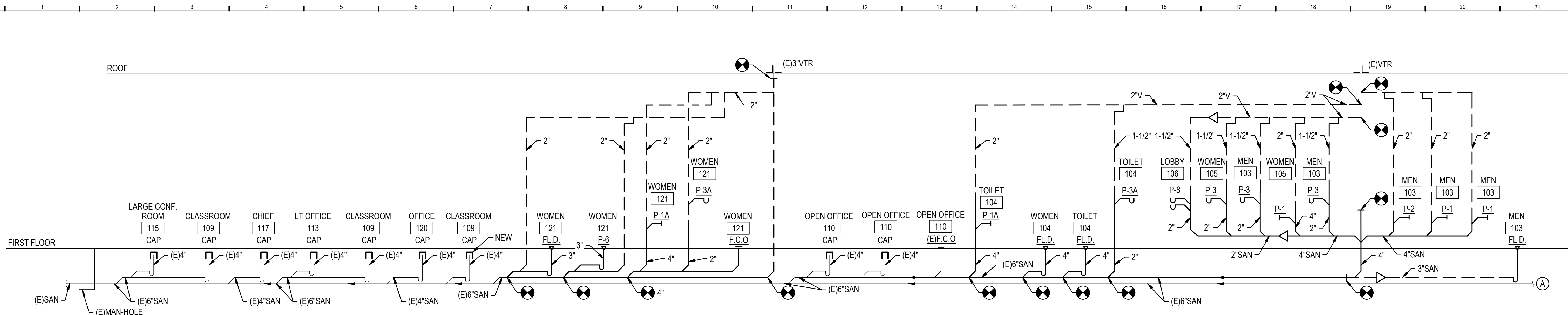
DATE	COMMENTS
11/09/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: CJL
Proj No.: 0586B053.A01

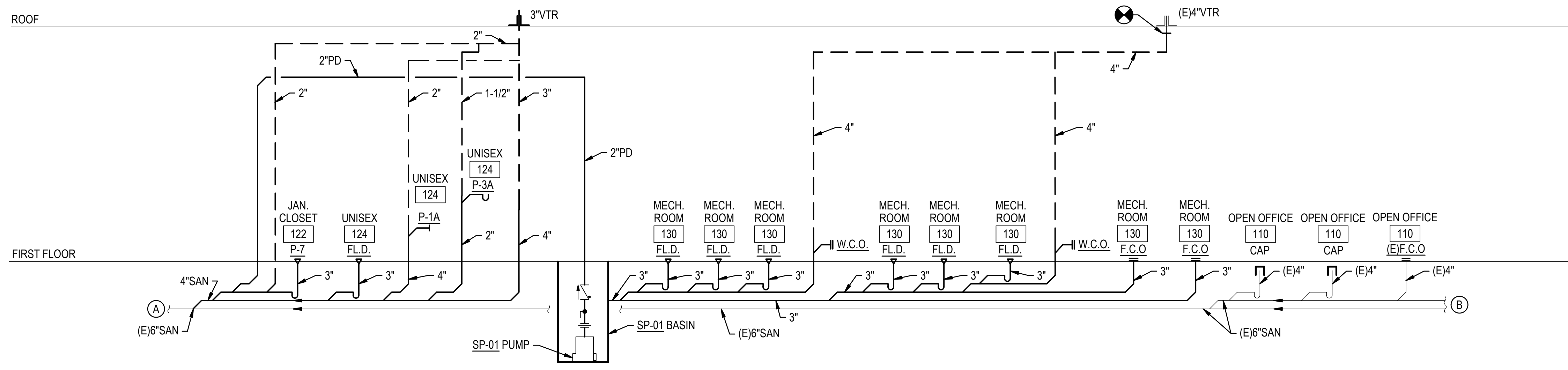
DOMESTIC WATER RISER DIAGRAMS

Dwg No.: **P-602**

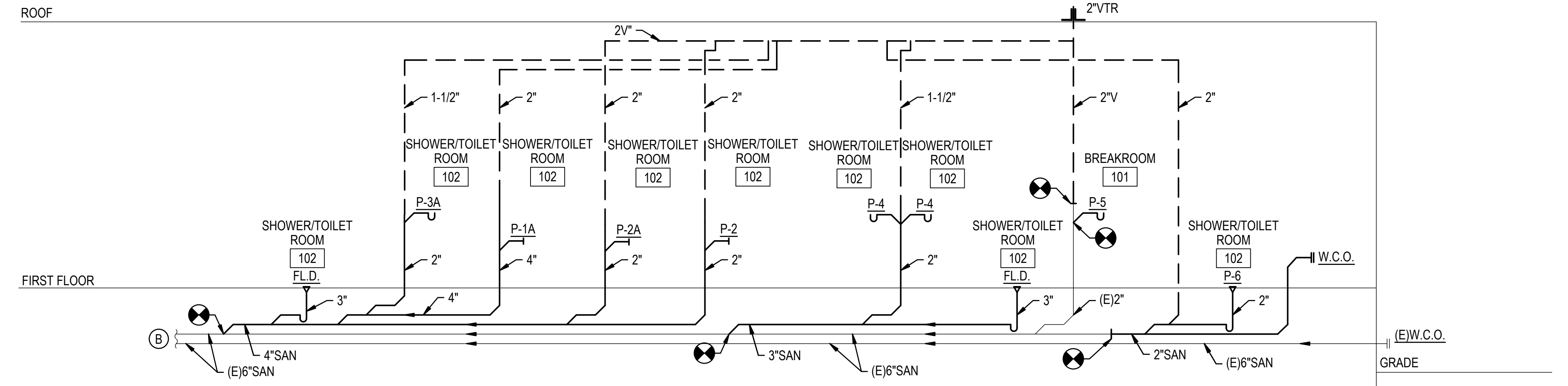
FILE NAME: P-602 DW RISERS.DWG
OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:13:29 PM



1 SANITARY & VENT RISER DIAGRAM
NO SCALE



2 SANITARY & VENT RISER DIAGRAM
NO SCALE



3 SANITARY & VENT RISER DIAGRAM
NO SCALE

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn. By: CJL
Proj No.: 0586B053.A01

SANITARY & VENT RISER DIAGRAMS

Dwg No.: **P-603**

ABBREVIATIONS CONT.

MAX.	MAXIMUM
M.B.D.	MANUAL BALANCING DAMPER
MER	MECHANICAL EQUIPMENT ROOM
MIN.	MINIMUM
M.O.D.	MOTOR OPERATED DAMPER
NC	NOISE CRITERIA
N.C.	NORMALLY CLOSED
N.I.C.	NOT IN CONTRACT
N.O.	NORMALLY OPEN
O.A.	OUTSIDE AIR
O.S.D.	OPEN SITE DRAIN
P.D.	PRESSURE DROP
PH	PHASE
PHWS	PRIMARY HEATING WATER SUPPLY
PHWR	PRIMARY HEATING WATER RETURN
PRV	PRESSURE RELIEF VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
R.A.	RETURN AIR
R.G.	RETURN GRILLE
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
S.A.	SUPPLY AIR
S.C.	SERVICE CLEARANCE
SD	SMOKE DETECTOR
S.P.	STATIC PRESSURE
TYP.	TYPICAL
UH	UNIT HEATER
V	VOLTS
VOL.	VOLUME
W.B.	WET BULB
W.C.	WATER COLUMN
W.G.	WATER GAUGE
WSHP	WATER SOURCE HEAT PUMP

ABBREVIATIONS

A.C.	AIR COMPRESSOR
A.D.	ACCESS DOOR
A.F.F.	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ARCH.	ARCHITECTURAL
A.P.	ACCESS PANEL
APPROX.	APPROXIMATELY
ASC	APPLICATION SPECIFIC CONTROLLER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
C	CONDENSER WATER SUPPLY
C.D.	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
C.O.	CLEANOUT
CR	CONDENSER WATER RETURN
CW	DOMESTIC COLD WATER
D.B.	DRY BULB
DC	DRY COOLER
db	DECIBEL
DDC	DIRECT DIGITAL CONTROL
DESIG.	DESIGNATION
DIA	DIAMETER
DN.	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
(E)	EXISTING
E.A.T.	ENTERING AIR TEMPERATURE
EFF.	EFFICIENCY
E.G.	EXHAUST GRILLE
ELEV.	ELEVATION/ELEVATOR
ENT.	ENTERING
E.S.P.	EXTERNAL STATIC PRESSURE
E.W.T.	ENTERING WATER TEMPERATURE
EXIST.	EXISTING
°F	DEGREES FAHRENHEIT
F.D.	FIRE DAMPER
FLA	FULL LOAD AMPS
FL.D.	FLOOR DRAIN
FLR.	FLOOR
FPM	FEET PER MINUTE
FT.	FEET
F.V.	FACE VELOCITY
GAL	GALLON
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
Hz	HERTZ
IN.	INCHES
JC	JANITORS CLOSET
L.A.T.	LEAVING AIR TEMPERATURE
LBS.	POUNDS
L.W.T.	LEAVING WATER TEMPERATURE

SYMBOLS CONT.

	PC	PUMPED CONDENSATE
	PCR	PUMPED CONDENSATE RETURN
	PCWR	PRIMARY CHILLED WATER RETURN
	PCWS	PRIMARY CHILLED WATER SUPPLY
	RL	REFRIGERANT LIQUID
	RS	REFRIGERANT SUCTION
	SCWR	SECONDARY CHILLED WATER RETURN
	SCWS	SECONDARY CHILLED WATER SUPPLY
	SP	SPRINKLER PIPING
		PIPE TURN UP
		PIPE TURN DOWN
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
		DIRECTION OF FLOW
		PIPE CAP
		PIPE CLEANOUT
		WALL PIPE CLEANOUT
		FLOOR CLEANOUT
		FLOOR DRAIN
		GATE VALVE
		GLOBE VALVE
		SWING CHECK VALVE
		TWO-WAY CONTROL VALVE
		THREE-WAY CONTROL VALVE
		STRAINER
		UNION
		PRESSURE REDUCING VALVE
		SAFETY RELIEF VALVE
		FLOW MEASURING VALVE
		COMBINATION FLOW MEASURING AND BALANCING VALVE
		BALANCING VALVE
		BALL VALVE
		BUTTERFLY VALVE
		BACKFLOW PREVENTER
		MANUAL AIR VENT 3/8" BALL VALVE
		THERMOMETER AND WELL
		PRESSURE GAUGE
		BOILER BLOWDOWN, SLOW OPENING VALVE
		BOILER BLOWDOWN, QUICK OPENING VALVE
		2-WAY PLUG VALVE
		WYE STRAINER WITH CAPPED BLOWDOWN VALVE
		NEEDLE VALVE
		ORIFICE ASSEMBLY
		FLEXIBLE PIPING CONNECTION
		PIPE EXPANSION JOINT

SYMBOLS CONT.

	RISE	DUCT RISE
		RECTANGULAR DUCT SIZE TRANSITION
		RIGID ROUND DUCT SIZE TRANSITION
		DUCT TRANSITION FROM SQUARE TO ROUND
		DUCT WITH SMOKE DETECTOR
		DUCT ELBOW WITH TURNING VANES
		FLEXIBLE DUCTWORK, 5 FEET MAXIMUM LENGTH, SIZE AS INDICATED OR SCHEDULED
		PLENUM SLOT DIFFUSER WITH FLEXIBLE DUCT (5' MAXIMUM LENGTH) SAME SIZE AS DIFFUSER NECK SIZE. DIFFUSER SIZE PER SCHEDULE UNLESS OTHERWISE NOTED. PROVIDE CONICAL SPIN-IN TAP WITH BALANCING DAMPER AT RECTANGULAR DUCT. NUMBER INDICATES BALANCING AIRFLOW CFM.
		SQUARE CEILING DIFFUSER WITH FLEXIBLE DUCT (5' MAXIMUM LENGTH) SAME SIZE AS DIFFUSER NECK SIZE. DIFFUSER SIZE PER SCHEDULE UNLESS OTHERWISE NOTED. PROVIDE CONICAL SPIN-IN TAP WITH BALANCING DAMPER AT CIRCULAR DUCT. NUMBER INDICATES BALANCING AIRFLOW CFM.
		SUPPLY AIR DIFFUSER, 24x24 FACE AREA, SUITABLE FOR 2'x4' TILE CEILING.
		PERFORATED CEILING PANEL, 24x24 FACE AREA, SUITABLE FOR 2'x4' TILE CEILING.
		RETURN AIR SYMBOL
		SUPPLY AIR SYMBOL
		THERMOSTAT
		CONDENSER SUPPLY
		CONDENSER RETURN
		CONDENSER WATER SUPPLY
		COOLED GLYCOL RETURN (30% PROPYLENE GLYCOL)
		COOLED GLYCOL SUPPLY (30% PROPYLENE GLYCOL)
		CONDENSER WATER RETURN
		DOMESTIC COLD WATER
		CHILLED WATER RETURN
		CHILLED WATER SUPPLY
		CONDENSATE DRAIN
		FIRE LINE PIPING
		GAS PIPING
		DOMESTIC HOT WATER
		HOT WATER CIRCULATING
		HEATING WATER RETURN
		HEATING WATER SUPPLY
		MEDIUM PRESSURE STEAM SUPPLY (BETWEEN 15 & 50 PSIG)
		MAKE-UP WATER
		PRIMARY HOT WATER SUPPLY
		PRIMARY HOT WATER RETURN

GENERAL SYMBOLS

	FLOOR PLAN	FLOOR PLAN AND DETAIL TITLES: UNIQUE PLAN OR DETAIL NUMBER ON THIS DRAWING NAME OF PLAN OR DETAIL NORTH ARROW ALL DRAWINGS WHERE DETAIL IS REFERENCED GRAPHIC SCALE OF PLAN OR DETAIL
	2-M101	2-PART REFERENCE DETAIL IDENTIFICATION: NUMBER INDICATES DETAIL/SECTION SHEET NUMBER WHERE DETAIL/SECTION IS DRAWN
	2-M101	SECTION IDENTIFICATION NUMBER INDICATES SECTION INDICATES DIRECTION OF CUTTING PLANE SHEET NUMBER WHERE SECTION IS DRAWN
	N	NORTH ARROW ARROW INDICATES TRUE NORTH AND/OR PROJECT NORTH
	#	COLUMN BUBBLE DESIGNATION
	1	REVISION CLOUD WITH REVISION NUMBER DESIGNATION
		BREAKLINE
	MATCHLINE A-A	MATCHLINE DESIGNATION
		DEMOLITION LINETYPE
		CENTERLINE
	(E)	CENTERLINE SYMBOL EXISTING
		POINT OF CONNECTION TO EXISTING
		POINT OF TERMINATION OF REMOVAL
	#	NOTE NUMBER
	1234	ROOM NUMBER DESIGNATION.

SYMBOLS

	EXHAUST OR RETURN DUCT UP
	EXHAUST OR RETURN DUCT DOWN
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	DUCT WITH FIRE DAMPER AND MINIMUM 16x16 ACCESS DOOR. PROVIDE LAMINATED PLASTIC LABEL WITH 1/2" LETTERING READING, "FIRE DAMPER", AND AFIX TO OUTSIDE OF DUCT ACCESS DOOR PER NFPA.
	DUCT WITH ACCESS DOOR, MINIMUM 16x16
	DUCT WITH MANUAL BALANCING DAMPER. PROVIDE ACCESS DOOR MINIMUM (DUCT WIDTH MINUS 2") WIDE BY 16" LONG.
	DUCT WITH MOTOR OPERATED DAMPER
	DUCT WITH FLEXIBLE CONNECTION
	DUCT WITH ACOUSTICAL SOUND LINING THICKNESS AS INDICATED ON PLAN

DAVIS BOWEN & FRIEDEL, INC.
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MILFORD, DELAWARE BALTIMORE, MARYLAND
302.424.1441 410.354.9191

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date:	JULY 16, 2024
Scale:	AS NOTED
Dwn.By:	FS
Proj.No.:	0586B053.A01

SYMBOLS & ABBREVIATIONS

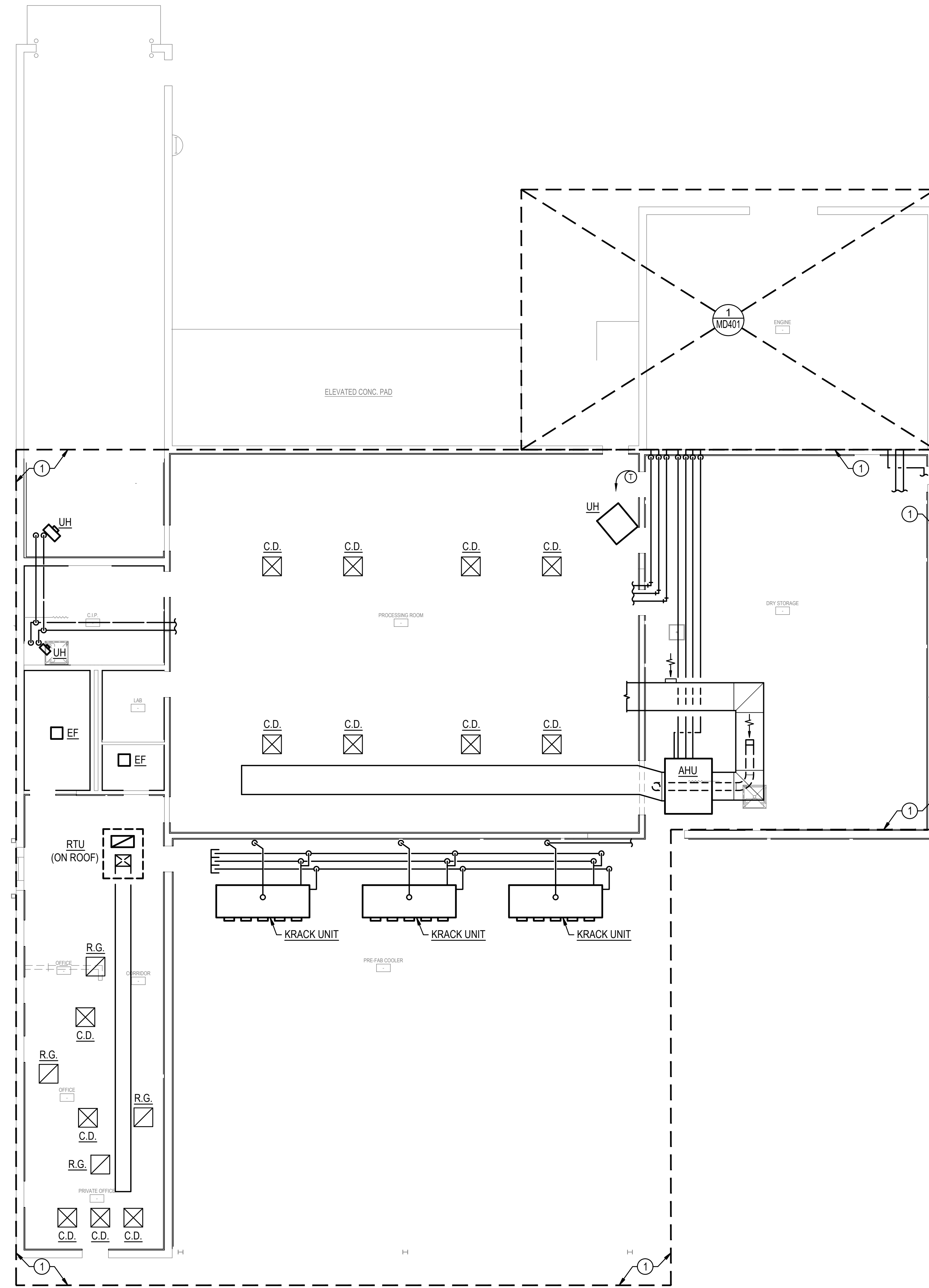
Dwg.No.: **M-001**

GENERAL NOTES

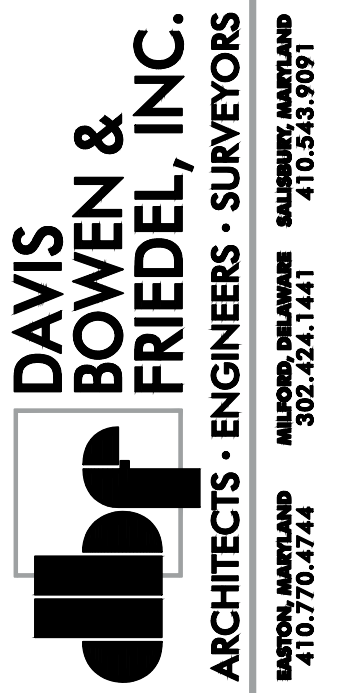
- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. REMOVE ALL MECHANICAL EQUIPMENT INCLUDING DUCTWORK, PIPING, INSULATION, FITTINGS, VALVES, CONTROLS, THERMOSTATS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE WITHIN INDICATED REGION.



1 FIRST FLOOR PLAN - DEMOLITION
1/8"=1'-0"



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: FS
Proj No.: 0586B053.A01

FIRST FLOOR PLAN - DEMOLITION

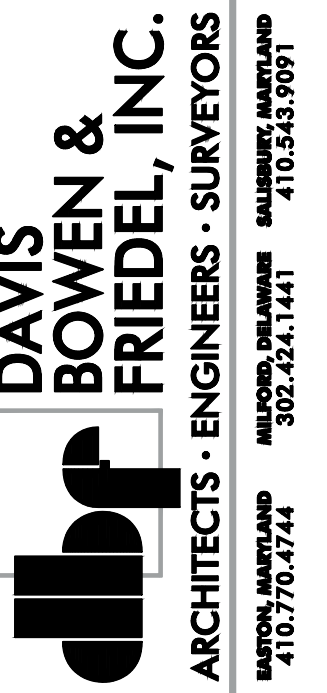
Dwg No.: **MD101**

GENERAL NOTES

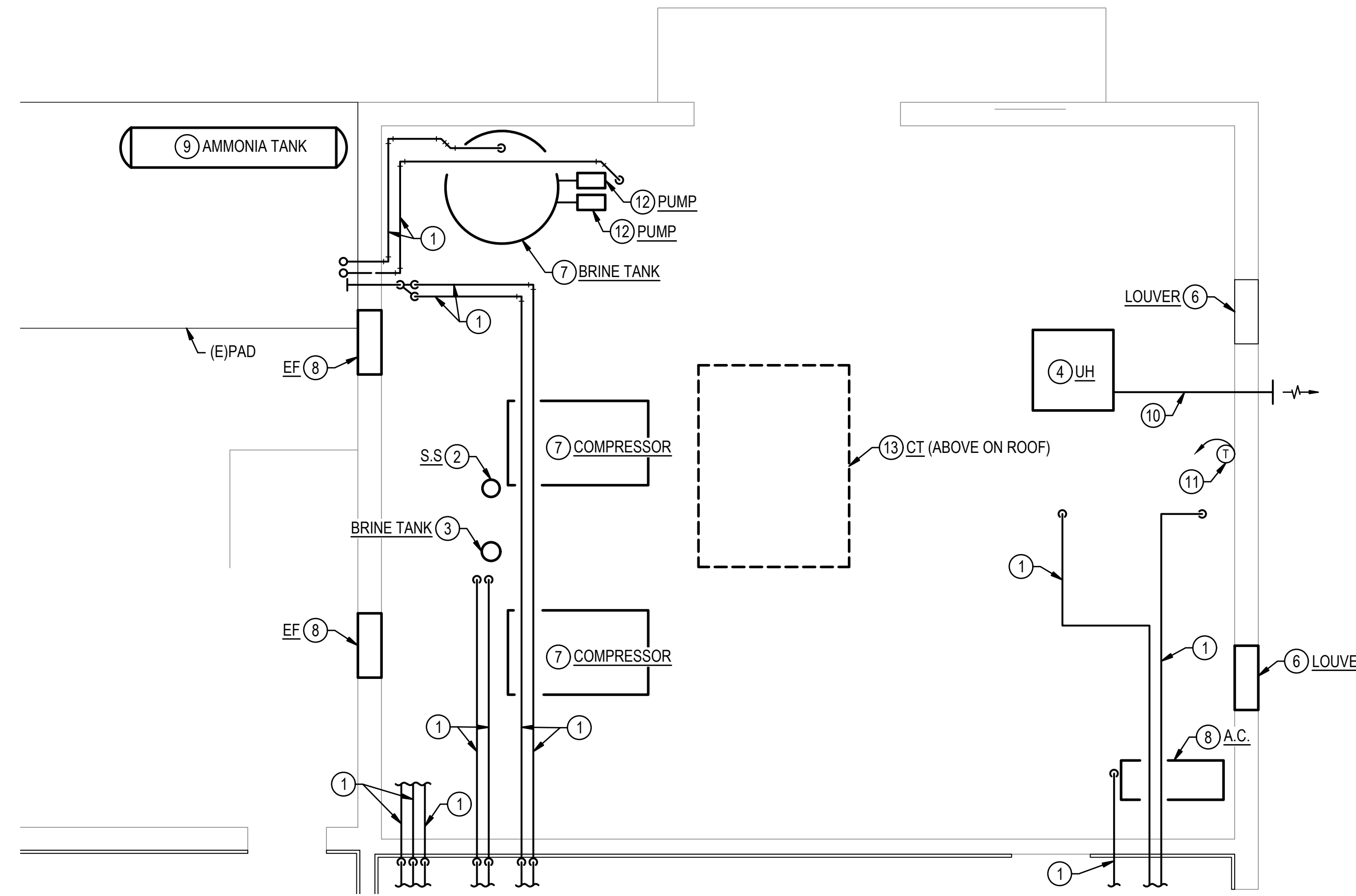
- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.

NOTES

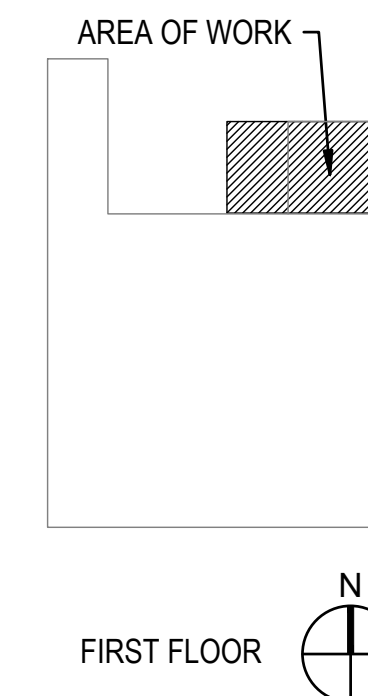
- REMOVE PIPING AND ALL ASSOCIATED INSULATION, FITTINGS, VALVES, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE.
- REMOVE SOLID SEPARATOR AND ALL ASSOCIATED PIPING AND APPURTENANCES COMPLETE.
- REMOVE BRINE TANK AND ALL ASSOCIATED PIPING AND APPURTENANCES COMPLETE.
- REMOVE UNIT HEATER AND ALL ASSOCIATED PIPING, CONTROLS, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE.
- REMOVE EXHAUST FAN AND ALL ASSOCIATED DUCTWORK, CONTROLS, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE.
- REMOVE LOUVER AND ALL ASSOCIATED CONTROLS AND APPURTENANCES COMPLETE. INFILL WALL TO MATCH ADJACENT SURFACE.
- REMOVE ENGINE AND ALL ASSOCIATED PIPING, CONTROLS, AND APPURTENANCES COMPLETE.
- REMOVE AIR COMPRESSOR AND ALL ASSOCIATED PIPING, CONTROLS, AND APPURTENANCES COMPLETE.
- REMOVE AMMONIA TANK AND ALL ASSOCIATED PIPING AND APPURTENANCES COMPLETE.
- REMOVE DUCTWORK AND ALL ASSOCIATED INSULATION, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE.
- REMOVE THERMOSTAT AND ALL ASSOCIATED APPURTENANCES COMPLETE.
- REMOVE PUMP AND ALL ASSOCIATED PIPING, INSULATION, CONTROLS, SUPPORTS, AND APPURTENANCES COMPLETE.
- REMOVE COOLING TOWER AND ALL ASSOCIATED PIPING, CONTROLS, AND APPURTENANCES COMPLETE.



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



1 ENLARGED PLAN MECHANICAL ROOM - DEMOLITION
 MD101 1/4" = 1'-0" 0 4 8' N



DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: FS
 Proj No.: 0586B053.A01

ENLARGED PLAN - MECHANICAL ROOM - DEMOLITION

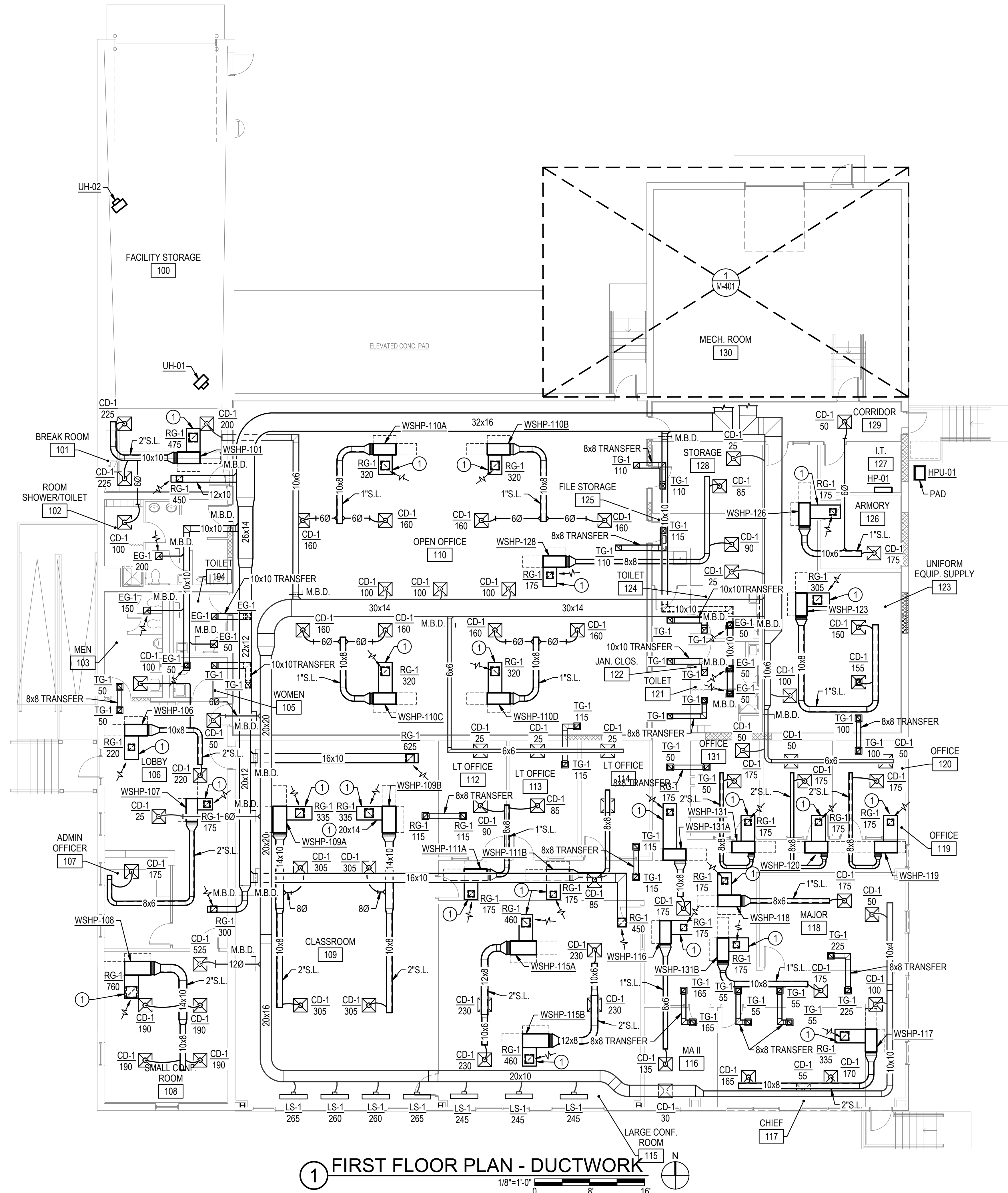
Dwg No.: **MD401**

GENERAL NOTES

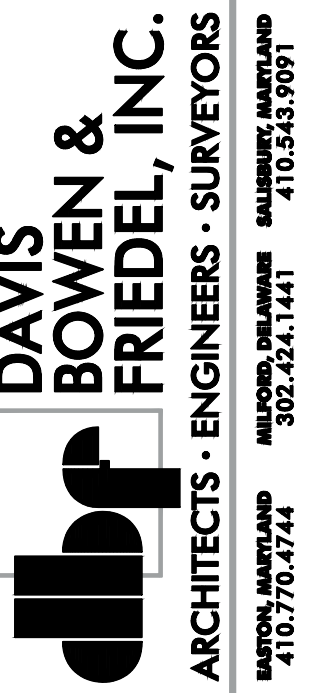
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

1. COORDINATE RETURN AIR DUCT SIZE WITH APPROVED EQUIPMENT MANUFACTURER'S OPENING SIZE. MATCH DUCT SIZE OPENING SIZE WITHOUT REDUCING DUCT.



1 FIRST FLOOR PLAN - DUCTWORK
1/8"=1'-0"



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/10/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn. By: FS
Proj. No.: 0586B053.A01

FIRST FLOOR
PLAN -
DUCTWORK

Dwg. No.:
M-101

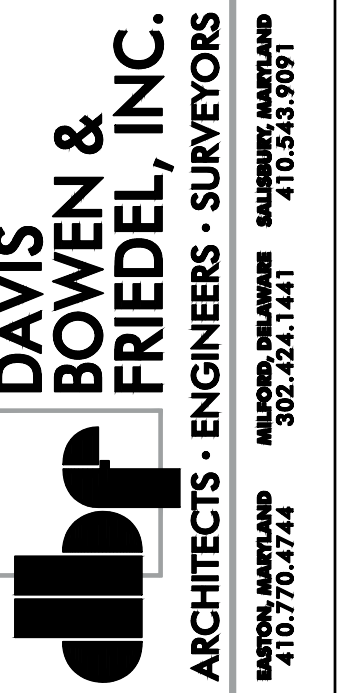
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OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:14:20 PM

GENERAL NOTES

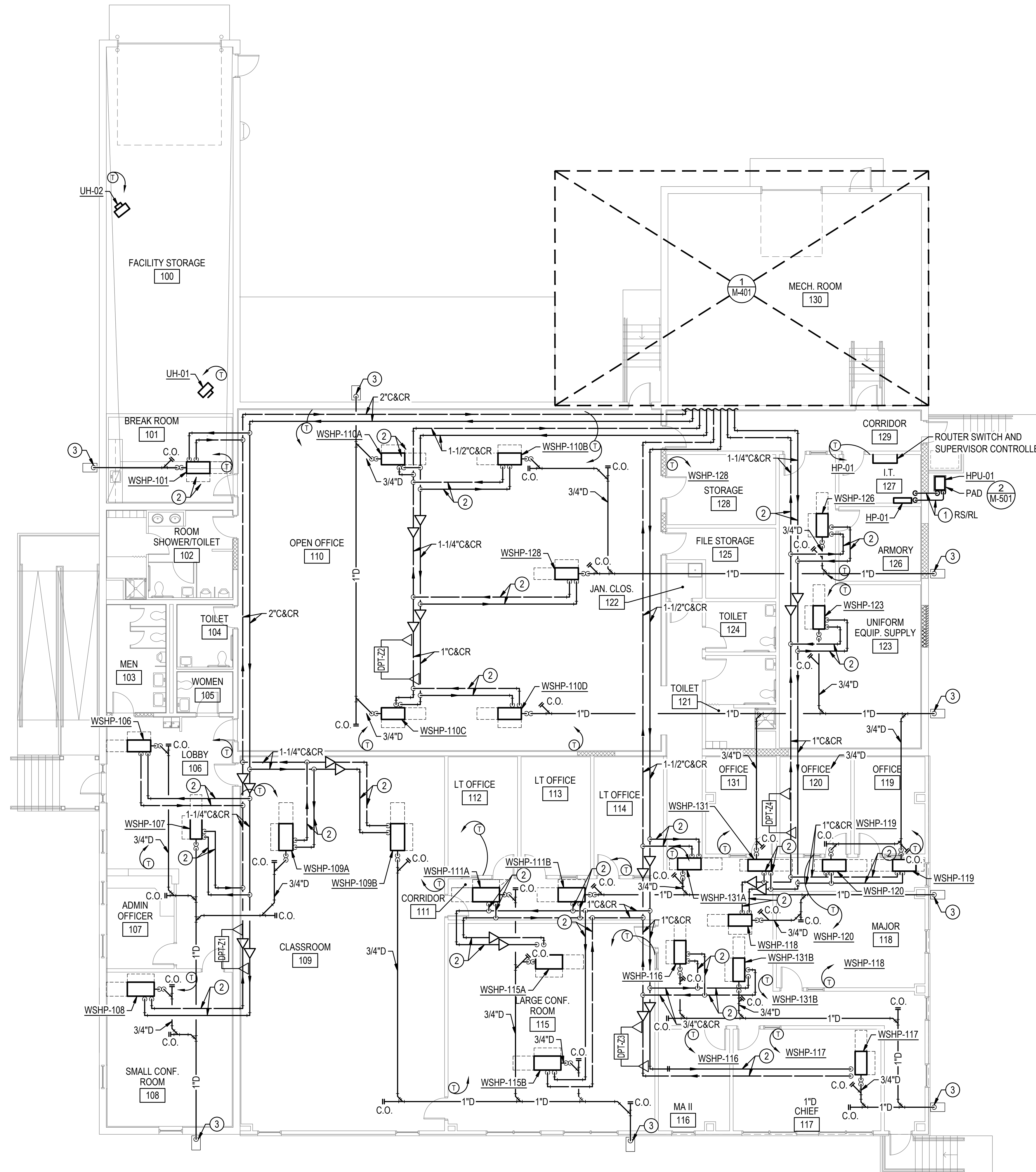
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "E".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. SIZE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
- 2. REFER TO SCHEDULES ON SHEET M-601 FOR HEAT PUMP PIPE RUNOUT SIZE.
- 3. TERMINATE CONDENSATE DRAIN TO 12" ABOVE GRADE WITH BRONZE SCUPPER, BASIS OF DESIGN JOSAM MODEL 25010-Z OR EQUAL. DISCHARGE CONDENSATE TO SPLASH BLOCK ON GRADE.



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



1 FIRST FLOOR PLAN - PIPING

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn. By: JHG
 Proj No.: 0586B053.A01

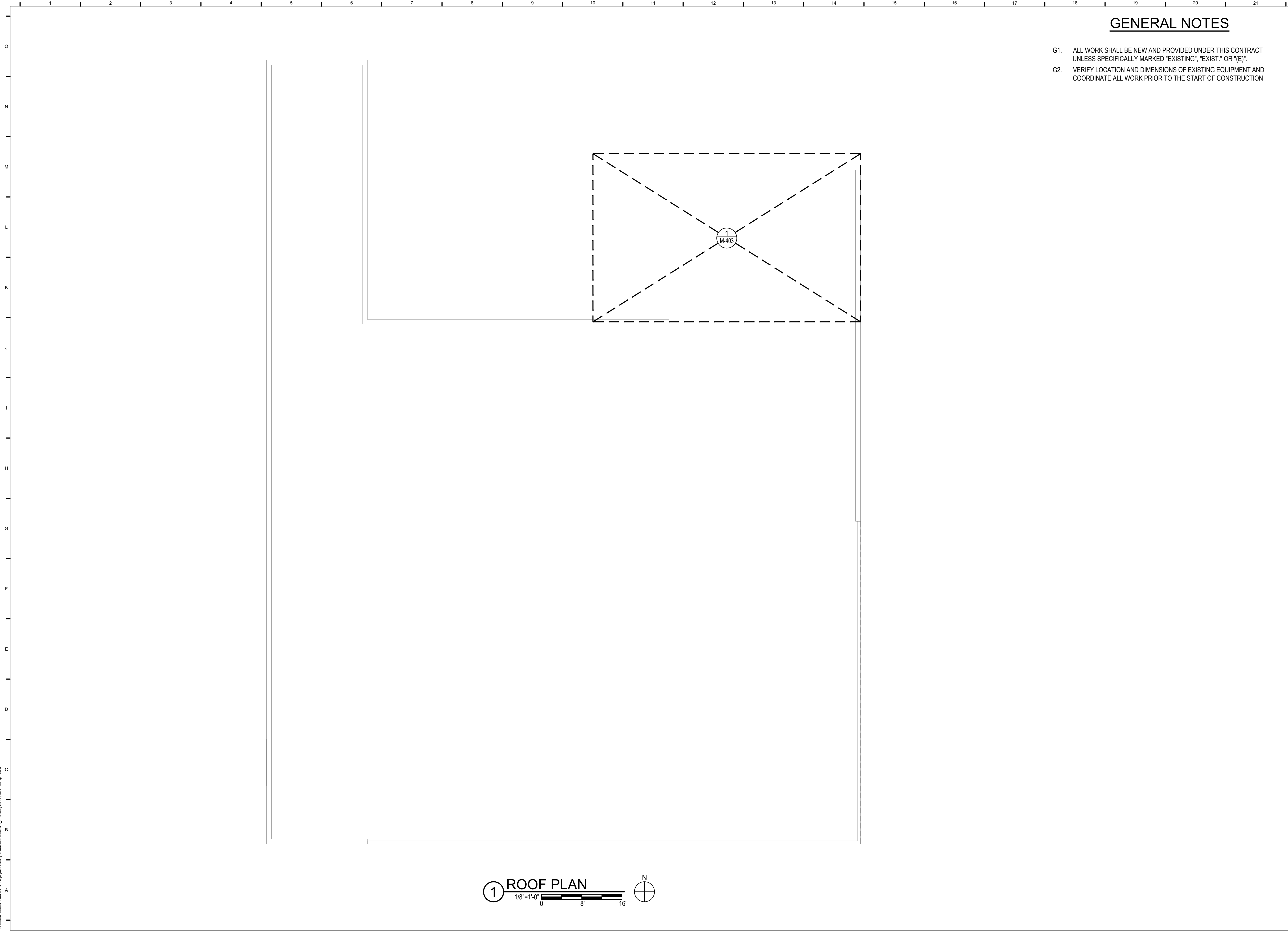
FIRST FLOOR PLAN - PIPING

Dwg No.: **M-102**

FILE NAME: 2016.18_M-102.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:14:35 PM

FILE NAME: 2016.18_M-103.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:14:46 PM

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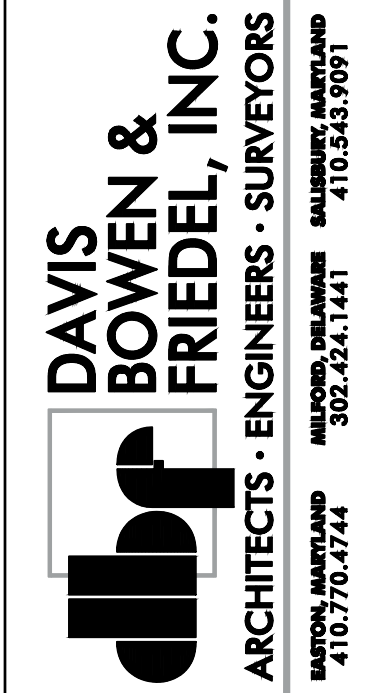


1 ROOF PLAN
 1/8"=1'-0"
 0 8' 16'



GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION



HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

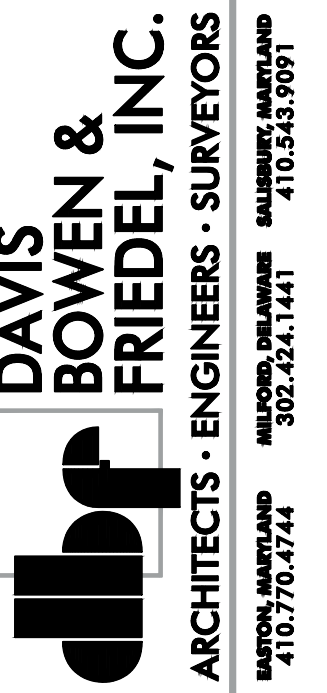
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 Scale: AS NOTED
 Dwn.By: JHG
 Proj No.: 0586B053.A01

ROOF PLAN

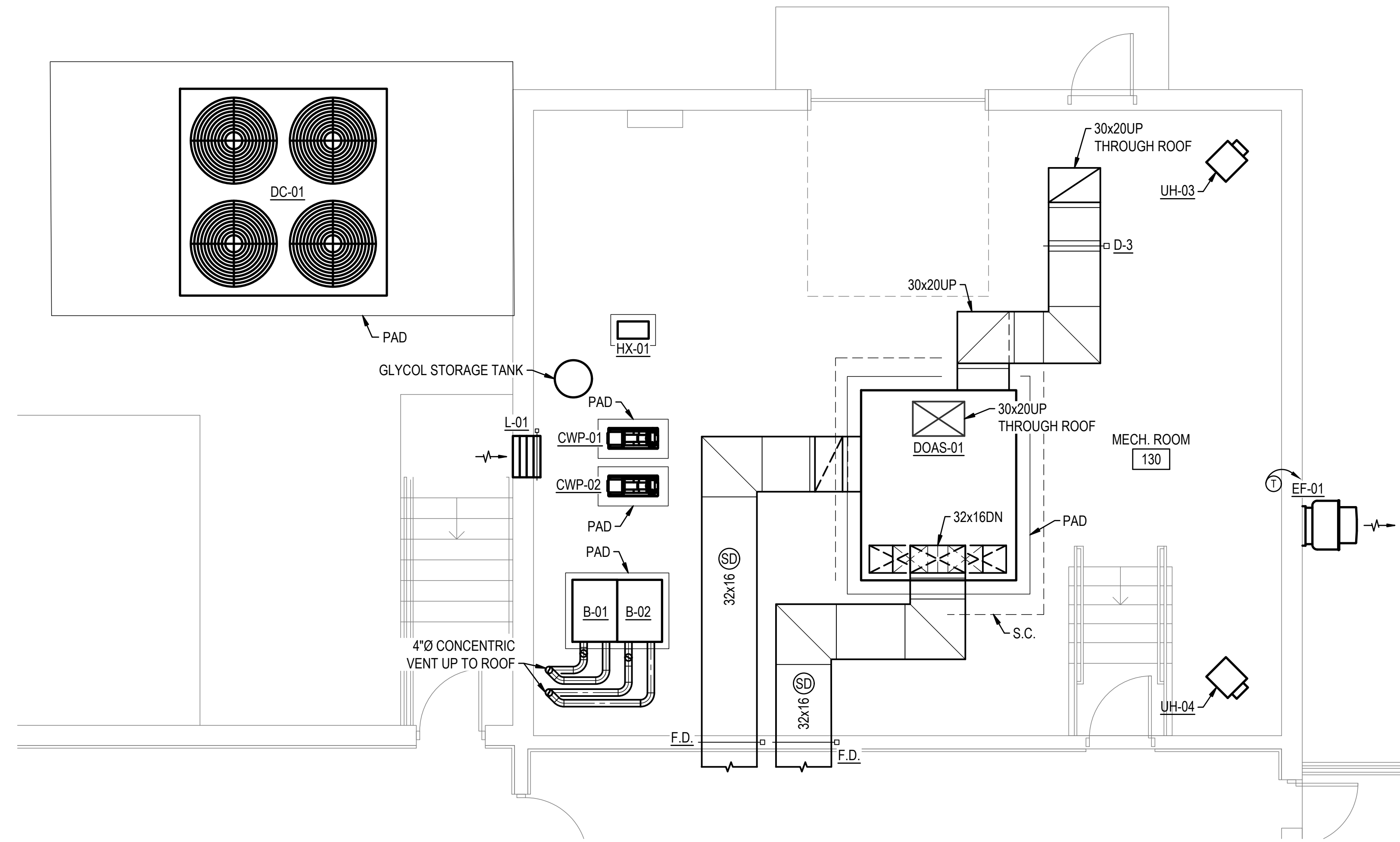
Dwg No.:
M-103

GENERAL NOTES

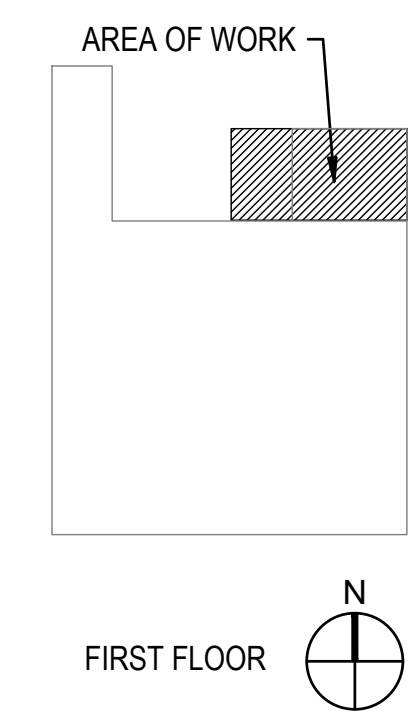
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



ENLARGED PLAN
MECHANICAL ROOM - DUCTWORK
 1 M-101
 1/4"=1'-0"
 0 4 8'



DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn. By: FS
 Proj No.: 0586B053.A01

ENLARGED PLAN
- MECHANICAL
ROOM -
DUCTWORK

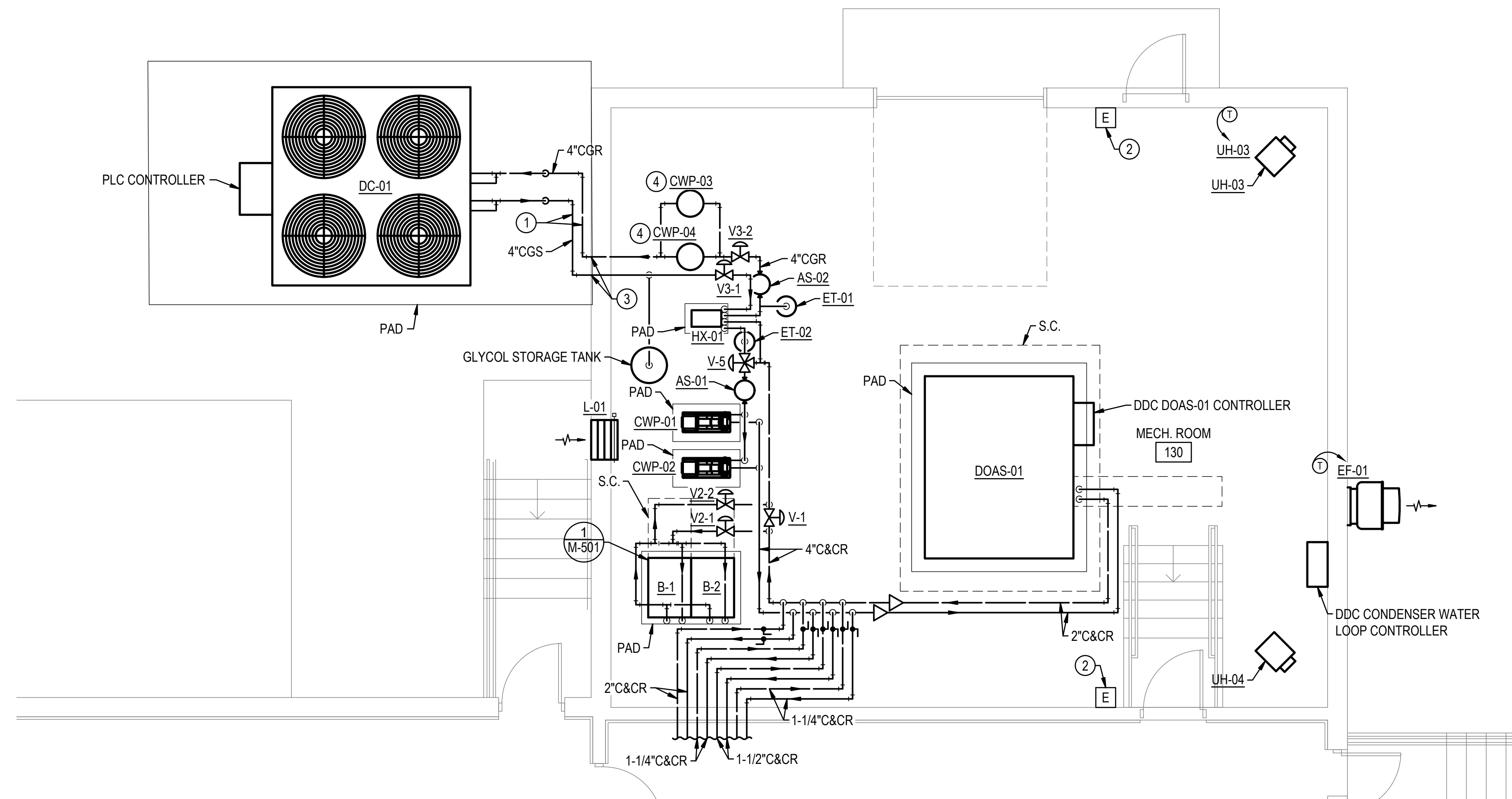
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GENERAL NOTES

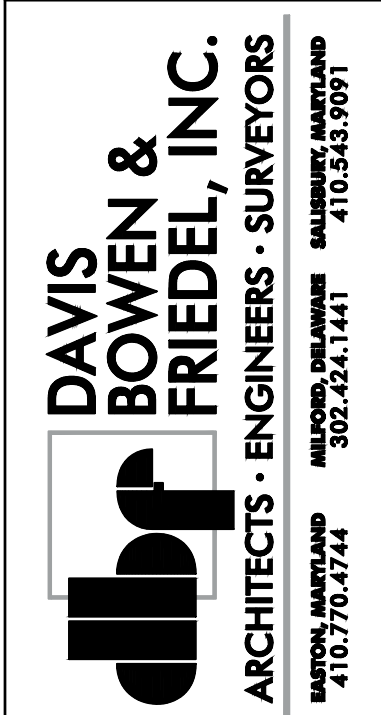
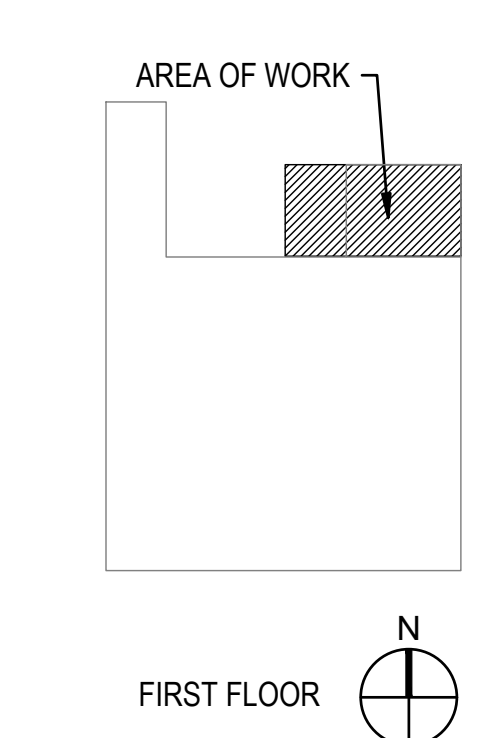
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. PIPING SHALL BE INDEPENDENTLY SUPPORTED.
- 2. BOILER/WATER HEATER EMERGENCY SHUTDOWN SWITCH (TYP. OF 2).
- 3. PROVIDE SLEEVE PENETRATION THROUGH EXISTING EXTERIOR WALL. SEAL PENETRATION WEATHER TIGHT.
- 4. COORDINATE PUMP MOUNTING HEIGHT FOR ACCESSIBILITY AND SERVICEABILITY.



**ENLARGED PLAN
MECHANICAL ROOM - PIPING**
M-101 1/4"=1'-0" 0 4 8



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

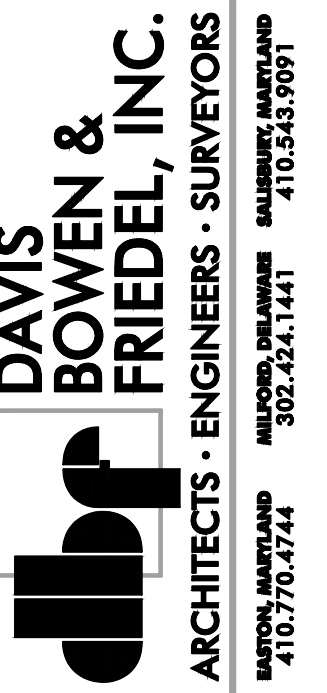
Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: JHG
Proj No.: 0586B053.A01

**ENLARGED PLAN
- MECHANICAL
ROOM - PIPING**

Dwg No.: **M-402**

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION



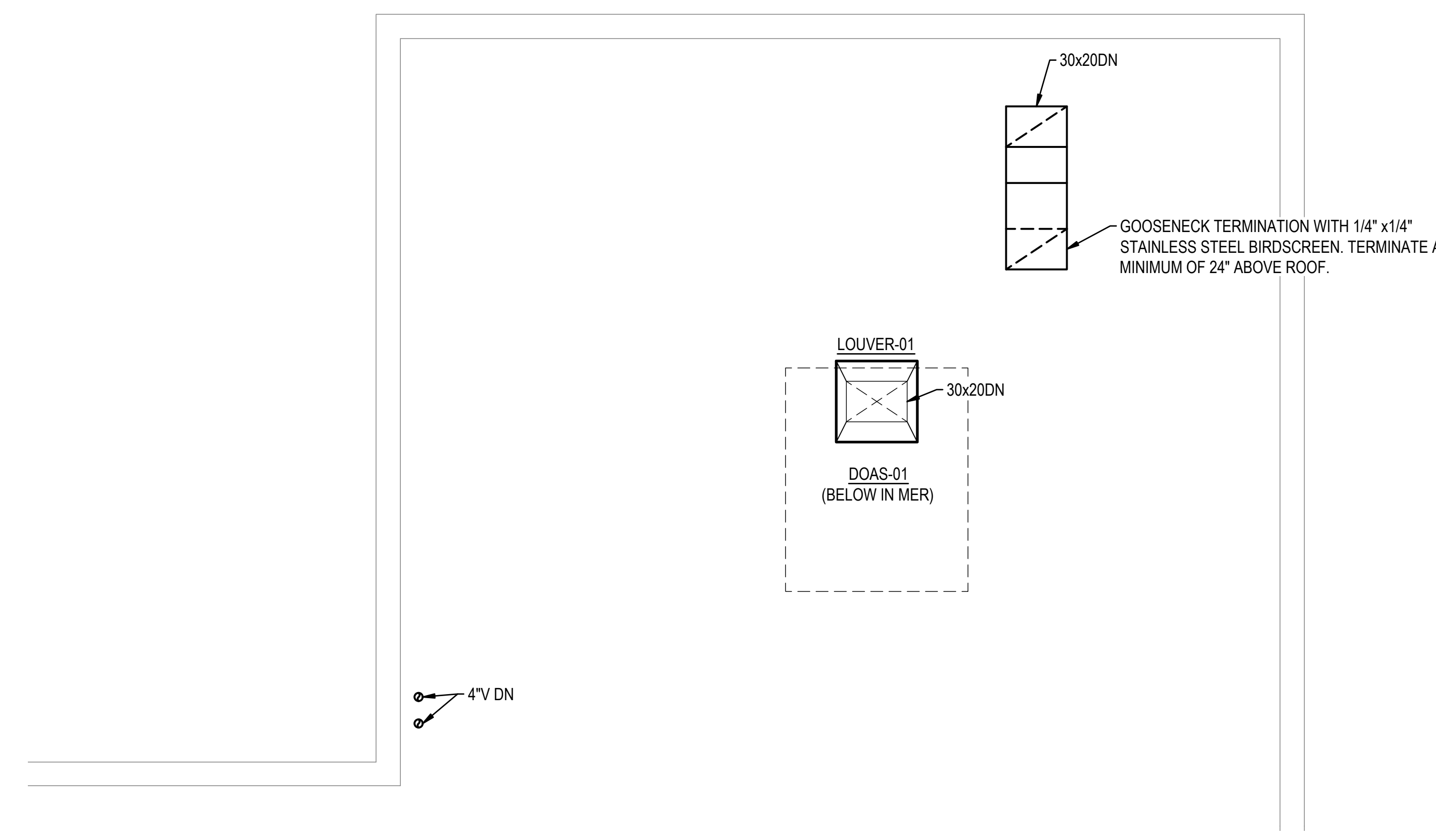
HI-GRADE BUILDING RENOVATIONS 124 PORTER STREET HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL COMMENTS
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

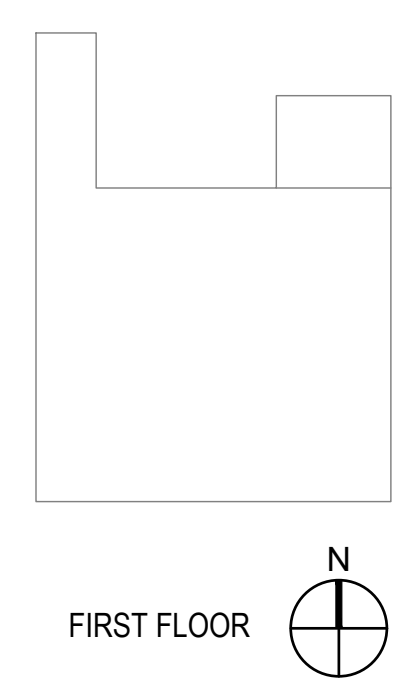
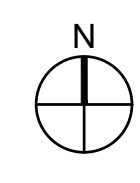
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 Dwn By: XXX
 Proj No.: 0586B053.A01

ENLARGED ROOF PLAN

Dwg No.: **M-403**



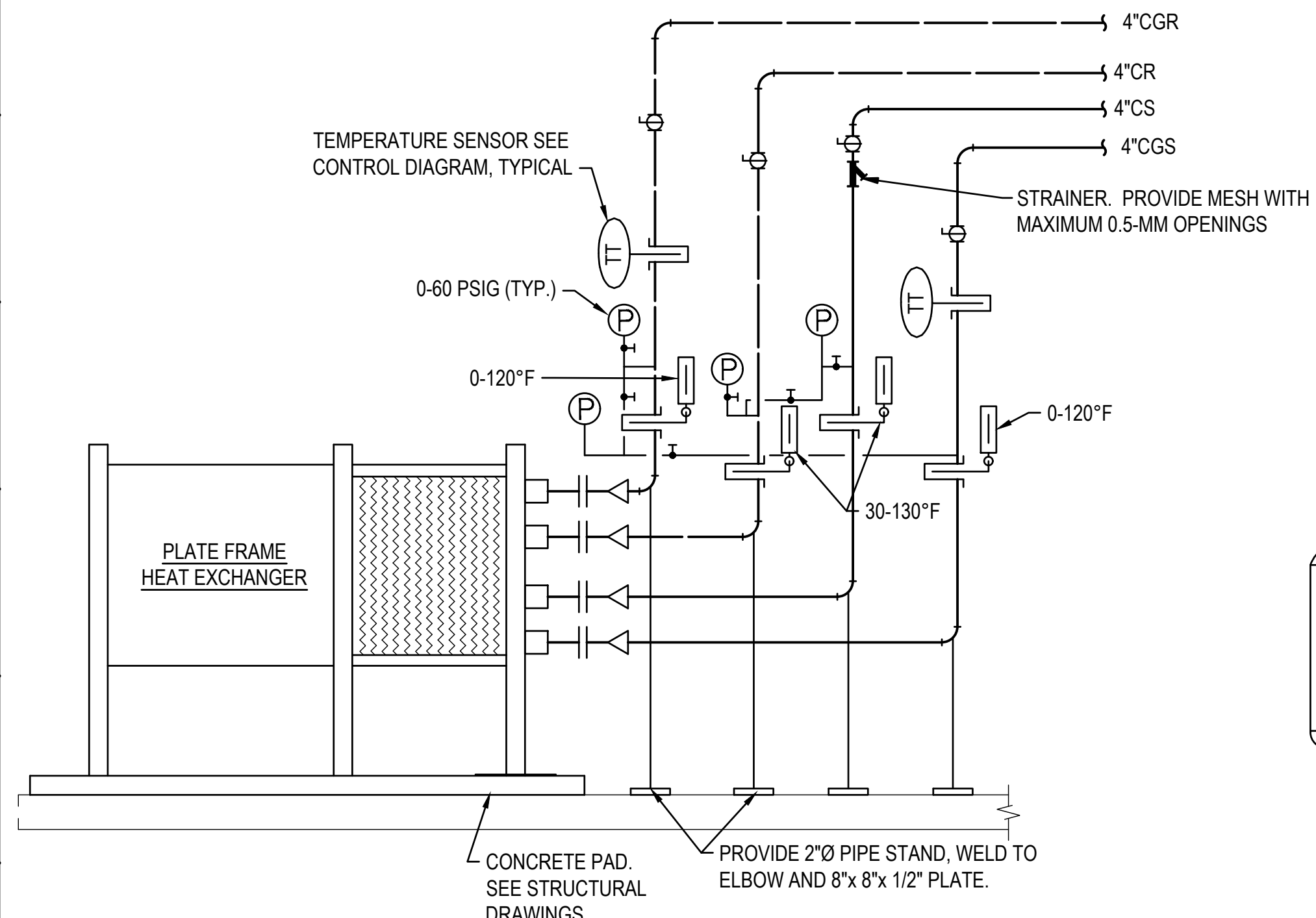
1 ENLARGED PLAN - ROOF
 M-103 1/4"=1'-0"
 0 4' 8'



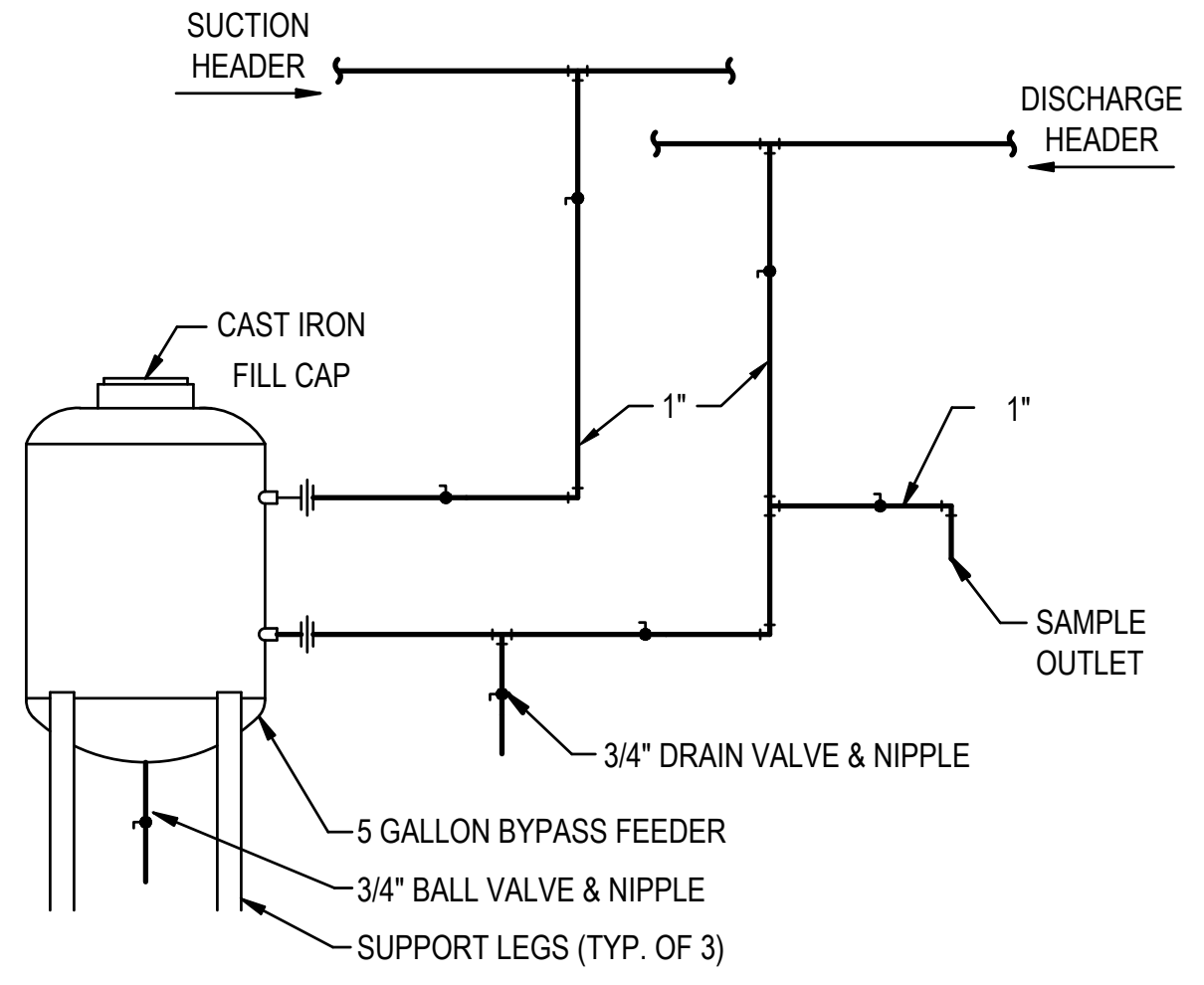
FIRST FLOOR

FILE NAME: 2016.18_M-403.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:15:20 PM

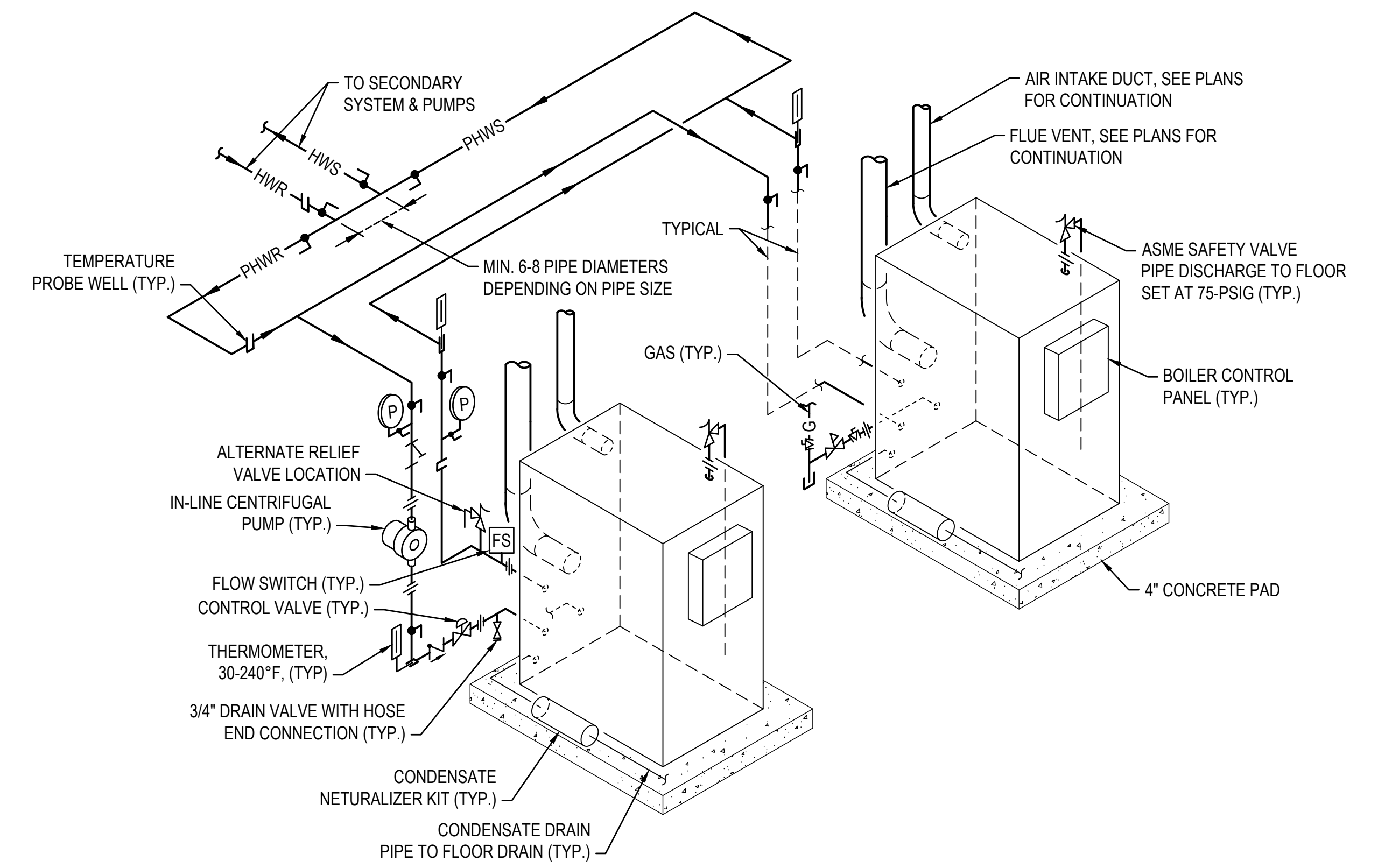
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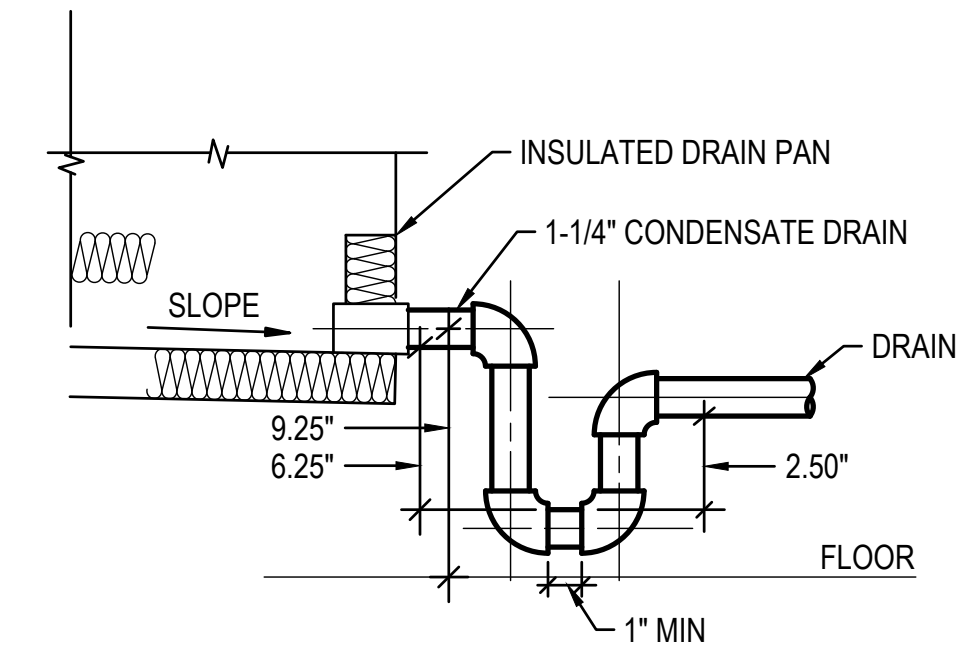
5 **DETAIL**
PLATE FRAME HEAT EXCHANGER
M-603 NO SCALE



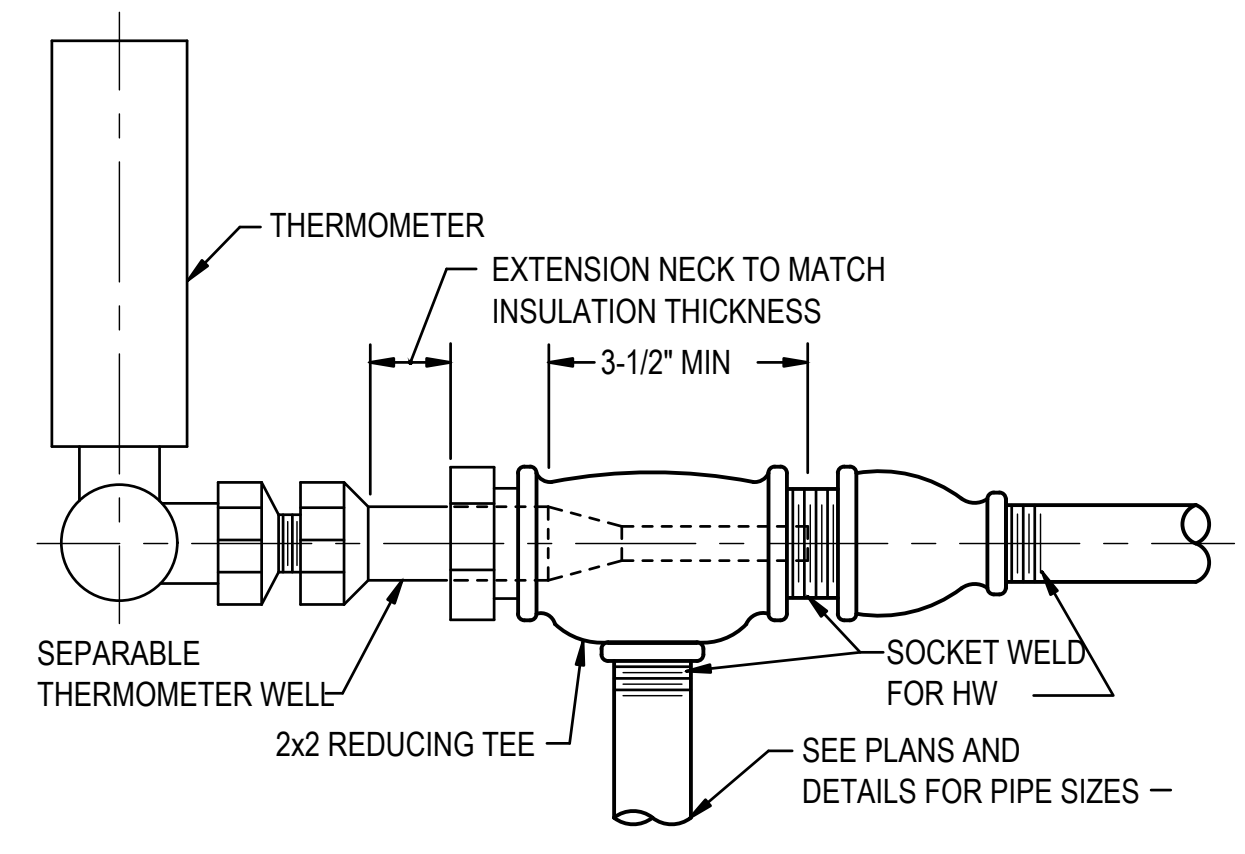
3 **DETAIL**
CHEMICAL FEEDER
M-603 NO SCALE



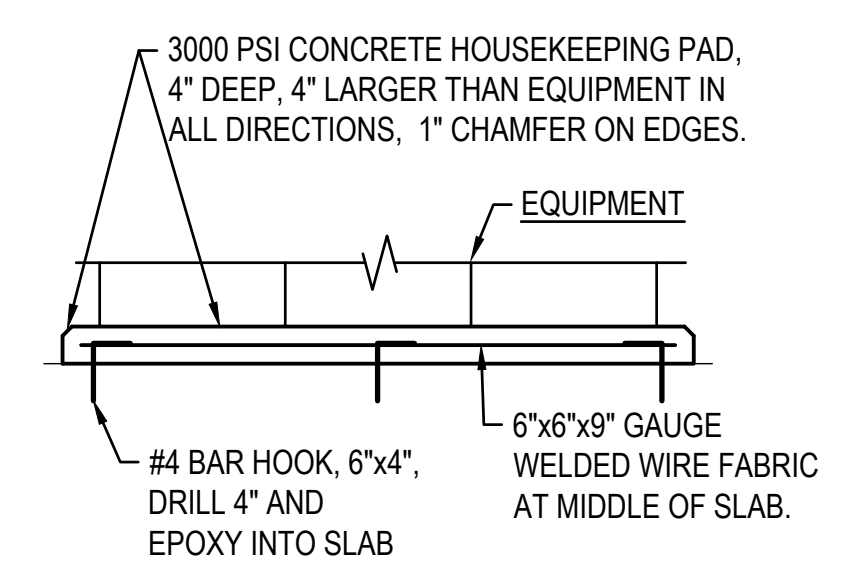
1 **DETAIL - GAS-FIRED HOT WATER**
BOILER PRIMARY/ SECONDARY PUMPING SYSTEM
M-601, M-603 NO SCALE



6 **DETAIL**
DOAS-01 CONDENSATE DRAIN TRAP
NO SCALE



4 **DETAIL**
THERMOMETER INSTALLATION
PIPING 2" AND SMALLER
NO SCALE



2 **DETAIL**
CONCRETE EQUIPMENT PAD
M-102 NO SCALE

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HARRINGTON, DE 410.343.9911

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124 PORTER STREET
HARRINGTON, DE 19952

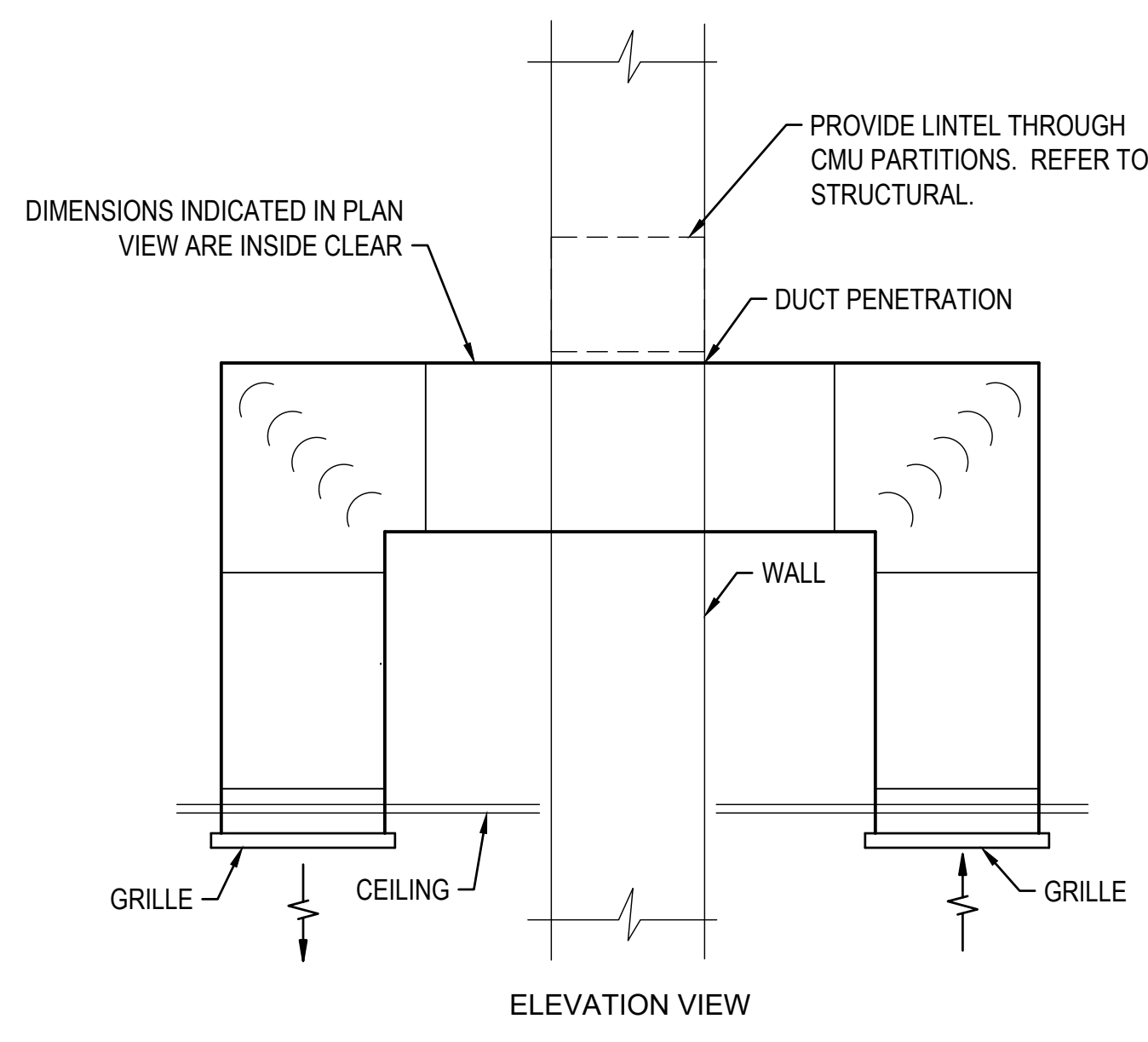
DATE	COMMENTS
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01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn. By: FS
Proj. No.: 0586B053.A01

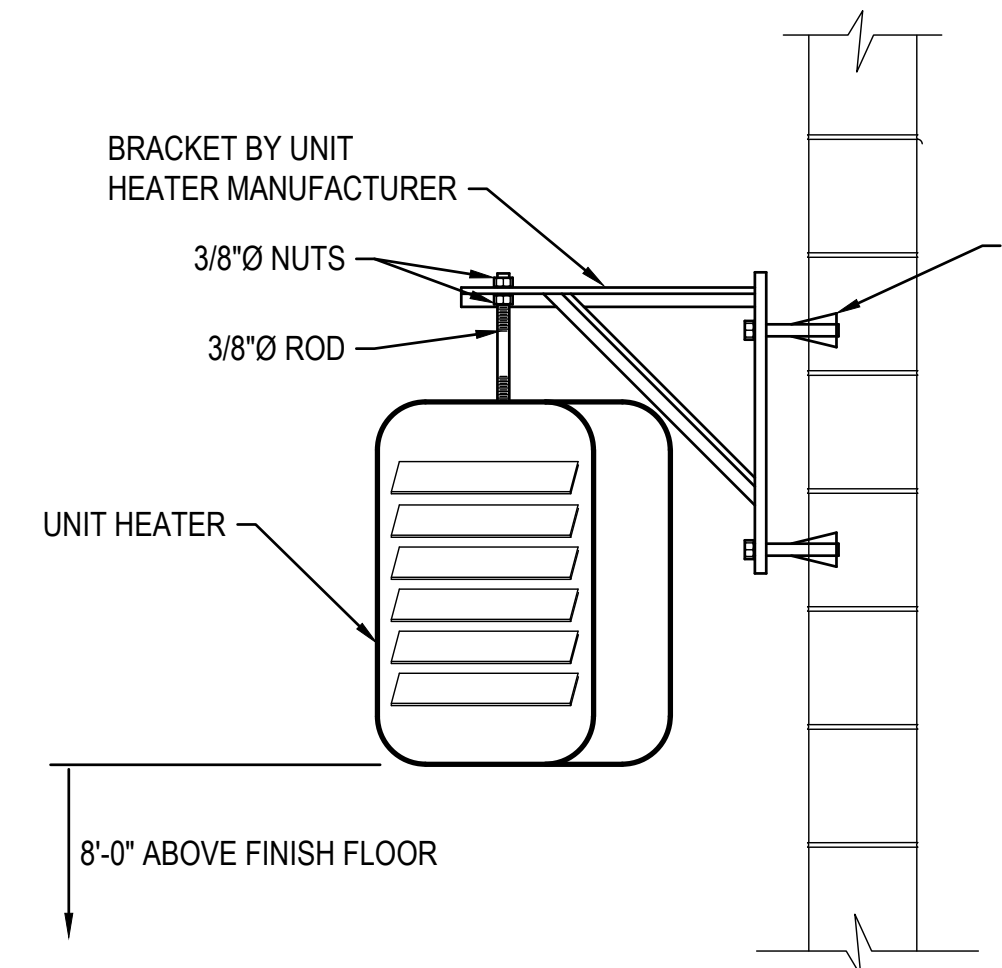
DETAILS

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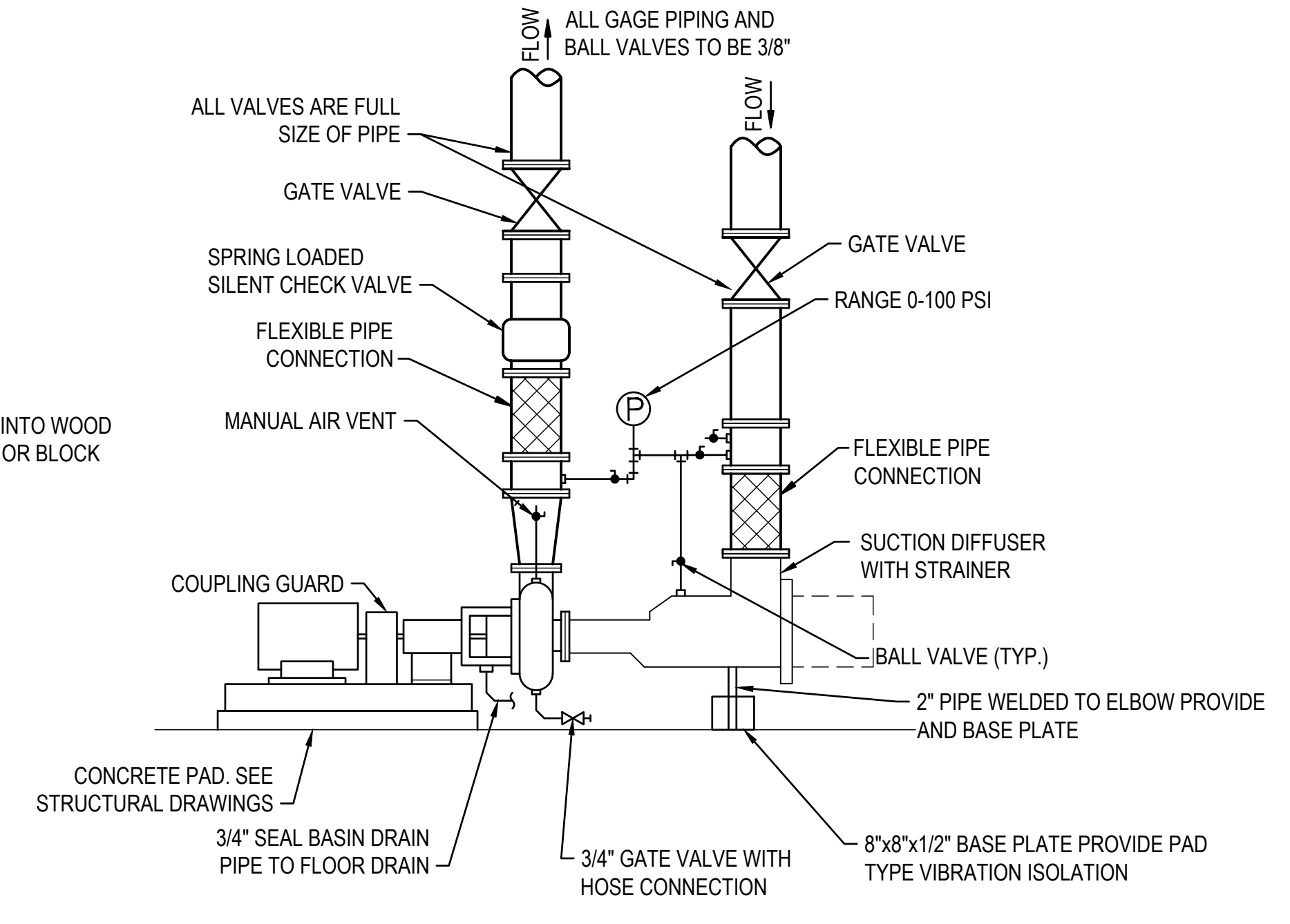
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OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:15:32 PM



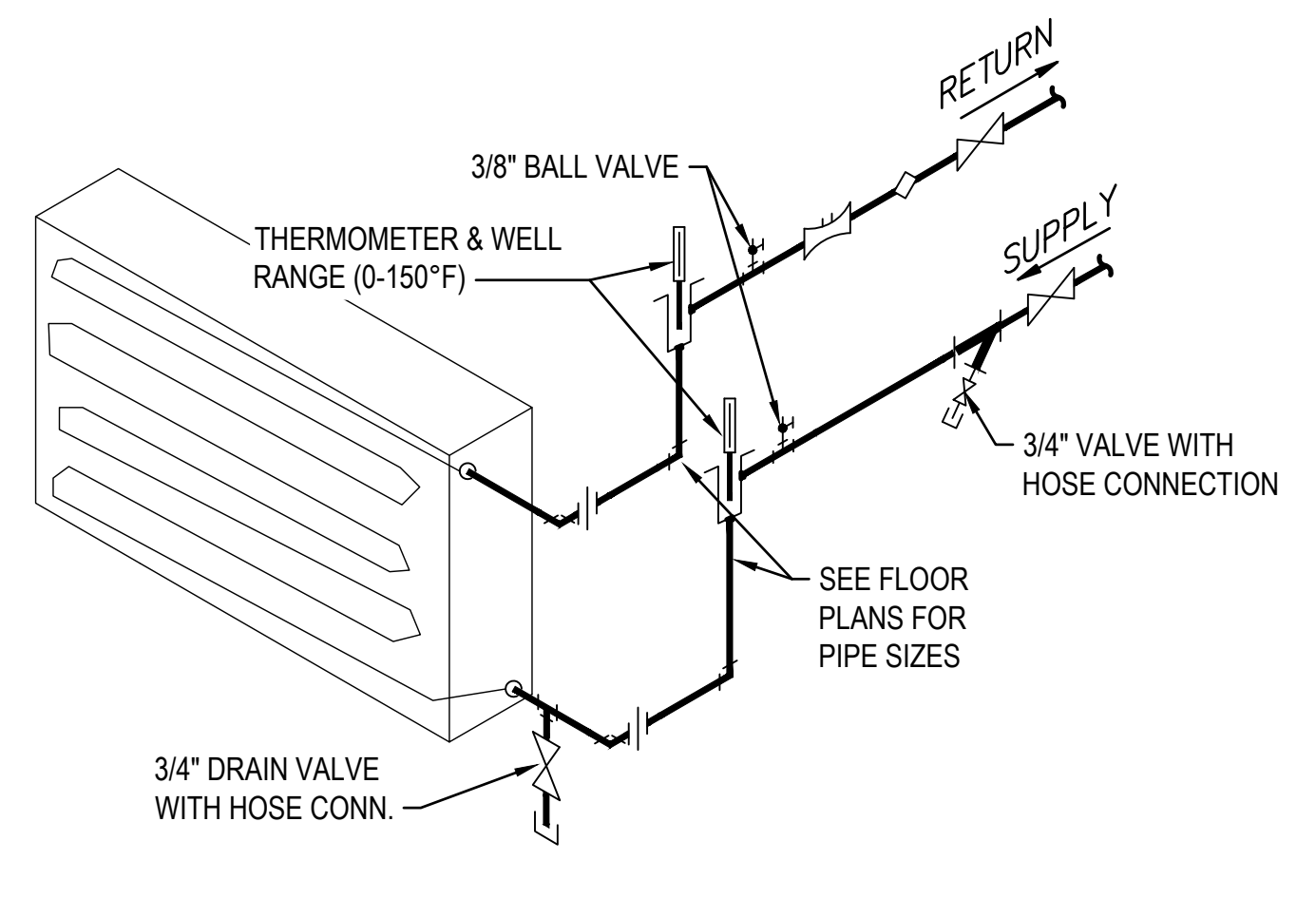
7 **DETAIL TRANSFER DUCT**
NO SCALE



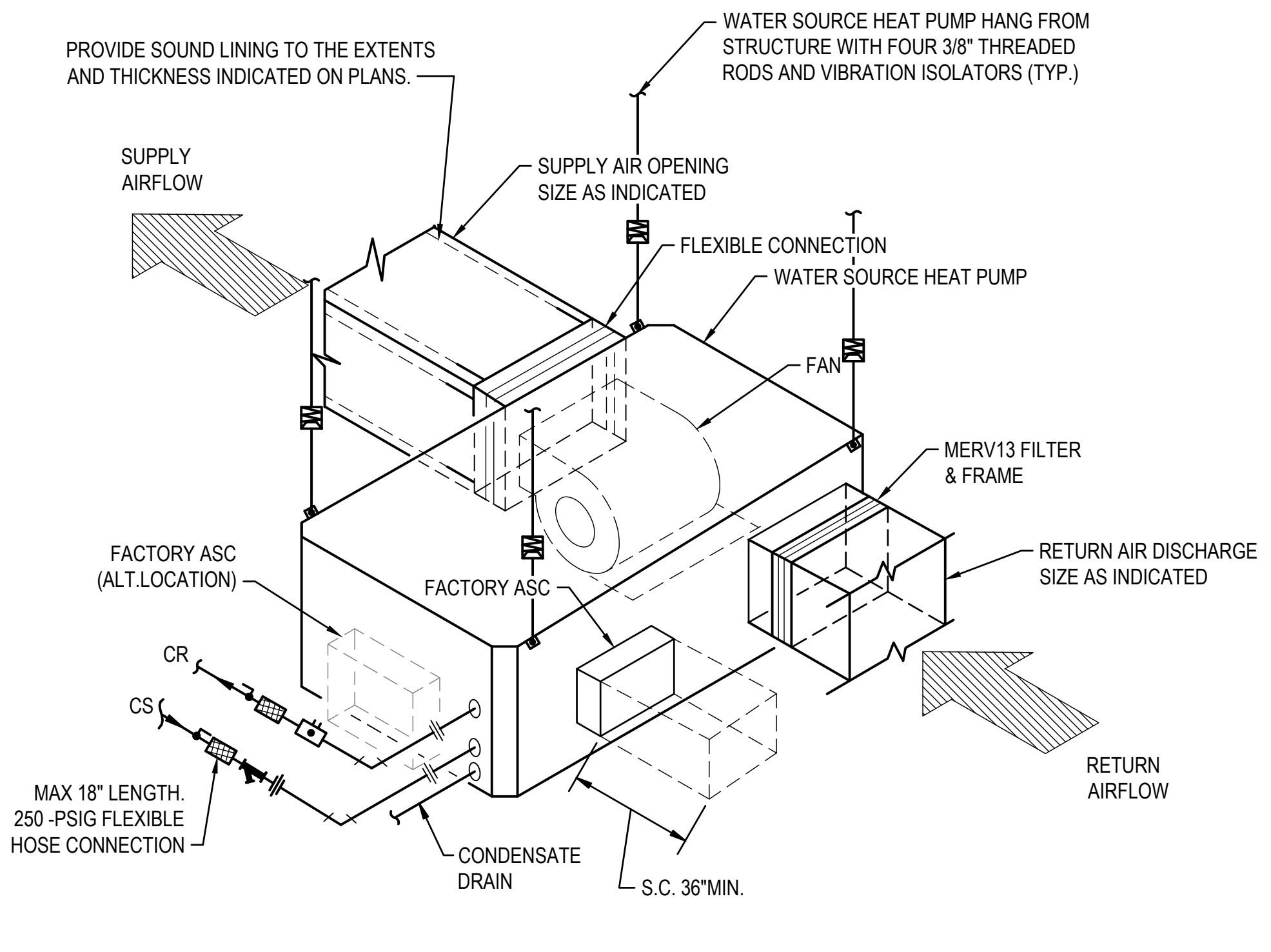
5 **DETAIL UNIT HEATER SUPPORT**
M-601 NO SCALE



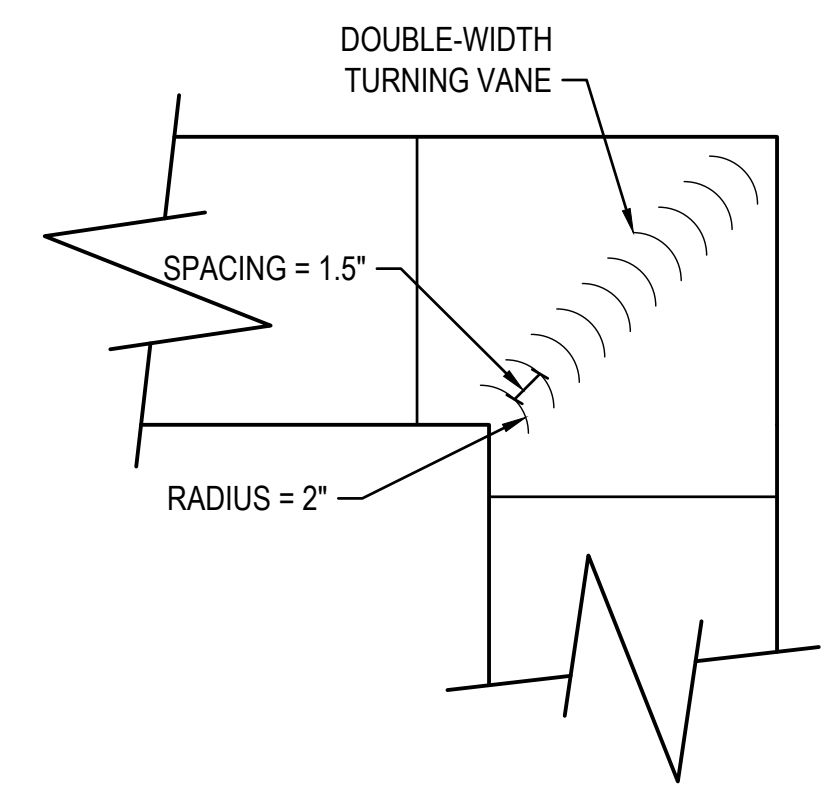
3 **DETAIL END SUCTION PUMP**
M-601, M-603 NO SCALE



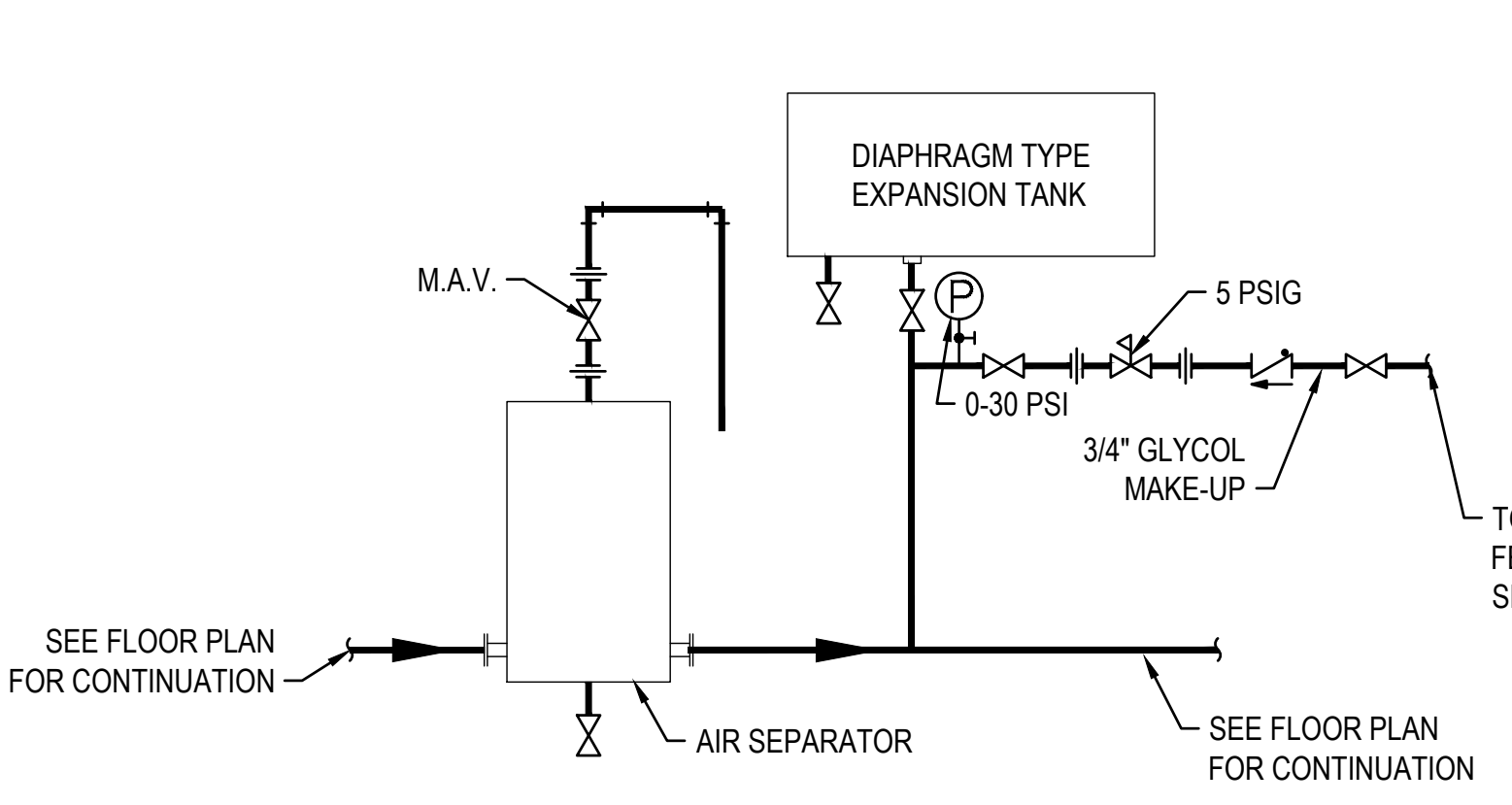
1 **DETAIL WATER COOLED CONDENSER**
NO SCALE



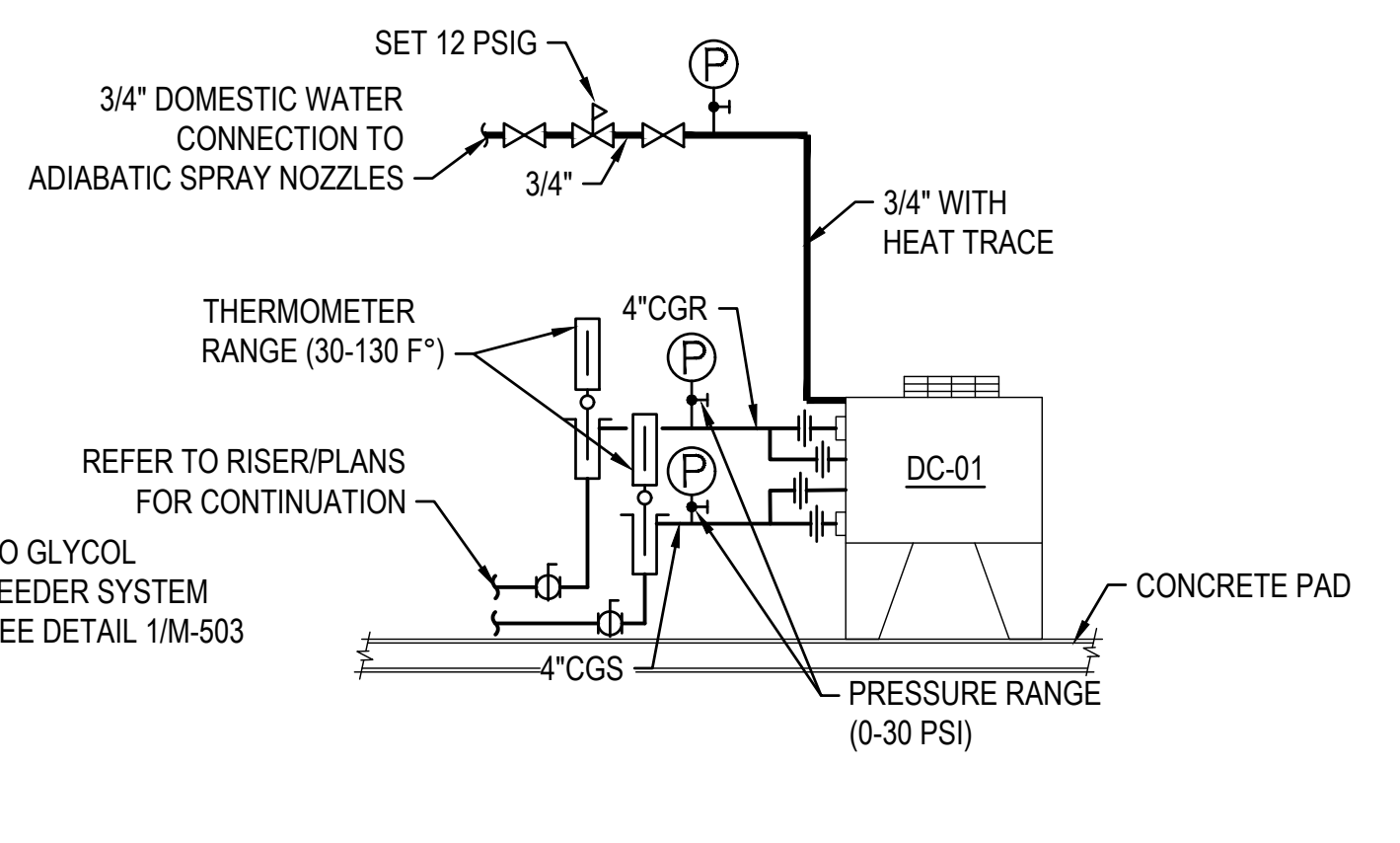
8 **DETAIL WATER SOURCE HEAT PUMP**
NO SCALE



6 **DETAIL - MITERED ELBOW WITH TURNING VANES**
NO SCALE



4 **DETAIL GLYCOL EXPANSION TANK**
NO SCALE



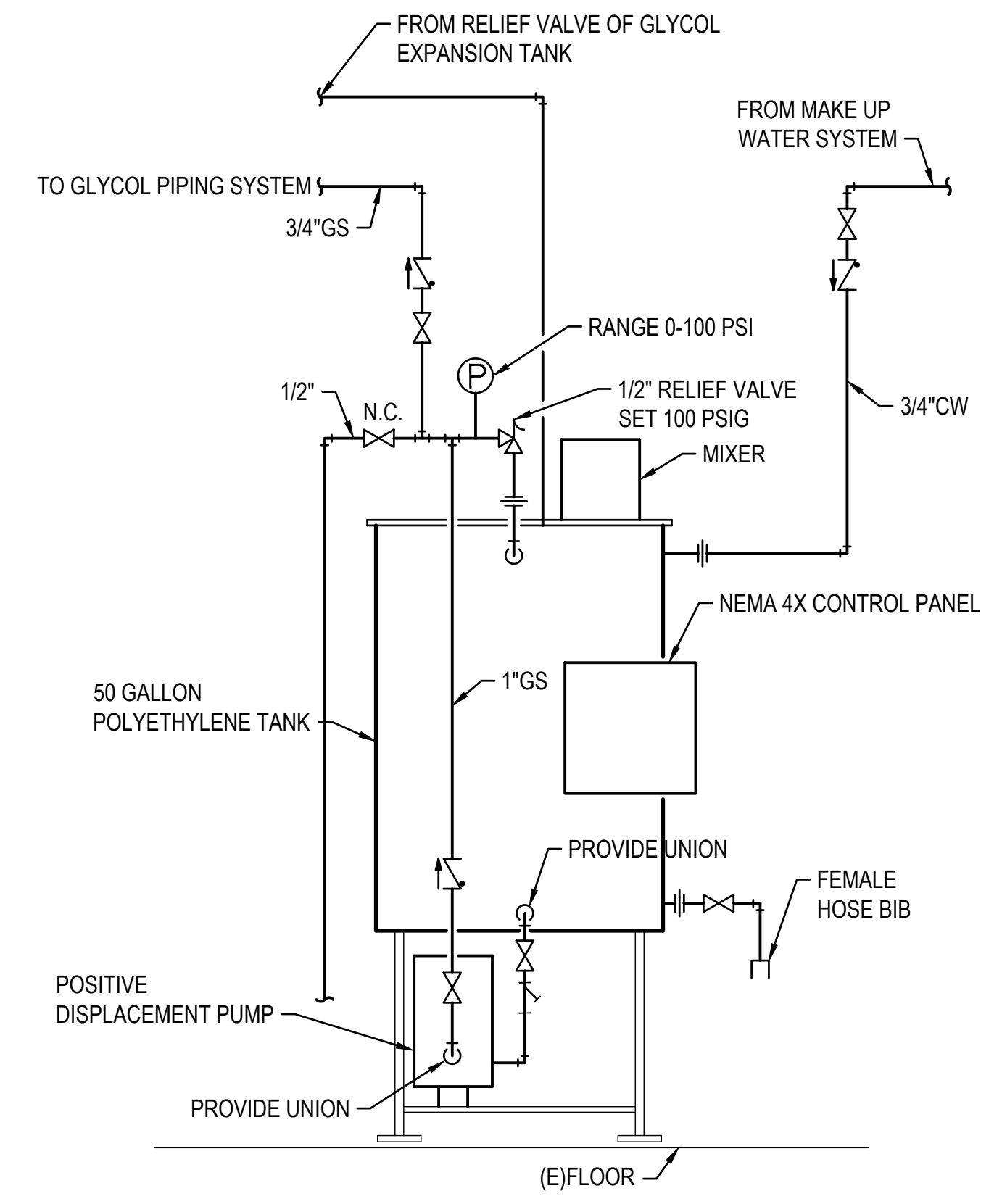
2 **DETAIL DRYCOOLER PIPING**
NO SCALE

DATE	COMMENTS
01/10/24	15% DESIGN SUBMISSION
02/10/24	60% DESIGN SUBMISSION
02/10/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

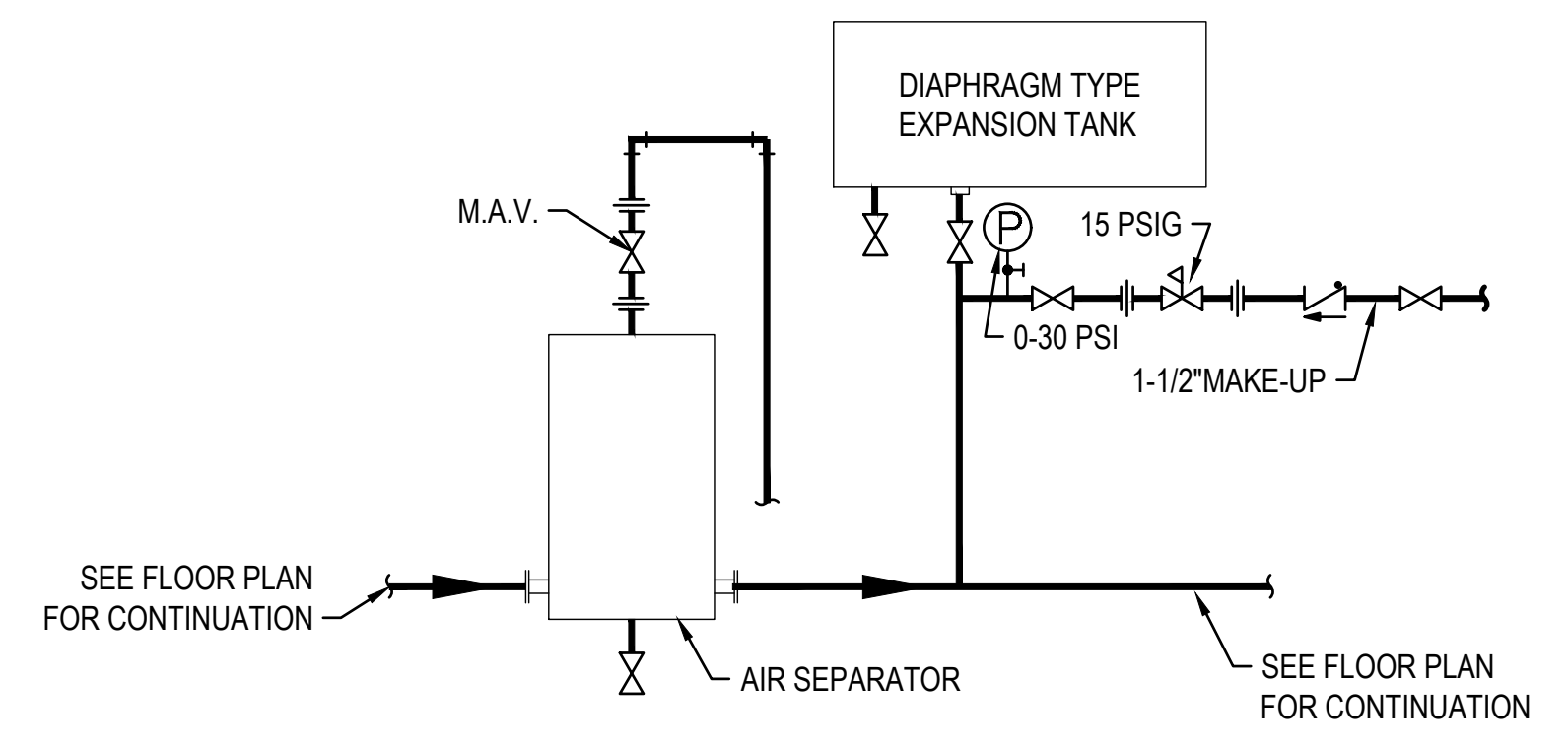
Date: JULY 16, 2024
Scale: AS NOTED
Dwn. By: JHG
Proj. No.: 0586B053.A01

DETAILS

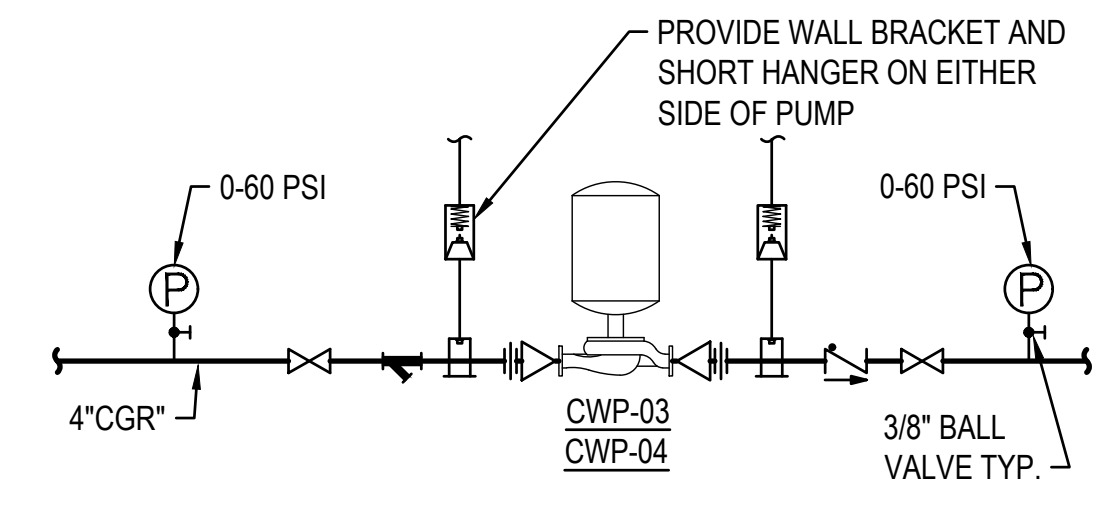
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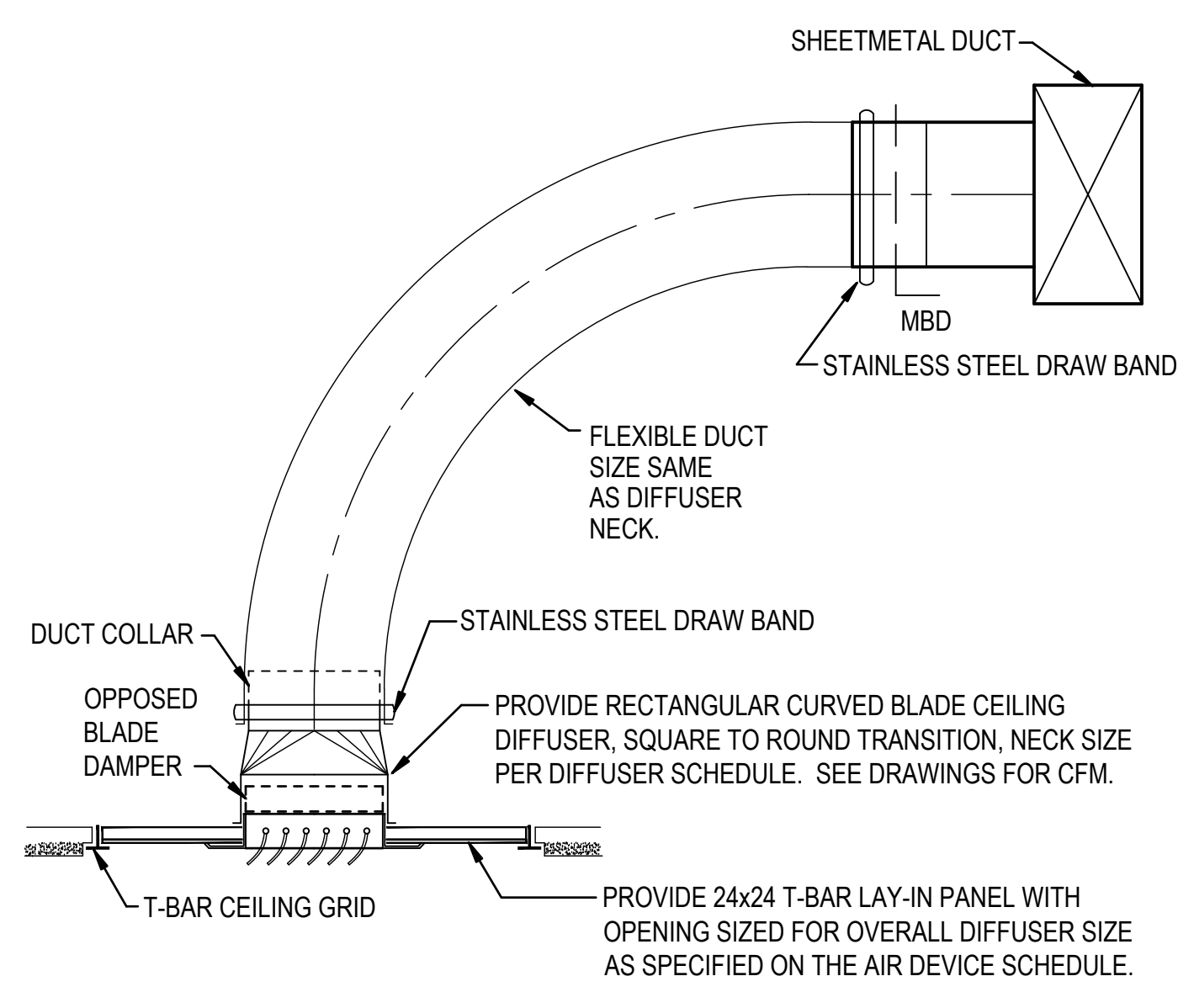
1 **DETAIL GLYCOL FEED SYSTEM**
M-603 NO SCALE



2 **DETAIL EXPANSION TANK**
M-601, M-603 NO SCALE



3 **DETAIL VERTICAL IN-LINE PUMP**
M-603 NO SCALE



4 **DETAIL CEILING DIFFUSER WITH FLEX DUCT CONNECTION**
NO SCALE

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WILMINGTON, DELAWARE 302.424.1441
410.343.9991

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: JHG
Proj No.: 0586B053.A01

DETAILS
Dwg No.: **M-503**

FILE NAME: 2016.18_M-503.DWG
OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:15:54 PM

DEDICATED OUTDOOR AIR SYSTEM W/ ENERGY RECOVERY SCHEDULE

UNIT NO.	TYPE	D SUPPLY FAN							D EXHAUST FAN					DX COOLING COIL				DX HEATING COIL				HOT GAS REHEAT		ELECTRICAL			EER (C/H)	WT. (LB)	MAX DIMENSIONS L x W x H (IN)	DOAS BASIS OF DESIGN MODEL	LOCATION	NOTES						
		OA (CFM)	T.S.P. (IN W.C.)	RPM MAX.	BHP	FLA	MOTOR (HP)	QTY.	EXH (CFM)	T.S.P. (IN W.C.)	RPM MAX.	BHP	FLA	MOTOR (HP)	QTY.	TOTAL CAP. (MBH)	SENS. CAP. (MBH)	FLOW (GPM)	E.A.T. (°F)		L.A.T. (°F)		TOTAL CAP. (MBH)	FLOW (GPM)	E.A.T. (°F)								L.A.T. (°F)	CAP. (MBH)	L.A.T. (°F) (DB/WB)	V/PH/HZ	FLA	MCA
DOAS-01	WATER-COOLED HEAT PUMP	4500	4.5	1870	5.5	18.7	14.4	1	2250	2.0	1870	1.4	9.2	14.4	1	235.0	133.0	40.0	77.0	68.8	50.0	49.1	128.7	40.0	43.5	70.0	97.0	70.0	200/3/60	96.0	104.3	125.0	18.2/1 0.5	3400	102x90x78	WATERFURNACE DAS240L2	MER	A B C D E F G

NOTES:
 A. ENERGY RECOVERY: QUANTITY (1), 0.5 HP, 2.2 FLA @200 VOLTS/ 3 PHASE. SUMMER PERFORMANCE: EAT = 82.8°F-DB / 76.5°F-WB, LAT = 78.8°F-DB / 70.4-WB. SUMMER EFFECTIVENESS: 80% TOTAL, 94% SENSIBLE. WINTER PERFORMANCE: EAT = 18.2°F-DB / 16.2°F-WB, LAT = 43.5°F-DB, 34.4°F-WB. WINTER EFFECTIVENESS: 85% TOTAL, 94% SENSIBLE.
 B. REFRIGERANT: R-410A.
 C. PROVIDE WITH MERV-8 PREFILTERS AND MERV-13 FINAL FILTERS ON THE OUTDOOR AIRSTREAM, AND MERV-8 FILTERS ON THE EXHAUST AIR STREAM.
 D. PROVIDE MEDIUM EFFICIENCY MOTOR. VFD SHALL BE INTEGRAL TO UNIT.
 E. COOLING CAPACITY BASED ON 90-DEG F ENTERING WATER TEMPERATURE WITH PROPYLENE GLYCOL SOLUTION.
 F. HEATING CAPACITY BASED ON 60-DEG F ENTERING WATER TEMPERATURE WITH PROPYLENE GLYCOL SOLUTION.
 G. MAXIMUM WATER PRESSURE DROP 7-FT.

BOILER SCHEDULE

UNIT NO.	FUEL TYPE	INPUT (MBH)	GPM	E.W.T. (°F)	L.W.T. (°F)	MAX P.D. (PSI)	MINIMUM TURNDOWN RATIO	ELEC. (V/PH/HZ)	FLA	BASIS OF DESIGN	NOTES
B-01	GAS	400.0	40.0	60.0	80.0	6.0	10:1	115/1/60	7A	BRYAN BFIT	A B C D E F
B-02	GAS	400.0	40.0	60.0	80.0	6.0	10:1	115/1/60	7A	BRYAN BFIT	A B C D E F

NOTES:
 A. REFER TO M-704 FOR MINIMUM BAONet POINTS.
 B. PROVIDE HIGH EFFICIENCY CONDENSING STYLE BOILER.
 C. PROVIDE BOILER WITH AN ASME WORKING PRESSURE OF 160 PSIG.
 D. INSTALL PER DETAIL 1/M-501.
 E. PROVIDE WITH CONCENTRIC VENT KIT FOR VERTICAL DISCHARGE THROUGH ROOF.
 F. PROVIDE WITH CONDENSATE NEUTRALIZER KIT.

EXPANSION TANK SCHEDULE

UNIT NO.	TANK VOL. (GAL.)	ACCEPT. VOL. (GAL.)	INITIAL CHARGE (PSIG)	TANK SIZE DIA. x H (IN.)	SERVICE	LOCATION	NOTES
ET-01	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B
ET-02	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B

NOTES:
 A. INSTALL PER DETAIL 4/M-502.
 B. BASIS OF DESIGN: AMTROL AX-15V-DD

GRAVITY INTAKE LOUVERED PENTHOUSE: LOUVER-01

ALUMINUM CONSTRUCTION, DRAINABLE BLADE DESIGN, WEATHERPROOF GRAVITY INTAKE LOUVERED PENTHOUSE.

THROAT AREA (INxIN)..... = 32"x32" (4-S.F.)
 LOUVER HEIGHT (IN)..... = 32"
 THROAT VELOCITY..... = 650-FPM
 MAX PRESSURE DROP..... = 0.15-IN W.G.
 AIRFLOW..... = 4,500-CFM

BASIS OF DESIGN: GREENHECK MODEL ESD

WATER SOURCE HEAT PUMP SCHEDULE

DESIG.	NOMINAL CAPACITY (TONS)	TOTAL AIRFLOW (CFM)	ELECTRIC AL DATA V/Ø/HZ	FLA	COOLING CAPACITY				HEATING CAPACITY		FLOW (GPM)	FLUID P.D. (FT WATER)	PIPING RUNOUT SIZE (IN.)	EER	MAX DIMENSIONS (WxLxH)	LOCATION SERVED	BASIS OF DESIGN	NOTES
					E.A.T. (°F)	E.W.T. (°F)	SENS. COOLING (MBH)	TOTAL COOLING (MBH)	E.A.T. (°F)	CAPACITY (MBH)								
WSHP-101	1.25	550	200/1/60	10.5	75.0	90.0	11.9	16.3	68.0	22.3	4.1	6.5	1	13.0	46x23x18	101_BREAK ROOM	TRANE GEHE0151	A B C D
WSHP-106	0.50	320	200/1/60	7.0	75.0	90.0	7.7	10.6	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	106_LOBBY	TRANE GEHE0061	A B C D
WSHP-107	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	107_ADMIN OFFICER	TRANE GEHE0061	A B C D
WSHP-108	2.50	760	200/1/60	16.2	75.0	90.0	18.5	26.5	68.0	35.6	6.6	11.6	1	13.0	46x23x18	108_SMALL CONF. ROOM	TRANE GEHE0301	A B C D
WSHP-109A	2.00	610	200/1/60	14.9	75.0	90.0	14.5	21.4	68.0	29.9	5.4	10.1	1	13.6	46x23x18	109_CLASSROOM	TRANE GEHE0241	A B C D
WSHP-109B	2.00	610	200/1/60	14.9	75.0	90.0	14.5	21.4	68.0	29.9	5.4	10.1	1	13.6	46x23x18	109_CLASSROOM	TRANE GEHE0241	A B C D
WSHP-110A	1.00	320	200/1/60	7.0	75.0	90.0	7.7	10.6	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	110_OPEN OFFICE	TRANE GEHE0121	A B C D
WSHP-110B	1.00	320	200/1/60	7.0	75.0	90.0	7.7	10.6	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	110_OPEN OFFICE	TRANE GEHE0121	A B C D
WSHP-110C	1.00	320	200/1/60	7.0	75.0	90.0	7.7	10.6	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	110_OPEN OFFICE	TRANE GEHE0121	A B C D
WSHP-110D	1.00	320	200/1/60	7.0	75.0	90.0	7.7	10.6	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	110_OPEN OFFICE	TRANE GEHE0121	A B C D
WSHP-111A	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	112_LT OFFICE & 113_LT OFFICE	TRANE GEHE0061	A B C D
WSHP-111B	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	111_CORRIDOR & 114_LT OFFICE	TRANE GEHE0061	A B C D
WSHP-115A	1.50	500	200/1/60	10.5	75.0	90.0	11.9	16.3	68.0	22.3	4.1	6.5	1	13.0	46x23x18	115_LARGE CONF. ROOM	TRANE GEHE0181	A B C D
WSHP-115B	1.50	500	200/1/60	10.5	75.0	90.0	11.9	16.3	68.0	22.3	4.1	6.5	1	13.0	46x23x18	115_LARGE CONF. ROOM	TRANE GEHE0181	A B C D
WSHP-116	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	1.5	3/4	13.0	40x20x15	116_MA II	TRANE GEHE0061	A B C D
WSHP-117	1.00	305	200/1/60	7.0	75.0	90.0	7.5	10.5	68.0	14.7	2.7	3.6	3/4	13.2	40x20x15	117_CHIEF	TRANE GEHE0121	A B C D
WSHP-118	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	118_MAJOR	TRANE GEHE0061	A B C D
WSHP-119	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	119_OFFICE	TRANE GEHE0061	A B C D
WSHP-120	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	120_OFFICE	TRANE GEHE0061	A B C D
WSHP-123	1.00	305	200/1/60	7.0	75.0	90.0	7.5	10.5	68.0	14.9	3.0	4.4	3/4	13.2	40x20x15	123_UNIFORM EQUIP. SUPPLY	TRANE GEHE0121	A B C D
WSHP-126	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	126_ARMORY	TRANE GEHE0061	A B C D
WSHP-128	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	125_FILE STORAGE & 128_STORAGE	TRANE GEHE0061	A B C D
WSHP-131	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	131_OFFICE	TRANE GEHE0061	A B C D
WSHP-131A	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	131_CORRIDOR	TRANE GEHE0061	A B C D
WSHP-131B	0.50	175	200/1/60	3.9	75.0	90.0	4.8	6.8	68.0	9.7	1.5	2.9	3/4	12.0	40x20x15	131_CORRIDOR	TRANE GEHE0061	A B C D

NOTES:
 A. PROVIDE UNIT MOUNTED CONTROL PANEL WITH REMOTE THERMOSTAT AND PERMANENT WASHABLE ELECTROSTATIC FILTER. PROVIDE UNIT ETL AND FILTERS THAT ARE UL LISTED AND LABELED IN ACCORDANCE WITH ARI STANDARDS 210, 240.
 B. PROVIDE WITH INTEGRAL CONDENSATE PUMP.
 C. REFRIGERANT: R-410A, FACTORY SEALED AND FULLY CHARGED.
 D. COOLING CAPACITY BASED ON 90-DEG F ENTERING WATER TEMPERATURE.
 E. HEATING CAPACITY BASED ON 80-DEG F ENTERING WATER TEMPERATURE.
 F. REFER TO DETAIL 8/M-502
 G. PROVIDE UNIT WITH FACTORY INSTALLED COMPRESSOR SOUND WRAP.

ADIABATIC DRY COOLER

UNIT NO.	FLOW (GPM)	E.W.T. (°F)	L.W.T. (°F)	AMBIENT W.B. (°F)	MOTOR QUANTITY	MOTOR HP	ELEC. DATA (V/PH/HZ)	DESIGN OPERATING WEIGHT (LBS)	SERVICE	LOCATION	NOTES
DC-01	126	98.0	88.0	78.0	2	3.3	200/3/60	7090	CONDENSER WATER	EXTERIOR	A B C D E F G H

NOTES:
 A. INSTALL PER DETAIL 2/M-502.
 B. PROVIDE STAINLESS STEEL HEAT EXCHANGER COILS.
 C. PROVIDE DIRECT DRIVE PREMIUM EFFICIENCY FANS AND VARIABLE FREQUENCY DRIVES WITH INTEGRAL NEMA 3R DISCONNECT SWITCH, ONE PER FAN MOTOR.
 D. PROVIDE WITH INTEGRAL FACTORY WIRE CONTROLLER WITH SINGLE POINT OF POWER, ALL COMPONENTS SHALL BE PRE-WIRED FROM THE FACTORY.
 E. FACTORY WIRED CONTROL PANEL SHALL INTEGRATE VIA BACNET TO BUILDING AUTOMATION SYSTEM.
 F. PROVIDE UNIT WITH SERVICE ACCESS AND INTERNAL STEP DECKING FOR UNIT MAINTENANCE.
 G. UNIT PERFORMANCE BASED UPON 30% PROPYLENE GLYCOL.
 H. PROVIDE WITH STEEL SUPPORT RAIL PER MANUFACTURER'S RECOMMENDATIONS TO ELEVATE UNIT A MINIMUM OF 8-INCHES ABOVE CONCRETE EQUIPMENT PAD.

PLATE HEAT EXCHANGER HX-01

TO COOL 120 GPM OF CONDENSER WATER FROM 100-DEG. F TO 90-DEG. F WITH 120 GPM OF 30% GLYCOL CONDENSER WATER ENTERING AT 88-DEG. F.

3-FEET MAXIMUM PRESSURE DROP FOR CONDENSER WATER.

BOD: TACO MODEL TB120Tx200

AIR SEPARATOR

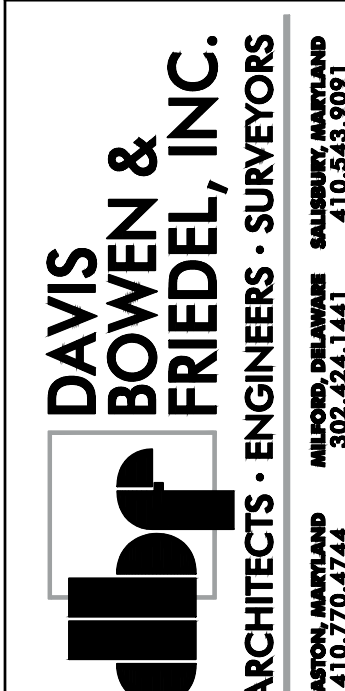
UNIT NO.	GPM	MAX P.D. (FT. W.G.)	SERVICE	LOCATION	NOTES
AS-01	120	2	CONDENSER WATER	MER	B
AS-02	80	2	GLYCOL	MER	A

NOTES:
 A. INSTALL PER DETAIL 4/M-502
 B. INSTALL PER DETAIL 2/M-503

PUMP SCHEDULE

UNIT NO.	TYPE	FLUID	GPM	HEAD (FT.)	RPM	EFF. (%)	BHP MAX.	MOTOR HP	ELEC. DATA (V/PH/HZ)	SERVICE	LOCATION	NOTES
CWP-01	ES	WATER	120	50	1750	72	2.3	5.0	200/3/60	CONDENSER WATER	MER	B C D
CWP-02	ES	WATER	120	50	1750	72	2.3	5.0	200/3/60	CONDENSER WATER	MER	B C D
CWP-03	IL	WATER	120	20	1760	62	1.0	1.5	200/3/60	CONDENSER WATER	MER	B C E F
CWP-04	IL	WATER	120	20	1760	62	1.0	1.5	200/3/60	CONDENSER WATER	MER	B C E F
BGP-01	IL	WATER	40	15	3263	57	0.22	0.38	115/1/60	BOILER CIRCULATOR	MER	G
BGP-02	IL	WATER	40	15	3263	57	0.22	0.38	115/1/60	BOILER CIRCULATOR	MER	G

NOTES:
 A. ES = END SUCTION, BASE MOUNTED
 IL = IN-LINE CIRCULATOR
 B. PROVIDE WITH FLANGED CONNECTIONS.
 C. PROVIDE PREMIUM EFFICIENCY MOTOR AND VARIABLE FREQUENCY DRIVE.
 D. INSTALL PER DETAIL 3/M-502.
 E. 30% PROPYLENE GLYCOL.
 F. INSTALL PER DETAIL 3/M-503.
 G. PROVIDE WITH BOILER PACKAGE.



HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/18/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: JHG
 Proj No.: 0586B053.A01

SCHEDULES

Dwg No.: **M-601**

FILE NAME: 2016-18_M-601.DWG
 OUR REF: 2016-18
 PLOT DATE: 2024-12-16 08 PM

DUCTWORK CLASSIFICATION SCHEDULE				
DUCT TYPE AND LOCATION	PRESSURE (IN. W.G.)	SEAL CLASS	CONSTRUCTION STANDARD	NOTES
SUPPLY AIR DUCT FROM DISCHARGE OF DOAS TO SUPPLY OUTLETS.	3	A	SMACNA 1966	
SUPPLY AIR DUCT FROM WSHD DISCHARGE TO SUPPLY OUTLETS.	2	A	SMACNA 1966	
SUPPLY AIR DUCT FROM OUTSIDE AIR INLET TO DOAS INLET	-2	A	SMACNA 1966	

UNIT HEATER SCHEDULE									
UNIT NO.	TYPE	AIRFLOW (CFM)	RPM	MOTOR (WATTS)	HEATING CAP. (kW)	ELEC. DATA (V/PH/Hz)	AREA SERVED	BASIS OF DESIGN	NOTES
UH-01	PROP	700	1550	25	7.5	200/3/60	100_FACILITY STORAGE	REZNOR MODEL EGHB	B
UH-02	PROP	700	1550	25	7.5	200/3/60	100_FACILITY STORAGE	REZNOR MODEL EGHB	B
UH-03	PROP	700	1550	25	7.5	200/3/60	130_MECHANICAL ROOM	REZNOR MODEL EGHB	B
UH-04	PROP	700	1550	25	7.5	200/3/60	130_MECHANICAL ROOM	REZNOR MODEL EGHB	B

NOTES:
A. PROP - HORIZONTAL PROPELLER WITH INDIVIDUALLY ADJUSTABLE DISCHARGE LOUVERS. B. INSTALL PER DETAIL 5/M-502.

HEAT PUMP SCHEDULE													
UNIT NO.	TYPE	CFM (MED. SPEED)	MOTOR (W)	ELECTRICAL DATA V/Ø/Hz	COOLING			HEATING			SERVICE	BASIS OF DESIGN	REMARKS
					ENT. AIR TEMP. °F	RATED CAP. (MBH)		ENT. AIR TEMP. °F	RATED CAP. (MBH)				
HP-01	HEAT PUMP	325	28	200/1/60	80	67	10.6	70	60	13.4	IT ROOM	DAIKIN FTX12NMVJU	B C D E

NOTES:
A. DX COIL, R-410A REFRIGERANT C. BASIS OF DESIGN: DAIKIN FTX12NMVJU.
B. PROVIDE UNIT MOUNTED CONTROL PANEL WITH REMOTE THERMOSTAT AND PERMANENT WASHABLE ELECTROSTATIC FILTER. PROVIDE UNIT ETL OR UL LISTED IN ACCORDANCE WITH ARI STANDARDS 210, 240. D. SYSTEM MINIMUM REFRIGERANT PIPING HEIGHT: 50-FEET.
E. SYSTEM MINIMUM TOTAL REFRIGERANT PIPING LENGTH: 100-FEET.

HEAT PUMP CONDENSING UNIT SCHEDULE									
UNIT NO.	SERVES	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	ELECTRICAL DATA		SEER	LOCATION	BASIS OF DESIGN	REMARKS
				VOLTS/PH/Hz	MCA				
HPU-01	IT ROOM	MATCH TO HP-01	MATCH TO HP-01	200/1/60	13.0	20.0	EXTERIOR	DAIKIN RXL12QMVJU9	C

NOTES:
A. BASED ON 80°F-D.B./67°F-W.B. INDOOR AIR AND 95°F-D.B./75°F-W.B. OUTDOOR AIR. C. BASIS OF DESIGN: DAIKIN RXL12QMVJU9.
B. BASED ON 70°F-D.B./60°F-W.B. INDOOR AIR AND 47°F-D.B./43°F-W.B. OUTDOOR AIR.

EXPANSION TANK SCHEDULE							
UNIT NO.	TANK VOL. (GAL.)	ACCEPT. VOL. (GAL.)	INITIAL CHARGE (PSIG)	TANK SIZE DIA. x H (IN.)	SERVICE	LOCATION	NOTES
ET-01	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B
ET-02	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B

NOTES:
A. INSTALL PER DETAIL 4/M-502. B. BASIS OF DESIGN: AMTROL AX-15V-DD

LOUVER SCHEDULE							
UNIT NO.	DESCRIPTION	FACE SIZE WxH (IN)	FREE AREA (FT²)	AIRFLOW (CFM)	MAX P.D (IN. W.G)	B.O.D.	NOTE
L-01	DRAINABLE BLADE LOUVER	36x22	2.4	2200	.15	GREENHECK	A

NOTES:
A. COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD SELECTIONS.

EXPANSION TANK SCHEDULE							
UNIT NO.	TANK VOL. (GAL.)	ACCEPT. VOL. (GAL.)	INITIAL CHARGE (PSIG)	TANK SIZE DIA. x H (IN.)	SERVICE	LOCATION	NOTES
ET-01	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B
ET-02	8.6	3.2	25	12"Øx22"	CONDENSER WATER	MER	A B

NOTES:
A. INSTALL PER DETAIL 4/M-502. B. BASIS OF DESIGN: AMTROL AX-15V-DD

BOILER SCHEDULE											
UNIT NO.	FUEL TYPE	INPUT (MBH)	GPM	E.W.T (°F)	L.W.T (°F)	MAX P.D. (PSI)	MINIMUM TURNDOWN RATIO	ELEC. (V/PH/Hz)	FLA	BASIS OF DESIGN	NOTES
B-01	GAS	400.0	40.0	60.0	80.0	6.0	10:1	115/1/60	7A	BRYAN BFIT	A B C D E F
B-02	GAS	400.0	40.0	60.0	80.0	6.0	10:1	115/1/60	7A	BRYAN BFIT	A B C D E F

NOTES:
A. REFER TO M-704 FOR MINIMUM BACnet POINTS. C. PROVIDE BOILER WITH AN ASME WORKING PRESSURE OF 160 PSIG. E. PROVIDE WITH CONCENTRIC VENT KIT FOR VERTICAL DISCHARGE THROUGH ROOF.
B. PROVIDE HIGH EFFICIENCY CONDENSING STYLE BOILER. D. INSTALL PER DETAIL 1/M-501. F. PROVIDE WITH CONDENSATE NEUTRALIZER KIT.

CONTROL VALVE SCHEDULE									
UNIT NO.	VALVE NO.	SERVICE	TYPE	FLOW (GPM)	CV	MAX P.D. (FT. W.G.)	NOTES		
HEAT/COOL CHANGEOVER	V-1	CONDENSER WATER	2 WAY	126	207	1.0	A		
B-01 & B-02	V-2	HEATING WATER	2 WAY	80	125	1.0	A		
DC-01	V-3	COOLED GLYCOL	2 WAY	126	207	1.0	A		
DOAS-01	V-5	HEAT/COOL CHANGEOVER	3 WAY	126	207	1.0	A		

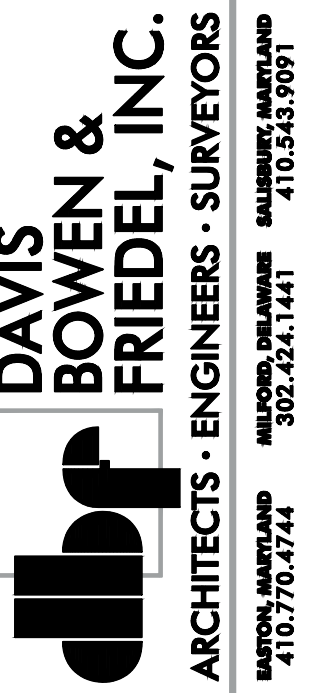
NOTES:
A. Cv VALUES WITH VALVE AT 100% OPEN.

AIR DEVICE SCHEDULE									
DESIG.	AIRFLOW (CFM)	NECK SIZE (INCHES)	OVERALL SIZE (INCHES)	MAX. S.P. DROP (IN. W.G.)	MAX. N.C.	MIN. HORIZONTAL THROW @ 100 FPM	FACE	BASIS OF DESIGN	NOTES
CD-1	0-150	6	24x24	0.1	25	4	CONE FACE	TITUS TMS	A
	155-300	8	24x24	0.1	25	5	CONE FACE	TITUS TMS	A
	305-630	12	24x24	0.1	25	9	CONE FACE	TITUS TMS	A
LS-1	65CFM/LF	10Ø	48x8	0.1	25	19	SLOT	KRUEGER DFL	
RG-1	0-300	10x10	12x12	0.1	20	-	LOUVERED FACE	TITUS 350RL	
	301-700	14x14	16x16	0.1	20	-	LOUVERED FACE	TITUS 350RL	
EG-1	701-1000	18x18	20x20	0.1	20	-	LOUVERED FACE	TITUS 350RL	
	0-225	8x8	10x10	0.1	25	-	LOUVERED FACE	TITUS 350RL	
TG-1	0-225	MATCH TO FLOOR PLAN	MATCH TO FLOOR PLAN	0.1	25	-	LOUVERED FACE	TITUS 350RL	

NOTES:
A. REFER TO DETAIL 4/M-503.

FAN SCHEDULE											
UNIT NO.	TYPE	WHEEL DIA. (IN.)	AIRFLOW (CFM)	T.S.P. (IN. W.G.)	RPM	BHP MAX.	MOTOR HP	ELEC. DATA (V/PH/Hz)	SERVICE	LOCATION	NOTES
EF-01	BD	15.0	1100	0.50	975	0.20	0.25	115/1/60	MECH ROOM	MECH ROOM	B

NOTES:
A. AF = DOUBLE WIDTH, DOUBLE INLET AIR FOIL WHEEL
FC = FORWARD CURVE
BD = BELT DRIVE
B. BASIS OF DESIGN: GREENHECK MODEL CUBE 140



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

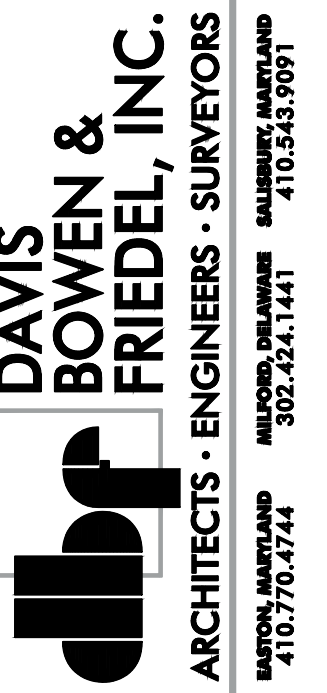
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Scale: AS NOTED
Dwn.By: JHG
Proj No.: 0586B053.A01

SCHEDULES

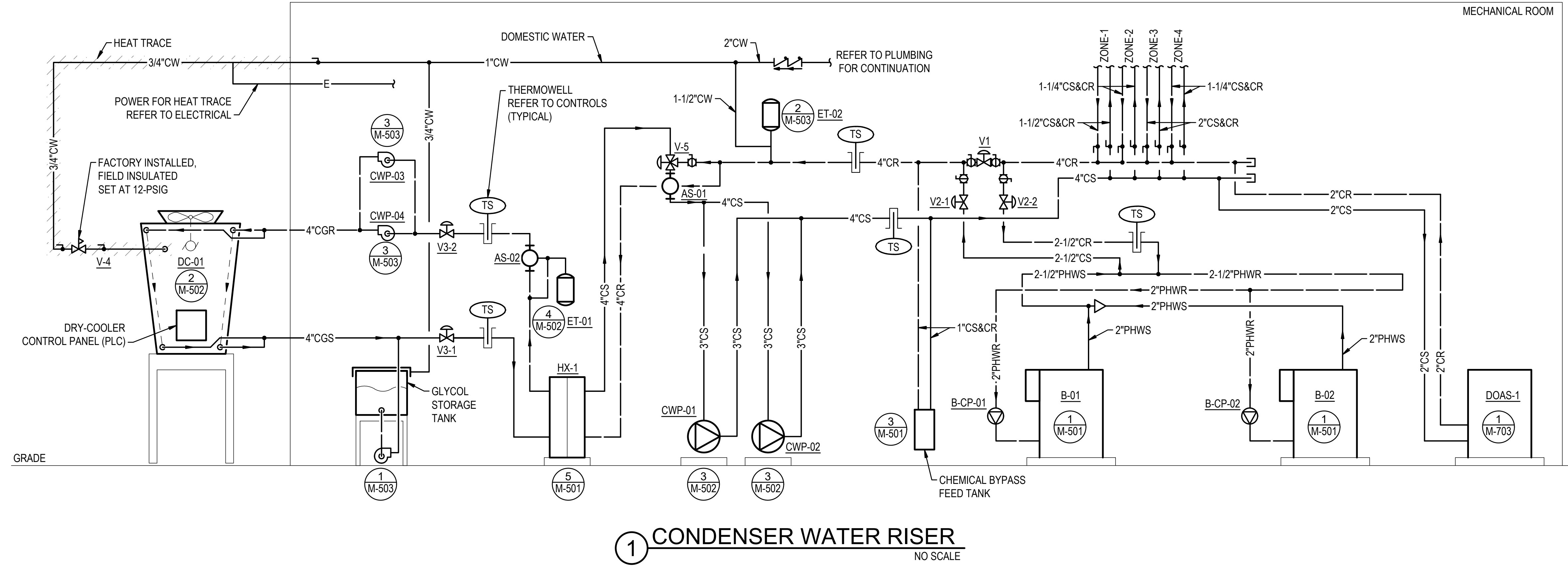
Dwg No.: **M-602**

GENERAL NOTES

- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G2. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST.", OR "E".



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952



1 CONDENSER WATER RISER
NO SCALE

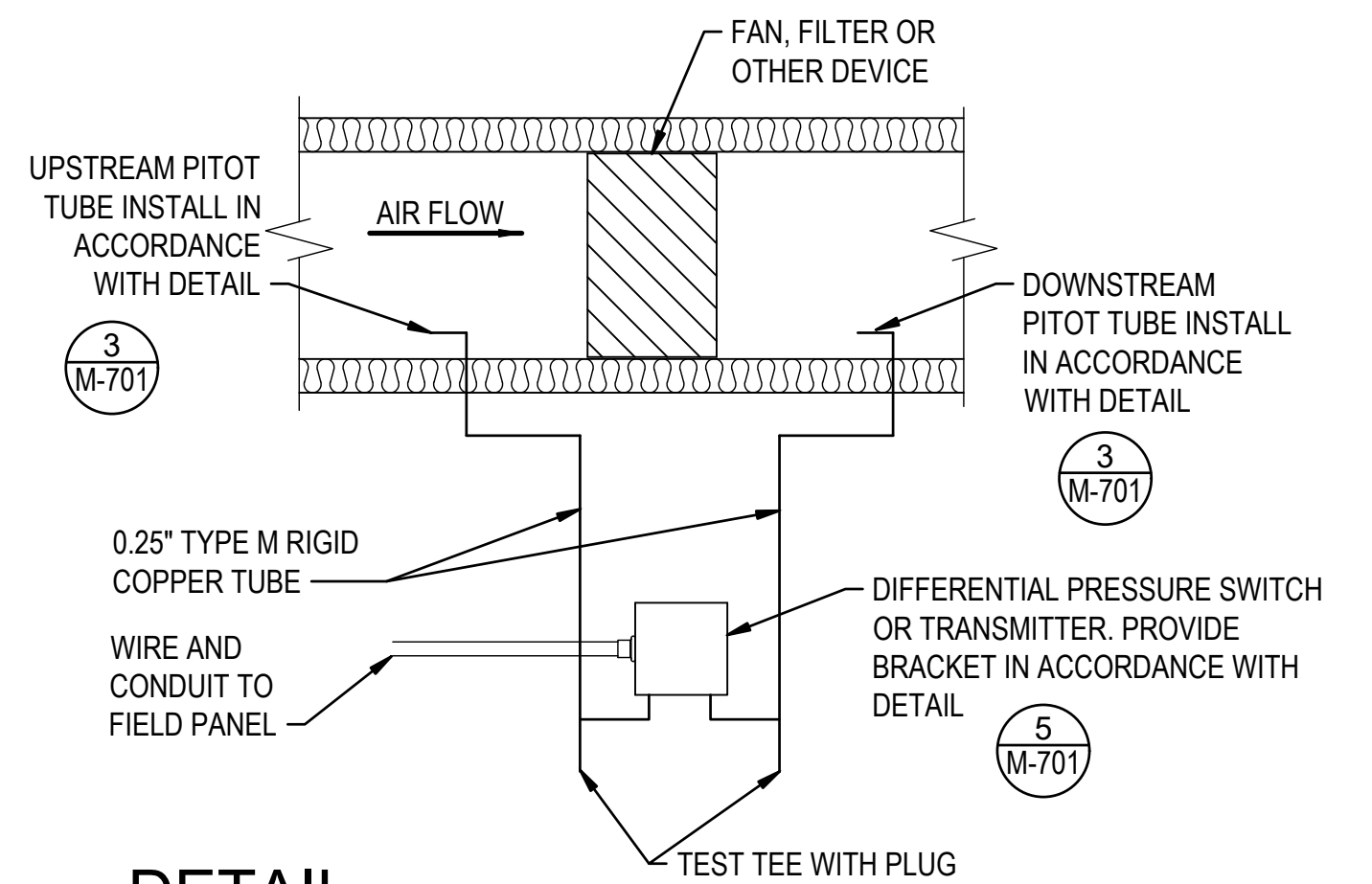
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01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date:	JULY 16, 2024
Scale:	AS NOTED
Dwn By:	JHG
Proj No.:	0586B053.A01

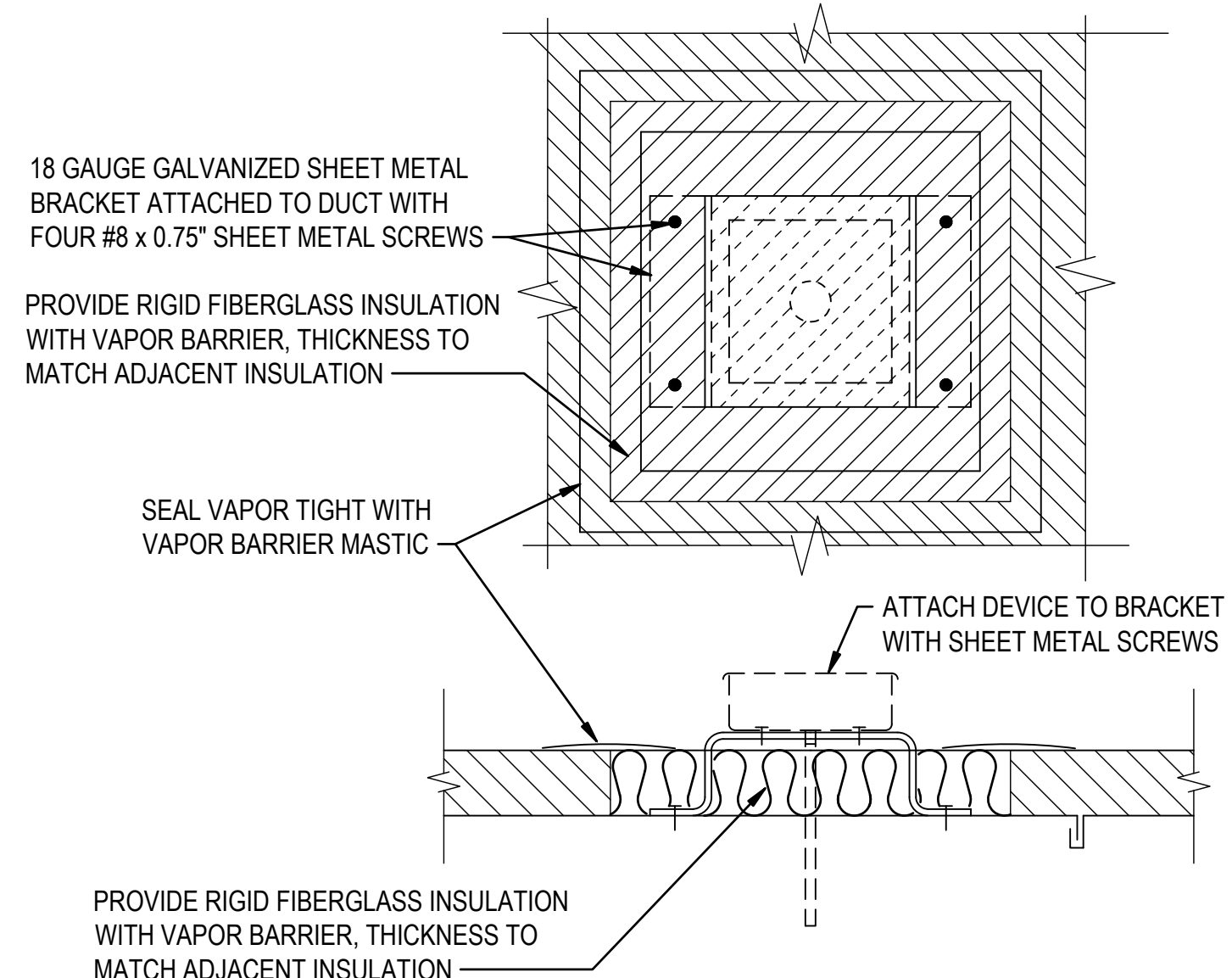
RISER

Dwg No.: **M-603**

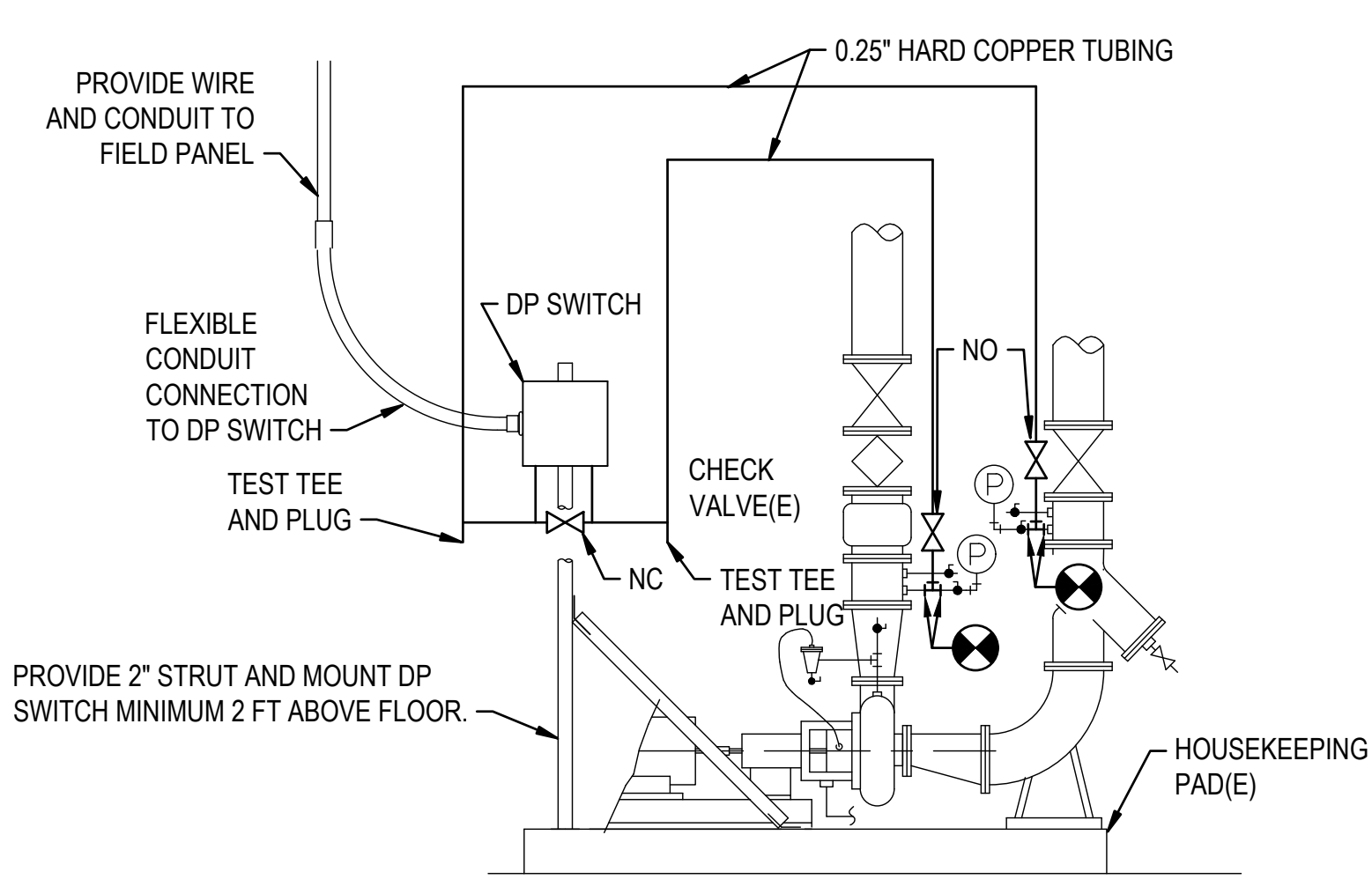
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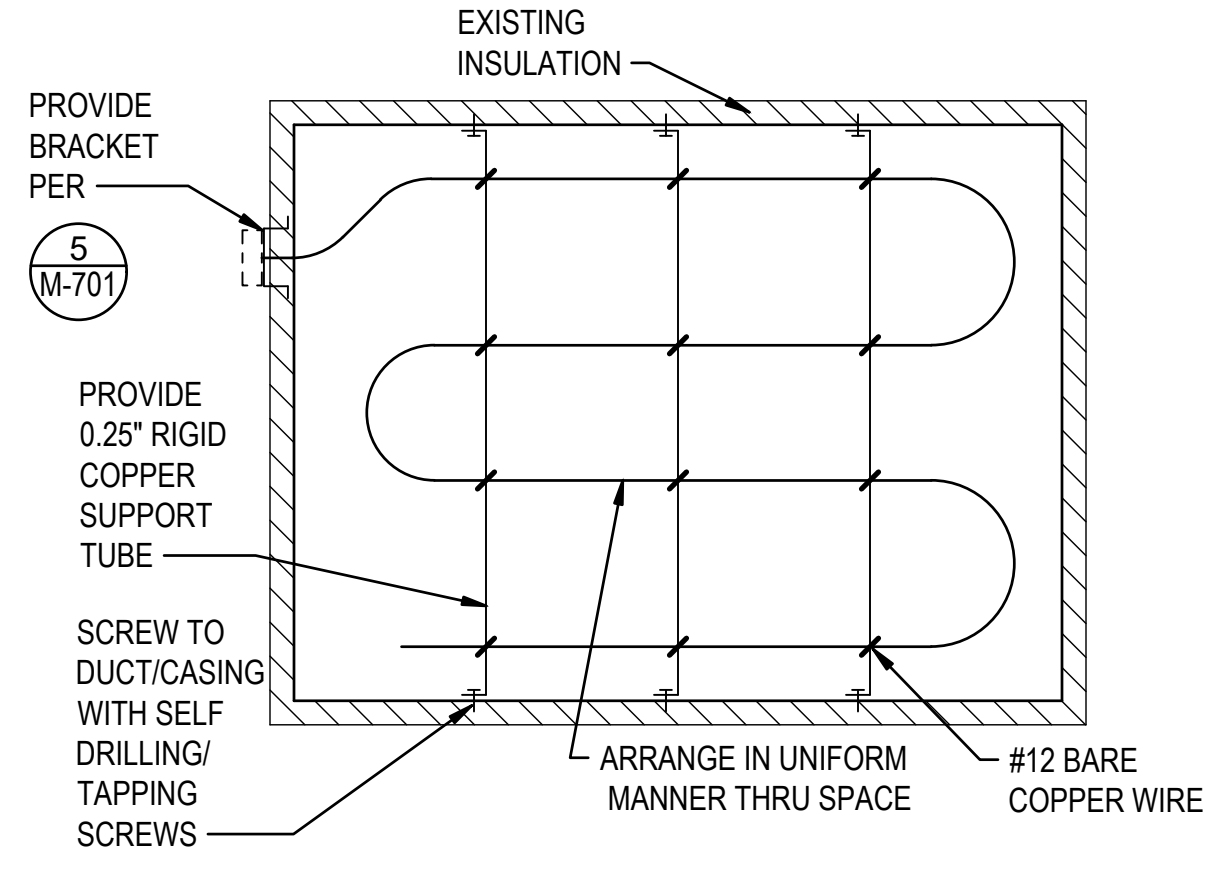
4 **DETAIL**
AIR DIFFERENTIAL PRESSURE DEVICE
M-701 NO SCALE



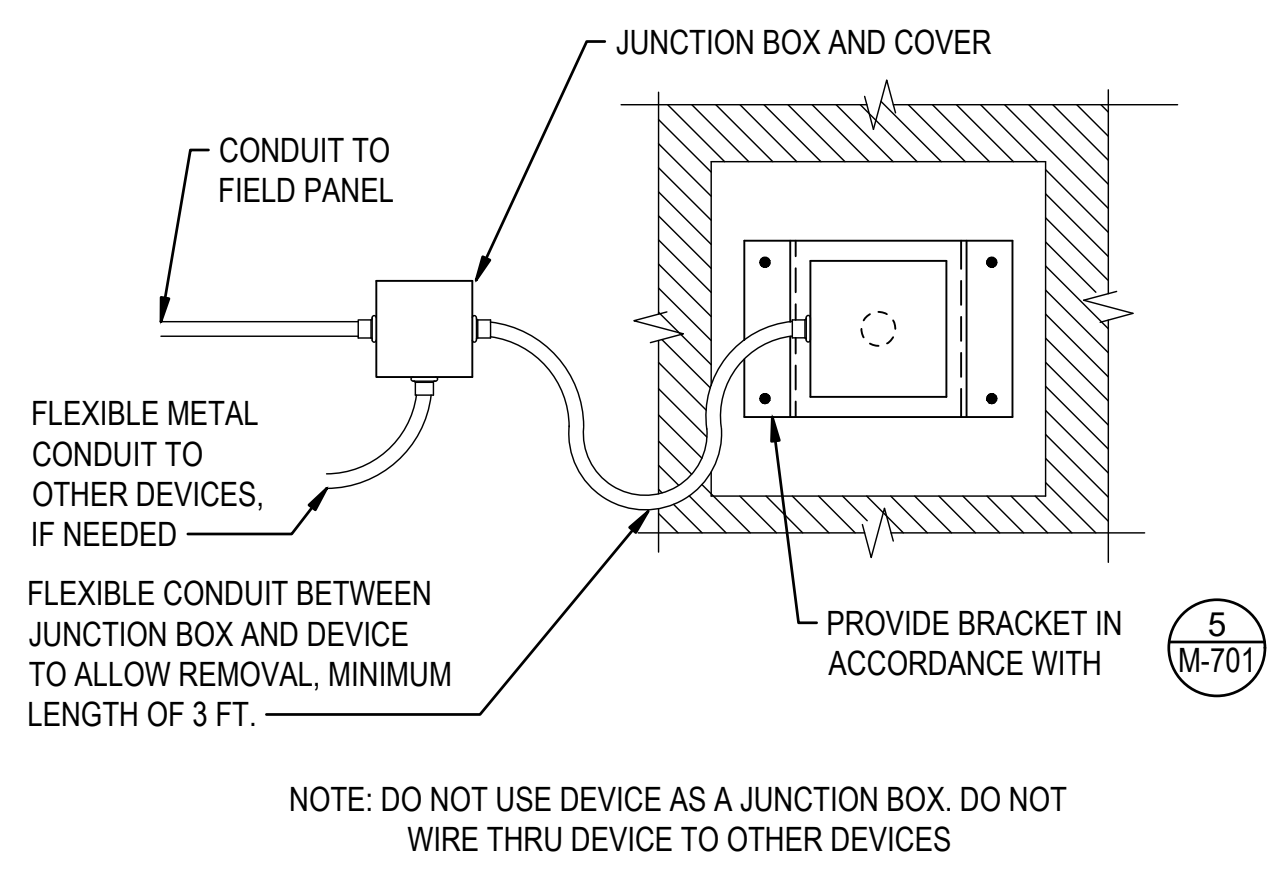
5 **DETAIL**
DEVICE MOUNTING BRACKET
M-701 NO SCALE



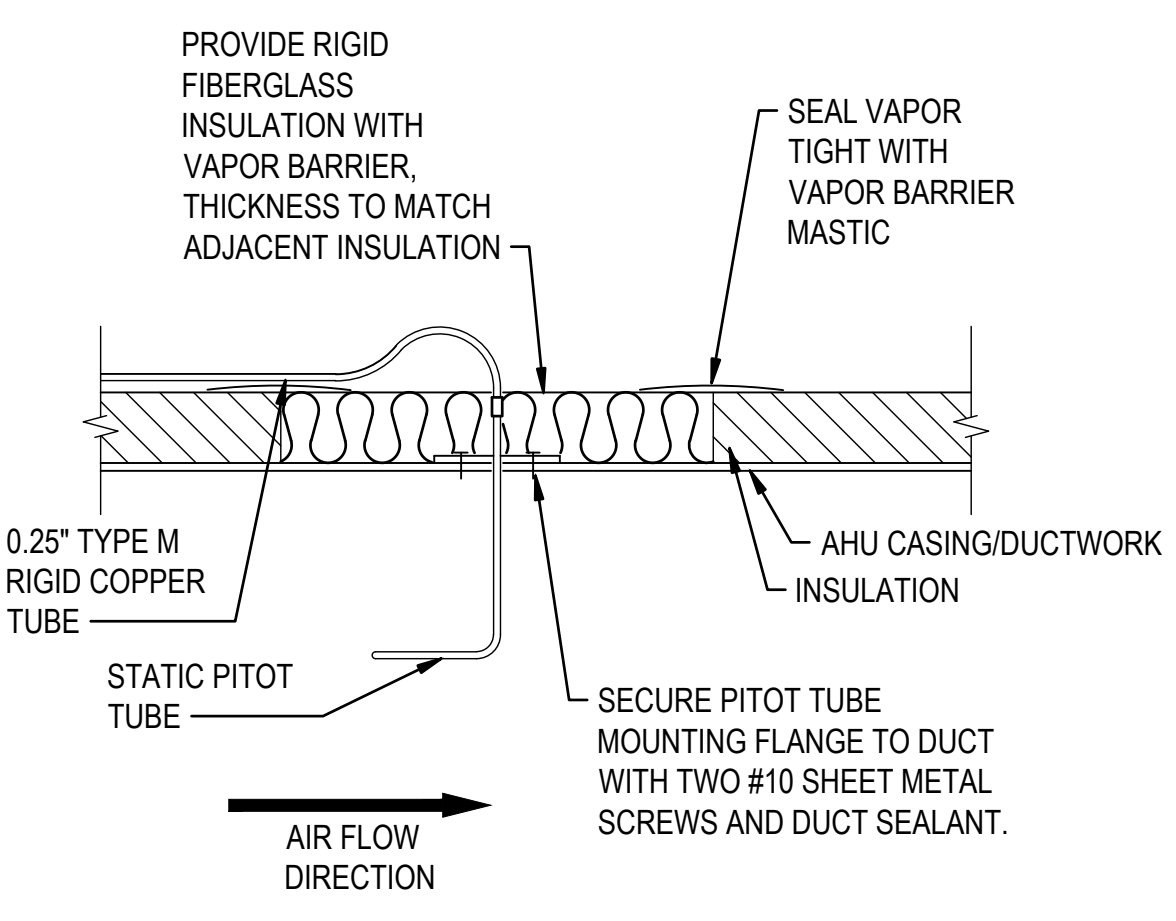
6 **DETAIL - WATER**
DIFFERENTIAL PRESSURE DEVICE
M-701 NO SCALE



1 **DETAIL**
SENSING ELEMENT INSTALLATION
M-701 NO SCALE



2 **DETAIL**
DUCT MOUNTED SENSOR
M-701 NO SCALE



3 **DETAIL**
PITOT TUBE INSTALLATION
M-701 NO SCALE

SYMBOLS & ABBREVIATIONS

- (M) CONTROL AIR MAIN CONNECTION
- D-# OPPOSED BLADE DAMPER.
- D-# PARALLEL BLADE DAMPER.
- A-# DAMPER OR VALVE ACTUATOR.
- V-# 2 WAY CONTROL VALVE (BALL OR GLOBE AS SPECIFIED).
- V-# 3 WAY CONTROL VALVE (BALL OR GLOBE AS SPECIFIED).
- HYDRONIC PIPING
- AIR OR WATER FLOW PATH
- XXXXX FILTER OR COIL (AS LABELED)
- DP-# AIR OR WATER DIFFERENTIAL PRESSURE SWITCH, BY APPLICATION. PROVIDE AIR SWITCH PER DETAIL 4/M-701/M-701. PROVIDE WATER SWITCH PER DETAIL 6/M-701/M-701.
- G DIFFERENTIAL PRESSURE GAUGE, CONNECT TO STATIC PRESSURE TAPS IN ACCORDANCE WITH DETAIL 3/M-701/M-701.
- DP-# AIR OR WATER DIFFERENTIAL PRESSURE TRANSMITTER, BY APPLICATION. PROVIDE AIR TRANSMITTER PER DETAIL 4/M-701/M-701. PROVIDE WATER TRANSMITTER PER DETAIL 6/M-701/M-701.
- FZ-# LOW TEMPERATURE DETECTION FREEZESTAT, MANUAL RESET, WITH 20 FOOT AVERAGING ELEMENT. PROVIDE PER DETAILS 1/M-701/M-701 AND 2/M-701/M-701.
- T-# DUCT MOUNTED ELECTRONIC TEMPERATURE SENSOR WITH 20 FOOT AVERAGING ELEMENT. PROVIDE PER DETAILS 1/M-701/M-701 AND 2/M-701/M-701.
- TS-# DUCT MOUNTED ELECTRONIC TEMPERATURE SENSOR WITH RIGID STEM ELEMENT. PROVIDE PER DETAIL 2/M-701/M-701.
- TS-# PIPE MOUNTED INSERTION TYPE ELECTRONIC TEMPERATURE SENSOR WITH WELL.
- RS-# WALL-MOUNTED ELECTRONIC TEMPERATURE SENSOR
- HT-# WALL-MOUNTED HUMIDITY TRANSMITTER. MOUNT ADJACENT TO ROOM TEMPERATURE SENSOR.
- CD-# WALL-MOUNTED CARBON DIOXIDE SENSOR. MOUNT ADJACENT TO ROOM TEMPERATURE SENSOR.
- CD-# DUCT MOUNTED CARBON DIOXIDE SENSOR. PROVIDE PER DETAIL 2/M-701/M-701.
- HT-# DUCT MOUNTED ELECTRONIC RELATIVE HUMIDITY TRANSMITTER PROVIDE PER DETAIL 2/M-701/M-701.
- CS-# CURRENT SWITCH
- ES-# END SWITCH
- BINARY INPUT OR OUTPUT POINT
- ANALOG INPUT OR OUTPUT POINT
- ▼ NETWORK CONNECTION
- THERMOMETER.
- ⊕ BUTTERFLY VALVE.

GENERAL REQUIREMENTS

- PROVIDE THE FOLLOWING AUTOMATIC ALARM AT OWS EVERY MARCH 1ST AND SEPTEMBER 1ST: "IN CONFORMANCE WITH THE LOCAL BUILDING CODES AND IN ORDER TO SAVE ENERGY, BUILDING SENSORS MUST BE CALIBRATED AT REGULAR INTERVALS. OUTSIDE AIR, DUCT, AND UNIT-MOUNTED TEMPERATURE, HUMIDITY, AND ENTHALPY SENSORS SHOULD BE CALIBRATED ANNUALLY. CO2 SENSORS (DUCT AND/OR ROOM MOUNTED) SHOULD BE CALIBRATED BI-ANNUALLY."
- PROVIDE A COMPLETE AND FULLY FUNCTIONAL BUILDING AUTOMATION SYSTEM IN ACCORDANCE WITH THE STATE OF DELAWARE'S BUILDING AUTOMATION SYSTEM, BENCHMARKING, AND ENERGY REQUIREMENTS.

SYMBOLS & ABBREVIATIONS

- AI ANALOG INPUT
- AO ANALOG OUTPUT
- BI BINARY INPUT
- BO BINARY OUTPUT
- CLG COOLING
- COV CHANGE OF VALUE
- Cx COMMISSIONING
- HTG HEATING
- I/O INPUT/OUTPUT
- NVI NETWORK VARIABLE INPUT
- NVO NETWORK VARIABLE OUTPUT
- SP SETPOINT
- H/O HAND-OFF-AUTO SWITCH
- MOTOR
- |— NORMALLY OPEN CONTACTS
- |/|— NORMALLY CLOSED CONTACTS
- R# RELAY COIL
- M# STARTER HOLDING COIL
- /— THERMAL MOTOR SWITCH
- PNEUMATIC TUBING
- - - EXISTING PNEUMATIC TUBING
- ⊞ MOTOR STARTER
- FAN OR PUMP, BY APPLICATION
- EN-# DUCT MOUNTED ENTHALPY TRANSMITTER PROVIDE PER DETAIL 2/M-701/M-701.
- EHO EMERGENCY HVAC OFF (SYSTEM VARIABLE)
- TS-OA OUTSIDE AIR TEMPERATURE SENSOR (SYSTEM VARIABLE)
- EN-OA OUTSIDE AIR ENTHALPY TRANSMITTER (SYSTEM VARIABLE)
- VFD# VARIABLE FREQUENCY DRIVE
- AMS-# AIRFLOW MEASURING STATION - THERMAL DISPERSION TYPE
- AMS-# AIRFLOW MEASURING STATION - PIEZOMETRIC TYPE

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS
HARRINGTON, DELAWARE 19941
BALTIMORE, MARYLAND 21201
410.341.1441

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
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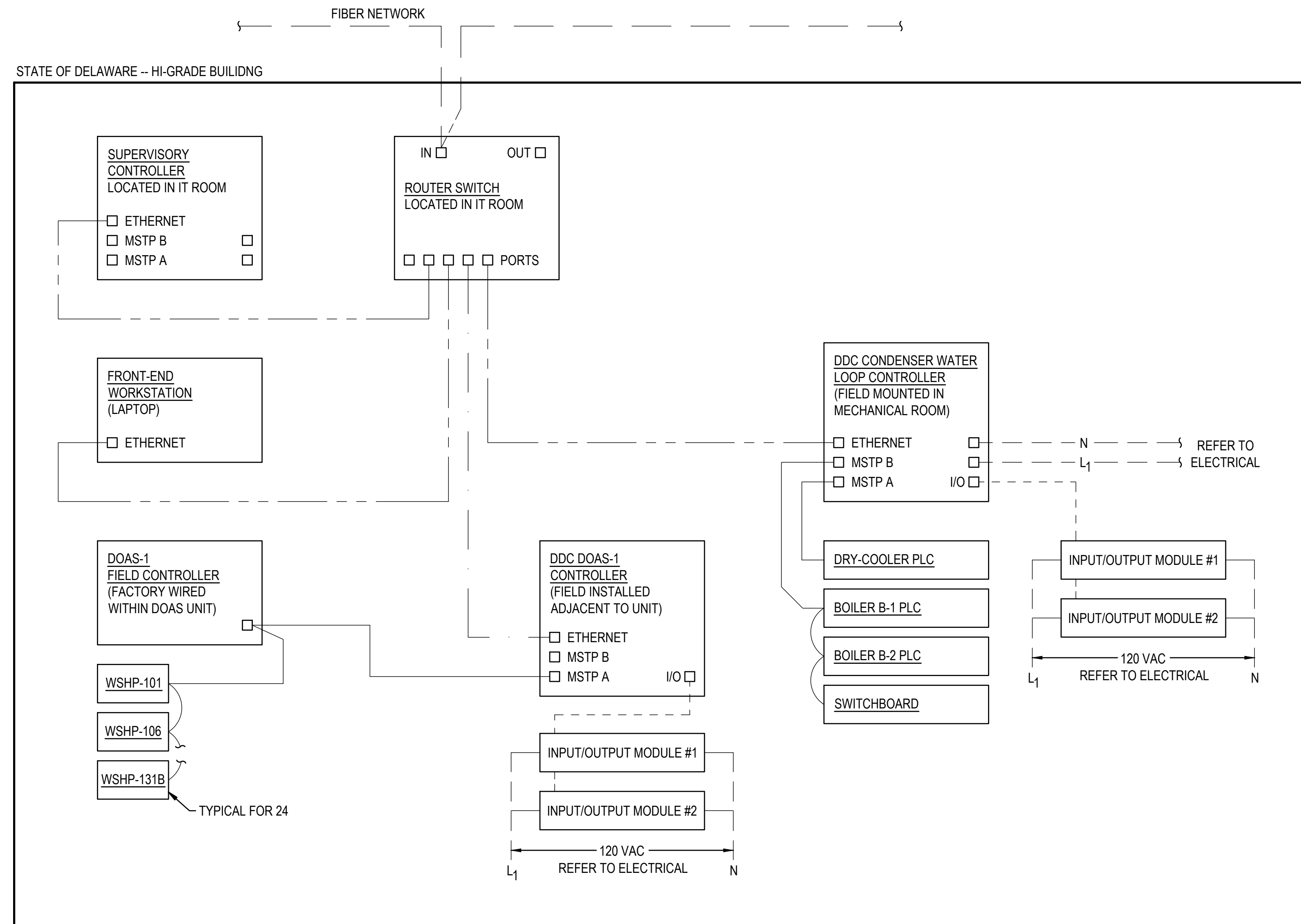
Date:	JULY 16, 2024
Scale:	AS NOTED
Dwn By:	JHG
Proj No.:	0586B053.A01

CONTROLS

Dwg No.: **M-701**

FILE NAME: 2016.18_M-702.DWG
 OUR REF: 2016.18
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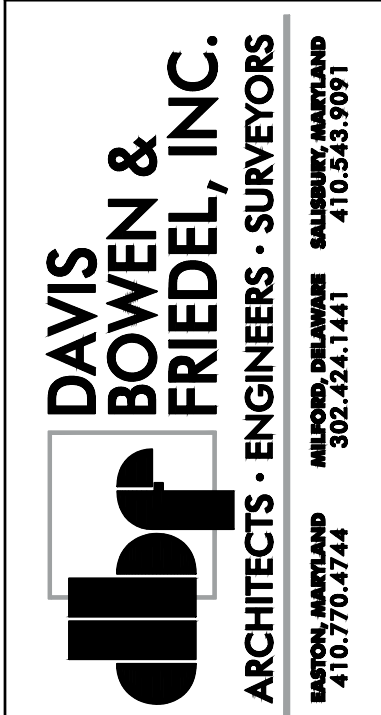
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- ELECTRICAL WIRING (REFER TO ELECTRICAL DRAWINGS)
- FIBER NETWORK WIRING (SEE COMM. DRAWINGS)
- BACNET / ETHERNET WIRING
- MSTP NETWORK WIRING
- I/O MODULE WIRING

1 NETWORK ARCHITECTURE SCHEMATIC

NO SCALE



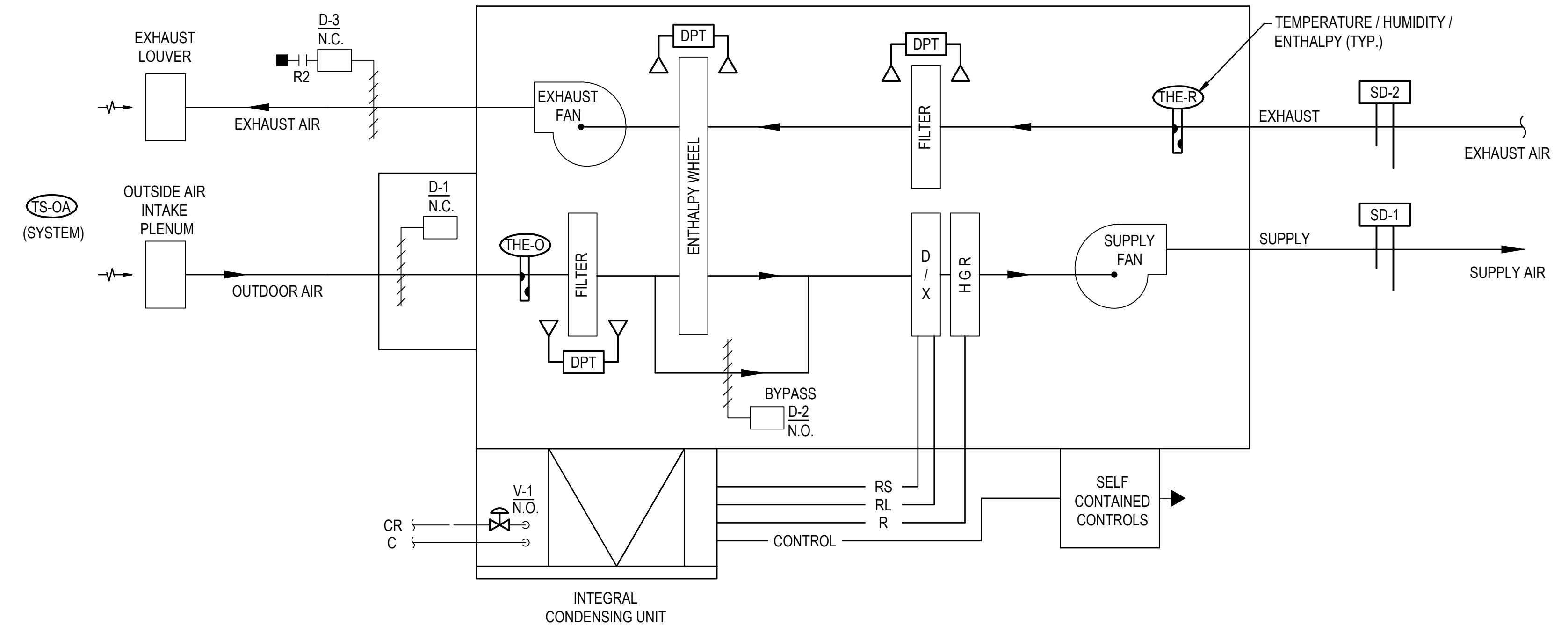
HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

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02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

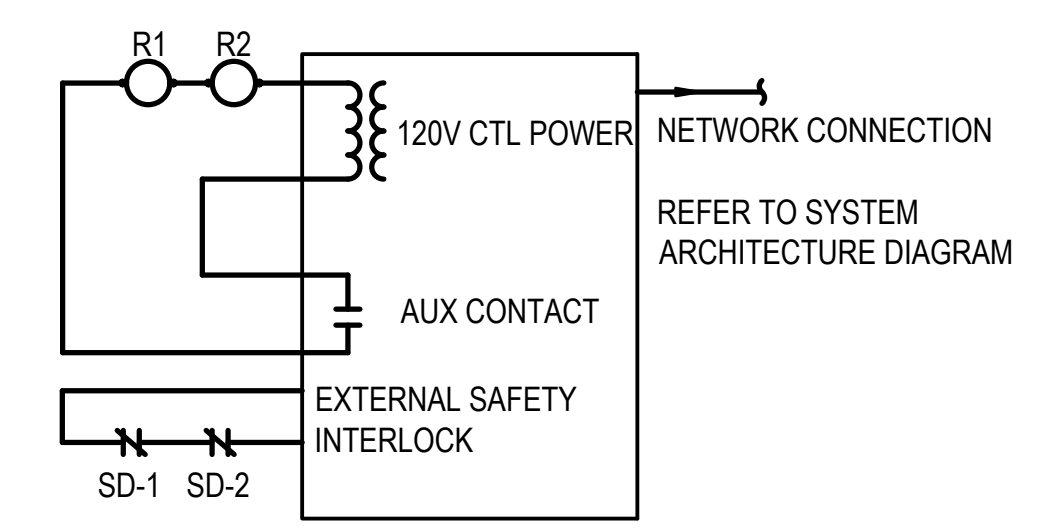
Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: XXX
 Proj No.: 0586B053.A01

NETWORK ARCHITECTURE

Dwg No.: **M-702**



FLOW DIAGRAM



DOAS CONTROLLER WIRING DIAGRAM

SPLIT SYSTEM SEQUENCE OF OPERATIONS

PROVIDE MANUFACTURER'S PACKAGED CONTROLS.

UPON COMMAND ON FROM THE BAS, THE UNIT SHALL BE ENERGIZED. ON A COMMAND OFF, THE UNIT SHALL BE DE-ENERGIZED. OCCUPIED AND UNOCCUPIED MODES SHALL BE SCHEDULED BY TIME CLOCK PROGRAMMED AT THE MASTER CONTROLLER.

MORNING PRE-OCCUPANCY CYCLE: MORNING PRE-OCCUPANCY SHALL BE SCHEDULED BY THE TIME CLOCK PROGRAMMED AT THE MASTER CONTROLLER TO START "OPTIMUM START" PRIOR TO THE SCHEDULED OCCUPIED MODE.

OCCUPIED MODE: THE UNIT'S PACKAGED CONTROLLER SHALL MODULATE ALL VALVES, DAMPERS, COMPRESSORS, HOT GAS REHEAT COILS, AND ENERGY RECOVERY COMPONENTS TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT 74°F (ADJ., SUMMER) OR 70°F (ADJ. WINTER), AND A MAXIMUM DEWPOINT OF 49°F (ADJ.).

UNOCCUPIED MODE: THE UNIT SHALL BE OFF AND D-1 AND D-3 SHALL BE CLOSED.

FILTER CHANGEOUT: IN RESPONSE TO A NOTIFICATION FROM THE DOAS UNIT'S PACKAGED CONTROLLER, BAS SHALL PROMPT MAINTENANCE TEAM TO CHANGE FILTERS.

ENERGY WHEEL ALARM: IN RESPONSE TO A NOTIFICATION FROM THE DOAS UNIT'S PACKAGED CONTROLLER, BAS SHALL PROMPT MAINTENANCE TEAM TO REVIEW THE CONDITION OF THE ENERGY WHEEL, AND TAKE STEPS TO CLEAN AND OTHERWISE MAINTAIN THE ENERGY RECOVERY WHEEL.

SEQUENCE OF OPERATIONS

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS				TRENDING		
				FAIL	WARNING LOW	WARNING HIGH	LIMIT LOW	LIMIT HIGH	Cx FREQUENCY	OPERATING FREQUENCY
DOAS-1	SELF-CONTAINED CONTROLLER	X							COV	COV
	ON/OFF		BI						COV	COV
	STATUS		BO						COV	COV
	COOLING MODE		BI						COV	COV
	HEATING MODE		BI						COV	COV
	DEHUMIDIFICATION MODE		BI						COV	COV
	EXHAUST AIR ENTHALPY		AI			60°F	65°F	5min	15min	
	OUTDOOR AIR ENTHALPY		AI					5min	15min	
	SUPPLY AIR TEMPERATURE		AO					5min	15min	
	SUPPLY AIR DEW POINT TEMPERATURE		AO			55°F	60°F	5min	15min	
	OUTDOOR AIR ISOLATION DAMPER		BO					COV	COV	
	BYPASS AIR DAMPER		BO					COV	COV	
	DIRTY OUTDOOR AIR FILTER ALARM		BI	X				COV	COV	
DIRTY EXHAUST AIR FILTER ALARM		BI	X				COV	COV		
DIRTY ENERGY WHEEL ALARM		BI	X				COV	COV		
FAULT		BI	X				COV	COV		
D-3	EXHAUST AIR ISOLATION DAMPER		BO					COV	COV	
TS-OA	OUTDOOR AIR TEMPERATURE		NVI					5min	15min	

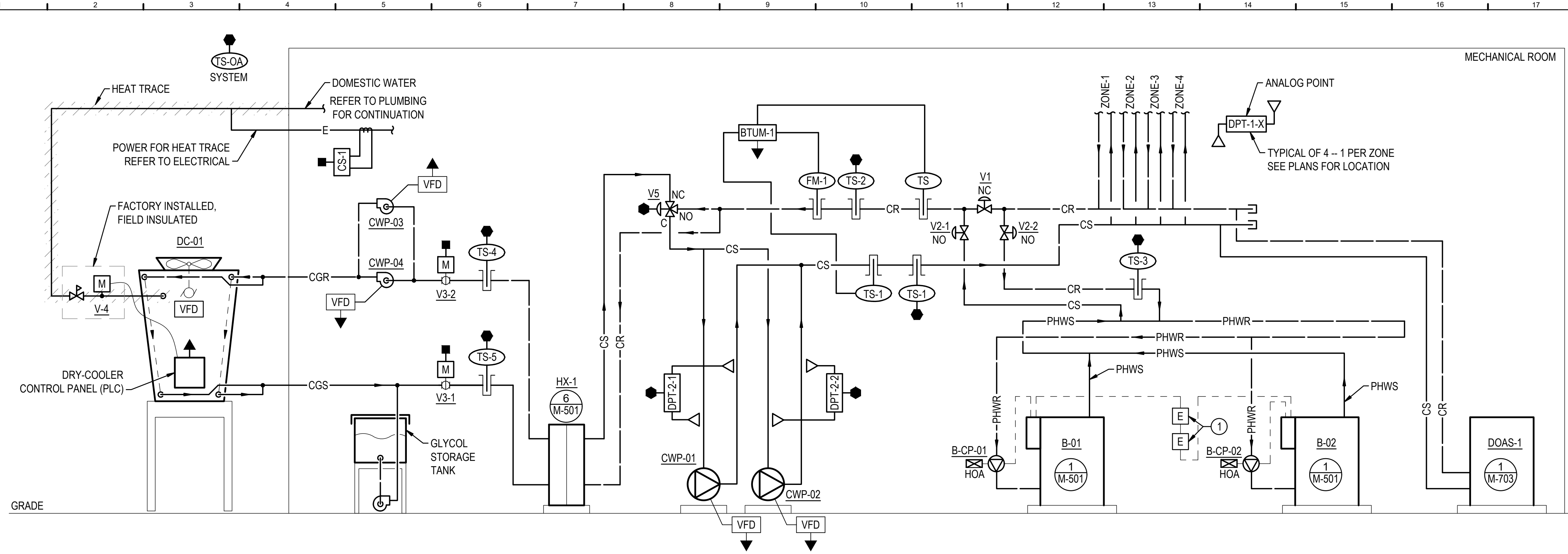
NOTES: 1. ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.

1 DOAS-1 CONTROLS

NO SCALE

CONTROLS - DOAS UNIT

Dwg No.: **M-703**

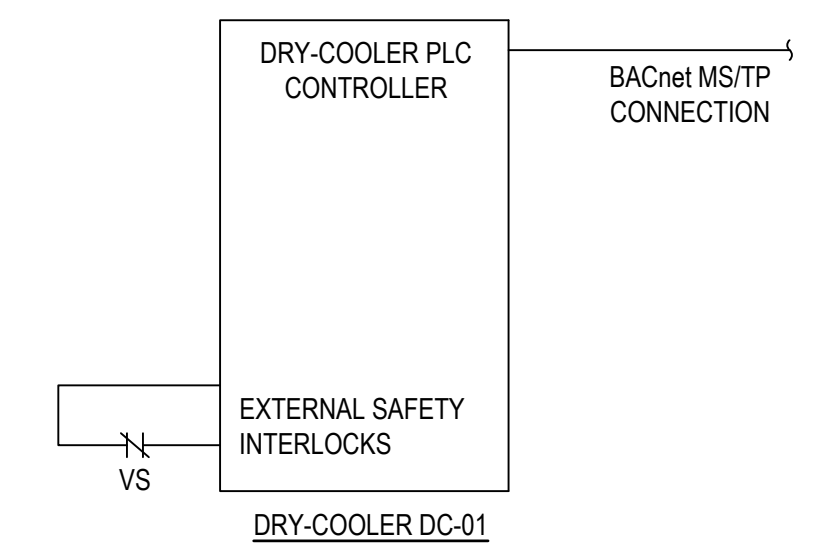


GENERAL NOTE

- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G2. COORDINATE UTILITY SHUTDOWN WITH OWNER A MINIMUM 2-WEEKS IN ADVANCE.

NOTES

- 1. REMOTE EMERGENCY SHUTDOWN SWITCH LOCATED IN MECHANICAL ROOM. PROVIDE 1 SWITCH AT EACH EXIT.



POINTS LIST

POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS				TRENDING		
				FAIL	WARNING LOW	WARNING HIGH	LIMIT LOW	LIMIT HIGH	Cx FREQUENCY	OPERATING FREQUENCY
DRY-COOLER VFD-1	DRY-COOLER, EACH	X								
	START/STOP						COV	COV		
	SPEED COMMAND						5min	15min		
	MOTOR OPERATION		X				COV	COV		
	SPEED/STATUS						5min	15min		
	VFD FAULT			X			COV	COV		
	kw						5min	15min		
PUMP VFD	PUMP, EACH	X								
	START/STOP						COV	COV		
	SPEED COMMAND						5min	15min		
	MOTOR OPERATION		X				COV	COV		
	SPEED/STATUS						5min	15min		
	VFD FAULT			X			COV	COV		
	kw						5min	15min		
TS-OA	OUTDOOR AIR TEMPERATURE		NVI				15min	15min		
TS-1	CONDENSER SUPPLY WATER TEMPERATURE		AI		60	95	55	100	5min	15min
TS-2	CONDENSER RETURN WATER TEMPERATURE		AI						5min	15min
TS-3	BOILER ENTERING WATER TEMPERATURE		AI						5min	15min
TS-4	DRY-COOLER GLYCOL ENTERING WATER TEMP.		AI						5min	15min
TS-5	DRY-COOLER GLYCOL LEAVING WATER TEMP.		AI						5min	15min
TS-OA	OUTSIDE AIR TEMPERATURE		NVI						15min	15min
V1	BOILER BYPASS CONTROL VALVE		BO						COV	COV
V2-X	BOILER ISOLATION VALVE, EACH		BO						COV	COV
V3-X	DRY-COOLER ISOLATION VALVE, EACH		BO						COV	COV
V4	DRY-COOLER ADIABATIC COOLING CTL VALVE		AO						5min	15min
V5	DRY-COOLER BYPASS CONTROL VALVE		AO						5min	15min
DPT-1-X	SUPPLY DIFFERENTIAL PRESSURE, EACH		AI						COV	COV
DPT-2-X	PUMP PROOF OF FLOW, EACH		AI						COV	COV
CS-1	HEAT TRACE HEATER		BI	X					COV	COV
BTUM-1	BTU METER	X							COV	COV
	TEMPERATURE SENSOR SUPPLY								5min	15min
	TEMPERATURE SENSOR RETURN								5min	15min
	FLOW METER								5min	15min
BMS	BTU								5min	15min
	BOILER MANAGEMENT SYSTEM	X								
	START/STOP								COV	COV
	FAULT			X					COV	COV
	TEMPERATURE RESET SETPOINT								COV	COV

ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.

POWER FAILURE:

- 1. UPON RESTORATION OF POWER, MAINTAIN ALL VALVES TO LAST COMMANDED POSITIONS. THE BAS SHALL AUTOMATICALLY RESTART EQUIPMENT THAT WAS IN OPERATION PRIOR TO THE POWER FAILURE. IMPLEMENT SEQUENCE FOR THE MODE MOST RECENTLY SELECTED, EXCEPT START ALL PREVIOUSLY RUNNING PIECES OF EQUIPMENT IMMEDIATELY AND NOT IN SERIES. IF THE EQUIPMENT DOES NOT START, IMPLEMENT PROCEDURE FOR EQUIPMENT FAILURE.

PLANT OPERATION - EQUIPMENT FAILURE:

- 1. IF ANY PIECE OF EQUIPMENT FAILS TO START FOR WHATEVER REASON, THE BAS SHALL AUTOMATICALLY IMPLEMENT THE NORMAL SEQUENCE TO START THE LAG PIECE OF EQUIPMENT.

SAFETIES:

- 1. VIBRATION SWITCH VS SHALL STOP FAN THROUGH HARDWIRE INTERLOCK.
- 2. UPON ACTUATION OF LOCAL DRY-COOLER DISCONNECT, LDL SHALL DISABLE VFD THROUGH HARDWIRE INTERLOCK.

COMMISSIONING:

- 1. ALL SETPOINTS, PERCENTAGES, TIME DELAYS, ETC. SHALL BE ADJUSTABLE.
- 2. PROVIDE A ONE HOUR DELAY BETWEEN CHANGEOVER FROM HEATING MODE TO COOLING MODE.

LEAD/LAG SELECTION

- 1. PUMPS AND BOILERS INPUT AS "OUT OF SERVICE" WILL BE SKIPPED OVER IN THE STARTING AND STOPPING SEQUENCE.
- 2. EQUIPMENT ROTATION: AUTOMATICALLY ALTERNATE THE FOLLOWING TO EQUALIZE THE RUN TIMES, WITH A MINIMUM OF ONCE PER WEEK:
 - CWP-1 TO CWP-2
 - CWP-3 TO CWP-4
 - B-1 TO B-2

SECONDARY PUMPS

- 1. CONDENSER WATER SYSTEM START/STOP: WHEN THE BAS INDEXES THE BUILDING TO OCCUPIED MODE, THE SECONDARY CONDENSER WATER PUMP, CWP-01 AND CWP-02, SHALL BE ENABLED. THE PUMPS SHALL RUN CONTINUOUSLY. UPON INDEXING TO UNOCCUPIED MODE, THE REVERSE SHALL OCCUR.

- 2. SECONDARY CONDENSER WATER PUMP VFD SHALL MODULATE THE LEAD PUMP SPEED TO MAINTAIN THE DIFFERENTIAL PRESSURE SETPOINT AS SENSED BY THE CRITICAL REMOTE DIFFERENTIAL PRESSURE SENSOR. THE CRITICAL REMOTE DIFFERENTIAL PRESSURE SENSOR IS THE REMOTE DIFFERENTIAL PRESSURE READING FURTHEST TO ITS RESPECTIVE SETPOINT. THE DIFFERENTIAL PRESSURE SETPOINT FOR EACH SENSOR SHALL BE SET BY THE BALANCER, INITIALLY SET FOR 10-PSI.

MECHANICAL COOLING

- 1. CONDENSER WATER SYSTEM START / STOP: UPON A RISE IN CONDENSER WATER LOOP TEMPERATURE ABOVE 80°F (ADJ.) AS SENSED BY CONDENSER WATER SUPPLY TEMPERATURE SENSOR, TS-1, THE CONDENSER WATER COOLING MODE SHALL BE ENABLED. CONDENSER WATER COOLING SHALL REMAIN ENABLED UNTIL THE CONDENSER WATER LOOP FALLS BELOW 75°F (ADJ.). UPON A FALL BELOW SETPOINT, THE CONDENSER WATER COOLING MODE SHALL BE DISABLED. VALVES SHALL REMAIN IN THEIR CURRENT POSITION UNTIL THE CONDENSER WATER HEATING MODE HAS BEEN ENABLED BY THE BAS.
- 2. UPON ENABLING THE CONDENSER WATER COOLING MODE, THE BOILER BYPASS VALVE, V-1, SHALL OPEN; BOILER ISOLATION VALVES V-2 SHALL CLOSE; AND TOWER ISOLATION VALVE V-3 SHALL OPEN. DRY-COOLER SECONDARY LOOP CIRCULATING PUMPS, CWP-03 AND CWP-04, SHALL BE ENABLED.
- 3. WHILE IN CONDENSER WATER COOLING MODE, CONDENSER WATER SUPPLY TEMPERATURE AS SENSED BY SENSOR TS-1, FLOATS BETWEEN A HIGH LIMIT OF 90°F (ADJ.) AND LOW LIMIT OF 65°F (ADJ.), PROVIDE A TIME DELAY, INITIALLY SET 5 MINUTES (ADJ.), BETWEEN DRY-COOLER STARTS. OPERATE DRY-COOLER OPERATING VFD AT 60% SPEED PROVIDED THAT CONDENSER WATER TEMPERATURE AT TS-1 IS BETWEEN HIGH AND LOW LIMITS. UPON A FALL IN TEMPERATURE AT TS-1 BELOW LOW LIMIT SETPOINT, TOWER VFD SHALL DECREASE SPEED. UPON A RISE IN TEMPERATURE AT TS-1 ABOVE LOW LIMIT SETPOINT, TOWER VFD SHALL INCREASE SPEED.
- 4. PRIMARY CONDENSER WATER PUMP SPEED CONTROL: PUMP VARIABLE SPEED CONTROLLERS SHALL MODULATE, SUBJECT TO MAINTAINING MINIMUM AND MAXIMUM SETTINGS OF SECONDARY LOOP, TO MAINTAIN A 10 DEGREE F TEMPERATURE DIFFERENCE BETWEEN MATCHED TEMPERATURE SENSORS TS-4 AND TS-5. TOWER HAS A MINIMUM FLOW OF 70 GPM AND A MAXIMUM FLOW OF 130 GPM.

MECHANICAL HEATING

- 1. BOILER START/STOP: UPON A DROP IN CONDENSER WATER LOOP TEMPERATURES BELOW 60°F (ADJ.), THE BAS SHALL INDEX THE SYSTEM TO CONDENSER WATER HEATING MODE.
- 2. UPON ENABLING THE CONDENSER WATER HEATING MODE, THE BOILER BYPASS VALVE, V-1, SHALL CLOSE; BOILER ISOLATION VALVES V-2 SHALL OPEN; AND TOWER ISOLATION VALVE V-3 SHALL CLOSE. DRY-COOLER SECONDARY LOOP CIRCULATING PUMPS, CWP-03 AND CWP-04, SHALL BE DISABLED. THE BOILER MANAGEMENT SYSTEM SHALL BE ENABLED TO START AND STOP THE BOILERS BY THE BAS.
- 4. BOILER PUMP CONTROL AND PROOF OF FLOW: THE BOILER MANAGEMENT SYSTEM SHALL START AND STOP THE LEAD BOILER'S DEDICATED CIRCULATION PUMP. THE REQUIRED PROOF OF FLOW WILL BE DONE AT THE BOILER BY THE BOILER MANAGEMENT SYSTEM. AFTER PROOF-OF-FLOW HAS BEEN ACHIEVED, THE LEAD BOILER SHALL MODULATE TO MAINTAIN THE CONDENSER WATER LOOP BETWEEN A MINIMUM OF 60°F (ADJ.) AND MAXIMUM OF 70°F (ADJ.).
- 5. CONDENSER WATER HEATING MODE SHALL REMAIN ENABLED UNTIL THE CONDENSER WATER LOOP TEMPERATURE, AS SENSED BY CONDENSER WATER SUPPLY TEMPERATURE TS-1, RISES ABOVE 75°F (ADJ.). UPON A RISE ABOVE SETPOINT, THE CONDENSER WATER HEATING MODE SHALL BE DISABLED. VALVES SHALL REMAIN IN THEIR CURRENT POSITION UNTIL THE CONDENSER WATER COOLING MODE HAS BEEN ENABLED BY THE BAS.
- 6. BOILER SAFETIES: BOILER OPERATION SHALL BE MONITORED BY THE BOILER MANAGEMENT SYSTEM, AND THE SYSTEM STOPPED IF A FAULT DEVELOPS. AN ALARM SHALL BE SENT TO THE BAS.

HEAT TRACE MONITORING

- 7. UPON A DROP IN OUTDOOR AIR TEMPERATURE BELOW 40°F (ADJ.) AS SENSED BY OUTDOOR AIR TEMPERATURE SENSOR, TS-OA, THE BAS SHALL MONITOR THE HEAT TRACE CURRENT SWITCH, CS-1, TO ENSURE PROPER FUNCTION. UPON SENSING OF A LACK OF CURRENT, AN ALARM SHALL BE SENT TO THE BAS.

1 CONDENSER WATER SYSTEM CONTROLS

NO SCALE

FILE NAME: 2016.18_M-704.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:17:09 PM

DAVIS BOWEN & FRIEDEL, INC.
 ARCHITECTS - ENGINEERS - SURVEYORS
 410.770.7440
 1401 N. MARKET STREET, SUITE 200, HARRINGTON, DE 19931

HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19932

DATE	COMMENTS
11/08/23	15%/20% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/18/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	90% DESIGN SUBMISSION
05/10/24	99% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn.By: XXX
 Proj No.: 0586B053.A01

CONTROLS - DIAGRAMS

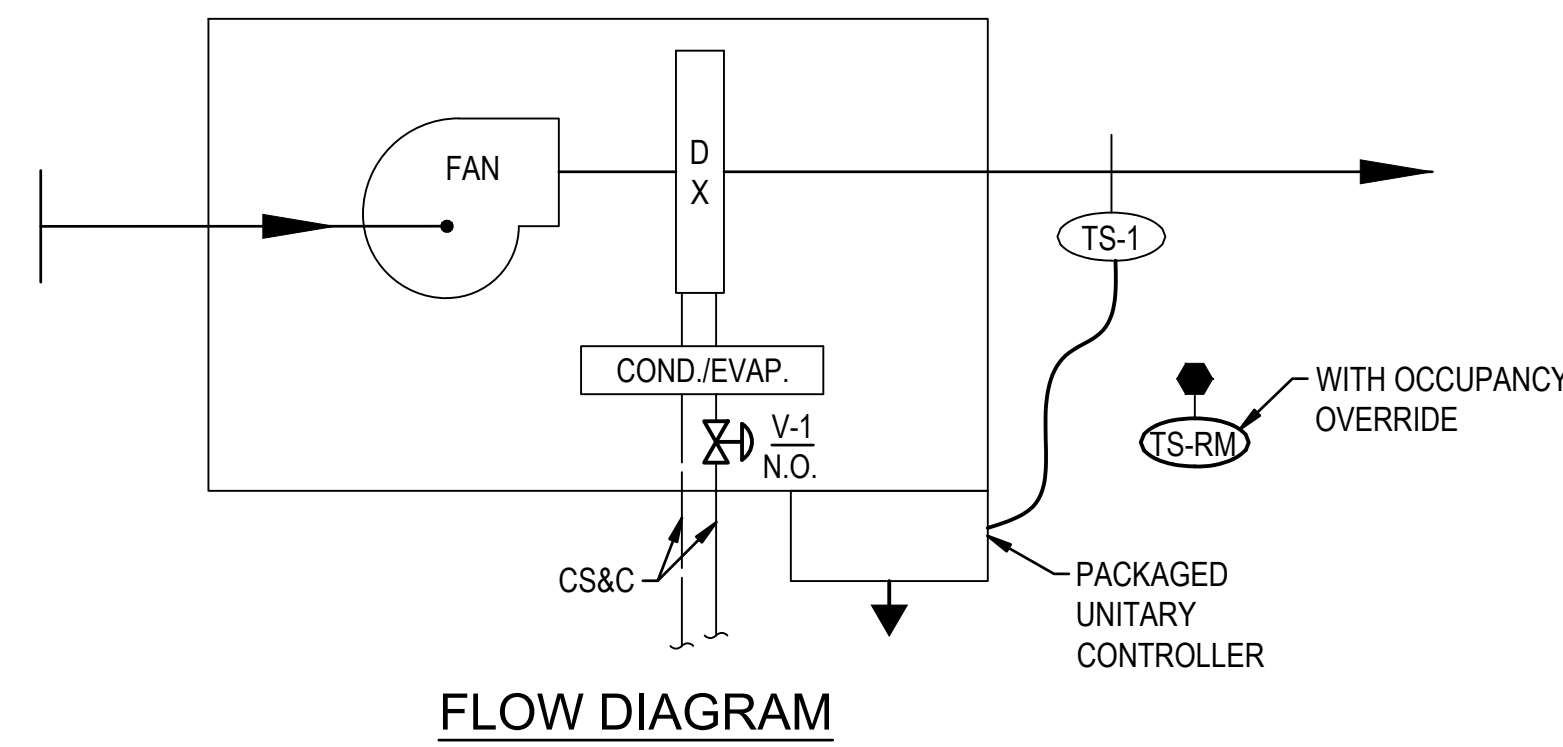
Dwg No.: **M-704**

GENERAL NOTE

- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G2. COORDINATE UTILITY SHUTDOWN WITH OWNER A MINIMUM 2-WEEKS IN ADVANCE.

NOTES

- 1. NOT USED.



GENERAL
EACH UNIT SHALL OPERATE UNDER THE CONTROL OF A LOCAL, STAND-ALONE MICROPROCESSOR BASED CONTROLLER, FIELD INSTALLED WITH THE UNIT. EACH UNIT CONTROLLER SHALL BE INTEGRATED INTO THE BUILDING DDC SYSTEM IN ACCORDANCE WITH THE BAS TIME-CLOCK FUNCTION UNLESS OVERRIDDEN LOCALLY. DDC GRAPHICAL INTERFACE SHALL DISPLAY ALL POINTS IN THE POINTS LIST.

OCCUPANCY CONTROL
UNITS SHALL BE PLACED INTO OCCUPIED/UNOCCUPIED MODE BASED ON THE USER ADJUSTABLE SCHEDULE AT THE DDC SYSTEM.

EACH UNIT'S THERMOSTAT SHALL BE EQUIPPED WITH AN OCCUPANCY OVERRIDE SWITCH. UPON ACTIVATION OF ANY OCCUPANCY SWITCH, THE DDC SHALL PLACE ALL UNITS INTO OCCUPIED MODE FOR 4-HOURS.

HP_ SHALL BE PLACED INTO OCCUPIED MODE IF THE ASSOCIATED ZONE RELATIVE HUMIDITY SENSOR EXCEEDS SETPOINT.

IF COMMUNICATION IS LOST BETWEEN THE DDC AND THE UNIT CONTROLLER, THE UNIT SHALL BE PLACED IN OCCUPIED MODE UNTIL COMMUNICATION IS RESTORED.

TEMPERATURE CONTROL
UPON A CALL FOR HEATING OR COOLING, THE UNIT SHALL OPEN THE MOTORIZED 2-WAY CONTROL VALVE AND CYCLE THE UNIT FAN AND COMPRESSOR TO MAINTAIN SETPOINT.

THE UNIT SHALL AUTOMATICALLY CHANGEOVER FROM HEATING TO COOLING. REFER TO THE TEMPERATURE SETPOINT SCHEDULE.

HP_ FANS SHALL RUN CONTINUOUSLY WHEN IN OCCUPIED MODE.

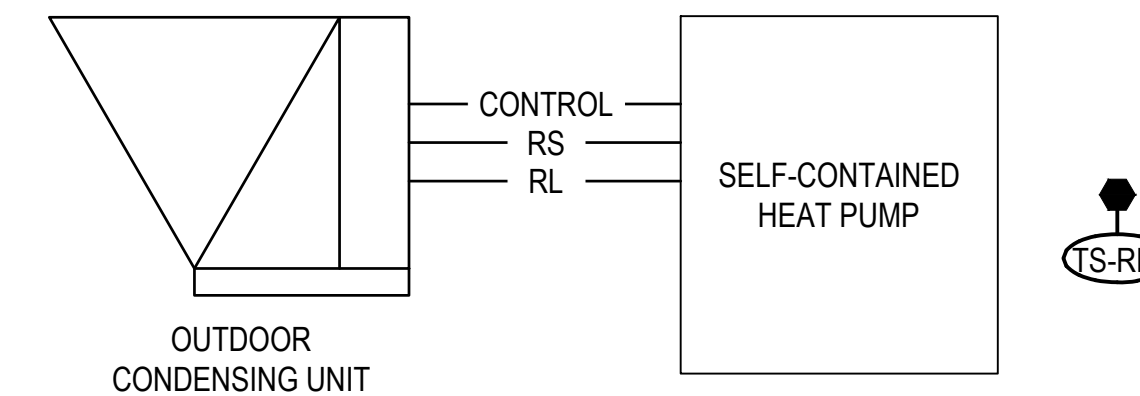
SEQUENCE OF OPERATION

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS				TRENDING		
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY
					LOW	HIGH	LOW	HIGH		
WSHP-X	WSHP-X, EACH	X								
	SUPPLY FAN START/STOP							COV	COV	
	COMPRESSOR #1 (STAGE #1)							COV	COV	
	COMPRESSOR #2 (STAGE #2)							COV	COV	
	REVERSING VALVE							COV	COV	
TS-1	SUPPLY AIR TEMPERATURE		AI					5min	15min	
TS-RM	ROOM TEMPERATURE		AI		50°F	95°F	45°F	100°F	15min	15min
V-1	WSHP COIL CONTROL VALVE		AI	X				5min	15min	

1 ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.

CONTROLS WATER SOURCE HEAT PUMP

NO SCALE



GENERAL
THE UNIT SHALL RUN CONTINUOUSLY ON ITS OWN CONTROLS TO MAINTAIN SETPOINT, 78°F (ADJUSTABLE).

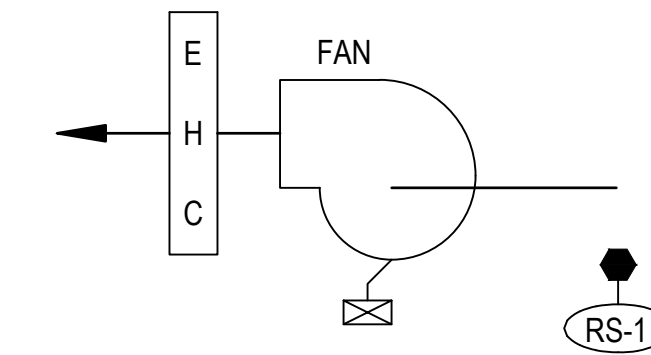
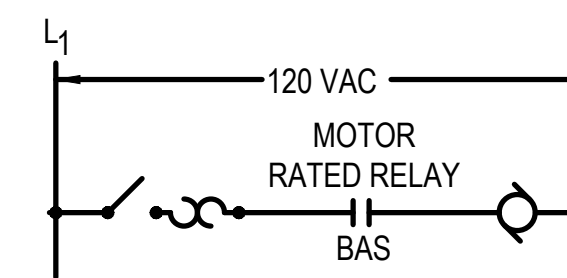
SEQUENCE OF OPERATION

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS				TRENDING		
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY
					LOW	HIGH	LOW	HIGH		
TS-RM	ROOM TEMPERATURE		AI		50°F	95°F	45°F	100°F	15min	15min

1 ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.

CONTROLS SPLIT SYSTEM HEAT PUMP

NO SCALE



WIRING DIAGRAM

FLOW DIAGRAM

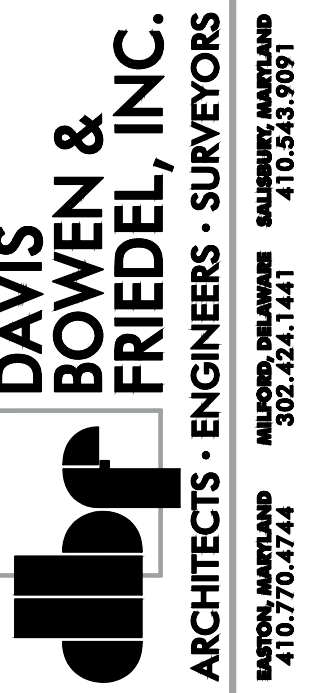
GENERAL
ON A FALL IN SPACE TEMPERATURE BELOW SETPOINT (INITIAL 55°F), THE FAN SHALL START AND THE ELECTRIC HEATING COIL SHALL MODULATE TO MAINTAIN TEMPERATURE. ON A RISE IN TEMPERATURE TO 60°F, THE REVERSE SHALL OCCUR.

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS				TRENDING		
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY
					LOW	HIGH	LOW	HIGH		
FAN	FAN START/STOP		BO	X					COV	COV
RS-1	ROOM TEMPERATURE		AI		50°F	95°F	45°F	100°F	15min	15min

1 ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.

CONTROLS ELECTRIC UNIT HEATERS

NO SCALE



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: XXX
Proj No.: 0586B053.A01

CONTROLS - DIAGRAMS

Dwg No.:

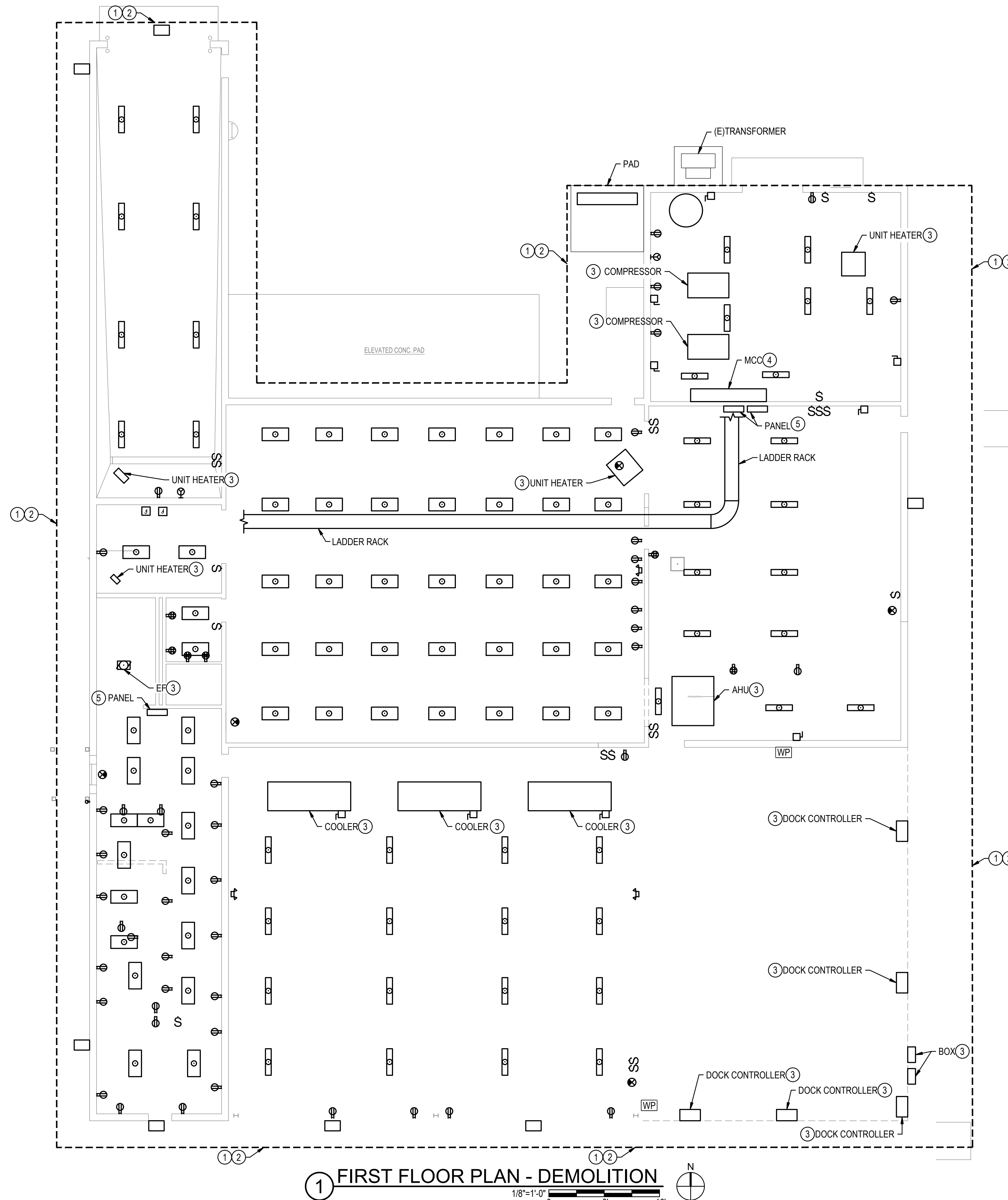
M-705

GENERAL NOTES

- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G2. DEMOLITION DEFINITION: DISCONNECTION AND REMOVAL OF ASSOCIATED CONDUCTORS SHALL CONSIST OF THE REMOVAL OF THE CONDUCTORS BACK TO THE NEXT EXISTING DEVICE TO REMAIN. NEW CONDUIT AND CONDUCTORS SHALL BE PROVIDED TO RECONNECT ANY EXISTING TO REMAIN DEVICES INTERRUPTED BY THE DEMOLITION UNDER THIS PROJECT.

NOTES

1. DISCONNECT AND REMOVE ALL LUMINAIRES, SWITCHES, AND CONTROLS IN THIS AREA. REMOVE ALL ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE PANEL.
2. DISCONNECT AND REMOVE ALL RECEPTACLES LOCATED IN ROOM/AREA. REMOVE ALL ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE.
3. DISCONNECT AND REMOVE MOTOR/EQUIPMENT. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS AND CONDUIT BACK TO SOURCE.
4. DISCONNECT AND REMOVE MOTOR CONTROL CENTER COMPLETE. REMOVE ALL ASSOCIATED CONDUIT AND CONDUCTORS.
5. DISCONNECT AND REMOVE PANELBOARD. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS AND CONDUIT BACK TO SOURCE.



1 FIRST FLOOR PLAN - DEMOLITION



DAVIS BOWEN & FRIEDEL, INC.
 ARCHITECTS · ENGINEERS · SURVEYORS
 BALTIMORE, MARYLAND
 410.770.7449

HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: ATR
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN - DEMOLITION

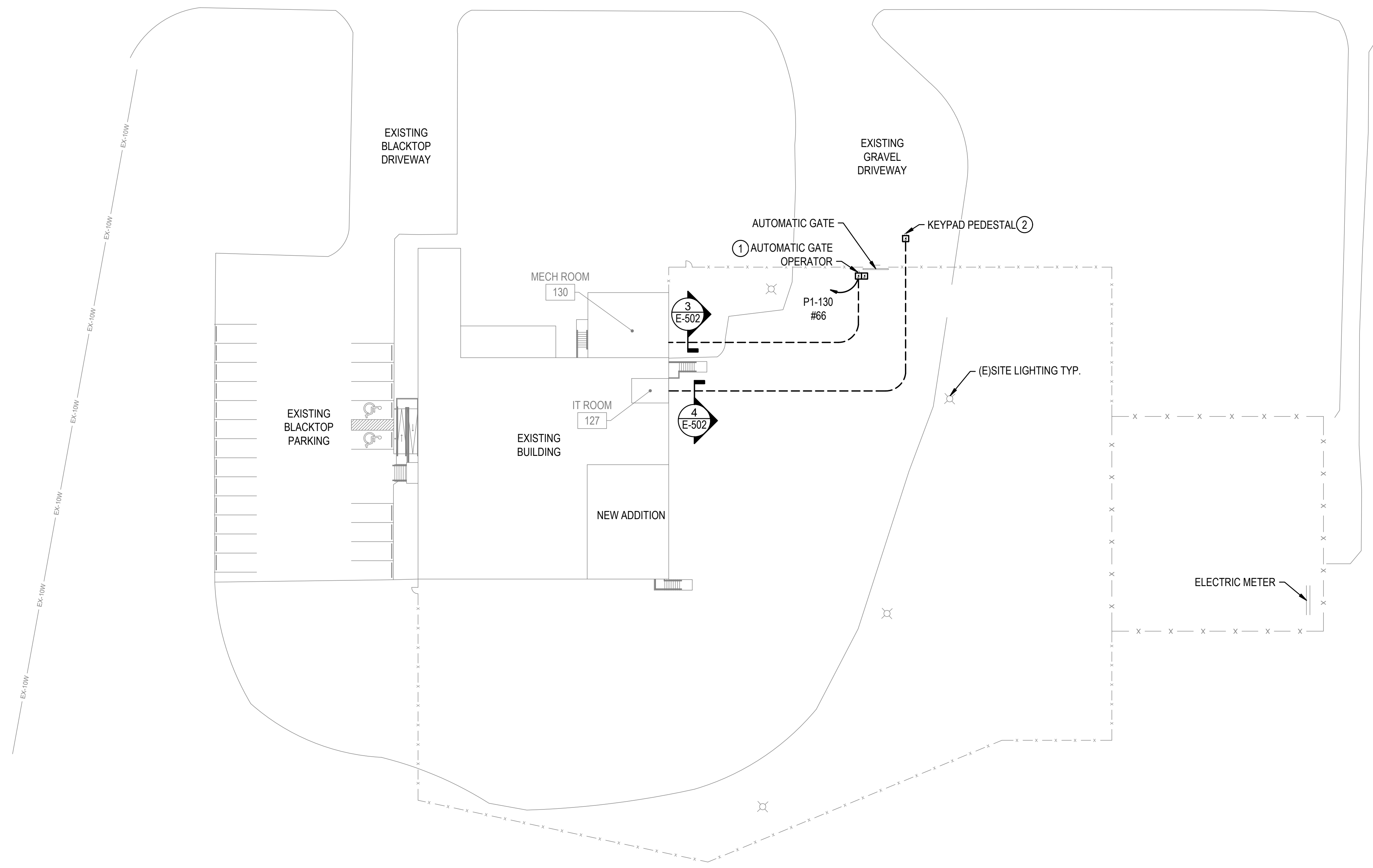
Dwg No.: **ED101**

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

1. **ALTERNATE 5**
 PROVIDE 120V, 20A CONNECTION TO FUTURE ELECTRONIC GATE. PROVIDE TWO (2) 1" DIRECT-BURIED PVC CONDUITS FROM MECHANICAL ROOM TO GATE LOCATION FOR POWER AND SECURITY REQUIREMENTS. FIELD ROUTE CONDUITS AT 36" BELOW GRADE (MINIMUM). PROVIDE TWO (2) ADJACENT SOLID BOTTOM TIER-8 RATED 12"x12" PULLBOXES TO TERMINATE CONDUITS AND WIRE. CONTRACTOR SHALL CAP AND STUB-UP CONDUITS TO 6" ABOVE GRADE.
2. **ALTERNATE 5**
 PROVIDE ONE (1) DIRECT-BURIED 1" PVC CONDUIT FOR LOW VOLTAGE WIRING FROM I.T. ROOM TO LOCATION OF KEYPAD PEDESTAL. FIELD ROUTE CONDUIT AT MINIMUM DEPTH OF 36" BELOW GRADE. PROVIDE SOLID BOTTOM TIER-8 RATED 12"x12" PULLBOX TO TERMINATE CONDUIT AND WIRE. CONTRACTOR SHALL CAP AND STUB-UP CONDUITS TO 6" ABOVE GRADE.



1 SITE PLAN
 1/32" = 1'-0"
 0 32' 64'

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 ARCHITECTS • ENGINEERS • SURVEYORS
 BALTIMORE, MARYLAND
 410.770.7744

HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: ATR
 Proj No.: 0586B053.A01

SITE PLAN
 Dwg No.: **ES101**

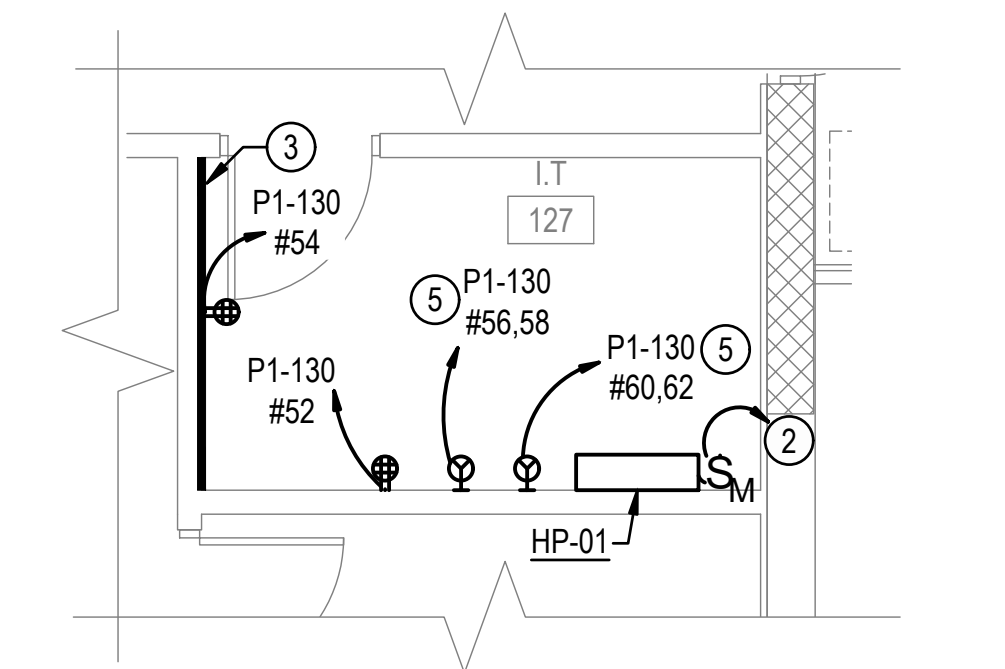
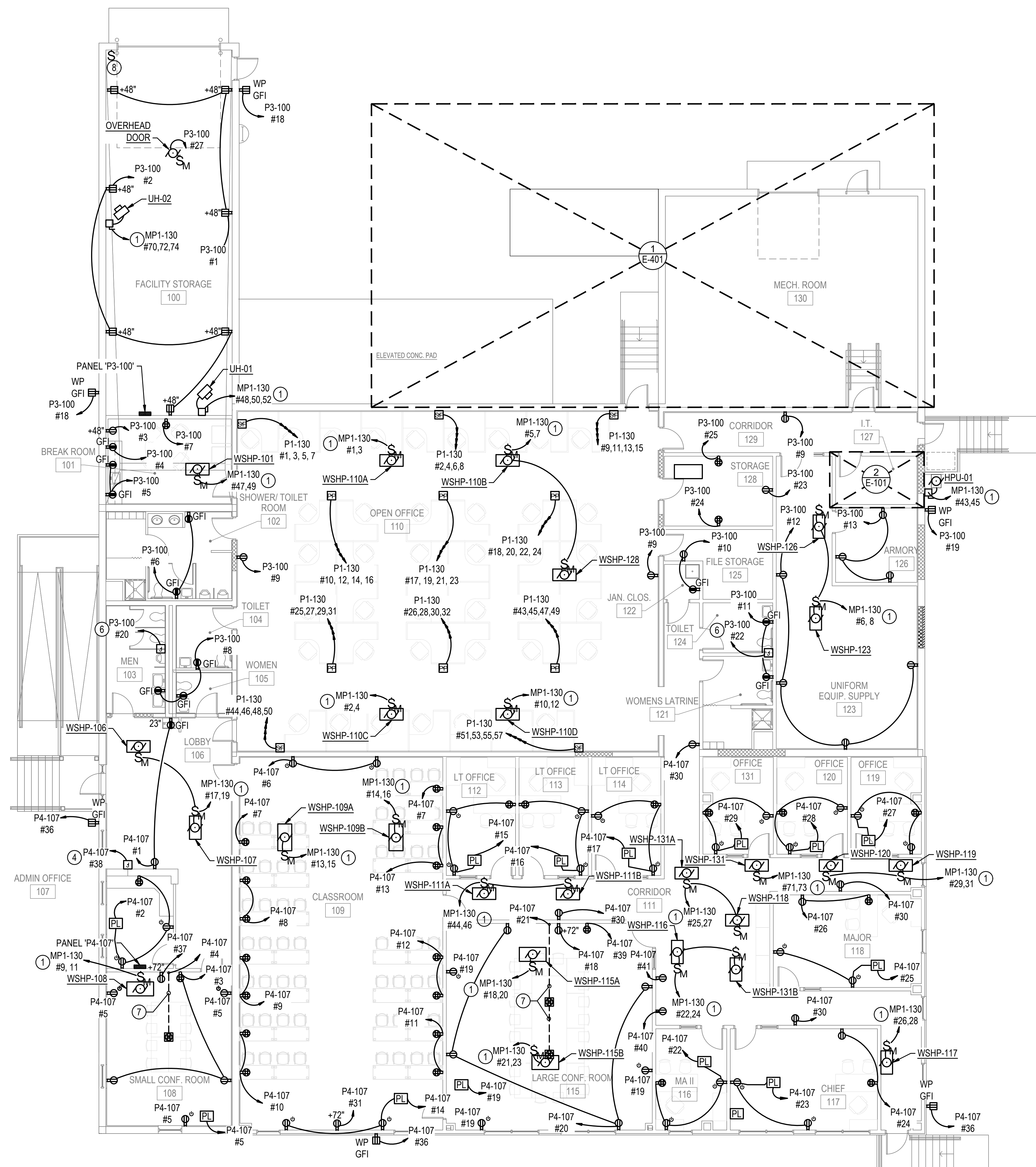
FILE NAME: 2016.18_ES101.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:17:39 PM

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
- 2. PROVIDE POWER TO INDOOR SPLIT SYSTEM UNIT FROM SINGLE-POINT CONNECTION AT CORRESPONDING HEAT PUMP UNIT LOCATED OUTSIDE. REFER TO DETAIL 3/E-502.
- 3. PROVIDE 8'X4'X3/4" PLYWOOD BACKBOARD FOR TELECOMMUNICATIONS EQUIPMENT.
- 4. PROVIDE HARD-WIRED CONNECTION TO FIRE ALARM CONTROL UNIT.
- 5. PROVIDE 30 AMPERE, 250 VOLT GROUNDING TYPE, TWIST-LOCK, NEMA L6-30R RECEPTACLE. COORDINATE FINAL LOCATION WITH DATA RACK LAYOUT.
- 6. PROVIDE 120V, 20A CIRCUIT FOR AUTOMATIC FLUSH VALVES. MAKE ALL FINAL CONNECTIONS TO 120V-24V FLUSH VALVE TRANSFORMER. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- 7. SAWCUT EXISTING CONCRETE SLAB TO ROUTE AND CONCEAL RACEWAY.
- 8. CONTROLLER FURNISHED WITH MOTORIZED OVERHEAD DOOR. MAKE ALL FINAL CONNECTIONS BETWEEN MOTOR AND CONTROLLER. MUST BE LOCATED WITHIN 5' OF DOOR.



1 FIRST FLOOR PLAN - POWER
 1/8"=1'-0"
 0 8' 16'

2 I.T. CLOSET 127 - POWER
 1/2"=1'-0"
 0 2' 4'

DAVIS BOWEN & FRIEDEL, INC.
 ARCHITECTS - ENGINEERS - SURVEYORS
 BALTIMORE, MARYLAND
 302.251.1441
 410.343.9911

HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date:	JULY 16, 2024
Scale:	AS NOTED
Dwn. By:	ATR
Proj. No.:	0586B053.A01

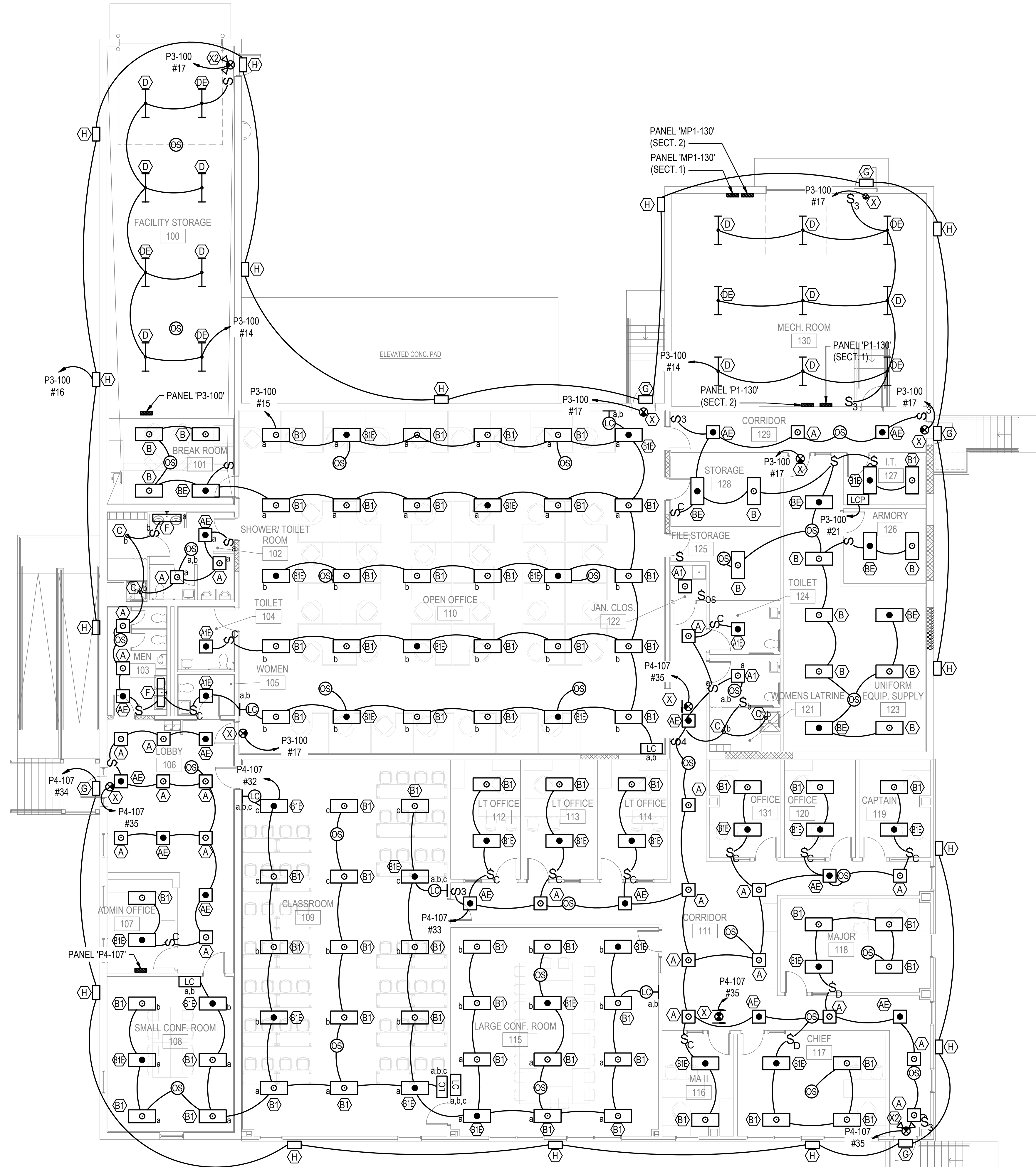
FIRST FLOOR PLAN - POWER

Dwg. No.:
E-101

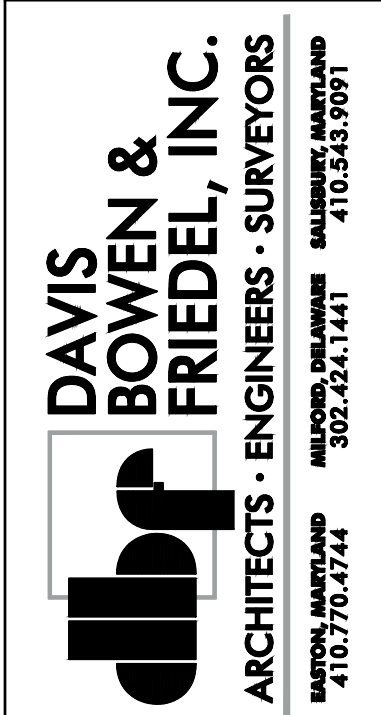
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 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:17:53 PM

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "E".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION



1 FIRST FLOOR PLAN - LIGHTING
 1/8"=1'-0"
 0 8' 16'



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn. By: ATR
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN - LIGHTING

Dwg No.: **E-102**

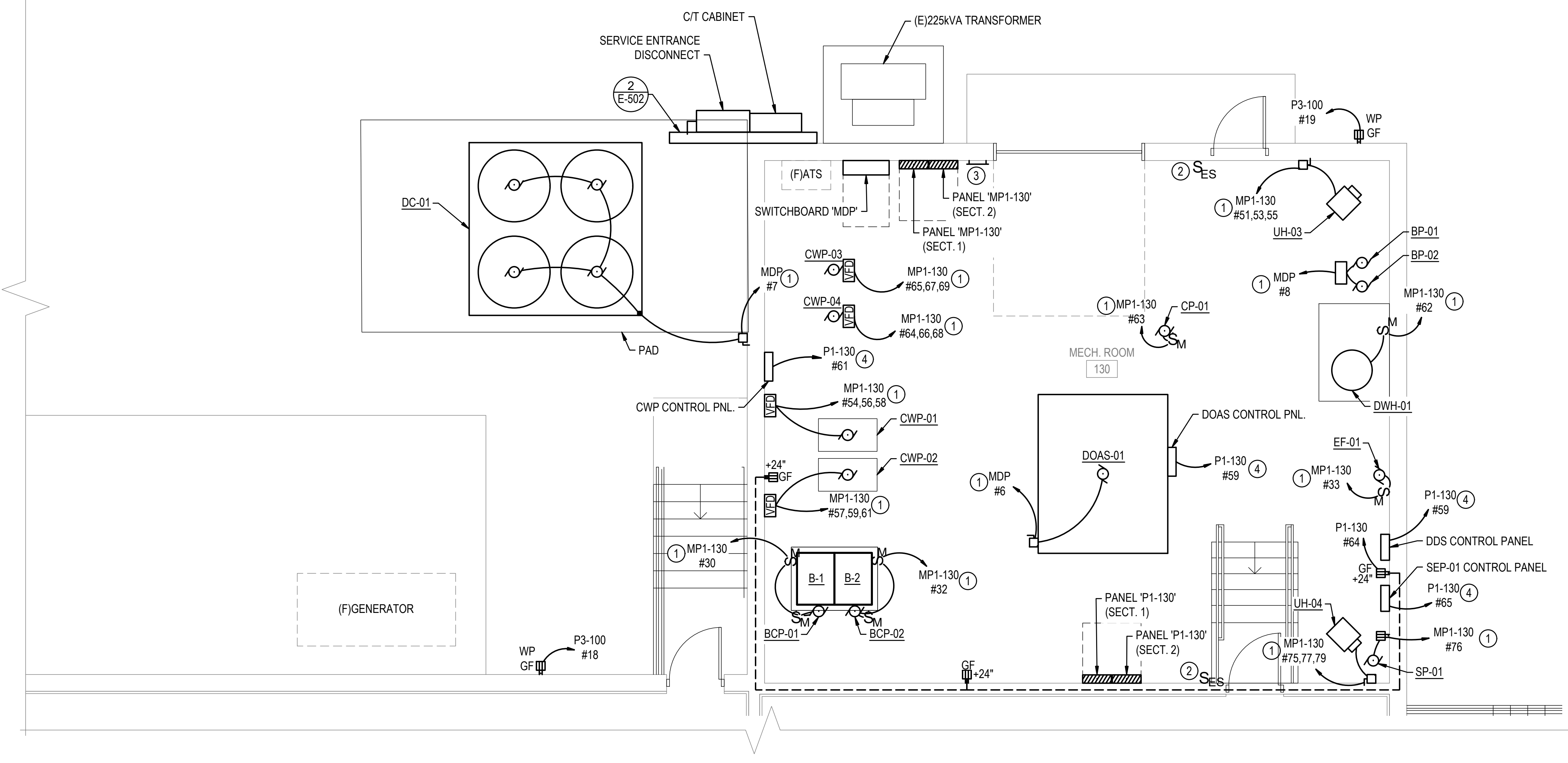
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 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:18:09 PM

GENERAL NOTES

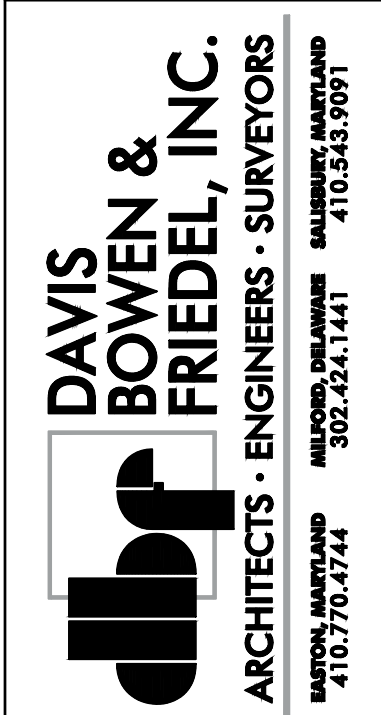
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

NOTES

- 1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
- 2. MAKE ALL FINAL CONNECTIONS BETWEEN SAFETY SWITCH, BOILER CONTROL PANEL, AND EMERGENCY SHUT-OFF SWITCH.
- 3. PROVIDE 12"x4" COPPER GROUND BUS BAR WITH NEMA-STANDARD, PRE-DRILLED HOLES. MOUNT TO WALL WITH STANDOFF ISOLATORS. BOND TO BUILDING STEEL WITH #2 AWG COPPER CONDUCTOR.
- 4. PROVIDE HARD-WIRED CONNECTION TO CONTROL PANELS.



ENLARGED PLAN MECHANICAL ROOM
 1 E-101 1/4"=1'-0" 0 4 8



HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
01/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: ATR
 Proj No.: 0586B053.A01

ENLARGED PLAN - MECHANICAL ROOM

Dwg No.: **E-401**

FILE NAME: 2016.18_E-401.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:18:20 PM

GENERAL NOTES

- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION

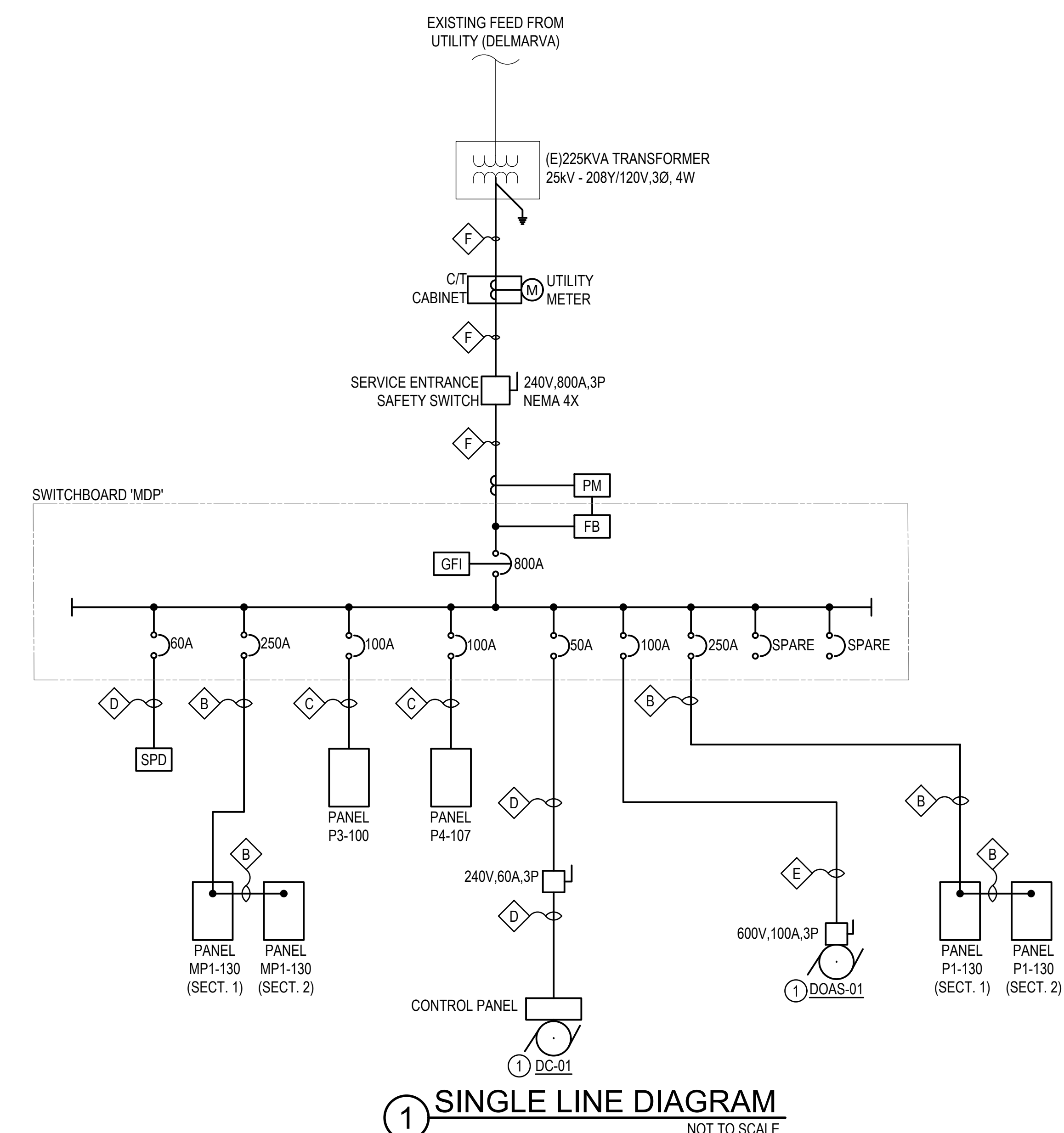
NOTES

- 1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.

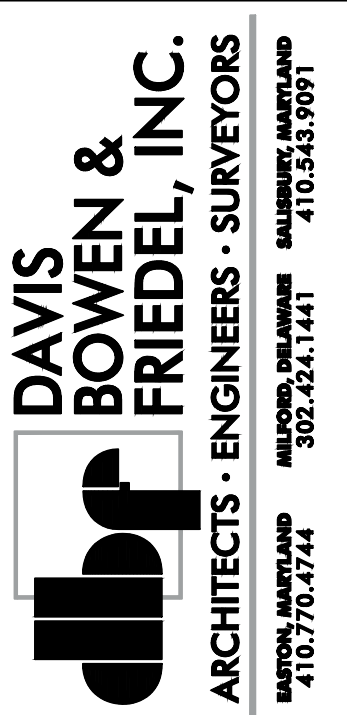
FEEDER SCHEDULE									
TAG	CONDUCTORS						CONDUIT(S)		REMARKS
	RATING	SET(S)	QUANTITY	SIZE	TYPE	GROUND	SIZE	TYPE	
A	285A	3	4	#300 KCMIL	THWN/THHN	#1/0	4"	EMT	
B	255A	1	4	#250 KCMIL	THWN/THHN	#4	2-1/2"	EMT	
C	115A	1	4	#2 AWG	THWN/THHN	#8	1-1/4"	EMT	
D	50A	1	3	#8 AWG	THWN/THHN	#10	3/4"	RGS	
E	115A	1	3	#2 AWG	THWN/THHN	#8	1-1/4"	EMT	
F	800A	2	4	#600 KCMIL	THWN/THHN	#1/0	4"	PVC	

MOTOR AND EQUIPMENT SCHEDULE															
EQUIPMENT NAME	HP	KW	RATED VOLT.	PHASE	FLA	MOTOR CONTROLLER ²		FEEDER			LOCAL SWITCH			REMARKS	
						TYPE	LOCAL CONTROL	WIRE NO.	WIRE SIZE	GRD.	CONDUIT	TYPE ¹	FRAME SIZE		POLES
B-01	-	-	115	1Ø	7	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
B-02	-	-	115	1Ø	7	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
BP-01.02	(2)5	-	200	3Ø	39.6	VFD		3	#8	#10	3/4"	INT	-	3	
BCP-01	-	-	115	1Ø	4	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
BCP-02	-	-	115	1Ø	4	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
DC-01	(4)3.3	-	200	3Ø	44	SEE MECHANICAL		3	#8	#10	3/4"	NFSS	60A	3	
CP-01	-	-	115	1Ø	1.5	SEE MECHANICAL		3	#12	#12	3/4"	MRT	-	1	
CWP-01	5	-	200	3Ø	17.5	VFD		3	#10	#10	3/4"	INT	-	3	
CWP-02	5	-	200	3Ø	17.5	VFD		3	#10	#10	3/4"	INT	-	3	
CWP-03	1.5	-	200	3Ø	6.9	VFD		3	#12	#12	3/4"	INT	-	3	
CWP-04	1.5	-	200	3Ø	6.9	VFD		3	#12	#12	3/4"	INT	-	3	
DOAS-01	-	-	208	3Ø	96	SEE MECHANICAL		3	#1	#6	1-1/2"	NFSS	-	3	
DWH-01	-	-	115	1Ø	3.1	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
EF-01	1/4	-	115	1Ø	5.8	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	1	
HP-01/HPU-01	-	-	208	1Ø	12.4	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
SEP-01	-	-	200	3Ø	5.3	SEE MECHANICAL		3	#12	#12	3/4"	NFSS	30A	3	
UH-01	-	7.5	208	3Ø	20.8	SEE MECHANICAL		3	#10	#10	3/4"	NFSS	30A	3	
UH-02	-	7.5	208	3Ø	20.8	SEE MECHANICAL		3	#10	#10	3/4"	NFSS	30A	3	
UH-03	-	7.5	208	3Ø	20.8	SEE MECHANICAL		3	#10	#10	3/4"	NFSS	30A	3	
UH-04	-	7.5	208	3Ø	20.8	SEE MECHANICAL		3	#10	#10	3/4"	NFSS	30A	3	
WSHP-101	-	-	208	1Ø	8.6	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-106	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-107	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-108	-	-	208	1Ø	16.2	SEE MECHANICAL		2	#10	#10	3/4"	MRT	-	2	
WSHP-109A	-	-	208	1Ø	14.9	SEE MECHANICAL		2	#10	#10	3/4"	MRT	-	2	
WSHP-109B	-	-	208	1Ø	14.9	SEE MECHANICAL		2	#10	#10	3/4"	MRT	-	2	
WSHP-110A	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-110B	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-110C	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-110D	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-111A	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-111B	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-115A	-	-	208	1Ø	10.5	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-115B	-	-	208	1Ø	10.5	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-116	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-117	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-118	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-119	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-120	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-123	-	-	208	1Ø	7.0	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-126	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-128	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-131	-	-	208	1Ø		SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-131A	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	
WSHP-131B	-	-	208	1Ø	3.9	SEE MECHANICAL		2	#12	#12	3/4"	MRT	-	2	

- NOTES:
- ¹ CMB - COMBINATION MOTOR STARTER/DISCONNECT
 - INT - INTEGRAL WITH MOTOR CONTROLLER
 - MRT - MOTOR-RATED TOGGLE SWITCH
 - NFSS - NON-FUSED SAFETY SWITCH
 - VFD - VARIABLE FREQUENCY DRIVE
 - ² SEE MECHANICAL DRAWINGS FOR AUXILIARY CONTACT REQUIREMENTS.



1 SINGLE LINE DIAGRAM
NOT TO SCALE



HI-GRADE BUILDING RENOVATIONS
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HARRINGTON, DE 19952

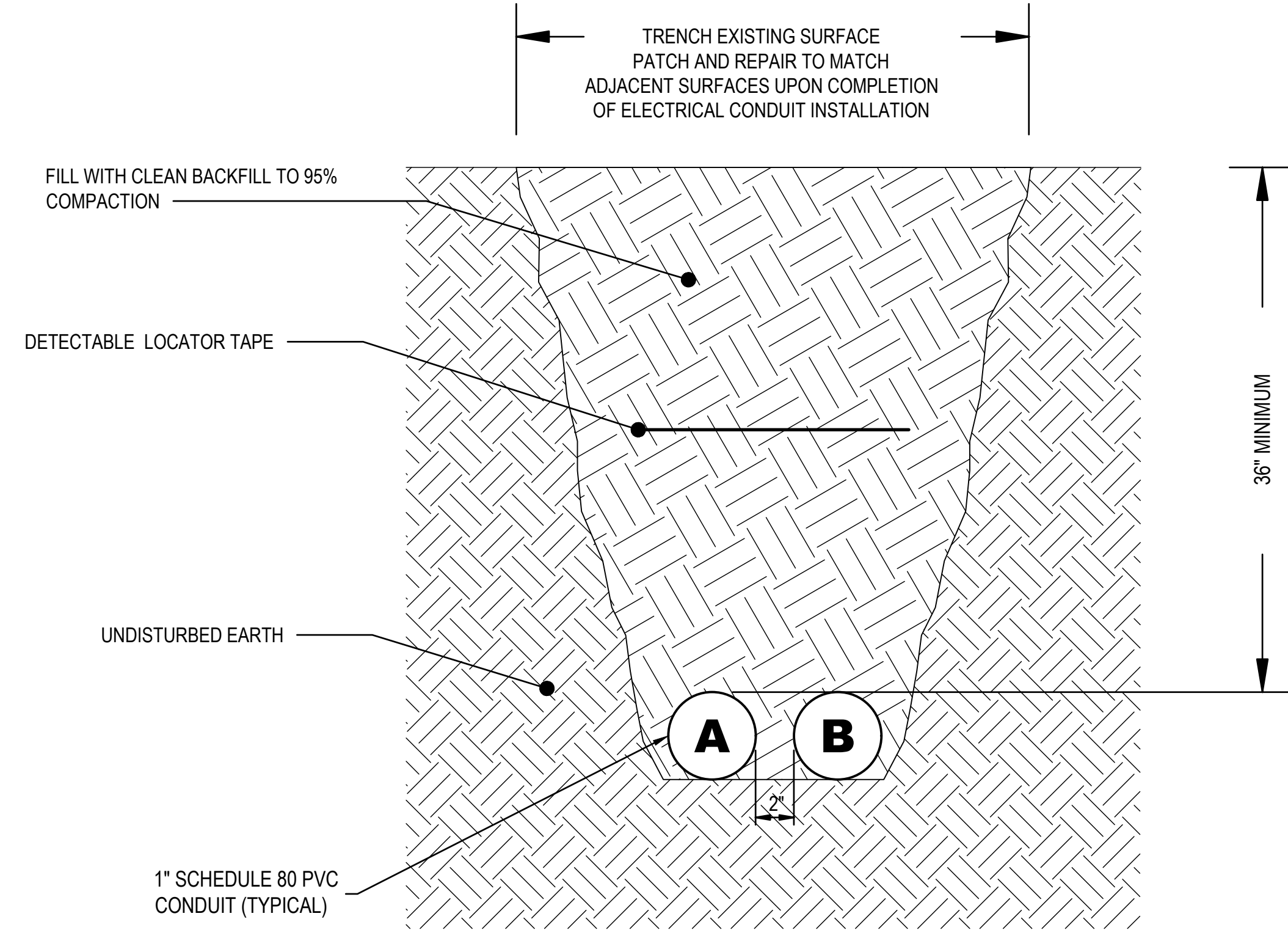
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01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/19/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: ATR
Proj No.: 0586B053.A01

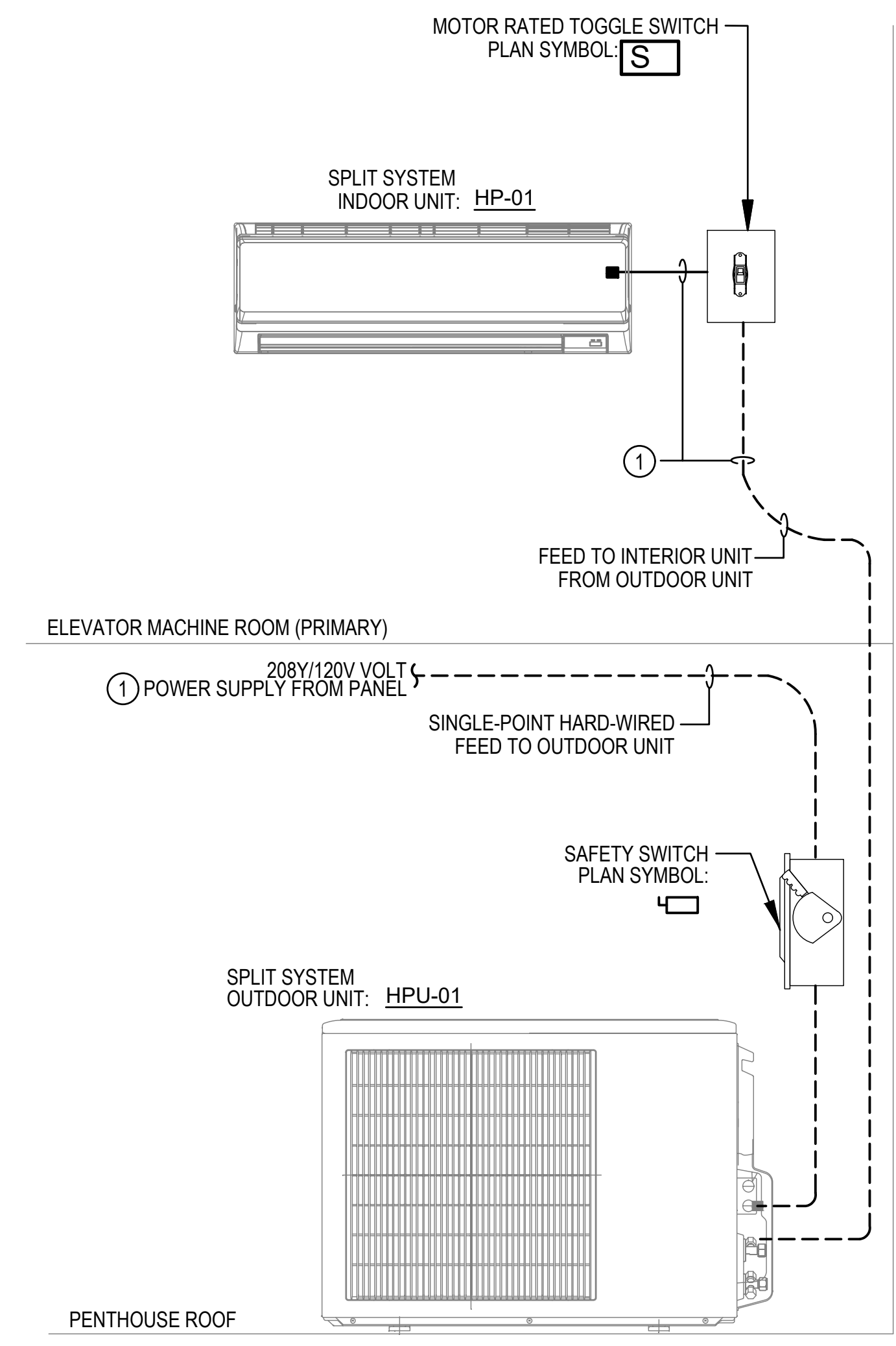
SINGLE LINE DIAGRAM

Dwg No.: **E-501**

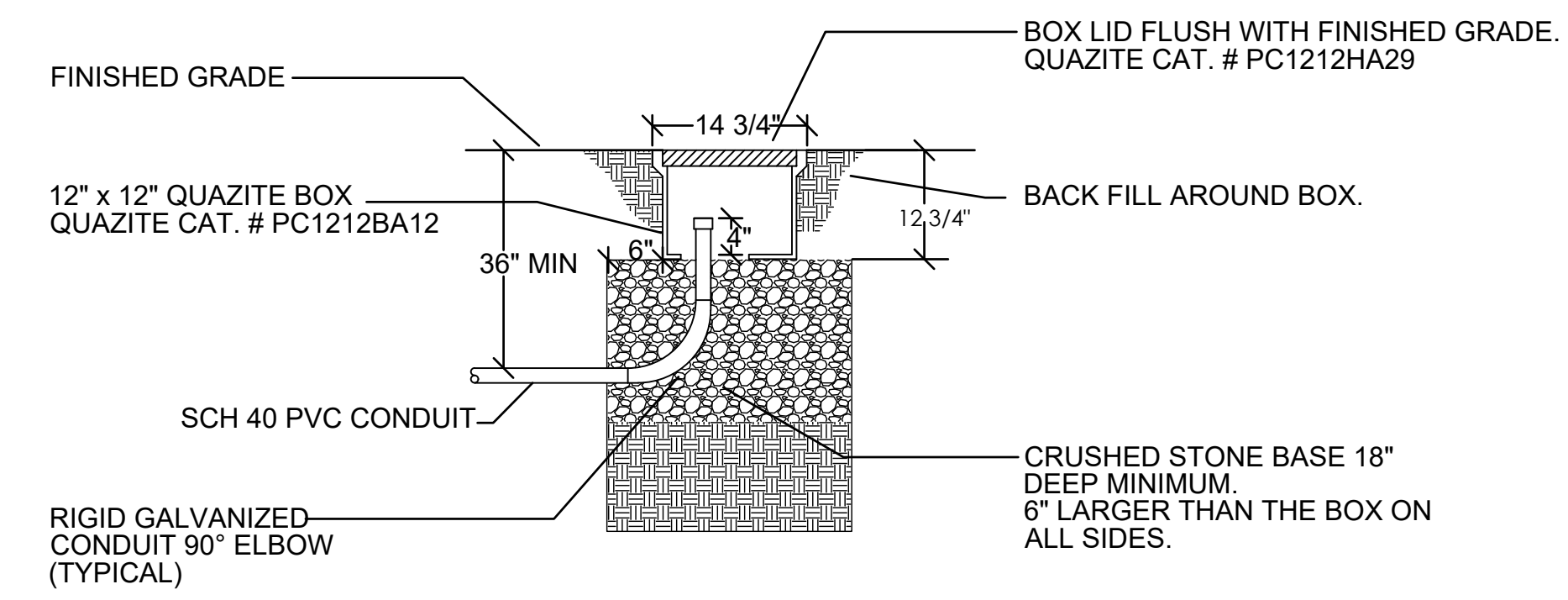
DUCTBANK CONDUIT SCHEDULE				
LETTER	DESIGNATION	SIZE	CLASSIFICATION	DESCRIPTION
(A)	ACTIVE	1"	POWER	GATE POWER FEED
(B)	ACTIVE	1"	SECURITY	SECURITY FEED



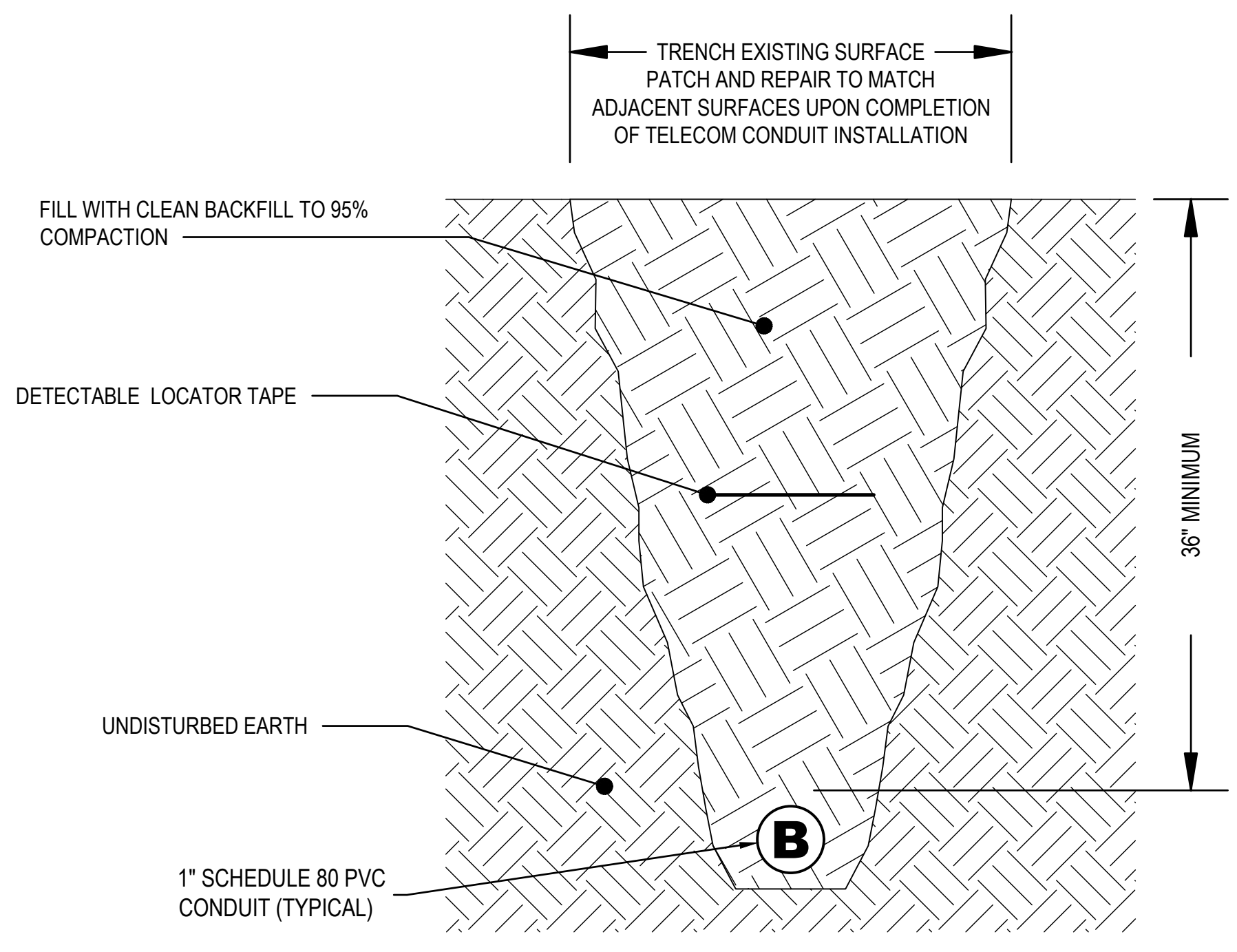
3 **DETAIL DIRECT BURIED PVC CONDUIT**
ES101 NOT TO SCALE



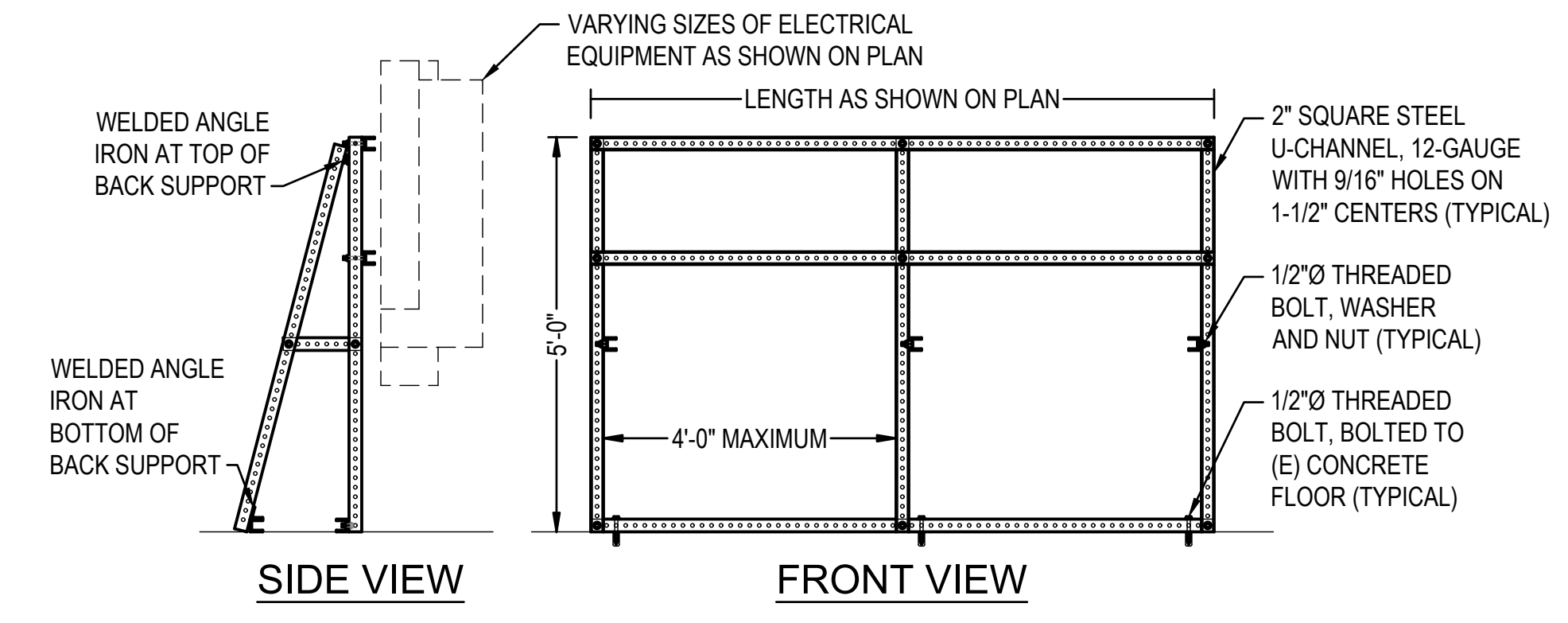
1 **DETAIL - SPLIT-SYSTEM WIRING METHOD**
E-101 NOT TO SCALE



5 **DETAIL HANDHOLE (STUB-UP)**
ES101 NOT TO SCALE



4 **DETAIL DIRECT BURIED PVC CONDUIT**
ES101 NOT TO SCALE



2 **ELEVATION - FREE-STANDING EQUIPMENT SUPPORT RACK**
E-401 NOT TO SCALE

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS
BALTIMORE, MARYLAND 410.770.7744
HARRINGTON, DE 410.343.9911

HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: ATR
Proj No.: 0586B053.A01

DETAILS
Dwg No.: **E-502**

FILE NAME: 2016.18_E-502.DWG
OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:18:36 PM

LIGHTING CONTROL SEQUENCE OF OPERATIONS - HIGH-GRADE RENOVATION PROJECT

TYPICAL ROOM TYPE	CONTROL TYPE	PLUG LOAD CONTORL	SWITCH	STAND-ALONE/CENTRAL	NOTES
MAIN LOBBY AND NON-PUBLIC CORRIDORS	OCCUPANCY	NO	3-BUTTON (WITH RAISE/LOWER)	STAND-ALONE	THESE AREAS SHALL BE PART OF THE LV CONTROL SYSTEM VIA CEILING OR WALL MOUNTED OCCUPANCY OR VACANCY SENSOR. SOME OF THESE DEVICES MAY ALSO BE REQUIRED TO BE A 3-WAY SWITCH IF "3" IS SHOWN NEXT TO SWITCH.
OPEN OFFICES	OCCUPANCY	NO	TOUCHPAD (WITH RAISE/LOWER) & SCENE SELECTOR SWITCH	STAND-ALONE	LIGHTING SHALL BE PART OF THE LV CONTROL SYSTEM VIA CEILING MOUNTED OCCUPANCY OR VACANCY SENSOR.
SMALL OFFICES	OCCUPANCY	YES	COMBINATION OC SENSOR (WITH DIMMING)	STAND-ALONE	THESE ROOMS SHALL BE PART OF THE LV CONTROL SYSTEM VIA SWITCH MOUNTED OCCUPANCY SENSOR. SOME OF THESE DEVICES MAY ALSO BE REQUIRED TO INCLUDE DIMMING SENSORS IF "C" IS SHOWN NEXT TO SWITCH.
LARGE OFFICES	OCCUPANCY	YES	COMBINATION OC SENSOR (WITH DIMMING)	STAND-ALONE	THESE ROOMS SHALL BE PART OF THE LV CONTROL SYSTEM VIA CEILING MOUNTED OCCUPANCY SENSOR. SOME OF THESE DEVICES MAY ALSO BE REQUIRED TO INCLUDE DIMMING SENSORS IF "C" IS SHOWN NEXT TO SWITCH.
LARGE MEETING ROOMS	OCCUPANCY	YES	TOUCHPAD (WITH RAISE/LOWER) & SCENE SELECTOR SWITCH	STAND-ALONE	LIGHTING SHALL BE PART OF THE LV CONTROL SYSTEM VIA CEILING MOUNTED OCCUPANCY SENSOR.
RESTROOMS	OCCUPANCY	NO	OCCUPANCY DMMING KEYPAD	STAND-ALONE	THESE ROOMS SHALL BE PART OF THE LV CONTROL SYSTEM VIA CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR(S). OCCUPANCY SENSOR WILL ACTIVATE UPON ROOM ENTRY. LIGHTING WILL TURN ON AUTOMATICALLY. AFTER TIMEOUT OF OCCUPANCY SENSOR (SET TO 20 MINUTES), LIGHTING WILL TURN OFF.
EXTERIOR LIGHTING	PHOTO CELL	NO	PHOTO CELL	STAND-ALONE	PROVIDE CENTRALIZED RELAY CONTROL FOR ON/OFF CAPABILITY WITH INTEGRAL PHOTOSENSOR OVERRIDE.

GENERAL NOTES:

- A. PROVIDE BARRIERS OR INDIVIDUAL PANELS AS NECESSARY TO SEPARATE VOLTAGES, NORMAL, CRITICAL, AND LIFE SAFETY POWER.
- B. ALL TIMECLOCK SETTING MUST BE CONFIRMED WITH OWNER PRIOR TO ENGAGING FACTORY PROGRAMMING.
- C. SUBMIT SHOP DRAWINGS WITH SCHEDULE, ENGRAVINGS, AND NUMBER OF BUTTONS PER SWITCH.

RELAY SCHEDULE KEYNOTES:

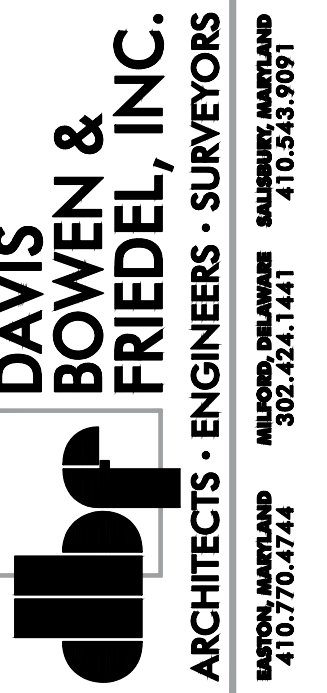
THIS RELAY CONTROL CIRCUIT CONTAINS LIGHTING THAT IS ON A LIFE SAFETY AND/OR CRITICAL POWER CIRCUIT THAT IS WIRED USING AN EPT (UL-924) DEVICE. INTENT IS FOR ALL LIGHTING TO BE SWITCHED TOGETHER WITH NORMAL LIGHTING UNDER NON-EMERGENCY CIRCUMSTANCES. NOTE THAT EMERGENCY CIRCUIT SHALL NOT BE WIRED THRU RELAY CABINET OR DISTRIBUTED DEVICES. RELAY NUMBER IS SHOWN ON PLANS FOR SWITCHING INTENT ONLY. SEE MANUFACTURER'S WIRING DIAGRAMS FOR ADDITIONAL INFORMATION.

LOW VOLTAGE CONTROL OVERRIDE SETTINGS:

- O1. OCCUPANCY SENSOR CONTROL 100% ON WHEN OCCUPIED, 70% OUTPUT WHEN UNOCCUPIED. (7PM-6AM) -BEGIN NIGHTTIME OPERATION -100% ON WHEN OCCUPIED, 40% OUTPUT WHEN UNOCCUPIED.
- O2. OCCUPANCY SENSOR CONTROL ONLY (6AM -7PM) -100% ON WHEN OCCUPIED, 70% OUTPUT WHEN UNOCCUPIED. NIGHTTIME OPERATION (10PM -6AM) -100% ON O2 WHEN OCCUPIED, (OFF) WHEN UNOCCUPIED.
- P0. PHOTOCCELL CONTROL (ON) DUSK / (OFF) DAWN.
- P1. PHOTOCCELL WITH OCCUPANCY OVERRIDE (ON) DUSK / (OFF) DAWN. WHEN OCCUPANCY SENSORS SENSE MOTION, LIGHTING (ON) 100% OUTPUT, AFTER 10 MINUTES OF INACTIVITY, LIGHT OUTPUT SHALL BE 50%. LIGHTING SHALL NOT DIM LOWER THAN 10% OF MAXIMUM ILLUMINANCE. MEASURE ILLUMINANCE WITH ELECTRIC LIGHTING ONLY.

LIGHTING CONTROLS INTENT

1. ROOM CONTROLLERS OR DISTRIBUTED CONTROL DEVICES SHALL BE LOCATED ABOVE THE CEILING AT THE LOCATION OF ROOM WALL SWITCHES. DISTRIBUTED CONTROL PANELS MUST BE LOCATED IN ELECTRICAL OR STORAGE ROOMS AS SHOWN ON PLAN. ALL CONTROLLERS MUST BE LABELED WITH CIRCUIT AND ZONING INFORMATION.
2. LIFE SAFETY LIGHTING SHALL BE SWITCHED WITH NORMAL LIGHTING ON SAME SWITCH LEG OR ZONE VIA USE OF UL924 DEVICE. PROVIDE A MINIMUM OF (1) UL924 DEVICE PER 20A SWITCH-LEG. PROVIDE LVS INC OR EQUAL DEVICE WITH SELF TEST OR VISIBLE SWITCH. DEVICE MODEL SHALL BE COMPATIBLE WITH FIXTURE AND CONTROL TYPE. VERIFY MODEL REQUIRED WITH PLANS. INVERTER BACKED LIGHTING WILL HAVE A 'E' AT THE END OF THE TAG DESIGNATION.
3. EMERGENCY LIGHTING AND EMERGENCY EXIT SIGNAGE SHALL BE INTERFACED TO THE LIGHTING CONTROLS IN SUCH A MANNER THAT PERMITS BOTH TO BE AUTOMATICALLY TURNED OFF ON A SCHEDULED BASIS DURING THE NON-OCCUPANCY PERIODS OF THE DAY. THE CONTROL INTERFACE SHALL CONFORM TO THE REQUIREMENTS OF NFPA 101 RELATING TO THE INTERFACE TO FIRE ALARM PANEL OVERRIDE FEATURE.
4. LIGHTING CONTROLS SHALL BE COMPATIBLE WITH BUILDING AUTOMATION SYSTEM PROTOCOL. BAS CONTROL SHOULD INCLUDE PERMANENT SCHEDULING OVERRIDE.
5. DETAILED DRAWINGS SHALL BE PROVIDED BY THE MANUFACTURER SHOWING RECOMMENDED INSTALLATION LOCATION OF ALL COMPONENTS AND WIRING REQUIRED FOR INSTALLATION INCLUDING ZONE AND CIRCUIT LABELING.
6. AS BUILT DRAWING OF ALL INSTALLED COMPONENTS FOR THE CONTROL SYSTEM SHALL BE COMPLETED AFTER FINAL INSTALLATION AND COMMISSIONING OF SYSTEM SHOWING FINAL INSTALLATION LOCATIONS AND INCLUDED ZONING AND CIRCUIT INFORMATION AS INSTALLED. AS BUILT DOCUMENTATION SHALL ALSO INCLUDE SEQUENCE OF OPERATION THAT DESCRIBES THE PROGRAMMED OPERATION OF THE LIGHTING SYSTEM THROUGHOUT THE ENTIRE BUILDING ON AN AREA BY AREA BASIS.
7. ALTERING/CHANGING OF SCHEDULES BY THE USER/OWNER DURING NORMAL OPERATIONAL HOURS SHALL NOT CAUSE THE SYSTEM TO RESET AND LIGHTS TO BLINK, TURN OFF, OR CYCLE. ALL LIGHTING MUST BE MAINTAINED UNLESS SPECIFICALLY CHANGED TO TURN OFF OR ON.
8. SWITCH LABELING INTENT:
 - 8.1. (*) A SWITCH WITH NO LABEL SHALL BE LOW VOLTAGE ON/OFF SWITCH THAT TIES BACK TO THE LIGHTING CONTROL AND BAS SYSTEM.
 - 8.2. (D) INDICATES A LOW VOLTAGE DIMMING SWITCH THAT TIES BACK TO THE LIGHTING CONTROL AND BAS SYSTEM.
 - 8.3. (R#) INDICATES LOW VOLTAGE RELAY CONTROL WHERE THE NUMBER IS THE CORRESPONDING RELAY.
 - 8.4. (Z#) INDICATES CONTROL ZONES CONNECTED TO AV OR EXTERNAL DIMMING CONTROL SYSTEMS.



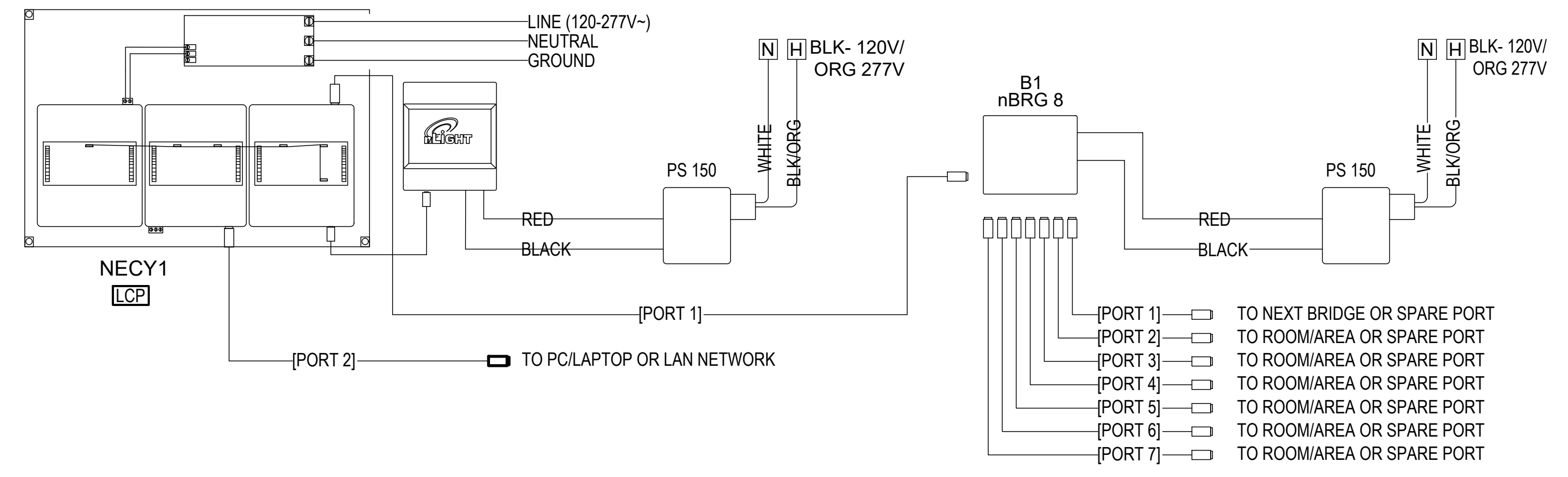
HI-GRADE BUILDING RENOVATIONS
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HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

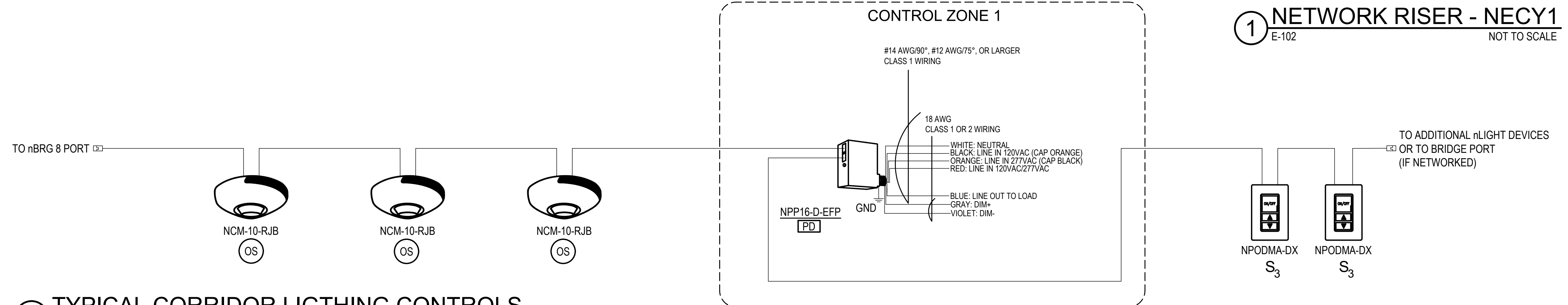
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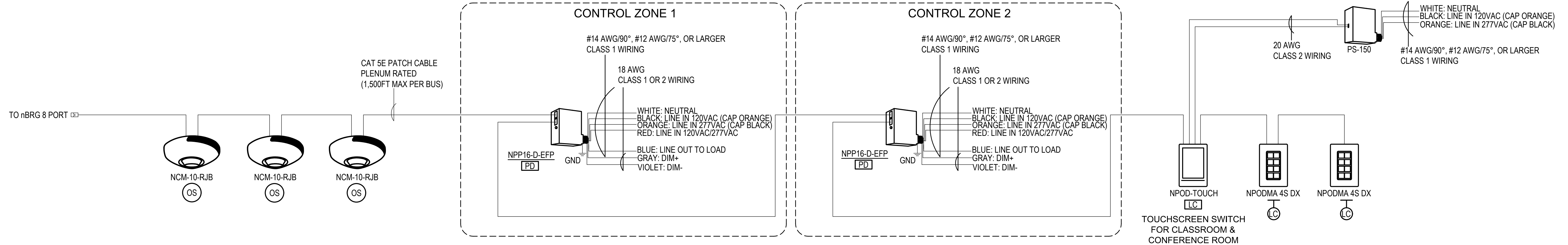
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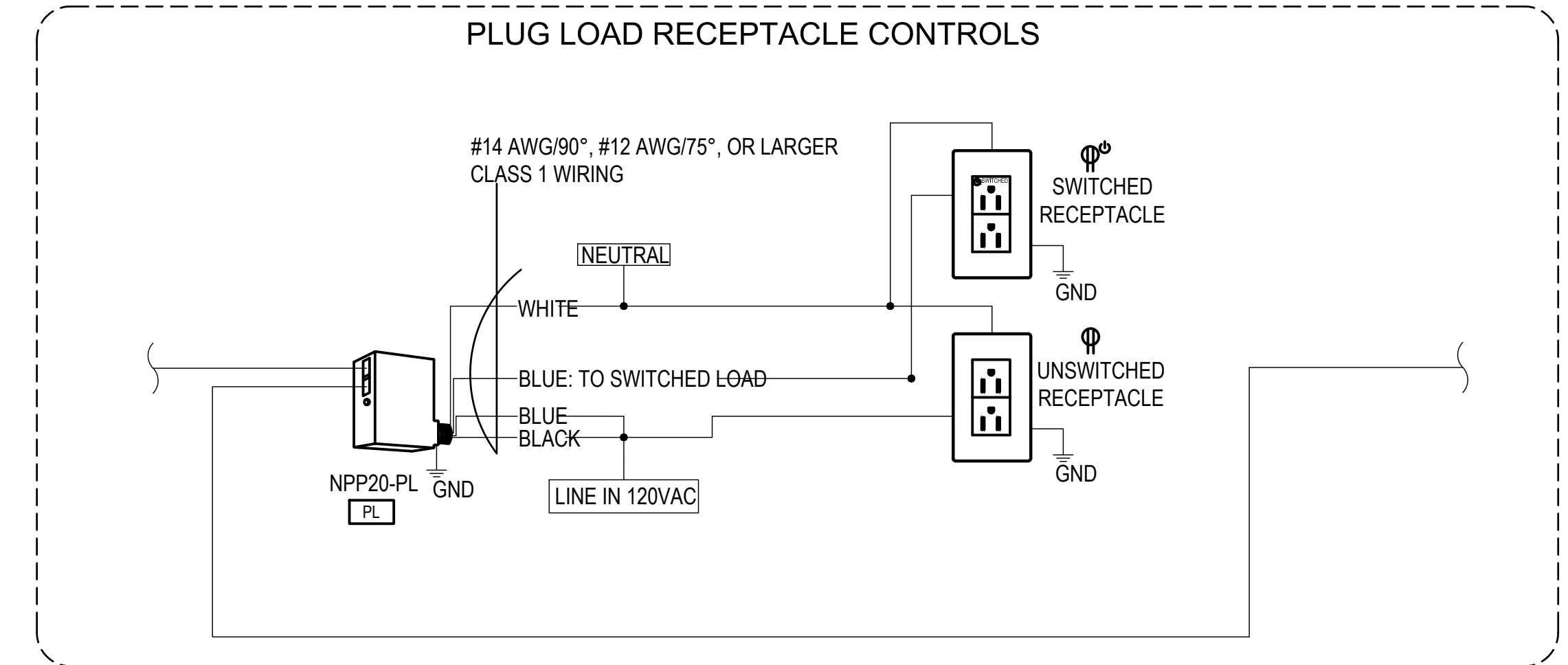
1 NETWORK RISER - NECY1
E-102 NOT TO SCALE



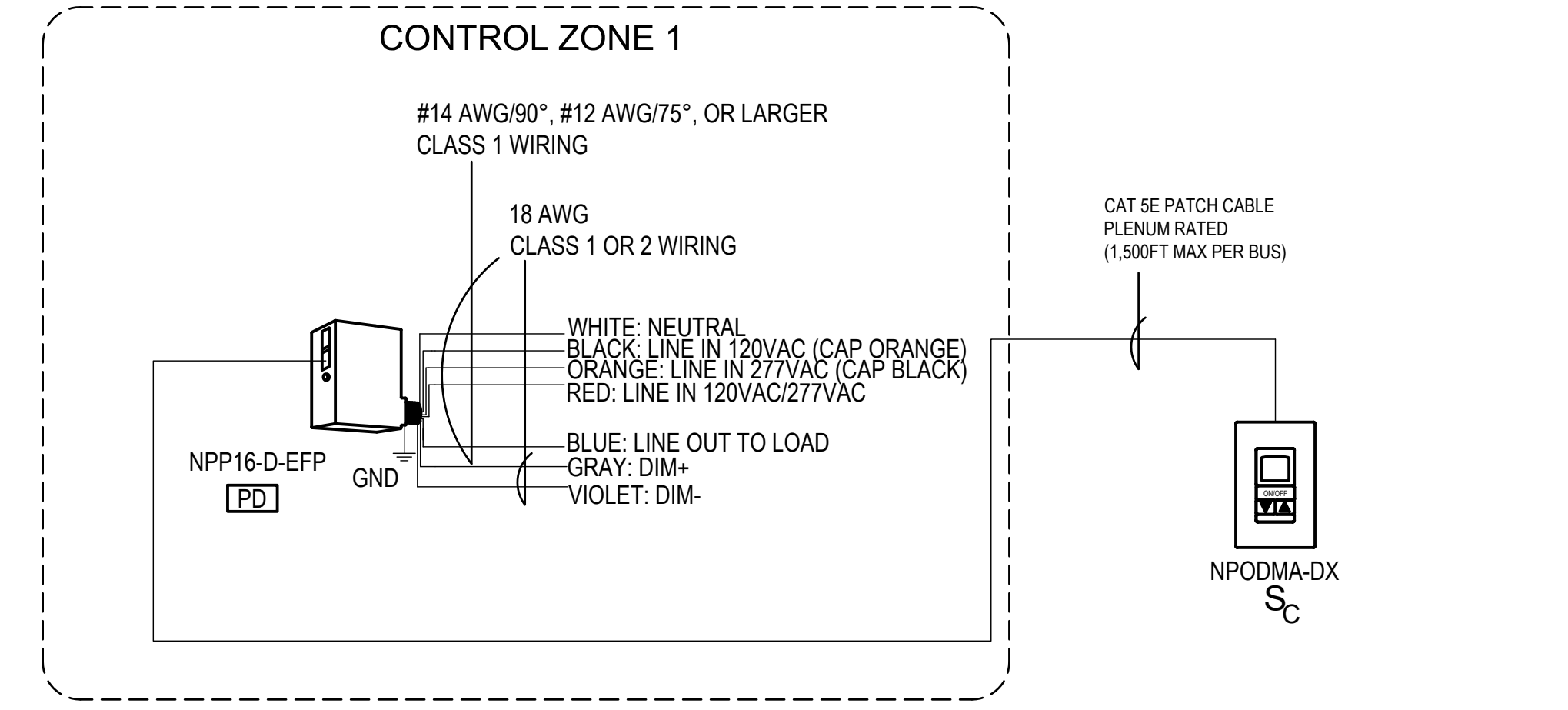
2 TYPICAL CORRIDOR LIGHTING CONTROLS
E-102 NOT TO SCALE



3 TYPICAL MULTIPLE ZONE LIGHTING CONTROLS
E-102 NOT TO SCALE



5 TYPICAL OFFICE RECEPTACLE CONTROLS
E-102 NOT TO SCALE



4 TYPICAL SMALL-OFFICE LIGHTING CONTROLS
E-102 NOT TO SCALE

DATE	COMMENTS
01/10/23	15%/30% DESIGN SUBMISSION
01/11/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date:	JULY 16, 2024
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Dwn.By:	JHS
Proj No.:	0586B053.A01

DETAILS



LUMINAIRE TYPE X2

GENERAL: UNIVERSAL MOUNT, THERMOPLASTIC, COMBINATION EXIT/EMERGENCY LIGHT UNIT WITH DUAL LAMP HEADS, LIGHT EMITTING DIODE (LED) TYPE WITH RED PLASTIC DIFFUSER, U.L. LISTED.

HOUSING: THERMOPLASTIC HOUSING WITH NO VISIBLE HARDWARE, UNIVERSAL MOUNT CANOPY.

FINISH: HOUSING AND CANOPY - WHITE.

BATTERY: NICKEL CADMIUM WITH CONSTANT CURRENT SOLID STATE CHARGER.

LAMPS: RED LIGHT EMITTING DIODES (LED) MAXIMUM ENERGY CONSUMPTION 5W WITH 30 YEAR ESTIMATED LIFE.

BASIS OF DESIGN: LITHONIA LIGHTING ECC-R



LUMINAIRE TYPE G

GENERAL: NORMALLY-OFF WALL MOUNTED LED EMERGENCY EGRESS LUMINAIRE SUITABLE FOR OUTDOOR LOCATIONS.

HOUSING: DIE-CAST ALUMINUM HOUSING FINISHED IN BRONZE.

LENS: UV STABILIZED POLYCARBONATE LENS.

DRIVER: ELECTRONIC DIMMABLE DRIVER; HIGH EFFICIENCY, U.L. LISTED, RATED FOR 120V/277 VOLT OPERATION

LAMPS: LED 1530 LUMENS (MINIMUM), 4000K COLOR TEMPERATURE

BASIS OF DESIGN: LITHONIA LIGHTING AFB OEL DDBTXD UVOLT N WT

MOUNTING HEIGHT: 7'-6" AFF



LUMINAIRE TYPE C

GENERAL: RECESSED LED DOWNLIGHT, 6" APERTURE. SUITABLE FOR WET LOCATIONS.

HOUSING: ALUMINUM DIE CAST WITH HIGH-GLOSS BAKED WHITE ENAMEL FINISH.

LENS: PRESSED-IN DIFFUSE LENS.

DRIVER: ELECTRONIC DIMMABLE DRIVER; HIGH EFFICIENCY, U.L. LISTED, RATED FOR 120V-277 VOLT OPERATION.

LEDS: 2000 LUMEN OUTPUT, 3500K COLOR TEMPERATURE, MINIMUM CRI OF 80, MINIMUM 70% LUMEN MAINTENANCE AT 50,000 HOURS

BASIS OF DESIGN: LITHONIA LIGHTING LDN6-35/20-L06AR-LSS-MVOLT-GZ10



LUMINAIRE TYPE B

GENERAL: RECESSED 2'X4' FLAT-PANEL LED

HOUSING: ALUMINUM FRAME WITH INTEGRAL T-BAR CLIPS.

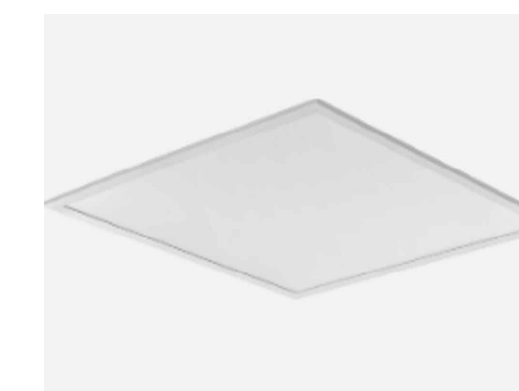
LENS: SATIN-WHITE LENS.

DRIVER: ELECTRONIC DIMMABLE DRIVER; HIGH EFFICIENCY, U.L. LISTED, RATED FOR 120/277 VOLT OPERATION

LAMPS: LED, 4000 LUMENS (MINIMUM)

CCT: 3500K

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X4-AL07-80CRI-SWW7-SWL-MVOLT



LUMINAIRE TYPE A

GENERAL: RECESSED 2'X2' FLAT-PANEL LED.

HOUSING: ALUMINUM FRAME WITH INTEGRAL T-BAR CLIPS.

LENS: SATIN-WHITE LENS.

DRIVER: ELECTRONIC DIMMABLE DRIVER; HIGH EFFICIENCY, U.L. LISTED, RATED FOR 120/277 VOLT OPERATION

LAMPS: LED, 2500 LUMENS (MINIMUM)

CCT: 3500K

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X2-AL07-80CRI-SWW7-SWL-MVOLT



LUMINAIRE TYPE H

GENERAL: WALL MOUNTED LED LUMINAIRE FOR OUTDOOR LOCATIONS WITH WIRE GUARD AND INTEGRAL PHOTOCELL.

HOUSING: TWO-PIECE DIE-CAST ALUMINUM HOUSING WITH INTEGRAL HEAT SINK FINS.

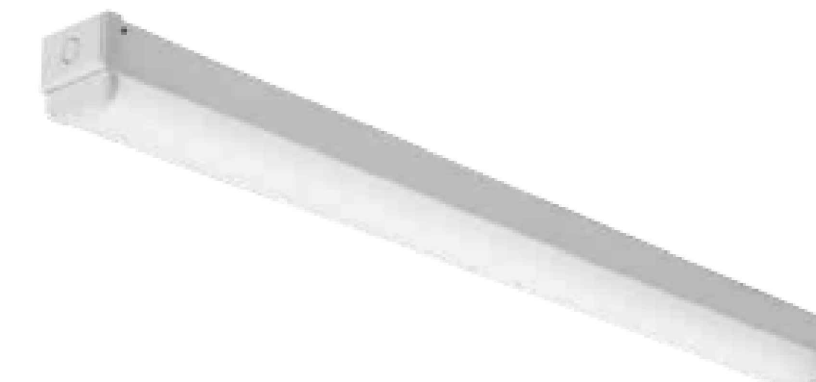
LENS: PRECISION-MOLDED ACRYLIC LENSES PROVIDE MULTIPLE PHOTOMETRIC DISTRIBUTIONS.

DRIVER: RATED FOR 120V-277V OPERATION, HIGH POWER FACTOR, 0 DEGREE STARTING, SOUND RATED, U.L. LISTED

LAMPS: LED 4,000 NOMINAL LUMENS (MINIMUM)

BASIS OF DESIGN: LITHONIA LIGHTING - DSXW2-LED-20C-530-40K-T3M-MVOLT-PE-DBLXD

MOUNTING HEIGHT: 15'-6" AFF



LUMINAIRE TYPE D

GENERAL: PENDANT MOUNTED INDUSTRIAL LED LUMINAIRE WITH FLAT DIFFUSE LENS.

HOUSING: INJECTION MOLDED HIGH IMPACT METAL, FULLY GASKETED.

LENS: IMPACT RESISTANT 100% VIRGIN ACRYLIC LENS WITH PEBBLED INTERIOR PATTERN SMOOTH EXTERIOR, WITH CONTINUOUS FLANGE TO INTERLOCK WITH HOUSING.

DRIVER: RATED FOR 120V-277V OPERATION, 0-10V DIMMING, HIGH POWER FACTOR, CLASS P, CBM CERTIFIED, SOUND RATED, U.L. LISTED

LAMPS: 7,000 LUMEN OUTPUT, 4000K COLOR TEMPERATURE, MINIMUM CRI OF 80, 70% LUMEN MAINTENANCE AT 50,000 HOURS

MOUNTING HEIGHT: 10'-0" AFF

BASIS OF DESIGN: LITHONIA LIGHTING - CLX L48 7000LM SEF FDL GZ10 40K 80CRI WH SQ48"

LUMINAIRE TYPE BE

GENERAL: RECESSED 2'X4' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'B' ABOVE, EXCEPT WITH 10W CONSTANT POWER BATTERY PACK.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X4-AL07-80CRI-SWW7-SWL-MVOLT-E10WLCP

LUMINAIRE TYPE AE

GENERAL: RECESSED 2'X2' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'A' ABOVE, EXCEPT WITH 10W CONSTANT POWER BATTERY PACK.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X2-AL07-80CRI-SWW7-SWL-MVOLT-E10WLCP

LUMINAIRE TYPE B1

GENERAL: RECESSED 2'X4' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'B' ABOVE, EXCEPT WITH 6000 LUMEN PACKAGE.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X4-AL07-80CRI-SWW7-SWL-MVOLT

LUMINAIRE TYPE A1

GENERAL: RECESSED 2'X2' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'A' ABOVE, EXCEPT WITH 3200 LUMEN PACKAGE.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X2-AL07-80CRI-SWW7-SWL-MVOLT

LUMINAIRE TYPE B1E

GENERAL: RECESSED 2'X4' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'B1' ABOVE, EXCEPT WITH 10W CONSTANT POWER BATTERY PACK.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X4-AL07-80CRI-SWW7-SWL-MVOLT-E10WLCP

LUMINAIRE TYPE A1E

GENERAL: RECESSED 2'X2' FLAT-PANEL LED.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'A1' ABOVE, EXCEPT WITH 10W CONSTANT POWER BATTERY PACK.

BASIS OF DESIGN: LITHONIA LIGHTING - CPX-2X2-AL07-80CRI-SWW7-SWL-MVOLT-E10WLCP



LUMINAIRE TYPE X

GENERAL: UNIVERSAL MOUNT, THERMOPLASTIC EXIT SIGN - LIGHT EMITTING DIODE (LED) TYPE WITH RED PLASTIC DIFFUSER, U.L. LISTED.

HOUSING: THERMOPLASTIC HOUSING WITH NO VISIBLE HARDWARE, UNIVERSAL MOUNT CANOPY.

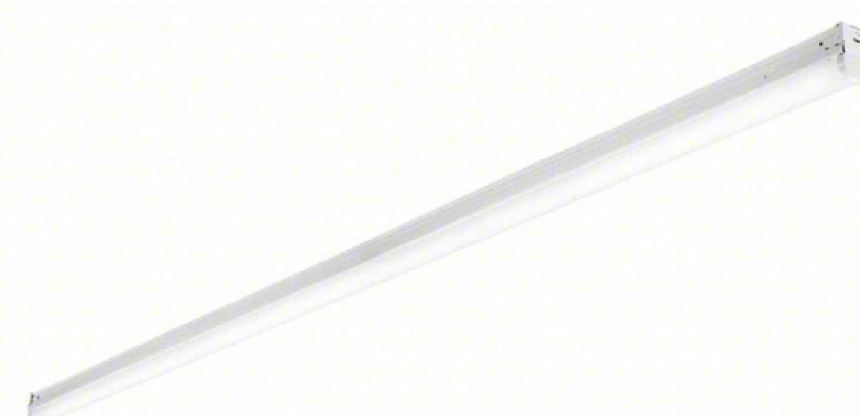
FACE: 6" HIGH LETTERS, PRECISION CUT. BACK LETTERS WITH MINIMUM 0.0125" THICK RED 100% VIRGIN ACRYLIC DIFFUSER PANEL. PROVIDE EXIT LUMINAIRES HAVING DIRECTIONAL ARROWS WHEN SO INDICATED ON THE DRAWINGS.

FINISH: HOUSING AND CANOPY - WHITE.

BATTERY: NICKEL CADMIUM WITH CONSTANT CURRENT SOLID STATE CHARGER.

LAMPS: RED LIGHT EMITTING DIODES (LED) MAXIMUM ENERGY CONSUMPTION 5W WITH 30 YEAR ESTIMATED LIFE.

BASIS OF DESIGN: LITHONIA LIGHTING LQM-S-W-3-R-120/277-EL N.



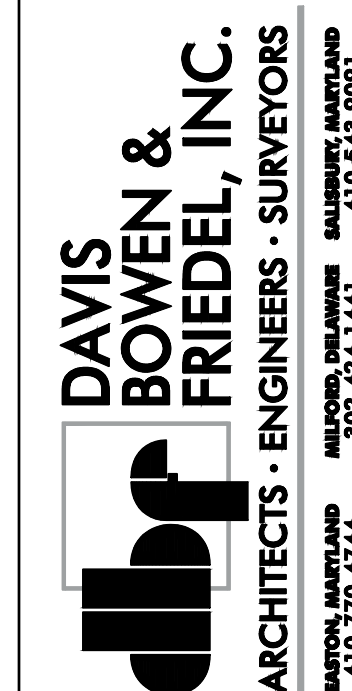
LUMINAIRE TYPE F

GENERAL: WALL-MOUNTED 4'-0" LENSED LED BRACKET/WRAPAROUND LUMINAIRE. SUITABLE FOR DAMP LOCATIONS.

ALL OTHER CHARACTERISTICS SAME AS TYPE 'F2' ABOVE, EXCEPT WITH 4'-0" LENGTH AND 5,000 LUMEN OUTPUT

BASIS OF DESIGN: LITHONIA LIGHTING - ZL1D L48 5000LM FST MVOLT 35K 80CRI WH

MOUNTING: 12" BELOW CEILING



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/18/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn.By: ATR
Proj No.: 0586B053.A01

LIGHTING SCHEDULE

Dwg No.: **E-601**

FILE NAME: 2016.18_E-601.DWG
OUR REF: 2016.18
PLOT DATE: 7/30/2024 12:19:01 PM

PANEL P3-100 SCHEDULE																
MAIN BUS SIZE (AMPS): 100			INTERRUPT. RATING (KAIC): 10			NEUTRAL BUS SIZE: 100%			MOUNTING TYPE: SURFACE							
MAIN BUS MATERIAL: COPPER			VOLTAGE: 120 / 208			SECTION NO.: 1 OF 1			LOCATION: FACILITY STORAGE 100							
MAIN CIRCUIT BREAKER (AMPS):			PHASE: 3			WIRE: 4			ENCLOSURE TYPE: NEMA 1			BOLT-ON BRANCH CIRCUIT BREAKERS				
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER			LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.				
						POLES	AMPS	LOAD (KVA)								
1	FAC. STOR. 100 RECEPT.	R	0.54	20	1	A			1	20	0.72	R	FAC. STOR. 100 RECEPT.	2		
3	BREAK RM. 101 FRIDGE	R	0.18	20	1		B		1	20	0.18	R	BREAK RM. 101 RECEPT.	4		
5	BREAK RM. 101 RECEPT.	R	0.36	20	1			C	1	20	0.36	R	TOILET 102 RECEPT.	6		
7	BREAK RM. 101 RECEPT.	R	0.36	20	1	A			1	20	0.54	R	TOILET 103, 104, 105 RECEPT.	8		
9	OPEN OFFICE 110 RECEPT.	R	0.54	20	1		B		1	20	0.54	R	STOR. 125/128 RECEPT.	10		
11	TOILET 121/124 RECEPT.	R	0.36	20	1			C	1	20	0.72	R	SUPPLY 123 RECEPT.	12		
13	ARMORY 126 RECEPT.	R	0.54	20	1	A			1	20	0.92	N	LIGHTING RM. 100/130	14		
15	LIGHTING RM 101-105/110	N	1.45	20	1		B		1	20	0.13	N	OUTDOOR LIGHTING	16		
17	AREA EXIT LIGHTING	N	0.04	20	1			C	1	20	0.54	R	OUTDOOR RECEPT.	18		
19	OUTDOOR RECEPT.	R	0.36	20	1	A			1	20	0.18	N	PLUMBING FIXTURES	20		
21	LIGHTING CONTROL PNL.	N	0.18	20	1		B		1	20	0.18	N	PLUMBING FIXTURES	22		
23	STORAGE 128 DEDICATED	R	0.18	20	1			C	1	20	0.36	R	STORAGE 128 DEDICATED	24		
25	STORAGE 128 DEDICATED	R	0.36	20	1	A			1	20	0.00	N	SPARE	26		
27	MOTORIZED DOOR	M	1.50	20	1		B		1	20	0.00	N	SPARE	28		
29	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	30		
31	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	32		
33	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	34		
35	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	36		
37	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	38		
39	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	40		
41	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	42		
CONNECTED LOAD PER PHASE (KVA) =									4.5	4.9	2.9	TOTAL CONNECTED LOAD =			12.3 KVA	34.2 AMPS
(AMPS) =									37.7	40.7	24.3	TOTAL DEMAND LOAD =			12.7 KVA	35.3 AMPS

LOAD TYPES: C = CONTINUOUS, R = RECEPTACLE, M = MOTOR, N = NON-CONTINUOUS

PANEL P4-107 SCHEDULE																
MAIN BUS SIZE (AMPS): 100			INTERRUPT. RATING (KAIC): 10			NEUTRAL BUS SIZE: 100%			MOUNTING TYPE: SURFACE							
MAIN BUS MATERIAL: COPPER			VOLTAGE: 120 / 208			SECTION NO.: 1 OF 1			LOCATION: ADMIN OFFICE 107							
MAIN CIRCUIT BREAKER (AMPS):			PHASE: 3			WIRE: 4			ENCLOSURE TYPE: NEMA 1			BOLT-ON BRANCH CIRCUIT BREAKERS				
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER			LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.				
						POLES	AMPS	LOAD (KVA)								
1	LOBBY 106 RECEPT.	R	0.54	20	1	A			1	20	0.72	R	ADMIN OFFICE 107 RECEPT.	2		
3	CONF. RM. 108 RECEPT.	R	0.72	20	1		B		1	20	0.72	R	CONF. RM. 108 RECEPT.	4		
5	CONF. RM. 108 RECEPT.	R	0.54	20	1			C	1	20	0.36	R	CLASSROOM 109 RECEPT.	6		
7	CLASSROOM 109 RECEPT.	R	0.72	20	1	A			1	20	0.72	R	CLASSROOM 109 RECEPT.	8		
9	CLASSROOM 109 RECEPT.	R	0.72	20	1		B		1	20	0.72	R	CLASSROOM 109 RECEPT.	10		
11	CLASSROOM 109 RECEPT.	R	0.72	20	1			C	1	20	0.72	R	CLASSROOM 109 RECEPT.	12		
13	CLASSROOM 109 RECEPT.	R	0.72	20	1	A			1	20	0.72	R	CLASSROOM 109 RECEPT.	14		
15	LT. OFFICE 112 RECEPT.	R	0.72	20	1		B		1	20	0.72	R	LT. OFFICE 113 RECEPT.	16		
17	LT. OFFICE 114 RECEPT.	R	0.72	20	1			C	1	20	0.18	R	CONF. RM. 115 TV RECEPT.	18		
19	CONF. RM. 115 RECEPT.	R	0.72	20	1	A			1	20	0.72	R	CONF. RM. 115 RECEPT.	20		
21	CONF. RM. 115 RECEPT.	R	0.72	20	1		B		1	20	0.72	R	MA II OFFICE 116 RECEPT.	22		
23	CHIEF OFFICE 117 RECEPT.	R	0.36	20	1			C	1	20	0.54	R	CHIEF OFFICE 117 RECEPT.	24		
25	MAJOR OFFICE 118 RECEPT.	R	0.36	20	1	A			1	20	0.54	R	MAJOR OFFICE 118 RECEPT.	26		
27	OFFICE 119 RECEPT.	R	0.72	20	1		B		1	20	0.72	R	OFFICE 120 RECEPT.	28		
29	OFFICE 131 RECEPT.	R	0.72	20	1			C	1	20	0.72	R	CORRIDOR 111 RECEPT.	30		
31	CLASS 109 TV RECEPT.	R	0.18	20	1	A			1	20	1.47	N	LIGHTING RM. 106-109/115	32		
33	LTG. 111-114/116-120/131	N	1.29	20	1		B		1	20	0.10	N	OUTDOOR LIGHTING	34		
35	AREA EXIT SIGNS	N	0.02	20	1			C	1	20	0.54	R	OUTDOOR RECEPT.	36		
37	CONF. RM 108 RECEPT.	R	0.18	20	1	A			1	20	0.00	N	FIRE ALARM CTRL UNIT JBOX	38		
39	LARGE CONF ROOM 115	R	0.36	20	1		B		1	20	0.18	R	CORRIDOR 111 DEDICATED	40		
41	CORRIDOR 111 DEDICATED	N	0.18	20	1			C	1	20	0.00	N	SPARE	42		
43	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	44		
45	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	46		
47	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	48		
49	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	50		
51	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	52		
53	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	54		
CONNECTED LOAD PER PHASE (KVA) =									8.3	9.1	6.3	TOTAL CONNECTED LOAD =			23.8 KVA	66.0 AMPS
(AMPS) =									69.2	76.1	52.7	TOTAL DEMAND LOAD =			18.4 KVA	51.1 AMPS

LOAD TYPES: C = CONTINUOUS, R = RECEPTACLE, M = MOTOR, N = NON-CONTINUOUS

PANEL P1-130 (SECT. 1) SCHEDULE																
MAIN BUS SIZE (AMPS): 250			INTERRUPT. RATING (KAIC): 22			NEUTRAL BUS SIZE: 200%			MOUNTING TYPE: SURFACE							
MAIN BUS MATERIAL: COPPER			VOLTAGE: 120 / 208			SECTION NO.: 1 OF 2			LOCATION: MECHANICAL ROOM 130							
MAIN CIRCUIT BREAKER (AMPS):			PHASE: 3			WIRE: 4			ENCLOSURE TYPE: NEMA 1			BOLT-ON BRANCH CIRCUIT BREAKERS				
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER			LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.				
						POLES	AMPS	LOAD (KVA)								
1	SYS FURNITURE 1-CIRC 1	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 2-CIRC 1	2		
3	SYS FURNITURE 1-CIRC 2	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 2-CIRC 2	4		
5	SYS FURNITURE 1-CIRC 3	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 2-CIRC 3	6		
7	SYS FURNITURE 1-CIRC 4	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 2-CIRC 4	8		
9	SYS FURNITURE 3-CIRC 1	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 4-CIRC 1	10		
11	SYS FURNITURE 3-CIRC 2	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 4-CIRC 2	12		
13	SYS FURNITURE 3-CIRC 3	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 4-CIRC 3	14		
15	SYS FURNITURE 3-CIRC 4	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 4-CIRC 4	16		
17	SYS FURNITURE 5-CIRC 1	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 6-CIRC 1	18		
19	SYS FURNITURE 5-CIRC 2	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 6-CIRC 2	20		
21	SYS FURNITURE 5-CIRC 3	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 6-CIRC 3	22		
23	SYS FURNITURE 5-CIRC 4	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 6-CIRC 4	24		
25	SYS FURNITURE 7-CIRC 1	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 8-CIRC 1	26		
27	SYS FURNITURE 7-CIRC 2	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 8-CIRC 2	28		
29	SYS FURNITURE 7-CIRC 3	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 8-CIRC 3	30		
31	SYS FURNITURE 7-CIRC 4	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 8-CIRC 4	32		
33	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	34		
35	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	36		
37	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	38		
39	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	40		
41	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	42		
CONNECTED LOAD PER PHASE (KVA) =									8.6	7.2	7.2	TOTAL CONNECTED LOAD =			23.0 KVA	64.0 AMPS
(AMPS) =									72.0	60.0	60.0	TOTAL DEMAND LOAD =			16.5 KVA	45.9 AMPS
TOTAL CONNECTED LOAD (SECTION 1 & 2) =												33.8 KVA			94.0 AMPS	
TOTAL DEMAND LOAD (SECTION 1 & 2) =												27.3 KVA			75.9 AMPS	

LOAD TYPES: C = CONTINUOUS, R = RECEPTACLE, M = MOTOR, N = NON-CONTINUOUS

PANEL P1-130 (SECT. 2) SCHEDULE														
MAIN BUS SIZE (AMPS): 250			INTERRUPT. RATING (KAIC): 22			NEUTRAL BUS SIZE: 200%			MOUNTING TYPE: SURFACE					
MAIN BUS MATERIAL: COPPER			VOLTAGE: 120 / 208			SECTION NO.: 2 OF 2			LOCATION: MECHANICAL ROOM 130					
MAIN CIRCUIT BREAKER (AMPS):			PHASE: 3			WIRE: 4			ENCLOSURE TYPE: NEMA 1			BOLT-ON BRANCH CIRCUIT BREAKERS		
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER			LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.		
						POLES	AMPS	LOAD (KVA)						
43	SYS FURNITURE 9-CIRC 1	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 10-CIRC 1	44
45	SYS FURNITURE 9-CIRC 2	R	0.72	20	1		B		1	20	0.72	R	SYS FURNITURE 10-CIRC 2	46
47	SYS FURNITURE 9-CIRC 3	R	0.72	20	1			C	1	20	0.72	R	SYS FURNITURE 10-CIRC 3	48
49	SYS FURNITURE 9-CIRC 4	R	0.72	20	1	A			1	20	0.72	R	SYS FURNITURE 10-CIRC 4	50
51	SYS FURNITURE 11-CIRC 1	R	0.72	20	1		B		1	20	0.36	R	IT 127 RECEPT.	52
53	SYS FURNITURE 11-CIRC 2	R	0.72	20	1			C	1	20	0.36	R	IT 127 RECEPT.	54
55	SYS FURNITURE 11-CIRC 3	R	0.72	20	1	A					0.00			56
57	SYS FURNITURE 11-CIRC 4	R	0.72	20	1		B		2	30	0.00	R	UPS RECEPTACLE	58
59	DOAS CONTROL PNL.	N	0.10	20	1			C	2	30	0.00	R	UPS RECEPTACLE	60
61	CWP CONTROL PNL.	N	0.10	20	1	A					0.00			62
63	SPARE	N	0.00	20	1		B		1	20	0.54	R	MECH 130 RECEPT.	64
65	SEP CONTROL PNL.	N	0.10	20	1			C	1	20	0.60	N	SECURITY GATE	66
67	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	68
69	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	70
71	SPARE	N	0.00	20	1			C	1	20	0.00	N	SPARE	72
73	SPARE	N	0.00	20	1	A			1	20	0.00	N	SPARE	74
75	SPARE	N	0.00	20	1		B		1	20	0.00	N	SPARE	76
77	SPARE	N	0.00	20</										

PANEL MP1-130(SECT. 2) SCHEDULE

MAIN BUS SIZE (AMPS):		250	INTERRUPT. RATING (KAIC):		22	NEUTRAL BUS SIZE:		100%	MOUNTING TYPE:		SURFACE	
MAIN BUS MATERIAL:		COPPER	VOLTAGE:		120 / 208	SECTION NO.:		2 OF 2	LOCATION:		MECHANICAL ROOM 130	
MAIN LUGS ONLY			PHASE:	3	WIRE:	4	ENCLOSURE TYPE:		NEMA 1	BOLT-ON BRANCH CIRCUIT BREAKERS		
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER POLES	AMPS	LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.	
43	HPU-01/HP-01	M	1.24	25	2	A		0.78	M	WSHP-111A, WSHP-111B	44	
45			1.24			B		0.78			46	
47	WSHP-101	M	0.86	20	2	A		2.40	N	UH-01	48	
49			0.86					2.40			50	
51			2.40			B		2.40			52	
53	UH-03	N	2.40	30	3	A		2.02	M	CWP-01	54	
55			2.40					2.02			56	
57			2.02			B		2.02			58	
59	CWP-02	M	2.02	35	3	A		1.27	N	B-02/BCP-02	60	
61			2.02					0.36	N	DWH-01	62	
63	CP-01	M	0.17	20	1	B		0.80			64	
65			0.80					0.80	M	CWP-04	66	
67	CWP-03	M	0.80	20	3	A		0.80			68	
69			0.80			B		2.40			70	
71	WSHP-131	M	0.34	20	3	A		2.40	C	UH-02	72	
73			0.34					2.40			74	
75			2.40			B		1.56	M	SP-01	76	
77	UH-04	N	2.40	30	3	A		0.00	N	SPARE	78	
79			2.40					0.00	N	SPARE	80	
81	SPARE	N	0.00	20	1	B		0.00	N	SPARE	82	
83	SPARE	N	0.00	20	1	C		0.00	N	SPARE	84	
43	SPARE	N	0.00	20	1	A		0.00	N	SPARE	44	
45	SPARE	N	0.00	20	1	B		0.00	N	SPARE	46	
47	SPARE	N	0.00	20	1	C		0.00	N	SPARE	48	
49	SPARE	N	0.00	20	1	A		0.00	N	SPARE	50	
51	SPARE	N	0.00	20	1	B		0.00	N	SPARE	52	
53	SPARE	N	0.00	20	1	C		0.00	N	SPARE	54	
CONNECTED LOAD PER PHASE (kVA) =			18.8	19.0	17.7	TOTAL CONNECTED LOAD =			55.5 KVA	154.2 AMPS		
(AMPS) =			156.8	158.2	147.5	TOTAL DEMAND LOAD =			23.7 KVA	65.9 AMPS		

LOAD TYPES: C = CONTINUOUS, R = RECEPTACLE, M = MOTOR, N = NON-CONTINUOUS

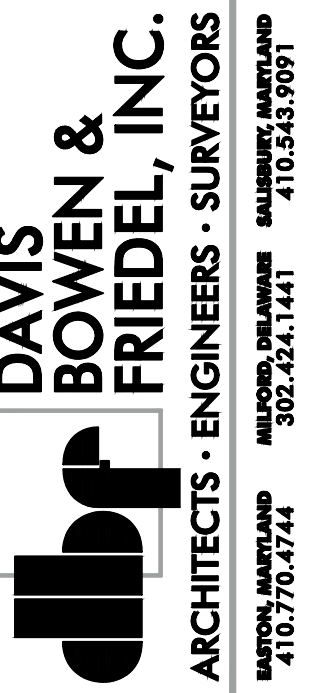
PANEL MP1-130 (SECT. 1) SCHEDULE

MAIN BUS SIZE (AMPS):		250	INTERRUPT. RATING (KAIC):		22	NEUTRAL BUS SIZE:		100%	MOUNTING TYPE:		SURFACE	
MAIN BUS MATERIAL:		COPPER	VOLTAGE:		120 / 208	SECTION NO.:		1 OF 2	LOCATION:		MECHANICAL ROOM 130	
MAIN LUGS ONLY			PHASE:	3	WIRE:	4	ENCLOSURE TYPE:		NEMA 1	BOLT-ON BRANCH CIRCUIT BREAKERS		
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	BREAKER AMPS	POLES	BREAKER POLES	AMPS	LOAD (KVA)	LOAD TYPE	DESCRIPTION	CKT NO.	
1	WSHP-110A	M	0.70	15	2	A		0.70	M	WSHP-110C	2	
3			0.70			B		0.70			4	
5	WSHP-110B, WSHP-128	M	1.09	20	2	A		1.09	M	WSHP-123, WSHP-126	6	
7			1.09					1.09			8	
9	WSHP-108	M	1.62	30	2	B		0.70	M	WSHP-110D	10	
11			1.62					0.70			12	
13	WSHP-109A	M	1.49	30	2	A		1.49	M	WSHP-109B	14	
15			1.49			B		1.49			16	
17	WSHP-106, WSHP-107	M	0.78	20	2	A		1.05	M	WSHP-115A	18	
19			0.78					1.05			20	
21	WSHP-115B	M	1.05	20	2	B		0.78	M	WSHP-116, WSHP-131B	22	
23			1.05					0.78			24	
25	WSHP-118, WSHP-131A	M	0.78	20	2	A		0.70	M	WSHP-117	26	
27			0.78			B		0.70			28	
29	WSHP-119, WSHP-120	M	0.78	20	2	A		1.32	N	B-01/BCP-01	30	
31			0.78					1.32	N	B-02/BCP-02	32	
33	EF-01	N	0.70	20	1	B		0.00	N	SPARE	34	
35	SPARE	N	0.00	20	1	C		0.00	N	SPARE	36	
37	SPARE	N	0.00	20	1	A		0.00	N	SPARE	38	
39	SPARE	N	0.00	20	1	B		0.00	N	SPARE	40	
41	SPARE	N	0.00	20	1	C		0.00	N	SPARE	42	
CONNECTED LOAD PER PHASE (kVA) =			12.0	10.7	10.3	TOTAL CONNECTED LOAD =			32.9 KVA	91.5 AMPS		
(AMPS) =			99.8	89.3	85.5	TOTAL DEMAND LOAD =			19.2 KVA	53.3 AMPS		
TOTAL CONNECTED LOAD (SECTION 1 & 2) =						88.4 KVA			245.7 AMPS			
TOTAL DEMAND LOAD (SECTION 1 & 2) =						42.9 KVA			119.2 AMPS			

LOAD TYPES: C = CONTINUOUS, R = RECEPTACLE, M = MOTOR, N = NON-CONTINUOUS

SWITCHBOARD MDP SCHEDULE

MAIN BUS SIZE (AMPS):		800	INTERRUPT. RATING (KAIC):		65	MOUNTING TYPE:		FREESTANDING		
MAIN BUS MATERIAL:		COPPER	VOLTAGE:		120 / 208	SECTION NO.:		1 OF 1		
		PHASE:	3	WIRE:	4	ENCLOSURE TYPE:		NEMA 1		
CKT NO.	DESCRIPTION	LOAD TYPE	LOAD (KVA)	FRAME RATING	POLES	TRIP SETTING	KAIC	TRIP UNIT		
M	MAIN CIRCUIT BREAKER	N	0.00	800	3	800	25	LSIG		
1	SPD	N	0.00	100	3	60	25			
2	PANEL P1-130 (SECT. 1)/P1-130 (SECT. 2)	N	12.34	400	3	300	25			
3	PANEL P3-100	N	10.98	100	3	100	25			
4	PANEL P4-107	N	10.52	100	3	100	25			
5	PANEL MP1-130 (SECT. 1)/MP1-130 (SECT. 2)	N	4.52	250	3	250	25			
6	DOAS-01	N	2.92	100	3	90	25			
7	DC-01	M	8.31	100	3	50	25			
8	BP-01,02	M	9.13	50	3	50	25			
9	SPARE	N	6.32	100	3	100	25			
10	SPACE	N	30.79							
11	SPACE	N	29.70							
			27.96							
CONNECTED LOAD PER PHASE (kVA) =			41.5	41.4	36.1	TOTAL CONNECTED LOAD =			207.5 KVA	576 AMPS
(AMPS) =			346	345	301	TOTAL DEMAND LOAD =			73.6 KVA	204 AMPS



HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
Scale: AS NOTED
Dwn By: ATR
Proj No.: 0586B053.A01

PANEL SCHEDULES

Dwg No.: **E-603**

ABBREVIATIONS

A	AMPERES.
AF	FRAME SIZE IN AMPERES.
AFF	ABOVE FINISHED FLOOR.
AHU	AIR HANDLING UNIT.
AT	TRIP SIZE IN AMPERES.
ATS	AUTOMATIC TRANSFER SWITCH.
AWG	AMERICAN WIRE GAUGE.
BLDG.	BUILDING.
CAT.	CATEGORY.
CATV	COMMUNITY ANTENNA TELEVISION.
EMT	ELECTRICAL METALLIC TUBING.
(E)	EXISTING.
(ETR)	EXISTING TO REMAIN.
FLA	FULL LOAD AMPERES.
FVNR	FULL VOLTAGE NON-REVERSING.
GFCI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED.
GFI	GROUND FAULT INTERRUPTER.
GRD.	GROUND CONDUCTOR.
ICE	IMMIGRATION AND CUSTOMS ENFORCEMENT.
ICT	INFORMATION AND COMMUNICATIONS TECHNOLOGY .
MAX	MAXIMUM.
MIN	MINIMUM.
MDF	MAIN DISTRIBUTION FRAME.
N/A	NOT APPLICABLE.
N.E.C.	NATIONAL ELECTRICAL CODE.
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.
NFSS	NON-FUSED SAFETY SWITCH.
N.O.	NORMALLY OPEN.
OCIO	OFFICE OF CHIEF INFORMATION OFFICER.
PDS	PROTECTIVE DISTRIBUTION SYSTEM.
PR	PAIR.
PVC	POLY-VINYL CHLORIDE.
RGS	RIGID GALVANIZED STEEL.
RMU	RACK MOUNTING UNIT (1.75").
RWC	REMOTE WIRING CLOSET.
SCIF	SENSITIVE COMPARTMENTED INFORMATION FACILITIES.
SM	SINGLEMODE OPTICAL FIBER .
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR.
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR .
SM	SINGLEMODE OPTICAL FIBER .
TYP.	TYPICAL.
U.L.	UNDERWRITER'S LABORATORIES.
U.O.N	UNLESS OTHERWISE NOTED.
UTP	UNSHIELDED TWISTED PAIR.
V	VOLTAGE.
WAP	WIRELESS ACCESS POINT.
WP	WEATHERPROOF, OR NEMA 3R ENCLOSURE.

SYMBOLS

	EMT CONDUIT.
	EXISTING CONDUIT AND CONDUCTORS TO REMAIN.
	FIBER OPTIC CABLE.
	DATA OUTLET, 4-11/16" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED AT 18" ABOVE FINISHED FLOOR, WITH BLANK COVER PLATE. PROVIDE EMPTY 1" CONDUIT WITH NYLON PULL STRING CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE CEILING FOR FUTURE USE.
	SAME DATA OUTLET ABOVE, EXCEPT SURFACE MOUNTED AND EMPTY 1" CONDUIT WITH NYLON PULL STRING MOUNTED ON WALL UP TO ABOVE SUSPENDED TILE CEILING FOR FUTURE USE.
	HDMI OUTLET, 4-11/16" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED AT 18" ABOVE FINISHED FLOOR, WITH BLANK COVER PLATE. PROVIDE EMPTY 1-1/2" CONDUIT WITH NYLON PULL STRING CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE CEILING FOR FUTURE USE.
	COMBINATION DATA/ AUDIOVISUAL FLOOR BOX. PROVIDE 4-13/16"X 4-1/8" X 2-1/2" JUNCTION BOX RECESSED IN CONCRETE. PROVIDE (1) FLOORBOX WITH (2) STANDARD RJ45 TELECOM JACKS AND (2) HDMI JACKS. PROVIDE A 1-1/2" EMT CONDUIT ROUTED IN FLOOR FROM FITTING TO NEAREST WALL AND UP TO CEILING ABOVE WITH PULL STRING AND CONDUIT BUSHING. DEVICE SHALL BE A U.L. RATED ASSEMBLY FOR FLOOR PENETRATIONS. FINISH COLOR AND MATERIAL SHALL BE CHOSEN BY ARCHITECT FROM MANUFACTURER'S FULL RANGE. SEE ARCHITECTURAL DRAWINGS FOR FLOOR TYPES AND FINISHES FOR COORDINATION.
	JUNCTION BOX FOR DATA OUTLET, 4" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, RECESSED IN CEILING.
	WIRELESS TELECOMMUNICATIONS OUTLET, 4-11/16" SQUARE X 2-1/8" DEEP GALVANIZED PRESSED STEEL, CEILING MOUNTED.
	JUNCTION BOX FOR SYSTEMS FURNITURE POWER CONNECTION. PROVIDE 4" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL BOX, RECESS MOUNTED AT 18" ABOVE FINISHED FLOOR. COORDINATE WITH SYSTEMS FURNITURE PRIOR TO INSTALLATION FOR EXACT LOCATION AND COVER PLATE CONFIGURATION.
	2-SECTION TELECOMMUNICATION/POWER POLE FROM FLOOR TO 6" ABOVE SUSPENDED TILE CEILING AND SUPPORT FROM STRUCTURE ABOVE. PROVIDE A 2-SECTION JUNCTION BOX AT TOP OF POLE FOR TELECOMMUNICATIONS AND POWER CONNECTIONS. COORDINATE EXACT LOCATION WITH FINAL EQUIPMENT LAYOUT.
	4" CONDUIT SLEEVE WITH BUSHING AND REMOVABLE FIRE STOP PILLOWS FOR COMMUNICATION CABLE.
	TELECOMMUNICATIONS CABLE TRAY, 6" WIDE x 4" DEEP OPEN WIRE- BASKET TYPE. LOCATE BOTTOM AT 6" ABOVE THE SUSPENDED TILE CEILING AND SUPPORT FROM THE STRUCTURE ABOVE. ALL CABLE TRAY TURNS SHALL HAVE MINIMUM 6" INSIDE BENDING RADIUS. 6" INSIDE BENDING RADIUS.

SHEET SYMBOLS

	FLOOR PLAN T-102, T-103 1/8"=1'-0" ALL DRAWINGS WHERE DETAIL IS REFERENCED
	NUMBER INDICATES DETAIL/SECTION
	SHEET NUMBER WHERE DETAIL/SECTION IS DRAWN
SECTION IDENTIFICATION	
	NUMBER INDICATES SECTION INDICATES DIRECTION OF CUTTING PLANE
	SHEET NUMBER WHERE SECTION IS DRAWN
	ARROW INDICATES TRUE NORTH AND/OR PROJECT NORTH
	NOTE REFERENCE NUMBER.
	GENERAL NOTE REFERENCE NUMBER.
	FEEDER DESIGNATION.
	EQUIPMENT IDENTIFICATION NUMBER.
	ROOM NUMBER DESIGNATION.
	COLUMN LINE NUMBER.
	DRAWING REVISION NUMBER.
	CENTER LINE.
	CONDUIT UP.
	CONDUIT DOWN.
	BREAKLINE

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HI-GRADE BUILDING RENOVATIONS
124 PORTER STREET
HARRINGTON, DE 19952

DATE	COMMENTS
T/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	AAB SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/09/24	FIRE MARSHAL COMMENTS
05/10/24	99% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

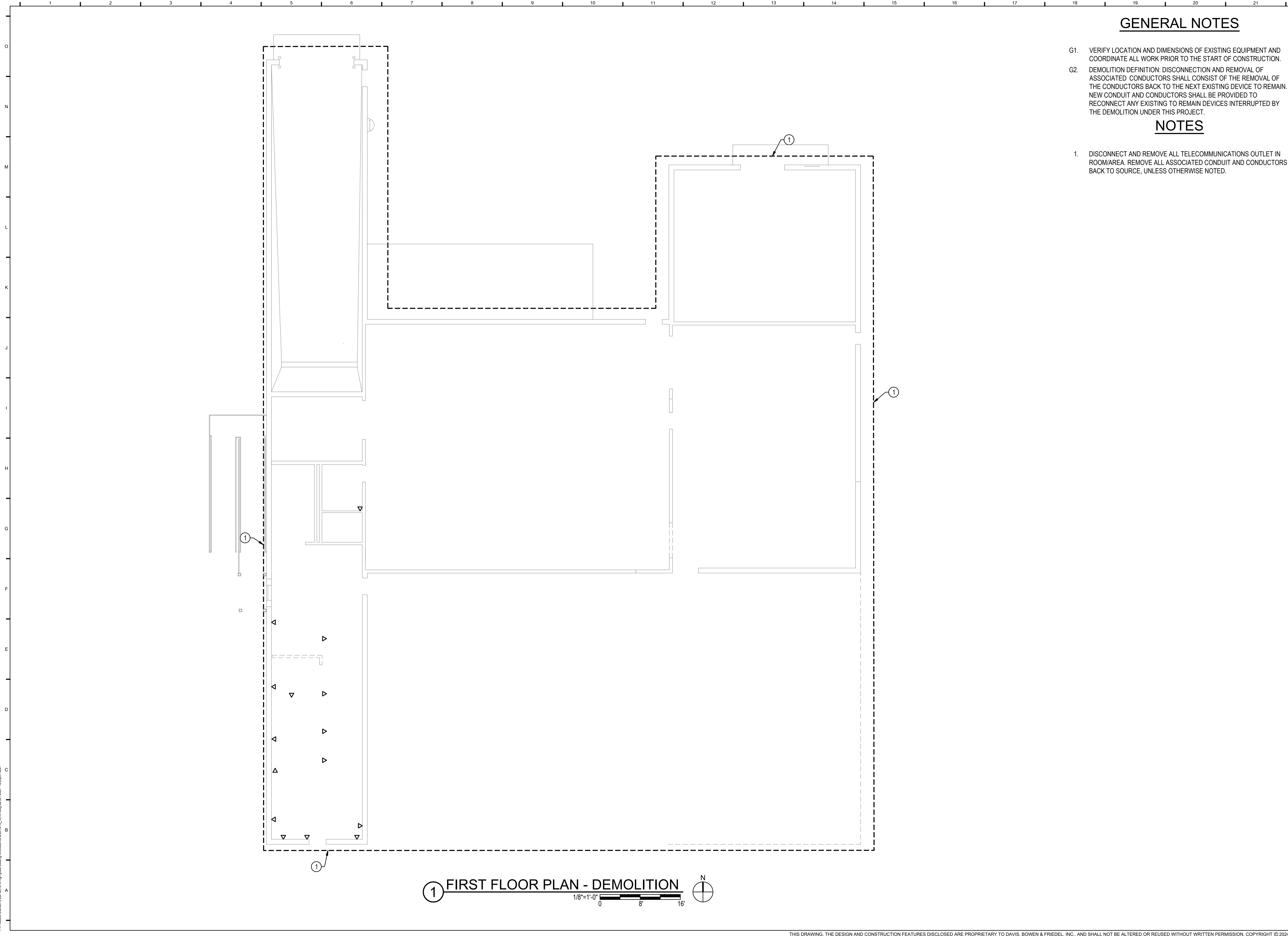
Date: JULY 16, 2024
Scale: AS NOTED
Dwn.By: ATR
Proj No.: 0586B053.A01

SYMBOLS AND ABBREVIATIONS

Dwg No.: **T-001**

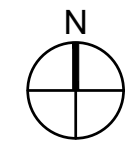
FILE NAME: 2016.18_TD101.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:20:01 PM

F:\PROJECTS\2024\18\2016.18_High_Grade_Building_Renovations\2024.18_TD101.dwg, Jul 30, 2024 - 12:20pm, Rawn



① FIRST FLOOR PLAN - DEMOLITION

1/8"=1'-0"
 0 8' 16'



GENERAL NOTES

- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- G2. DEMOLITION DEFINITION: DISCONNECTION AND REMOVAL OF ASSOCIATED CONDUCTORS SHALL CONSIST OF THE REMOVAL OF THE CONDUCTORS BACK TO THE NEXT EXISTING DEVICE TO REMAIN. NEW CONDUIT AND CONDUCTORS SHALL BE PROVIDED TO RECONNECT ANY EXISTING TO REMAIN DEVICES INTERRUPTED BY THE DEMOLITION UNDER THIS PROJECT.

NOTES

- 1. DISCONNECT AND REMOVE ALL TELECOMMUNICATIONS OUTLET IN ROOM/AREA. REMOVE ALL ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE, UNLESS OTHERWISE NOTED.

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DATE	COMMENTS
1/10/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn By: ATR
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN - DEMOLITION

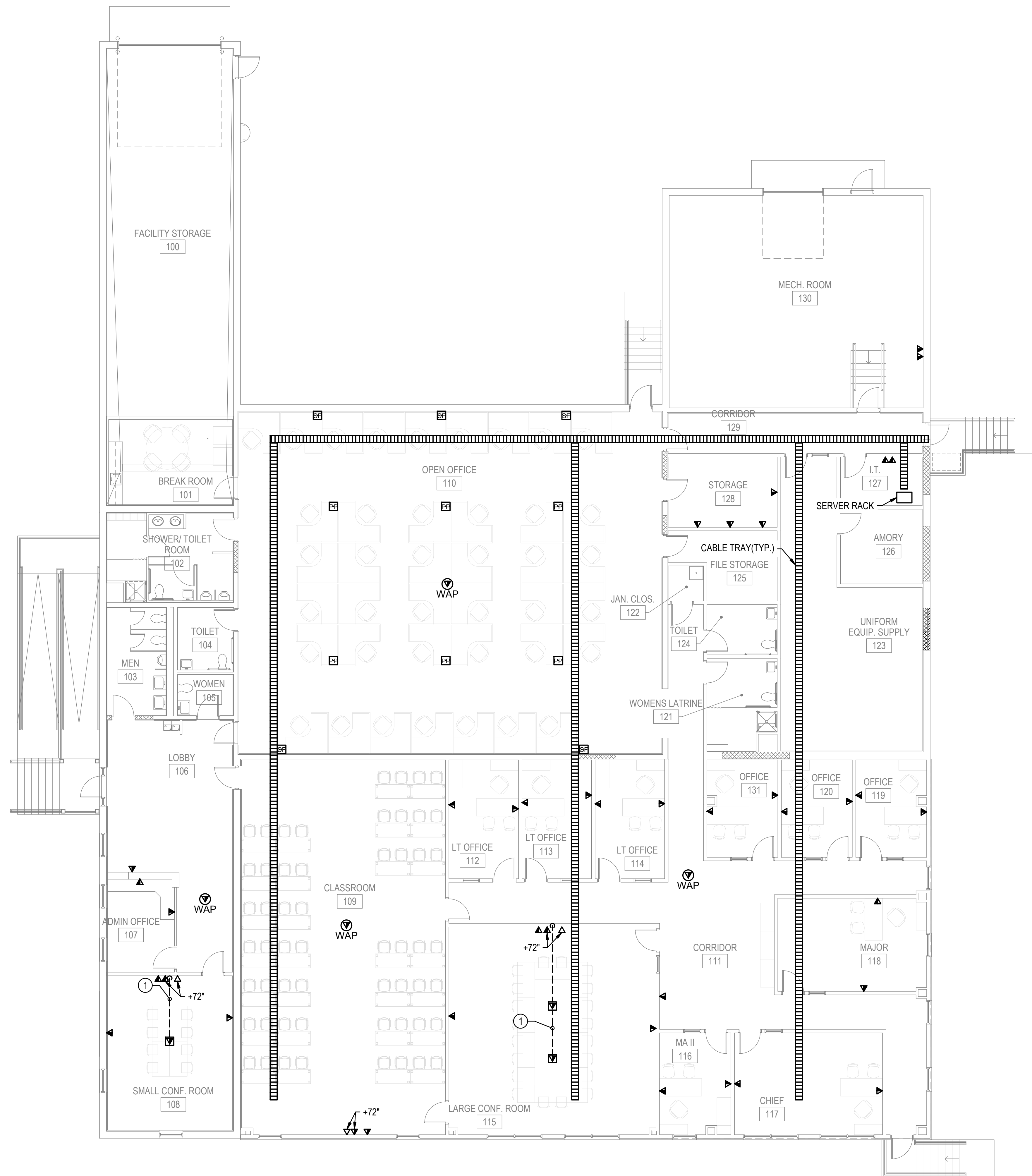
Dwg No.: **TD101**

GENERAL NOTES

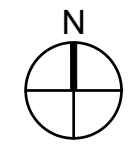
- G1. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EXISTING", "EXIST." OR "(E)".
- G2. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION
- G3. COMMUNICATIONS SYSTEM WIRING, JACKS, CONNECTIONS, RACKS, ETC. ARE NOT IN CONTRACT AND WILL BE PROVIDED BY LOW VOLTAGE/COMMUNICATIONS VENDOR. CONTRACTOR SHALL PROVIDE CABLE TRAY, CONDUITS WITH PULLSTRINGS, AND BACK BOXES ONLY FOR ALL TELECOMMUNICATIONS OUTLETS.

NOTES

- 1. SAWCUT EXISTING CONCRETE SLAB TO ROUTE AND CONCEAL RACEWAY.



① FIRST FLOOR PLAN - TELECOMMUNICATION



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11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
02/23/24	FIRE MARSHAL SUBMISSION
04/02/24	FIRE MARSHAL COMMENTS
05/10/24	90% DESIGN SUBMISSION
07/16/24	BID DRAWINGS

Date: JULY 16, 2024
 Scale: AS NOTED
 Dwn. By: ATR
 Proj No.: 0586B053.A01

FIRST FLOOR PLAN - TELECOMM

Dwg No.: **T-101**

FILE NAME: 2016.18_T-101.DWG
 OUR REF: 2016.18
 PLOT DATE: 7/30/2024 12:20:10 PM

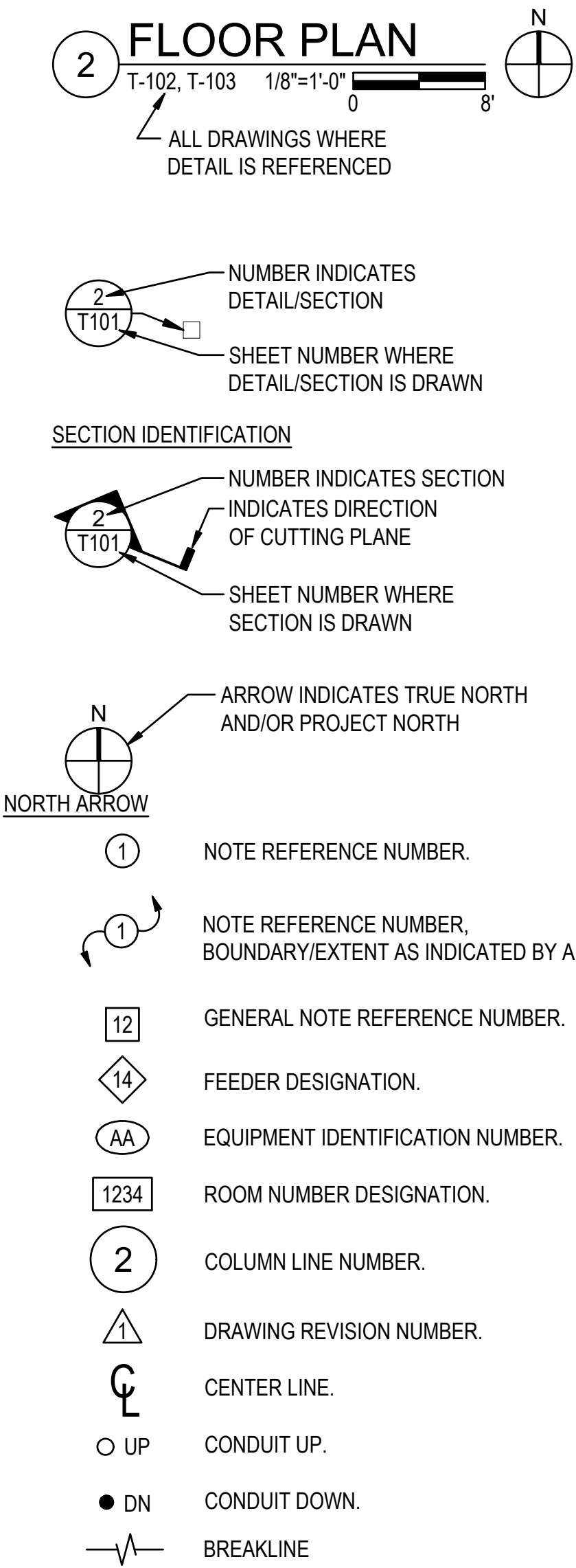
ABBREVIATIONS

A	AMPERES.
AF	FRAME SIZE IN AMPERES.
AFF	ABOVE FINISHED FLOOR.
AHU	AIR HANDLING UNIT.
AT	TRIP SIZE IN AMPERES.
ATS	AUTOMATIC TRANSFER SWITCH.
AWG.	AMERICAN WIRE GAUGE.
BATT	BATTERY BACK-UP.
BLDG.	BUILDING.
C/B	CIRCUIT BREAKER.
CBM	CERTIFIED BALLAST MANUFACTURERS.
DDC	DIRECT DIGITAL CONTROL.
DPDT	DOUBLE POLE DOUBLE THROW.
EC	EMPTY CONDUIT.
EM	EMERGENCY PANEL.
EMT	ELECTRICAL METALLIC TUBING.
ETR	EXISTING TO REMAIN.
EW	EMERGENCY WHITE.
EWC	ELECTRIC WATER COOLER.
FA	FIRE ALARM.
FAAP	FIRE ALARM ANNUNCIATOR PANEL.
FACP	FIRE ALARM CONTROL PANEL.
FCU	FAN COIL UNIT.
FLA	FULL LOAD AMPERES.
FNVR	FULL VOLTAGE NON-REVERSING.
GFCI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED.
GFI	GROUND FAULT INTERRUPTER.
GRD.	GROUND CONDUCTOR.
H-O-A	HAND-OFF-AUTOMATIC SELECTOR SWITCH.
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY.
KW	KILO-WATTS.
MCC	MOTOR CONTROL CENTER.
M.L.O.	MAIN LUGS ONLY.
N.C.	NORMALLY CLOSED.
N.E.C.	NATIONAL ELECTRICAL CODE.
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.
NFSS	NON-FUSED SAFETY SWITCH.
N.O.	NORMALLY OPEN.
P	NUMBER OF POLES.
PH.	NUMBER OF PHASES.
PVC	POLY-VINYL CHLORIDE.
RGS	RIGID GALVANIZED STEEL.
SPDT	SINGLE POLE DOUBLE THROW.
U.L.	UNDERWRITER'S LABORATORIES.
V	VOLTAGE.
VFD	VARIABLE FREQUENCY DRIVE.
WP	WEATHERPROOF, OR NEMA 3R ENCLOSURE.

SYMBOLS

	ACCESS CONTROL PANEL (BY OTHERS)
	LOCK POWER SUPPLY OUTLET (BY OTHERS)
	HANDICAP DOOR OPERATOR (BY OTHERS)
	HANDICAP DOOR BUTTON (BY OTHERS).
	ELECTRIC STRIKE (BY OTHERS).
	DOOR CONTACT - DPDT (BY OTHERS).
	DOOR CONTACT - SPDT (BY OTHERS).
	INTRUSION PANEL (BY OTHERS).
	PANIC BUTTON (BY OTHERS).
	NETWORK VIDEO RECORDER (BY OTHERS).
	PATCH PANEL (BY OTHERS).
	NETWORK SWITCH (BY OTHERS).
	SIREN (BY OTHERS).
	REQUEST TO EXIT MOTION JUNCTION BOX, 4-11/16" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, ABOVE SUSPENDED CEILING. REFER TO DETAIL 8 ON SHEET TY501 FOR WIRING CONFIGURATION. PROVIDE 1" CONDUIT AND NYLON PULL STRING BACK TO ACCESS CONTROL PANEL.
	VIDEO INTERCOM DOORSTATION SINGLE GANG BACK BOX, 4" LENGTH x 2" WIDTH x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED. REFER TO DETAIL 6 ON SHEET TY501 FOR MOUNTING HEIGHT. CABLING WITH NYLON PULL-STRING AND FACE PLATE CONFIGURATION BY OTHERS. PROVIDE 1" CONDUIT CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE AND BACK TO ACCESS CONTROL PANEL.
	CARD READER SINGLE GANG BACK BOX, 4" LENGTH x 2" WIDTH x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED. REFER TO DETAIL 7 ON SHEET TY501 FOR MOUNTING HEIGHT. CABLING AND FACE PLATE CONFIGURATION BY OTHERS. PROVIDE 1" CONDUIT WITH NYLON PULL-STRING CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE AND BACK TO ACCESS CONTROL PANEL.
	ARMING CARD READER SINGLE GANG BACK BOX, 4" LENGTH x 2" WIDTH x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED. REFER TO DETAIL 4 ON SHEET TY501 FOR MOUNTING HEIGHT. CABLING WITH NYLON PULL-STRING AND FACE PLATE CONFIGURATION BY OTHERS. PROVIDE 1" CONDUIT CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE AND BACK TO ACCESS CONTROL PANEL.
	MOTION DETECTOR SINGLE GANG BACK BOX, 4" LENGTH x 2" WIDTH x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED. REFER TO DETAIL 5 ON SHEET TY501 FOR MOUNTING HEIGHT. CABLING WITH NYLON PULL-STRING AND FACE PLATE CONFIGURATION BY OTHERS. PROVIDE 1" CONDUIT CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE AND BACK TO INTRUSION PANEL.
	INTRUSION KEYPAD SINGLE GANG BACK BOX, 4" LENGTH x 2" WIDTH x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED. REFER TO DETAIL 4 ON SHEET TY501 FOR MOUNTING HEIGHT. CABLING WITH NYLON PULL-STRING AND FACE PLATE CONFIGURATION BY OTHERS. PROVIDE 1" CONDUIT CONCEALED IN WALL UP TO ABOVE SUSPENDED TILE AND BACK TO ACCESS CONTROL PANEL.
	360 DEGREE AXIS IP CAMERA JUNCTION BOX, 4-11/16" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, SURFACED MOUNTED AT 6" ABOVE SUSPENDED TILE. WITH BLANK COVER PLATE. COORDINATE WITH GOVERNMENT SECURITY CONTRACTOR FOR FINAL MOUNTING HEIGHT. REFER TO DETAIL 1 ON SHEET TY501 FOR WIRING CONFIGURATION. PROVIDE 1" CONDUIT WITH NYLON PULL STRING BACK TO PATCH PANEL.
	180 DEGREE AXIS IP CAMERA JUNCTION BOX, 4" LONG x 2" WIDE x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED, WITH BLANK COVER PLATE. COORDINATE WITH GOVERNMENT SECURITY CONTRACTOR FOR FINAL MOUNTING HEIGHT. REFER TO DETAIL 2 ON SHEET TY501 FOR WIRING CONFIGURATION. PROVIDE 1" CONDUIT WITH NYLON PULL STRING BACK TO PATCH PANEL.
	4 IN 1 AXIS IP CAMERA JUNCTION BOX, 4" LONG x 2" WIDE x 1-7/8" DEEP GALVANIZED PRESSED STEEL, RECESSED MOUNTED, WITH BLANK COVER PLATE. COORDINATE WITH GOVERNMENT SECURITY CONTRACTOR FOR FINAL MOUNTING HEIGHT. REFER TO DETAIL 3 ON SHEET TY501 FOR WIRING CONFIGURATION. PROVIDE 1" CONDUIT WITH NYLON PULL STRING BACK TO PATCH PANEL.

SHEET SYMBOLS



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HI-GRADE BUILDING RENOVATIONS
 124 PORTER STREET
 HARRINGTON, DE 19952

DATE	COMMENTS
11/08/23	15%/30% DESIGN SUBMISSION
01/10/24	60% DESIGN SUBMISSION
02/19/24	A&B SUBMISSION
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05/10/24	90% DESIGN SUBMISSION
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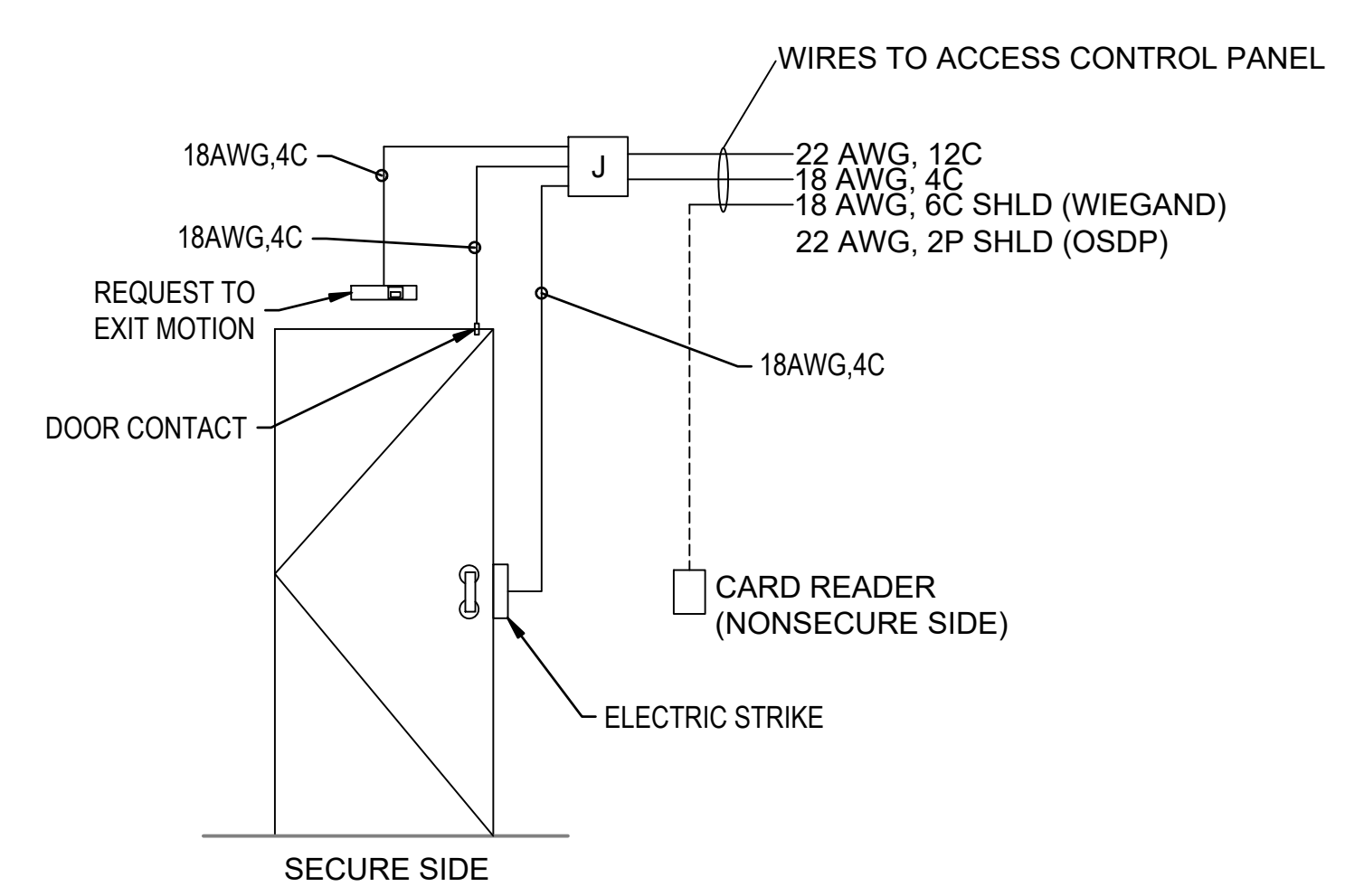
Date:	JULY 16, 2024
Scale:	AS NOTED
Dwn.By:	ATR
Proj No.:	0586B053.A01

SYMBOLS AND ABBREVIATIONS

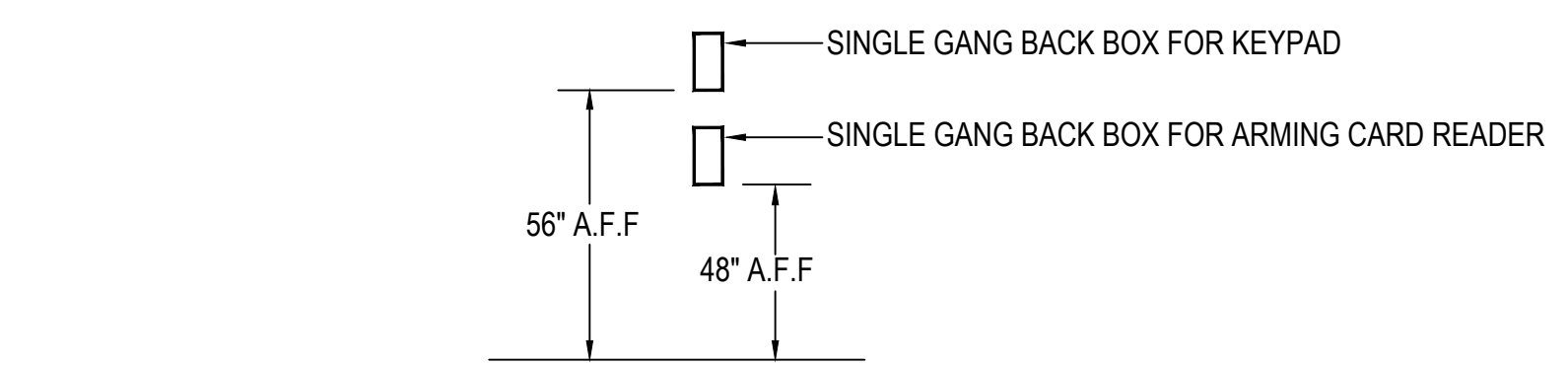
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 OUR REF: 2016-18
 PLOT DATE: 7/30/2024 12:20:35 PM

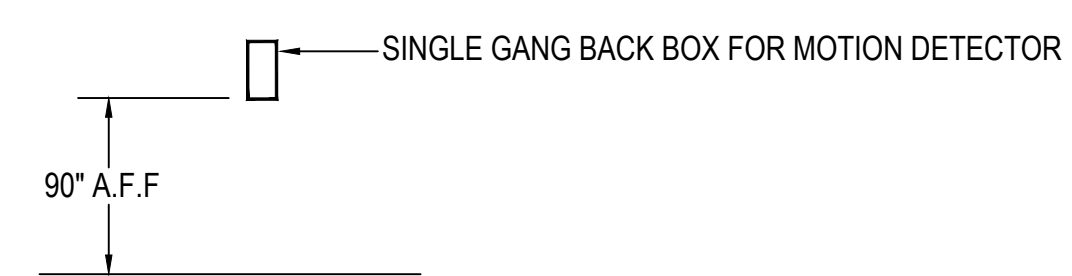
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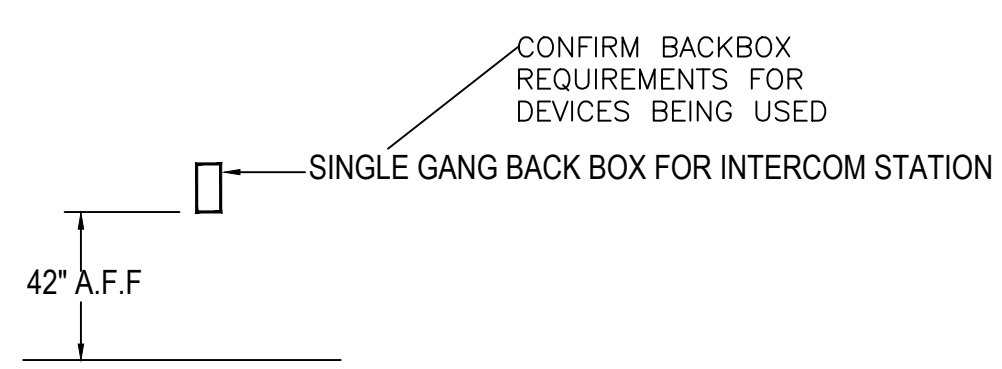
8 **DETAIL DOOR ELEVATION & CABLING**
 NOT TO SCALE



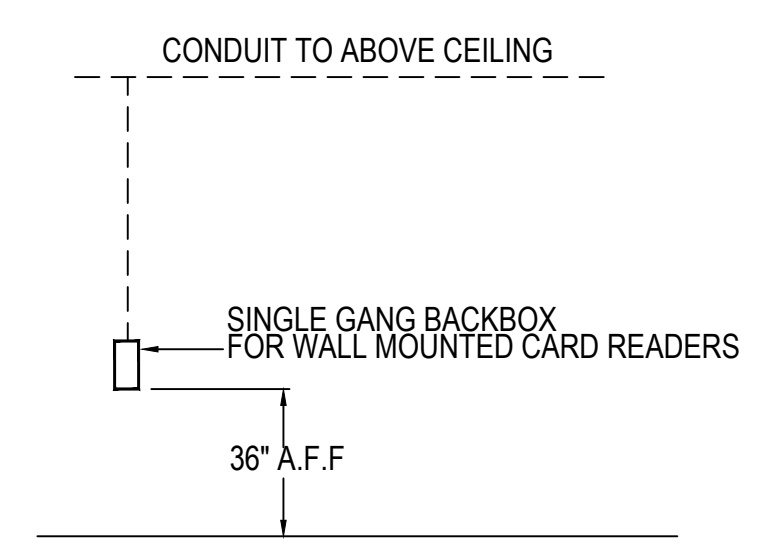
4 **DETAIL INTRUSION KEYPAD & ARMING CARD READER**
 NOT TO SCALE



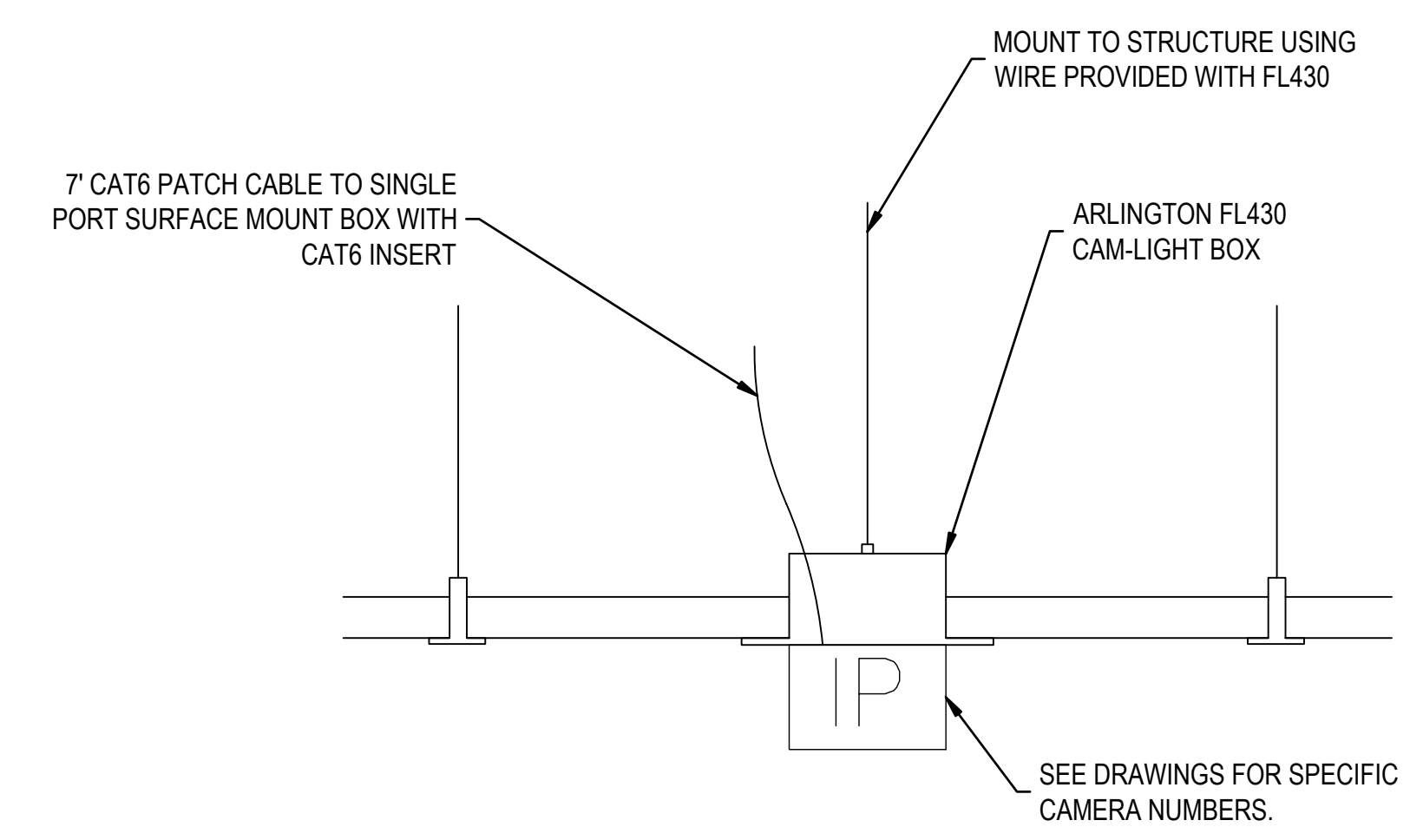
5 **DETAIL WALL MOUNTED MOTION DETECTOR**
 NOT TO SCALE



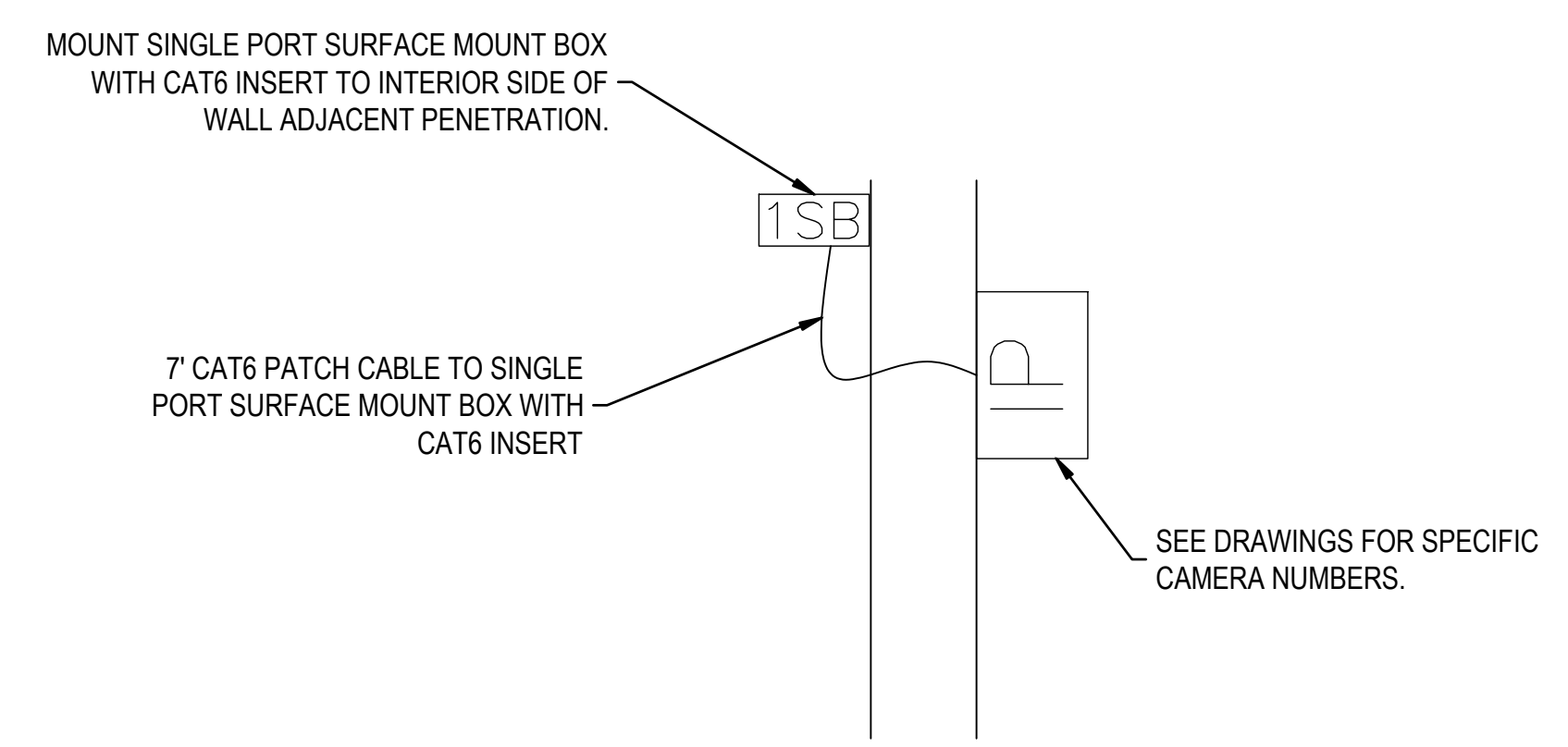
6 **DETAIL INTERCOM STATION BACK BOX**
 NOT TO SCALE



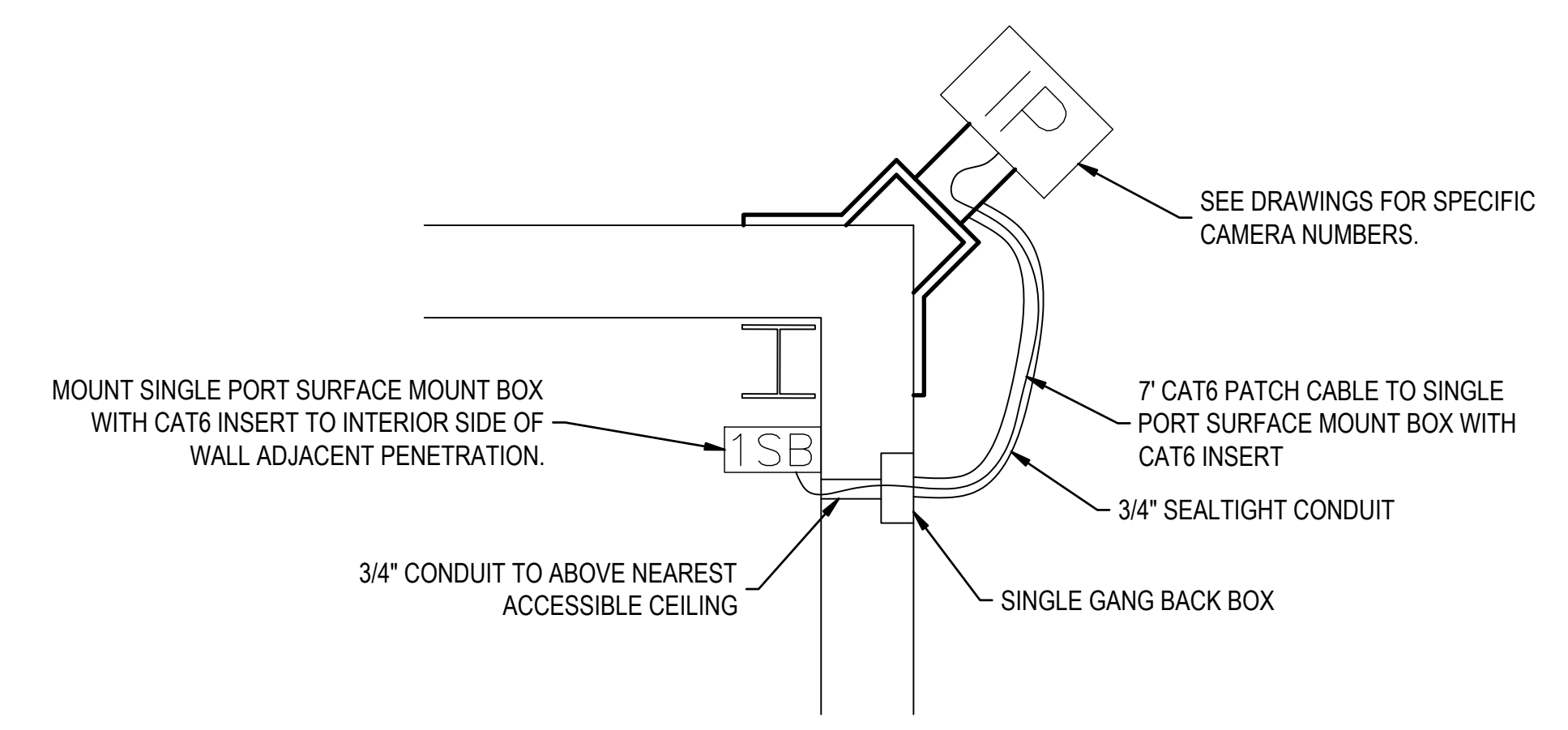
7 **DETAIL CARD READER BACK BOX**
 NOT TO SCALE



1 **DETAIL TYPICAL DIRECT SUSPENDED CEILING CAMERA MOUNTING**
 NOT TO SCALE



2 **DETAIL TYPICAL EXTERIOR DIRECT WALL CAMERA MOUNTING**
 NOT TO SCALE



3 **DETAIL TYPICAL EXTERIOR CORNER MOUNT WALL CAMERA**
 NOT TO SCALE

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SECURITY DETAILS

Dwg No.: **TY501**