

MILFORD HIGH SCHOOL

HVAC & MISCELLANEOUS RENOVATIONS - PHASE II

**1019 N WALNUT STREET
MILFORD, DE 19963
BID SET**

MARCH 15, 2023
DBF PROJECT #1586A007.A02

**DAVIS
BOWEN &
FRIEDEL, INC.**
ARCHITECTS • ENGINEERS • SURVEYORS

dbf

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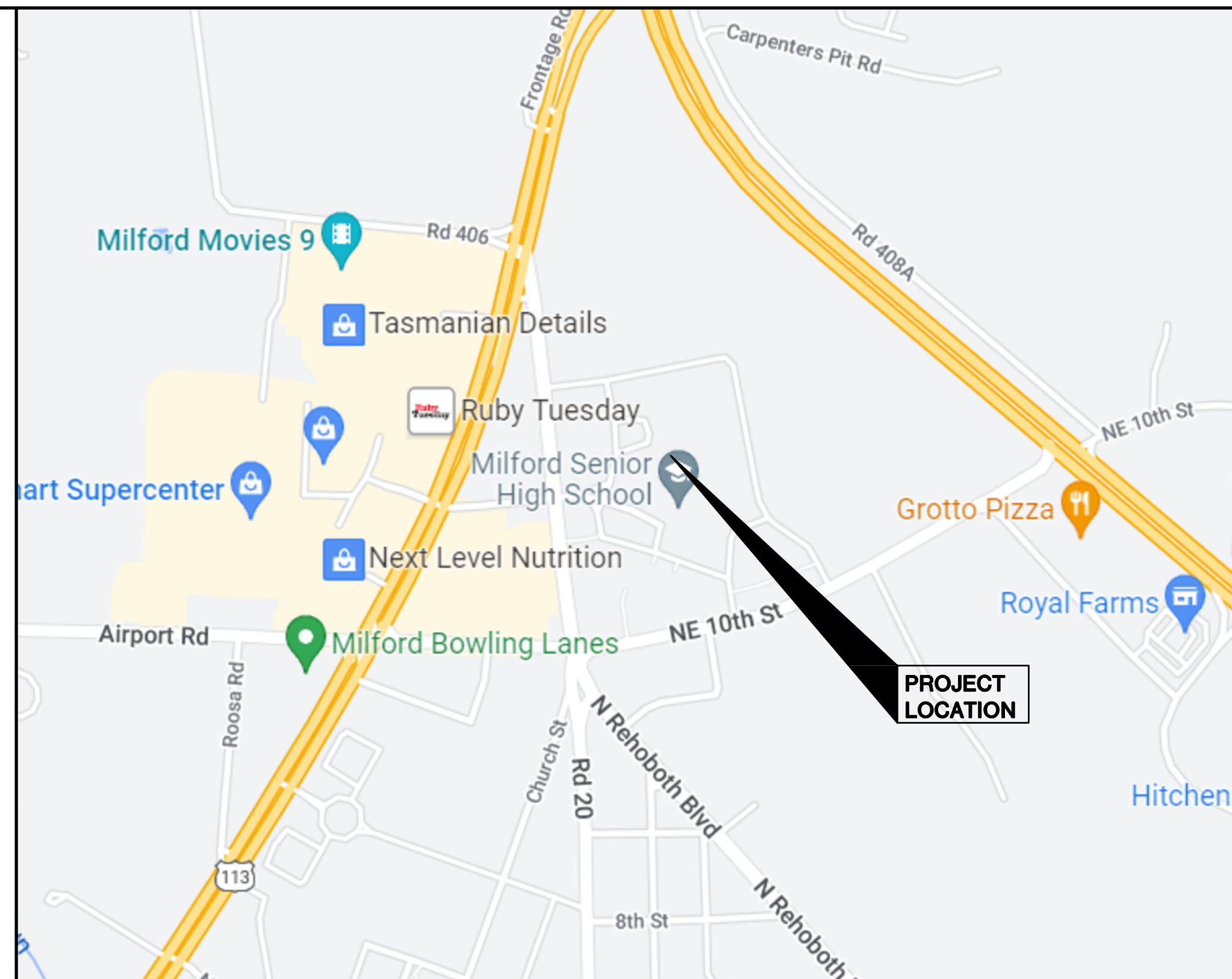
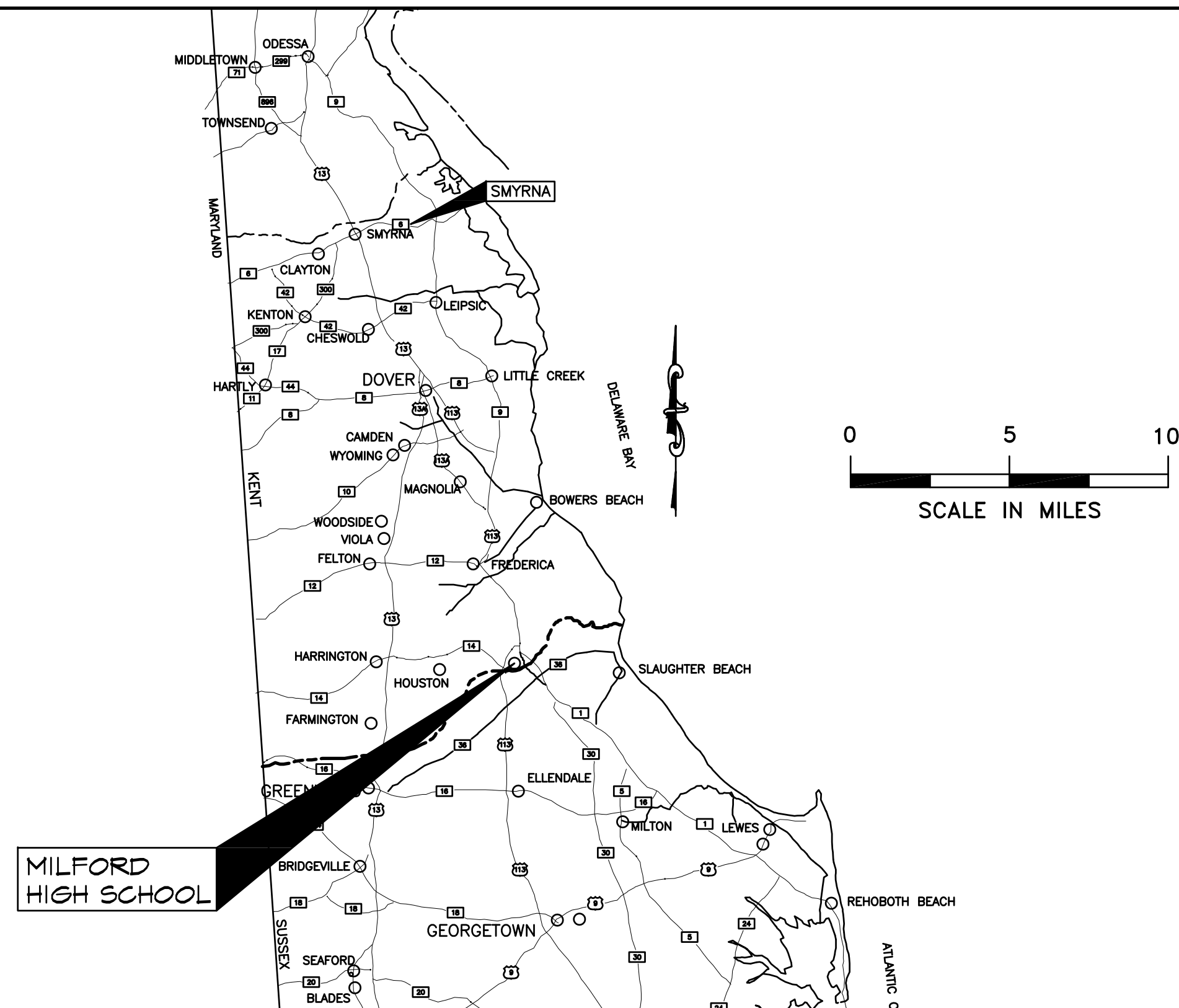
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410.543.9091

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1. THESE DRAWINGS ARE PROVIDED FOR THE EXCLUSIVE USE OF THE OWNER. OWNER/ARCHITECT SERVICES AGREEMENT IS FOR ARCHITECTURAL DRAWINGS REQUIRED FOR PERMIT & APPROVAL FOR BUILDING RENOVATIONS. EXTENSIVE DRAWINGS AND SPECIFICATIONS ARE NOT PART OF THE OWNER/ARCHITECT AGREEMENT.
2. IT IS AGREED THAT THE PROFESSIONAL SERVICES OF THE ARCHITECT DO NOT EXTEND TO OR INCLUDE THE REVIEW OR OBSERVATION OF THE CONTRACTOR'S WORK OR PERFORMANCE.
3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS BEFORE CONSTRUCTION. ANY VARIATIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION PRIOR TO CONSTRUCTION.
4. ANY ITEMS NOT SPECIFICALLY SHOWN ON THE DRAWINGS, BUT WHICH ARE REASONABLY INCIDENTAL TO AND NECESSARY FOR THE SATISFACTORY COMPLETION OF THE PROJECT IN ACCORDANCE WITH INDUSTRY STANDARDS, ARE INCLUDED WITHIN THE INTENT OF THESE DRAWINGS.
5. BUILDING CODE COMPLIANCE, CONSTRUCTION DETAILING, AND COORDINATION RESULTING FROM THE USE OF THESE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. INTERIOR FINISHES SHALL BE IN COMPLIANCE WITH THE LIFE SAFETY CODE, GOVERNING EDITION.
7. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY SHORING AND BRACING FOR DEMOLITION AND NEW CONSTRUCTION.



LOCATION MAP

VICINITY MAP

MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

TITLE SHEET

G-101

RI1187A007 A02 - MILFORD HS HVAC - PHASE 201-DESIGN DEVELOPMENT-G-102 SYMBOLS AND ABBREVIATIONS.dwg Mar 15, 2023 - 8:56am baum

ARCHITECTURAL WORKING
DRAWING ABBREVIATIONS

SYMBOLS used as abbreviations

∠ angle
CL centerline
d penny
⊥ perpendicular
PL plate
○ round

ABBREVIATIONS

ABV above
AFF above finish floor
ACC access
ACFL access floor
AP access panel
AC acoustical
ACT acoustical tile
ACD addendum
ADH adhesive
ADJ adjacent
ADJT adjustable
AGG aggregate
A/C air conditioning
ALT alternate
AL aluminum
ANC anchor, anchorage
AB anchor bolt
ANDO anodized
APX approximate
ARCH architect (ural)
AD area drain
ASB asbestos
ASPH asphalt
AUTO automatic

BP back plaster (ed)
BSMT basement
BRG bearing
BPL bearing plate
BM bench mark
BEL below
BET between
BVL beveled
BIT bituminous
BLK block
BLKG blocking
BD board
BS both sides
BW both ways
BOT bottom
BRK brick
BRZ bronze
BLDG building
BUR built up roofing
BBD bulletin board

CAB cabinet
CPT carpet
CSMT casement
CIPC cast-in-place-concrete
CB catch basin
CK caulking
CLG ceiling
CHT ceiling height
CEM cement
CGPL cement plaster (portland)
CTR center
CER ceramic
CT ceramic tile
GMT ceramic mosaic tile
CHBD chalkboard
CHAM chamfer
CIR circle
CIRC circumference
CLR clear or clearance
COL column
COMB combination
CONC concrete
CMU concrete masonry unit
CONTR contract (or)
CONST construction
CONT continuous or continue
CLL contract limit line
CJT central joint
CPR copper
CORR corrugated
CTR counter
CFL counterflashing
CTSCK countersunk screw
CRS course (s)
CFT cubic feet
CYD cubic yard

DFR damper

DP damp proofing
DL dead load
DEM demolish, demolition
DTL detail
DIAG diagonal
DIAM diameter
DR door
DA double acting
DH double hung
DN down
DS downspout
D drain
DT drain tile
DWR drawer
DNG drawing
DF drinking fountain
D dryer

EF each face
E east
ELEC electric (al)
EP electrical panelboard
ENC electric water cooler
EL elevation
ELEV elevator
EMER emergency
ENC enclose
EQ equal
EQP equipment
EST estimate
EXCA excavate
EXH exhaust
EXG existing
EJT expansion joint
EB expansion bolt
EXP exposed
EXT exterior

FE fire extinguisher
FEC fire extinguisher cabinet
FOF face of finish
FOM face of masonry
FOS face of studs
FF factory finish
FAS fasten, fastener
FN fence
FBD fiberboard
FGL fiberglass
FRP fiberglass reinforced plastic
FIN finish (ed)
FFE finished floor elevation
FFL finished floor line
FA fire alarm
FE fire extinguisher
FEC fire extinguisher cabinet
FPL fireplace
FLG flashing
FLR floor (ing)
FLCO floor cleanout
FD floor drain
FLPL floor plate
FLUR fluorescent
FTG footing
FND foundation
FR frame (d) (ing)
FBO furnished by others
FUR furred (ing)
FUT future

GA gage, gauge
GV galvanized
GC general contract (or)
GL glass, glazing
GLB glass block
GB grab bar
GD grade, grading
GVL grave,
GT grout
GPDW gypsum drywall

HBD hardware
HDW hardware
HND hardwood
HDR header
HTG heating
HVAC heating/ventilation/air
conditioning
HD heavy duty
HT height
HDPE high-density polyethylene
HC hollow core
HM hollow metal

HOR horizontal
HB hose bib
HV heat ventilator
HWH hot water heater

INCL include (d) (ing)
ID inside diameter
INS insulate (d) (ion)
INT interior
INV invert

JC janitor's closet
JT joint
J joist

KPL kickplate
KIT kitchen
KO knockout

LBL label
LAD ladder
LB lag bolt
LAM laminate
LAV lavatory
LH left hand
L length
LT light
LTL lintel
LVR louver
LL live load

MH manhole
MFR manufacture (er)
MAD masonry
MO masonry opening
MTL material (s)
MAX maximum
MECH mechanic (al)
MC medicine cabinet
MBR member
MMB membrane
MET metal
MFD metal floor decking
MTFR metal furring
MRD metal roof decking
MTHR metal threshold
MKK millwork
MIN minimum
MIR mirror
MISC miscellaneous
MOD modular
MLD molding, moulding
MR map receptor
MT mount (ed) (ing)
MOV movable
MUL mullion

NAT natural
NOM nominal
N north
NIC not in contract
NTS not to scale

OBG obscure
OC on center (s)
OP opaque
OPG opening
OJ open-web joist
OPP opposite
OPH opposite hand
OD outside diameter
OA overall
OH overhead

PNT paint (ed)
PNL panel
PB panic bar
PTD paper towel dispenser
PTR paper towel receptor
PAR parallel
PK parking
PDB particle board
PTN partition
PV pave (d) (ing)
PTMT pavement
PERF perforate
PERI perimeter
PLAS plaster
PLAM plastic laminate
PL plate
PG plate glass
PLYD plywood

PT point
PVC polyvinyl chloride
PCF pounds per cubic foot
PLF pounds per lineal foot
PSF pounds per square foot
PSI pounds per square inch
PSL parallel strand lumber
P/C pre-cast
PFB prefabricated
FFN prefinished
PRF preformed
PRTR pressure treated wood
PL property line

QT quarry tile

RL rail (ing)
RWC rain water collector
REF reference
RFL reflect (ed) (ive) (or)
REFR refrigerator
REG register
REINF reinforce (d) (ing)
RCP reinforced concrete pipe
ROW right-of-way
RES resilient
RET return
RA return air
REV revision (s), revised
RH right hand
ROW right of way
R riser
RD roof drain
RFL roof hatch
RFG roofing
RM room
RO rough opening
RB rubber base

SCHED schedule
SNT sealant
SECT section
SSK service sink
SHTH sheathing
SHT sheet
SG sheet glass
SH shelf, shelving
SHO shore (d) (ing)
SIM similar
SKL skylight
SL sleeve
SC solid core
S south
SPC spacer
SPL special
SPEC specification (s)
SQ square
SST stainless steel
STD standard
STL steel
STOR storage
SD storm drain
STRUCT structural
SYM symmetry (ical)
SYS system

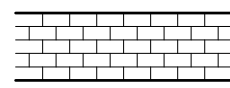
TKBD tackboard
TEL telephone
TV television
TZ terazzo
THK thick (ness)
THRES threshold
TPTN toilet partition
TPD toilet paper dispenser
TOL tolerance
T&G tongue and groove
T O SLAB top of slab
TOS top of steel
TW top of wall
TB towel bar
TRT treat (ed)
TRANS transverse
T tread
TYP typical

UC undercut
UNF unfinished
UR urinal
UNO unless noted otherwise
VB vapor barrier
VERT vertical

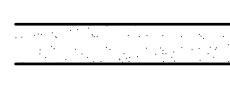
VCT vinyl composition tile
VB vinyl base
VT vinyl tile

WSCT wainscot
WH wall hung
W washing machine
WC water closet
WP waterproofing
WS waterstop
WWF welded wire fabric
W west
WHB wheel bumper
WTH wide, width
W with
WIN window
WG wired glass
WM wire mesh
WO without
WD wood
WB wood base
WPT working point

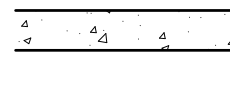
MATERIAL LEGEND



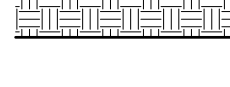
MASONRY IN ELEVATION



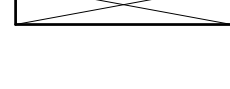
CONCRETE IN PLAN OR
DRYWALL IN PLAN OR SECTION



CONCRETE IN SECTION



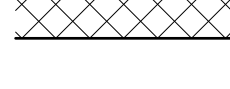
EARTH IN SECTION



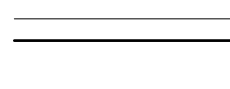
WOOD (ROUGH) IN SECTION



BRICK IN SECTION



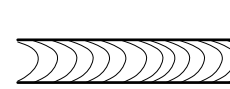
CONCRETE MASONRY UNIT
IN SECTION



BATT INSULATION
IN SECTION



RIGID INSULATION
IN SECTION



WOOD (FINISH) IN SECTION

GRAPHIC SYMBOL LEGEND



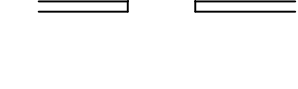
CENTER LINE



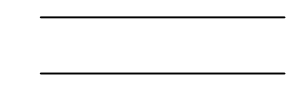
HIDDEN LINE



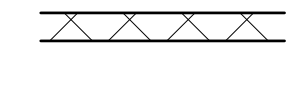
DEMOLITION



EXISTING WALL AND
DOOR TO REMAIN



EXISTING STUD OR MASONRY WALL

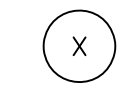


NEW CMU WALL (SEE PARTITION TYPES
FOR REQUIREMENTS)



NEW STUD WALL (SEE PARTITION TYPES
FOR REQUIREMENTS)

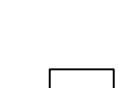
SYMBOLS LEGEND



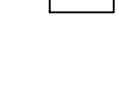
DRAWING KEYNOTE



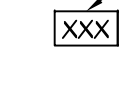
DOOR TAG (SEE DOOR SCHEDULE)



PARTITION TYPE



ROOM TAG



ROOM FINISH DESIGNATION



ELEVATION
XX = SHEET NUMBER
YY = ELEVATION NUMBER



NORTH ARROW



PROJECT NORTH



SECTION DETAIL

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MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

COMMENTS

DATE

Date: MARCH 15, 2023

Scale: AS NOTED

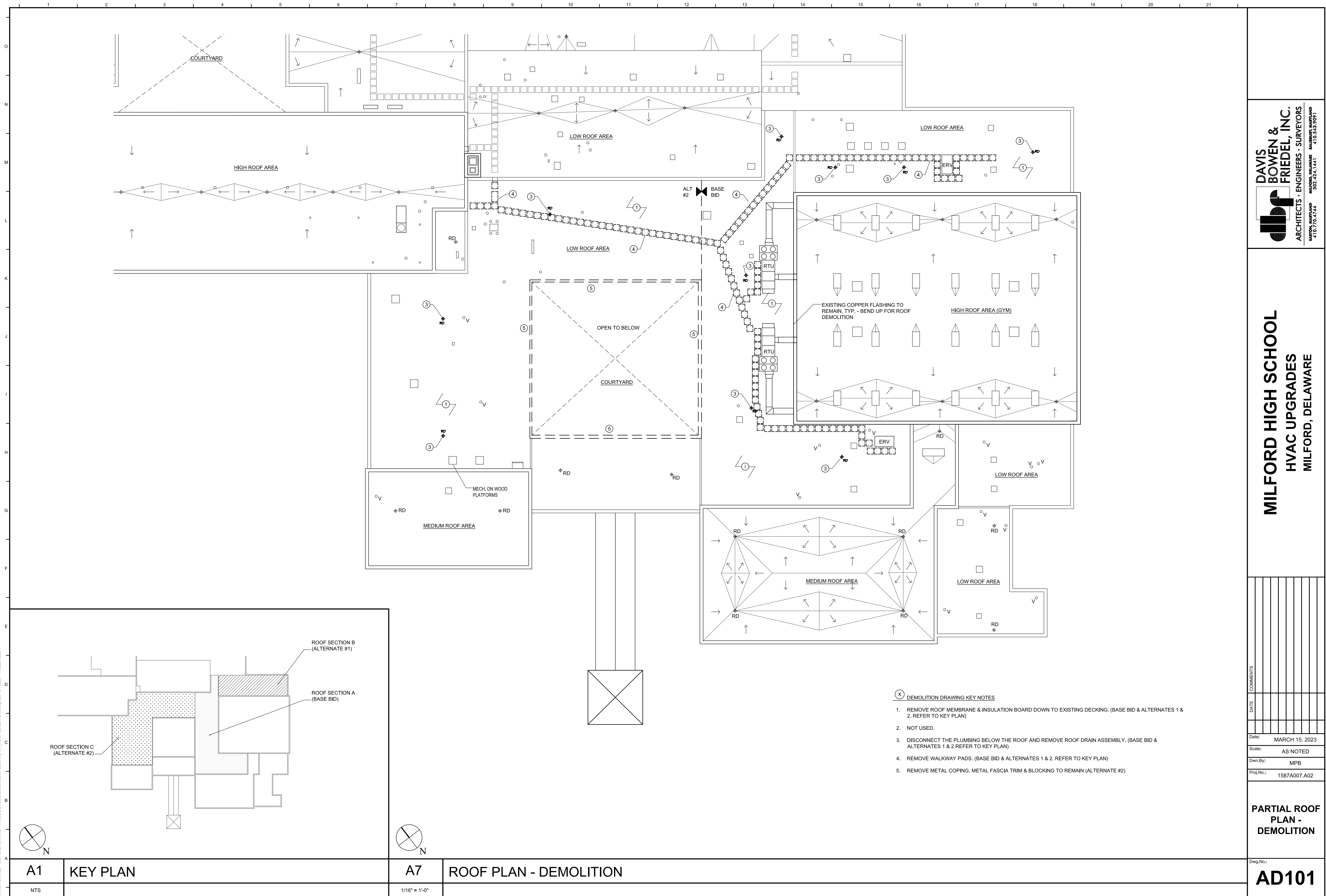
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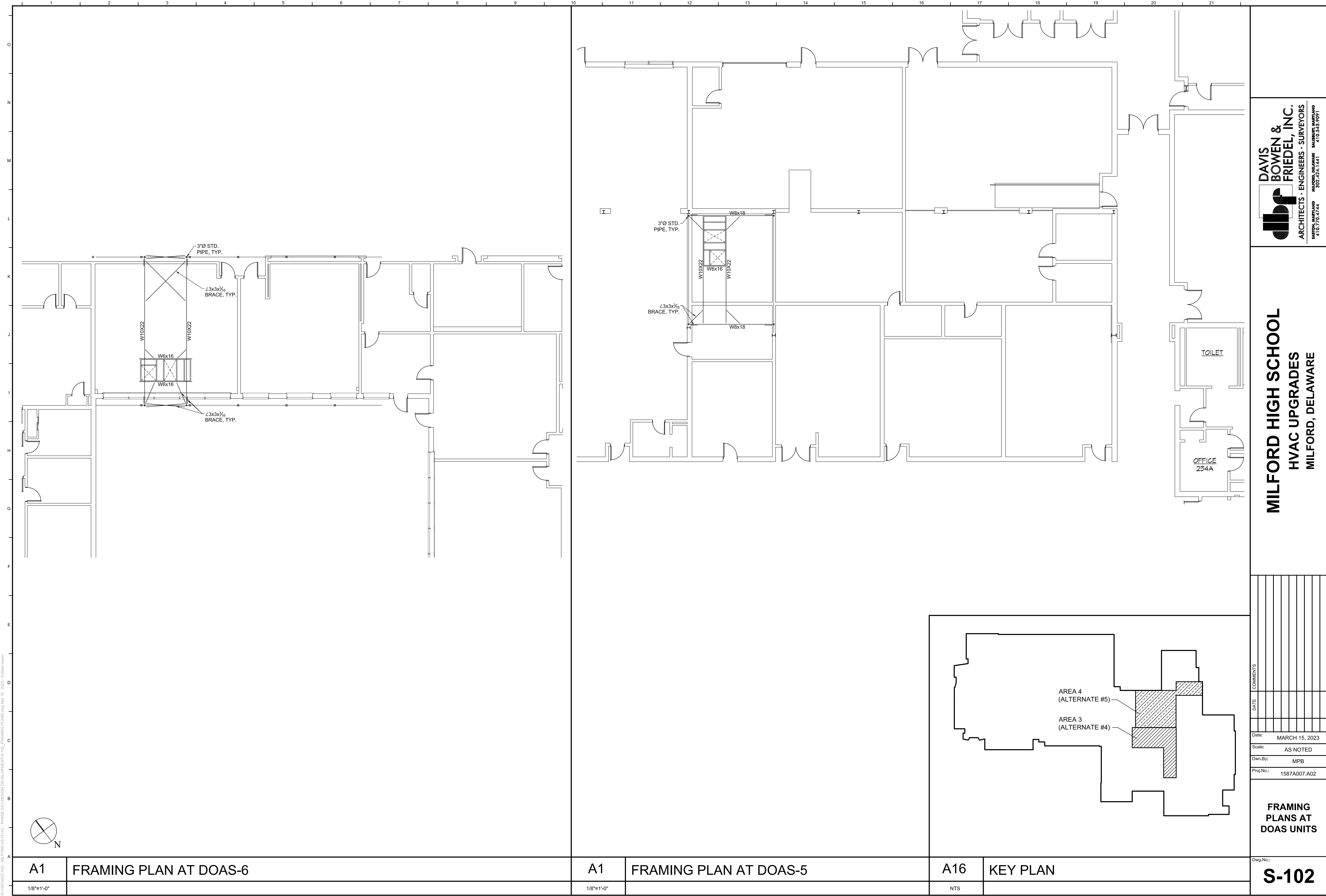
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SYMBOLS &
ABBREVIATIONS

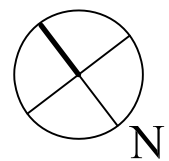
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G-102





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A1
FRAMING PLAN AT DOAS-6

1/8"=1'-0"

A1
FRAMING PLAN AT DOAS-5

1/8"=1'-0"

A16
KEY PLAN

NTS

FRAMING
PLANS AT
DOAS UNITS

Dwg.No.:

S-102

COMMENTS

DATE

Date: MARCH 15, 2023

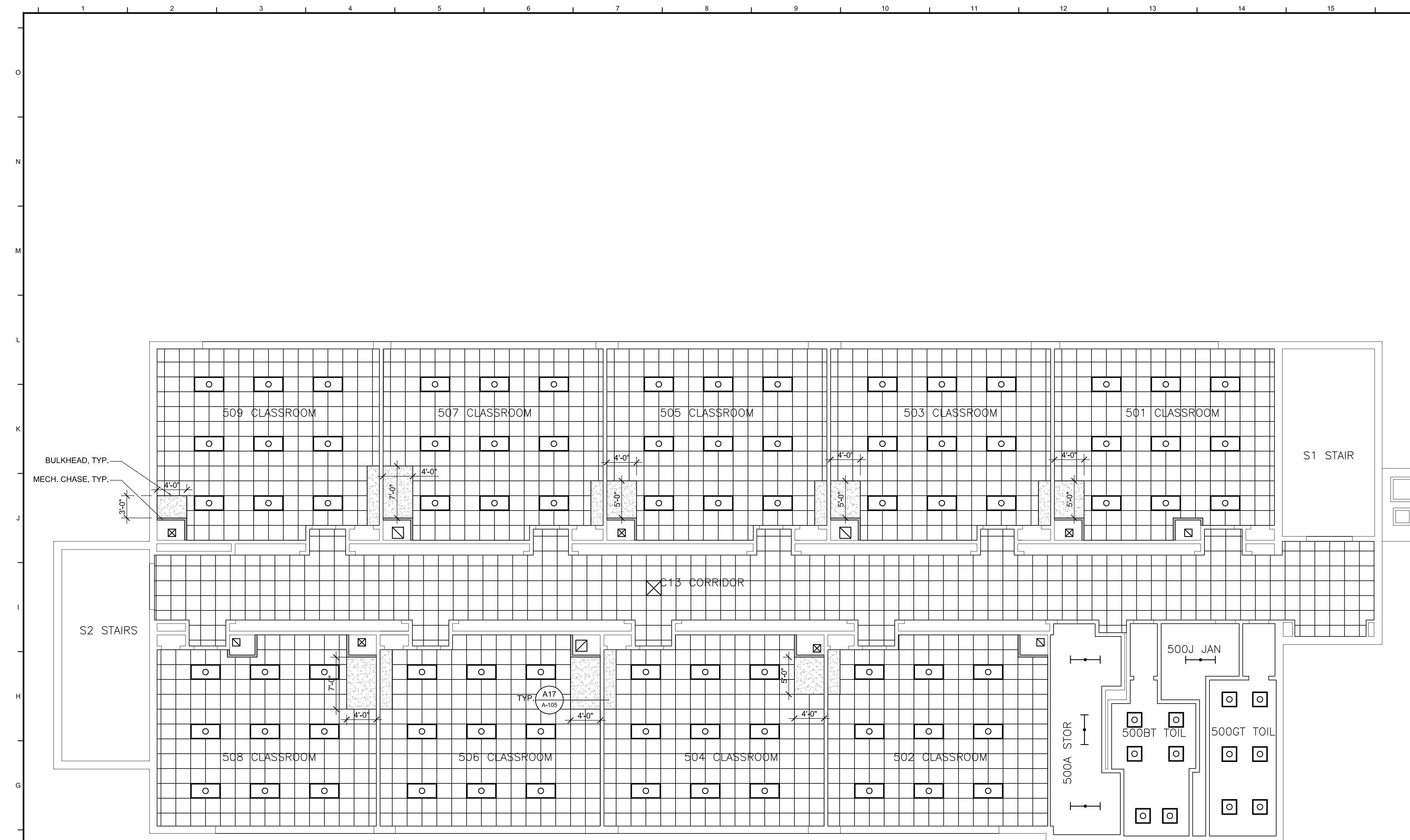
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MILFORD, DELAWARE

[illegible]

Date:	MARCH 15, 2023								
Scale:	AS NOTED								
Dwn.By:	MPB								
Proj.No.:	1587A007.A02								

**SECOND
FLOOR
REFLECTED
CEILING PLAN**

Dwg.No.:
A-105



FIRE SUPPRESSION REQUIREMENTS

	BREAKLINE
	MATCHLINE DESIGNATION
(E)	EXISTING
	POINT OF CONNECTION TO
	POINT OF TERMINATION OF
#	NOTE NUMBER
	ROOM NUMBER

- DAVIS
BOWEN &
FRIEDEL, INC.**
- ARCHITECTS • ENGINEERS • SURVEYORS**
- dbf**
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- BALTIMORE, DELAWARE
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- BAYTON, MARYLAND
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MILFORD HIGH SCHOOL

HVAC UPGRADES

MILFORD, DELAWARE

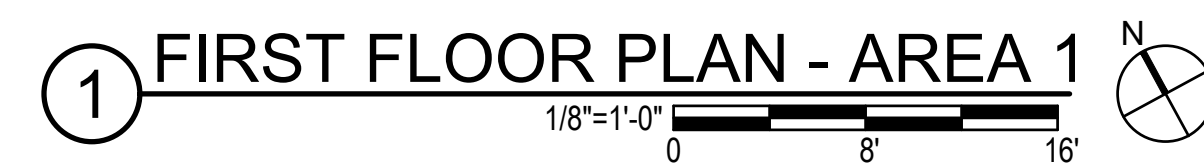
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SYMBOLS AND ABBREVIATIONS

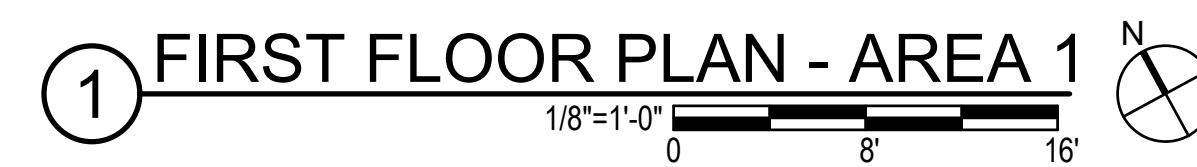
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FX001

1. DISCONNECT AND REMOVE FIRE SUPPRESSION PIPE, FITTINGS, SUPPORTS, AND SPRINKLERS BETWEEN POINTS INDICATED.

[illegible]

1. MODIFY FIRE SUPPRESSION PIPE, FITTINGS, SUPPORTS, AND SPRINKLERS AS NECESSARY TO SUPPORT HVAC DUCTWORK INSTALLATION. PROTECT EXISTING TO REMAIN SPRINKLER HEADS DURING DEMOLITION AND CONSTRUCTION.
2. PROVIDE 1-1/4 INCH BRANCH PIPING BETWEEN THE POINTS INDICATED. CONNECT TO EXISTING 1-1/4 INCH BRANCH LINES AT POINTS INDICATED. COORDINATE PIPE ROUTING WITH MECHANICAL EQUIPMENT LOCATIONS AND REQUIRED CLEARANCES.

[illegible]

Rate:	FEBRUARY 2023
Scale:	AS NOTED
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FIRST FLOOR PLAN
- AREA 1

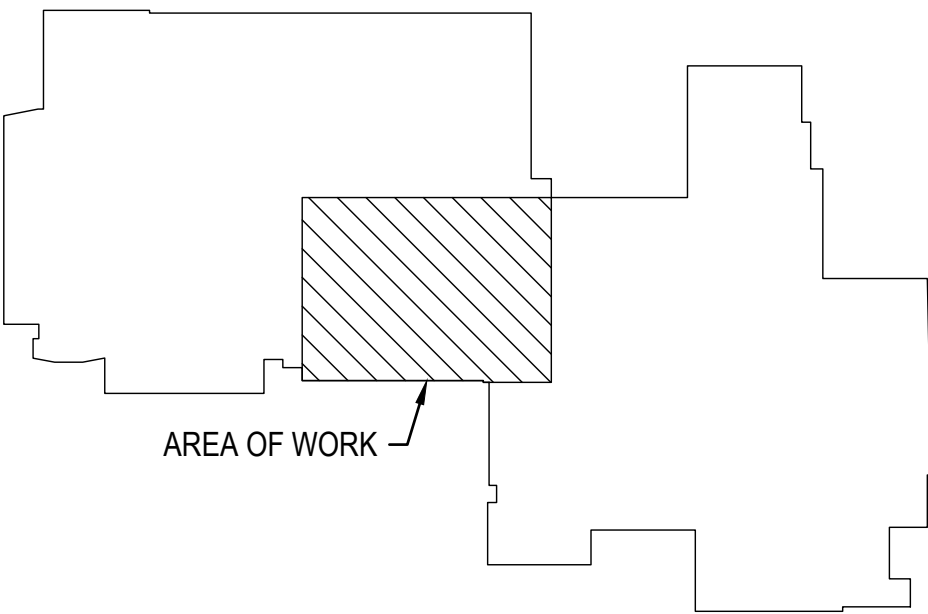
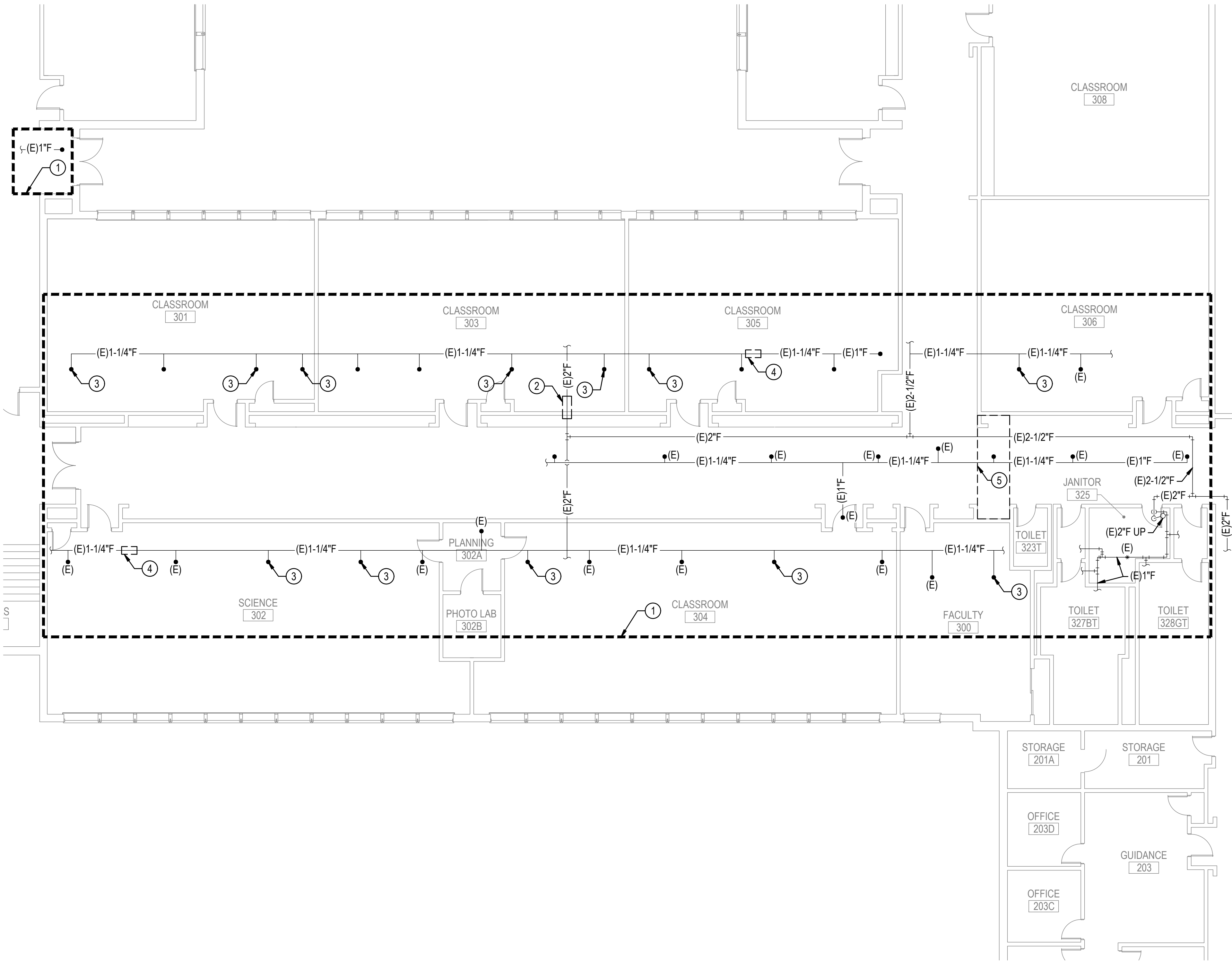
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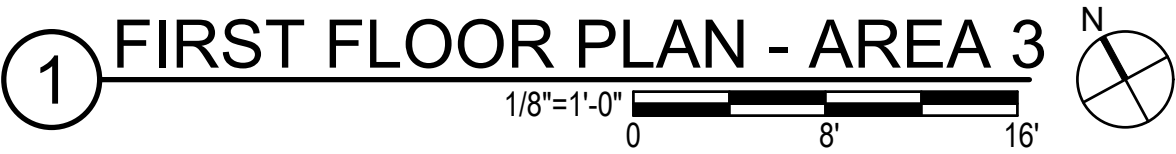
NOTES

- 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. MODIFY FIRE SUPPRESSION PIPE, FITTINGS, SUPPORTS, AND SPRINKLERS AS NECESSARY TO SUPPORT HVAC DUCTWORK INSTALLATION. PROTECT EXISTING TO REMAIN SPRINKLER HEADS DURING DEMOLITION AND CONSTRUCTION.
2. REROUTE PORTION OF EXISTING 2-INCH CROSS MAIN ABOVE MECHANICAL DUCTWORK.
3. RELOCATE EXISTING SPRINKLER HEAD AND ASSOCIATED DROP AS NECESSARY TO AVOID OBSTRUCTION OF DISCHARGE CREATED BY BULKHEAD.
4. RELOCATE PORTION OF EXISTING BRANCH LINE AS NECESSARY TO AVOID CONFLICT WITH MECHANICAL DUCTWORK INSTALLATION.
5. RELOCATE EXISTING SPRINKLER HEAD AND ASSOCIATED DROP AS NECESSARY TO AVOID CONFLICT WITH MECHANICAL DUCTWORK INSTALLATION. PROVIDE APPROPRIATE SPRINKLER COVERAGE BELOW OBSTRUCTIONS GREATER THAN 4 FEET IN WIDTH.

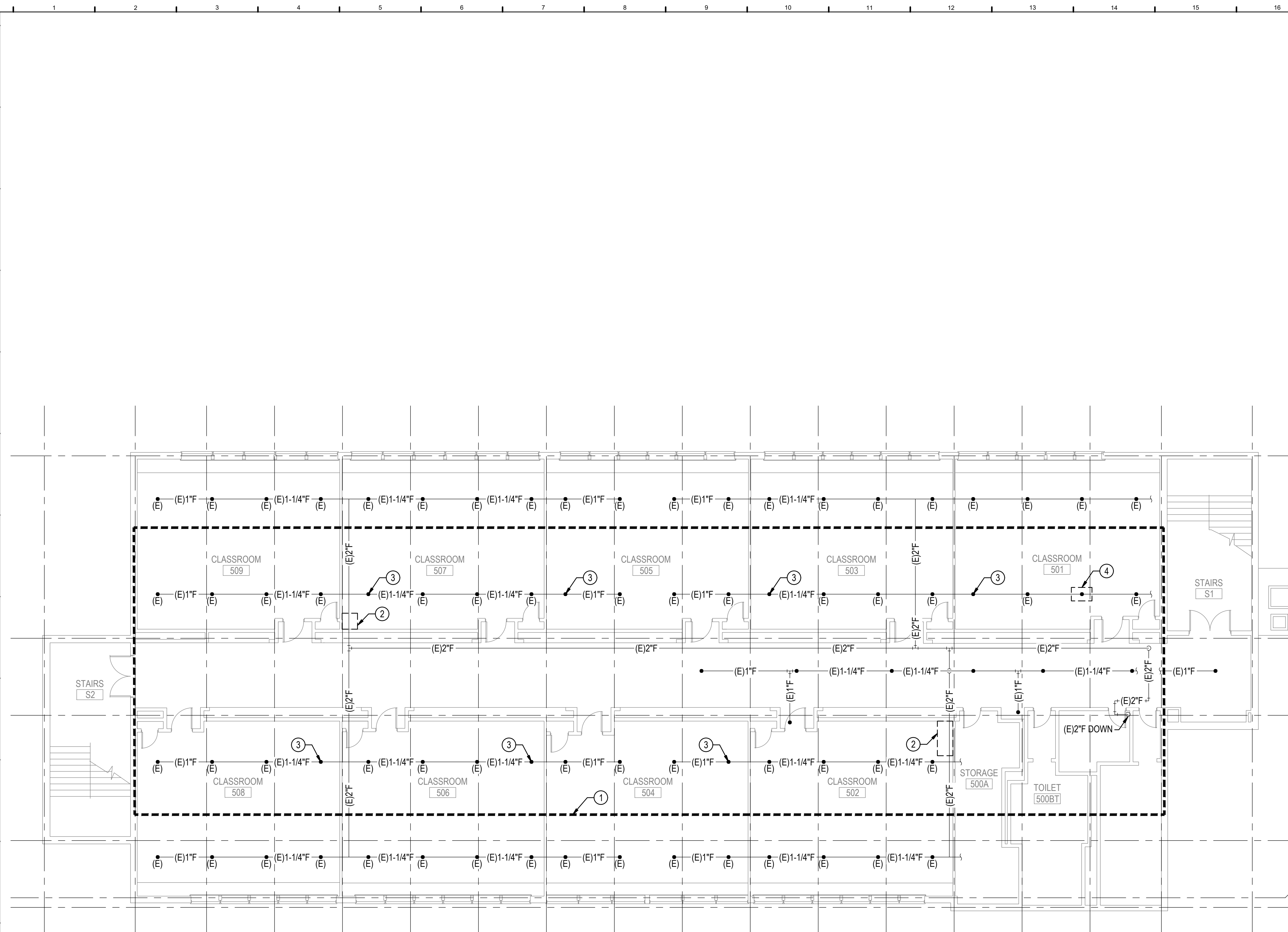


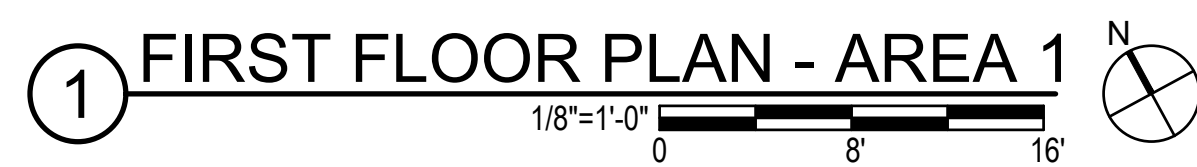
KEY PLAN



FX103

KEY PLAN





KEY PLAN

MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

Dwg.No.:
FA101

1. REMOVE PIPING AND ALL ASSOCIATED VALVES, INSULATION, SUPPORTS, HANGERS, AND APPURTENANCES TO POINT INDICATED.
2. REMOVE MOTOR OPERATED DAMPER ASSOCIATED WITH EXISTING OA LOUVER. BLANK-OFF EXISTING OA LOUVER TO (E) UV UNIT.

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302.424.1441

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**MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE**

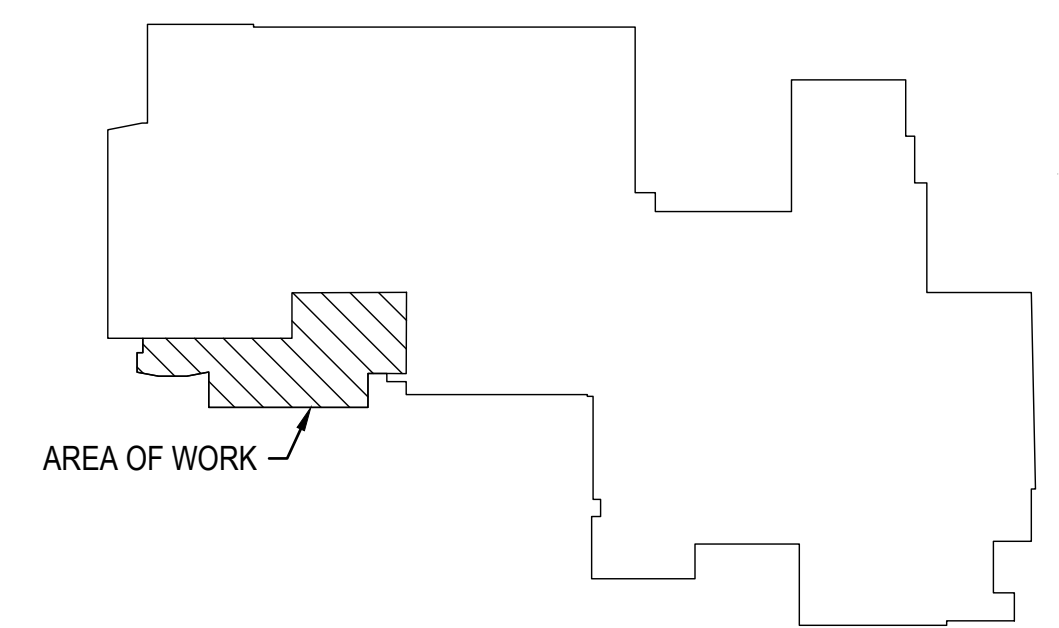
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Due:	FEBRUARY 2023
File:	AS NOTED
By:	JHG
File No.:	1587A007.A02

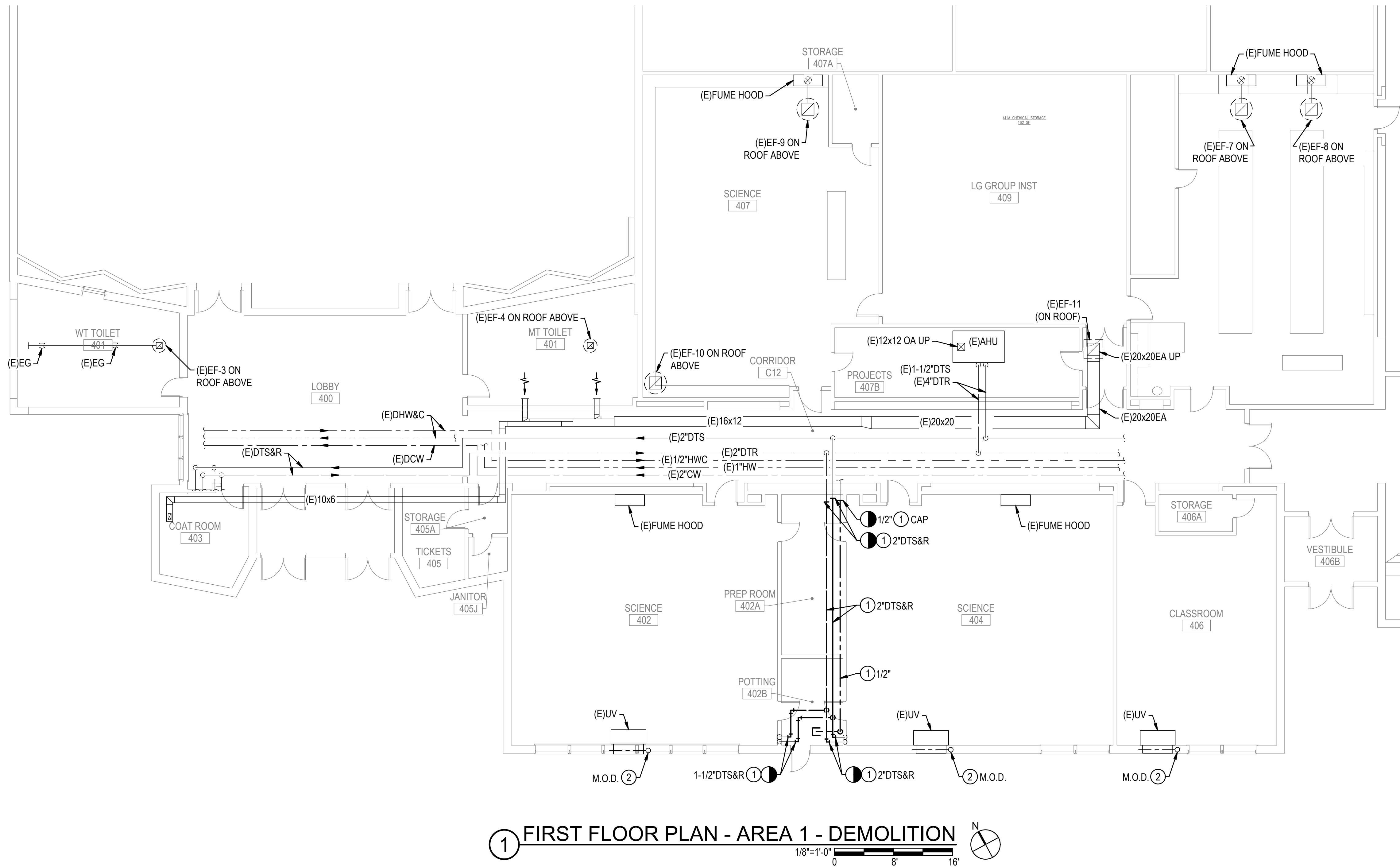
FIRST FLOOR PLAN
- AREA 1 -
DEMOLITION

g.No.:

MD101



KEY PLAN



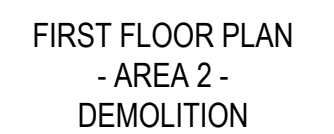


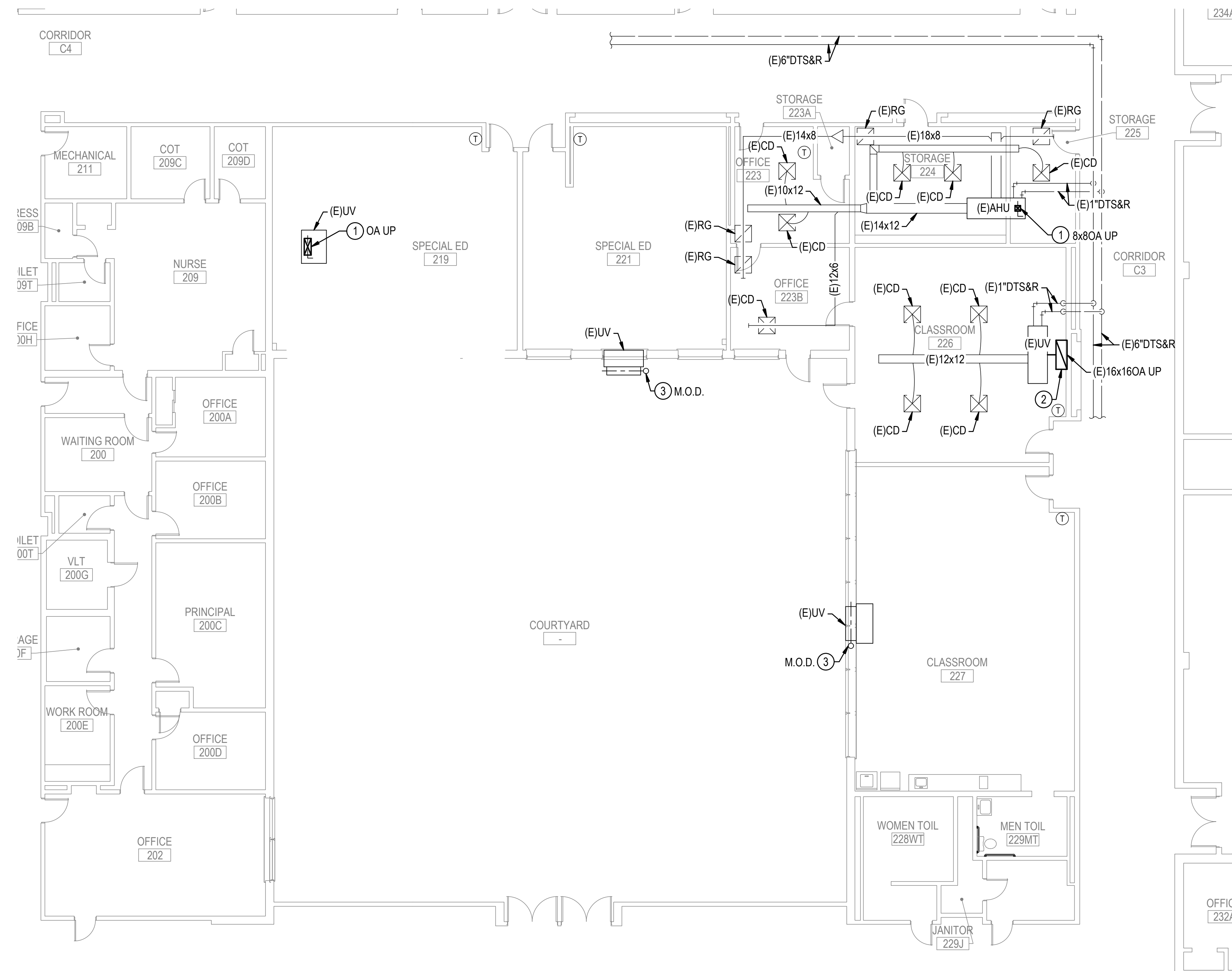
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[illegible]



GENERAL NOTES

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

NOTES

1. REMOVE EXISTING OA DUCT UP TO INTAKE HOOD ON ROOF AND ALL ASSOCIATED INSULATION, DAMPERS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE. CAP AND SEAL EXISTING DUCT OPENING TO (E) AHU UNIT. PATCH AND SEAL EXISTING ROOF OPENING.
2. REMOVE EXISTING OA DUCT UP TO INTAKE HOOD ON ROOF AND ALL ASSOCIATED INSULATION, DAMPERS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE. CAP AND SEAL EXISTING DUCT OPENING TO (E) UV UNIT. PATCH AND SEAL EXISTING ROOF OPENING.
3. REMOVE MOTOR OPERATED DAMPER ASSOCIATED WITH EXISTING OA LOUVER. BLANK-OFF EXISTING OA LOUVER TO (E) UV UNIT.

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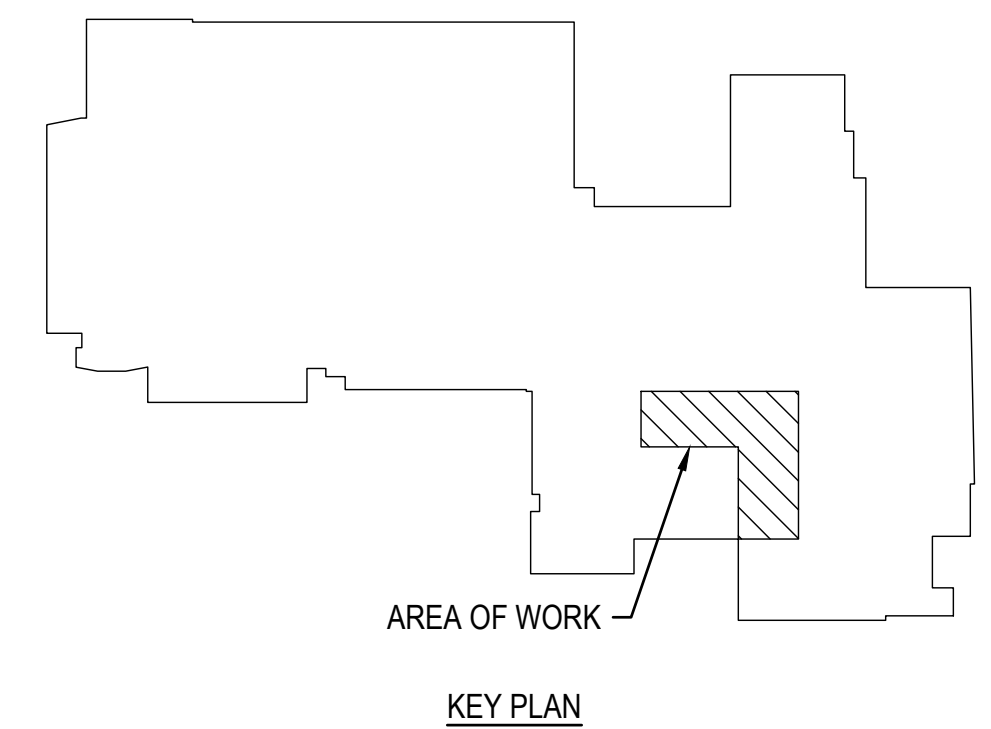
MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

[illegible]

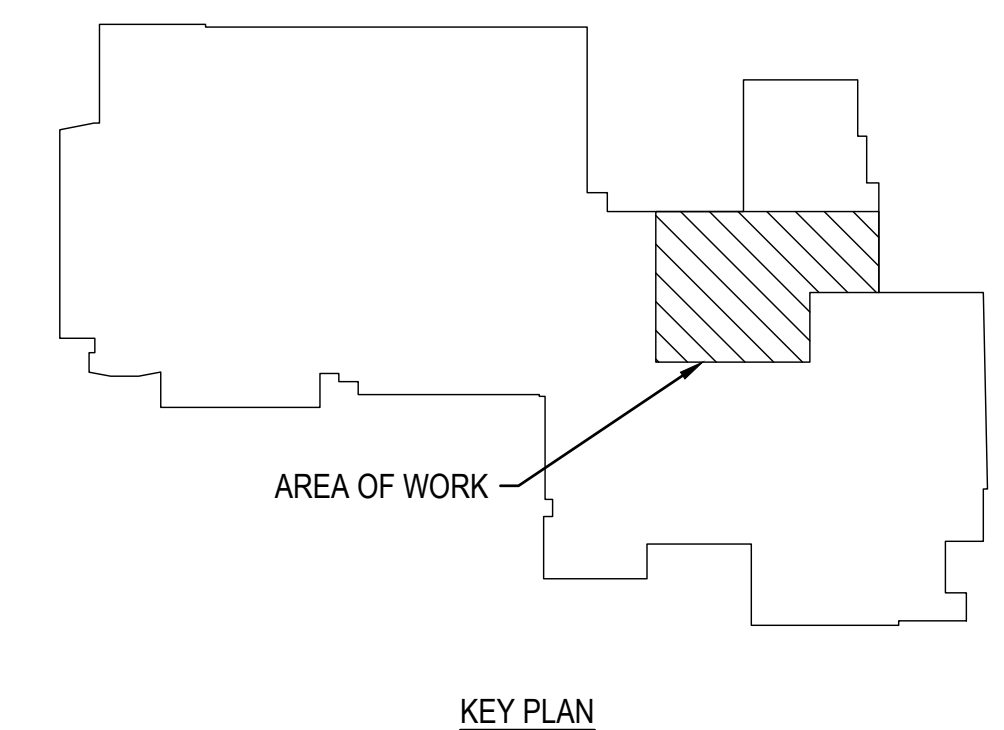
FIRST FLOOR PLAN
- AREA 3 -
DEMOLITION

g.No.:

MD103



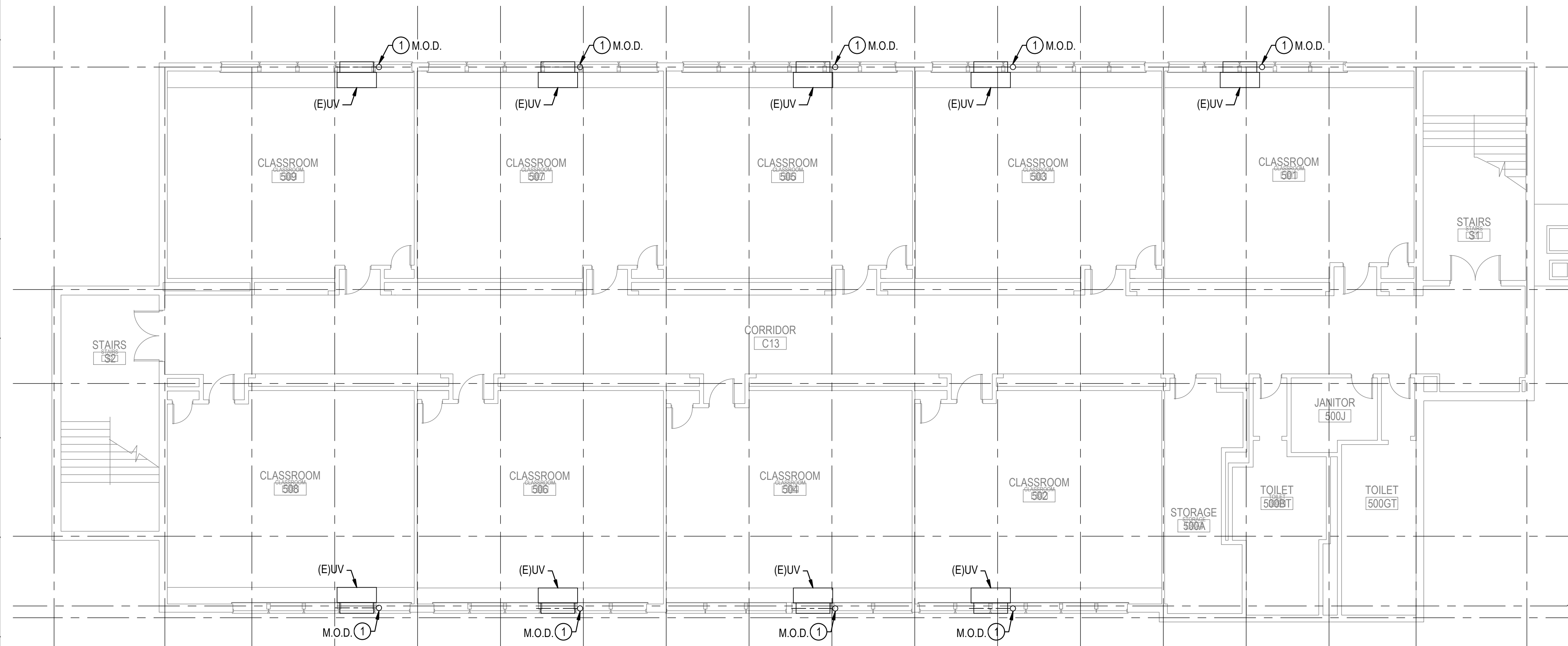
1. REMOVE EXISTING OA DUCT UP TO INTAKE HOOD ON ROOF AND ALL ASSOCIATED INSULATION, DAMPERS, SUPPORTS, HANGERS, AND APPURTENANCES COMPLETE. CAP AND SEAL EXISTING DUCT OPENING TO (E) UV UNIT. PATCH AND SEAL EXISTING ROOF OPENING.
2. REMOVE DUCTWORK AND ALL ASSOCIATED INSULATION, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE TO POINT INDICATED.
3. REMOVE PIPING AND ALL ASSOCIATED INSULATION, HANGERS, SUPPORTS, AND APPURTENANCES COMPLETE TO POINT INDICATED.

[illegible]

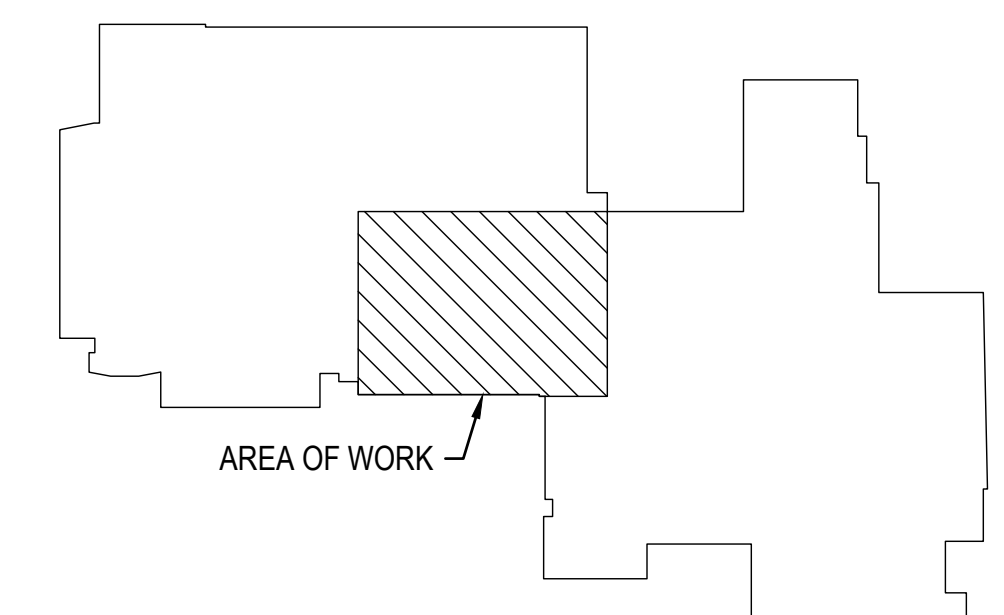
- G1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.

NOTES

1. REMOVE EXISTING MOTOR OPERATED DAMPER ASSOCIATED WITH EXISTING OA LOUVER. BLANK-OFF EXISTING OA LOUVER TO (E) UV UNIT.



1 SECOND FLOOR PLAN - AREA 2 - DEMOLITION



KEY PLAN

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[illegible]



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[illegible]

Dwg.No.:

MD106



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

1. REMOVE EXHAUST DUCT BACK TO ROOF.



MILFORD HIGH SCHOOL

HVAC UPGRADES

MILFORD, DELAWARE

[illegible]

Date:	FEBRUARY 2023
Scale:	AS NOTED
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Proj.No.:	1587A007.A02

ROOF PLAN - AREA
2 - DEMOLITION

Dwg.No.:
MD107



1. REMOVE EXISTING OA INTAKE HOOD ON ROOF. REMOVE ASSOCIATED EXISTING OA DUCT. PATCH AND SEAL EXISTING ROOF OPENING.



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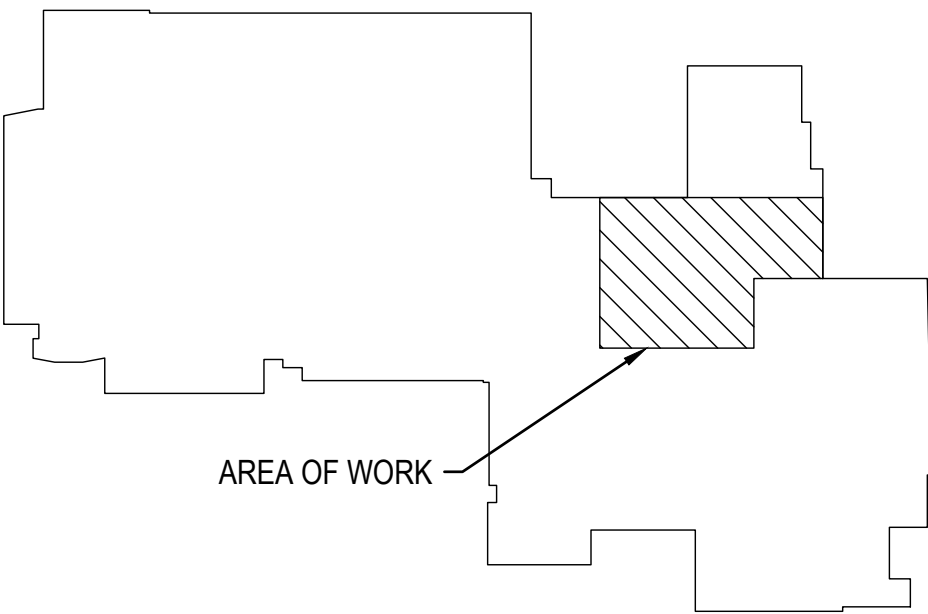
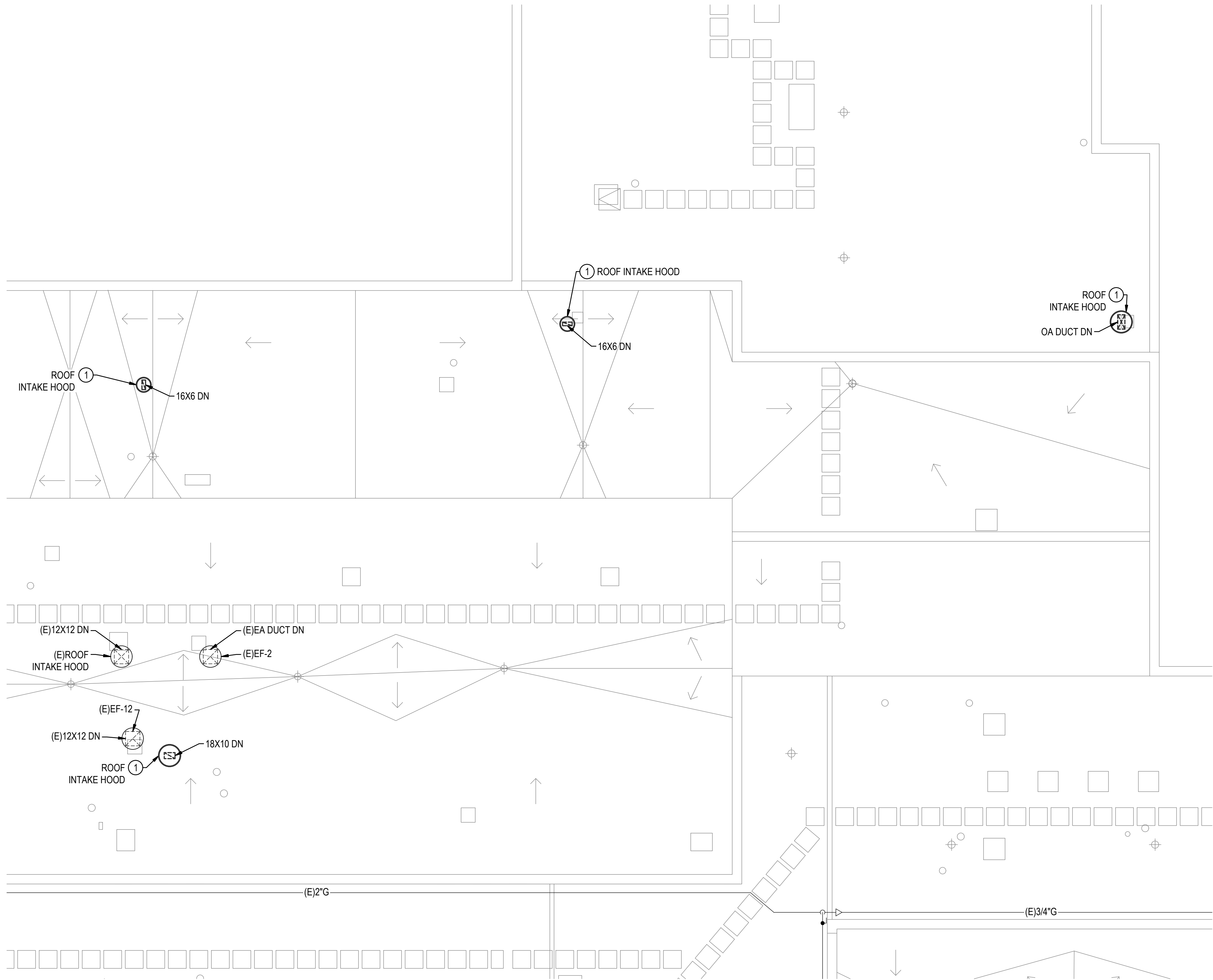
MILWAUKEE, WISCONSIN
302.322.1441

SALZBURG, MISSOURI
410.543.0991

MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

NOTES

1. VERIFY LOCATION AND DIMENSIONS OF EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
- NOTES**
1. REMOVE EXISTING OA INTAKE HOOD ON ROOF. REMOVE ASSOCIATED EXISTING OA DUCT. PATCH AND SEAL EXISTING ROOF OPENING.



KEY PLAN

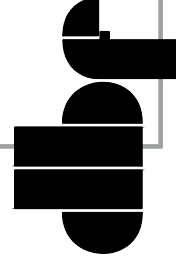
GENERAL NOTES

- 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. NEW 22x22 SUPPLY AIR DUCT UP TO DOAS-5 LOCATED ON ROOF. PROVIDE PENETRATION THROUGH EXISTING ROOFING. FLASH AND SEAL PENETRATION WATER-TIGHT.
2. NEW 22x22 RETURN AIR DUCT UP TO DOAS-5 LOCATED ON ROOF. PROVIDE PENETRATION THROUGH EXISTING ROOFING. FLASH AND SEAL PENETRATION WATER-TIGHT.
3. INSULATE PIPING TO MATCH EXISTING PIPE INSULATION TYPE AND THICKNESS.

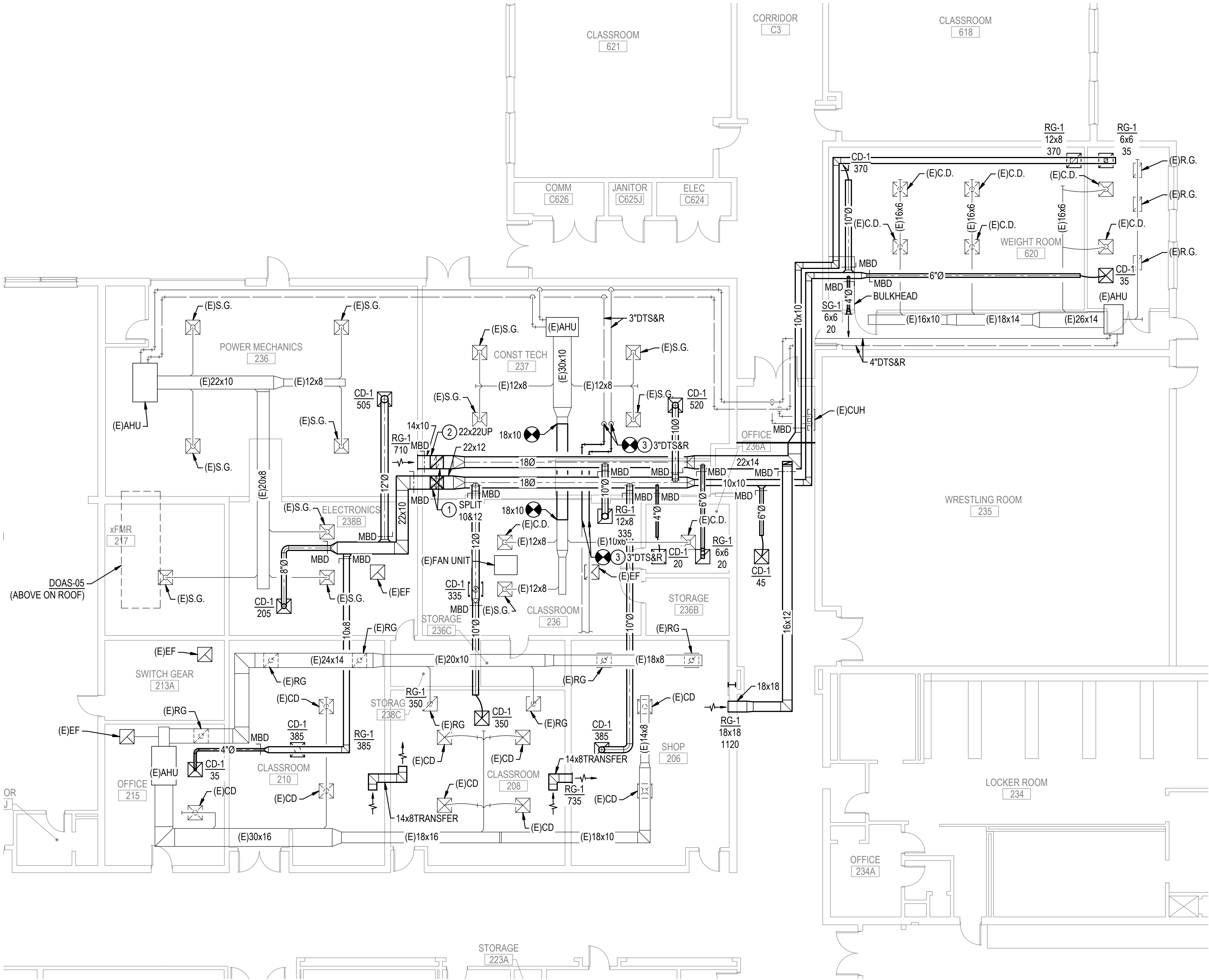
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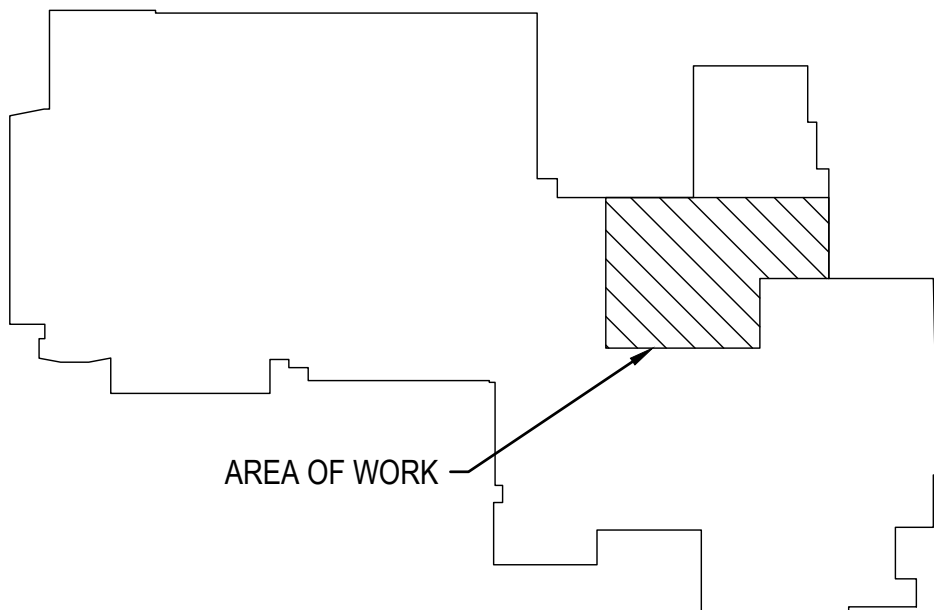
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MILFORD HIGH SCHOOL
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MILFORD, DELAWARE

COMMENTS									
DATE									
Date: FEBRUARY 2023									
Scale: AS NOTED									
Dwn.By: JHG									
Proj.No.: 1587A007.A02									
FIRST FLOOR PLAN - AREA 4									
Dwg.No.: M-104									



1 FIRST FLOOR PLAN - AREA 4
1/8"=1'-0"
0 8' 16'



KEY PLAN

1. PROVIDE PENETRATION THROUGH EXISTING ROOF FOR NEW DUCTWORK. FLASH AND SEAL PENETRATION WATER-TIGHT.
2. PROVIDE ENCLOSURE FOR NEW DUCTWORK.
3. PROVIDE PENETRATION THROUGH EXISTING WALL. SEAL PENETRATION.
4. LOCATE DUCTWORK IN JOIST SPACE.

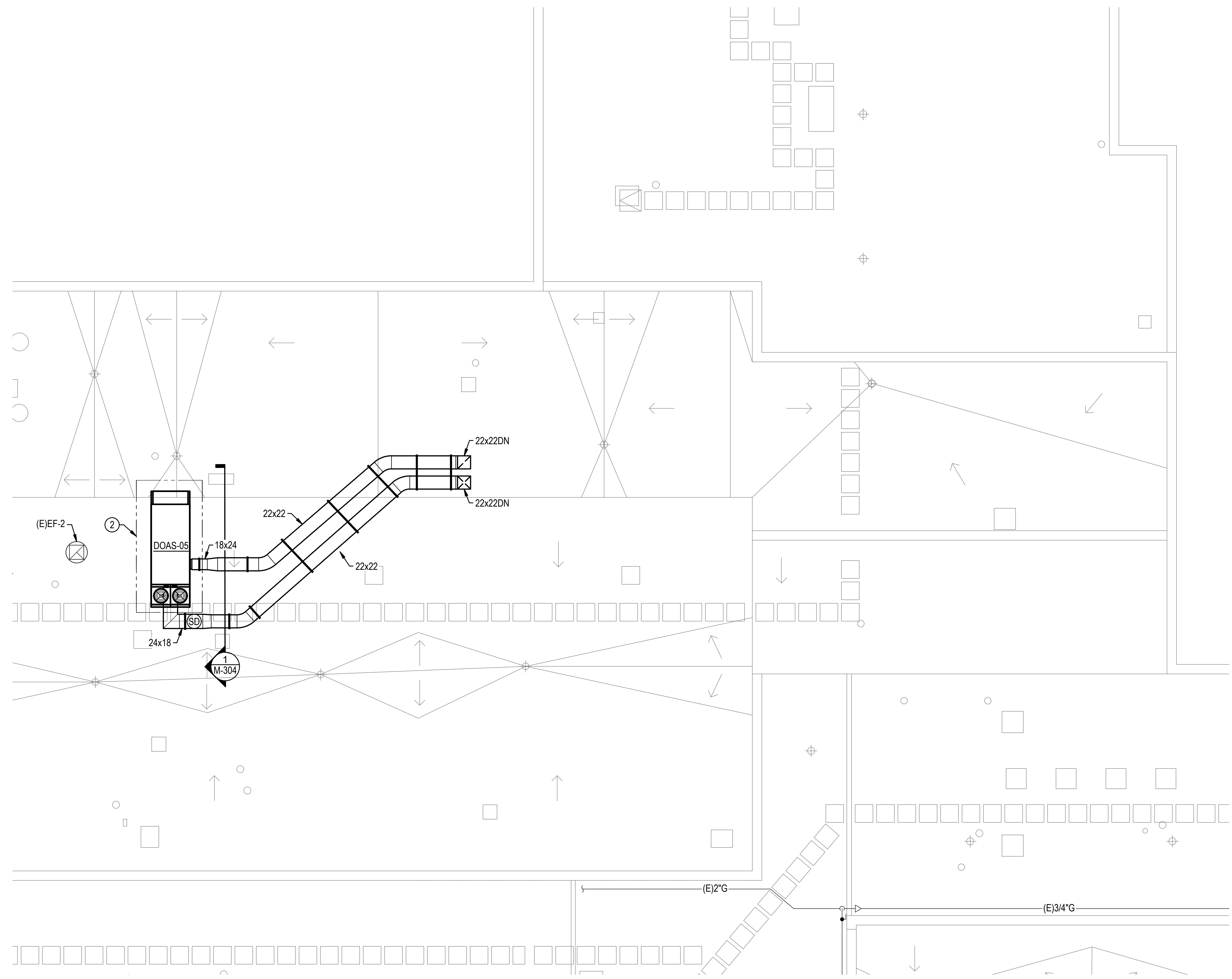
[illegible]

1. AIR-COOLED CONDENSING UNIT SHALL BE SUPPORTED FROM STRUCTURAL STEEL AT A MINIMUM HEIGHT OF 2'-0" ABOVE THE ROOF. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. PROVIDE REFRIGERANT AND HOT GAS REHEAT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE DURA-BLOCK DB10 OR EQUAL PIPE SUPPORTS ABOVE ROOF IN INCREMENTS IN ACCORDANCE WITH MAXIMUM SPACING REQUIREMENTS IN SPECIFICATIONS.
4. DISCHARGE CONDENSATE TO ROOF.



COMMENTS											
DATE											
Date: FEBRUARY 2023											
Scale: AS NOTED											
Dwn By: JHG											
Proj No.: 1587A007 A02											
ROOF PLAN - AREA 1											
Dwg No.:											
M-106											

1. ROOFTOP DOAS UNIT SHALL BE SUPPORTED FROM STRUCTURAL STEEL AT A MINIMUM HEIGHT OF 4'-0" ABOVE THE ROOF. MAIN SUPPLY AND RETURN DUCTS ARE CONNECTED TO THE UNDERSIDE OF DOAS UNIT. FOR ADDITIONAL INFORMATION, REFER TO ROOFTOP DOAS UNIT DETAIL.
2. SUPPORT DUCTWORK WITHIN THE LIMITS OF STEEL SUPPORT STRUCTURE FROM DUNNAGE. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS.

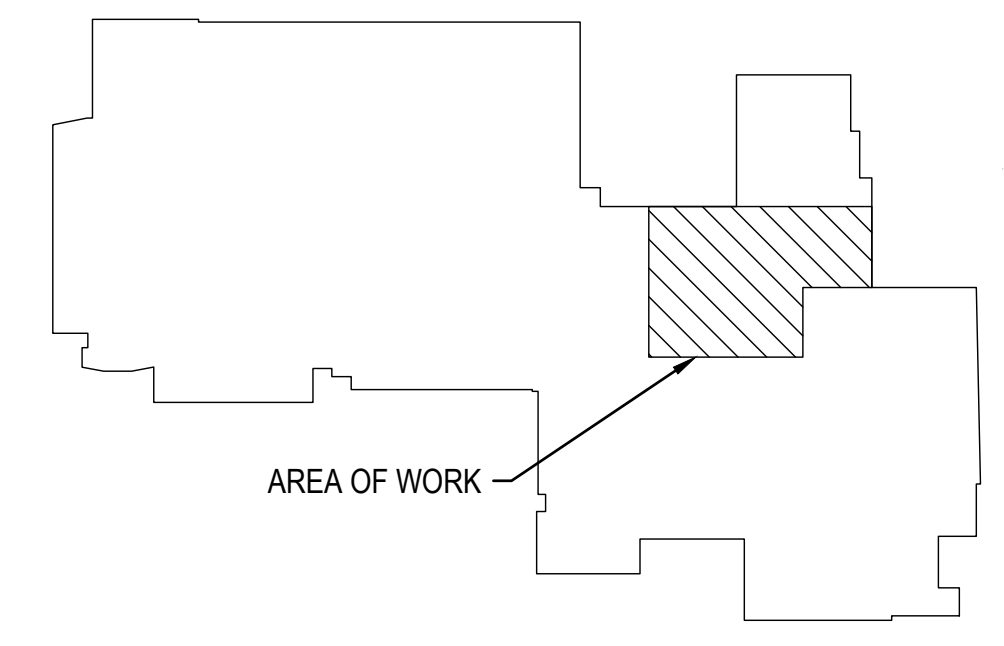


1 ROOF PLAN - AREA 4

1/8" = 1'-0"

0 8' 16'

N



KEY PLAN

dbf

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HVAC UPGRADES
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[illegible]

Date:	FEBRUARY 2023
Scale:	AS NOTED
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Proj.No.:	1587A007.A02

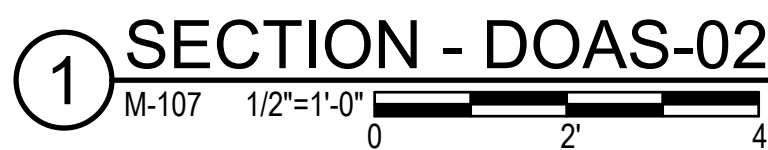
ROOF PLAN - AREA
4

Dwg.No.:

M-109

1. PROVIDE PENETRATION THROUGH EXISTING ROOF. SEAL AND FIRESTOP PENETRATION. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAILS.
2. PROVIDE PENETRATION THROUGH EXISTING CMU BLOCK WALL. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAILS.
3. PROVIDE REFRIGERANT AND HOT GAS REHEAT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
4. ROUTE DUCTWORK THROUGH OPEN-WEB JOIST SPACE.
5. DISCHARGE CONDENSATE TO ROOF.

[illegible]



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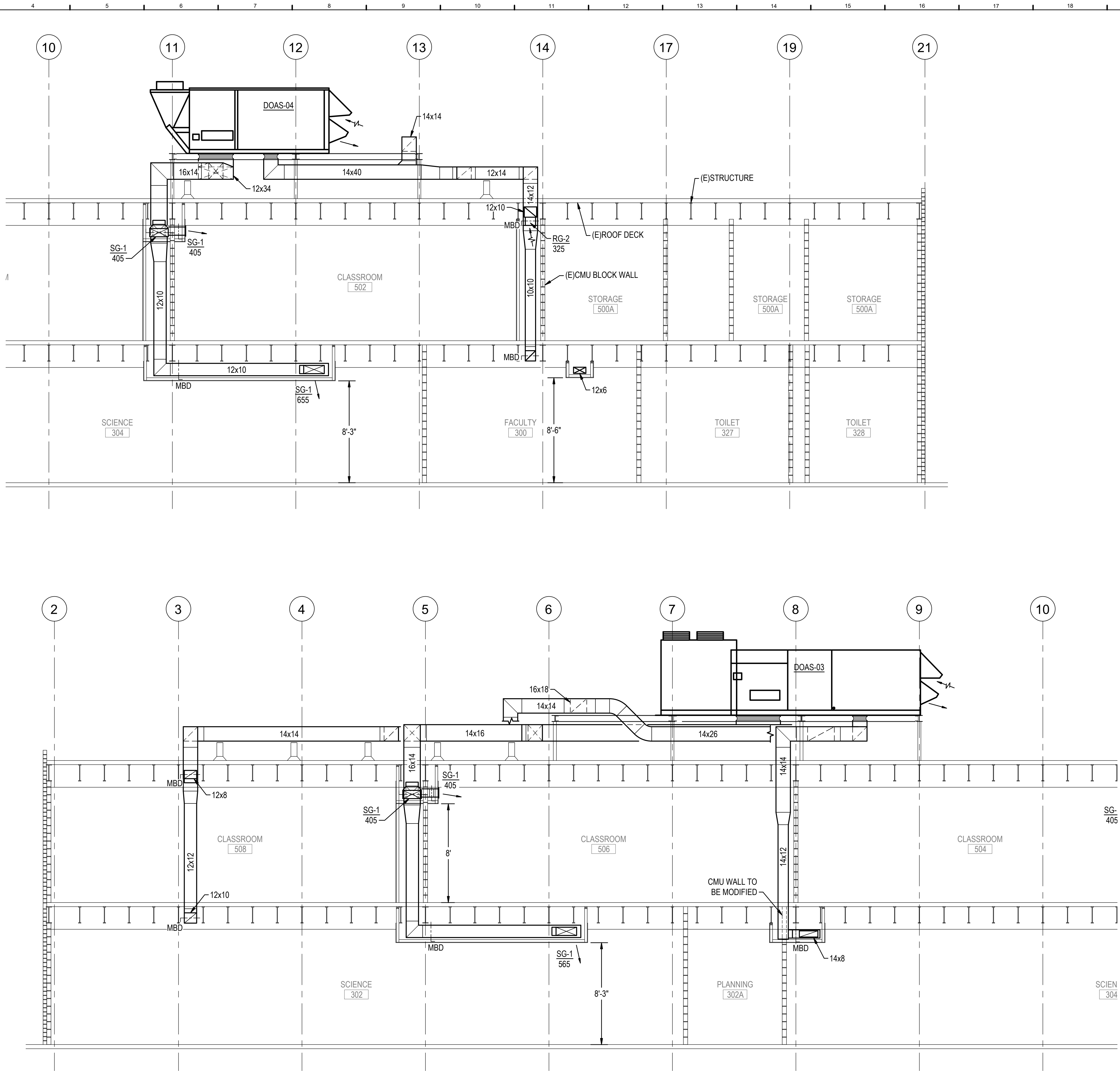
COMMENTS	DATE	Date:
		FEBRUARY 2023
		Scale: AS NOTED
		Dwn.By: JHG
		Proj.No.: 1587A007.A02
SECTIONS - DOAS-02		
Dwg.No.: M-302		

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By:	FEBRUARY 2023
As:	AS NOTED
By:	JHG
No.:	1587A007.A02

SECTIONS -
DOAS-03 & DOAS-04

g.No.:
M-303



MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

[illegible]

Date: FEBRUARY 2023

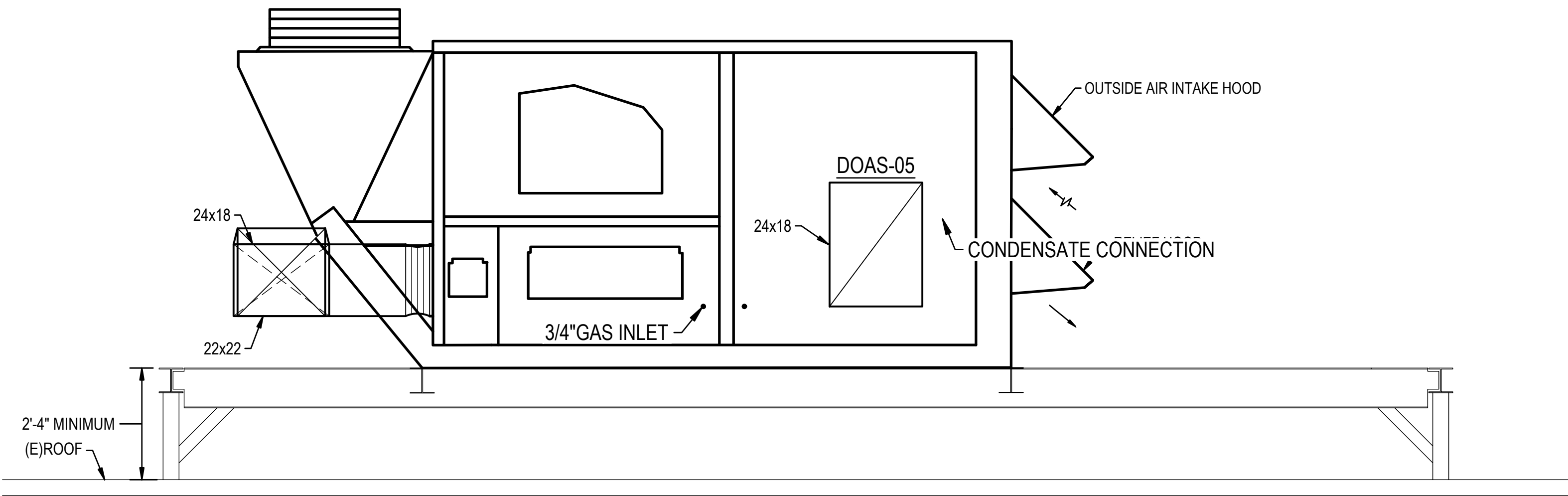
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Dwn.By: JHG

Proj.No.: 1587A007.A02

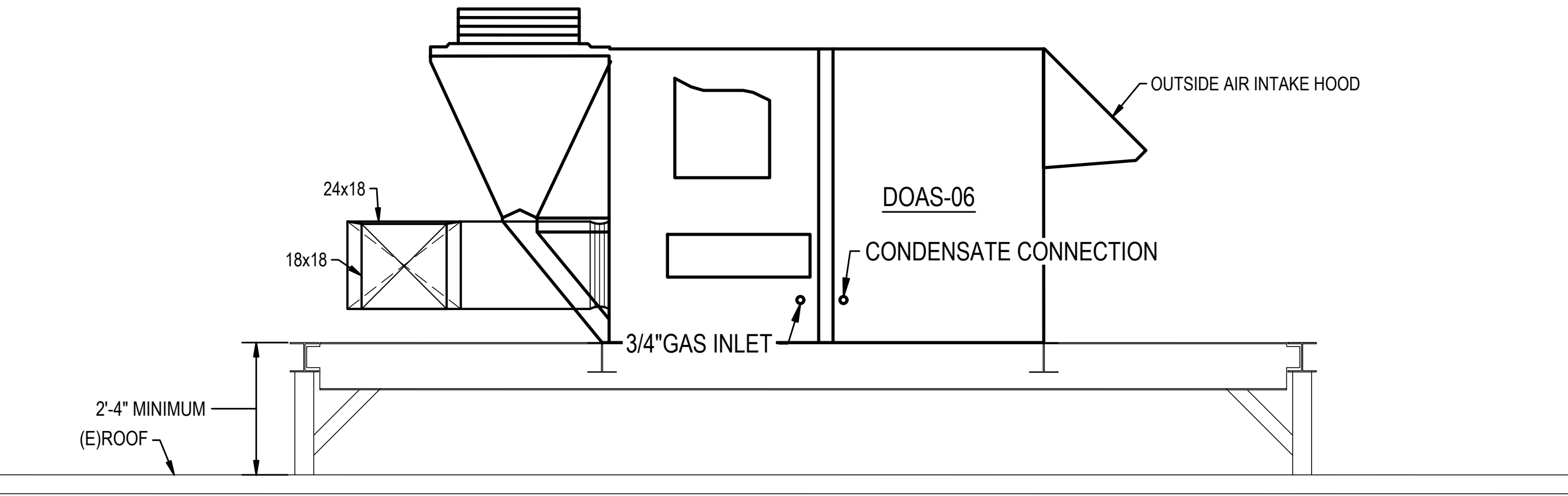
SECTIONS -
DOAS-05 & DOAS-06

Dwg.No.



SECTION - DOAS-05

1 M-109 1/2"=1'-0" 0 2' 4'



1 SECTION - DOAS-06
M-108 1/2"=1'-0" 0 2' 4'



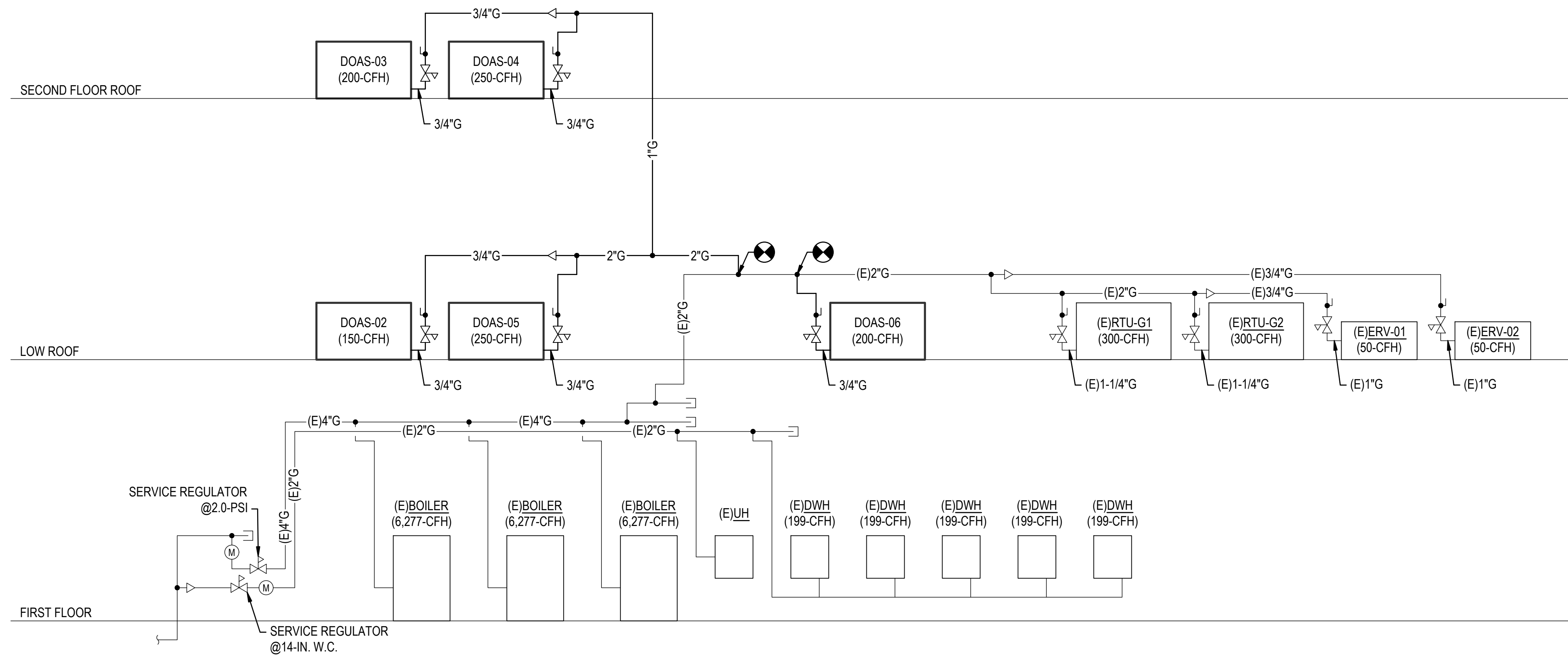
MILFORD HIGH SCHOOL
HVAC UPGRADES
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[illegible][illegible]

Date:	FEBRUARY 2023
Scale:	AS NOTED
Dwn.By:	VSS
Proj.No.:	1587A007.A02

NATURAL GAS RISER

Dwg.No.:



DESIGN BASED ON IFGC-2018, TABLE 402.4(5)

4"PIPE:
TOTAL CONNECTED CFH = 20,600
DESIGN DISTANCE = 125-LF
MAX ALLOWABLE DISTANCE = 650-LF

DESIGN BASED ON IFGC-2018, TABLE 402.4(5)

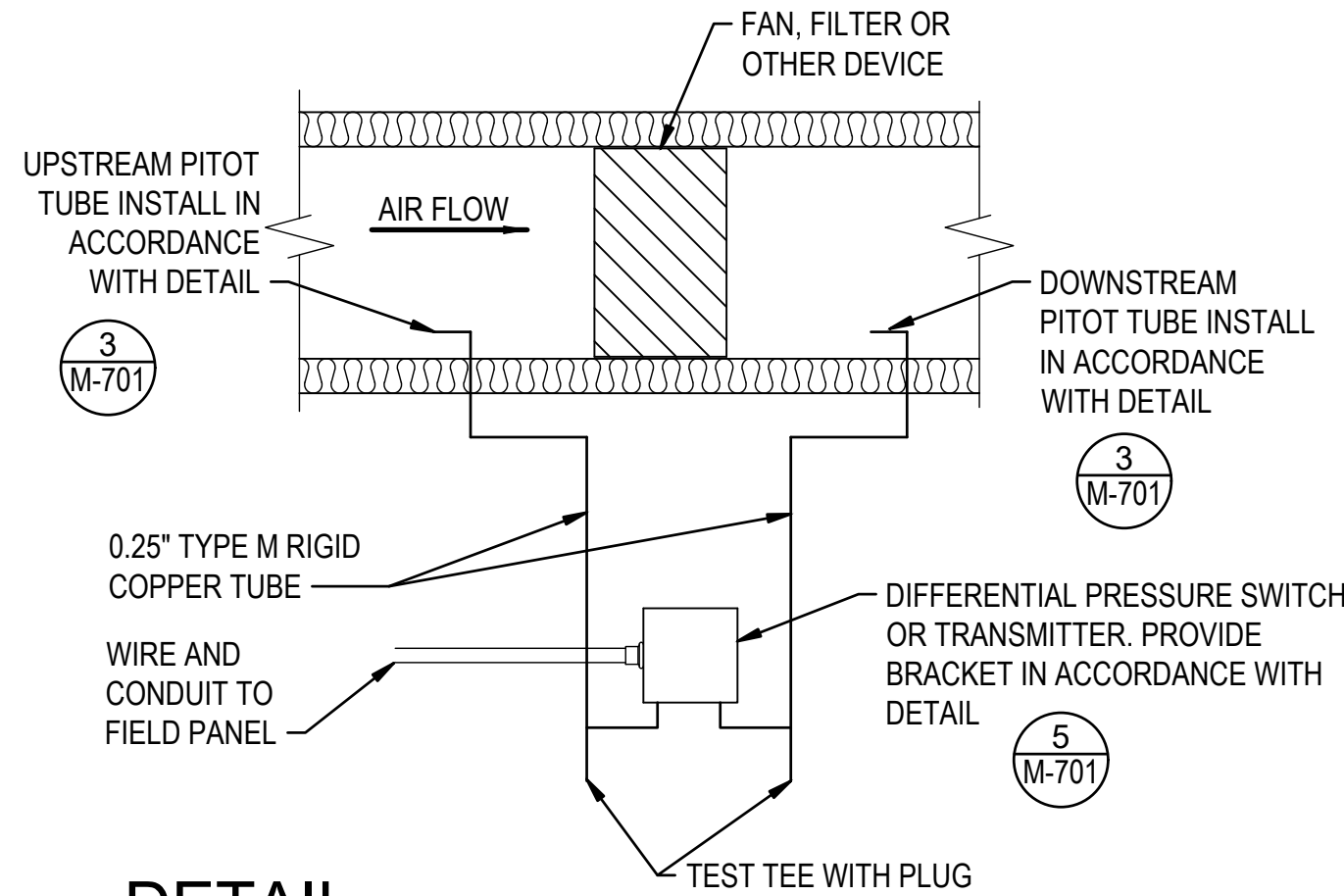
2"PIPE:
TOTAL CONNECTED CFH = 1,750
DESIGN DISTANCE = 350-LF
MAX ALLOWABLE DISTANCE = >2,000-LF

DESIGN BASED ON IFGC-2018, TABLE 402.4(5)

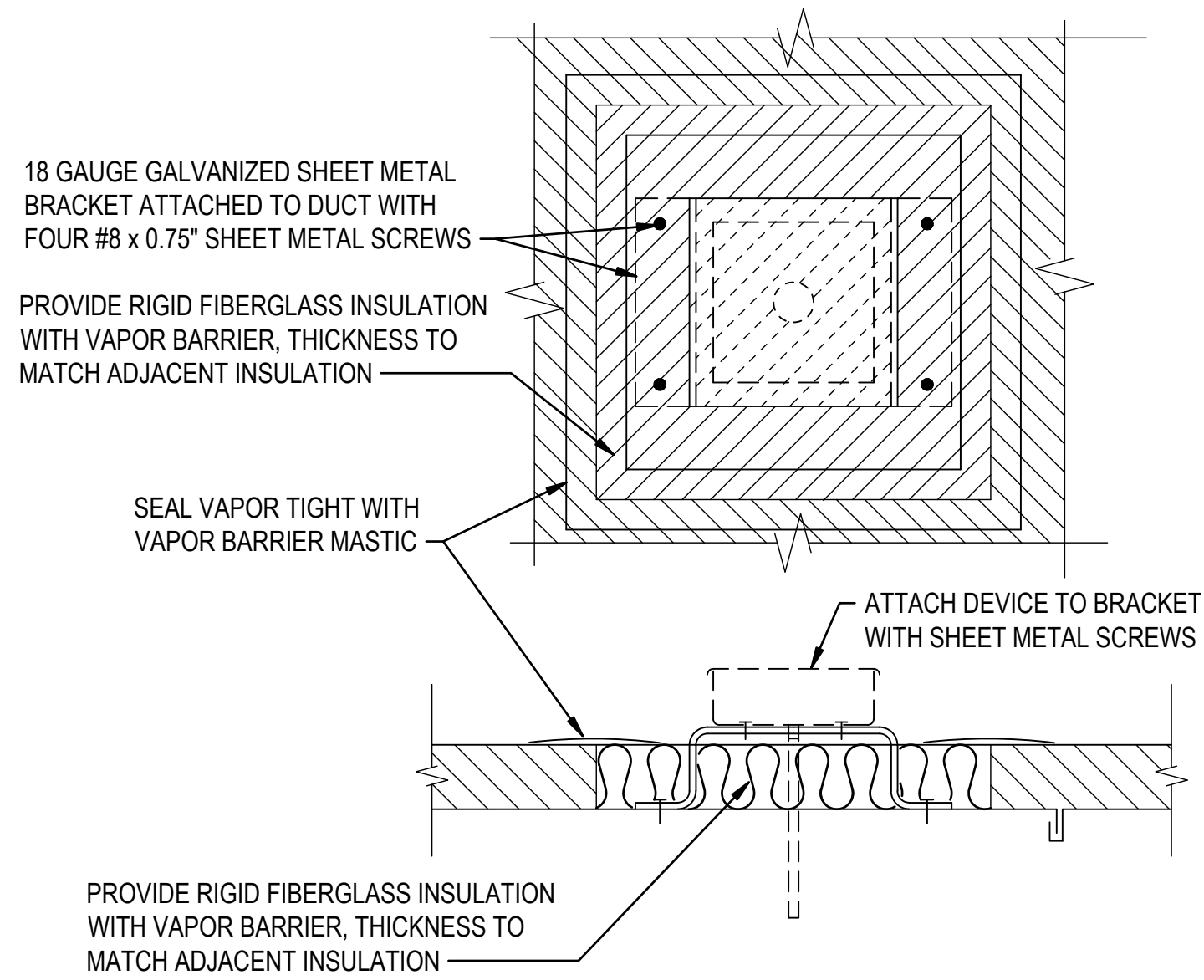
1"PIPE:
TOTAL CONNECTED CFH = 450
DESIGN DISTANCE = 125-LF
MAX ALLOWABLE DISTANCE = 1,200-LF

2 NATURAL GAS RISER

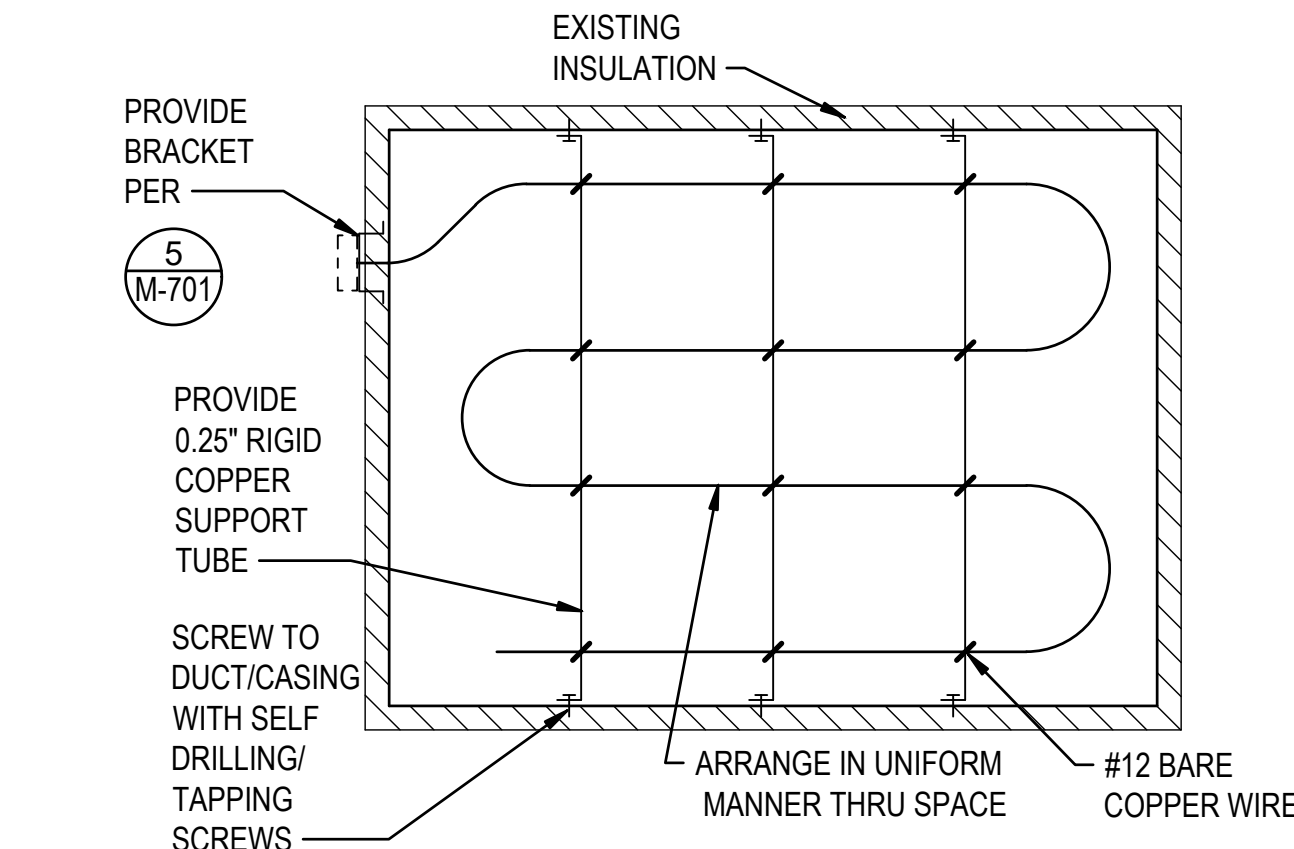
NOT TO SCALE



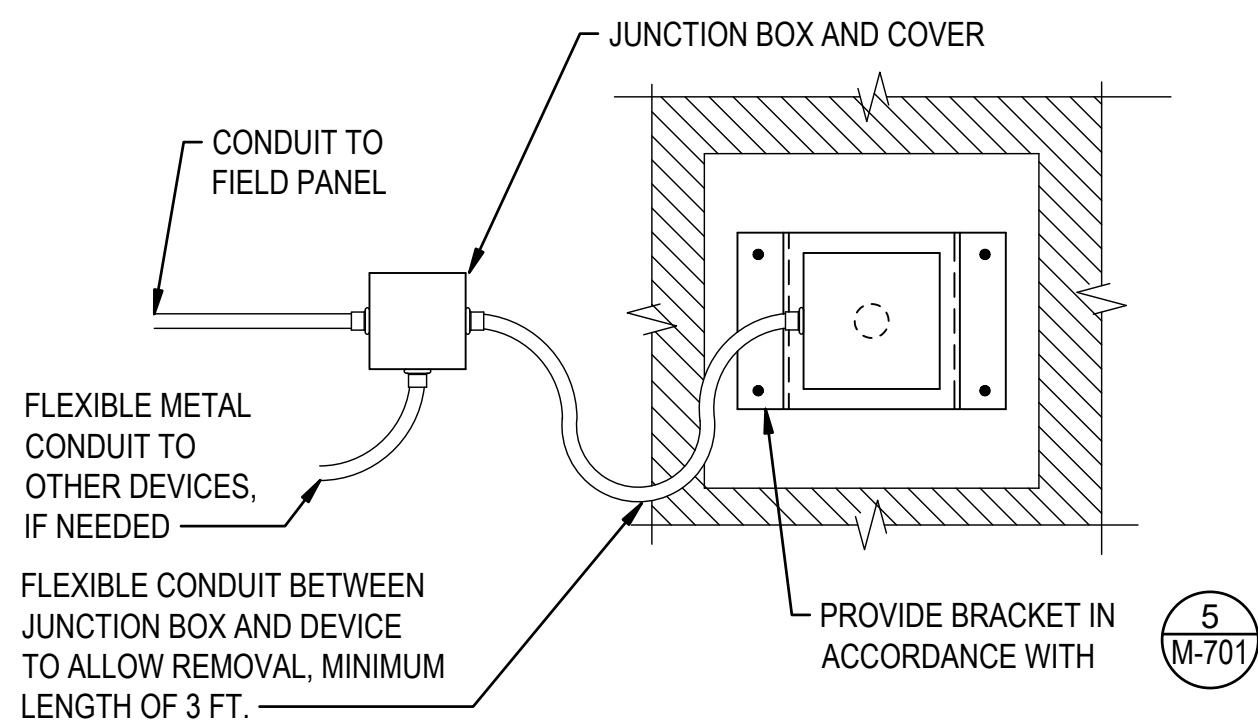
DETAIL
4 AIR DIFFERENTIAL PRESSURE DEVICE
M-701 NO SCALE



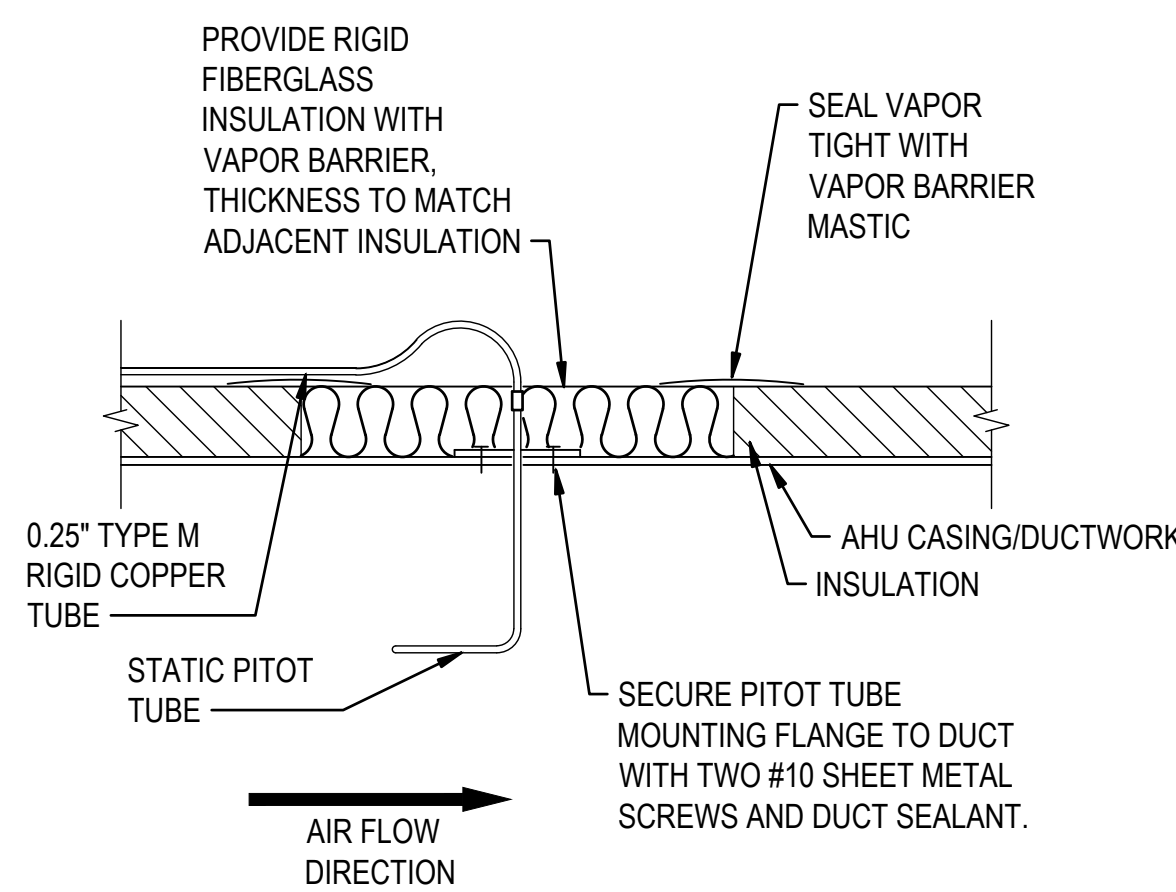
DETAIL
5 DEVICE MOUNTING BRACKET
M-701 NO SCALE



DETAIL
1 SENSING ELEMENT INSTALLATION
M-701 NO SCALE



DETAIL
2 DUCT MOUNTED SENSOR
M-701 NO SCALE



DETAIL
3 PITOT TUBE INSTALLATION
M-701 NO SCALE

SYMBOLS & ABBREVIATIONS

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

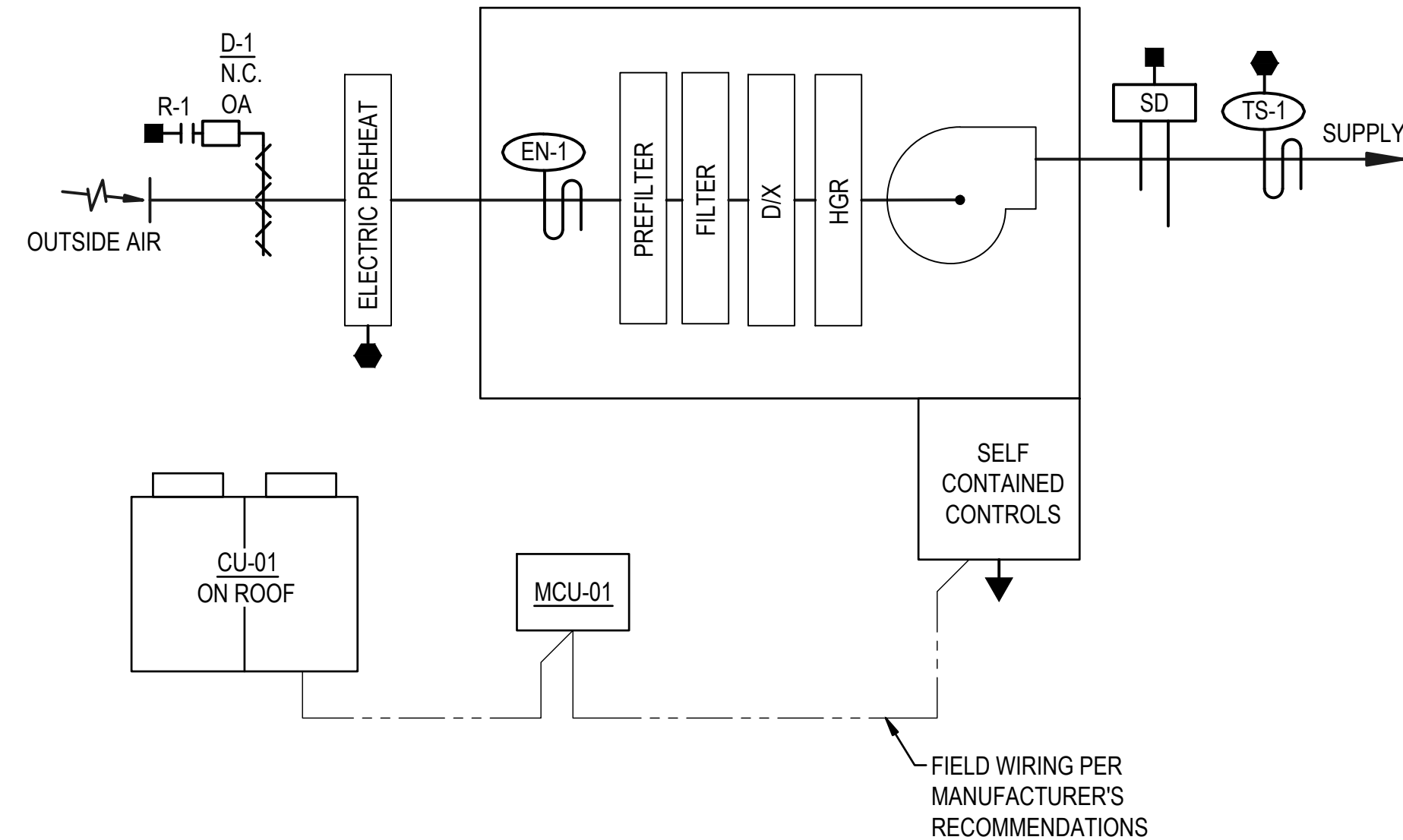
GENERAL REQUIREMENTS

- 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 AND CLEANED AT REGULAR INTERVALS. OUTSIDE AIR, DUCT, AND UNIT-MOUNTED TEMPERATURE, HUMIDITY, AND ENTHALPY SENSORS SHOULD BE CALIBRATED ANNUALLY."
- THE BUILDING IS CURRENTLY EQUIPPED WITH AN EXISTING ENERGY MANAGEMENT AND CONTROLS SYSTEM .

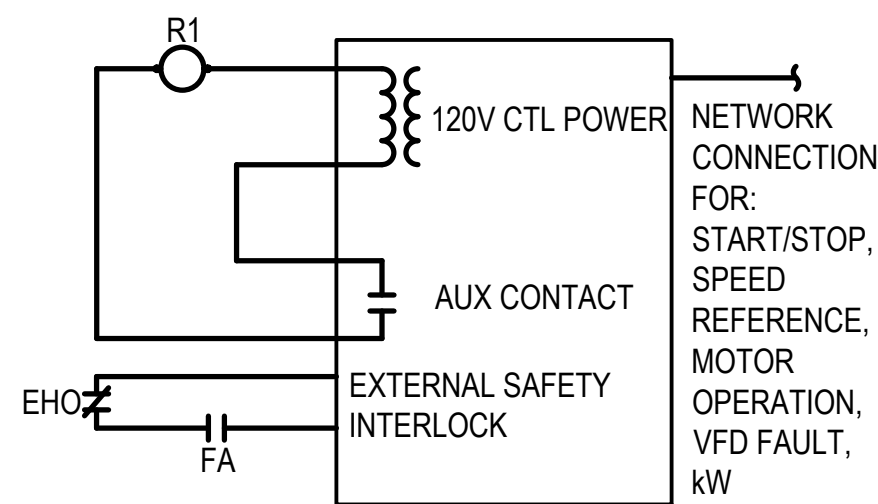
SYMBOLS & ABBREVIATIONS

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
	HAND-OFF-AUTO SWITCH
	MOTOR
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	RELAY COIL
	STARTER HOLDING COIL
	THERMAL MOTOR SWITCH
	PNEUMATIC TUBING
	EXISTING PNEUMATIC TUBING
	MOTOR STARTER
	FAN OR PUMP, BY APPLICATION
	DUCT MOUNTED ENTHALPY TRANSMITTER PROVIDE PER DETAIL 2/M-701/M-701.
	EMERGENCY HVAC OFF (SYSTEM VARIABLE)
	OUTSIDE AIR TEMPERATURE SENSOR (SYSTEM VARIABLE)
	OUTSIDE AIR ENTHALPY TRANSMITTER (SYSTEM VARIABLE)
	VARIABLE FREQUENCY DRIVE
	AIRFLOW MEASURING STATION - THERMAL DISPERSION TYPE
	FLOAT SWITCH

RESET: ALL PROTECTION CONTROLS SHALL REQUIRE LOCAL MANUAL RESET BEFORE THE UNIT FANS CAN BE RESTARTED AFTER THE DEVICES TRIP.



SEQUENCE OF OPERATION



SUPPLY FAN VFD WIRING DIAGRAM

CONTROLS
DOAS-01

①

NO SCALE

FLOW DIAGRAM

POINTS LIST											
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS						TRENDING	
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY	
					LOW	HIGH	LOW	HIGH			
DOAS-01	DOAS-1 CONTROLLER	X									
	FAN SPEED								5min	15min	
	SUPPLY AIR TEMPERATURE								5min	15min	
	OUTSIDE AIR TEMPERATURE								5min	15min	
	OUTSIDE AIR HUMIDITY								5min	15min	
	FILTER PRESSURE DROP								5min	15min	
	FAIL								COV	COV	
SD-1	DUCT SMOKE DETECTOR		BI						COV	COV	
TS-1	SUPPLY AIR TEMPERATURE		AI						5min	15min	
D-1	ISOLATION DAMPER		BO						COV	COV	
EH-1	ELECTRIC PREHEAT COIL		AO						5min	15min	
NOTES: 1. ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.											

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

COMMENTS

DATE _____

Date: FEBRUARY 2023

Scale: AS NOTED

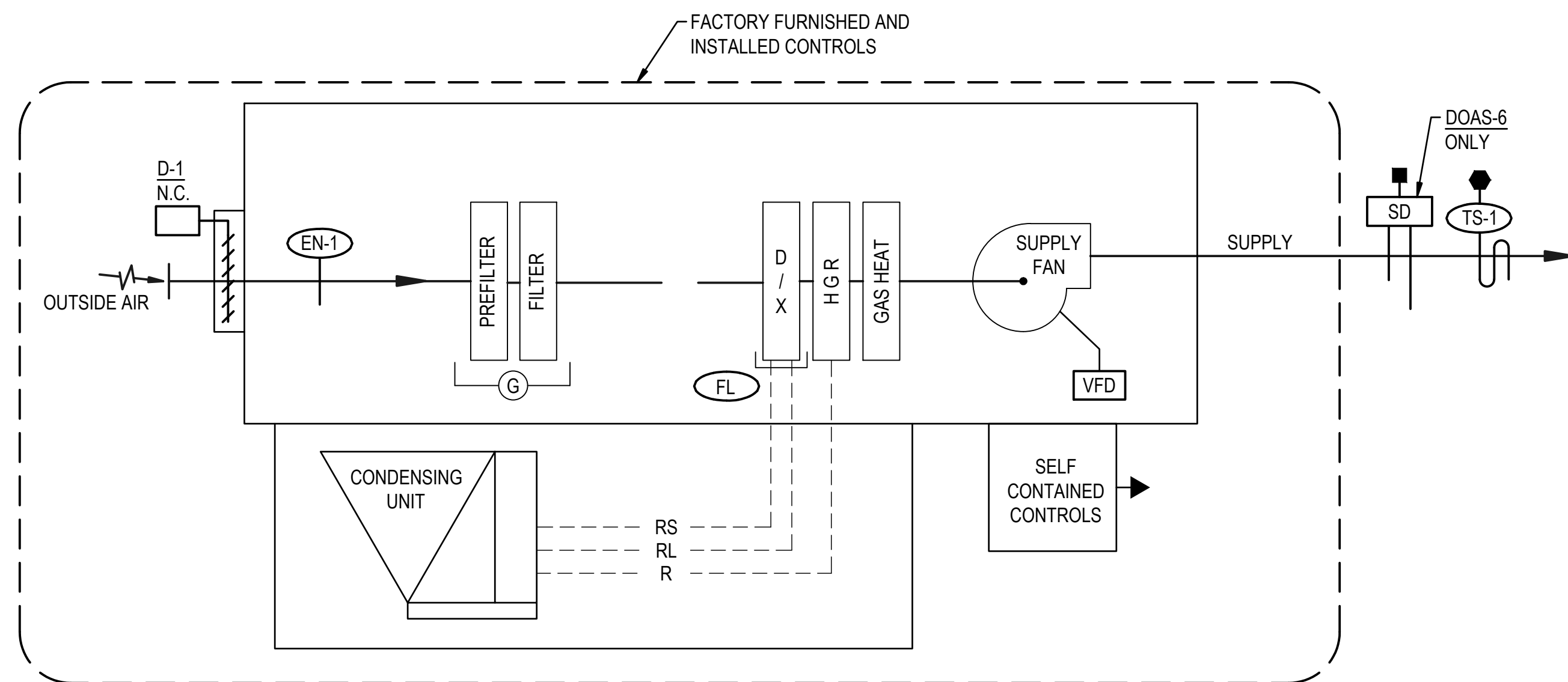
Dwn.By: KMD

Proj.No.:	1587A007.A02
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CONTROLS

Dwg.No.:

M-702



FLOW DIAGRAM

PACKAGED UNIT 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. F-1 SHALL BE INTERLOCKED WITH UNIT OPERATION.

OCCUPIED MODE: THE SUPPLY FAN SHALL RUN AND THE PACKAGED CONTROLS SHALL BE ACTIVE TO MAINTAIN SUPPLY AIR TEMPERATURE OF 65°F (ADJUSTABLE) DRYBULB AND 55°F(ADJUSTABLE) DEWPOINT IN THE COOLING MODE, AND 70°F (ADJUSTABLE) IN THE HEATING MODE. THE PACKAGED CONTROLLER SHALL MODULATE THE DAMPERS.

UNOCCUPIED MODE: THE UNIT SHALL BE OFF AND ALL DAMPERS RETURNED TO THEIR NORMAL POSITION

FILTER CHANGEOUT: BAS SHALL ISSUE A WARNING EVERY 3 MONTHS (ADJ.) TO PROMPT MAINTENANCE TEAM TO CHANGE FILTERS

UNIT SAFETIES

WHEN THE SUPPLY FAN FAILS ON THE EXTERNAL SAFETY INTERLOCK THE BAS SHALL INDEX THE SYSTEM TO THE OFF CYCLE.

SMOKE DETECTOR SD-1 SHALL STOP THE UNIT FANS AND RETURN ALL DAMPERS TO THEIR NORMAL POSITIONS. REMOTE ANNUNCIATION TO THE BUILDING FIRE ALARM SYSTEM SHALL OCCUR PER NFPA 90A.

ALL PROTECTION CONTROLS SHALL REQUIRE LOCAL MANUAL RESET BEFORE THE UNIT FANS CAN BE RESTARTED AFTER THE DEVICES TRIP.

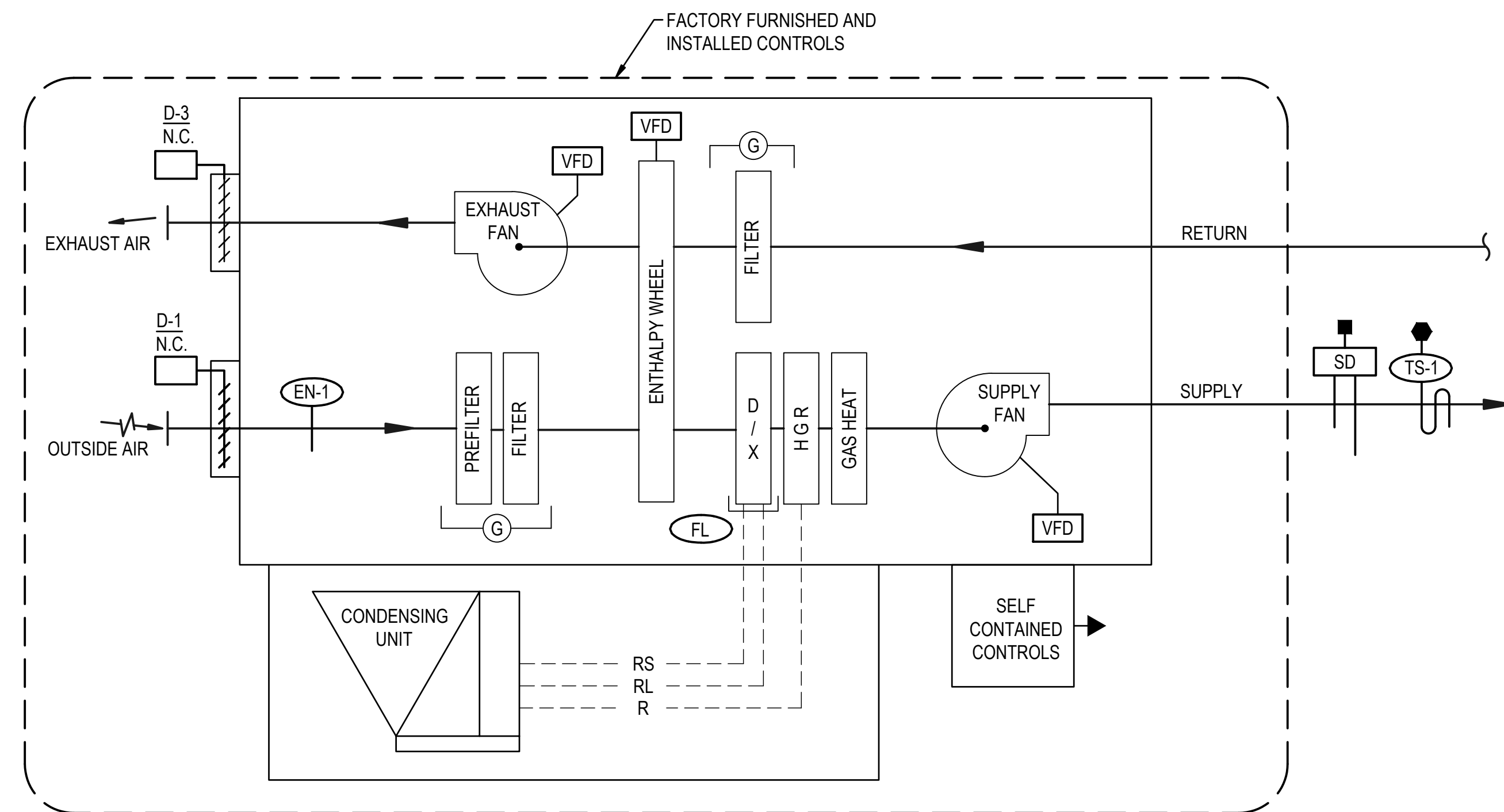
SEQUENCE OF OPERATIONS

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS					TRENDING	
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY
LOW	HIGH	LOW	HIGH							
DOAS-X	SELF-CONTAINED CONTROLLER	X							COV	COV
	ON/OFF		BI						COV	COV
	STATUS		BI						COV	COV
	COOLING MODE		BI						COV	COV
	HEATING MODE		BI						COV	COV
	DEHUMIFICATION MODE		BI						COV	COV
	SUPPLY FAN SPEED		AI					5min	15min	
	OUTDOOR AIR ENTHALPY		AI					5min	15min	
	OUTDOOR AIR TEMPERATURE		AI					5min	15min	
	FAULT		BI	X					COV	COV
	OUTSIDE AIR DAMPER		AO					5min	15min	
TS-1	SUPPLY AIR TEMPERATURE		AI		45°F	80°F	40°F	85°F	5min	15min
NOTES: 1. ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.										

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

CONTROLS
DOAS-2 AND DOAS-6

NO SCALE



FLOW DIAGRAM

PACKAGED UNIT 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. F-1 SHALL BE INTERLOCKED WITH UNIT OPERATION.

OCCUPIED MODE: THE SUPPLY FAN SHALL RUN AND THE PACKAGED CONTROLS SHALL BE ACTIVE TO MAINTAIN SUPPLY AIR TEMPERATURE OF 65°F (ADJUSTABLE) DRYBULB AND 55°F(ADJUSTABLE) DEWPOINT IN THE COOLING MODE, AND 70°F (ADJUSTABLE) IN THE HEATING MODE. THE PACKAGED CONTROLLER SHALL MODULATE THE DAMPERS.

UNOCCUPIED MODE: THE UNIT SHALL BE OFF AND ALL DAMPERS RETURNED TO THEIR NORMAL POSITION.

FILTER CHANGEOUT: BAS SHALL ISSUE A WARNING EVERY 3 MONTHS (ADJ.) TO PROMPT MAINTENANCE TEAM TO CHANGE FILTERS

UNIT SAFETIES

WHEN THE SUPPLY FAN FAILS ON THE EXTERNAL SAFETY INTERLOCK THE BAS SHALL INDEX THE SYSTEM TO THE OFF CYCLE

SMOKE DETECTOR SD-1 SHALL STOP THE UNIT FANS AND RETURN ALL DAMPERS TO THEIR NORMAL POSITIONS. REMOTE ANNUNCIATION TO THE BUILDING FIRE ALARM SYSTEM SHALL OCCUR PER NFPA 90A.

ALL PROTECTION CONTROLS SHALL REQUIRE LOCAL MANUAL RESET BEFORE THE UNIT FANS CAN BE RESTARTED AFTER THE DEVICES TRIP

SEQUENCE OF OPERATIONS

POINTS LIST 1										
POINT NAME	DESCRIPTION	NETWORK CONNECTION	I/O TYPE	ALARMS					TRENDING	
				FAIL	WARNING		LIMIT		Cx FREQUENCY	OPERATING FREQUENCY
					LOW	HIGH	LOW	HIGH		
DOAS-X	SELF-CONTAINED CONTROLLER	X							COV	COV
	ON/OFF		BI						COV	COV
	STATUS		BI						COV	COV
	COOLING MODE		BI						COV	COV
	HEATING MODE		BI						COV	COV
	DEHUMIFICATION MODE		BI						COV	COV
	SUPPLY FAN SPEED		AI						5min	15min
	EXHAUST FAN SPEED		AI						5min	15min
	OUTDOOR AIR ENTHALPY		AI						5min	15min
	ENTERING AIR TEMPERATURE		AI						5min	15min
	FAULT		BI	X					COV	COV
OUTSIDE AIR DAMPER		AO						5min	15min	
EXHAUST AIR DAMPER		AO						5min	15min	
TS-1	SUPPLY AIR TEMPERATURE		AI		45°F	80°F	40°F	85°F	5min	15min
NOTES: 1. ALL POINTS INCLUDED ON LIST SHALL BE SHOWN ON THE OWS GRAPHICS.										

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

CONTROLS
DOAS-3, DOAS-4, AND DOAS-5

NO SCALE

MILFORD HIGH SCHOOL

HVAC UPGRADES

MILFORD, DELAWARE

Date: FEBRUARY 2023

Scale: AS NOTED

Dwn.By: KMD

Proj.No.:	1587A007.A02
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CONTROLS

Dwg.No.

M-703

SYMBOLS (CONTINUED)

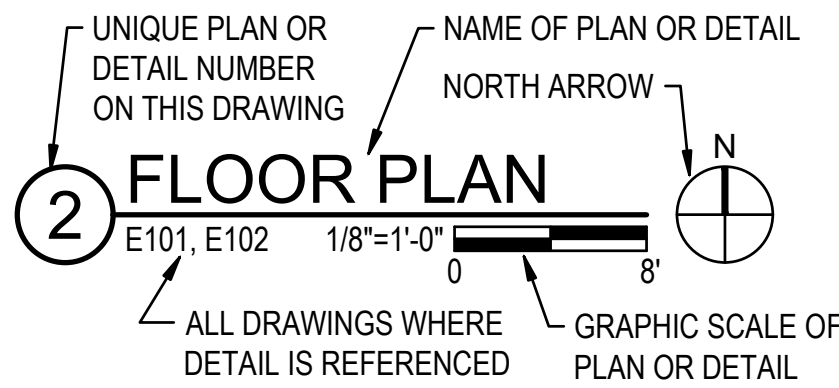
	BRANCH CIRCUIT CONDUIT AND CONDUCTORS RUN CONCEALED IN WALLS AND CEILING, ALL OTHER CHARACTERISTICS SAME AS SHOWN ABOVE.
EM2	PANEL NAME TO WHICH CIRCUITS RUN.
1,3,5	CIRCUIT BREAKERS IN PANEL SERVING THESE CIRCUITS.
#10	WIRE SIZE IN AWG. SIZE NOT SHOWN INDICATES #12 AWG.
	EMT CONDUIT.
—(E)—	EXISTING CONDUIT AND CONDUCTORS TO REMAIN.
-----	UNDERGROUND CONDUIT.

SYMBOLS

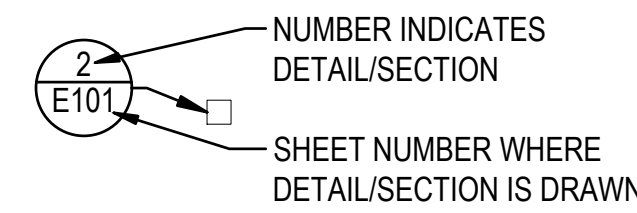
	JUNCTION BOX, 4" SQUARE x 2-1/8" DEEP GALVANIZED PRESSED STEEL, MOUNTED ABOVE SUSPENDED TILE CEILING.
	PANELBOARD.
	DUPLEX RECEPTACLE, 20 AMPERE, 125 VOLT GROUNDING TYPE, NEMA 5-20R CONFIGURATION, RECESS MOUNTED IN 4" SQUARE x 2-1/2" DEEP PRESSED STEEL JUNCTION BOX AT 18" ABOVE FINISHED FLOOR.
	DUPLEX RECEPTACLE, 20 AMPERE, 125 VOLT GROUNDING TYPE, NEMA 5-20R CONFIGURATION, SURFACE-MOUNTED IN 4" SQUARE x 2-1/2" DEEP PRESSED STEEL JUNCTION BOX AT 18" ABOVE FINISHED FLOOR. PROVIDE SURFACE-MOUNTED RACEWAY AS REQUIRED TO CONCEAL CONDUCTORS.
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER, 20 AMPERE, 125 VOLT GROUNDING TYPE, NEMA 5-20R CONFIGURATION, RECESS MOUNTED IN 4" SQUARE x 2-1/8" DEEP PRESSED STEEL JUNCTION BOX AT 8" ABOVE COUNTERTOP.
	QUADRUPLEX RECEPTACLE, 20 AMPERE, 125 VOLT GROUNDING TYPE, NEMA 5-20R CONFIGURATION, RECESS MOUNTED IN 4" SQUARE x 2-1/8" DEEP PRESSED STEEL JUNCTION BOX AT 18" ABOVE FINISHED FLOOR.
S	LIGHT SWITCH, TOGGLE SWITCH, SINGLE POLE 20 AMPERE, 120/277V, A.C. ONLY, RECESS MOUNTED AT 48" ABOVE FINISHED FLOOR UNLESS OTHER MOUNTING HEIGHT IS NOTED.
S _D	DIMMER SWITCH, 20 AMPERE, 120/277V, A.C. ONLY, RECESS MOUNTED AT 48" ABOVE FINISHED FLOOR.
S ₃	3-WAY LIGHT SWITCH, SINGLE POLE, 20 AMPERE, 120/277V, A.C. ONLY, RECESS MOUNTED AT 48" ABOVE FINISHED FLOOR.
S _{OS}	WALL MOUNTED COMBINATION SWITCH AND OCCUPANCY SENSOR, 20 AMPERE, 120/277V, A.C. ONLY, RECESS MOUNTED AT 48" ABOVE FINISHED FLOOR. DUAL TECHNOLOGY SENSOR SHALL BE FIELD ADJUSTABLE BETWEEN VACANCY AND OCCUPANCY SENSOR MODES.
S _M	MOTOR-RATED TOGGLE SWITCH, 2-POLE, NON-REVERSING RATED FOR 2 HORSEPOWER @115 VOLTS IN OVERSIZED NEMA 1 ENCLOSURE WITH LOCKABLE TOGGLE GUARD. PROVIDE SQUARE D CLASS 2510 SERIES, TYPE K OR APPROVED EQUAL. MOUNT ABOVE CEILING ON STEEL SUPPORT CHANNEL ADJACENT TO EQUIPMENT SERVED. FIELD-LOCATE AS NECESSARY TO MAINTAIN REQUIRED CLEARANCES.
	ENCLOSED CIRCUIT BREAKER, SEE MOTOR AND EQUIPMENT SCHEDULE FOR SIZES AND CHARACTERISTICS.
	HEAVY DUTY ENCLOSED SAFETY SWITCH, SEE MOTOR AND EQUIPMENT SCHEDULE FOR SIZES AND CHARACTERISTICS.
	MOTOR, SEE MOTOR AND EQUIPMENT SCHEDULE FOR SIZES AND CHARACTERISTICS.
	MAGNETIC MOTOR STARTER, AND SAFETY SWITCH.
VFD	VARIABLE FREQUENCY DRIVE
	CEILING MOUNTED OCCUPANCY SENSOR.
	2'x4' LUMINAIRE, TYPE AS NOTED.
	1'x4' PENDANT MOUNTED LUMINAIRE, TYPE AS NOTED.
	UNIVERSAL MOUNTED EXIT LIGHT, SINGLE OR DOUBLE FACED WITH DIRECTIONAL CHEVRON ARROWS AS SHOWN, LIGHTING FIXTURE TYPE AS NOTED:
	SINGLE FACED EXIT SIGN.
	DOUBLE FACED EXIT SIGN.
	BRACKET MOUNTED EXIT SIGN.

SHEET SYMBOLS

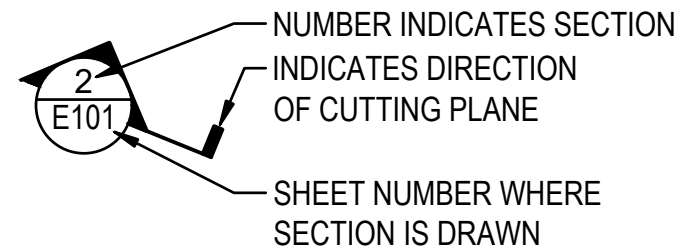
FLOOR PLAN AND DETAIL TITLES:



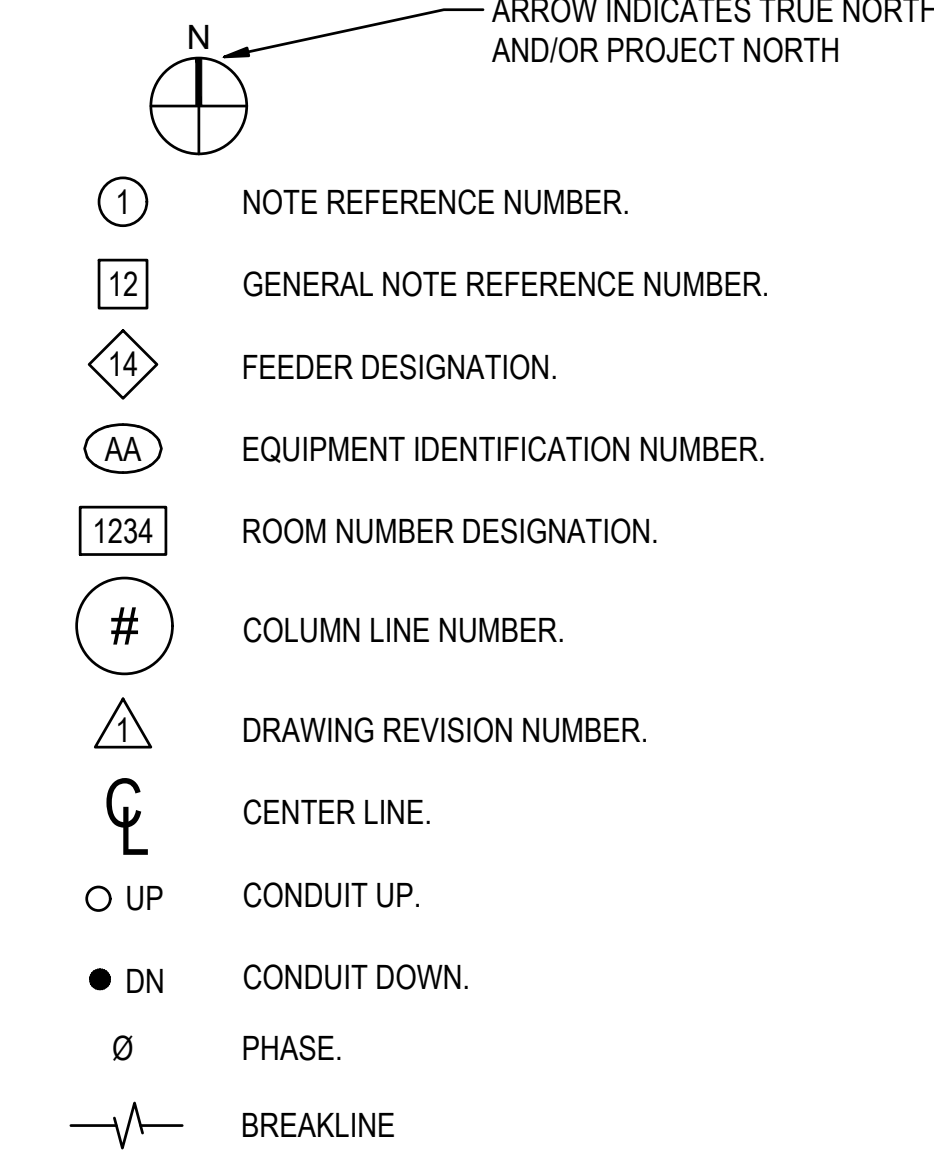
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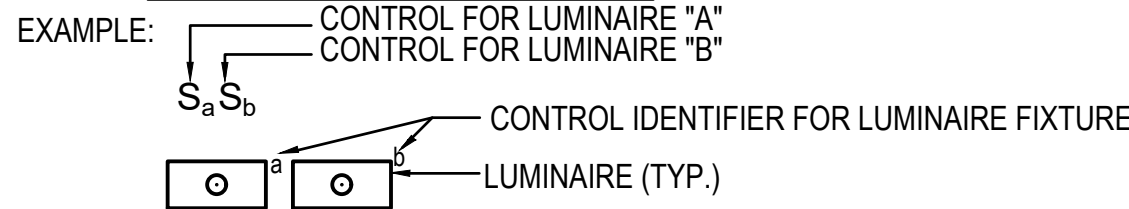
SECTION IDENTIFICATION



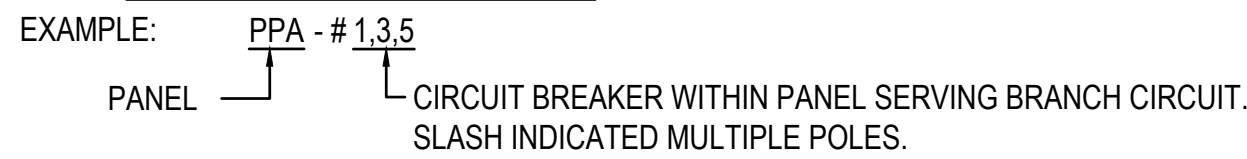
NORTH ARROW



LIGHTING CONTROL IDENTIFICATION:



BRANCH CIRCUIT IDENTIFICATION:



GENERAL NOTES

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

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.
C/B	CIRCUIT BREAKER.
EC	EMPTY CONDUIT.
EMT	ELECTRICAL METALLIC TUBING.
(E), EX.	EXISTING.
(ETR)	EXISTING TO REMAIN.
FLA	FULL LOAD AMPERES.
FVNR	FULL VOLTAGE NON-REVERSING.
GFCI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED.
GFI	GROUND FAULT CIRCUIT INTERRUPTER.
GRD.	GROUND CONDUCTOR.
HOA	HAND-OFF-AUTOMATIC SELECTOR SWITCH.
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY.
KW	KILO-WATTS.
LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND ELECTRONIC TRIP CIRCUIT BREAKER.
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.
SCIF	SENSITIVE COMPARTMENTED INFORMATION FACILITIES.
TMCB	THERMAL MAGNETIC MOLDED CASE CIRCUIT BREAKER.
U.L.	UNDERWRITER'S LABORATORIES.
V	VOLTAGE.
VFD	VARIABLE FREQUENCY DRIVE.
WP	WEATHERPROOF, OR NEMA 3R ENCLOSURE.

[illegible]

OVERALL FIRST FLOOR
PLAN

Dwg.No.:
E-002

1. CAREFULLY DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICE ASSOCIATED WITH LIGHTING TO ACCOMMODATE INSTALLATION OF HVAC DUCTWORK/ELECTRICAL CONDUITS. RETAIN LUMINAIRE, DEVICES AND EXISTING CIRCUIT FOR REUSE.
2. DISCONNECT AND REMOVE JUNCTION BOX TO FACILITATE INSTALLATION OF NEW HVAC EQUIPMENT. RETAIN CONDUIT, CONDUCTORS, TAGS AND PROTECT BRANCH CIRCUITS FOR REUSE.
3. CAREFULLY DISCONNECT AND REMOVE SECURITY CAMERA, SAFEGUARD AND RETAIN CAMERA AND WIRING/CABLES FOR REUSE.

MILFORD HIGH SCHOOL

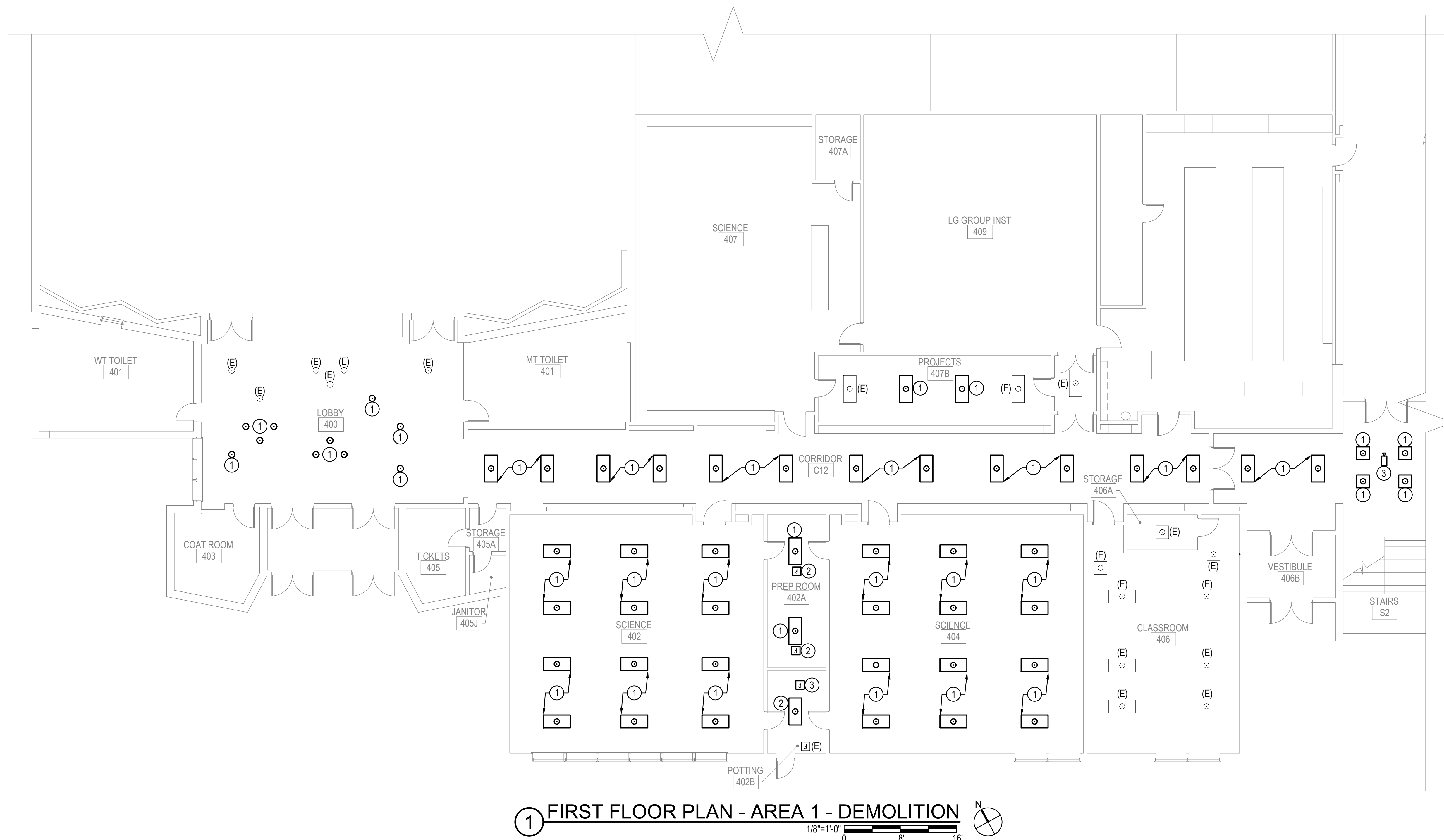
HVAC UPGRADES

MILFORD, DELAWARE

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FIRST FLOOR PLAN -
AREA 1 - DEMOLITION

ED101



1. CAREFULLY DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICE ASSOCIATED WITH LIGHTING TO ACCOMMODATE INSTALLATION OF HVAC DUCTWORK/ELECTRICAL CONDUITS. RETAIN LUMINAIRE, DEVICES AND EXISTING CIRCUIT FOR REUSE.
2. CAREFULLY DISCONNECT AND REMOVE SECURITY CAMERA, SAFEGUARD AND RETAIN CAMERA AND WIRING/CABLES FOR REUSE.

**DAVIS
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302.424.1441**

**SALISBURY, MARYLAND
410.543.9091**

**MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE**

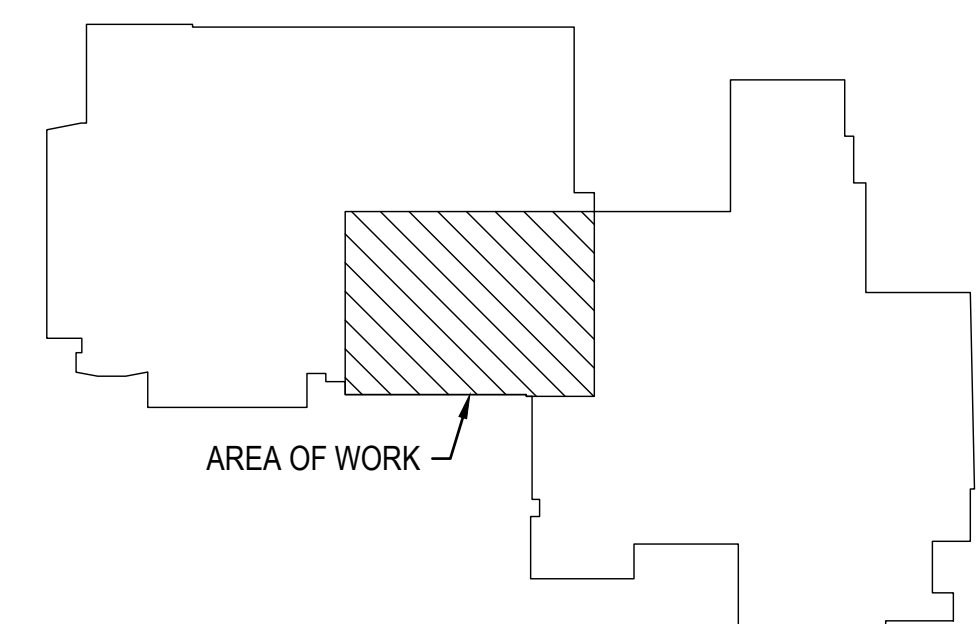
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Date:	FEBRUARY 2023
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Proj.No.:	1587A007.A02

FIRST FLOOR PLAN -
AREA 2 - DEMOLITION

Dwg.No.:

ED102



KEY PLAN



1 FIRST FLOOR PLAN - AREA 2 - DEMOLITION



1. CAREFULLY DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICE ASSOCIATED WITH LIGHTING TO ACCOMMODATE INSTALLATION OF HVAC DUCTWORK/ELECTRICAL CONDUITS. RETAIN LUMINAIRE, DEVICES AND EXISTING CIRCUIT FOR REUSE.
2. CAREFULLY DISCONNECT AND REMOVE SECURITY CAMERA, SAFEGUARD AND RETAIN CAMERA AND WIRING/CABLES FOR REUSE.

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MILFORD, DELAWARE 302.424.1441

SALISBURY, MARYLAND 410.543.9091

**MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE**

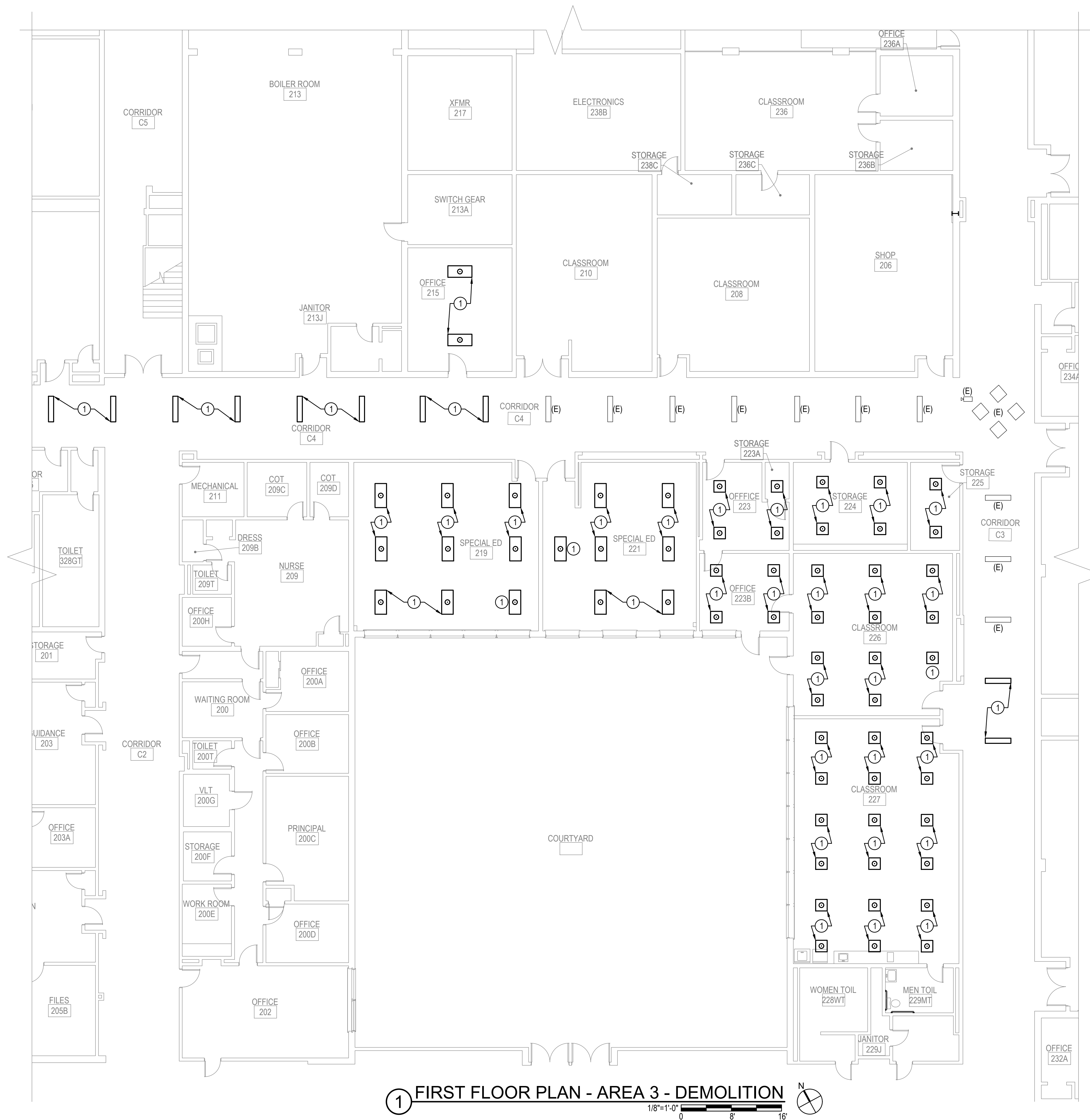
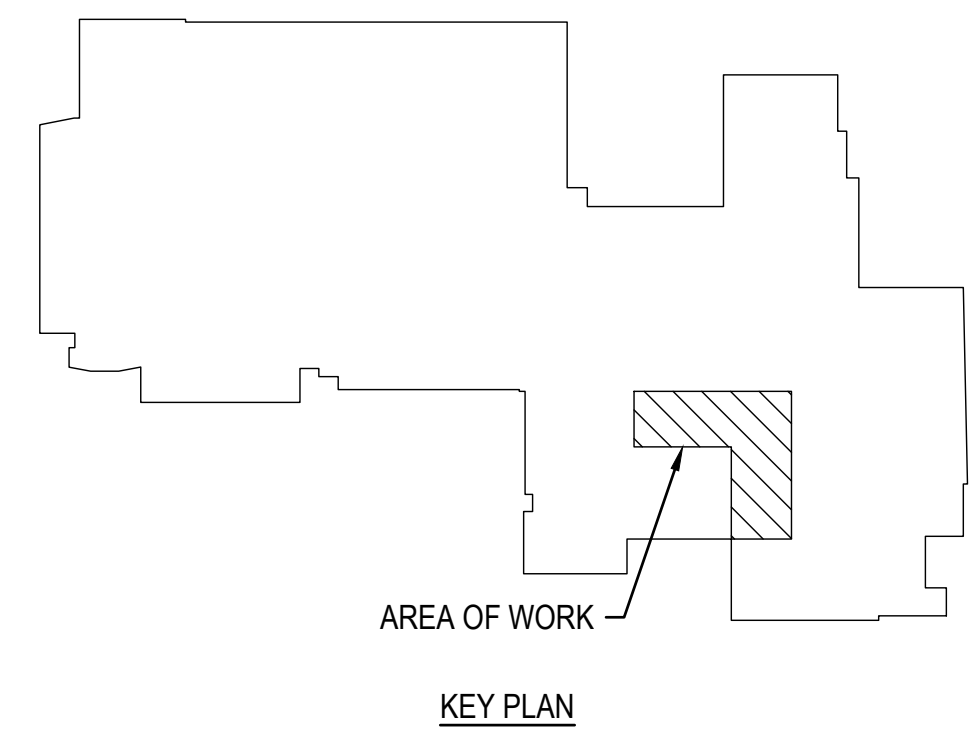
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Proj.No.:	1587A007.A02

FIRST FLOOR PLAN -
AREA 3 - DEMOLITION

Dwg.No.:

ED103

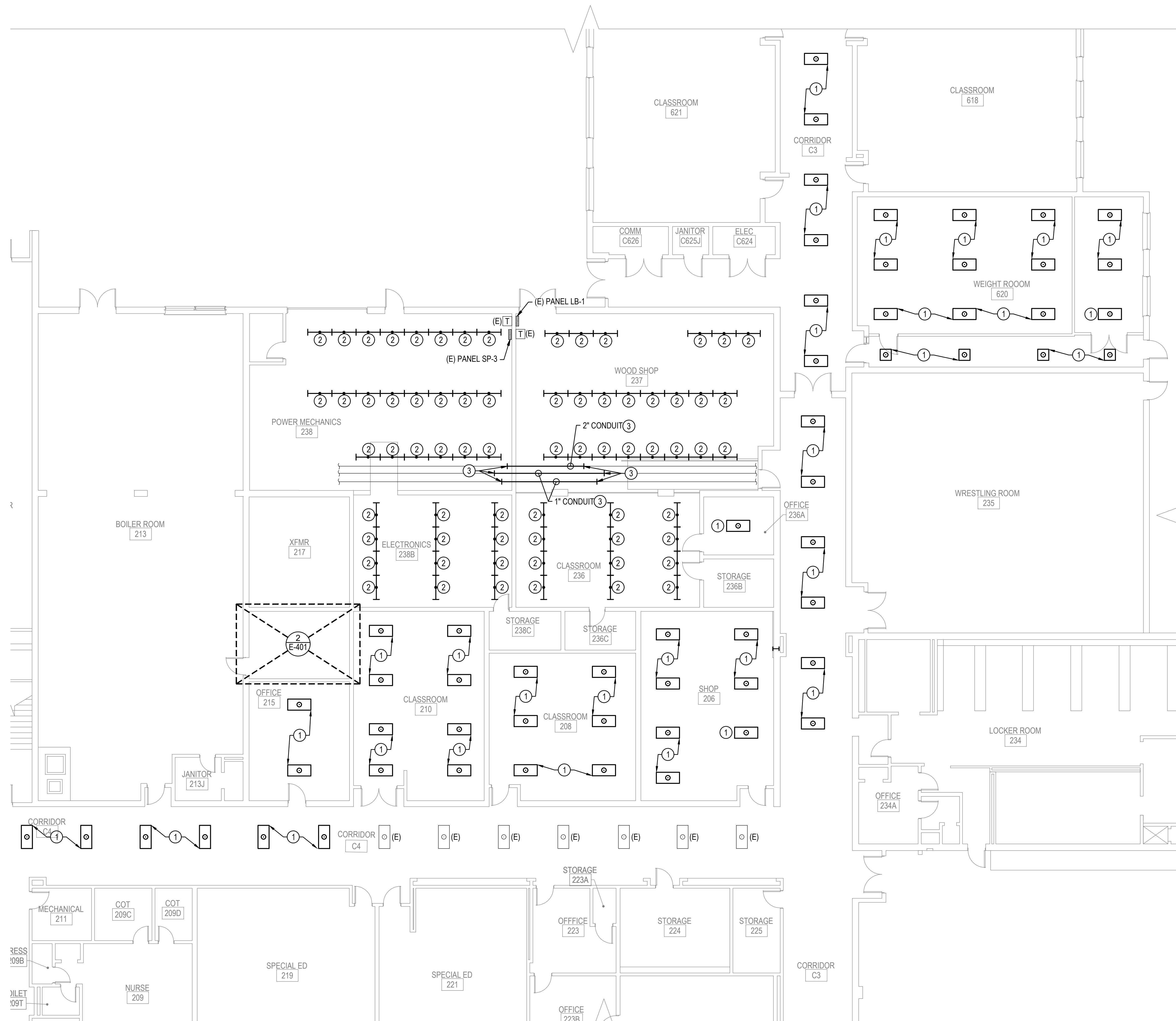
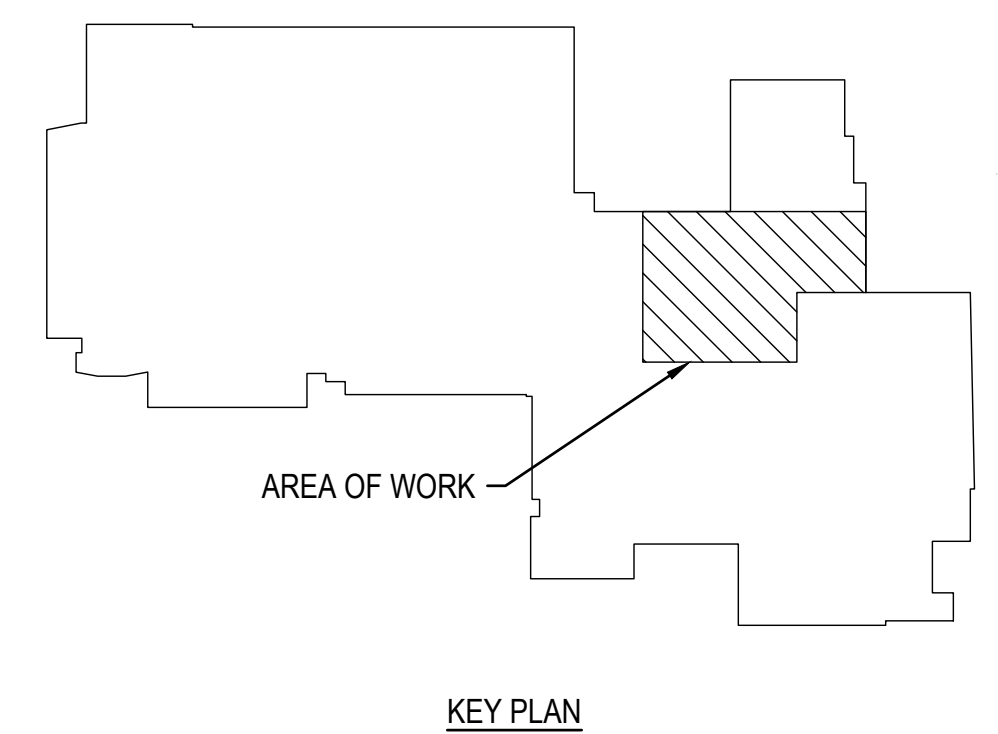


1. CAREFULLY DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICE ASSOCIATED WITH LIGHTING TO ACCOMMODATE INSTALLATION OF HVAC DUCTWORK/ELECTRICAL CONDUITS. RETAIN LUMINAIRE, DEVICES AND EXISTING CIRCUIT FOR REUSE.
2. DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICES ASSOCIATED WITH LIGHTING. RETAIN CONDUIT, CONDUCTORS AND EXISTING CIRCUIT FOR REUSE.
3. CAREFULLY CUT (2) 1" AND (1) 2" EMT CONDUIT, PROTECT AND TAG EXISTING LOADS. DISCONNECT AND REMOVE CONDUIT SECTION TO ACCOMMODATE DUCTWORK INSTALLATION.

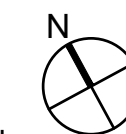
MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

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FIRST FLOOR PLAN -
AREA 4 - DEMOLITION

No.:
ED104

1 FIRST FLOOR PLAN - AREA 4 - DEMOLITION



1. CAREFULLY DISCONNECT AND REMOVE LUMINAIRE AND CEILING MOUNTED DEVICE ASSOCIATED WITH LIGHTING TO ACCOMMODATE INSTALLATION OF HVAC DUCTWORK/ELECTRICAL CONDUITS. RETAIN LUMINAIRE, DEVICES AND EXISTING CIRCUIT FOR REUSE.
2. CAREFULLY DISCONNECT AND REMOVE SECURITY CAMERA, SAFEGUARD AND RETAIN CAMERA AND WIRING/CABLES FOR REUSE.

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dbf

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**MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE**

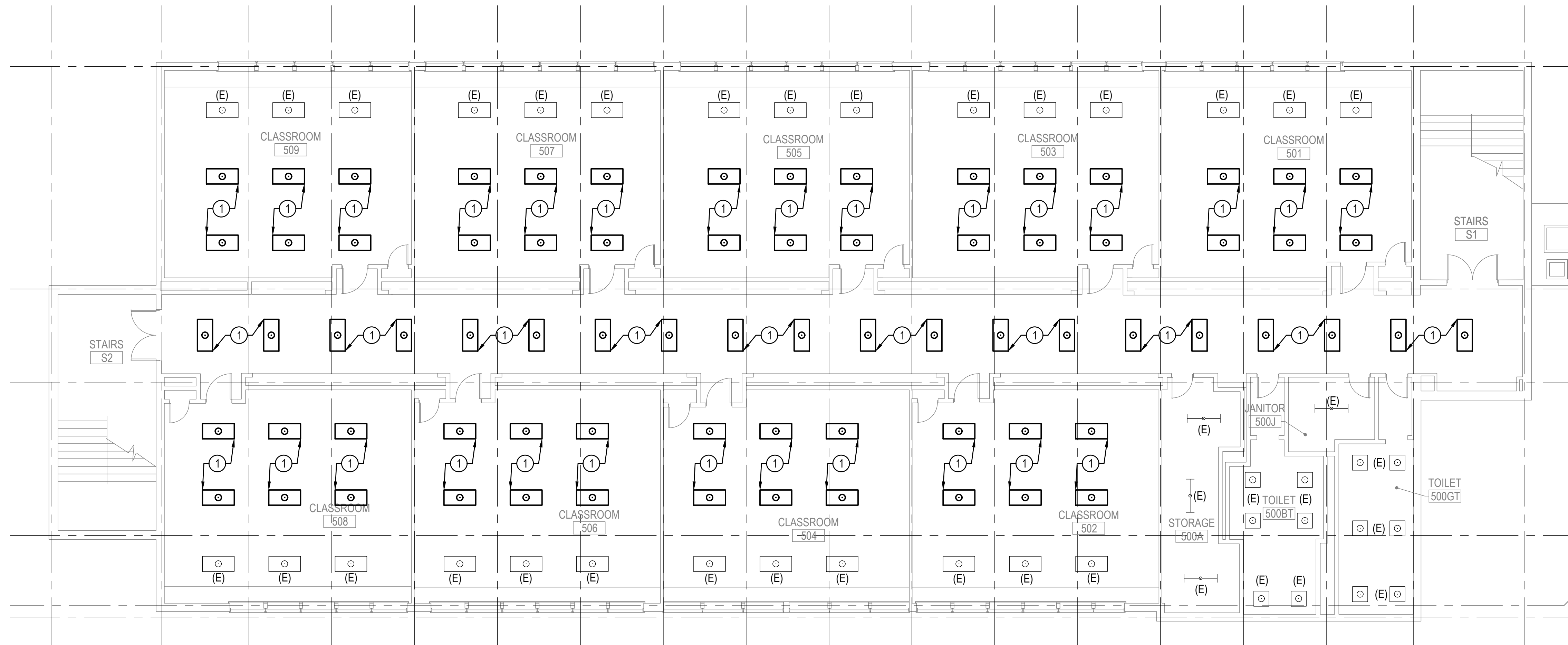
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Month:	FEBRUARY 2023
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File No.:	1587A007.A02

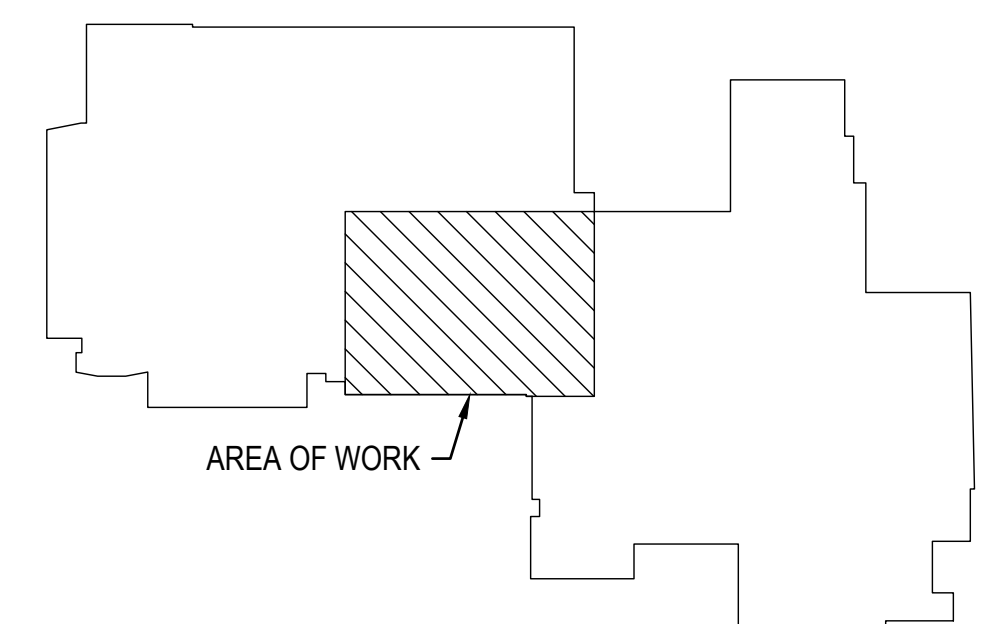
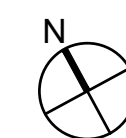
SECOND FLOOR PLAN -
AREA 2 - DEMOLITION

g.No.:

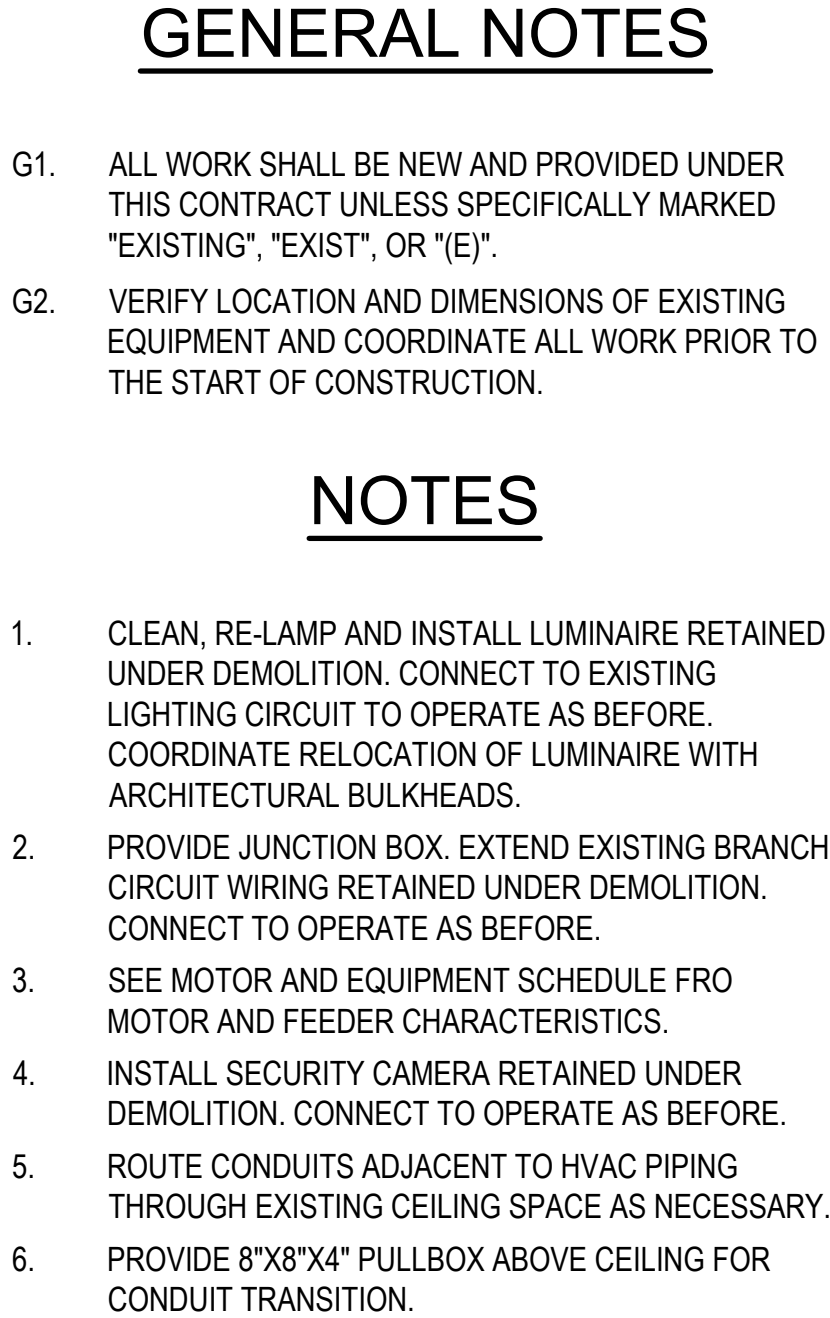
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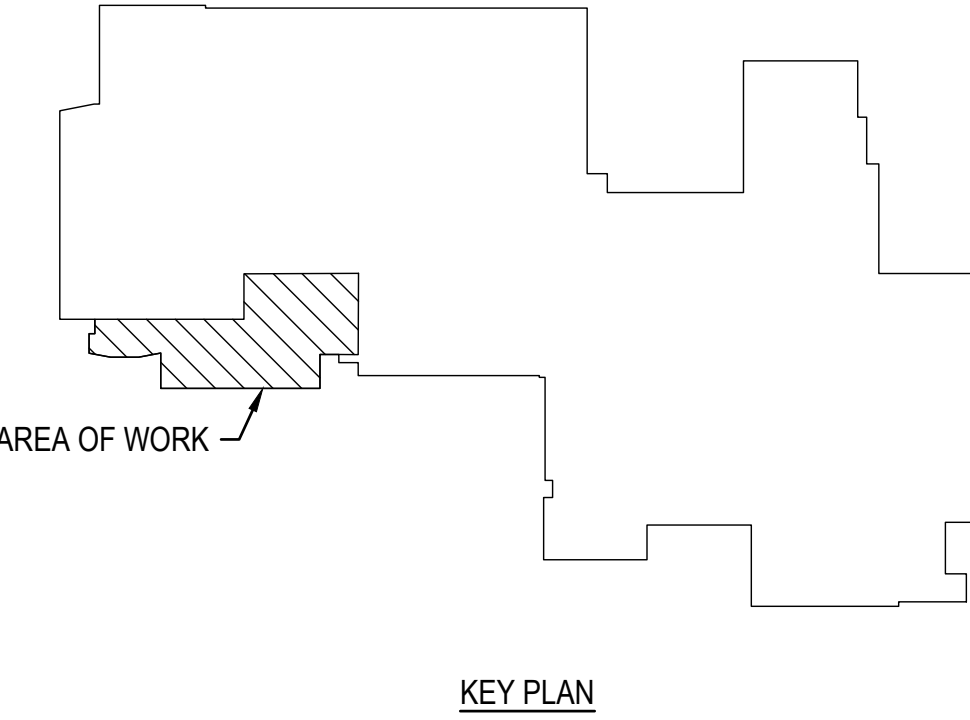
1 SECOND FLOOR PLAN - AREA 2 - DEMOLITION



KEY PLAN



ENLARGED
PREP ROOM #402A & POTTING ROOM #402B - LIGHTING & POWER



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302.424.1441

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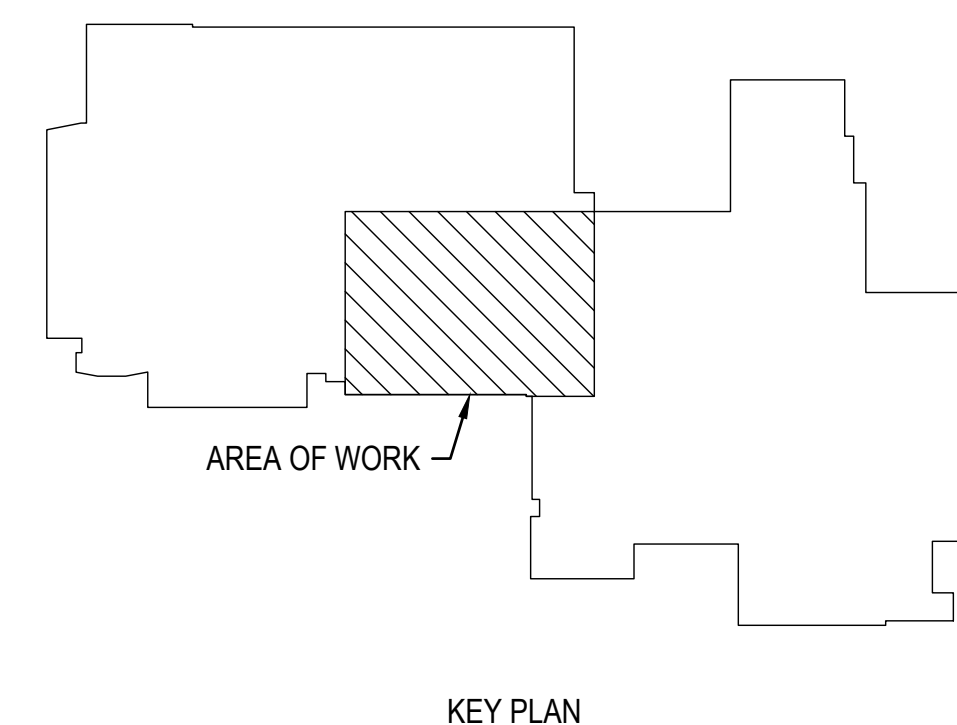
MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

[illegible]

FIRST FLOOR PLAN -
AREA 1 - LIGHTING &
POWER

Dwg.No.:
E-101

1. CLEAN, RE-LAMP AND INSTALL LUMINAIRE RETAINED UNDER DEMOLITION. CONNECT TO EXISTING LIGHTING CIRCUIT TO OPERATE AS BEFORE. COORDINATE RELOCATION OF LUMINAIRE WITH ARCHITECTURAL BULKHEADS.
2. INSTALL SECURITY CAMERA RETAINED UNDER DEMOLITION. CONNECT TO OPERATE AS BEFORE.
3. ROUTE CONDUITS ADJACENT TO HVAC PIPING THROUGH EXISTING CEILING SPACE AS NECESSARY.
4. PROVIDE 8"X8"X4" PULLBOX ABOVE CEILING FOR CONDUIT TRANSITION.



1. CLEAN, RE-LAMP AND INSTALL LUMINAIRE RETAINED UNDER DEMOLITION. CONNECT TO EXISTING LIGHTING CIRCUIT TO OPERATE AS BEFORE. COORDINATE RELOCATION OF LUMINAIRE WITH ARCHITECTURAL BULKHEADS.
2. ROUTE CONDUITS ADJACENT TO HVAC PIPING THROUGH EXISTING CEILING SPACE AS NECESSARY.

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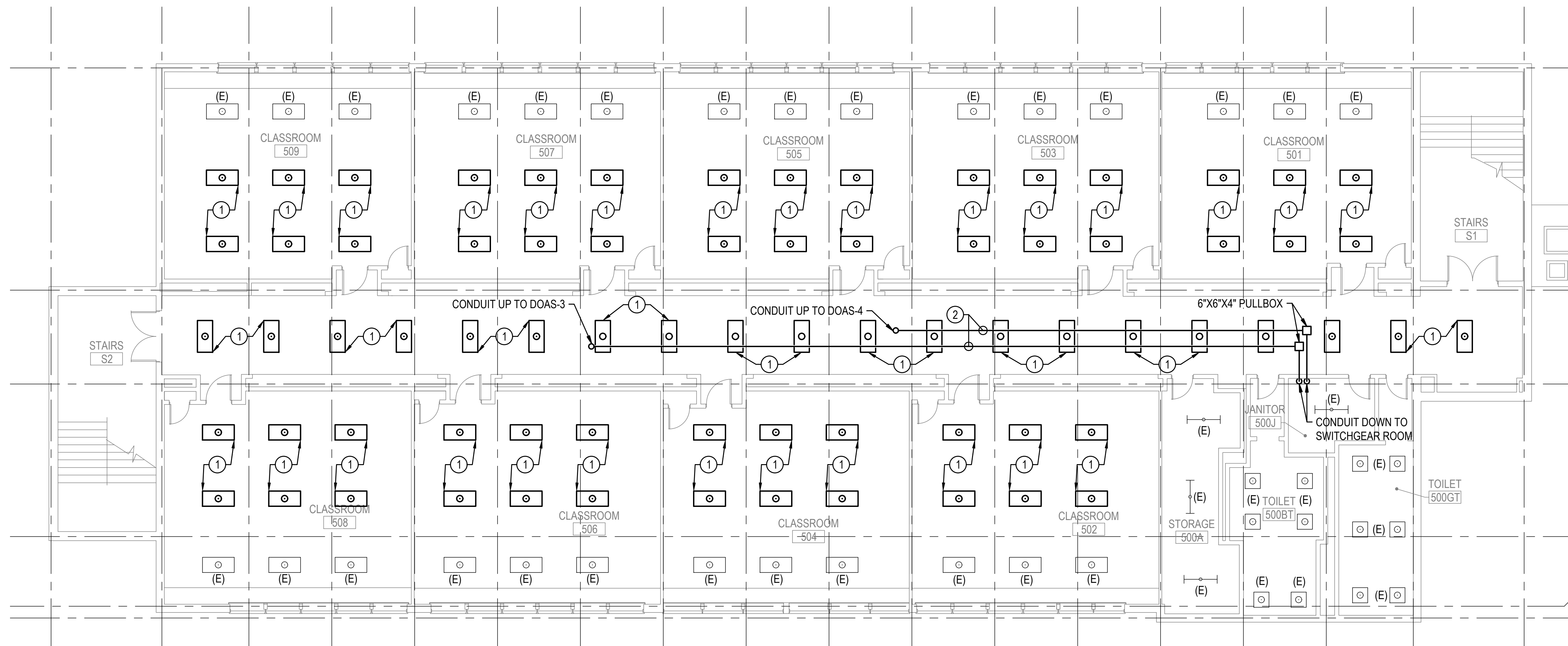
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GALLSBURY, MARYLAND 410/343.9091

MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

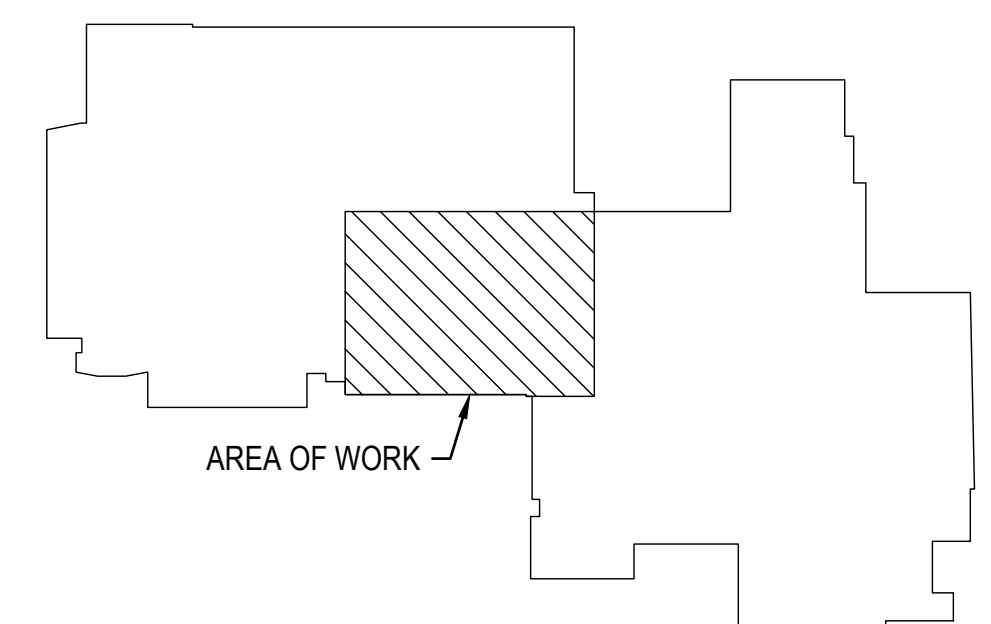
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Own.By:	JHS
Proj.No.:	1587A007.A02

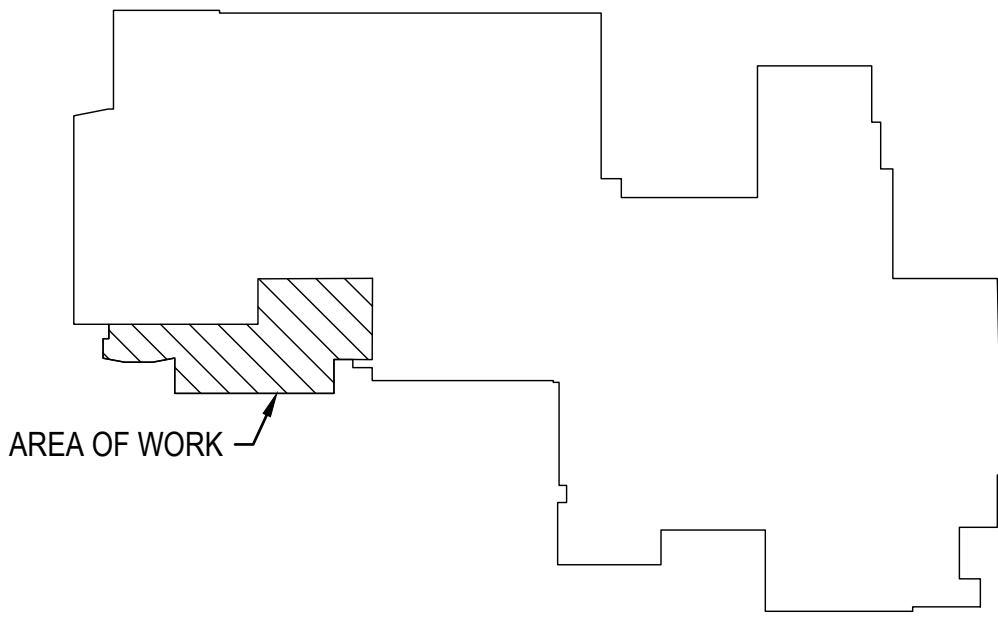
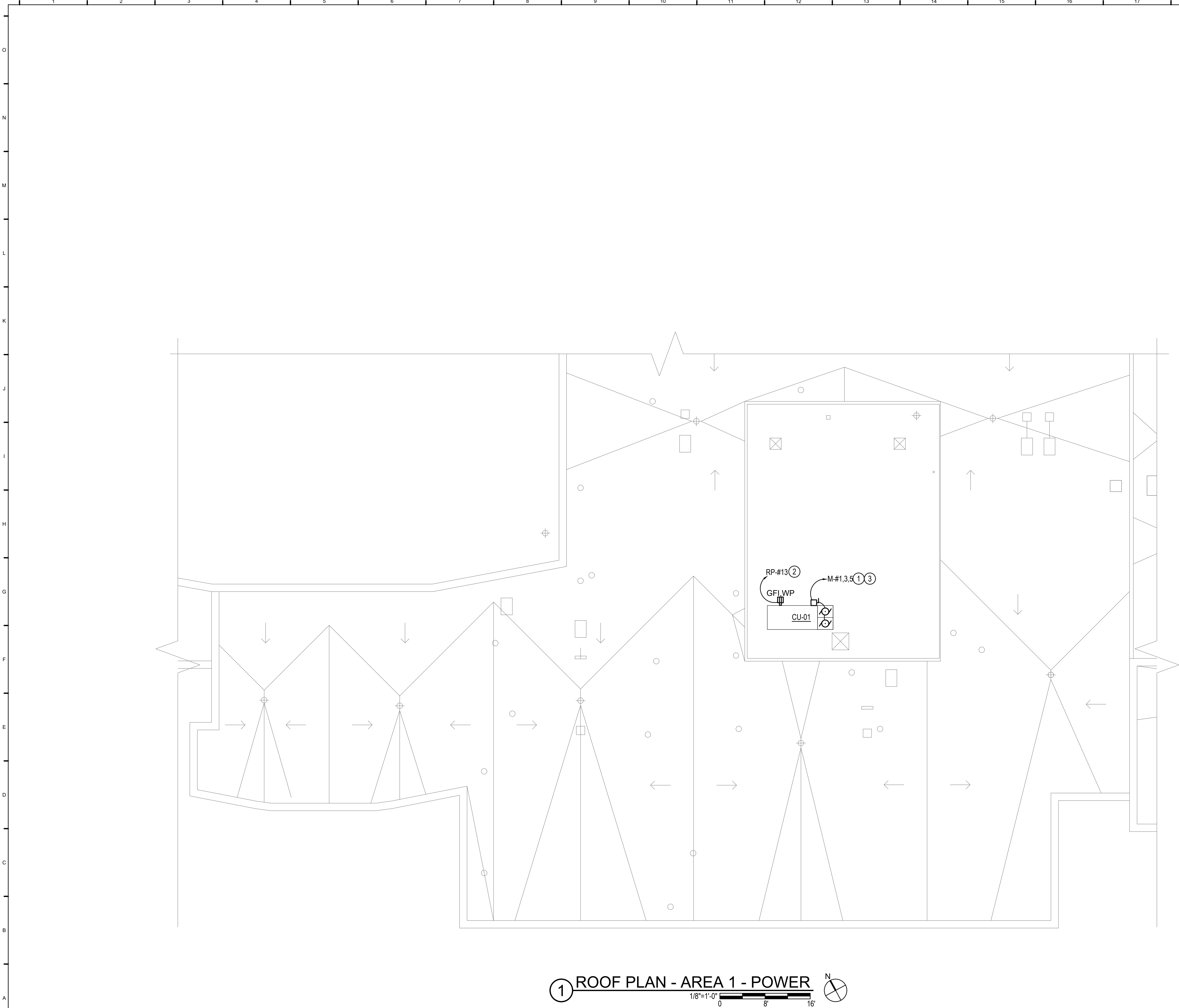
SECOND FLOOR PLAN -
AREA 2 - LIGHTING &
POWER

Dwg.No.:
E-105

① SECOND FLOOR PLAN - AREA 2 - LIGHTING & POWER



KEY PLAN

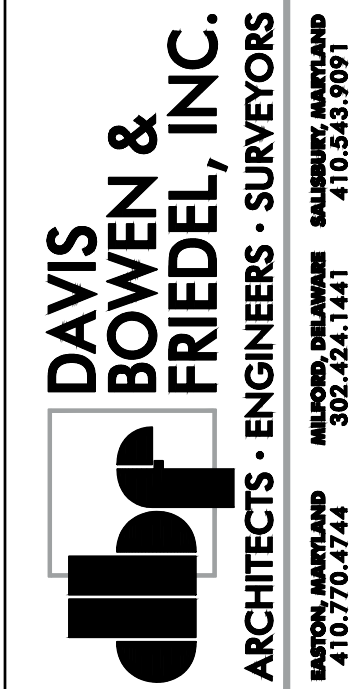


GENERAL NOTES

- 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 GFCI RECEPTACLE WITH "IN-USE" WEATHERPROOF COVER MOUNT RECEPTACLE ADJACENT TO MECHANICAL UNIT.
3. ROUTE CIRCUITS WITHIN HVAC CURB ADJACENT TO DUCTWORK.



MILFORD HIGH SCHOOL HVAC UPGRADES MILFORD, DELAWARE

COMMENTS					
DATE					
Date: FEBRUARY 2023					
Scale: AS NOTED					
Dwn.By: JHS					
Proj.No.: 1587A007.A02					
ROOF PLAN - AREA 1 - POWER					
Dwg.No.: E-106					

1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
2. PROVIDE GFCI RECEPTACLE WITH "IN-USE" WEATHERPROOF COVER MOUNT RECEPTACLE ADJACENT TO MECHANICAL UNIT.
3. ROUTE CIRCUITS WITHIN HVAC CURB ADJACENT TO DUCTWORK.
4. INTEGRAL VFD FURNISHED WITH HVAC UNIT. MAKE ALL FINAL CONNECTIONS TO VFD.
5. PROVIDE HARD-WIRED CONNECTION FOR HEAT-TRACE.

**DAVIS
BOWEN &
FRIEDEL, INC.**

ARCHITECTS • ENGINEERS • SURVEYORS

**EASTON, MARYLAND
410.770.4744**

**MILFORD, DELAWARE
302.424.1441**

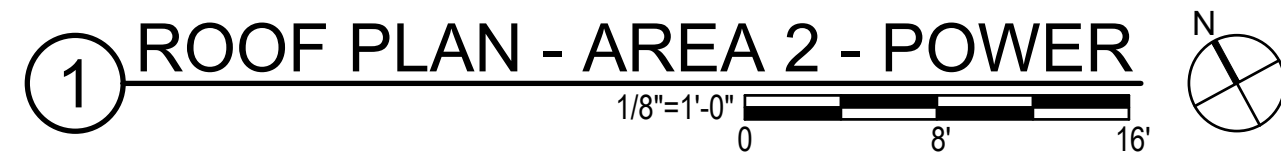
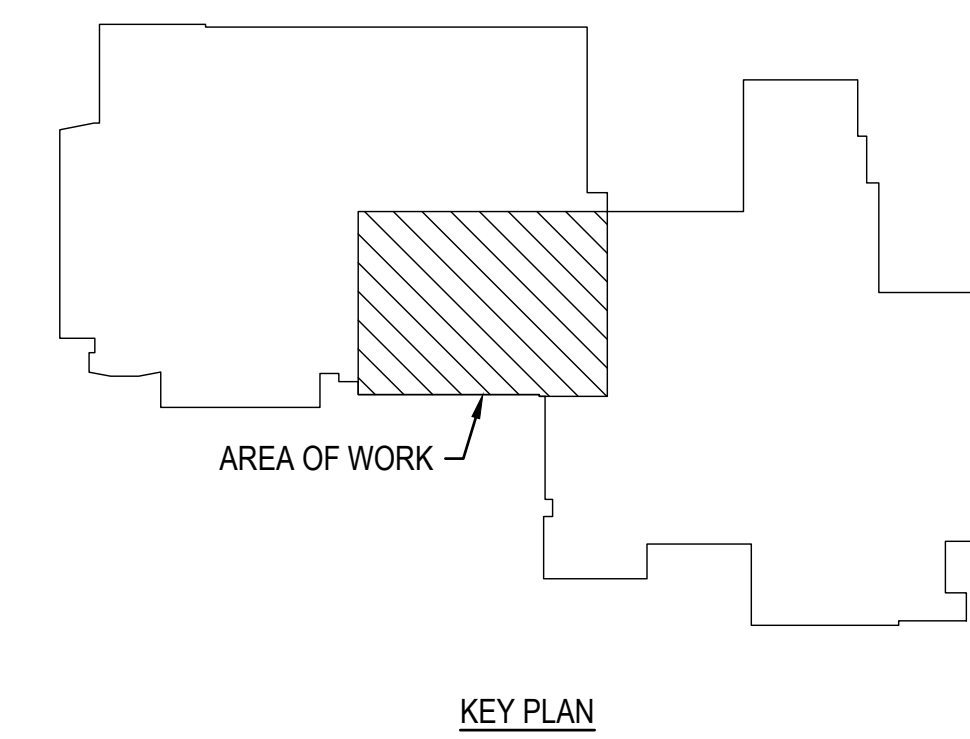
**SALISBURY, MARYLAND
410.543.9091**

**MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE**

[illegible]

ROOF PLAN - AREA 2 -
POWER

E-107



1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
2. PROVIDE GFCI RECEPTACLE WITH "IN-USE" WEATHERPROOF COVER MOUNT RECEPTACLE ADJACENT TO MECHANICAL UNIT.
3. ROUTE CIRCUITS WITHIN HVAC CURB ADJACENT TO DUCTWORK.
4. INTEGRAL VFD FURNISHED WITH HVAC UNIT. MAKE ALL FINAL CONNECTIONS TO VFD.
5. PROVIDE HARD-WIRED CONNECTION FOR HEAT-TRACE.

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MILFORD, DELAWARE
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BALTIMORE, MARYLAND
410.543.9991

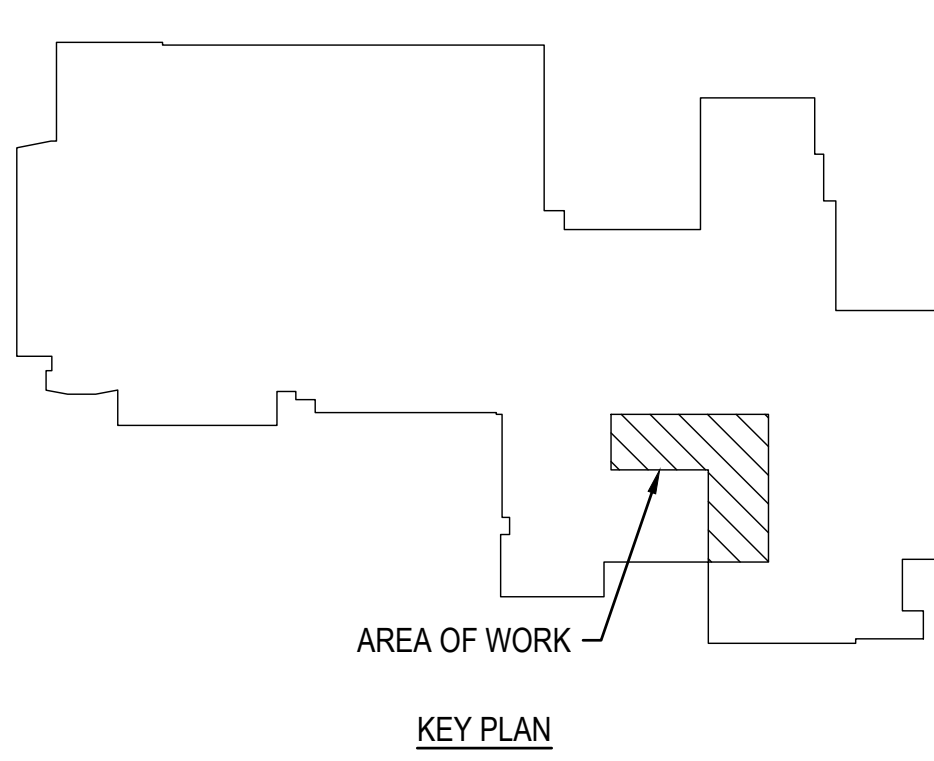
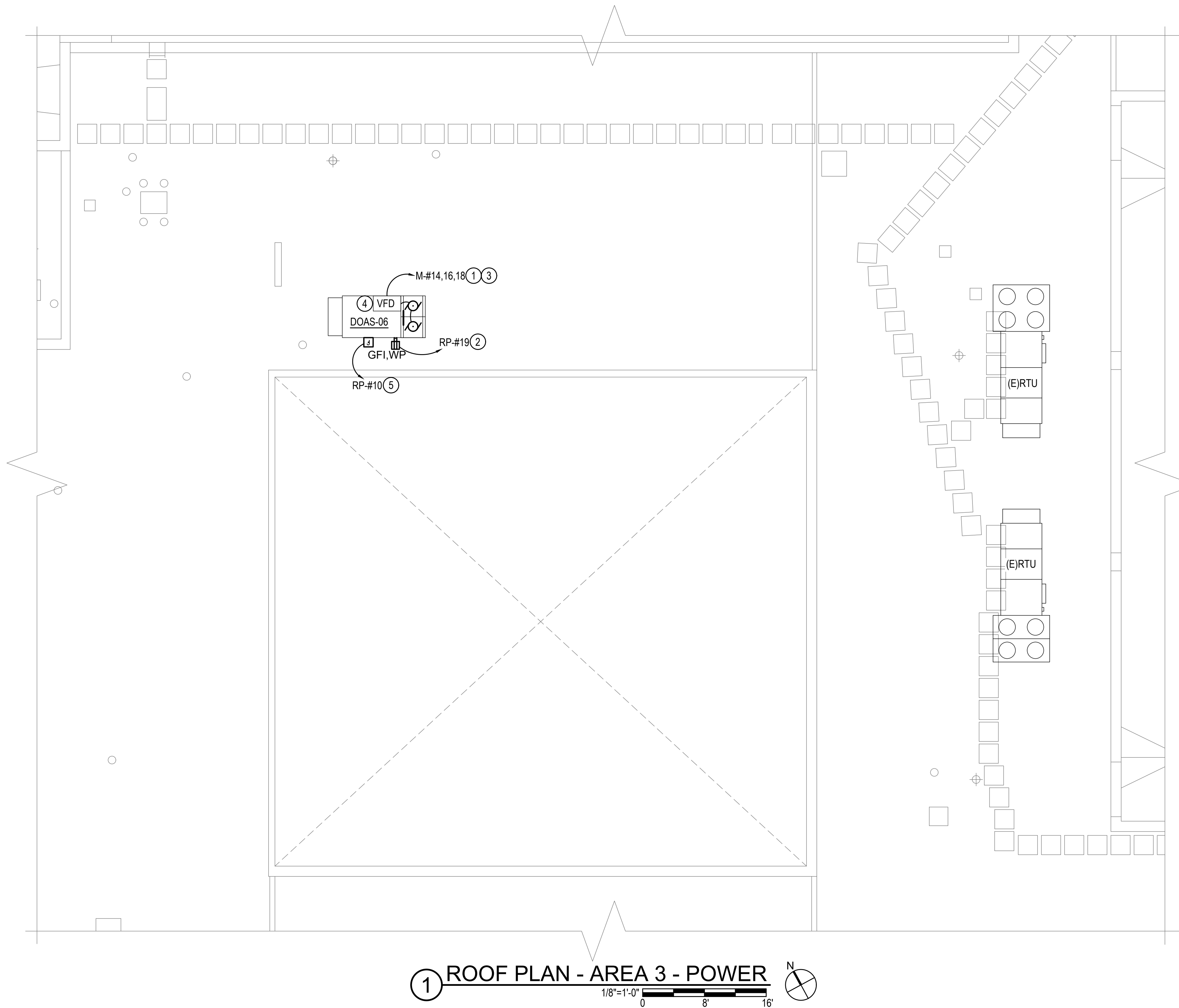
MILFORD HIGH SCHOOL
HVAC UPGRADES
MILFORD, DELAWARE

[illegible]

POWER

Dwg.No.:

E-108



1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
2. PROVIDE GFCI RECEPTACLE WITH "IN-USE" WEATHERPROOF COVER MOUNT RECEPTACLE ADJACENT TO MECHANICAL UNIT.
3. ROUTE CIRCUITS WITHIN HVAC CURB ADJACENT TO DUCTWORK.
4. INTEGRAL VFD FURNISHED WITH HVAC UNIT. MAKE ALL FINAL CONNECTIONS TO VFD.
5. PROVIDE HARD-WIRED CONNECTION FOR HEAT-TRACE.

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MILFORD HIGH SCHOOL

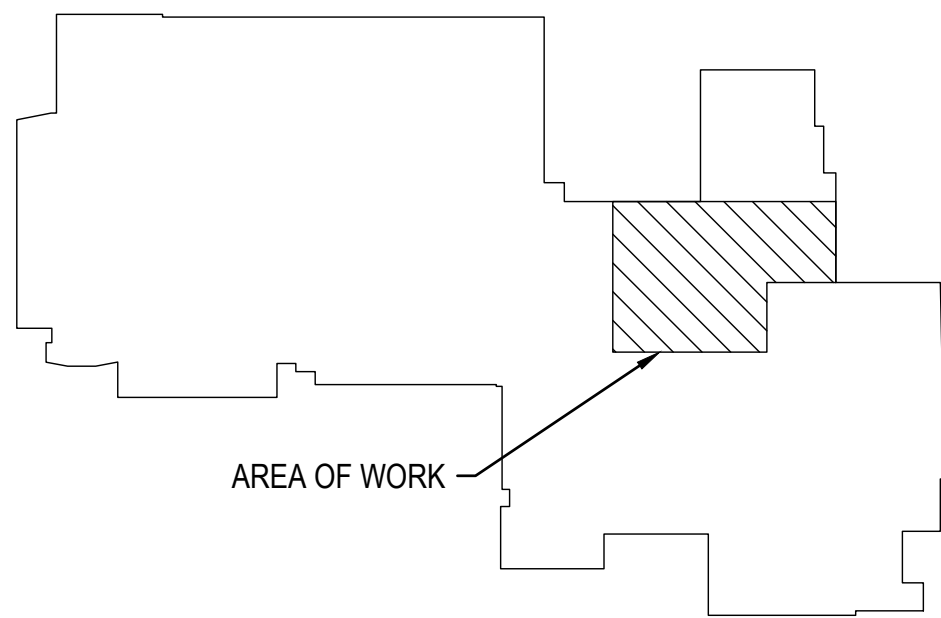
HVAC UPGRADES

MILFORD, DELAWARE

[illegible]

ROOF PLAN - AREA 4 -
POWER

Dwg.No.:
E-109



KEY PLAN

1 ROOF PLAN - AREA 4 - POWER



1. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
2. PROVIDE HARD-WIRED CONNECTION TO MOTORIZED PARTITION. MAKE ALL FINAL CONNECTIONS BETWEEN PARTITION AND CONTROL SWITCH FURNISHED WITH MOTOR.

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MILFORD HIGH SCHOOL

HVAC UPGRADES

MILFORD, DELAWARE

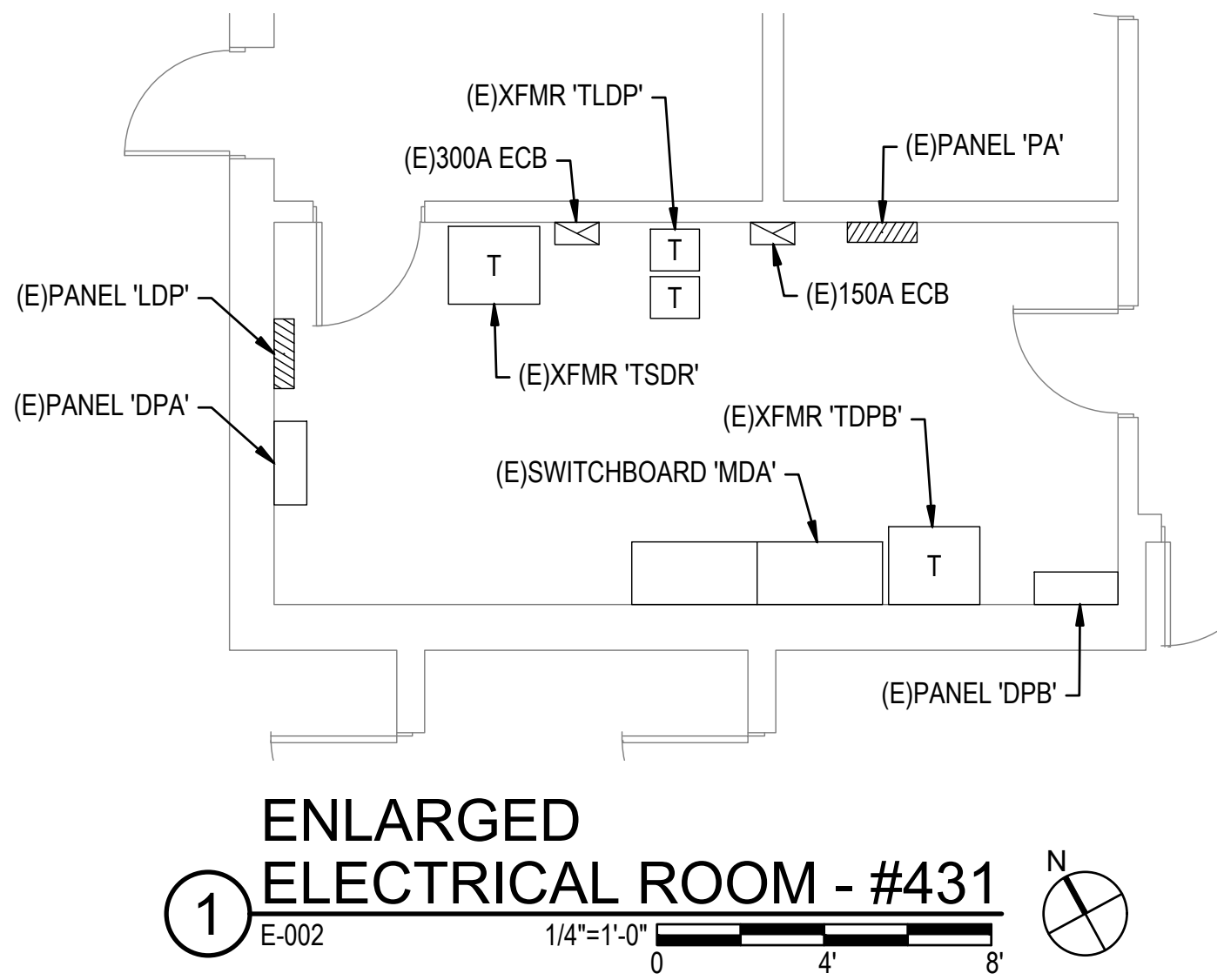
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Date:	FEBRUARY 2023
Scale:	AS NOTED
Dwn.By:	JHS
Proj.No.:	1587A007.A02

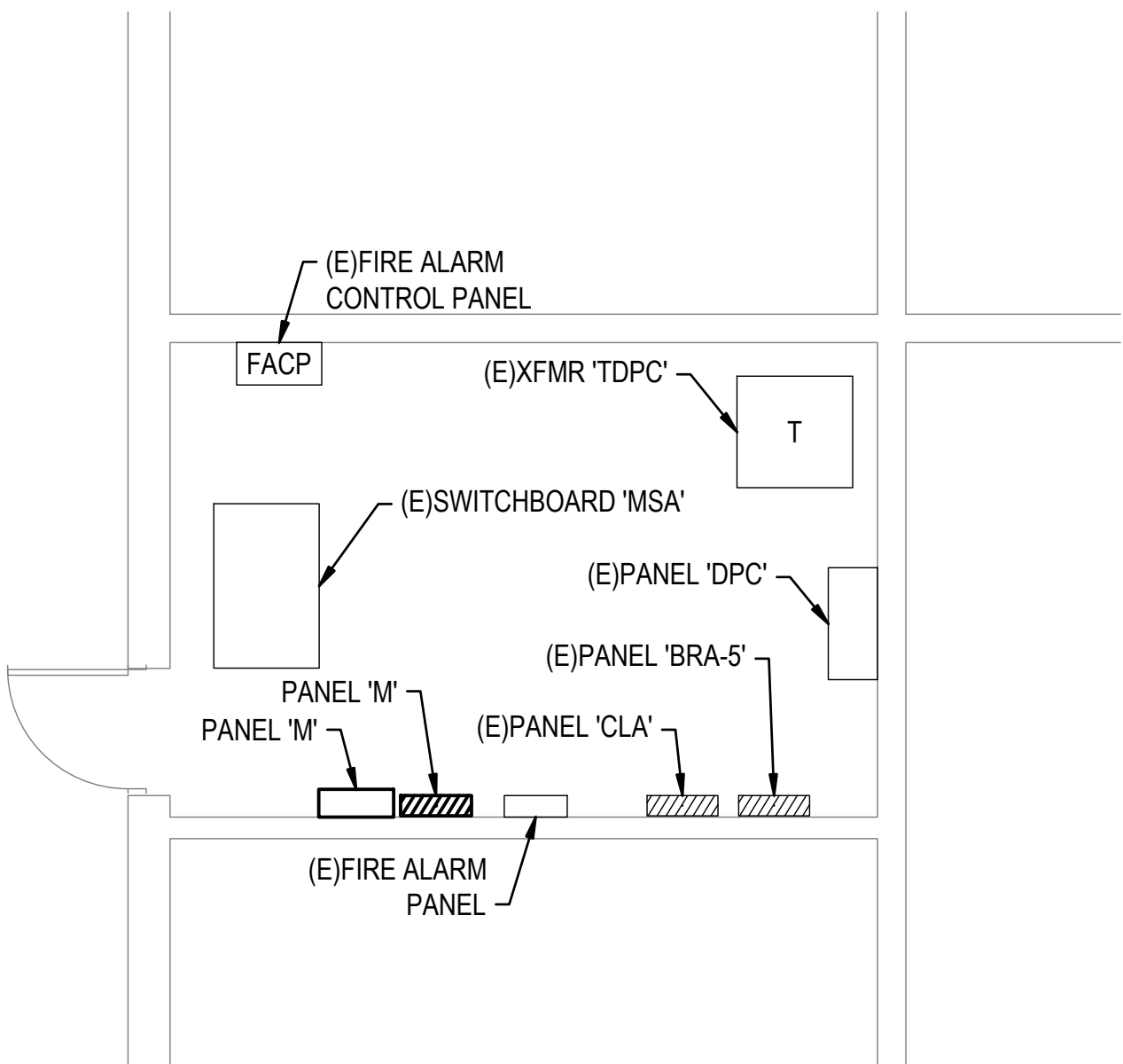
ENLARGED PLANS

Dwg.No.

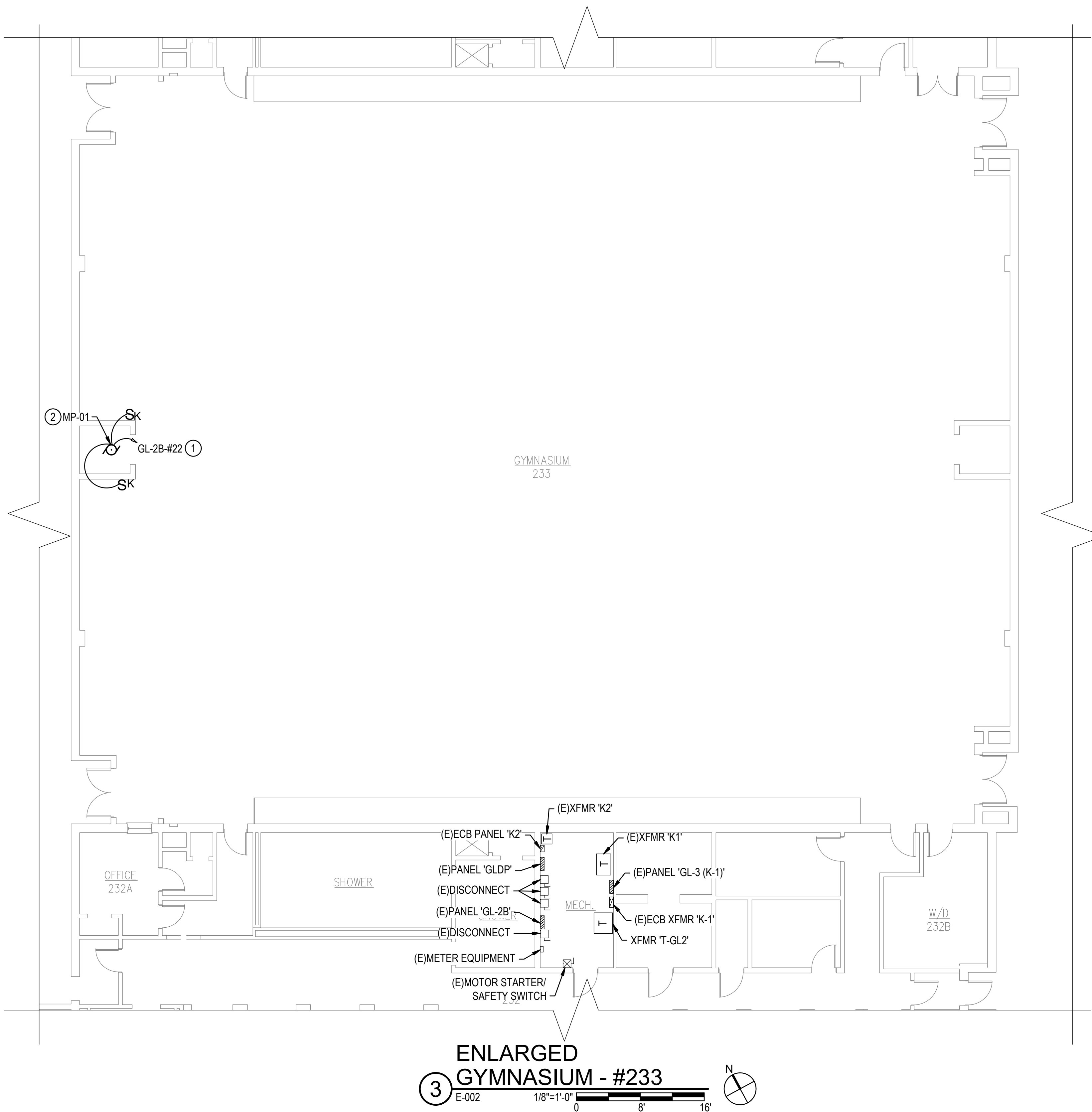
E-401



ENLARGED
ELECTRICAL ROOM - #431



ENLARGED
SWITCHGEAR ROOM - #213A
E-002, E-103, E-104
1/4"=1'-0"



ENLARGED
③ GYMNASIUM - #233
E-002 1/8"=1'-0"

1. PROVIDE NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD. MATCH EXISTING SWITCHBOARD AIC RATING.
2. SEE MOTOR AND EQUIPMENT SCHEDULE FOR MOTOR AND FEEDER CHARACTERISTICS.
3. SEE PANELBOARD SCHEDULE FOR PANELBOARD RATINGS AND CHARACTERISTICS.



FEEDER SCHEDULE					
NUMBER	FEEDER				
	WIRE			CONDUIT(S)	REMARKS
	QUANTITY	SIZE	GROUND		
A	2 SETS (4#3/0 AWG, THWN/THHN)		#3	2-1/2" EMT	
B	4#1 AWG, THWN/THHN		#8	1-1/2" EMT	

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HVAC UPGRADES
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[illegible]

SINGLE LINE

Dwg.No.:
E-601

