

# BID DOCUMENTS

# POE HALL - FIRE PROTECTION

# SYSTEMS IMPROVEMENTS

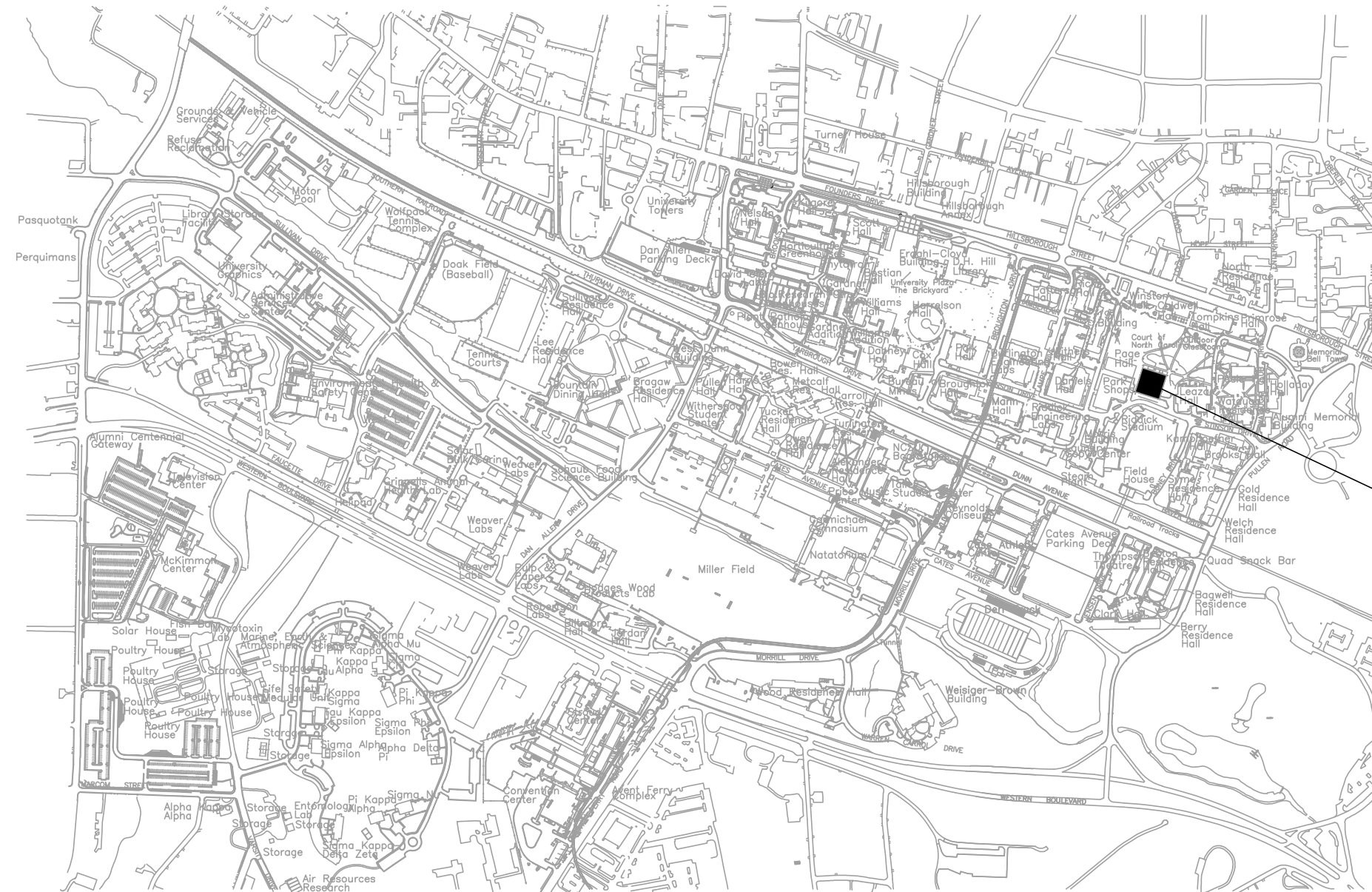
NORTH CAROLINA STATE UNIVERSITY  
 RALEIGH, NORTH CAROLINA  
 SCO ID # 22-24502-01A  
 NCSU PROJECT # 202220008

**SCOPE OF WORK:**

PROJECT INCLUDES PROVIDING A NEW FIRE LINE TO POE HALL, FDC, BACKFLOW PREVENTION, NEW FIRE PUMP AND STANDPIPES. PROJECT REQUIRES MODIFICATIONS TO THE EXISTING MECHANICAL ROOM SO A NEW FIRE PUMP ROOM CAN BE CONSTRUCTED; THIS INCLUDES THE REMOVAL OF MULTIPLE PUMPS, CHILLER, PIPING AND THE RELOCATION OF AN EXISTING AIR COMPRESSOR. ELECTRICAL AND FIRE ALARM WORK TO FACILITATE CHANGES ARE INCLUDED.

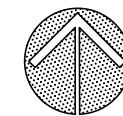
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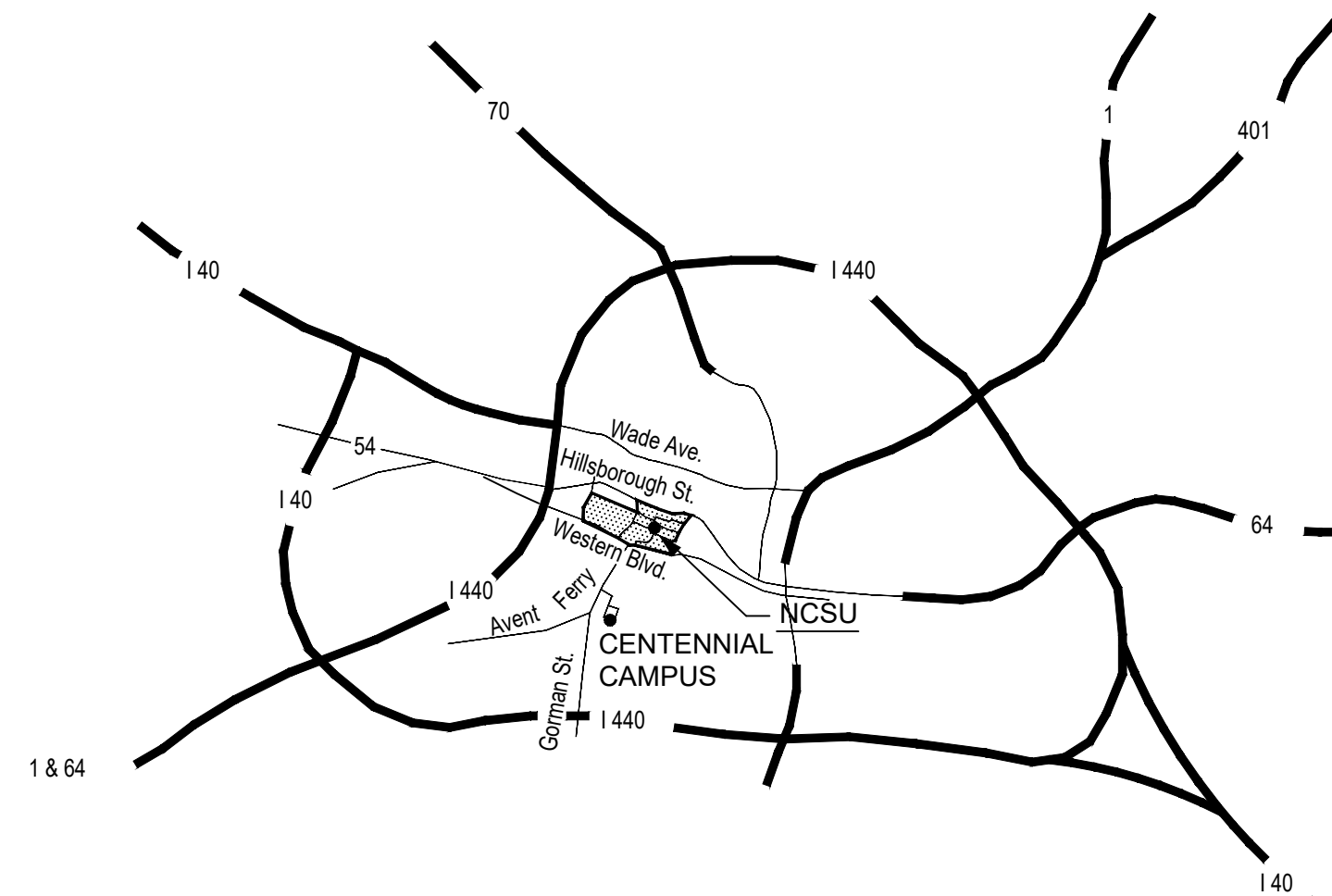


MAIN CAMPUS MAP

NTS

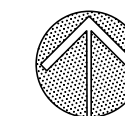


POE HALL

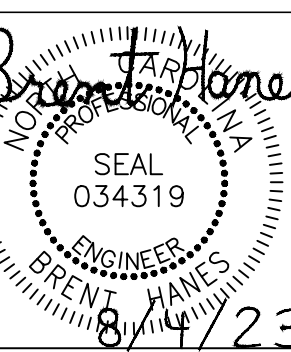


VICINITY MAP

NTS



DATE: 08.04.2023	DESIGNER:	DN BY:	CK BY:	REV:
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POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.

**C001**

Designer Proj. No.  
 22053  
 NCSU Proj. No.  
 202220008

FAC. NAME  
 POE HALL

FAC. NO. 024



# POE HALL

FFE = 373.89

# LEAZAR HALL

FFE = 372.77

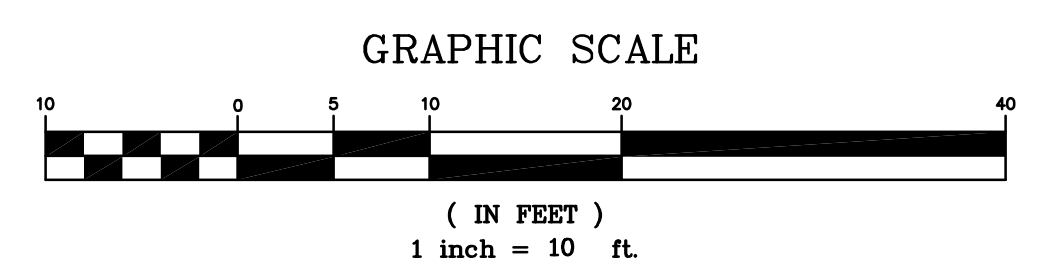
# KATHERINE STINSON DRIVE

## LEGEND

	EXISTING
ELECT. (OVERHEAD)	---
ELECT. (UNDERGROUND)	---
CHILLED WATER	---
NATURAL GAS	---
STEAM	---
SANITARY SEWER	---
TELEPHONE (UNDERGROUND)	---
WATER	---
STORM DRAIN	---
LIGHT POLE	☆ LP
LIGHT BOLLARD	☆
UTILITY POLE	☆ PP
MANHOLE	⊙ MH
CLEAN OUT	⊙ CO
DROP INLET, CATCH BASIN	⊙ DI CB
WATER VALVE	⊙ WV
TREE TO BE REMOVED	⊗

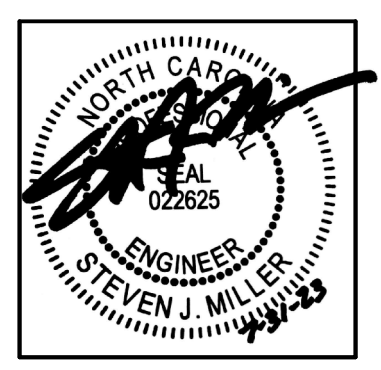
## DEMOLITION NOTES

- INSTALL TEMP COMPOST SOCKS AND INLET SILT SOCKS PRIOR TO BEGINNING ANY GROUND DISTURBANCE. LIMIT GROUND DISTURBANCE TO ONLY AREAS NECESSARY TO PERMIT NEW CONSTRUCTION.
- DEMOLITION AND PATCHING OF SIDEWALKS, PAVERS AND OTHER EXISTING PAVED SURFACES, IN ADDITION TO THAT INDICATED ON THIS PLAN, SHALL BE PERFORMED AS NECESSARY TO CONSTRUCT NEW WORK. ALL SUCH DEMOLITION AND PATCHING SHALL BE INCLUDED IN THE BASE BID SCOPE OF WORK.
- PRE-CONSTRUCTION CONDITIONS OF EXISTING IMPROVEMENTS (INCLUDING PAVING PATTERNS AND PAVEMENT MARKINGS, ETC.) SHALL BE CAREFULLY PHOTO-DOCUMENTED PRIOR TO DEMOLITION TO GUIDE ACCURATE RE-INSTALLATION.
- ALL CURB & CUTTER TO BE REMOVED SHALL BE SAW CUT AT AN EXISTING JOINT. REPAIR PER THE SPECIFICATIONS AND DETAILS OR TO MATCH PRE-CONSTRUCTION CONDITIONS, WHICHEVER IS MORE STRINGENT.
- ALL DEMOLISHED OR WASTE CONCRETE AND SCRAP METAL SHALL BE RECYCLED.
- ALL WASTE MATERIAL GENERATED FROM DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OR RECYCLED OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS. TRASH AND DEBRIS SHALL BE CONTAINED ON-SITE AND CLEANED-UP AT THE END OF EACH WORK DAY.
- EXTREME CARE SHALL BE TAKEN TO PROTECT TREES AND LANDSCAPING TO REMAIN. CONTACT THE NCSU CAMPUS ARBORIST IN ADVANCE OF ANY EXCAVATION NEAR TREES.
- TREE PROTECTION WILL BE PROVIDED BY NCSU LDS.
- NOTIFY THE UNIVERSITY ARBORIST WHEN ENCOUNTERING ROOTS DURING CONSTRUCTION. ROOTS 1-IN OR GREATER IN DIAMETER THAT ARE DAMAGED BY TRENCING OR DIGGING SHALL BE PRUNED BY A PROFESSIONAL ARBORIST WITH SHARP TOOLS, REMOVING ANY JAGGED EDGES BEFORE THE AREA IS BACKFILLED.
- VERIFY EXISTING CONDITIONS, CONNECTIONS AND CROSSING OF EXISTING UTILITIES, AND ALL ILLUSTRATED UNDERGROUND ELEMENTS. EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. NOTIFY THE ARCHITECT IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE PROPOSED DESIGN. CONTACT NC-811 UTILITY LOCATING SERVICE AT LEAST 72-HRS PRIOR TO EXCAVATION.
- PROTECT ALL ADJACENT FACILITIES FROM DAMAGE DURING CONSTRUCTION. SHOULD DAMAGES OCCUR, REPAIR IMMEDIATELY AS DIRECTED BY THE ARCHITECT. TRADE CONTRACTOR WHO CAUSES DAMAGE TO EXISTING PROPERTY DURING CONSTRUCTION SHALL BE RESPONSIBLE FOR REPAIRS AT NO EXPENSE TO THE OWNER.
- PROTECT ALL EXISTING BRICK OR CONCRETE WALKWAYS OR OTHER VULNERABLE SURFACES TO REMAIN WITH PLYWOOD OR TRUCK MATS WHEN WORKING AROUND THESE ELEMENTS. PLYWOOD SHALL BE PLACED BENEATH ANY CONSTRUCTION DUMPSTERS OR OTHER SIMILAR STORAGE CONTAINERS PLACED ON PAVED SURFACES IN ACCORDANCE WITH NCSU CONSTRUCTION GUIDELINES.
- ACCESS TO LOADING ZONES AND DUMPSTERS SHALL REMAIN OPEN DURING CONSTRUCTION.



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NC ENG LIC# C-2490

POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SCOID#: 22-24502-01; CODE: 42124; ITEM: 343

SHEET No.  
**C100**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



## EXISTING CONDITIONS PLAN

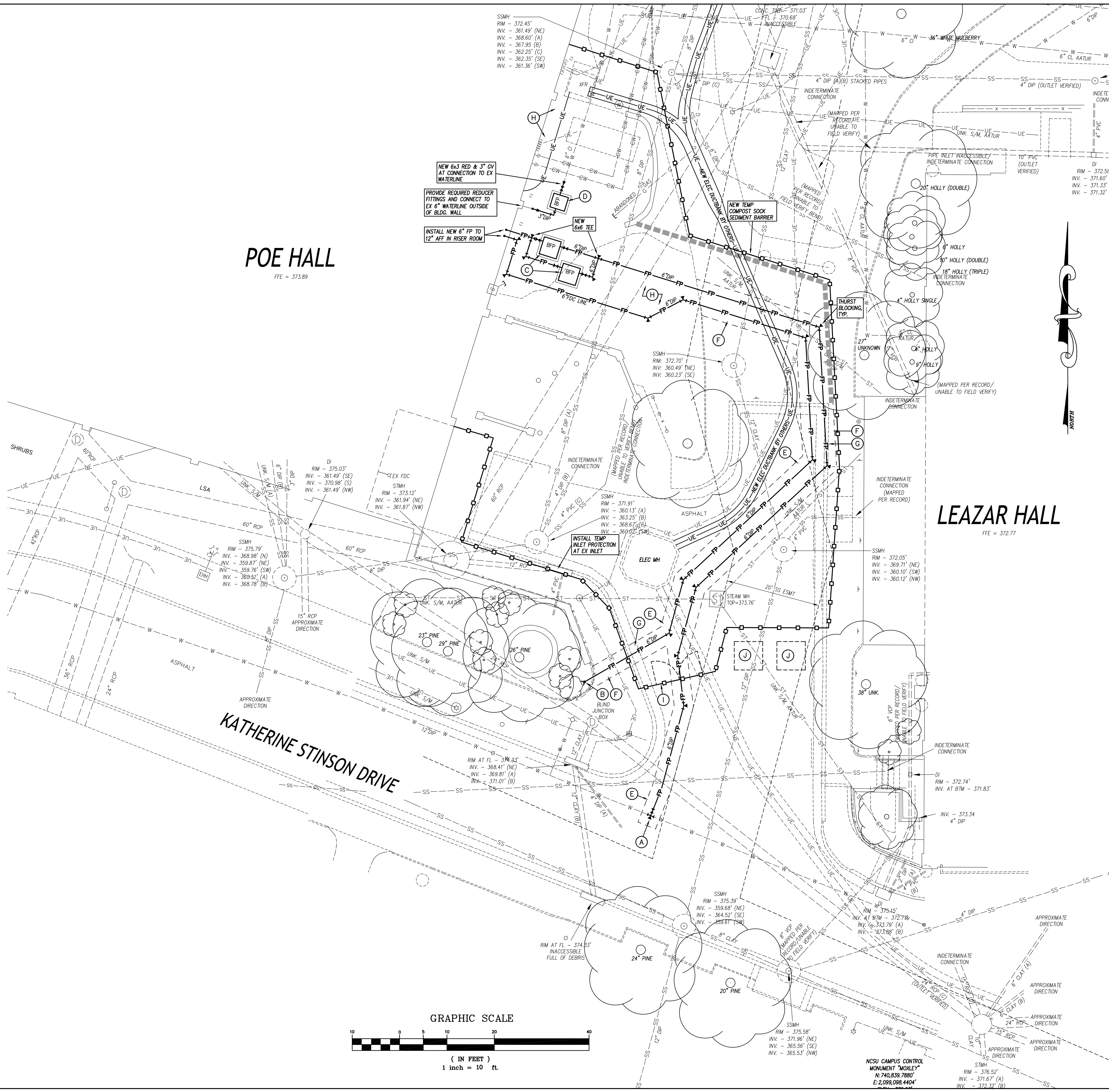
# POE HALL

FFE = 373.89

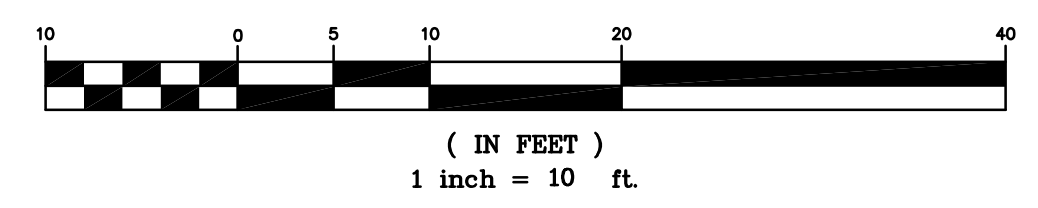
# LEAZAR HALL

FFE = 372.77

# KATHERINE STINSON DRIVE



### GRAPHIC SCALE



### LEGEND

	EXISTING	NEW
ELECT. (OVERHEAD)	---	---
ELECT. (UNDERGROUND)	---	---
CHILLED WATER	---	---
FIRE PROTECTION	---	---
NATURAL GAS	---	---
STEAM	---	---
SANITARY SEWER	---	---
TELE (UNDERGROUND)	---	---
WATER	---	---
STORM DRAIN	---	---
LIGHT POLE	☆ LP	---
LIGHT BOLLARD	☆	---
UTILITY POLE	⊙ UP	---
MANHOLE	⊙ MH	---
CLEAN OUT	⊙ CO	---
DROP INLET, CATCH BASIN	□ DI, CB	---
WATER VALVE	---	---
TEMP COMPOST SOCK	---	---
TEMP CONSTRUCTION FENCE	---	---

### GENERAL NOTES

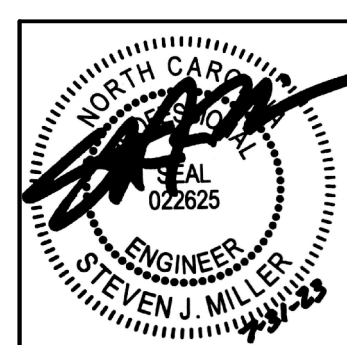
- DISTURBED AREA = 900-SF (0.02-AC)
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL NCSU STANDARDS AND MINOR AND OSHA REQUIREMENTS.
- INSTALL 6" CHAIN-LINK TEMP CONSTRUCTION FENCING AND TRAFFIC CONTROL SIGNAGE.
- NCSU LDS WILL PROVIDE TREE PROTECTION AS NEEDED. CONTRACTOR TO COORDINATE WITH LDS PRIOR TO BEGINNING CONSTRUCTION.
- ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE OWNER'S INDEPENDENT TESTING LABORATORY.
- ALL PAVED SURFACES ADJACENT TO PROJECT SHALL BE KEPT CLEAN AT ALL TIMES OR A WASH STATION SHALL BE PROVIDED.
- THE CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY OF THE INSTALLED WATER SYSTEM FOLLOWING INSTALLATION.
- REPAIR OF SURFACES, INCLUDING PAVEMENT PATCHING, SHALL BE INCLUDED IN BASE BID.
- MATERIALS AND EQUIPMENT SHALL NOT BE STORED ON LANDSCAPE AREAS INCLUDING TURF, PLANTS AND MULCH BEDS.
- VEHICULAR TRAFFIC ON HARDCAPES IS BY PERMIT ONLY AND NO VEHICULAR TRAFFIC IS ALLOWED ON SOFTSCAPES. ALL DAMAGES CAUSED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR.
- ALL HARDCAPE SURFACES SHALL BE PROTECTED BY 3/4-IN THICK 4x8 PLYWOOD.
- CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION OF EX CONCRETE, ASPHALT AND BRICK SURFACES. ALL DAMAGES SHALL BE REPAIRED BY THE CONTRACTOR WITH LIKE MATERIALS.
- ANY HARDCAPE DAMAGED DURING CONSTRUCTION OR DUE TO NEGLECT BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED WITH LIKE MATERIAL AT NO ADDITIONAL COST.
- ALL VEHICULAR TRAFFIC ON HARDCAPES IS BY PERMIT ONLY AND IS NOT ALLOWED ON SOFTSCAPES.
- SAFE PEDESTRIAN AND VEHICULAR PATHS SHALL BE MAINTAINED AT ALL TIMES. REFER TO SPECIFICATIONS FOR TRAFFIC CONTROL PLAN.
- INSTALL ELECTRONICALLY DETECTABLE WARNING TAPE OVER THE NEW WATERLINE AT A DEPTH OF 6-24 INCHES BELOW FINISH GRADE DIRECTLY OVER PIPING.
  - WARNING TAPES SHALL BE MIN. 3-IN WIDE WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
- EXISTING SITE SURVEY INFORMATION WAS PROVIDED BY NCSU. THE DESIGNER ASSUMES NO LIABILITY FOR ANY EXISTING INFORMATION BOTH SHOWN AND NOT SHOWN ON THE PLAN. CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO DEMOLITION AND CONSTRUCTION.
- THE LIMITS OF CONSTRUCTION ON SITE ARE NOT LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREAS AS DETERMINED BY FEMA AND DEPICTED ON F.I.R.M. MAP #3720079400K, DATED JULY 19, 2022.

### KEY NOTES

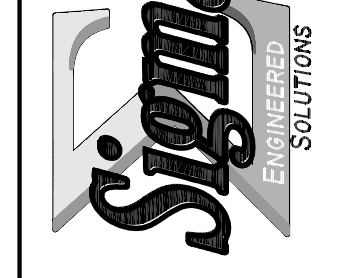
- (A) NEW 12"x6" TAPPING SLEEVE & VALVE.
- (B) NEW FIRE DEPARTMENT CONNECTION.
- (C) NEW 6-IN FIRE PROTECTION RED. PRESSURE DETECTOR BACKFLOW PREVENTION ASSEMBLY IN HEATED ENCLOSURES. INSTALL GATE VALVES UPSTREAM AND DOWNSTREAM OF EACH ENCLOSURE.
- (D) NEW 3-IN DOMESTIC RED. PRESSURE DETECTOR BACKFLOW PREVENTION ASSEMBLY IN HEATED ENCLOSURE.
- (E) SAW CUT, REMOVE AND PATCH EX ASPHALT PAVEMENT AS NEEDED TO INSTALL NEW WATERLINES.
- (F) REMOVE AND REPLACE EX BRICK SIDEWALK AS NEEDED TO INSTALL NEW WATERLINES.
- (G) REMOVE AND REPLACE EX CURB & GUTTER AS NEEDED TO INSTALL NEW WATERLINES.
- (H) REMOVE AND REPLACE EX LIROPE GROUND COVER AND MULCH AS NEEDED TO INSTALL NEW WATERLINES AND ELEC.
- (I) INSTALL GATES IN TEMP CONSTRUCTION FENCE WHERE NEEDED FOR CONSTRUCTION ACCESS. MAINTAIN AT LEAST 4-FT OF CLEAR SIDEWALK SPACE AROUND FENCE. TEMPORARILY ADJUST FENCE LOCATIONS AS NEEDED TO PERFORM WORK OUTSIDE OF FENCE. LOCATIONS SHOWN. LIMIT TIME OF ADJUSTMENT TO THE GREATEST EXTENT FEASIBLE. COORDINATE FENCE ADJUSTMENTS WITH NCSU TO MINIMIZE DISRUPTION OF PUBLIC ACCESS TO SIDEWALKS.
- (J) TEMPORARILY RELOCATE SOLID WASTE/RECYCLE DUMPSTERS TO THIS LOCATION DURING CONSTRUCTION.

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POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01DH: 22-24502-01; CODE: 42124; ITEM: 343

SHEET No.  
**C200**

Designer Proj. No.  
22053  
NCSU Proj. No.  
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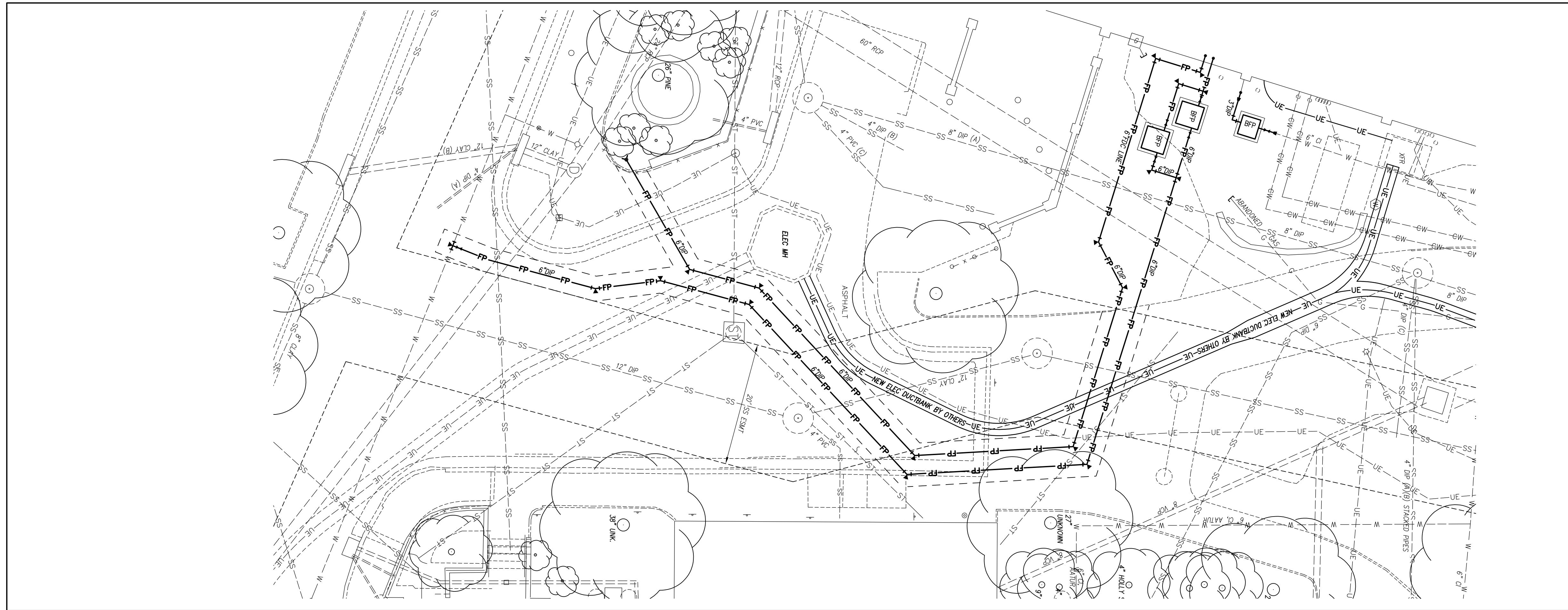
FAC. NAME  
POE HALL  
FAC. NO. 024



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### SITE PLAN

WATERLINE PLAN



WATERLINE PROFILE



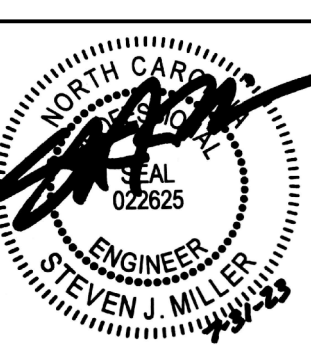
SCALE  
 1" = 10' HORIZONTAL  
 1" = 2" VERTICAL



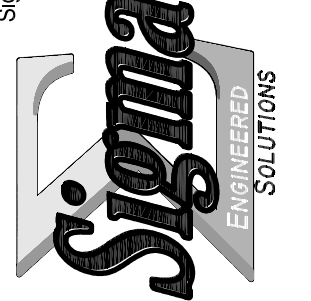
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 SYSTEMS IMPROVEMENTS  
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SHEET No.  
**C201**

Designer Proj. No.  
 22053  
 NCSU Proj. No.  
 202220008

FAC. NAME  
 POE HALL

FAC. NO. 024

**SURFACE STABILIZATION REQUIREMENTS**

- PERMANENT OR TEMPORARY GROUND COVER SHALL BE PROVIDED BY THE CONTRACTOR OVER ALL DISTURBED AREAS OF THE SITE AS SOON AS POSSIBLE, HOWEVER, NO LATER THAN 14 DAYS AFTER CONSTRUCTION ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED DURING ANY PHASE OF WORK.
- TEMPORARY OR PERMANENT GROUND COVER SHALL BE PROVIDED ON ALL SLOPES WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITIES PERMANENTLY OR TEMPORARILY CEASED.
- USE EXCELSDOR MATTING OR OTHER APPROVED CHANNEL LINING MATERIAL TO COVER THE BOTTOM OF CHANNELS.
- APPLY 4000 LB/ACRE GRAIN STRAW OVER SEEDED AREAS AND ANCHOR STRAW CRIMPING, ASPHALT TACKING OR OTHER APPROVED METHOD.
- MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES AND CLOG DRAINAGE DEVICES.

**TOPSOIL**

- TOPSOIL IS TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR PRIOR TO THE SITE BEING TURNED OVER TO NCSU FOR PLANTING.
- ALL AREAS THAT ARE DISTURBED AND ARE TO BE REPLANTED BY NCSU SHALL RECEIVE TOPSOIL AS INDICATED BELOW.
- TOPSOIL SHALL BE PREMIXED AND PRESCREENED PRIOR TO PLACING.
- TOPSOIL SHALL BE 3 PARTS SANDY-LOAM WITH A pH OF 5.5-6.5 RANGE AND 1 PART COMPOSTED ONE BARK OR WOOD MATERIAL.
- A MINIMUM OF 3" TOPSOIL SHALL BE APPLIED IN DISTURBED AREAS TO BE PLANTED, SEED, SODED OR MULCHED (WITHOUT PLANTS) BY THE OWNER.

**SEEDBED PREPARATION**

- CHISEL ALL CUT GRADED OR COMPACTED AREAS TO A MINIMUM DEPTH OF 8".
- DISC ALL AREAS TO RECEIVE GRASS TO A MINIMUM OF 8 INCHES. MIX AND AMEND WITH 3 INCHES OF WELL SCREENED TOPSOIL. ON-SITE TOPSOIL MAY BE USED IN PLACE OF IMPORTED TOPSOIL, IF WELL-SCREENED AND DRY PRIOR TO APPLICATION.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND PHOSPHATE UNIFORMLY AS PER SPECIFICATIONS AND MIX WELL WITH SOIL.
- CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED TO A 6 INCHES DEPTH.
- SEED AT RATE SPECIFIED OR AS NEEDED TO ACHIEVE AND MAINTAIN A THICK HEALTHY GROUND COVERAGE.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH. BEGIN THOROUGH WATERING OF GRASSSED AREAS IMMEDIATELY UPON INSTALLATION. DO NOT ALLOW GRASSSED AREAS TO BECOME EXCESSIVELY DRY.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS AS NEEDED.

**LIME & FERTILIZATION SCHEDULE**

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY A MINIMUM 3,000 LB/ACRE AGRICULTURAL LIMESTONE AND A MINIMUM 500 LB/ACRE 10-10-10 FERTILIZER, AS NEEDED TO ESTABLISH REQUIRED COVERAGE

**MAINTENANCE REQUIREMENTS**

CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SEEDING MAINTENANCE (PER SPECIFICATIONS) UNTIL FINAL ACCEPTANCE OR OWNER'S INSTALLATION OF PERMANENT SEEDING.

**TEMPORARY SEEDING SCHEDULE**

DATE	TYPE	PLANTING RATE
AUG 15 - APR 15	3-WAY TALL FESCUE BLEND AND WINTER RYE (GRAIN)	70 LBS/ACRE 25 LBS/ACRE
APR 15 - AUG 15	3-WAY TALL FESCUE BLEND AND GERMAN MILLET *** OR SUDANGRASS (SMALL-STEMMED VAR.) ***	120 LBS/ACRE 25 LBS/ACRE 30 LBS/ACRE

\*\*\* TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUCED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

**PLANT MAINTENANCE & SPECIAL WARRANTY**

CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL MAINTENANCE AND CARE OF NEW PLANT MATERIAL FOR 12 MONTHS FROM FINAL COMPLETION AND SHALL REPLACE PLANTINGS THAT HAVE DIED OR ARE MORE THAN 25% DEAD WITHIN THE WARRANTY PERIOD. AN ADDITIONAL 12 MONTH WARRANTY FOR REPLACED PLANTS SHALL BEGIN UPON DATE OF REPLACEMENT.

**TEMPORARY INLET PROTECTION**

**NOTES:**

- TEMPORARY PROTECTION INLETS WITHIN THE CONSTRUCTION SITE SHALL CONSIST OF HARDWARE MESH AND WASHED STONE FILTER. IN ADDITION, MANUFACTURED FILTER INSERTS (SILT BAGS) SHALL ALSO BE PROVIDED AT RECTANGULAR DROP INLETS AND CATCH BASINS.
- MESH AND STONE FILTER PROTECTION DEVICES SHALL NOT BE INSTALLED AT EXISTING CATCH BASINS LOCATED IN PAVED ROADS ADJACENT TO THE PROJECT. MANUFACTURED FILTER INSERTS (SILT BAGS) ONLY SHALL BE PROVIDED AT SUCH EXISTING CATCH BASINS.
- CONTRACTOR TO REMOVE AND DISPOSE OF COLLECTED SILT AT AN ACCEPTABLE OFF SITE LOCATION.
- COLLECTED SEDIMENT TO BE REMOVED ROUTINELY TO ENSURE FUNCTIONALITY OF SILT BAG AND STONE FILTERS.
- SILT BAG DEVICE SHALL BE MANUFACTURED FROM WOVEN POLYPROPYLENE GEOTEXTILE TO FIT THE OPENING OF A CATCH BASIN OR DROP INLET TO FILTER SEDIMENT FROM RUNOFF ENTERING THE INLET. DEVICE SHALL BE PROVIDED WITH AN INTEGRAL CURB DEFLECTOR IF INSTALLED AT A CATCH BASIN WITH A HORIZONTAL GRATE.
- THE DEVICE SHALL BE A HIGH FLOW "SILTSACK" AS MANUFACTURED BY ACF ENVIRONMENTAL, INC. OR APPROVED EQUAL.
- INSTALL DEVICE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND INSTALL A CURB DEFLECTOR IF APPROPRIATE.
- INSPECT DEVICES AFTER EACH RAIN EVENT AND AT INTERVALS NOT EXCEEDING TWO WEEKS DURING CONSTRUCTION. REMOVE, EMPTY, CLEAN, AND REPLACE THE DEVICES AS NEEDED DURING CONSTRUCTION. EMPTY COLLECTED SEDIMENT IN APPROVED, PROTECTED LOCATION. REMOVE AND DISPOSE OF DEVICES FOLLOWING FULL AND PERMANENT STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA.

**DEWATERING SEDIMENT FILTER BAG**

**NOTES:**

- ALL SEDIMENT LADEN WATER PUMPED FROM TRENCHES OR OTHER EXCAVATIONS SHALL BE PUMPED THROUGH SEDIMENT FILTER BAG BEFORE DISCHARGING TO A STORM DRAINAGE SYSTEM OR OUTSIDE OF THE CONSTRUCTION LIMITS.
- FILTER BAGS SHALL BE MANUFACTURED SPECIFICALLY FOR THE FILTERING OF SEDIMENT FROM DEWATERING ACTIVITIES AND SHALL BE PROPERLY SIZED FOR THE FLOW RATE OF THE DEWATERING PUMP AND VOLUME OF WATER.
- BAGS SHALL BE PLACED UPSTREAM OF A PROTECTED STORMWATER INLET OR SILT FENCE AND INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
- USED FILTER BAGS SHALL BE PROPERLY DISPOSED OF OFF-SITE.

**ASPHALT PAVEMENT**

**NOTES:**

- SEE EARTH MOVING SPECIFICATIONS SUBGRADE COMPACTION REQUIREMENTS. TESTING SHALL BE PERFORMED BY OWNER'S INDEPENDENT TESTING AGENCY.

**SEEDING AND PLANTING PREPARATION NOTES**

- REDUCED PRESSURE DETECTOR ASSEMBLIES (FIRE PROTECTION) SHALL BE WILKINS-ZURN MODEL 4750A OR APPROVED EQUAL.
- REDUCED PRESSURE ASSEMBLY (DOMESTIC) SHALL BE WILKINS-ZURN MODEL 475 OR APPROVED EQUAL.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS OF BACKFLOW PREVENTER, VALVES, ENCLOSURE, ETC.
- HEATER AND POWER CORD BY G.C. SEE SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- PROVIDE PVC SLEEVES AT PIPE PENETRATIONS OF CONCRETE BASE SLAB.
- PROVIDE TAMPER SWITCHES ON BOTH GATE VALVES OF RPDA. COORDINATE WITH ELEC CONTR.

**TEMPORARY COMPOST SOCK**

**BACKFLOW PREVENTER**

**FIRE SERVICE AT BUILDING**

**CONCRETE CURB & GUTTER**

**BRICK PAVEMENT**

**TEMPORARY COMPOST SOCK**

**BACKFLOW PREVENTER**

**FIRE SERVICE AT BUILDING**

**CONCRETE CURB & GUTTER**

**BRICK PAVEMENT**

**TEMPORARY COMPOST SOCK**

**BACKFLOW PREVENTER**

**FIRE SERVICE AT BUILDING**

**CONCRETE CURB & GUTTER**

**BRICK PAVEMENT**

**FIRE DEPARTMENT STORZ CONNECTION DETAIL**

**NOTES:**

- CONCRETE THRUST BLOCK MIN. 1/3 C.Y. @ 3000 PSI
- MIN (2) 3/4" RODS W/ BITUMINOUS COATING
- MIN (2) 3/4" RODS W/ BITUMINOUS COATING
- 8 C.F. OF #5 WASHED STONE

**REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS**

BASED ON TEST PRESSURE OF 200 P.S.I.

PIPE SIZE	90° BEND	45° BEND	1/2" BEND	1/4" BEND
6"	1,108	1,108	1,108	1,108
8"	1,970	1,970	1,970	1,970
10"	3,922	3,922	3,922	3,922
12"	4,433	4,433	4,433	4,433
14"	8,826	8,826	8,826	8,826
16"	17,312	17,312	17,312	17,312
18"	31,983	31,983	31,983	31,983
20"	22,619	22,619	22,619	22,619
22"	7,881	7,881	7,881	7,881
24"	15,691	15,691	15,691	15,691
26"	30,779	30,779	30,779	30,779
28"	56,861	56,861	56,861	56,861
30"	40,213	40,213	40,213	40,213

**THRUST BLOCKING**

**VALVE BOX INSTALLATION AND EXTENSION DETAIL**

**THRUST BLOCKING**

**VALVE BOX INSTALLATION AND EXTENSION DETAIL**

**SITE DETAILS**

**ROD REQUIREMENTS**

NO. OF RODS	BRANCH SIZE
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

**NC STATE UNIVERSITY**

**DESIGN AND CONSTRUCTION SERVICES**

DATE: 07/11/2023  
 DESIGNED BY: J. MILLER  
 DRAWN BY: J. MILLER  
 CHECKED BY: J. MILLER  
 REVIEWED BY: J. MILLER

**Sigma SOLUTIONS**

5500 Falls of Neuse Rd.  
 Raleigh, NC 27699  
 Ph: 919.840.9300  
 www.sigmasolutions.com  
 Sigma Project #: 20253  
 NC ENG LIC# C-2480

**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**

**POE HALL - BUILDING # 024**

SC01DH: 22-24502-01; CODE: 42124; ITEM: 343

SHEET NO. **C300**

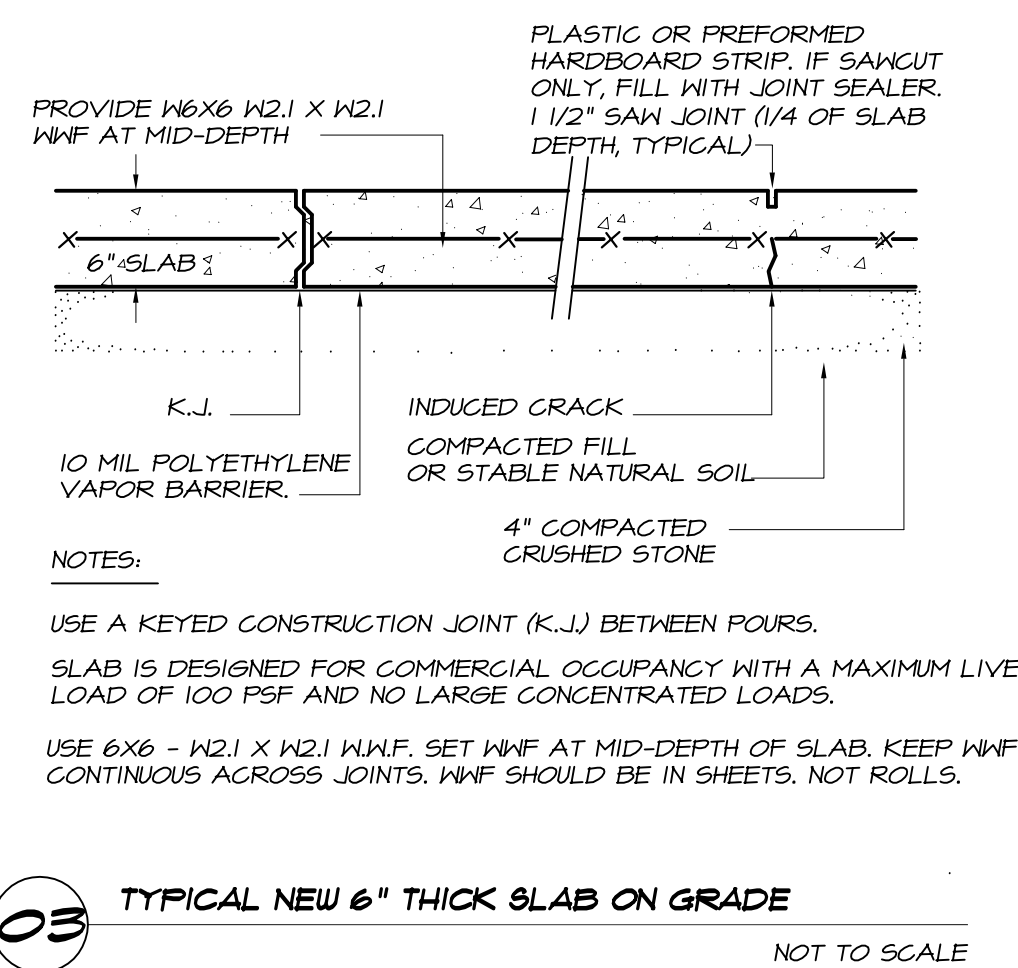
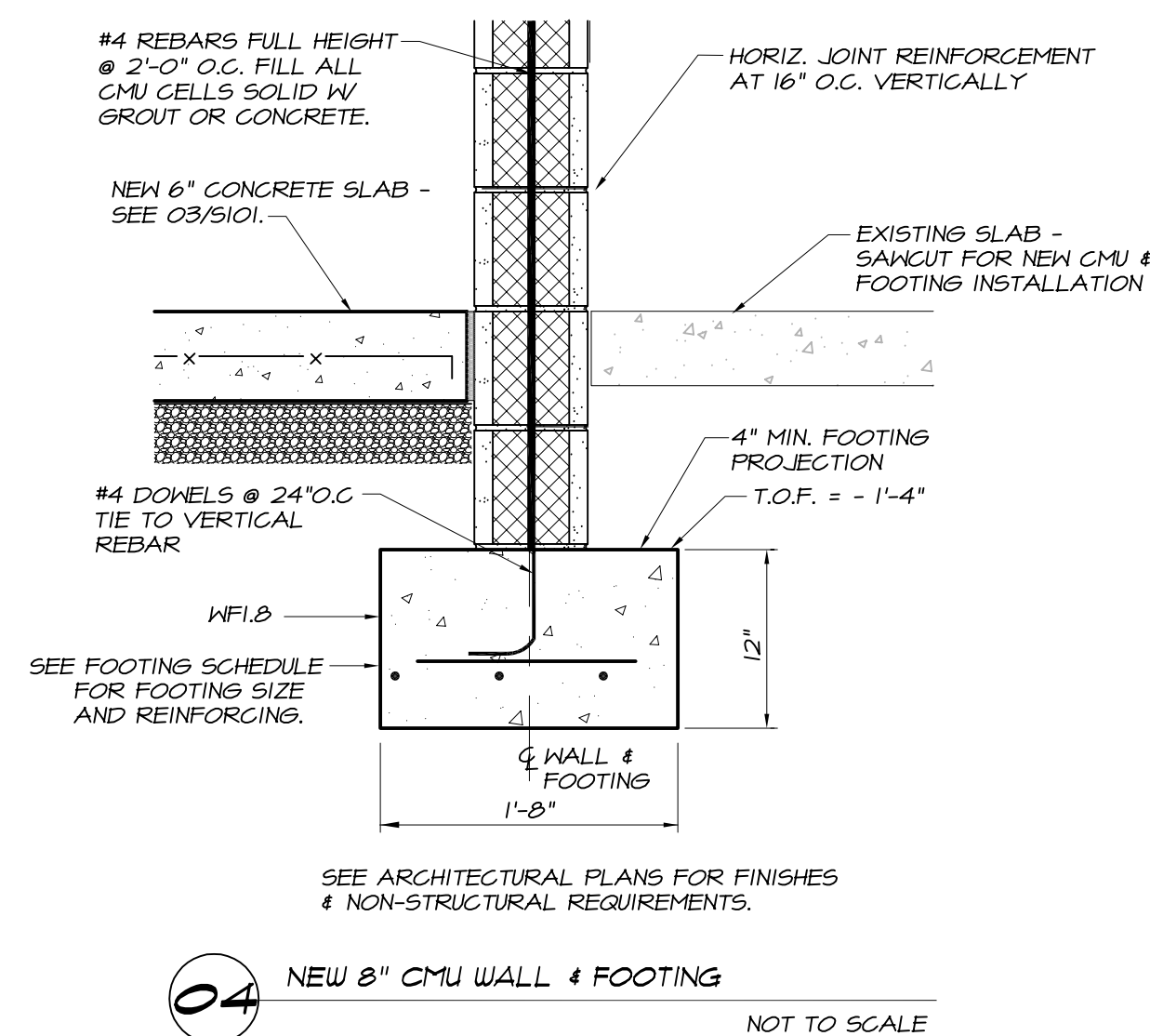
Designer Proj. No. 22053  
 NCSU Proj. No. 202220008

FAC. NAME POE HALL  
 FAC. NO. 024

**CLH DESIGN**

CLH Design, PA  
 600 Regency Forest Dr.  
 Suite 120  
 Cary, NC 27518  
 Phone: 919.319.8716  
 LA: C-106, PE: C-1955



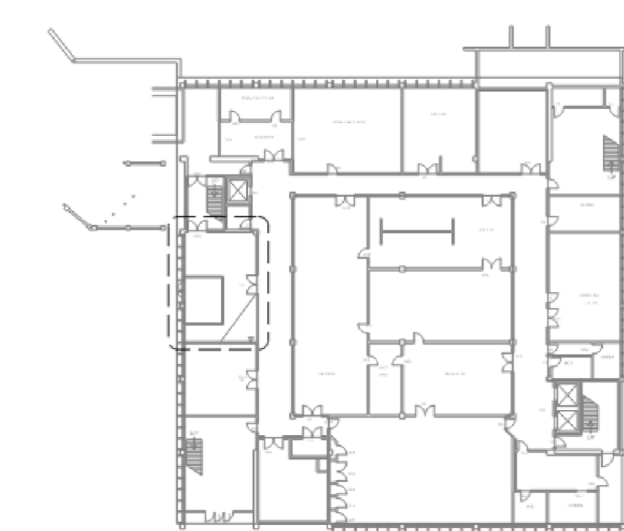
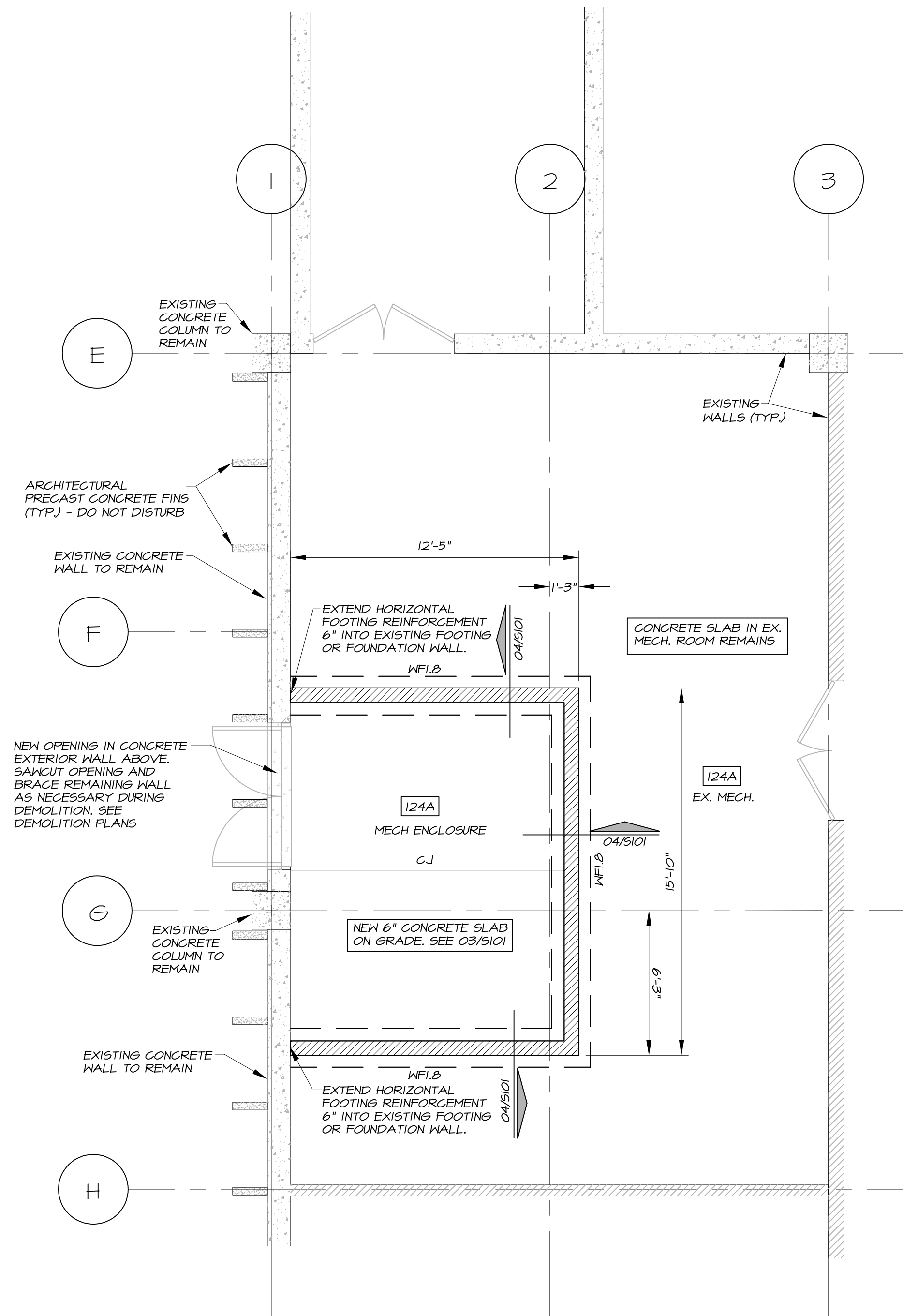


FOOTING SCHEDULE			
MR#	SIZE	REINFORCING	NOTES
W.F.I.B.	1'-8" x 12" THICK CONTINUOUS	(3) #4'S CONTINUOUS	1, 2

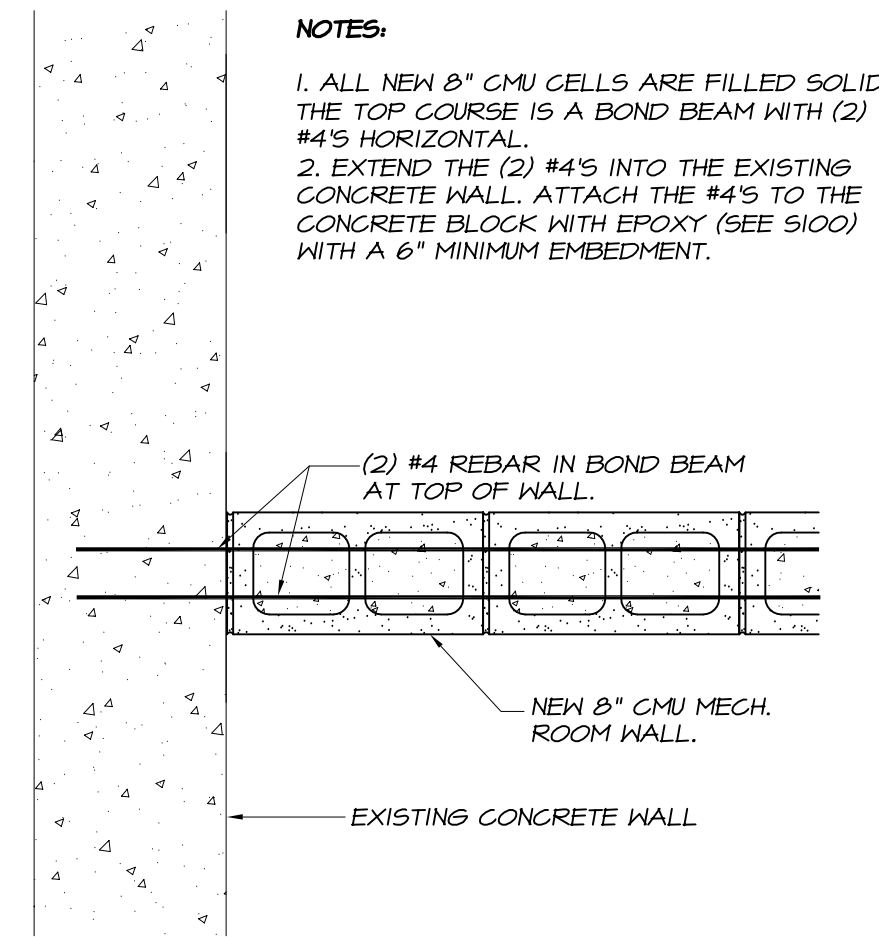
NOTES

1. BOTTOM REBARS ARE LOCATED 3" CLEAR FROM BOTTOM OF FOOTING.

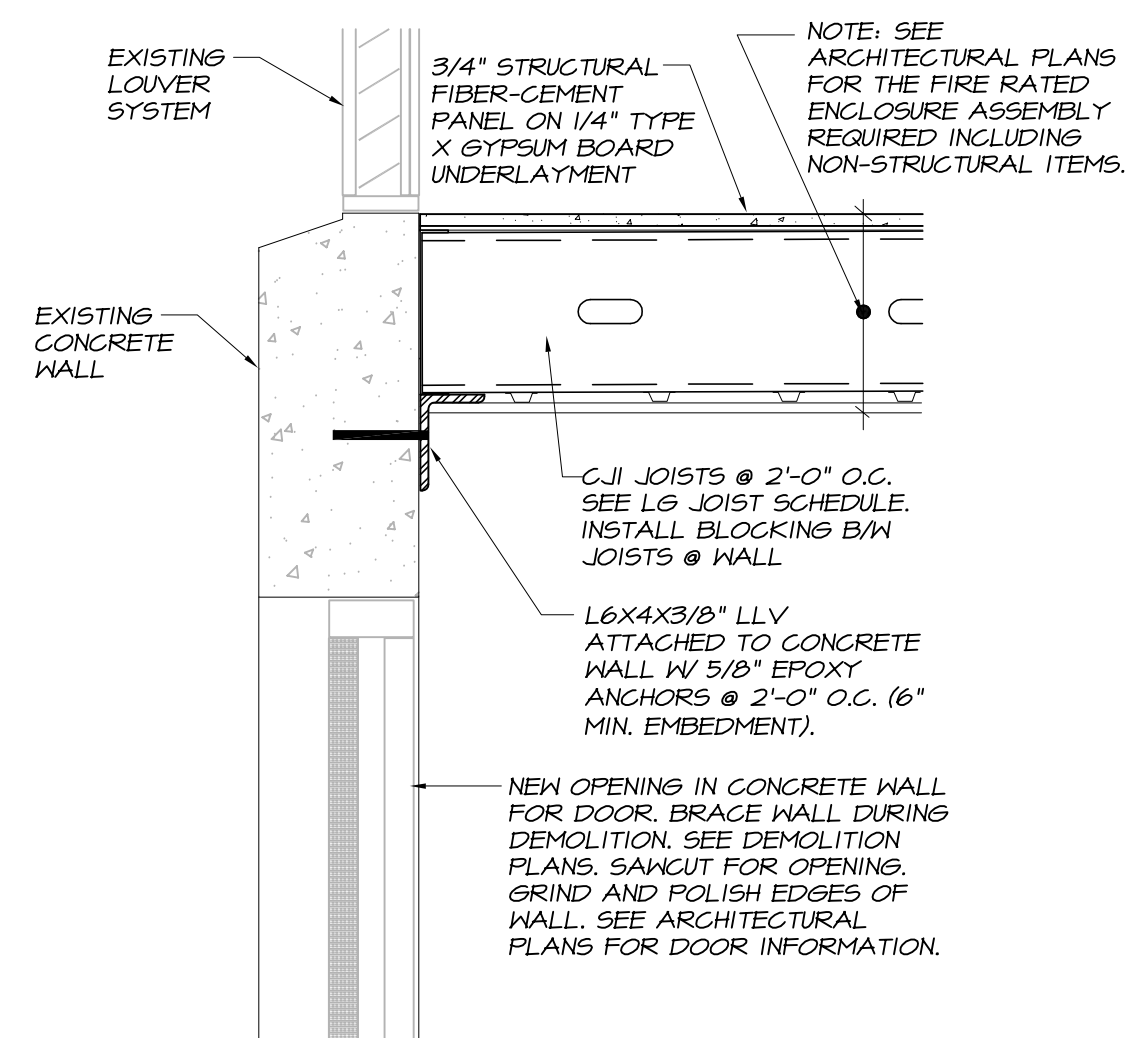
2. USE #4 TIES AT 48" O.C. ON TOP OF CONT. BARS



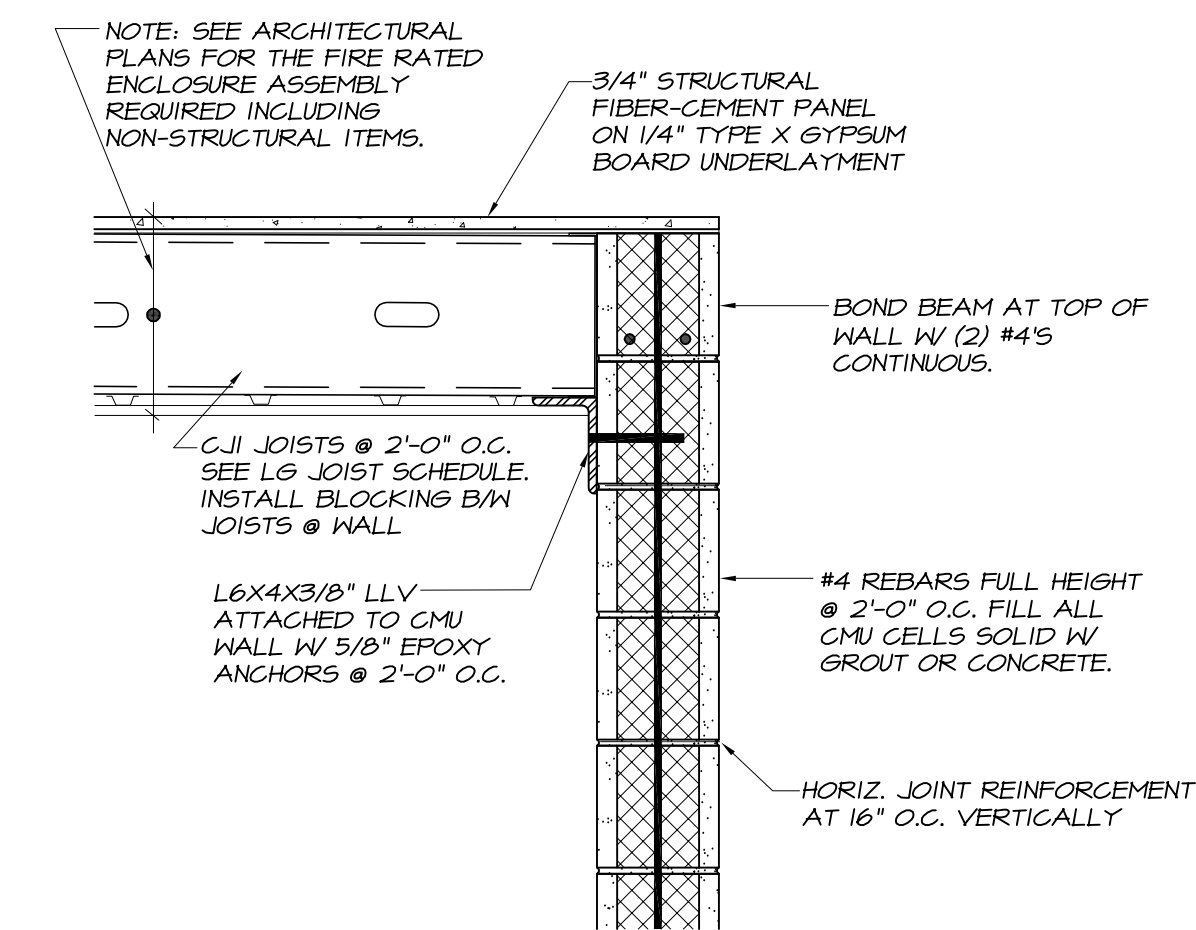




**05** JOINT AT EXISTING CONCRETE/ NEW CMU WALLS  
NOT TO SCALE



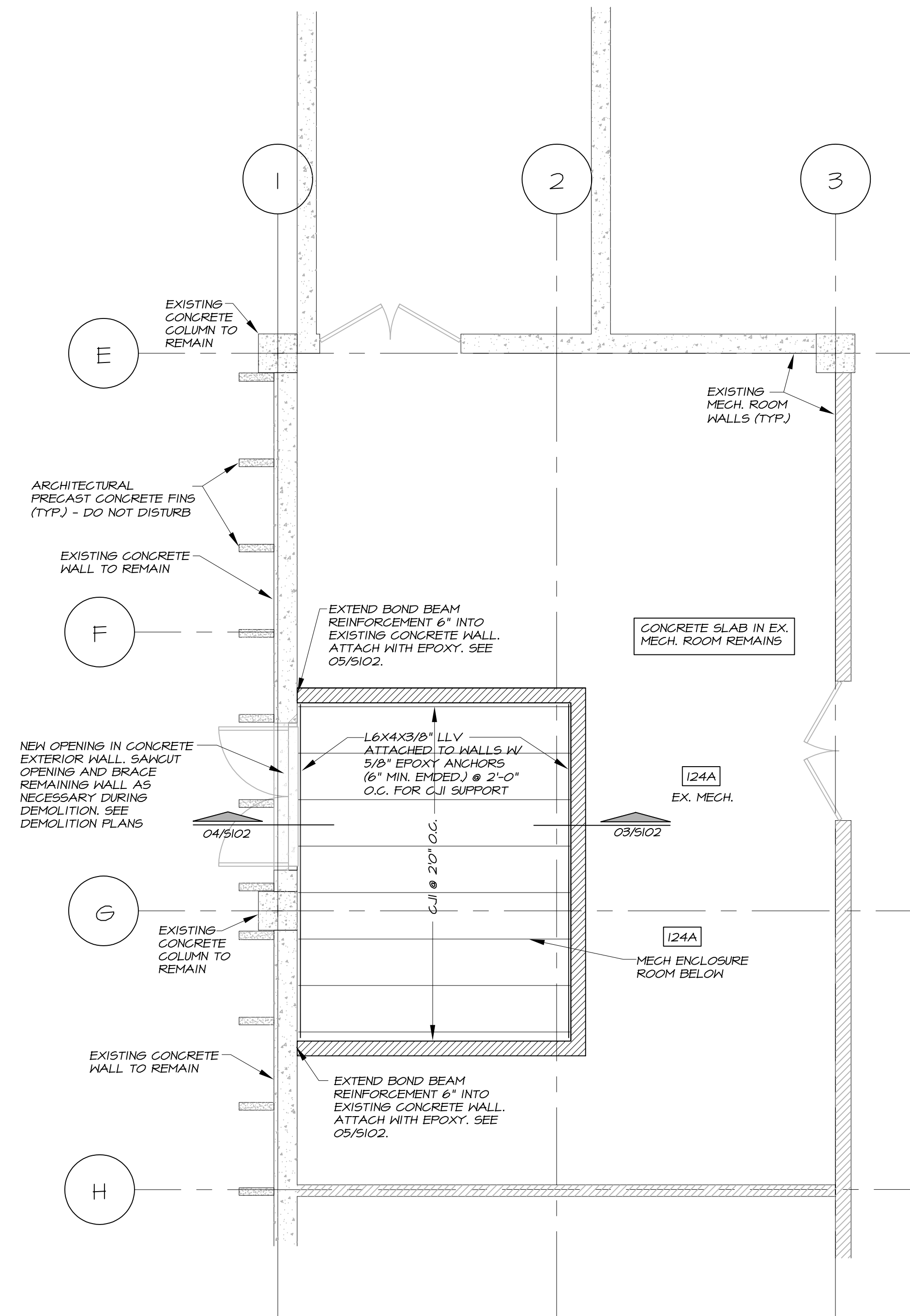
SEE ARCHITECTURAL PLANS FOR NON-STRUCTURAL ITEMS  
**04** JOIST ATTACHMENT AT EXISTING CONCRETE WALL  
NOT TO SCALE



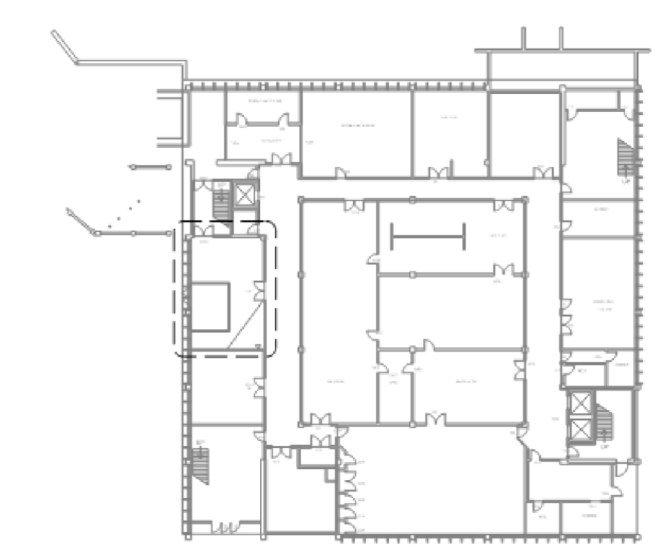
SEE ARCHITECTURAL PLANS FOR NON-STRUCTURAL ITEMS  
**03** JOIST ATTACHMENT AT NEW CMU WALL  
NOT TO SCALE

LIGHTHOUSE JOIST SCHEDULE					
MC#	MAX SPAN	SPACING	SIZE	lx (MIN)	NOTES
CJI	12.0	2.0	10 CSJ 12 GAGE	17.0	1 - 6

NOTES  
 1. Fy = 33 KSI MINIMUM.  
 2. JOISTS MUST BE LATERALLY BRACED BY CONNECTION FROM FLOORING ABOVE.  
 3. JOISTS MUST BE LATERALLY BRACED AT EACH END BY TRACK OR BLOCKING.  
 4. BRIDGING SHALL BE INSTALLED AT 8'-0" MAXIMUM SPACING.  
 5. WEB PUNCH CUTS MUST BE LOCATED A MINIMUM OF 12" AWAY FROM BEARING POINTS.  
 6. MAX. SPAN AND SPACING ARE IN FEET.



**02** MECH. ROOM CEILING FRAMING PLAN  
1/4 SCALE



**01** KEY PLAN  
NO SCALE



**GENERAL DEMOLITION NOTES**

THE DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED AS DESCRIBED IN THE DEMOLITION DOCUMENTS. THE WORK REQUIRED SHALL BE DONE WITH CARE, AND SHALL INCLUDE ALL REQUIRED SHORING, BRACING, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, WHICH MAY BE CAUSED BY DEMOLITION AND REMOVAL WORK TO ANY PART OR PARTS OF EXISTING STRUCTURES OR ITEMS DESIGNATED FOR REUSE OR TO REMAIN. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL PROVIDE A DETAILED DESCRIPTION OF METHODS AND EQUIPMENT TO BE USED FOR EACH OPERATION AND THE SEQUENCE THEREOF FOR REVIEW BY THE ARCHITECT.

**1. INVESTIGATION**

THE CONTRACTOR SHALL MAKE SUCH INVESTIGATIONS, EXPLORATIONS AND PROBES AS ARE NECESSARY TO ASCERTAIN ANY REQUIRED PROTECTIVE MEASURES BEFORE PROCEEDING WITH DEMOLITION AND REMOVAL. THE CONTRACTOR SHALL GIVE PARTICULAR ATTENTION TO SHORING AND BRACING REQUIREMENTS SO AS TO PREVENT ANY DAMAGE TO NEW OR EXISTING CONSTRUCTION.

**2. HAZARDOUS MATERIAL**

THE CONTRACTOR MAY ENCOUNTER HAZARDOUS MATERIAL INCLUDING, BUT NOT LIMITED TO, LEAD-BASED PAINT. ALL HAZARDOUS MATERIALS SHALL BE ADDRESSED IN ACCORDANCE WITH OSHA AND NCDQG REQUIREMENTS. ANY QUESTIONABLE MATERIALS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT. THE OWNER WILL MAKE ARRANGEMENTS TO SAMPLE AND TEST MATERIALS. IF DEEMED HAZARDOUS, THE OWNER WILL FURTHER ARRANGE ABATEMENT OF THE MATERIAL. UNLESS NOTED OTHERWISE, LEAD-BASED PAINTS WILL NOT BE ABATED.

**3. MATERIAL DISPOSAL/SALVAGE**

ALL DEBRIS RESULTING FROM THE DEMOLITION AND REMOVAL WORK SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. MATERIAL DESIGNATED BY THE ARCHITECT OR ENGINEER TO BE SALVAGED SHALL BE STORED ON THE CONSTRUCTION SITE AS DIRECTED. A PRE-DEMOLITION WALKTHROUGH WITH THE ARCHITECT AND OWNER SHALL BE CONDUCTED TO IDENTIFY COMPONENTS THAT ARE TO BE SALVAGED. RECYCLING AND/OR DISPOSAL IS TO BE CONDUCTED IN ACCORDANCE WITH LEED REQUIREMENTS.

**4. EXISTING STRUCTURES**

WHERE PORTIONS OF THE EXISTING STRUCTURE TO REMAIN ARE TO BE IMPACTED, DEMOLISH THE PORTIONS TO BE REMOVED, REPAIR DAMAGE, AND LEAVE THE STRUCTURE IN PROPER CONDITION FOR THE INTENDED USE. REMOVE CONCRETE AND MASONRY TO THE LINES DESIGNATED BY DRILLING, CHIPPING, OR OTHER SUITABLE METHODS UNLESS DIRECTED OTHERWISE BY ARCHITECT. LEAVE THE RESULTING SURFACES REASONABLY TRUE AND EVEN, WITH SHARP STRAIGHT CORNERS THAT WILL RESULT IN NEAT JOINTS WITH NEW CONSTRUCTION AND BE SATISFACTORY FOR THE PURPOSE INTENDED. WHERE ALTERATIONS OCCUR, OR NEW AND OLD WORK ARE TO JOIN, THE CONTRACTOR SHALL CUT, REMOVE, PLUG, REPAIR OR REMOVE THE ADJACENT MATERIALS TO THE EXTENT REQUIRED BY THE CONSTRUCTION CONDITIONS, SO AS TO LEAVE THE ALTERED WORK IN AS GOOD A CONDITION AS PRACTICAL.

**5. TEMPORARY PROTECTION**

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN, LIGHTS, BARRIERS, WEATHER PROTECTION, WARNING SIGNS AND OTHER ITEMS AS REQUIRED FOR PROPER PROTECTION OF THE PUBLIC AS WELL AS WORKMEN ENGAGED IN DEMOLITION OPERATIONS. THE CONTRACTOR SHALL ALSO PROTECT WALLS, WINDOWS, ROOFS, AND OTHER ADJACENT EXTERIOR CONSTRUCTION THAT ARE TO REMAIN AND THAT ARE EXPOSED TO BUILDING DEMOLITION OPERATIONS. THE CONTRACTOR SHALL REMOVE TEMPORARY WORK, SUCH AS ENCLOSURES, SIGNS, GUARDS, AND THE LIKE WHEN SUCH TEMPORARY WORK IS NO LONGER REQUIRED OR WHEN DIRECTED AT THE COMPLETION OF THE WORK.

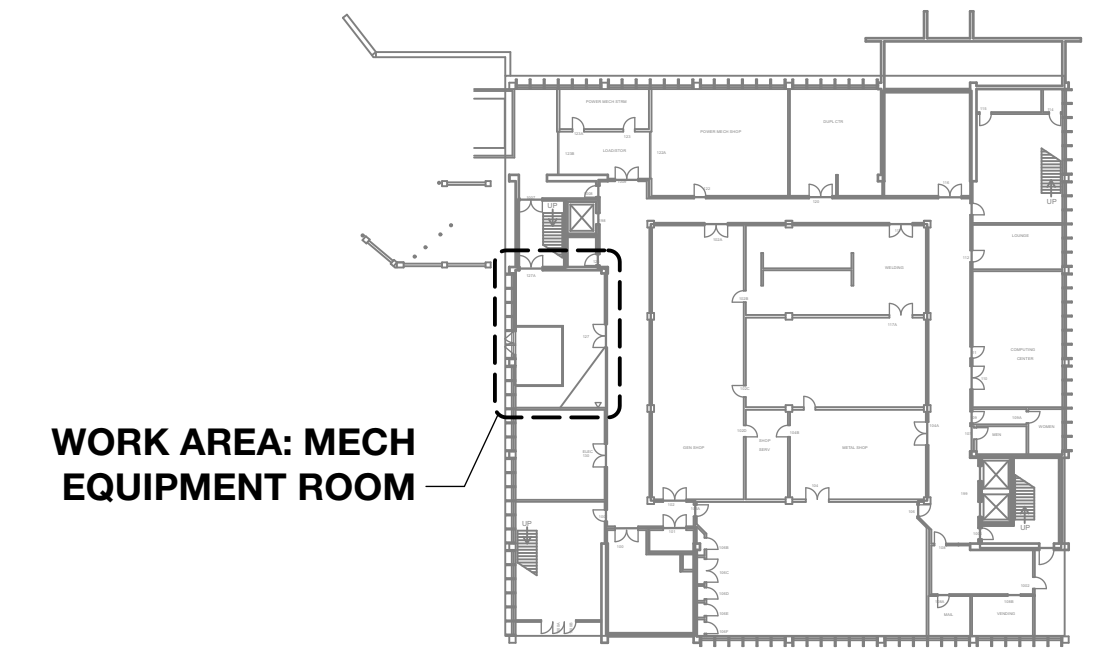
**6. SITE DISTURBANCE**

THE CONTRACTOR SHALL NOT CLOSE OR OBSTRUCT WALKWAYS OR DRIVEWAYS AND SHALL NOT STORE OR PLACE MATERIALS IN WALKWAYS OR DRIVEWAYS OR OTHER MEANS OF EGRESS. THE CONTRACTOR SHALL CONDUCT OPERATIONS WITH MINIMAL TRAFFIC INTERFERENCE AND COORDINATE ANY ROAD CLOSURES WITH THE APPROPRIATE JURISDICTION.

**7. EXISTING UTILITIES**

THE CONTRACTOR SHALL INSPECT THE EXISTING UTILITIES, INCLUDING ELECTRICAL, PLUMBING, TELE/DATA AND MECHANICAL SYSTEMS TO DETERMINE THE EXTENT OF THE WORK REQUIRED. CARE SHALL BE TAKEN TO NOT REMOVE UTILITIES THAT ARE FEEDING THE ADJACENT PROPERTIES.

- A. COORDINATE DE-ENERGIZATION AND REMOVAL/DISPOSAL OF ALL INCOMING UTILITIES TO BE REMOVED WITH LOCAL UTILITY COMPANIES. SUBMIT CONFIRMATION THAT SERVICES HAVE BEEN DECOMMISSIONED IN WRITING TO THE ARCHITECT.
- B. WITH THE EXCEPTION OF A PANEL TO DISTRIBUTE POWER DURING THE CONSTRUCTION PERIOD, ALL ELECTRICAL APPARATUS AND ASSOCIATED COMPONENTS THROUGHOUT THE BUILDING ARE TO BE REMOVED AND DISPOSED. ITEMS TO BE REMOVED INCLUDE, BUT ARE NOT LIMITED TO, SUBPANELS, CONDUIT, TELE/DATA, WIRING, BOXES, RECEPTACLES, FIXTURES, SWITCHES, SUPPORTS, MISCELLANEOUS DEVICES, ETC. LIGHTING LAMP COMPONENTS AND BALLASTS, AS WELL AS ELECTRONIC EQUIPMENT CONTAINING HAZARDOUS MATERIALS SUCH AS MERCURY, LEAD AND PCBs (POLYCHLORINATED BIPHENYL) SHALL BE PROPERLY HANDLED, PROTECTED, STORED AND DISPOSED OF IN ACCORDANCE WITH ALL ENVIRONMENTAL, SAFETY, AND GOVERNMENTAL REGULATIONS RELATED TO THESE ITEMS.
- C. IN THE EVENT THAT IT IS PRESENT, REMOVE EXISTING GAS PIPING, REGULATORS, ETC. THROUGHOUT THE BUILDING. COORDINATE WORK WITH LOCAL GAS UTILITY COMPANY. GAS PIPING TO BE ABANDONED IN PLACE SHALL BE PURGED THEN CAPPED AND SEALED WITH SAME MATERIALS AS EXISTING PIPING.
- D. REMOVE EXISTING ABANDONED DOMESTIC WATER PIPING, VALVES, ETC. THROUGHOUT THE BUILDING. CAP INCOMING SERVICE WHERE APPLICABLE (OTHERWISE, SERVICES TO BE REMOVED IN ACCORDANCE WITH CIVIL DRAWINGS) AND PREP FOR NEW WORK. COORDINATE WORK WITH LOCAL AUTHORITIES AS REQUIRED.
- E. REMOVE ALL EXISTING ABANDONED SANITARY SEWER PIPING THROUGHOUT THE BUILDING. COORDINATE WORK WITH LOCAL AUTHORITIES. SANITARY SEWER PIPING ABANDONED IN PLACE SHALL BE CAPPED OR PLUGGED WITH SAME MATERIAL AS EXISTING PIPING.
- F. ANY FEES AND/OR PERMITS REQUIRED BY LOCAL UTILITIES AND LOCAL JURISDICTION ASSOCIATED WITH REMOVAL OF EXISTING EQUIPMENT, PIPING, METERS, ETC. BY THE CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.



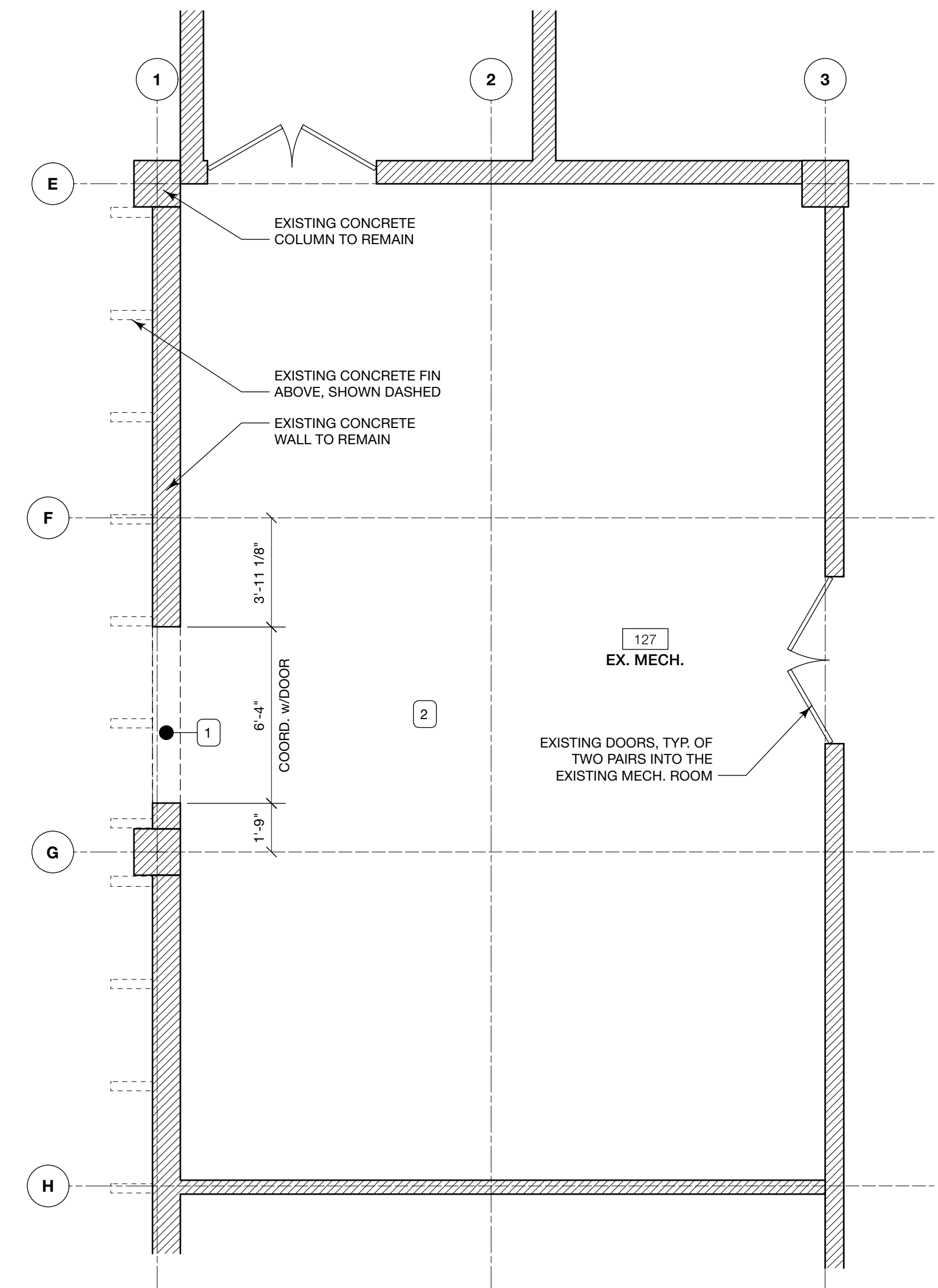
**2 KEY PLAN**  
Scale: 1" = 50'-0"

**DEMOLITION PLAN LEGEND**

- EXISTING WALL TO BE REMOVED, VERIFY IN FIELD
- /// EXISTING WALL TO REMAIN, VERIFY IN FIELD

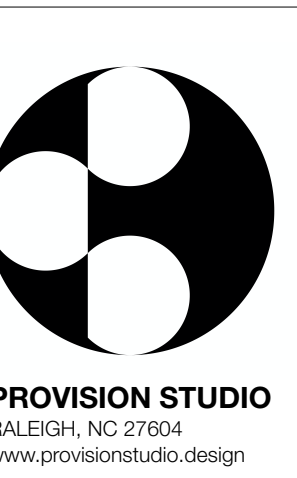
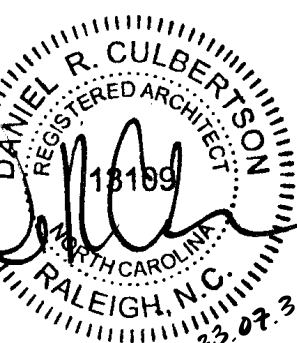
**DEMOLITION NOTES**

- 1 REMOVE PORTION OF CONCRETE WALL, CHIP / GRIND UNTIL SMOOTH, PATCHING AS REQUIRED. PREP FOR NEW DOOR & FRAME - SEE DOOR SCHEDULE FOR MORE INFORMATION AND STRUCTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS
- 2 SEE SYSTEMS DRAWINGS FOR DEMOLITION WORK RELATED TO EQUIPMENT



**1 DEMO PLAN**  
Scale: 1/4" = 1'-0"

DATE: 3/26/23	DESIGNER:	DN BY:	CK BY:	REV.:



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
POE HALL - BUILDING # 024  
SCOID#: 22-24602-01A; CODE: 42124; ITEM: 343

SHEET No. **D200**  
DEMOLITION PLAN  
Total Sheets:

Designer Proj. No. 22053  
NCSU Proj. No. 202220008

FAC. NAME **POE HALL**  
FAC. NO. **024**

**GENERAL NOTES**

**REGULATORY REQUIREMENTS**

- 0-0. ALL WORK SHALL CONFORM TO:  
 - NORTH CAROLINA EXISTING BUILDING CODE, 2018 EDITION AND CURRENT AMENDMENTS  
 - NORTH CAROLINA STATE BUILDING CODE, 2018 EDITION AND CURRENT AMENDMENTS  
 - RULES AND REGULATIONS OF THE CITY OF RALEIGH, NORTH CAROLINA AS APPLICABLE  
 - RULES AND REGULATIONS OF PUBLIC UTILITIES  
 - AMERICANS WITH DISABILITIES ACT, 15 SEPTEMBER 2010 AND ANSI A117.1 - 2009 WITH RESPECTIVE CURRENT AMENDMENTS

0-1. THE CODE COMPLIANCE SUMMARIES ARE GUIDES TO THE CONSTRUCTION CRITERIA DEVELOPED FOR THIS PROJECT. THEY ARE NOT INTENDED TO BE A COMPLETE LIST OF CODE REQUIREMENTS.

- 0-2. MAINTAIN INTEGRITY OF FIRE RESISTANCE RATING OF ALL RATED SHAFT ENCLOSURES AND RATED PARTITIONS BEHIND RECESSED WALL ACCESSORIES, INCLUDING FIRE EXTINGUISHER CABINETS, TOILET ACCESSORIES, ELECTRICAL JUNCTION BOXES, AND OTHER ITEMS WHERE THEY OCCUR.  
 0-3. PENETRATIONS OF PIPES, CONDUITS, SWITCHES, OUTLETS, AND OTHER ITEMS AT RATED ASSEMBLIES SHALL BE FIRE-STOPPED.

**GENERAL REQUIREMENTS**

1-0. REFER TO THE PROJECT MANUAL FOR COMPLETE GENERAL REQUIREMENTS AND CONDITIONS OF THE CONTRACT. THE PROJECT MANUAL SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES IN THE EVENT OF A CONFLICT.

- 1-1. THE GENERAL CONTRACTOR MUST COORDINATE ARCHITECTURAL DRAWINGS WITH STRUCTURAL AND PM&E DRAWINGS AND ALL OWNER'S VENDORS INCLUDING, BUT NOT LIMITED TO, TELEPHONE, AUDIOVISUAL, SECURITY SYSTEMS AND RESTAURANT EQUIPMENT. NOTIFY ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.  
 1-2. THE GENERAL CONTRACTOR AND ALL SUB-CONTRACTORS ARE RESPONSIBLE FOR REVIEWING AND COORDINATING THEIR WORK WITH ALL OF THE DRAWINGS PRIOR TO INSTALLATION. OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS, PROJECT MANUAL, NOTES, AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BY THE GENERAL CONTRACTOR AND SHALL BE RESOLVED WITH THE ARCHITECT BEFORE PROCEEDING WITH THE WORK OR RELATED WORK.

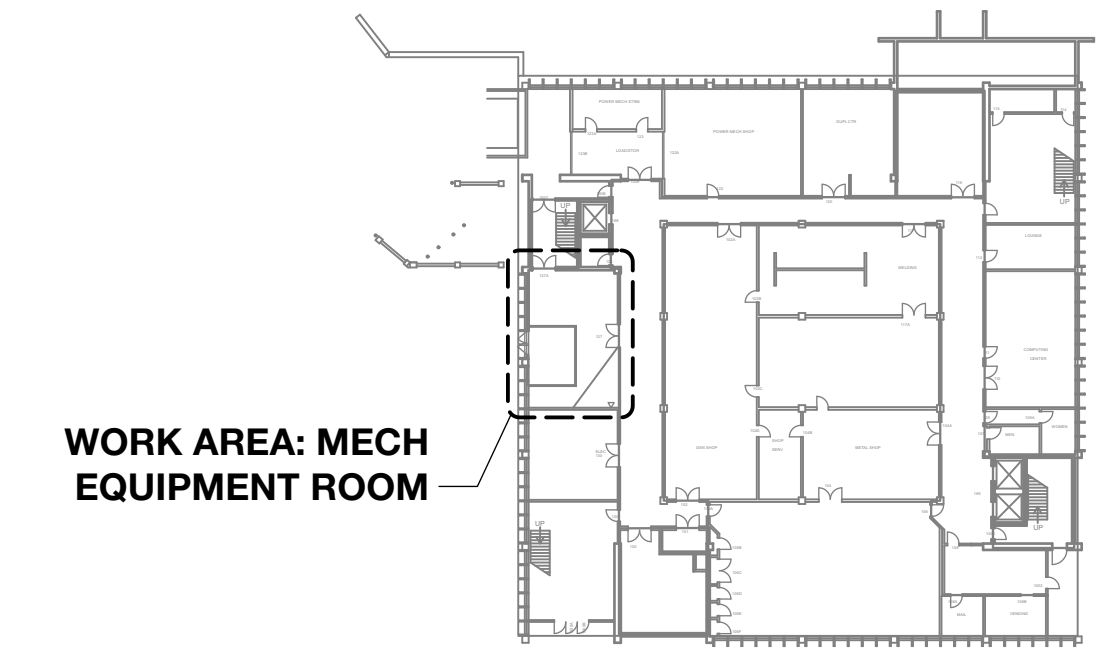
**DIMENSIONING REQUIREMENTS**

2-0. DIMENSIONS ARE NOTED OR CAN BE DETERMINED FROM OTHER INFORMATION INCLUDED IN THE DRAWINGS. VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK. NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR OMISSIONS. DO NOT PROCEED WITH AFFECTED WORK OR RELATED WORK UNTIL THE VARIATIONS OR OMISSIONS HAVE BEEN RESOLVED BY THE ARCHITECT. DO NOT SCALE DRAWINGS. DRAWING SHEETS LESS THAN 24"x36" MAY HAVE BEEN REDUCED FROM THE ORIGINALS. 12"x18" SETS ARE HALF-SIZED WHEN NOTED.

- 2-1. ALL DIMENSIONS ARE TO FINISHED FACE OF WALL UNLESS OTHERWISE NOTED.  
 2-2. WALLS SHOWN TO ALIGN ARE TO HAVE FINISH FACES ALIGN UNLESS OTHERWISE NOTED.  
 2-3. IF PROVIDED, REFER TO ENLARGED PLANS AND PLAN DETAILS FOR ADDITIONAL INFORMATION AND DIMENSIONS.  
 2-4. LOCATIONS OF ALL DEVICES AND FIXTURES DIMENSIONED, NOTED OR OTHERWISE DESCRIBED, ARE EXACT. ALL NEW FRAMING MUST ACCOMMODATE THESE LOCATIONS.  
 2-5. ANY DIMENSIONS OF OR TYING IN TO EXISTING BUILDING COMPONENTS ARE TO BE FIELD-VERIFIED PRIOR TO COMMENCEMENT OF WORK. VERIFY ANY DISCREPANCIES W/ ARCHITECT PRIOR TO COMMENCEMENT OF WORK.

**OTHER REQUIREMENTS**

- 3-1. TYPICAL DETAILS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED AT ALL APPROPRIATE LOCATIONS WHETHER OR NOT SPECIFICALLY REFERENCED AT EACH LOCATION.  
 3-2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED DEMOLITION, TEMPORARY SUPPORT OF, AND/OR DAMAGE TO NEW OR EXISTING STRUCTURE DURING CONSTRUCTION.  
 3-3. THE GENERAL CONTRACTOR IS TO COORDINATE, PROVIDE, AND INSTALL CONCEALED BLOCKING FOR ALL WALL-MOUNTED ITEMS INCLUDING, BUT NOT LIMITED TO, HAND RAILS, EQUIPMENT, OWNER- AND/OR VENDOR-PROVIDED ITEMS, ETC.  
 3-4. NO EXPOSED CONDUIT, WIRING, OR PIPING IS PERMITTED WITHOUT ARCHITECT APPROVAL UNLESS SPECIFICALLY NOTED OTHERWISE. WHERE OPEN CEILING CONDITIONS EXIST, THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SYSTEMS COORDINATION BETWEEN THE TRADES. COORDINATION DRAWINGS SHALL BE PROVIDED FOR THE ARCHITECT'S REVIEW. ALL CONFLICTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO INSTALLATION.  
 3-5. ALL FRAMING, SOUND ATTENUATION, AND GYP BOARD FOR NON-RATED SOUND-ATTENUATED WALLS SHALL CONTINUE TO THE UNDERSIDE OF DECK UNLESS SPECIFICALLY NOTED OTHERWISE. GYP BOARD SHALL BE SEALED TO DECK AT EACH FACE WITH JOINT COMPOUND, SEALANT, AND/OR EXPANDING FOAM (ACCEPTABLE ONLY IN CONCEALED CONDITIONS). ANY REQUIRED PIPE, DUCT, OR WIRING PENETRATIONS SHALL BE SEALED AS DESCRIBED ABOVE.  
 3-6. IN AREAS OF HARD CEILING, BUILDING SYSTEMS SHALL BE CONFIGURED TO MINIMIZE REQUIRED ABOVE-CEILING ACCESS. THE LOCATION OF ALL ACCESS DOORS MUST BE COORDINATED WITH AND APPROVED BY THE ARCHITECT PRIOR TO THE INSTALLATION OF ANY ABOVE-CEILING EQUIPMENT, DAMPERS, VALVES, JUNCTION BOXES, ETC. ACCESS DOORS SHALL BE PROVIDED AND INSTALLED FOR ANY WORK THAT REQUIRES ABOVE-CEILING ACCESS. ADDITIONALLY, ANY ACCESS DOORS OR PANELS REQUIRED IN WALLS MUST BE COORDINATED WITH AND APPROVED BY THE ARCHITECT PRIOR TO THE INSTALLATION OF ANY EQUIPMENT REQUIRING ACCESS.



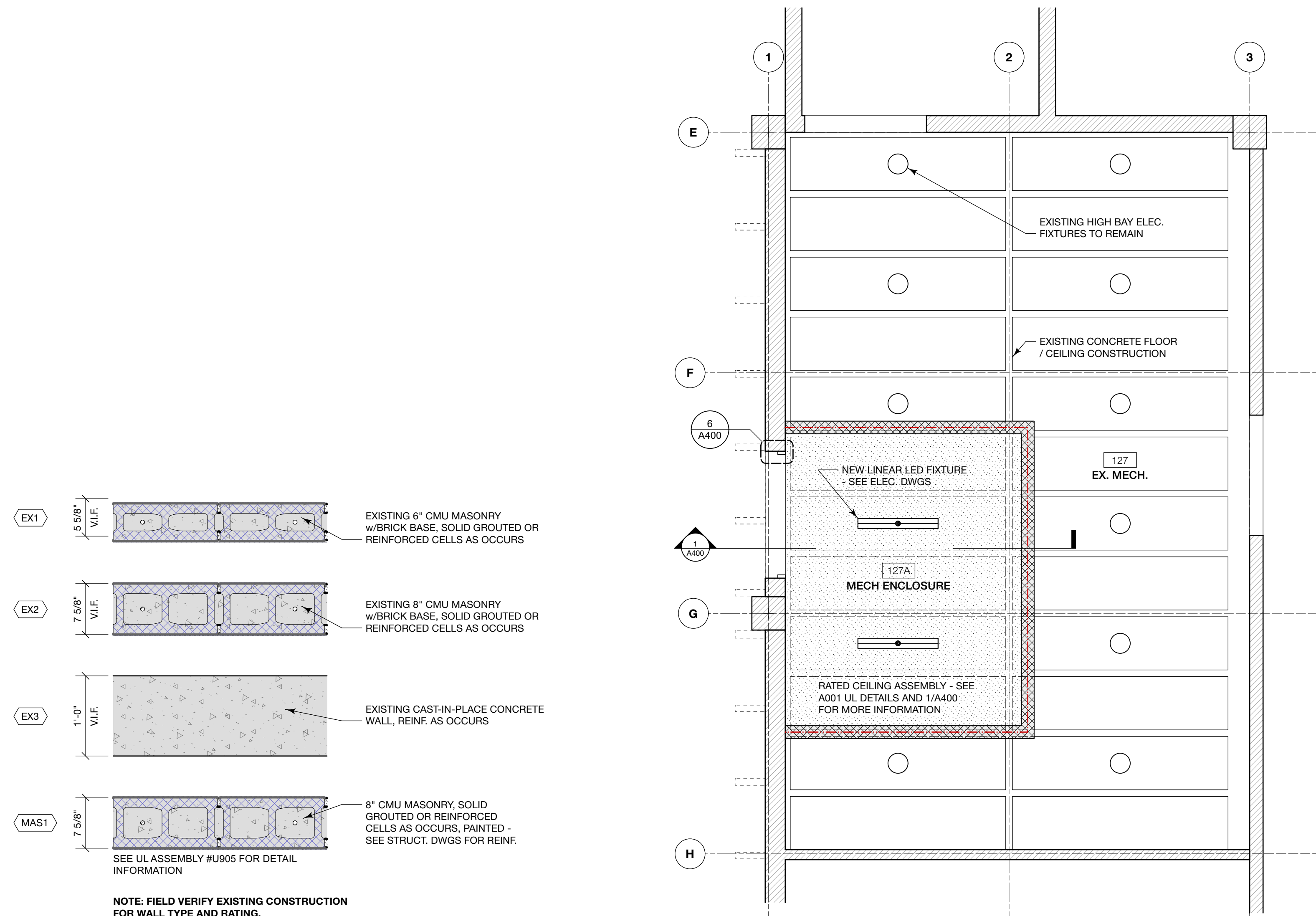
**2 KEY PLAN**  
 Scale: 1" = 50'-0"

**FLOOR PLAN AND RCP LEGEND**

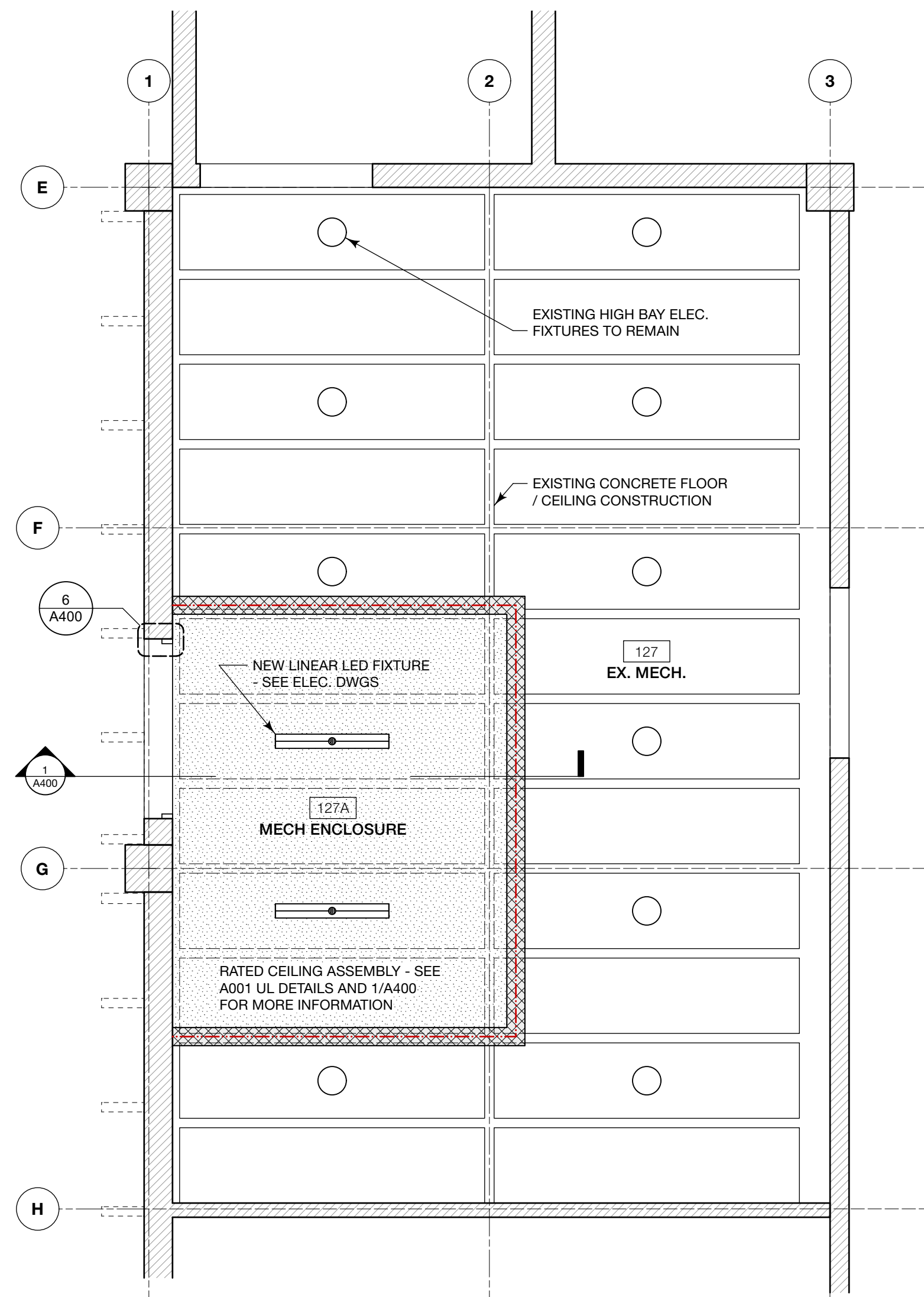
- XX# PARTITION TYPE - SEE WALL TYPES FOR MORE INFORMATION
- ##X# DOOR TYPE - SEE SCHEDULES
- EXISTING WALL TO REMAIN
- NEW CMU WALL - SEE WALL TYPES FOR MORE INFORMATION
- 2-HR FIRE RATED CONSTRUCTION
- EXISTING HIGH BAY FIXTURE
- LINEAR LED FIXTURE - SEE ELEC. DWGS FOR MORE INFORMATION
- GYPSUM BOARD CEILING - SEE FINISH SCHEDULE

**EXISTING FLOOR PLAN GENERAL NOTES**

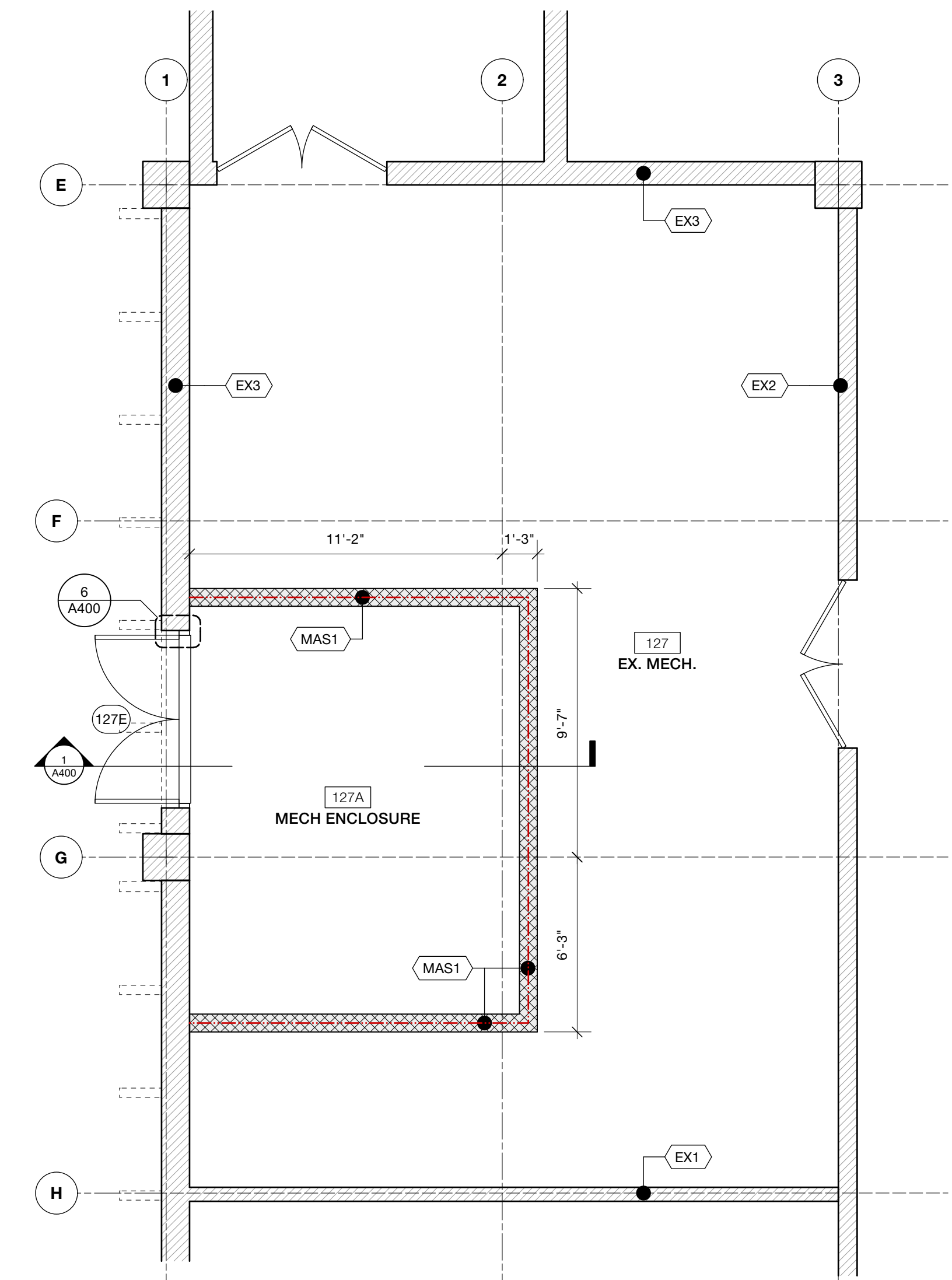
1. VERIFY PROVIDED AND CRITICAL DIMENSIONS IN FIELD PRIOR TO WORK COMMENCING.
2. NEW WORK TO BE COORDINATED WITH ALL EXISTING STRUCTURAL AND MEP INFRASTRUCTURE.



**4 WALL TYPES**  
 Scale: 1" = 1'-0"

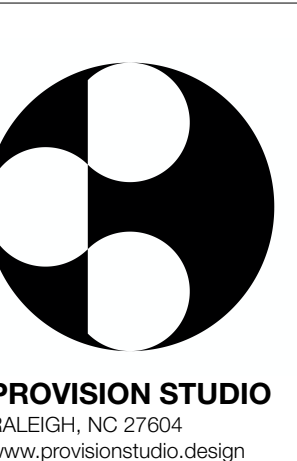
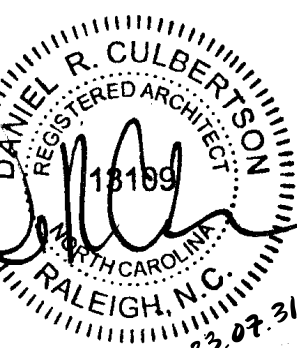


**3 RCP**  
 Scale: 1/4" = 1'-0"



**1 FLOOR PLAN**  
 Scale: 1/4" = 1'-0"

DATE: 3/26/2023	DESIGNER:	DATE:	DESIGNER:
	DN BY:		DN BY:
	CK BY:		CK BY:
	REV:		REV:

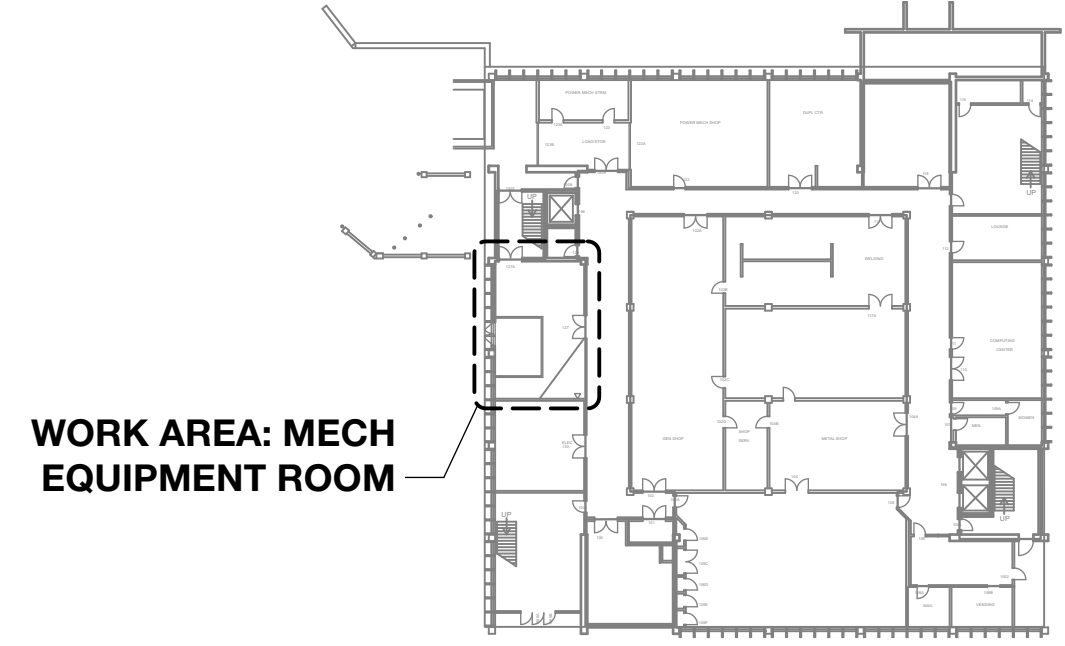


**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
 POE HALL - BUILDING # 024  
 SCOID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No. **A200**  
 FLOOR PLAN, RCP, & WALL TYPES  
 Total Sheets:

Designer Proj. No. 22053  
 NCSU Proj. No. 202220008

FAC. NAME **POE HALL**  
 FAC. NO. **024**



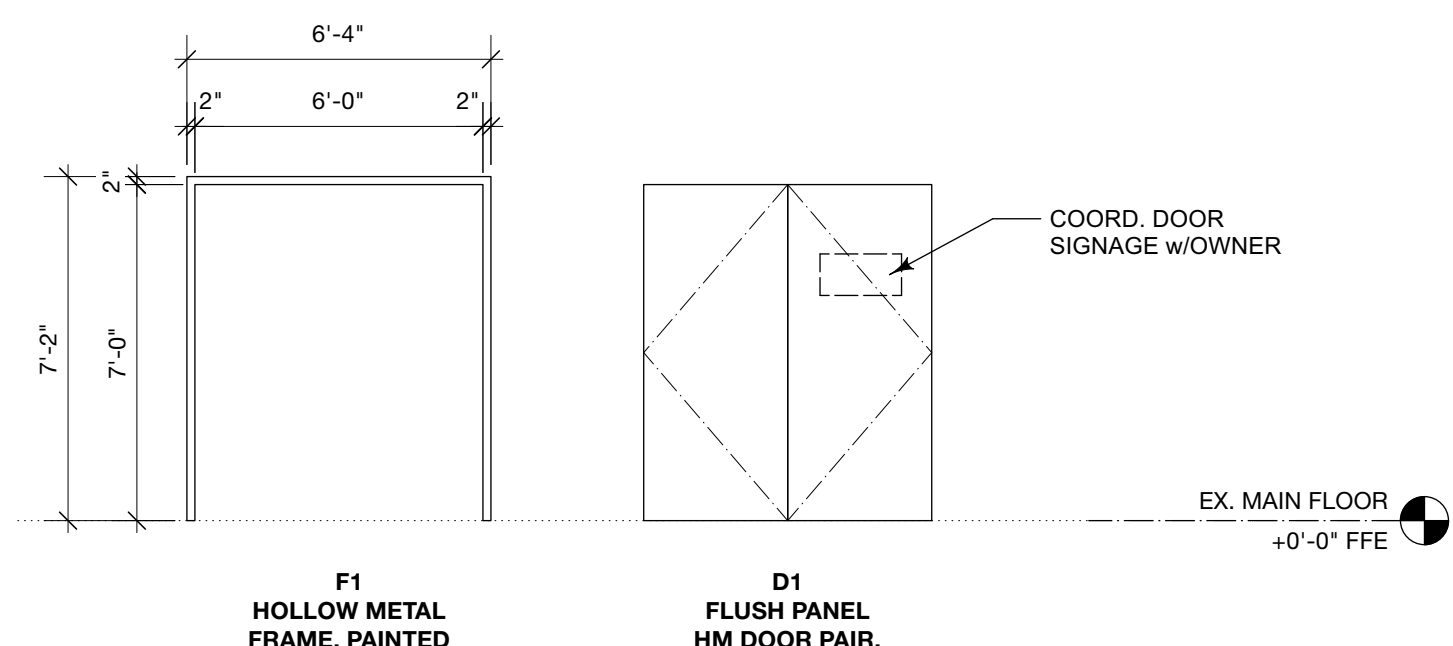
**3 KEY PLAN**  
Scale: 1" = 50'-0"

DOOR SCHEDULE														
#	LOCATION	DOOR			FRAME			HEAD	JAMB	SILL	REMARKS			
		SIZE	MATERIAL	TYPE	MATERIAL	TYPE	FINISH							
127E	MECHANICAL 127A	6'0"	7'0"	1 3/4"	HM	D1	PTD	HM	F1	PTD	5/A400	6/A400	4/A400	EXT. INSULATED HM DOOR w/PANIC HARDWARE AND CLOSER

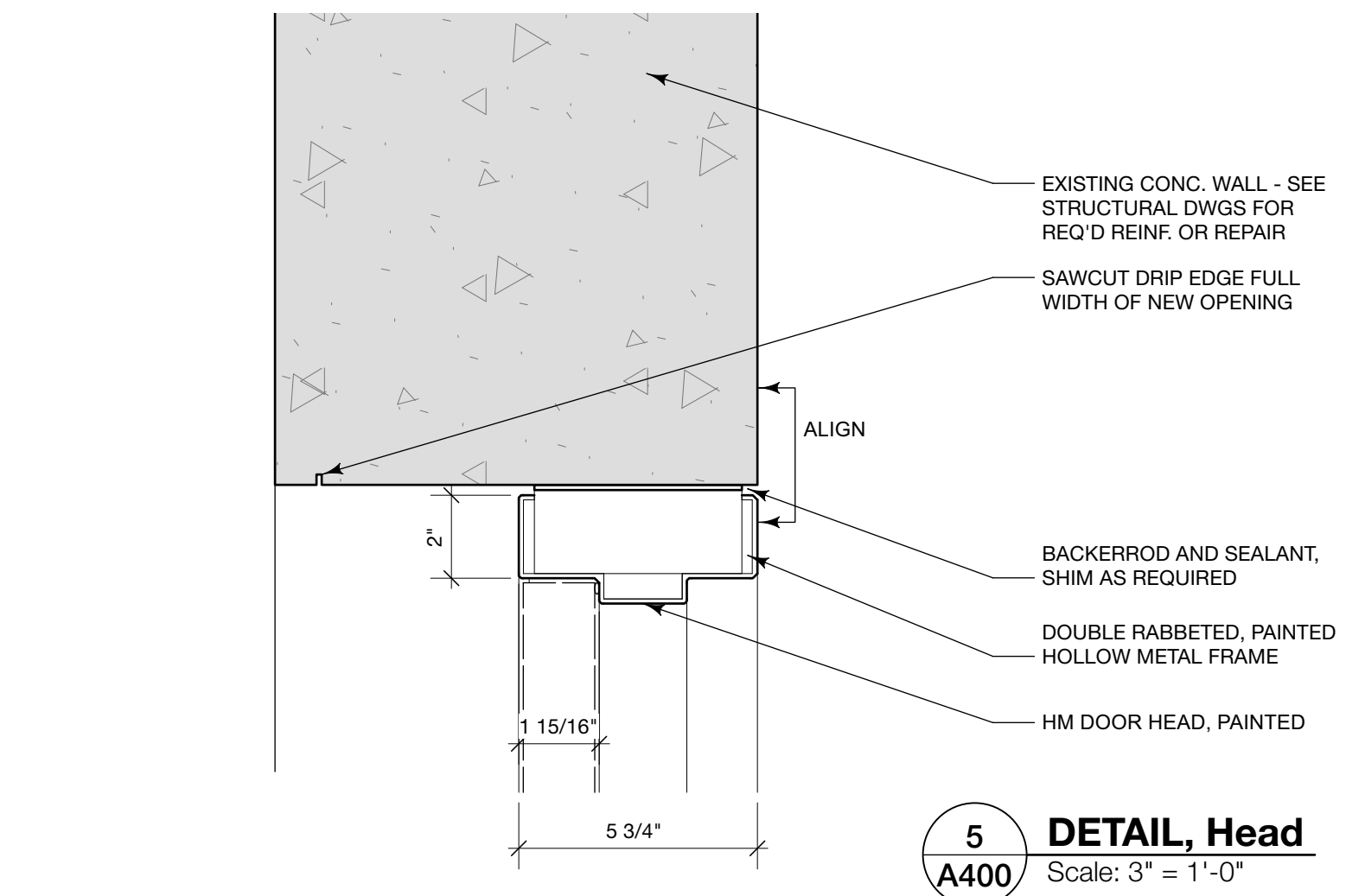
**DOOR NOTES**  
1. DOOR AND FRAME PAINT FINISH TO BE ARCHITECTURAL BRONZE - SEE SPECIFICATIONS FOR MORE INFORMATION

ROOM FINISH SCHEDULE												
#	ROOM NAME	FLOOR	WALL				CEILING		REMARKS			
			MATERIAL	BASE	NORTH	EAST	SOUTH	WEST	MATERIAL	FINISH	HEIGHT	
127	EXISTING MECHANICAL ROOM	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	PTD / EX.	V.F.			
127A	MECHANICAL ENCLOSURE	CONC / SEAL	CMU	PTD	EX. CONC. PTD	PTD	PTD	CONC. / EX. GYP BD	PTD	±8'-2"	1, 2	

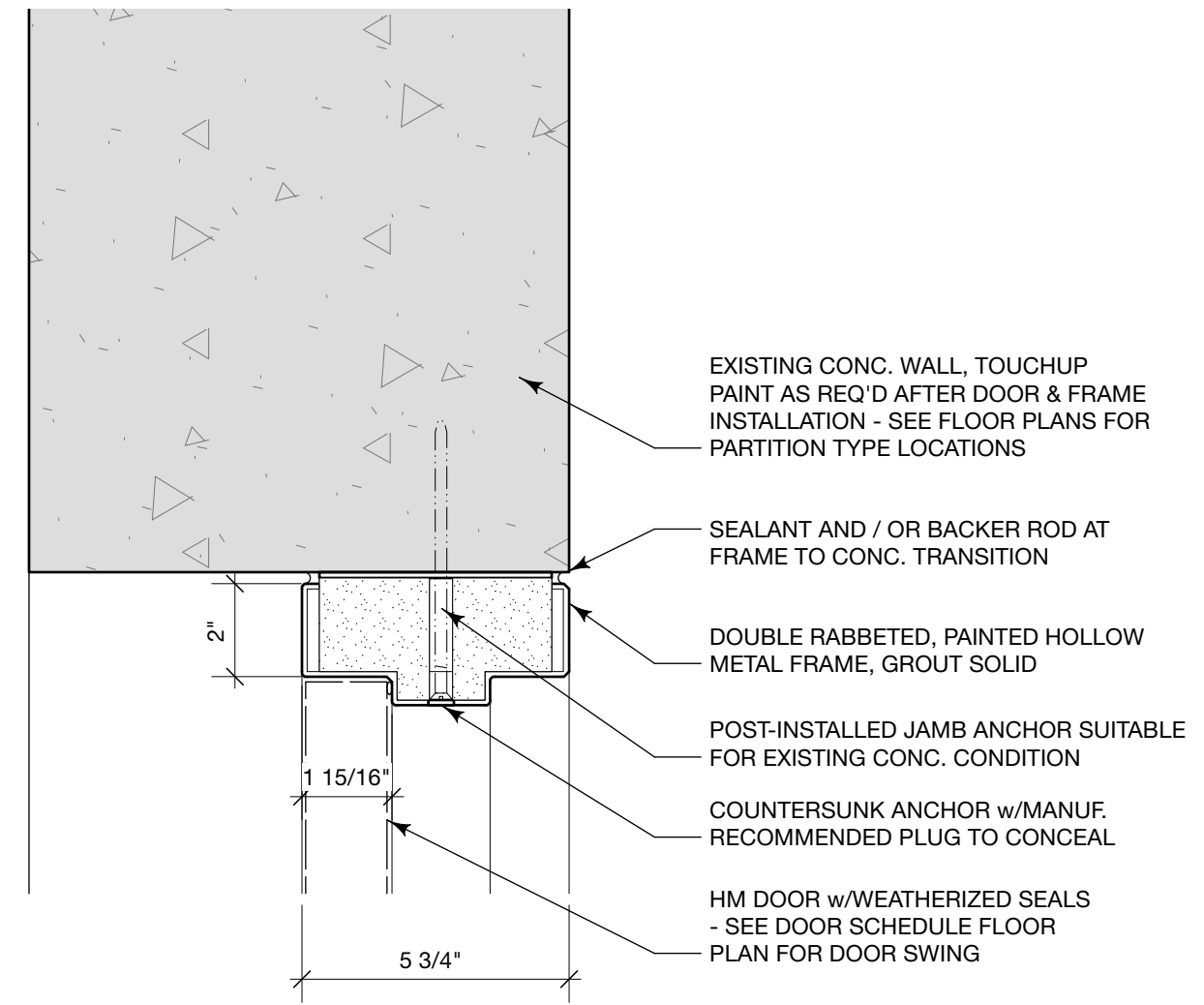
**FINISH NOTES**  
1. PAINT FINISH COLORS TO BE SELECTED BY OWNER - SEE SPECIFICATIONS FOR MORE INFORMATION  
2. PREP SLAB FOR NEW CONCRETE SEALER BASIS OF DESIGN - SEE SPECIFICATIONS FOR MORE INFORMATION



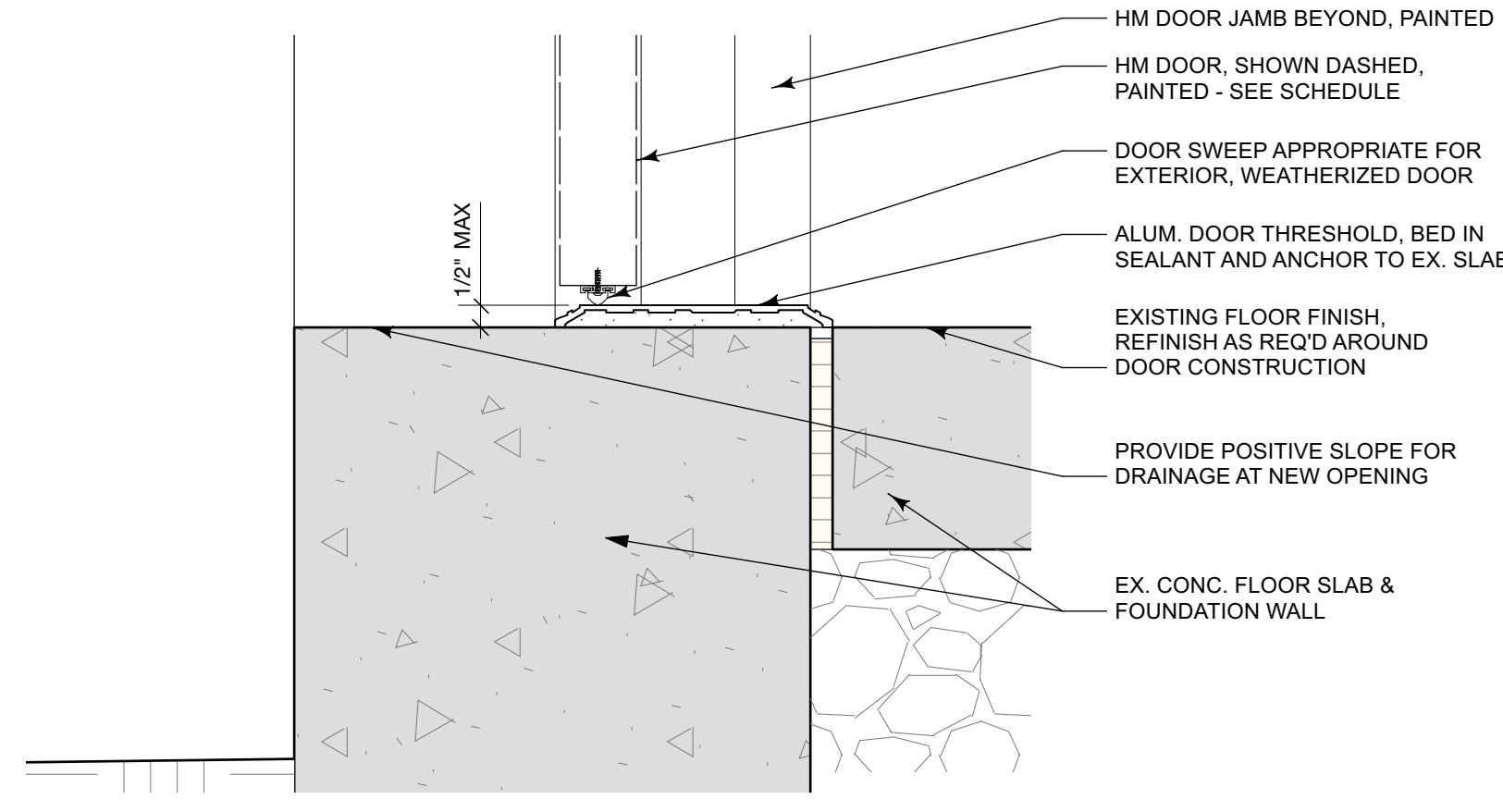
**2 DOOR & FRAME**  
Scale: 1/4" = 1'-0"



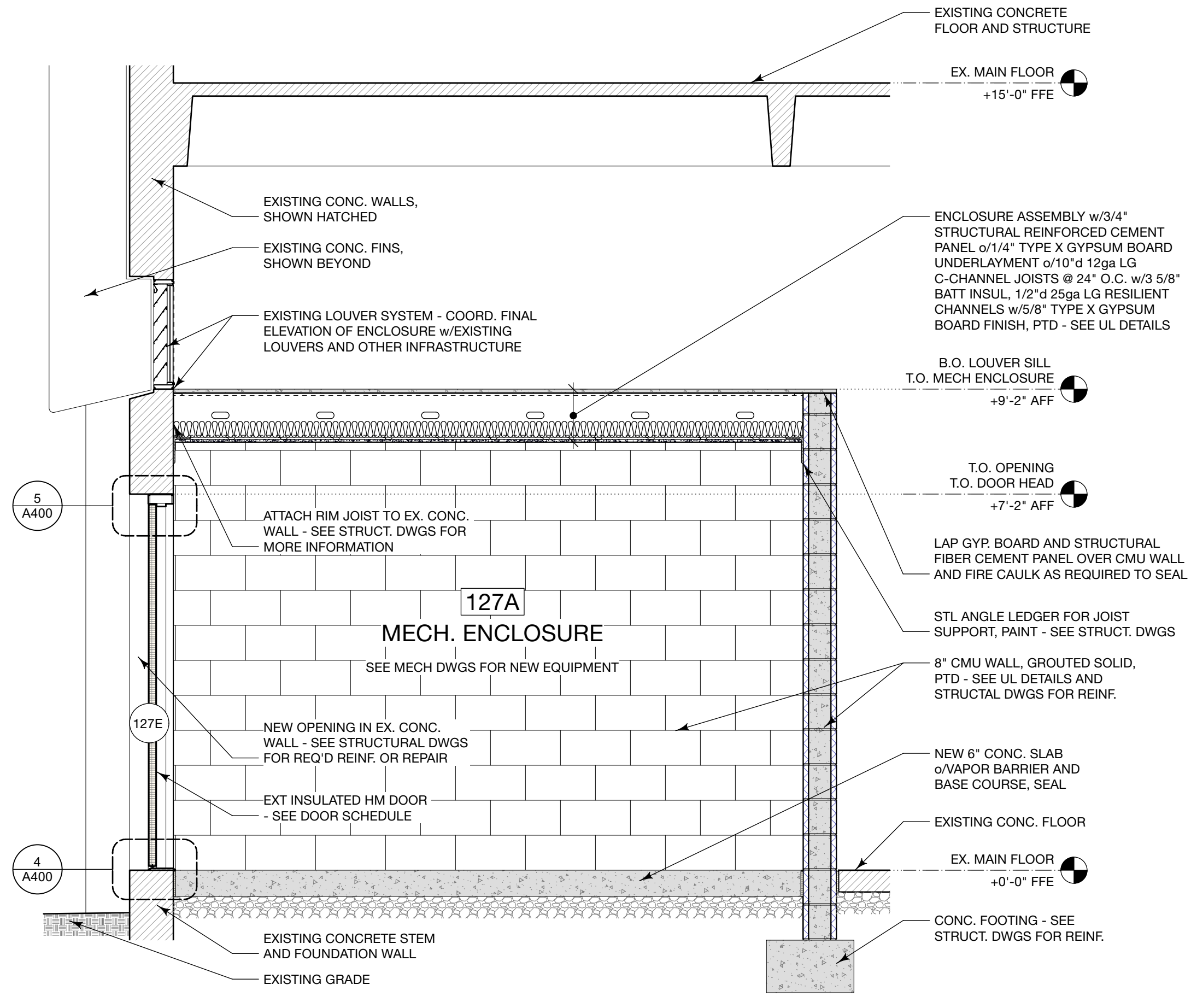
**5 DETAIL, Head**  
A400 Scale: 3" = 1'-0"



**6 DETAIL, Jamb**  
A400 Scale: 3" = 1'-0"



**4 DETAIL, Sill**  
A400 Scale: 3" = 1'-0"



**1 PARTIAL SECTION**  
A400 Scale: 1/2" = 1'-0"

### FIRE PROTECTION SYMBOLS AND ABBREVIATIONS

PIPE TURNING UP PIPE TURNING DOWN TEE DOWN TEE UP 45° OFFSET DIRECTION OF FLOW IN PIPE PIPE SLOPED IN DIRECTION OF ARROW PIPE CAP CONCENTRIC REDUCER ECCENTRIC REDUCER PIPE UNION GATE VALVE CHECK VALVE BUTTERFLY VALVE BALL VALVE SOLENOID VALVE PRESSURE REDUCING VALVE SAFETY RELIEF VALVE BASKET STRAINER PRESSURE GAUGE (W/ BALL VALVE) PIPE ANCHOR FLEXIBLE PIPE CONNECTION PUMP FIRE HOSE CABINET HYDRAULIC CALCULATION NODE (SPRINKLER SYSTEM) HYDRAULIC CALCULATION NODE (STANDPIPE SYSTEM) ALARM CHECK VALVE DRY PIPE VALVE WITH EXHAUSTOR OR ACCELERATOR DELUGE VALVE PREACTION VALVE HOSE END VALVE TAMPER SWITCH (SHOWN ON VALVE) PRESSURE SWITCH FLOW SWITCH ANGLE VALVE (ELEVATION VIEW) ANGLE VALVE (PLAN VIEW) FIRE HYDRANT WITH OS&Y VALVE IN ROADWAY BOX STORZ CONN. FIRE DEPT. CONN. FIRE PUMP TEST HEADER ELECTRIC ALARM BELL	<p>CL CENTER LINE                  &lt; ANGLE                  Ø ROUND, DIAMETER OR PHASE                  # POUNDS OR NUMBER                  A COMPRESSED AIR                  ABV.CLG. ABOVE CEILING                  ACFM ACTUAL CUBIC FEET PER MINUTE                  ACU AIR CONDITIONING UNIT                  AFF ABOVE FINISHED FLOOR                  AFG ABOVE FINISHED GRADE                  AHU AIR HANDLING UNIT                  ALUM. ALUMINUM                  ANSI AMERICAN NATIONAL STANDARD ASSOCIATION                  AP ACCESS PANEL                  APPROX. APPROXIMATE                  ARCH. ARCHITECTURAL                  ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS                  ASV AUTOMATIC SPRINKLER VALVE                  AUTO AUTOMATIC                  AWWA AMERICAN WATER WORKS ASSOCIATION                  BFF BELOW FINISHED FLOOR                  BFP BACKFLOW PREVENTER                  BHP BRAKE HORSEPOWER                  BOP BOTTOM OF PIPE                  C CELSIUS                  C/C CENTER TO CENTER                  CI CAST IRON                  CLG. CEILING                  CONC. CONCRETE                  CONFIG. CONFIGURATION                  CONN. CONNECTION                  CONT. CONTINUATION                  CONST. CONSTRUCTION                  CONTR. CONTRACTOR                  COORD. COORDINATE                  COP COEFFICIENT OF PERFORMANCE                  CTR CENTER                  CU COPPER                  CU.FT. CUBIC FOOT                  CW COLD WATER OR CITY WATER                  CU.YD. CUBIC YARD                  D.I. DUCTILE IRON                  DIA. DIAMETER                  DN. DOWN                  DWG. DRAWING                  E.C. ELECTRICAL CONTRACTOR                  EL ELEVATION                  ELEC. ELECTRICAL                  EQUIP. EQUIPMENT                  EQ. EQUAL                  EXIST. EXISTING                  FCA FLOOR CONTROL ASSEMBLY                  FDC FIRE DEPARTMENT CONNECTION                  FIN. FINISHED                  FL FLOOR                  FLEX FLEXIBLE                  FLG FLANGE                  FP FIRE PROTECTION                  F.P.C. FIRE PROTECTION CONTRACTOR                  FPM FEET PER MINUTE                  FPS FEET PER SECOND                  FS FLOW SWITCH                  FT FOOT/FEET                  GA. GAGE                  GAL. GALLONS                  GALV. GALVANIZED                  G.C. GENERAL CONTRACTOR                  GPM GALLONS PER MINUTE                  H.C. HEATING, VENTILATING, AND AIR CONDITIONING CONTRACTOR                  HGR. HANGER                  H.CAB. HOSE CABINET                  HOA HAND-OFF-AUTOMATIC                  HORZ. HORIZONTAL</p>	<p>HP HIGH PRESSURE OR HORSEPOWER                  HR HOUR                  HTG. HEATING                  MECH. HEATING, VENTILATING AND AIR CONDITIONING                  HYD. HYDRANT                  IN. INCH                  KW KILOWATT                  MAX. MAXIMUM                  MECH. MECHANICAL                  MEZZ. MEZZANINE                  MFG. MANUFACTURING                  MFR. MANUFACTURER                  MIN. MINIMUM                  MJ MECHANICAL JOINT                  MTD MOUNTED                  NC NORMALLY CLOSED                  NEC NATIONAL ELECTRIC CODE                  NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION                  NFPA NATIONAL FIRE PROTECTION ASSOCIATION                  N.I.C. NOT IN CONTRACT                  NO. NORMALLY OPEN                  NO. NUMBER                  NPSH NET POSITIVE SUCTION HEAD                  N.R.S. NON RISING STEM                  N.T.S. NOT TO SCALE                  O.C. ON CENTER                  O.D. OUTSIDE DIAMETER                  OPNG. OPENING                  O.R. OPERATING ROOM                  OSD OPEN SIGHT DRAIN                  O.S.&amp;Y. OUTSIDE SCREW AND YOKE                  P.C. PLUMBING CONTRACTOR                  PICU PEDIATRIC INTENSIVE CARE UNIT                  PLB.G. PLUMBING                  PRS PRESSURE REDUCING STATION                  PRV PRESSURE REDUCING VALVE                  PS PRESSURE SWITCH                  PSI POUNDS PER SQUARE INCH                  PSIA POUNDS PER SQUARE INCH ABSOLUTE                  PSIG POUNDS PER SQUARE INCH GAUGE                  PVC POLYVINYL CHLORIDE                  OR QUICK RESPONSE                  QTY. QUANTITY                  REINF. REINFORCING                  REQD. REQUIRED                  REV. REVISION                  RPOA REDUCED PRESSURE DETECTOR ASSEMBLY                  RPM REVOLUTIONS PER MINUTE                  RPZ REDUCED PRESSURE ZONE BACKFLOW PREVENTER                  R.S. RISING STEM                  S.C. SITE CONTRACTOR                  SCH. SCHEDULE                  SPEC. SPECIFICATION                  SPR SPRINKLER                  SSU STANDARD SPRAY UPRIGHT                  SSS STANDARD SPRAY SIDEWALL                  STA. STEEL                  STRUCT. STRUCTURAL                  SYM. SYMBOL OR SYMMETRICAL                  SYS. SYSTEM                  T.O.P. TOP OF PIPE                  T.O.S. TOP OF STEEL                  TS TAMPER SWITCH                  TYP. TYPICAL                  U.F. UNDER FLOOR                  UL UNDERWRITERS LABORATORIES                  UNO UNLESS NOTED OTHERWISE                  VERT. VERTICAL                  VLV. VALVE                  WI WITH                  W/O WITHOUT                  ZCA ZONE CONTROL ASSEMBLY</p>
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### FIRE PROTECTION GENERAL NOTES

- DIVISION 21 SHALL PROVIDE ALL LABOR AND MATERIALS REQUIRED FOR A COMPLETE WORKING SYSTEM WHICH SHALL COMPLY FULLY WITH NFPA #13, 2013 EDITION, STANDARD FOR INSTALLATION OF AUTOMATIC SPRINKLER SYSTEMS, THE NORTH CAROLINA STATE BUILDING CODE, 2018 EDITION, REQUIREMENTS OF ALL LOCAL FIRE MARSHALL AUTHORITIES. FINAL ACCEPTANCE IS CONTINGENT UPON APPROVAL OF ALL WORK AND COMPLETION OF THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FORM 85A.
- DIVISION 21 SHALL PROVIDE ENGINEERED SHOP DRAWINGS FOR THE PROPOSED FIRE PUMP INSTALLATION AND ALL CONNECTING PIPING. THE DRAWINGS SHALL INCLUDE ALL PIPING, FITTINGS, VALVES, DEVICES, ACCESSORIES, HANGERS AND SUPPORTS, ALARM CHECK VALVES, AND CONNECTIONS.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UL LISTED AND FM APPROVED FOR THE INTENDED USE AND SHALL BE INSTALLED IN FULL COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED FOR THIS PROJECT.
- REFER TO SPECIFICATION SECTION 211000 FOR PIPE MATERIALS AND JOINING METHODS.
- ALL PIPING AND/OR CONDUIT PENETRATIONS THRU FIRE RATED FLOORS AND/OR WALLS SHALL BE MADE/SEALED IN ACCORDANCE WITH UL LISTED SYSTEMS. REFER TO UL DETAILS SHEETS FOR MANUFACTURER'S SPECIFICATIONS FOR SYSTEMS USED.
- UNLESS OTHERWISE INDICATED DIVISION 21 IS RESPONSIBLE FOR ALL CUTTING, CORE DRILLING AND PATCHING REQUIRED TO INSTALL FIRE PROTECTION WORK.
- REFER TO ALL GENERAL CONSTRUCTION CONTRACT SPECIFICATIONS AND DRAWING DOCUMENTS FOR PROJECT REQUIREMENTS.
- ALL PIPE LARGER THAN 2" SHALL BE BLACK STEEL SCH. 40 WITH GROOVED ENDS JOINED BY GROOVE FITTINGS.
- ALL INTERIOR SPRINKLER PIPING SHALL BE PRESSURE TESTED FOR 2 HOURS AT 200 PSI OR 50 PSI ABOVE THE MAXIMUM SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER.
- ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR THE PROCEDURES USED. ALL SLAG CAUSED BY WELDING OR CUTTING PROCEDURES SHALL BE REMOVED FROM PIPING BEFORE INSTALLATION OF PIPING.
- A PERMANENT METAL PLACARD SHALL BE PROVIDED AT THE PUMP INDICATING THE DESIGN CRITERIA AND SYSTEM DEMANDS ALSO PROVIDE THE PRESSURE REQUIRED AT THE PUMP DISCHARGE. CONSULT WITH THE INSTALLING CONTRACTOR LISTED ON THE EXISTING PLACARDS FOR EXISTING CALCULATION INFORMATION AND UPDATE PLACARDS AS REQUIRED. PLACARDS SHALL BE STAMPED OR ENGRAVED, NO LABELS OR SHARPIE.
- PROVIDE FLOW SWITCHES FOR SYSTEM MAIN AND ZONES AND TAMPER SWITCHES FOR ALL ABOVE GROUND GATE, WAFER, AND BALL VALVES ABOVE GROUND AND INSIDE THE BUILDING.
- WIRING FROM TAMPER SWITCHES AND FLOW SWITCHES TO FIRE ALARM PANEL SHALL BE BY ELECTRICAL CONTRACTOR.
- ALL PENETRATIONS OF RATED WALLS AND FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE SCHEDULE AND DETAILS ON THIS SHEET.
- ALL SPRINKLER PIPING AND EQUIPMENT, AS SHOWN, IS DIAGRAMMATIC WITH APPROXIMATE PIPE LOCATIONS, ELEVATIONS, ROUTING, ETC., AND IS PROVIDED FOR INFORMATIONAL PURPOSES. EVERY FITTING, ELL, TEE AND LENGTH OF PIPE MAY NOT BE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO REVIEW THE CONTRACT DRAWINGS AND COORDINATE THE FIRE PROTECTION SYSTEM INSTALLATION WITH THE BUILDING STRUCTURAL, MECHANICAL AND ELECTRICAL SYSTEMS. THE FIRE PROTECTION CONTRACTOR SHALL CREATE A FABRICATION DRAWING SHOWING ALL PIPE SIZES, LOCATION, ROUTING, HANGERS & ELEVATIONS THAT IS A RESULT OF THIS COORDINATION EFFORT. NECESSARY OFFSETS IN PIPING REQUIRED TO PROPERLY INSTALL THE FIRE PROTECTION SYSTEM AS TO TAKE UP MINIMUM SPACE SHALL BE FURNISHED AND INSTALL BY THE CONTRACTOR WITH NO ADDITIONAL EXPENSE TO THE OWNER.
- CONTRACTOR SHALL RECYCLE ALL SCRAP METAL. CONTACT WPR FOR ASSISTANCE WITH WASTE MANAGEMENT.
- CONTRACTOR SHALL NOT BLOCK ACCESS TO DUMPSTERS. IF IT IS REQUIRED TO BLOCK DUMPSTER ACCESS, CONTACT NESSA STONE AT NCSTONE@NCSU.EDU.
- MATERIALS/EQUIPMENT SHALL NOT BE STORED ON LANDSCAPED AREAS INCLUDING TURF, PLANT, & MULCH BEDS. ALL HARDSCAPES MUST BE PROTECTED BY 3/4" THICK 4x8 PLYWOOD. ANY HARDSCAPES DAMAGED DURING CONSTRUCTION OR DUE TO NEGLIGENCE BY THE CONTRACTOR MUST BE REMOVED AND REPLACED WITH LIKE MATERIAL AT NO ADDITIONAL COST. PLEASE NOTE, ALL VEHICULAR TRAFFIC ON HARDSCAPES IS BY PERMIT ONLY AND IS NOT ALLOWED ON SOFTSCAPES. LCS WILL PROVIDE TREE PROTECTION IN POTENTIALLY IMPACTED AREAS.

### GENERAL SYMBOLS

- SHEET LETTER
- SHOWN ON SHEET NUMBER ELEVATION LETTER
- SHOWN ON SHEET NUMBER SECTION LETTER
- DIMENSION LINE
- SHEET NUMBER WITH DETAIL LETTER
- COLUMN NUMBER OR LETTER
- KEYED NOTE NUMBER
- REVISION NUMBER
- CONNECT TO EXISTING
- REMOVE TO THIS POINT

### FIRE PROTECTION DESIGN DATA

Project Name: POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS		System: WET	
Project Location: 2310 STINSON DRIVE, RALEIGH, NC		Sys. Sq. Ft.: 20,000 PER FLOOR	
Suite: ---	Floor#: -	Ceiling Hgt.: VARIES	
Designed By: SIGMA ENGINEERED SOLUTIONS	Phone#: (919) 840-9300	Total Bldg. Hgt.: 85'	
Occupancy: CLASSROOMS	Hazard: LIGHT	City Supply: 80 PSI	

### FIRE PROTECTION WATER SUPPLY INFORMATION

TESTED BY: NCSU UTILITIES	DATE/TIME: 01.08.2023 @ 1 PM	PRESSURE HYDRANT: HYDRANT #21
HYDRANT ELEV.: -375	FLOW HYDRANT #1: HYDRANT #27	FLOW HYDRANT #2: N/A
STATIC (PSI): 72-10=62	RESIDUAL (PSI): 62-10=52	FLOW (GPM): 1353-10%=1218

COPY OF TEST DATA INCLUDED WITH CALCULATION. WATER SUPPLY REDUCED PER SCO REQUIREMENTS

### FIRE PROTECTION FIRE PUMP DATA

RATED GPM: 750 GPM	RATED PRESSURE: 115 PSI	HORSEPOWER: 75 HP
DIESEL/ELECTRIC: ELECTRIC	CHURN PRESSURE: 138 PSI	STYLE OF PUMP: SPLIT CASE
COMBINED STATIC: 200 PSI	COMBINED RESIDUAL: 172 PSI	150% FLOW (GPM): 1125

CERTIFIED PUMP CURVE REQUIRED

### FIRE PUMP SCHEDULE

TAG	*MANUFACTURER/MODEL	GPM	PSI	MOTOR HP	RPM	TYPE	VOLTAGE	NOTES	
FP-1	AC FIRE	8100 6X6X9F	750	115	75	3550	HORIZONTAL SPLIT CASE	480V / 3Ø	1

- NOTES:  
 1. PROVIDE COMPLETE WITH FIRE PUMP CONTROLLER AND ALL ASSOCIATED TRIM FOR A NFPA 20 COMPLIANT SYSTEM.

### JOCKEY PUMP SCHEDULE

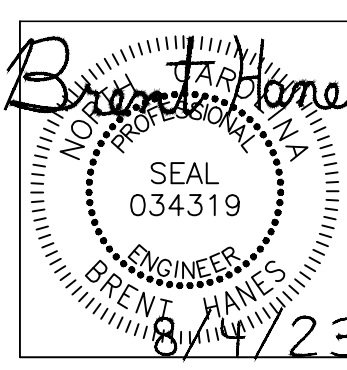
TAG	*MANUFACTURER/MODEL	GPM	PSI	MOTOR	RPM	TYPE	VOLTAGE	NOTES	
JP-1	AC FIRE	1SV	7.5	130	1.5 HP	3450	VERT. IN-LINE	460/3Ø/60	1

- NOTES:  
 1. PROVIDE WITH JOCKEY PUMP CONTROLLER AND ALL ASSOCIATED TRIM FOR A NFPA 20 COMPLIANT SYSTEM.

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
 \* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08.04.2023  
 DESGNR:  
 DN BY:  
 CK BY:  
 REV: 00X.CD



Sigma Engineered Solutions, PC  
 5500 Falls of Neuse Rd.  
 Suite 101  
 Raleigh, NC 27699  
 Ph: 919 840 9300  
 www.sigmasol.com  
 Sigma Project #: 22053  
 NC ENG LIC# C-2490



POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCODP#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
F001

Designer Proj. No.  
22053  
 NCSU Proj. No.  
202220008

FAC. NAME  
 POE HALL  
 FAC. NO. 024

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

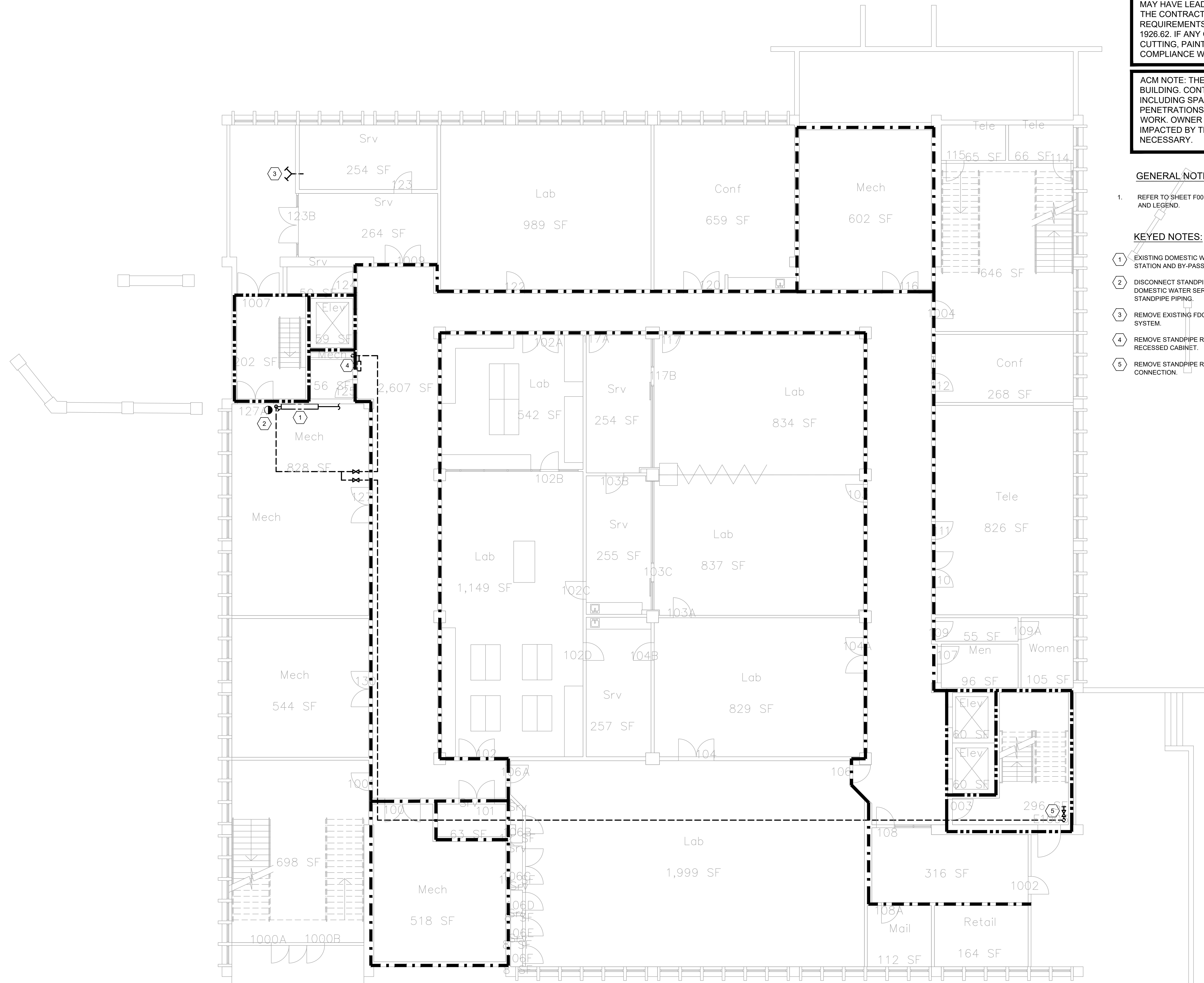
**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

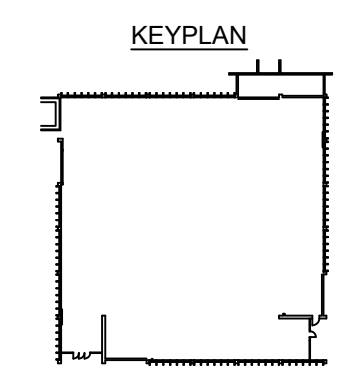
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

1. EXISTING DOMESTIC WATER PRESSURE REDUCING STATION AND BY-PASS.
2. DISCONNECT STANDPIPE PIPING FROM EXISTING DOMESTIC WATER SERVICE. REMOVE ALL EXISTING STANDPIPE PIPING.
3. REMOVE EXISTING FDC AND PIPING BACK TO STANDPIPE SYSTEM.
4. REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
5. REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.



1 1ST FLOOR PLAN - FIRE PROTECTION - DEMOLITION  
SCALE: 1/8" = 1'-0"

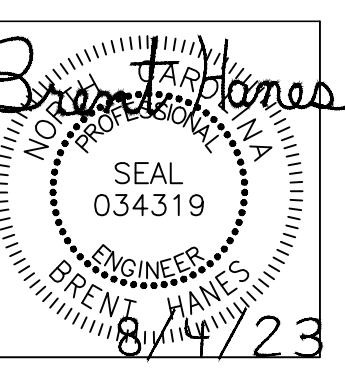


FIRE LEGEND	
1HR RATED FIRE BARRIER	— — — — —
2HR RATED FIRE BARRIER	· · · · ·

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
• BOX 7216 • RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023	DESIGNER:	DN BY:	CK BY:	REV:



Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd.  
Suite 101  
Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmases.com  
Sigma Project #: 22053  
NC ENG LIC# C2490

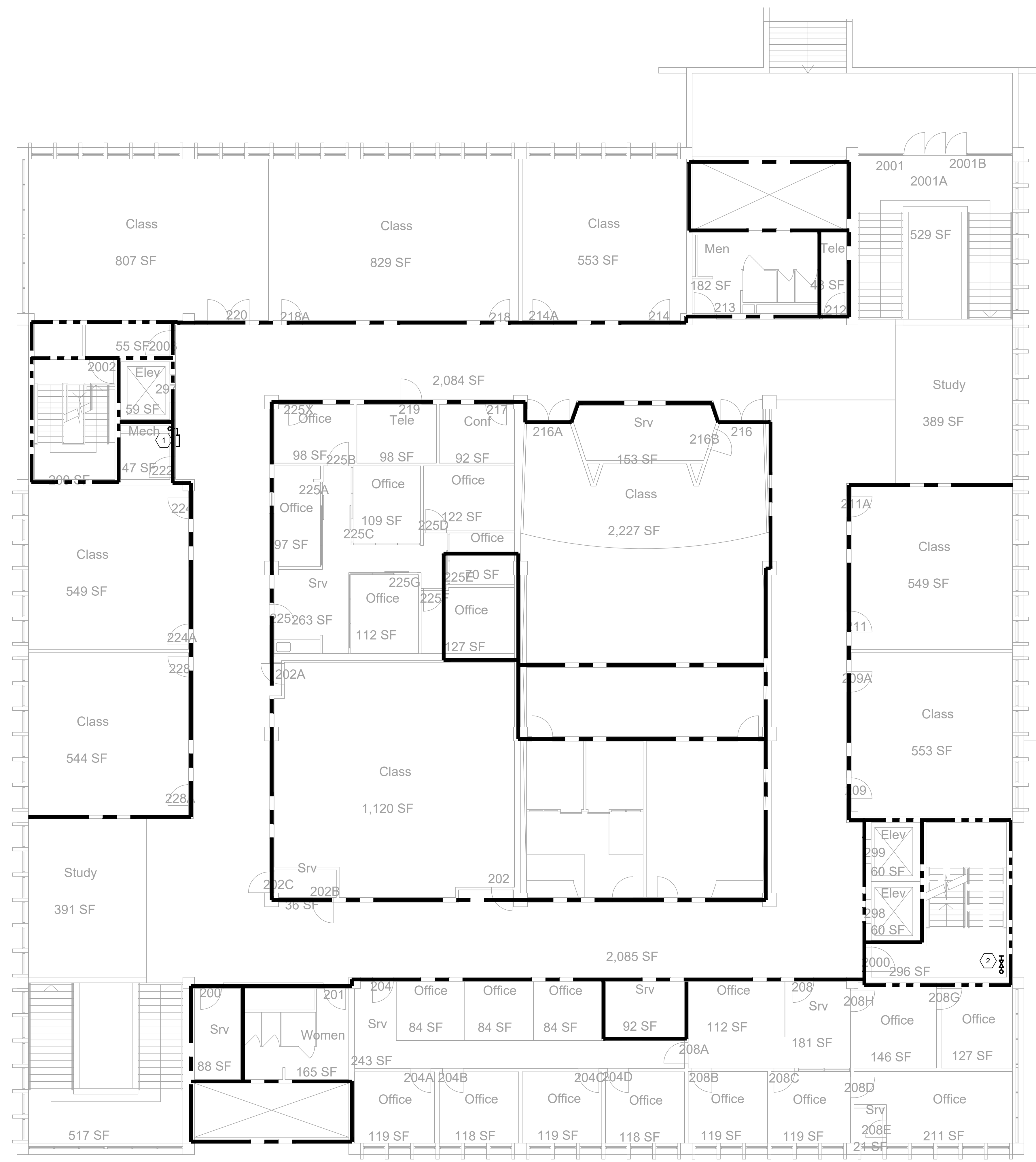


POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F101**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



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**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

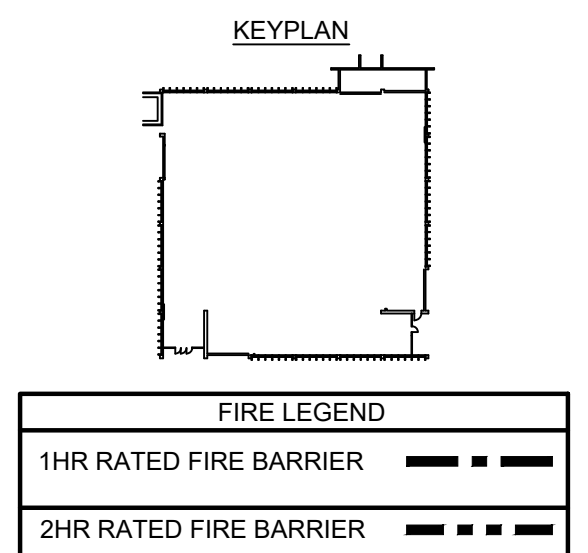
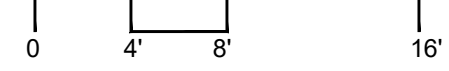
**GENERAL NOTES:**

- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
- REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.

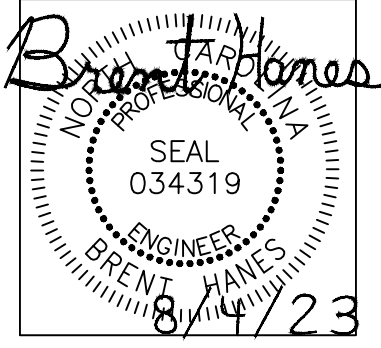
**1 2ND FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"



FIRE LEGEND	
1HR RATED FIRE BARRIER	--- --
2HR RATED FIRE BARRIER	--- - -

**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REV: 0001.CD



Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd.  
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Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F102**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

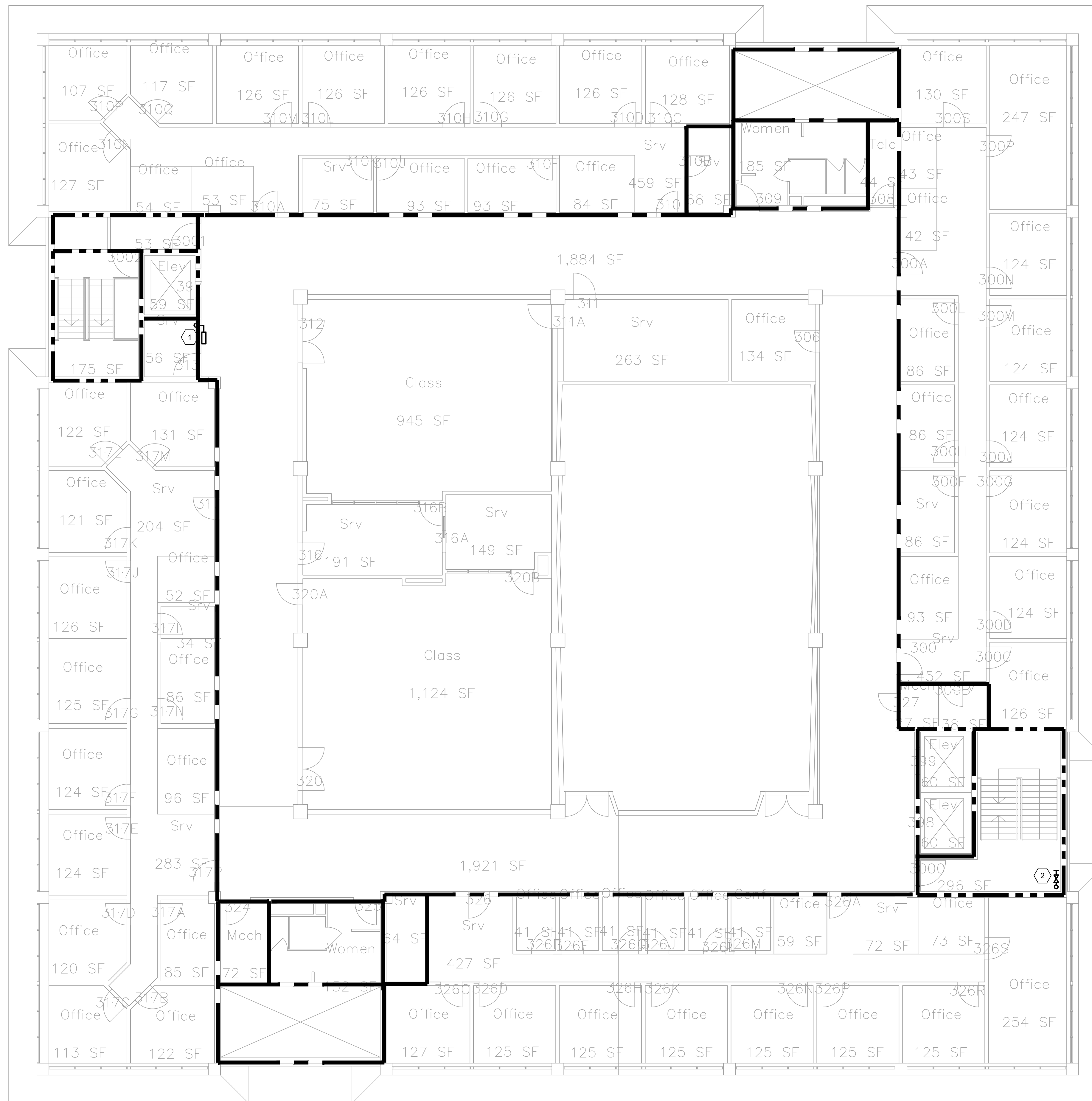
**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

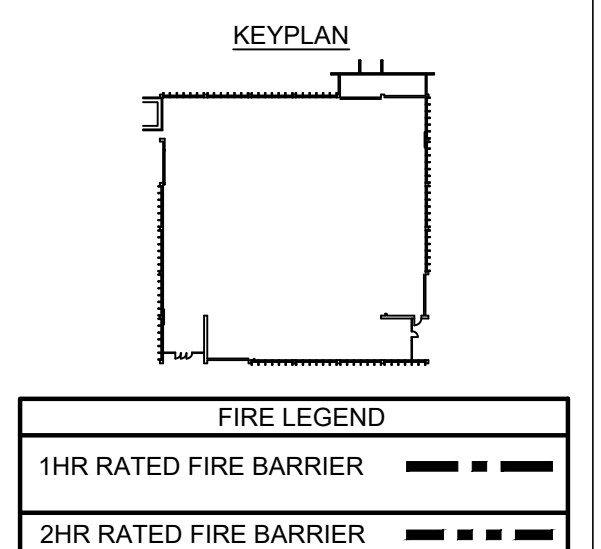
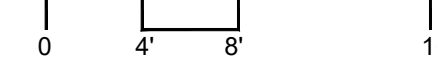
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- 1 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
- 2 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.



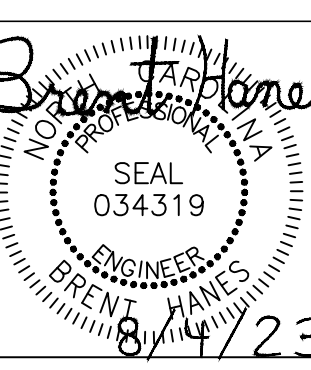
**1 3RD FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"



NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE:	06-04-2023
DESIGNER:	
DRAWN BY:	
CHECKED BY:	
REV.:	0001 CD



Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd.  
Suite 101  
Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F103**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

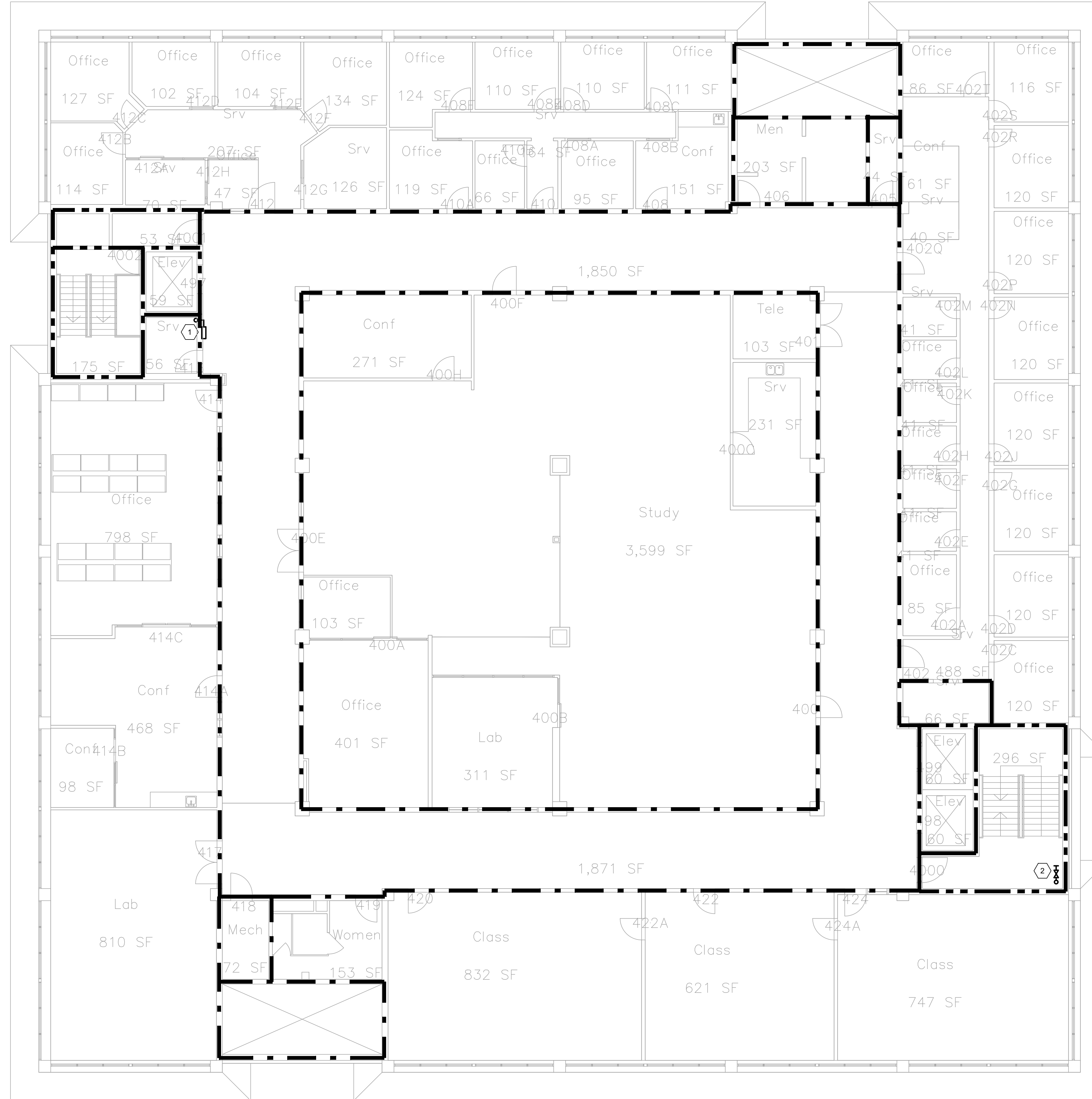
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**GENERAL NOTES:**

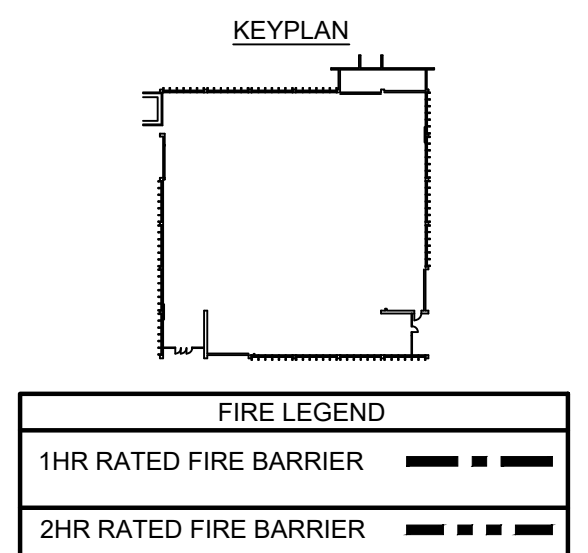
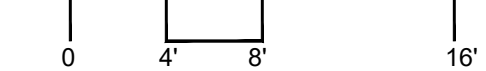
- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
- REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.

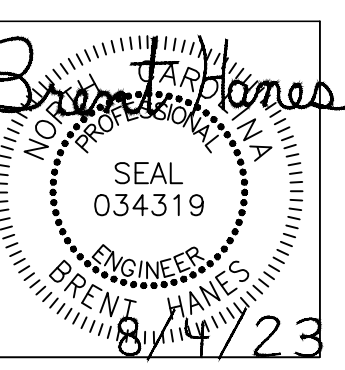


**1 4TH FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"

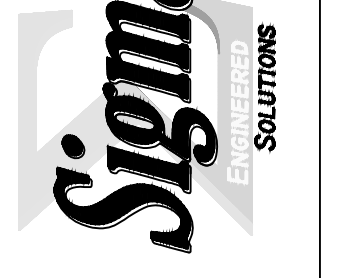


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DRAWN BY:  
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Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2480



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
**POE HALL - BUILDING # 024**  
SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F104**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

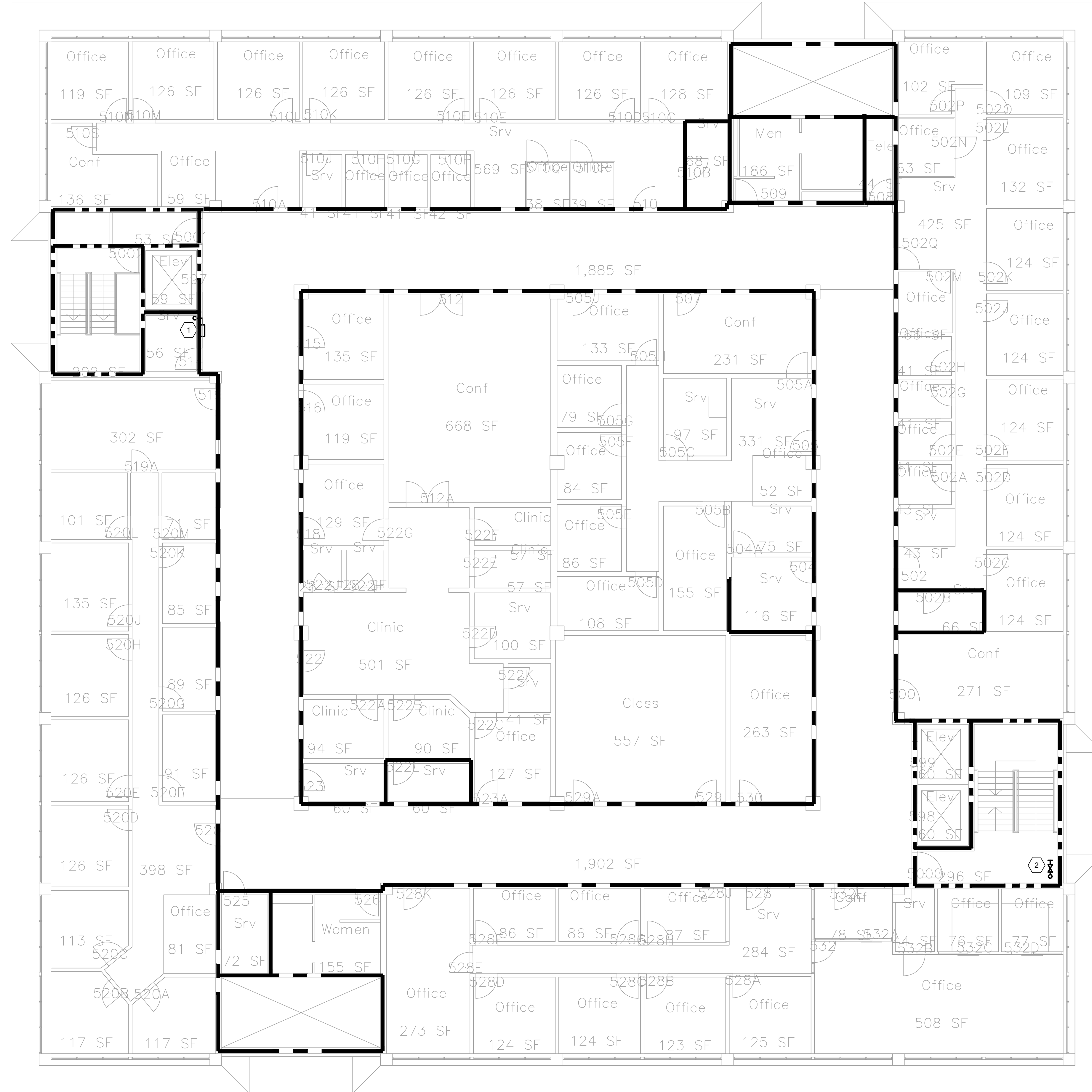
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**GENERAL NOTES:**

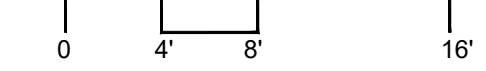
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

1. REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
2. REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.



**1 5TH FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"



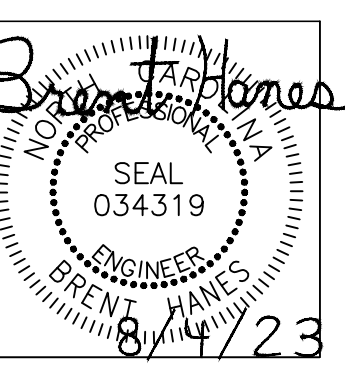
**KEYPLAN**

**FIRE LEGEND**

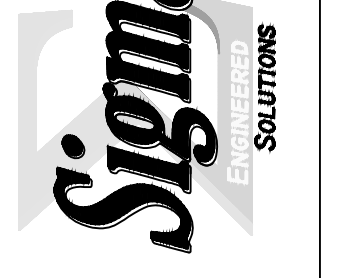
- 1HR RATED FIRE BARRIER
- 2HR RATED FIRE BARRIER

**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
• BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REVISED BY:



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Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F105**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

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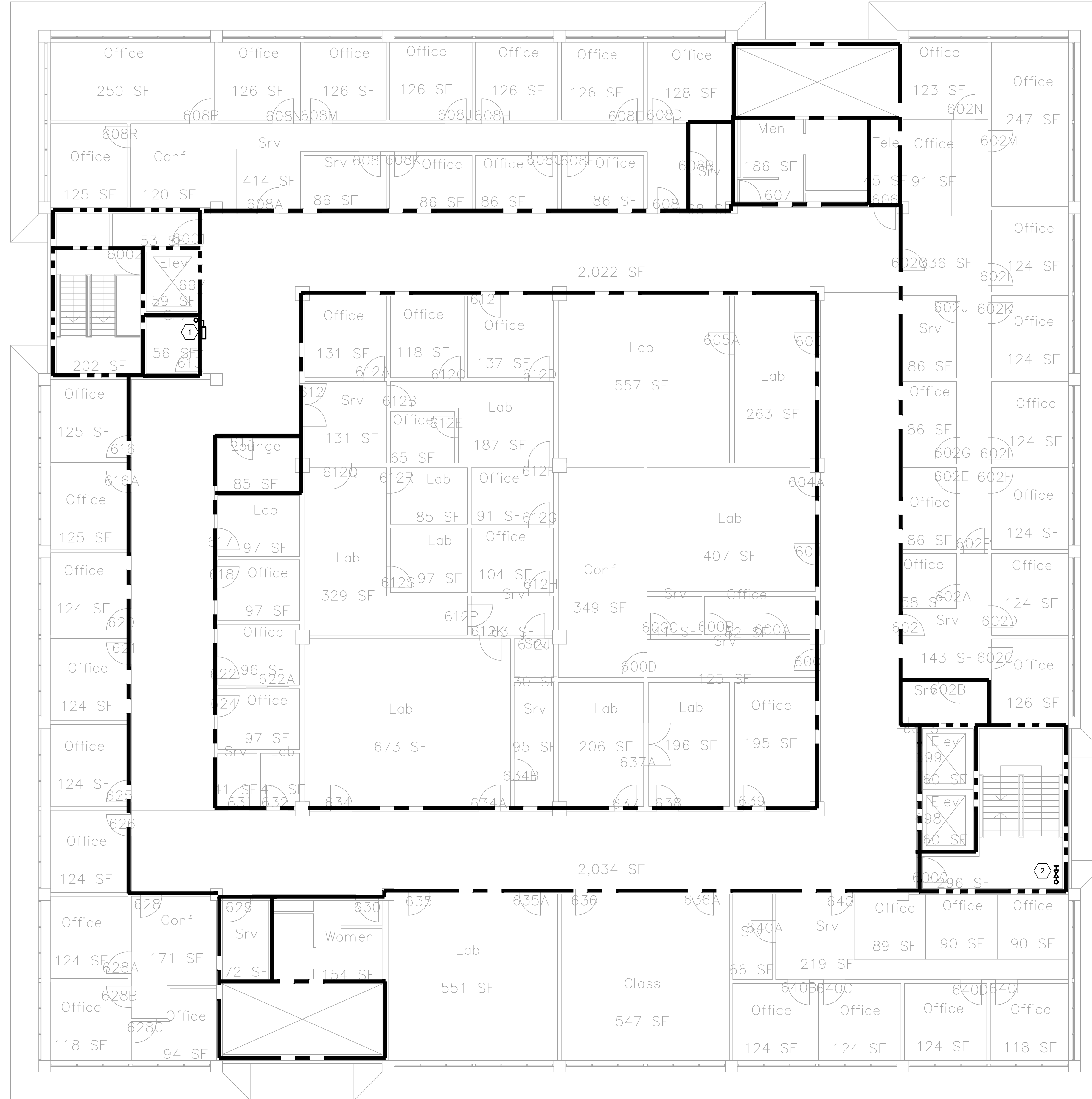
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**GENERAL NOTES:**

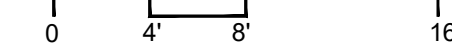
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- 1 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
- 2 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.



**1 6TH FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"



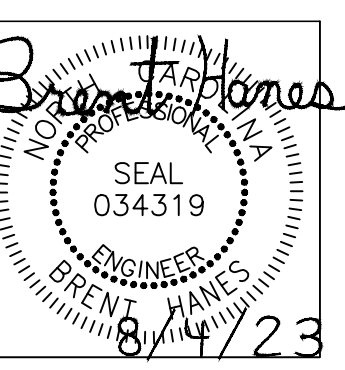
**KEYPLAN**

**FIRE LEGEND**

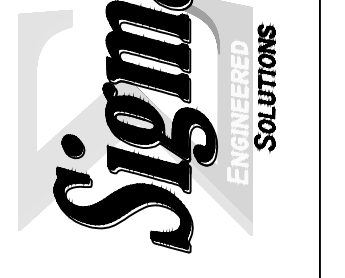
- 1HR RATED FIRE BARRIER
- 2HR RATED FIRE BARRIER

**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REVISIONS:



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5500 Falls of Neuse Rd.  
Suite 101  
Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2480



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
POE HALL - BUILDING # 024  
SCOID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F106**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

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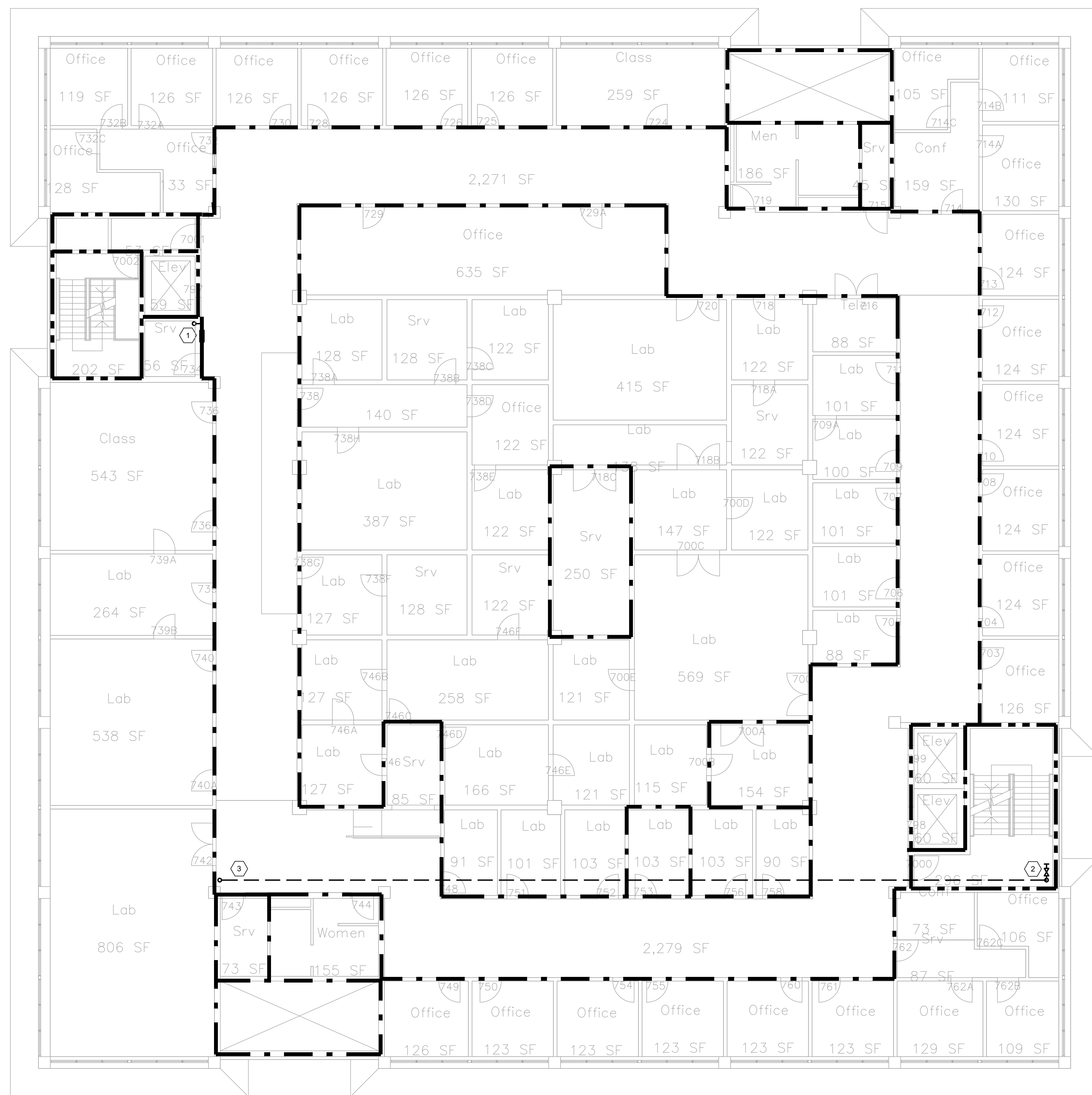
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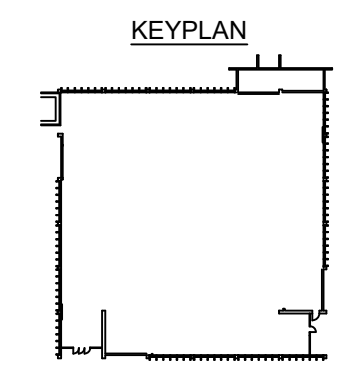
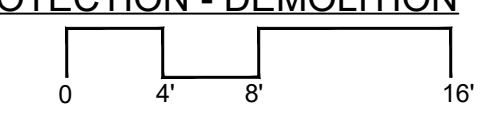
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- 1 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN RECESSED CABINET.
- 2 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.
- 3 REMOVE STANDPIPE PIPING UP TO PENTHOUSE MANIFOLD.



**1 7TH FLOOR PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"

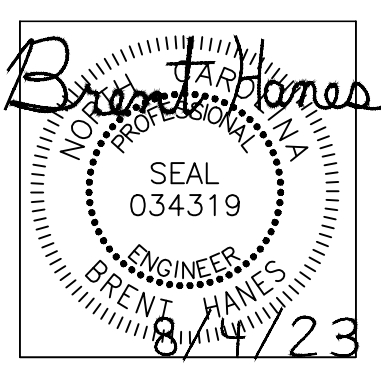


FIRE LEGEND	
1HR RATED FIRE BARRIER	---
2HR RATED FIRE BARRIER	----

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023	DESIGNER:	DN BY:	CK BY:	REV:



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5500 Falls of Neuse Rd.  
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Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2480



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F107**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC NAME  
POE HALL  
FAC. NO. 024

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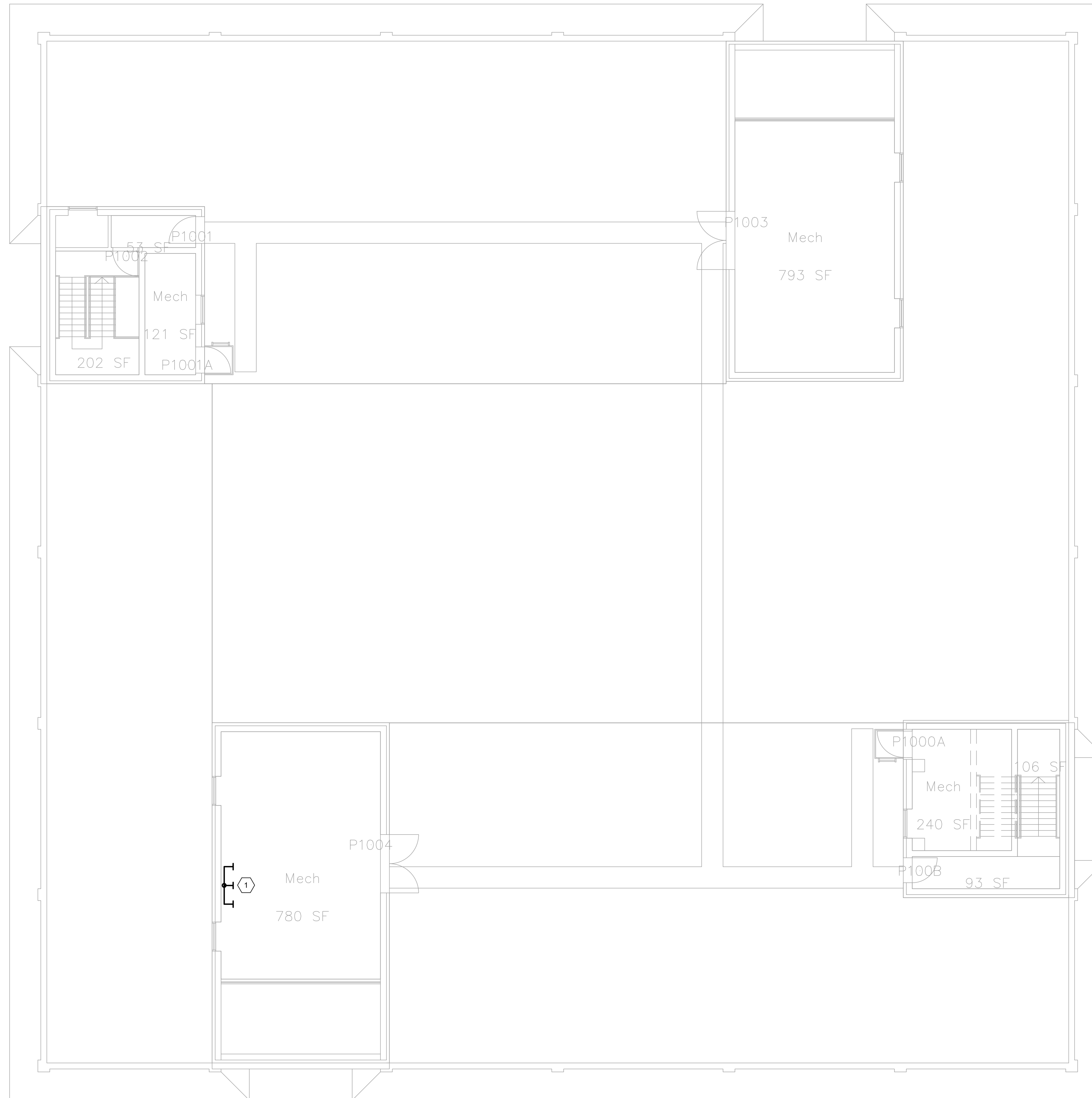
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**GENERAL NOTES:**

- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- 6" STANDPIPE UP FROM FLOOR BELOW. THREE 2-1/2" HOSE CONNECTION MANIFOLD IN PENTHOUSE TO BE REMOVED.



**1 PENTHOUSE PLAN - FIRE PROTECTION - DEMOLITION**  
SCALE: 1/8" = 1'-0"  
0 4' 8' 16'

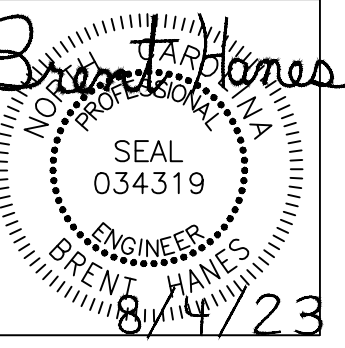
KEYPLAN

FIRE LEGEND	
1HR RATED FIRE BARRIER	---
2HR RATED FIRE BARRIER	----

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023	DESIGNER:	DATE:	DESIGNER:
	DN BY:		DN BY:
	CK BY:		CK BY:
	REV:		REV:



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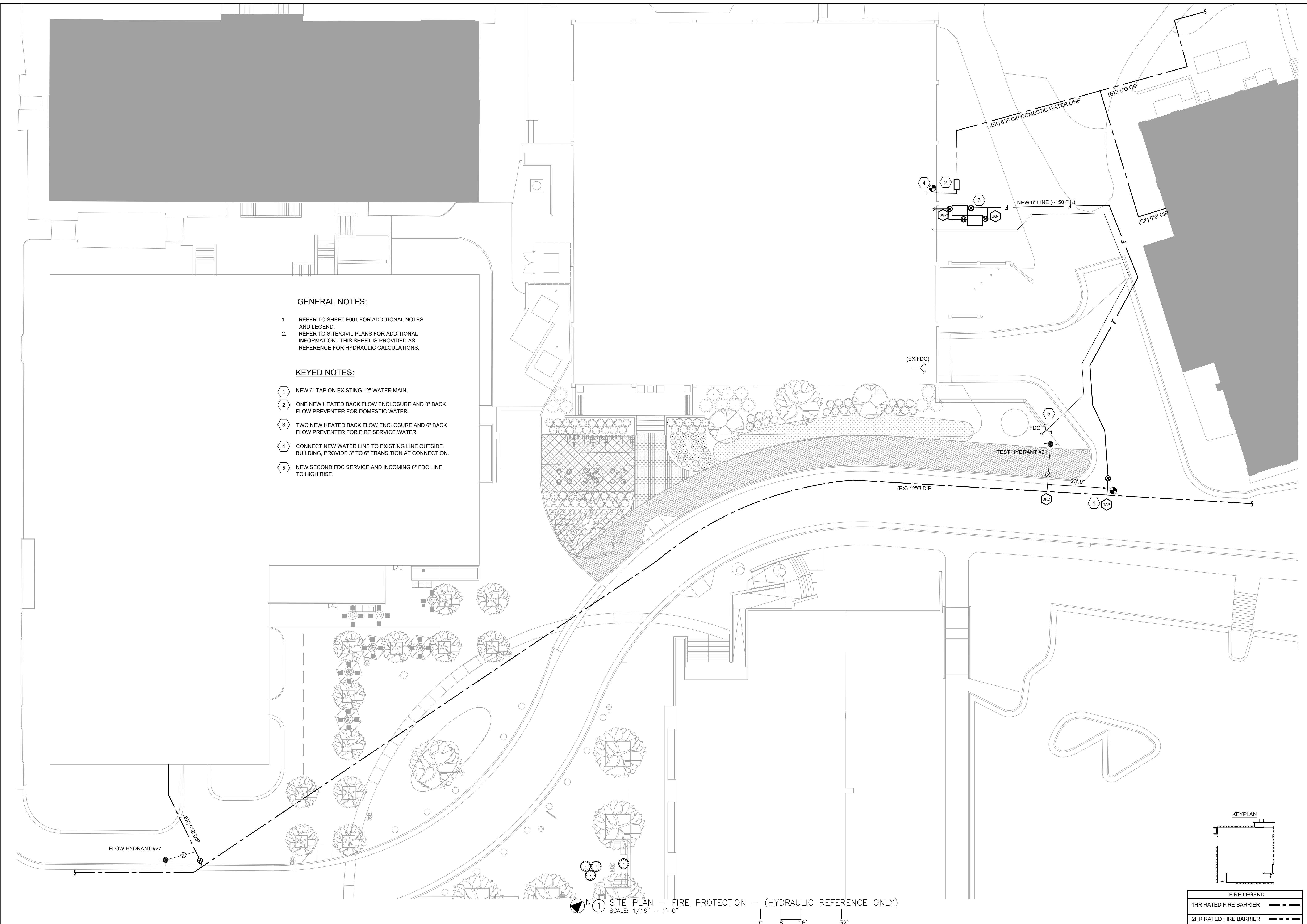


POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F108**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



**GENERAL NOTES:**

- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.
- REFER TO SITE/CIVIL PLANS FOR ADDITIONAL INFORMATION. THIS SHEET IS PROVIDED AS REFERENCE FOR HYDRAULIC CALCULATIONS.

- KEYED NOTES:**
- ① NEW 6" TAP ON EXISTING 12" WATER MAIN.
  - ② ONE NEW HEATED BACK FLOW ENCLOSURE AND 3" BACK FLOW PREVENTER FOR DOMESTIC WATER.
  - ③ TWO NEW HEATED BACK FLOW ENCLOSURE AND 6" BACK FLOW PREVENTER FOR FIRE SERVICE WATER.
  - ④ CONNECT NEW WATER LINE TO EXISTING LINE OUTSIDE BUILDING, PROVIDE 3" TO 6" TRANSITION AT CONNECTION.
  - ⑤ NEW SECOND FDC SERVICE AND INCOMING 6" FDC LINE TO HIGH RISE.

1 SITE PLAN - FIRE PROTECTION - (HYDRAULIC REFERENCE ONLY)  
 SCALE: 1/16" = 1'-0"

**KEYPLAN**

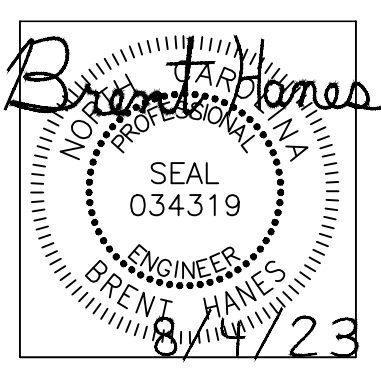
**FIRE LEGEND**

- 1HR RATED FIRE BARRIER
- 2HR RATED FIRE BARRIER

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
 \* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
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 REV: 00X.CD



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POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F200**

Designer Proj. No.  
 22053  
 NCSU Proj. No.  
 202220008

FAC. NAME  
 POE HALL  
 FAC. NO. 024

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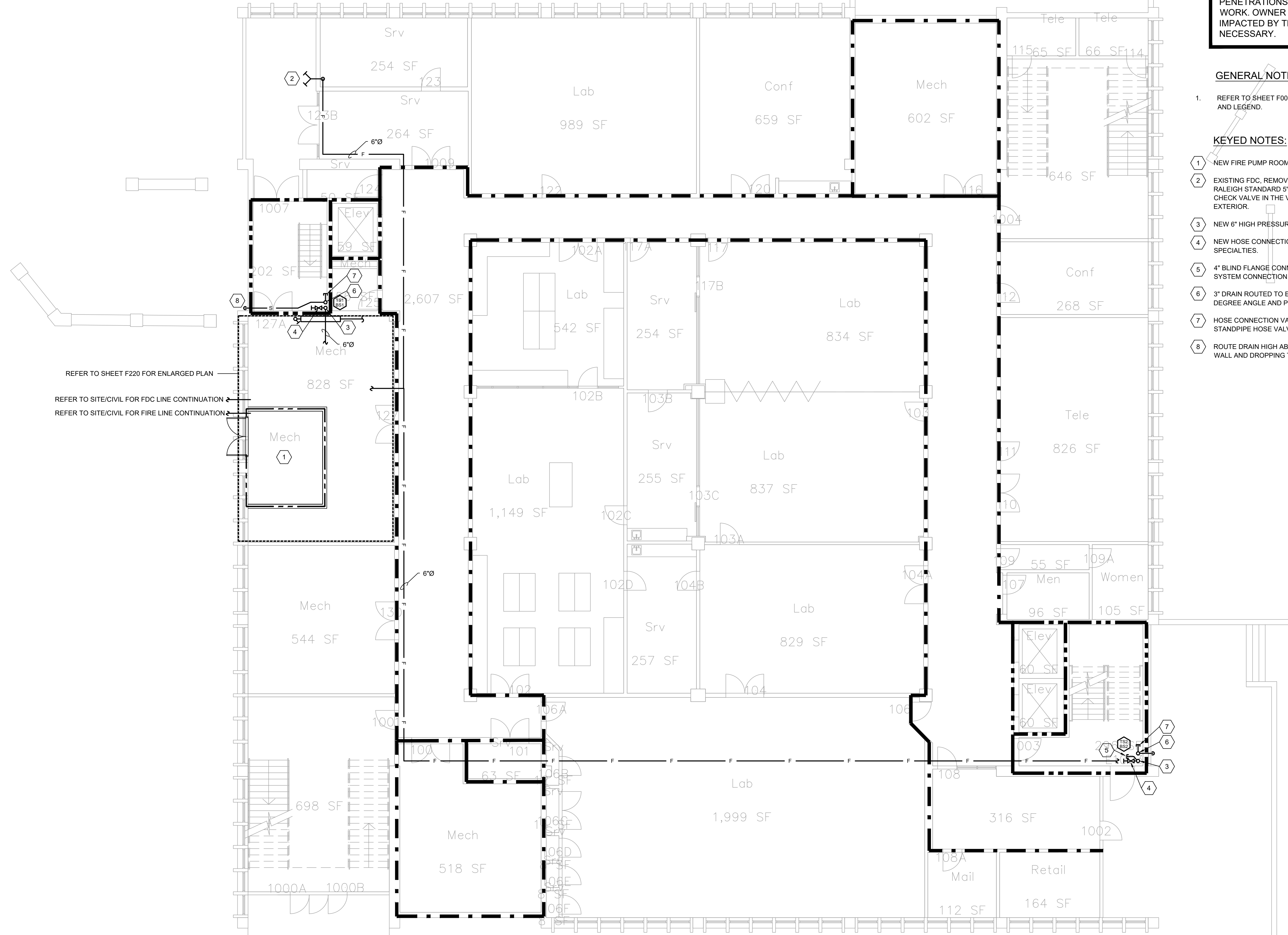
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**GENERAL NOTES:**

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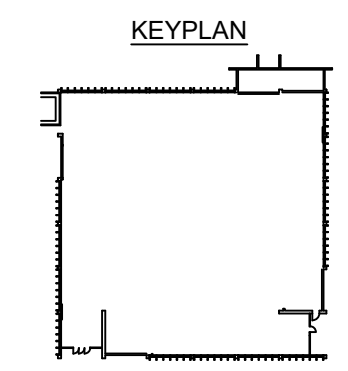
**KEYED NOTES:**

- NEW FIRE PUMP ROOM.
- EXISTING FDC. REMOVE AND REPLACE WITH CITY OF RALEIGH STANDARD 5" STORZ CONNECTION. PROVIDE CHECK VALVE IN THE VERTICAL AND BALL DRIP TO EXTERIOR.
- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION. MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR. TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.
- ROUTE DRAIN HIGH ABOVE DOOR BEFORE PENETRATING WALL AND DROPPING TO 12" ABOVE FINISHED GRADE.



REFER TO SHEET F220 FOR ENLARGED PLAN  
 REFER TO SITE/CIVIL FOR FDC LINE CONTINUATION  
 REFER TO SITE/CIVIL FOR FIRE LINE CONTINUATION

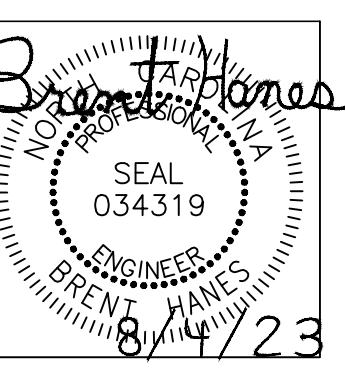
**1 - 1ST FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
 SCALE: 1/8" = 1'-0"  
 0 4 8 16'



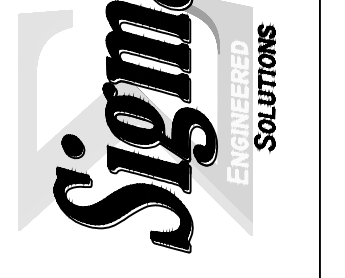
FIRE LEGEND	
1HR RATED FIRE BARRIER	--- --
2HR RATED FIRE BARRIER	--- - -

**NC STATE UNIVERSITY**  
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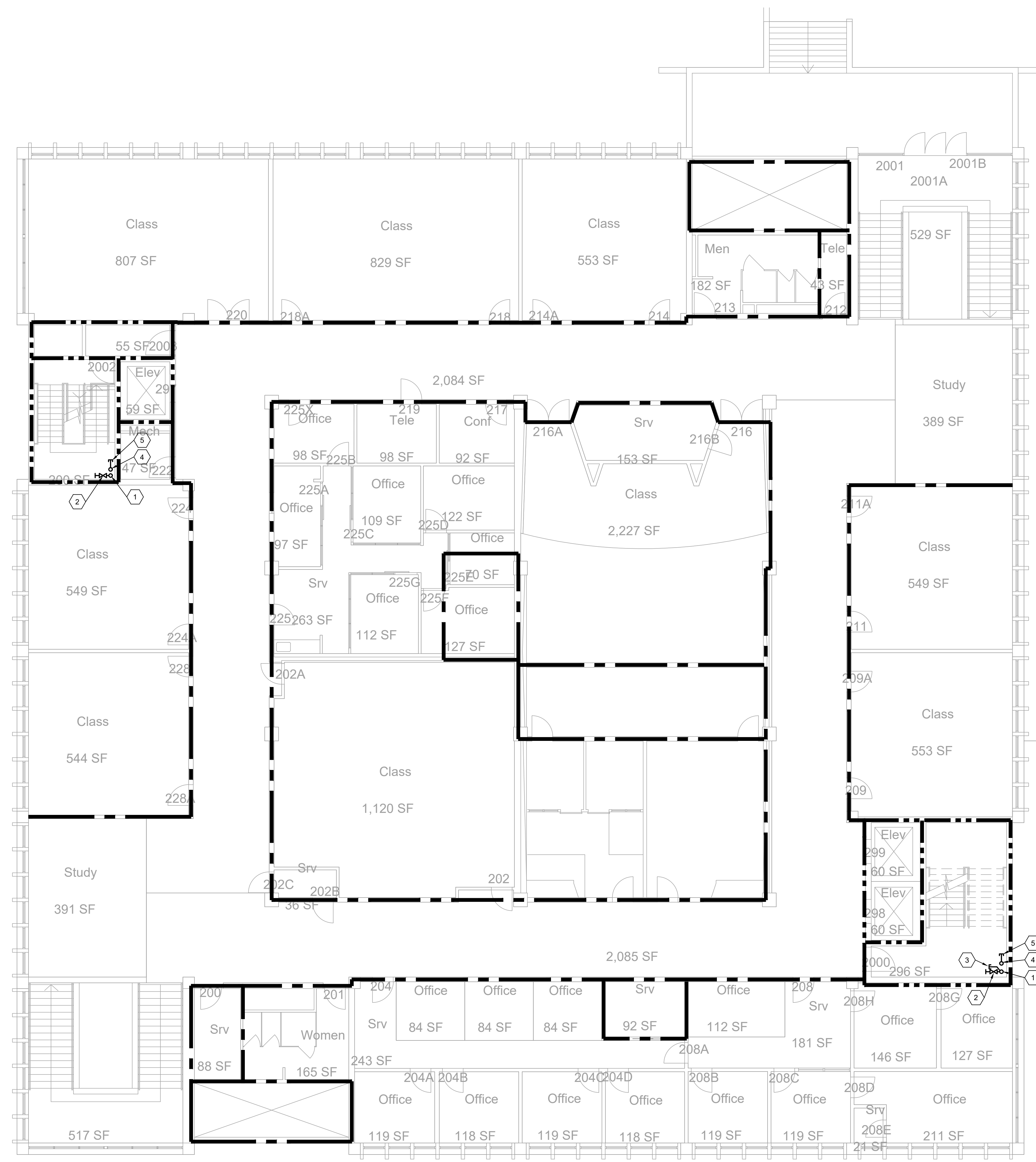
**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
**POE HALL - BUILDING # 024**  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F201**

Designer Proj. No.  
**22053**  
 NCSU Proj. No.  
**202220008**

FAC. NAME  
**POE HALL**  
 FAC. NO. **024**





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**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

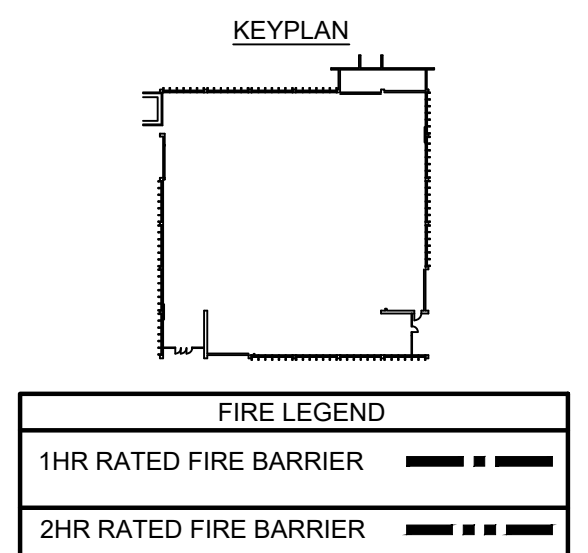
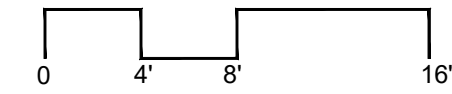
**GENERAL NOTES:**

- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.

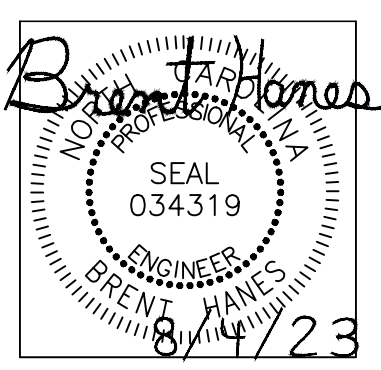
**1 2ND FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"



**NC STATE UNIVERSITY**

**DESIGN AND CONSTRUCTION SERVICES**  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REVISIONS:



Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd., Suite 101  
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Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2480



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F202**

Designer Proj. No. 22053  
NCSU Proj. No. 202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

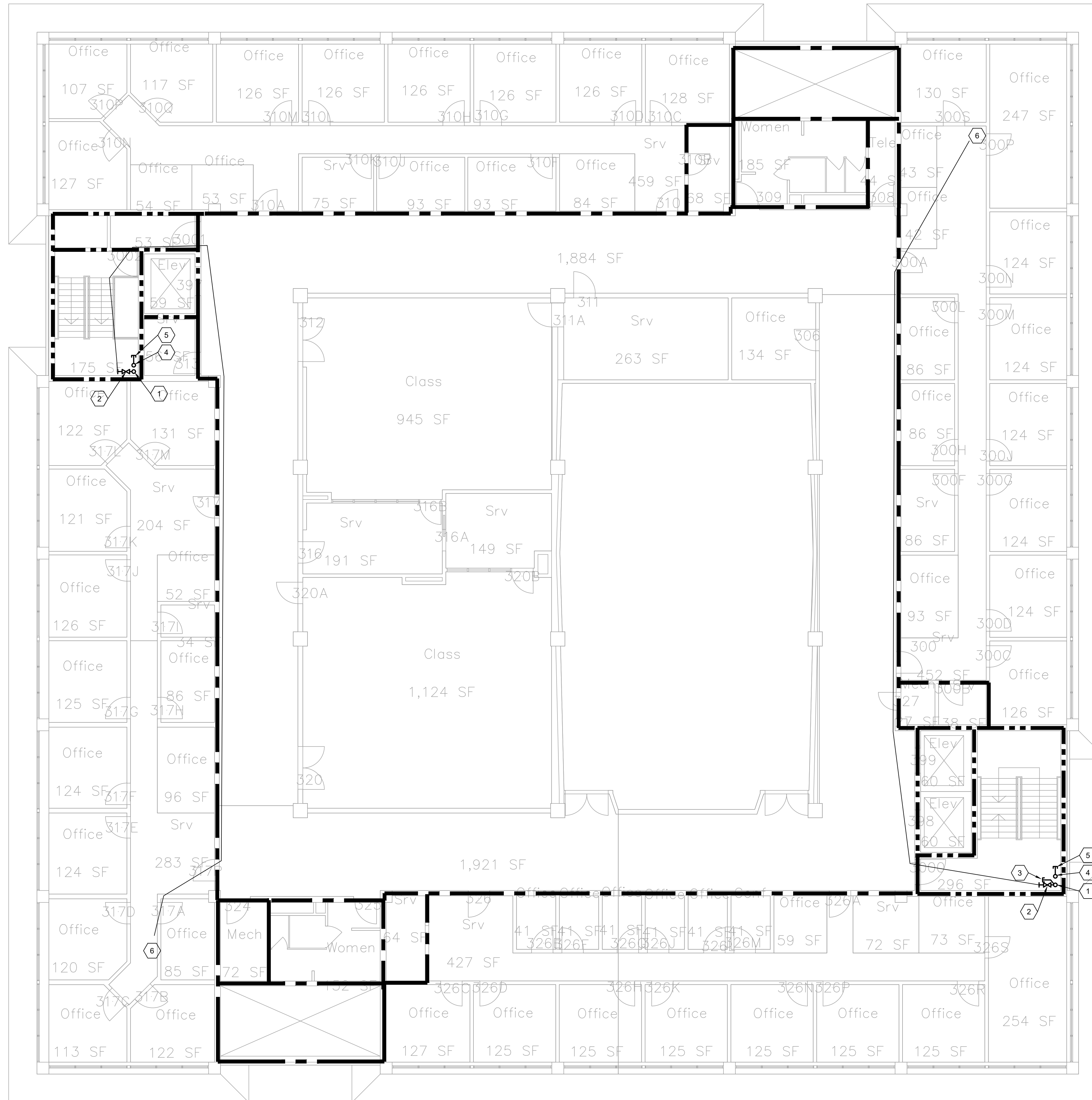
**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- 1 NEW 6" HIGH PRESSURE STANDPIPE.
- 2 NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 3 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 4 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- 5 HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.
- 6 WORSE CASE 130' HOSE LAY, TYPICAL ON MULTIPLE FLOORS.



**1 3RD FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"



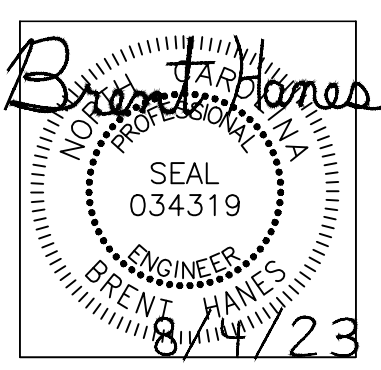
**KEYPLAN**

**FIRE LEGEND**

- 1HR RATED FIRE BARRIER
- 2HR RATED FIRE BARRIER

**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023  
DESIGNER:  
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CHECKED BY:  
REV: 0001.CD



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www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
**POE HALL - BUILDING # 024**  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F203**

Designer Proj. No.  
**22053**  
NCSU Proj. No.  
**202220008**

FAC. NAME  
**POE HALL**  
FAC. NO. **024**

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

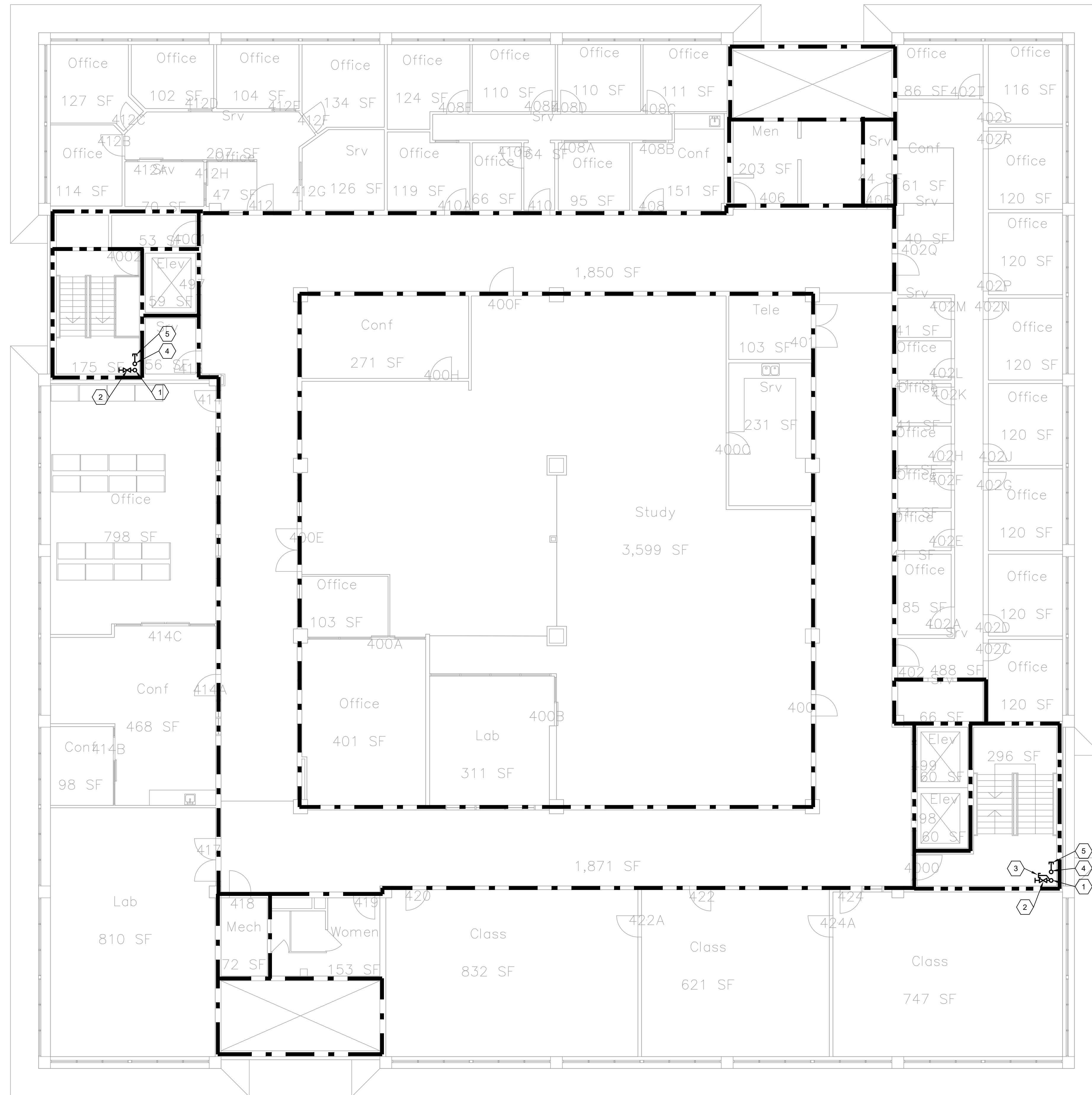
**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

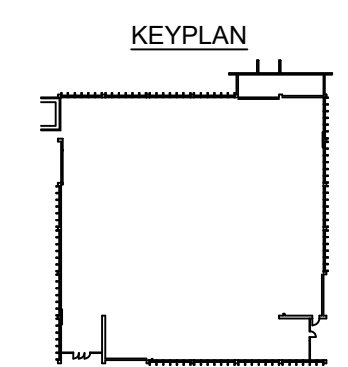
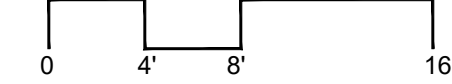
- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.



**1 4TH FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"

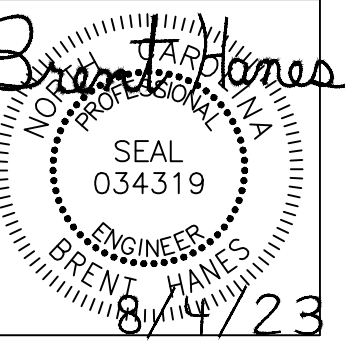


FIRE LEGEND	
1HR RATED FIRE BARRIER	--- --
2HR RATED FIRE BARRIER	--- - -

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DESIGN AND CONSTRUCTION SERVICES  
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DATE: 06-04-2023	DESIGNER:	DN BY:	CK BY:	REV: 00X.CD
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www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F204**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

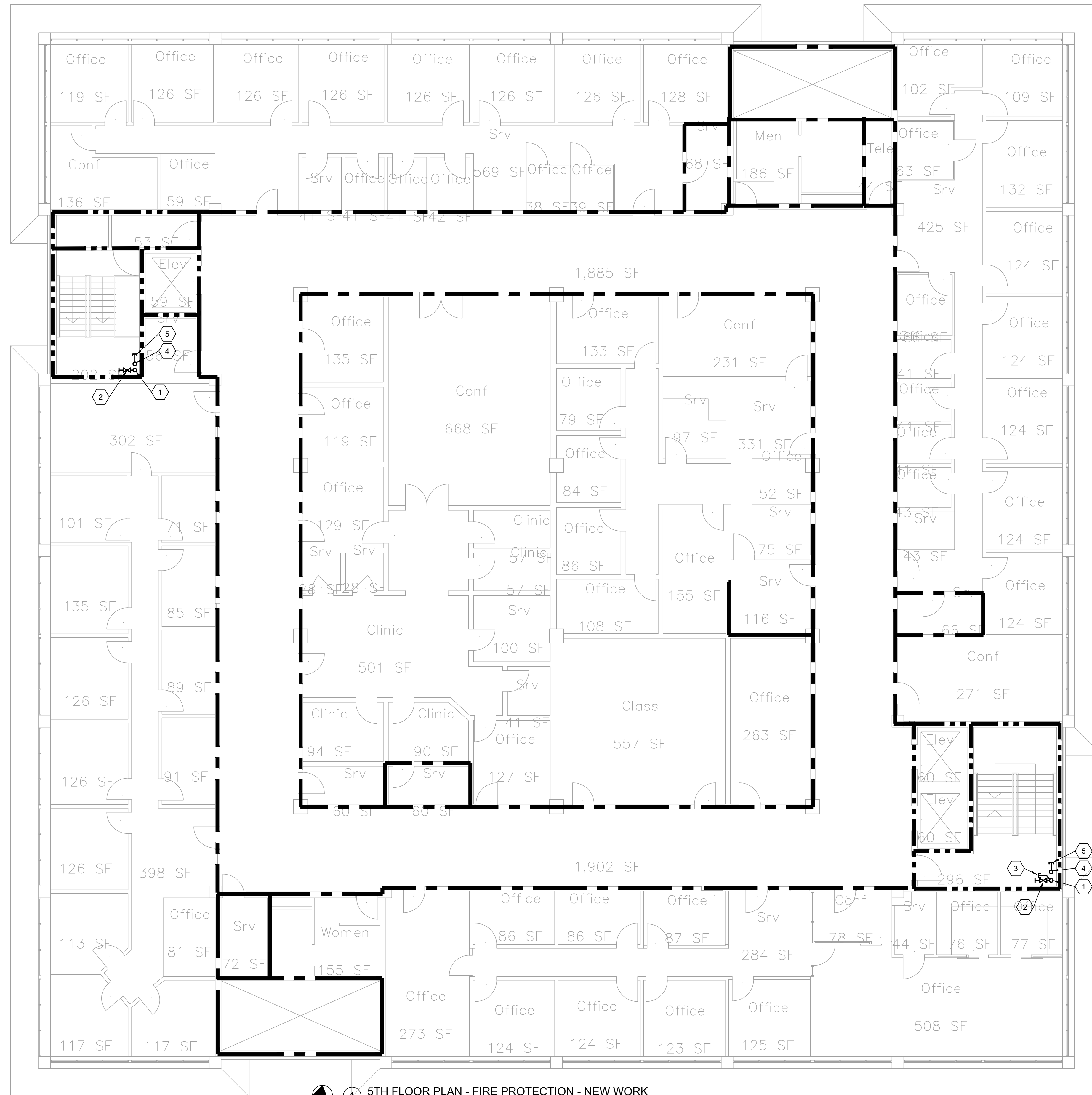
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**GENERAL NOTES:**

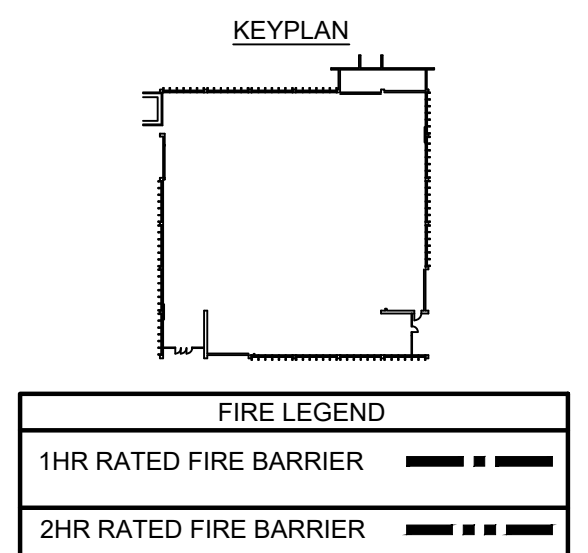
- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.



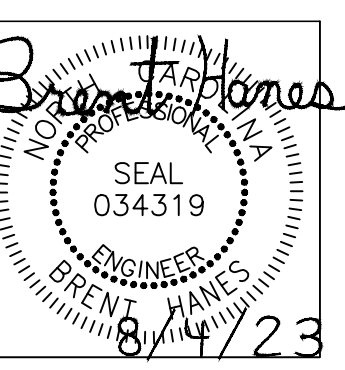
**5TH FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"



NC STATE UNIVERSITY

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DATE: 08-04-2023	DESIGNER:	DN BY:	CK BY:	REV: 100% CD
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Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F205**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

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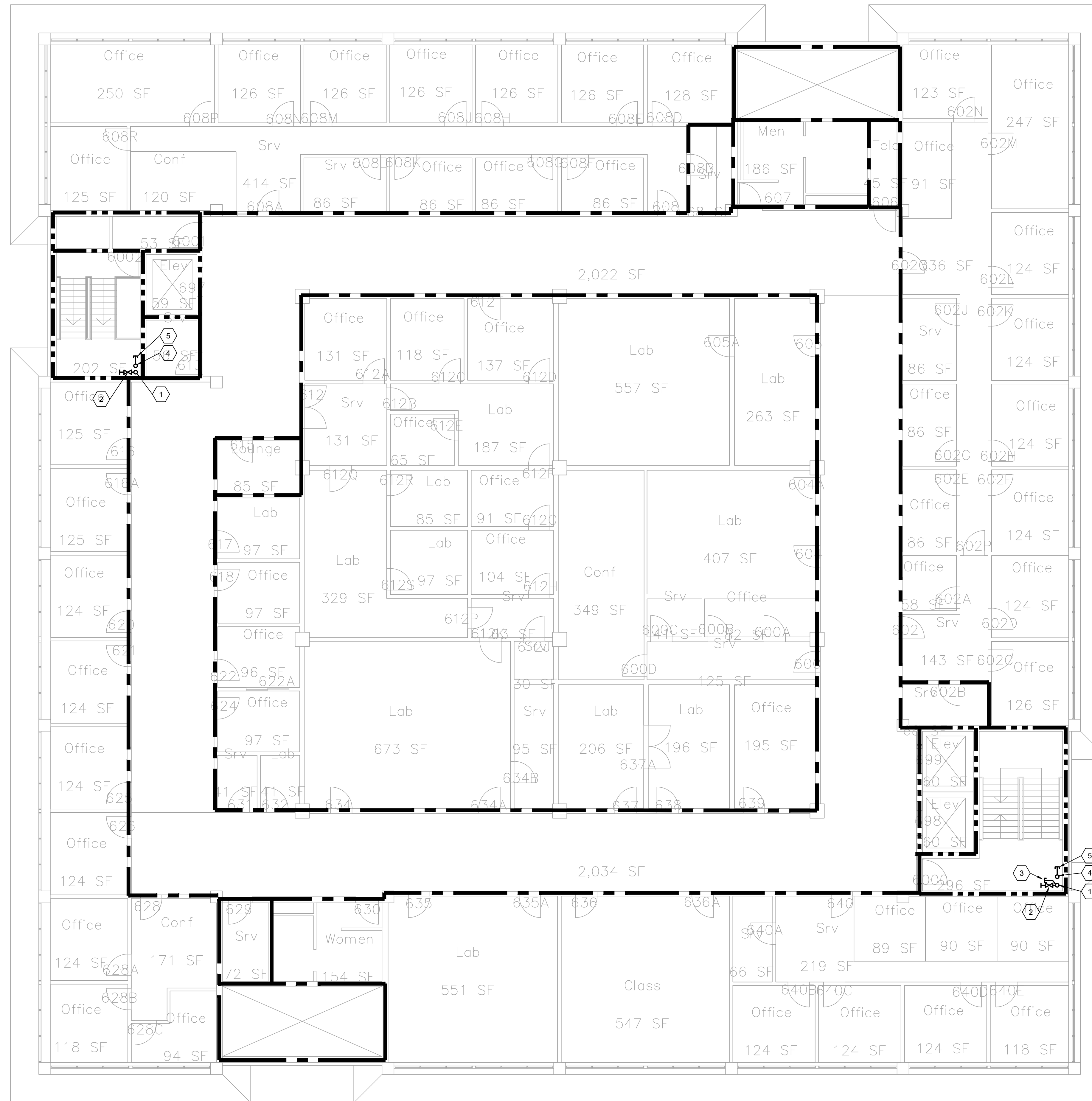
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**GENERAL NOTES:**

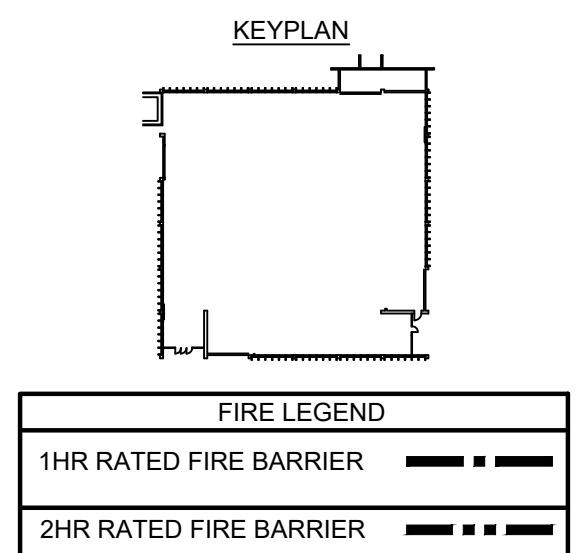
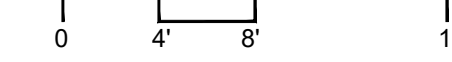
- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.



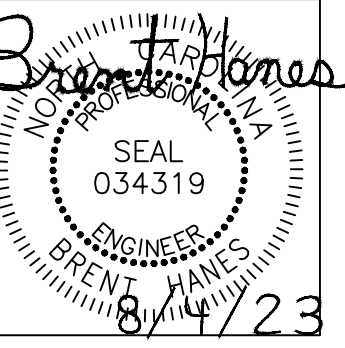
**1 6TH FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"



NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
• BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 06-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REV.: 0001.CD



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Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F206**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

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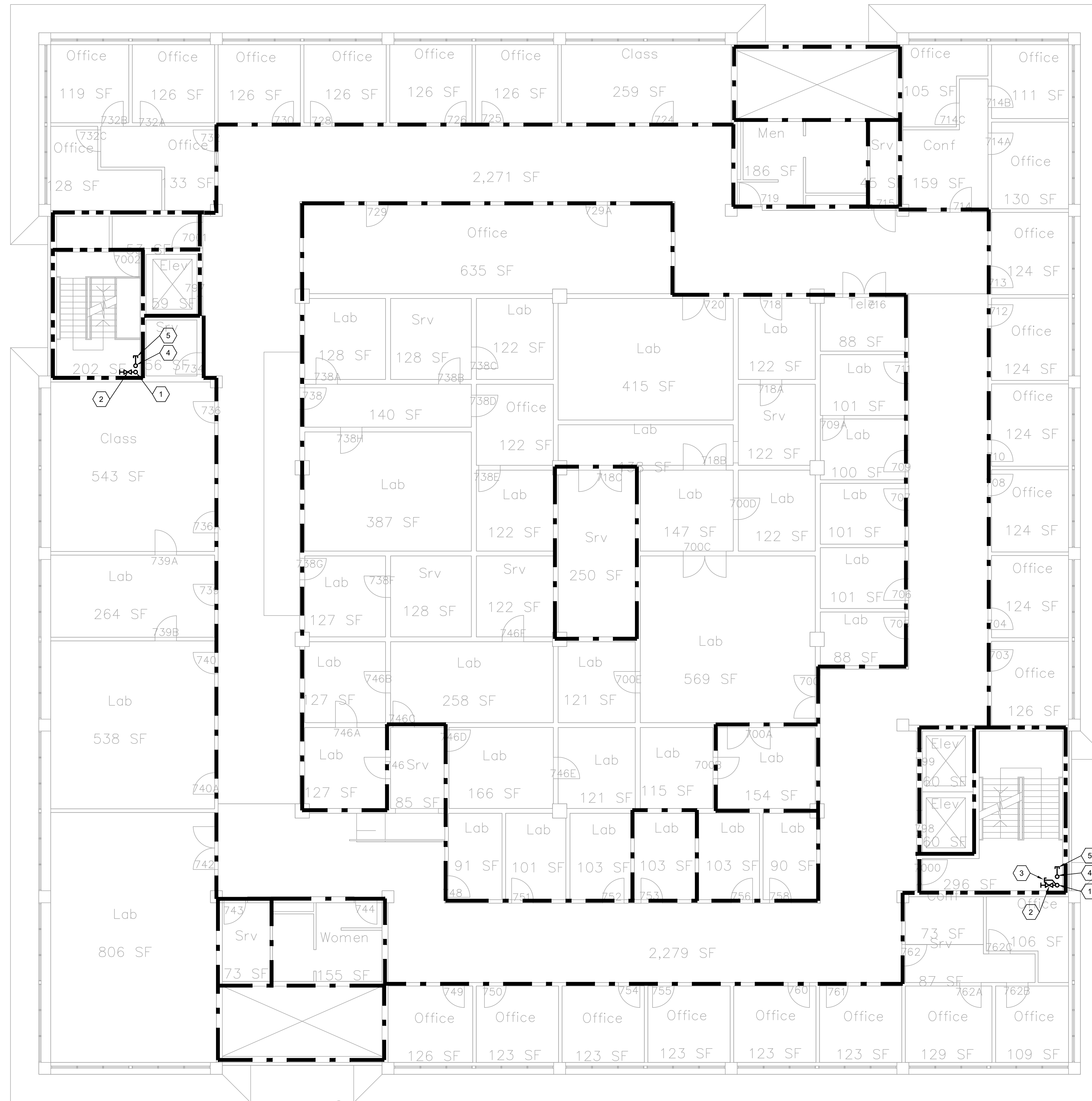
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**GENERAL NOTES:**

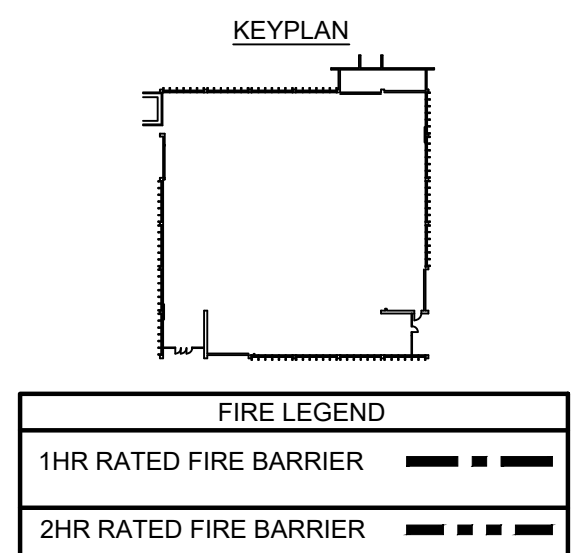
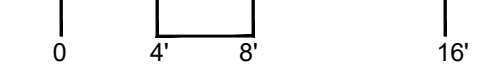
- REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.

**KEYED NOTES:**

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.
- 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45 DEGREE ANGLE AND PROVIDE SPLASH BLOCK.
- HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.



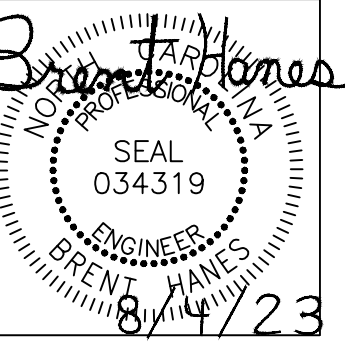
**1 7TH FLOOR PLAN - FIRE PROTECTION - NEW WORK**  
SCALE: 1/8" = 1'-0"



NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE:	06-04-2023
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REV:	0001.CD



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Ph: 919.840.9300  
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Sigma Project #: 22053  
NC ENG LIC# C2490

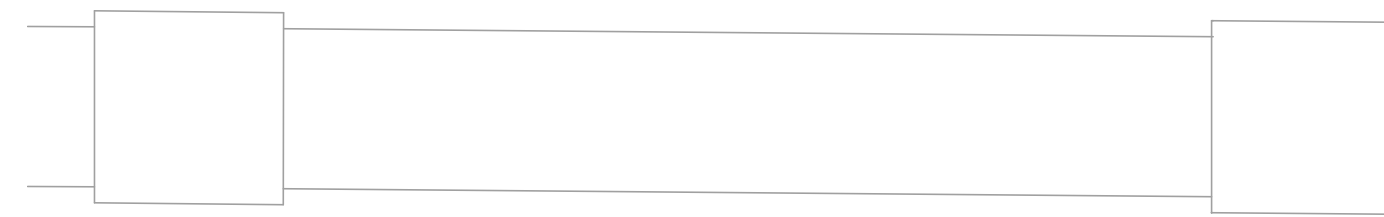


POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F207**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC NAME  
POE HALL  
FAC. NO. 024



**GENERAL NOTES:**

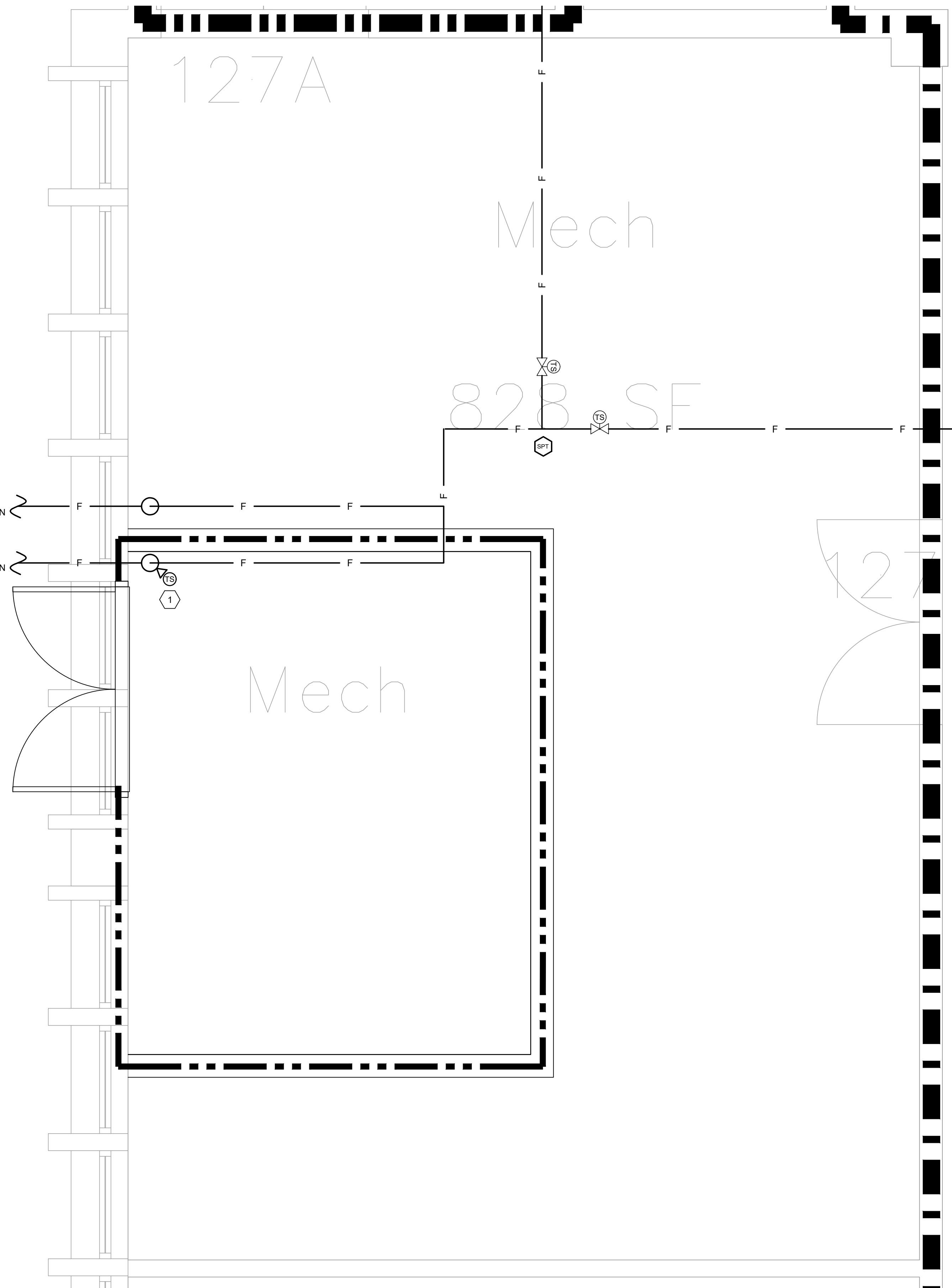
1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.
2. ALL FIRE SERVICE PIPING ON THIS PLAN IS 6".

**KEYED NOTES 1/F220:**

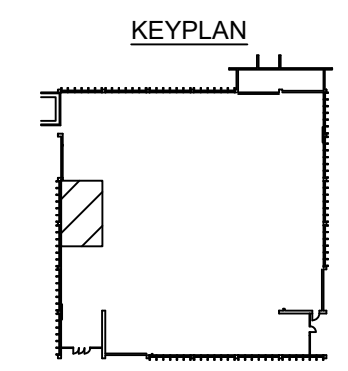
1. FIRE LINE ENTRY AND ISOLATION VALVE.
2. UNDERGROUND PIPING SHALL BE DIP UP THROUGH FLOOR, ABOVE GROUND PIPING WILL BE HIGH PRESSURE CLASS WITH HIGH PRESSURE VICTAULIC COUPLINGS.
3. NEW 6" FDC PIPING INTO BUILDING AND CONNECTION TO STANDPIPES.

3 SEE SITE / CIVIL FOR CONTINUATION

2 SEE SITE / CIVIL FOR CONTINUATION



1 1ST FLOOR ENLARGED PLAN - FIRE PUMP ROOM (BASE BID)  
SCALE: 1/2" = 1'-0"

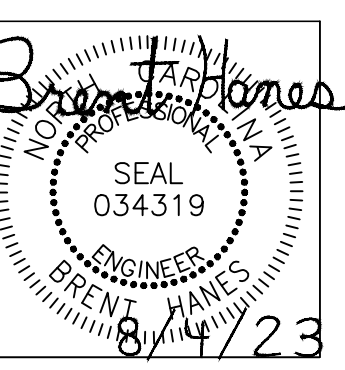


FIRE LEGEND	
1HR RATED FIRE BARRIER	--- --
2HR RATED FIRE BARRIER	--- - -

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023	DESIGNER:	DATE:	DESIGNER:
	DN BY:		DN BY:
	CK BY:		CK BY:
	REV:		REV:



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5909 Falls of Neuse Rd.  
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Ph: 919.840.9300  
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Sigma Project #: 22053  
NC ENG LIC# C2480

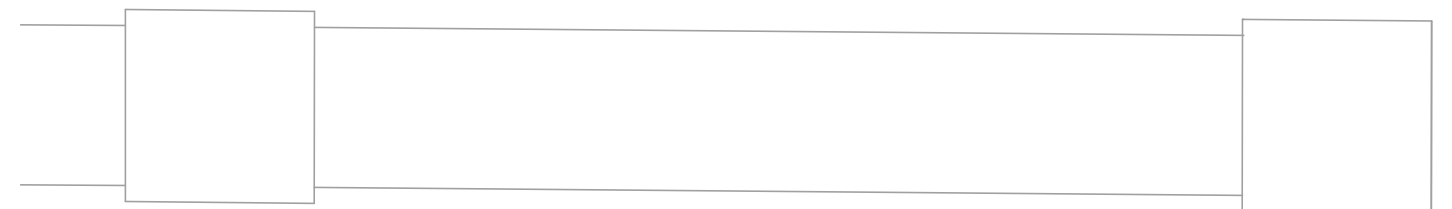


POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SCOID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F221**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



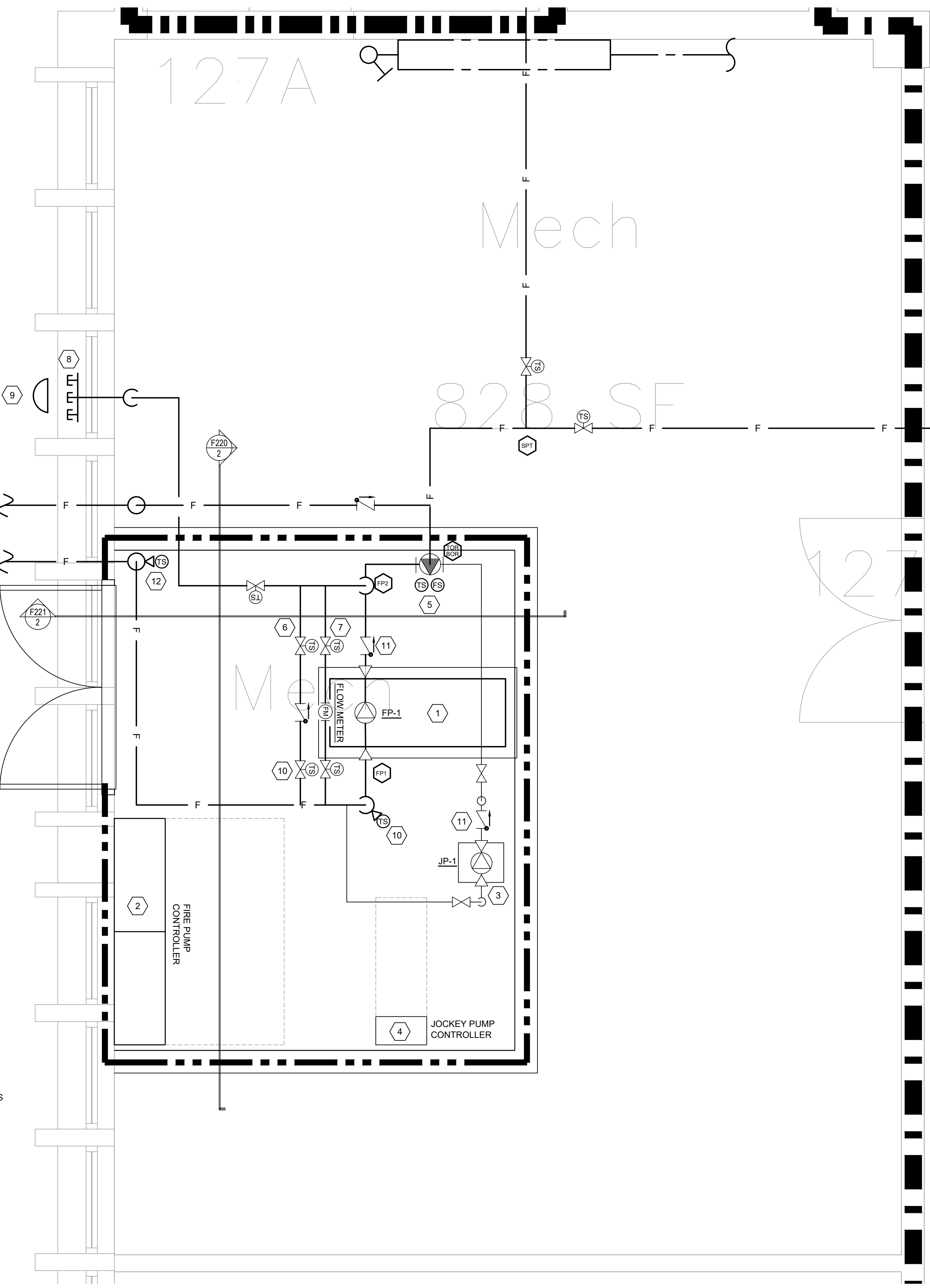
**GENERAL NOTES:**

1. REFER TO SHEET F001 FOR ADDITIONAL NOTES AND LEGEND.
2. ALL FIRE SERVICE PIPING ON THIS PLAN IS 6", WITH THE EXCEPTION OF JOCKEY PUMP PIPING THAT IS 3/4".

**KEYED NOTES 1/F221:**

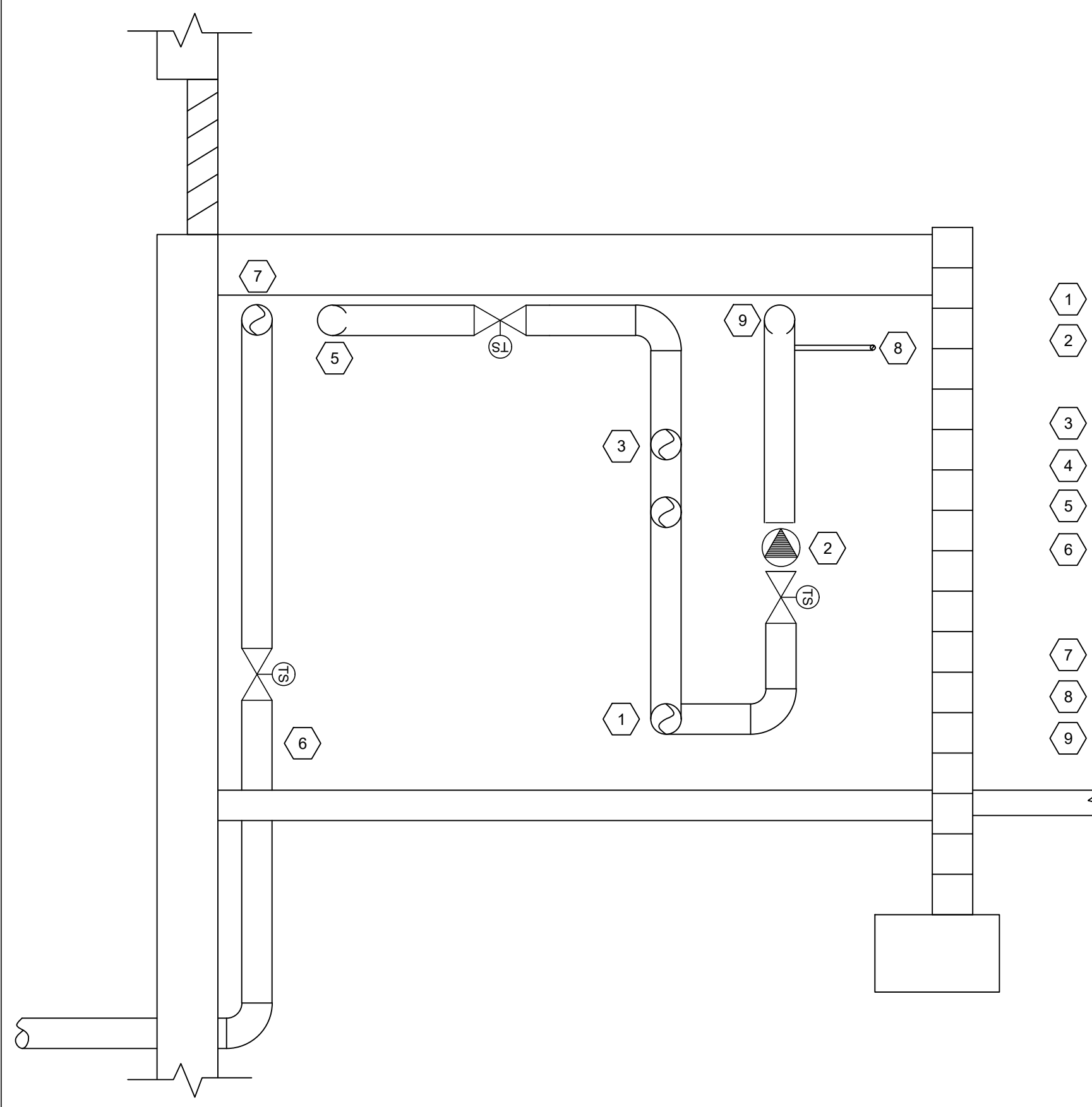
- 1 FIRE PUMP INSTALLED ON NEW 4" HOUSEKEEPING PAD.
- 2 FIRE PUMP CONTROLLER, TRANSFER SWITCH CABINET AND ASSOCIATED SENSING LINES.
- 3 JOCKEY PUMP INSTALLED ON NEW 4" HOUSEKEEPING PAD.
- 4 JOCKEY PUMP CONTROLLER AND ASSOCIATED SENSING LINES.
- 5 SYSTEM RISER WITH MAIN OS&Y ISOLATION VALVE, TAMPER SWITCH AND ALARM CHECK WITH FLOW SWITCH.
- 6 BY-PASS LINE. SHOWN OFFSET FOR CLARITY, MAY BE STACKED OVER PUMP.
- 7 FLOW METER TESTING LINE, SHOWN OFFSET FOR CLARITY, MAY BE STACKED OVER PUMP.
- 8 PUMP TEST HEADER, MOUNT 42" A.F.G.
- 9 10" ELECTRIC 24V ALARM BELL, MOUNT 72" A.F.G.
- 10 TYPICAL BUTTERFLY VALVE WITH TAMPER SWITCH.
- 11 TYPICAL CHECK VALVE.
- 12 OS&Y VALVE WITH TAMPER SWITCH.
- 13 UNDERGROUND PIPING SHALL BE DIP UP THROUGH FLOOR, ABOVE GROUND PIPING WILL BE HIGH PRESSURE CLASS WITH HIGH PRESSURE VICTAULIC COUPLINGS.
- 14 NEW 6" FDC PIPING INTO BUILDING AND CONNECTION TO STANDPIPES.

- 14 SEE SITE / CIVIL FOR CONTINUATION
- 13 SEE SITE / CIVIL FOR CONTINUATION

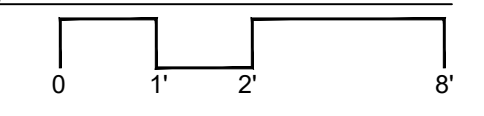


**KEYED NOTES 2/F221:**

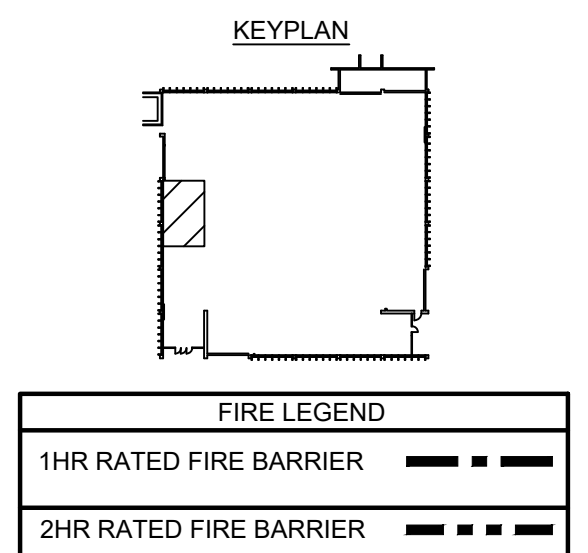
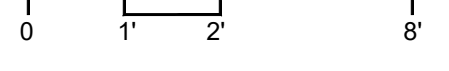
- 1 DISCHARGE PIPE FROM FIRE PUMP.
- 2 SYSTEM RISER WITH MAIN OS&Y ISOLATION VALVE, TAMPER SWITCH AND ALARM CHECK WITH FLOW SWITCH.
- 3 BY-PASS LINE.
- 4 FLOW METER TESTING LINE.
- 5 PUMP TEST HEADER PIPING.
- 6 MAIN FIRE LINE ENTRY. UNDERGROUND PIPING SHALL BE DIP UP THROUGH FLOOR, ABOVE GROUND PIPING WILL BE HIGH PRESSURE CLASS WITH HIGH PRESSURE VICTAULIC COUPLINGS.
- 7 TO PUMP SUCTION SIDE.
- 8 JOCKEY PUMP PIPE CONNECTION TO SYSTEM.
- 9 TO STANDPIPE SYSTEM.



2 PUMP ROOM SECTION VIEW  
SCALE: 1/2" = 1'-0"

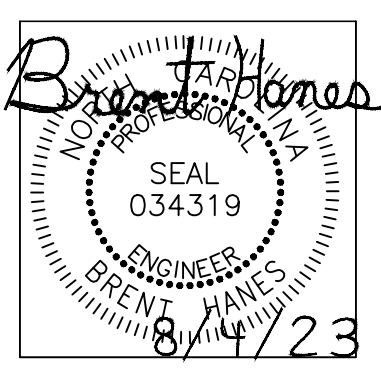


1 1ST FLOOR ENLARGED PLAN - FIRE PUMP ROOM (ALTERNATE - 1)  
SCALE: 1/2" = 1'-0"



FIRE LEGEND	
1HR RATED FIRE BARRIER	---
2HR RATED FIRE BARRIER	----

DATE: 08-04-2023	DESIGNER:	DATE:	DESIGNER:
	DN BY:		DN BY:
	CK BY:		CK BY:
	REV:		REV:



Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd.  
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Sigma Project #: 22053  
NC ENG LIC# C2480



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.

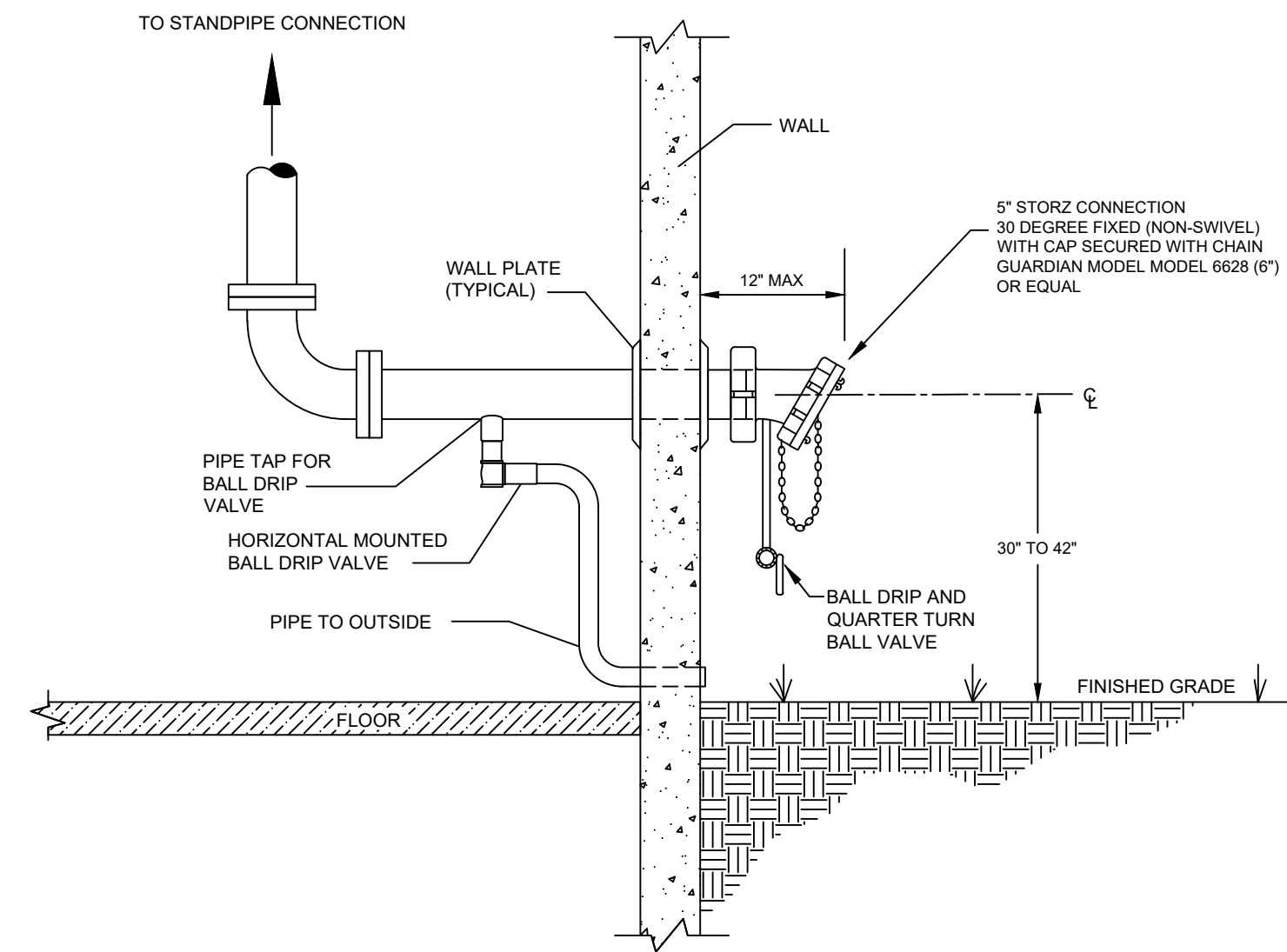
**F221**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL

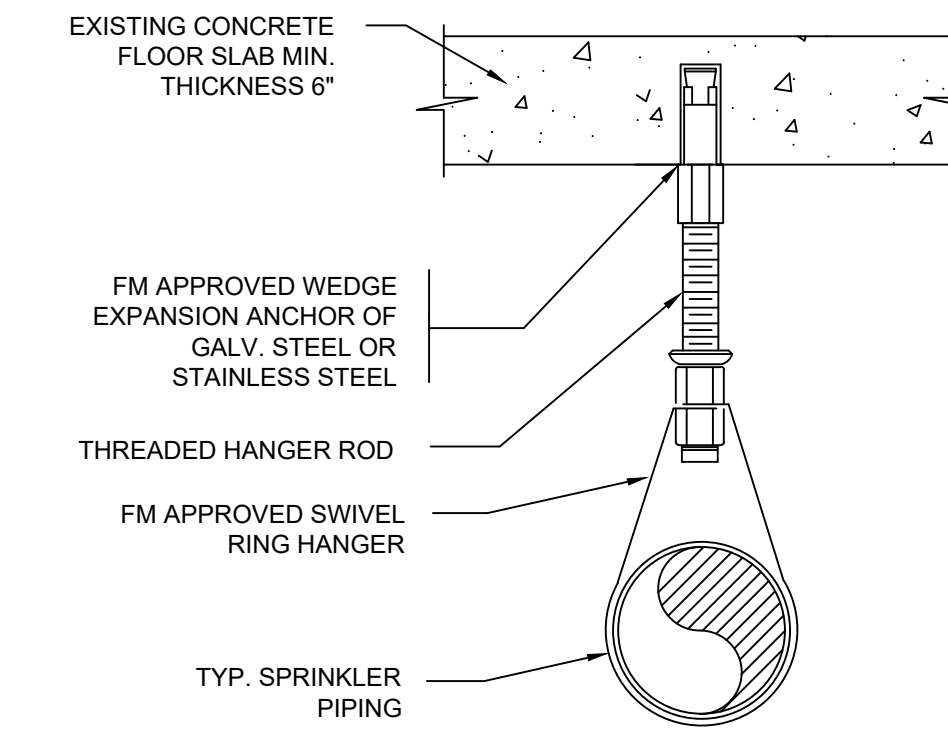
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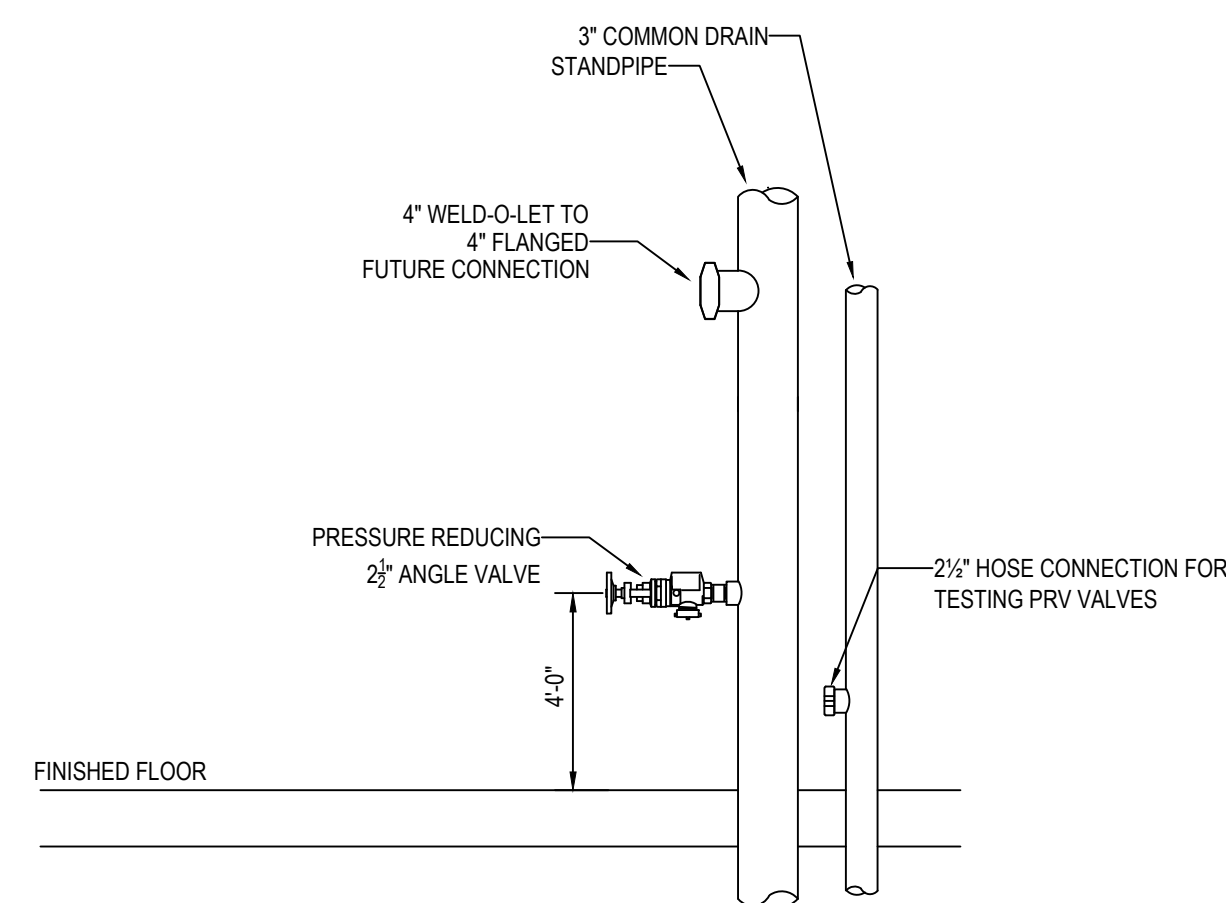


1 FDC CONNECTION DETAIL  
SCALE: NTS

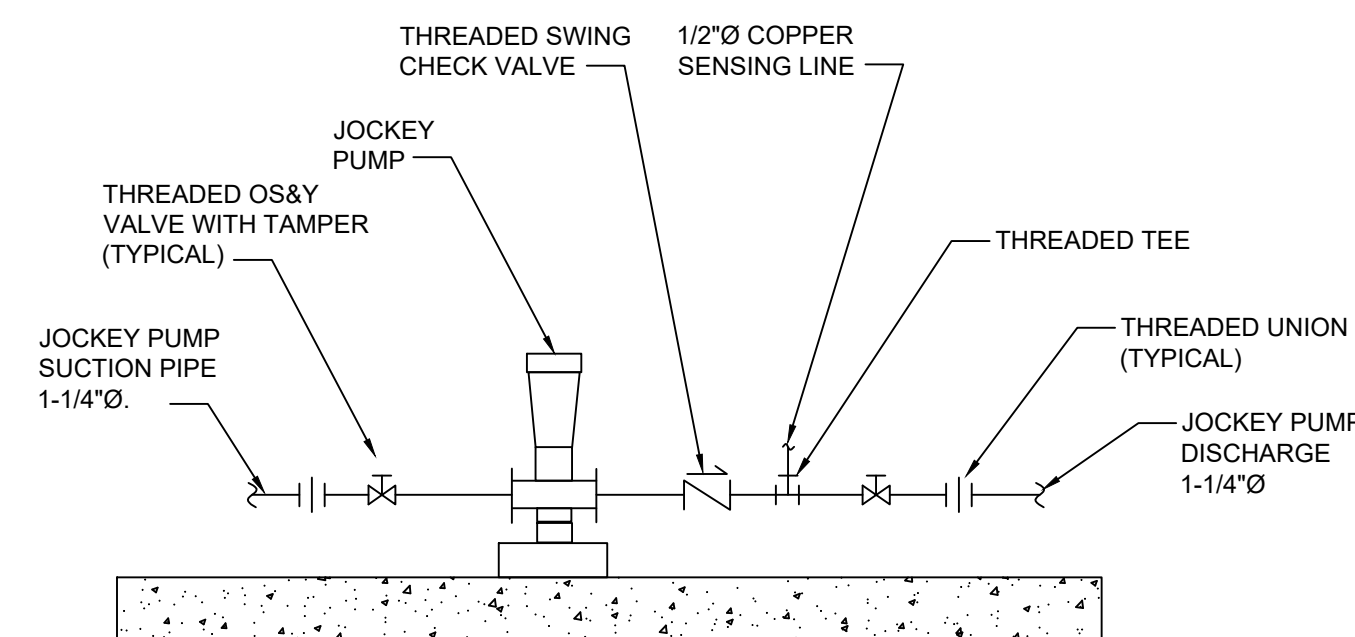
HANGER INSTALLATION REQUIREMENTS									
MAXIMUM DISTANCE BETWEEN HANGERS									
NOMINAL PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
BLAZEMASTER CPVC	5' 6"	6' 0"	6' 6"	7' 0"	8' 0"	9' 0"	10' 0"	N/A	N/A
THREADABLE LIGHTWALL	N/A	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	N/A	N/A
STEEL PIPE (10/40)	N/A	12' 0"	12' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"



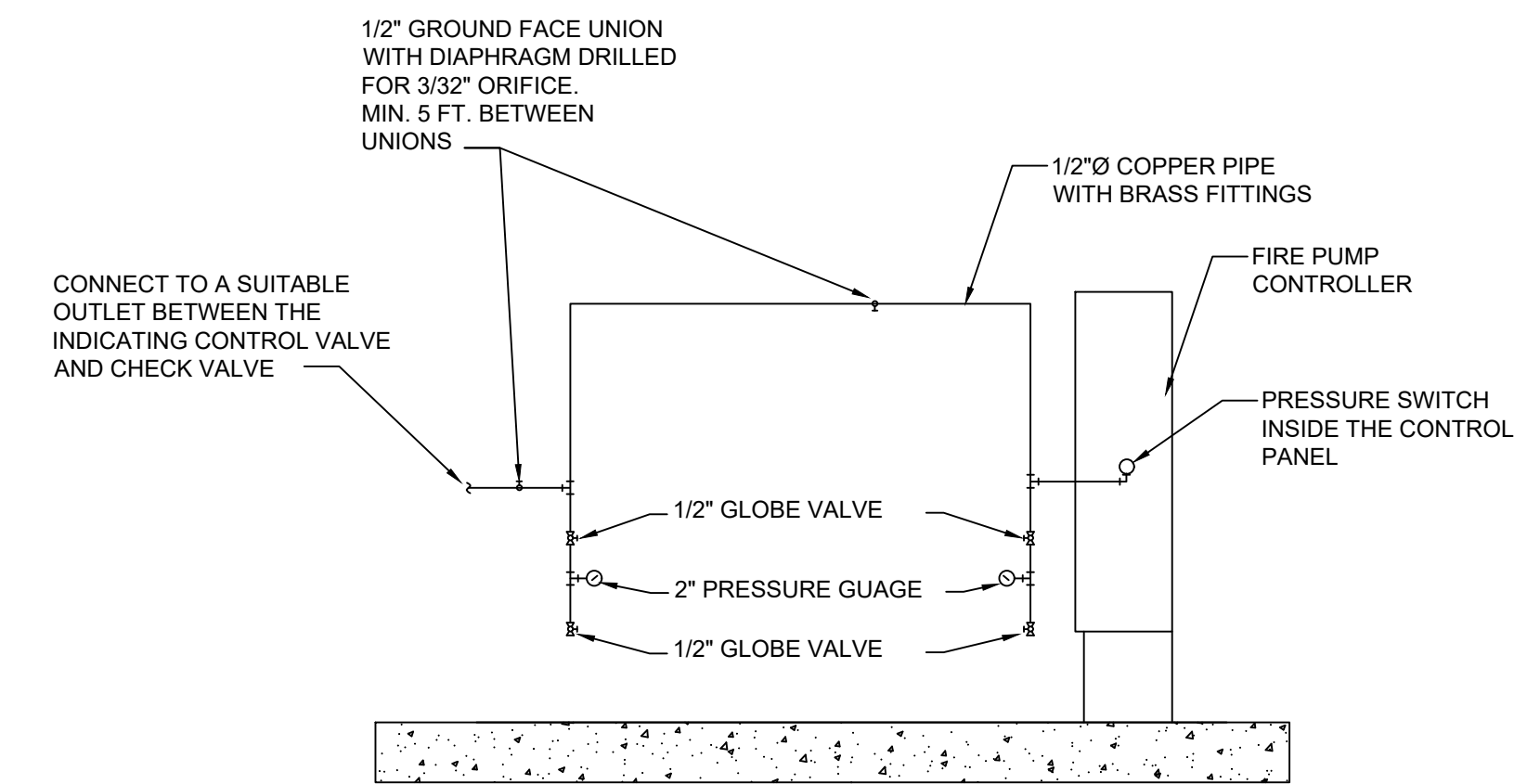
5 PIPE HANGER DETAIL  
SCALE: NTS



2 STANDPIPE DETAIL  
SCALE: NTS

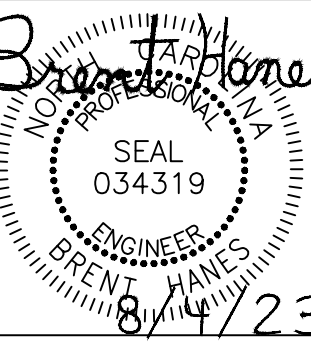


4 JOCKEY PUMP PIPING DETAIL  
SCALE: NTS



6 CONTROLLER SENSING LINE DETAIL  
SCALE: NTS

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 DESNR:  
 DNB:Y:  
 CK BY:  
 REV: 00X CD



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 NC ENG LIC# C2490



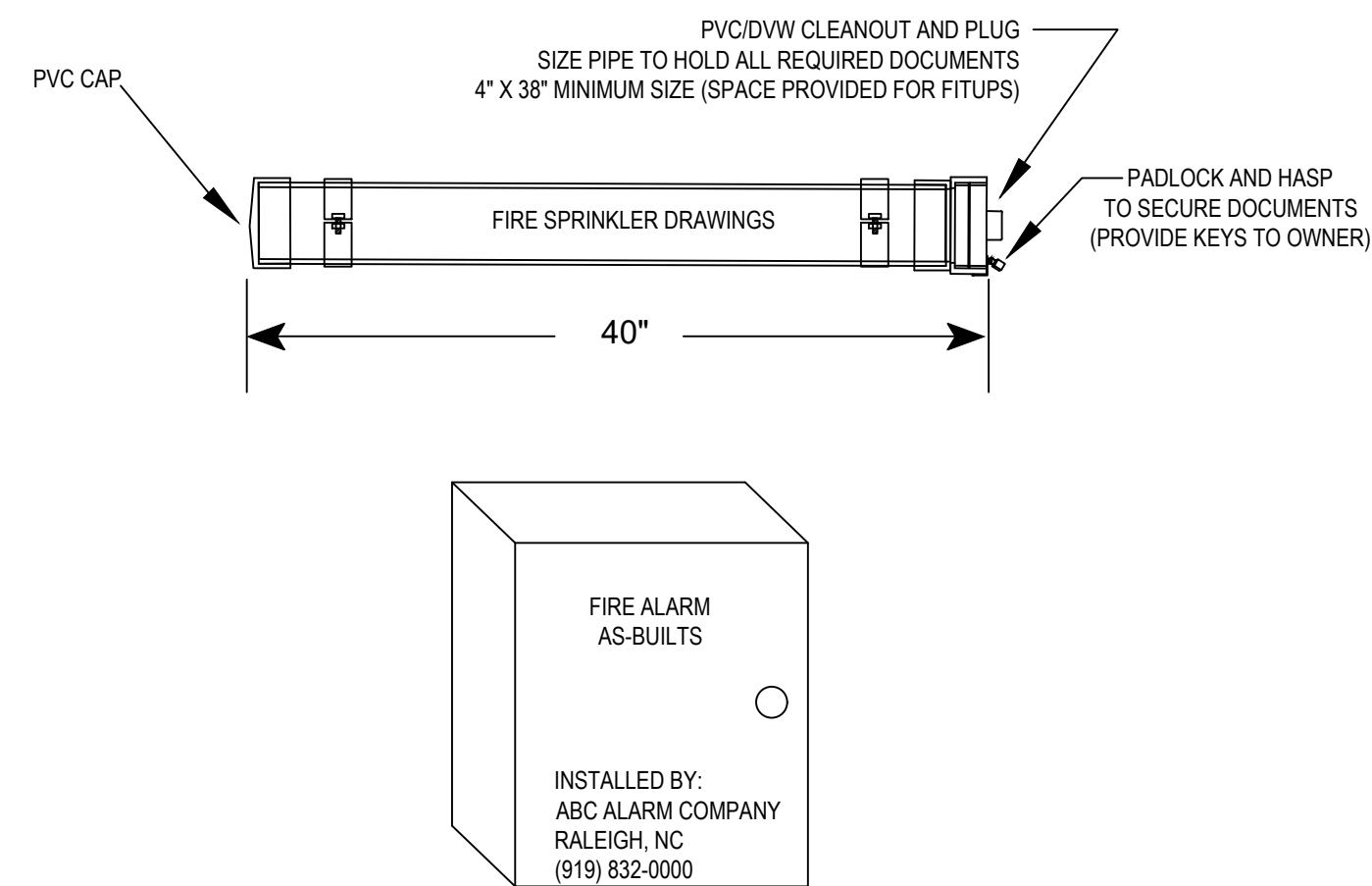
POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F300**

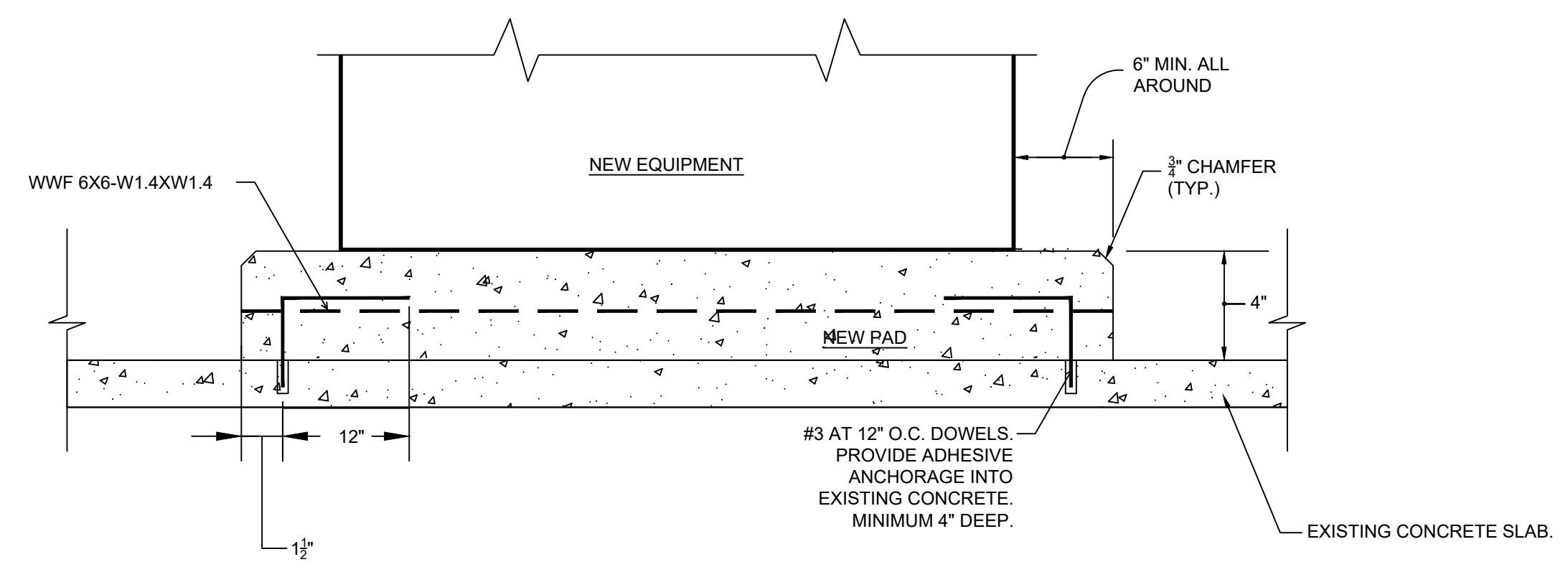
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 22053  
 NCSU Proj. No.  
 202220008

FAC NAME  
 POE HALL

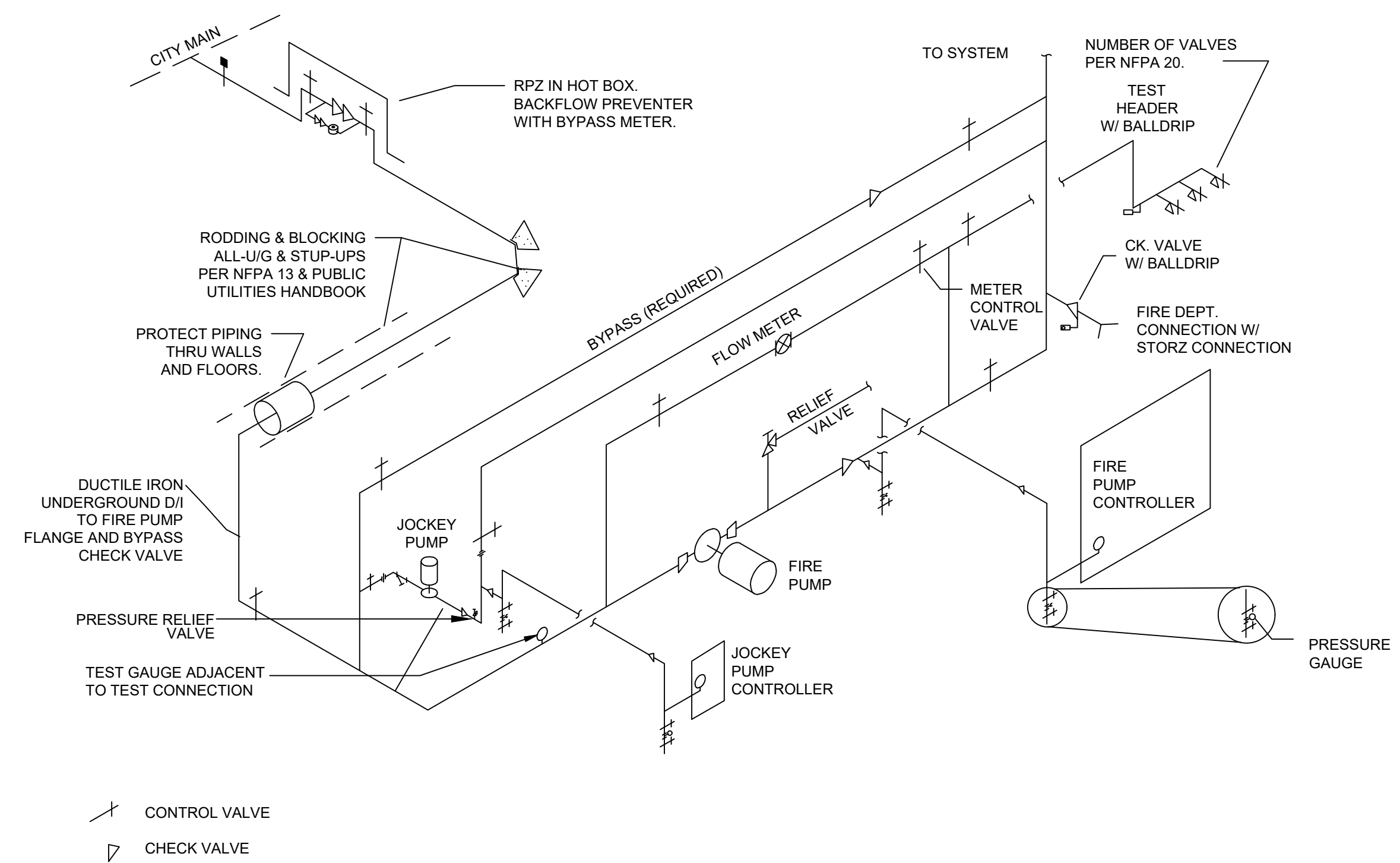
FAC. NO. 024



1 SCO DOCUMENT STORAGE REQUIREMENTS  
SCALE: NTS

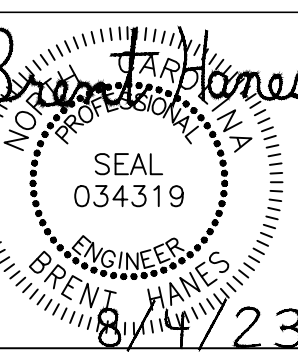


3 NEW EQUIPMENT PAD DETAIL  
SCALE: NTS



4 FIRE PUMP SYSTEM SCHEMATIC  
SCALE: NTS

DATE:	08-04-2023
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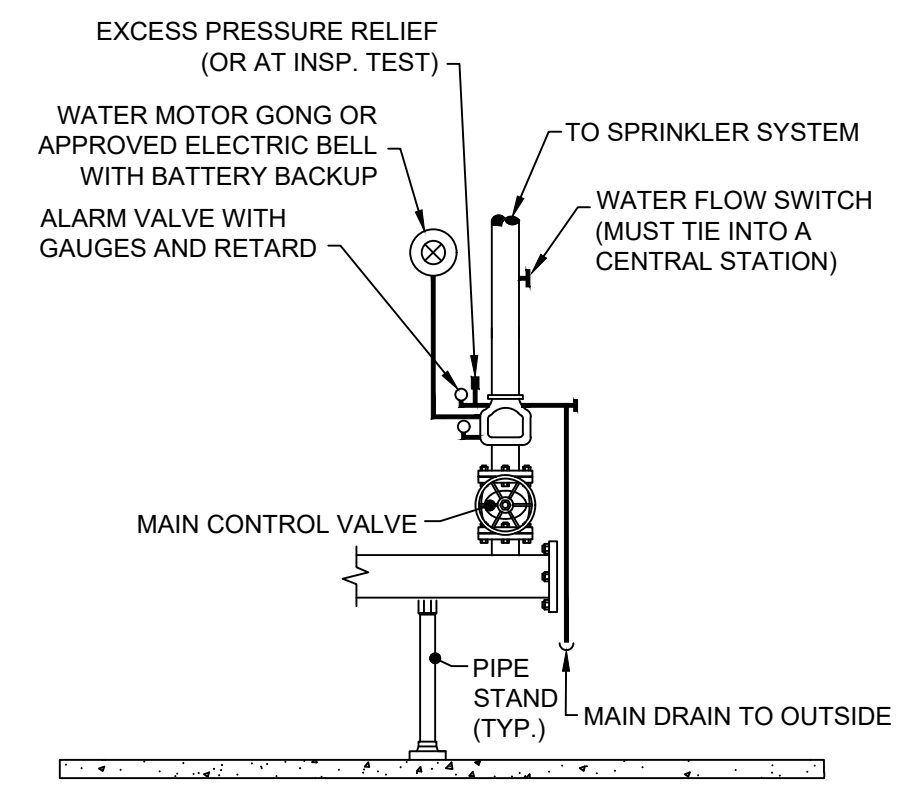
POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SCOID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F301**

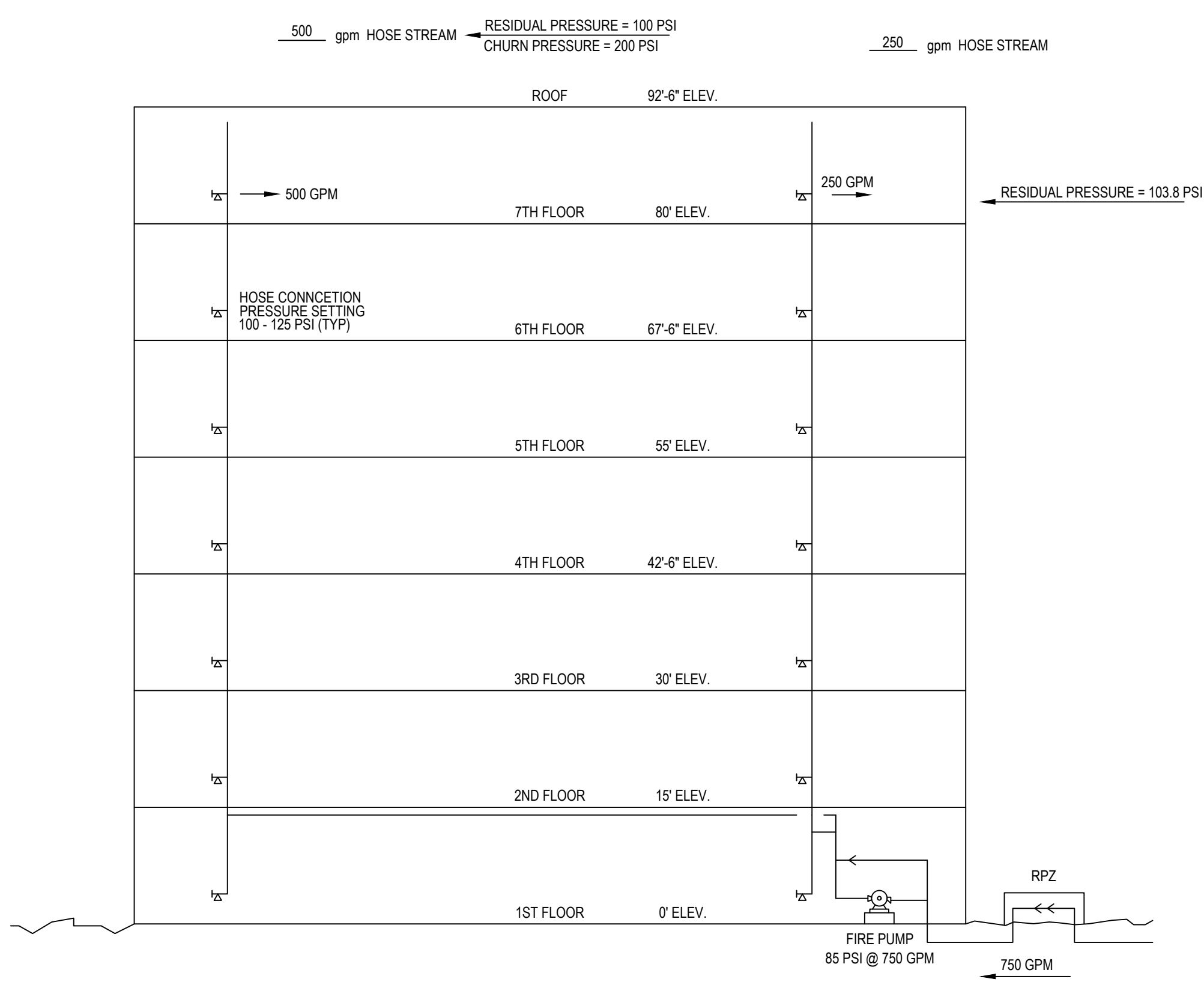
Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL

FAC. NO. 024



1 SYSTEM RISER DETAIL  
SCALE: NTS



3 STANDPIPE RISER DETAIL  
SCALE: NTS

FIRE RATED PENETRATION DETAILS

SYSTEM NO. C-JA-1001  
MARCH 05 2007  
F RATINGS-3 & 4 HR (SEE ITEM 2 AND 3)  
T RATINGS-0 HR  
W RATING - CLASS 1 (SEE ITEM 4)

SECTION A-A

1. FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAX DIAM OF CIRCULAR THROUGH OPENING IS 32-1/2 IN.

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

1A. STEEL SLEEVE - (OPTIONAL, NOT SHOWN) - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL. AS AN ALTERNATE, NOM 12 IN DIAM (OR SMALLER) SLEEVE FABRICATED FROM NOM 0.019 IN THICK GALV STEEL CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY FLUSH WITH FLOOR OR WALL SURFACE.

2. THROUGH-PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 1-3/8" IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

A. STEEL PIPE - NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.  
A1. IRON PIPE - NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.  
B. CONDUIT - NOM 6 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT.  
C. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.

3. PACKING MATERIAL - POLYETHYLENE BACKER ROD OR NOM 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL WOOL BATT OR GLASS FIBER INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF SOLID CONCRETE OR CONCRETE BLOCK WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4), AS AN ALTERNATE WHEN MAX PIPE SIZE IS 10 IN. DIAM AND WHEN MAX ANNULAR SPACE IS 1 IN. OR, A MIN 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OF MINERAL WOOL BATT PACKING MATERIAL MAY BE RECESSED MIN 1/2 IN. FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF SOLID CONCRETE WALL.

4. FILL, VOID OR CAVITY MATERIALS\* - CAULK - APPLIED TO FILL THE ANNULAR SPACE TO THE MIN THICKNESS SHOWN IN THE FOLLOWING TABLE:

MAX PIPE DIAM IN	MAX ANNULAR SPACE IN.	PACKING MATERIAL TYPE (A)	MIN. CAULK THKNS IN
10	1	BR, CF, GF OR MW	1/2 (B)
10	1	CF OR MW	1/2 (C)
30	2-1/2	BR, CF, GF OR MW	1 (B)

(A) BR= POLYETHYLENE BACKER ROD.  
CF= CERAMIC FIBER BLANKET.  
GF= GLASS FIBER INSULATION.  
MW= MINERAL WOOL BATT

(B) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL

(C) CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF SOLID (NON-CONCRETE BLOCK) WALL.

3M COMPANY - TYPE CP 25WB+ OR FB-3000 WT

(NOTE - W RATING APPLIES ONLY WHEN FB-3000 WT IS USED ON TOP SURFACE OF FLOOR AND WHEN IT LAPS ONTO CONCRETE FOR SLEEVED OPENING.)

\* BEARING THE UL CLASSIFICATION MARKING.

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2 UL PENETRATION DETAILS  
SCALE: NTS

SYSTEM NO. WL1001  
JUNE 15 2005  
F RATINGS-1, 2, 3 AND 4 HR (SEE ITEM 2 AND 3)  
T RATINGS-0, 1, 2, 3, AND 4 HR (SEE ITEM 3)  
L RATING AT AMBIENT - LESS THAN 1 CFM PER SQ. FT.  
L RATING AT 400°F - LESS THAN 1 CFM PER SQ. FT.

SECTION A-A

1. THE 1, 2, 3 OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE WALL ASSEMBLY CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 B FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.

B. WALLBOARD, GYPSUM\* - NOM 1/2 OR 5/8 IN. THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.

2. THROUGH - PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX MAX 2 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

A. STEEL PIPE - NOM 24 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.  
B. IRON PIPE - NOM 24 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE LINE PRESSURE PIPE.  
C. CONDUIT - NOM 6 IN. DIAM. (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.  
D. COPPER TUBING - NOM 24 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.  
E. COPPER PIPE - NOM 24 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.  
F. THROUGH PENETRATING OR DUCT\* - FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:

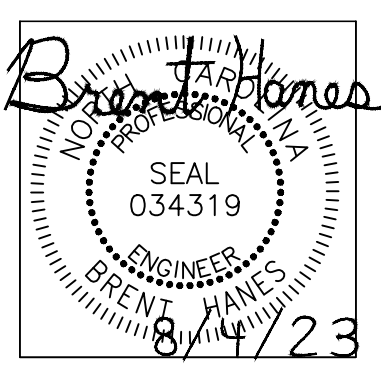
3. FILL, VOID OR CAVITY MATERIAL\* - CAULK OR SEALANT - MIN 5/8, 1-1/4, 1-7/8 AND 2-1/2 IN THICKNESS OF CAULK FOR 1, 2, 3, 4 HR RATED ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS. FLUSH WITH BOTH SURFACES OR WALL. MIN 1/4 IN DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT LOCATION ON BOTH SIDE OF WALL. THE HOURLY F RATING OF THE FIRESTOP IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW.

MAX PIPE OR CONDUIT DIAM, IN	F RATING HR	T RATING HR
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
4	1 or 2	0
6	3 or 4	0
12	1 or 2	0

\*WHEN COPPER PIPE IS USED, T RATING IS 0 H.  
3M COMPANY - CP 25WB+ OR FB-3000 WT.  
\*BEARING THE UL CLASSIFICATION MARKING.

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DATE: 06-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REV: 0001 CD



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Sigma Project #: 22053  
NC ENG LIC# C-2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC010#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**F302**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL

FAC. NO. 024

PLUMBING LEGEND	
SYMBOL SCHEDULE	ABBREVIATIONS
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER SUPPLY
	DOMESTIC HOT WATER RETURN
	GAS
	WASTE
	VENT
	PIPE ELBOW TURNS DOWN; UP
	PIPE TEES DOWN; UP
	PIPE CAP
	BALL VALVE
	CHECK VALVE
	CIRCUIT SETTER
	FLOOR CLEANOUT
	END-OF-LINE CLEANOUT
	CLEANOUT AT FINISH WALL (WCO)
AFC	ABOVE FINISH CEILING
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AFH	ANTI-FREEZE HYDRANT
AAV	AIR ADMITTANCE VALVE
BFF	BELOW FINISHED FLOOR
CI	CAST IRON
CO	CLEANOUT
CW	COLD WATER
DNT	DO NOT TAP
EWC	ELECTRIC WATER COOLER
(EX)	EXISTING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDP	FLOOR DRAIN PARKING
FPHB	FREEZE-PROOF HOSE BIBB
GPH	GALLONS PER HOUR
HB	HOSE BIBB
	CONNECT TO EXISTING
	POINT OF DEMOLITION
HD	HUB DRAIN
GCO	GRADE CLEANOUT
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
IW	INDIRECT WASTE
LAV	LAVATORY
TYP	TYPICAL
UR	URINAL
V	VENT
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
YCO	YARD CLEANOUT

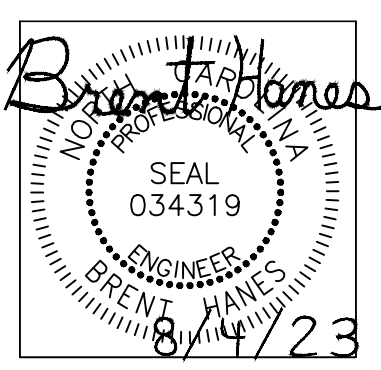
GENERAL PLUMBING NOTES
1. NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS DRAWING MAY BE USED ON THIS PROJECT.
2. ALL PLUMBING WORK SHALL BE FURNISHED AND INSTALLED PER THE STATE OF NORTH CAROLINA BUILDING CODE: PLUMBING CODE 2018.
3. UNLESS OTHERWISE NOTED ON DRAWINGS, ALL 1/2"-2 1/2" SANITARY WASTE AND VENT PIPING SHALL BE RUN AT 1/8" PER FT SLOPE. ALL 3"-6" SANITARY WASTE AND VENT PIPING SHALL BE RUN AT 1/4" PER FT SLOPE. ALL WASTE AND VENT PIPING 8" OR LARGER SHALL BE RUN AT 1/8" PER FT SLOPE. ALL STORM DRAINAGE PIPING SHALL BE RUN AT 1/4" PER FT SLOPE.
4. THE DESIGN/DETAIL/SCHEDULE SHOWN IS BASED ON (MANUFACTURER, MODEL) EQUIPMENT AND IS INTENDED ONLY TO SHOW THE GENERAL SIZE, CONFIGURATION, LOCATION, CONNECTIONS, AND/OR SUPPORT FOR EQUIPMENT OR SYSTEMS SPECIFIED WITH RELATION TO THE OTHER BUILDING SYSTEMS.
5. INSTALL ALL PIPING AT THE MAXIMUM ELEVATION POSSIBLE. PROVIDE ALL FITTINGS, TRANSITIONS AND MATERIALS REQUIRED TO ACHIEVE MAXIMUM ELEVATION. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO THE START OF WORK TO AVOID CONFLICTS.
6. CONTRACTOR SHALL FURNISH ALL DISCONNECTS REQUIRED FOR PLUMBING EQUIPMENT.
7. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MANUFACTURER SUBSTITUTIONS OF PLUMBING EQUIPMENT. SUBMIT A DESCRIPTION OF ANY/ALL CHANGES REQUIRED BY THE SUBSTITUTION, INCLUDING ELECTRICAL AND MECHANICAL CONNECTIONS, SIZES, WEIGHTS, AND CLEARANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COST ASSOCIATED WITH THE SUBSTITUTION.
8. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS. THE CONTRACTOR SHALL INFORM THE ARCHITECT AND/OR ENGINEER OF ANY CONFLICTS AS SOON AS THEY ARE DETECTED.
9. CONTRACTORS MUST CAREFULLY COORDINATE THE ARRANGEMENT AND INSTALLATION OF THE DUCT, PIPING, AND CONDUIT IN THE MECHANICAL CHASES PRIOR TO THE START OF WORK. ALL PENETRATIONS SHALL BE SLEEVED AND FIRE-PROOFED.
10. ALL WORK SHALL BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS SPECIFICALLY MARKED "EX", "EXISTING", OR "EXIST".
11. VERIFY LOCATIONS AND DIMENSIONS OF ALL EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR TO THE START OF CONSTRUCTION.
12. THESE DRAWINGS ARE NECESSARILY DIAGRAMMATIC IN NATURE. NOT ALL FITTINGS, OFFSETS, VENTS, OR DRAINS ARE SHOWN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING AND INCLUDE ALL FITTINGS, OFFSETS, VENTS, AND DRAINS AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM.

PLUMBING FIXTURE SCHEDULE												
MARK	FIXTURE	FIXTURE				FAUCET					REMARKS	COMPLIES WITH ADA
		SPECIFICATION/DESCRIPTION	SAN	VENT	PICTURE	DESCRIPTION	COLD WATER	HOT WATER	FLOW RATE	PICTURE		
FD-1	FLOOR DRAIN	ZURN Z415B FLOOR DRAIN WITH ADJUSTABLE STRAINER. 6" ROUND NICKEL BRONZE STRAINER. PROVIDE WITH P-TRAP.	3"	1 1/2"		-	-	-	-	-	REFER TO DRAWING DETAILS COORDINATE WITH GEN. CONSTR. WORK TO SET THE FLOOR DRAIN FLUSH WITH FIN. FLOOR ADJUSTED FOR FLOOR SLOPE REQUIRED.	

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
 \* BOX 7216 \* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
 DESNR:  
 DN BY:  
 CK BY:  
 REV: 00X.CD



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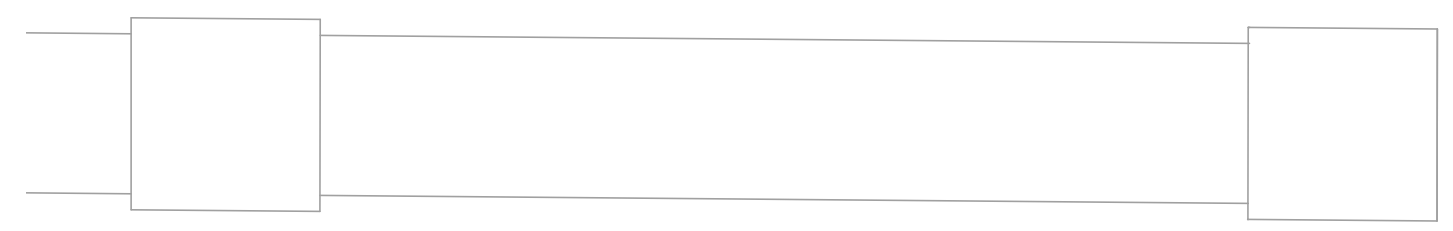
POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**P001**

Designer Proj. No.  
 22053  
 NCSU Proj. No.  
 202220008

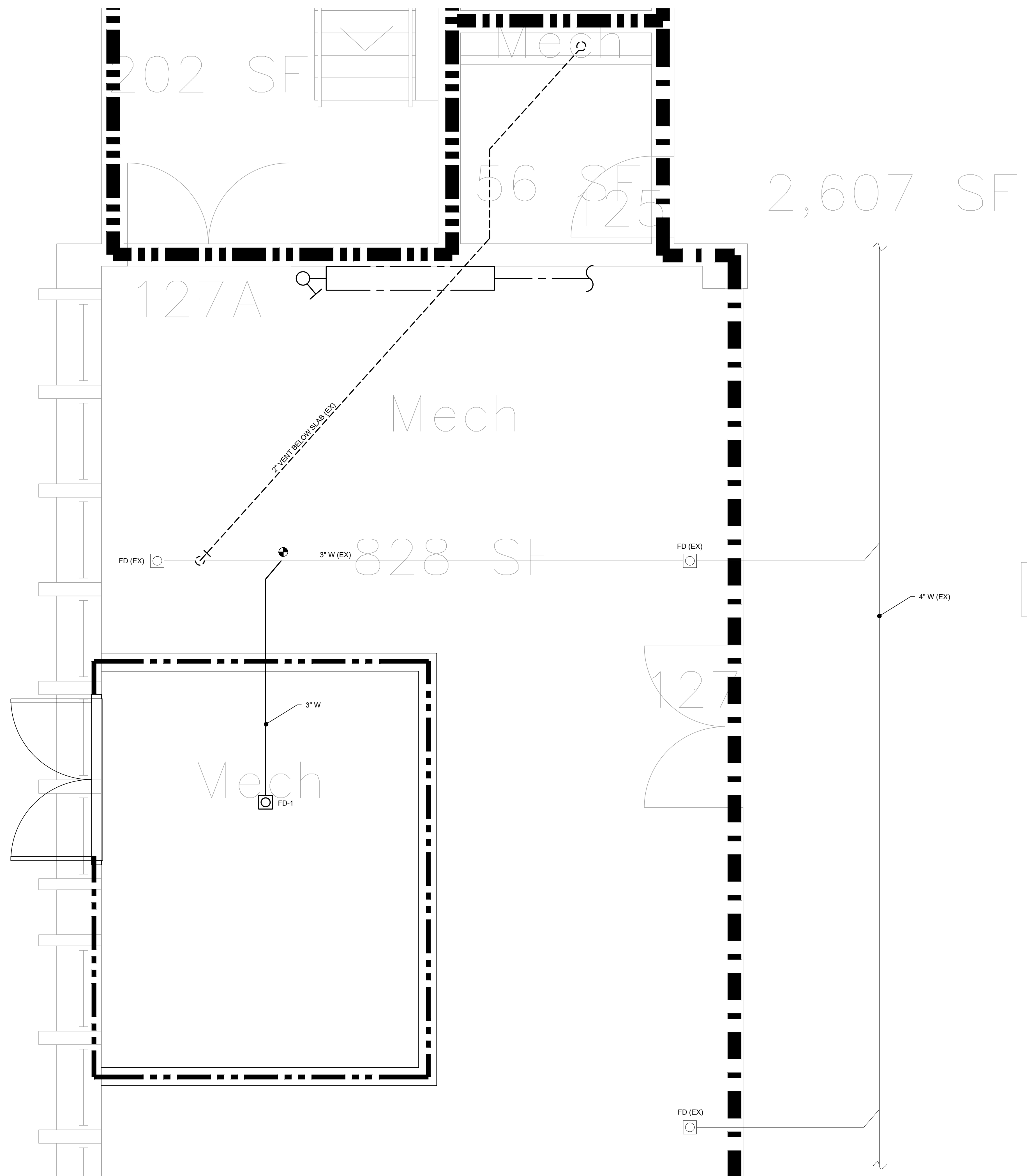
FAC. NAME  
 POE HALL

FAC. NO. 024

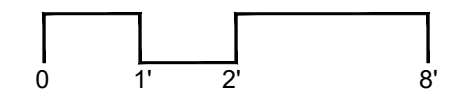


**GENERAL NOTES:**

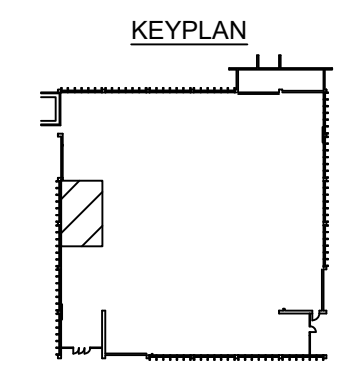
1. REFER TO SHEET P001 FOR ADDITIONAL NOTES AND LEGEND.



1 1ST FLOOR ENLARGED PLAN - FIRE PUMP ROOM  
SCALE: 1/2" = 1'-0"



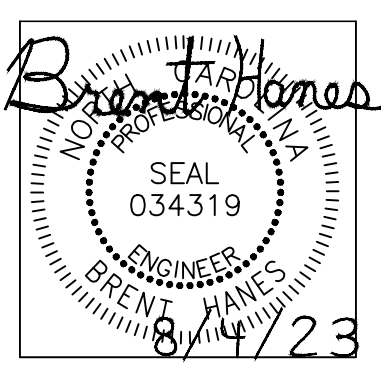
FIRE LEGEND	
1HR RATED FIRE BARRIER	--- --
2HR RATED FIRE BARRIER	--- - -



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DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

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NC ENG LIC# C2480

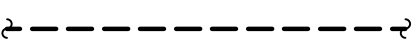
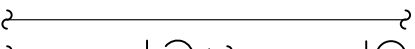
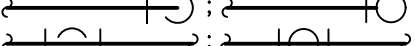
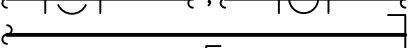

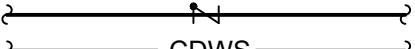

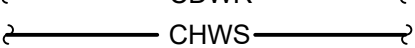

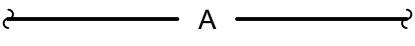
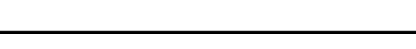


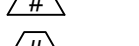





POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SCOID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**P201**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024

MECHANICAL LEGEND	
<b>PIPING SYMBOLS</b>	<b>MISCELLANEOUS SYMBOLS AND ABBREVIATIONS</b>
 REMOVE EXISTING PIPE  EXISTING PIPE TO REMAIN  PIPE ELBOW TURNS DOWN; UP  PIPE TEES DOWN; UP  PIPE CAP  BALL VALVE  CHECK VALVE  CDWS CONDENSATE WATER SUPPLY  CDWR CONDENSATE WATER RETURN  CHWS CHILL WATER SUPPLY  CHWR CHILL WATER RETURN  A COMPRESSED AIR	 REVISION NOTES  SPECIFIC OR NEW WORK NOTES  CONNECT TO EXISTING  POINT OF DEMOLITION  SUBJECT OF DEMOLITION

**GENERAL NOTES:**

- THE DRAWINGS SHOW THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE MECHANICAL INSTALLATION WITH THE STRUCTURE AND OTHER TRADES AND SHALL PROVIDE ADDITIONAL OFFSETS AND FITTINGS AS NECESSARY.
- PRIOR TO BIDDING, THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED AND SHALL INCLUDE IN THE BID ALL WORK REQUIRED FOR A COMPLETE JOB. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS A MINIMUM OF FIVE DAYS PRIOR TO BID.
- THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS SHALL COMPLY WITH THE 2018 NORTH CAROLINA MECHANICAL CODE AND NFPA 90A.
- THE CONTRACTOR SHALL CHECK AND VERIFY ALL CLEARANCES PRIOR TO FABRICATION OR INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING SYSTEMS. WHERE CONDITIONS REQUIRE A CHANGE IN DUCT OR PIPE ROUTING, NOTIFY THE ENGINEER FOR AN ACCEPTABLE ALTERNATIVE METHOD. AVOID ROUTING DUCTWORK DIRECTLY OVER LIGHT FIXTURES, DIFFUSERS, AND OTHER CEILING MTD. DEVICES. LOCATE ALL MECHANICAL EQUIPMENT SO THAT FILTERS AND COMPONENTS REQUIRING ACCESS (SERVICE AND MAINTENANCE) ARE FULLY ACCESSIBLE.
- ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH PRESCRIBED CLEARANCES FOR SERVICE AND MAINTENANCE. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER IF RECOMMENDED CLEARANCES ARE NOT POSSIBLE BEFORE INSTALLING EQUIPMENT.
- THE CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF FIRE RATED WALLS/FLOORS/CEILINGS BY DUCTWORK PIPING, ETC., WITH U.L. LISTED FIRE STOPPING MATERIAL TO MAINTAIN FIRE RATING OF THE BARRIER.
- ANY DAMAGE OF EXTERIOR PIPE AND DUCT INSULATION CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AND RESTORED AT NO EXTRA COST TO THE OWNER.

**ELECTRIC UNIT HEATER SCHEDULE**

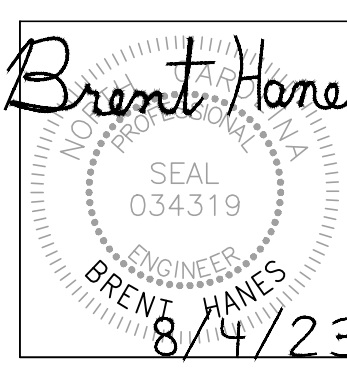
TAG	SERVICE	*MANUFACTURER/MODEL	MOUNT	CFM	WATTS	VOLTS/PHASE	NOTES
UH-1	FIRE PUMP ROOM	MARLEY	MUH0381-PRO	WALL	350	3 KW	208 / 1

**NOTES:**

- PROVIDE WITH WALL MOUNTED THERMOSTAT.
- EQUALS BY DAYTON, MARKEL, QMARK.

MECHANICAL ABBREVIATIONS					
AC	Air Conditioning	LAT	Leaving Air Temperature	<b>CONTROLS ABBREVIATIONS</b>	
ACH	Air Changes per Hour	LL	Low Limit	AI	Analog Input
AEE	Association of Energy Engineers	LOH	Local Operating Network	AO	Analog Output
AFD	Adjustable Frequency Drive	LP	Low Pressure	BACnet	Building Automation and Control Network Protocol
AFUE	Annual Fuel Efficiency Ratio	LRA	Locked Rotor Amps	BAS	Building Automation System
AHU	Air Handling Unit	LWBT	Leaving Wet Bulb Temperature	DCV	Demand Controlled Ventilation
BI	Backward Incline	LWT	Leaving Water Temperature	DDC	Direct Digital Control
BTU	British Thermal Unit	M&V	Measurement and Verification	DI	Digital Input
BTUH	British Thermal Units / Hour	MA	Mixed Air	DO	Digital Output
CAV	Constant Air Volume	MAT	Mixed Air Temperature	DP	Differential Pressure
CFC	ChloroFluoroCarbon	MC	Mechanical Contrator (Div 23)	dP	Pressure Differential
CC	Cooling Coil	MCC	Motor Control Center	dT	Temperature Differential
CFM	Cubic Feet per Minute	MUA	Make-up Air Unit	EMS	Energy Management System
COP	Coefficient Of Performance	MVD	Manual Volume Damper	NC	Normally Closed
CRAC	Computer Room Air Conditioner	MZ	Multi-Zone	NO	Normally Open
CV	Constant Volume	N/A	Not Applicable	OWS	Operator Work Station
DA	Discharge Air	NEMA	National Electrical Manufacturers Association	PID	Proportional Integral Derivative
DB	Dry Bulb	OA	Outside Air	SP	Set Point
DH	Duct Heater	OAT	Outside Air Temperature	SP	Static Pressure
DN	Down	OC	On Center	T	Thermostat
DP	Dew Point	ODP	Open Drip Proof		
DX	Direct Expansion	PC	Plumbing Contrator (Div 22)	<b>HYDRONIC SYSTEM ABBREVIATIONS</b>	
EAT	Entering Air Temperature	PH	Pre-Heat	B	Boiler
EC	Electrical Contrator (Div 26, 27 or 28)	PHC	Pre-heat Coil	CH	Chiller
ECM	Electronically Commutated Motor	PTAC	Packaged Terminal Air Conditioner	CHW	Chilled Water
EDH	Electric Duct Heater	QTY	Quantity	CHWP	Chilled Water Pump
EER	Energy Efficiency Ratio	RA	Return Air	CHWR	Chilled Water Return
EF	Exhaust Fan	REF	Refrigerant	CHWS	Chilled Water Supply
EH	Electric Heater	RF	Return Fan	CT	Cooling Tower
EHC	Electric Heating Coil	RH	Reheat	CWP	Condenser Water Pump
ESP	External Static Pressure	RH	Relative Humidity	CWR	Condenser Water Return
ETR	Existing to Remove	RHC	Re-heat Coil	CWS	Condenser Water Supply
EUH	Electric Unit Heater	RPM	Revolutions Per Minute	EWT	Entering Water Temperature
EX	Existing	RTD	Resistance Temperature Detector	HPS	High Pressure Steam
FC	Forward Curve	RTU	Roof Top Unit	HPS	High Pressure Steam
FCU	Fan Coil Unit	SA	Supply Air	HWP	Hot Water Pump
FLA	Full Load Amps	SAT	Supply Air Temperature	HWR	Hot Water Return
FPM	Feet Per Minute	SC	Shading Coefficient	HWS	Hot Water Supply
FW	Feed Water	SEER	Seasonal Energy Efficiency Ratio	LPS	Low Pressure Steam
GC	General Contractor	SF	Supply Fan	LPS	Low Pressure Steam
GPM	Gallons Per Minute	SHFG	Solar Heat Gain Factor	MPS	Medium Pressure Steam
GUI	Graphical User Interface	TEV	Thermostatic Expansion Valve	NPSH	Net Positive Suction Head
HCFC	Hydrochlorofluorocarbon	TSP	Total Static Pressure	PRV	Pressure Relief Valve
HEPA	High Efficiency Particulate Arresting	TXV	Thermostatic Expansion Valve	PRV	Pressure Reducing Valve
HFC	HydroFluoroCarbon	UC	Undercut		
HL	High Limit	UH	Unit Heater		
HP	Horsepower	UV	UltraViolet		
HR	Heat Recovery	UV	Unit Ventilator		
HRRU	Heat Recovery Unit	VAV	Variable Air Volume		
HRV	Heat Recovery Ventilator	VFD	Variable Frequency Drive		
HSPF	Heating Seasonal Performance Factor	VSD	Variable Speed Drive		
HVAC	Heating Ventilation and Air Conditioning	WB	Wet Bulb		
HX	Heat Exchanger	WC	Water Column		
I/O	Input Output	XFER	Transfer		
IAQ	Indoor Air Quality				
IR	Infra-Red				

DATE:	06-04-2023
DESIGNER:	
DRAWN BY:	
CHECKED BY:	
REVISION:	



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 Sigma Project #: 22053  
 NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCODID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**M001**

Designer Proj. No.  
**22053**  
 NCSU Proj. No.  
**202220008**

FAC. NAME  
 POE HALL

FAC. NO. **024**

**GENERAL NOTES:**

- REFER TO SHEET M001 FOR ADDITIONAL NOTES AND LEGEND.
- ALL ACTIVE ENERGY METERING DEVICES CONNECTED TO KEP PANELS TO REMAIN.
- COORDINATE PRE-DEMOLITION SITE MEETING WITH ENGINEER OF RECORD PRIOR TO STARTING ANY DEMOLITION WORK.

**KEYED NOTES:**

- REMOVE ALL CONDENSER WATER SUPPLY AND RETURN PIPING FROM FLOOR PENETRATION TO CHILLER, CAP EXISTING PIPING AT FLOOR.
- REMOVE EXISTING CONDENSER WATER PUMP, PAD AND ALL ASSOCIATED ELECTRICAL.
- REMOVE EXISTING CHILLER, PAD AND ALL ASSOCIATED ELECTRICAL.
- REMOVE EXISTING CHILLER WATER PUMP, PAD AND ALL ASSOCIATED ELECTRICAL. REMOVE ALL PRIMARY LOOP PIPING BETWEEN CHILLER AND CAMPUS LOOP PIPING.
- EXISTING AIR COMPRESSOR TO BE RELOCATED AS PART OF PHASE I TO ALLOW CONSTRUCTION OF NEW FIRE PUMP ROOM. REFER TO NEW WORK FOR NEW LOCATION.
- STEEL SUPPORT STRUCTURE AND PAD TO BE REMOVED, VFD TO BE RELOCATED AS PART OF PHASE I.
- ABANDONED ENERGY METERS AND ASSOCIATED PIPING AND CONTROLS WIRING TO BE REMOVED TO ALLOW FOR NEW FIRE PUMP ROOM CONSTRUCTION.
- CONTROLS AIR COMPRESSED AIR LINE TO BE REMOVED TO POINT SHOWN AS PART OF PHASE I.

**PHASING NOTES:**

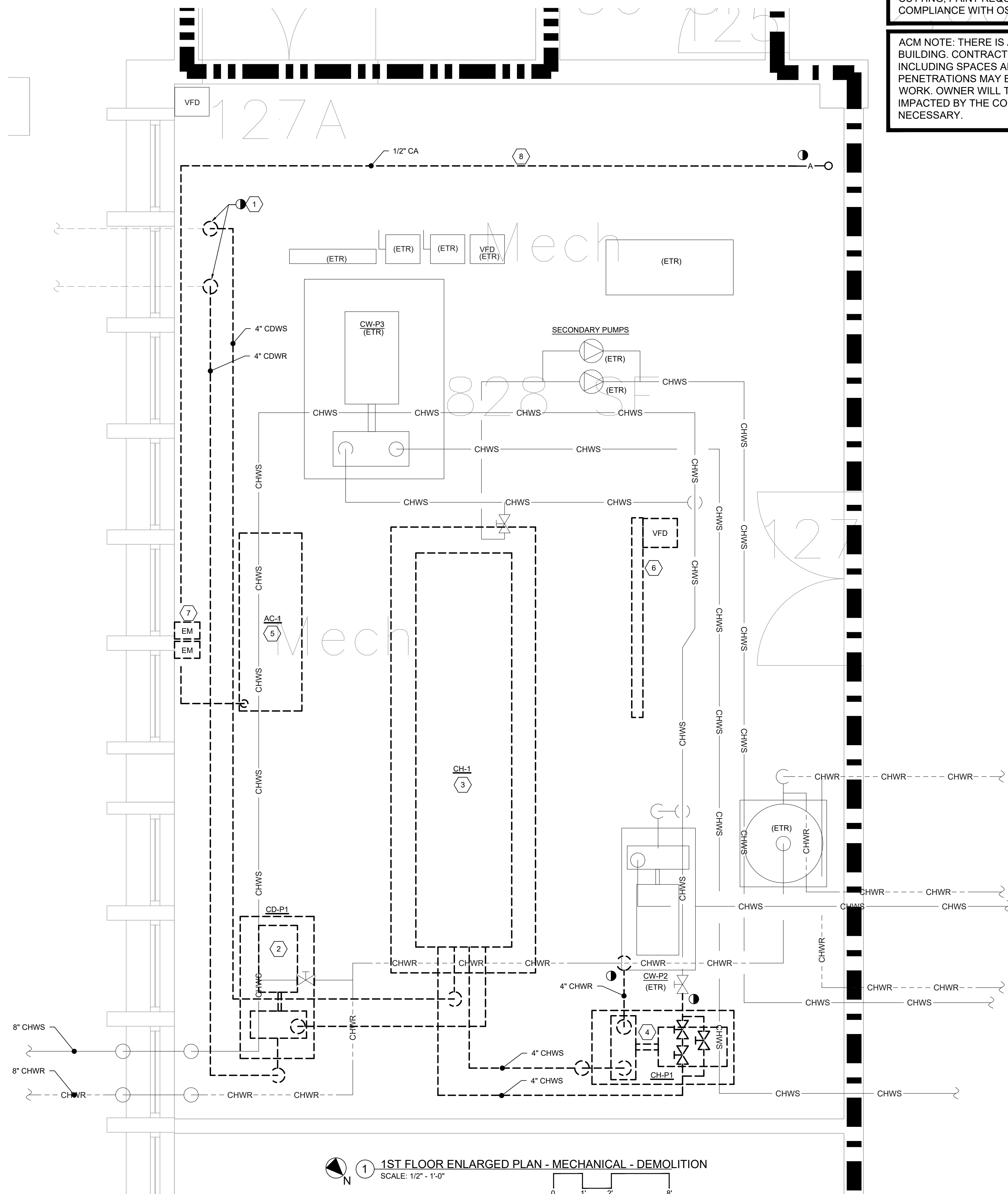
PURPOSE: TO LIMIT THE REQUIRED SHUTDOWN OF BUILDINGS CONTROL AIR SERVICE. COORDINATE WORK WITH ELECTRICAL CONTRACTOR.

**PHASE 1:**

- DEMO CHILLER DISCONNECT AND CONTROLS PANEL.
- RELOCATE CH-P2 PAGE HALL CHILLED WATER PUMP VFD TO NEW LOCATION SHOWN.
- REMOVE STEEL SUPPORT FRAMES VFD WAS MOUNTED TO.
- MAKE READY ELECTRICAL TRANSITION TO NEW LOCATION.
- PROVIDE NEW COMPRESSED AIR LINE TO NEW LOCATION AND TIE-IN POINT.
- RELOCATE EXISTING AIR COMPRESSOR ONTO EXISTING PAD WHERE SUPPORT FRAME WAS MOVED AND CONNECT TO ELECTRICAL AND NEW COMPRESSED AIR LINES.
- COMPLETE AIR LINE TIE-IN AT NEW CONNECTION POINT.
- PLACE COMPRESSOR BACK IN SERVICE.

**PHASE 2:**

- BEGIN THE REMAINDER OF WORK.

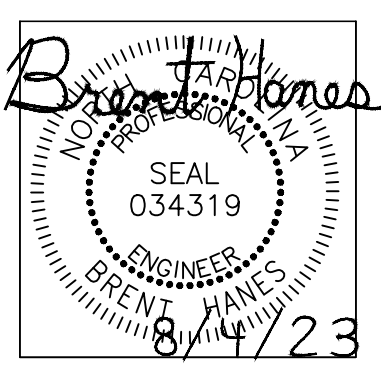


**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REV: 0001 CD



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Sigma Project #: 22053  
NC ENG LIC# C2490

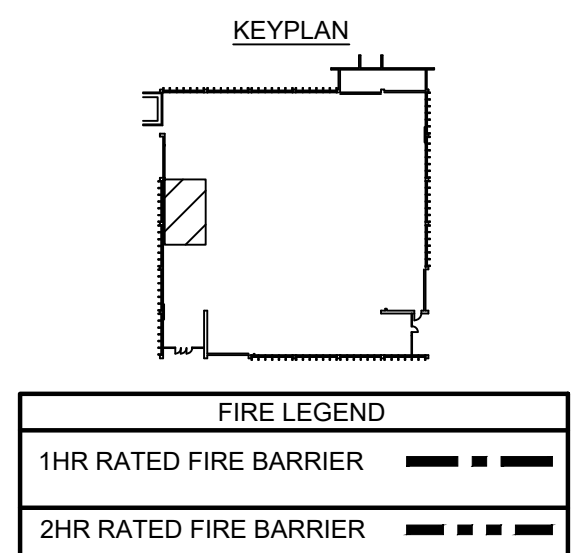


**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
POE HALL - BUILDING # 024  
SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**M101**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



1 1ST FLOOR ENLARGED PLAN - MECHANICAL - DEMOLITION  
SCALE: 1/2" = 1'-0"

**GENERAL NOTES:**

- REFER TO SHEET M001 FOR ADDITIONAL NOTES AND LEGEND.
- ALL ACTIVE ENERGY METERING DEVICES CONNECTED TO KEP PANELS TO REMAIN.

**KEYED NOTES:**

- RELOCATED VFD SERVING CW-P2 PUMP FOR PAGE HALL, COMPLETE AS PART OF PHASE I.
- LOCATION OF RELOCATED CONTROLS AIR COMPRESSOR, COMPLETE AS PART OF PHASE I.
- DROP COMPRESSED AIR TO AN ACCESSIBLE HEIGHT AND INSTALL A PRESSURE REGULATOR, COMPLETE AS PART OF PHASE I.
- CONNECT COMPRESSED AIR TO EXISTING, COMPLETE AS PART OF PHASE I.

**PHASING NOTES:**

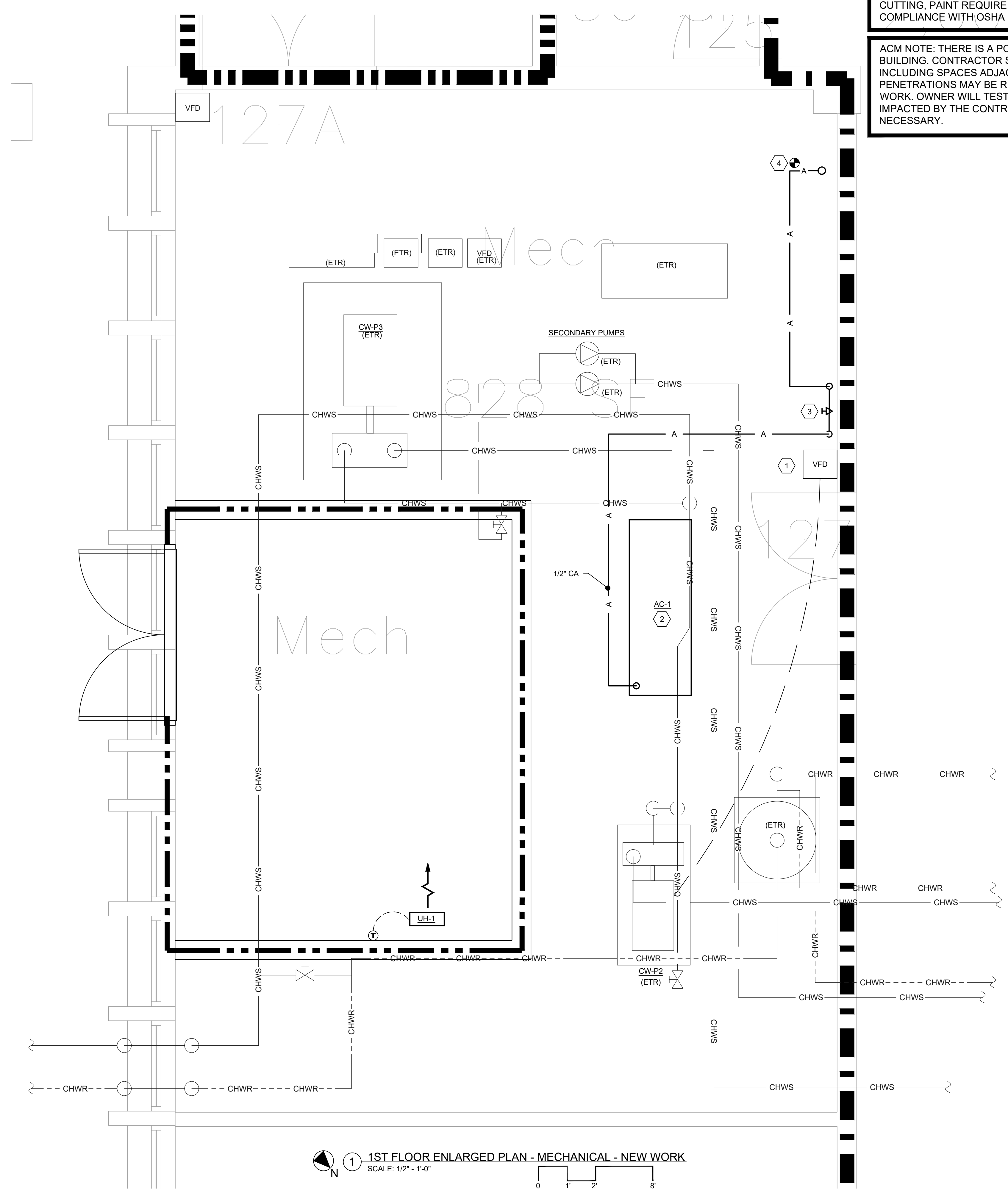
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- COMPLETE AIR LINE TIE-IN AT NEW CONNECTION POINT.
- PLACE COMPRESSOR BACK IN SERVICE.

**PHASE 2:**

- BEGIN THE REMAINDER OF WORK.



1ST FLOOR ENLARGED PLAN - MECHANICAL - NEW WORK  
SCALE: 1/2" = 1'-0"

**KEYPLAN**

**FIRE LEGEND**

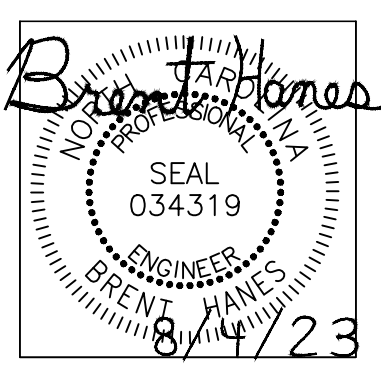
1HR RATED FIRE BARRIER	---
2HR RATED FIRE BARRIER	----

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

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**NC STATE UNIVERSITY**  
DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
DESIGNER:  
DRAWN BY:  
CHECKED BY:  
REV: 0001 CD



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Sigma Project #: 22053  
NC ENG LIC# C2490



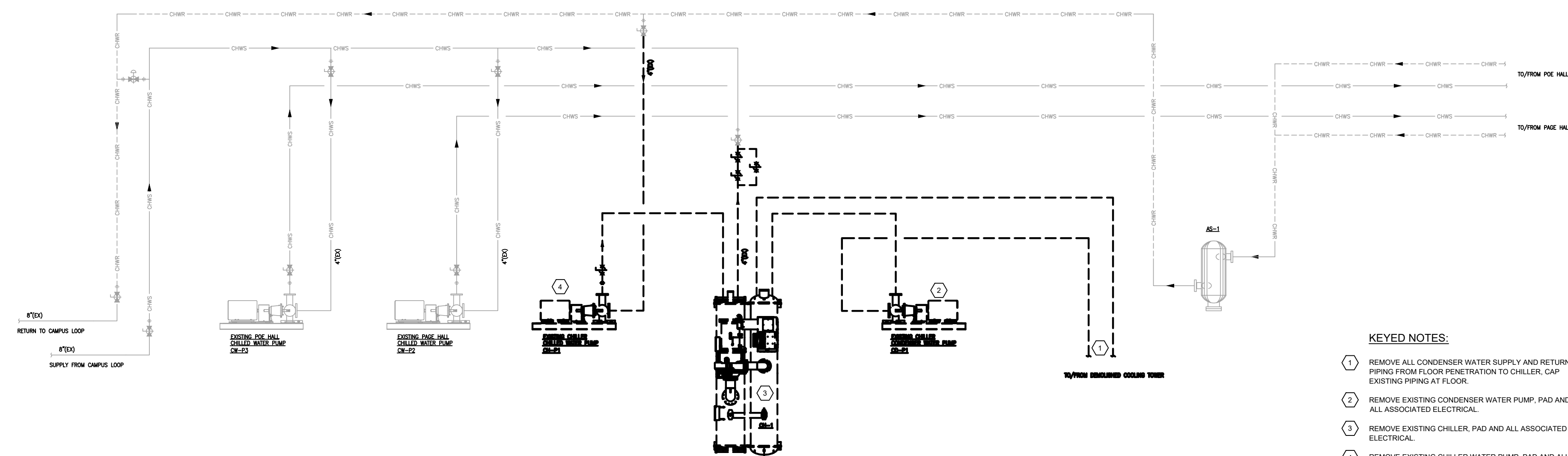
POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**M201**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL  
FAC. NO. 024





1 CHILLED WATER SCHEMATIC - DEMOLITION  
SCALE: NTS

- KEYED NOTES:**
- 1 REMOVE ALL CONDENSER WATER SUPPLY AND RETURN PIPING FROM FLOOR PENETRATION TO CHILLER. CAP EXISTING PIPING AT FLOOR.
  - 2 REMOVE EXISTING CONDENSER WATER PUMP, PAD AND ALL ASSOCIATED ELECTRICAL.
  - 3 REMOVE EXISTING CHILLER, PAD AND ALL ASSOCIATED ELECTRICAL.
  - 4 REMOVE EXISTING CHILLER WATER PUMP, PAD AND ALL ASSOCIATED ELECTRICAL. REMOVE ALL PRIMARY LOOP PIPING BETWEEN CHILLER AND CAMPUS LOOP PIPING.

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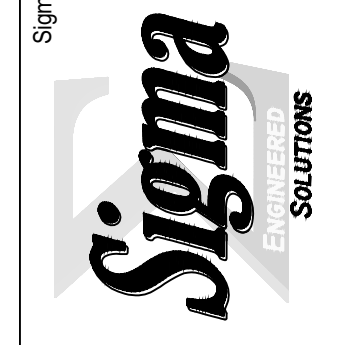
NC STATE UNIVERSITY

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DATE: 08-04-2023  
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CHECKED BY:  
REV.: 0001 CD

Brent Hanes  
SEAL 034319  
ENGINEER  
8/4/23

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www.sigmases.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**M401**

Designer Proj. No.  
22053  
NCSU Proj. No.  
202220008

FAC. NAME  
POE HALL

FAC. NO. 024

ELECTRICAL SYMBOLS

Table of electrical symbols and their descriptions, including existing light fixtures, switches, outlets, and various receptacles.

Table of electrical symbols and their descriptions, including recessed and surface mounted panelboards, raceways, and various control modules.

ABBREVIATIONS

Table of electrical abbreviations such as A (AMPERE), AFCI (ARC FAULT CIRCUIT INTERRUPTER), and others.

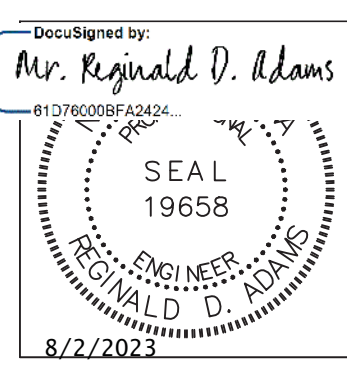
GENERAL NOTES

- List of general notes regarding project requirements, including jurisdiction, work coordination, safety, and specific installation instructions.

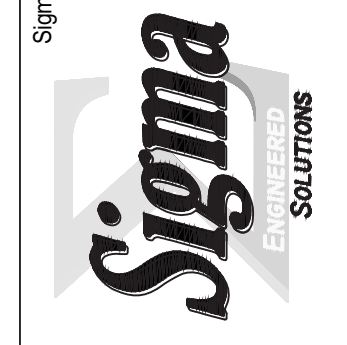
ELECTRICAL SYMBOL NOTES

- Notes explaining the use of symbols and abbreviations, such as 'SYMBOLS AND ABBREVIATIONS MAY NOT ALL BE UTILIZED FOR THIS PROJECT.'

Table with project metadata including Date, Designer, and other details.



Contact information for Sigma Engineered Solutions, PC, including address and phone number.



Project identification information: POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS, POE HALL - BUILDING # 024, SCOD#- 22-24502-01A, CODE- 42124, ITEM- 343.

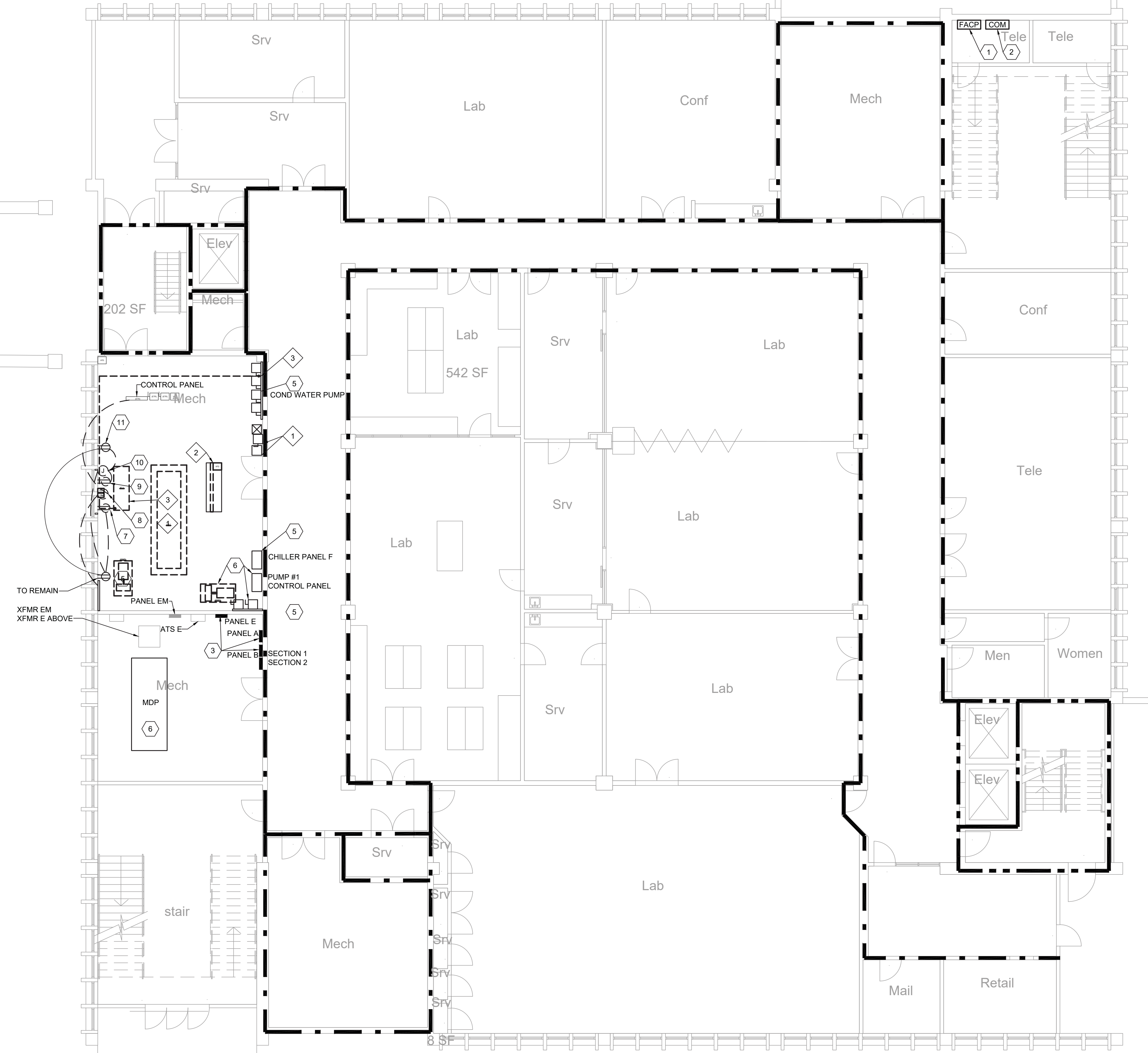
SHEET No. E001

Designer Proj. No. 22053, NCSU Proj. No. 202220008

FAC. NAME POE HALL, FAC. NO. 024

LEAD PAINT NOTE: THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

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**GENERAL NOTES:**

- 1. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

**KEYED NOTES:**

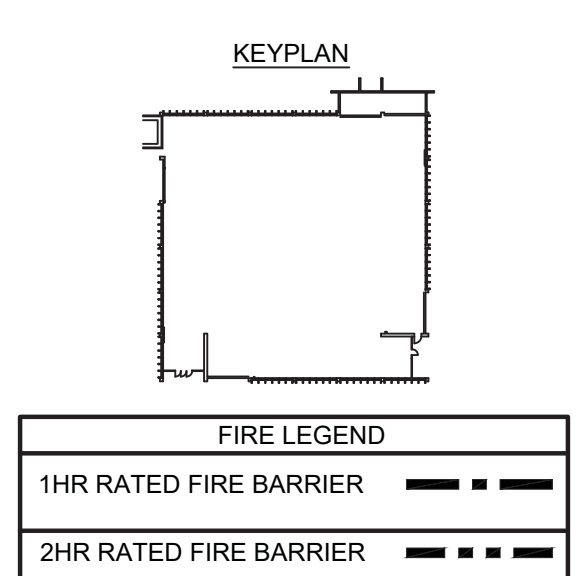
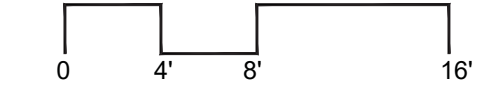
- 1 EXISTING NOTIFIER 5000 FIRE ALARM CONTROL PANEL TO BE MODIFIED AND CONNECTED TO NEW MAIN FIRE ALARM CONTROL PANEL.
- 2 EXISTING FIRE ALARM COMMUNICATOR TO BE REPLACED WITH NEW FIRE ALARM COMMUNICATOR. COORDINATED THE DISCONNECTION OF THE TELECOM LINES WITH THE OWNER.
- 3 EXISTING PANELBOARD TO REMAIN AND BE MODIFIED. REFER TO PANELBOARD SCHEDULE FOR MODIFICATION INFORMATION.
- 4 EXISTING SWITCHBOARD "MDP" TO REMAIN AND BE MODIFIED. REFER TO PARTIAL ELECTRICAL RISER DIAGRAM FOR MODIFICATION INFORMATION.
- 5 EXISTING PUMP TO BE REMOVED. EXISTING CONDUCTORS, AND CONDUIT TO BE REMOVED BACK TO DISCONNECT SWITCH AT WIREWAY. EXISTING DISCONNECT SWITCH TO REMAIN AND BE RELABELED "SPARE".
- 6 EXISTING PUMP AND CONTROL PANEL TO BE REMOVED. EXISTING CONDUCTORS, AND CONDUIT TO BE REMOVED BACK TO DISCONNECT SWITCH AT WIREWAY. EXISTING DISCONNECT SWITCH TO REMAIN AND BE RELABELED "SPARE".
- 7 EXISTING RECEPTACLE CONDUCTORS AND CONDUIT TO BE REMOVED BACK TO RECEPTACLE.
- 8 EXISTING JUNCTION BOX 3/4" CONDUIT AND WIRE TO BE REMOVED BACK TO JUNCTION BOX. 2-1/2" CONDUITS TO BE REMOVED BACK TO CONTROL PANEL.
- 9 EXISTING RECEPTACLE CONDUCTORS AND CONDUIT TO BE REMOVED BACK TO JUNCTION BOX.
- 10 EXISTING JUNCTION BOX, CONDUCTORS AND CONDUIT TO BE REMOVED BACK WIREWAY AND RECEPTACLE.
- 11 EXISTING RECEPTACLE TO REMAIN. PROVIDE 2-#12 AWG, 1-#12 GND IN 1/2" TO RECEPTACLE. CONDUIT SHALL BE ROUTED SO IT DOES NOT PASS THROUGH THE NEW SPRINKER ROOM.

**PHASE #1 DEMOLITION NOTES:**

- 1 EXISTING CHILLER TO BE REMOVED. EXISTING DISCONNECT SWITCH, CONTROL PANEL, AND CONDUCTORS TO BE REMOVED BACK TO SWITCHBOARD. EXISTING CONDUIT TO BE REMOVED AT FLOOR LEVEL. PATCH FLOOR.
- 2 EXISTING VFD TO BE RELOCATED. EXISTING LINE AND LOAD SIDE CONDUCTS AND CONDUIT TO BE REWORKED TO NEW LOCATION. REFER TO DRAWING E201 FOR NEW LOCATION.
- 3 EXISTING AIR COMPRESSOR TO BE RELOCATED. REFER TO DRAWING E201 FOR NEW AIR COMPRESSOR LOCATION.

TO REMAIN  
XFMR EM  
XFMR E ABOVE

1 1ST FLOOR PLAN - FIRE ALARM - NEW WORK  
SCALE: 1/8" = 1'-0"



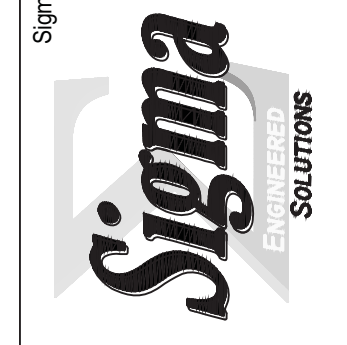
NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
DESIGNER: MP  
DRAWN BY: MP  
CHECKED BY: RDA  
REV.: 00X.CD

Seal of Mr. Reginald D. Adams, Professional Engineer, No. 19658, dated 8/2/2023.

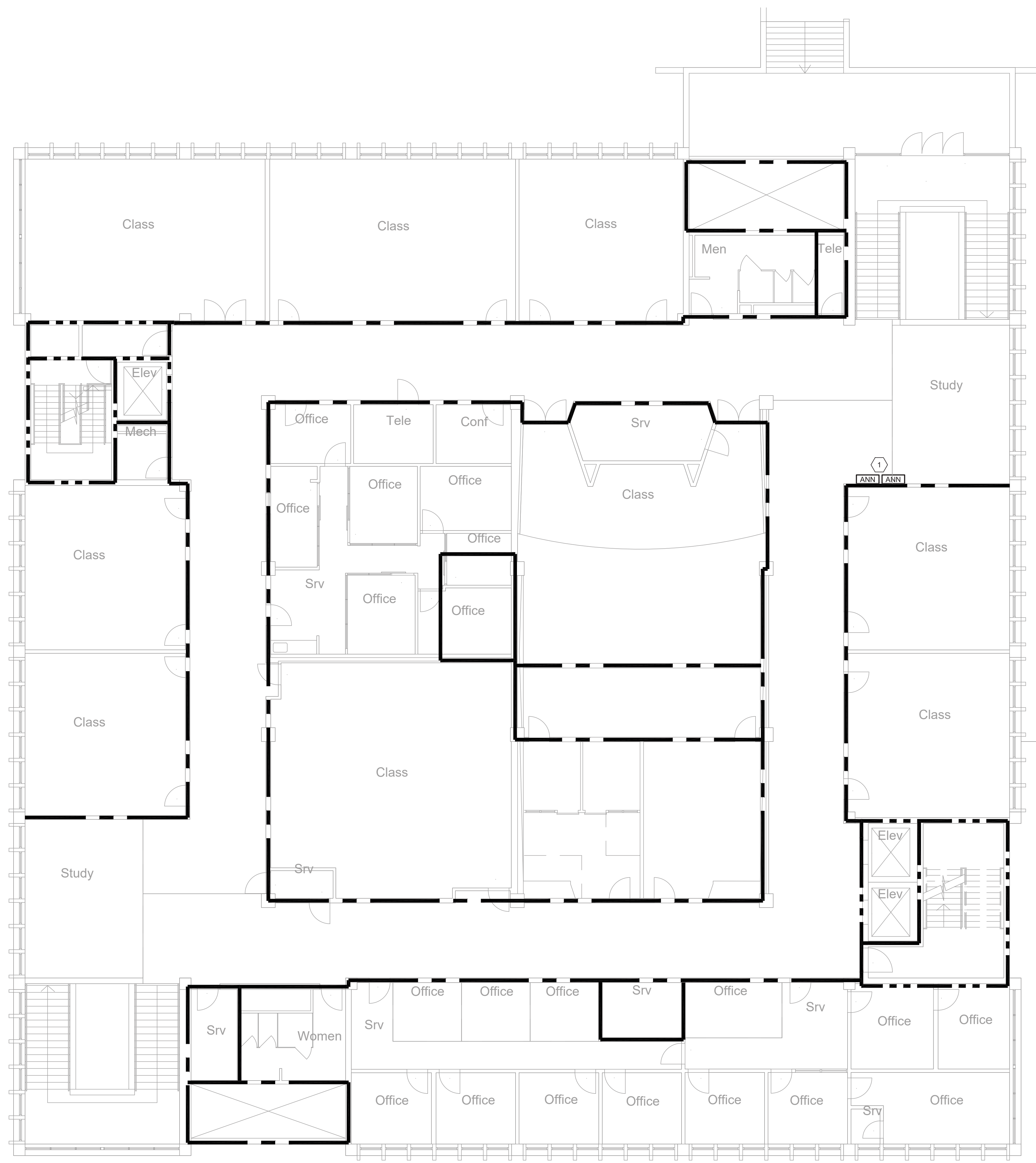
Sigma Engineered Solutions, PC  
5500 Falls of Neuse Rd., Suite 101  
Raleigh, NC 27699  
Ph: 919.840.9300  
www.sigmases.com  
Sigma Project #: 22053  
NC ENG LIC# C2490



POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**E101**  
Designer Proj. No. 22053  
NCSU Proj. No. 202220008

FAC. NAME  
POE HALL  
FAC. NO. 024



1 2ND FLOOR PLAN - FIRE ALARM - NEW WORK  
 SCALE: 1/8" = 1'-0"  
 0 4' 8' 16'

**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

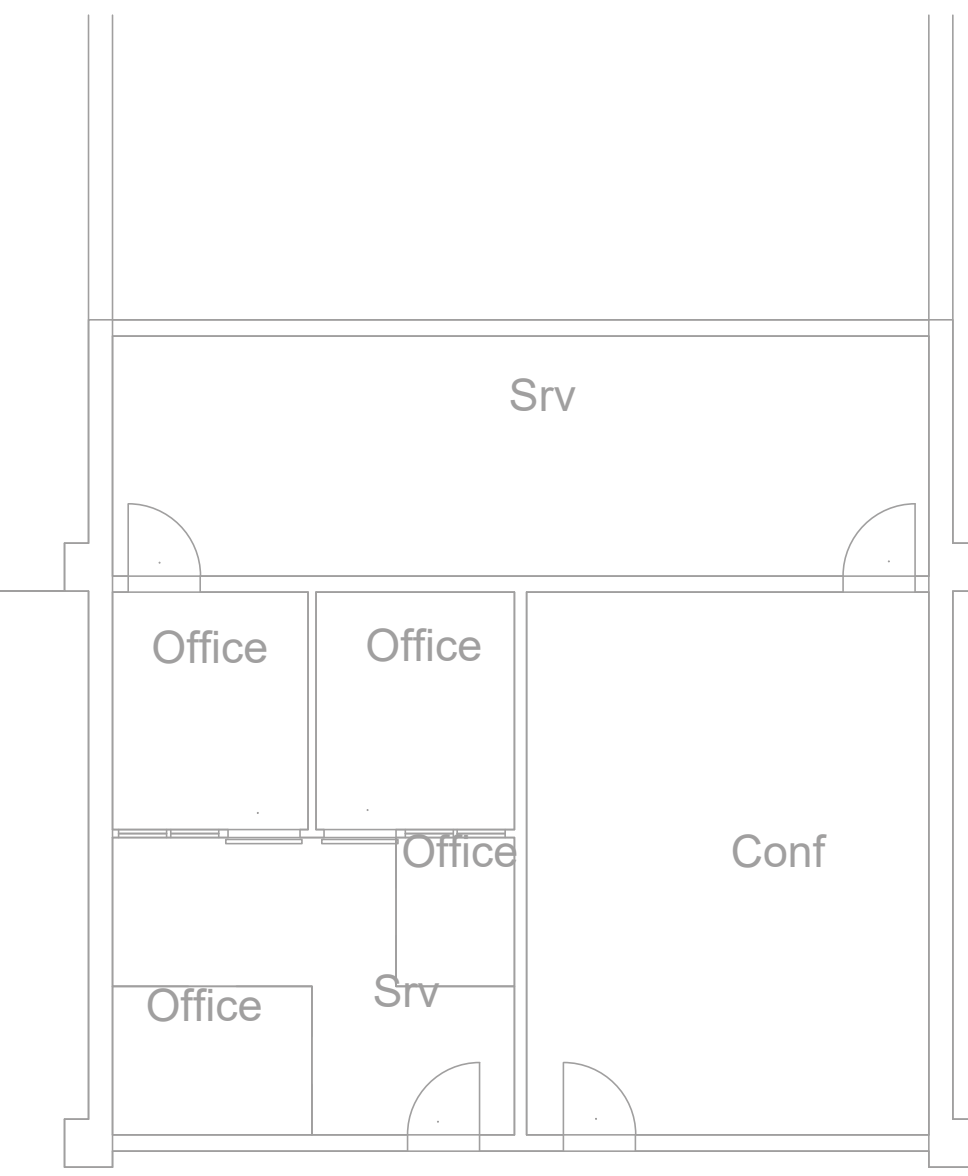
**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

1. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

**KEYED NOTES:**

- 1 EXISTING FIRE ALARM REMOTE ANNUCIATOR TO BE REPLACED WITH NEW NOTIFIER 3030 REMOTE ANNUCIATOR.



2 REMOTE ANNUCIATOR CABINETS  
 NO SCALE:

**KEYPLAN**

**FIRE LEGEND**

- 1HR RATED FIRE BARRIER - - - - -
- 2HR RATED FIRE BARRIER - . . . . .

**NC STATE UNIVERSITY**  
 DESIGN AND CONSTRUCTION SERVICES  
 \* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
 DESIGNED BY: MP  
 DRAWN BY: MP  
 CHECKED BY: RDA  
 REVISED BY: LON.CD

DocuSigned by:  
 Mr. Reginald D. Adams  
 PROFESSIONAL SEAL  
 19658  
 REGINALD D. ADAMS  
 8/27/2023

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 NC ENG LIC# C2480

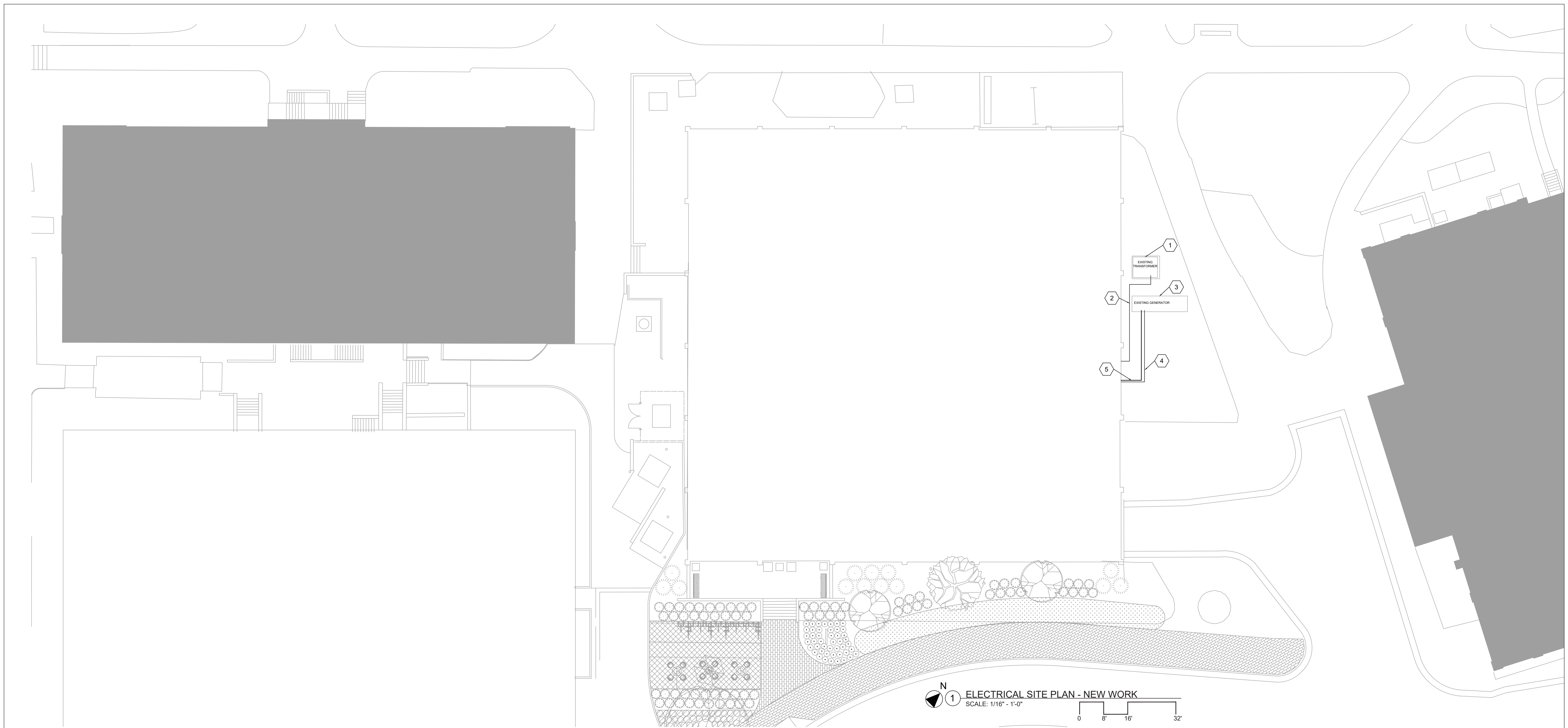


**POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS**  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**E102**

Designer Proj. No.  
 22053  
 NCSU Proj. No.  
 202220008

FAC. NAME  
 POE HALL  
 FAC. NO. 024



**1 ELECTRICAL SITE PLAN - NEW WORK**  
 SCALE: 1/16" = 1'-0"  
 0 8 16 32

**GENERAL NOTES:**

1. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

**ALTERNATE 1 KEYED NOTES:**

1. EXISTING TRANSFORMER TO REMAIN AND HAVE NEW FIRE PUMP FEEDER INSTALLED ON THE SECONDARY SIDE. PROVIDE FIELD MOUNTED GROUND LUGS AS REQUIRED. CONTRACTOR TO COORDINATE THE SHUT DOWN AND TAPPING OF THE SECONDARY SIDE OF THE TRANSFORMER WITH NCSU.
2. NEW CONCRETE ENCASED FEEDERS FROM TRANSFORMER TO UTILITY SIDE OF FIRE PUMP. REFER TO POWER RISER FOR CONDUCTOR AND CONDUIT SIZES.
3. EXISTING GENERATOR TO REMAIN AND BE MODIFIED. REFER TO POWER RISER FOR MODIFICATION INFORMATION.
4. NEW CONCRETE ENCASED FEEDERS FROM GENERATOR TO GENERATOR SIDE OF FIRE PUMP. REFER TO POWER RISER FOR CONDUCTOR AND CONDUIT SIZES.
5. PROVIDE TWO (2) 1" CONCRETE ENCASED CONDUITS WITH CONTROL/SIGNALLING CABLING FROM FIRE PUMP CONTROLLER TO GENERATOR.

**NC STATE UNIVERSITY**

**DESIGN AND CONSTRUCTION SERVICES**  
 \* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023	DESIGNER: MP	DRAWN BY: MP	CHECKED BY: RDA	REV.: 100% CD
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Designed by:  
**Mr. Reginald D. Adams**  
 812760008P2424  
 SEAL  
 19658  
 ENGINEER  
 REGINALD D. ADAMS  
 8/2/2023

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 Sigma Project #: 22053  
 NC ENG LIC# C2490



**POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024**  
 SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

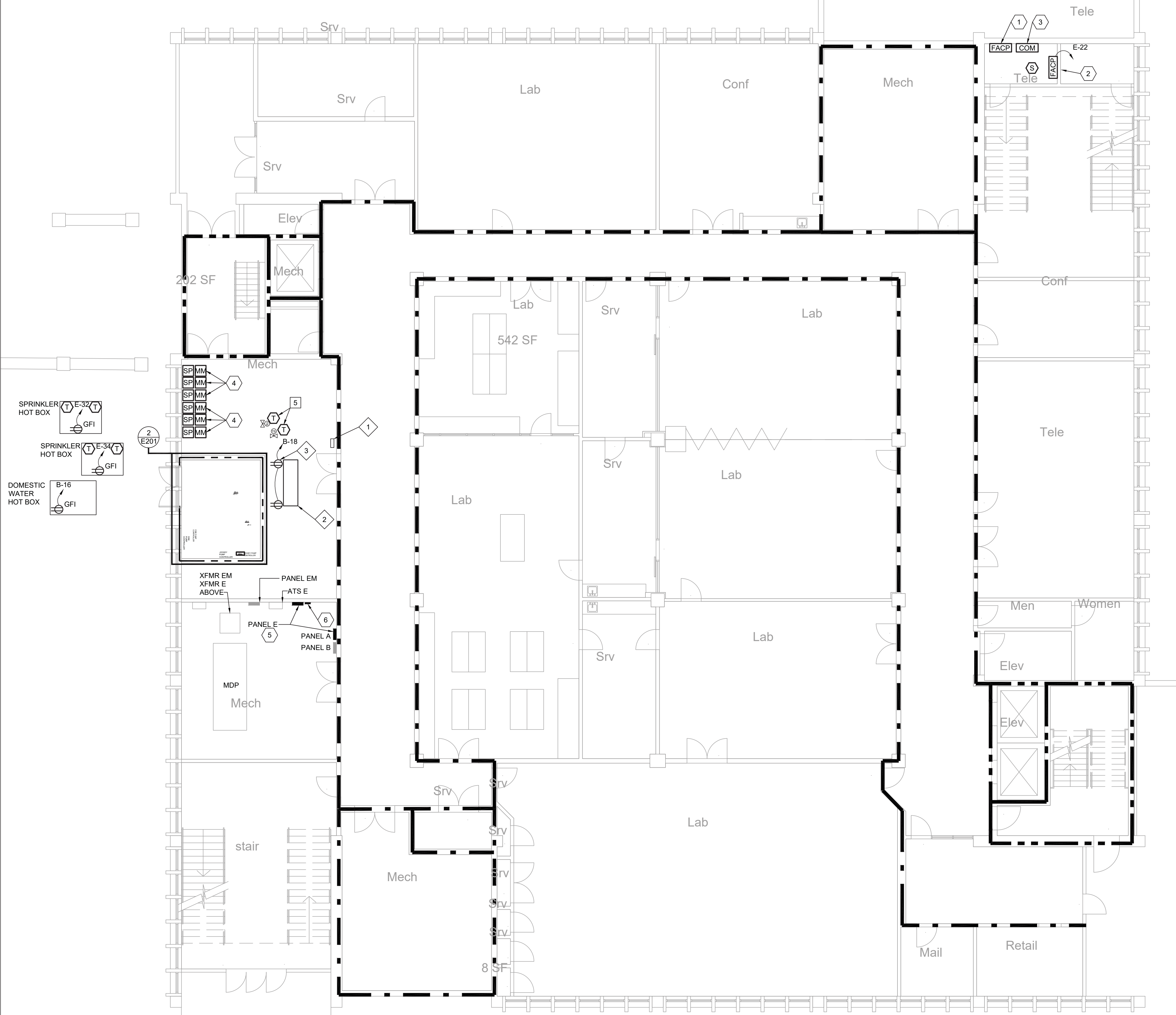
SHEET No.  
**E200**

Designer Proj. No.  
**22053**  
 NCSU Proj. No.  
**202220008**

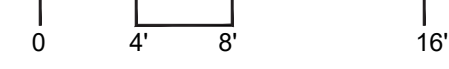
FAC. NAME  
**POE HALL**

FAC. NO. **024**

LIGHTING FIXTURE SCHEDULE								
TYPE	DESCRIPTION	MANUFACTURE NAME	MANUFACTURE CATALOG NUMBER	LAMPS	NO. OF BALLASTS	INPUT WATTS	VOLT	REMARKS
A	INDUSTRIAL LED	WILLIAMS PHILIPS HUBBELL	7BR-7-7-L52-8-40-VBY2-DRVUNV EQUAL EQUAL	LED	LED DRIVER	36	UNV	

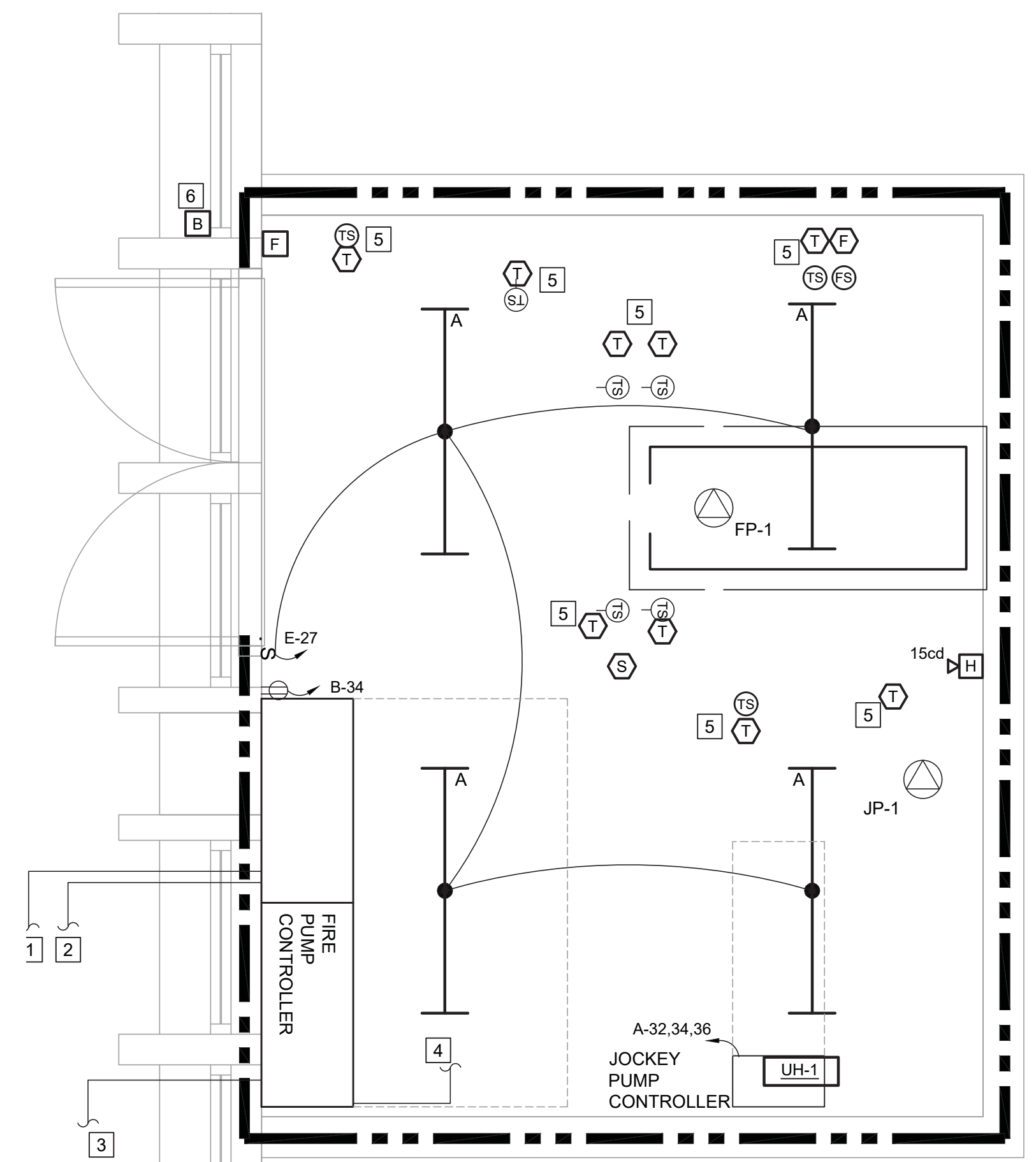


**1** 1ST FLOOR PLAN - FIRE ALARM - NEW WORK  
SCALE: 1/8" = 1'-0"

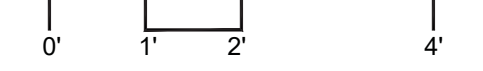


**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.



**2** ENLARGE FIRE PUMP ROOM  
SCALE: 1/2" = 1'-0"



**GENERAL NOTES:**

- REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

**BASE BID KEYED NOTES:**

- EXISTING NOTIFIER 5000 FIRE ALARM CONTROL PANEL TO BE MODIFIED AND CONNECTED TO NEW MAIN FIRE ALARM CONTROL PANEL.
- NEW NOTIFIER 3030 FIRE ALARM CONTROL PANEL AND NEW ADDRESSABLE SMOKE DETECTOR.
- NEW FIRE ALARM COMMUNICATOR. COORDINATE THE RECONNECTION OF EXISTING TELECOM CABLING TO NEW COMMUNICATOR WITH THE OWNER.
- FIRE ALARM SURGE PROTECTOR AND MONITOR MODULES FOR DEVICES IN SPRINKLER HOT BOX.
- EXISTING PANEL TO REMAIN AND BE MODIFIED. REFER TO PANELBOARD SCHEDULE (FUTURE) FOR MODIFICATION INFORMATION.
- SURGE PROTECTION DEVICES FOR NEW FIRE ALARM PANEL AND COMMUNICATOR MOUNTED ADJACENT TO PANELBOARD.

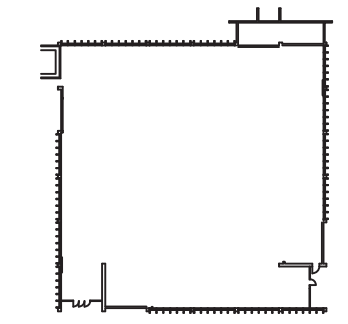
**ALTERNATE 1 KEYED NOTES:**

- NEW FEEDER FROM GENERATOR TO NEW FIRE PUMP CONTROLLER. REFER TO POWER RISER FOR CONDUIT AND CONDUCTOR INFORMATION.
- NEW FEEDER FROM UTILITY TRANSFORMER TO NEW FIRE PUMP CONTROLLER. REFER TO POWER RISER FOR CONDUIT AND CONDUCTOR INFORMATION.
- 1-1/2" WITH CONTROL CABLING FROM FIRE PUMP CONTROLLER TO GENERATOR.
- NEW FIRE PUMP CONTROLLER TO BE CONNECTED TO NEW FIRE ALARM INITIATION LOOP.
- TAMPER AND FLOW SWITCH TO BE CONNECTED TO FIRE ALARM INITIATION LOOP.
- NEW 24VOLT FIRE SPRINKLER BELL TO BE CONNECTED TO THE NEW FIRE ALARM PANEL.

**PHASE #1 NEW WORK NOTES:**

- NEW LOCATION OF CHWP-2/PAGE VFD. CONTRACTOR TO REWORK THE LINE AND LOAD SIDE CONDUCTORS AND CONDUIT TO NEW LOCATION.
- NEW LOCATION OF RELOCATED AIR COMPRESSOR. REWORK EXISTING CONDUCTORS AND CONDUIT TO NEW LOCATION.
- NEW RECEPTACLE FOR EXISTING AIR COMPRESSOR ACCESSORIES.

**KEYPLAN**



FIRE LEGEND	
1HR RATED FIRE BARRIER	---
2HR RATED FIRE BARRIER	----

DATE: 08-04-2023	DESIGNER: MP	DATE: 08-04-2023	DESIGNER: MP
	DN BY: MP		DN BY: MP
	CK BY: ADA		CK BY: ADA
	REV: 00X.CD		REV: 00X.CD

Designed by:  
**Mr. Reginald D. Adams**  
Professional Engineer  
No. 17260082842424  
SEAL 19658  
8/27/2023

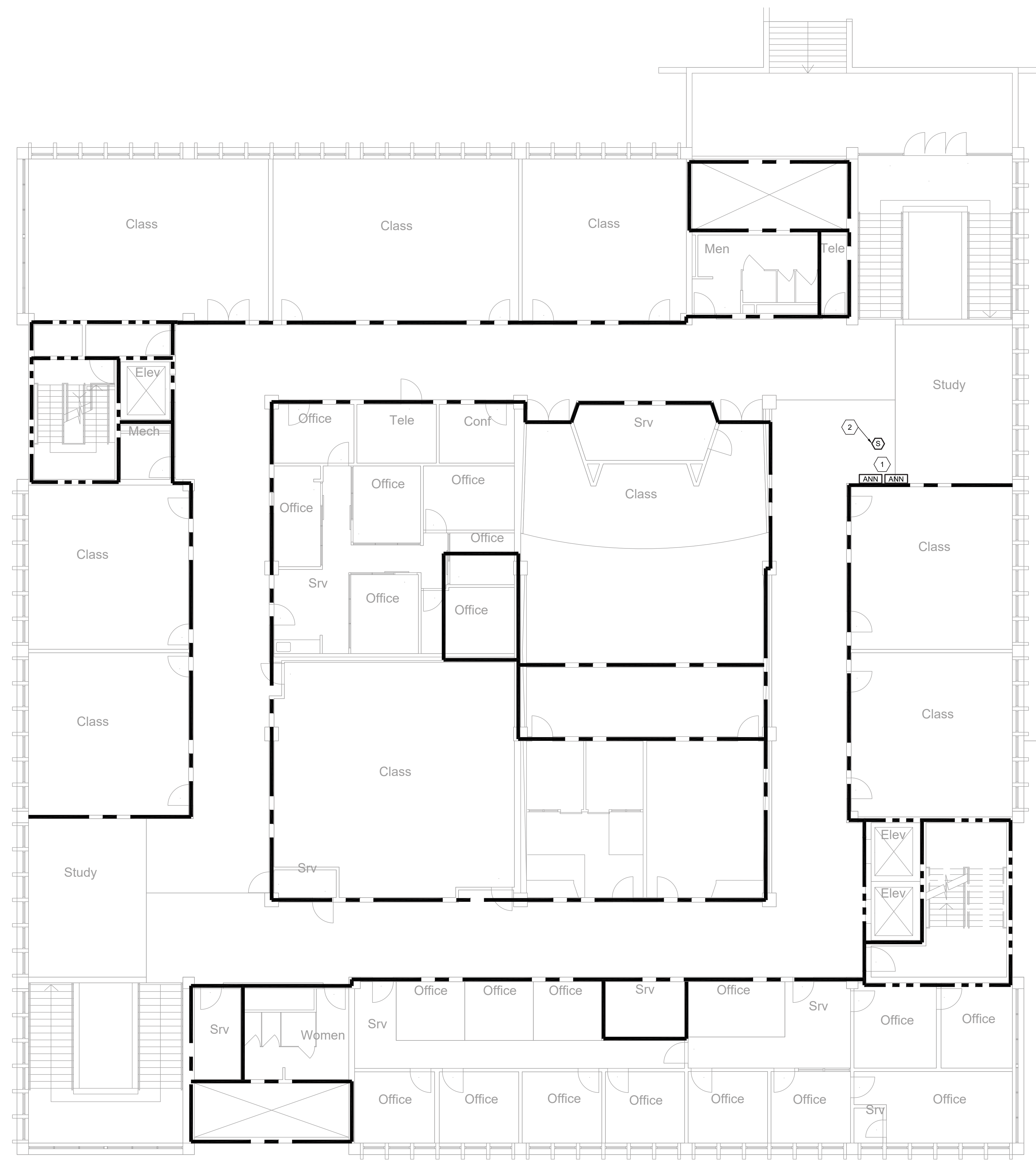
Sigma Solutions  
Sigma Engineered Solutions, PC  
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Ph: 919.840.9300  
www.sigmasolutions.com  
Sigma Project #: 22053  
NC ENG LIC# C-2480

POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC01D#: 22-24502-01A; CODE: 42124; ITEM: 343

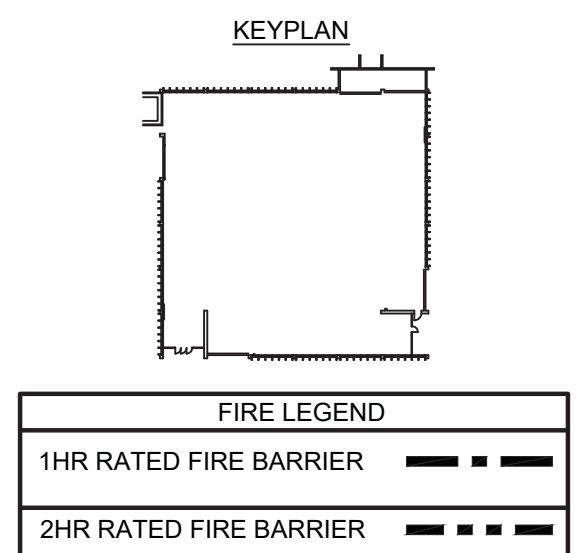
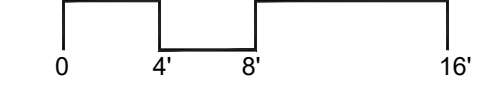
SHEET No.  
**E201**

Designer Proj. No.  
**22053**  
NCSU Proj. No.  
**202220008**

FAC. NAME  
POE HALL  
FAC. NO. **024**



1 2ND FLOOR PLAN - FIRE ALARM - NEW WORK  
 SCALE: 1/8" = 1'-0"



**LEAD PAINT NOTE:** THIS FACILITY WAS BUILT BEFORE 1978 AND MAY HAVE LEAD PAINT ON SURFACES WHICH ARE PAINTED. THE CONTRACTORS ARE REQUIRED TO COMPLY WITH OSHA REQUIREMENTS AS PER LEAD PAINT REGULATIONS 29 CFR 1926.62. IF ANY CUTTING, PATCHING, SANDING, TORCH CUTTING, PAINT REQUIRE DISTURBING PAINTED SURFACES, COMPLIANCE WITH OSHA REGULATIONS IS REQUIRED.

**ACM NOTE:** THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS NECESSARY.

**GENERAL NOTES:**

- REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

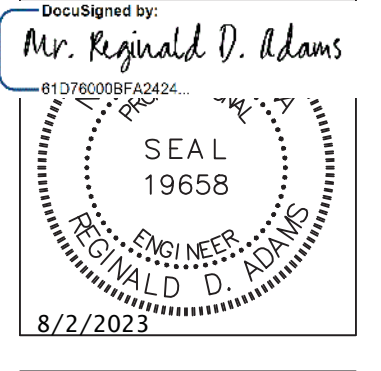
**KEYED NOTES:**

- EXISTING FIRE ALARM REMOTE ANNUNCIATOR TO BE REPLACED WITH NEW 3030 REMOTE ANNUNCIATOR.
- PROVIDE NEW WALL MOUNTED SM-KE DETECTOR OVER NEW ANNUNCIATOR. LOCATE PER NFPA 72.

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
 \* BOX 7216\* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE:	08-04-2023
DESIGNER:	MP
DRAWN BY:	MP
CHECKED BY:	RDA
REV.:	0001 CD



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 Ph: 919.840.9300  
 www.sigmasol.com  
 Sigma Project #: 22053  
 NC ENG LIC# C2480

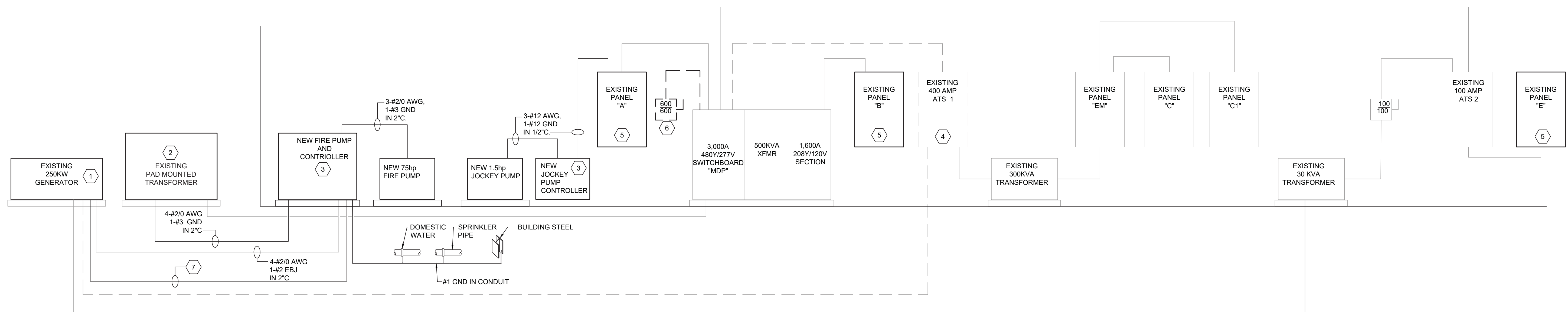


POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**E202**

Designer Proj. No.  
**22053**  
 NCSU Proj. No.  
**202220008**

FAC. NAME  
 POE HALL  
 FAC. NO. **024**



**1 PARTIAL ELECTRICAL RISER DIAGRAM**  
NO SCALE

**KEYED NOTES:**

- 1 EXISTING CATERPILLER GENERATOR TO REMAIN AND BE MODIFIED TO FEED THE EMERGENCY SIDE OF THE NEW FIRE PUMP. MODIFICATIONS WILL INCLUDE REMOVAL OF EXISTING 400 AMPERE BREAKER MADE SPARE BY PROJECT #19-20655, INSTALLATION OF NEW 150 AMPERE MAGNETIC (SHORT-CIRCUIT PROTECTION ONLY) BREAKER AND CONTROLLER UPDATE TO MEET NFPA 20 REQUIREMENTS. REFERENCE ADDITIONAL NOTES THIS DETAIL.
- 2 EXISTING TRANSFORMER TO REMAIN AND HAVE NEW FIRE PUMP FEEDER INSTALLED ON THE SECONDARY SIDE LUGS. CONTRACTOR TO COORDINATE THE SHUT DOWN AND TAPPING OF THE SECONDARY SIDE OF THE TRANSFORMER WITH NCSU. CONTRACTOR SHALL COORDINATE TEMPORARY POWER FOR BUILDING WITH OWNER. NOTE TO REVIEWER: DESIGNER WILL COORDINATE WITH NCSU DURING FINAL REVIEW AND PROVIDE NOTES AS NECESSARY WITH BID DOCUMENTS.
- 3 NEW FIRE PUMP CONTROLLER (SINGLE PT ELEC. CONNECTION), PROVIDE NEW FEEDER FROM GENERATOR AND UTILITY TRANSFORMER.
- 4 EXISTING 400 AMPERE TRANSFER SWITCH AND FEEDER TO BE REMOVED BY PROJECT #19-20655. DOWNSTREAM PANELS WILL BE RE-FED BY THAT PROJECT FROM EXISTING SWITCHBOARD.
- 5 EXISTING PANELBOARD TO REMAIN AND BE MODIFIED. REFER TO PANELBOARD SCHEDULE FOR MODIFICATION INFORMATION.
- 6 EXISTING CHILLER DISCONNECT SWITCH, CONDUCTORS AND CONDUIT TO BE REMOVED. RELABEL BREAKER IN SWITCHBOARD "SPARE"
- 7 CONDUIT PER SHEET E-200.

**GENERATOR UPGRADE NOTES:**

- 1. ALL UPGRADES SHALL BE PERFORMED BY A TECHNICIAN APPROVED BY CATERPILLAR TO PERFORM THE REQUIRED SERVICES.
- 2. GENERATOR CONTROLLER SHALL BE UPDATED TO REMOVE ALL SHUTDOWN FEATURES (EXCEPT OVERSPEED) AND ALARMS THAT WOULD COMPROMISE GENERATOR OPERATION, WHEN THE FIRE PUMP IS RUNNING.
- 3. THE NEW CIRCUIT BREAKER SHALL BE INSTALLED BY AN APPROVED CATERPILLAR TECHNICIAN AND INSPECTED BY AN APPROVED THIRD PARTY TESTING AGENCY. REFERENCE SECTION 26 05 00 FOR LIST OF APPROVED AGENCIES.
- 4. BREAKER SHALL BE LABELED FOR USE AS SERVICE ENTRANCE BY THIRD PARTY NOTED ABOVE. IN ADDITION, BREAKER SHALL FULLY COORDINATE WITH ANY OVERCURRENT PROTECTION IN THE FIRE PUMP TRANSFER SWITCH. BREAKER SHALL BE PERMANENTLY LOCKED IN THE "CLOSED" POSITION AND LABELED.
- 5. GENERATOR SHALL START WITHIN 10 SECONDS OF LOSS OF POWER. THE GENERATOR SHALL ALSO RECEIVE A SIGNAL FROM THE FIRE PUMP CONTROLLER NOTING THAT FIRE PUMP IS RUNNING.

BUILDING LOAD SUMMARY-EXISTING 3000A 480Y/277V SERVICE	CONNECTED			DEMAND			TOTAL DEMAND KVA
	SINGLE PHASE	THREE PHASE	DIV./DEMAND	SINGLE PHASE	THREE PHASE	DEMAND KVA	
	KVA	KVA	FACTOR	KVA	KVA		
EXISTING PEAK DEMAND		271.00	1.25		338.75		338.75
NEW FIRE PUMP		82.31	1.25		102.89		102.89
NEW FIRE ALARM PANEL		1.50	1.00		1.50		1.50
TOTAL DEMAND KVA				0.00	237.36		443.14
TOTAL AMPERES AT 480Y/277/3-PHASE							534

BUILDING LOAD SUMMARY -GENERATOR 250 KW 480Y/277V SERVICE	CONNECTED			DEMAND			TOTAL DEMAND KVA
	SINGLE PHASE	THREE PHASE	DIV./DEMAND	SINGLE PHASE	THREE PHASE	DEMAND KVA	
	KVA	KVA	FACTOR	KVA	KVA		
EXISTING LOAD	0.00	30.00	1.00	0.00	30.00		30.00
NEW FIRE PUMP LOADS	0.00	82.31	1.25	0.00	102.89		102.89
NEW LIGHTING AND HEATER LOADS	2.54		1.00	2.54			2.54
TOTAL DEMAND KVA				2.54	132.89		135.43
TOTAL AMPERES AT 480Y/277/3-PHASE							163

NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES  
\* BOX 7216 \* RALEIGH, NORTH CAROLINA 27695 - 7216

DATE: 08-04-2023  
DESIGNER: JHP  
DRAWN BY: JHP  
CHECKED BY: JBA  
REVISION: 100X CD

Designed by:  
Mr. Reginald D. Adams  
Professional Engineer  
SEAL 19658  
REGINALD D. ADAMS  
8/2/2023

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Ph: 919-940-9300  
www.sigmasol.com  
Sigma Project #: 22053  
NC ENG LIC# C2480



POE HALL - FIRE PROTECTION  
SYSTEMS IMPROVEMENTS  
POE HALL - BUILDING # 024  
SC019#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**E300**

Designer Proj. No.  
**22053**  
NCSU Proj. No.  
**202220008**

FAC. NAME  
POE HALL  
FAC. NO. **024**





EXISTING PANEL "A" TABLE: PANEL TYPE: WESTINGHOUSE; BUS SIZE: 400A; VOLTAGE: 480Y/277; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

MODIFIED PANEL "A" TABLE: PANEL TYPE: WESTINGHOUSE; BUS SIZE: 400A; VOLTAGE: 480Y/277; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

EXISTING PANEL "E" TABLE: PANEL TYPE: NLAB; BUS SIZE: 225A; VOLTAGE: 208Y/120; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

MODIFIED PANEL "E" TABLE: PANEL TYPE: NLAB; BUS SIZE: 225A; VOLTAGE: 208Y/120; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

EXISTING PANEL "B" SECTION 1 TABLE: PANEL TYPE: NLAB; BUS SIZE: 225A; VOLTAGE: 208Y/120; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

EXISTING PANEL "B" SECTION 1 TABLE: PANEL TYPE: NLAB; BUS SIZE: 225A; VOLTAGE: 208Y/120; MCB or MLO: SURFACE; MOUNTING: 22,000. Includes circuit list with CT, LOAD SERVED, TRIP, POLE, WIRE, GND, CONDUIT, KVA, and ILLUSTRATION columns.

NC STATE UNIVERSITY DESIGN AND CONSTRUCTION SERVICES 7695 - 7216

DocuSigned by: Mr. Reginald D. Adams

SEAL 19658 ENGINEER REGINALD D. ADAMS

Sigma SOLUTIONS INC.

POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS POE HALL - BUILDING # 024

E400 SHEET No.

Designer Proj. No. 22053 NCSU Proj. No. 202220008

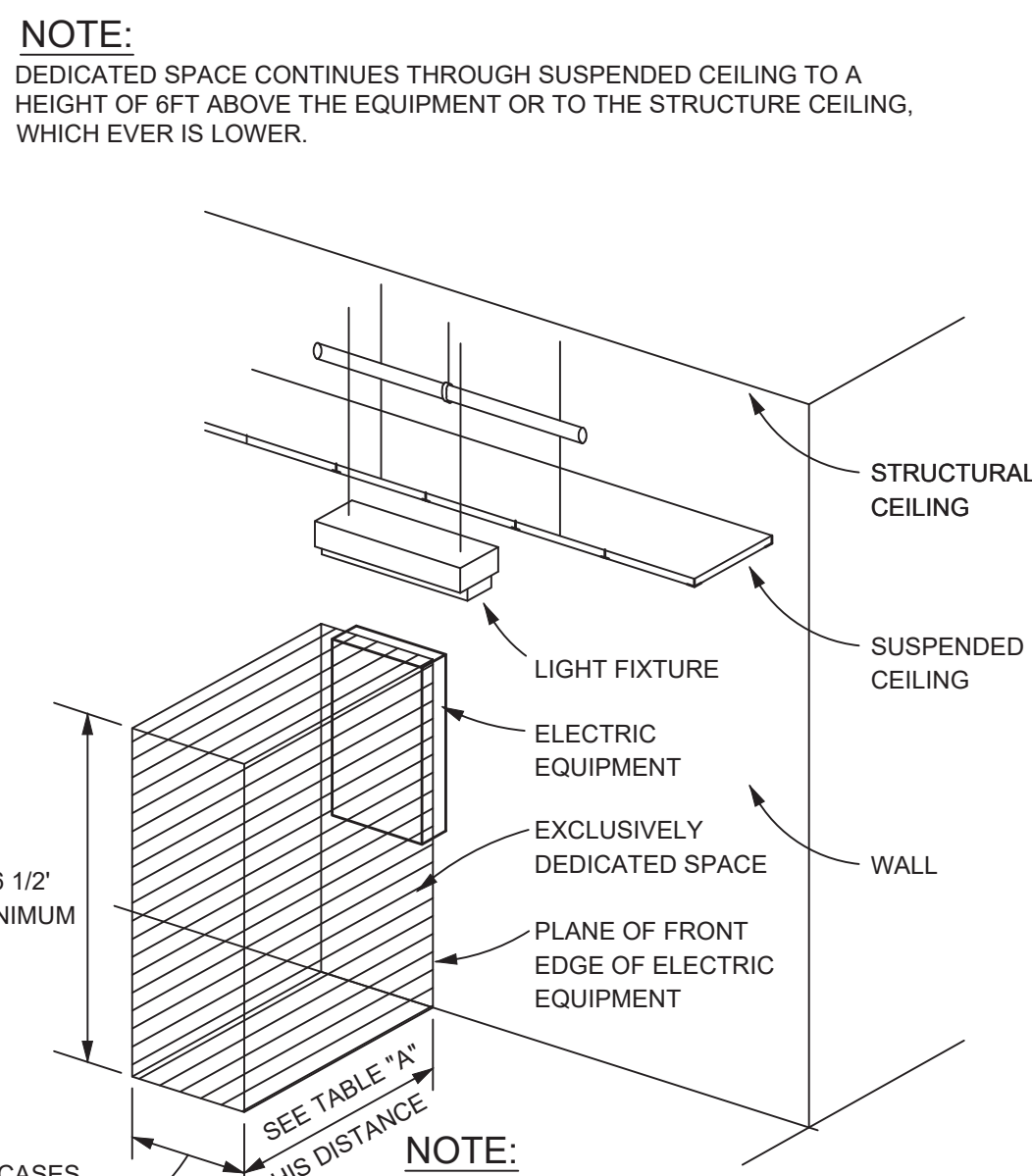
FAC. NAME POE HALL FAC. NO. 024

TABLE "A" WORKING CLEARANCES			
NOMINAL VOLTAGE TO GROUND	CONDITION: 1	2	3
		MINIMUM CLEAR DISTANCE (FEET)	
0-150		3	3
151-600		3	3.5
601-1000		3	4

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

- EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GRAUDED BY INSULATING MATERIALS.
- EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.
- EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE.

WIDTH OF EQUIPMENT OR 30", WHICHEVER IS GREATER. IN ALL CASES, THE WORK SPACE SHALL PERMIT AT LEAST A 90 DEGREE OPENING OF EQUIPMENT DOORS OR HINGED PANELS.



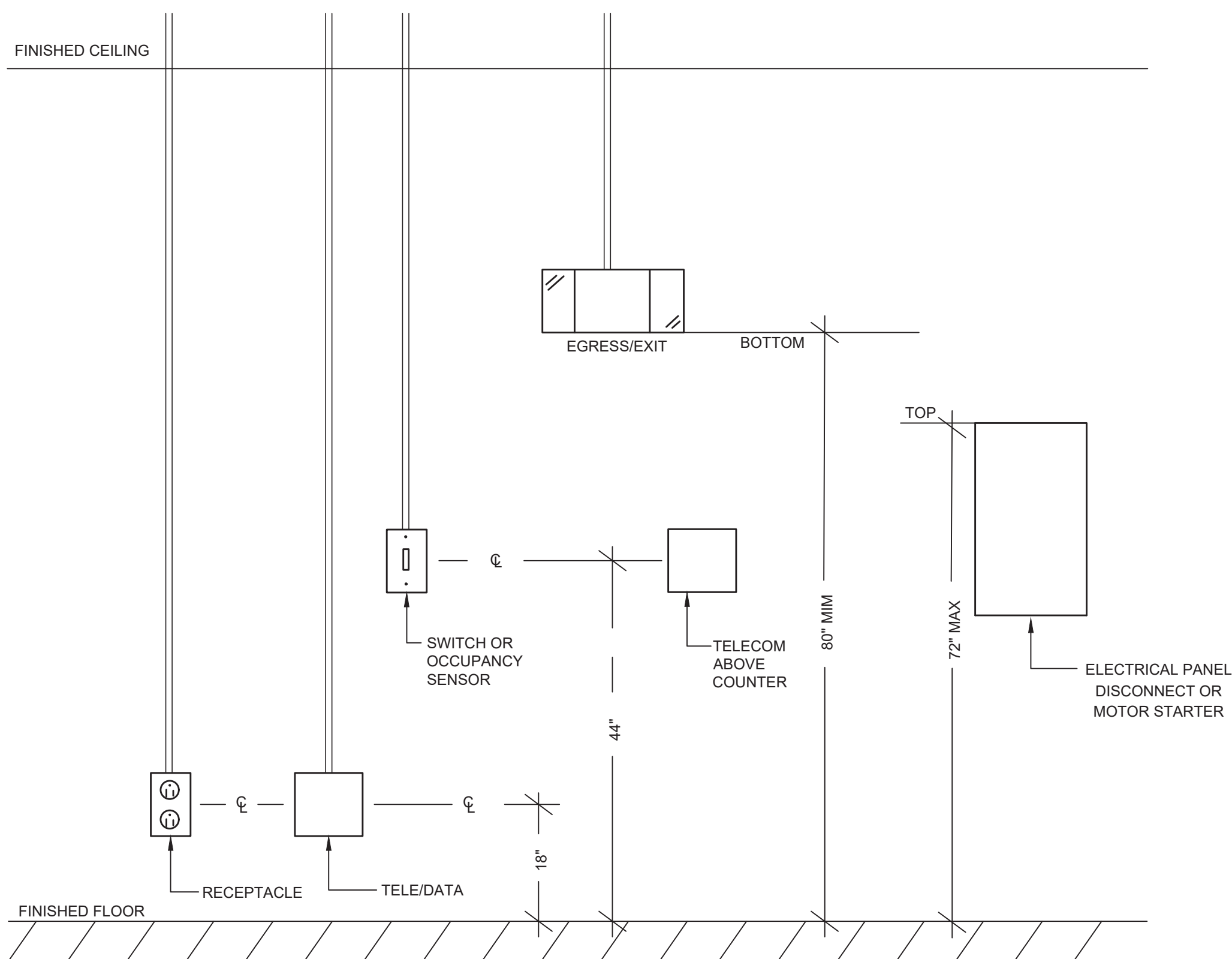
ALL ELECTRIC EQUIPMENT

1 REQUIRED WORKING SPACE ABOUT ELECTRICAL EQUIPMENT  
NO SCALE:

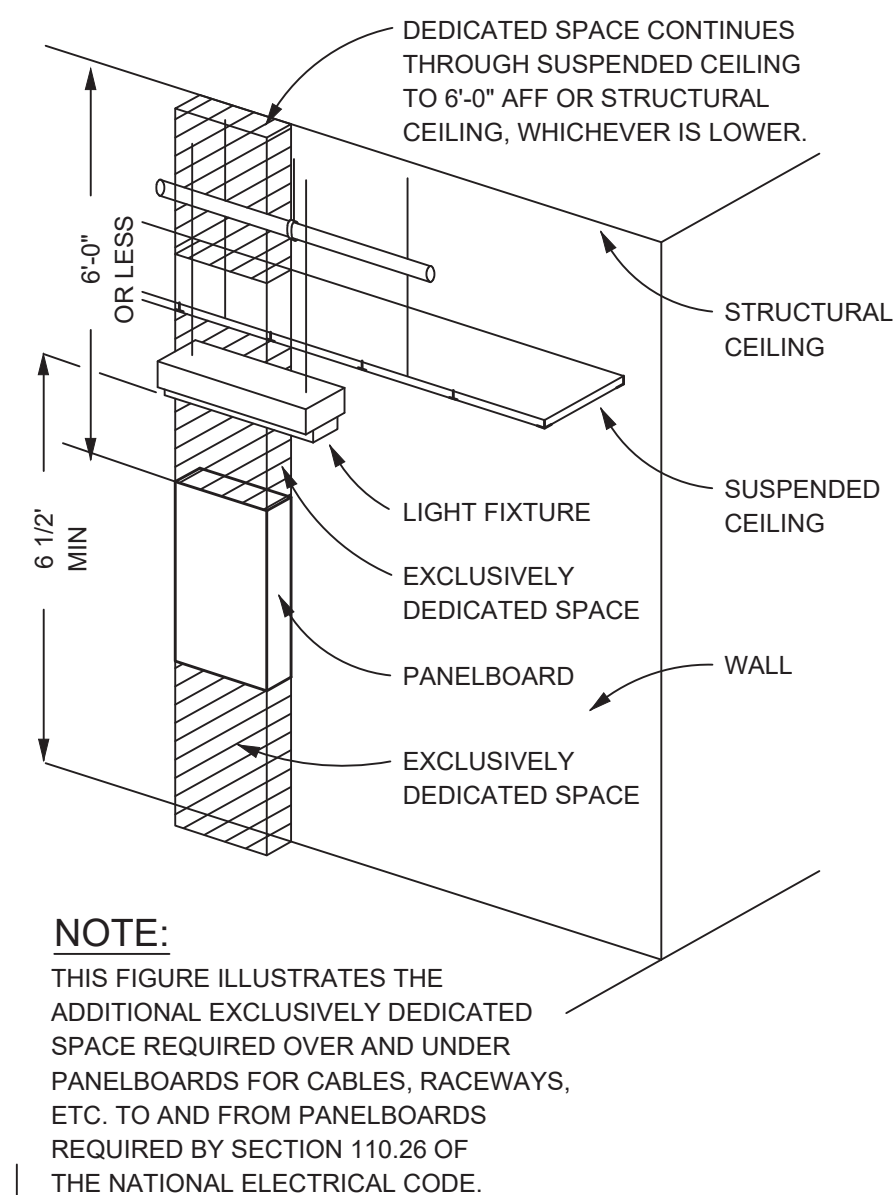
NOTE:

- THIS INCLUDES BUT IS NOT LIMITED TO PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES AND OTHER ELECTRICAL EQUIPMENT.
- NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH THE DEDICATED SPACES SHOWN ABOVE.

3 MOUNTING HEIGHT DETAIL  
NO SCALE:



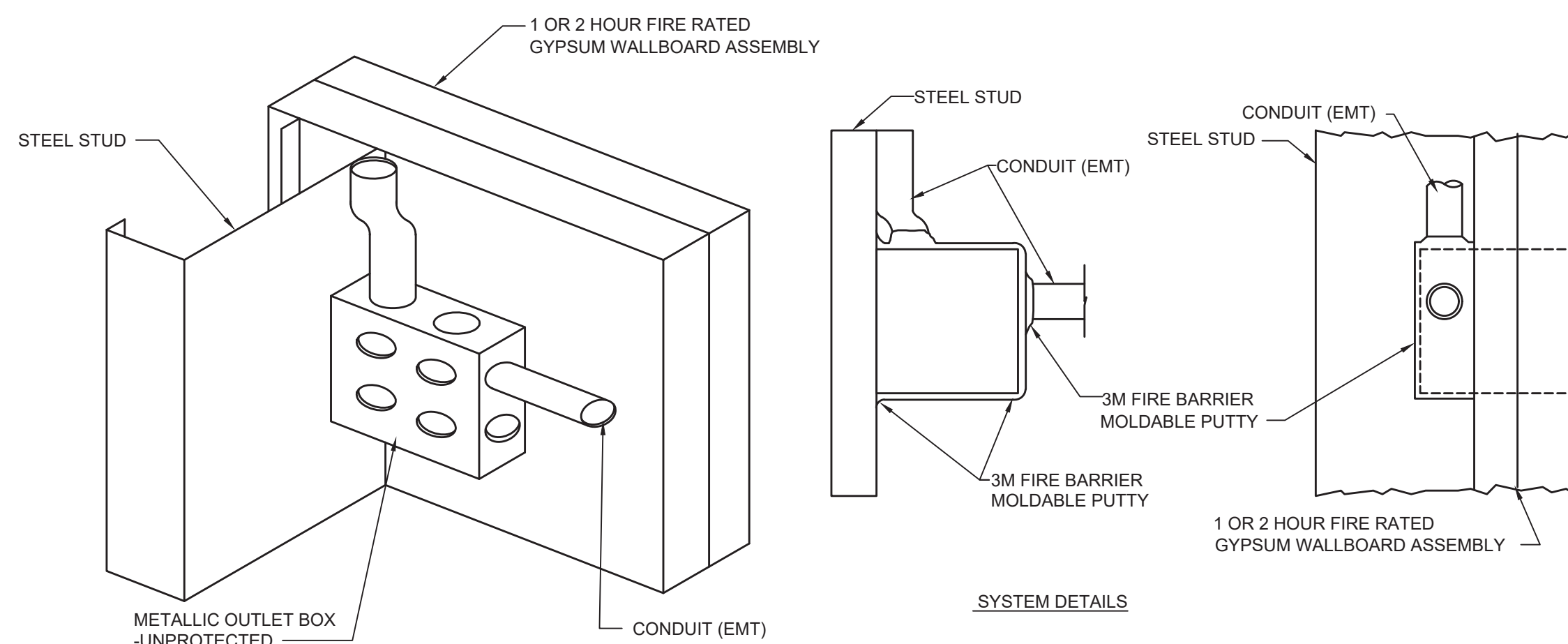
NOTE:  
NOT ALL DEVICES MAY BE USED IN CONSTRUCTION.



PANELBOARDS

NOTE:

THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER PANELBOARDS FOR CABLES, RACEWAYS, ETC. TO AND FROM PANELBOARDS REQUIRED BY SECTION 110.26 OF THE NATIONAL ELECTRICAL CODE.



DRAWING NO.: 5300-ICG85.01

- SYSTEM JUSTIFICATION: UL TEST REPORT R9700, 89NK19575 (11/9/89) AND R9700, 91NK21798 (10/10/91). TESTS CONDUCTED IN ACCORDANCE WITH THE STANDARD, FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS. ANSUL 263 (ASTM E 119, NFPA 251).
- ASSEMBLY: 1 OR 2 HR. FIRE RATED GYPSUM WALLBOARD/STUD WALL. WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS - 1 HR. RATING OR STEEL CHANNEL STUDS - 2 HR. RATING.
- RATING: 1 HR. OR 2 HR.
- ITEM TO BE PROTECTED: METALLIC OUTLET BOX - UP TO 4S. NOTE: THIS APPLICATION IS INTENDED TO PREVENT FLAME THROUGH AND SMOKE PROPAGATION BY SEALING "KNOCK-OUTS" AND OPENINGS IN THE BOX/ASSEMBLY. IT ALSO INHIBITS HEAT TRANSFER TO THE NON-FIRESIDE SURFACE OF THE WALL.

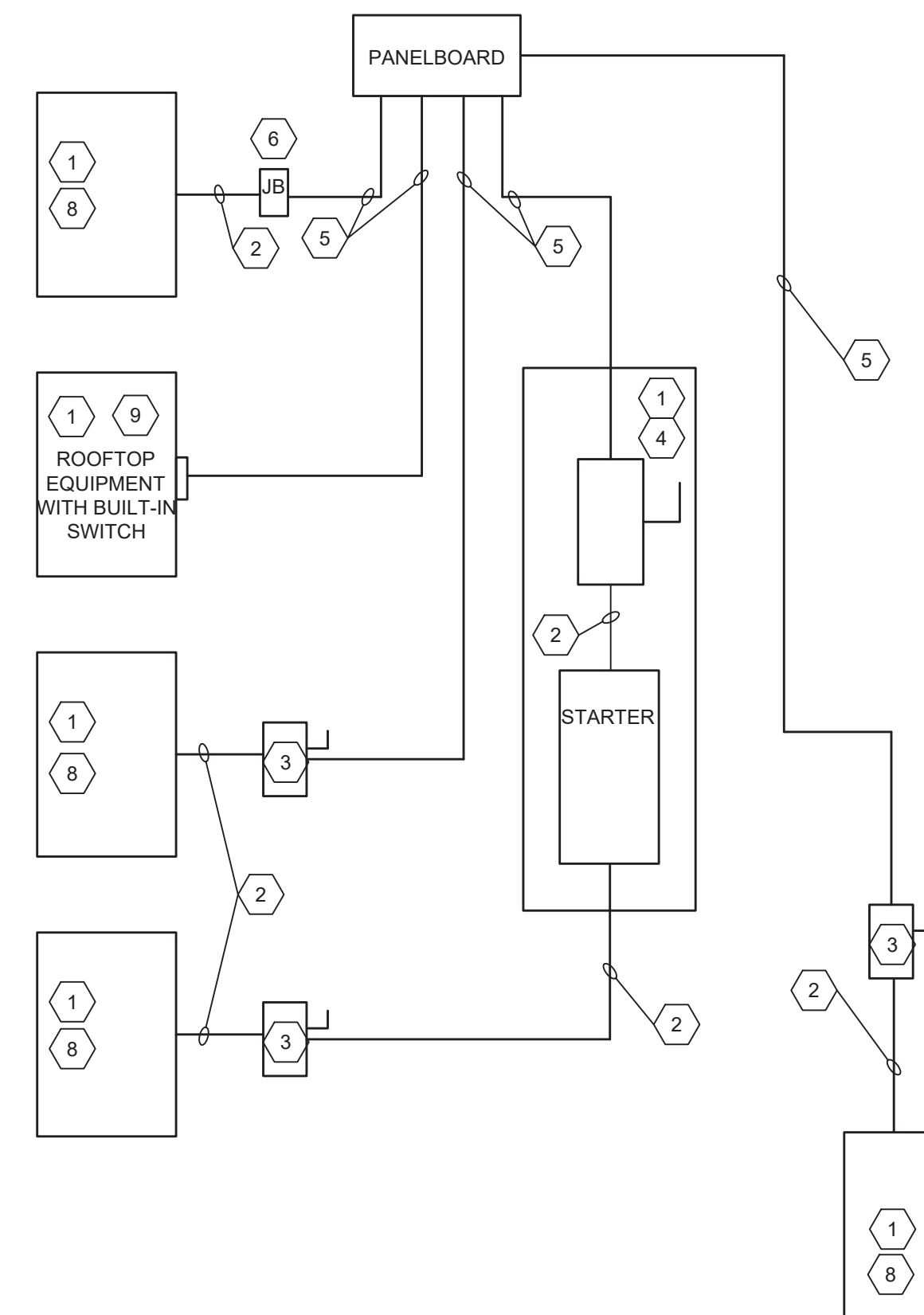
APPLICATION DETAILS

- APPLY A LAYER OF 3M FIRE BARRIER MOLDABLE PUTTY PAD TO THE METALLIC OUTLET BOX, COVERING ALL EXPOSED SURFACES. NOMINAL PUTTY THICKNESS IS 1/8 IN. (MPP1 = 4"x8"x1/8", MPP - 4S = 6"x7"x1/8")
- PRESS THE PUTTY INTO THE INTERFACE PERIMETER OF THE OUTLET BOX AND THE STUD AND ALSO THE INTERFACE OF THE OUTLET BOX AND THE GYPSUM WALLBOARD.
- SEAL ANY "KNOCK-OUT" HOLE CONTAINING WIRE OR CONDUIT WITH A GENEROUS AMOUNT OF MOLDABLE PUTTY.

2 "PUTTY-PAD" DETAIL  
NO SCALE:

KEYED NOTES:

- EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
- CONDUIT & WIRING BY HVAC, PLUMBING CONTRACTOR OR OTHER TRADES.
- IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
- A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER. LOCATED ADJACENT TO EQUIPMENT.
- FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
- JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
- NOT USED.
- IN ALL CASES THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START UP, AND TEST EQUIPMENT.
- IF THE ROOF TOP EQUIPMENT IS NOT PROVIDED WITH BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.

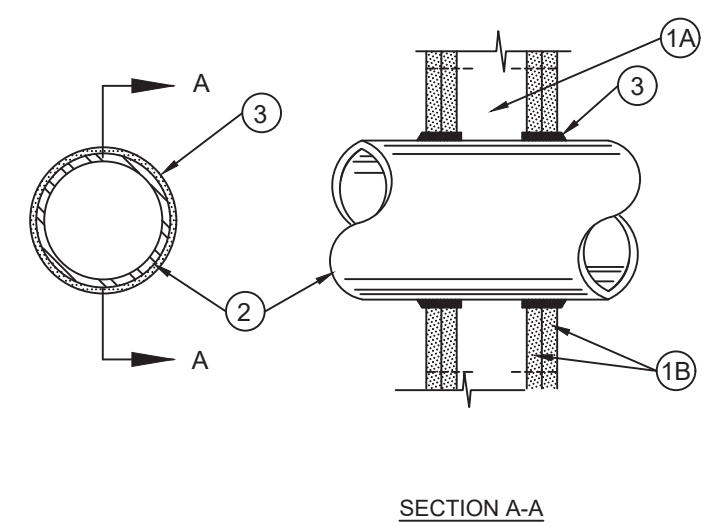


4 ELECTRICAL CONNECTION TO DIVISION 21 AND 23 EQUIPMENT  
NO SCALE:

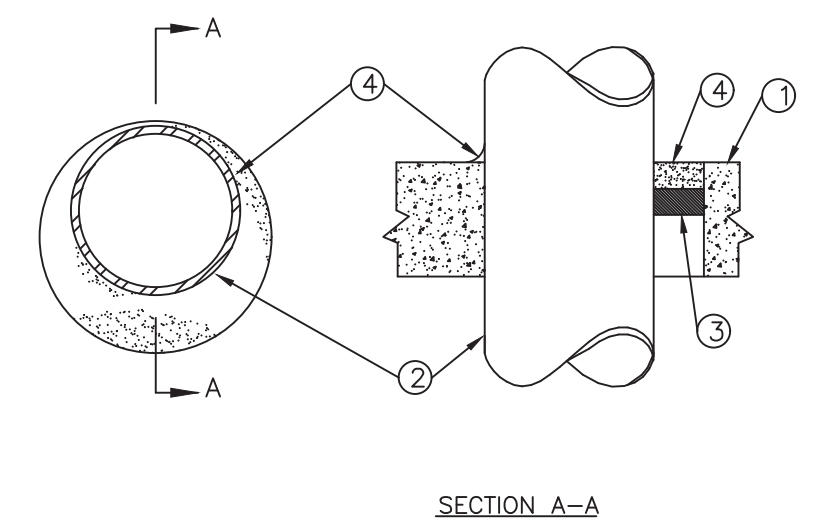
NOTES:

- DIVISION 21 AND 23 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DIRECTION OF ROTATION FOR ALL THREE PHASE EQUIPMENT.
- DIVISION 26 CONTRACTOR SHALL BE RESPONSIBLE FOR LABELING OF ALL DISCONNECTS.

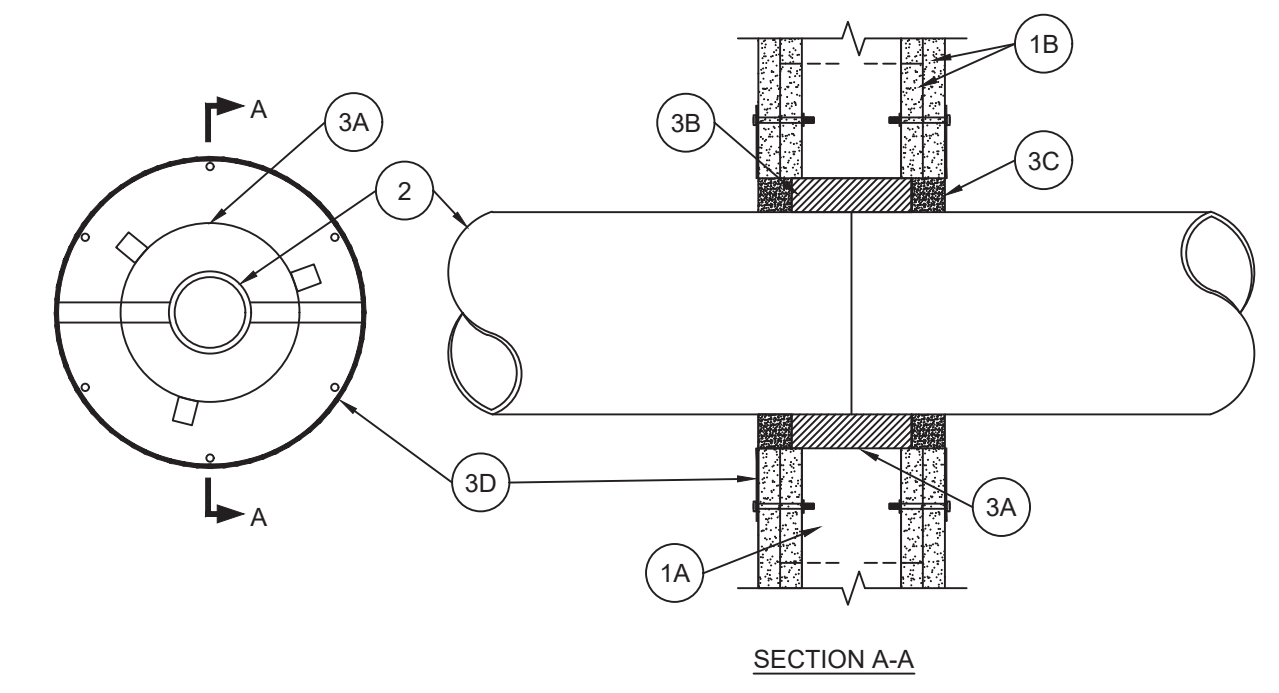
**SYSTEM NO. W-L-1001**  
 JUNE 15 2005  
 F RATINGS-1, 2, 3 AND 4 HR (SEE ITEM 2 AND 3)  
 T RATING-0, 1, 2, 3, AND 4 HR. (SEE ITEM 3)  
 L RATING AT AMBIENT - LESS THAN 1 CFM PER SQ. FT.  
 L RATING AT 400°F - LESS THAN 1 CFM PER SQ. FT.



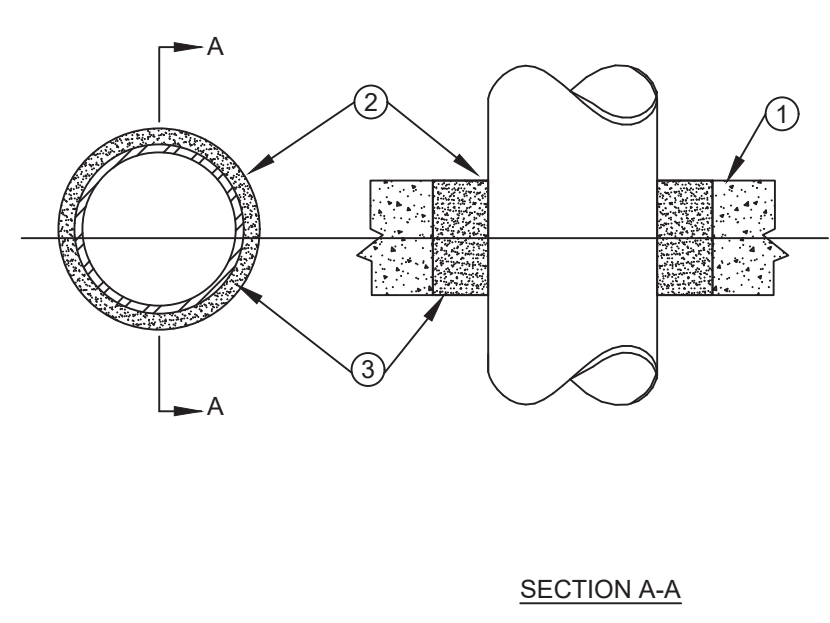
**SYSTEM NO. C-AJ-1001**  
 MARCH 05 2007  
 F RATINGS-3 4 HR  
 T RATING-0 HR.  
 W RATING - CLASS 1 (SEE ITEM 4)



**SYSTEM NO. W-L-1005**  
 F Ratings - 1 T  
 Rating - 0



**SYSTEM NO. C-AJ-1041**  
 NOVEMBER 05, 2010  
 F RATINGS-2 HR  
 T RATING-0 HR.



- THE 1, 2, 3 OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE WALL ASSEMBLY-CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 H FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
  - GYPSUM BOARD\* - NOM 1/2 OR 5/8 IN. THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 26 IN.
- THROUGH - PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX MAX. 2 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED.
  - STEEL PIPE - NOM 24 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
  - IRON PIPE - NOM 24 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE LINE PRESSURE PIPE.
  - CONDUIT - NOM 6 IN. DIAM. (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
  - COPPER TUBING - NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
  - COPPER PIPE - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
  - THROUGH PENETRATING PRODUCT\* - FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:
    - NOM 2 IN. DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
 

OMEGA FLEX INC
    - NOM 1 IN. DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
 

GASTILE, DIV OF TILEFLEX
    - NOM 1 IN. DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
 

WARD MFG INC
- FILL, VOID OR CAVITY MATERIAL\* - CAULK OR SEALANT - MIN 5/8, 1-1/4, 1-7/8 AND 2-1/2 IN THICKNESS OF CAULK FOR 1, 2, 3, 4 HR RATED ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OR WALL. MIN 1/4 IN DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT LOCATION ON BOTH SIZE OF WALL. THE HOURLY F RATING OF THE FIRESTOP IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW.

MAX PIPE OR CONDUIT DIAM, IN	F RATING HR	T RATING HR
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
4	1 or 2	0
6	3 or 4	0
12	1 or 2	0

+WHEN COPPER PIPE IS USED, T RATING IS 0 H.  
 3M COMPANY - CP 25WB+ or FB-3000 WT.  
 \*BEARING THE UL CLASSIFICATION MARKING.

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- FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAX DIAM OF CIRCULAR THROUGH OPENING IS 32-1/2 IN.
 

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

  - STEEL SLEEVE - (OPTIONAL, NOT SHOWN) - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL, AS AN ALTERNATE, NOM 12 IN DIAM (OR SMALLER) SLEEVE FABRICATED FROM NOM 0.019 IN THICK GALV STEEL CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY FLUSH WITH FLOOR OR WALL SURFACE.
  - THROUGH-PENETRANT- ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 1-3/8" IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
    - STEEL PIPE-NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
    - IRON PIPE-NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
    - CONDUIT-NOM 6 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT.
    - CONDUIT-NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
  - PACKING MATERIAL - POLYETHYLENE BACKER ROD OR NOM 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL WOOL BATT OR GLASS FIBER INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF SOLID CONCRETE OR CONCRETE BLOCK WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4), AS AN ALTERNATE WHEN MAX PIPE SIZE IS 10 IN. DIAM AND WHEN MAX ANNULAR SPACE IS 1 IN. OR, A MIN 1 IN. THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OF MINERAL WOOL BATT PACKING MATERIAL MAY BE RECESSED MIN 1/2 IN. FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF SOLID CONCRETE WALL.
  - FILL, VOID OR CAVITY MATERIALS\* - CAULK - APPLIED TO FILL THE ANNULAR SPACE TO THE MIN THICKNESS SHOWN IN THE FOLLOWING TABLE:

MAX PIPE DIAM IN	MAX ANNULAR SPACE IN.	PACKING MATERIAL TYPE (A)	MIN. CAULK THKNS IN
10	1	BR, CF, GF OR MW	1/2 (B)
10	1	CF OR MW	1/2 (C)
30	2-1/2	BR, CF, GF OR MW	1 (B)

- (A) BR= POLYETHYLENE BACKER ROD.  
 CF= CERAMIC FIBER BLANKET.  
 GF= GLASS FIBER INSULATION.  
 MW= MINERAL WOOL BATT
- (B) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL  
 (C) CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF SOLID (NON-CONCRETE BLOCK) WALL.
- 3M COMPANY- TYPE CP 25WB+ OR FB-3000 WT  
 (NOTE - W RATING APPLIES ONLY WHEN FB-3000 WT IS USED ON TOP SURFACE OF FLOOR AND WHEN IT LAPS ONTO CONCRETE FOR SLEEVED OPENING.)
- \* BEARING THE UL CLASSIFICATION MARKING.

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- WALL ASSEMBLY - THE FIRE-RATED GYPSUM/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
    - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC.
    - GYPSUM BOARD\* - TWO LAYERS OF NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 6 IN.
  - THROUGH PENETRATES - ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
    - STEEL PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE. A NOM ANNULAR SPACE OF 3/4 IN. IS REQUIRED WITHIN THE FIRESTOP SYSTEM.
    - CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. A NOM ANNULAR SPACE OF 3/4 IN IS REQUIRED WITHIN THE FIRESTOP.
  - FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
    - METALLIC SLEEVE - NOM 6" IN DIAM (OR SMALLER) STEEL SLEEVE WITH NOM 3/4 IN BY 3/4 IN LONG TABS TO RETAIN PUTTY (ITEM C) IN POSITION. SLEEVE FABRICATED FROM 0.016 IN THICK GALV SHEET STEEL AVAILABLE FROM PUTTY MANUFACTURER. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE WALL ASSEMBLY. AS AN ALTERNATE, THE STEEL SLEEVE MAYBE FIELD FABRICATED FROM 0.016 IN THICK GALV SHEET STEEL IN ACCORDANCE WITH INSTRUCTION SHEET SUPPLIED BY PUTTY MANUFACTURER.
    - PACKING MATERIAL - MIN 3 IN. THICKNESS OF MIN 6 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FROM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
    - FILL, VOID OR CAVITY MATERIAL\* - PUTTY-MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, ON BOTH SURFACES OF WALL. ADDITIONAL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/8 IN. CROWN IS FORMED AROUND PENETRATING ITEM.
 

EGS NELSON FIRESTOP - TYPE FSP PUTTY
    - TRIM RING - NOM 8 IN. DIAM BY 0.016 IN (NO 30 GAUGE) THICK GALV SHEET RING AVAILABLE FROM PUTTY MANUFACTURER. RING SUPPLIED IN TWO SECTIONS AND POSITIONED TOGETHER WITH A 1/2 IN OVERLAP. RING SECURED TO SURFACE OF WALL ASSEMBLY BY SIX 5/16 IN DIAM BY 2 IN LONG STEEL WALL ANCHORS, EQUALLY SPACED.
- \* BEARING THE U L CLASSIFICATION MARK
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- FLOOR OR WALL ASSEMBLY - Min 3-1/4 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any ul classified concrete blocks\*. Max diam of opening is 6 in.
 

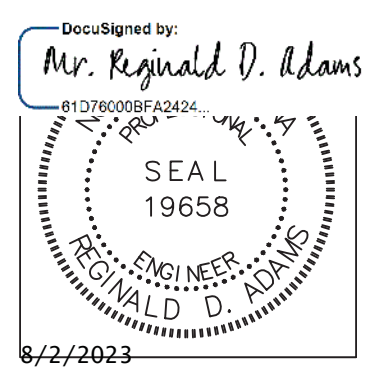
SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

    - STEEL PIPE - Nom 4 in. diam (or smaller) schedule 5 (or heavier) steel pipe.
    - CONDUIT-Nom 4 in. diam (or smaller) steel electrical tubing or steel conduit.
  - FILL, VOID OR CAVITY MATERIALS\* - Putty - Min 3-1/4 in. thickness of fill material applied within the annulus, flush with both surfaces of floor or wall.
 

EGS NELSON FIRESTOP - TYPE FSP PUTTY
- \* BEARING THE UL CLASSIFICATION MARK

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DATE: 08-04-2023	DESIGNER: MP	DRAWN BY: MP	CHECKED BY: RDA	REV.: 00X.CD
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 Sigma Project #: 22053  
 NC ENG LIC# C-2490



POE HALL - FIRE PROTECTION  
 SYSTEMS IMPROVEMENTS  
 POE HALL - BUILDING # 024  
 SCOD#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No.  
**E501**

Designer Proj. No.  
**22053**  
 NCSU Proj. No.  
**202220008**

FAC. NAME  
 POE HALL

FAC. NO. **024**