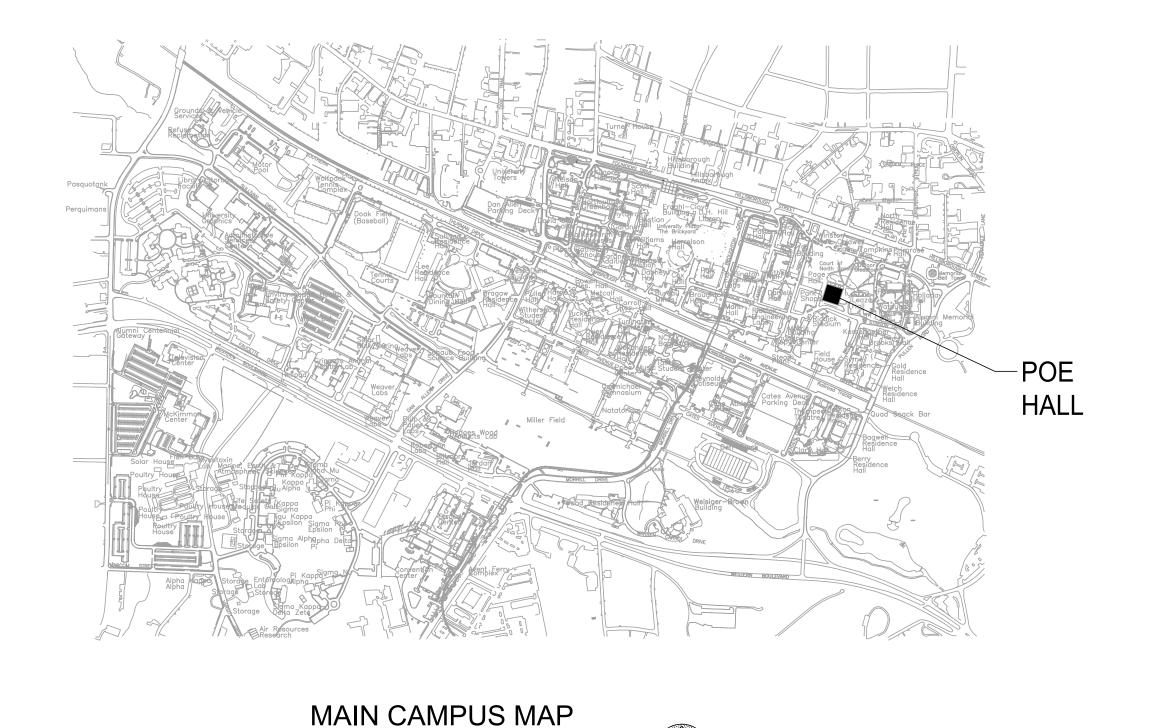
BID DOCUMENTS POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS

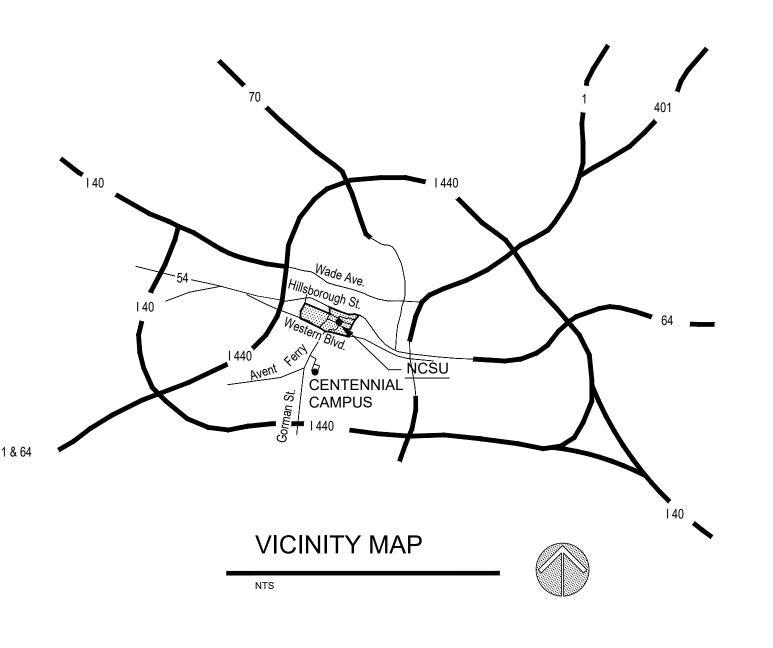
NORTH CAROLINA STATE UNIVERSITY

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

SCOPE OF WORK

OF AN EXISTING AIR COMPRESSOR. ELECTRICAL AND FIRE ALARM WORK TO FACILITATE CHANGES ARE INCLUDED





SHEET INDEX

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PROJECT COVER SHEET CODE SUMMARY-POE HALL
C100 EXISTING CONDITION
     SITE PLAN
     WATERLINE PLAN & PROFILE
      FIRE PROTECTION DEMOLITION PLAN- FOURTH FLOOR
      FIRE PROTECTION DEMOLITION PLAN- FIFTH FLOOR
      FIRE PROTECTION DEMOLITION PLAN- SIXTH FLOOR
      FIRE PROTECTION DEMOLITION PLAN- SEVENTH FLOOR
      FIRE PROTECTION DEMOLITION PLAN- PENTHOUSE
      FIRE PROTECTION NEW WORK PLAN- SITE PLAN
      FIRE PROTECTION NEW WORK PLAN- FIRST FLOOR
      FIRE PROTECTION NEW WORK PLAN- SECOND FLOOR
      FIRE PROTECTION NEW WORK PLAN- THIRD FLOOR
      FIRE PROTECTION NEW WORK PLAN- FOURTH FLOOR
      FIRE PROTECTION NEW WORK PLAN- FIFTH FLOOR
      FIRE PROTECTION NEW WORK PLAN- SIXTH FLOOR
      FIRE PROTECTION NEW WORK PLAN- SEVENTH FLOOR
      FIRE PROTECTION NEW WORK ENLARGED PLAN- FIRST FLOOR FIRE PUMP ROOM - BASE BID
      FIRE PROTECTION NEW WORK ENLARGED PLAN- FIRST FLOOR FIRE PUMP ROOM - ALTERNATE 1
      FIRE PROTECTION DETAILS
      FIRE PROTECTION DETAILS
     FIRE PROTECTION DETAILS
      PLUMBING LEGEND AND GENERAL NOTES
      PLUMBING ENLARGED PLAN- FIRST FLOOR
      MECHANICAL LEGEND AND GENERAL NOTES
      MECHANICAL DEMOLITION ENLARGED PLAN- FIRST FLOOR
      MECHANICAL NEW WORK ENLARGED PLAN- FIRST FLOOR
     CHILLED WATER SCHEMATIC - DEMOLITION
      ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES
      ELECTRICAL DEMOLITION PLAN- FIRST FLOOR
      ELECTRICAL DEMOLITION PLAN- SECOND FLOOR
      ELECTRICAL NEW WORK PLAN- SITE PLAN
```

ELECTRICAL NEW WORK PLAN- FIRST FLOOR ELECTRICAL NEW WORK PLAN- SECOND FLOOR ELECTRICAL NEW WORK PLAN- SEVENTH FLOOR ELECTRICAL NEW WORK PLAN- PENTHOUSE

ELECTRICAL RISER AND SCHEDULES FIRE ALARM RISER AND SCHEDULES

ELECTRICAL PANEL SCHEDULES

E500 ELECTRICAL DETAILS E501 ELECTRICAL DETAILS



SHEET No.

C001

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

FAC. NAME POE HALL

2018 APPENDIX B **BUILDING CODE SUMMARY** FOR ALL COMMERCIAL PROJECTS (EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES) (Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: Fire Protection Systems Improvements Poe Hall - Building # 024			ALLOWABLE HE	IGHT		_
Address: 2310 Stinson Drive, Raleigh, NC Zip Code: 27695 Owner/Authorized Agent: North Carolina State University Phone #: 919-515-2030 E-Mail: dlhammoc@ncsu.edu			ALLOWABLE (TABLE 503)	SHOWN (ON PLANS	
Owned By: City/County Private X State	Building Height in Feet (Table 504.3) Building Height in Stories (Table 504.4)		160 FT 11 STORIES	115 FT 7 STOR	RIES	F
Code Enforcement Jurisdiction: City County X State	1 Provide code reference if the "Show	on Plans" quantity is not	based on Table 504.3 or 50			_
CONTACT: David Hammock, PE	2 The maximum height of air traffic con 3 The maximum height of open parking					
DESIGNER FIRM NAME LICENSE # TELEPHONE # E-MAIL			FIRE PROTECTION REQ	IIIREMENTS		_
Architectural Provision Studio, PLLC Daniel R. Culbertson, AIA 13109 919-272-3349 dculbertson@provisionstudio.design	BUILDING ELEMENT FIRE SEPA	RATION DISTANCE	RATING	DETAIL # AND	DESIGN # FOR	Τ
Fire Alarm Sigma Engineered Sol. PC Reginald D Adams, PE 19658 919-840-9300 radams@sigmaes.com Plumbing Sigma Engineered Sol. PC Brent Hanes, PE 34319 919-840-9300 bhanes@sigmaes.com		(FEET) REQ'D	PROVIDED W/ REDUCTION) *	SHEET#	RATED ASSEMBLY	ſ
MechanicalSigma Engineered Sol. PCBrent Hanes, PE34319919-840-9300bhanes@sigmaes.comSprinkler-StandpipeSigma Engineered Sol. PCBrent Hanes, PE34319919-840-9300bhanes@sigmaes.com	Structural Frame, including columns, girders, trusses	2 HR	2 HR			
Structural Lysaght & Associaes, PA Mark Blankinship, PE 46123 919-833-0495 markb@lysaghtassociates.com Retaining Walls >5' High	Bearing Walls					t
Other ("Others" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)	Exterior North	N/A	NA			‡
2018 NC CODE FOR: New Building Addition Renovation	East West South	N/A N/A N/A	NA NA NA			‡
1st Time Interior Completion	Interior	N/A	INA			F
Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements	Nonbearing Walls and Partitions Exterior walls					t
Phased Constructino - Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements	North East	N/A N/A	NA NA			₽
2018 NC EXISTING BUILDING CODE:	West South Interior walls and partitions	N/A N/A	NA NA			‡
Prescriptive Repair Chapter 14	Floor Construction Including supporting beams	1 HR 2 HR	1 HR 2 HR			t
Level I Historic Property Level II Change of Use	and joists Floor Ceiling Assembly	Z TIK	2 ΠΚ			Ļ
CONSTRUCTED:(date) 1971 ORIGINAL OCCUPANCY(S) (Ch. 3): B BUSINESS RENOVATED: (date) VARIOUS CURRENT OCCUPANCY(S) (Ch. 3): B BUSINESS	Column Supporting Floors Roof Construction, including					F
RISK CATEGORY (table 1604.5) Current:	supporting beams and joists Roof Ceiling Assembly	1 HR	1 HR			Ł
Proposed: II XIII IIV	Column Supporting Roof Shaft Enclosures - Exit	2 HR	2 HR			t
BASIC BUILDING DATA	Shaft Enclosures - Other Corridor Separation	2 HR 1 HR	2 HR 1 HR			‡
Construction Type: II-A III-A III-A IV-A (check all that apply) X I-B III-B III-B V-B	Occupancy/Fire Barrier Separation Party/Fire Wall Separation	N/A N/A	N/A N/A			╀
Sprinklers: X No Partial Yes NFPA 13 NFPA 13R NFPA 13D	Smoke Barrier Separation Smoke Partition	N/A N/A N/A	N/A N/A N/A			F
Standpipes: No X Yes Class X II III III X Vet Dry Fire District: X No Yes (Primary) Flood Hazard Area: No Yes	Tenant/Dwelling Unit/ Sleeping Unit Separation	1 HR	1 HR			Į
Special Inspections Required: Yes Contact the local inspection jurisdiction for possible additional procedures and requirements	Incidental Use Separation * Indicate section number permitting reduc	1 HR I	1 HR			_
		DEDO	ENTAGE OF WALL OREN	NO CALCUL	ATIONS	
FLOOR EXISTING (SQ FT) NEW (SQ FT) RENO/ALTER (SQ FT) SUB-TOTAL	FIRE SEPARATION DISTANCE (FEET FROM PERPERTY LINES	DEGREES OF OPENINGS PR	OTECTION (TABLE 705.8)	ALLOWABL		Π
ROOF 3723 3723 7th Floor 21242 21242	(LETTIONT EN ENTENEO					t
						上
6th Floor 21242 5th Floor 21242 21242 21242						_
4th Floor 21242 3rd Floor 21242 21242 21242			LIFE SAFETY SYSTEM RE	QUIREMENT	'S	
2nd Floor 21242 1st Floor 21242 2nd Floor 21242	Emergency Lighting:	No X				
Basement TOTAL 152417 148694	Exit Signs:	No XY				
Allowable area	Smoke Detection Systems:	No Y	/es X Par	tial		
Primary Occupancy Classification: SELECT ONE	Carbon Monoxide Detection:	XNoY	⁄es			
AssemblyA-1A-2A-3A-4A-5 Business X						—
Educational	Life Safety Plan Sheet #:	N/A	LIFE SAFETY PLAN REC	UIREMENTS		
Factory F-1 Moderate F-1 Low Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM	Fire and/or smoke rated wall lo Assumed and real property lin		site nlan)			
Institutional I-1 Condition II	Exterior wall opening area with	respect to distance to a	ssumed property lines (705.	•		
☐ I-2 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Occupancy types for each area Occupant loads for each area	a as it relates to occupan	t load calculation (Table 100	04.1.2)		
	Exit access travel distances (1	,				
Mercantile Residential R-1 R-2 R-3 R-4	Common path of travel distance Dead end lengths (1020.4)	ces (1006.2.1 & 2006.3.2	(1))			
Storage S-1 Moderate S-2 Low High-piled Parking Garage Open Enclosed Repair Garage	Clear exit widths for each exit			1	: W /400F 0	٠,
Utility and Miscellaneous	Maximum calculated occupant Actual occupant load for each	• •	door can accommodate bas	ea on egress v	wiath (1005.3	i)
Accessory Occupancy Classification(s):	A separate schematic plan ind supporting construction for a fi			ture is provide	d for purpose	es (
Incidental Uses (Table 509): Special Uses (Chapter 4 – List Code Sections): Special Provisions: (Chapter 5 – List Code Sections):	Location of doors with panic ha	,	count of doloy (1010 1 0 7)			
Mixed Occupancy: X 10 Yes Separation: Hr. Exception:	Location of doors with delayed Location of doors with electron	_				
Non-Separated Use (508.3) The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the	Location of doors equipped with Location of emergency escape					
entire building. The most restrictive type of construction, so determined, shall apply to the entire building.	The square footage of each fir	e area (202)				
Separated Use (508.4) See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.	The square footage of each sr Note any code exceptions or to					
Actual Area of Occupancy A + Actual Area of Occupancy B ≤ 1 Allowable Area of Occupancy A Allowable Area of Occupancy B	Section/Table/Note			ïtle		_
+ + = ≤ 1.00	Gection/Table/Note		'	iue		_
(A) (B) (C) (D)			ACCESSIBLE DWELL		_	_
STORY NO. DESCRIPTION AND USE BUILDING AREA PER STORY (ACTUAL) (A) BUILDING AREA PER STORY (ACTUAL) (B) TABLE 506.24 AREA AREA FOR FRONTAGE INCREASE 1,5 AREA FOR FRONTAGE STORY OR UNLIMITED 2,3			(SECTION 11)	07)		
		SSIBLE UNITS OVIDED TYPE A U	NITS REQUIRED TYPE A UNITS PROVIDED	TYPE B UN REQUIRED	TYPE B UI PROVIDI	
						_
1 Frontage area increases from Section 506.3 are computed thus:						_
a. Perimeter which fronts a public way or open space having 20 feet minimum width =(F) b. Total Building Perimeter =(P) c. Ratio (F/P) =#DIV/0!(F/P)			ACCESSIBLE PAI (SECTION 11)			
d. W= Minimum width of public way =(W)		DIVINO ODA OFO	# OF ACCESSIBI	E SPACES PROV		
e. Percent of frontage increase If = $100 [F/P25] \times W/30 = \frac{\#DIV/0!}{(\%)}$	TOTAL # OF PA LOT OR PARKING REQUIRED		LAR WITH 5' ACCESS AISLE		PACES WITH	
e. Percent of frontage increase if = 100 [F/P25] x W/30 = <u>#blV/0!</u> (%) 2 Unlimited area applicable under conditions of Section 507. 3 Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).			LAR WITH 5' ACCESS AISLE	VAN SP ACCESS AISLE		AIS
2 Unlimited area applicable under conditions of Section 507.	LOT OR PARKING REQUIRED AREA		LAR WITH 5' ACCESS AISLE			S AIS
2 Unlimited area applicable under conditions of Section 507. 3 Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).	LOT OR PARKING REQUIRED		LAR WITH 5' ACCESS AISLE			S AIS

5 Frontage increase is based on the unsprinklered area value in Table 506.2.

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1) CODE REFERENCE Special approval: (Local Jurisdiction, Department of Insurance **ENERGY SUMMARY ENERGY REQUIREMENTS:** The following data shall be considered minimum and any special attribute required to meet the North Carolina Energy Conservation Code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design. Yes (The remainder of this section is not applicable.) Existing building envelope complies with code: Exempt Building: Yes (Provide Code of Statutory reference): Climate Zone: 3A Method of Compliance: Energy Code ASHRAE 90.1 (If "Other" specify source here) THERMAL ENVELOPE (Prescriptive method only) Roof/ceiling Assembly (each assembly) Description of assembly: U-Value of total assembly: R-Value of insulation: Skylights in each assembly: U-Value of skylight: total square footage of skylights in each assembly Exterior Walls (each assembly) Description of assembly: U-Value of total assembly: R-Value of insulation: Openings (windows or doors with glazing U-Value of assembly: Solar heat gain coefficient: Projection factor: Door R-Values: Walls below grade (each assembly) Description of assembly: ACTUAL SHOWN ON PLANS (% U-Value of total assembly: R-Value of insulation: Floors over unconditioned space (each assembly Description of assembly: U-Value of total assembly: R-Value of insulation: Floors slab on grade Description of assembly: U-Value of total assembly: R-Value of insulation: Horizontal/Vertical requirement: 2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE) **DESIGN LOADS:** Importance Factors: Live Loads: **Ground Snow Load:** Exposure Category d for purposes of occupancy separation and SEISMIC DESIGN CATEGORY: Provide the following Seismic Design Param Risk Category (Table 1604.5) Spectral Response Acceleration C XD E F

X Presumptive Historical Data Site Classification (ASCE 7) Data Source: Dual w/Special Moment Frame Bearing Wall Basic structural system Dual w/Intermediate R/C or Special Steel Inverted Pendulum Equavalent Lateral Force Dynamic Analysis Procedure: Yes X No

Architectural, Mechanical, Components anchored?

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS MECHANICAL DESIGN (PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

Field Test (provide copy of test report) Presumptive Bearing capacity Pile size, type, and capacity

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPME

LATERAL DESIGN CONTROL: SOIL BEARING CAPACITIES:

winter dry bulb:

summer dry bulb:

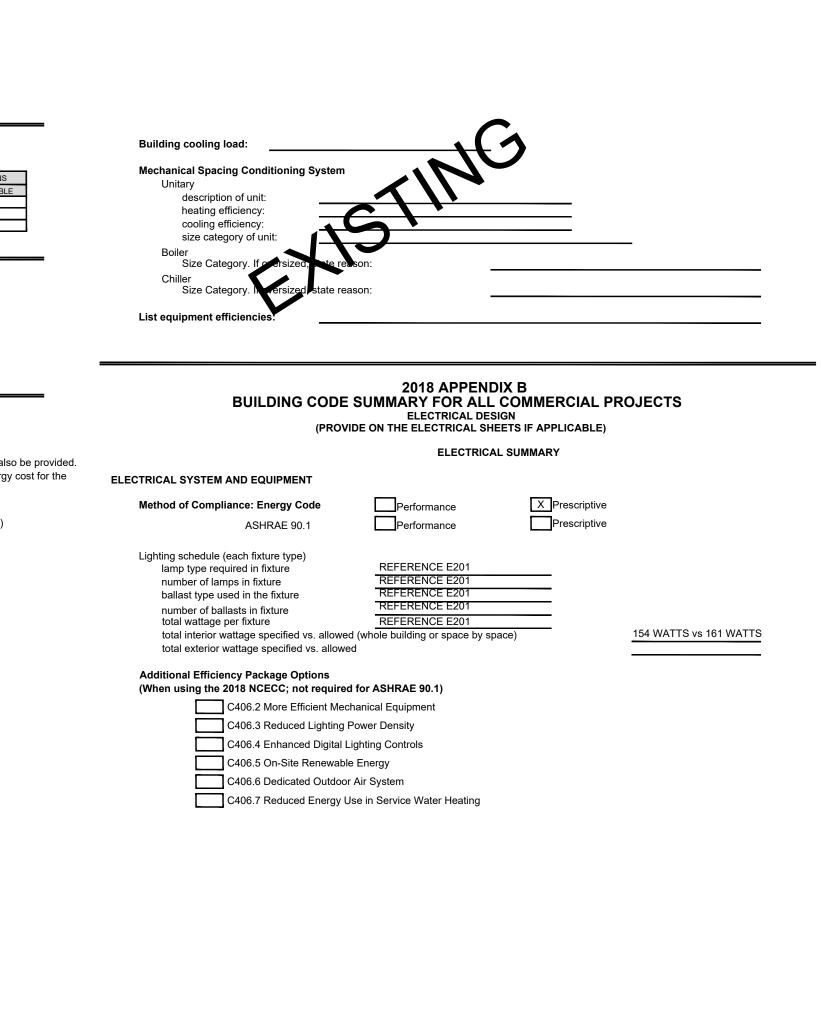
Interior design conditions winter dry bulb:

summer dry bulb:

relative humidity:

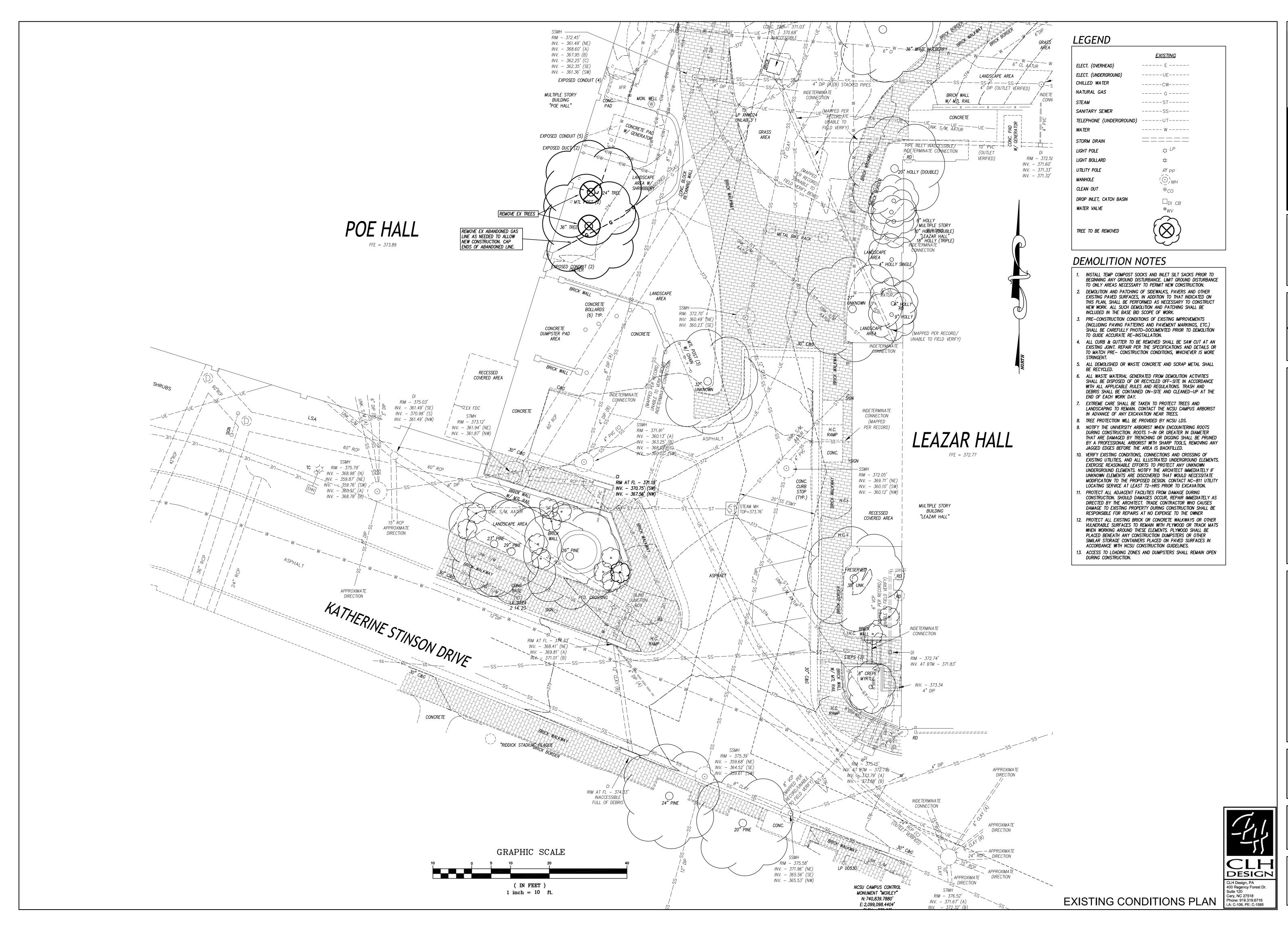
TYPE B UNITS TOTAL ACCESSIBLE UNITS

TOTAL # ACCESSIBLE



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

FAC. NAME POE HALL



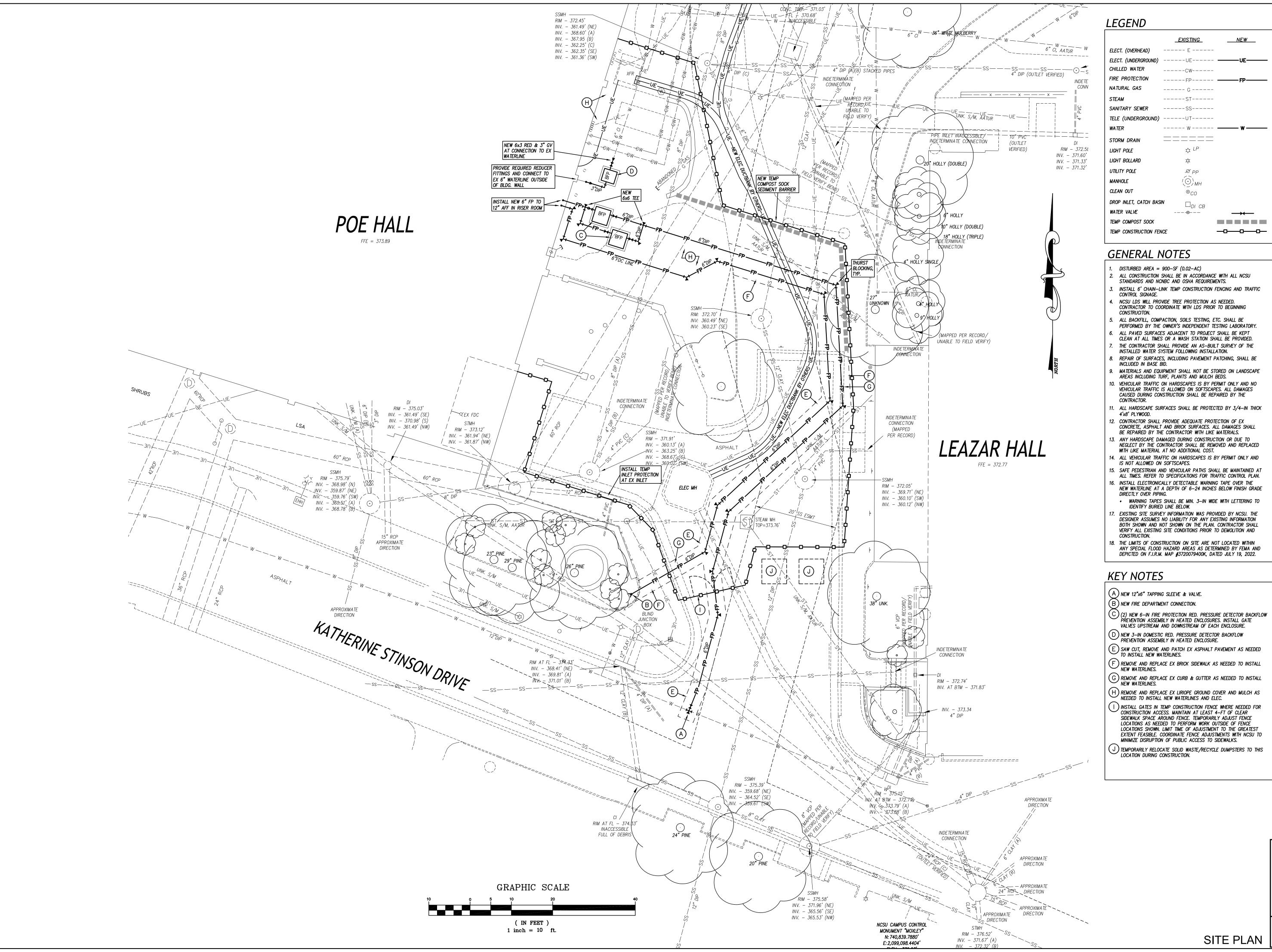
SYSTEMS IMPROVEMENTS
POE HALL - BUILDING # 024

SHEET No.

C100

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

FAC. NAME
POE HALL



----**UE**-----**UE**---------- w ----- **w** -----

INSTALL 6' CHAIN-LINK TEMP CONSTRUCTION FENCING AND TRAFFIC

- NEW WATERLINE AT A DEPTH OF 6-24 INCHES BELOW FINISH GRADE



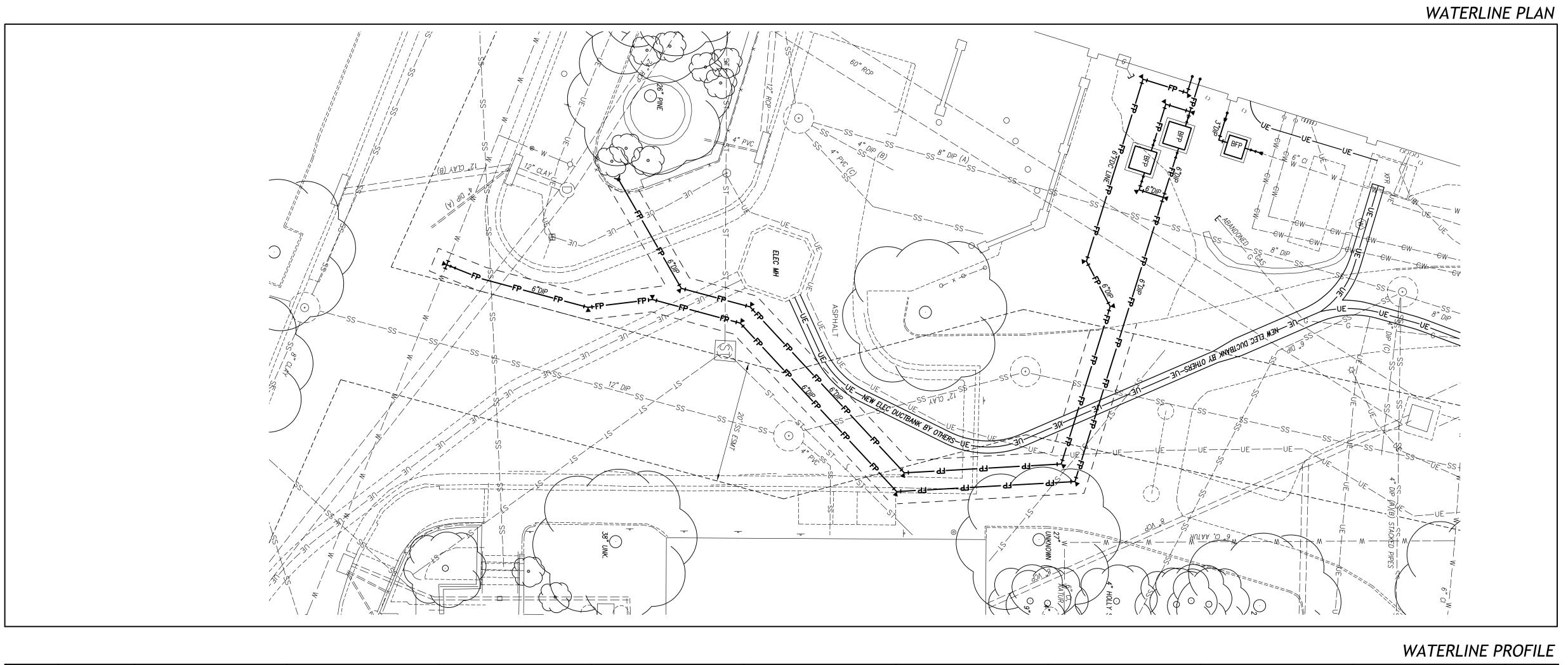
Phone: 919.319.6716 LA: C-106, PE: C-1595

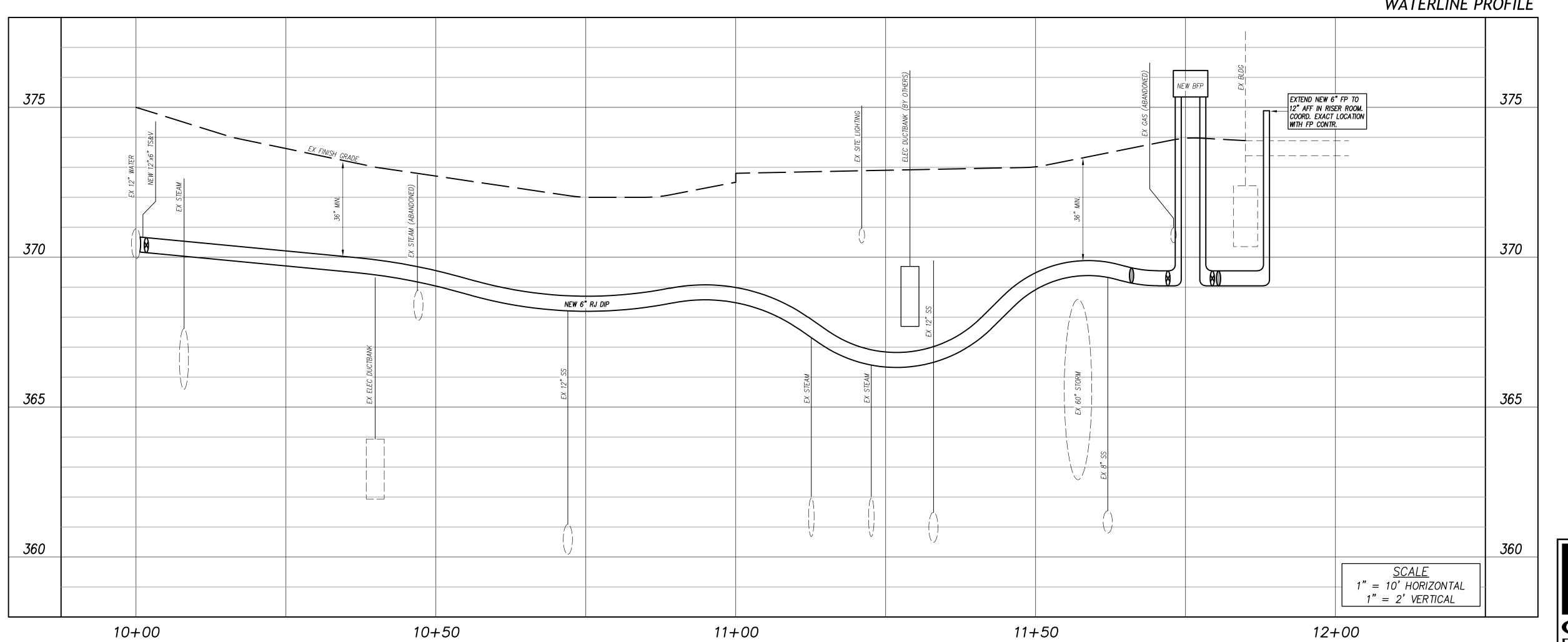
Designer Proj. No. 22053 NCSU Proj. No. 202220008

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

SHEET No.

FAC. NAME POE HALL



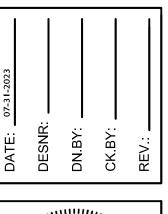


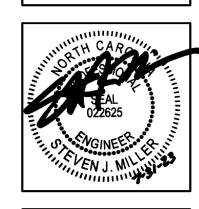


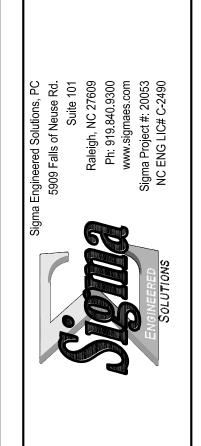
NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES

* BOX 7216* RALEIGH, NORTH CAROLINA 27695 - 72







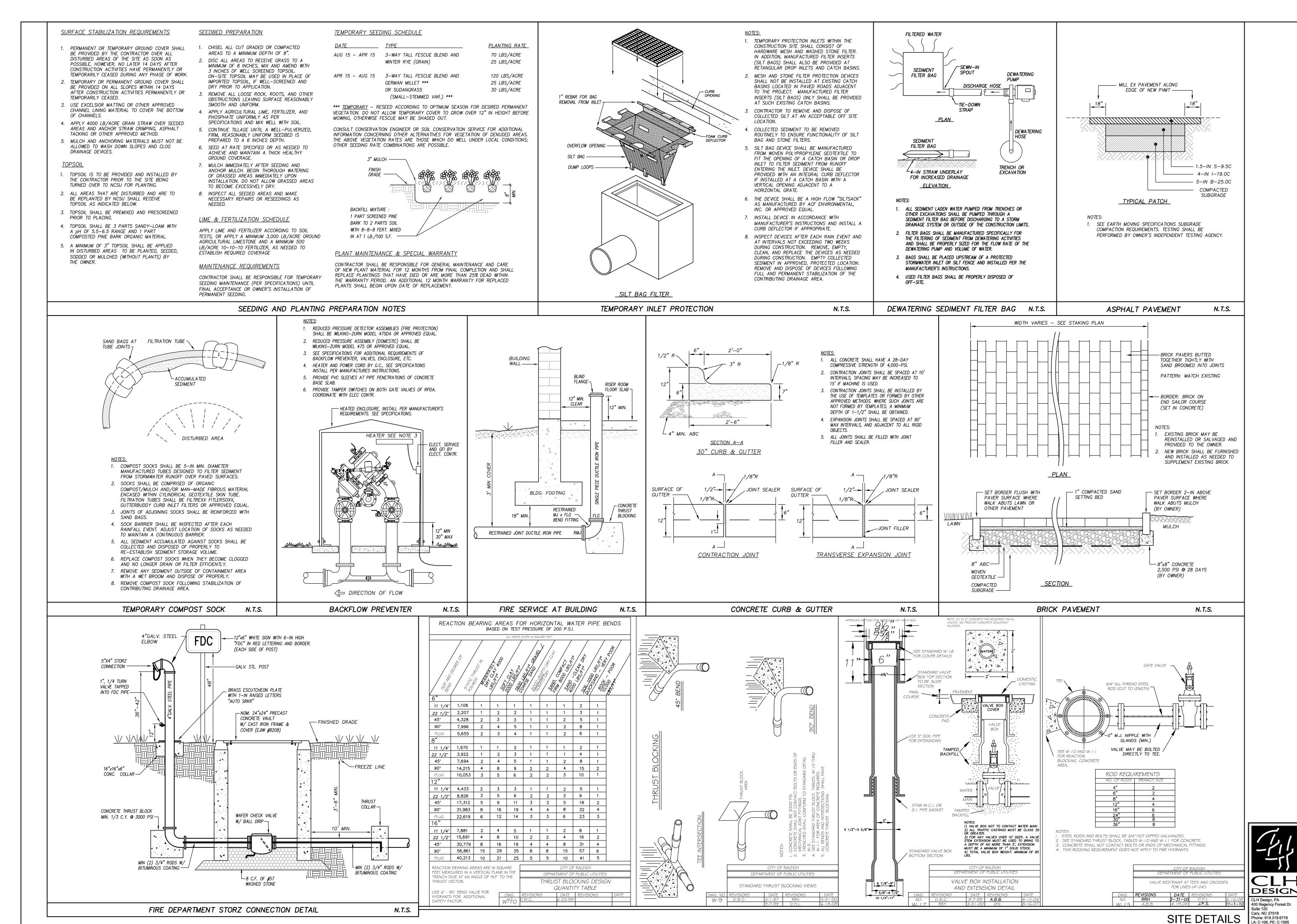
POE HALL - FIRE PROTECTION
SYSTEMS IMPROVEMENTS
POE HALL - BUILDING # 024
COID#: 22-24502-01; CODE: 42124; ITEM: 343

C201

Designer Proj. No.
22053

NCSU Proj. No.
202220008

FAC. NAME POE HALL



NC STATE UNIVERSITY

DESIGN AND CONSTRUCTION SERVICES

* BOX 7216* RALEIGH, NORTH CAROLINA 27695 - 7

DATE: 07-31-2023

DESNR:

DN.BY:

CK.BY:

REV.:

SEAL 022625

Sigma Engineered Solutions, PC 5909 Falls of Neuse Rd.
Suite 101
Raleigh, NC 27609
Ph. 919.840.9300
www.sigmaes.com
Sigma Project #: 20053
NC ENG LIC# C-2490

L - FIRE PROTECTION
MS IMPROVEMENTS
ALL - BUILDING # 024

POE HALL - FIF SYSTEMS IMI POE HALL - B

C300

Designer Proj. No.
22053

NCSU Proj. No.
202220008

FAC. NAME POE HALL

THESE DRAWINGS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF LYSAGHT & ASSOCIATES, P.A., FOR USE SOLELY WITH THIS PROJECT AND SHALL NOT BE REPRODUCED FOR OTHER PURPOSES.

THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE PROJECT STRUCTURAL ENGINEER-OF-RECORD (SER) WHO BEARS LEGAL RESPONSIBILITY FOR THE PERFORMANCE OF THE STRUCTURAL FRAMING (NEW ELEMENTS IN THIS PROJECT ONLY) RELATING TO PUBLIC HEALTH, SAFETY, AND WELFARE. NO OTHER PARTY, WHETHER OR NOT A PROFESSIONAL ENGINEER, MAY COMPLETE, CORRECT, REVISE, DELETE, OR ADD TO THESE CONSTRUCTION DOCUMENTS OR PERFORM INSPECTIONS OF THE WORK WITHOUT THE WRITTEN PERMISSION OF THE SER.USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH JOB SPECIFICATIONS, AND OTHER DRAWINGS.

SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

ALL NON-STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS HAVE BEEN SHOWN IN GENERAL RELATIONSHIP TO THE STRUCTURAL ELEMENTS. THEY SHALL NOT BE ASSUMED TO BE ACCURATE AND REFERENCE MUST BE MADE TO THE APPROPRIATE CONSULTANT(S) PLANS AND SPECIFICATIONS.

CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND TAKE ALL NECESSARY FIELD MEASUREMENTS.

CONTRACTOR SHALL TAKE SUCH ACTION AS NECESSARY TO PREVENT MOVEMENT OF OR DAMAGE TO THE ADJACENT STRUCTURE DURING CONSTRUCTION.

THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING AND BRACING TO STABILIZE THE BUILDING DURING CONSTRUCTION.

WHENEVER EXISTING CONSTRUCTION IS RENOVATED, THERE IS LIKELY SOME COSMETIC DEFECTS DUE TO THE AGE OF THE BUILDING THAT WILL NOT BE CORRECTED DURING THE RENOVATION. THESE DEFECTS INCLUDE MINOR CRACKS IN MASONRY WALLS, CRACKS IN SHEETROCK THAT IS LEFT IN PLACE, ETC. THIS IS TO BE EXPECTED BY THE OWNER, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

SCOPE OF STRUCTURAL ENGINEERING SERVICES

LYSAGHT & ASSOCIATES, P.A. HAS PERFORMED THE STRUCTURAL DESIGN AND PREPARED THE STRUCTURAL WORKING DRAWINGS FOR THIS PROJECT. "CONSTRUCTION REVIEW" SERVICES ARE NOT A PART OF OUR CONTRACT. THE CONTRACTOR MUST NOTIFY THE STRUCTURAL ENGINEER IF REVIEW SERVICES ARE REQUESTED AND THEY WILL BE SUPPLIED AT THE RATES IN OUR ORIGINAL PROPOSAL.

PORTIONS OF THE STRUCTURAL DESIGN (AS NOTED ON THE DRAWINGS AND IN THESE NOTES) ARE THE RESPONSIBILITY OF THE MATERIAL SUPPLIERS. SHOP DRAWINGS FOR EACH OF THE STRUCTURAL COMPONENTS MUST BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION AND ERECTION.

THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM RELATED TO THE RENOVATION, EXCEPT FOR THE COMPONENTS NOTED ABOVE. RESPONSIBILITY FOR ANY SECONDARY STRUCTURAL AND NON-STRUCTURAL SYSTEMS NOT SHOWN ON THE STRUCTURAL PLANS RESTS WITH SOMEONE OTHER THAN THE STRUCTURAL ENGINEER.

THE STRUCTURAL ENGINEER HAS NOT DONE A SUBSURFACE INVESTIGATION (HE IS NOT A SOILS SPECIALIST). THE FOUNDATION DESIGN IS BASED UPON AN ASSUMED ALLOWABLE BEARING PRESSURE AS SHOWN IN THE "FOUNDATION" STRUCTURAL NOTES. THIS ALLOWABLE BEARING PRESSURE MUST BE VERIFIED BY THE CONTRACTOR OR OWNER. IF PROBLEMS ARE ENCOUNTERED, A SOILS ENGINEER SHOULD BE RETAINED TO EVALUATE THE CONDITIONS AND RECOMMEND THE APPROPRIATE FOUNDATION SYSTEM.

THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL HE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FIELD MEASUREMENTS AND THE VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF THE STRUCTURAL ENGINEER'S RESPONSIBILITY. THE CONTRACTOR MUST CHECK ALL (ASSUMED) EXISTING CONDITIONS SHOWN ON THESE DRAWINGS FOR ACCURACY AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

ABBREVIATIONS

AB	ANCHOR BOLT	NTS	NOT TO SCALE
AFF	ABOVE FINISH FLOOR	0.0.	ON CENTER
C/C	CENTER TO CENTER	SER	STRUCT. ENGINEER OF RECORD
CJ	CONTROL / CONSTR. JOINT IN SLAB	S.P.F.	SPRUCE-PINE-FIR
EJ	EXPANSION JOINT	T.O.F.	TOP OF FOOTING
E05	EDGE OF SLAB	T.O.S.	TOP OF STEEL
MCJ	MASONRY CONTROL JOINT	W.W.F.	WELDED WIRE FABRIC

CODE

NORTH CAROLINA STATE BUILDING CODE - 2018 EDITION (IBC 2015) FOR THE NEW WORK DESIGN LOADS

MECH. ROOM CEILING DEAD LOAD

60 PSF MECH. ROOM CEILING LIVE LOAD FLOOR SLAB LIVE LOAD (Uniform) 100 PSF FLOOR SLAB LIVE LOAD (Concentrated) 2000 LBS

BUILDING CODE REQUIREMENTS FOR EXISTING BUILDINGS

THE 2018 NORTH CAROLINA EXISTING BUILDING CODE CLARIFIES ALL REQUIREMENTS FOR "EXISTING BUILDINGS AND STRUCTURES." THESE REQUIREMENTS INCLUDE, BUT ARE NOT LIMITED TO, ADDITIONS, ALTERATIONS, AND REPAIRS OF EXISTING STRUCTURES.

THESE CODE PROVISIONS HAVE BEEN INTERPRETED AS FOLLOWS:

I. THE EXISTING BUILDING IS EXEMPT FROM A WIND OR SEISMIC ANALYSIS BECAUSE THE MAIN WIND (AND SEISMIC) FORCE RESISTING SYSTEM WILL NOT BE ALTERED DURING THIS RENOVATION.

2. ALL EXISTING GRAVITY ELEMENTS THAT ARE AFFECTED BY THE RENOVATION MUST BE CHECKED FOR DESIGN LOADS SHOWN ABOVE, AND REINFORCED AS NECESSARY.

3. ALL DEFECTIVE STRUCTURAL ELEMENTS MUST BE REPAIRED OR REPLACED.

THE SCOPE OF STRUCTURAL DESIGN IS ONLY AS NOTED IN THE DRAWINGS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY THE S.E.R. IF ANY DEFECTIVE, DETERIORATED, OR DAMAGED MEMBERS ARE FOUND, THAT ARE NOT SPECIFICALLY NOTED ON THE DRAWINGS.

ASSUMPTIONS

FOR PURPOSES OF THESE NOTES, ASSUMPTION SHALL BE DEFINED AS "TO BELIEVE, THINK, OR SUPPOSE A CONDITION TO BE TRUE." AN ASSUMPTION CAN NOT BE CONFIRMED BY THE STRUCTURAL ENGINEER BECAUSE IT IS BEYOND HIS SCOPE OF SERVICES AND/OR EXPERTISE. IF THE CLIENT REQUIRES CONFIRMATION OF AN ASSUMPTION, THEN ANOTHER EXPERT SHALL DO THE NECESSARY CALCULATIONS

THE FOLLOWING ASSUMPTIONS HAVE BEEN MADE REGARDING THE STRENGTHS OF THE VARIOUS EXISTING STRUCTURAL COMPONENTS:

A. ALLOWABLE SOIL BEARING PRESSURE B. EXISTING CONCRETE, F'c

2,500 PSF 3,000 PSI C. EXISTING MASONRY, f'm (old buildings) 1,000 PSI D. EXISTING REBAR, Fu 40.000 PS 33,000 PSI E. STRUCTURAL STEEL, Fy

FOUNDATIONS

ALL FOOTINGS SHALL REST ON SOIL CAPABLE OF SAFELY SUPPORTING 2,500 PSF. CONTACT STRUCTURAL ENGINEER IF UNSATISFACTORY SUBSURFACE CONDITIONS ARE ENCOUNTERED.

FOOTINGS SHALL BE CARRIED TO A LOWER ELEVATION THAN THOSE INDICATED ON THESE DRAWINGS IF NECESSARY TO REACH FIRM UNDISTURBED SOIL, AND SHALL BE COORDINATED WITH GEOTECHNICAL REPORT, IF REPORT IS PROVIDED FOR PROJECT. ANY INFORMATION IN THE GEOTECHNICAL REPORT SHALL CONTROL.

THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 16" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE.

SLAB ON GRADE SHALL BE FOUNDED ON STABLE NATURAL SOIL OR CONTROLLED COMPACTED FILL. UNLESS NOTED OTHERWISE IN GEOTECHNICAL REPORT, THE MINIMUM BEARING CAPACITY OF THE SUBGRADE SHALL BE 2,500 PSF.

CONCRETE

CONCRETE SHALL BE PROPORTIONED, MIXED AND PLACED IN ACCORDANCE WITH ACI 318. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", AND ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE". ANY ADMIXTURES MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

ADMIXTURES CONTAINING CHLORIDE SALTS ARE NOT PERMITTED

MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE:

SLABS ON GRADE 4,000 PSI

USE NORMAL WEIGHT CONCRETE FOR FOOTINGS AND SLABS ON GRADE. SEE SLAB ON GRADE NOTES FOR ADDITIONAL REQUIREMENTS.

CONCRETE EXPOSED TO EXTERIOR CONDITIONS SHALL BE AIR-ENTRAINED WITH A TOTAL AIR CONTENT OF 6 PERCENT (+/- 1.5%).

SLAB-ON-GRADE CONSTRUCTION

PLACE FLOOR SLAB ON A WELL COMPACTED BASE. THE SUBGRADE SHALL BE GRANULAR, NON-EXPANSIVE SOIL (THAT IS, WITHOUT CLAY), WHICH HAS BEEN COMPACTED TO AT LEAST 95%, EXCEPT 98% FOR FINAL FOOT, AND VERIFIED BY ON-SITE TESTING.

TYPICAL SLAB ON GRADE SHALL BE 6" THICK, NORMAL WEIGHT CONCRETE. REINFORCE SLAB ON GRADE WITH WELDED WIRE FABRIC (W.W.F.) PER DETAILS IN SHEETS, NOT ROLLS. PLACE W.W.F. 1.5" BELOW TOP OF SLAB, TO LIMIT THE RISK OF BEING CUT BY THE SAW JOINTS, WHICH ARE USUALLY I/4 THE DEPTH OF THE SLAB. W.W.F. SHALL BE 6X6 W2.I X W2.I.

CONCRETE STRENGTH SHALL BE THE STRENGTH, AS NOTED IN GENERAL NOTES (4,000 PSI) AT 28 DAYS. GENERAL CONTRACTOR SHALL USE WATER REDUCING ADMIXTURES TO REDUCE WATER, IF NECESSARY, TO INCREASE WORKABILITY AND DECREASE SHRINKAGE CRACKS.

USE 6% AIR ENTRAINMENT ON EXTERIOR SLABS. DO NOT USE AIR ENTRAINMENT ON INTERIOR SLABS (3% MAXIMUM AIR ENTRAINMENT).

CRACK CONTROL JOINTS SHALL BE PLACED IN SLABS ON GRADE AT A MAXIMUM SPACING OF 12'-O" O.C. FOR 6" THICK SLAB, UNLESS NOTED OTHERWISE. THESE CONTROL JOINTS SHALL BE BY THE GENERAL CONTRACTOR, IN ACCORDANCE WITH ACI 318. ACI STANDARD PRACTICE IS TO PLACE JOINTS 4 - 8 HOURS AFTER CONCRETE POUR.

LIGHTLY DAMPEN THE SUB-GRADE BEFORE PLACING CONCRETE TO PREVENT THE SUB-GRADE FROM ABSORBING WATER FROM CONCRETE MIX. APPLY WATER AT NEARLY THE SAME RATE IT SOAKS INTO THE SUB-GRADE SURFACE.

STEEL TROWEL THE CONCRETE TO A SHINY FINISH WHICH RESULTS IN A HARD, DENSE SURFACE. SEE ARCHITECTURAL SPECIFICATIONS FOR ALL FINISH REQUIREMENTS.

DURING HOT WEATHER, USE A FOG SPRAY TO KEEP THE SURFACE DAMP BEFORE APPLYING CURING COMPOUND.

START CURING AS SOON AS THE FINISHERS ARE DONE. APPLY THE CURING COMPOUND IN TWO COATS AT RIGHT ANGLES TO EACH OTHER AND NOT MORE THAN 300 SQUARE FEET PER GALLON, ABOUT 15 MINUTES APART.

REINFORCING STEEL

FABRICATION.

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.

REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. CLEAR CONCRETE COVER OVER BARS SHALL BE 3" FOR FOOTINGS.

ALL SLABS ON GRADE MAY BE REINFORCED WITH FIBER REINFORCING, EITHER BY EUCLID OR FORTE-FORM, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE A SUBMITTAL PACKAGE FOR APPROVAL IF FIBER REINFORCING IS USED INSTEAD OF WWF.

PROVIDE CORNER BARS AT ALL FOOTING STEPS AND CORNERS. BARS SHALL BE A MINIMUM OF 2'-6" LONG AND SHALL HAVE THE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.

LAP ALL SPLICES IN CAST-IN-PLACE CONCRETE AS SPECIFICALLY CALLED FOR, BUT AT LEAST 50 BAR DIAMETERS.

LAP ALL SPLICES IN MASONRY 72 BAR DIAMETERS MINIMUM, UNLESS NOTED OTHERWISE. PROVIDE DOWELS IN WALL FOOTINGS EQUIVALENT IN SIZE AND NUMBER TO VERTICAL STEEL EXTENDING 24 BAR DIAMETERS INTO FOOTING (UNLESS A HOOKED

BAR IS PROVIDED) AND 12 BAR DIAMETERS INTO WALL, UNLESS NOTED OTHERWISE. SUBMIT SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO

CONCRETE MASONRY

CONCRETE MASONRY UNITS SHALL BE ERECTED AS LOAD BEARING CONCRETE MASONRY. COMPLY WITH THE REQUIREMENTS OF ACI 530.1 / ASCE 6 / TMS 602 "SPECIFICATION FOR MASONRY STRUCTURES."

CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM SPECIFICATIONS FOR HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS (ASTM C901). MORTAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD SPECIFICATIONS FOR MORTAR FOR UNIT MASONRY (ASTM C270), TYPE "M" OR "S". THE MINIMUM NET COMPRESSIVE STRENGTH OF MASONRY UNITS SHALL BE 2000 PSI (f'm = 2000 PSI FOR MASONRY SYSTEM).

ALL GROUT USED TO FILL REINFORCED MASONRY CAVITIES AND SHOWN AT OTHER LOCATIONS ON THE PLANS SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

PROVIDE HORIZONTAL JOINT REINFORCEMENT AT 16" O.C. IN ALL CMU WALLS UNLESS NOTED OTHERWISE ON THE DRAWINGS. USE LADDER TYPE DUR-O-WALL REINFORCEMENT, HOT DIP GALVANIZED AFTER FABRICATION. LONGITUDINAL WIRES SHALL BE A MINIMUM OF (2) NO. 9 GAGE. LOCATE JOINT REINFORCEMENT IN FIRST AND SECOND BED JOINTS, 8" APART IMMEDIATELY ABOVE LINTELS AND BELOW SILLS AT OPENINGS. REINFORCEMENT SHALL NOT EXTEND THROUGH VERTICAL MASONRY CONTROL JOINTS.

ALL STEEL BEARING SHALL BE ON A BOND BEAM, SOLID BLOCK OR 8" OF BRICK.

WHERE INTERIOR CONCRETE MASONRY PARTITIONS MEET OTHER INTERIOR PARTITIONS OR EXTERIOR WALLS, PROVIDE A CONTROL JOINT WITH METAL STRAP ANCHORS BETWEEN WALLS.

PROVIDE BOND BEAMS AT THE TOP OF MASONRY ELEVATIONS AS SHOWN ON THE DRAWINGS. BOND BEAMS TO HAVE (2) #4 BARS CONTINUOUS UNLESS OTHERWISE NOTED. WHERE THE BOND BEAM IS INTERSECTED BY A CONTROL JOINT, CHANGE THE BARS TO SMOOTH ROUND BARS AND GREASE ONE END SO THAT LATERAL MOVEMENT WILL NOT BE RESTRAINED.

MASONRY WALLS ARE TO BE LATERALLY BRACED DURING CONSTRUCTION IN ACCORDANCE WITH "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION" BY THE COUNCIL FOR MASONRY WALL BRACING AND THE MASON CONTRACTORS ASSOCIATION OF AMERICA. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL PERMANENT SUPPORTING ELEMENTS OF THE STRUCTURE ARE IN PLACE.

REFER TO THE ARCHITECTURAL PLANS FOR LOCATIONS OF MASONRY CONTROL JOINTS, OR IF NOT SHOWN, COORDINATE WITH ARCHITECT. IN GENERAL, CONTROL JOINTS SHOULD BE LOCATED WITH A MAXIMUM SPACING OF 30'-O".

STRUCTURAL STEEL

FABRICATE AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (ANSI/AISC 360-10)".

GENERAL CONTRACTOR TO COORDINATE SHOP COATS OF RUST-INHIBITIVE PAINT. STEEL COLUMNS BELOW GRADE THAT ARE NOT ENCASED IN CONCRETE SHALL BE FIELD PAINTED WITH A WATERPROOF MASTIC COMPOUND TO PREVENT CORROSION.

THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

CHANNELS, ANGLES, PLATES, MISC. SHAPES 36 KSI (A36)

USE 3/4" DIAMETER ASTM F3I25 GRADE A325 BOLTS FOR ALL STEEL TO STEEL CONNECTIONS U.N.O. DESIGN FOR THREADS INCLUDED (TYPE N) CONDITIONS, U.N.O. BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT.

USE F1554 (GRADE 36) BOLTS FOR ALL ANCHOR BOLTS U.N.O. HEADED WELD STUDS SHALL BE MADE OF MATERIAL CONFORMING TO ASTM AIO8. USE E-70 ELECTRODES FOR ALL SHOP AND FIELD WELDING.

FOR MISCELLANEOUS STEEL NOT SHOWN ON THESE DRAWINGS, SEE ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS.

CONNECTIONS BETWEEN STRUCTURAL STEEL MEMBERS SHALL BE AS SHOWN ON STRUCTURAL DRAWING DETAILS. ALTERNATE CONNECTION DETAILS MUST BE APPROVED IN WRITING, BY THE STRUCTURAL ENGINEER OF RECORD, PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.

LIGHT GAGE STRUCTURAL STEEL FRAMING

LIGHT GAGE STRUCTURAL STEEL INCLUDES ALL AXIALLY OR WIND LOADED LIGHT GAGE STEEL STUDS, TRACK, JOISTS, TRUSSES, BRIDGING AND RELATED ACCESSORIES AS INDICATED ON THE DRAWINGS.

DESIGN. FABRICATION AND ERECTION OF LIGHT GAGE STRUCTURAL STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

LIGHT GAGE STEEL STUDS 33 KSI TRACKS FOR STEEL STUDS 33 KSI LIGHT GAGE STEEL JOISTS & HEADERS 33 KSI

THE MEMBER DESIGNATIONS ON THESE DRAWINGS ARE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA) STANDARD DESIGNATIONS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED MATERIAL SUPPLIER'S PHYSICAL STRUCTURAL PROPERTIES AND LOAD TABLES FOR REVIEW.

ALL LIGHT GAGE STRUCTURAL STEEL FRAMING SHALL BE GALVANIZED, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SPLICES IN STEEL STUDS, JOISTS, AND HEADERS SHALL NOT BE PERMITTED EXCEPT WHERE SPECIFICALLY SHOWN ON THE DRAWINGS.

FASTENING OF COMPONENTS SHALL BE WITH SELF TAPPING SCREWS OR WELDS. WELDING SHALL BE IN ACCORDANCE WITH SECTION 6.0 OF THE AMERICAN WELDING SOCIETY'S "STRUCTURAL WELDING CODE - SHEET METAL" (AWS DI.3-8). ALL WELDS SHALL BE TOUCHED UP WITH A ZINC RICH PAINT.

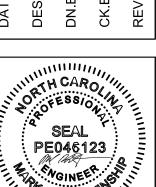
SUBMIT ERECTION DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. ERECTION DRAWINGS SHALL INCLUDE SECTIONS, PLANS OR ELEVATIONS DEPICTING COMPONENT LOCATION AND CONNECTION DETAILS SHOWING SCREW TYPES AND LOCATIONS, WELD LENGTHS AND LOCATIONS, OR OTHER RELATED FASTENER REQUIREMENTS.

POST-INSTALLED ANCHORS

- I) EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI, INC., SIMPSON, OR APPROVED EQUAL MANUFACTURER WITH ICC TESTING DATA. THE GENERAL CONTRACTOR SHALL CONTACT THE MANUFACTURER FOR PRODUCT RELATED QUESTIONS. INFO BELOW
- WILL DENOTE HILTI, FOR REFERENCE, BUT ALTERNATE MANUFACTURERS MAY BE SUBMITTED. A) ANCHORAGE TO CONCRETE - USE HILTI "HIT-HY200" UNLESS NOTED OTHERWISE ON PLANS, OR
 - REQUIRED BY HILTI PER APPLICATION. A.I.) ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
 - A.I.I) HILTI "HIT-RE 500-SD" EPOXY ADHESIVE ANCHORING SYSTEM PER ICC ESR-2322 FOR SLOW CURE APPLICATIONS.
 - A.I.2) HILTI "HIT-HY 200" ADHESIVE ANCHOR SYSTEM (UNCRACKED CONCRETE ONLY) PER ICC ESR-3187 FOR FAST CURE APPLICATIONS.
 - A.I.4) STEEL ANCHOR ELEMENT SHALL BE HILTI "HIS-N" INTERNALLY THREADED INSERTS (USED WITH "RE 500-SD" AND "HY 200" ONLY), HILTI "HAS-E" CONTINUOUSLY THREADED ROD, OR CONTINUOUSLY DEFORMED STEEL REBAR.
 - A.2) MEDIUM DUTY MECHANICAL ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE: A.2.I) HILTI "KWIK HUS EZ" AND "KWIK HUS EZ-I" SCREW ANCHORS PER ICC ESR-3027 A.2.2) HILTI "KWIK BOLT-TZ" EXPANSION ANCHORS PER ICC ESR-1917 A.2.3) HILTI "KWIK BOLT 3" EXPANSION ANCHORS (UNCRACKED CONCRETE ONLY)
 - A.3) HEAVY DUTY MECHANICAL ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
 - A.3.1) HILTI "HDA" UNDERCUT ANCHORS PER ICC ESR 1546 A.3.2) HILTI "HSL-3" EXPANSION ANCHORS PER ICC ESR 1545
- B) ANCHORAGE TO SOLID GROUTED MASONRY
 - B.I) ADHESIVE ANCHORS USE: B.I.I) HILTI "HIT-HY 200" ADHESIVE ANCHORING SYSTEM PER ICC ESR-3181
 - B.I.2) HILTI "HIT-HY 70" MASONRY ADHESIVE ANCHORING SYSTEM (ICC PENDING) B.I.3) STEEL ANCHOR ELEMENT SHALL BE HILTI "HAS-E" CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
- B.2) MECHANICAL ANCHORS USE:
- B.2.I) HILTI "KWIK BOLT-3" EXPANSION ANCHORS PER ICC ESR 1385

PER ICC ESR-2302

- C) ANCHORAGE TO HOLLOW / MULTI-WYTHE MASONRY C.I) ADHESIVE ANCHORS USE:
 - C.I.I) HILTI "HIT-HY TO" MASONRY ADHESIVE ANCHORING SYSTEM PER ICC ESR-3442 C.I.2) STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED
 - ROD OR CONTINUOUSLY DEFORMED STEEL REBAR C.I.3) THE APPROPRIATE SIZE SCREEN TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATION
- 2) ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI (OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD). SUBSTITUTION REQUESTS FOR ALTERNATIVE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.
- 3) INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGE.
- 4) OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE HILTI PROFI SYSTEM.
- 5) THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
- 6) ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
- 7) EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS. G.C. SHALL CONTACT S.E.R. WITH CONFLICTS IN THE FIELD, PRIOR TO CONSTRUCTION.





SHEET No. 5100 GENERA

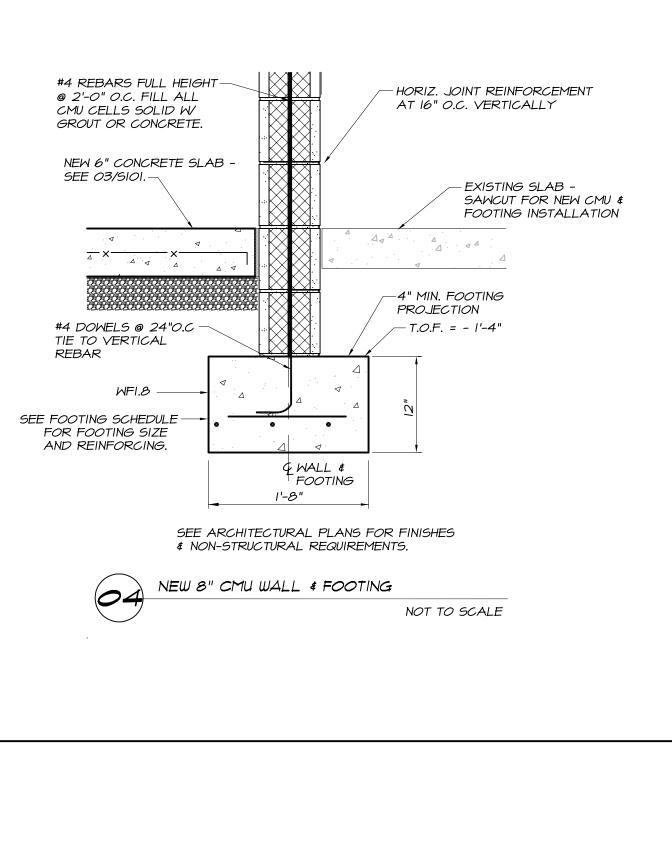
STRUCTURAL NOTES

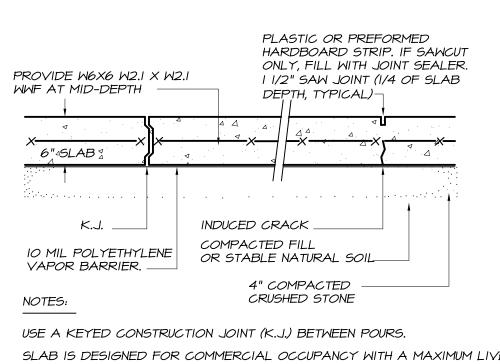
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Designer Proj. No. 22053 NCSU Proj. No. 202220008

POE HALL

FAC. NAME



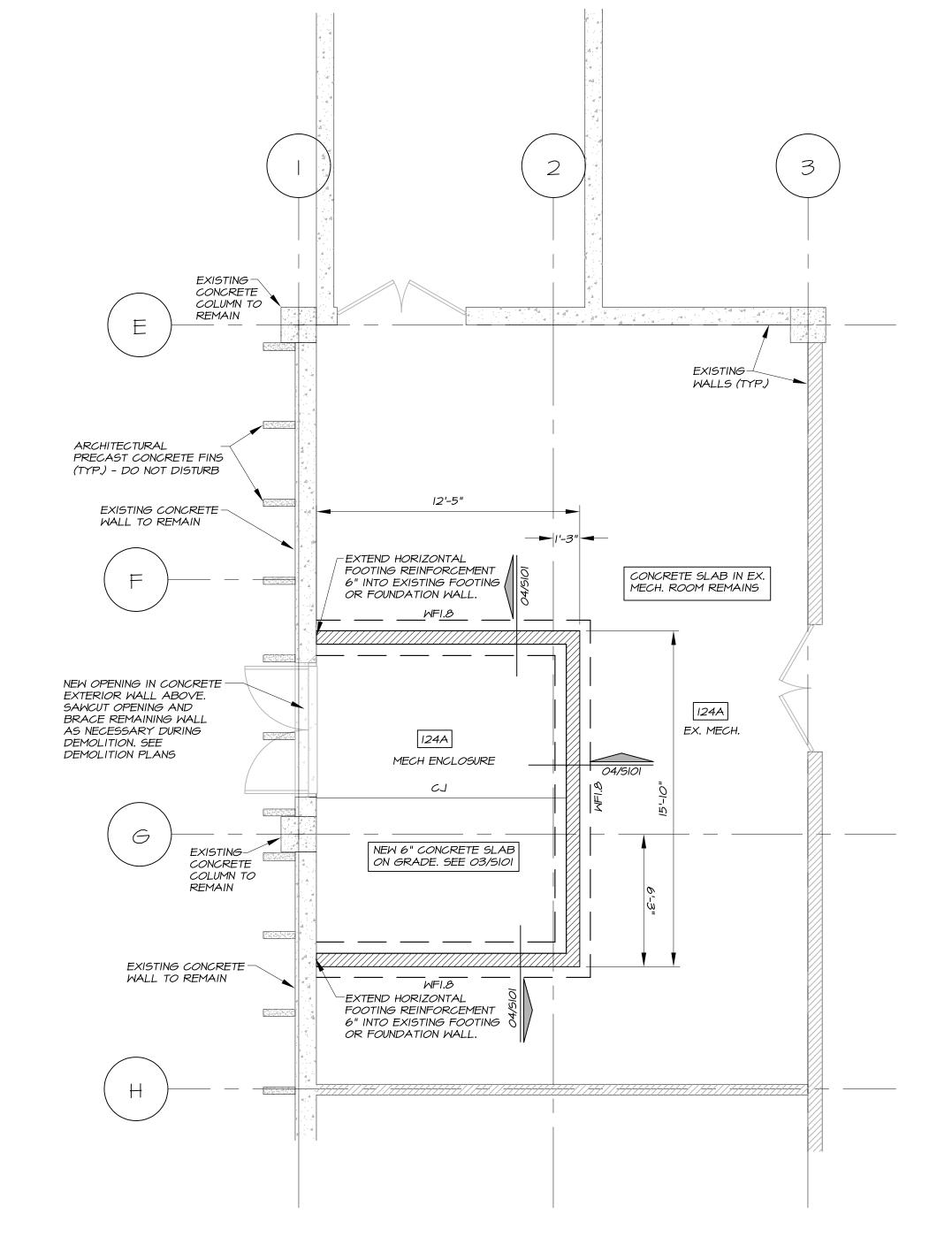


SLAB IS DESIGNED FOR COMMERCIAL OCCUPANCY WITH A MAXIMUM LIVE LOAD OF 100 PSF AND NO LARGE CONCENTRATED LOADS.

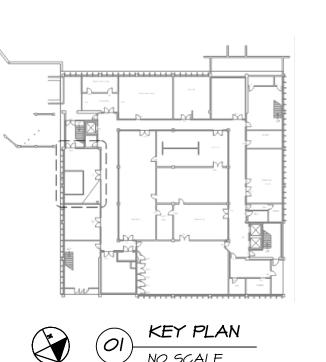
USE 6X6 - W2.1 X W2.1 W.W.F. SET WWF AT MID-DEPTH OF SLAB. KEEP WWF CONTINUOUS ACROSS JOINTS. WWF SHOULD BE IN SHEETS. NOT ROLLS.

NOT TO SCALE

TYPICAL NEW 6" THICK SLAB ON GRADE

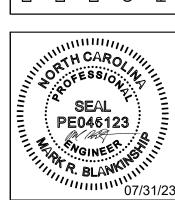






- NG STATE UNIVERSITY

DESNR: MRB
DN.BY: MRB
CK.BY: MRB



20 St. Mary's Street aleigh, NC 27605 19.833.0495 saghtAssociates.com irm No.C-0621



SYSTEM IMPROVEMENTS
POE HALL - BUILDING # 024
SCO ID#:22-24502-01A:

SHEET No.

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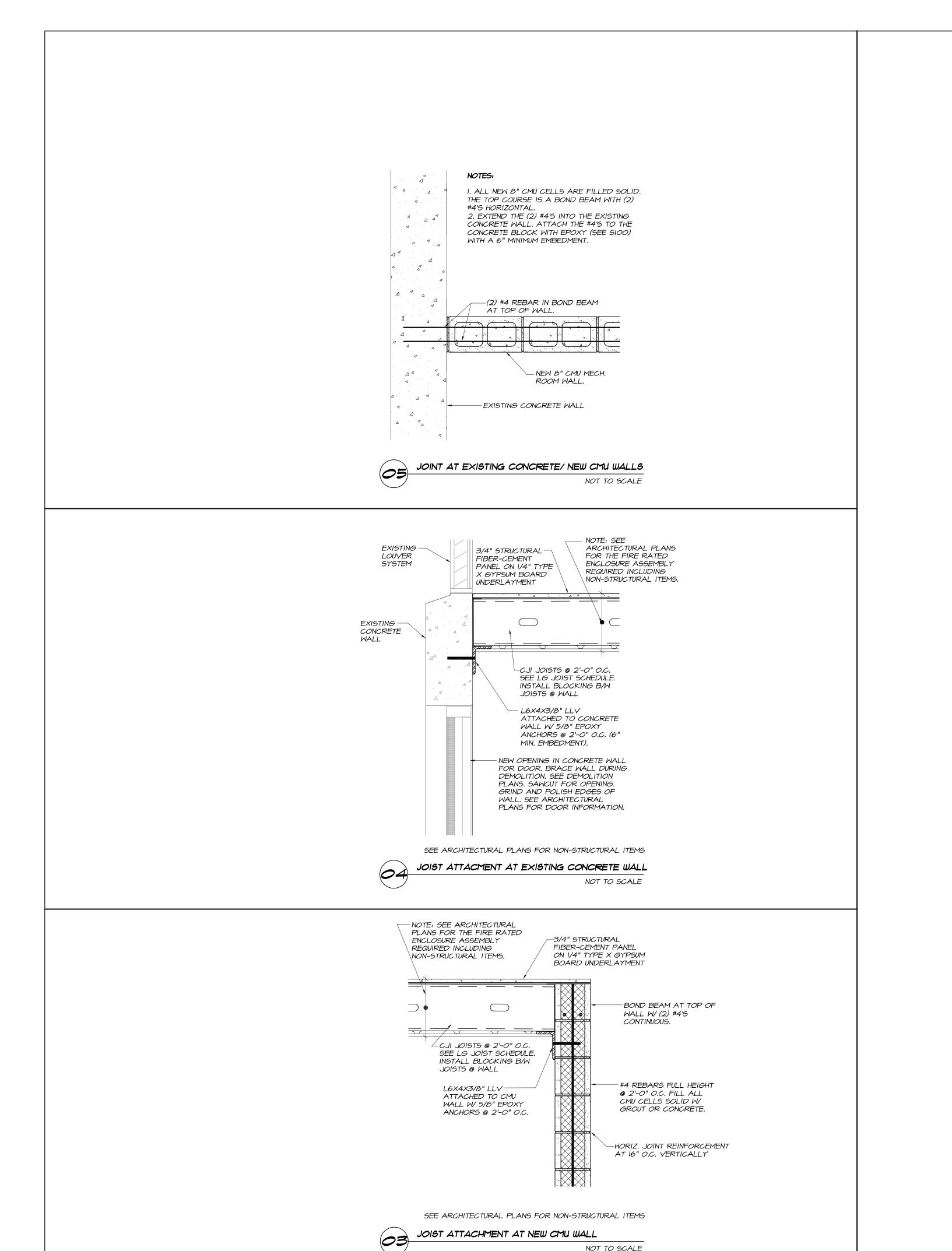
FOUNDATION PLAN
& DETAILS

Total Sheets: 3

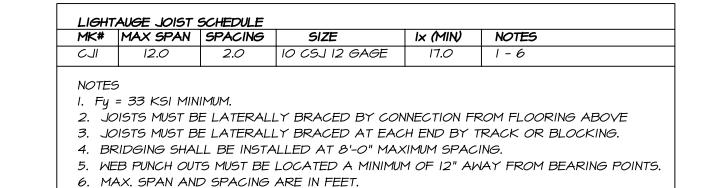
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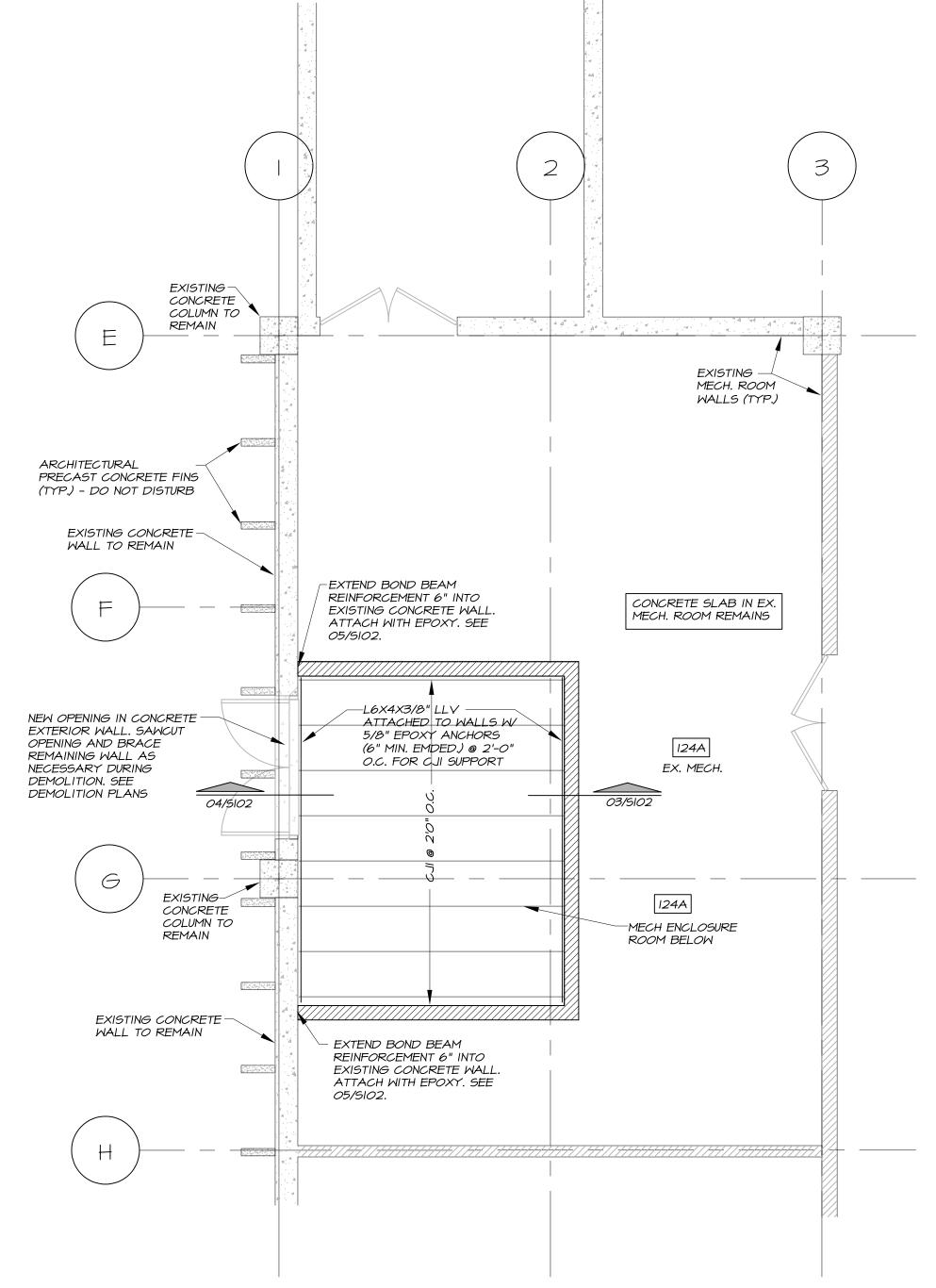
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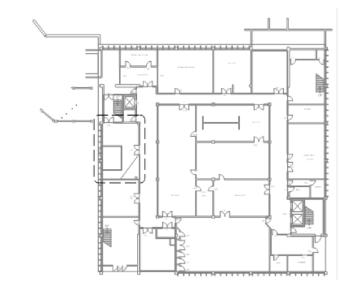


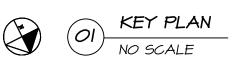
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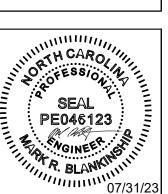




MECH. ROOM CEILING FRAMING PLAN
1/4 SCALE







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SHEET No. 5102 MECH. ROOM CEILING FRAMING PLAN Total Sheets: 3

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

FAC. NAME POE HALL

FAC. NAME POE HALL

BXUV.U905 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ 3/13/23, 9:51 PM BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ 3/13/23, 9:51 PM BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ As an alternate to the 1-5/8" long No. 8 fastener, the following power-actuated pins may be used for min. 1/8" thick, hot-rolled A36 b. Cross Tees — Nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. UL Product iQ® UL Product iQ® Additional cross tees or cross channels used at 8 in. from each side of butted gypsum panel end joints. The cross tees or cross channels may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation. Hilti pin model X-U 32MX with a min. 0.157* shank diameter min. 1-1/4* long, DeWalt pin model 50458-PWR with a min. 0.157* shank diameter min. 1-1/4* long or Aerosmith model 5324HPG with a min. 0.145 shank diameter min. 1-1/4* long. BXUV.U905 - Fire-resistance Ratings - ANSI/UL 263 BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 c. Cross Channels — Nom 4 ft or 12 ft long, installed perpendicular to main runners, spaced 16 in. OC. UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP d. Wall Angle or Channel — Painted or galv steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached Design/System/Construction/Assembly Usage Disclaimer Design/System/Construction/Assembly Usage Disclaimer 1B. Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design. Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD installation and use of UL Certified products, equipment, system, devices, and materials. installation and use of UL Certified products, equipment, system, devices, and materials. CGC INC — Type DGL or RX Authorities Having Jurisdiction should be consulted before construct Authorities Having Jurisdiction should be consulted before construction • Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL • Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL USG MEXICO S A DE C V — Types LRK, HSLRK, CSD for compliance with applicable requirements. The published information cannot always address every construction USG INTERIORS LLC - Type DGL or RX. for compliance with applicable requirements. The published information cannot always address every construction Floor Mat Materials* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions • When field issues arise, it is recommended the first contact for assistance be the technical service staff provided • When field issues arise, it is recommended the first contact for assistance be the technical service staff provided 5B. Steel Framing Members* — (Optional, Not Shown) — As an alternate to Item 5 — Furring channels and Steel regarding the minimum thickness of floor topping over each floor mat material. by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor general Guide Information for each product category and each group of assemblies. The Guide Information general Guide Information for each product category and each group of assemblies. The Guide Information a. Furring channels - Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 12 in. OC, perpendicular includes specifics concerning alternate materials and alternate methods of construction. cludes specifics concerning alternate materials and alternate methods of construction. to joists. Channel secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together Only products which bear UL's Mark are considered Certified. . Only products which bear UL's Mark are considered Certified. with double strand of No. 18 SWG galv steel wire near each end of overlap. Additional channels shall be positioned so Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor hat the distance from the end of the board to the center of the first channel is 3 in. and from the board end to the center of the next channel is 12 in. GRASSWORX L L C — Type SC50 Fire-resistance Ratings - ANSI/UL 263 Fire-resistance Ratings - ANSI/UL 263 b. Steel Framing Members* - Used to attach furring channels (Item a) to joists (Item 2). Clips spaced 48 in. OC and 2. Steel Joists - Channel-shaped, min 10 in. deep with min 1-5/8 in. wide flanges and 1/2 in. long stiffening flanges. BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for secured to the bottom chord of joists with min 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw Fabricated from min No. 16 MSG galv steel. Min yield strength of 50,000 psi. Joists spaced max 24 in. OC. Supplied with BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada through the center grommet. Furring channels are friction fitted into clips. Additional clips required to hold furring channel appropriate rim tracks of same size and gauge. See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States United States Design Criteria and Allowable Variances PLITEQ INC — Type Genie Clip 2A. Steel Joists — (Not Shown) -As an alternate to Item 2 - For maximum clear spans not exceeded 8 ft. Channel-See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified shaped, min 6 in. deep with min 1-9/16 in. wide flanges and 3/8 in. long stiffening flanges. Fabricated from min No. 18 Design Criteria and Allowable Variances 5C. Alternate Steel Framing Members* - (Optional, Not Shown) - As an alternate to Items 5 to 5B, furring channels MSG galv steel. Min yield strength of 33,000 psi. Joists spaced max 24 in. OC. Supplied with appropriate rim tracks of for Canada and Steel Framing Members as described below. Design No. **U905** same size and gauge. a. Furring channels — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 12 in. $\underline{\text{See General Information for Fire-resistance Ratings}} \text{ - ANSI/UL 263 Certified for United States}$ erpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 Design Criteria and Allowable Variances 2B. Steel Joists - (Not Shown) -As an alternate to Item 2 - Channel-shaped, min 8 in. deep with min 1-9/16 in. wide in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. February 6, 2023 $flanges\ and\ 3/8\ in.\ long\ stiffening\ flanges.\ Fabricated\ from\ min\ No.\ 16\ MSG\ galv\ steel.\ Min\ yield\ strength\ of\ 33,000\ psi.$ $\underline{\text{See General Information for Fire Resistance Ratings} - \text{CAN/ULC-S101 Certified for Canada}}$ Joists spaced max 24 in. OC. Supplied with appropriate rim tracks of same size and gauge. Design Criteria and Allowable Variances b. Steel Framing Members* — Used to attach furring channels (Item a) to the steel joists (Item 2). Clips spaced a max of 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through Design No. G556 2C. Steel Joists — As an alternate to item 2 only - The joists are channel-shaped, 10 in. min depth. Joists are fabricated the center grommet. RSIC-Si-X secured to alternating joints with No. 10 x 2-1/2 in. self drilling screws. Furring channels from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. Joists attached to rim joist with a minimum of three #10 Bearing Wall Rating - 2 HR. are friction fitted into clips. RSIC-1 clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clips for use with 2-3/4 in. long self-drilling screws at the rim track clip to the outside of the web joist, and a #10 1/2 in. long screw through Nonbearing Wall Rating - 2 HR June 11, 2021 23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of the top and bottom flange of the joists to the top and bottom flange of the rim track. At rim joist splices bearing on adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min. 7/16 This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working supports, rim joists are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with a minimum in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load of six 3/4 in, long self-drilling #10 screws to each rim piece. For use with item 3C. furring channel that supports the wallboard butt joints, as described in Item 6. restriction factor shall be used — See Guide BXUV or BXUV7 CALIFORNIA EXPANDED METAL PRODUCTS CO — Type SSCJ floor joists, SSRT rim joists or Type SSTT rim joists. When Type Unrestrained Assembly Rating - 1, 1-1/2 and 2 Hr (See Item 1) SSTT rim joists are used, secured to preformed clip tabs in accordance with manufacturers installation instr * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-Si-X or RSIC-1 (2.75) Certification (such as Canada), respectively. Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load 2D. Clip Angles - No. 16 MSG, 9-3/4 in. long steel angles with 2 in. legs. Secured to track and joist with eight No.10, 3/4 restriction factor shall be used — See Guide BXUV or BXUV7 5D. Steel Framing Members* - (Optional, Not Shown) - As an alternate to Item 5 - Furring channels and Steel in. long, self drilling, hex head screws, located 1 in. from each end of clip angle, with the other two screws on each leg Framing Members as described below: * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL https://iq.ulprospector.com/en/profile?e=15133 BXUV.U905 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ 3/13/23, 9:51 PM BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ 3/18/23, 9:38 PM 3/13/23, 9:51 PM BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in. deep, spaced 12 in. OC, perpendicular to joists. Channel secured to joists Certification (such as Canada), respective 2E. Clip Angles — (Not Shown) - As an alternate to Item 2C, for use with 6 or 8 in. deep joists (Item 2A or 2B). No. 16 $MSG,\,5\text{-}1/2\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. long steel angles with 1--}1/2\text{ in. legs for 6 in. deep joists and No. 18 MSG},\,7\text{-}1/4\text{ in. legs for 6 in. legs for$ as described in Item b. 1-1/2 in. legs for 8 in. deep joists. Secured to track and joist with six No.10, 3/4 in. long, self drilling, hex head screws, located 1 in. from each end of the clip angle and at the centerline. Only one clip angle per joist end. Jsed to attach furring channels (Item a) to the steel joists (Item 2). Clips spaced at 48 in. OC and secured to the bottom of the joists with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into 2F. Structural Steel Members* - (Not Shown) - As an alternate to Item 2, 2a, 2b and 2c - Pre-fabricated light gauge clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips steel truss system consisting of cold-formed, galv steel chord and web sections. Trusses fabricated in various sizes, depths and from various steel thickness spaced a maximum of 24 in. OC. AEGIS METAL FRAMING, DIV OF MITEK — Ultra-Span, Pre-fabricated Light Gauge Steel Truss System Concrete Blocks* — Various designs. Classification D-2 (2 hr) 6. Gypsum Board* — One layer of nom 5/8 in. thick by 48 in. wide gypsum panels installed with long dimension TRUSSTEEL, DIV OF ITW BUILDING COMPONENTS INC — TrusSteel See Concrete Blocks category for list of eligible manufacturers perpendicular to resilient channels, furring channels or cross tees of suspension system. Gypsum panels secured to resilient/furring channels or drywall suspension system with 1 in. long Type S bugle-head screws spaced 8 in. OC, with $2. \ \textbf{Mortar} - \textbf{Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of a superior of the superior$ 2G. **Structural Steel Members*** — (Not Shown) - As an alternate to Item 2, 2a, 2b,2c and 2f - Pre-fabricated steel truss screws located 4 in. from and on each side of the gypsum panel midspan, and 1-1/2 in. from side edges of the board. End system consisting of cold-formed, galvanized steel chord and web sections. Truss top and bottom chords min. 4 in. high joints secured to both resilient/furring channels as shown in end joint detail. When **Steel Framing Members** (Item 5B or cement volume). Vertical joints staggered. by 1-11/16 in. wide by 18 ga. Truss webs min. 1-1/2 in. by 1-1/2 in. by 20 ga. square tube bent and triangulated as shown 5C) are used, the butt joints in the gypsum board shall be supported by two furring channels. The two furring channels Chords and web connected by fillet welds. Overall truss depth min. 12 in. Trusses spaced a max of 24 in. OC. Truss ends shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the joist with one RSIC-1, RSIC-1 (2.75) or placed over and secured to Bearing Seats (Item 2G1) with two min. #10 by 3/4 in. long screws on each side of Bearing 3. Portland Cement Stucco or Gypsum Plaster — Add 1/2 hr to classification if used. Where combustible members are Seats. Allowable loading must be calculated so as to stress the steel trusses to a maximum of 98% of the stress framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. When Steel Framing Members (Item 5D) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long calculated in accordance with the allowable stress design approach outlined in the manufacturer's load tables. dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head EISEN PANEL SYSTEMS L L C — Type Gateway Panel pre-fabricated steel truss system. steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed 4. Loose Masonry Fill — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the 2G1. Bearing Seats* — (Not Shown) — Galvanized steel tube, min. 1 in. by 2-1/2 in. by 13 ga., oriented vertically and Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to gypsum board. Each of these shorter sections of furring channel shall extend one joist beyond the width of the gypsum panel and be attached to the adjacent joists with one SonusClip at every joist involved with the butt joint. welded to min. 4 in. by 4 in. by 10 ga., galvanized steel plate. Bearing seats spaced 24 in. OC and attached to bearing supports by welding or screw attaching the steel plate to the bearing supports. CGC INC - Types C, IP-X2, IPC-AR, ULIX 5. Foamed Plastic* — (Optional-Not Shown) — 1-1/2 in, thick max, 4 ft wide sheathing attached to concrete blocks (Item EISEN PANEL SYSTEMS L L C — Type Gateway Panel bearing seat. ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation", "EnergyShield Pro 2 Wall Insulation", EnergyShield CGF Pro and NATIONAL GYPSUM CO — Type FSW-C 2G2. Bracing — (Not Shown) - For use with Item 2G — Galvanized channel-shaped steel sections, min. 1-1/2 in. wide with 1/4 in. flanges, min. 16 ga. Bracing attached to underside of trusses with min. #10 by 3/4 in. long screws through THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C $truss\ bottom\ chord.\ Bracing\ installed\ in\ truss\ cavities\ by\ scoring,\ bending\ and\ flattening\ the\ ends\ to\ form\ a\ tab\ for$ **DUPONT DE NEMOURS. INC.** — Types Thermax Sheathing. Thermax Light Duty Insulation. Thermax Heavy Duty Insulation. Thermax Metal Building Board, Thermax White Finish Insulation, Thermax of Exterior Insulation, Thermax XARMOR of Exterior Insulation, Thermax Hansulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R™ of Insulation, Thermax attachment to truss top and bottom chords. Two pieces of bracing crossed and tabs secured to truss chords with min. UNITED STATES GYPSUM CO - Types C, IP-X2, IPC-AR, ULIX#10 by 3/4 in. long screws. Location and spacing of underside and crossed bracing to be specified on truss engineering. Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board _ _ _ _ _ _ _ _ 2H. Steel Trusses — As an alternate to Items 2, 2A, 2B, 2C, 2F and 2G - Cold-formed galvanized steel truss chord and USG BORAL DRYWALL SFZ LLC — Type C FIRESTONE BUILDING PRODUCTS CO L L C - "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall web sections manufactured from steel conforming to ASTM A653 Grade 33 or higher yield strength. Steel thickness of truss chord and web sections as required by design to meet governing code requirements. Truss members connected USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR together with No. 10-16 (min size) self-drilling screws or equivalent. Truss chord and web members to be designed in accordance with the American Iron and Steel Institute's Specification for the Design of Cold-Formed Steel Structural HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Types "Xci-Class A", "Xci Foil (Class A)", Members, 1996 Edition. Trusses spaced a max of 24 in. OC. Where the truss intersects with the interior face of the 6A. **Gypsum Board*** — For use when Steel Framing Members* (Item 5A) are used - One layer of 5/8 in. thick, 4 ft wide, exterior walls, the min truss depth shall be 12 in. installed with long dimension perpendicular to cross tees with side edges centered over main runners and joints centered

> 3/18/23, 9:38 PM BXUV.G556 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ 1. Flooring System -

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White",

5A. **Building Units*** — As an alternate to Items 5, min. 1-in thick polyisocyanurate composite foamed plastic insulation

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — "Thermasheath-SI", "ECOBASEci", "ThermaBase-CI", "ECOMAXci FR Ply",

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL

Certification (such as Canada), respectively.

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 $\textbf{HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC} - "Xci \ NB", "Xci \ Ply"$

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JOHNS MANVILLE — Type "AP Foil-Faced Foam Sheathing"

BXUV.U905 - Fire-resistance Ratings - ANSI/UL 263 | UL Product iQ

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boards, nom. 48 by 48 or 96 in.

1 or 1-1/2 Hr Rating **1A. Structural Cement-Fiber Units*** — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the

1000 X 10

As an alternate to the 1-5/8" long No. 8 fastener, the following power-actuated pins may be used for min. 1/8" thick, hot-rolled A36 steel sections for joist specified in Item 21:

Hilti pin model X-U 32MX with a min. 0.157" shank diameter min. 1-1/4" long, DeWalt pin model 50458-PWR with a min. 0.157" shank diameter min. 1-1/4" long or Aerosmith model 5324HPG with a min. 0.145 shank diameter min. 1-1/4" long. Unrestrained Assembly Rating is 1 hour when Item 2A or 2B is used. Unrestrained Assembly Rating is 1-1/2 hour when Item 2

UNITED STATES GYPSUM CO - Types STRUCTO-CRETE, USGSP

1A. Structural Cement-Fiber Units* — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel. As an alternate to the 1-5/8" long No. 8 fastener, the following power-actuated pins may be used for min. 1/8" thick, hot-rolled A36 steel sections for joist specified in Item 2I:

Hilti pin model X-U 32MX with a min. 0.157" shank diameter min. 1-1/4" long, DeWalt pin model 50458-PWR with a min. 0.157" shank diameter min. 1-1/4" long or Aerosmith model 5324HPG with a min. 0.145 shank diameter min. 1-1/4" long. UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

1B. Gypsum Board* (Not Shown) - Min 1/4 in. thick, 4 ft by 4 ft gypsum board underlayment, Classified as to Surface Burning Characteristics. Bonded and attached to Structural Cement Fiber Unites (Item 1A) with a mortar applied with a 1/4 in. by 1/4 in. notched trowel, and 1-1/4 in. long coarse thread screws spaced max 8 in. OC. Joints between Structural Cement Fiber Units and of Gypsum Board staggered a min of 6 in. UNITED STATES GYPSUM CO — Type FRX-G

1C. Floor Mat Materials* — (Optional) — Floor mat material loosely laid over Structural Cement-Fiber Units (Item 1A). Gypsum Board Item 1B loosely laid over floor mat material with joints of bottom layer of Gypsum Board staggered a minimum of 12 in. in both directions. KINETICS NOISE CONTROL INC - Type Soundmatt

PLITEQ INC — Types GenieMat RST02, GenieMat RST05

1A. Structural Cement-Fiber Units* — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel.

Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used. See $\textbf{Batts and Blankets} \ (\text{BKNV}) \ category \ in \ the \ Building \ Materials \ Directory \ for \ names \ of \ manufacturers.$ 5. Resilient Channels - Formed of No. 25 MSG galv steel, 1/2 in. deep, spaced max 12 in. OC, perpendicular to joists.

4. Batts and Blankets* - 3-5/8 in. thick glass fiber batt insulation draped over the resilient channels (Item 5) or

21. Steel Joists — As an alternate to Items 2, 2A, 2B, 2C, 2F, 2G and 2H, minimum 12K1, spaced a max 24 in. OC.

sections to be specified on truss engineering.

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TRUSS LINK INC — Truss Link

between bridging channels.

long hex head steel screw at each interface.

specified on truss engineering.

2J. Structural Steel Members* - As an alternate to Item 2 - Limited to the 1 Hour Ratings. Pre-fabricated light gauge

steel truss system consisting of cold-formed, galv steel cord and web sections. Trusses fabricated in various sizes, depths and from various steel thickness. Trusses spaced a max of 24 in. OC. Location of lateral bracing for truss chord and web

3. Joist Bridging — (Not Shown) - For use with Item 2 and 2B - Installed immediately after joists are erected and before

construction loads are applied. The bridging consisting of joist sections cut to length and placed between outer supports,

adjacent to openings and at mid span with 8 ft OC max spacing. Bridging channels are screw-attached at each end to

joist web using angle clips. V-bracing of 1-1/2 in. by 20-ga galvanized steel is screw-attached to bottom joist flange

3A. Joist Bridging — (Not Shown) - For use with Item 2A - Installed immediately after joists are erected and before

construction loads are applied. The bridging consisting of rim track sections cut to length, with two 4 in. long folded back

flanges, and placed between outer supports, adjacent to openings and at mid span with 10 ft OC max spacing. Bridging

channels are screw-attached to each of the four top and bottom joist flanges with two No. 8 by 1/2 in. long wafer head

3B. Joist Bridging — (Not Shown) - For use with Item 2A and 2B - 1-1/2 in. wide strips formed from 20 MSG - The

 ${\tt 3C.}\, \textbf{\textit{Joist Bridging}-Not\, shown-For\, use\, with\, item\, 2C.\, Installed\, immediately\, after\, joists\, are\, erected\, and\, before}$

2-1/2 in. wide by 25-1/2 in. long with 1-5/16 in. long legs structural bridging staggered between the steel joists and

construction loads are applied. The structural bridging, Type CEMCO Sure Bridging, consisting of No. 18 MSG galv steel,

attached to the bottom joist flange with two #10 1/2 in. long self-drilling screws at each end tab of bridging. Solid bridging

consisting of cut to length joist sections placed between outer joists and at center joist with 8 ft OC max spacing. Solid

bridging is seated in the structural bridging and is screw-attached at joist web using Type CEMCO Sure-Support Clips (1-

one side and the other side with Type CEMCO Sure-Support Clips (4 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi

3D. Bridging — (Not Shown)—For use with Item 2F - Location of lateral bracing for truss chord and web sections to be

suspension system grid (Item 5A). Any glass fiber batt insulation bearing the UL Classification Marking for Surface Burning

1/2 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg on

Channel splices located beneath joists and overlapped 4 in. Channels secured to each joist with one 1/2 in. long Type S-12 low profile steel screw. Two channels, spaced 6 in. OC, oriented opposite each gypsum board end joint as shown on the illustration above. Additional channels shall extend $\min 6$ in. beyond each side edge of board. $\textbf{5A. Steel Framing Members}^{\star} - \textbf{(Optional, Not Shown)} - \textbf{When it is desired to drop the ceiling below the bottom plane}$

cross tees, cross channels and wall angle as listed below:

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NATIONAL GYPSUM CO — Type FSW-C

CGC INC — Types C, IP-X2, IPC-AR, ULIX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, ULIX

USG BORAL DRYWALL SFZ LLC - Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

7. Finishing System - (Not Shown) - Vinyl, dry or premixed joint compound, applied in two coats to joints and screwheads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum panels.

over cross tees or channels. Fastened to cross tees or channels with 1 in. long Type S screws bugle-head screws spaced 8 in. OC with the screws located 4 in. from the midspan of the cross tee or channel, and 1-1/2 in. from side edges of

gypsum panel. Fastened to main runners with 1 in. long Type S bugle-head screws spaced midway between cross tees or

channels. End joints of gypsum panels shall be staggered not less than 4 ft OC with adjacent gypsum panels end joints.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively. Last Updated on 2021-06-11

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of the structural steel members (Item 2), a suspension system may be used in lieu of the resilient channels. Main runners, a. Main Runners - Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by $min\ 12\ SWG\ galv\ steel\ hanger\ wires\ spaced\ 24\ in.\ OC\ a\ min\ of\ 4\ in.\ below\ bottom\ flange\ of\ joists,\ twist\ tied\ to\ \#10\ -\ 3/4$ in. long screws installed in the web, 1/2 in. from the bottom flange of the steel joists. Hanger wires to be located adjacent

to main runner/cross tee intersections.

support clip) with three #10 3/4 in. long self-drilling screws per leg.

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3/13/23, 9:51 PM

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 NCDEQ 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

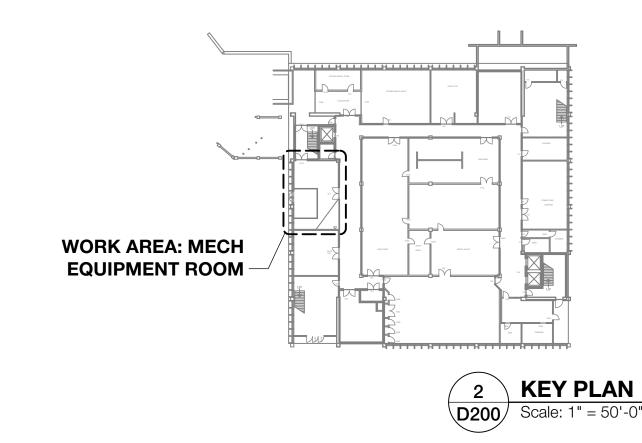
THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN, LIGHTS, BARRIERS, WEATHER PROTECTION, WARNING SIGNS AND OTHER ITEMS AS REQUIRED FOR PROPER PROTECTION OF THE PUBLIC AS WELL AS WORKMEN ENGAGED IN DEMOLITION OPERATIONS. THE CONTRACTOR SHALL ALSO PROTECT WALLS, WINDOWS, ROOFS, AND OTHER ADJACENT EXTERIOR 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 REMOVIED 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.



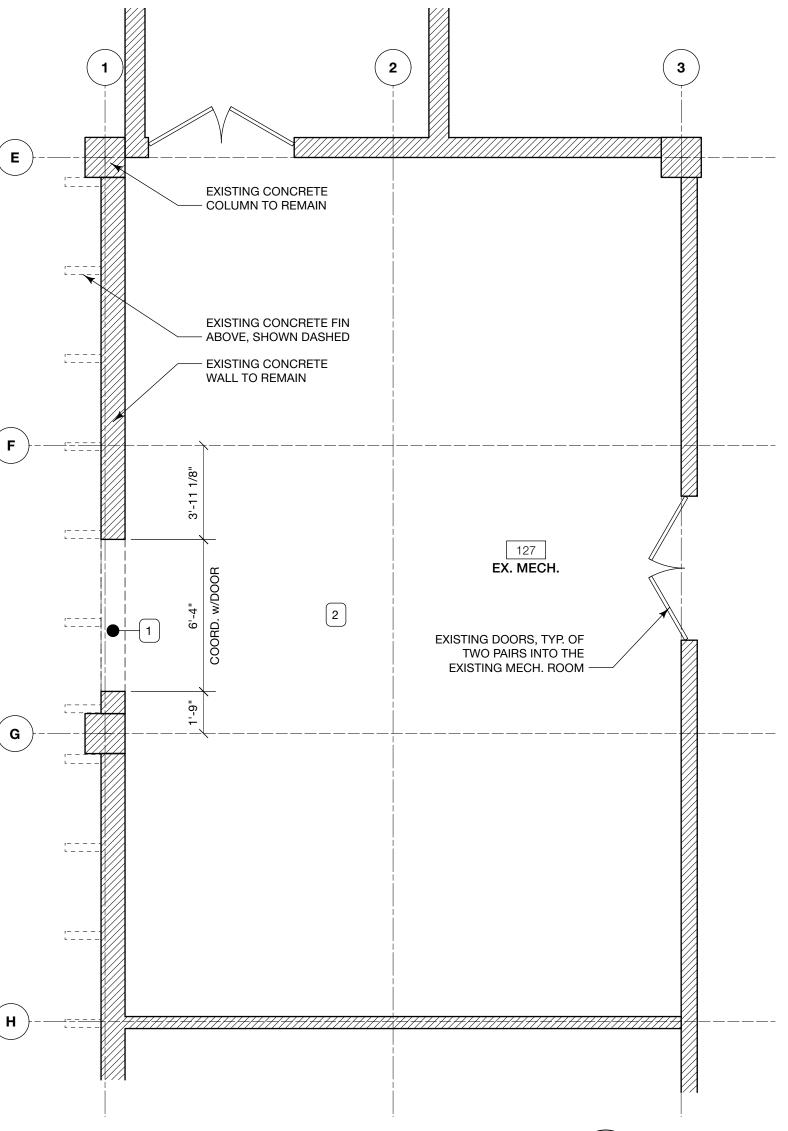
DEMOLITION PLAN LEGEND

EXISTING WALL TO BE REMOVED, VERIFY IN FIELD

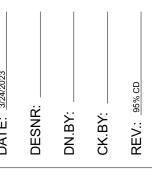
EXISTING WALL TO REMAIN, VERIFY IN FIELD

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













SYSTEMS IMPROVEMENTS

POE HALL - BUILDING # 024

DID#: 22-24502-01A; CODE: 42124; ITEM: 343

SHEET No. D200
DEMOLITION
PLAN

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

Total Sheets:

FAC. NAME
POE HALL

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 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, AUDIO/VISUAL, 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"x 36" MAY HAVE BEEN REDUCED FROM THE ORIGINALS. 12"x 18" SETS ARE HALF-SIZED WHEN

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.

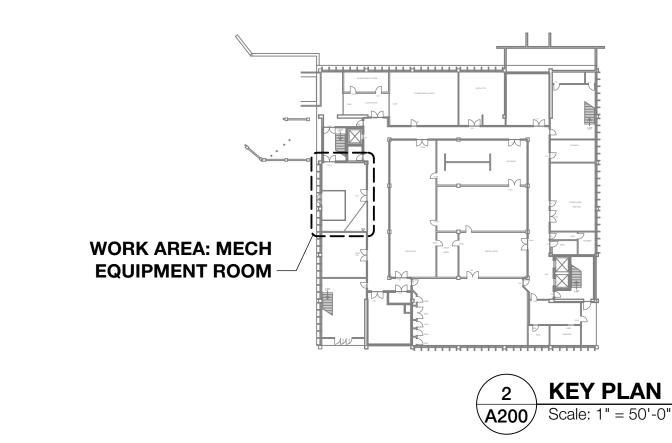
OTHER REQUIREMENTS

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.



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 INFORMATON

---- 2-HR FIRE RATED CONSTRUCTION

EXISTING HIGH BAY FIXTURE

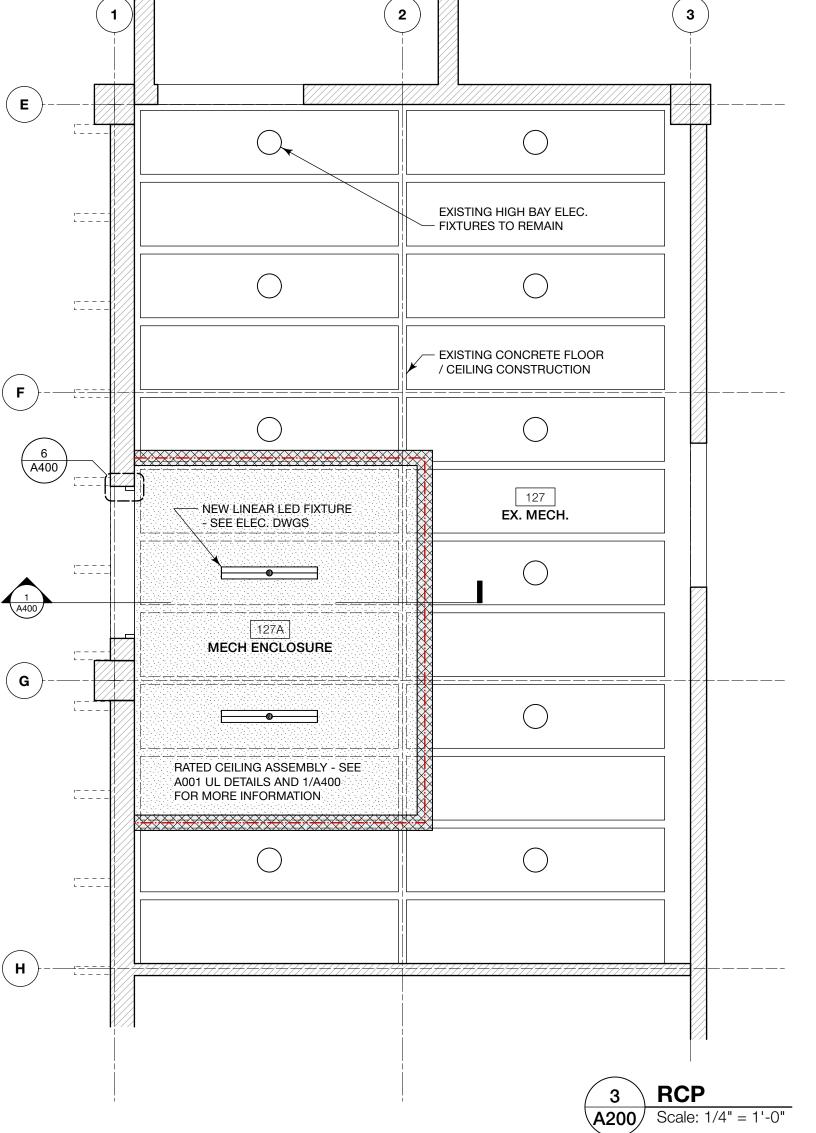
LINEAR LED FIXTURE - SEE ELEC. DWGS FOR MORE INFORMATION

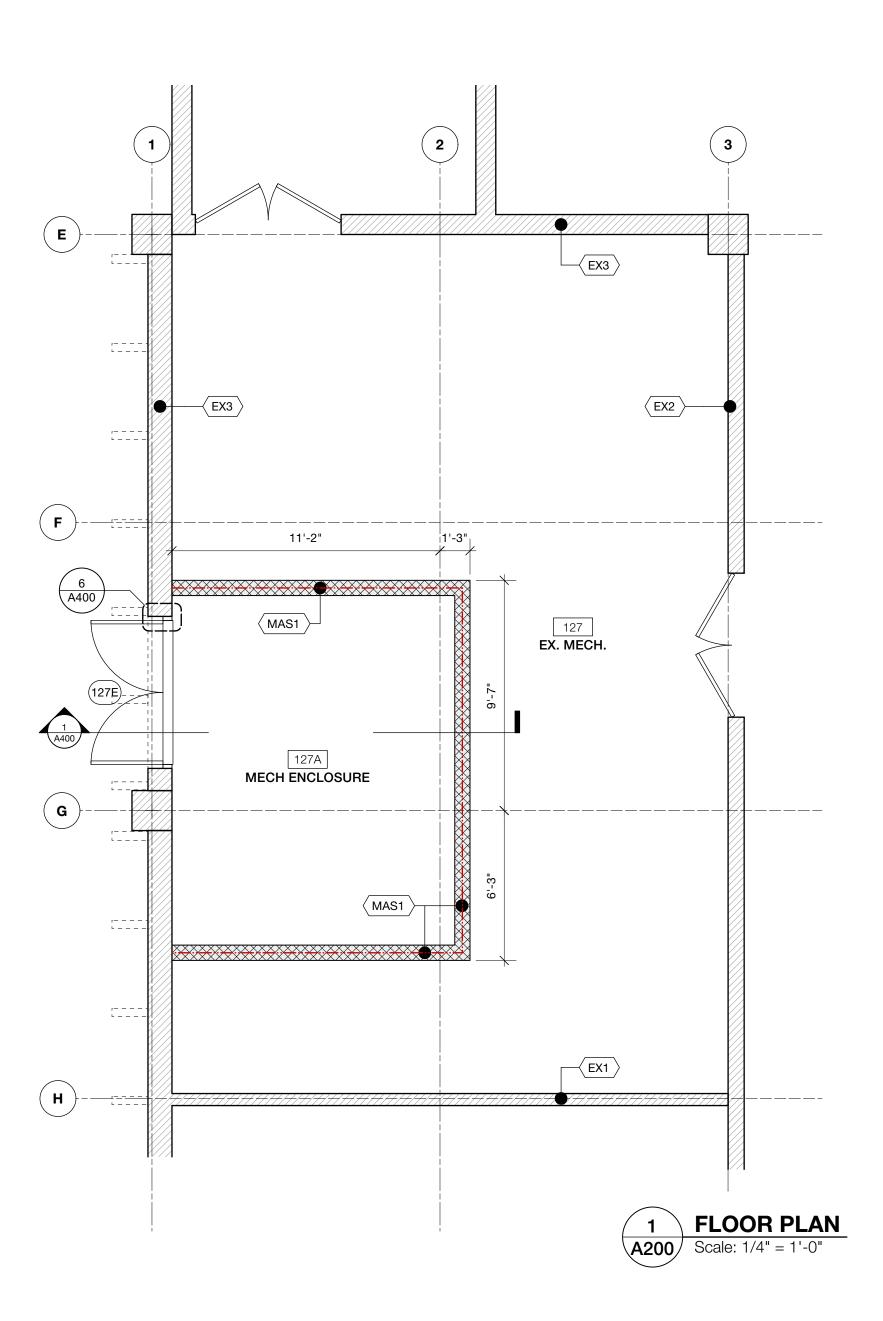
GYPSUM BOARD CEILING - SEE FINISH SCHEDULE

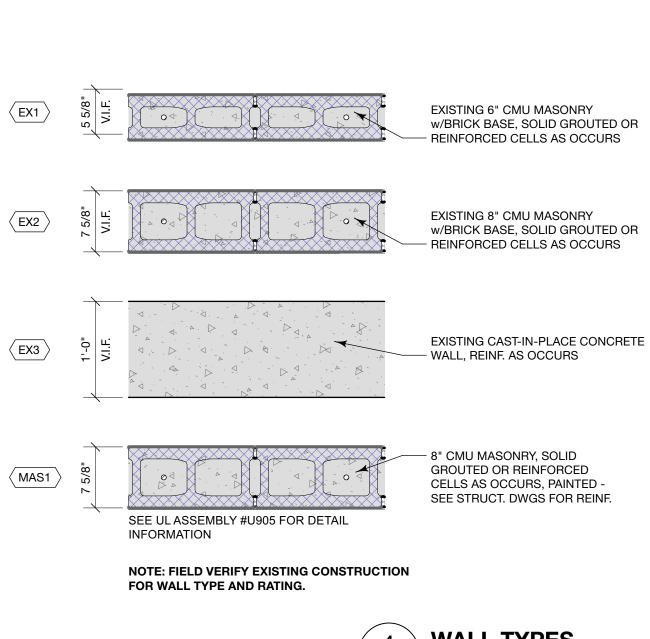
EXISTING FLOOR PLAN GENERAL NOTES

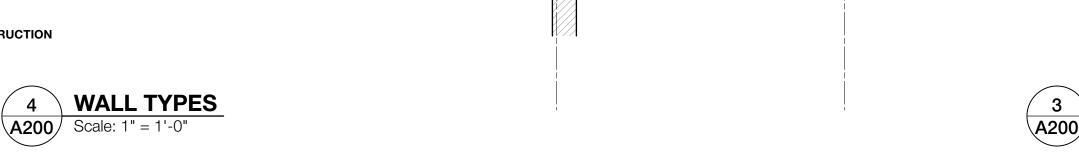
1. VERIFY PROVIDED AND CRITICAL DIMENSIONS IN FIELD PRIOR TO WORK COMMENCING.

2. NEW WORK TO BE COORDINATED WITH ALL EXISTING STRUCTURAL AND MEP INFRASTRUCTURE.

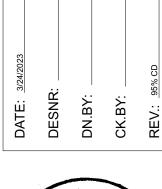




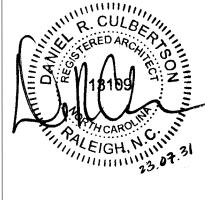














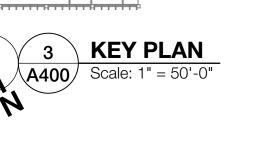
POE HALL - FIRE PROTECTION SYSTEMS IMPROVEMENTS POE HALL - BUILDING # 024

SHEET No. A200 FLOOR PLAN, RCP. & WALL TYPES

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

FAC. NAME **POE HALL**

Total Sheets:

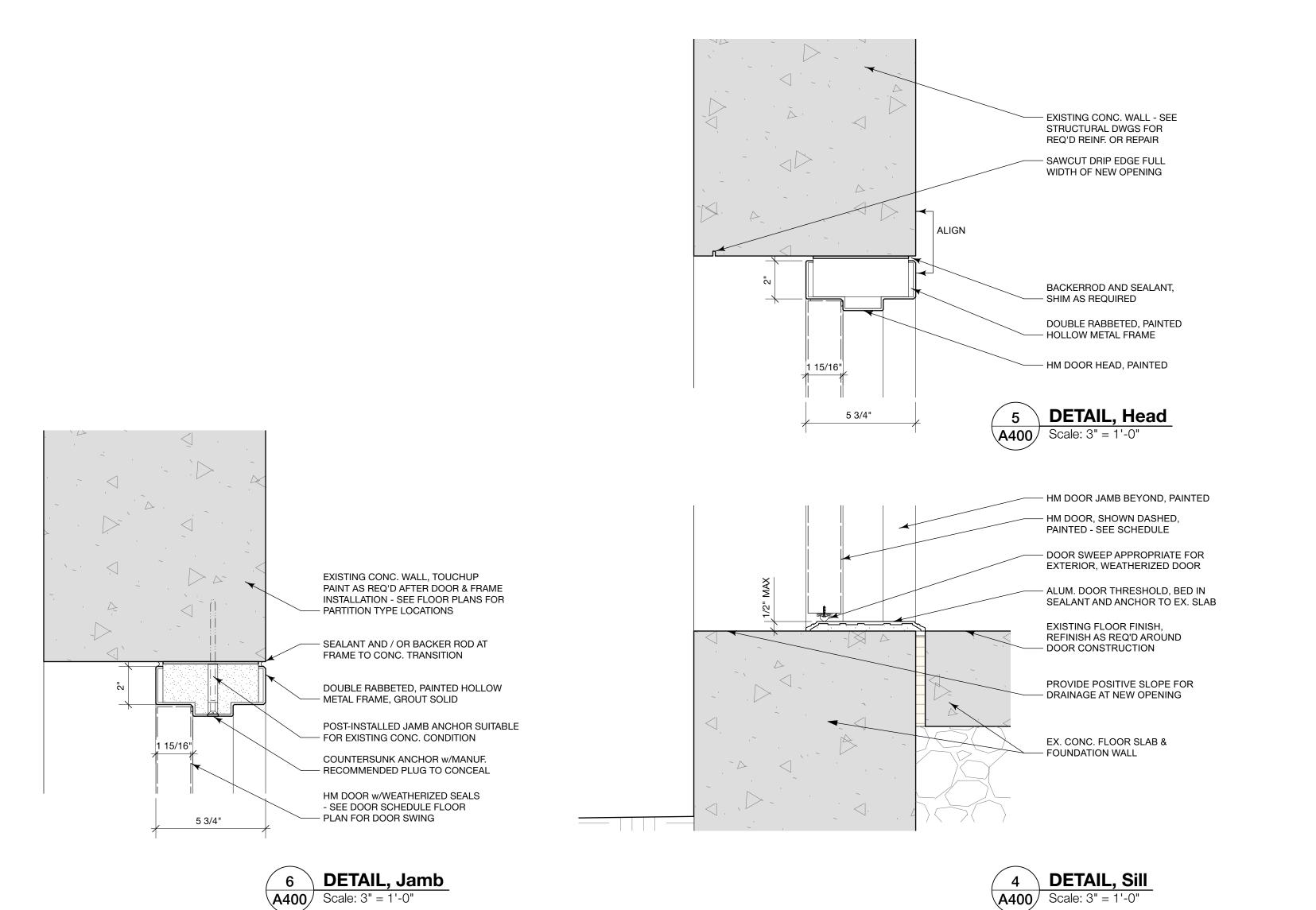


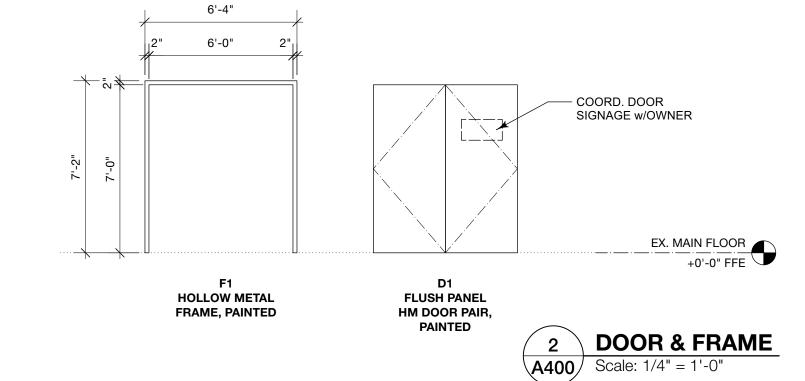
DOOR SCHEDULE														
# LOCATION		DOOR						FRAME						REMARKS
		SIZE			MATERIAL	TYPE	FINISH	MATERIAL	TYPE	FINISH	HEAD	JAMB	SILL	
127E MECHANICAL 1	27A 6	6'0"	7'0"	1 3/4"	НМ	D1	PTD	НМ	F1	PTD	5/A400	6/A400	4/A400	EXT, INSULATED HM DOOR w/PANIC HARDWARE AND CLOSER

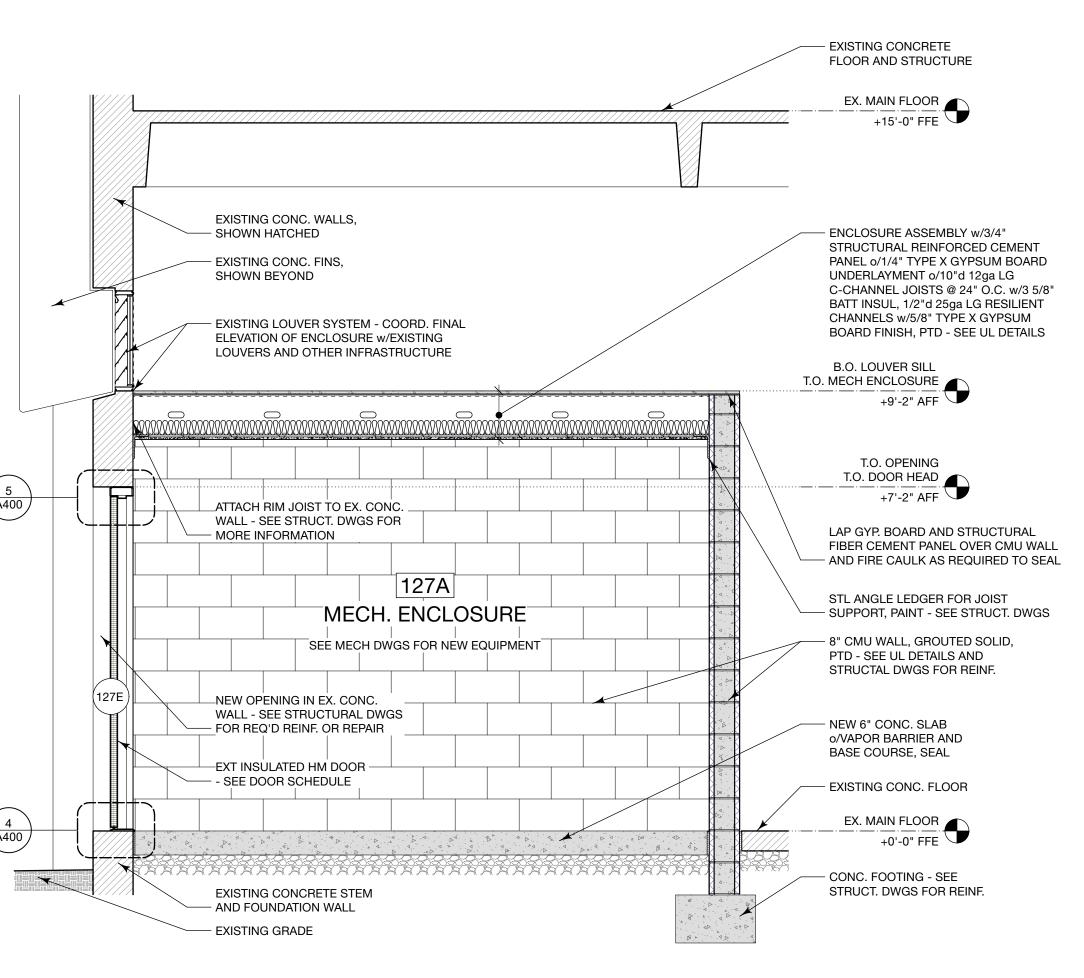
1. DOOR AND FRAME PAINT FINISH TO BE ARCHITECTURAL BRONZE - SEE SPECIFICIATIONS FOR MORE INFORMATION

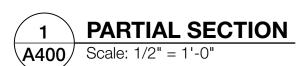
ROOI	M FINISH SCHEDULE										
#	ROOM NAME	FLOOR		WALL				CEILING			REMARKS
		MATERIAL	BASE	NORTH	EAST	SOUTH	WEST	MATERIAL	FINISH	HEIGHT	
127	EXISTING MECHANICAL ROOM	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC. / EX.	CONC / EX.	PTD / EX.	V.I.F.	
127A	MECHANICAL ENCLOSURE	CONC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

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

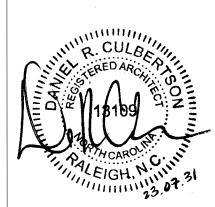


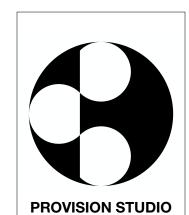












RALEIGH, NC 27604 www.provisionstudio.design

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

SHEET No. A400 SECTIONS & DETAILS

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

FAC. NAME

Total Sheets:

POE HALL FAC. NO. 024

FIRE PROTECTION GENERAL NOTES

1. DIVISION 21 SHALL PROVIDE ALL LABOR AND MATERIALS REQUIRED FO NFPA #13, 2013 EDITION, STANDARD FOR INSTALLATION OF AUTOMATIC SE EDITION, REQUIREMENTS OF ALL LOCAL FIRE MARSHALL AUTHORITIES. F COMPLETION OF THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE

2. 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

3. 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.

4. ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED FOR THIS PROJECT.

6. ALL PIPING AND/OR CONDUIT PENETRATIONS THRU FIRE RATED FLOORS AND/OR WALLS SHALL BE MADE/SEALED IN ACCORDANCE WITH UL

7. UNLESS OTHERWISE INDICATED DIVISION 21 IS RESPONSIBLE FOR ALL CUTTING, CORE DRILLING AND PATCHING REQUIRED TO INSTALL FIRE

8. REFER TO ALL GENERAL CONSTRUCTION CONTRACT SPECIFICATIONS AND DRAWING DOCUMENTS FOR PROJECT REQUIREMENTS.

9. ALL PIPE LARGER THAN 2" SHALL BE BLACK STEEL SCH. 40 WITH GROOVED ENDS JOINED BY GROOVE FITTINGS.

10. 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.

11. 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.

12. 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

13. PROVIDE FLOW SWITCHES FOR SYSTEM MAIN AND ZONES AND TAMPER SWITCHES FOR ALL ABOVE GROUND GATE, WAFER, AND BALL VALVES

14. WIRING FROM TAMPER SWITCHES AND FLOW SWITCHES TO FIRE ALARM PANEL SHALL BE BY ELECTRICAL CONTRACTOR.

16. 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

17. CONTRACTOR SHALL RECYCLE ALL SCRAP METAL. CONTACT WPR FOR ASSISTANCE WITH WASTE MANAGEMENT.

GENERAL SYMBOLS

•) SHEET LETTER

SHOWN ON SHEET NUMBER

SHOWN ON SHEET NUMBER

SHEET NUMBER

WITH DETAIL LETTER

COLUMN NUMBER OR

KEYED NOTE NUMBER

CONNECT TO EXISTING

REMOVE TO THIS POINT

REVISION NUMBER

• / ELEVATION LETTER

SECTION LETTER

DIMENSION LINE

CPR?

19. 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 NEGLECT 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

	L	
OR A COMPLETE WORKING SYSTEM WHICH SHALL COMPLY FULLY WITH		Project Name
SPRINKLER SYSTEMS. THE NORTH CAROLINA STATE BUILDING CODE, 2018	I	Project Loca
FINAL ACCEPTANCE IS CONTINGENT UPON APPROVAL OF ALL WORK AND FORM 85A.		Suite: -
FORM 65A.	Г	Designed By

5. REFER TO SPECIFICATION SECTION 211000 FOR PIPE MATERIALS AND JOINING METHODS.

LISTED SYSTEMS. REFER TO UL DETAILS SHEETS FOR MANUFACTURERS SPECIFICATIONS FOR SYSTEMS USED.

PROTECTION WORK.

ABOVE GROUND AND INSIDE THE BUILDING.

15. ALL PENETRATIONS OF RATED WALLS AND FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE SCHEDULE AND DETAILS ON THIS

CONTRACTOR WITH NO ADDITIONAL EXPENSE TO THE OWNER.

18. CONTRACTOR SHALL NOT BLOCK ACCESS TO DUMPSTERS. IF IT IS REQUIRED TO BLOCK DUMPSTER ACCESS, CONTACT NESSA STONE AT NCSTONE@NCSU.EDU.

ONLY AND IS NOT ALLOWED ON SOFTSCAPES. LCS WILL PROVIDE TREE PROTECTION IN POTENTIALLY IMPACTED AREAS.

	FI	RE PROTECTION	DESIGN DATA	
	Project Name: POE HALL - FIRE PROTECTION SYSTEMS IMP	ROVEMENTS	System: WET	
3	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: CLASSPOOMS	Hazard: LIGHT	City Supply: 80 PSI	

FIRE PROTECTION WATER SUPPLY INFORMATION

TESTED BY	NCSU UTILITES	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	

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	

FIRE PUMP SCHEDULE

TAG	*MANUFACTI	JRER/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

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

JOCKEY PUMP SCHEDULE

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

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

034319



SYSTEMS I POE HALL

SHEET No.

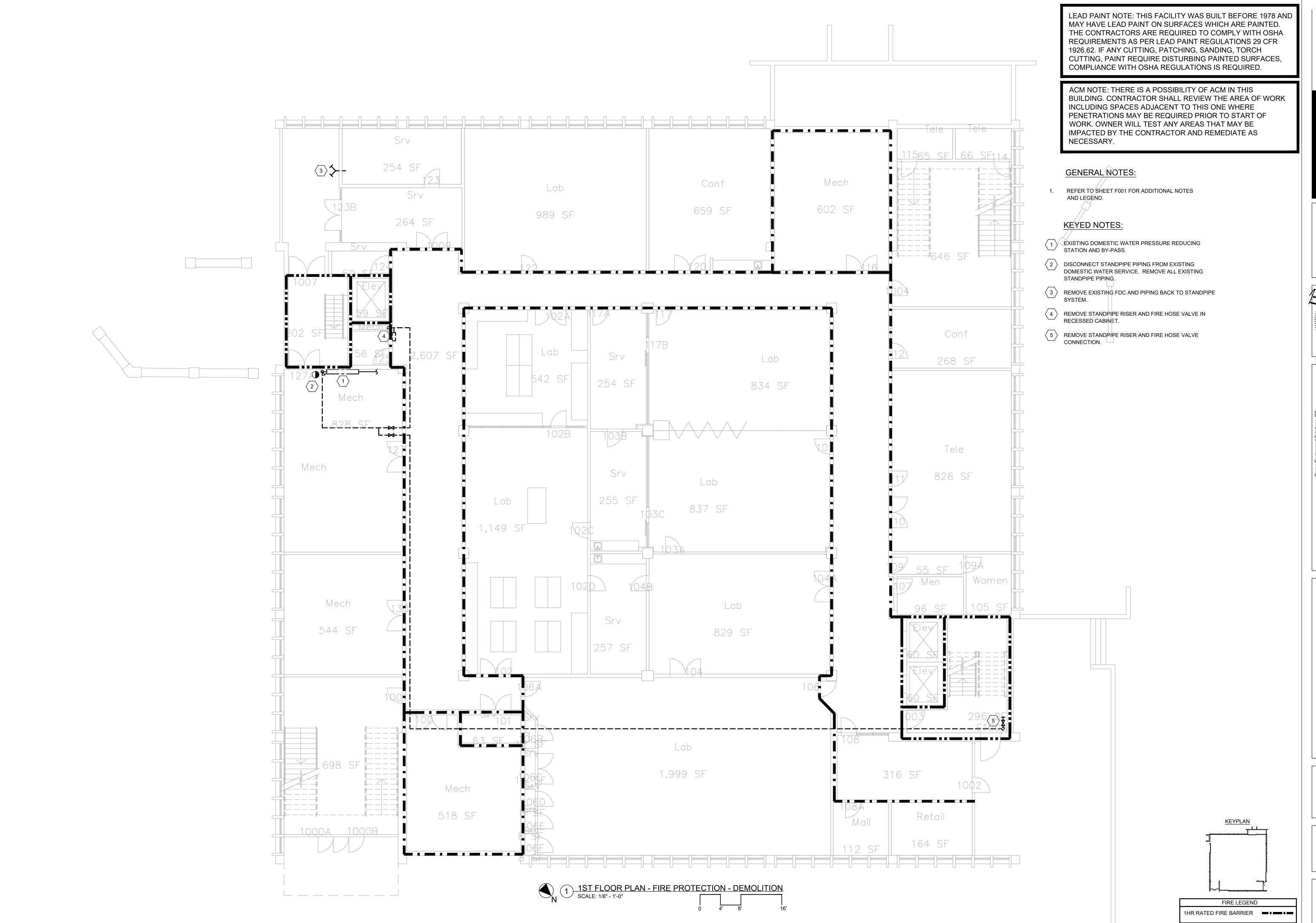
F001

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

POE HALL

FAC. NO. **024**

FAC. NAME



SEAL 034319

SEAL 034319

SINGING SOLUTION OF THE SOLUTION OF

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www.sigmaes.com

Sigma Project #: 22053



S IMPROVEMENTS

-L - BUILDING # 024

2-01A: CODE: 42124: ITEM: 343

POE HALL - FIRE F SYSTEMS IMPR(POE HALL - BUIL

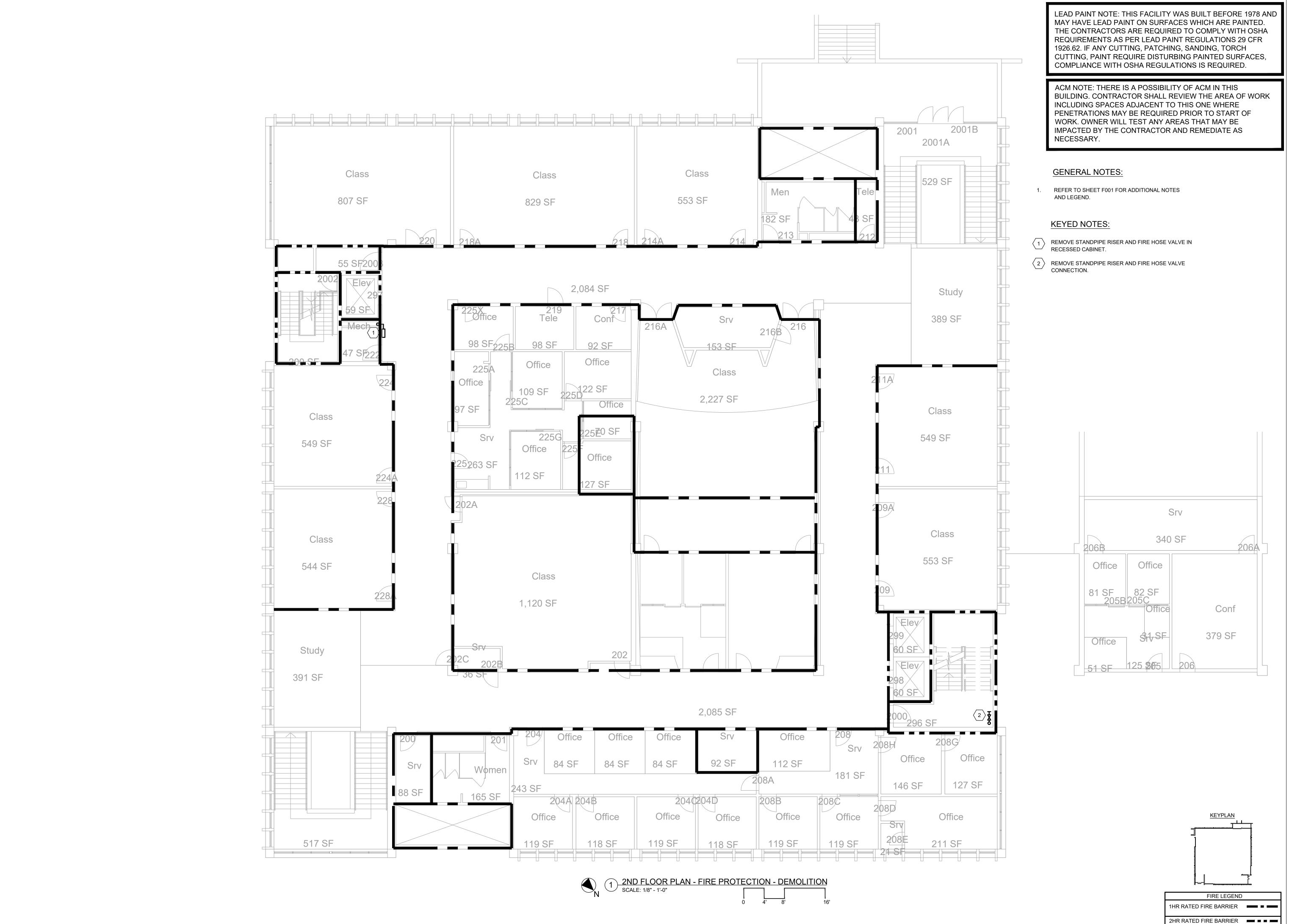
SHEET No.

F101

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

FAC. NAME POE HALL

FAC. NO. **024**



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NC ENG LIC# C-2490

SOLUTIONS

343

SYSTEMS IMPROVEMENTS
POE HALL - BUILDING # 024

SHEET No.

F102

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

FAC. NAME POE HALL

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

Branco 034319



SHEET No.

F103

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

FAC. NAME POE HALL

FIRE LEGEND 1HR RATED FIRE BARRIER

2HR RATED FIRE BARRIER ■ ■ ■

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:

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KEYED NOTES:

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

Branco SEAL 034319

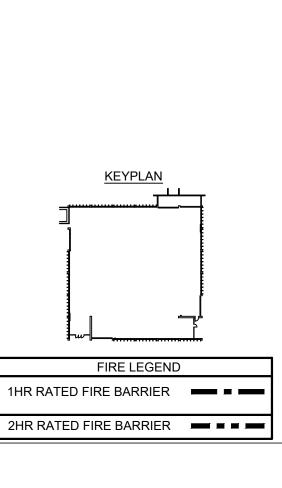


SHEET No.

F104

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

FAC. NAME POE HALL



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.
- $\langle 2 \rangle$ REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.

Branco 034319

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

SHEET No.

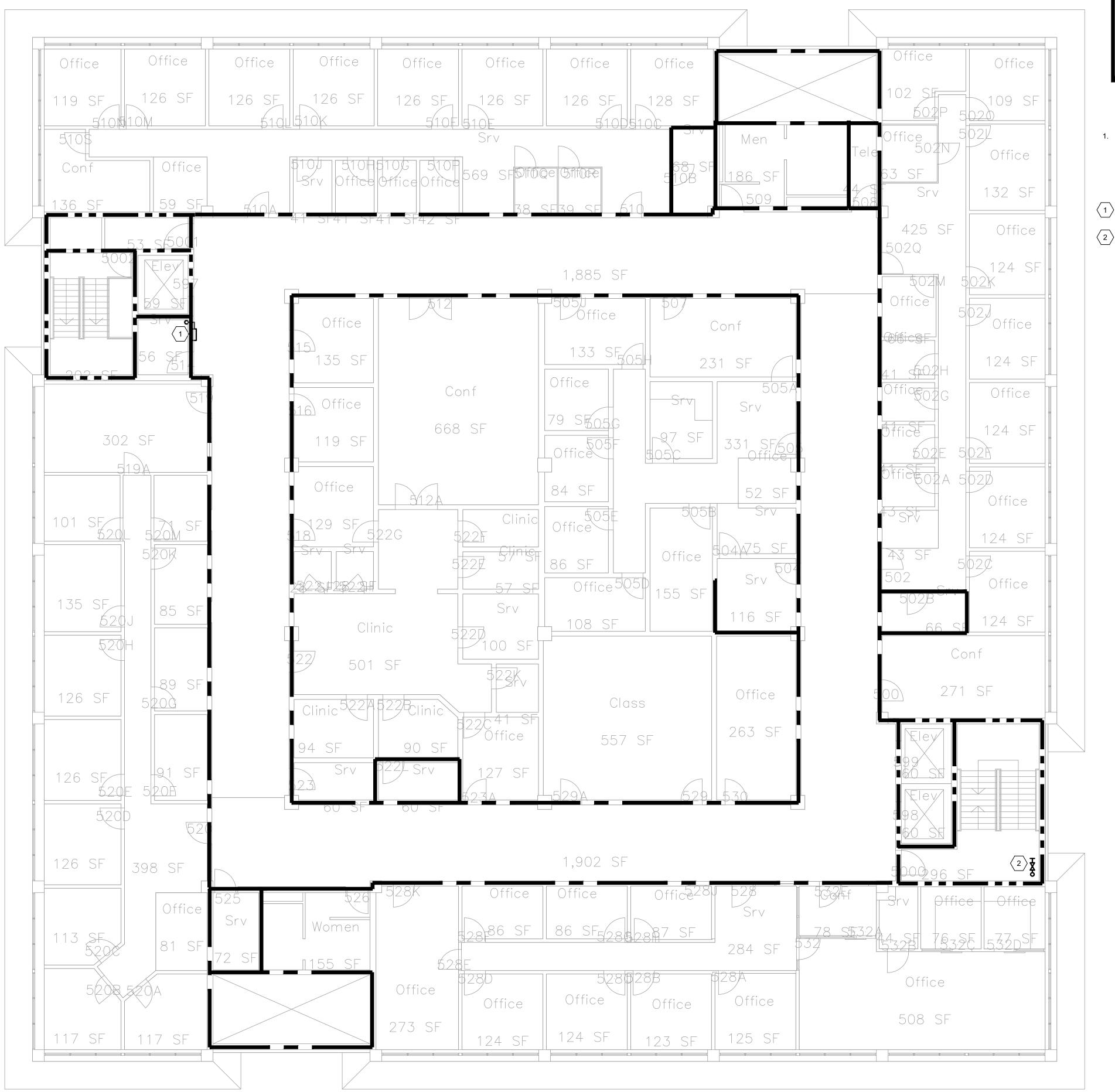
F105

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

FAC. NAME POE HALL

1HR RATED FIRE BARRIER FAC. NO. **024** 2HR RATED FIRE BARRIER ■ ■ ■

FIRE LEGEND



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.
- $\left\langle 2 \right\rangle$ REMOVE STANDPIPE RISER AND FIRE HOSE VALVE CONNECTION.

Branco SEAL 034319



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

SHEET No.

F106

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

FAC. NAME POE HALL

FAC. NO. **024**

<u>KEYPLAN</u> FIRE LEGEND 1HR RATED FIRE BARRIER 🛛 🖚 🖛

2HR RATED FIRE BARRIER ■ ■ ■

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

REFER TO SHEET F001 FOR ADDITIONAL NOTES

- REMOVE STANDPIPE RISER AND FIRE HOSE VALVE IN
- 2 REMOVE STANDPIPE RISER AND FIRE HOSE VALVE
- REMOVE STANDPIPE PIPING UP TO PENTHOUSE

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

SHEET No.

F107

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

FAC. NAME POE HALL

FIRE LEGEND 1HR RATED FIRE BARRIER -

2HR RATED FIRE BARRIER ■ ■ ■

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:

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

>

TOLISHOO GNA MAIRIUT

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NC ENG LIC# C-2490



Solution Selection 13

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

SHEET NO

F108

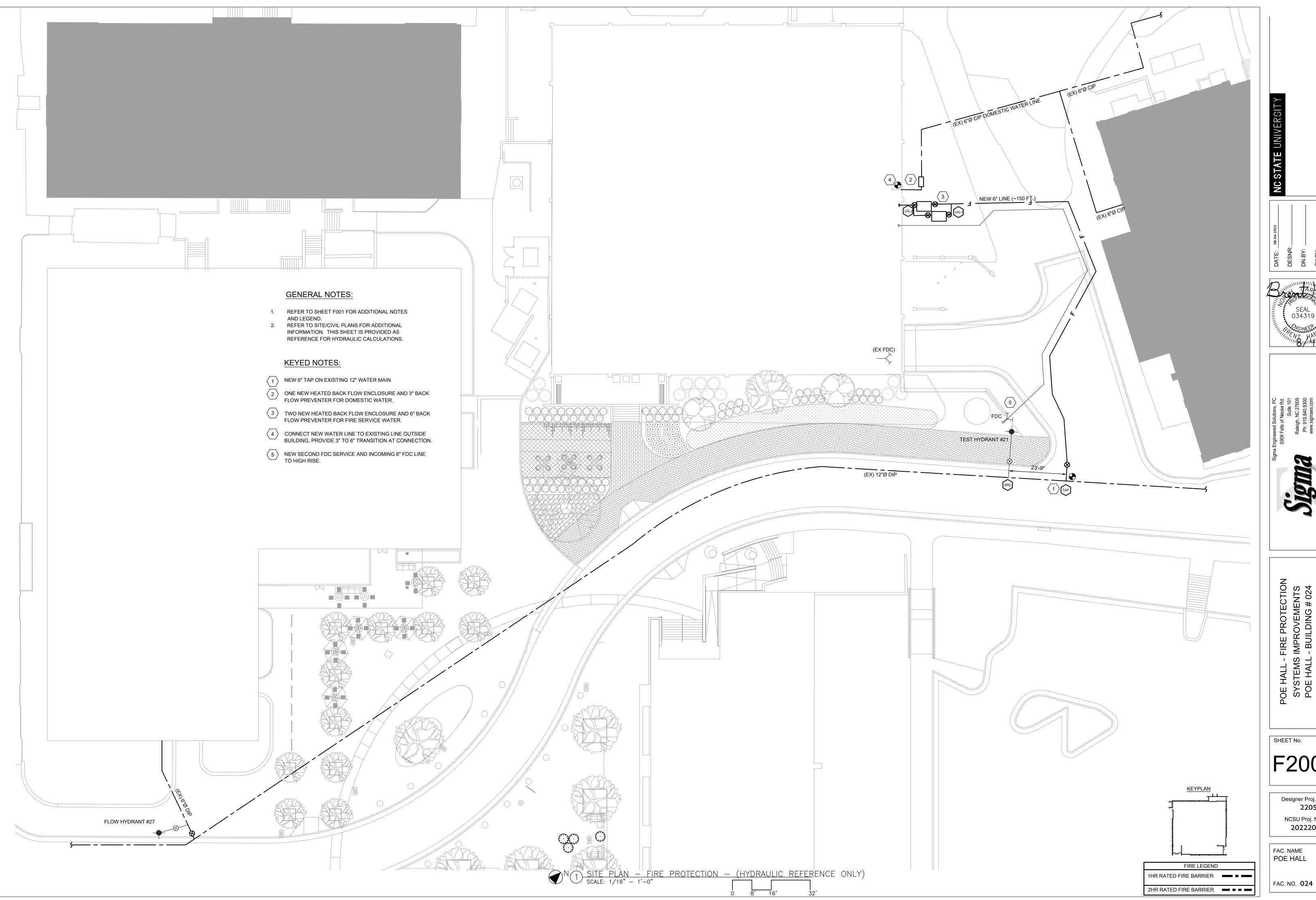
Designer Proj. No.
22053

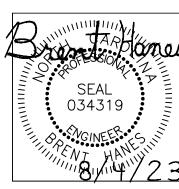
NCSU Proj. No.
202220008

FAC. NAME POE HALL

FAC. NO. **024**

2HR RATED FIRE BARRIER ■ ■ ■

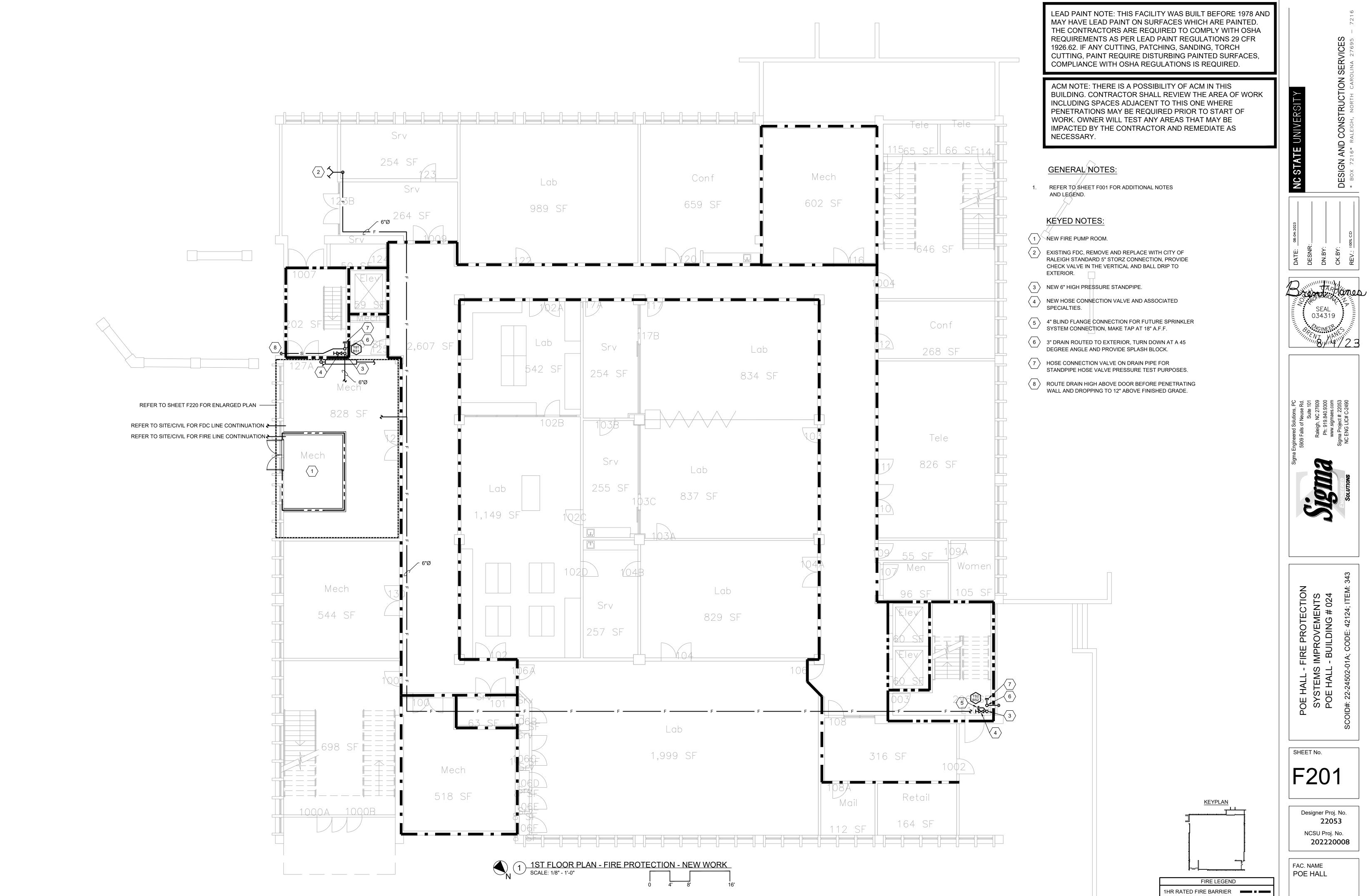






F200

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



034319



SHEET No.

F201

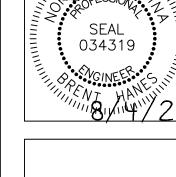
Designer Proj. No. 22053 NCSU Proj. No. 202220008

FAC. NAME POE HALL

FAC. NO. **024**

2HR RATED FIRE BARRIER ■■■■





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www.sigmaes.com
Sigma Project #: 22053



MS IMPROVEMENTS ALL - BUILDING # 024

SHEET No.

F202

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

FAC. NAME POE HALL

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.
- (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.

LEAD PAINT NOTE: THIS FACILITY WAS BUILT BEFORE 1978 AND

Branco 034319



SHEET No.

F203

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

FAC. NAME POE HALL

FIRE LEGEND 1HR RATED FIRE BARRIER ■■■■

2HR RATED FIRE BARRIER

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:

- NEW 6" HIGH PRESSURE STANDPIPE.
- NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.
- 3 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.
- 5 HOSE CONNECTION VALVE ON DRAIN PIPE FOR STANDPIPE HOSE VALVE PRESSURE TEST PURPOSES.

LEAD PAINT NOTE: THIS FACILITY WAS BUILT BEFORE 1978 AND

Branco 034319



SHEET No.

F204

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

FAC. NAME POE HALL

FAC. NO. **024**

KEYPLAN FIRE LEGEND 1HR RATED FIRE BARRIER -----

2HR RATED FIRE BARRIER ■ ■ ■

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

KEYED NOTES:

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

LEAD PAINT NOTE: THIS FACILITY WAS BUILT BEFORE 1978 AND

AND LEGEND.

- (2) NEW HOSE CONNECTION VALVE AND ASSOCIATED
- $\overline{\langle}$ 4 $\overline{\rangle}$ 3" DRAIN ROUTED TO EXTERIOR, TURN DOWN AT A 45

Sign

Branco

034319

SHEET No.

F205

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

FAC. NAME POE HALL

FAC. NO. **024**

FIRE LEGEND 1HR RATED FIRE BARRIER 2HR RATED FIRE BARRIER ■■■■

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:

NEW 6" HIGH PRESSURE STANDPIPE.

NEW HOSE CONNECTION VALVE AND ASSOCIATED SPECIALTIES.

3 4" BLIND FLANGE CONNECTION FOR FUTURE SPRINKLER SYSTEM CONNECTION, MAKE TAP AT 18" A.F.F.

 $\overline{4}$ 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.

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

SHEET No.

F206

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

FAC. NAME POE HALL

FAC. NO. **024**

<u>KEYPLAN</u> FIRE LEGEND 1HR RATED FIRE BARRIER

2HR RATED FIRE BARRIER ■■■■

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.
- $\overline{4}$ 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.

LEAD PAINT NOTE: THIS FACILITY WAS BUILT BEFORE 1978 AND

Branco 034319



Sign

SHEET No.

F207

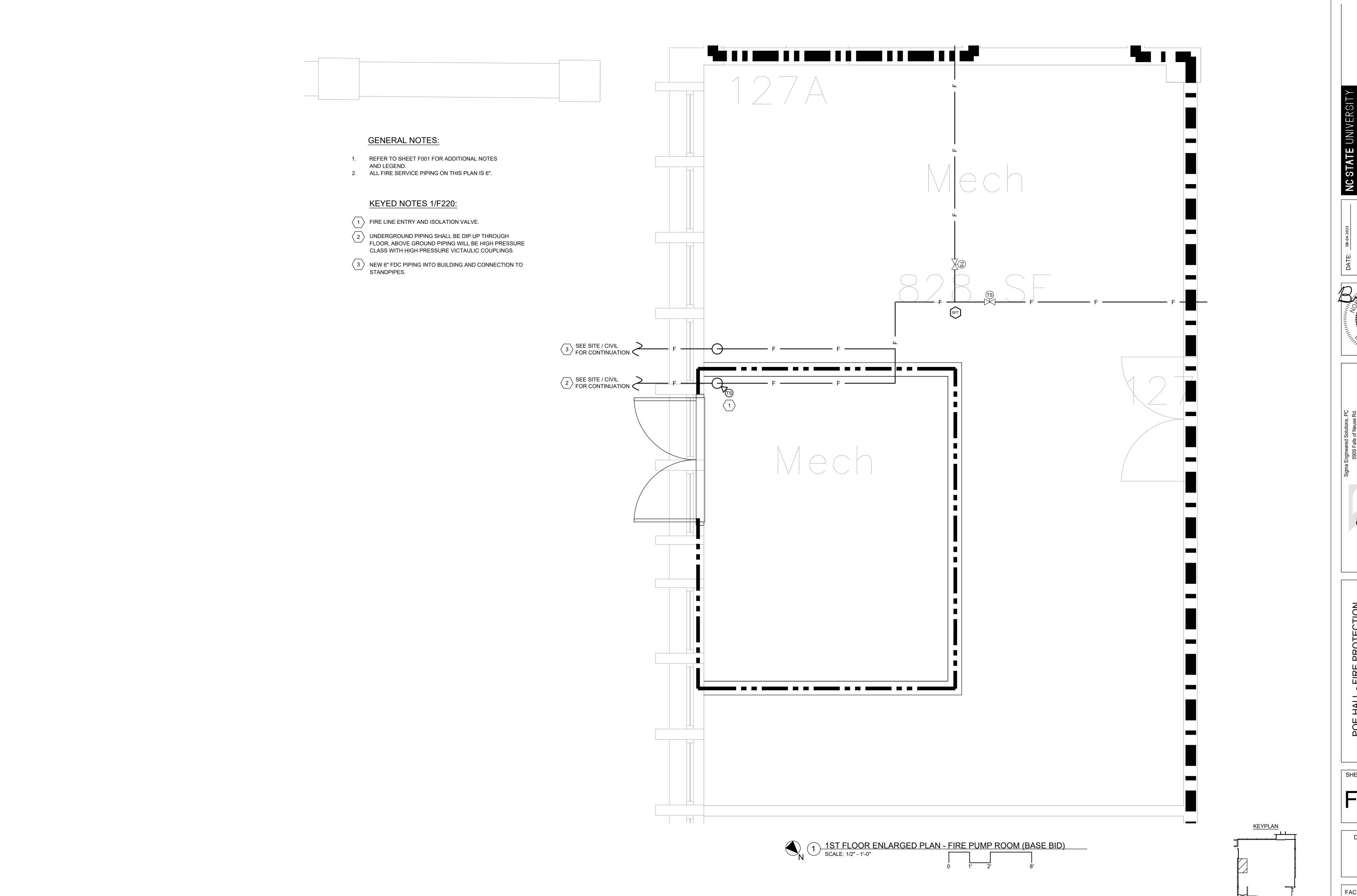
Designer Proj. No. 22053 NCSU Proj. No. 202220008

FAC. NAME POE HALL

FAC. NO. **024**

FIRE LEGEND 1HR RATED FIRE BARRIER -

2HR RATED FIRE BARRIER ■ ■ ■



— DESIGN AND CONSTRUCTION SERVIC

DESNR:

DN.BY:

CK.BY:

SEAL 034319

SEAL 034319

ANGINEER S

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Sigma Project #: 22053

SOLUTIONS

/STEMS IMPROVEMENTS)E HALL - BUILDING # 024 22-24502-01A; CODE: 42124; ITEM: 343

FFT No

F221

Designer Proj. No.
22053

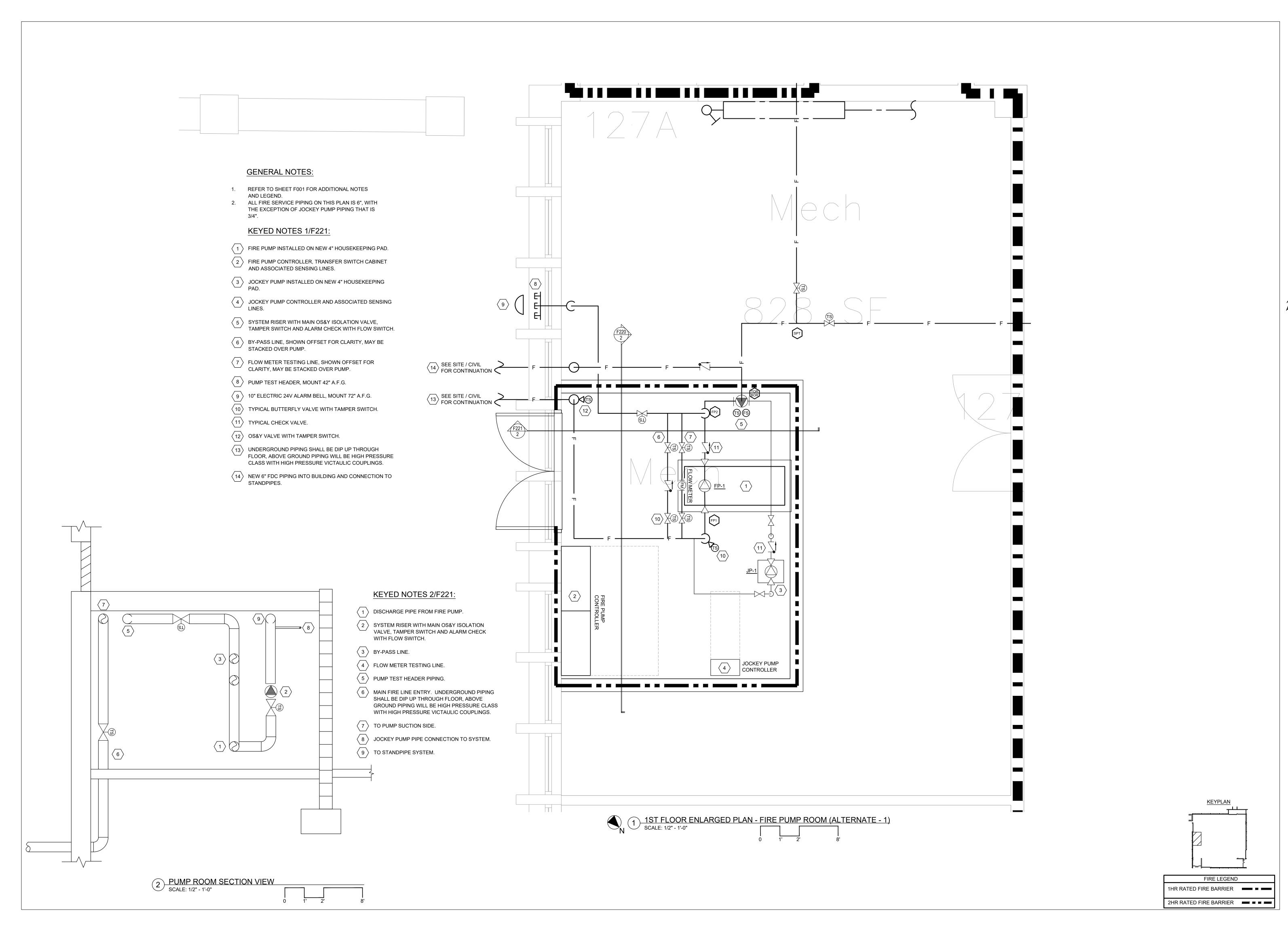
NCSU Proj. No.
202220008

FAC. NAME POE HALL

FAC. NO. **024**

1HR RATED FIRE BARRIER - = =

2HR RATED FIRE BARRIER ■ ■ ■ ■



DESIGN AND CONSTRUCTION SERVICES

* BOX 7216* RALEIGH, NORTH CAROLINA 27695

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CK.BY:

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www.sigmaes.com
Sigma Project #: 22053

SOLUTIONS

HALL - BUILDING # 024 :4502-01A; CODE: 42124; ITEM: 343

SHEET No.

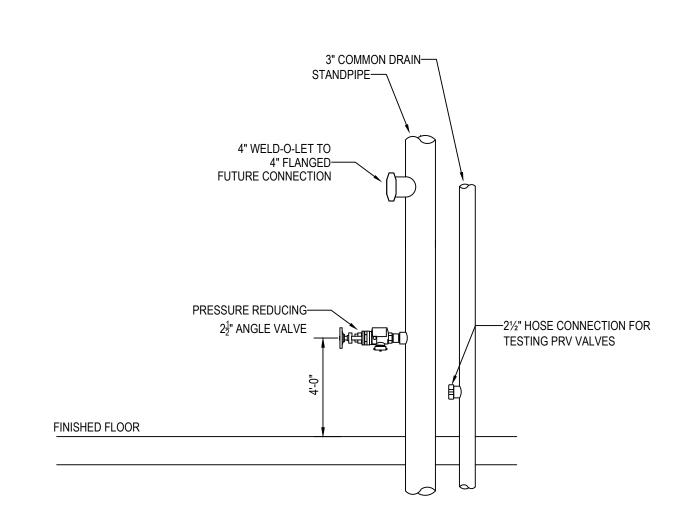
F221

Designer Proj. No.
22053

NCSU Proj. No.
202220008

FAC. NAME POE HALL

1 FDC CONNECTION DETAIL



2 STANDPIPE DETAIL SCALE: NTS

4 JOCKEY PUMP PIPING DETAIL SCALE: NTS

THREADED SWING 1/2"Ø COPPER CHECK VALVE — SENSING LINE —

— THREADED TEE

—THREADED UNION

— JOCKEY PUMP DISCHARGE 1-1/4"Ø

(TYPICAL)

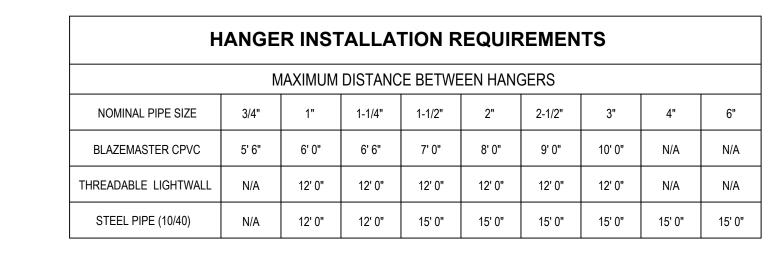
JOCKEY PUMP —

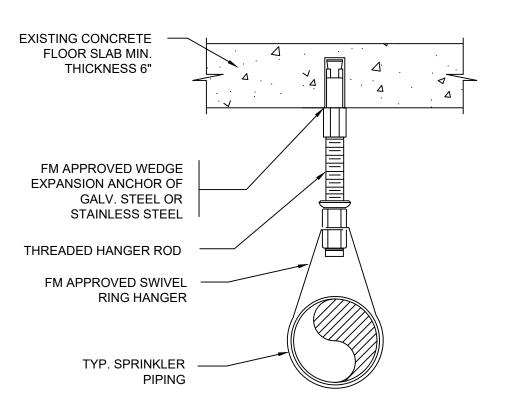
THREADED OS&Y VALVE WITH TAMPER

(TYPICAL) —

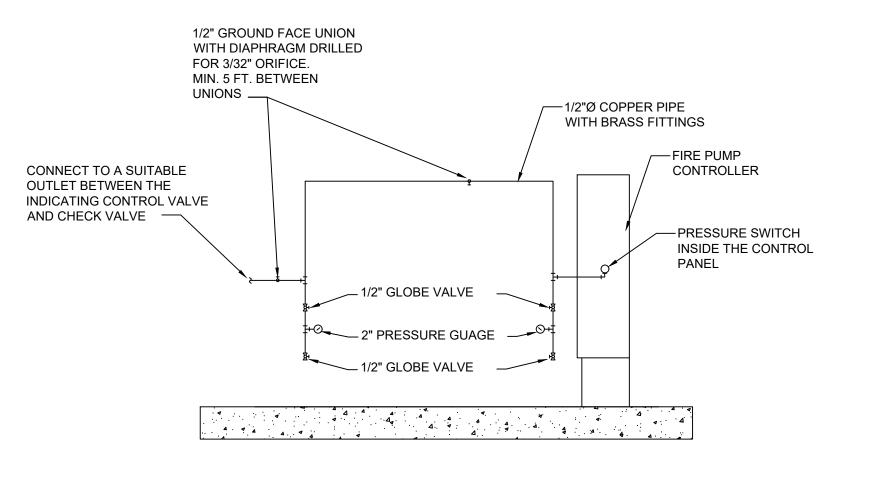
JOCKEY PUMP SUCTION PIPE

1-1/4"Ø. —





5 PIPE HANGER DETAIL
SCALE: NTS



6 CONTROLLER SENSING LINE DETAIL SCALE: NTS

SHEET No.

F300

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

FAC. NAME POE HALL

3 NEW EQUIPMENT PAD DETAIL SCALE: NTS

NUMBER OF VALVES
PER NFPA 20. TO SYSTEM - RPZ IN HOT BOX. BACKFLOW PREVENTER WITH BYPASS METER. TEST HEADER W/ BALLDRIP RODDING & BLOCKING — ALL-U/G & STUP-UPS PER NFPA 13 & PUBLIC UTILITIES HANDBOOK CONTROL VALVE

CK. VALVE
W/ BALLDRIP FIRE DEPT.
CONNECTION W/
STORZ CONNECTION PROTECT PIPING -THRU WALLS AND FLOORS. FIRE PUMP CONTROLLER DUCTILE IRON
UNDERGROUND D/I
TO FIRE PUMP
FLANGE AND BYPASS
CHECK VALVE JOCKEY PUMP PRESSURE RELIEF — VALVE PRESSURE GAUGE JOCKEY PUMP CONTROLLER TEST GAUGE ADJACENT -TO TEST CONNECTION

CONTROL VALVE CHECK VALVE

4 FIRE PUMP SYSTEM SCHEMATIC SCALE: NTS

1 SCO DOCUMENT STORAGE REQUIREMENTS
SCALE: NTS

6" MIN. ALL AROUND NEW EQUIPMENT $\frac{3}{4}$ " CHAMFER WWF 6X6-W1.4XW1.4 — (TYP.) #3 AT 12" O.C. DOWELS.— PROVIDE ADHESIVE ANCHORAGE INTO EXISTING CONCRETE. MINIMUM 4" DEEP. EXISTING CONCRETE SLAB.

SHEET No.

F301

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

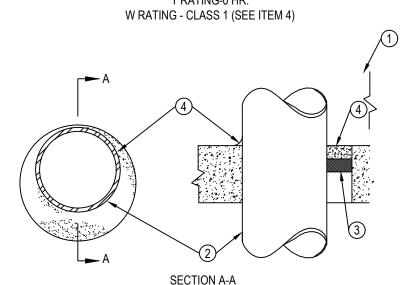
FAC. NAME POE HALL

SHEET No.

FAC. NAME POE HALL

FAC. NO. **024**

MARCH 05 2007 F RATINGS-3 4 HR T RATING-0 HR. W RATING - CLASS 1 (SEE ITEM 4)



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 ALTERATE, NOM 12 IN DAIM (OR SMASLLER) SLEEVE FABRICATED FROM NOM 0.019 IN THICK GALV STEEL CAST OR GROUNTED 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.
- DUCTILE IRON PIPE. B. CONDUIT-NOM 6 IN. DIAM (OR SMALLER) RIGID
- STEEL CONDUIT.

EXCESS PRESSURE RELIEF

MAIN CONTROL VALVE -

(1) SYSTEM RISER DETAIL

—**→** 500 GPM

HOSE CONNCETION
PRESSURE SETTING
100 - 125 PSI (TYP)

WATER MOTOR GONG OR

WITH BATTERY BACKUP

APPROVED ELECTRIC BELL

GAUGES AND RETARD \

ALARM VALVE WITH

(OR AT INSP. TEST)

_TO SPRINKLER SYSTEM

(MUST TIE INTO A

CENTRAL STATION)

_ WATER FLOW SWITCH

MAIN DRAIN TO OUTSIDE

______ gpm HOSE STREAM

RESIDUAL PRESSURE = 103.8 PSI

 $\overline{}$

750 GPM

FIRE PUMP

85 PSI @ 750 GPM

250 GPM

(TYP.)

gpm HOSE STREAM RESIDUAL PRESSURE = 100 PSI CHURN PRESSURE = 200 PSI

ROOF

7TH FLOOR

6TH FLOOR

5TH FLOOR

4TH FLOOR

3RD FLOOR

2ND FLOOR

1ST FLOOR

(3) STANDPIPE RISER DETAIL

92'-6" ELEV.

80' ELEV.

67'-6" ELEV.

55' ELEV.

42'-6" ELEV.

30' ELEV.

15' ELEV.

0' ELEV.

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	MAX ANNULAR	PACKING MATERIAL	MIN. CAULK
DIAM IN	SPACE IN.	TYPE (A)	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)

CF= CERAMIC FIBER BLANKET.

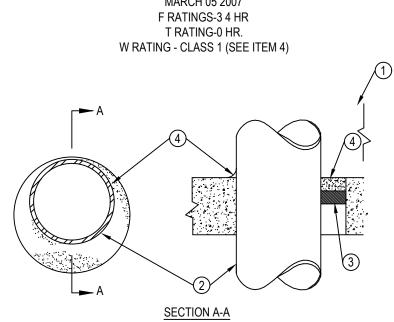
(B) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL

(NOTE - W RATING APPLIES ONLY WHEN FB-3000 WT IS USEDON TOP SIRFACE OR FLOOR AND WHEN IT LAPS ONTO

* BEARING THE UL CLASSIFICATION MARKING.

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FIRE RATED PENTRATION DETAILS



- A1. IRON PIPE-NOM 30 IN. DIAM (OR SMALLER) CAST OR
- - C. CONDUIT- NOM 4 IN. DIAM (OR SMALLER) STEEL

(A) BR= POLYETHYLENE BACKER ROD.

GF= GLASS FIBER INSULATION.

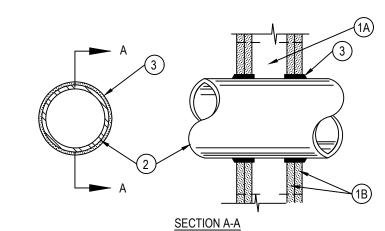
MW= MINERAL WOOL BATT

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

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

CONCRETE FOR SLEECED OPENING.)

SYSTEM NO. WL1001 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.



- 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 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.
- 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.
- 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 F OPENING SHALL BE MIN OF OIN. (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.
 - 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
 - CONDUIT NOM 6 IN. DIAM. (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR

SMALLER) STEEL ELECTRICAL METALLIC TUBING.

- COPPER TUBING NOM 24 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER
- E. COPPER PIPE NOM 24 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- THROUGH PENETRANTING ORIDUCT* FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STELL FLEXIBLE METAL GAS PIPING MAY BE USED:
- FILL, VOID OR CAVITY MATERIAL* CAULK OR SEALANT MIN 5/8. 1-1/4, 1-7/8 AND 2-1/2 IN THICKESS 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 DEPENENT 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 SYSATEM 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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2 UL PENETRATION DETALS
SCALE: NTS

GENERAL PLUMBING NOTES

- 2. ALL PLUMBING WORK SHALL BE FURNISHED AND INSTALLED PER THE STATE OF NORTH CAROLINA
- 3. UNLESS OTHERWISE NOTED ON DRAWINGS, ALL 1½"-2½" SANITARY WASTE AND VENT PIPING SHALL BE RUN AT 1/4" 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 $\frac{1}{16}$ " PER FT SLOPE. ALL STORM
- 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
- . 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.
- 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
- 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.
- 11. VERIFY LOCATIONS AND DIMENSIONS OF ALL EXISTING EQUIPMENT AND COORDINATE ALL WORK PRIOR
- 12. THESE DRAWINGS ARE NECESSARILY DIAGRAMMATIC IN NATURE. NOT ALL FITTINGS, OFFSETS, VENTS,

					PLl	JMBING FIXTURI	E SCHI	EDUL	.E			
MARK	FIXTURE	FIXTURE				FAUCET					REMARKS	COMPLIES WITH
		SPECIFICATION/DESCRIPTION	SAN	VENT	PICTURE	DESCRIPTION	COLD WATER	HOT WATER	FLOW RATE	PICTURE	REIVIANNO	ADA
<u>FD-1</u>	FLOOR DRAIN	ZURN Z415B FLOOR DRAIN WITH ADJUSTABLE STRAINER. 6" ROUND NICKEL BRONZE STRAINER. PROVIDE WITH P-TRAP.	3	1½"		-	-	-	-	-	REFER TO DRAWING DETAILS COORDINATE WITH GEN. CONSTR. WORK TO SET THE FLOOR DRAIN FLUSH WITH FIN. FLOOR ADJUSTED FOR FLOOR SLOPE REQUIRED.	

BUILDING CODE: PLUMBING CODE 2018.

DRAINAGE PIPING SHALL BE RUN AT 1/8" PER FT SLOPE.

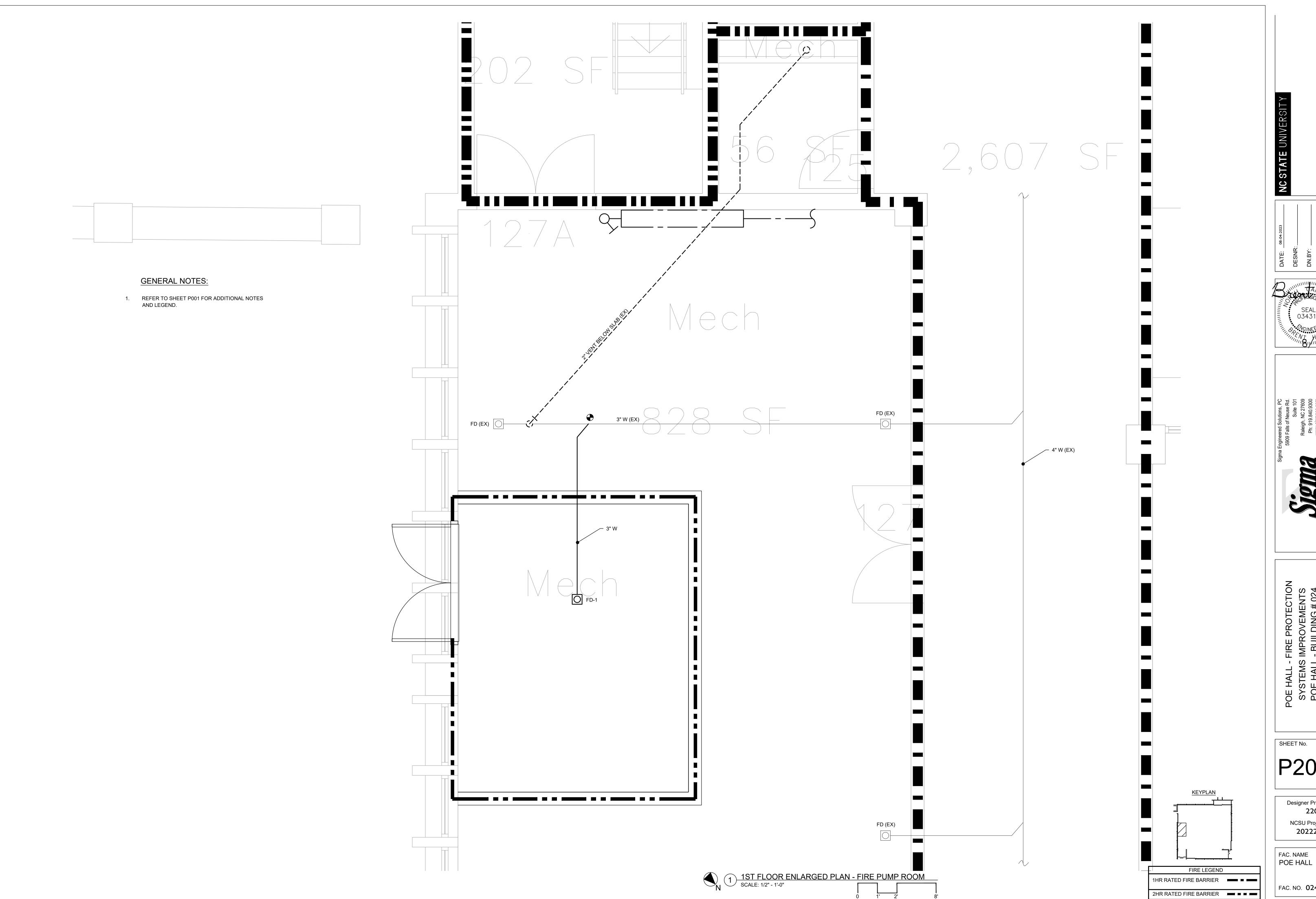
- SUPPORT FOR EQUIPMENT OR SYSTEMS SPECIFIED WITH RELATION TO THE OTHER BUILDING SYSTEMS.
- 6. CONTRACTOR SHALL FURNISH ALL DISCONNECTS REQUIRED FOR PLUMBING EQUIPMENT.
- 2. CONTRACTORS MUST CAREFULLY COORDINATE THE ARRANGEMENT AND INSTALLATION OF THE DUCT, PIPING, AND CONDUIT IN THE MECHANICAL CHASES 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.".
- TO THE START OF CONSTRUCTION.
- 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

034319



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

FAC. NAME POE HALL



SHEET No.

P201

Designer Proj. No. 22053 NCSU Proj. No.

202220008 FAC. NAME

GENERAL NOTES:

- 1. 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.
- 3. THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS SHALL COMPLY WITH THE 2018 NORTH CAROLINA MECHANICAL CODE AND NFPA 90A.
- 4. 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.
- 7. 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	*MANUFAC	TURER/MODEL	MOUNT	CFM	WATTS	VOLTS/PHASE	NOTES
UH-1	FIRE PUMP ROOM	MARLEY	MUH0381-PRO	WALL	350	3 KW	208 / 1	1,2

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

MECHANICAL ABBREVIATIONS

AC	Air Conditioning
ACH	Air Changes per Hour
AEE	Association of Energy Engineers
AFD	Adjustable Frequency Drive
AFUE	Annual Fuel Efficiency Ratio
AHU	Air Handling Unit
BI	Backward Incline
BTU	British Thermal Unit
BTUH	Brtish Thermal Units / Hour
CAV	Constant Air Volume
CFC	ChloroFluoroCarbon
CC	Cooling Coil
CFM	Cubic Feet per Minute
COP	Coefficient Of Performance
CRAC	Computer Room Air Conditioner
CV	Constant Volume
DA	Discharge Air
DB	Dry Bulb
DH	Duct Heater
DN	Down
DP	Dew Point
DX	Direct Expansion
EAT	Entering Air Temperature
EC	Electrical Contratror (Div 26, 27 or 28)
ECM	Electronically Commutated Motor
EDH	Electric Duct Heater
EER	Energy Efficiency Ratio
EF	Exhaust Fan
EH	Electric Heater
EHC	Electric Heating Coil
ESP	External Static Pressure
ETR	Existing to Remove
EUH	Electric Unit Heater
EX	Existing
FC	Forward Curve
FCU	Fan Coil Unit
FLA	Full Load Amps
FPM	Feet Per Minute
FW	Feed Water
GC	General Contractor
GPM	Gallons Per Minute
GUI	Graphical User Interface
HCFC	Hydrochlorocfuorocarbon
HEPA	High Efficiency Particulate Arresting
HFC	HydroFluoroCarbon
HL	High Limit
HP	Horsepower
HR	Heat Recovery
HRU	Heat Recovery Unit
HRV	Heat Recovery Ventilator
HSPF	Heating Seasonal Performance Factor
HVAC	Heating Ventilation and Air Conditioning
HX	Heat Exchanger
I/O	Input Output
IAQ	Indoor Air Quality
-	. ,

LAT	Leaving Air Temperature	
LL	Low Limit	
LON	Local Operating Network	
LP	Low Pressure	
LRA	Locked Rotor Amps	
LWBT	Leaving Wet Bulb Temperature	
LWT	Leaving Water Temperature	
M&V	Measurement and Verification	
MA	Mixed Air	
MAT	Mixed Air Temperature	
МС	Mechanical Contratror (Div 23)	
MCC	Motor Control Center	
MUA	Make-up Air Unit	
MVD	Manual Volume Damper	
MZ	Multi-Zone	
N/A	Not Applicable	
	National Electrical Manufacturers	
NEMA	Association	
OA	Outside Air	
OAT	Outside Air Temperature	
OC	On Center	
ODP	Open Drip Proof	
PC	Plumbing Contratror (Div 22)	
PH	Pre-Heat	
PHC	Pre-heat Coil	
PTAC	Packaged Terminal Air Conditioner	
QTY	Quantity	
RA	Return Air	
REF	Refrigerant	
RF	Return Fan	
RH	Reheat	
RH	Relative Humidity	
RHC	Re-heat Coil	
RPM	Revolutions Per Minute	
RTD		
	Resistance Temperature Detector	
RTU	Roof Top Unit	
SA	Supply Air	
SAT	Supply Air Temperature	
SC	Shading Coefficient	
SEER	Seasonal Energy Efficiency Ratio	
SF	Supply Fan	
SHFG	Solar Heat Gain Factor	
TEV	Thermostatic Expansion Valve	
TSP	Total Static Pressure	
TXV	Thermostatic Expansion Valve	
UC	Undercut	
UH	Unit Heater	
UV	UltraViolet	
UV	Unit Ventilator	
VAV	Variable Air Volume	
VFD	Variable Frequency Drive	
	Variable Speed Drive	
VSD		
WB	Wet Bulb	
WC	Water Column	
XFER	Transfer	

	CONTROLS ABBREVIATIONS
Al	Analog Input
AO	Analog Output
BACnet	Building Automation and Control Network Protocol
BAS	Building Automation System
DCV	Demand Controlled Ventilation
DDC	Direct Digital Control
DI	Digital Input
DO	Digital Output
DP	Differential Pressure
dP	Pressure Differential
dT	Temperature Differential
EMS	Energy Management System
NC	Normally Closed
NO	Normally Open
OWS	Operator Work Station
PID	Proportional Integral Derivative
SP	Set Point
SP	Static Pressure
Т	Thermostat
Н	YDRONIC SYSTEM ABBREVIATIONS
В	Boiler
СН	Chiller
CHW	Chilled Water
CHWP	Chilled Water Pump
CHWR	Chilled Water Return
CHWS	Chilled Water Supply
СТ	Cooling Tower
——	

SP	Static Pressure
Т	Thermostat
H	YDRONIC SYSTEM ABBREVIATIONS
В	Boiler
CH	Chiller
CHW	Chilled Water
CHWP	Chilled Water Pump
CHWR	Chilled Water Return
CHWS	Chilled Water Supply
СТ	Cooling Tower
CWP	Condenser Water Pump
CWR	Condenser Water Return
CWS	Condenser Water Supply
EWT	Entering Water Temperature
HPS	High Pressure Steam
HPS	High Pressure Steam
HWP	Hot Water Pump
HWR	Hot Water Return
HWS	Hot Water Supply
LPS	Low Pressure Steam
LPS	Low Pressure Steam
MPS	Medium Pressure Steam
NPSH	Net Positive Suction Head
PRV	Pressure Relief Valve
PRV	Pressure Reducing Valve

SHEET No.



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

POE HALL

FAC. NO. **024**

FAC. NAME

- REFER TO SHEET M001 FOR ADDITIONAL NOTES

 AND LEGEND
- AND LEGEND.

 2. ALL ACTIVE ENERGY METERING DEVICES
- CONNECTED TO KEP PANELS TO REMAIN.

 3. 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.
- 2 REMOVE EXISTING CONDENSER WATER PUMP, PAD AND ALL ASSOCIATED ELECTRICAL.
- 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.
- 5 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.
- 6 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.
- 8 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:

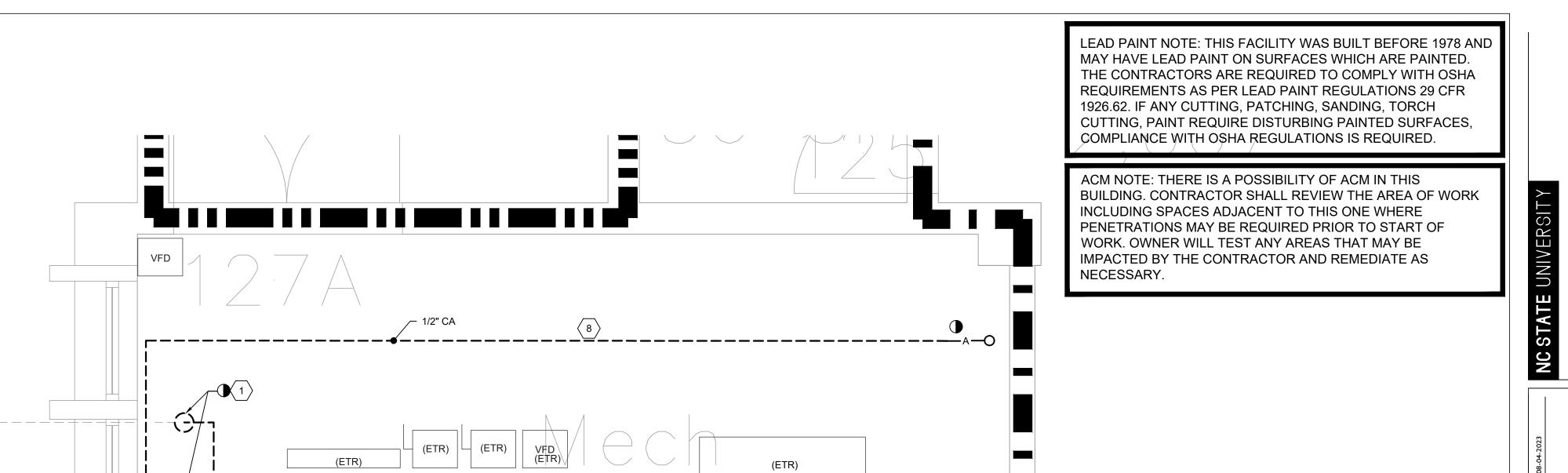
PANEL.

- DEMO CHILLER DISCONNECT AND CONTROLS
- 2. RELOCATE CH-P2 PAGE HALL CHILLED WATER
 PLIMP VED TO NEW LOCATION SHOWN
- PUMP VFD TO NEW LOCATION SHOWN.
 3. REMOVE STEEL SUPPORT FRAMES VFD WAS
- MOUNTED TO.
 4. MAKE READY ELECTRICAL TRANSITION TO NEW
- LOCATION.

 5. PROVIDE NEW COMPRESSED AIR LINE TO NE
- 5. PROVIDE NEW COMPRESSED AIR LINE TO NEW LOCATION AND TIE-IN POINT.
- 6. RELOCATE EXISTING AIR COMPRESSOR ONTO EXISTING PAD WHERE SUPPORT FRAME WAS MOVED AND CONNECT TO ELECTRICAL AND NEW COMPRESSED AIR LINES.
- 7. COMPLETE AIR LINE TIE-IN AT NEW CONNECTION
- 8. PLACE COMPRESSOR BACK IN SERVICE.

PHASE 2:

9. BEGIN THE REMAINDER OF WORK.



SECONDARY PUMPS

CHWS-

- CHWS-

(ETR)

CHWS-

- CHWS-

VFD

- CHWR- - - - - CHWR-

(ETR)

4" CHWR

1ST FLOOR ENLARGED PLAN - MECHANICAL - DEMOLITION

- CHWR---- CHWR--

- CHWS-

HWR---- CHWR---

CHWR---- CHWR---

- CHWS-

— - - CHWR-

- CHWS-

∠ 4" CDWS

— 4" CDWR

EM EM

8" CHWS -

8" CHWR ─

- CHWS-

- CHWS+

<u>CH-1</u> 3

SEAL 034319

SEAL 034319

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MS IMPROVEMENTS ALL - BUILDING # 024

SHEET No.

M101

Designer Proj. No.
22053

NCSU Proj. No.
202220008

FAC. NAME POE HALL

2HR RATED FIRE BARRIER ■ ■ ■

GENERAL NOTES:

AND LEGEND.

OF PHASE I.

PHASING NOTES:

PHASE 1:

MOUNTED TO.

PHASE 2:

LOCATION AND TIE-IN POINT.

COMPRESSED AIR LINES.

9. BEGIN THE REMAINDER OF WORK.

8. PLACE COMPRESSOR BACK IN SERVICE.

WITH ELECTRICAL CONTRACTOR.

KEYED NOTES:

1. REFER TO SHEET M001 FOR ADDITIONAL NOTES

ALL ACTIVE ENERGY METERING DEVICES CONNECTED TO KEP PANELS TO REMAIN.

1 RELOCATED VFD SERVING CW-P2 PUMP FOR PAGE HALL, COMPLETE AS PART OF PHASE I.

2 LOCATION OF RELOCATED CONTROLS AIR COMPRESSOR, COMPLETE AS PART OF PHASE I.

3 DROP COMPRESSED AIR TO AN ACCESSIBLE HEIGHT AND INSTALL A PRESSURE REGULATOR, COMPLETE AS PART

CONNECT COMPRESSED AIR TO EXISTING, COMPLETE AS PART OF PHASE I.

PURPOSE: TO LIMIT THE REQUIRED SHUTDOWN OF

1. DEMO CHILLER DISCONNECT AND CONTROLS

BUILDINGS CONTROL AIR SERVICE. COORDINATE WORK

RELOCATE CH-P2 PAGE HALL CHILLED WATER PUMP VFD TO NEW LOCATION SHOWN. REMOVE STEEL SUPPORT FRAMES VFD WAS

MAKE READY ELECTRICAL TRANSITION TO NEW

PROVIDE NEW COMPRESSED AIR LINE TO NEW

RELOCATE EXISTING AIR COMPRESSOR ONTO

EXISTING PAD WHERE SUPPORT FRAME WAS MOVED AND CONNECT TO ELECTRICAL AND NEW

7. COMPLETE AIR LINE TIE-IN AT NEW CONNECTION

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.

---- CHWR--

- CHWR---

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

CW-P2 (ETR)

- CHWS-----

CHWS-

SHEET No.

M201

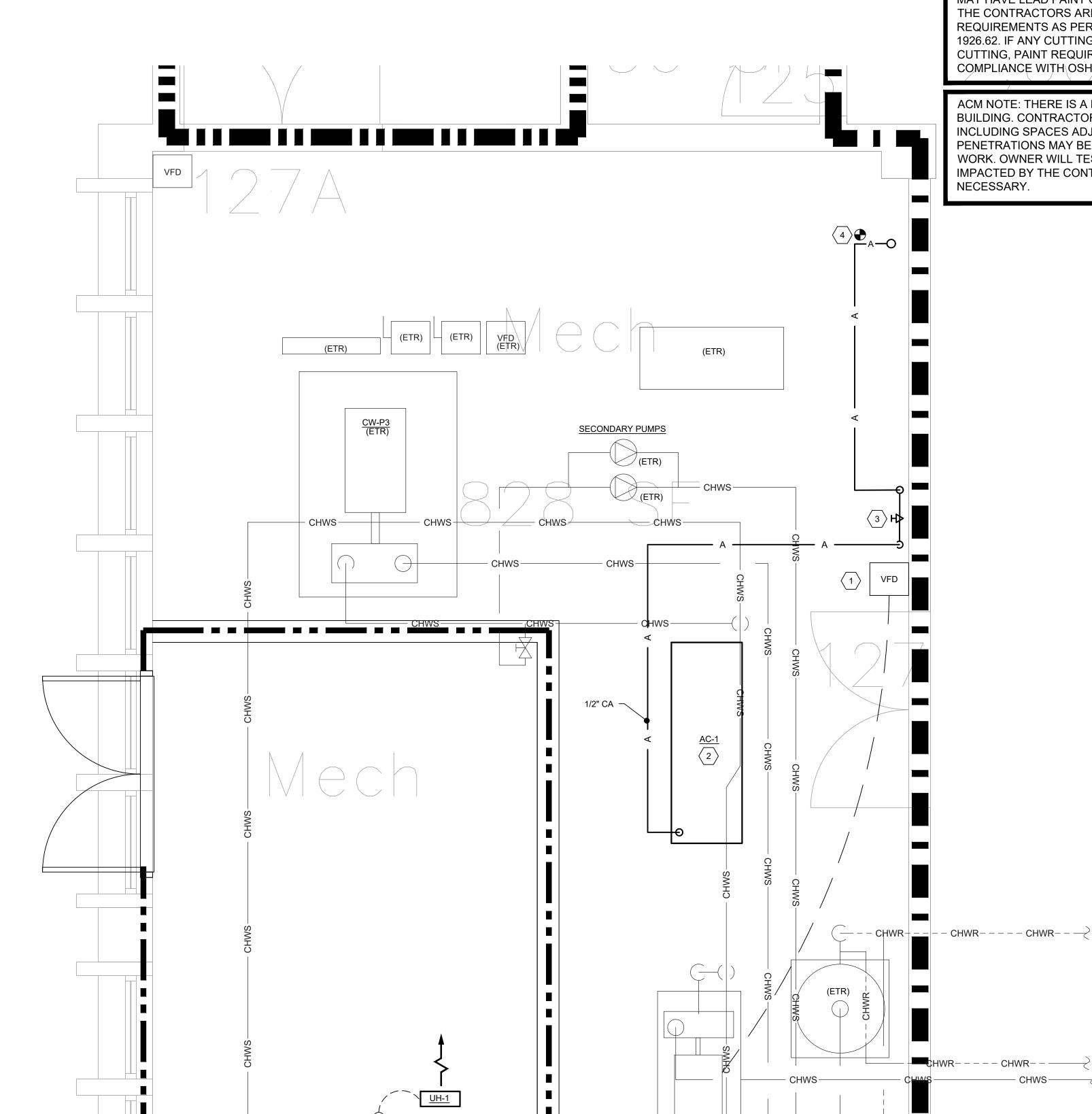
Designer Proj. No. 22053 NCSU Proj. No. 202220008

FAC. NAME POE HALL

FAC. NO. **024**

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

FIRE LEGEND



1 CHILLED WATER SCHEMATIC - DEMOLITION SCALE: NTS

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.





SHEET No.

M401

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

FAC. NAME POE HALL

WALL MOUNTED CALL SWITCH

WALL MOUNTED CARD READER

ELECTRICAL SYMBOL NOTES

FOR THIS PROJECT.

CASEWORK DRAWINGS.

OCCUR.

DOOR OPENER PUSH BUTTON/MOTION SENSOR.

1. SYMBOLS AND ABBREVIATIONS MAY NOT ALL BE UTILIZED

LEGEND ARE IDENTIFIED ON THE DRAWINGS WHERE THEY

SPECIFICATIONS IS TO THE CENTERLINE OF THE DEVICE

AT THE SYMBOL, ON ARCHITECTURAL ELEVATIONS OR

AND SHALL BE FOLLOWED UNLESS OTHERWISE INDICATED

2. SYMBOLS NOT LISTED IN THIS ELECTRICAL SYMBOL

3. MOUNTING HEIGHT GIVEN IN THE ELECTRICAL

FLUSH MTD TOGGLE SWITCH, S.P.S.T., 20A, 120/277V

FLUSH MTD 3-WAY TOGGLE SWITCH, 20A, 120/277V

FLUSH MTD 4-WAY TOGGLE SWITCH, 20A, 120/277V

MANUAL MOTOR STARTER SWITCH WITHOUT OVERLOAD HEATERS

SURGE PROTECTED OUTLET (IF SHOWN AS A QUADRUPLEX,

SWITCH SHALL CONTROL WITCH SHALL OUTER LAMPS.

TELE/COMM OUTLET 4 11/16" SQ. BOX WITH SINGLE GANG

PLASTER RING, PULL STRINGS, AND 1"C. TO FLOOR TELECOMM

TWO SINGLE-POLE SWITCHES WIRED FOR MULTI-LEVEL LIGHTING.

ONE SCONTROL INNER LAMP(S) IN EACH FIXTURE WHILE OTHER

SWITCH TYPE DIMMING/OCCUPANCY SENSOR WITH BUILT-IN OVERRIDE

FLUSH MTD DIMMER SWITCH, SIZE AS NOTED

FIRST OUTLET PROTECTS SECOND).

CEILING MOUNTED OCCUPANCY SENSOR

S₃

SP

ABBREVIATIONS

JUNCTION BOX

KILOVOLT-AMPERES

Α	AMPERE, AMMETER	KW	KILOWATTS
AFCI	ARC FAULT CIRCUIT INTERRUPTER	LC	LIGHTING CONTACTOR
AFF	ABOVE FINISHED FLOOR	LTG	LIGHTING
AIC	AMPERES INTERRUPTING CAPACITY	LV	LOW VOLTAGE
AHU	AIR HANDLING UNIT	MB	MAIN BREAKER
ATS	AUTOMATIC TRANSFER SWITCH	MC	MECHANICAL CONTRACTOR
BFG	BELOW FINISHED GRADE	MCB	MAIN CIRCUIT BREAKER
С	CONDUIT	MCC	MOTOR CONTROL CENTER
CATV	CABLE (COMMUNITY) ANTENNA TELEVISION	I МН	MANHOLE
CU	COPPER	MLO	MAIN LUGS ONLY
DISC	DISCONNECT	NF	NON FUSED
EC	ELECTRICAL CONTRACTOR	NIC	NOT IN CONTRACT
EGC	EQUIPMENT GROUNDING CONDUCTOR	NL	NIGHT LIGHT
ETR	EXISTING TO REMAIN	Р	POLE, PHASE
EWC	ELECTRIC WATER COOLER	РВ	PULL BOX
Е	EXISTING	PC	PLUMBING CONTRACTOR
FA, F/A	FIRE ALARM	P/BD, PNL	PANELBOARD
FAAP	FIRE ALARM ANNUNCIATOR PANEL	PR	PAIR
FACP	FIRE ALARM CONTROL PANEL	SN	SOLID NEUTRAL
GEC	GROUNDING ELECTRODE CONDUCTOR	SW	SWITCH
G,GND	GENERAL CONTRACTOR	SWBD	SWITCHBOARD
GC	GROUND	UG	UNDERGROUND
GF,GFI	GROUND FAULT INTERRUPTER	UNO	UNLESS NOTED OTHERWISE
НН	HANDHOLE	V	VOLT
HP	HORSEPOWER	WP	WEATHERPROOF
IG, ISG	ISOLATED GROUND	XFMR	TRANSFORMER

GENERAL NOTES

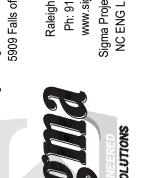
- 1. ALL WORK ON THIS PROJECT SHALL CONFORM TO THE 2020 NEC, ALL LOCAL AND STATE CODES, STATE BUILDING CODE AND REQUIREMENTS BY THE AUTHORITY HAVING JURISDICTION.
- 2. SYMBOLS AND ABBREVIATIONS MAY NOT ALL BE UTILIZED FOR THIS PROJECT.
- 3. UNLESS OTHERWISE INDICATED THE CONTRACTOR, IS RESPONSIBLE FOR ALL CUTTING, CORE- DRILLING AND PATCHING REQUIRED TO INSTALL ELECTRICAL RELATED
- 4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ELECTRICAL RELATED WORK WITH OTHER TRADES. THE CONTRACTOR IS CAUTIONED THAT IT IS TOTALLY HIS RESPONSIBILITY TO COORDINATE HANGERS AND SUPPORTS WITH OTHER TRADES. ADDITIONAL REQUIRED HANGERS & SUPPORTS MUST BE IN PLACE PRIOR TO APPLICATION OF FIRE PROOFING MATERIAL. ANY DAMAGE INCURRED ON FIRE PROOFING MATERIAL DUE TO INSTALLATION OF ELECTRICAL HANGERS WILL BE REPAIRED BY FIRE PROOFING SUB-CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- UTILITIES SERVING AREAS OF THIS PROJECT STILL OCCUPIED BY THE OWNER DURING DEMOLITION AND NEW CONSTRUCTION SHALL BE MAINTAINED UNTIL THE OWNER VACATES THE AREA. UNLESS OTHERWISE NOTED.
- ALL SHUTDOWNS WILL BE COORDINATED AND APPROVED THROUGH THE OWNER'S PROJECT MANAGER AND THE BUILDING MANAGER AND WILL REQUIRE ADVANCE NOTICE OF 10 WORKING DAYS EXCLUDING WEEKEND. THIS TIME LENGTH MAY BE LONGER OR SHORTER FOR SOME SHUTDOWNS AT THE OWNER'S DISCRETION. THE SCHEDULING OF SUCH SHUTDOWNS MAY TAKE TWO WEEKS OR MORE AND THE CONTRACTOR MUST BE PREPARED TO WORK SECOND OR THIRD SHIFT, SATURDAY OR SUNDAY AS NECESSARY TO PERFORM THE WORK. FURTHERMORE, IN SOME CASES AN ALTERNATE POWER SOURCE MAY BE REQUIRED, THE CONTRACTOR MUST BE PREPARED TO MAKE TAPS, INSTALL CIRCUIT BREAKERS, ETC., WHILE EXISTING EQUIPMENT IS ENERGIZED. ALL SHUTDOWNS WILL BE INITIATED AND CONTROLLED BY
- VISIT THE SITE PRIOR TO BID DATE AND EXAMINE ALL AREAS TO BE DEMOLISHED AND RENOVATED. THOROUGHLY FAMILIARIZE YOURSELF WITH EXISTING CONDITIONS. NO EXTRA COMPENSATION WILL BE GIVEN FOR FAILURE TO THOROUGHLY EXAMINE EXISTING CONDITIONS TO DETERMINE THE EXACT SCOPE OF DEMOLITION WORK. "KEYED" NOTES ON THE DEMOLITION DRAWINGS ARE PROVIDED TO ASSIST BIDDERS TO DETERMINE THE SCOPE OF DEMOLITION WORK.
- 8. EXISTING AREAS WHETHER WITHIN OR WITHOUT THE "GENERAL LIMITS OF CONSTRUCTION", SHALL BE REPAIRED WHERE ANY DAMAGE HAS OCCURRED DUE TO CONSTRUCTION BY THE CONTRACTOR.
- 9. ALL AREAS OUTSIDE THE PROJECT LIMITS IN WHICH WORK MUST TAKE PLACE WILL BE CLEANED AND RETURNED TO NORMAL (INCLUSIVE OF CEILING TILE REPLACEMENT) AT THE END OF EACH DAY. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE EACH DAY BEFORE LEAVING THE CONTRACT PROJECT LIMITS REGARDING THE CLEANLINESS OF THE AREA IN WHICH WORK TOOK PLACE OUT SIDE OF THE PROJECT LIMITS.
- 10. WHERE WORK IS TAKING PLACE OUTSIDE THE PROJECT LIMITS CANNOT ALLOW A RETURN TO NORMAL APPEARANCE OF WALLS, CEILING, ETC., AT THE END OF EACH DAY DUE TO ITS EXTENSIVE NATURE; THE CONTRACTOR SHALL ERECT A BLACK PLASTIC CURTAIN AROUND HIS WORK. SUCH A CURTAIN SHALL REMAIN IN PLACE UNTIL THE WORK IS COMPLETE. SUCH CURTAINS WILL HAVE CAUTIONARY SIGNS AFFIXED INDICATING CONSTRUCTION ACTIVITY WITHIN.
- 11. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PADS WITH CHAMFERED EDGES UNDER ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- 12. DO NOT MOUNT ANY WALL RECEPTACLES OR TELEPHONE/COMPUTER OUTLETS BACK TO BACK.
- 13. USE 3/4" DEEP MUD RINGS ON BOXES IN 5/8" DRYWALL SO FACE OF RING IS FLUSH WITH FACE OF DRYWALL. PROVIDE CADDY #RLC ADAPTER ON ALL OUTLETS WHERE DRYWALL IS CUT IN EXCESS OF 1/8" LARGER THAN MUD RING OR WHERE THE DEVICE "EARS" ARE NOT SUPPORTED BY THE DRYWALL
- 14. 20A BRANCH CIRCUIT WIRE SIZING SHALL BE IN ACCORD WITH THE FOLLOWING TABLE

			REMAINDER	
VOLTS	DISTANCE	FIRST DEVICE)	OF CIRCUIT	
120/208	0' - 50'	#12	#12	
	50' - 100'	#10, #10 GND	#12	
	100' - 150'	# 8, #8 GND	#10, #10 GND	
277/480	0' - 125'	#12	#12	
	125' - 220'	#10, #10 GND	#12	
	220' - 330'	# 8, #8 GND	#10, #10 GND	

IF THE SIZE OF THE BRANCH CIRCUIT CONDUCTORS ARE INCREASED, THE GROUND CONDUCTOR MUST BE INCREASED PROPORTIONATELY PER NEC 250.122(B).

- 15. THE ELECTRICAL CONTRACTOR SHALL VERIFY LOCATION OF LIGHTS, ETC. IN MECHANICAL ROOMS WITH MECHANICAL CONTRACTOR BEFORE ROUGH-IN TO AVOID CONFLICT WITH DUCT WORK.
- 16. ALL CONDUCTORS SHALL BE COPPER WITH A MINIMUM SIZE OF #12 AWG EXCEPT FOR FIRE ALARM.
- 17. ALL BRANCH CIRCUIT BREAKERS SHALL BE 20A, 1P, WITH 2 #12 AWG 1#12 GND IN 1/2" MINIMUM CONDUIT, UNLESS OTHERWISE NOTED.
- 18. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING BUT NOT LIMITED TO BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, AND TRANSFORMER LUGS, SHALL BE RATED FOR USE WITH 75 DEGREE CONDUCTORS SIZED IN ACCORDANCE WITH NEC TABLE 310-15 (B) (16).
- 19. ALL RACEWAYS SHALL BE METAL UNLESS SPECIFICALLY NOTED OR APPROVED OTHERWISE. ANY RACEWAY IN POURED CONCRETE SHALL BE RIGID METAL (HEAVY WALL). REFER TO SPECIFICATIONS FOR ALL OTHERS.
- 20. CONTRACTOR SHALL MINIMIZE NUMBER OF HOME RUN CONDUITS. CONTRACTOR MAY COMBINE UP TO THREE CIRCUITS PER HOME RUN IN A SINGLE CONDUIT.
- 21. IN GENERAL ALL ELECTRICAL CONDUIT WILL BE RUN AT THE ELEVATION JUST BELOW THE BOTTOM OF THE STRUCTURAL BEAMS. THE CONTRACTOR SHALL OFFSET THE ELECTRICAL CONDUIT TO AVOID INTERFERENCE WITH ANY DUCTWORK, SPRINKLER OR MECHANICAL PIPING. THE CONTRACTOR SHALL COORDINATE HIS CONDUIT AND RACEWAY LOCATIONS WITH ALL OTHER TRADES BEFORE INSTALLATION.
- 22. THE ROUTING FOR THE RACEWAY SHOWN ON THE DWGS. IS DIAGRAMMATIC ONLY, BASED ON CURSORY FIELD SURVEY BY DESIGNER. CONTRACTOR IS CAUTIONED THAT SPACE ABOVE CLG. IS VERY CONGESTED WITH EXISTING MECHANICAL, ELECTRICAL & PLUMBING ITEMS, AND WORK SPACE IS LIMITED. CONTRACTOR IS REQUIRED TO VISIT THE SITE PRIOR TO BID DATE AND LOOK ABOVE THE CLG. OF THE PROPOSED ROUTING TO FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS. PROVIDE ANY AND ALL ADDITIONAL JB'S, OFFSETS, CONDUITS AND FITTINGS AS REQUIRED TO AVOID ANY EXIST. OBSTRUCTIONS ALONG THE PROPOSED ROUTING. ANY SHUTDOWNS CAUSED BY RELOCATING EXISTING EQUIPMENT SHALL BE COORDINATED WITH OWNER. FAILURE TO EXAMINE EXISTING CONDITIONS AND COORDINATE THE EXACT CONDUIT ROUTING WILL NOT EXCUSE CONTRACTOR FROM PERFORMING ALL DUTIES NECESSARY TO COMPLETE THE WORK. DO NOT ROUTE CONDUIT IN A MANNER THAT WILL BLOCK ACCESS TO EXISTING ITEMS AS JUNCTION BOXES, VALVES, FILTERS OR SERVICE ACCESS TO EQUIPMENT.
- 23. ELECTRICAL PLANS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL ALIGN FIXTURES, FIRE ALARM DETECTORS, CEILING DIFFUSERS, ETC. AS REQUIRED TO PROVIDE A PATTERN OF UNIFORMITY. AT NO TIME SHALL A SMOKE DETECTOR BE LOCATED WITHIN 3'-0" OF A SUPPLY OR RETURN GRILLE.
- 24. WIRE AND CIRCUIT BREAKERS ARE SIZED FOR SPECIFIC EQUIPMENT. BEFORE ORDERING WIRE, BREAKERS AND CONDUIT FOR THIS PROJECT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OTHER CONTRACTORS ON THE JOB AND SHALL VERIFY THE ELECTRICAL DATA FOR EQUIPMENT WHICH WILL ACTUALLY BE INSTALLED BY THE OTHER CONTRACTORS AND RECOMPUTE WIRE AND BREAKER SIZES IF REQUIRED TO COMPLY WITH THE N.E.C.
- 25. REFER TO MECHANICAL DRAWINGS AND COORDINATE VERTICAL RUNS OF WIRE AND CONDUIT WITH MECHANICAL PIPING. COORDINATE WITH MECHANICAL CONTRACTORS. (NOTE: STACK RUNS OF CONDUIT AND PROVIDE OFFSETS AS NECESSARY.)
- 26. LABEL ALL CONDUITS TERMINATING IN THE CEILING CAVITIES.
- 27. LIGHTING & POWER PANELS ARE DESIGNED AROUND SQUARE "D" "NQOD" WITH A MAXIMUM DEPTH OF 5 3/4" AND WIDTH OF 20".
- 28. THE MOUNTING HEIGHTS AND LOCATIONS OF ALL WALL MOUNTED OUTLETS, JUNCTION BOXES AND DISCONNECT SWITCHES SHALL BE REVIEWED AND COORDINATED WITH CASEWORK DRAWINGS AND ACTUAL EQUIPMENT LOCATION, PRIOR TO INSTALLATION. ANY DIFFERENCES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL
- 29. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND FINISHES BEFORE PURCHASE OF ANY LIGHT FIXTURES SO THAT THE PROPER TRIM WILL BE PROVIDED FOR THE CEILING TO BE INSTALLED. ANY DIFFERENCES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- 30. EACH CONTRACTOR SHALL PROVIDE HIS OWN SUPPORT OF ALL DEVICES AND EQUIPMENT PROVIDED BY HIM AND SHALL SUPPORT SUCH EQUIPMENT PER APPROVED GOVERNING CODES OR PER APPROVAL OF THE ENGINEER. UNACCEPTABLE WORKMANSHIP OR MATERIALS SHALL BE REPLACED AT THE REQUEST OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- 31. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS. DO NOT SCALE THESE DRAWINGS.
- 32. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY AND ALL WORK WITH OTHER TRADES INVOLVED IN THE PROJECT, PRIOR TO THE INSTALLATION OF HIS EQUIPMENT, SO AS TO AVOID CONFLICTS DURING CONSTRUCTION AND TO ALLOW FOR OPTIMUM MAINTENANCE AND WORKING SPACE. PROVIDE COORDINATION DRAWINGS TO THE ENGINEER FOR APPROVAL. ANY REWORK THAT NEEDS TO BE DONE DO TO CONFLICTS BETWEEN TRADES SHALL BE DONE AT THIS CONTRACTORS
- 33. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING SYSTEM. REFER TO THE SPECIFICATIONS FOR MORE DETAILED
- 34. WHERE ELECTRICAL EQUIPMENT PENETRATES EXTERIOR WALLS OR THE ROOF, THEY SHALL BE PROPERLY SEALED WITH METHODS APPROVED BY THE ENGINEER. SUBMIT DETAIL OF PROPOSED WORK.
- 35. IN ALL AREAS WHERE THE FIRE RATED WALLS, FLOORS AND CEILINGS ARE INSTALLED OR ARE EXISTING, ALL PENETRATIONS OF ELECTRICAL CONDUITS OR OTHER RELATED ELECTRICAL MATERIALS SHALL BE PROPERLY SEALED WITH APPROVED FIRE RATED MATERIALS TO MAINTAIN THE RATINGS OF THE BUILDING CONSTRUCTION.
- 36. ALL FUSES, DISCONNECT SWITCHES AND BREAKER SIZES, SHOWN FOR MECHANICAL EQUIPMENT, SHALL BE VERIFIED BEFORE THE PURCHASE OR INSTALLATION OF SAID EQUIPMENT, WITH THE EQUIPMENT SUPPLIER AND MECHANICAL CONTRACTOR.
- 37. UPON COMPLETION OF WORK ALL KEYS TO ELECTRICAL POWER PANELS SHALL BE TURNED OVER TO THE OWNER AND A SIGNED RECEIPT SHALL BE OBTAINED.
- 38. ALL MULTIWIRE BRANCH CIRCUITS NEED TO HAVE SEPARATE NEUTRAL CONDUCTORS TO COMPLY WITH NEC 2020 ARTICLE 210.4. NO SHARED NEUTRAL CONDUCTORS PERMITTED ON THIS PROJECT.
- 39. ANY RECEPTACLE WITH-IN 6'-0" OF A SINK SHALL BE A GROUND FAULT TYPE (GFI) RECEPTACLE.
- 40. ALL WORK ON THIS PROJECT SHALL BE INSTALLED IN COMPLIANCE WITH ANSI A117.1, ADA STANDARDS FOR ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES.
- 41. ALL PATIENT CARE AREAS RECEPTACLEE, LIGHTS AND EQUIPEMENT SHALL BE GROUNDED PER NEC 517.13.

Mr. Reginald D. Adams SEAL 19658

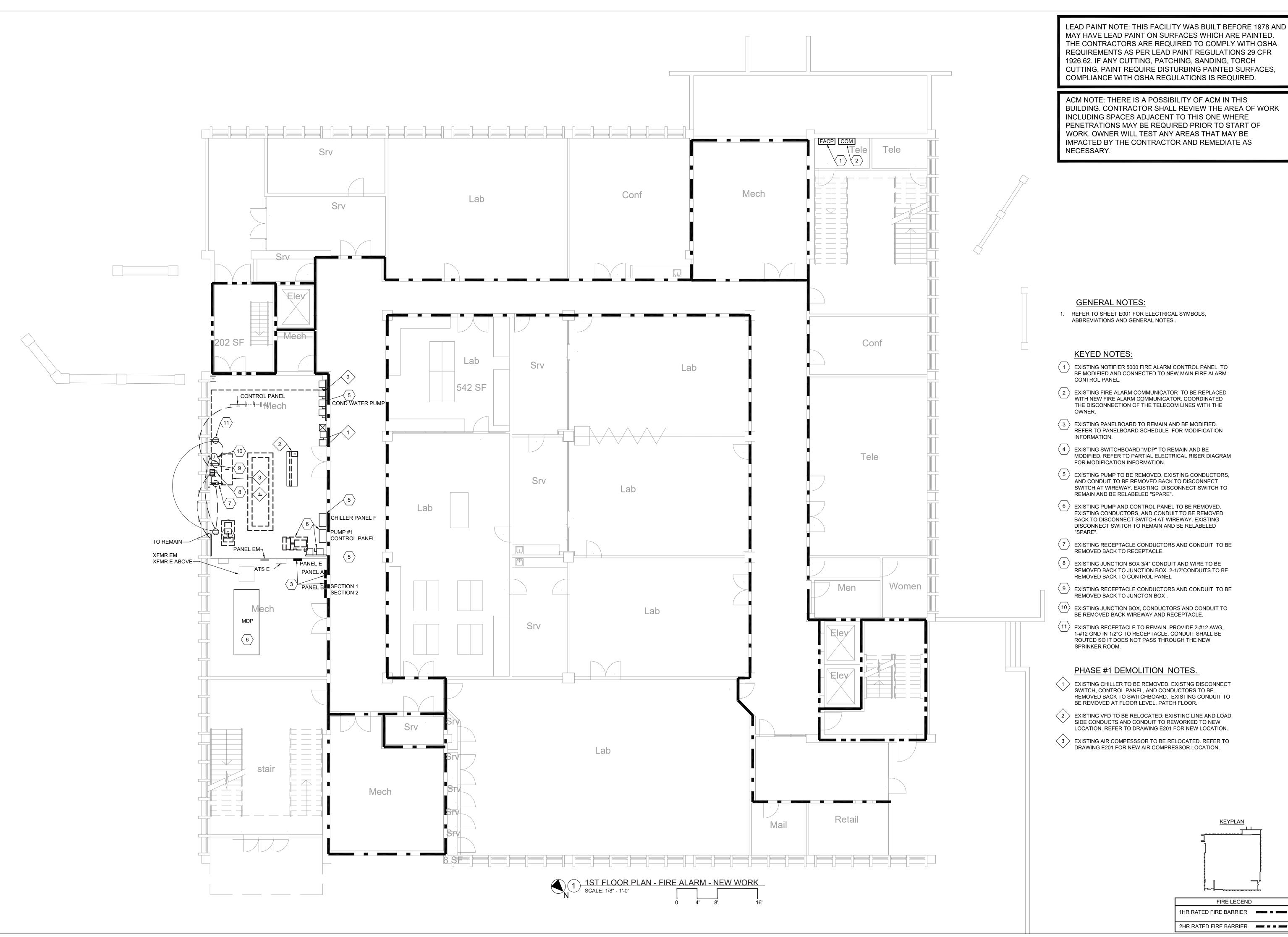


· S -

SHEET No.

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

FAC. NAME POE HALL



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

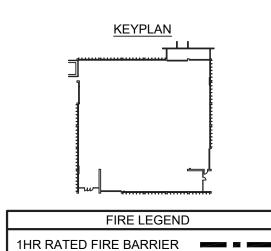
1. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

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
- EXISTING PANELBOARD TO REMAIN AND BE MODIFIED.
 REFER TO PANELBOARD SCHEDULE FOR MODIFICATION
- EXISTING SWITCHBOARD "MDP" TO REMAIN AND BE MODIFIED. REFER TO PARTIAL ELECTRICAL RISER DIAGRAM FOR MODIFICATION INFORMATION.
- \langle 5 \rangle 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".
- $\fbox{6}$ 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
- EXISTING RECEPTACLE CONDUCTORS AND CONDUIT TO BE REMOVED BACK TO RECEPTACLE.
- \langle 8 \rangle 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
- \langle 9 \rangle EXISTING RECEPTACLE CONDUCTORS AND CONDUIT TO BE REMOVED BACK TO JUNCTON BOX .
- (10) EXISTING JUNCTION BOX, CONDUCTORS AND CONDUIT TO BE REMOVED BACK WIREWAY AND RECEPTACLE.
- $\langle 11 \rangle$ EXISTING RECEPTACLE TO REMAIN. PROVIDE 2-#12 AWG, 1-#12 GND IN 1/2"C TO RECEPTACLE. CONDUIT SHALL BE ROUTED SO IT DOES NOT PASS THROUGH THE NEW

PHASE #1 DEMOLITION NOTES.

- EXISTING CHILLER TO BE REMOVED. EXISTNG 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 REWORKED TO NEW LOCATION. REFER TO DRAWING E201 FOR NEW LOCATION.
- \langle 3 \rangle EXISTING AIR COMPESSSOR TO BE RELOCATED. REFER TO DRAWING E201 FOR NEW AIR COMPRESSOR LOCATION.



2HR RATED FIRE BARRIER

SHEET No.

E101

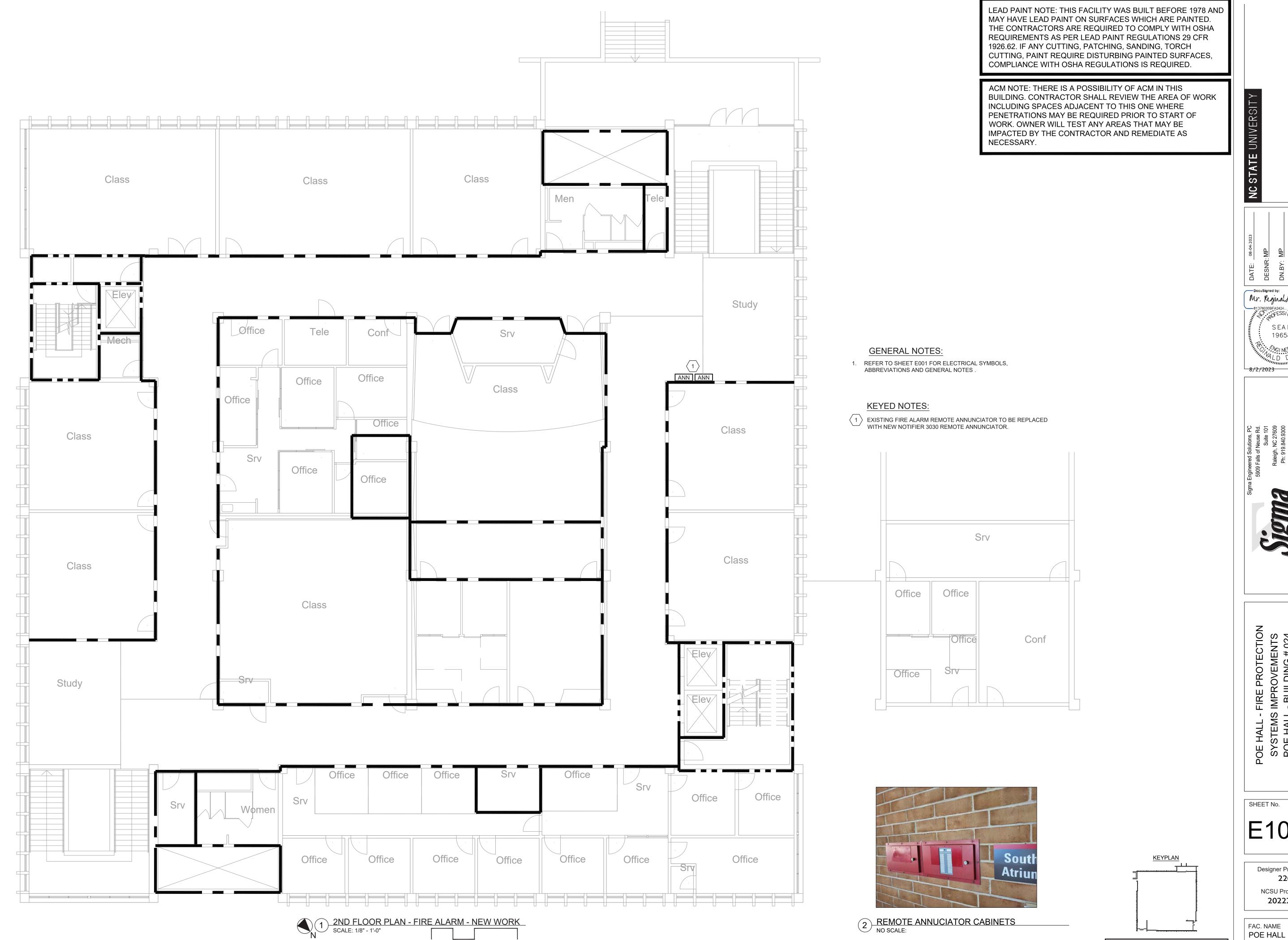
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FAC. NAME POE HALL

FAC. NO. **024**

Mr. Reginald D. Adams 19658





Mr. Reginald D. Adams 19658 8/2/2023

SHEET No.

E102

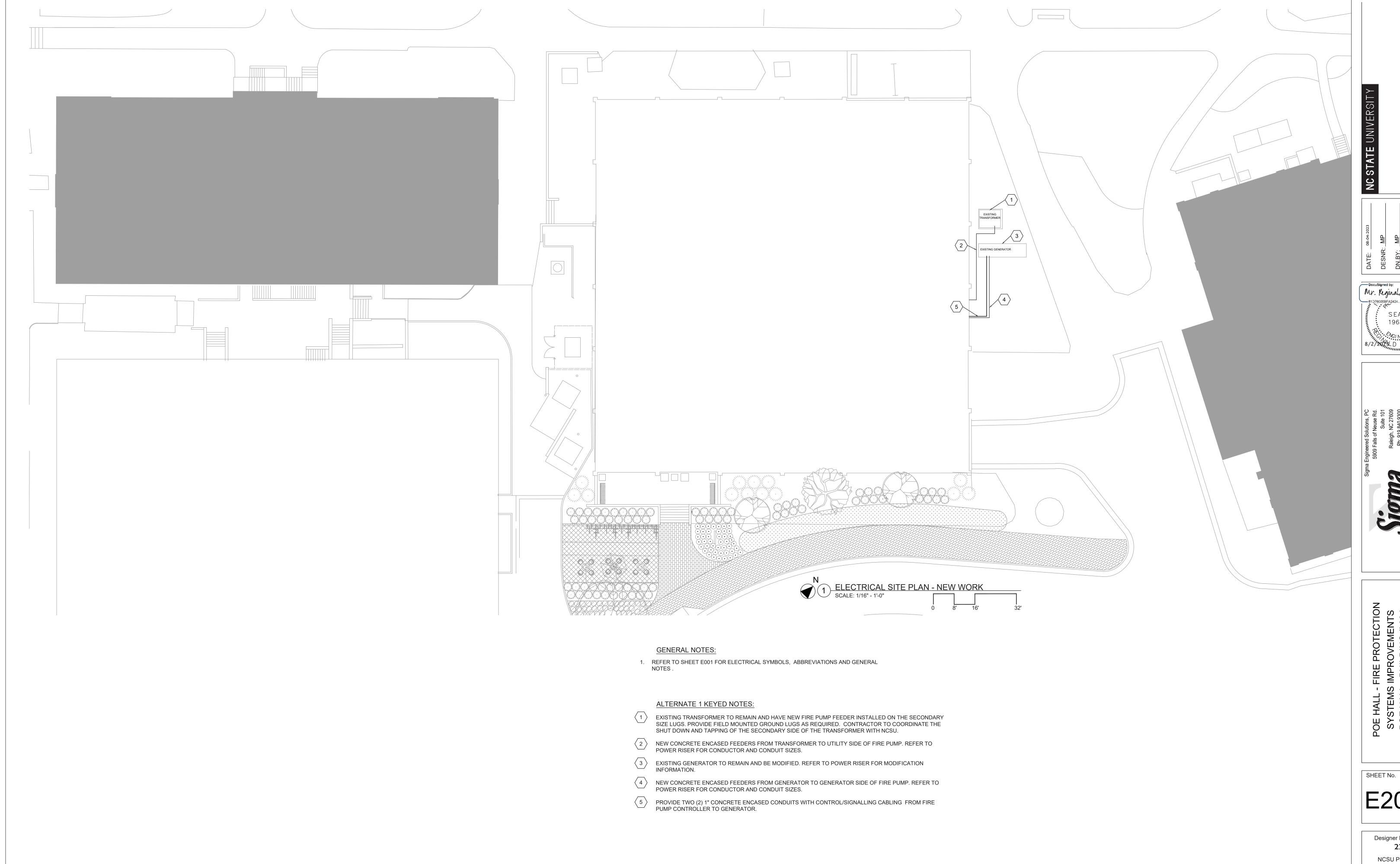
Designer Proj. No. 22053 NCSU Proj. No.

202220008 FAC. NAME

FAC. NO. **024**

FIRE LEGEND 1HR RATED FIRE BARRIER

2HR RATED FIRE BARRIER

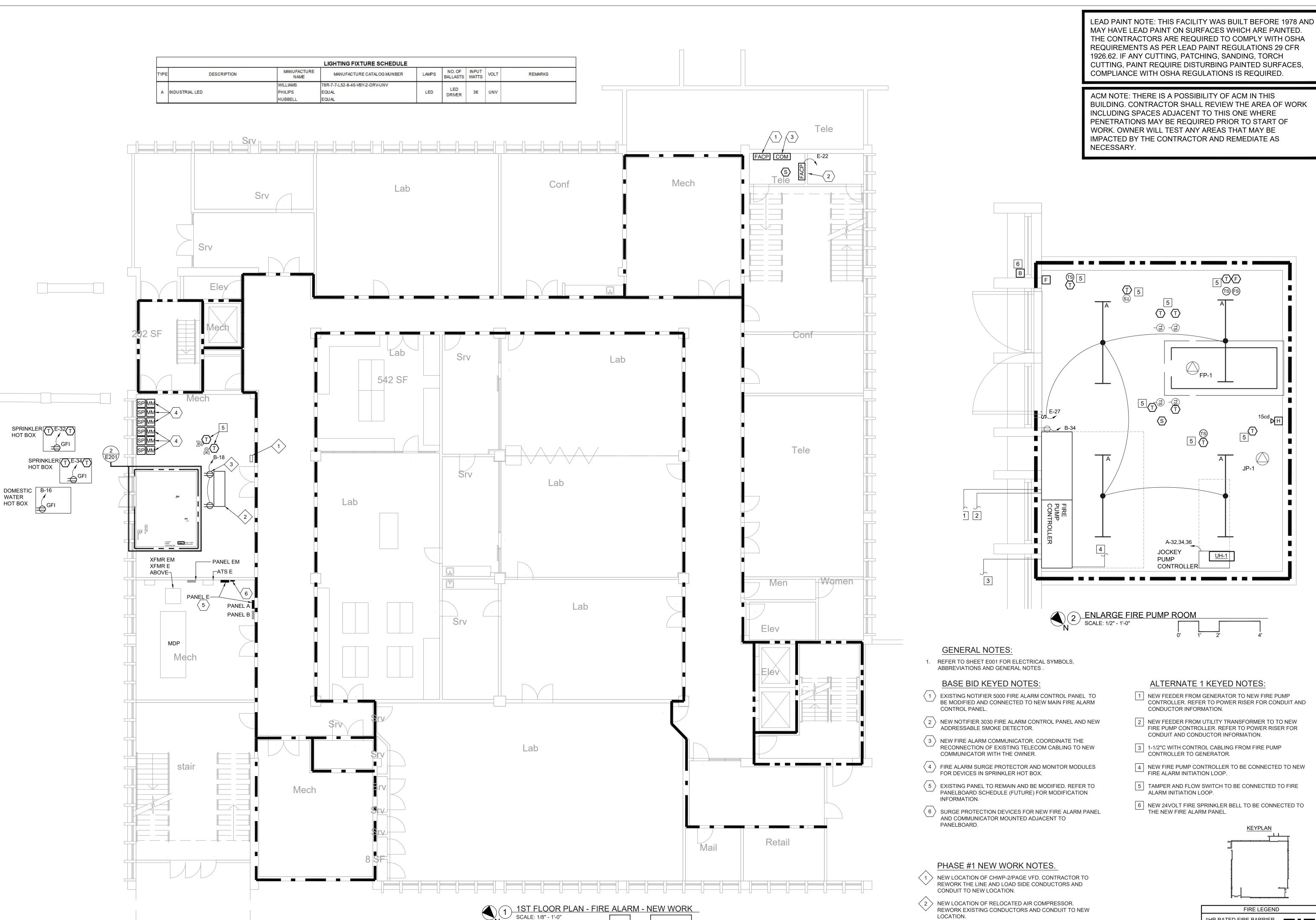


Mr. Reginald D. Adams

E200

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

FAC. NAME POE HALL



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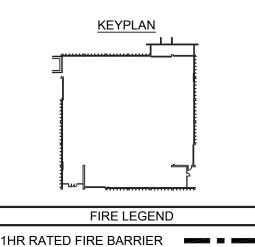
ACM NOTE: THERE IS A POSSIBILITY OF ACM IN THIS BUILDING. CONTRACTOR SHALL REVIEW THE AREA OF WORK INCLUDING SPACES ADJACENT TO THIS ONE WHERE PENETRATIONS MAY BE REQUIRED PRIOR TO START OF WORK. OWNER WILL TEST ANY AREAS THAT MAY BE IMPACTED BY THE CONTRACTOR AND REMEDIATE AS

JP-1

3 NEW RECEPTACLE FOR EXISTING AIR COMPRESSOR ACCESSORIES.

- 1 NEW FEEDER FROM GENERATOR TO NEW FIRE PUMP CONTROLLER. REFER TO POWER RISER FOR CONDUIT AND
- 2 NEW FEEDER FROM UTILITY TRANSFORMER TO TO NEW FIRE PUMP CONTROLLER. REFER TO POWER RISER FOR

- 6 NEW 24VOLT FIRE SPRINKLER BELL TO BE CONNECTED TO



2HR RATED FIRE BARRIER

Designer Proj. No. 22053 NCSU Proj. No. 202220008 FAC. NAME POE HALL

FAC. NO. **024**

SHEET No.

E201

Mr. Reginald D. Adams

SEAL 19658

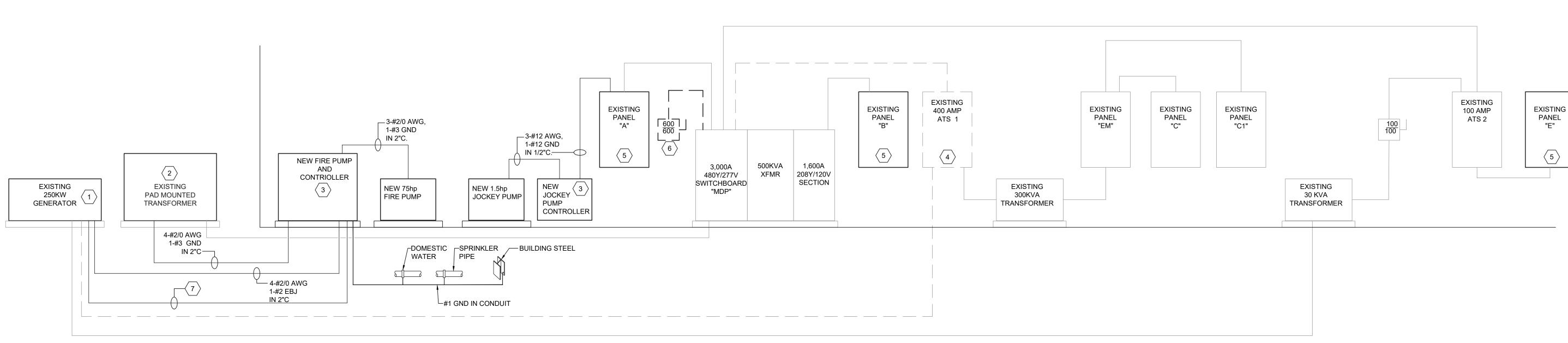
Mr. Reginald D. Adams SEAL 19658

SHEET No.

E202

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

FAC. NAME POE HALL



1 PARTIAL ELECTRICAL RISER DIAGRAM NO SCALE

KEYED NOTES

- EXISTING CATERPILLER GENERATOR TO REMAIN AND BE MODIFIED TO FEED THE EMERGENCY SIDE OF THE NEW FIRE PUMP. MODIFICATIONS WILL INCLUE 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.
- 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.
- NEW FIRE PUMP CONTROLLER (SINGLE PT ELEC. CONNECTION). PROVIDE NEW FEEDER FROM GENERATOR AND UTILITY TRANSFORMER.
- 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:

- 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.
- 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	CONN	ECTED		DEM	DEMAND				
3000A 480Y/277V SERVICE	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	CONN	ECTED		DEM	IAND	TOTAL
250 KW 480Y/277V SERVICE	SINGLE PHASE	THREE PHASE	DIV./DEMAND	SINGLE PHASE	THREE PHASE	DEMAND KVA
	KVA	KVA	FACTOR	KVA	KVA	
		,17				
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

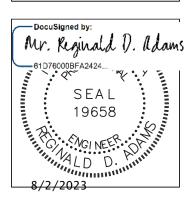
DESIGN AND CONSTRUCTION SERVICE

DESNR: MP

Docusianed ph:

CK. BY: RDA

DOWGOD



5909 Falls of Neuse Rd.
Suite 101
Raleigh, NC 27609
Ph. 919.840.9300
www.sigmaes.com
Sigma Project #: 22053
NC ENG LIC# C-2490



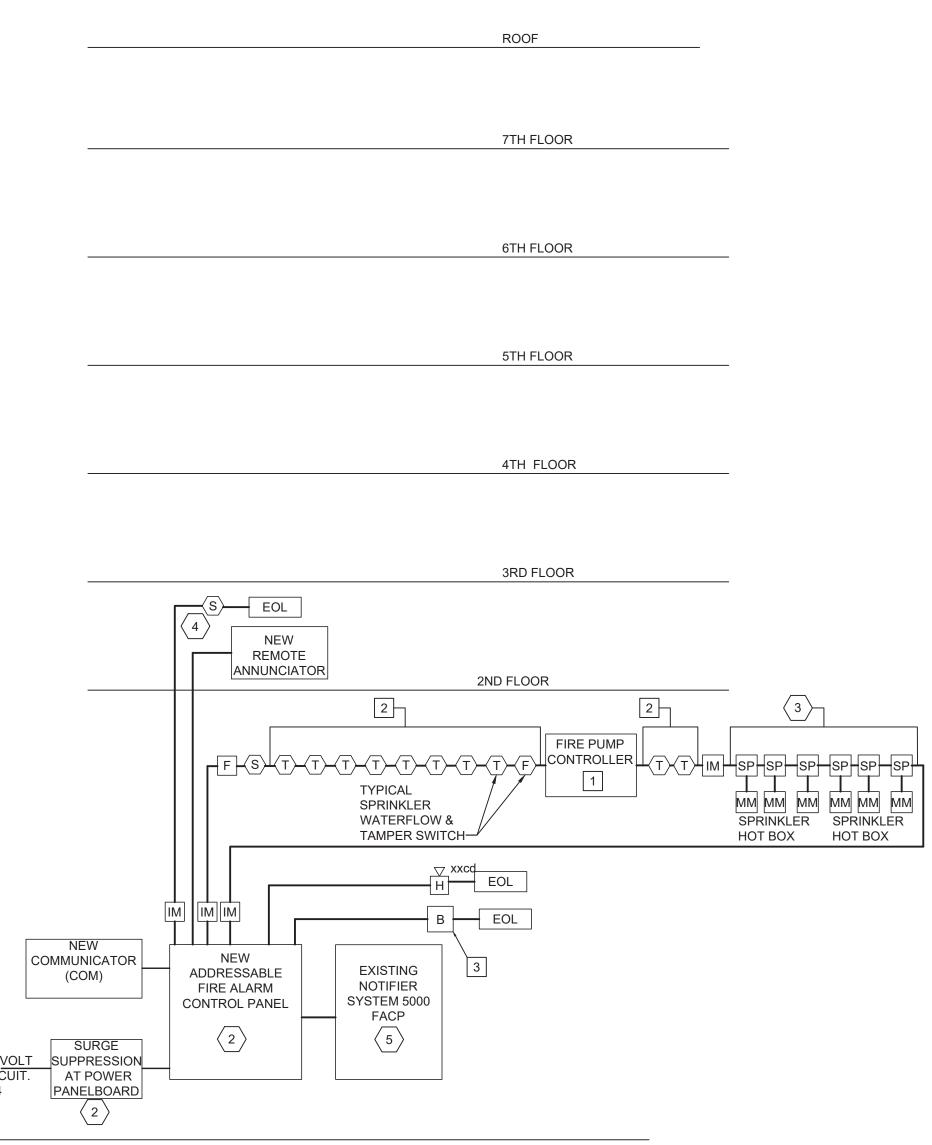
SYSTEMS IMPROVEMENTS
POE HALL - BUILDING # 024
SCOID#: 22-24502-01A; CODE: 42124; ITEM: 3

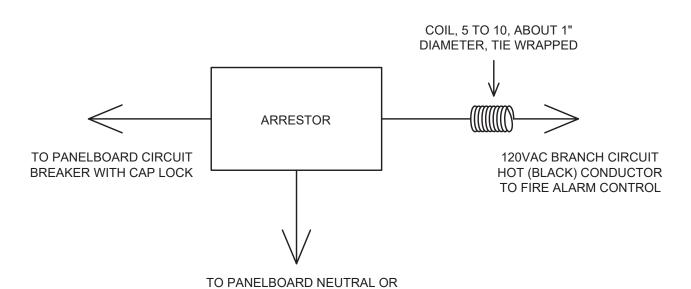
E300

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

POE HALL

FAC. NAME





DUAL ELEVATOR SHAFT/PENTHOUSE

SINGLE ELEVATOR PENTHOUSE AND SHAF

GROUND BAR AS INDICATED BY INSTALLATION INSTRUCTIONS

2 SURGE SUPPRESSION DETAIL NO SCALE:

> SECURELY MOUNT TRANSIENT ARRESTOR IN ACCESSIBLE JUNCTION BOX OR PROPER METAL ENCLOSURE ADJACENT TO THE PANELBOARD. PROVIDE ENGRAVED LABEL INDICATING ITS LOCATION.

1 FIRE ALARM RISER DIAGRAM NO SCALE:

- 1. EXISTING CEILING DEVICES ARE TO BE INDEPENDENTLY SUPPORTED FOR THE STRUCTURE BEFORE THE EXISTING CEILING TITLES ARE REMOVED.
- 2. EXISTING CEILING DEVICES ARE TO BE REINSTALL IN THE CEILING TITLES ONCE ARE
- RE-INSTALLED IN THE GRID.

KEYED NOTES:

- (1) NEW NOTIFIER 3030 PANEL. NEW TAMPER AND FLOW SWITCH TO BE CONNECTED TO NEW FIRE ALARM SIGNALING LOOP. TYPICAL.
- 2 NEW FIRE PUMP CONTROLLER. PROVIDE ALL REQUIRED CONNECTION FROM FIRE PUMP TO PANEL.
- (3) MONITOR MODULE AND SURGE PROTECTION DEVICES FOR 2-TAMPER SWITCHES AND HEATER IN SPRINKLER HOT BOX.
- 4 SMOKE DETECTOR AT REMOTE ANNUNCIATOR IS TO BE TEMPORARY WIRED CLASS B UNTIL FUTURE RENOVATION.
- \langle 5 angle EXISTING NOTIFIER 5000 TO HAVE IT'S INTERIOR PLACED WITH NEW INITIATION ZONE CARD, CONTROL RELAY, CONTROL MODULES AND POWER SUPPLIES AS REQUIRED TO RECONNECT ALL EXISTING DEVICES. NOTE AT PRESENT THERE ARE:
- 32 INITIATION ZONES. 8 NOTIFICATION ZONES WITH 2-SPARES
- 1-DOOR RELEASE
- 1-HVAC SHUT DOWN 1-HVAC DEFEAT
- 1-SINGLE ELEV PRIME RECALL 1-SINGLE ELEV ALTERNATE RECALL
- 1-DUAL ELEV PRIME RECALL 1-DUAL ELEV ALTERNATE RECALL
- 1- SINGLE ELEV HAT 1-DUAL ELEV HAT

ALTERNATE 1 KEYED NOTES:

- 1 NEW FIRE PUMP CONTROLLER. PROVIDE ALL REQUIRED CONNECTION FROM FIRE PUMP TO PANEL.
- 2 FLOW AND TAMPER SWITCHES REQUIRED FOR FIRE PUMP.
- 3 24 VOLT SPRINKLER BELL. BELL SHALL BE CONNECTED TO OPERATE ON WATER FLOW AND CANNOT BE SILENCED.

1. THIS DRAWING IS INTENDED TO SHOW ONLY WHICH DEVICES ARE CONNECTED TO WHICH CIRCUIT. THIS FIRE ALARM SYMBOLS WALL MTD FIRE ALARM CONTROL PANEL QUANTITIES AND LOCATIONS OF DUCT DETECTORS. WALL MTD FIRE ALARM NOTIFICATION APPLIANCE CONTROL PANEL FIRE ALARM ANNUNCIATOR FIRE ALARM COMMUNICATOR 3. ALL STROBES SHALL BE SYNCHRONIZED. 4. ALL SMOKE DETECTORS SHALL BE PHOTOELECTRIC. FIRE ALARM COMMUNICATOR WALL MTD FIRE ALARM PULL STATION AFTER EVERY TWENTY (20) DEVICES. SMOKE DETECTOR, CEILING MTD

SMOKE DETECTOR, ELEVATOR CEILING MTD

HEAT DETECTOR, CEILING MTD DUCT MOUNTED SMOKE DETECTOR

DUCT MOUNTED SMOKE DETECTOR AT SMOKE DAMPER

REMOTE INDICATOR LAMP WITH TEST SWITCH

MONITOR MODULE CONTROL MODULE

NAC

ANN

COM

EOL

IM

MAGNETIC DOOR HOLDER

ISOLATION MODULE

SURGE PROTECTOR FLOW SWITCH

TAMPER SWITCH CEILING MOUNTED FIRE ALARM AUDIO/VISUAL DEVICE XXcd -CANDELA LEVEL PER DRAWING CEILING MOUNTED FIRE ALARM AUDIO DEVICE

DH A CEILING MOUNTED FIRE ALARM VISUAL DEVICE XXcd -CANDELA LEVEL PER DRAWING

> WALL MOUNTED FIRE ALARM AUDIO/VISUAL DEVICE XXcd -CANDELA LEVEL PER DRAWING WALL MOUNTED FIRE ALARM AUDIO DEVICE

XXcd -CANDELA LEVEL PER DRAWING

24VOLT SPRINKLER BELL

THE CONTRACTOR MUST KEEP THE FIRE ALARM SYSTEM OPERATIONAL IN AREAS WHERE WORK IS TALKING PLACE. (TO THE EXTENT POSSIBLE) AND PROVIDE NEW/TEMPORARY WIRING AND CONDUIT AS NECESSARY TO MAINTAIN FIRE ALARM SYSTEM IN AREAS WHERE WORK IS NOT TAKING PLACE.

FIRE ALARM RISER GENERAL NOTES:

- DRAWING DOES NOT SHOW THE OPTIMUM PATH FOR THE CIRCUITS. REFER TO FLOOR PLAN FOR SPECIFIC QUANTITIES AND LOCATIONS OF FIRE ALARM DEVICES. REFER TO FIRE PROTECTION FLOOR PLANS FOR EXACT QUANTITIES OF TAMPER, FLOW, AND SUPERVISORY VALVES. REFER TO MECHANICAL FLOOR PLANS FOR EXACT
- 2. ALL NEW FIRE ALARM CABLE SHALL BE IN MINIMUM 3/4" CONDUIT. RACEWAYS CONTAINING FIRE ALARM CONDUCTORS SHALL BE MARKED IN RED FOR READY IDENTIFICATION. UNLESS OTHERWISE NOTED ON THIS
- 5. PROVIDE ISOLATION MODULES AT THE BEGINNING AND END OF EACH LOOP (IN/AT THE FIRE ALARM PANEL) AND
- 6. UNLESS OTHERWISE SHOWN ON THE RISER, ALL ADDRESSABLE LOOP CONTROLLER (INITIATING) CIRCUITS SHALL BE WIRED IN A CLASS 'A' CONFIGURATION WITH NO 'T' TAPS MADE, UNLESS OTHERWISE NOTED. PROVIDE 20% SPARE ADDRESSES PER LOOP.
- 7. NOTIFICATION APPLIANCE CIRCUITS (NACs) SHALL BE WIRED CLASS 'B', AND ZONED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, NOT TO EXCEED 80% OF ZONE MODULE RATED OUTPUT. ALL NAC'S SHALL BE EQUIPPED WITH E.O.L. SUPERVISORY RELAYS.
- 8. MAINTAIN CONDUIT AND WIRING SEPARATION ON ALL CLASS 'A' LOOPS PER 2013 NFPA 72.
- 9. ADDITIONAL POWER AMPLIFICATION DEVICES THAT MAY BE NEEDED TO DRIVE NOTIFICATION DEVICES ARE COMPLETELY THE DUTY OF THE E.C./FIRE ALARM VENDOR TO PROVIDE. ANY POWER CIRCUITRY OR ADDITIONAL WIRING NEEDED FOR THIS SYSTEM SHALL BE PROVIDED AS PART OF THE BASE BID ON BID DAY.
- 10. FIRE ALARM NOTIFICATION DEVICES SHALL HAVE NOMINAL MOUNTING HEIGHT OF 80" AFF TO BOTTOM OF DEVICE. COORDINATE WITH REFLECTED CEILING PLAN AND ARCHITECT PRIOR TO ROUGH-IN. UNLESS NOTED OTHERWISE ON THE FLOOR PLANS, LIGHT LEVEL AND SOUND OUTPUT LEVELS FOR NEW DEVICES SHALL BE AS FOLLOWS:

-STROBES 75 cd -HORNS 85 dB

11. ALL DEVICES SHALL BE ADA COMPLIANT.

- 12. INSTALLATION SHALL MEET REQUIREMENTS OF THE LATEST REVISION OF THE NFPA 72 2013 EDITION , NFPA 70 (NEC) 2020 EDITION, AND THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- 13. CONTRACTOR SHALL PROVIDE A FRAMED, PROTECTED ZONE MAP INDICATING LOCATION AND ADDRESS OF ALL INSTALLED DEVICES OR LAMINATED SHEETS IN A LOCKABLE CABINET MOUNTED NEXT TO THE ANNUNCIATOR AND
- 14. UPON COMPLETION, CONTRACTOR SHALL TEST AND INSPECT THE SYSTEM IN ACCORDANCE WITH NFPA 72, 2013 REVISION. SUBMIT BATTERY CALCULATIONS TO THE ENGINEER FOR REVIEW. A COMPLETED "RECORD OF COMPLETION" FORM (CHP. 1-7, NFPA 72, 2013), A COPY OF BATTERY CALCULATIONS, AND DEVICE INFORMATION SHEETS SHALL BE SUBMITTED TO THE APPROVING AGENCY PRIOR TO FINAL INSPECTION OR ENTIRE SYSTEM
- 15. REFER TO FIRE SUPPRESSION SHOP DRAWING BY SPRINKLER SUBCONTRACTOR FOR EXACT NUMBER AND LOCATION OF ALL TAMPER, FLOW, AND ALARM DEVICES.
- 16. REFER TO CONTRACT DOCUMENT FOR ADDITIONAL INFORMATION REQUIRED FOR SUBMITTALS.
- 17. THE FIRE ALARM CONTRACTOR SHALL SUBMIT A COPY OF THE FIRE ALARM SHOP DRAWING FOR REVIEW AND APPROVAL TO THE ENGINEER PRIOR TO SYSTEM INSTALLATION. SHOP DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL OF THE FOLLOWING.

A. A FLOOR PLAN B. LOCATION OF ALARM-INITIATING AND NOTIFICATION APPLIANCES

C. ALARM CONTROL AND TROUBLE SIGNALING EQUIPMENT D. ANNUNCIATION

E. POWER CONNECTION F. BATTERY CALCULATIONS

G. CONDUCTOR TYPE AND SIZES H. VOLTAGE DROP CALCULATIONS

I. MANUFACTURERS, MODEL NUMBERS AND LISTING INFORMATION FOR

EQUIPMENT, DEVICES AND MATERIALS J. DETAILS OF CEILING HEIGHT AND CONSTRUCTION

K. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.

18. AUDIBLE DB LEVELS THROUGHOUT THE BUILDING TO COMPLY WITH 907.6.2.1.1 AND NFPA 72: A.18.4.1.2 - A18.4.10.3.

1		•					W SY	STEM				RIX		O • Diviso		Eine Safatu Cantual								
-		Con	trol U	nit An	nucia	tion			Notification				Dia	ler	ı —		ı —	Fire Safety Control						
	Common Alarm Indicator	Audible Alarm Signal	Common Supervisory Signal	Audible Common Sup. Signal	Common Trouble Signal	Audible Common Trouble Signal	Floor Alarm Indicators	Activate Floor Evacuation Signal	Transmit Alarm Signal	Transmit Supervisory Signal	Transmit Trouble Signal	Transmit Alarm Signal	Transmit Supervisory Signal	Transmit Trouble Signal	Transmit Water Flow	Recall Elev. To app. Floor	Activate Elev. Shunt Trip	Close Magnetic Doors	Send Signal to BAS Control Panels (each HVAC Room)	Smoke Dampers	Smoke Doors	AHU Shutdown	Activate Elev. Shunt Trip	
SYSTEM INPUTS																			11/06					
Manual Pull Stations	Х	X					х	х	X			X						X	X			X		
Smoke Detectors-Floor	X	X					X	х	X			Х						X	X	X	X	X		
Activation Manual Pull Stations module	Х	X					X	х	X			Х						X	X			X		
Activation Smoke Detectors-Floor module	X	X					X	х	X			X						X	X	X	X	X		
Activation Heat Detectors-Floor module	Х	X					X	х	X			Х						X	X			X		
Activation Smoke Detectors-Elevator module	X	X					X	х	X			X				X		X	X	X	X	X		
Activation Heat Detectors-Elevator module Activation Duct detectors module	X	Х	х	x			X	х	Х			х				X		X	X	X	X	X		
Activation Heat Detectors module	X	X					X	х	X			х					X	X	X	X	X	X		
Sprinkler Waterflow	Х	Х					X	Х	X			х			х			X	х	Х	Х	X	х	
Sprinkler Control Valves (Yard)			х	X						X			X											
Sprinkler Control Valves			X	X						X			X											
Fire Pump Running			х	Х																				
Fire Pump Phase Reversal			X	X	X	X				X	X			X										
Fire Pump on Emergency Power			X	X						X			X											
Fire Pump-Loss of Power					X	X				X	X			X										
Fire Pump Trouble					X	X				X	X			X										
Fire Pump Controller Trouble					X	X				X	X			X										
Smoke Fans-Loss of Power			Х	Х						X			X											
Fire Alarm Loss of AC Power					Х	X					X			X										
Fire Alarm Low Battery					X	X					X			X										
AHU Override/Test Switch					X	X					Х			X										
Open Circuit					X	X					X			X										
Ground Fault					X	X					Х			X										
Notification Appliance circuit short					Х	X					х			X										

Mr. Reginald D. Adam 19658

SHEET No.

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

FAC. NAME POE HALL

E	XISTING						PANEL	TYPE	WEST	INGHOU	JSE			МСВ	or MLO):	MLO		
P	ANEL "A"						BUS SIZE: 400A			MOUNTING:						SURFACE			
							VOLTA			Y/277				MINIM			22.000		
ocean III		1 (4-14)			1000000	1	5223615	200	PER PH		Constant		THERE	10.000000000			Partie Marie Control C	1	
СКТ	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	Α	В	С	kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED	СКТ	
1	LIGHTS 1st FLOOR	20	1				2.00	4.10			2.10				1	20	LIGHTS 1stFLOOR	2	
3	LIGHTS 1st FLOOR	20	1				2.00		4.30		2.30				1	20	LIGHTS 1stFLOOR	4	
5	LIGHTS 1st FLOOR	20	1				2.40			3.40	1.00				1	20	LIGHTS 1stFLOOR	6	
7	LIGHTS 1st FLOOR	20	1				1.60	4.40			2.80				1	20	SPARE	8	
9	LIGHTS 1st FLOOR	20	1				1.20		4.00		2.80				1	20	LIGHTS 1stFLOOR	10	
11	LIGHTS 1st FLOOR	20	1				2.20			4.20	2.00				1	20	LIGHTS 1stFLOOR	12	
13	LIGHTS 1st FLOOR	20	1				2.20	4.20			2.00				1	20	LIGHTS 1stFLOOR	14	
15	LIGHTS 1st FLOOR	20	1				2.00		4.00		2.00				1	20	LIGHTS 1stFLOOR	16	
17	LIGHTS 1st FLOOR	20	1				2.00			2.00								18	
19	LIGHTS 1st FLOOR	20	1				3.20	3.20							3	100	SPARE	20	
21	LIGHTS 1st FLOOR	20	1				3.20		3.20						1		F-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1	22	
23	LIGHTS 1st FLOOR	20	1				3.20			3.20					1	20	SPARE	24	
25							7.48	14.96			7.48							26	
27	AIR HANDLING UNIT	50	3				7.48		14.96		7.48				3	50	AIR HANDLING UNIT	28	
29							7.48			14.96	7.48				1			30	
31							5.82	5.82							1	20	SPARE	32	
33	DUST COLLECTOR	40	3				5.82		5.82						1	20	SPARE	34	
35							5.82			5.82					1	20	SPARE	36	
37	SPARE	20	1					0.00							1	20	SPARE	38	
39	SPARE	20	1						0.00						1	20	SPARE	40	
41	SPARE	20	1							0.00					1	20	SPARE	42	
						T	OTALS:	36.68	36.28	33.58									
								CONNE	ECTED		DEMAI	ND LOAD	NOTES						
								LOAD	(KVA)	DF	1000	Control of the Contro		IDE WITH	H LOCK	OUTCLIE	•		
		LIGHTII	NG					44.	20	100%	4	4.20	PL-PRO	VIDE WI	TH PADL	OCKABI	LE BREAKER		
		FIRST	10K REC	CEPTS				-	01200	100%	C	0.00	G-GFCI	PROTECT	TED				
		REMAI	NDER R	ECEPT						50%	C	0.00	A-AFCI	PROTEC	TED				
		LARGE	ST MOT	OR				22.	44	125%	2	8.05	GF-GFP	PROTE	CTED				
		мотоя	3				-	14.	96	100%	1-	4.96	S-SHU	NT TRIP					
		ELEVA	121						endiction (100%		0.00							
		KITCHE	201221200							65%		0.00							
		EVCS								125%	C	0.00							
	MISC							17.	46	100%		7.46	*-PHAS	E/NEUTR	AL				
TOTAL (KVA)								99.	CONTRACT CON			04.67							
		TOTAL	(KVA)					99.	00		10	J4.07							

										_AB				МСВ	or MLO	:	MLO	
	PANEL "E"		BUS SIZE: 225A							MOUN	ITING:		SURFACE					
77			VOLTA	AGE:	208	Y/120			MINIM	IUM AIC	:	22,000						
скт	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	kVA	PER PH		kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED	СКТ
5.1.1	ZOAD OLIVIED	- Marie	. 011		5.15	COMBON	M. T. Co.	Α	В	С	18025.00	CONDON	CORPORA		, 011	2000	20/10/20/12/20	357AM
1	LIGHTS 1st FLOOR	20	1				0.70	1.40			0.70				1	20	LIGHTS 1stFLOOR	2
3	LIGHTS 2nd FLOOR	20	1				0.55		1.15		0.60				1	20	LIGHTS 2nd FLOOR	4
5	N LOBBY	20	1				0.60			1.22	0.62				1	20	LIGHTS 3nd FLOOR	6
7	LIGHTS 3nd FLOOR	20	1				0.55	1.10			0.55				1	20	LIGHTS 4th FLOOR	8
9	LIGHTS 4th FLOOR	20	1				0.63		1.18		0.55				1	20	LIGHTS 5th FLOOR	10
11	LIGHTS 5th FLOOR	20	1				0.66			1.21	0.55				1	20	LIGHTS 6th FLOOR	12
13	LIGHTS 6th FLOOR	20	1	,			0.90	1.56			0.66				1	20	LIGHTS 7th FLOOR	14
15	LIGHTS 6th FLOOR	20	1				0.58		1.38		0.80				1	20	LIGHTS 7th FLOOR sec radio	16
17	LIGHTS 7th FLOOR	20	1				1.06			1.81	0.75				1	20	STAIR #1	18
19	STAIR #2	20	1				0.65	1.10			0.45				1	20	STAIR #1	20
21	STAIR #2	20	1				0.75		1.35		0.60				1	20	FIRE ALARM PANEL	22
23	SLOBBY	20	1				0.60			1.20	0.60				1	20	ELEVATOR PIT#1	24
25	GENERATOR LIGHTS & RECEP	20	1				0.60	0.98			0.38				1	20	ELEVATOR PIT#2	26
27	SPARE	20	1						0.38		0.38				1	20	ELEVATOR #2 LIGHTS	28
29	HEAT TAPE & RECORD CONTROL	20	1				0.60			1.20	0.60				1	20	ELEVATOR #1 LIGHTS	30
31							0.30	0.30							1	20	SPACE	32
33	SUMP PUMP VAULT	20	3				0.30		0.30						1	20	SPARE	34
35							0.30			1.50	1.20				1	30	GENERATOR BLOCK HEATER	36

ADDITIONAL NOTES:

1.XXXX

2.XXXX

3.XXXX

		TOTALS:	6.44	5.74	8.14		
			CONNECT LOAD (K)	2000	DF	DEMAND LOAD (KVA)	NOTES L-PROVIDE WITH LOCK OUT CLIP
	EXISTING LOAD		20.32		100%	20.32	PL-PROVIDE WITH PADLOCKABLE BREAKER
							G-GFCI PROTECTED
				-			A-AFCI PROTECTED GF-GFPE PROTECTED
				-			S-SHUNT TRIP
	9			\rightarrow			*-PHASE/NEUTRAL
	TOTAL (KVA)		20.32			20.32	
	TOTAL AMPS		56			56	1
ITIONAL NOTES:							<u> </u>

	EXISTING						PANEL	TYPE	: NI	AB				МСВ	or MLO	:	MLO	
	PANEL "B"						BUS S	IZE:	22	25A				MOUN	ITING:		SURFACE	
	SECTION 1						VOLTA	AGE:	208	Y/120				MINIM	UM AIC	:	22,000	
кт	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	kVA	PER PH	IASE	kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED	СКТ
***					30.5		MARN	Α	В	С	18000000				<u> </u>	357500		100
1	RECEPTACLE 125	20	1				0.36	0.36							1	20	SPARE	2
3	WH3 RP3	20	1				0.90		1.27		0.37				1	20	EWC	4
5	112 RECEPT	20	1				0.90			0.90					1	20	SPARE	6
7	SPARE	20	1					3.00			3.00				_	40	KI IN TARI F	8
9	SPARE	20	1						3.00		3.00				2	40	KLIN TABLE	10
11	CONDESATE PUMPS 2	20	1				0.80			2.00	1.20				1	20	LIGHTS	12
13	SPARE	20	1					1.08			1.08				1	20	AIR COMPRESSOR	14
15	HANDICAP DOOR	20	1				0.54		0.54						1	20	SPARE	16
17	HANDICAP DOOR	20	1				0.54			0.54					1	20	SPARE	18
19	SPARE	40	2					3.84			3.84				1	20	EXHAUST FAN	20
21	SPARE	40							3.84		3.84				1	50	EXHAUSTFAN	22
23							1.20			5.04	3.84				1	50	EXHAUSTFAN	24
25	CRU-1	15	3				1.20	1.56			0.36				1	30	EXHAUSTFAN	26
27							1.20		1.92		0.72				1	20	EXHAUSTFAN	28
29										0.54	0.54				1	20	CPNTROLS AIR CHILLER	30
31	SPARE	40	3					0.36			0.36				1	20	MASTER CONTROLS	32
33									0.00						1	20	SPARE	34
35	EXISTING	20	1				1.00			1.72	0.72				1	20	RECEPTACLES	36

33								0.00						1	20	SPARE	34
35	EXISTING	20	1			1.00			1.72	0.72				1	20	RECEPTACLES	30
					-	OTAL C.	40.00	40 E7	40.74								
					10	JIALS.	10.20	10.57	10.74	J							
							CONNEC	CTED		DEMAN	ND LOAD	NOTES					
							LOAD (F		DF			- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	IDE WITH	LOCK	OUTCLIP		
		EXISTI	NG LOA)			59.9	3	100%	59	9.93	PL-PRO	VIDE WIT	TH PADL	OCKABLE	BREAKER	
												G-GFCI F	ROTECT	ŒD			
												A-AFCI F	ROTECT	ΙED			
												GF-GFPE	PROTE	CTED			
												S-SHUN	IT TRIP				
		5)]					
												*-PHASE	E/NEUTR/	AL			
		TOTAL					59.9				9.93	1					
		TOTAL	AMPS				166	5		1	66						
ADDITIONAL NO	TES:																
.xxx																	
2.XXX																	
3.XXXX																	

	The second secon						BUS S	Ace Car	480	Y/277					ITING: IUM AK		22,000
	To National Report March		-		53325		HEADERS OF		PER PH		13355		coats an F	10.1011.000.01	THE STATE OF THE S	The same	
СКТ	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	Α	В	С	kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED
1	LIGHTS 1st FLOOR	20	1				2.00	4.10			2.10				1	20	LIGHTS 1stFLOOR
3	LIGHTS 1st FLOOR	20	1				2.00		4.30		2.30				1	20	LIGHTS 1stFLOOR
5	LIGHTS 1st FLOOR	20	1				2.40			3.40	1.00				1	20	LIGHTS 1stFLOOR
7	LIGHTS 1st FLOOR	20	1				1.60	4.40			2.80				1	20	SPARE
9	LIGHTS 1st FLOOR	20	1				1.20		4.00		2.80				1	20	LIGHTS 1stFLOOR
11	LIGHTS 1st FLOOR	20	1				2.20			4.20	2.00				1	20	LIGHTS 1stFLOOR
13	LIGHTS 1st FLOOR	20	1				2.20	4.20			2.00				1	20	LIGHTS 1stFLOOR
15	LIGHTS 1st FLOOR	20	1				2.00		4.00		2.00				1	20	LIGHTS 1stFLOOR
17	LIGHTS 1st FLOOR	20	1				2.00			2.00							
19	LIGHTS 1st FLOOR	20	1				3.20	3.20							3	100	SPARE
21	LIGHTS 1st FLOOR	20	1				3.20		3.20								
23	LIGHTS 1st FLOOR	20	1				3.20			3.20			2		1	20	SPARE
25							7.48	14.96			7.48						
27	AIR HANDLINGUNIT	50	3				7.48		14.96		7.48				3	50	AIR HANDLING UNIT
29							7.48			14.96	7.48						
31		-					5.82	6.19			0.37	22704		#12		-0000	NEW JOCKEY PUMP "JP-1"
33	DUST COLLECTOR	40	3				5.82		6.19		0.37	1/2"	#12	#12	3	20N	PART OF ALTERNATE #1
35							5.82			6.19	0.37			#12			1. STATISTICS AND DESCRIPTIONS ASSESSMENT OF THE STATISTICS ASSESSMENT OF THE STATIST ASSESSMENT OF THE STATIS
37	SPARE	20	1					0.00							1	20	SPARE
39	SPARE	20	1						0.00						1	20	SPARE
41	SPARE	20	1							0.00					1	20	SPARE
						T	OTALS:	37.05	36.65	33.95							
											1						
								LOAD		DF		ND LOAD		IDE WIT	11.001/	OUTOU	
		LIGUE	110					casaconores		4000/	-	(VA)	and the second		H LOCK (
		LIGHTI		OFDTO.				44.	20	100%		4.20				OCKABI	LE BREAKER
			10K RE							100%		0.00		PROTEC			
			NDER R					22	44	50%		0.00					
		MOTOR	ST MO	I O K				14.		125%		8.05 4.96	S-SHUN	E PROTE	CIED		
		ELEVA						14.	90	100%	_	0.00	3-3HU	II INIP			
		KITCHE								65%		0.00					
		EVCS	= IN							125%		0.00					
		MISC						25.	68	100%		5.68	*-PHASI	E/NEUTR	ΔΙ		
		TOTAL	(K)(A)					107		10076		12.89	111401	DIVLO III	AL .		
			AMPS					12	District Control		1000	136					
יסודומת	NAL NOTES:	IOIAL	, timir O					12				,50	l				
.xxx	THE HOTES.	_															

	MODIFIED PANEL "E"						PANEL BUS S	L TYPE:		_AB 25A				MCB o		:	MLO SURFACE	
							VOLTA	AGE:	208	Y/120				MINIM	UM AIC	:	22,000	
скт	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	kVA A	PER PH	IASE C	kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED	СКТ
1	LIGHTS 1st FLOOR	20	1				0.70	1.40			0.70				1	20	LIGHTS 1stFLOOR	2
3	LIGHTS 2nd FLOOR	20	1				0.55		1.15		0.60				1	20	LIGHTS 2nd FLOOR	4
5	N LOBBY	20	1				0.60			1.22	0.62				1	20	LIGHTS 3nd FLOOR	6
7	LIGHTS 3nd FLOOR	20	1				0.55	1.10			0.55				1	20	LIGHTS 4th FLOOR	8
9	LIGHTS 4th FLOOR	20	1				0.63		1.18		0.55				1	20	LIGHTS 5th FLOOR	10
11	LIGHTS 5th FLOOR	20	1				0.66			1.21	0.55				1	20	LIGHTS 6th FLOOR	12
13	LIGHTS 6th FLOOR	20	1				0.90	1.56			0.66				1	20	LIGHTS 7th FLOOR	14
15	LIGHTS 6th FLOOR	20	1				0.58		1.38		0.80				1	20	LIGHTS 7th FLOOR sec radio	16
17	LIGHTS 7th FLOOR	20	1				1.06			1.81	0.75				1	20	STAIR #1	18
19	STAIR #2	20	1				0.65	1.10			0.45				1	20	STAIR #1	20
21	STAIR #2	20	1				0.75		1.35		0.60				1	20L	FIRE ALARM PANEL/ NEW PANEL	22
23	SLOBBY	20	1				0.60			1.20	0.60				1	20	ELEVATOR PIT#1	24
25	GENERATOR LIGHTS & RECEP	20	1				0.60	0.98			0.38				1	20	ELEVATOR PIT#2	26
27	LIGHTS FIRE PUMP ROOM	20	1	#12*	#12	1/2"	0.14		0.52		0.38				1	20	ELEVATOR #2 LIGHTS	28
29	HEAT TAPE & RECORD CONTROL	20	1				0.60			1.20	0.60				1	20	ELEVATOR #1 LIGHTS	30
31				PLOT			0.90	2.10			1.20	3/4"	#10	#10*	1	20L	HEATER HOT BOX	32
33	SUMP PUMP VAULT	20	3				0.90		2.10		1.20	3/4"	#10	#10*	1	20L	HEATER HOT BOX	34
35							0.90			1.90	1.00				1	30	GENERATOR BLOCK HEATER	36

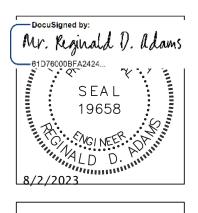
		TOTALS:	8.24	7.68	8.54		
			CONN	ECTED	DF	DEMAND LOAD	NOTES
			LOAD	(KVA)	DF	(KVA)	L-PROVIDE WITH LOCK OUT CLIP (RED)
	EXISTING LOAD		20.	.32	100%	20.32	PL-PROVIDE WITH PADLOCKABLE BREAKER
							G-GFCI PROTECTED
							A-AFCI PROTECTED
	LAOD ADDED		4.	14	100%	4.14	GF-GFPE PROTECTED
							S- SHUNT TRIP
				· ·			BOLD CHANGE IN CIRCUIT
							*-PHASE/NEUTRAL
	TOTAL (KVA)		24.	.46		24.46	
	TOTAL AMPS		6	8		68	
ADDITIONAL NOTES:							.
1.XXXX							
2.XXX							
3.XXX							

200	EXISTING							TYPE:		_AB					or MLO	:	MLO	
-	PANEL "B"						BUS S	IZE:	22	25A				MOUN	ITING:		SURFACE	
S	ECTION 1						VOLTA	AGE:	208	Y/120				MINIM	UM AIC	2:	22,000	
СКТ	LOAD SERVED	TRIP	POLE	WIRE	GND	CONDUIT	kVA	kVA A	PER PH	C	kVA	CONDUIT	GND	WIRE	POLE	TRIP	LOAD SERVED	скт
1	RECEPTACLE 125	20	1				0.36	0.36							1	20	SPARE	2
3	WH3 RP3	20	1				0.90		1.27		0.37				1	20	EFC	4
5	112 RECEPT	20	1				0.90			0.90					1	20	SPARE	6
7	SPARE	20	1					3.00			3.00				2	40	KLIN TABLE	8
9	SPARE	20	1						3.00		3.00				-	40	KLIN TABLE	10
11	CONDESATE PUMPS 2	20	1				0.80			2.00	1.20				1	20	LIGHTS	12
13	SPARE	20	1					1.08			1.08				1	20	AIR COMPRESSOR	14
15	HANDICAP DOOR	20	1				0.54		0.90		0.36				1	20	RECEPT AT HOT BOX	16
17	HANDICAP DOOR	20	1				0.54			0.90	0.36				1	20	RECEPT AT AIR COMPRESSOR	18
19	UH-1 FIRE PUMP ROOM	20N	2	#10	#10	3/4"	1.50	5.34			3.84				1	50	EXHAUSTFAN	20
21	ON-I TIKE FOMI KOOM	2014		#10	#10	3/4	1.50		5.34		3.84				1	50	EXHAUSTFAN	22
23							1.20			5.04	3.84				1	30	EXHAUSTFAN	24
25	CRU-1	15	3				1.20	1.56			0.36				1	20	EXHAUSTFAN	26
27							1.20		1.92		0.72				1	20	EXHAUSTFAN	28
29										0.54	0.54				1	20	CPNTROLS AIR CHILLER	30
31	SPARE	40	3					0.36			0.36				1	20	MASTER CONTROLS	32
33									0.18		0.18				1	20	RECEPT SPRINKLER ROOM	34
35	SPARE	20	1				1.00			1.72	0.72				1	20	RECEPTACLES	36

		CONNECTED LOAD (KVA)	DF	DEMAND LOAD (KVA)	NOTES L-PROVIDE WITH LOCK OUT CLIP
	EXISTING LOAD	59.93	100%	59.93	PL-PROVIDE WITH PADLOCKABLE BREAKER
				0.00	G-GFCI PROTECTED
				0.00	A-AFCI PROTECTED
	LOAD ADDED	3.90	100%	3.90	GF-GFPE PROTECTED
				0.00	S-SHUNT TRIP
				0.00	
				0.00	
				0.00	
				0.00	*-PHASE/NEUTRAL
	TOTAL (KVA)	63.83		63.83	
	TOTAL AMPS	177		177	
DDITIONAL NOTES:		*	ō		

SIGN AND CONSTRUCTION SERVIC

Docasigued ph:



Sigma Engineered Solutions, PC 5909 Falls of Neuse Rd.
Suite 101
Raleigh, NC 27609
Ph.: 919.840.9300
www.sigmaes.com
Sigma Project #: 22053
SOLUTIONS
NC ENG LIC# C-2490

SYSTEMS IMPROVEMENTS
POE HALL - BUILDING # 024

E400

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

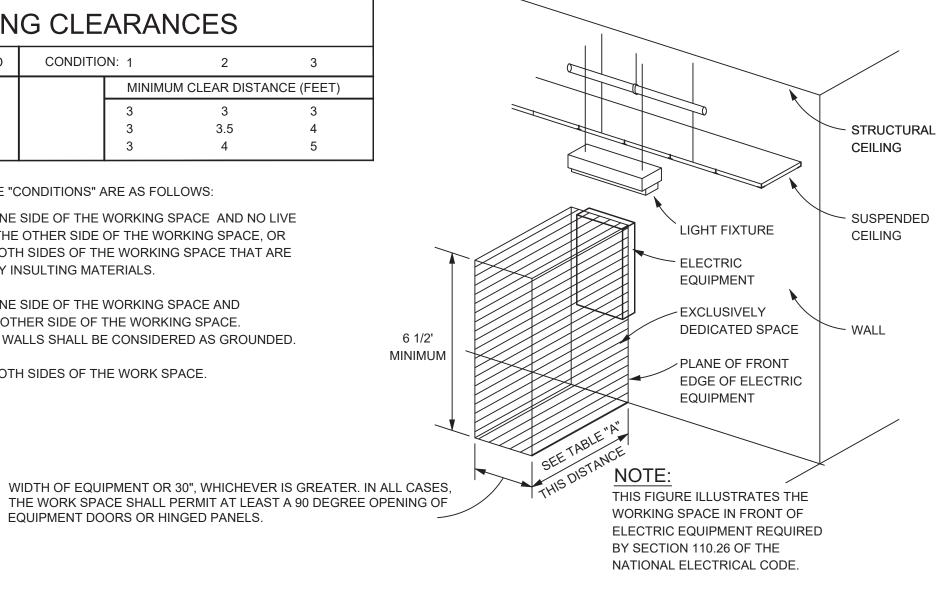
FAC. NAME POE HALL

WORKING CLEARANCES NOMINAL VOLTAGE TO GROUND CONDITION: 1 MINIMUM CLEAR DISTANCE (FEET) 0-150 151-600 3.5 601-1000

TABLE "A"

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

- 1. 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 GRAURDED BY INSULTING MATERIALS.
- 2. 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.
- 3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE.



ALL ELECTRIC EQUIPMENT

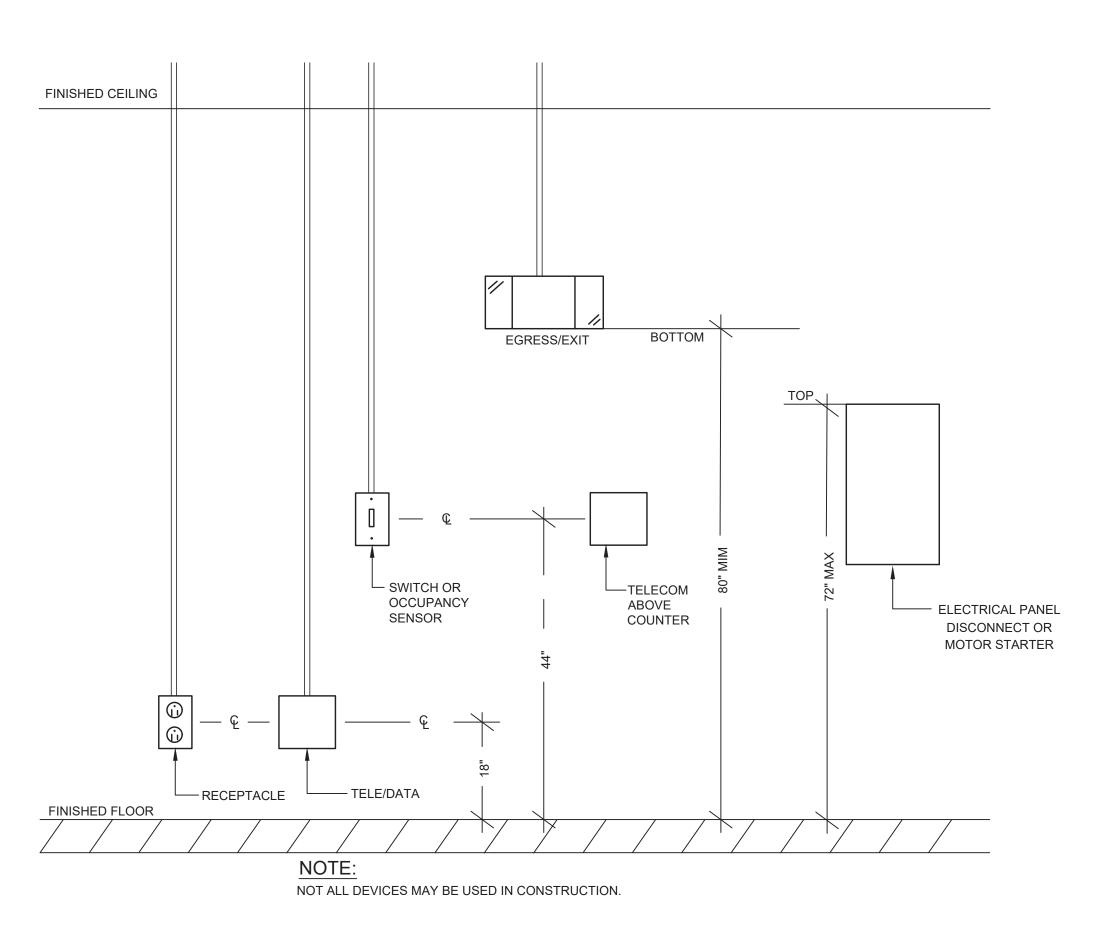
DEDICATED SPACE CONTINUES THROUGH SUSPENDED CEILING TO 6'-0" AFF OR STRUCTURAL CEILING, WHICHEVER IS LOWER. · STRUCTURAL CEILING SUSPENDED LIGHT FIXTURE CEILING EXCLUSIVELY DEDICATED SPACE PANELBOARD - EXCLUSIVELY DEDICATED SPACE THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER PANELBOARDS FOR CABLES, RACEWAYS, ETC. TO AND FROM PANELBOARDS REQUIRED BY SECTION 110.26 OF THE NATIONAL ELECTRICAL CODE.

PANELBOARDS

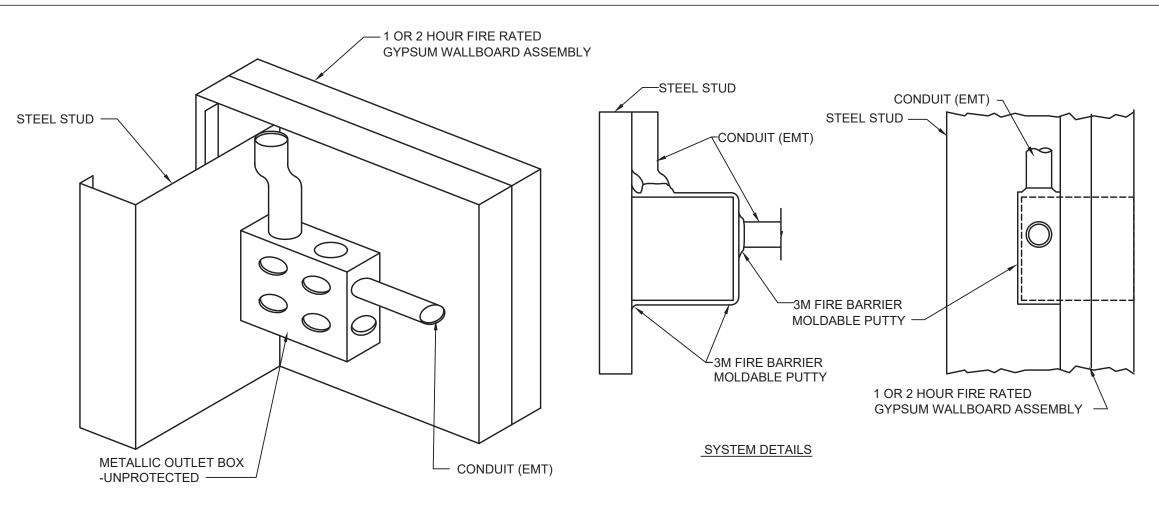
REQUIRED WORKING SPACE ABOUT ELECTRICAL EQUIPMENT NO SCALE:

EQUIPMENT DOORS OR HINGED PANELS.

- 1. THIS INCLUDES BUT IS NOT LIMITED TO PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES AND OTHER ELECTRIC EQUIPMENT.
- 2. 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:



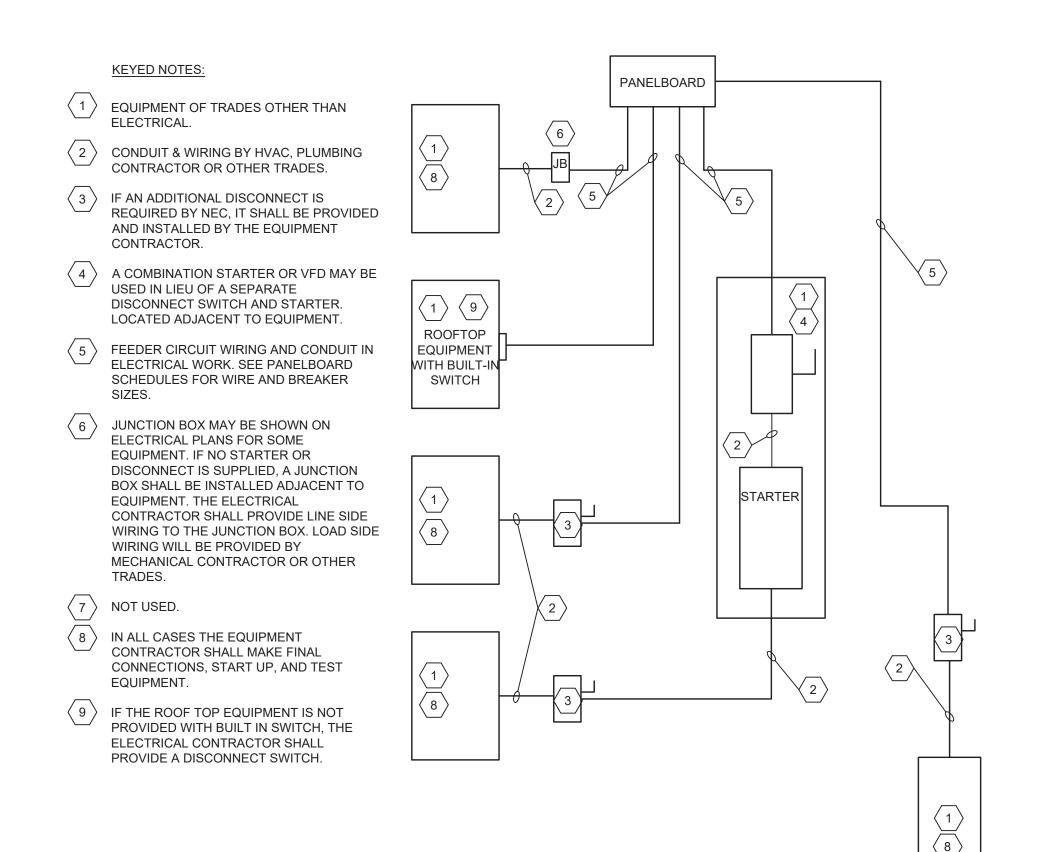
DRAWING NO.: 5300-ICG85.01

- 1. 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, ANSI/UL 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.
- 4. 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/ 5. ASSEMBLY. IT ALSO INHIBITS HEAT TRANSFER TO THE NON-FIRESIDE SURFACE OF THE WALL.

APPLICATION DETAILS

- 1. 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 =
- 2. 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.
- 3. SEAL ANY "KNOCK-OUT" HOLE CONTAINING WIRE OR CONDUIT WITH A GENEROUS AMOUNT OF MOLDABLE PUTTY.





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

NOTES:

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

Mr. Reginald D. adams SEAL 19658

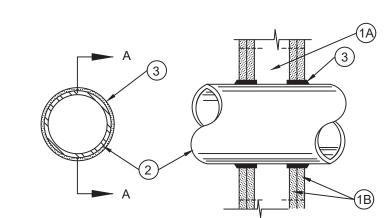


SHEET No.

E500

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

FAC. NAME POE HALL



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 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.
- 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
- 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 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
- E. COPPER PIPE NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- F. THROUGH PENETRATING PRODUCT* FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:
- 1. 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

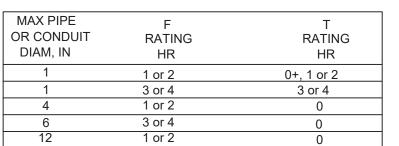
2. NOM 1 IN. DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

GASTILE, DIV OF TILEFLEX

3. 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

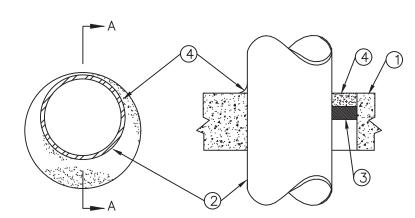
FILL, VOID OR CAVITY MATERIAL* - CAULK OR SEALANT - MIN 5/8. 1-1/4, 1-7/8 AND 2-1/2 IN THICKNESS OF CAULK FOR 1, 2, 3, 4 HR RATED ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OR WALL. MIN 1/4 IN DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT 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.



+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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SYSTEM NO. C-AJ-1001 MARCH 05 2007 F RATINGS-3 4 HR T RATING-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 DAIM (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	MAX ANNULAR	PACKING MATERIAL	MIN. CAULK
DIAM IN	SPACE IN.	TYPE (A)	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.

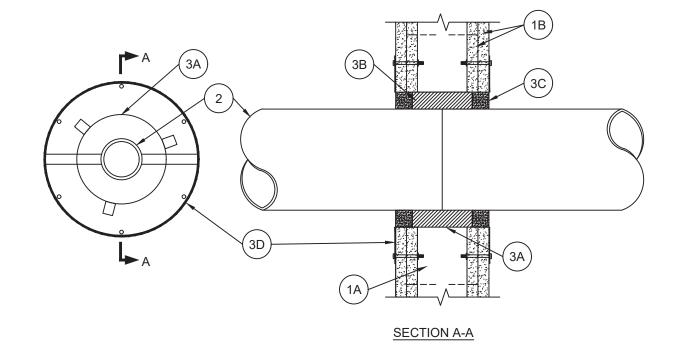
3M COMPANY- TYPE CP 25WB+ OR FB-3000 WT

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

* BEARING THE UL CLASSIFICATION MARKING.

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



- 1. 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:
- A. 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.
- 2. 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:
 - A. 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.
- B. 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.
- 3. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
- A. 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.
 - B. 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.

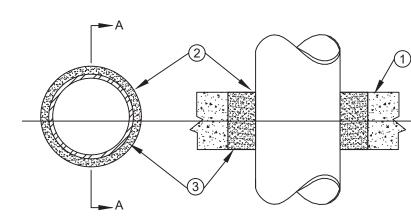
EGS NELSON FIRESTOP - TYPE FSP PUTTY

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 ;ONG STEEL WALL ANCHORS, EQUALLY SPACED.

* BEARING THE U L CLASSIFICATION MARK

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



SECTION A-A

1. 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.

- 2. THROUGH-PENETRANTS- One metallic pipe, conduit or tubing to be centered within the firestop system. A nom annular space of 3/4 in. is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduit or tubing may be used:
- A. STEEL PIPE Nom 4 in. diam (or smaller) schedule 5 (or heavier) steel pipe.
- B. CONDUIT-Nom 4 in. diam (or smaller) steel electrical tubing or steel conduit.
- 3. 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

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T RATING-0 HR.



SHEET No.

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

FAC. NAME POE HALL

FAC. NO. **024**

FIRE RATED PENETRATION DETAILS