McMichael Science Center Renovation - Phase 3

314 East Haggard Avenue, Elon, NC

Architect of Record:

RND Architects, PA
Durham, North Carolina
Phone: 919.490.1266

P, M, E, and FP Engineers:

Edmondson Engineers, PA
Durham, North Carolina
Phone: 919.544.1936

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Grand total: 73	

General Notes

A. GENERAL CONTRACTOR SHALL FIELD VERIFY/FIELD MEASURE ALL DIMENSIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD DIMENSIONS PRIOR TO START OF WORK. OWNER/ARCHITECT CANNOT GUARANTEE THE ACCURACY OF THESE DRAWINGS OF EXISTING CONDITIONS. FAILURE OF THE GENERAL CONTRACTOR TO VERIFY EXISTING DIMENSIONS PRIOR TO START OF WORK OR FABRICATION OF CONTRACT MATERIALS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ANY SPECIAL PROBLEMS, COSTS, OR DELAYS THAT MIGHT HAVE BEEN AVOIDED HAD THE CONTRACTOR DONE SO.

B. Contract Drawings: The contract drawings contain information to a degree of detail which is considered to be both consistent with their scales and adequate to accomplish their purpose. Beyond this point, they are diagrammatic. The contractor shall provide all miscellaneous materials required to completely install the work in accordance with the intent of the drawings and the specified functions. Any omissions from either the drawings or the specifications are unintentional and it shall be the responsibility of the contractor to call to the attention of the designer any pertinent omissions prior to submission of a bid.

C. Site Visitation: The contractor shall examine the site before bidding the project and shall familiarize himself with all existing conditions. Failure of the contractor to visit the site before submission of a bid shall not relieve him of any special problems or costs which might have been avoided had the contractor examined the existing site conditions.

D. All work shall be completed in compliance with applicable codes and to the satisfaction of local building inspectors. The contractor shall be responsible for filing and securing all necessary permits, approvals, etc. for all trades.

E. Specifications must be read in conjunction with the drawings to fully determine the scope of work required. Do not attempt to determine the scope of work without reading the specifications.

F. All existing building life safety componenets, such as exit signage, exit lights, fire alarm, sprinklers, etc., shall remain continuosly operational and free of obstruction for areas outside of construction zone of work in order to maintain building occupancy during construction. Any building utility shut-downs that will affect other building occupants shall be coordinated with Owner with minimum 3 days' notification.

G. All fire-rated partitions shall be continuous to the underside of floor structure above. Existing partitions indicated as fire barriers that are not currently constructed as a fire barriers, shall be added to or altered as necessary to bring them up to the required fire-rating construction as indicated. All fire rated walls and partitions shall be effectively and permanently identified with signs or stenciling. Such identification shall be above the ceiling and in concealed spaces. Suggested wording as appropriate, "2 HOUR RATED FIRE BARRIER - PROTECT ALL OPENINGS' or '1 HOUR RATED FIRE BARRIER - PROTECT ALL OPENINGS'

H. The General Contractor shall be responsible for patching and fire stopping all floor and roof openings left by the removal of P, M, and E ducts, pipes, and conduits.

J. All items scheduled to be removed shall be properly disposed of by the contractor unless specifically noted otherwise. The Owner reserves the right to claim any items removed during demolition.

K. Asbestos containing materials (ACM) are not known to be present in the space to be demolished and renovated. If contractor encounters what he suspects to be ACM, they should not disturb the suspect materials and notify the owner immediately. The owner shall be responsible for removing hazardous materials discovered in project area upon notification by contractor.

L. Noted ceiling heights for new ceilings shall not be changed due to field conditions without express direction from the Architect. Coordinate trades carefully.

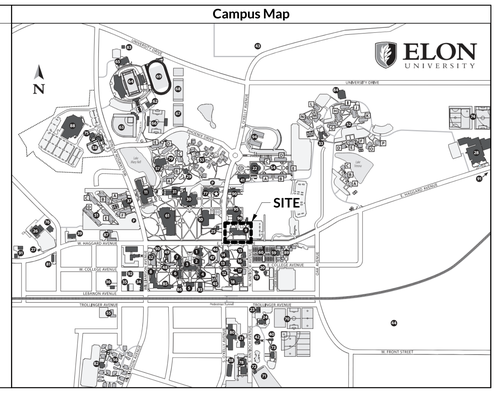
M. Notify Architect of building expansion joint locations.

N. The GC shall provide signage on all doors into the project area stating, "CONSTRUCTION SITE - NO ADMITTANCE". Sign shall be professionally made with easily visible letters on background indicating warning to staff and public. The GC shall provide walk-off mats as specified at each door leading from the construction area into other parts of the building

P. See Plumbing, Mechanical, Electrical, and Fire Protection drawings for further information.

Q. The General Contractor is responsible for:
1. Providing all necessary access panels, with correct fire protection ratings, whether indicated or not on the drawings.
2. Access panels required shall include, but not limited to dampers, plumbing valves, junctions boxes and cleanouts
3. Patching and fire stopping all floor and roof openings left by the removal of P, M, and E ducts, pipes, and conduits.
4. Where existing walls are removed, repair floor substrates to receive new finishes. If area is to receive new tile, provide mortar bed as required.
5. Prepare existing slab to be level, flat, and finished as required for installation of finished floor materials per manufacturers' specifications. Where existing setting beds at tiled areas are removed, provide lightweight concrete fill up to level of adjacent substrate or to level required for new finishes.
6. Coordinate and provide blocking/backing in partitions behind all wall mounted items (millwork shelving, files, etc.). All concealed wood to be fire-retardant lumber.
7. Where lavatories, mirrors, accessories, etc. are scheduled to be removed from walls to remain, patch and paint walls to match existing where exposed to view.

Campus Map



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CHARLES JOHN NICHELSON — REGISTERED ARCHITECT — 7835 — NORTH CAROLINA — DURHAM — 2.29.24

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

February 29, 2024

BID DOCUMENTS

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	2135.03
Drawn:	RGFZ
Checked:	CJN
Date:	02/29/24

Sheet Title

COVER SHEET

Sheet Number

G001

1/11/2024 12:05:02 PM

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: McMichael Science Center Renovation – Phase 3
Address: 314 East Haggard Ave., Elon, NC 27244
Owner/Authorized Agent: Brad Moore Phone # (336) 278-5492 E-Mail bmoore6@elon.edu
Owned By: Private
Code Enforcement Jurisdiction: County

CONTACT: CHANGE AS NEEDED

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	RND Architects, P.A.	Charles Nickelson, AIA	7835	(919) 452-8970	charles@RNDPA.com
Civil	N/A			( )	
Electrical	Edmondson Engineers	Dennis Hayes, PE	028869	(919) 544-1936	dennis@edmpa.com
Fire Alarm	Edmondson Engineers	Dennis Hayes, PE	028869	(919) 544-1936	dennis@edmpa.com
Plumbing	Edmondson Engineers	Charles Crowl, PE	028862	(919) 544-1936	charles@edmpa.com
Mechanical	Edmondson Engineers	Charles Crowl, PE	028862	(919) 544-1936	charles@edmpa.com
Sprinkler-Standpipe	N/A			( )	
Structural	N/A			( )	
Retaining Walls >5' High	N/A			( )	
Other	N/A			( )	

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: Renovation

2018 NC EXISTING BUILDING CODE: Alteration Level II N/A N/A

CONSTRUCTED: (date) 1997 **CURRENT OCCUPANCY(S)** (Ch. 3): Business

RENOVATED: (date) 2022 **PROPOSED OCCUPANCY(S)** (Ch. 3): Business

RISK CATEGORY (Table 1604.5): **Current:** Select one **Proposed:** Select one

BASIC BUILDING DATA
Construction Type: II-A
Sprinklers: Yes NFPA 13
Standpipes: Select one
Primary Fire District: No **Flood Hazard Area:** No
Special Inspections Required: No

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENOVATION	SUB-TOTAL
3rd Floor	19,381			19,381
2nd Floor	19,381		2,511	19,381
Mezzanine				
1st Floor	19,875		1,427	19,875
Basement	22,518		1,753	22,518
TOTAL	81,155		5,691	81,155

ALLOWABLE AREA

Primary Occupancy Classification(s): Business Select one Select one Select one Select one Select one
Accessory Occupancy Classification(s):

Incidental Uses (Table 509): Mechanical Room (Ground floor)
Special Uses (Chapter 4 – List Code Sections):
Special Provisions: (Chapter 5 – List Code Sections):
Mixed Occupancy: No Separation: Select one Exception:

Select one

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} + \ldots = \quad \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
Ground	College Education	22,518	112,500	N/A	112,500
First	College Education	19,875	112,500	N/A	112,500
Second	College Education	19,381	112,500	N/A	112,500
Third	College Education	19,381	112,500	N/A	112,500

[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) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I_f = 100(F/P - 0.25) \times W/30 =$ _____ (%)
[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).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT EXISTING UNCHANGED

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE [1]
Building Height in Feet (Table 504.3) [2]	85'	61'-9"	Table 504.3
Building Height in Stories (Table 504.4) [3]	6	4	Table 504.4

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	REQ'D	RATING PROVIDED (W/_____* REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		1 Hour	1 Hour (Existing)		UL-D923 UL-X772		
Bearing Walls							
Exterior		N/A					
North		N/A					
East		N/A					
West		N/A					
South		N/A					
Interior		N/A					
Nonbearing Walls and Partitions Exterior walls							
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior walls and partitions		NC					
Floor Construction Including supporting beams and joists		1 Hour	1 Hour (Existing)		UL-D923 UL-D739		
Floor Ceiling Assembly		1 Hour	1 Hour (Existing)		UL-D923		
Columns Supporting Floors		1 Hour	1 Hour (Existing)		UL-X772		
Roof Construction, including supporting beams and joists		1 Hour	1 Hour (Existing)		UL-P717		
Roof Ceiling Assembly		1 Hour	1 Hour (Existing)		UL-P717		
Columns Supporting Roof		1 Hour	1 Hour (Existing)		UL-X772		
Shaft Enclosures - Exit		2 Hour	2 Hour (Existing)		UL-U411 UL-438		
Shaft Enclosures - Other		2 Hour	2 Hour (Existing)		UL-438		
Corridor Separation		0	0 (Existing)				
Occupancy/Fire Barrier Separation		N/A					
Party/Fire Wall Separation		N/A					
Smoke Barrier Separation		N/A					
Smoke Partition		N/A					
Tenant/Dwelling Unit/ Sleeping Unit Separation		N/A					
Incidental Use Separation		1 Hour	2 Hour (Existing)		UL-D923 UL-D739		

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: Yes
Exit Signs: Yes
Fire Alarm: Yes
Smoke Detection Systems: Yes
Carbon Monoxide Detection: Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G003

- [x] Fire and/or smoke rated wall locations (Chapter 7)
- [ ] Assumed and real property line locations (if not on the site plan)
- [ ] Exterior wall opening area with respect to distance to assumed property lines (705.8)
- [x] Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- [x] Occupant loads for each area
- [x] Exit sign locations (1013)
- [x] Exit access travel distances (1017)
- [x] Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- [x] Dead end lengths (1020.4)
- [x] Clear exit widths for each exit door
- [x] Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- [x] Actual occupant load for each exit door
- [ ] A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- [ ] Location of doors with panic hardware (1010.1.10)
- [ ] Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- [ ] Location of doors with electromagnetic egress locks (1010.1.9.9)
- [ ] Location of doors equipped with hold-open devices
- [ ] Location of emergency escape windows (1030)
- [ ] The square footage of each fire area (202)
- [ ] The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- [ ] Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS NOT APPLICABLE
(SECTION 1107)

UNIT CLASSIFICATION	TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING EXISTING CAMPUS PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	96" SPACES	132" SPACES	
TOTAL					

PLUMBING FIXTURE REQUIREMENTS EXISTING UNCHANGED
(TABLE 2902.1)

USE		WATERCLOSETS			URINALS	LAVATORIES			SHOWER S'TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		REGULAR	ACCESSIBLE
SPACE	EXIST'G										
	NEW										
	REQ'D										

SPECIAL APPROVALS NON-APPLICABLE

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy 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.

Existing building envelope complies with code: Select one

Exempt Building: Select one Provide code or statutory reference:

Climate Zone: Select one

Method of Compliance: Select one
(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:
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:
slab heated:

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

DESIGN LOADS:

Importance Factors: Snow (I_S) Select one
Seismic (I_E) Select one

Live Loads: Roof 20 psf
Mezzanine ____ psf
Floor ____ psf

Ground Snow Load: 15 psf

Wind Load: Ultimate Wind Speed 80 mph (ASCE-7)
Exposure Category Select one

SEISMIC DESIGN CATEGORY: Select one
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) Select one
Spectral Response Acceleration S_S ____ %g S_1 ____ %g
Site Classification (ASCE 7) Select one
Data Source: Select one
Basic structural system Select one
Analysis Procedure: Select one
Architectural, Mechanical, Components anchored? Select one

LATERAL DESIGN CONTROL: Select one

SOIL BEARING CAPACITIES:
Select one psf
Pile size, type, and capacity

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

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb:
summer dry bulb:

Interior design conditions
winter dry bulb:
summer dry bulb:
relative humidity:

Building heating load:

Building cooling load:

Mechanical Spacing Conditioning System
Unitary
description of unit:
heating efficiency:
cooling efficiency:
size category of unit:
Boiler
Size category. If oversized, state reason.:
Chiller
Size category. If oversized, state reason.:

List equipment efficiencies:

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

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
- [ ] C406.2 More Efficient HVAC Equipment Performance
- [ ] C406.3 Reduced Lighting Power Density
- [ ] C406.4 Enhanced Digital Lighting Controls
- [ ] C406.5 On-Site Renewable Energy
- [ ] C406.6 Dedicated Outdoor Air System
- [ ] C406.7 Reduced Energy Use in Service Water Heating

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CHARLES JOHN NICKELSON REGISTERED ARCHITECT 7835 NORTH CAROLINA DURHAM 2.27.24

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number: 2135.03
Drawn: RGFZ
Checked: CJN
Date: 02/29/24

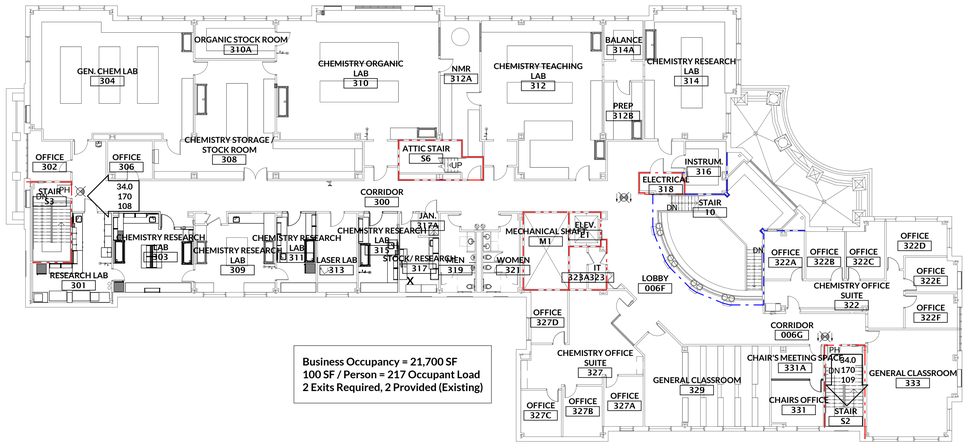
Sheet Title
BUILDING CODE SUMMARY

Sheet Number
G002

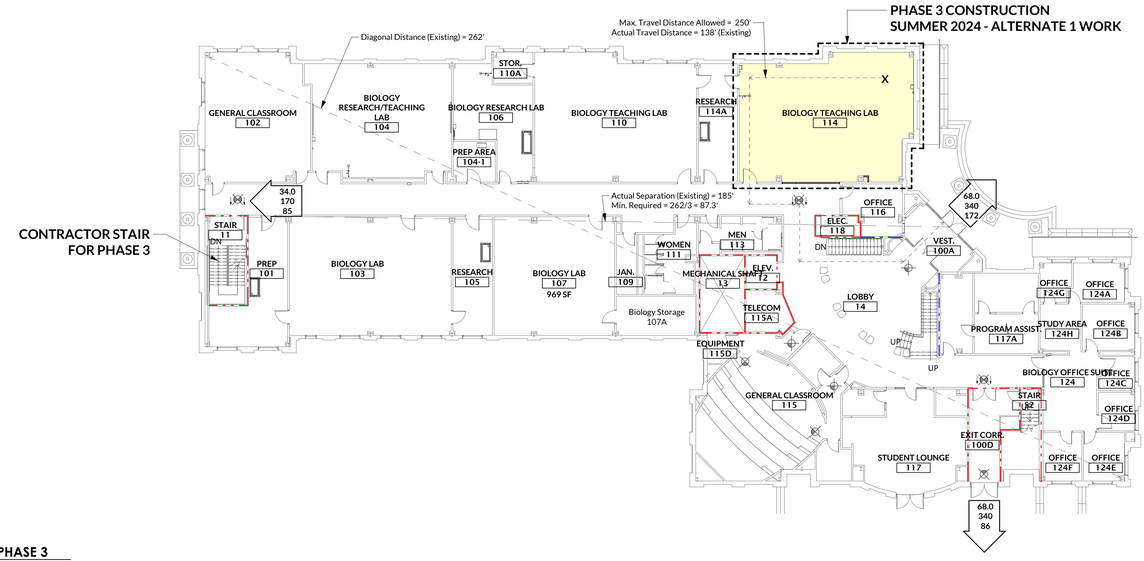
3/11/2024 12:05:03 PM

Life Safety Legend

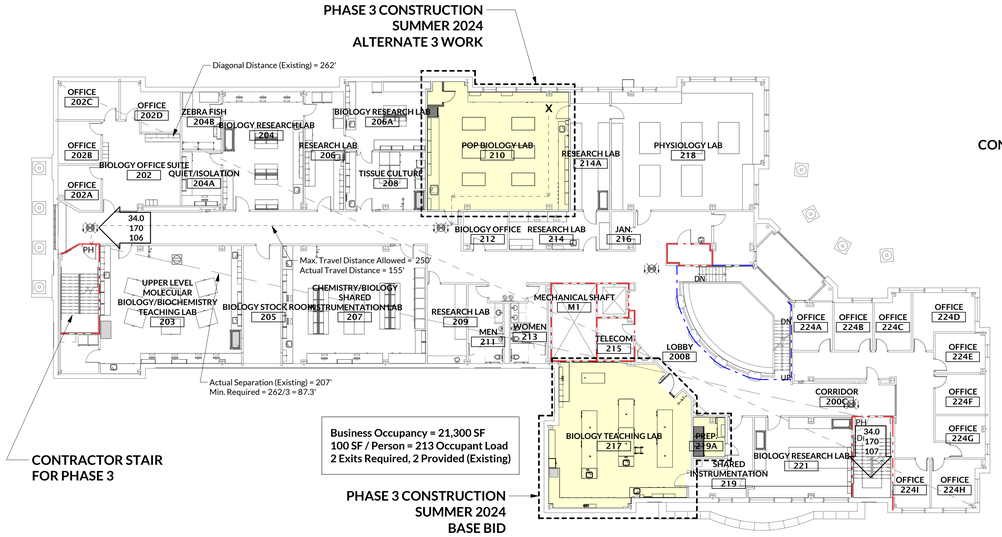
Rated Fire Barrier: 1-Hour	
Rated Fire Wall: 2-Hour	
Suite Boundary	
Scope of Work Boundary	
Common Path of Travel	X C
Maximum Travel Distance	X
Separation of Exits	
Total Diagonal Distance	
Most Remote Point	X
End of Common Path of Travel	C
Egress Load Arrow	CLEAR WIDTH (IN.): 34.0 MAX CAPACITY: 170 ACTUAL LOAD: 31
Panic Hardware	PH
Emergency Exit Lights	



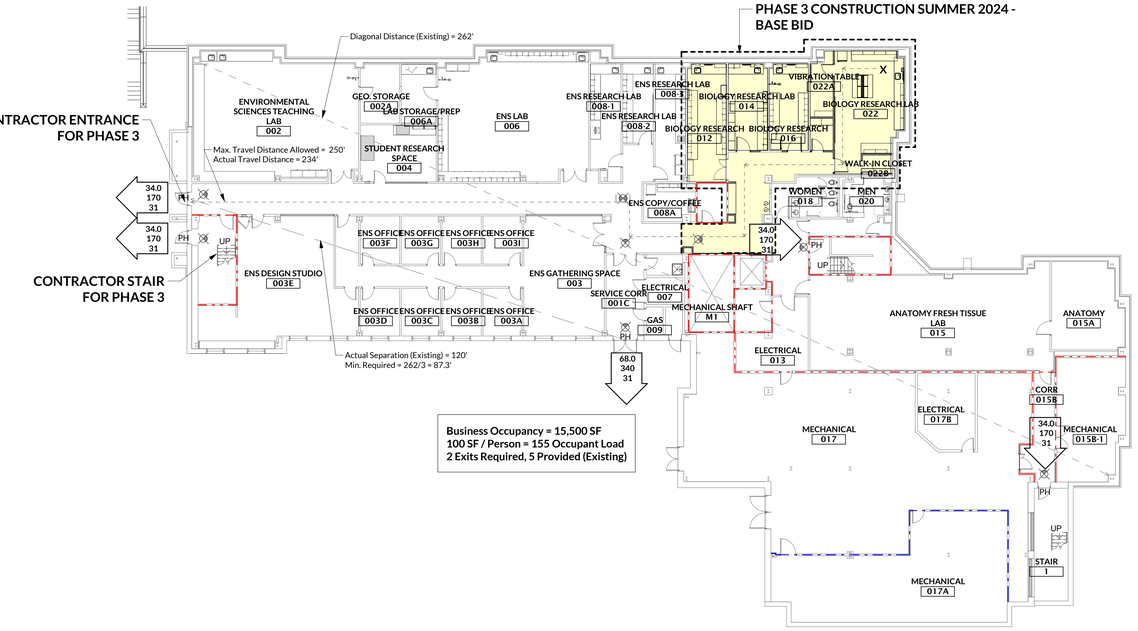
3 G003 **LIFE SAFETY PLAN - NO WORK IN PHASE 3**
1/16" = 1'-0"



1 G003 **LIFE SAFETY PLAN - LEVEL 1**
1/16" = 1'-0"



2 G003 **LIFE SAFETY PLAN - LEVEL 2**
1/16" = 1'-0"



0 G003 **LIFE SAFETY PLAN - LEVEL 0**
1/16" = 1'-0"

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CHARLES JOHN NICHELSON — REGISTERED ARCHITECT — 7835 — DURHAM — 2.27.24

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number: 2135.03
Drawn: RGFZ
Checked: CJN
Date: 02/29/24

Sheet Title
LIFE SAFETY PLANS

Sheet Number
G003

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Plan Legend

- 1-Hour Rated Fire Barrier
- 2-Hour Rated Fire Wall
- Scope of Work Boundary
- Existing Partition to Remain
- Temporary Dust Partition
- Existing partitions, doors or other items to be demolished
- Demolition Note keynoted to plan (Note: Not all items keynoted to plan) — 1
- Renovation Note keynoted to plan — 1
- New Interior Partition
- Partition ID Tag, see Wall Types — A
- Masonry Partition
- Line of Soffit Above
- ADA Clearance Area or Furniture Not in Contract
- Room Name, Number, and Area — Room name 101 150 SF
- Door I.D., see Door & Frame Schedule — 101
- Window/Storefront ID, see Elevations — A
- Spot Elevation AFF — 0' - 0"
- Section Mark — Detail No. 1 / Sheet No. A101
- Elevation Mark — Sheet No. A101 / Detail No. 1
- Ceiling Height AFF — 10'-0"
- Acoustical Ceiling Grid and Tile 2'x2'
- Acoustical Ceiling Grid and Tile 2'x4'
- Existing Acoustical Ceiling Grid and Tile to be Demolished
- Gypsum Board Soffit, Ceiling, or Bulkhead

P,M,E, & FP Legend

See Plumbing, Mechanical, Electrical, and Fire Protection Engineering Drawings for Device, Fixture Quantities and Types. Architectural plans show devices for reference only.

- Sprinkler Head
- Can Light
- Strip or Pendant Light Fixture
- 1x4 Lay-in Light Fixture
- 2 x 2 Lay-in Light Fixture
- 2 x4 Lay-in Light Fixture
- Supply Air Diffuser
- Return Air Diffuser
- Exit Light
- Emergency Light
- Smoke Detector
- Occupancy Sensor — OS
- Speaker — SP
- Wireless Access Point — WAP

Abbreviations

Acoustical Ceiling Tile and Grid	ACT
Above Finished Floor	AFF
Aluminum	ALUM
Below Finished Floor	BFF
Concrete Masonry Unit	CMU
Continuous	CONT.
Control Joint	CJ
Electric Water Cooler	EWC
Electrical Panel	EP
Equal	EQ
Existing	EX
Existing to Remain	ETR
Expansion Joint	EJ
Field Verify/Field Measure	FV
Finished Floor Elevation	FFE
Fire Extinguisher Cabinet	FEC
Floor Drain	FD
Furniture	FURN
General Contractor	GC
Gypsum Board	GYP. BD.
Identification	ID
Metal	MTL
Not in Contract	NIC
On Center	OC
Opposite Hand	OH
Reflected Ceiling Plan	RCP
Roof Drain	RD
Similar	SIM
Solid Core Wood Door	SCW
Specifications	SPECS
Steel	STL
To be determined	TBD
Typical	TYP
Unless Noted Otherwise	UNO
With	W/
Wood	WD

General Notes

A. GENERAL CONTRACTOR SHALL FIELD VERIFY/FIELD MEASURE ALL DIMENSIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD DIMENSIONS PRIOR TO START OF WORK. OWNER/ARCHITECT CANNOT GUARANTEE THE ACCURACY OF THESE DRAWINGS OF EXISTING CONDITIONS. FAILURE OF THE GENERAL CONTRACTOR TO VERIFY EXISTING DIMENSIONS PRIOR TO START OF WORK OR FABRICATION OF CONTRACT MATERIALS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ANY SPECIAL PROBLEMS, COSTS, OR DELAYS THAT MIGHT HAVE BEEN AVOIDED HAD THE CONTRACTOR DONE SO.

B. Contract Drawings: The contract drawings contain information to a degree of detail which is considered to be both consistent with their scales and adequate to accomplish their purpose. Beyond this point, they are diagrammatic. The contractor shall provide all miscellaneous materials required to completely install the work in accordance with the intent of the drawings and the specified functions. Any omissions from either the drawings or the specifications are unintentional and it shall be the responsibility of the contractor to call to the attention of the designer any pertinent omissions prior to submission of a bid.

C. Site Visitation: The contractor shall examine the site before bidding the project and shall familiarize himself with all existing conditions. Failure of the contractor to visit the site before submission of a bid shall not relieve him of any special problems or costs which might have been avoided had the contractor examined the existing site conditions.

D. All work shall be completed in compliance with applicable codes and to the satisfaction of local building inspectors. The contractor shall be responsible for filing and securing all necessary permits, approvals, etc. for all trades.

E. Specifications must be read in conjunction with the drawings to fully determine the scope of work required. Do not attempt to determine the scope of work without reading the specifications.

F. All existing building life safety components, such as exit signage, exit lights, fire alarm, sprinklers, etc., shall remain continuosly operational and free of obstruction for areas outside of construction zone of work in order to maintain building occupancy during construction. Any building utility shut-downs that will affect other building occupants shall be coordinated with Owner with minimum 3 days' notification.

G. All fire-rated partitions shall be continuous to the underside of floor structure above. Existing partitions indicated as fire barriers that are not currently constructed as a fire barriers, shall be added to or altered as necessary to bring them up to the required fire-rating construction as indicated. All fire rated walls and partitions shall be effectively and permanently identified with signs or stenciling. Such identification shall be above the ceiling and in concealed spaces. Suggested wording as appropriate, '2 HOUR RATED FIRE BARRIER - PROTECT ALL OPENINGS' or '1 HOUR RATED FIRE BARRIER - PROTECT ALL OPENINGS'

H. The General Contractor shall be responsible for patching and fire stopping all floor and roof openings left by the removal of P, M, and E ducts, pipes, and conduits.

J. All items scheduled to be removed shall be properly disposed of by the contractor unless specifically noted otherwise. The Owner reserves the right to claim any items removed during demolition.

K. Asbestos containing materials (ACM) are not known to be present in the space to be demolished and renovated. If contractor encounters what he suspects to be ACM, they should not disturb the suspect materials and notify the owner immediately. The owner shall be responsible for removing hazardous materials discovered in project area upon notification by contractor.

L. Noted ceiling heights for new ceilings shall not be changed due to field conditions without express direction from the Architect. Coordinate trades carefully.

M. Notify Architect of building expansion joint locations.

N. The GC shall provide signage on all doors into the project area stating, "CONSTRUCTION SITE - NO ADMITTANCE". Sign shall be professionally made with easily visible letters on background indicating warning to staff and public. The GC shall provide walk-off mats as specified at each door leading from the construction area into other parts of the building

P. See Plumbing, Mechanical, Electrical, and Fire Protection drawings for further information.

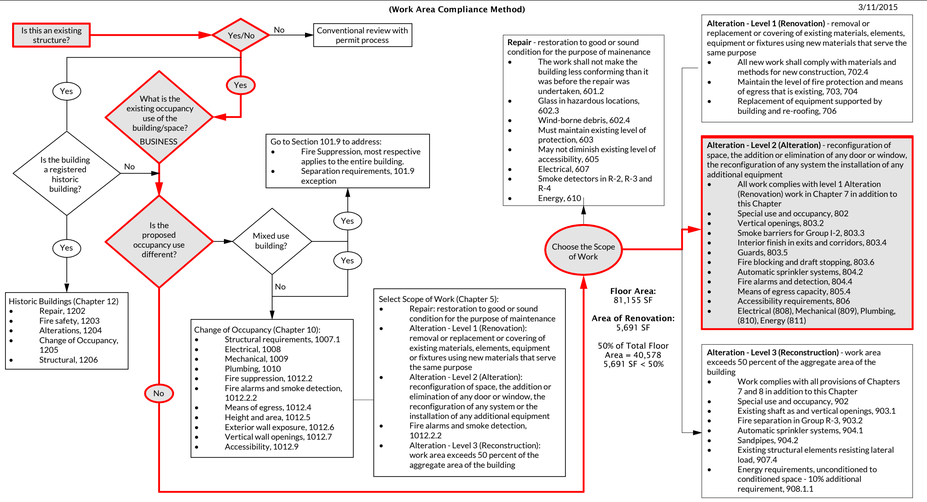
Q. The General Contractor is responsible for:

1. Providing all necessary access panels, with correct fire protection ratings, whether indicated or not on the drawings.
2. Access panels required shall include, but not limited to dampers, plumbing valves, junctions boxes and cleanouts
3. Patching and fire stopping all floor and roof openings left by the removal of P, M, and E ducts, pipes, and conduits.
4. Where existing walls are removed, repair floor substrates to receive new finishes. If area is to receive new tile, provide mortar bed as required.
5. Prepare existing slab to be level, flat, and finished as required for installation of finished floor materials per manufacturers' specifications. Where existing setting beds at tiled areas are removed, provide lightweight concrete fill up to level of adjacent substrate or to level required for new finishes.
6. Coordinate and provide blocking/backing in partitions behind all wall mounted items (millwork shelving, files, etc.). All concealed wood to be fire-retardant lumber.
7. Where lavatories, mirrors, accessories, etc. are scheduled to be removed from walls to remain, patch and paint walls to match existing where exposed to view.

NC Existing Building Code Decision Diagram

(Work Area Compliance Method)

3/11/2015



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McMichael Science Center Renovation - Phase 3

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Key Plan

Revisions

No.	Date	Description

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Project Number:	2135.03
Drawn:	RGFZ
Checked:	CJN
Date:	02/29/24

Sheet Title

LEGENDS, ABBREVIATIONS & NOTES

Sheet Number

G004

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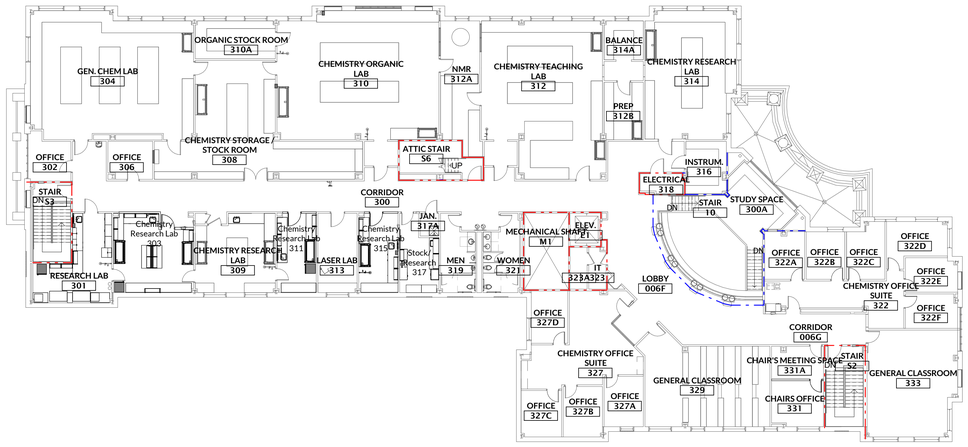
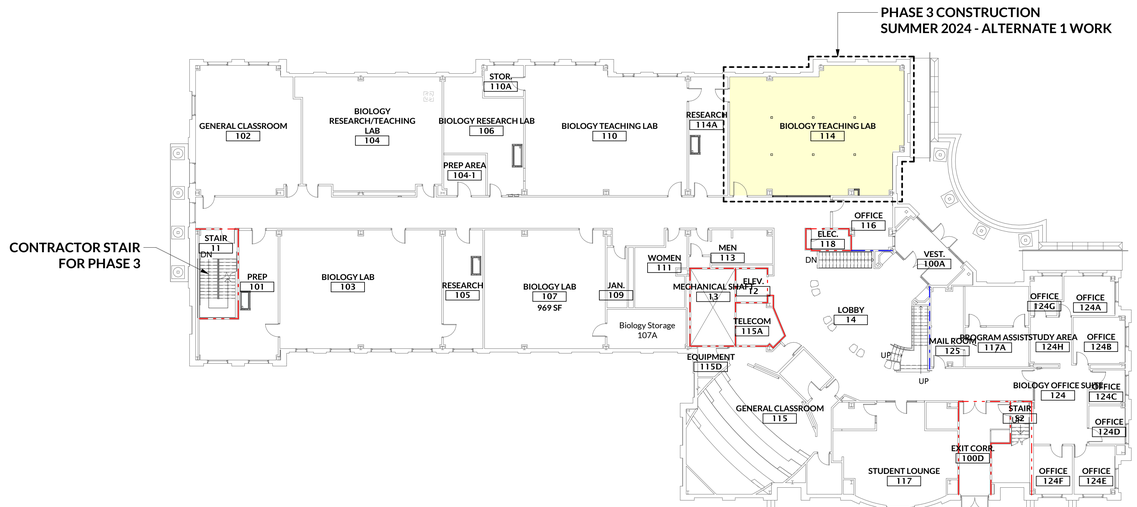
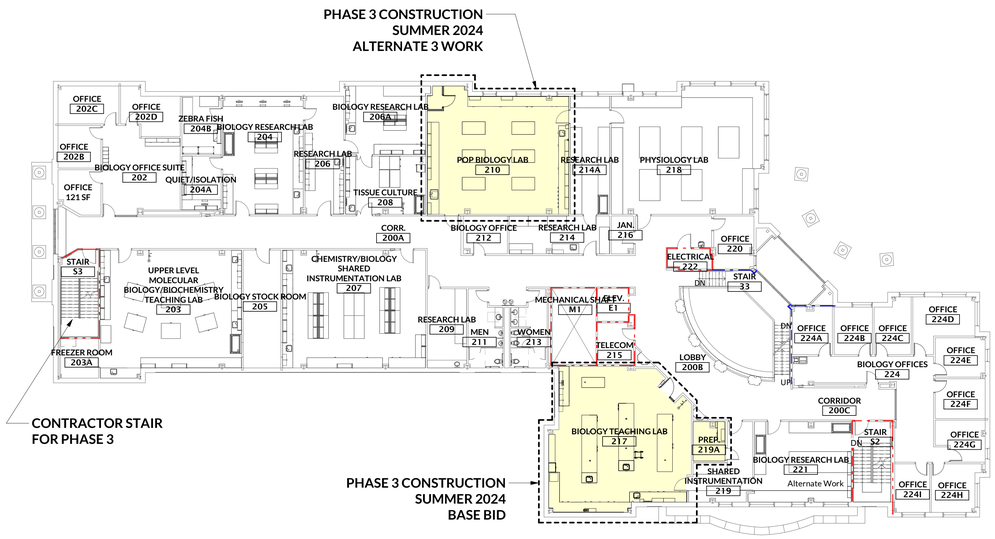


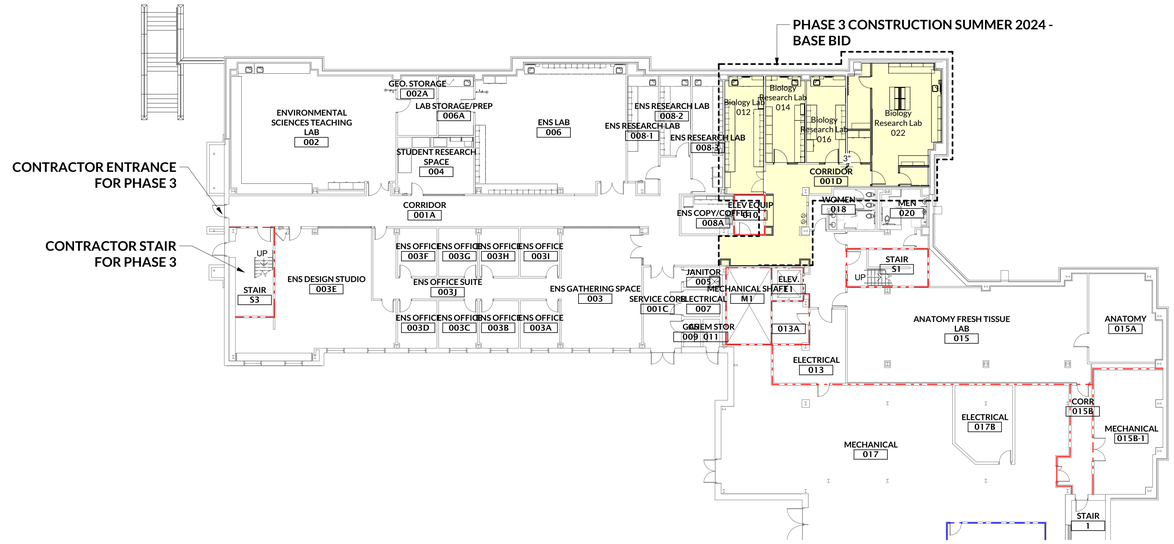
4 A001 **Level 3 - Overall Renovation Plan - Phase 3**
1/16" = 1'-0"



2 A001 **Level 1 - Overall Renovation Plan - Phase 3**
1/16" = 1'-0"



3 A001 **Level 2 - Overall Renovation Plan - Phase 3**
1/16" = 1'-0"



1 A001 **Level 0 - Overall Renovation - Phase 3**
1/16" = 1'-0"

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Key Plan

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Revisions

No.	Date	Description

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Project Number: 2135.03
Drawn: RGFZ
Checked: CJN
Date: 02/29/24

Sheet Title
PHASING PLANS

Sheet Number
A001

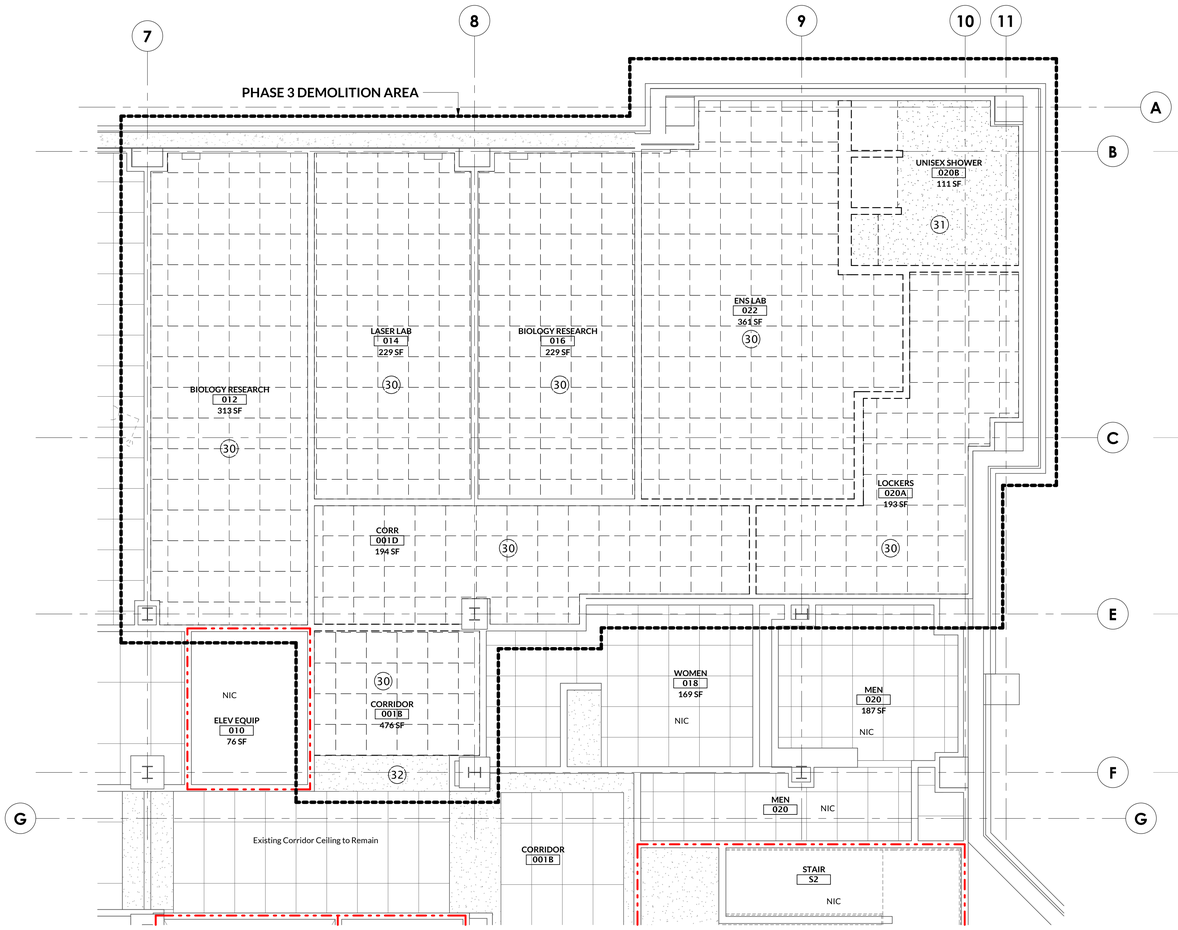
3/11/2024 12:05:21 PM

Wall Ratings Legend

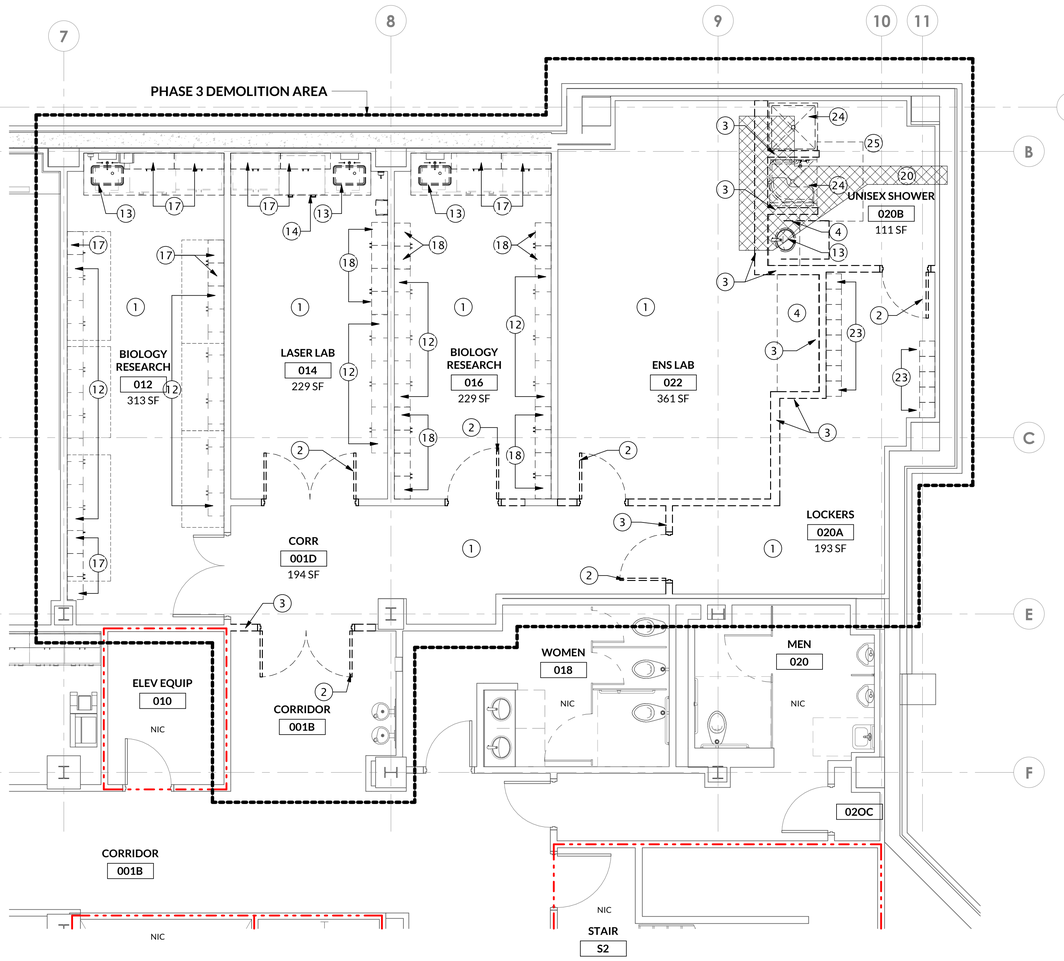
- 2-HOUR RATED FIRE WALL
- SCOPE OF WORK BOUNDARY

Keyed Demolition Notes

No.	Note
1	Demolish flooring and base
2	Demolish door and frame
3	Demolish portion of metal framed gyp. bd. wall shown dashed
4	Demolish base cabinets, countertops, wall cabinets, and shelving shown dashed
5	Remove window treatments
6	Remove markerboard and turn over to Owner
7	Cut existing flooring in straight line to demo floor in alcove. Corridor flooring to remain.
8	Demo wall from top of backsplash to replace with bulletproof glass.
10	Demolish sink and faucet, see Plumbing drawings
11	Demolish emergency shower, see Plumbing drawings
12	Existing casework to remain
13	Demolish countertop and sink. Base cabinets to remain.
14	Demolish base cabinet.
17	Demolish wall cabinets and/or shelving above.
18	Existing casework to be relocated. See Renovation Plans
20	Cut concrete slab for plumbing lines, see Plumbing drawings
23	Demolish existing lockers
24	Demolish existing shower; see Plumbing drawings
25	Demolish wall and floor tiling down to substrate/slab
26	Demolish existing window and frame
30	Demolish ceiling grid and tile. See PME drawings for ceiling devices and above-ceiling scope of work.
31	Demolish gyp. bd. and metal frame ceiling/soffit. See PME drawings for ceiling devices and above-ceiling scope of work.
32	Existing gyp. bd. and metal frame ceiling/soffit to remain. See PME drawings for ceiling devices scope of work.
33	Existing ACT ceiling to remain.
34	Demo area in existing casework and floor slab to provide for 10" duct chase for exhaust from lab below. See Mechanical drawings.
35	Remove and reinstall ceiling grid and tile. See PME drawings for ceiling devices and above-ceiling scope of work.
36	Demo and reinstall portions of gypsum board ceiling. See PME drawings for ceiling devices and above-ceiling scope of work.



2 A100 **Level 0 - Demolition RCP**
1/4" = 1'-0"
BASE BID



0' 2' 4' 8' 16'

1 A100 **Level 0 - Demolition Plan**
1/4" = 1'-0"
BASE BID

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Revisions

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Project Number: 2135.03
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Date: 02/29/24

Sheet Title

LEVEL 0 - DEMOLITION PLAN AND RCP - BASE BID

Sheet Number

A100

3/11/2024 12:05:15 PM

Wall Ratings Legend

- 2-HOUR RATED FIRE WALL
- SCOPE OF WORK BOUNDARY

Keyed Demolition Notes

No.	Note
1	Demolish flooring and base
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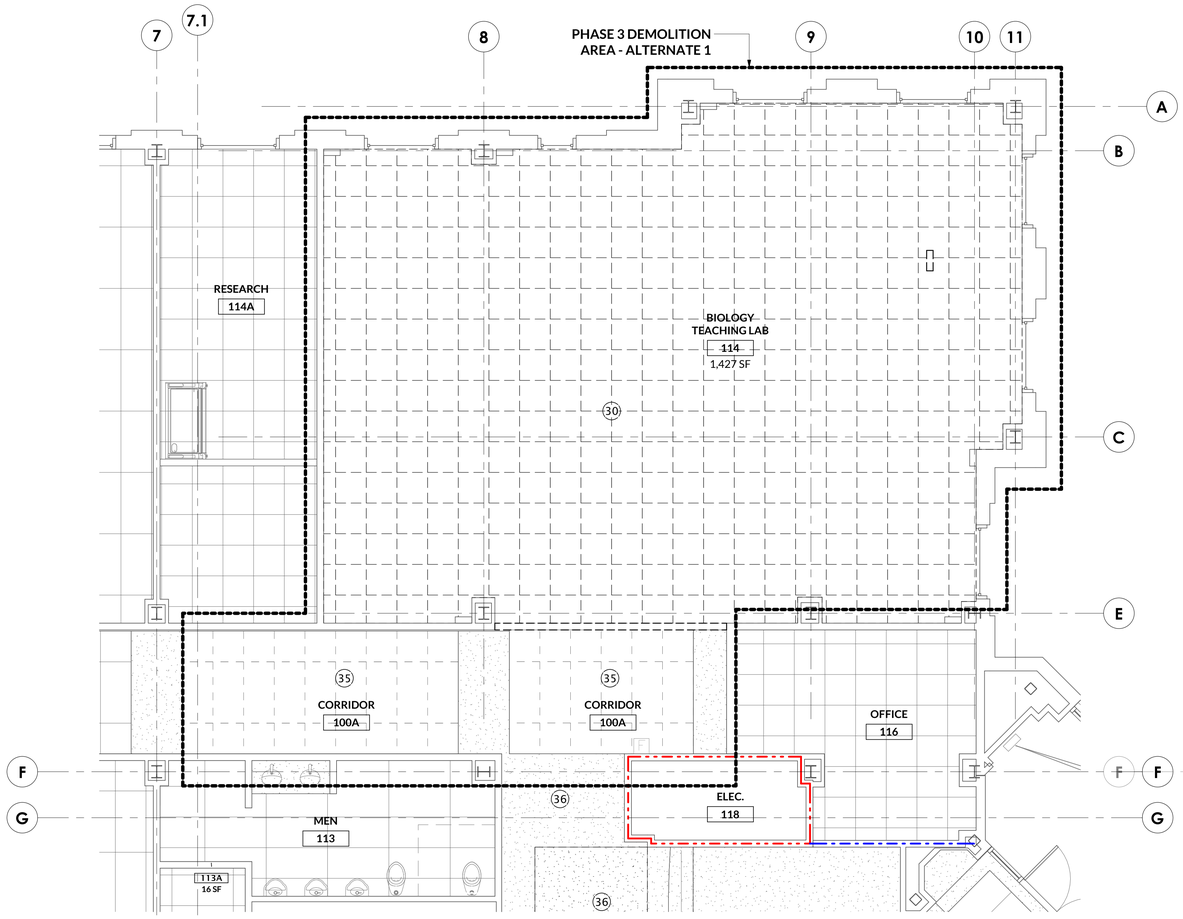
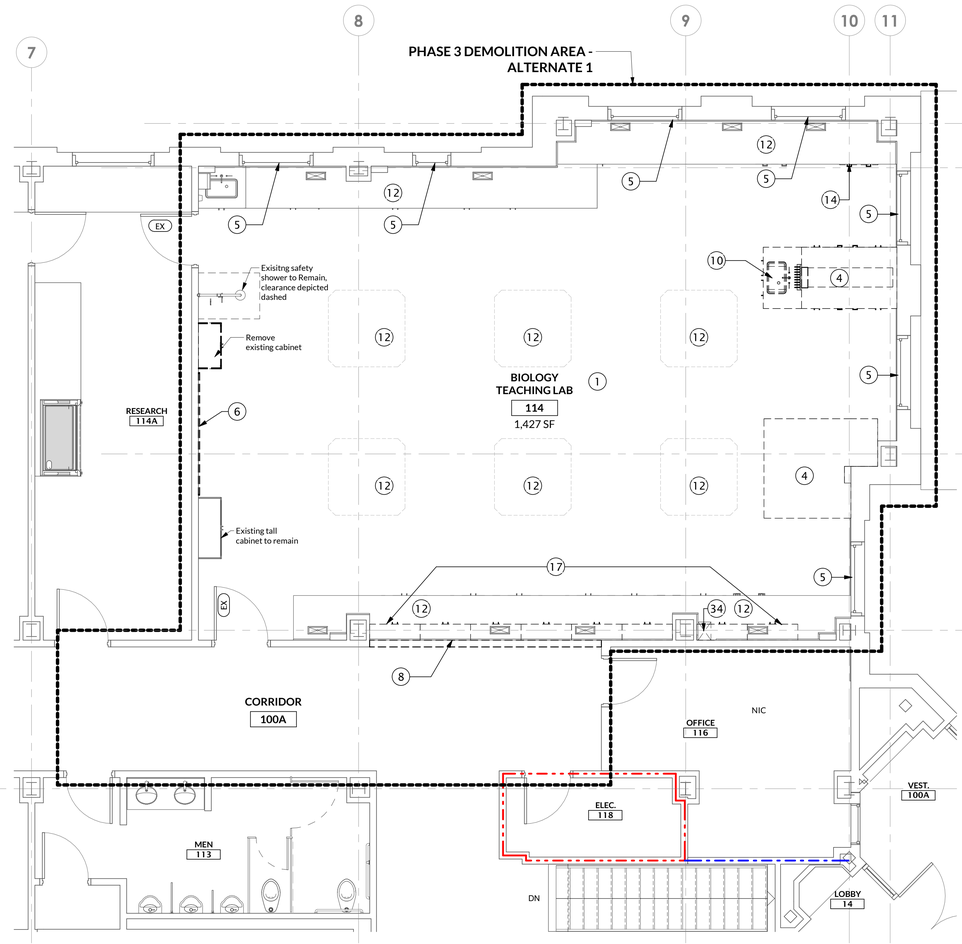
32	Existing gyp. bd. and metal frame ceiling/soffit to remain. See PME drawings for ceiling devices scope of work.
33	Existing ACT ceiling to remain.
34	Demo area in existing casework and floor slab to provide for 10" duct chase for exhaust from lab below. See Mechanical drawings.
35	Remove and reinstall ceiling grid and tile. See PME drawings for ceiling devices and above-ceiling scope of work.
36	Demo and reinstall portions of gypsum board ceiling. See PME drawings for ceiling devices and above-ceiling scope of work.



ALTERNATE 1: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

2 A101 **Level 1 - Demolition RCP** — 1/4" = 1'-0" — ALTERNATE 1



ALTERNATE 1: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

0' 2' 4' 8' 16'

1 A101 **Level 1 - Demolition Plan** — 1/4" = 1'-0" — ALTERNATE 1

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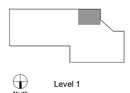

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Sheet Title

LEVEL 1 - DEMOLITION PLANS AND RCPs - ALTERNATE 1

Sheet Number

A101

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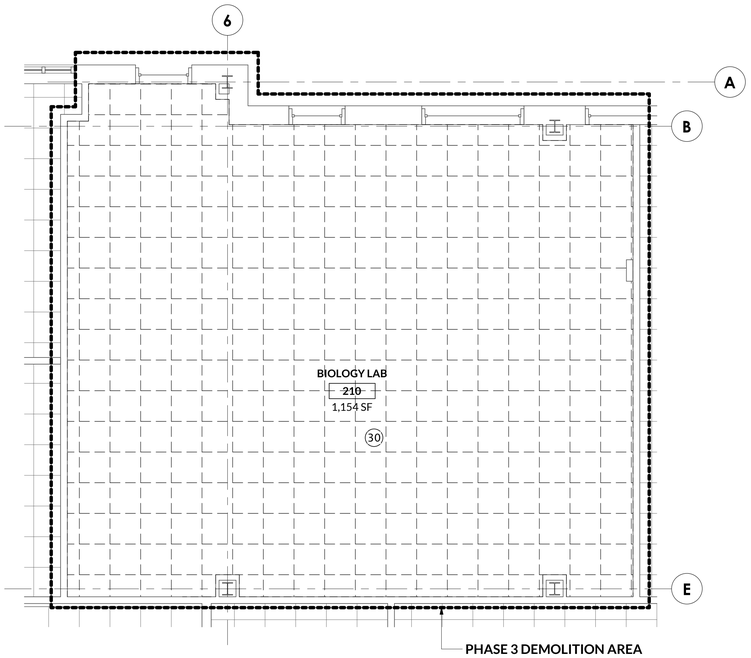
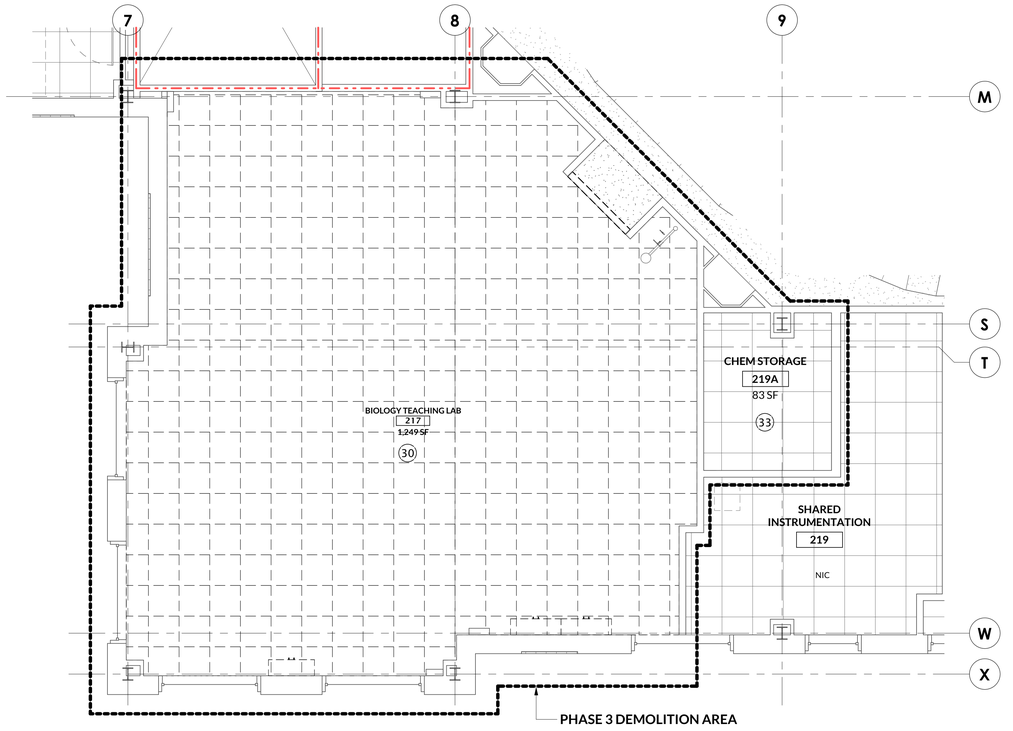


ALTERNATE 3: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

4 A102 **Level 2 - Demolition RCP Lab 210**
1/4" = 1'-0"
ALTERNATE 3



3 A102 **Level 2 - Demolition RCP Lab 217**
1/4" = 1'-0"
BASE BID

Wall Ratings Legend

- 2-HOUR RATED FIRE WALL
- SCOPE OF WORK BOUNDARY

Keyed Demolition Notes

No.	Note
1	Demolish flooring and base
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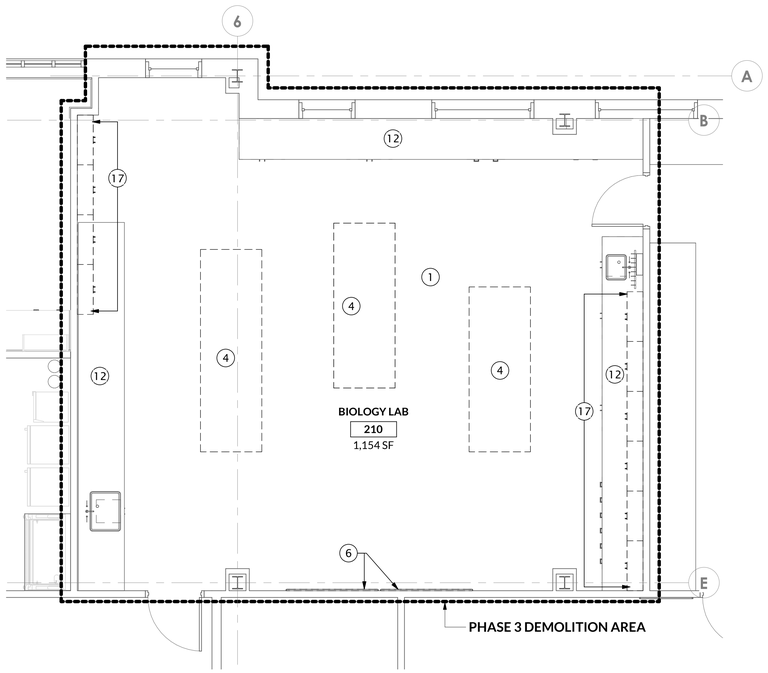
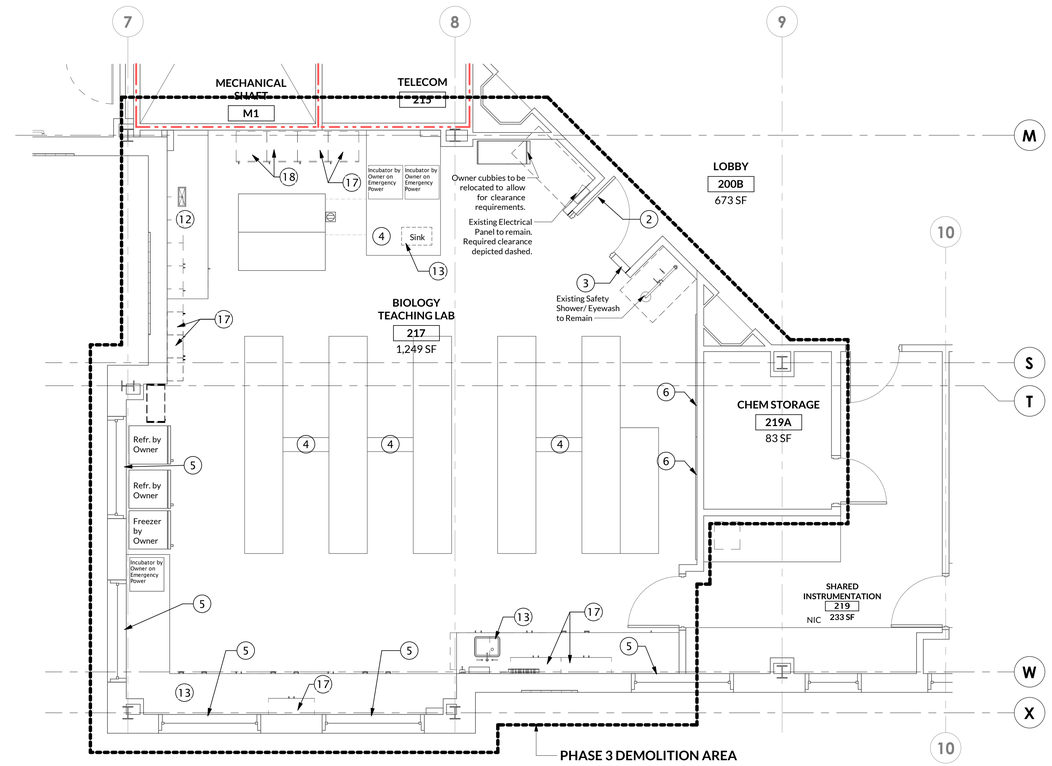


ALTERNATE 3: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

2 A102 **Level 2 - Demolition Plan Lab 210**
1/4" = 1'-0"
ALTERNATE 3



0' 2' 4' 8' 16'

1 A102 **Level 2 - Demolition Plan Lab 217**
1/4" = 1'-0"
BASE BID

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No.	Date	Description

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Project Number: 2135.03
Drawn: MTM
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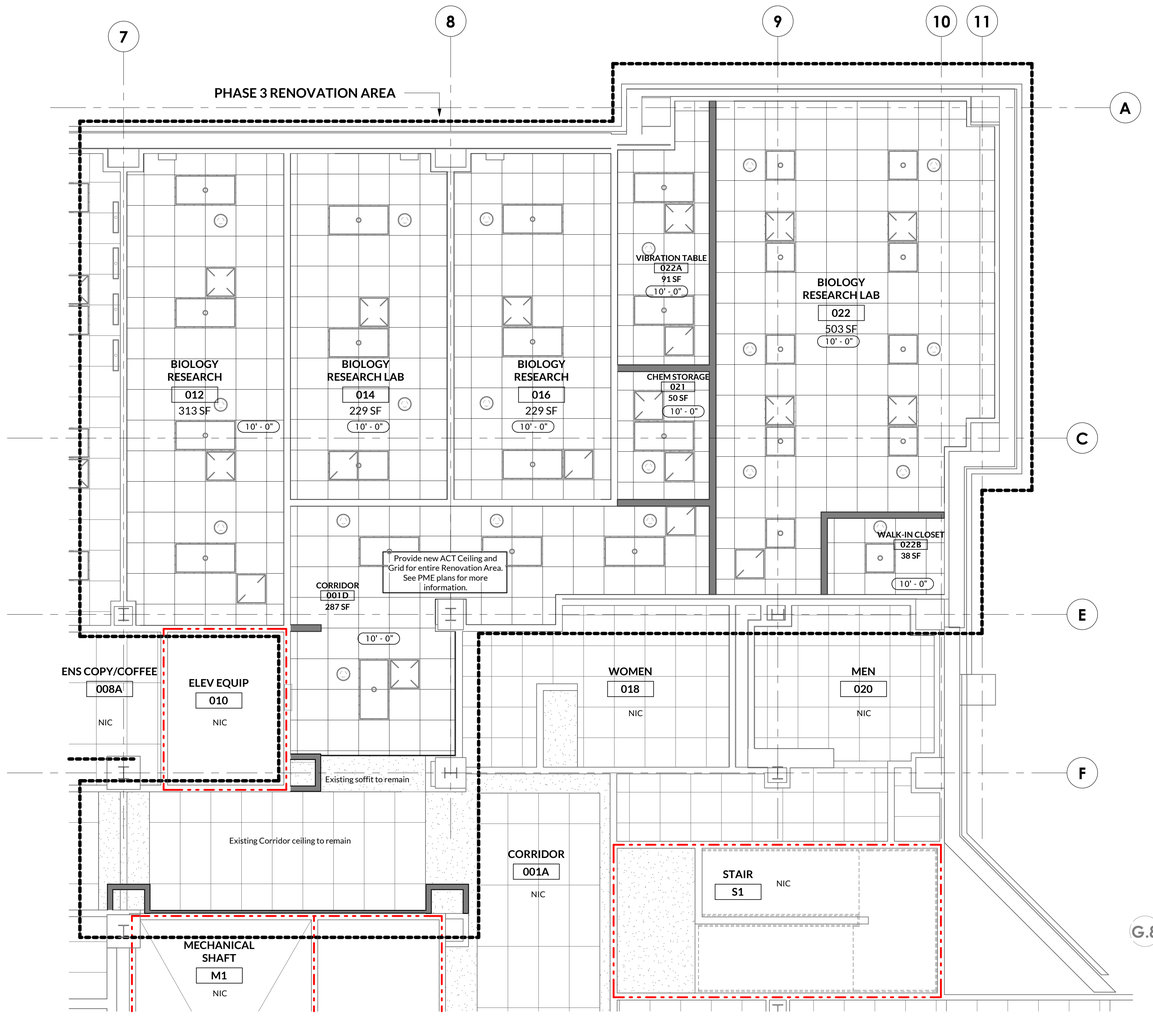
Date: 02/29/24

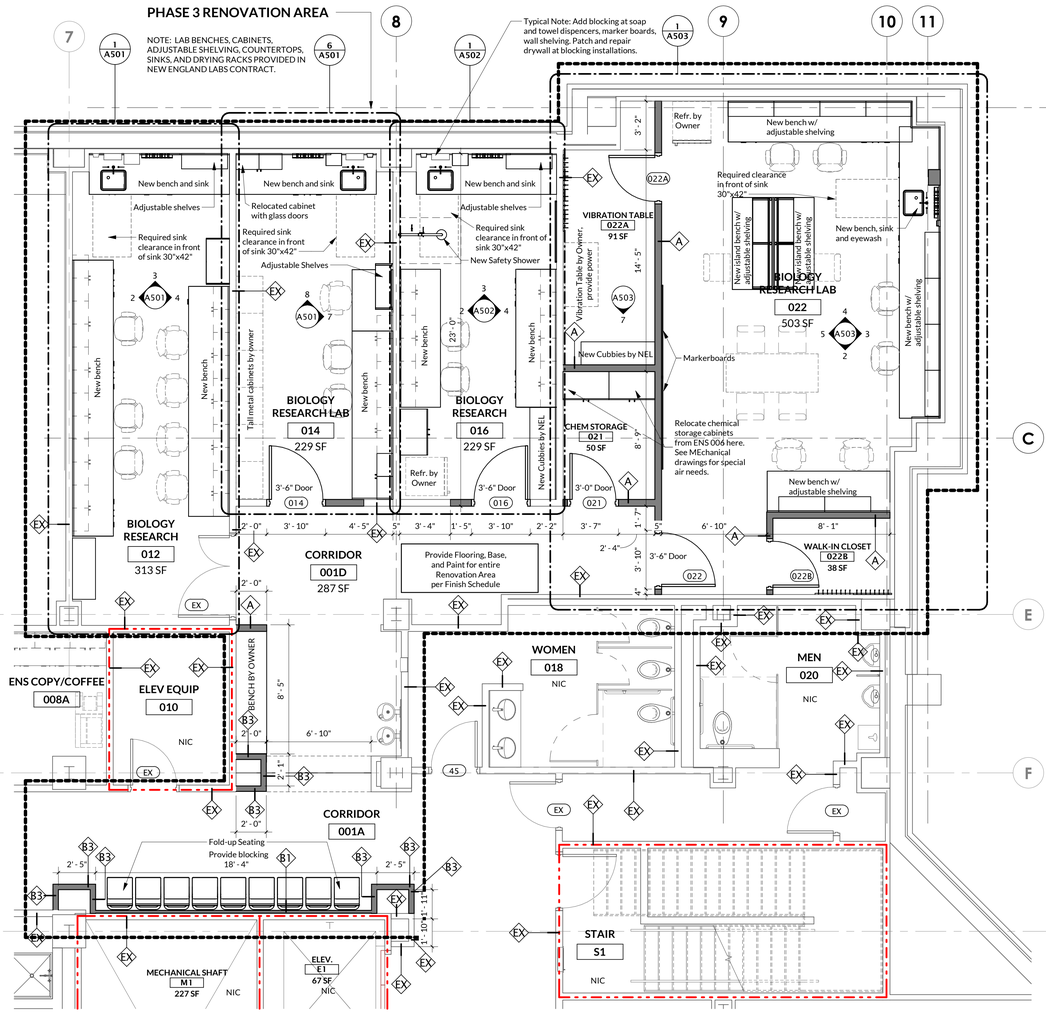
Sheet Title
LEVEL 2 - DEMOLITION PLANS AND RCPS - BASE BID AND ALTERNATE 3

Sheet Number
A102

3/11/2024 12:35:33 PM



2 A200 **Level 0 - Renovation RCP**
1/4" = 1'-0"
BASE BID



0' 2' 4' 8' 16'

1 A200 **Level 0 - Renovation Plan - Labs**
1/4" = 1'-0"
BASE BID

North

Wall Ratings Legend	
	2-HOUR RATED FIRE WALL
	SCOPE OF WORK BOUNDARY

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McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Level 0

North

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number: 2135.03
Drawn: MTM
Checked: CJN
Date: 02/29/24

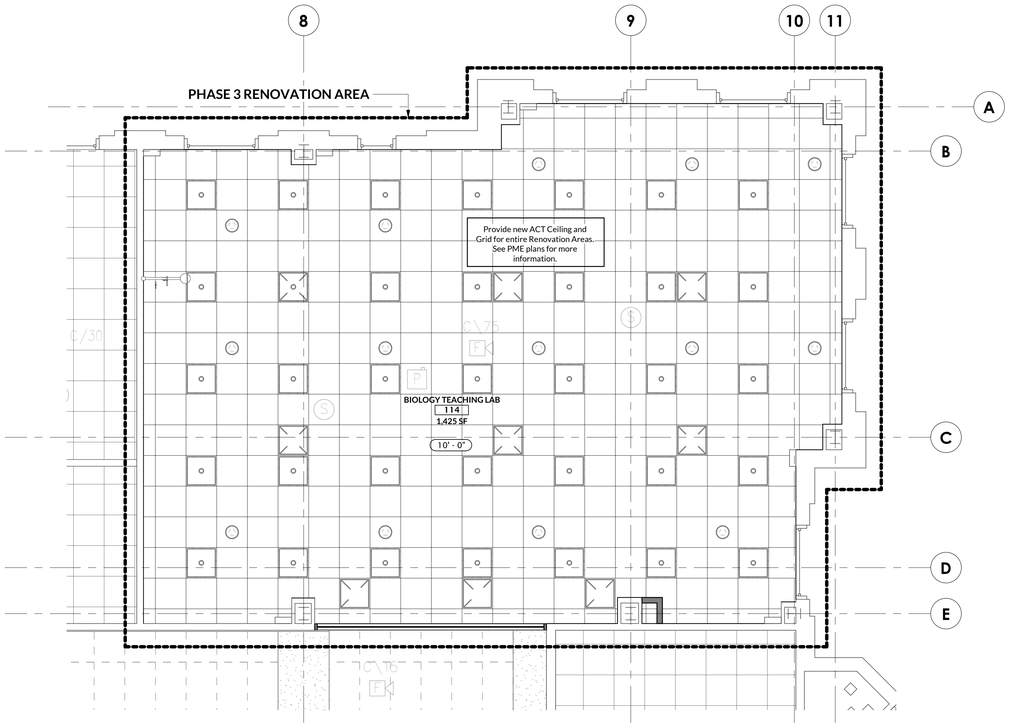
Sheet Title
LEVEL 0 - RENOVATION PLAN AND RCP - BASE BID

Sheet Number
A200

3/11/2024 12:55:37 PM

Wall Ratings Legend

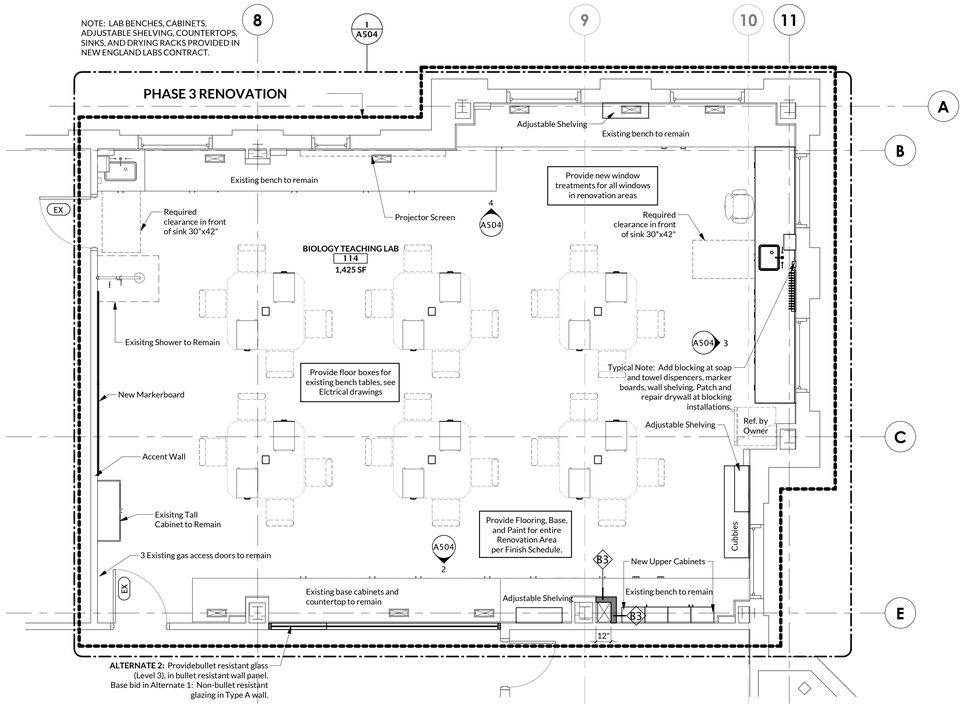
- 2-HOUR RATED FIRE WALL
- SCOPE OF WORK BOUNDARY



ALTERNATE 1: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

2 A201 **Level 1 - Renovation RCP**
1/4" = 1'-0" **ALTERNATE 1**

NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



ALTERNATE 2: Providebullet resistant glass (Level 3), in bullet resistant wall panel.
Base bid in Alternate 1: Non-bullet resistant glazing in Type A wall.

ALTERNATE 1: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

0' 2' 4' 8' 16'

1 A201 **Level 1 - Renovation Plan**
1/4" = 1'-0" **ALTERNATE 1**

North

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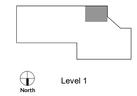
Key Plan



Revisions

No.	Date	Description

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Project Number:	2135.03
Drawn:	MTM
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Date:	02/29/24

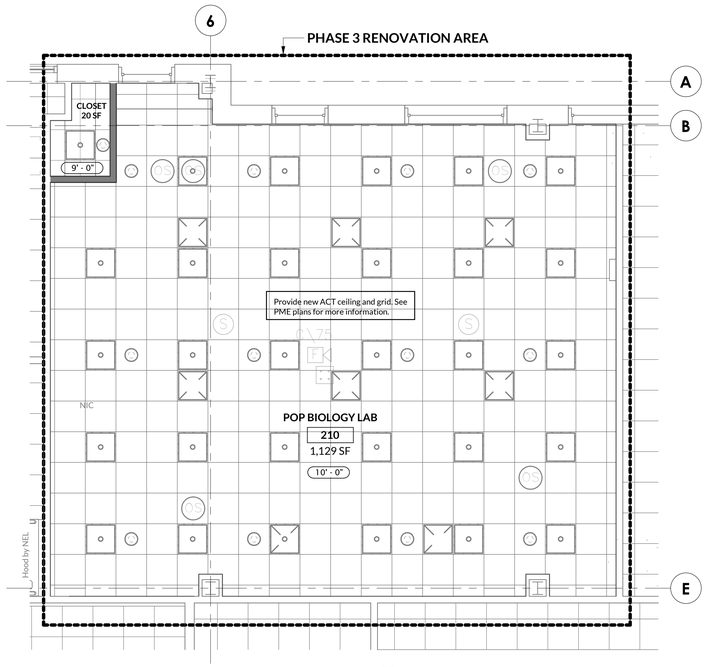
Sheet Title

LEVEL 1 - RENOVATION PLAN AND RCP - ALTERNATES 1 AND 2

Sheet Number

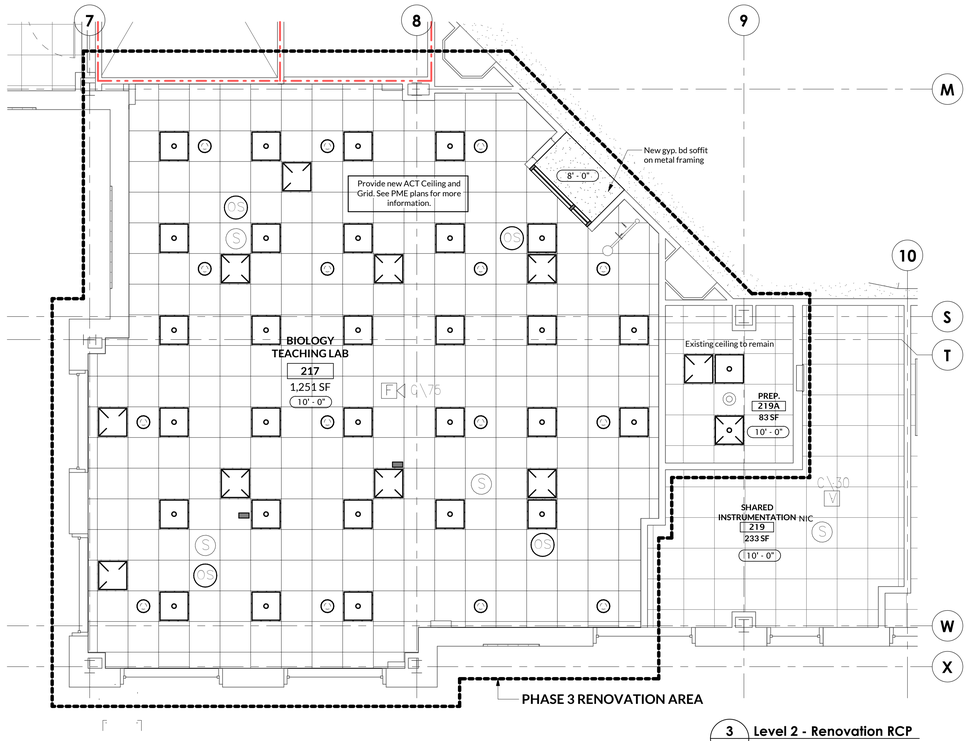
A201

3/11/2024 12:05:38 PM



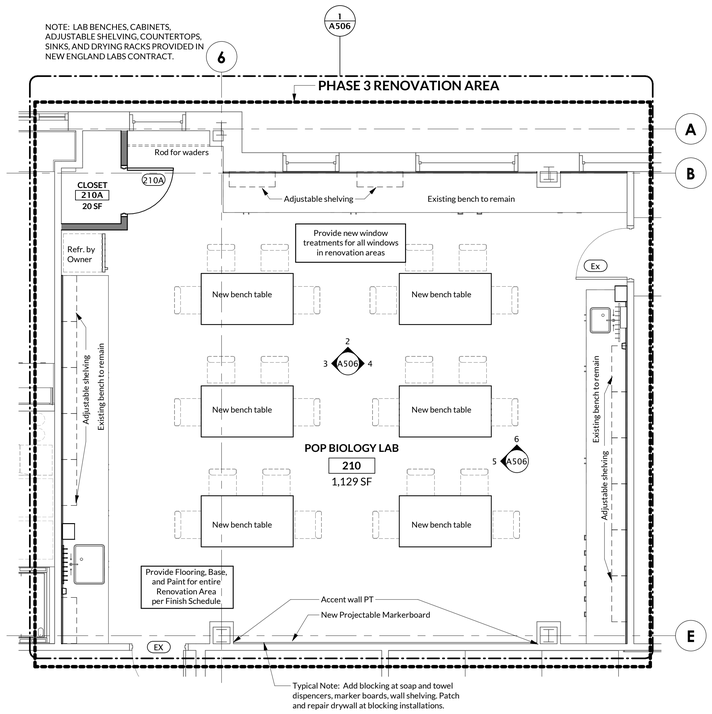
ALTERNATE 3: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

4 A202 **Level 2 - Renovation RCP - Lab 210** 1/4" = 1'-0" ALTERNATE 3



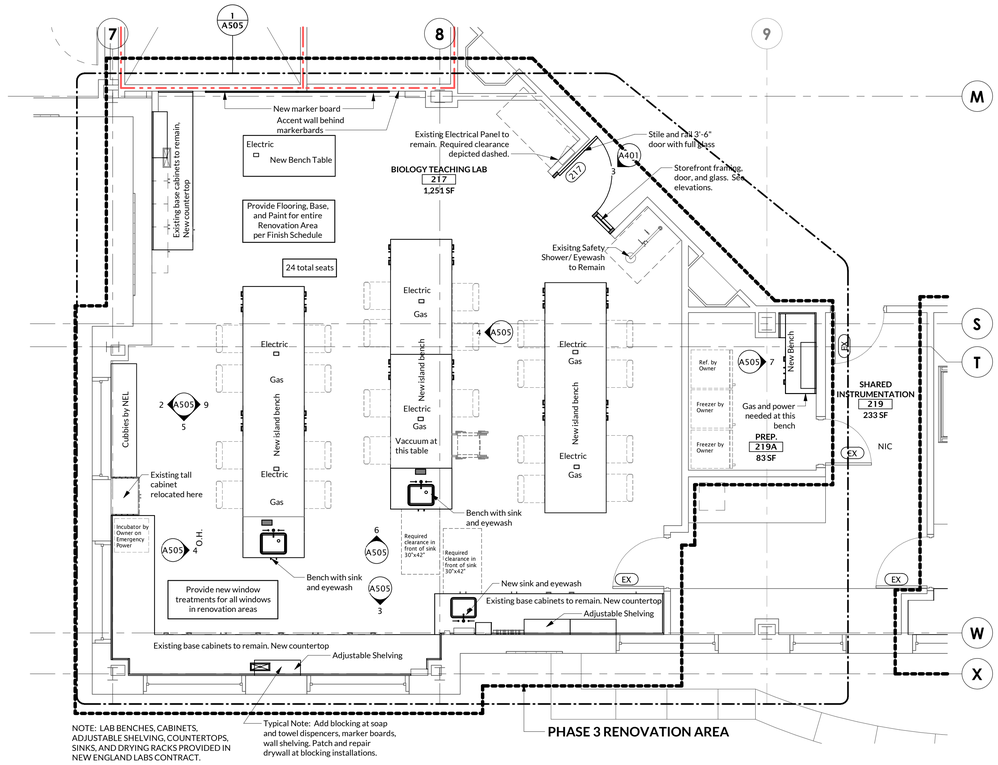
3 A202 **Level 2 - Renovation RCP** 1/4" = 1'-0" BASE BID

NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



ALTERNATE 3: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

2 A202 **Level 2 - Renovation Plan - Lab 210** 1/4" = 1'-0" ALTERNATE 3



NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.

Typical Note: Add blocking at soap and towel dispencers, marker boards, wall shelving. Patch and repair drywall at blocking installations.

0' 2' 4' 8' 16'

1 A202 **Level 2 - Renovation Plan** 1/4" = 1'-0" BASE BID North

Wall Ratings Legend

- 2-HOUR RATED FIRE WALL
- SCOPE OF WORK BOUNDARY

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Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	2135.03
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Date:	02/29/24

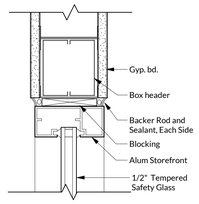
Sheet Title

LEVEL 2 - RENOVATION PLANS & RCPS - BASE BID AND ALTERNATE 3

Sheet Number

A202

3/11/2024 12:05:42 PM



6 / A401 — Storefront Head Detail at Wall
3" = 1'-0"

DOOR HARDWARE SCHEDULE

Hardware Set #: HW-2

Qty	UOM	Manf	Item Type	Item Series/Description	Finish
3	EA	HHC	Hinge	BB1279 4-1/2" x 4-1/2"	US26D
1	EA	SCH	Mortise Lockset	L9050R x 12A x 10-072	626
1	EA	LCN	Door Closer	4040XP.CUSH.689.TBSRT	689
1	EA	HHC	Floor Stop	241F	32D
3	EA	ROC	Silencer	608-RKW	Gray

Hardware Set #: HW-4

Qty	UOM	Manf	Item Type	Item Series/Description	Finish
3	EA	HHC	Hinge	BB1279 4-1/2" x 4-1/2"	US26D
1	EA	SCH	Mortise Lockset	ND80RD ATH 10-025 13-047	626
1	EA	LCN	Door Closer	4040XP.CUSH.689.TBSRT	689
1	EA	IV	Kickplate	8400 8" x 34"	US32D
1	EA	HHC	Floor Stop	241F	32D
3	EA	ROC	Silencer	608-RKW	Gray

Door and Frame Schedule

Door		Door			Frame			Fire	Hardware	
Mark	Room Name	Type	Width	Height	Type	Material	Head/Jamb	Rating	Set	Comments
014	BIOLOGY RESEARCH LAB	B	3' -6"	7' -0"	B	HM	5/A401	NR	HW-2	
016	BIOLOGY RESEARCH	B	3' -6"	7' -0"	B	HM	5/A401	NR	HW-2	
021	CHEM STORAGE	C	3' -0"	7' -0"	C	HM	5/A401	NR	HW-4	
022	BIOLOGY RESEARCH LAB	B	3' -6"	7' -0"	B	HM	5/A401	NR	HW-2	
022A	VIBRATION TABLE	C	3' -0"	7' -0"	C	HM	5/A401	NR	HW-2	
022B	WALK-IN CLOSET	C	3' -0"	7' -0"	C	HM	5/A401	NR	HW-4	
210A	CLOSET	C	3' -0"	7' -0"	C	HM	5/A401	NR	HW-4	ALTERNATE 3
217	BIOLOGY TEACHING LAB	A	3' -6"	7' -0"	A	ALUM	5/A401	NR	HW-2	

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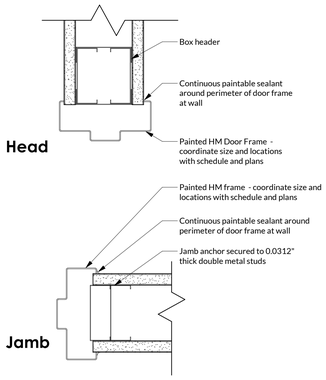
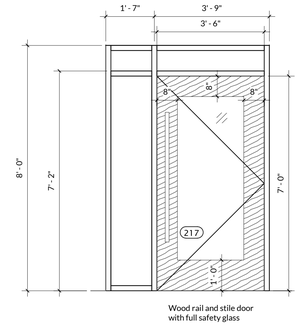
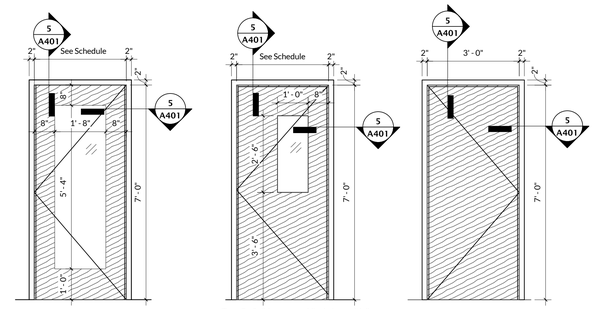


5 / A401 — Typical HM Door Head/Jamb Details
3" = 1'-0"



Wood rail and stile door with full safety glass

3 / A401 — Lab 217 Storefront Entry
1/2" = 1'-0"



Type A - Rail and stile wood door with full lite tempered safety glass.
Match existing wood and finish.
Painted hollow metal frame

Type B - Solid core wood flush door with lite tempered safety glass.
Match existing doors, wood, and finish.
Painted hollow metal frame

Type C - Solid core wood flush door
Match existing doors, wood, and finish.
Painted hollow metal frame

2 / A401 — Door and Hollow Metal Frame Types
1/2" = 1'-0"

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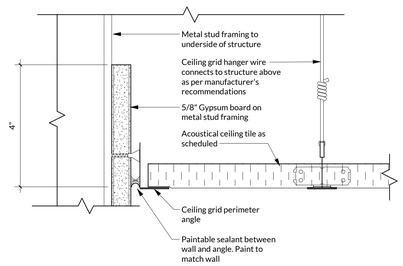
Finish Material Legend

Code	Manufacturer	Description
ACT-1	Armstrong	Optima Acoustical Ceiling Tile and Grid 24"x24"
EX	--	Existing to remain. Where damage done during construction, match existing finishes.
PT-1	Sherwin-Williams	Paint Color SW 7008 Alabaster Eggshell; General Walls
PT-2	Sherwin-Williams	Paint Color SW 7658 Gray Clouds Semi-gloss; HM Frames
PT-3	Sherwin-Williams	Paint Color SW 6492 Jetstream; Accent Color - See Plans for Location
PT-4	Sherwin-Williams	Paint Color SW 6711 Parakeet; Accent Color - See Plans for Location
PT-5	Sherwin-Williams	Paint Color SW6491 Open Air; Accent Color - See Plans for Location
PT-6	Sherwin-Williams	Paint Color TBD; Accent Color - See Plans for Location
PT-7	Sherwin-Williams	Paint Color TBD; Accent Color - See Plans for Location
PT-8	Sherwin-Williams	Paint Color SW 9142 Moscow Midnight; Accent Color - See Plans for Location
PT-9	Sherwin-Williams	Paint: Ceiling White
PT-X	Sherwin-Williams	Paint Color TBD; Accent Color - See Plans for Location
RB-1	Roppe	4" Continuous Rubber Base, color: 123 charcoal
RBF-1	Mondo Flooring	Rubber Flooring Sheet Goods, Massetto; color: S05 Cement. Use flash cove base in Chem. Stor. 021

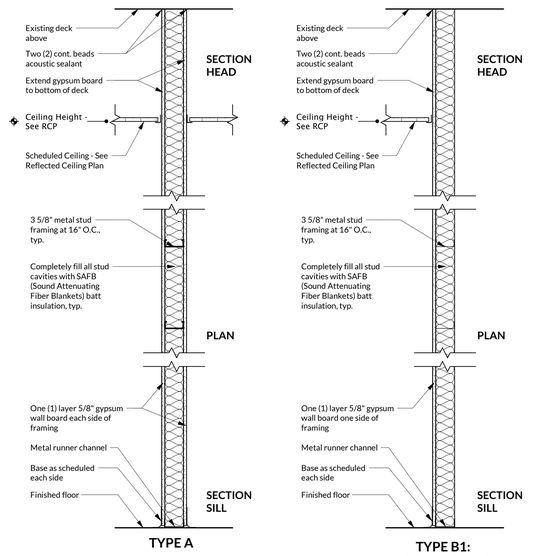
NOTE: NORTH IS DOWN ON THE PLANS

Room Finish Schedule

Room				Walls					
No.	Name	Floor	Base	North	East	South	West	Ceiling	Comments
001D	CORRIDOR	EX	EX	PT1	PT1	PT1	PT1	ACT1	
012	BIOLOGY RESEARCH	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
014	BIOLOGY RESEARCH LAB	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
016	BIOLOGY RESEARCH	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
021	CHEM STORAGE	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
022	BIOLOGY RESEARCH LAB	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
022A	VIBRATION TABLE	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
022B	WALK-IN CLOSET	RBF-1	RBF-1	PT1	PT1	PT1	PT1	ACT1	
114	BIOLOGY TEACHING LAB	RBF-1	RBF-1	PT1	PTX	PT1	PT1	ACT1	
210	POP BIOLOGY LAB	RBF-1	RBF-1	PTX	PT1	PT1	PT1	ACT1	
217	BIOLOGY TEACHING LAB	RBF-1	RBF-1	PT1	PT1	PTX	PT1	ACT1	
219A	PREP.	EX	EX	PT1	PT1	PT1	PT1	EX	



4 / A401 — Typical Ceiling Perimeter Detail
6" = 1'-0"



1 / A401 — Wall Types
1" = 1'-0"

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

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Project Number:	2135.03
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Sheet Title

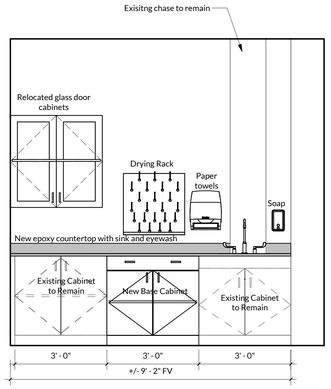
WALL TYPES, DOOR SCHEDULE AND ELEVATIONS

Sheet Number

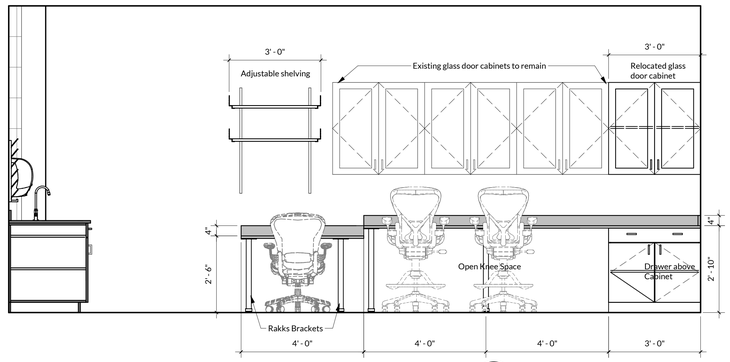
A401

3/11/2024 12:05:45 PM

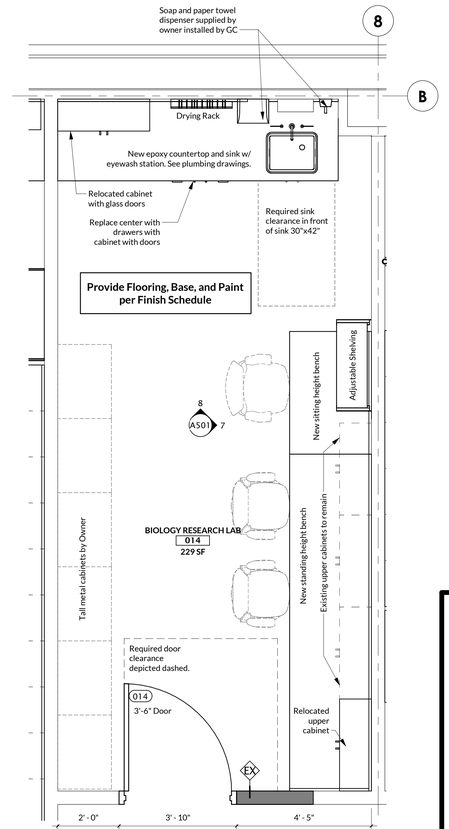
9 A501 **Biology Lab 014 - 3D View**



8 A501 **Biology Lab 014 - South Elev.** 1/2" = 1'-0"

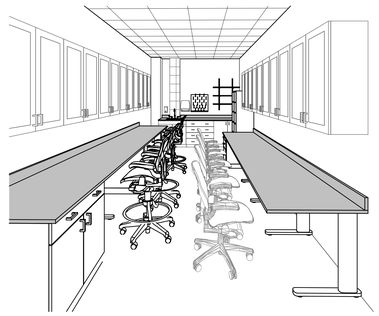


7 A501 **Biology Lab 014 - West Elev.** 1/2" = 1'-0"

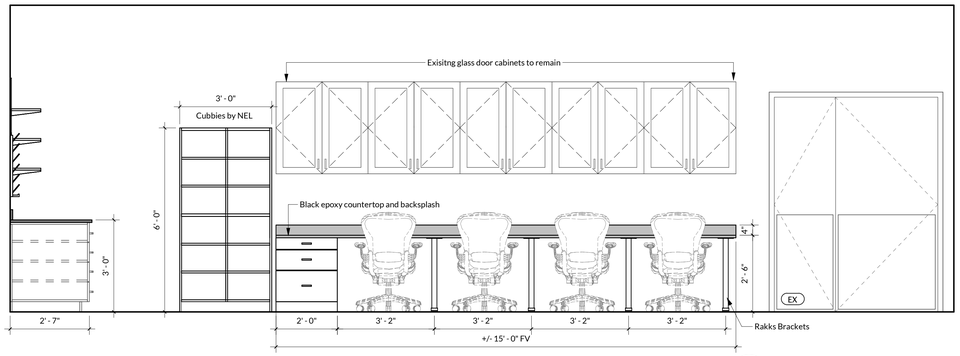


6 A501 **Biology Research Lab 014 - Enlarged Plan** 1/2" = 1'-0"

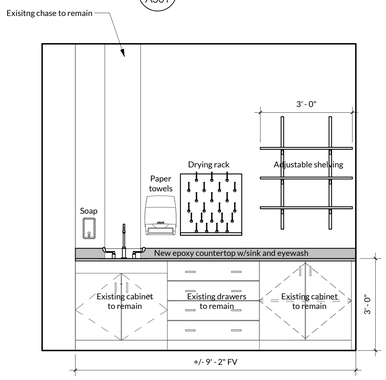
NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



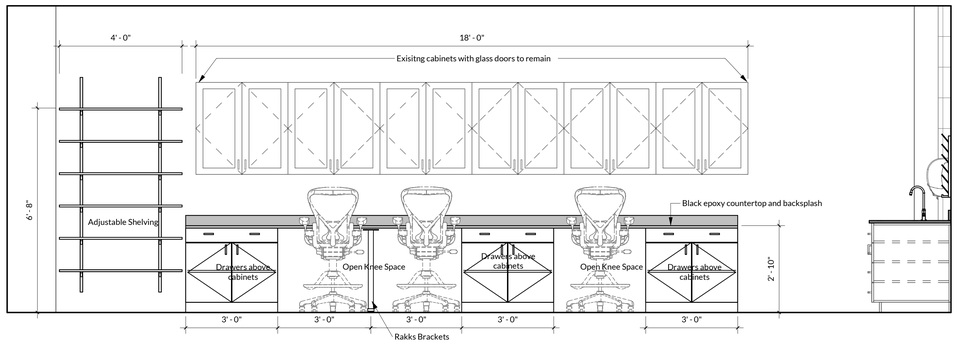
5 A501 **Biology Lab 012 - 3D View**



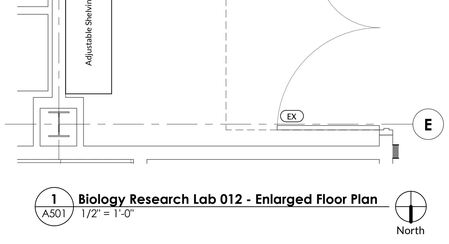
4 A501 **Biology Lab 012 - West Elev.** 1/2" = 1'-0"

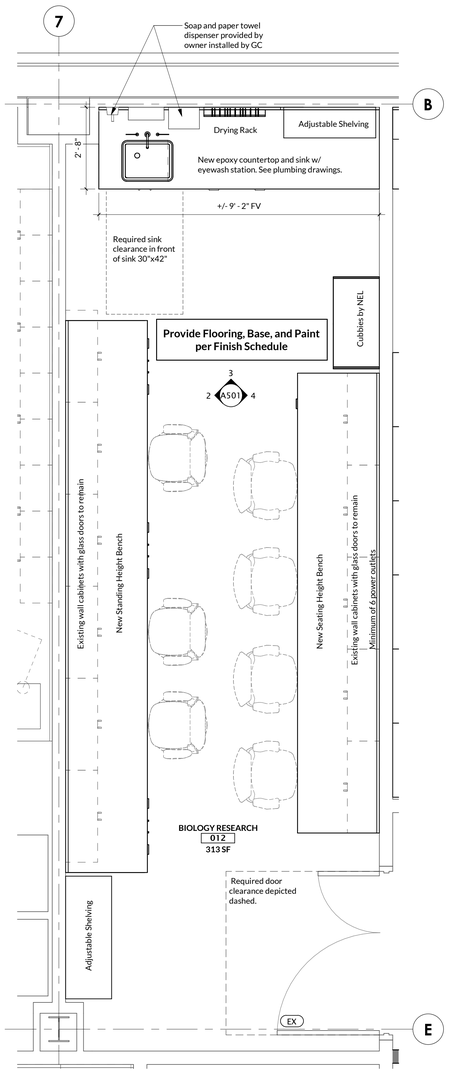


3 A501 **Biology Lab 012 - South Elev.** 1/2" = 1'-0"



2 A501 **Biology Lab 012 - East Elev.** 1/2" = 1'-0"





1 A501 **Biology Research Lab 012 - Enlarged Floor Plan** 1/2" = 1'-0"

North

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McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

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Project Number:	2135.03
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Sheet Title

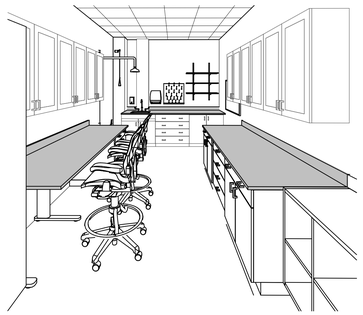
LAB BENCHES - BIOLOGY RESEARCH LABS 012 & 014

Sheet Number

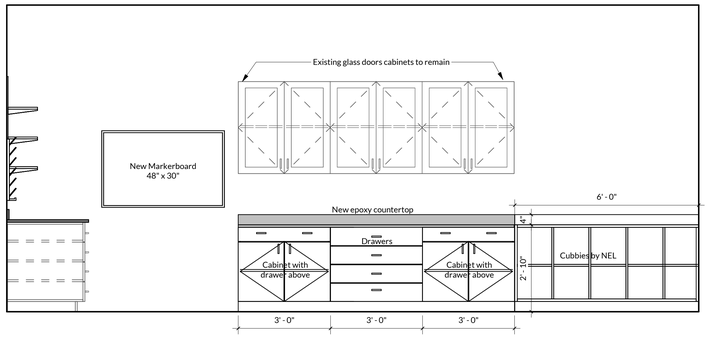
A501

3/11/2024 12:05:49 PM

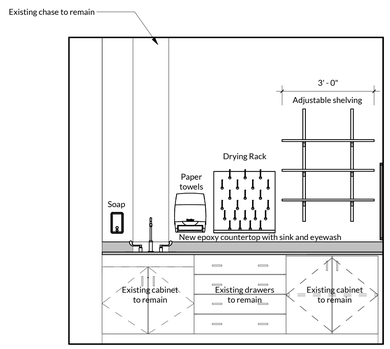
NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



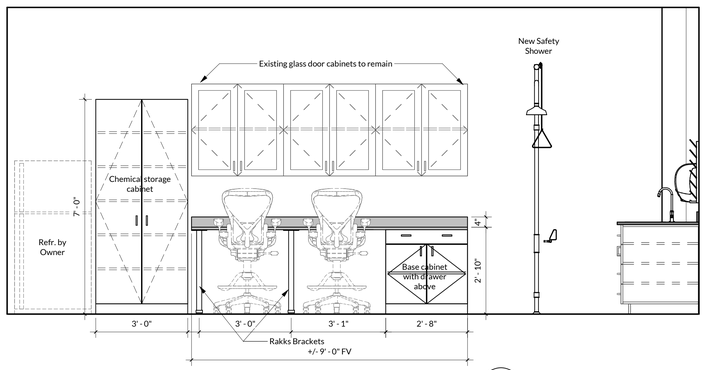
5 A502 **Biology Lab 016 - 3D View**



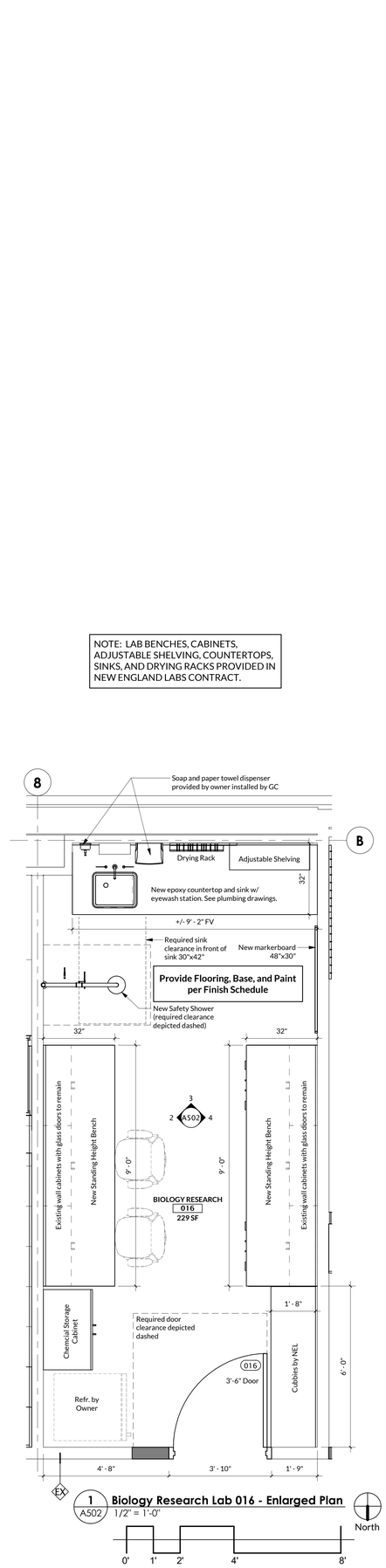
4 A502 **Biology Lab 016 - West Elev.**
1/2" = 1'-0"



3 A502 **Biology Lab 016 - South Elev.**
1/2" = 1'-0"



2 A502 **Biology Lab 016 - East Elev.**
1/2" = 1'-0"



1 A502 **Biology Research Lab 016 - Enlarged Plan**
1/2" = 1'-0"

North

0' 1' 2' 4' 8'

3/13/2024 12:05:12 PM

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DURHAM
3.27.24

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Key Plan

North

Level 0

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number: 2135.03
Drawn: MTM
Checked: CJN
Date: 02/29/24

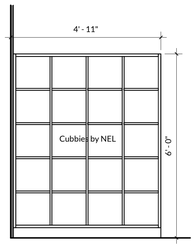
Sheet Title

LAB BENCHES - BIOLOGY RESEARCH LAB 016

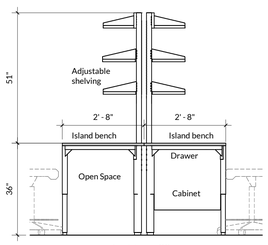
Sheet Number

A502

8 A503 **Biology Lab 022 - 3D View**

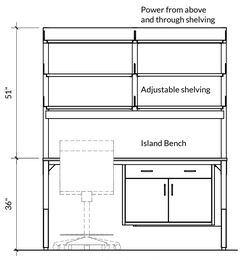


7 A503 **Cubby Elevation**
1/2" = 1'-0"



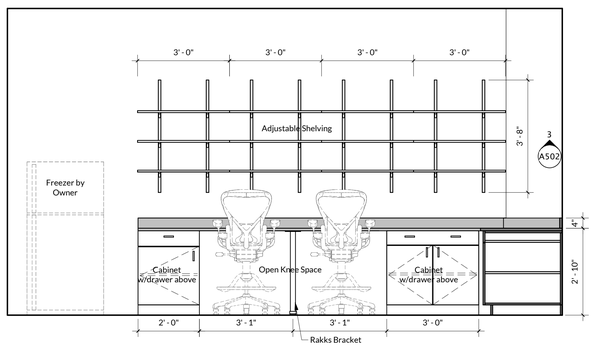
Electrical by GC.

6 A503 **Island Bench Typical Elevation**
1/2" = 1'-0"

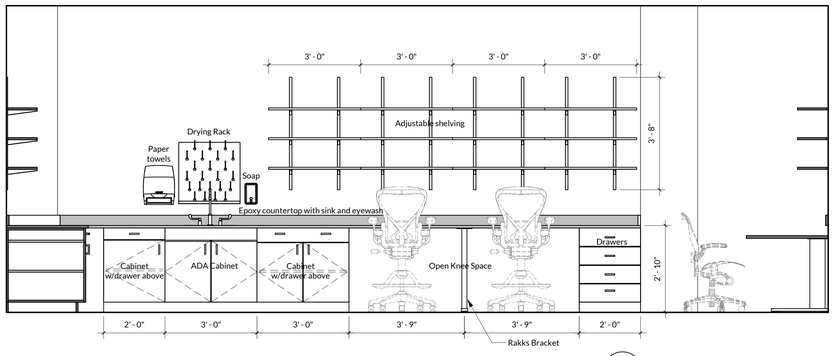


Electrical by GC.

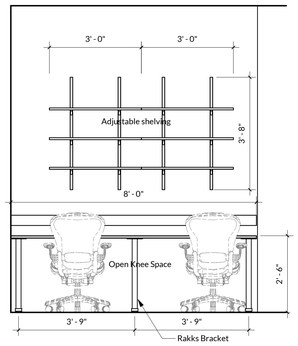
5 A503 **Island Bench Side Elevation**
1/2" = 1'-0"



4 A503 **Biology Lab 022 - South Elev.**
1/2" = 1'-0"

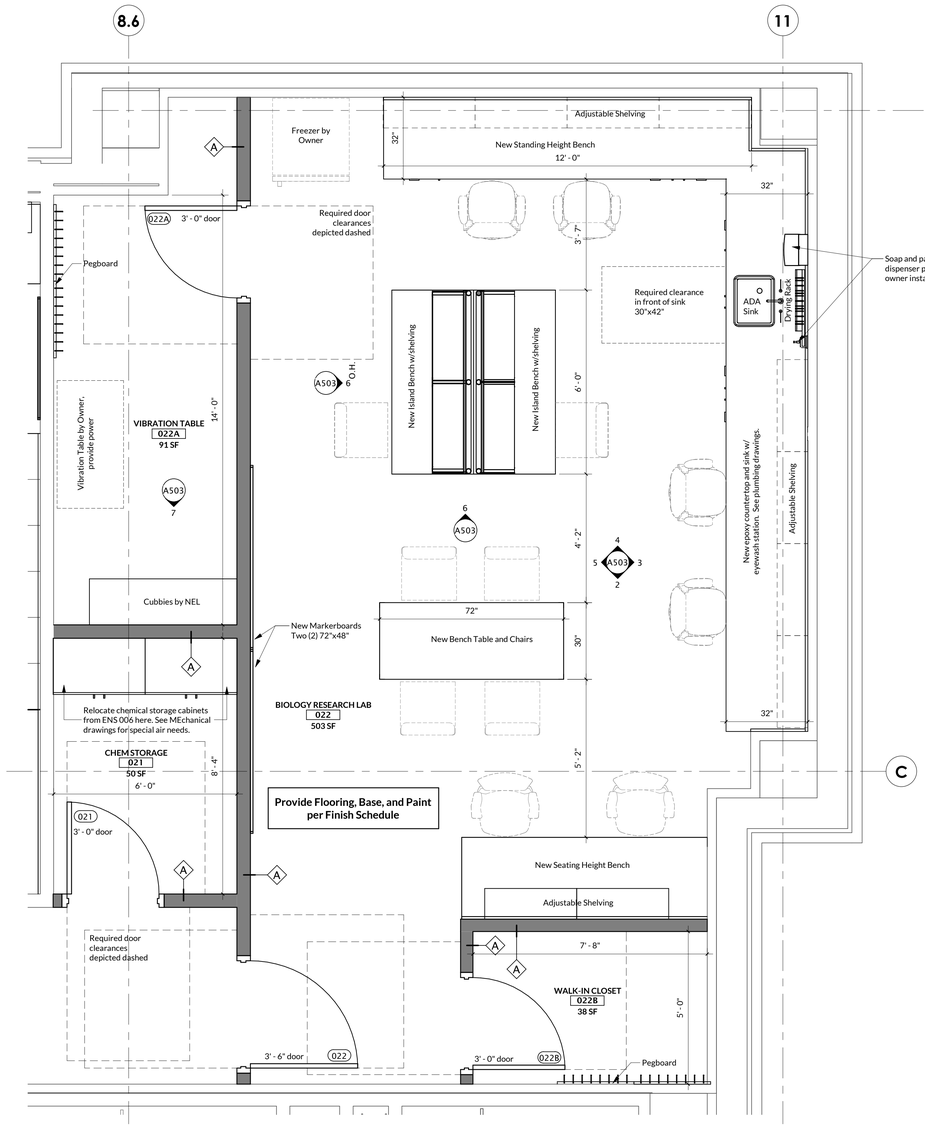


3 A503 **Biology Lab 022 - West Elev.**
1/2" = 1'-0"



2 A503 **Biology Lab 022 - North Elev.**
1/2" = 1'-0"

NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



1 A503 **Biology Research Lab 022 - Enlarged Plan**
1/2" = 1'-0"

North

0' 1' 2' 4' 8'

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Key Plan

North

Level 0

Revisions

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Project Number:	2135.03
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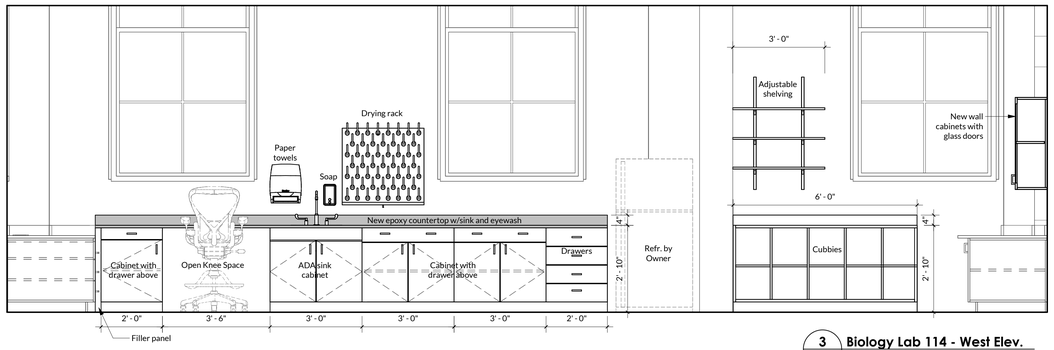
Sheet Title

LAB BENCHES - BIOLOGY RESEARCH LAB 022

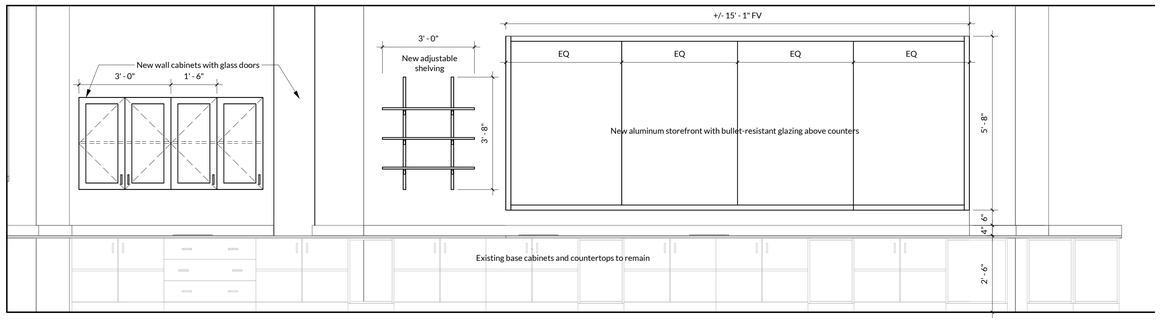
Sheet Number

A503

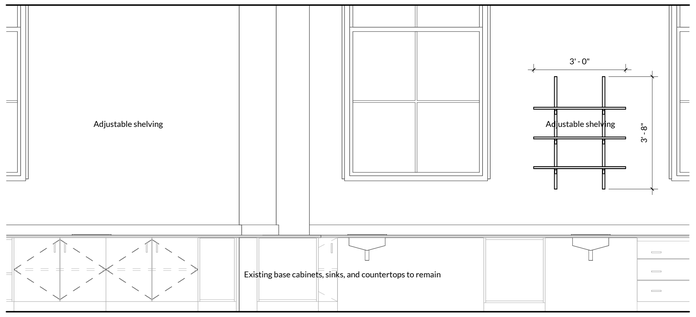
3/11/2024 12:05:56 PM



3 / A504 Biology Lab 114 - West Elev.
1/2" = 1'-0"



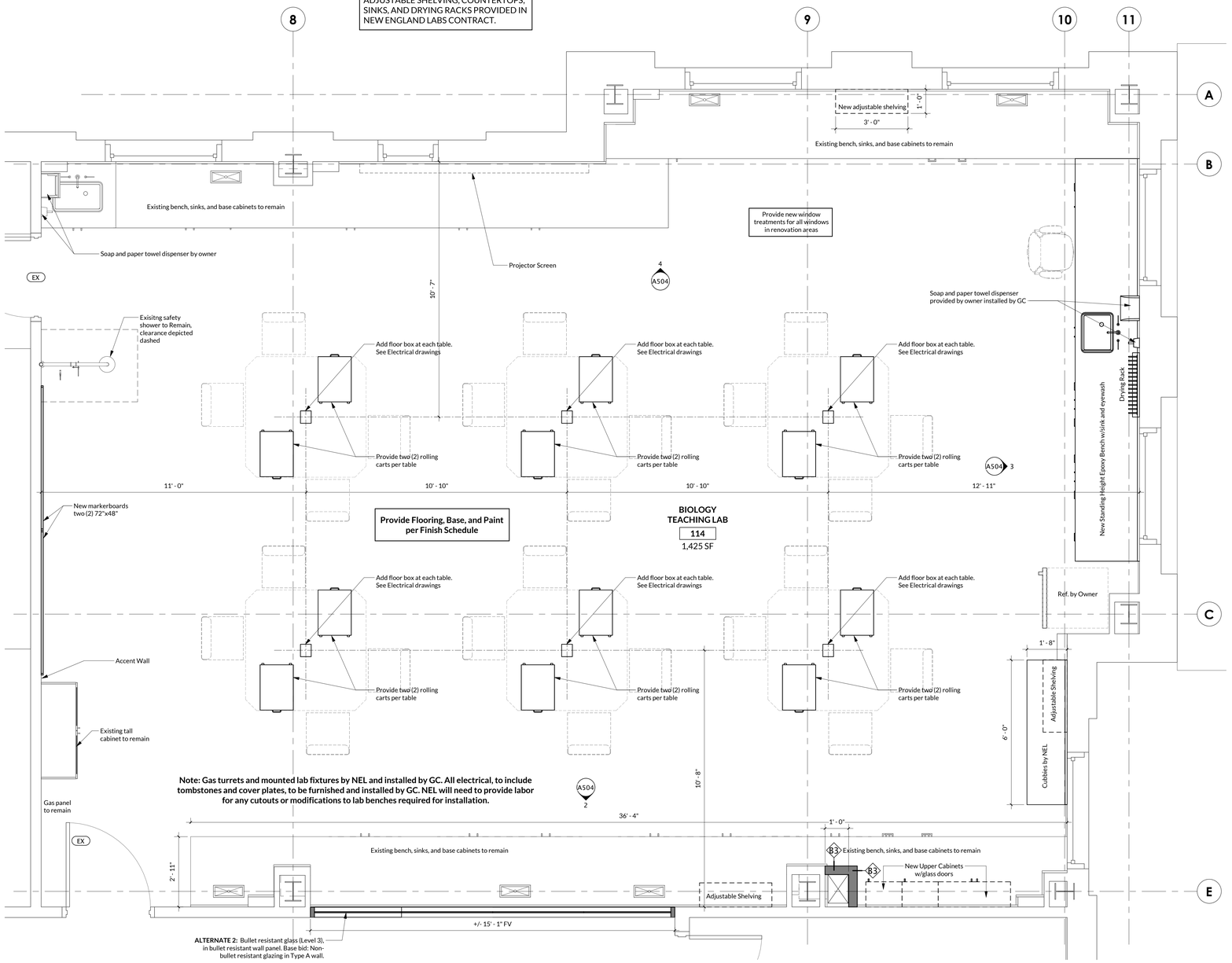
2 / A504 Biology Teaching Lab 114 - North Elev
1/2" = 1'-0"



4 / A504 Biology Teaching Lab 114 - South Elev.
1/2" = 1'-0"

5 / A504 Biology Teaching Lab 114 - 3D View

NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



1 / A504 Biology Teaching Lab 114 - Enlarged Plan
1/2" = 1'-0"
ALTERNATE 1 & 2

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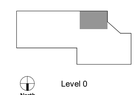
Key Plan



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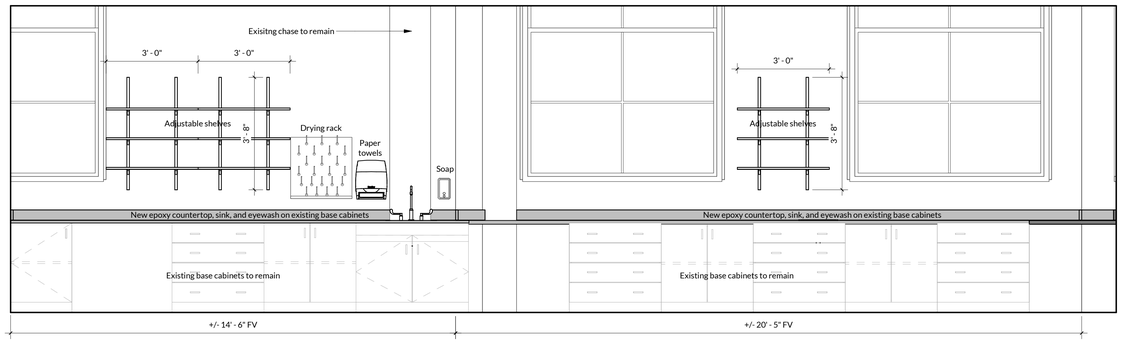
Sheet Title

LAB BENCHES - BIOLOGY TEACHING LAB 114 - ALTERNATES 1 AND 2

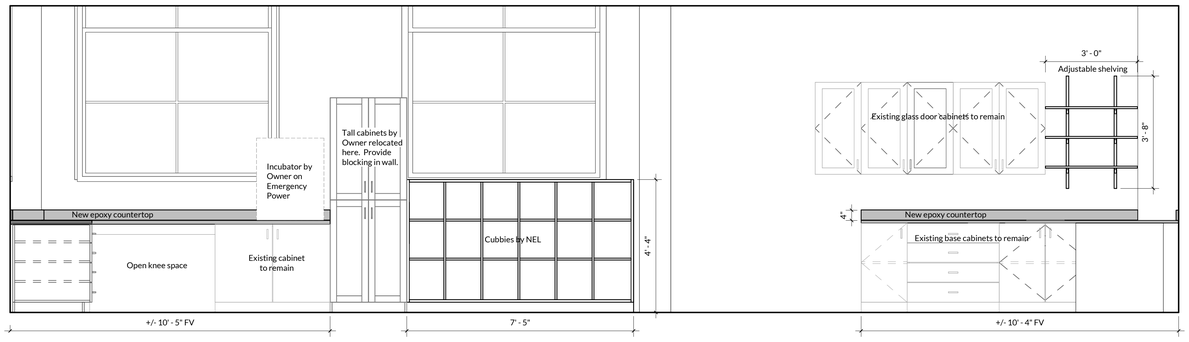
Sheet Number

A504

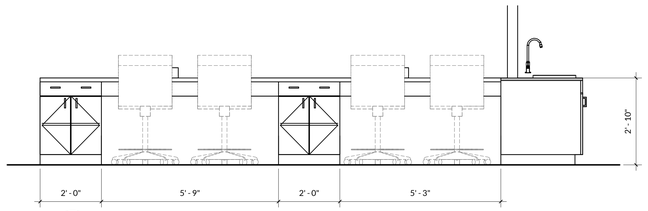
3/11/2024 12:55:59 PM



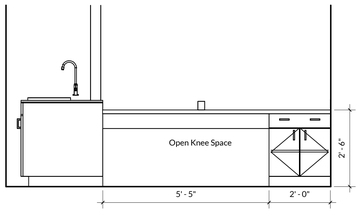
3 A505 Biology Teaching Lab 217 - North Elev.
1/2" = 1'-0"



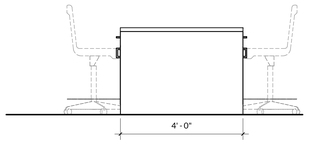
2 A505 Biology Teaching Lab 217 - East Elev.
1/2" = 1'-0"



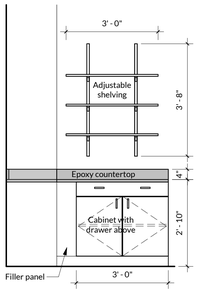
9 A505 Biology Teaching Lab 217 - Table Bench Side Elev.
1/2" = 1'-0"



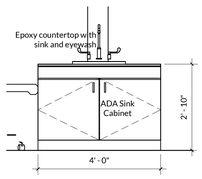
4 A505 Biology Teaching Lab 217 - ADA Table Bench Elev.
1/2" = 1'-0"



5 A505 Biology Teaching Lab 217 - Table Bench End Elev.
1/2" = 1'-0"

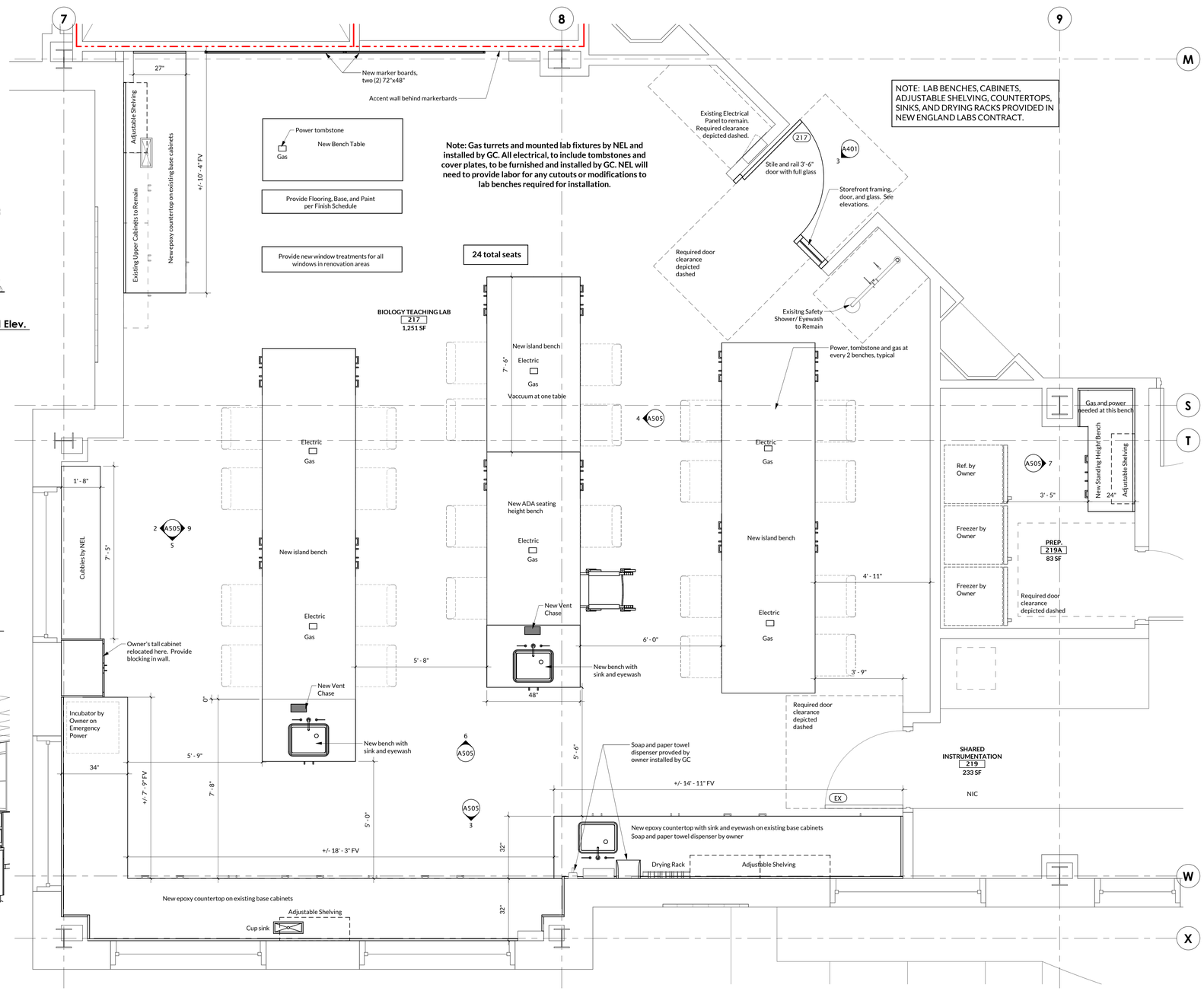


7 A505 Prep Room 219A - West Elev.
1/2" = 1'-0"



6 A505 Biology Teaching Lab 217 - Island Sink
1/2" = 1'-0"

8 A505 Biology Teaching Lab 217 - 3D View



1 A505 Biology Teaching Lab 217 - Enlarged Plan
1/2" = 1'-0"

0' 1' 2' 4' 8'

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Key Plan

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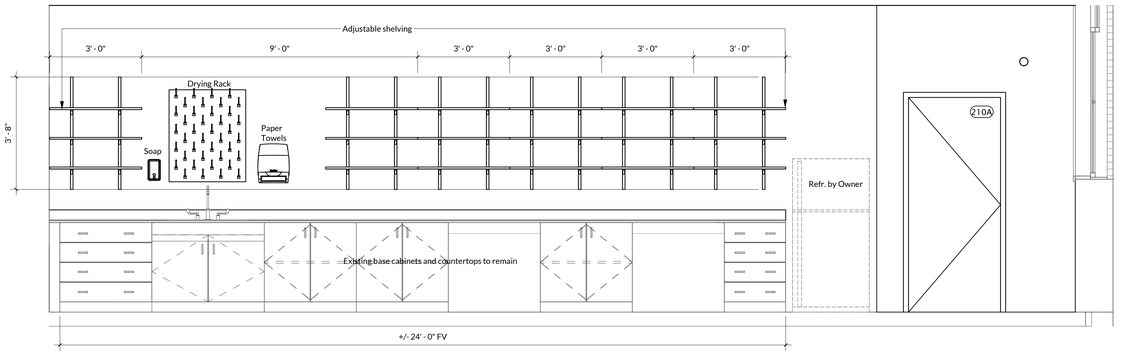
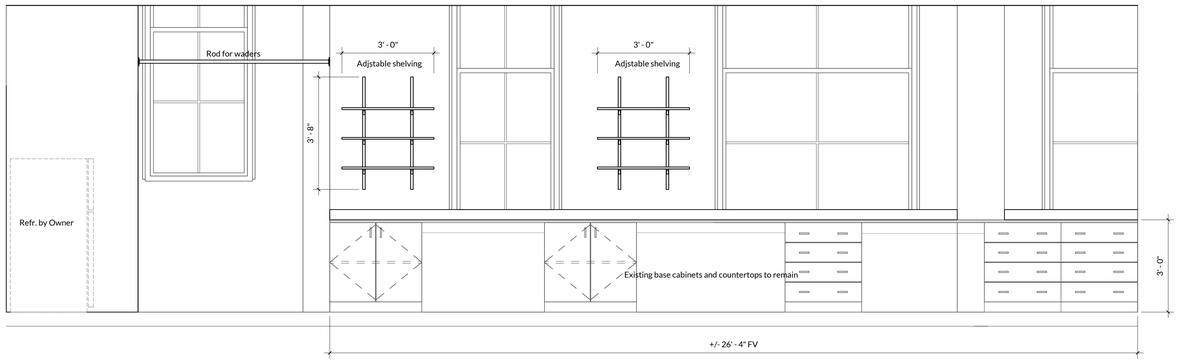
Sheet Title
LAB BENCHES - BIOLOGY TEACHING LAB 217

Sheet Number
A505

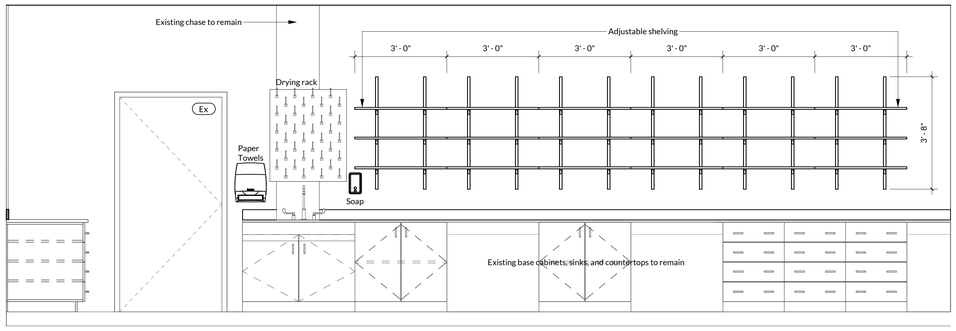
3/11/2024 12:06:03 PM



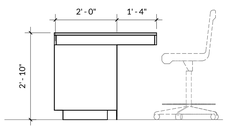
3 A506 Biology Lab 210 - West Elev.
1/2" = 1'-0"



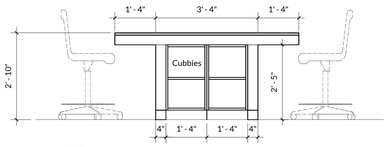
2 A506 Biology Lab 210 - North Elev.
1/2" = 1'-0"



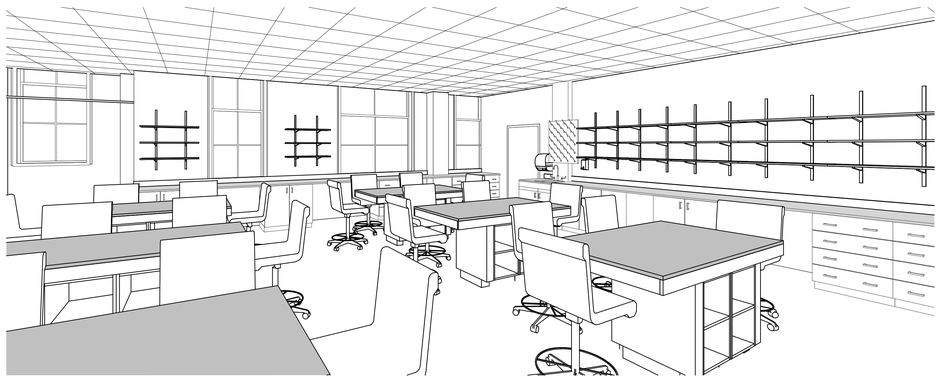
4 A506 Biology Lab 210 - East Elev.
1/2" = 1'-0"



5 A506 Lab 210 Table Bench - Side Elevation
1/2" = 1'-0"

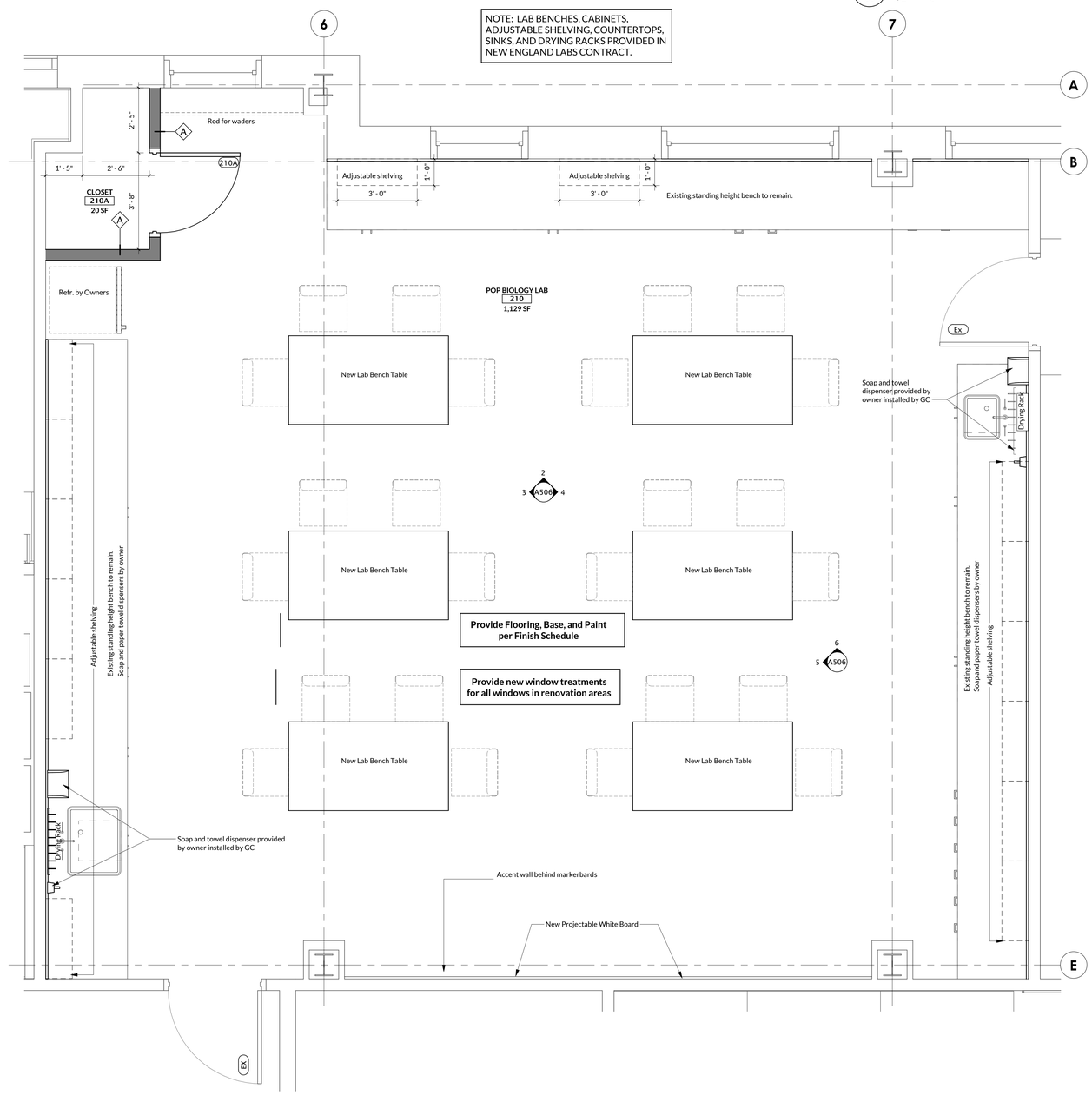


6 A506 Lab 210 Table Bench - Front Elevation
1/2" = 1'-0"



7 A506 Biology Lab 210 3D View

NOTE: LAB BENCHES, CABINETS, ADJUSTABLE SHELVING, COUNTERTOPS, SINKS, AND DRYING RACKS PROVIDED IN NEW ENGLAND LABS CONTRACT.



ALTERNATE 3: PROVIDE WORK IN THIS AREA.
BASE BID: NO WORK IN THIS AREA

0' 1' 2' 4' 8'

1 A506 Pop Biology Lab 210 - Enlarged Plan
1/2" = 1'-0"
ALTERNATE 3

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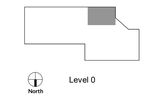
Key Plan



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Sheet Title
LAB BENCHES - BIOLOGY TEACHING LAB 210 - ALTERNATE 3

Sheet Number
A506

3/11/2024 12:06:06 PM

FIXTURE SCHEDULE

SYMBOL	FIXTURE	CW	HW	WASTE	REMARKS
P-1	LAB SINK W/EYEWASH	1/2"	1/2"	1 1/2"	PROVIDE ROUGH-IN AND CONNECTIONS ONLY
P-2	EYEWASH/EMERGENCY SHOWER	1 1/4"	–	–	PROVIDE ROUGH-IN AND CONNECTIONS ONLY
P-3	LAB SINK	1/2"	1/2"	1 1/2"	PROVIDE ROUGH-IN AND CONNECTIONS ONLY

GENERAL PLUMBING NOTES:

1. OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS.
2. DO NOT SCALE DRAWING. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT. DRAWINGS ARE DIAGRAMMATIC. ALL INSTALLED PIPING SHALL BE COORDINATED WITH EXISTING STRUCTURE AND EQUIPMENT IN FIELD.
3. ALL WATER AND VENT PIPING SHALL BE INSTALLED ABOVE CEILING OR IN CHASE WALLS U.N.O.
4. ALL WASTE PIPING SHALL BE INSTALLED BELOW SLAB/FLOOR, OR ABOVE CEILING AS NOTED ON PLANS.
5. COORDINATE ALL WASTE, VENT, WATER, AND GAS PIPING WITH OTHER TRADES PRIOR TO INSTALLATION. OFFSET LINES AS NEEDED TO AVOID CONFLICTS.
6. SET FLOOR DRAINS WITH LIP SET ½" BELOW FINISHED FLOOR ELEVATION. COORDINATE FLOOR DRAINS AND CLEANOUTS IN MECHANICAL AREAS WITH OTHER TRADES.
7. PROVIDE ALL OFFSETS IN PIPING AS REQUIRED TO AVOID STRUCTURE AND MECHANICAL EQUIPMENT ABOVE CEILING.
8. ALL PLUMBING PIPING SHALL REMAIN CAPPED DURING ROUGH-IN INSTALLATIONS.
9. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE, LOCAL CODES, PLANS, AND THE PROJECT SPECIFICATIONS. THIS WORK SHALL INCLUDE CLEANOUTS, AND VACUUM BREAKERS REQUIRED FOR A COMPLETE OPERATIONAL PLUMBING SYSTEM.
10. ALL PIPING PENETRATIONS THROUGH FIRE RATED FLOORS OR PARTITIONS/WALLS SHALL BE SEALED IN ACCORDANCE WITH THE PROPER UL LISTED SYSTEMS. ALL PENETRATIONS THROUGH NON-RATED WALLS SHALL BE SEALED TO PREVENT SOUND TRANSFER USING CAULK OR SHEETROCK MUD.
11. THE LOCATION OF BALL VALVES SHALL BE COORDINATED WITH OTHER TRADES. VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION WITHIN 24" ABOVE CEILING.
12. SEE RISER DIAGRAMS FOR ADDITIONAL INFORMATION NOT SHOWN ON FLOOR PLANS.
13. ALL ABOVE CEILING PLUMBING PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE WHERE POSSIBLE. ALL NECESSARY CHANGES IN ELEVATIONS OF PIPING NOT SHOWN SHALL BE PROVIDED AS PART OF THIS CONTRACT DUE TO FIELD COORDINATION WITH OTHER TRADES WITHOUT ADDITIONAL CHARGES TO THE OWNER.
14. ALL PLUMBING WATER PIPING INSTALLED IN OR PENETRATING BLOCK WALLS SHALL BE INSULATED WITH MINIMUM 1/2" ARMACELL ELASTOMERIC THERMAL TYPE INSULATION. NO POLYOLEFIN/POLYETHYLENE THERMAL INSULATION WILL BE ACCEPTED. FOR ALL FLUSH VALVE SUPPLY PENETRATIONS PIPE SHALL BE SLEEVED COPPER SLEEVE OR ACCEPTABLE PLASTIC PIPE SLEEVE.
15. ALL WATER PIPING BRANCH CONNECTIONS SHALL CONNECT ON TOP OF PIPE WITH TEE AND ELBOW. IF SPACE DOES NOT ALLOW THEN BRANCH LINES CAN CONNECT TO SIDE OR COME OF BOTTOM OF PIPE.
16. IN THE EVENT THE CONTRACTOR CHOOSES TO USE PRODUCTS OTHER THAN THE BASIS OF DESIGN. HE ASSUMES FULL RESPONSIBILITY FOR COORDINATION AND INTEGRATION OF SUCH ITEMS. THE FUNCTIONAL DESIGN INTEGRITY OF ALL SYSTEMS AND COMPONENTS SHALL BE MAINTAINED. VOLTAGES, LOADS, WIRE SIZES AND QUANTITIES, DISCONNECT SWITCHES AND FUSE SIZES, PHYSICAL SIZE, LOCATIONS, CLEARANCES, ETC. SHALL BE FULLY COORDINATED BY THE CONTRACTOR AND SHALL BE HIS RESPONSIBILITY. ANY ADDITIONAL COST RESULTING FROM SAID SUBSTITUTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

GENERAL PLUMBING DEMOLITION NOTES:

1. ALL PIPING AND FIXTURES ARE TO REMAIN UNLESS NOTED FOR DEMOLITION OR INCLUDED WITHIN DEMOLITION HATCH AREAS. ALL EXISTING PIPING AND FIXTURES TO REMAIN SHALL BE PROTECTED FROM DEMOLITION OR RENOVATION WORK.
2. NO EXISTING PIPING SHALL BE LEFT OPEN AFTER PARTIAL REMOVAL. PIPES SHALL BE CAPPED OR EITHER MADE READY FOR CONNECTION TO NEW WORK.
3. VERIFY THAT ALL EXISTING FLOOR PENETRATIONS (ABOVE & BELOW) ARE PROPERLY FIRE STOPPED AFTER THE DEMO. THE G.C. SHALL FIRE STOP ALL EXISTING PENETRATIONS EXCEPT OPENINGS LEFT BY THE REMOVAL OF P, M & E PIPES, DUCT, ETC. PM & E CONTRACTORS SHALL FIRE STOP ALL THESE PENETRATIONS. NEW PENETRATIONS TO BE FIRE STOPPED BY RESPECTIVE TRADES.
4. FIELD VERIFY ALL EXISTING PIPE LOCATIONS, SIZES, AND INVERTS. THIS IS TO INCLUDE ALL COLD, HOT, HOT WATER RETURN PIPING, DRAIN WASTE AND VENT PIPING AND LAB GAS. REVIEW ALL NEW WORK PLANS THOROUGHLY PRIOR TO STARTING DEMOLITION.
5. REMOVE EXISTING ABANDONED PIPE HANGERS, RODS, AND SUPPORTS DURING DEMOLITION.
6. ALL LINES THAT ARE TO BE REMOVED SHALL BE CAPPED AT A MAIN LINE, RISER OR STACKS UNLESS NOTED OTHERWISE..
7. ALL WALL CUTTING, CONCRETE DEMOLITION, CUTTING, AND REMOVAL FOR PLUMBING WORK SHALL BE COMPLETED AS PART OF THE GENERAL CONTRACT. ALL CONCRETE FLOOR AND WALL PATCHING SHALL BE COMPLETED UNDER THE GENERAL CONTRACT.
8. COORDINATE ALL SYSTEM SHUTDOWNS FOR DEMOLITION AND NEW WORK WITH OWNER.
9. FIELD VERIFY THE CURRENT CONDITION OF ALL EXISTING SEWER LINES PRIOR TO CONNECTION. THIS SHALL BE COMPLETED BY MEANS OF CAMERA AND SCOPE. WASTE PIPING SHALL BE DEEMED IN GOOD WORKING CONDITION AND USABLE FOR CONNECTION OF NEW WASTE PIPING PRIOR TO MAKING ANY FINAL CONNECTIONS.
10. ALL DI WATER SYSTEMS ARE TO BE REMOVED BY OTHERS.

PLUMBING FIXTURES SPECIFICATIONS:

P-1 LAB SINK / EYEWASH: SINK, FAUCET, EYEWASH, TEMPERING VALVE & INTEGRAL SINK BOWL ARE PROVIDED BY OTHERS. PROVIDE AND INSTALL 1 1/2" ACID WASTE TAILPIECE, P-TRAP AND PIPE EXTENSIONS/FITTINGS AS REQUIRED BY ORION. PROVIDE & INSTALL McGUIRE NO. LFBV2165 BALL VALVE ANGLE STOPS AND CHROMED COPPER FLEXIBLE RISERS FOR LAB WATER. PROVIDE AND INSTALL BALL VALVES, CHECK VALVES AND FITTINGS TO CONNECT EYEWASH UNIT AND TEMPERING VALVE TO DOMESTIC WATER.

P-2 EYEWASH / EMERGENCY SHOWER: EMERGENCY SHOWER UNIT & TEMPERING VALVE ARE PROVIDED BY OTHERS. PROVIDE & INSTALL BALL VALVES, CHECK VALVES AND FITTINGS TO CONNECT SHOWER UNIT AND TEMPERING VALVE TO DOMESTIC WATER.

P-3 LAB SINK: SINK, FAUCET & INTEGRAL SINK BOWL ARE PROVIDED BY OTHERS. PROVIDE AND INSTALL 1 1/2" ACID WASTE TAILPIECE, P-TRAP AND PIPE EXTENSIONS/FITTINGS AS REQUIRED BY ORION. PROVIDE & INSTALL McGUIRE NO. LFBV2165 BALL VALVE ANGLE STOPS AND CHROMED COPPER FLEXIBLE RISERS FOR LAB WATER.

PLUMBING SYMBOLS LEGEND

SW	SANITARY WASTE
SV	SANITARY VENT
LW	LAB WASTE
LWV	LAB WASTE VENT
VTR	VENT THRU ROOF
CW	COLD WATER
HW	HOT WATER
ICW	INDUSTRIAL (LAB) COLD WATER
IHW	INDUSTRIAL (LAB) HOT WATER
HWR	HOT WATER RECIRCULATING
RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
SD	STORM DRAIN
CLG	CEILING
DN	DOWN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
U.N.O.	UNLESS NOTED OTHERWISE
P-#	PLUMBING FIXTURE
	SANITARY SEWER PIPING
	VENT PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RECIRCULATING PIPING
	STORM/RAIN LEADER PIPING
	EXISTING SANITARY SEWER PIPING
	EXISTING VENT PIPING
	EXISTING STORM SEWER PIPING
	EXISTING COLD WATER PIPING
	EXISTING HOT WATER PIPING
	CONNECT TO EXISTING
	TERMINATION POINT OF DEMOLITION
A	COMPRESSED AIR
G	NATURAL GAS
V	(VAC) VACUUM PIPING
	EXISTING TO BE REMOVED
FD-#	FLOOR DRAIN
HB	HOSE BIBB
CO	CLEAN OUT – FINISHED FLOOR
CO	CLEAN OUT – END OF LINE, STACK OR WALL
SA-#	SHOCK ARRESTOR
	PIPE RISER UP
	PIPE RISER DOWN
	PIPE CAP
	UNION
	SERVICE (BALL) VALVE
	BALANCING VALVE (CIRCUIT SETTER) W/ CHECK VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	TEE OFF TOP
	TEE OFF BOTTOM
	CONCENTRIC REDUCER
	BALL VALVE
	BUTTERFLY VALVE
	STRAINER WITH BLOW DOWN
	PRESSURE GUAGE WITH SHUT-OFF COCK
	UNION

PLUMBING SHEET INDEX:

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Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
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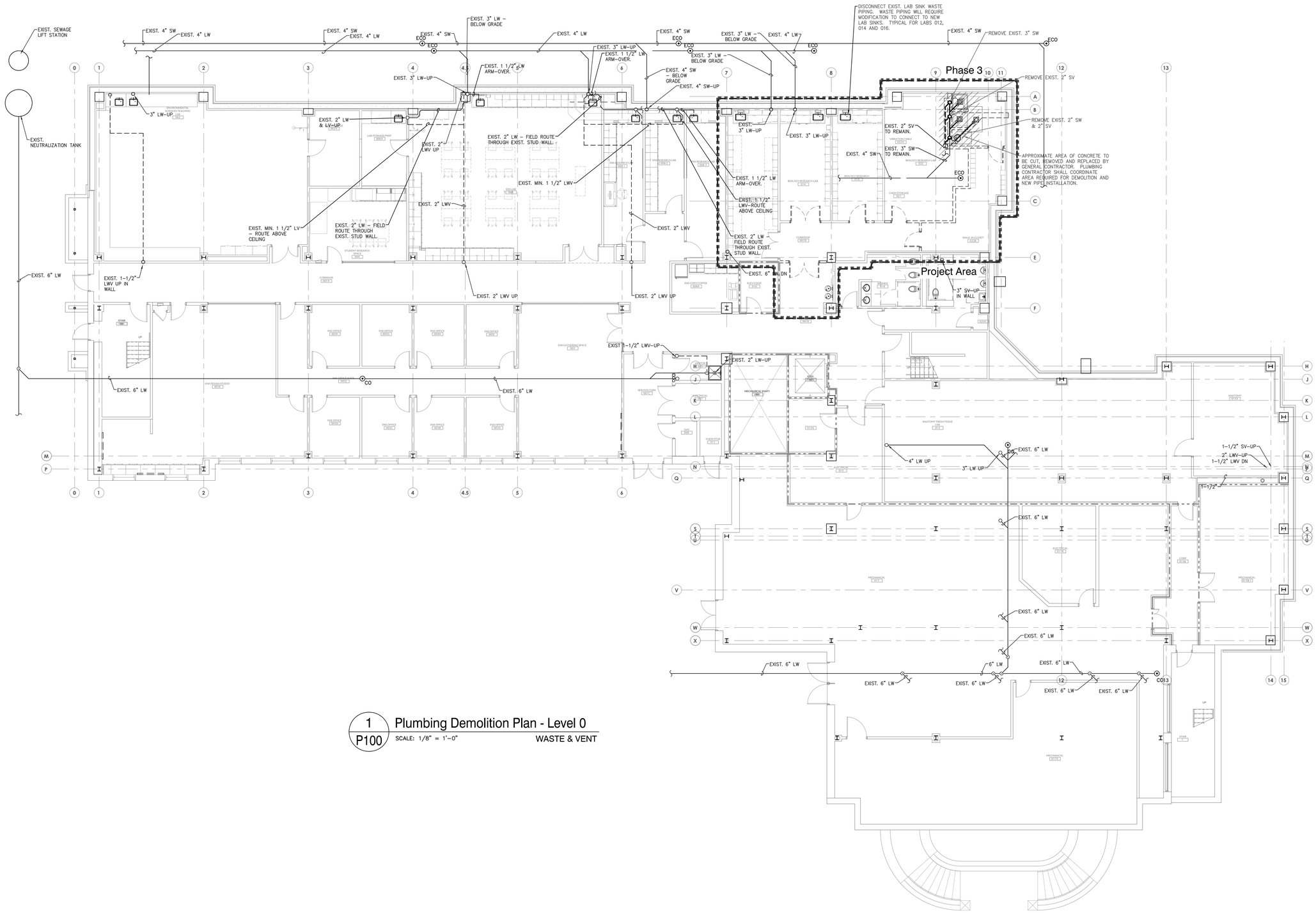
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Legends, Notes, Abbreviations & Schedules

Sheet Number

P001



1 P100 **Plumbing Demolition Plan - Level 0**

SCALE: 1/8" = 1'-0" WASTE & VENT

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

North

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P100.DWG PLOTTED: 3/11/2024 11:45 AM BY: BRUCE NEWMAN

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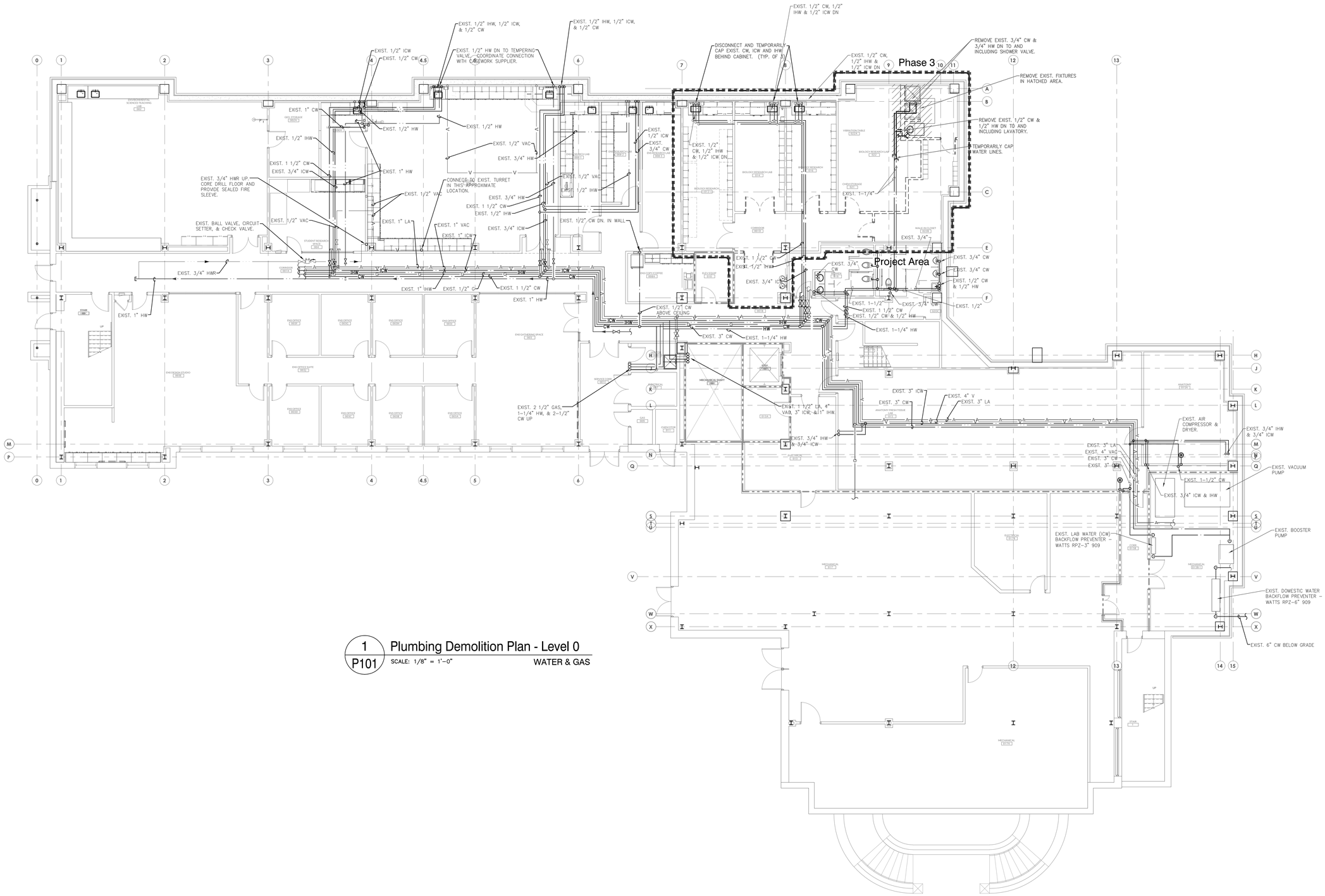
Date:	02/29/2024

Sheet Title

Plumbing Demolition Plan - Level 0 - Waste & Vent

Sheet Number

P100



1 / P101 Plumbing Demolition Plan - Level 0

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

WATER & GAS

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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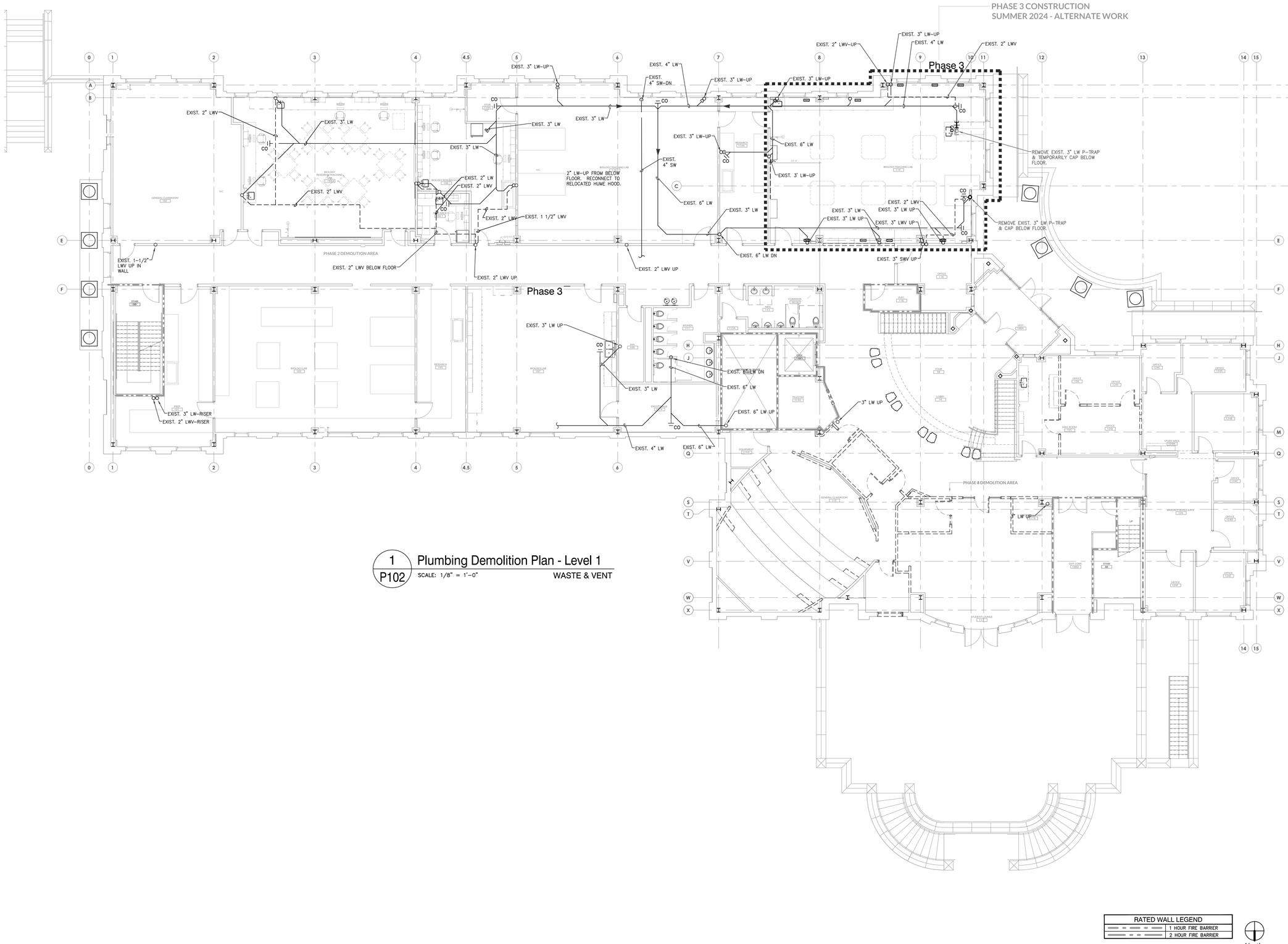
Sheet Title

Plumbing Demolition Plan - Level 0 - Water & Gas

Sheet Number

P101



1 / P102 Plumbing Demolition Plan - Level 1

SCALE: 1/8" = 1'-0" WASTE & VENT

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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Original drawing is 30" x 42". Do not scale contents of this drawing.

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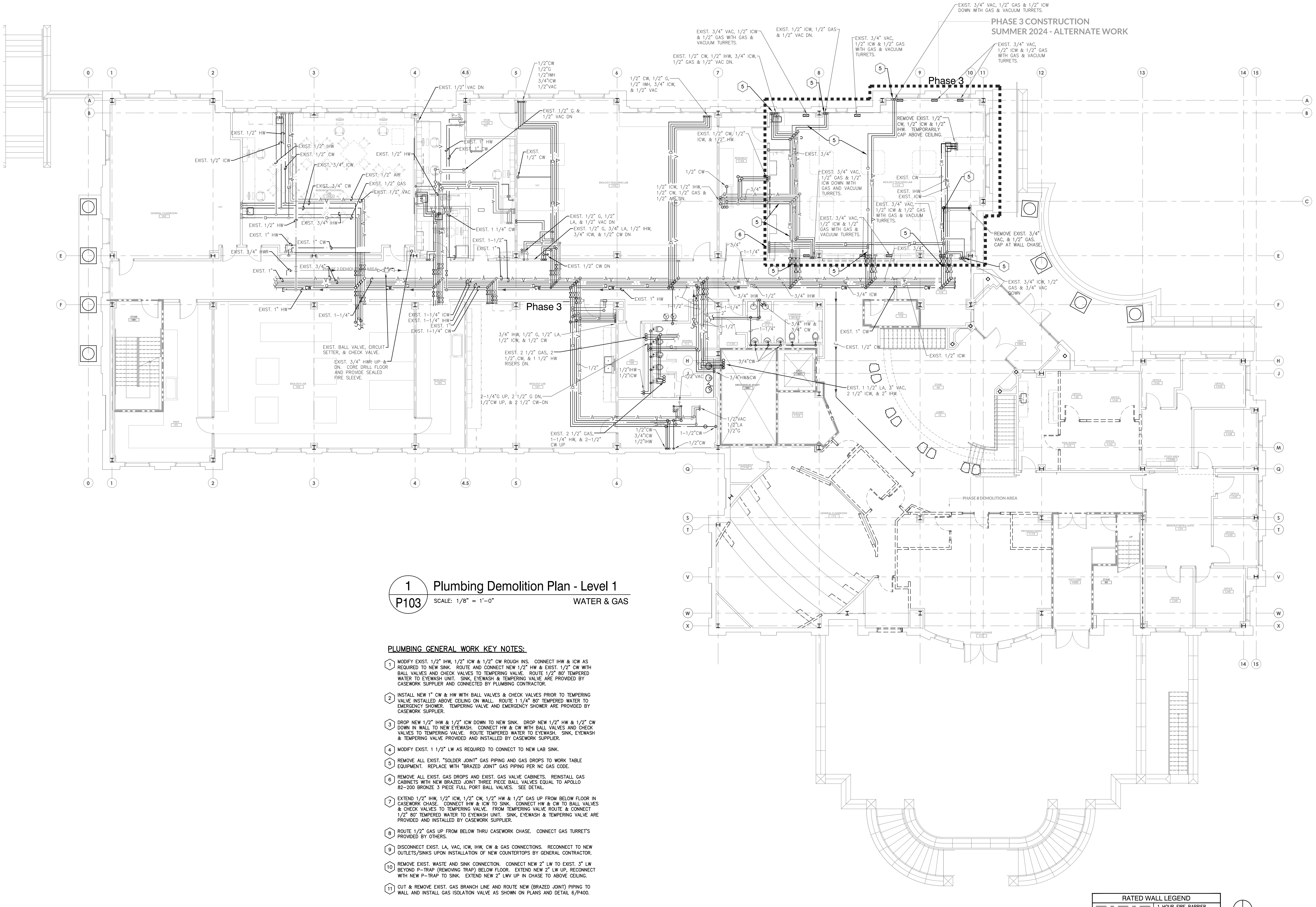
Sheet Title

Plumbing Demolition Plan - Level 1 - Waste & Vent

Sheet Number

P102



RATED WALL LEGEND

▬ ▬ ▬	1 HOUR FIRE BARRIER
▬ ▬ ▬	2 HOUR FIRE BARRIER

1

P103

Plumbing Demolition Plan - Level 1

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

WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

① MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.

② INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.

③ DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.

④ MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.

⑤ REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.

⑥ REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.

⑦ EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.

⑧ ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.

⑨ DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.

⑩ REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.

⑪ CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

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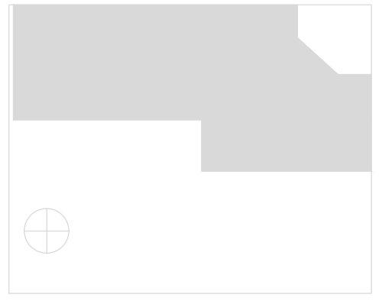
Key Plan



Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

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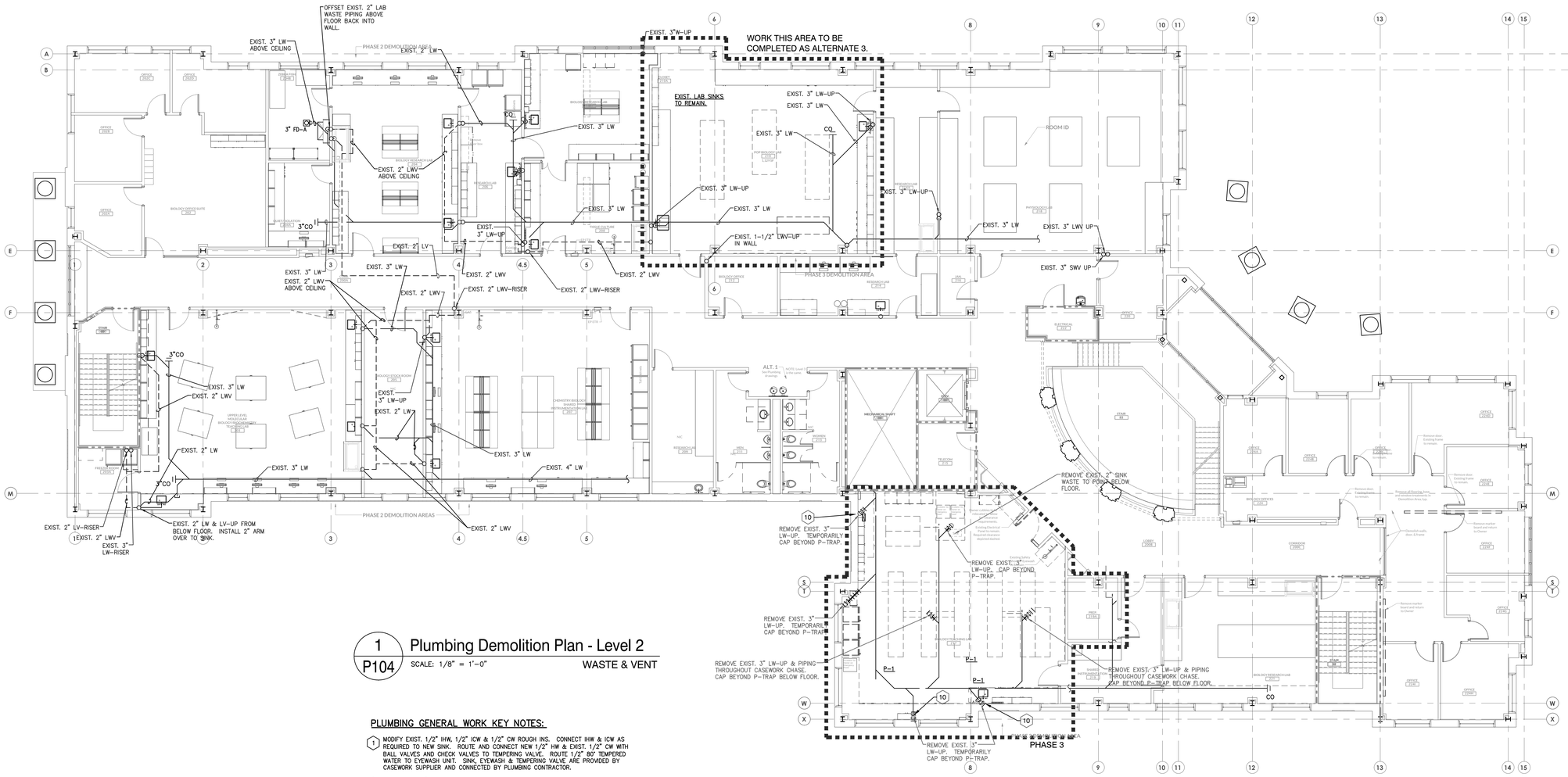
Sheet Title

Plumbing Demolition Plan - Level 1 - Water & Gas

Sheet Number

P103



1 / P104 Plumbing Demolition Plan - Level 2

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

WASTE & VENT

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" HHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT HHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" BOT TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" BOT TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" HHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" BOT TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Key Plan

Revisions

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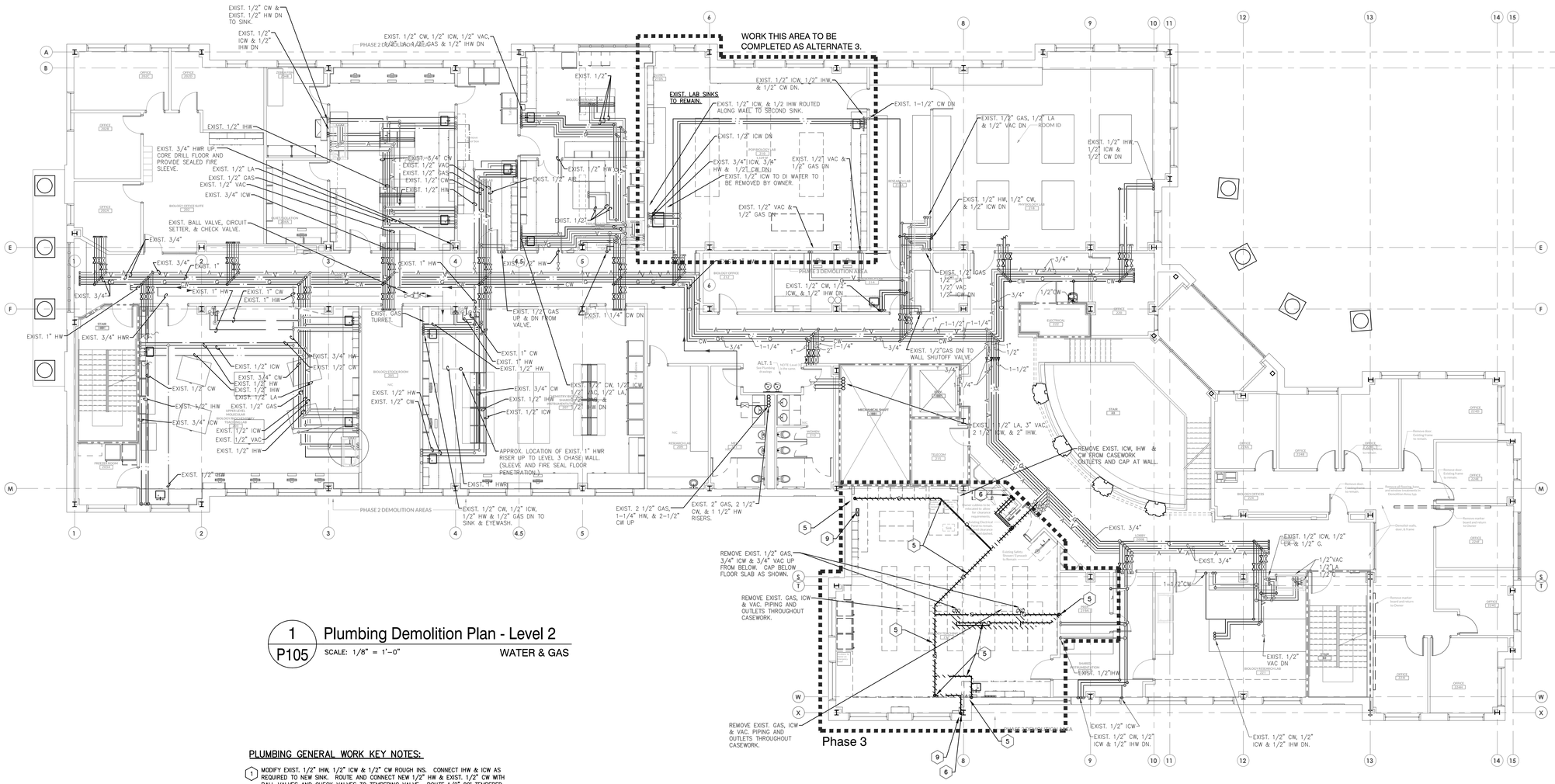
Sheet Title

Plumbing Demolition Plan - Level 2 - Waste & Vent

Sheet Number

P104



1 / P105 Plumbing Demolition Plan - Level 2

SCALE: 1/8" = 1'-0" WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND
1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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Key Plan

Revisions

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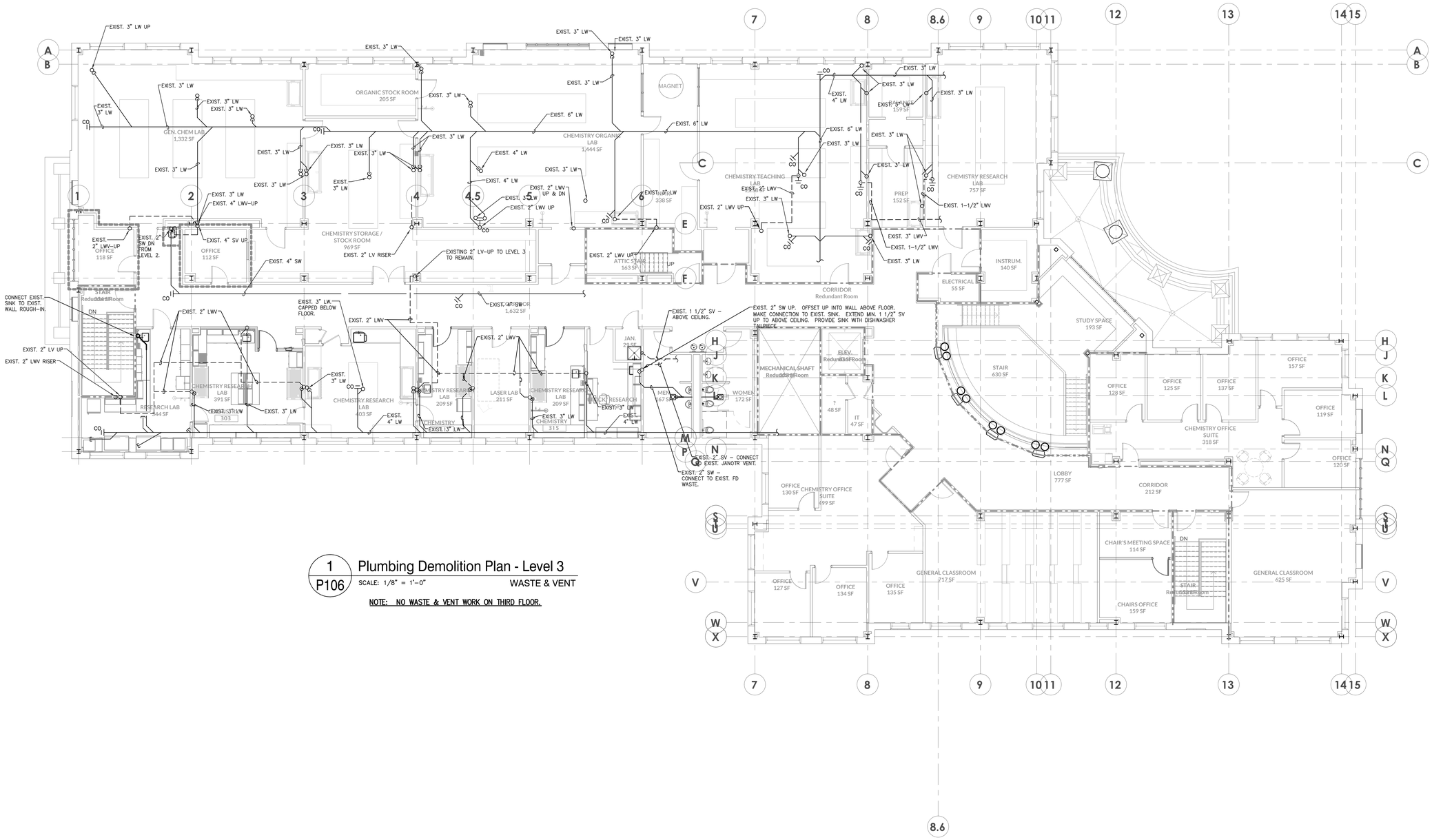
Sheet Title

Plumbing Demolition Plan - Level 2 - Water & Gas

Sheet Number

P105



1 / P106

Plumbing Demolition Plan - Level 3

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

WASTE & VENT

NOTE: NO WASTE & VENT WORK ON THIRD FLOOR.

RATED WALL LEGEND
1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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CHARLES T. CROWL
2-29-24

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Revisions

No.	Date	Description

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Project Number: 23-067
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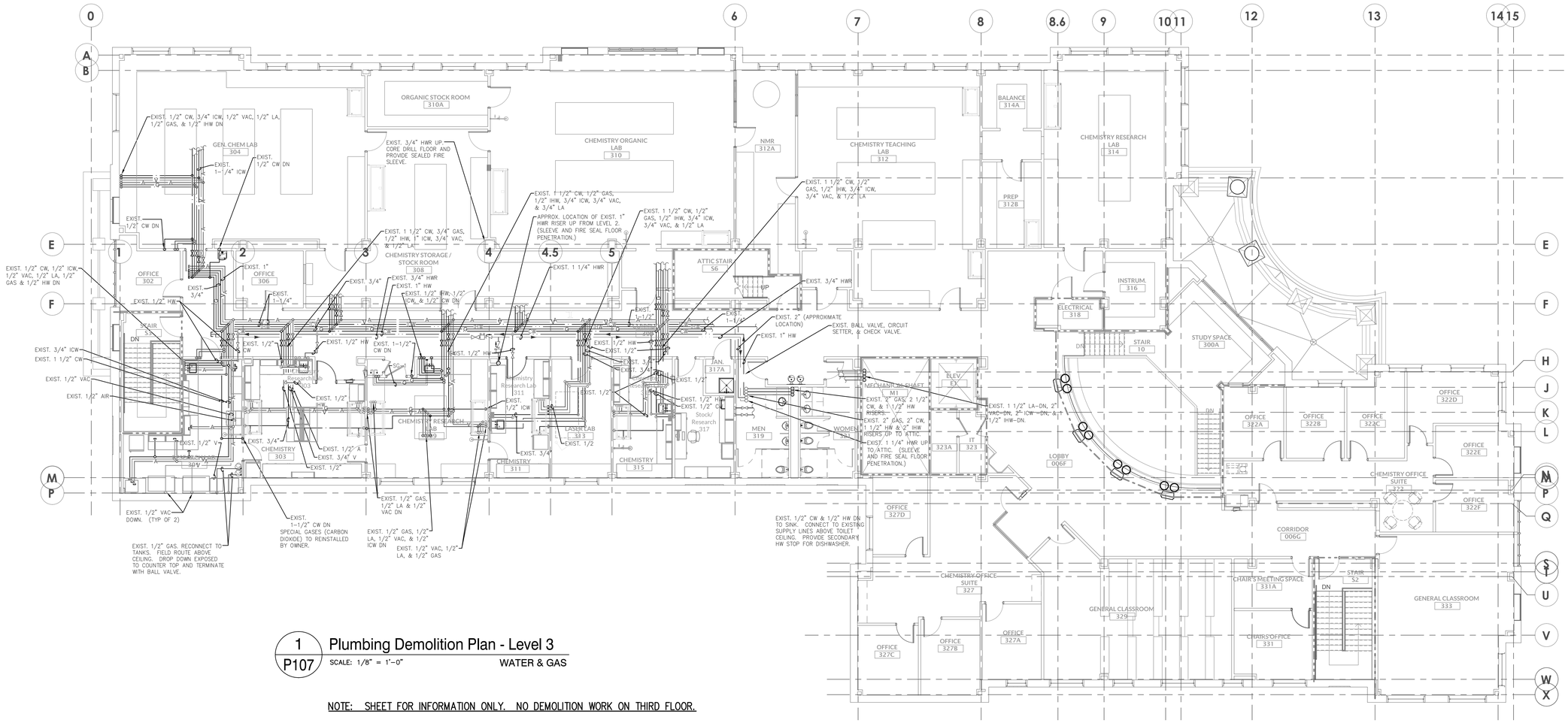
Date: 02/29/2024

Sheet Title

Plumbing Demolition Plan - Level 3 - Waste & Vent

Sheet Number

P106



1 / P107 **Plumbing Demolition Plan - Level 3**

SCALE: 1/8" = 1'-0" WATER & GAS

NOTE: SHEET FOR INFORMATION ONLY. NO DEMOLITION WORK ON THIRD FLOOR.

RATED WALL LEGEND

	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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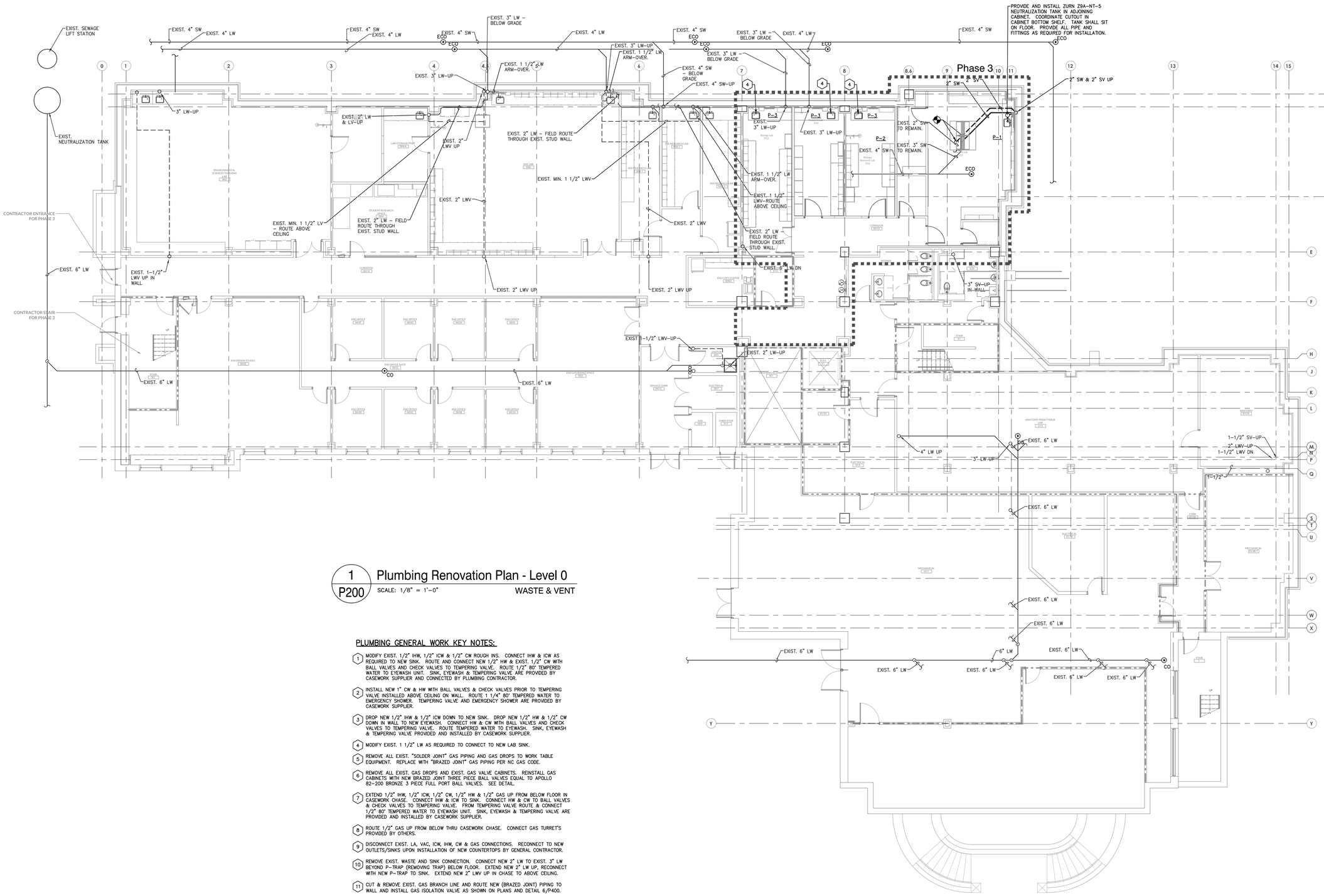
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Demolition Plan - Level 3 - Water & Gas

Sheet Number

P107



1 P200 Plumbing Renovation Plan - Level 0

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

WASTE & VENT

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 026868 ENGINEER CHARLES T. CROWE

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

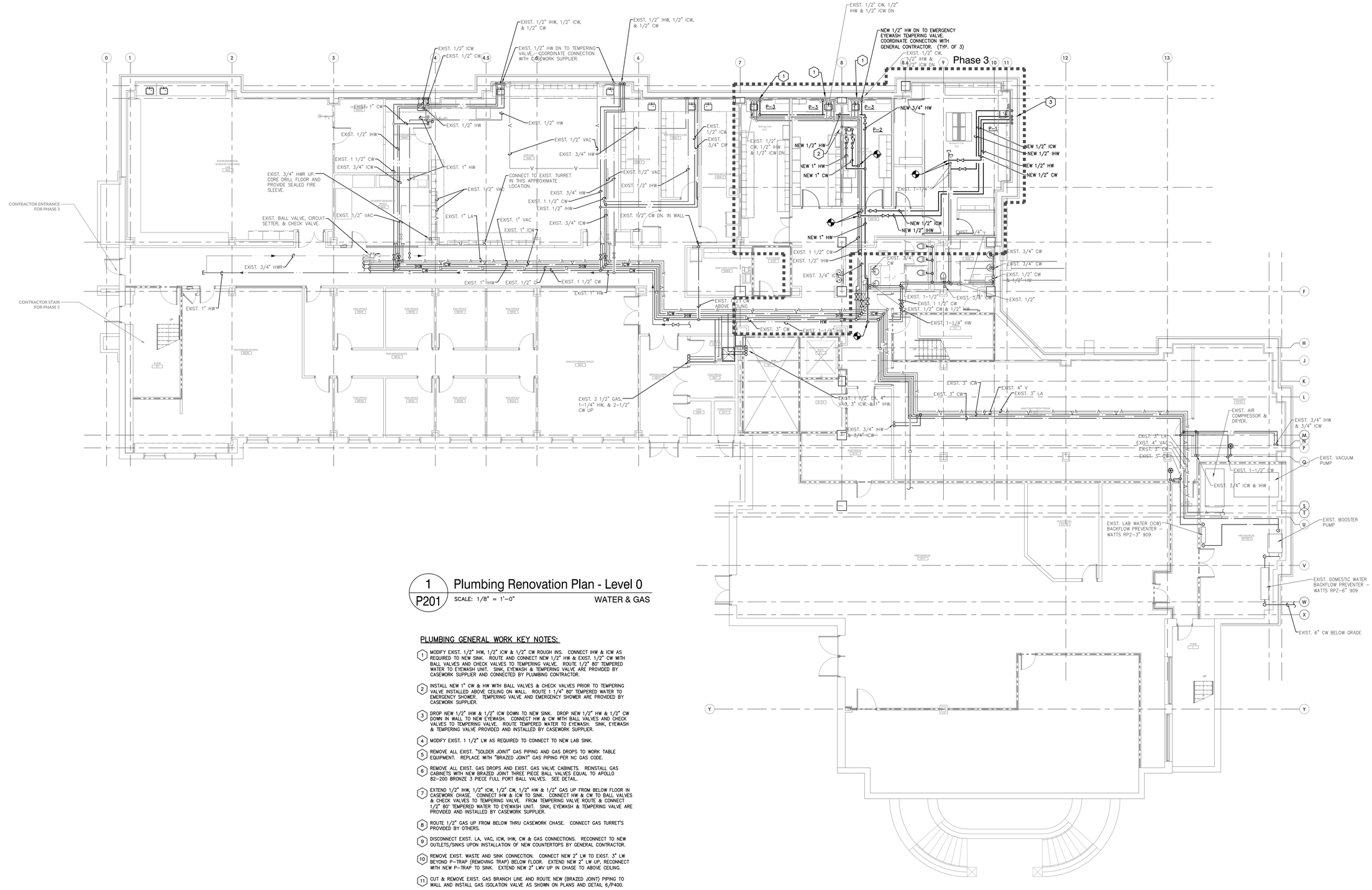
Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 0 - Waste & Vent

Sheet Number

P200



1 P201 Plumbing Renovation Plan - Level 0

SCALE: 1/8" = 1'-0" WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

North

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P201.DWG PLOTTED: 3/7/2024 11:46 AM BY: BRUCE NEWMAN

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McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

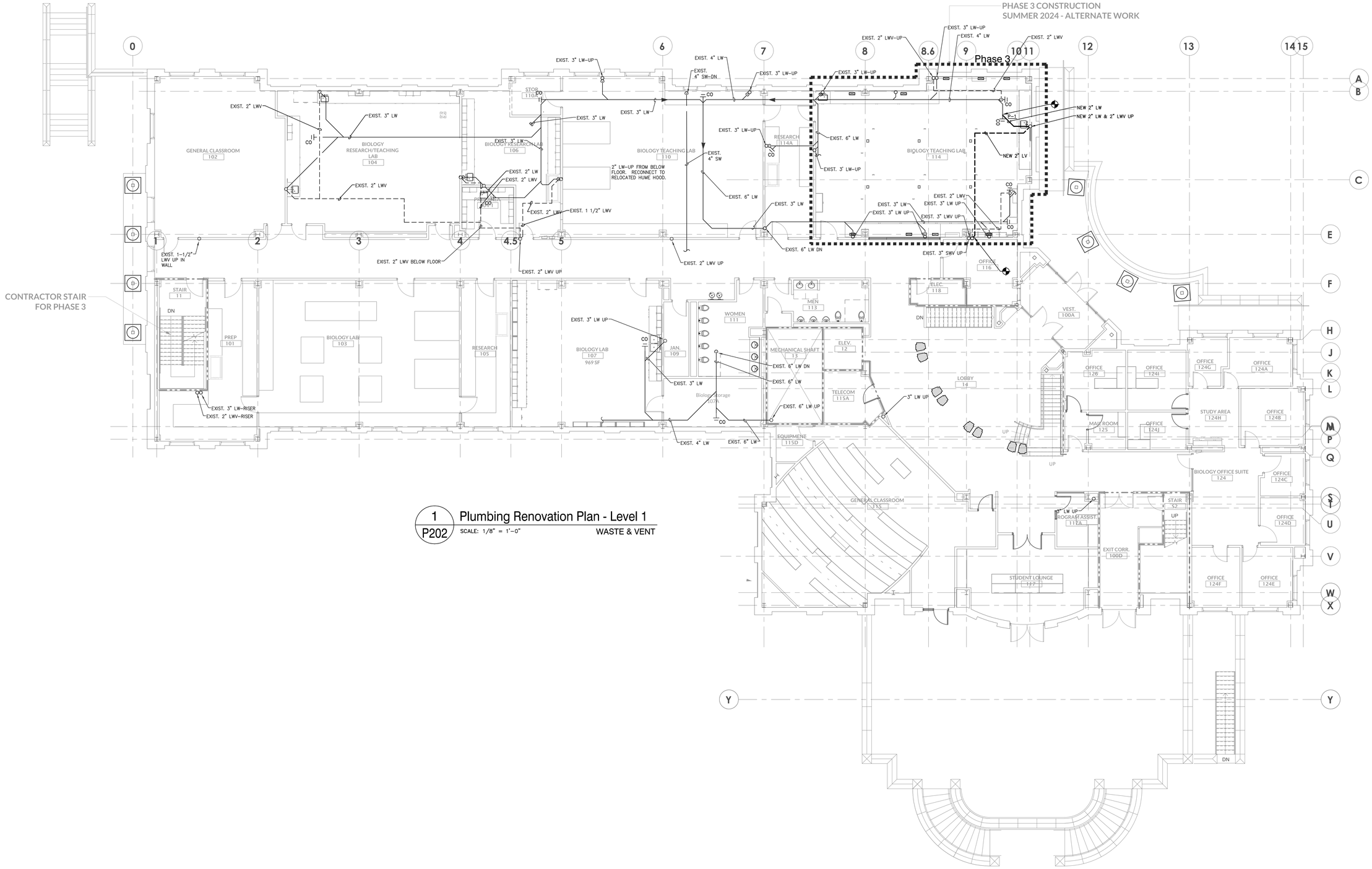
Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 0 - Water & Gas

Sheet Number

P201



1 / P202 Plumbing Renovation Plan - Level 1

SCALE: 1/8" = 1'-0" WASTE & VENT

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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NORTH CAROLINA REGISTERED 02/29/24 PROFESSIONAL ENGINEER CHARLES T. CROW

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

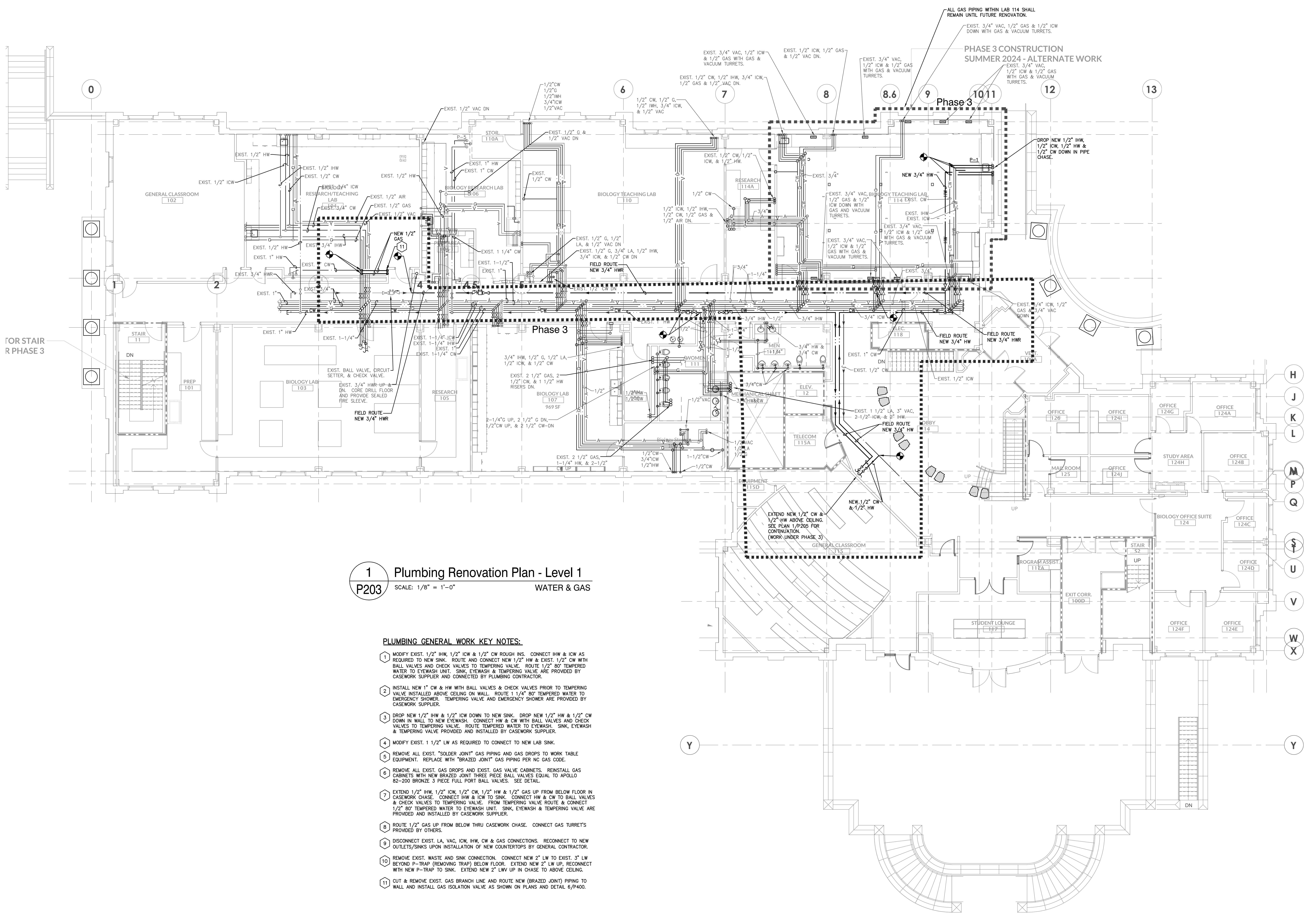
Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 1 - Waste & Vent

Sheet Number

P202



1
P203

Plumbing Renovation Plan - Level 1

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

WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

① MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.

② INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.

③ DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.

④ MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.

⑤ REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.

⑥ REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.

⑦ EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.

⑧ ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.

⑨ DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.

⑩ REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.

⑪ CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND	
▬ ▬ ▬	1 HOUR FIRE BARRIER
▬ ▬ ▬	2 HOUR FIRE BARRIER

North

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P203.DWG PLOTTED 3/11/2024 3:16 PM BY: DARRIN HESTER

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Professional Seals

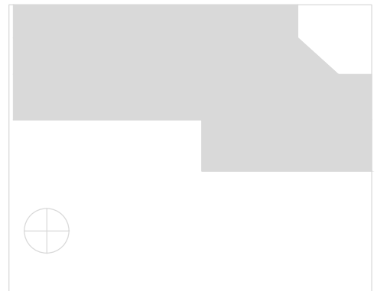
CHARLES T. CROWL
2-29-24

ELON
UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan



Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

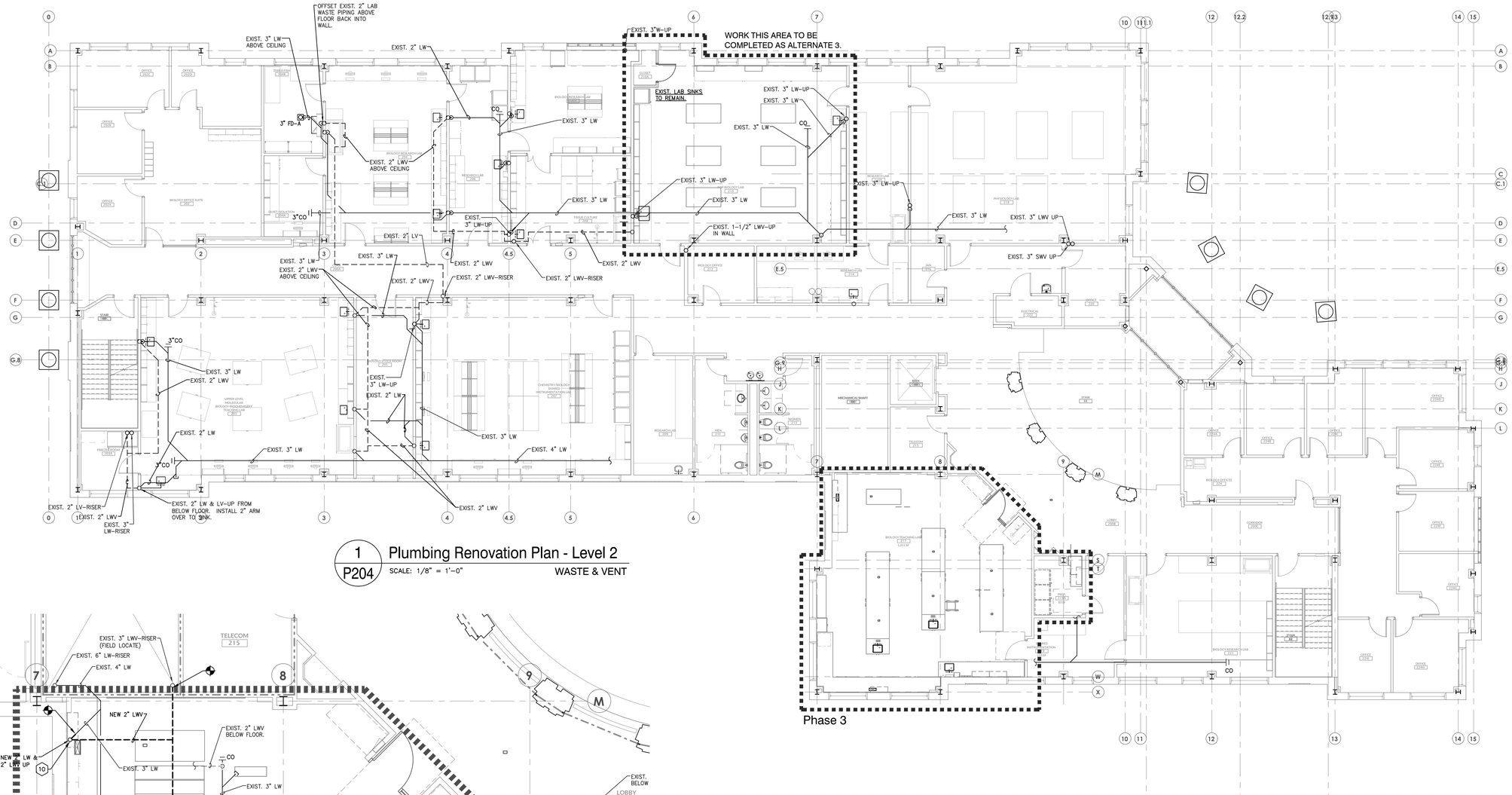
Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 1 - Water & Gas

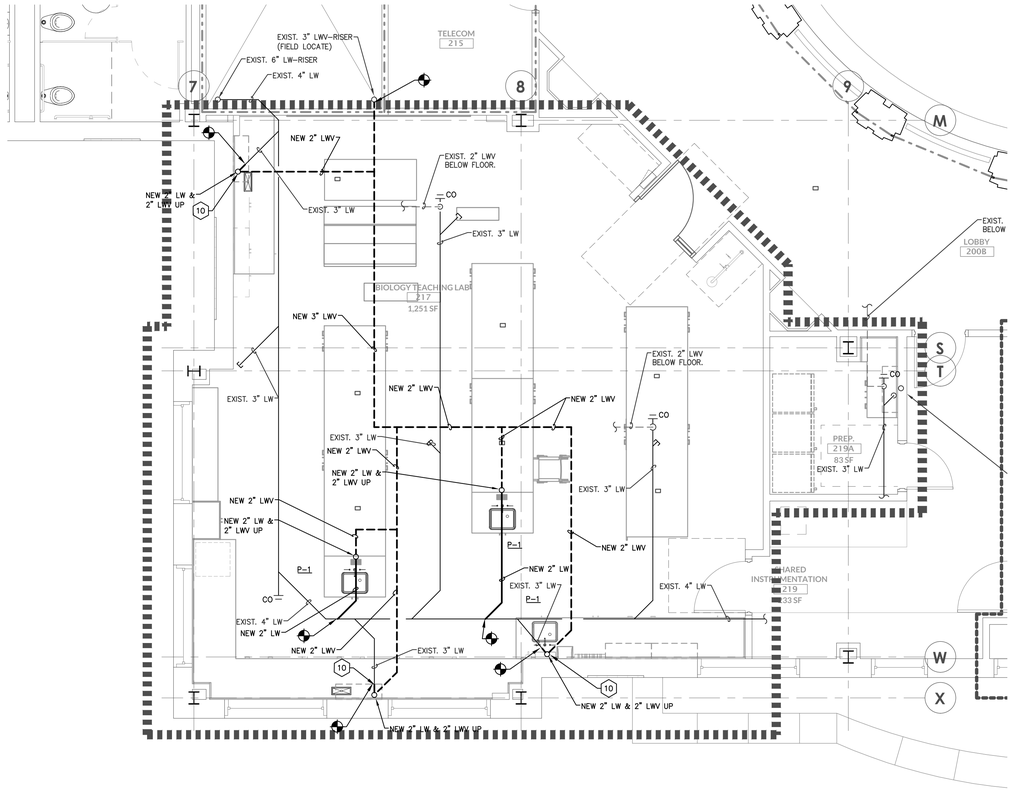
Sheet Number

P203



1 / P204 Plumbing Renovation Plan - Level 2

SCALE: 1/8" = 1'-0" WASTE & VENT



2 / P204 Partial Plumbing Renovation Plan - Level 2 - Phase 3

SCALE: 1/4" = 1'-0" WASTE & VENT

Phase 3

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" HW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Professional Seals

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 028080 ENGINEER CHARLES T. CROWE

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

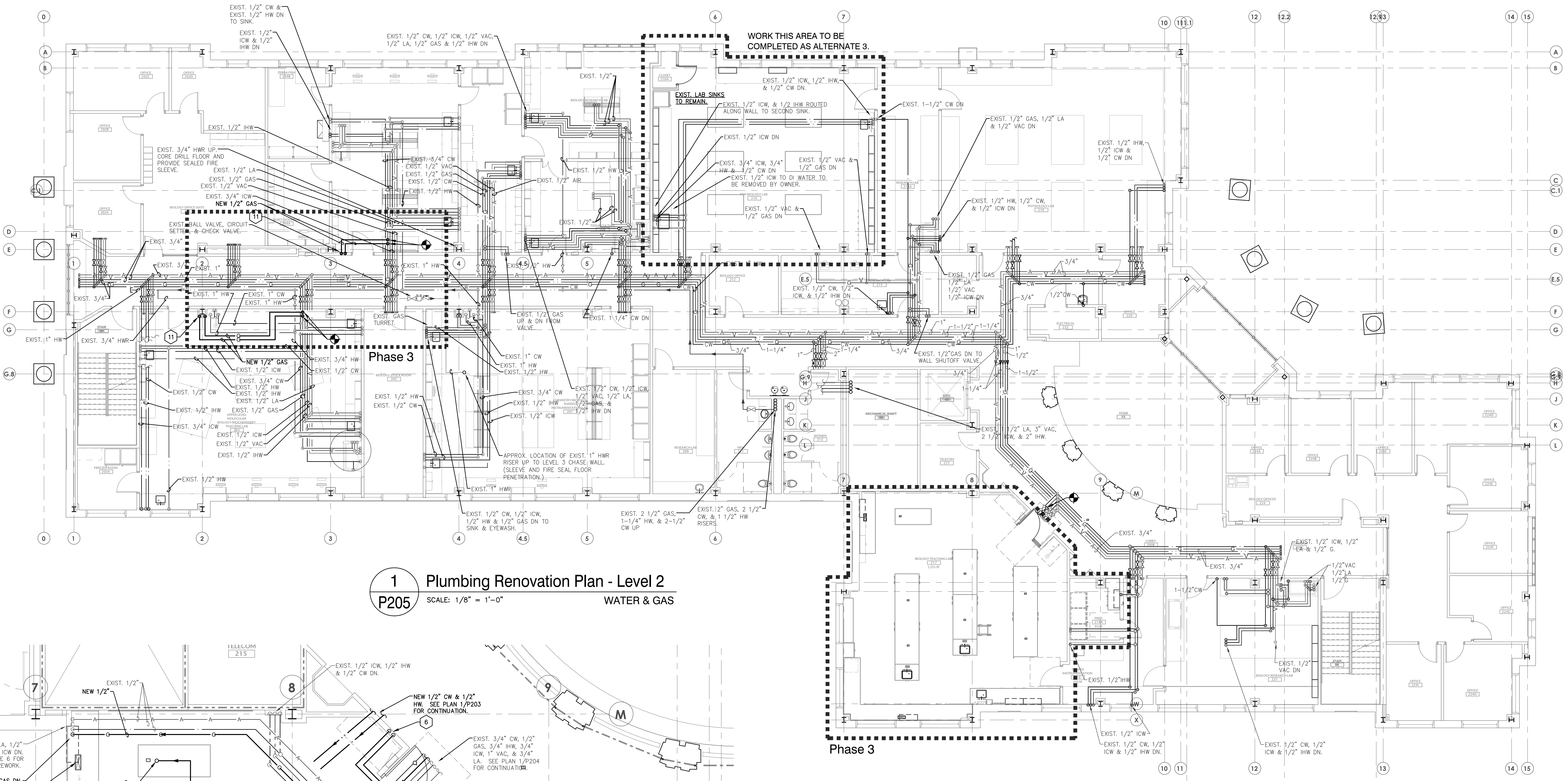
Project Number: 23-067
Drawn: LDH
Checked: CTC
Date: 02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 2 - Waste & Vent

Sheet Number

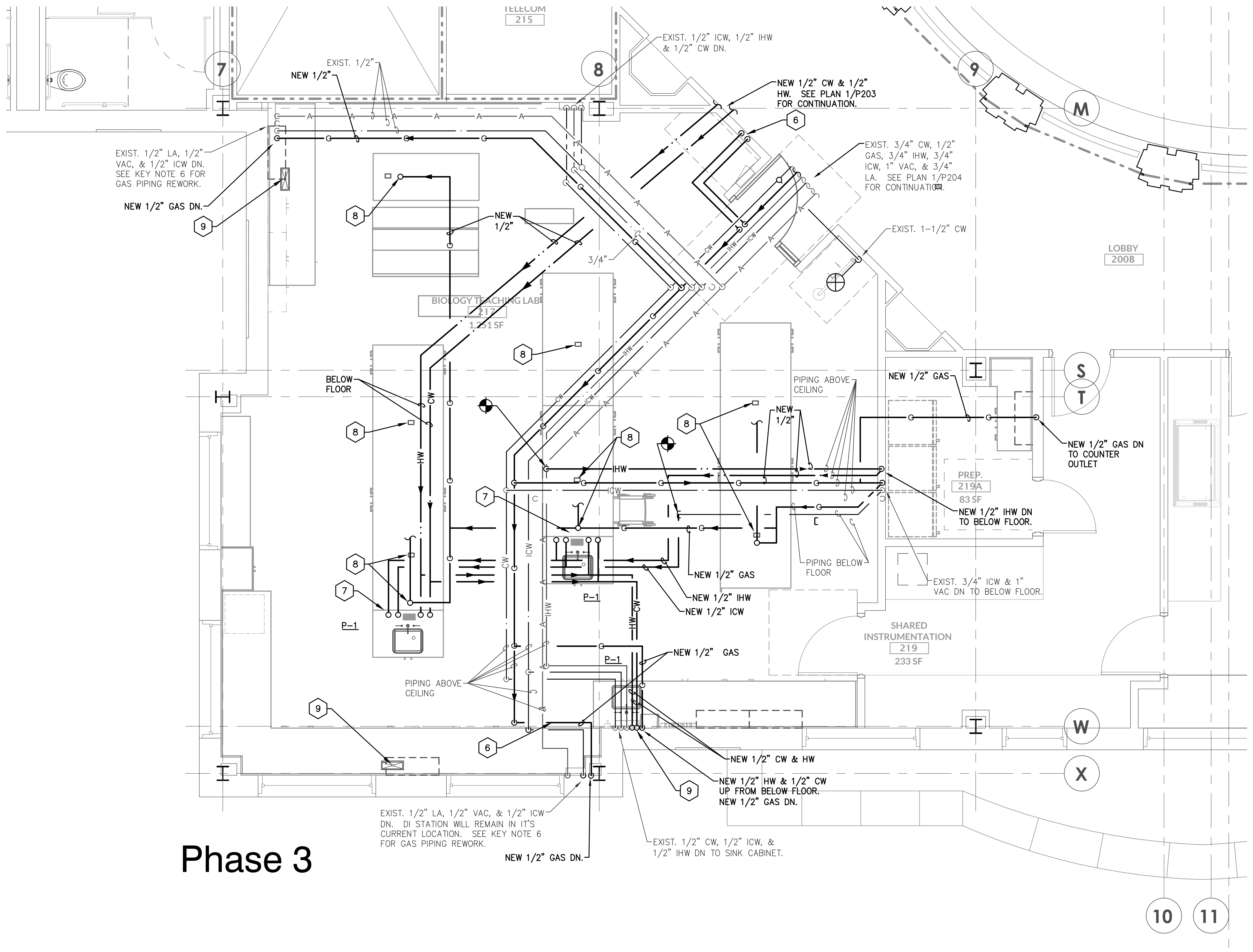
P204



1 P205 Plumbing Renovation Plan - Level 2

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

WATER & GAS



2 P205 Partial Plumbing Renovation Plan - Level 2

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

WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND	
— — —	1 HOUR FIRE BARRIER
— — — —	2 HOUR FIRE BARRIER

North

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P205.DWG PLOTTED 3/11/2024 12:20 PM BY: DARRIN HESTER

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Professional Seals

SEAL 028862
CHARLES T. CROWL
2-29-24

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

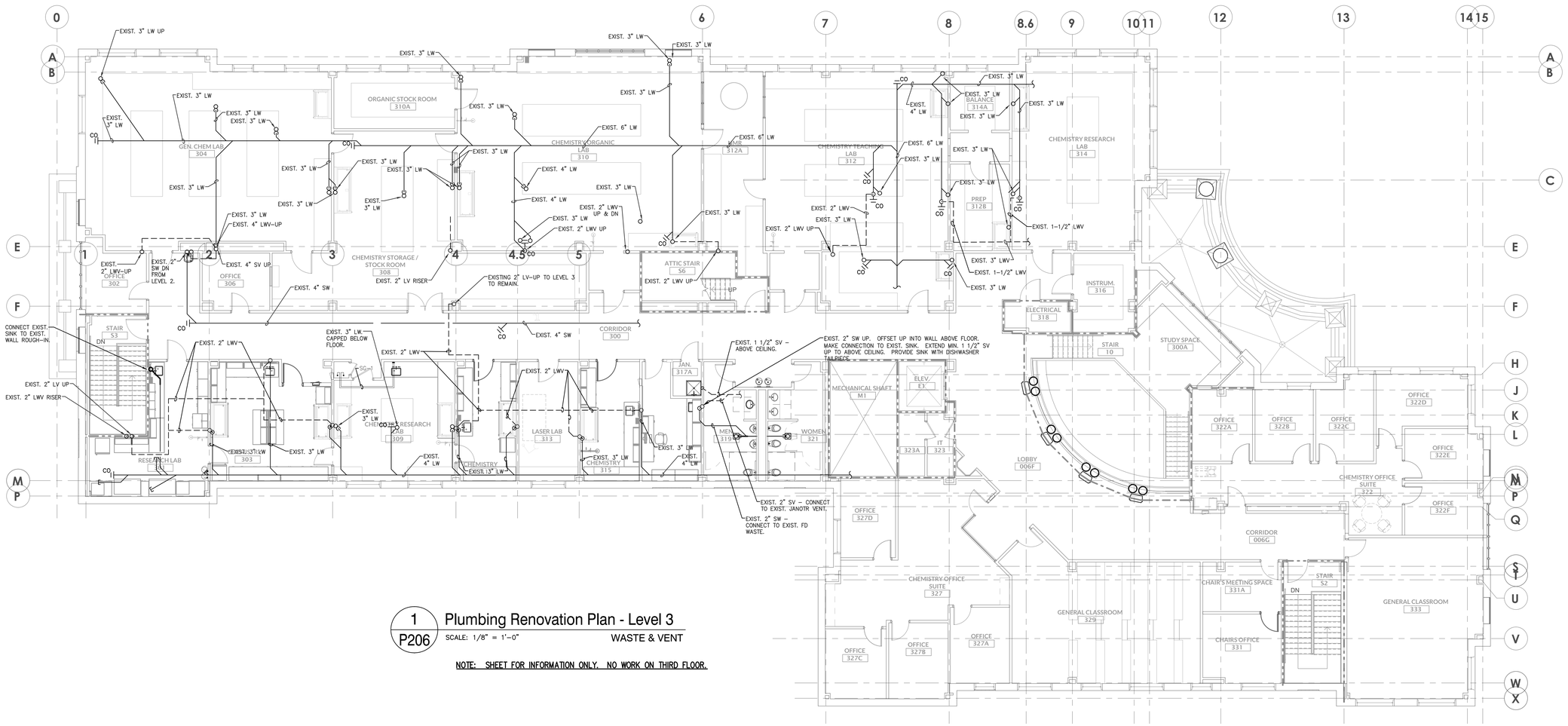
Project Number: 23-067
Drawn: LDH
Checked: CTC
Date: 02/29/2024

Sheet Title

Plumbing Renovation Plan - Level 2 - Water & Gas

Sheet Number

P205



1 P206 Plumbing Renovation Plan - Level 3

SCALE: 1/8" = 1'-0" WASTE & VENT

NOTE: SHEET FOR INFORMATION ONLY. NO WORK ON THIRD FLOOR.

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

North

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NORTH CAROLINA REGISTERED 02980 PROFESSIONAL ENGINEER CHARLES T. CROW

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

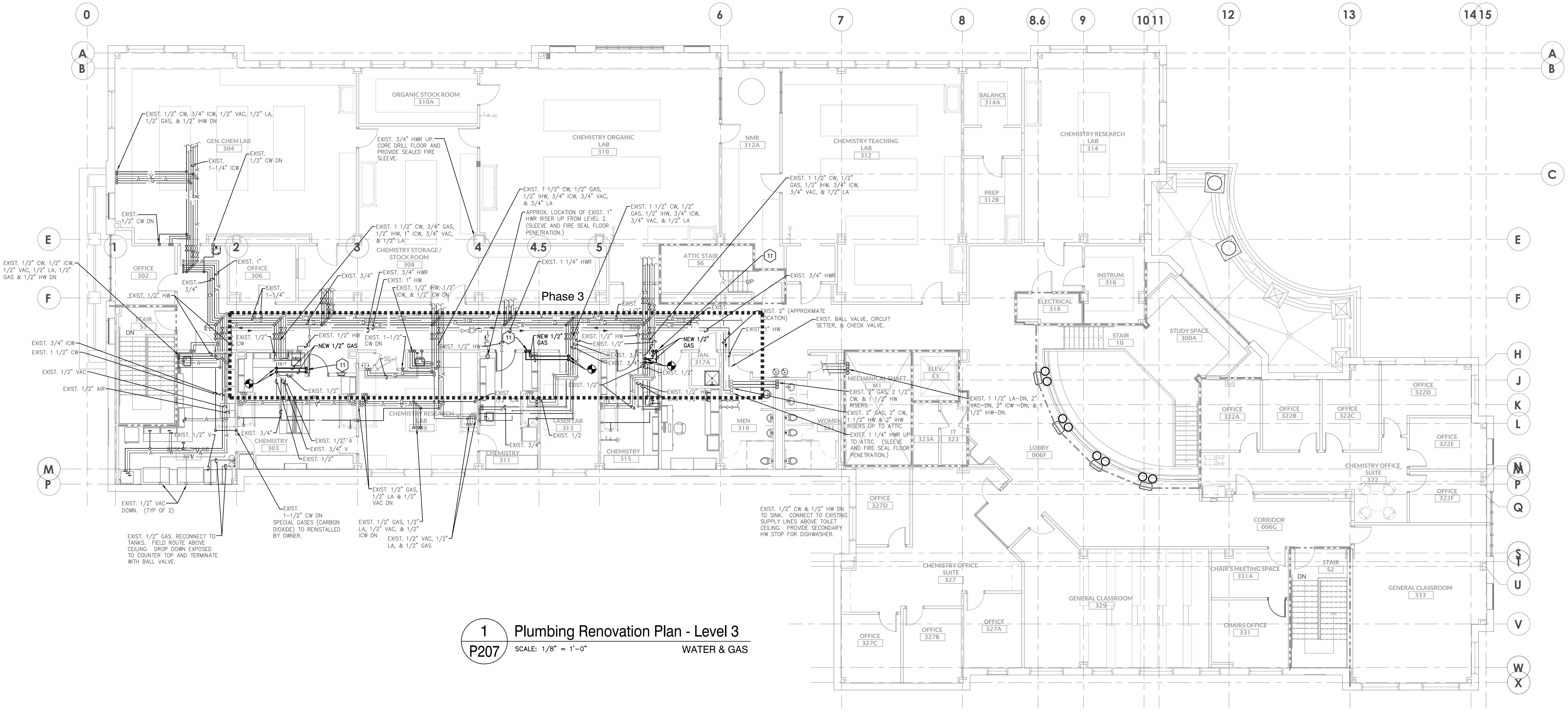
Sheet Title

Plumbing Renovation Plan - Level 3 - Waste & Vent

Sheet Number

P206

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P207.DWG PLOTTED 3/11/2024 11:43 AM BY: BRUCE NEWMAN



1 P207 Plumbing Renovation Plan - Level 3

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

WATER & GAS

PLUMBING GENERAL WORK KEY NOTES:

1. MODIFY EXIST. 1/2" IHW, 1/2" ICW & 1/2" CW ROUGH INS. CONNECT IHW & ICW AS REQUIRED TO NEW SINK. ROUTE AND CONNECT NEW 1/2" HW & EXIST. 1/2" CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED BY CASEWORK SUPPLIER AND CONNECTED BY PLUMBING CONTRACTOR.
2. INSTALL NEW 1" CW & HW WITH BALL VALVES & CHECK VALVES PRIOR TO TEMPERING VALVE INSTALLED ABOVE CEILING ON WALL. ROUTE 1 1/4" 80° TEMPERED WATER TO EMERGENCY SHOWER. TEMPERING VALVE AND EMERGENCY SHOWER ARE PROVIDED BY CASEWORK SUPPLIER.
3. DROP NEW 1/2" IHW & 1/2" ICW DOWN TO NEW SINK. DROP NEW 1/2" HW & 1/2" CW DOWN IN WALL TO NEW EYEWASH. CONNECT HW & CW WITH BALL VALVES AND CHECK VALVES TO TEMPERING VALVE. ROUTE TEMPERED WATER TO EYEWASH. SINK, EYEWASH & TEMPERING VALVE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
4. MODIFY EXIST. 1 1/2" LW AS REQUIRED TO CONNECT TO NEW LAB SINK.
5. REMOVE ALL EXIST. "SOLDER JOINT" GAS PIPING AND GAS DROPS TO WORK TABLE EQUIPMENT. REPLACE WITH "BRAZED JOINT" GAS PIPING PER NC GAS CODE.
6. REMOVE ALL EXIST. GAS DROPS AND EXIST. GAS VALVE CABINETS. REINSTALL GAS CABINETS WITH NEW BRAZED JOINT THREE PIECE BALL VALVES EQUAL TO APOLLO 82-200 BRONZE 3 PIECE FULL PORT BALL VALVES. SEE DETAIL.
7. EXTEND 1/2" IHW, 1/2" ICW, 1/2" CW, 1/2" HW & 1/2" GAS UP FROM BELOW FLOOR IN CASEWORK CHASE. CONNECT IHW & ICW TO SINK. CONNECT HW & CW TO BALL VALVES & CHECK VALVES TO TEMPERING VALVE. FROM TEMPERING VALVE ROUTE & CONNECT 1/2" 80° TEMPERED WATER TO EYEWASH UNIT. SINK, EYEWASH & TEMPERING VALVE ARE PROVIDED AND INSTALLED BY CASEWORK SUPPLIER.
8. ROUTE 1/2" GAS UP FROM BELOW THRU CASEWORK CHASE. CONNECT GAS TURRET'S PROVIDED BY OTHERS.
9. DISCONNECT EXIST. LA, VAC, ICW, IHW, CW & GAS CONNECTIONS. RECONNECT TO NEW OUTLETS/SINKS UPON INSTALLATION OF NEW COUNTERTOPS BY GENERAL CONTRACTOR.
10. REMOVE EXIST. WASTE AND SINK CONNECTION. CONNECT NEW 2" LW TO EXIST. 3" LW BEYOND P-TRAP (REMOVING TRAP) BELOW FLOOR. EXTEND NEW 2" LW UP, RECONNECT WITH NEW P-TRAP TO SINK. EXTEND NEW 2" LWV UP IN CHASE TO ABOVE CEILING.
11. CUT & REMOVE EXIST. GAS BRANCH LINE AND ROUTE NEW (BRAZED JOINT) PIPING TO WALL AND INSTALL GAS ISOLATION VALVE AS SHOWN ON PLANS AND DETAIL 6/P400.

RATED WALL LEGEND
1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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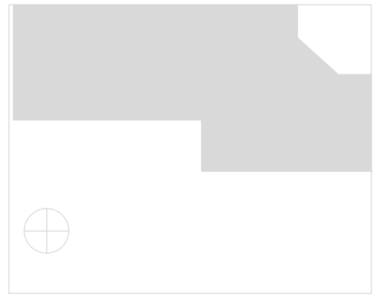
028862
CHARLES T. CROWL
2-21-24

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan



Revisions

No. Date Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

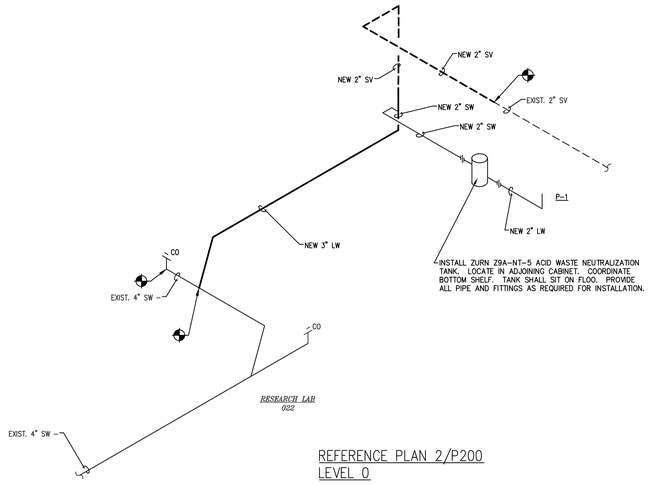
Project Number: 23-067
Drawn: LDH
Checked: CTC
Date: 02/29/2024

Sheet Title

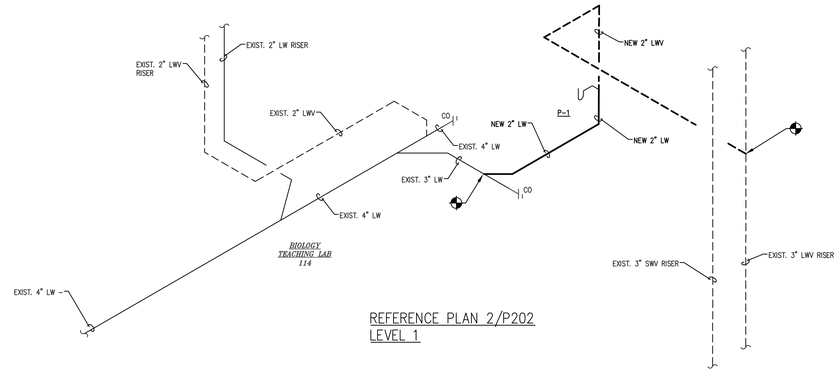
Water & Gas Plumbing Renovation Plan - Level 3 - Water & Gas

Sheet Number

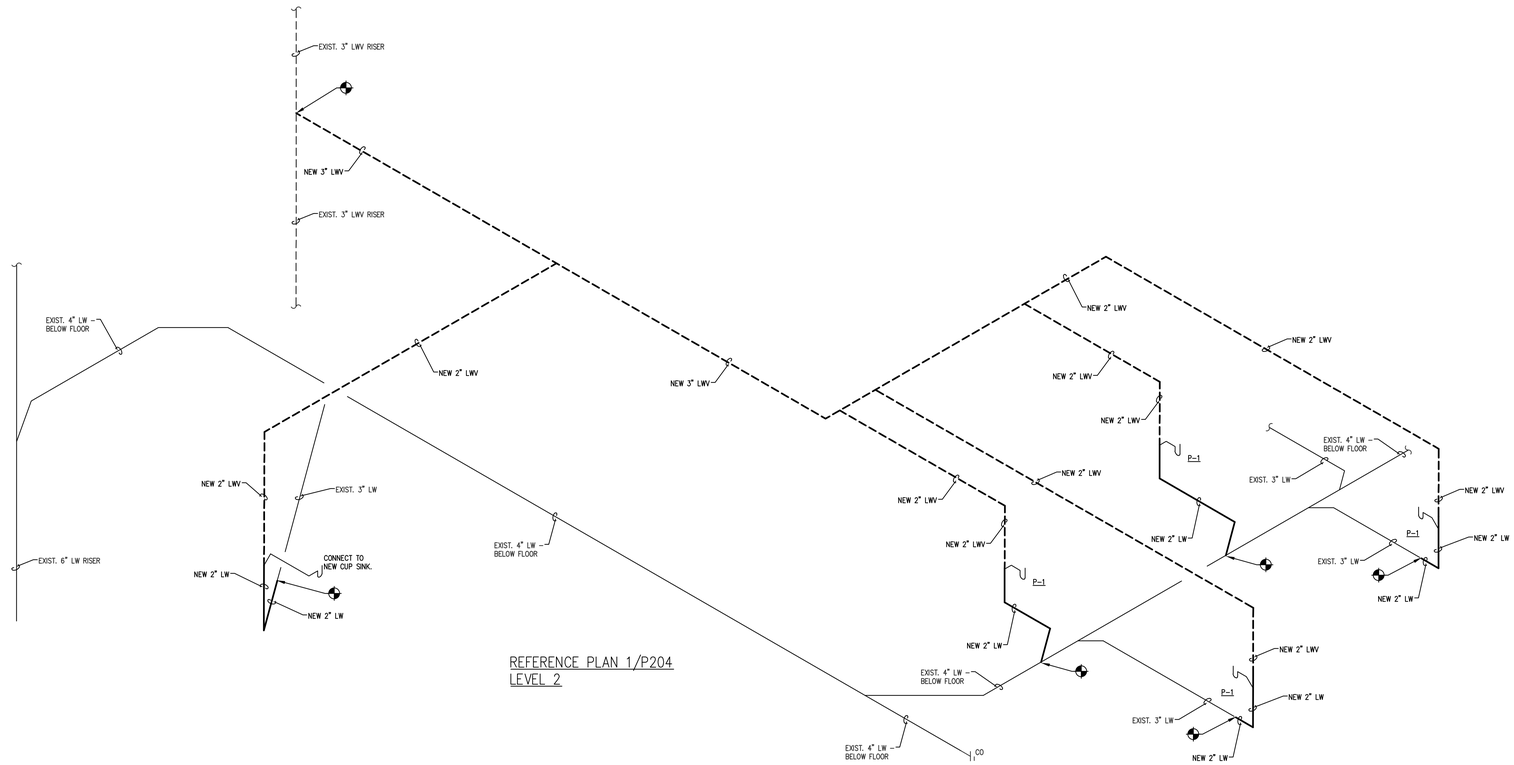
P207



REFERENCE PLAN 2/P200
LEVEL 0



REFERENCE PLAN 2/P202
LEVEL 1



REFERENCE PLAN 1/P204
LEVEL 2

1 P301 Plumbing Waste & Vent Riser Diagram

SCALE: NONE

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.50 PLUMBING\P301.DWG PLOTTED: 3/11/2024 11:42 AM BY: BRUCE NEWMAN

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McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

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Project Number:	23-067
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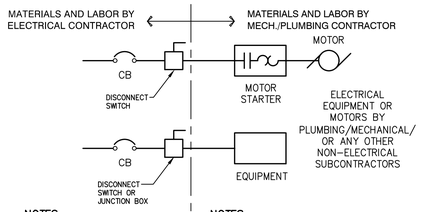
Sheet Title

Plumbing Waste & Vent Riser Diagrams

Sheet Number

P301



NOTES:

CONTRACTORS SHALL COORDINATE WITH EACH OTHER TO VERIFY EQUIPMENT NAMEPLATE RATINGS AND LOCATIONS BEFORE INSTALLATION OF CONDUIT, WIRING, CIRCUIT BREAKER, DISCONNECT SWITCH, OR FUSES. WHERE FUSED DISCONNECTS ARE SPECIFIED IN THE ELECTRICAL CONSTRUCTION DOCUMENTS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE APPROPRIATELY SIZED FUSES.

NOTES:

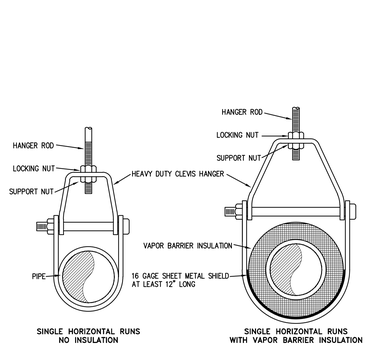
EQUIPMENT PROVIDED BY NON-ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY THE SUBCONTRACTOR PROVIDING THE EQUIPMENT. THIS INSTALLATION SHALL INCLUDE:

1. ALL POWER CONDUIT AND WIRING ON THE LOAD SIDE OF THE DISCONNECT SWITCH.
2. ALL CONTROLS AND CONTROL CONDUIT AND WIRING.

ALL CONDUIT AND WIRING (POWER AND CONTROL) INSTALLED BY THE NON-ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY A LICENSED ELECTRICAL CONTRACTOR PER THE DIVISION 26 SPECIFICATIONS AND SHALL BE INSPECTED BY THE ELECTRICAL INSPECTOR HAVING JURISDICTION.

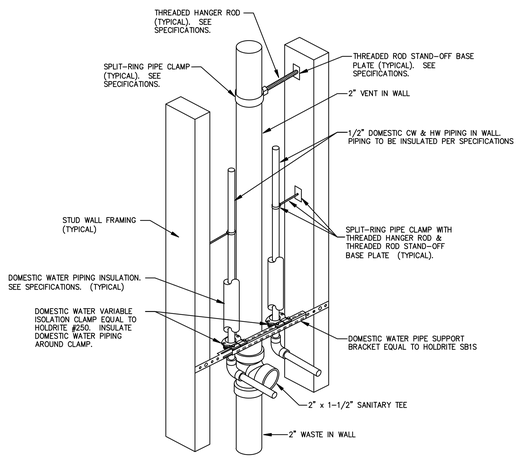
1 / P400 Motor / Equipment Installation - Division of Work

SCALE: NONE



2 / P400 Clevis Hanger Detail

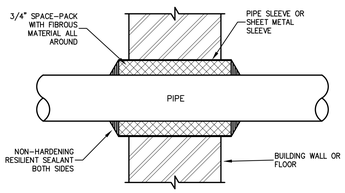
SCALE: NONE



5 / P400 Supply Pipe Support At Fixture Connection

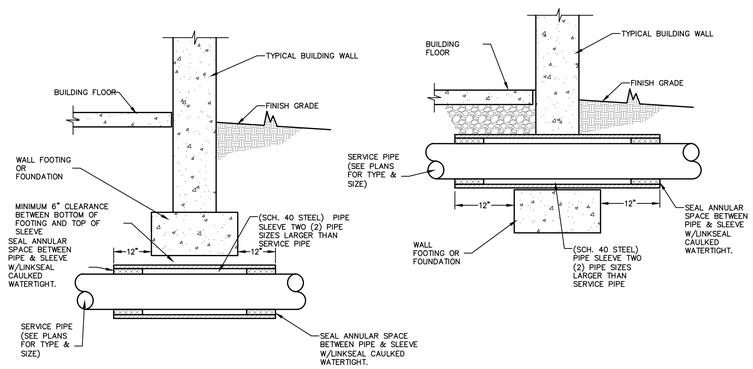
SCALE: NONE

NOTES:
1. STAND-OFF SPLIT RING CLAMPS SHALL BE LOCATED ON THE WASTE, DOMESTIC COLD WATER, AND DOMESTIC HOT WATER PIPING. LOCATE IN WALL AT PIPE MIDPOINT.
2. A SECOND STAND-OFF SPLIT RING CLAMP IS REQUIRED TO BE PLACED ON THE WASTE PIPING 18" AFF MAX. LOCATE THE CLAMP ON THE CAST IRON PIPE PRIOR TO TRANSITIONING TO PVC BELOW SLAB.
3. PROVIDE POLYETHYLENE TUBE ISOLATORS WHEN PASSING THROUGH STUD WALLS. ISOLATOR TO EQUAL HOLDRITE MODEL #104.
4. METAL STRAPPING IS NOT PERMITTED TO BE USED FOR PIPE SUPPORT.



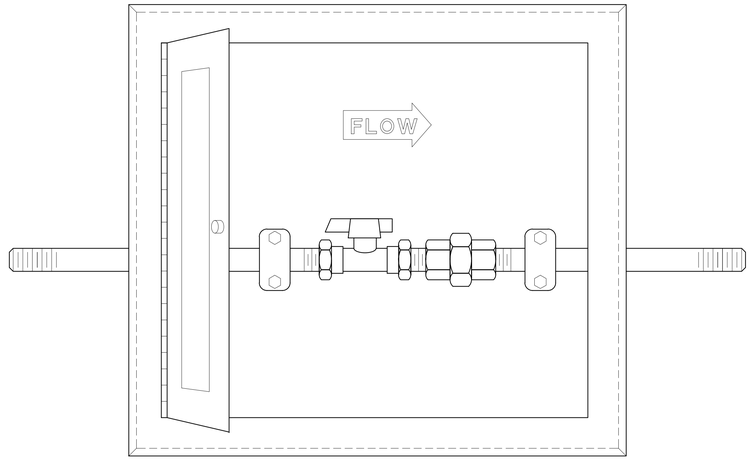
3 / P400 Typical Wall Penetration Detail

SCALE: NONE



4 / P400 Typical Pipe Sleeve Detail

SCALE: NONE



6 / P400 Master Gas Valve Shutoff Box Detail

SCALE: NONE

VALVE CABINET:

PROVIDE VALVE CABINET EQUAL TO BEACON MEDAES MGVB SERIES. VALVE CABINET SHALL BE ALL TYPE 304 STAINLESS STEEL CONSTRUCTION WITH PIANO HINGED DOOR WITH WINDOW OPTION. WINDOW SHALL BE MINIMUM STURDY 1/4" POLYCARBONATE WINDOW FOR VALVE VISIBILITY WITHOUT OPENING DOOR. DOOR SHALL BE FURNISHED WITH "L" HANDLE CAM LATCH. VALVES SHALL BE APOLLO THREE PIECE 82-200 SERIES FULL PORT BALL VALVES.

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ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
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Date:	02/29/2024

Sheet Title

Plumbing Details

Sheet Number

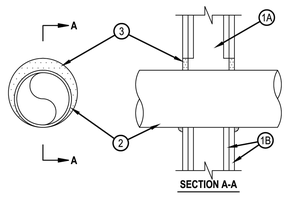
P400

WL 1054

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft L Rating at 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and 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. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board 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 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.

Hilti Firestop Systems

WL 1054

System No. W-L-1054

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous joint contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. 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. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

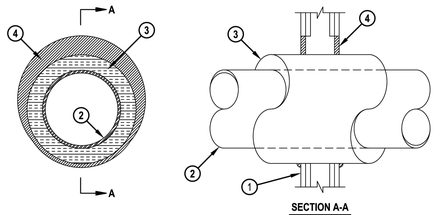
Hilti Firestop Systems

WL 5029

System No. W-L-5029

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)	F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)
T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
L Rating At Ambient — 4 CFM/Sq Ft	FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4)
L Rating At 400 F — Less Than 1 CFM/Sq Ft	FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
	L Rating At Ambient — 4 CFM/Sq Ft
	L Rating At 400 F — Less Than 1 CFM/Sq Ft



SECTION A-A

1. Wall Assembly — The 1, 2 or 3 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide for 1 and 2 hr F and FH rating and 3-1/2 in. (89 mm) wide for 3 hr F and FH rating and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. (473 mm).
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — One metallic pipe or tubing to be installed within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
   A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).
   D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper pipe shall not exceed 4 in. (102 mm).

Hilti Firestop Systems

WL 5029

System No. W-L-5029

3. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between insulated penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).
   See Pipe and Equipment Covering — Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
   The hourly T, FT, FTH Ratings of the firestop system are 1/2 hr for 1 hr rated walls and 1 hr for 2 hr rated walls. For 3 hr rated walls, the hourly T, FT and FTH Ratings when steel and iron pipes are used are 1 hr. For 3 hr rated walls, the hourly T, FT and FTH Ratings when copper penetrants are used are 1-1/4 hr for 2 in. (51 mm) thick pipe covering and 0 hr for pipe covering thickness less than 2 in. (51 mm).

3A. Pipe Covering* — (Not Shown) — As an alternate to Item 3, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. When the alternate pipe covering is used, the T and FT Rating shall be as specified in item 3 above.
   See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Fill, Void or Cavity Material* — Sealant — For 1 and 2 hr F and FH Rating, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For 3 hr F and FH Rating, min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

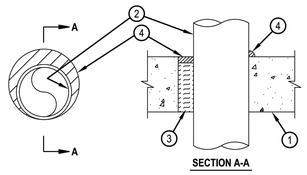
Hilti Firestop Systems

CAJ 1149

System No. C-AJ-1149

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating —2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
W Rating — Class 1 (See Item 4)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks *. Max diam of opening is 12 in. (305 mm).
   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 installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in. (point contact) to max 1-1/4 in. (32 mm). The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 in.) diam (or smaller) Regular (or heavier) copper pipe.
3. Packing Material — Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation for nom 4 in. diam (and smaller) pipes, conduits or tubings and a min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation for pipe greater than nom 4 in. diam, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
4. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. W Rating applies only when CFS-S SIL GG, CFS-S SIL SL (floors only), CP601S or CP604 sealant is used.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CP604, CFS-S SIL GG, CFS-S SIL SL (floors only), CP606 or FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

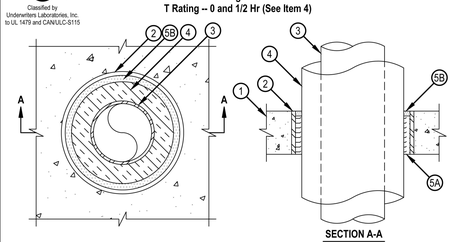
Hilti Firestop Systems

CAJ 5265

System No. C-AJ-5265

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

F Rating -- 2 Hr
T Rating -- 0 and 1/2 Hr (See Item 4)



SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete floor. Min 5 in. (127 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 12 in. (305 mm).
2. Steel Sleeve — (optional) - Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe cast or grouted into floor or wall assembly, flush with floor or wall surfaces.
3. Through-Penetrant — One metallic pipe, tube or conduit to be installed within the opening. The following types and sizes of metallic penetrants may be used:
   A. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
4. Pipe Covering* — Nom 2 in. (51 mm) thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the pipe covering and periphery of opening shall be min 1/4 in. (6 mm) to max 1-5/8 in. (41 mm).
   See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used
   The T Rating is 0 Hr when pipe covering is less than nom 2 in. (51 mm) thick.
5. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of 4 pcf (64 kg/m3) mineral wool batt insulation tightly packed into the opening as a permanent form. Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material - Sealant* — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus flush with the top surface of the floor or both surfaces of the wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

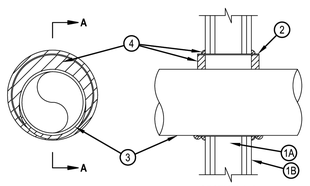
Hilti Firestop Systems

WL 1465

System No. W-L-1465

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 or 2 Hr (See Item 1)	F Ratings — 1 or 2 Hr (See Item 1)
T Rating — 0 and 1/4 Hr (See Item 1)	FT Rating — 0 and 1/4 Hr (See Item 1)
L Rating At Ambient — Less Than 1 CFM/Sq Ft	FH Rating — 1 or 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/Sq Ft	FTH Rating — 0 and 1/4 Hr (See Item 1)
	L Rating At Ambient — Less Than 1 CFM/Sq Ft
	L Rating At 400 F — Less Than 1 CFM/Sq Ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and 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. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 10 in. (254 mm).
   The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The T, FT, FTH Ratings are 0 and 1/4 hr for 1 and 2 hr rated wall assemblies, respectively.
2. Steel Sleeve — Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) thick galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers. The ends of the steel sleeve shall be flush with or extend max 1 in. (25 mm) beyond each surface of the wall.

Hilti Firestop Systems

WL 1465

System No. W-L-1465

3. Through Penetrants — 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 sleeve shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). 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 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

Configuration A

4. Fill, Void or Cavity Material* — Sealant — Min 1 in. (25 mm) thickness of sealant applied within annulus, flush with both ends of sleeve. A min 1/4 in. (6 mm) diam bead of sealant to be applied at the tubing/sleeve interface at the point contact location and around the entire perimeter of the sleeve at the sleeve/gypsum board interface when the sleeve extends beyond the wall surface.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Sealant, FS ONE Sealant or FS-ONE MAX Intumescent Sealant

Configuration B

4. Firestop System — The firestop system shall consist of the following items:
   A. Packing Material — Min 5/8 in. (16 mm) thickness of min 4 pcf Mineral wool bat insulation compressed and tightly and packed in to each end of the sleeve. Packing material is to be recessed from each end of the sleeve to accommodate fill material.
   A1. Packing Material* - Strips — (As an alternate to Config .B Item 4A) - Nom 5/8 in. in. (16 mm) wide precut mineral wool strips. The strips are firmly packed into the gap between penetrant and the steel sleeve Item 2 on both sides of the wall. Packing material is to be recessed from each end of the sleeve to accommodate fill material.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips
   B. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of sealant applied within annulus, flush with both ends of sleeve. A min 1/4 in. (6 mm) diam bead of sealant to be applied at the tubing/sleeve interface at the point contact location and around the entire perimeter of the sleeve at the sleeve/gypsum board interface when the sleeve extends beyond the wall surface.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Sealant or FS ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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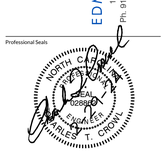
Professional Seals



ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

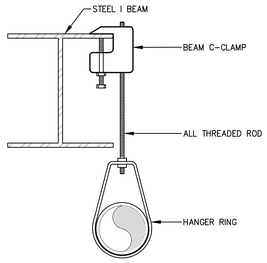
Project Number:	23-067
Drawn:	LDH
Checked:	CTC
Date:	02/29/2024

Sheet Title

Plumbing Details

Sheet Number

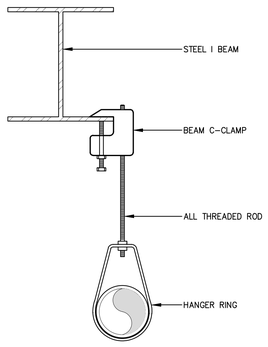
P401



FOR PIPE SIZES 1" – 4" Pipe – 3/8" ROD AND ATTACHMENTS
FOR PIPE SIZES 5" – 8" Pipe – 1/2" ROD AND ATTACHMENTS

1 FP001 Top Beam Clamp

SCALE: NONE



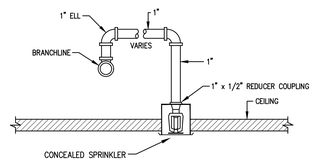
1" THROUGH 4" Pipe – 3/8" ROD AND ATTACHMENTS
5" THROUGH 8" Pipe – 1/2" ROD AND ATTACHMENTS
10"&12" – 5/8" ROD AND ATTACHMENTS

NOTE:

ALL ROD SHALL EXTEND DOWN TO TOP OF PIPE WHERE PRESSURE EXCEEDS 100 PSI

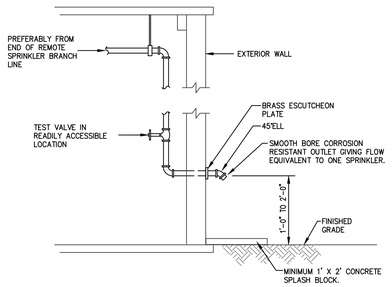
2 FP001 Beam Clamp Assembly

SCALE: NONE



3 FP001 Pendent Sprinkler Return Bend Detail

SCALE: NONE — Concealed Style

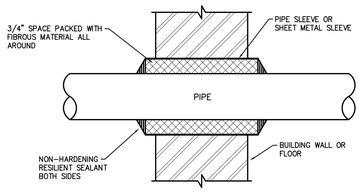


4 FP001 Inspector's Test Connection Detail

SCALE: NONE

NOTE:

1. ALL EXPOSED PIPING MUST BE PAINTED WITH A MINIMUM OF (1) COAT PRIMER AND (2) COATS OF BRIGHT RED PAINT.



5 FP001 Typical Wall Penetration Detail

SCALE: NONE

GENERAL SPRINKLER INSTALLATION NOTES:

A. THE AUTOMATIC SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED IN STRICT ACCORDANCE WITH NFPA STANDARD 13. THE NORTH CAROLINA BUILDING CODE, AND WITH ALL OTHER STATE, COUNTY, LOCAL AUTHORITIES HAVING JURISDICTION, THESE PLANS AND SPECIFICATIONS.

B. THE AUTOMATIC SPRINKLERS, PIPING AND EQUIPMENT LOCATED ON THE DRAWINGS ARE DIAGRAMMATIC, ARE FOR COORDINATION, AND DO NOT CONSTITUTE ALL COMPONENTS OF A COMPLETE AND OPERATING AUTOMATIC SPRINKLER SYSTEM. THE CONTRACTOR SHALL PROVIDE COMPLETE COVERAGE THROUGHOUT ALL PROJECT AREAS INCLUDING EQUIPMENT AND OBSTRUCTIONS OR DUCTWORK AS INDICATED BY NFPA–FULLY TESTED AND PLACED IN SERVICE.

C. ALL SPRINKLER WORK SHALL BE PERFORMED BY A FIRE SPRINKLER CONTRACTOR LICENSED IN THE STATE OF NORTH CAROLINA.

D. PIPING FOR WET–PIPE SYSTEMS SHALL BE SCHEDULE 40 BLACK STEEL WHERE THREADED, AND SCHEDULE 10 OR 40 BLACK STEEL WHERE JOINED BY GROOVE MECHANICAL FITTINGS. THREADED FITTINGS SHALL BE CAST IRON OR MALLEABLE PER NFPA 13. ALL DRAIN PIPING SHALL BE GALVANIZED STEEL. ALL UNDERGROUND PIPING SHALL BE DUCTILE IRON.

E. SPRINKLERS INSTALLED WITHIN AREAS OF LAY–IN ACOUSTIC TYPE OR OTHER THAN LAY–IN TYPE FINISHED CEILINGS SHALL BE CONCEALED STYLE SPRINKLERS UNLESS NOTED OTHERWISE ON PLANS. SPRINKLER HEADS SHALL BE INSTALLED IN CENTER OF LAY–IN ACOUSTIC CEILING TILE. EXPOSED SPRINKLERS IN AREAS WITH NO CEILINGS SHALL BE BRASS UPRIGHT OR PENDENT AS THE CONDITION REQUIRES. SPRINKLERS LOCATED WITHIN AREAS OF DANGER OF DAMAGE SHALL HAVE PROTECTIVE WIRE GUARDS. REFER TO AUTOMATIC SPRINKLER LEGEND FOR ADDITIONAL INFORMATION.

F. INSTALL ALL SPRINKLERS USING "RETURN BENDS." SPRINKLERS LOCATED IN GYPSUM BOARD OR PLASTER CEILINGS (INCLUDING GYPSUM BOARD CEILINGS WITH VENEER FINISH) SHALL BE LOCATED INLINE WITH OTHER CEILING ELEMENTS IN THE CEILING (SUCH AS LIGHTS, DIFFUSERS, ETC.) AND IN A SYMMETRIC MANNER AS SHOWN ON THE FIRE PROTECTION PLANS AND/OR THE ARCHITECTURAL REFLECTED CEILING PLANS.

G. PROVIDE FIRE STOP AT PIPE PENETRATIONS THROUGH FIRE RATED PARTITIONS AND WALLS. ALL NON RATED WALLS SHALL BE SEALED AS DETAILED.

H. ALL PIPING SHALL BE LOCATED CONCEALED ABOVE CEILING AND IN WALLS OR CHASES UNLESS LOCATED IN AREAS WITH NO CEILING. ALL PIPING EXPOSED TO VIEW OR TO THE OUTDOORS SHALL BE CLEANED AND PAINTED WITH (1) COAT PRIMER AND (2) COATS OF APPROVED RED PAINT. THIS INCLUDES ALL MECHANICAL AND ELECTRICAL ROOMS. LABEL ALL EXPOSED PIPING "FIRE SERVICE" PER SPECIFICATIONS.

I. ALL PIPE CUTTING OIL TO BE BIODEGRADABLE.

J. INSPECTOR'S TEST AND DRAINS SHALL BE PIPED TO AN APPROVED OUTDOOR LOCATION.

K. ALL PIPING (INCLUDING FDC PIPING) SHALL BE FLUSHED AND HYDROSTATICALLY TESTED PER NFPA.

L. SUBMIT "WORKING" SHOP DRAWINGS HYDRAULIC CALCULATIONS, AND EQUIPMENT BROCHURES TO THE ENGINEER OF REVIEW AS OUTLINED IN SPECIFICATIONS BY ELECTRONIC FILE OR HARD COPIES. NO SPRINKLER INSTALLATION SHALL BE STARTED PRIOR TO APPROVAL. PREPARATION OF THE WORKING DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BE THE RESPONSIBILITY OF THE LICENSED FIRE SPRINKLER CONTRACTOR AND SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER OR NICET LEVEL III (MINIMUM) TECHNICIAN. WORKING SHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED IN STRICT ACCORDANCE AND DEFINED BY NFPA 13. DRAWINGS SHALL INCLUDE PIPE SIZES AND ELEVATIONS, BUILDING SECTIONS, DUCTWORK, LIGHTS, DIFFUSERS, ETC. INCLUDE OTHER TRADES SUCH AS STRUCTURAL, PLUMBING, ETC. AS NECESSARY FOR A COMPLETE AND COORDINATED SET OF WORKING DRAWINGS.

M. **ELON PROJECT MANAGER AND PLUMBING DEPARTMENT SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO ANY SCHEDULED SPRINKLER OUTAGE.

SPRINKLER DATA SHEET:

NAME OF PROJECT:

ELON McMICHAEL SCIENCE CENTER BUILDING – Phase 2
314 EAST HAGGARD AVENUE
ELON, NC 27244

1. CLASSIFICATION OF TYPE(S) OF SYSTEM (NFPA 13):

A. WET–PIPE SPRINKLER SYSTEM THROUGHOUT ENTIRE BUILDING SPACES.

2. WATER SUPPLY AVAILABLE (NFPA13.2.2):

TEST RESULTS:

A.	WATERFLOW:	1,810 GPM
B.	STATIC PRESSURE:	60 PSIG
C.	RESIDUAL PRESSURE:	45 PSIG
D.	20 PSI FLOW:	4,900 GPM
E.	DATE:	05/22/2020
F.	FLOW TEST PERFORMED BY:	HAZEN & SAWYER (FOR TOWN OF ELON)
G.	ELEVATION:	APPROX. 709 FT.
	TEST HYDRANT:	N. O'KELLY AVE. & MARTIN ALUMNI CENTER
H.	FLOW HYDRANT:	HAGGARD & N. O'KELLY

3. DESIGN (SPRINKLER CONTRACTOR SHALL INCLUDE A MINIMUM SAFETY FACTOR OF 10 PSI LESS STATIC, 10 PSI LESS RESIDUAL, AND 10 PERCENT LESS FLOW IN THE HYDRAULIC CALCULATIONS.)

4. CLASSIFICATION OF OCCUPANCY HAZARD:

A. LIGHT HAZARD PER NFPA 13 – OFFICES AND COMMON SPACES. 0.10 GPM/SQ.FT. OVER THE MOST REMOTE 1500 SQ.FT.
B. ORDINARY HAZARD PER NFPA 13 – MECHANICAL & ELECTRICAL ROOMS. 0.20 GPM/SQ.FT. OVER THE MOST REMOTE 2500 SQ.FT.

5. SYSTEM DESIGN:

A. HYDRAULICALLY CALCULATED PER NFPA 13.
B. 225 S.F. MAXIMUM PER SPRINKLER.

* NOTE: SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING CURRENT WATER FLOW TEST FOR USE IN HYDRAULIC CALCULATIONS.

ABBREVIATIONS

SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR ELEVATION
AFG	ABOVE FINISHED GRADE ELEVATION
CR	CONCENTRIC REDUCER
ELEV	ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FS	FLOW SWITCH
FT	FEET OF HEAD
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
NIC	NOT IN CONTRACT
OC	ON CENTER
PSIG	POUNDS PER SQUARE INCH GUAGE
TYP	TYPICAL
TS	SUPERVISORY "TAMPER" SWITCH

AUTOMATIC SPRINKLER LEGEND

SYMBOL	DESCRIPTION
E	EXISTING UPRIGHT SPRINKLER HEAD
C	EXISTING CONCEALED PENDANT SPRINKLER HEAD
E	EXISTING PENDANT SPRINKLER HEAD
	EXISTING SPRINKLER HEAD TO BE DEMOLISHED
C	CONCEALED PENDENT SPRINKLER HEAD – QUICK RESPONSE, MATCH EXISTING IN STYLE, COLOR, TEMPERATURE AND FINISH REPLACE ALL HEADS THROUGHOUT RENOVATION AREAS WITH CONCEALED HEADS UNLESS NOTED OTHERWISE
	UPRIGHT SPRINKLER HEAD – QUICK RESPONSE, BRASS HEAD, MATCH EXIST. IN TEMPERATURE

PIPE AND VALVE LEGEND

SYMBOL	DESCRIPTION
	AUTOMATIC SPRINKLER SYSTEM PIPING
FWS	FIRE SERVICE WATER PIPING
	PIPE UP
	PIPE DOWN
	PIPE CAP (GROOVED COUPLING)
	PIPE CAP (THREADED)
	TEE OFF TOP
	TEE OFF BOTTOM
	GATE VALVE
	BUTTERFLY VALVE
	BALL OR GLOBE VALVE
	DUAL TEXT ORIFICE–DRAIN VALVE
	CHECK VALVE
	FLOOR SPRINKLER CONTROL, TEST & DRAIN ASSEMBLY

FIRE PROTECTION SHEET INDEX

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT SEAL 028960 CRAIG T. CROWE

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

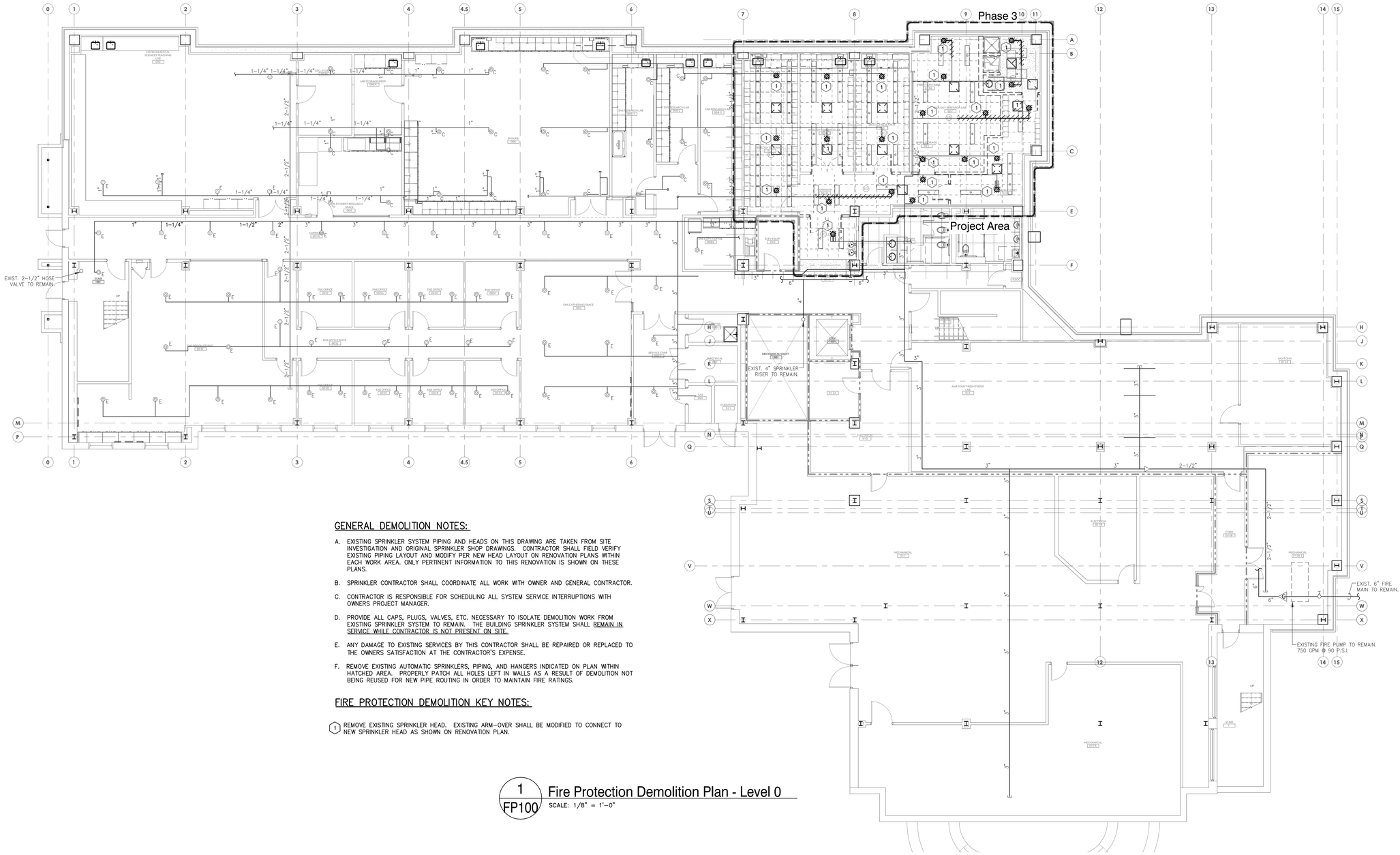
Project Number: 23-067
Drawn: LDH
Checked: CTC
Date: 02/29/2024

Sheet Title

Fire Protection Legends, Notes, Abbreviations & Schedules

Sheet Number

FP001



GENERAL DEMOLITION NOTES:

A. EXISTING SPRINKLER SYSTEM PIPING AND HEADS ON THIS DRAWING ARE TAKEN FROM SITE INVESTIGATION AND ORIGINAL SPRINKLER SHOP DRAWINGS. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING LAYOUT AND MODIFY PER NEW HEAD LAYOUT ON RENOVATION PLANS WITHIN EACH WORK AREA. ONLY PERTINENT INFORMATION TO THIS RENOVATION IS SHOWN ON THESE PLANS.

B. SPRINKLER CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER AND GENERAL CONTRACTOR.

C. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL SYSTEM SERVICE INTERRUPTIONS WITH OWNERS PROJECT MANAGER.

D. PROVIDE ALL CAPS, PLUGS, VALVES, ETC. NECESSARY TO ISOLATE DEMOLITION WORK FROM EXISTING SPRINKLER SYSTEM TO REMAIN. THE BUILDING SPRINKLER SYSTEM SHALL REMAIN IN SERVICE WHILE CONTRACTOR IS NOT PRESENT ON SITE.

E. ANY DAMAGE TO EXISTING SERVICES BY THIS CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE OWNERS SATISFACTION AT THE CONTRACTOR'S EXPENSE.

F. REMOVE EXISTING AUTOMATIC SPRINKLERS, PIPING, AND HANGERS INDICATED ON PLAN WITHIN HATCHED AREA. PROPERLY PATCH ALL HOLES LEFT IN WALLS AS A RESULT OF DEMOLITION NOT BEING REUSED FOR NEW PIPE ROUTING IN ORDER TO MAINTAIN FIRE RATINGS.

FIRE PROTECTION DEMOLITION KEY NOTES:

1 REMOVE EXISTING SPRINKLER HEAD. EXISTING ARM-OVER SHALL BE MODIFIED TO CONNECT TO NEW SPRINKLER HEAD AS SHOWN ON RENOVATION PLAN.

1 / FP100 Fire Protection Demolition Plan - Level 0

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
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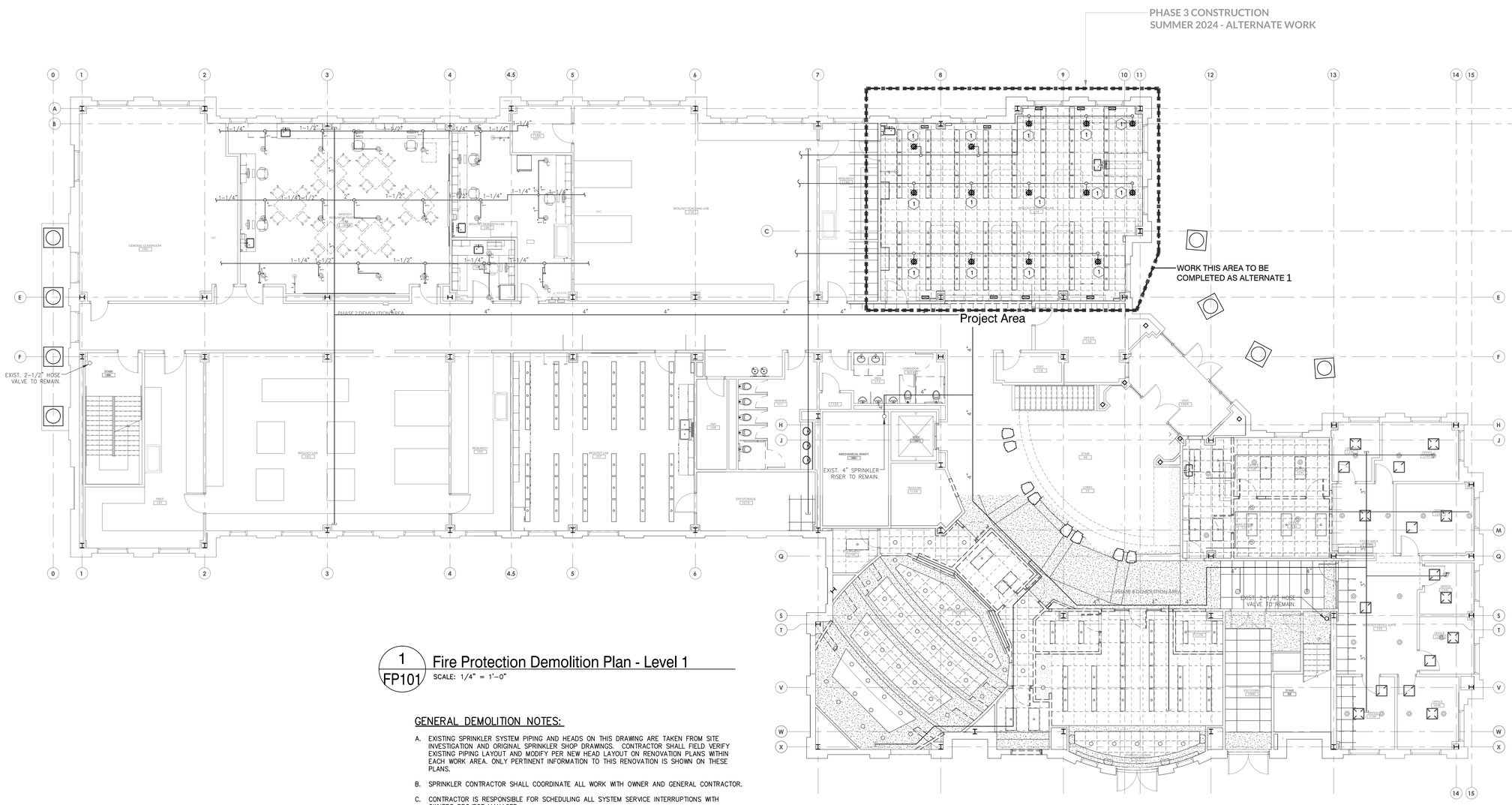
Date:	02/29/2024

Sheet Title

Fire Protection Demolition Plan - Level 0

Sheet Number

FP100



1 FP101 Fire Protection Demolition Plan - Level 1

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

GENERAL DEMOLITION NOTES:

A. EXISTING SPRINKLER SYSTEM PIPING AND HEADS ON THIS DRAWING ARE TAKEN FROM SITE INVESTIGATION AND ORIGINAL SPRINKLER SHOP DRAWINGS. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING LAYOUT AND MODIFY PER NEW HEAD LAYOUT ON RENOVATION PLANS WITHIN EACH WORK AREA. ONLY PERTINENT INFORMATION TO THIS RENOVATION IS SHOWN ON THESE PLANS.

B. SPRINKLER CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER AND GENERAL CONTRACTOR.

C. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL SYSTEM SERVICE INTERRUPTIONS WITH OWNERS PROJECT MANAGER.

D. PROVIDE ALL CAPS, PLUGS, VALVES, ETC. NECESSARY TO ISOLATE DEMOLITION WORK FROM EXISTING SPRINKLER SYSTEM TO REMAIN. THE BUILDING SPRINKLER SYSTEM SHALL REMAIN IN SERVICE WHILE CONTRACTOR IS NOT PRESENT ON SITE.

E. ANY DAMAGE TO EXISTING SERVICES BY THIS CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE OWNERS SATISFACTION AT THE CONTRACTOR'S EXPENSE.

F. REMOVE EXISTING AUTOMATIC SPRINKLERS, PIPING, AND HANGERS INDICATED ON PLAN WITHIN HATCHED AREA. PROPERLY PATCH ALL HOLES LEFT IN WALLS AS A RESULT OF DEMOLITION NOT BEING REUSED FOR NEW PIPE ROUTING IN ORDER TO MAINTAIN FIRE RATINGS.

FIRE PROTECTION DEMOLITION KEY NOTES:

1. REMOVE EXISTING SPRINKLER HEAD. EXISTING ARM-OVER SHALL BE MODIFIED TO CONNECT TO NEW SPRINKLER HEAD AS SHOWN ON RENOVATION PLAN.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
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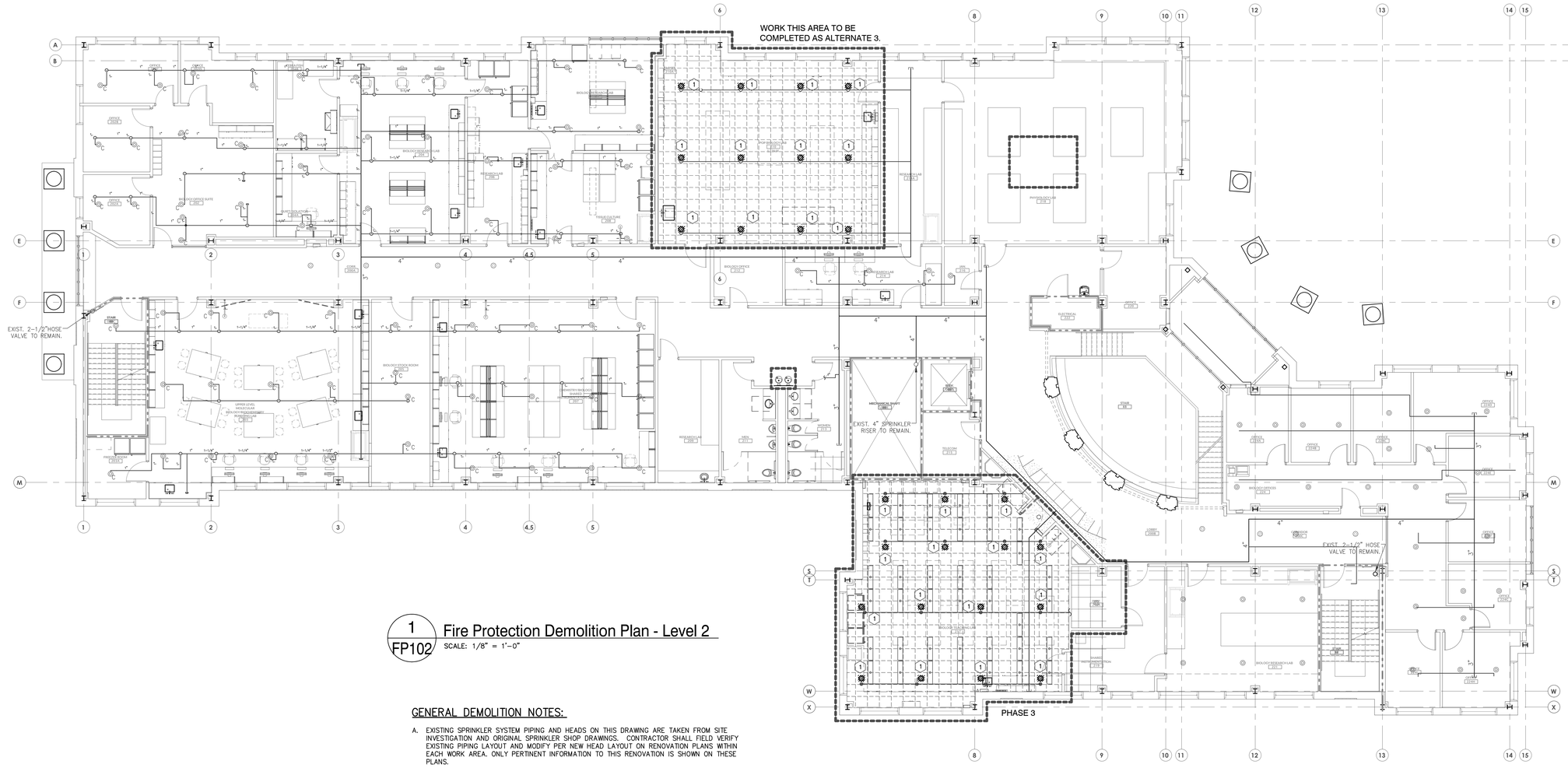
Sheet Title

Fire Protection Demolition Plan - Level 1

Sheet Number

FP101



1 FP102 Fire Protection Demolition Plan - Level 2

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

GENERAL DEMOLITION NOTES:

A. EXISTING SPRINKLER SYSTEM PIPING AND HEADS ON THIS DRAWING ARE TAKEN FROM SITE INVESTIGATION AND ORIGINAL SPRINKLER SHOP DRAWINGS. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPING LAYOUT AND MODIFY PER NEW HEAD LAYOUT ON RENOVATION PLANS WITHIN EACH WORK AREA. ONLY PERTINENT INFORMATION TO THIS RENOVATION IS SHOWN ON THESE PLANS.

B. SPRINKLER CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER AND GENERAL CONTRACTOR.

C. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL SYSTEM SERVICE INTERRUPTIONS WITH OWNERS PROJECT MANAGER.

D. PROVIDE ALL CAPS, PLUGS, VALVES, ETC. NECESSARY TO ISOLATE DEMOLITION WORK FROM EXISTING SPRINKLER SYSTEM TO REMAIN. THE BUILDING SPRINKLER SYSTEM SHALL REMAIN IN SERVICE WHILE CONTRACTOR IS NOT PRESENT ON SITE.

E. ANY DAMAGE TO EXISTING SERVICES BY THIS CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE OWNERS SATISFACTION AT THE CONTRACTOR'S EXPENSE.

F. REMOVE EXISTING AUTOMATIC SPRINKLERS, PIPING, AND HANGERS INDICATED ON PLAN WITHIN HATCHED AREA. PROPERLY PATCH ALL HOLES LEFT IN WALLS AS A RESULT OF DEMOLITION NOT BEING REUSED FOR NEW PIPE ROUTING IN ORDER TO MAINTAIN FIRE RATINGS.

FIRE PROTECTION DEMOLITION KEY NOTES:

1. REMOVE EXISTING SPRINKLER HEAD. EXISTING ARM-OVER SHALL BE MODIFIED TO CONNECT TO NEW SPRINKLER HEAD AS SHOWN ON RENOVATION PLAN.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

North

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Key Plan

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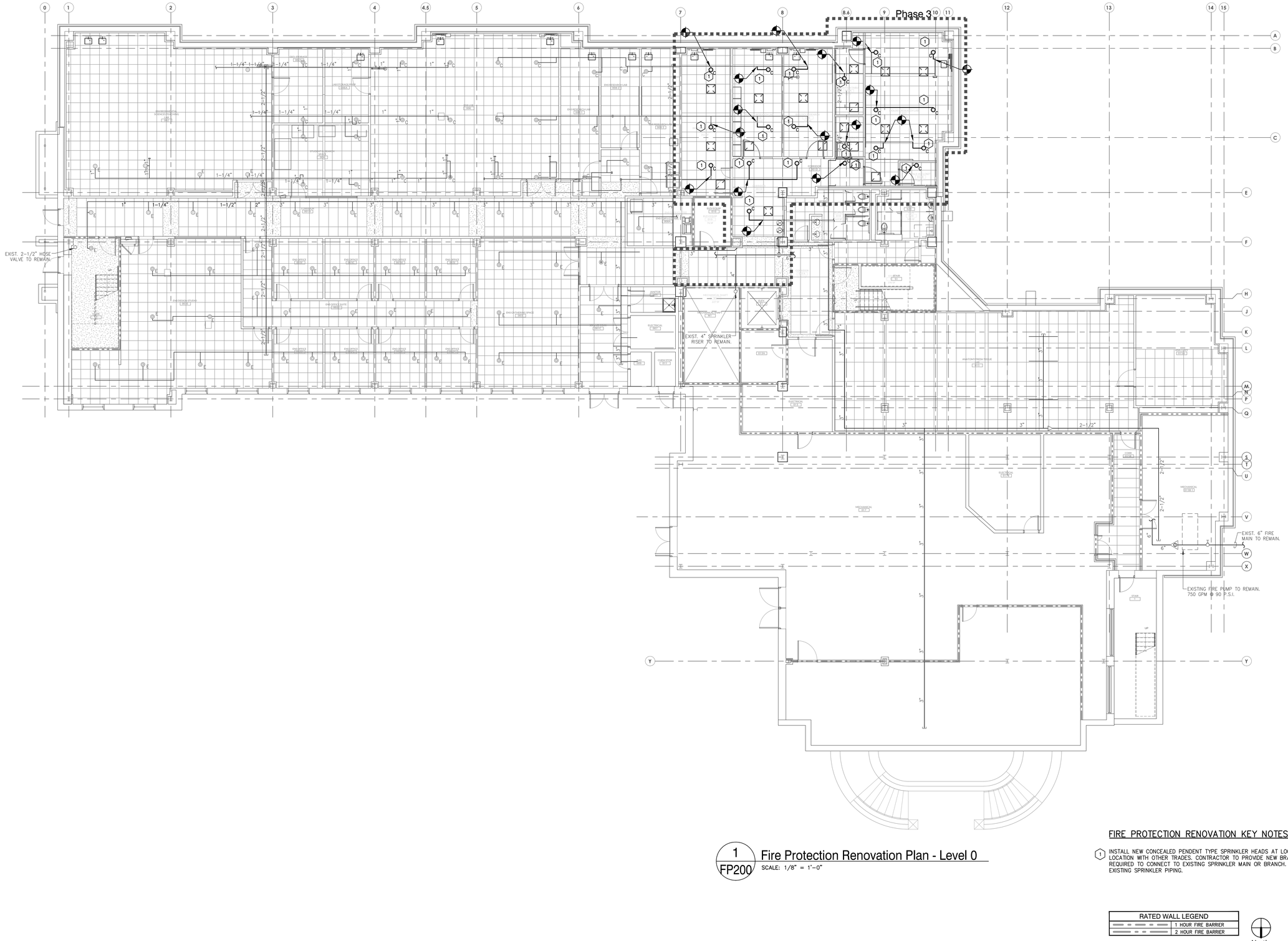
Sheet Title

Fire Protection Demolition Plan - Level 2

Sheet Number

FP102



1 FP200 Fire Protection Renovation Plan - Level 0

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

FIRE PROTECTION RENOVATION KEY NOTES:

1. INSTALL NEW CONCEALED PENDENT TYPE SPRINKLER HEADS AT LOCATIONS SHOWN. COORDINATE LOCATION WITH OTHER TRADES. CONTRACTOR TO PROVIDE NEW BRANCH PIPING AND ARM-OVERS AS REQUIRED TO CONNECT TO EXISTING SPRINKLER MAIN OR BRANCH. CONTRACTOR TO FIELD LOCATE EXISTING SPRINKLER PIPING.

RATED WALL LEGEND
1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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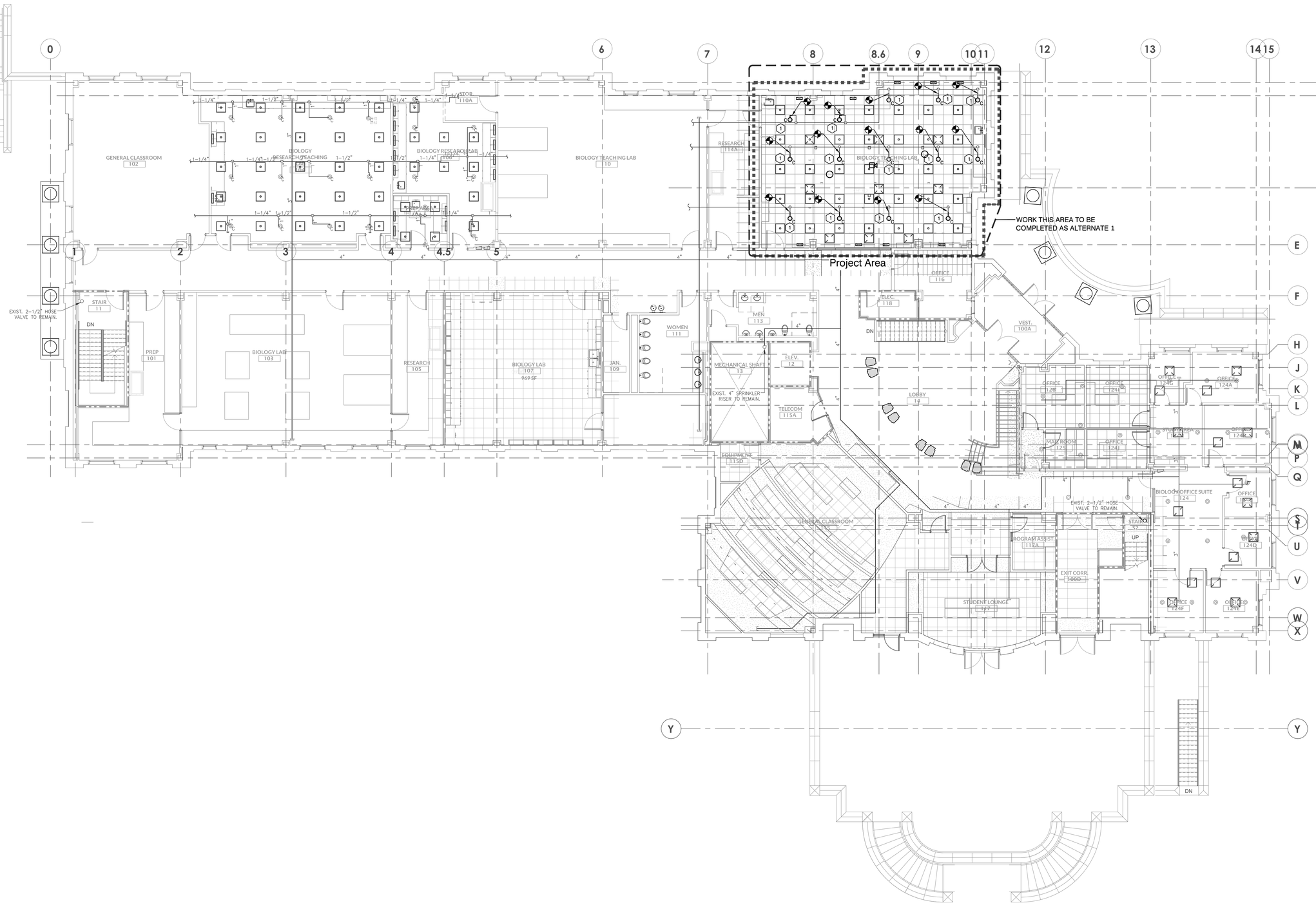
Sheet Title

Fire Protection Renovation Plan - Level 0

Sheet Number

FP200



1 / FP201 Fire Protection Renovation Plan - Level 1

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

FIRE PROTECTION RENOVATION KEY NOTES:

1. INSTALL NEW CONCEALED PENDENT TYPE SPRINKLER HEADS AT LOCATIONS SHOWN. COORDINATE LOCATION WITH OTHER TRADES. CONTRACTOR TO PROVIDE NEW BRANCH PIPING AND ARM-OVERS AS REQUIRED TO CONNECT TO EXISTING SPRINKLER MAIN OR BRANCH. CONTRACTOR TO FIELD LOCATE EXISTING SPRINKLER PIPING.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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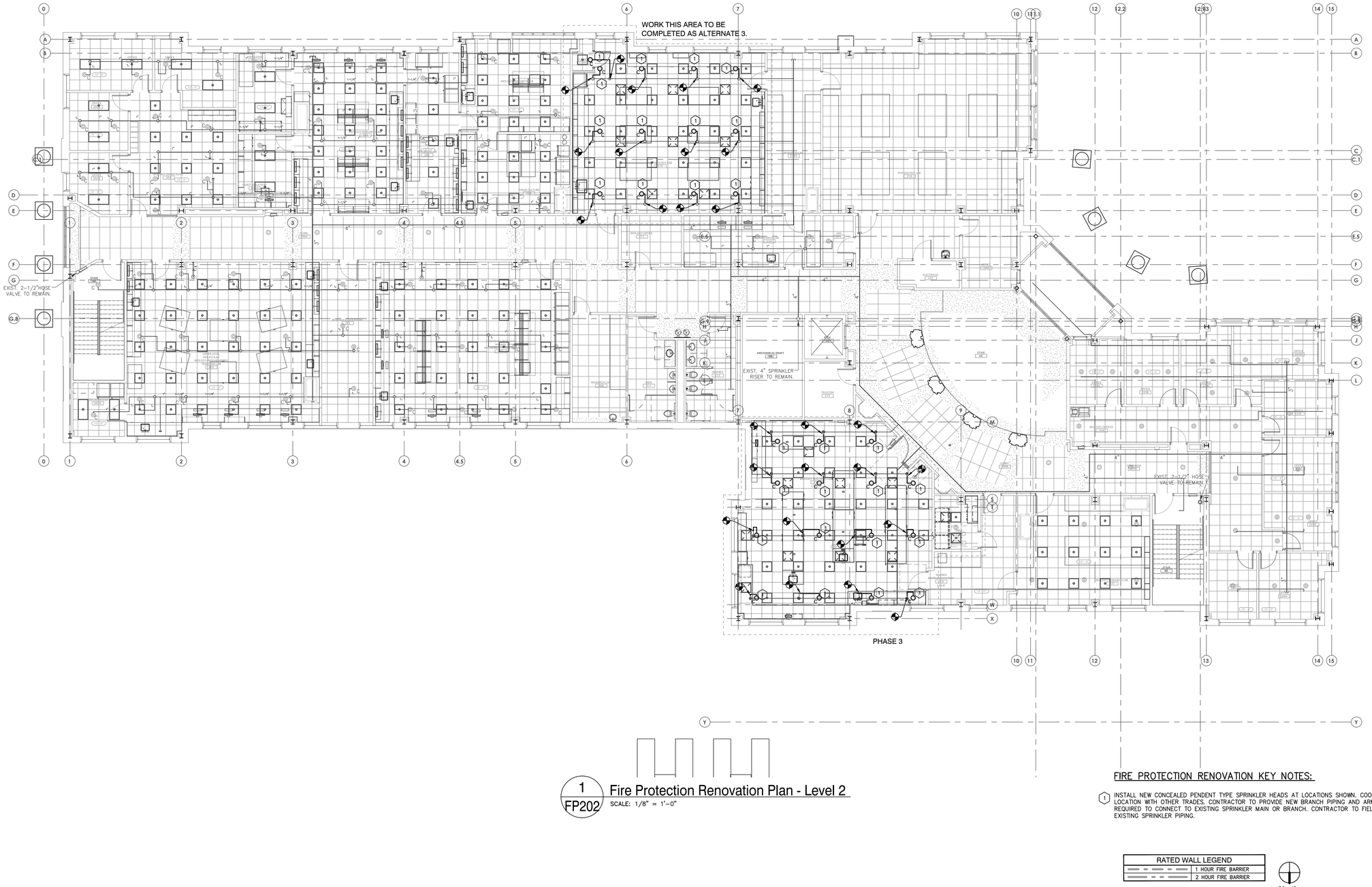
Sheet Title

Fire Protection Renovation Plan - Level 1

Sheet Number

FP201



1 FP202 Fire Protection Renovation Plan - Level 2

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

FIRE PROTECTION RENOVATION KEY NOTES:

1 INSTALL NEW CONCEALED PENDENT TYPE SPRINKLER HEADS AT LOCATIONS SHOWN. COORDINATE LOCATION WITH OTHER TRADES. CONTRACTOR TO PROVIDE NEW BRANCH PIPING AND ARM-OVERS AS REQUIRED TO CONNECT TO EXISTING SPRINKLER MAIN OR BRANCH. CONTRACTOR TO FIELD LOCATE EXISTING SPRINKLER PIPING.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

Fire Protection Renovation Plan - Level 2

Sheet Number

FP202

PRE-TAB OF EXISTING HVAC AIR SYSTEMS

PRIOR TO ANY DEMOLITION OR OTHER WORK TO THE EXISTING HVAC SUPPLY, RETURN AND EXHAUST AIR SYSTEMS, THE CONTRACTOR SHALL CONDUCT A COMPLETE PRE-CONSTRUCTION "PRE-TAB" OF THOSE SYSTEMS.

THE PRE-TAB SHALL CONSIST OF MEASURING THE SUPPLY, RETURN AND EXHAUST AIRFLOWS FOR EACH SPACE WITHIN THE PROJECT AREA – BY DIRECT AIRFLOW MEASUREMENT OF EACH SUPPLY DIFFUSER, RETURN AND/OR EXHAUST GRILLE VIA FLOW-HOOD AND BY VAV TERMINAL UNIT AIRFLOW MEASUREMENT. TAKE STATIC PRESSURE READINGS OF THE SUPPLY DUCT MAINS UPSTREAM OF THE PLANNED RENOVATION S. TAKE STATIC PRESSURE READINGS OF THE RETURN AND EXHAUST MAINS DOWNSTREAM OF THE RENOVATIONS EACH FLOOR. MEASURE INLET AND OUTLET TEMPERATURE OF EACH SUPPLY AIR TERMINAL WHILE IN HEATING MODE -- OR HOT WATER FLOWRATE AT CIRCUIT SETTER. PREPARE AND SUBMIT A TYPED REPORT TO THE ENGINEER AND ELON PROJECT MANAGER FOR REVIEW PRIOR TO ANY DEMOLITION OF HVAC SYSTEMS.

EXISTING BUILDING AUTOMATION CONTROL SYSTEM (BAS)

AN EXISTING JOHNSON CONTROLS (JCI) BUILDING AUTOMATION SYSTEM CONTROLS MUCH OF THE BUILDING. THE PREVIOUS 2022 SUMMER (PHASE 1 AND 2023 SUMMER (PHASE 2) RENOVATION PROJECTS REMOVED THE EXISTING JCI CONTROLS FROM THE RENOVATED SPACES. A NEW AUTOMATED LOGIC (ALC) BAS FRONT END WAS INSTALLED AND ALC CONTROLS INSTALLED ON ALL NEW EQUIPMENT IN THE PHASE 1 AND PHASE 2 RENOVATIONS. RENOVATION PHASE 3 WILL LIKEWISE CONTINUE THIS TRANSITION TO ALC CONTROLS.

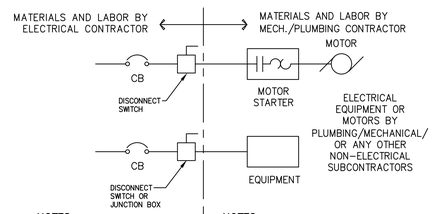
JOHNSON CONTROLS WILL DEMOLISH THE EXISTING CONTROLS AFFECTED BY THE PHASE 3 HVAC WORK, WHICH MAY ALSO INCLUDE THE EXISTING INTERFACE WITH THE LAB PHOENIX CONTROLS. AUTOMATED LOGIC WILL EXTEND THEIR NEW SYSTEM CONTROLS TO ALL NEW HVAC WORK INCLUDED IN THIS PROJECT – INCLUDING NEW VAV TERMINALS, THE ASSOCIATED HOT WATER RE-HEAT COIL CONTROLS. AND INTERFACE WITH THE NEW PHOENIX VALVE CONTROLS. THE JCI CONTRACTOR IS TO CLOSELY COORDINATE THEIR SYSTEM DECOMMISIONING WORK WITH THE GENERAL CONTRACTOR, ELON PROJECT MANAGER, AND EDMONDSON ENGINEERS – THE ENGINEER OF RECORD.

ALC WILL PROVIDE ALL LOW-VOLTAGE WIRING AND CONDUIT TO NEW TERMINAL BOXES, AND CONTROL DEVICES. NEW 120-V POWER WILL BE ROUTED TO NEW JUNCTION BOXES ABOVE THE CEILING BY THE ELECTRICAL CONTRACTOR OR CONNECT TO EXISTING 24-VOLT CONTROL WIRING.

ALAMANCE COUNTY INSPECTIONS

AT THE TIME OF INSPECTION, PROVIDE THE FOLLOWING:

A. MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR AHU, VAV TERMINALS, FIRE AND SMOKE DAMPERS.
B. TEST & BALANCE REPORTS.
C. DUCT SMOKE DETECTORS SHALL BE TESTED BY SMOKE MACHINE PROVIDED BY THE CONTRACTOR.



NOTES:

CONTRACTORS SHALL COORDINATE WITH EACH OTHER TO VERIFY EQUIPMENT NAMEPLATE RATINGS AND LOCATIONS BEFORE INSTALLATION OF CONDUIT, WIRING, CIRCUIT BREAKER, DISCONNECT SWITCH, OR FUSES. WHERE FUSED DISCONNECTS ARE SPECIFIED IN THE ELECTRICAL CONSTRUCTION DOCUMENTS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE APPROPRIATELY SIZED FUSES.

NOTES:

EQUIPMENT PROVIDED BY NON-ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY THE SUBCONTRACTOR PROVIDING THE EQUIPMENT. THIS INSTALLATION SHALL INCLUDE:

1. ALL POWER CONDUIT AND WIRING ON THE LOAD SIDE OF THE DISCONNECT SWITCH.
2. ALL CONTROLS AND CONTROL CONDUIT AND WIRING.

ALL CONDUIT AND WIRING (POWER AND CONTROL) INSTALLED BY THE NON-ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY A LICENSED ELECTRICAL CONTRACTOR PER THE DIVISION 26 SPECIFICATIONS AND SHALL BE INSPECTED BY THE ELECTRICAL INSPECTOR HAVNG JURISDICTION.

1 / M001 — Motor / Equipment Installation - Division of Work

SCALE: NONE

MECHANICAL ABBREVIATIONS

ATU	AIR TERMINAL UNIT (TERMINAL BOX)
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CFM	CUBIC FEET PER MINUTE
CT	TERMINAL BOX CONTROL TRANSFORMERS
DB	DRY BULB TEMPERATURE
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HOA	HAND OFF AUTOMATIC
HW	HYDRONIC HEATING HOT WATER
LAT	LEAVING AIR TEMPERATURE
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTDOOR AIR
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
RA	RETURN AIR
RB	RE-BALANCE
RH	RELATIVE HUMIDITY
SA	SUPPLY AIR
SP	STATIC PRESSURE
TAB	TESTING, ADJUSTING, AND BALANCING
TYP.	TYPICAL
WG	WATER GAUGE
XE	EXISTING EXHAUST AIR GRILLE
XR	EXISTING RETURN AIR GRILLE
XS	EXISTING SUPPLY AIR GRILLE

GENERAL DEMOLITION NOTES

1. THE DEMOLITION PLAN IS INTENDED TO PROVIDE THE CONTRACTOR WITH A GENERAL KNOWLEDGE OF THE EXISTING CONDITIONS WITHIN THE PROJECT AREA. EXISTING EQUIPMENT, STRUCTURE, DUCTWORK, ETC. LOCATED ON DRAWING WERE DERIVED FROM EXISTING DRAWINGS AND LIMITED FIELD OBSERVATIONS. THESE DRAWINGS ARE NOT ALL INCLUSIVE OF SERVICES THAT EXIST IN THE PROJECT AREA. ANY DEVIATIONS IMPACTING WORK SHOWN ON THESE DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT AND ENGINEER PRIOR TO BEGINNING DEMOLITION. BEGINNING OF DEMOLITION SHALL SIGNIFY CONTRACTORS ACCEPTANCE OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED DEMOLITION WHETHER SHOWN ON THE PLANS OR NOT.
2. CONTRACTOR SHALL PERFORM A PRE-BID SURVEY TO FIELD-VERIFY AND COORDINATE ALL DIMENSIONS PRIOR TO PROCUREMENT OR FABRICATION. FIELD CONDITIONS SHALL GOVERN. COORDINATE THE WORK WITH OTHER TRADES INVOLVED. COORDINATE NEW WORK WITH EXISTING ELEMENTS SUCH AS THE BUILDING STRUCTURE AND ARCHITECTURAL FEATURES, SPRINKLER PIPING, LIGHTS, PLUMBING, AND ELECTRICAL CONDUIT. COST OF REROUTING DUCTWORK OR PIPING DUE TO CONFLICTS WITH EXISTING CONDITIONS SHALL BE PAID BY CONTRACTOR.
3. PRIOR TO THE START OF ANY DEMOLITION WORK BY ANY TRADE, ISOLATE ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK IN PROJECT AREA FROM THE REMAINING BUILDING BY CAPPING DUCT MAINS AT THE POINT OF CONNECTION BETWEEN "EXISTING DUCT TO REMAIN" AND "EXISTING DUCT TO BE DEMOLISHED", AS INDICATED ON DRAWINGS BY SYMBOL.
4. PROVIDE A PRE-CONSTRUCTION TEST AND BALANCE REPORT FOR ALL AIR DISTRIBUTION DEVICES AND ASSOCIATED MECHANICAL EQUIPMENT SERVING THE PROJECT AREA. MEASUREMENTS INCLUDE NAMEPLATE DATA SUPPLY AIRFLOW, RETURN AIRFLOW, OUTDOOR AIRFLOW, EXHAUST AIRFLOW, MOTOR HP, MOTOR FLA AND VOLTAGE, PRESSURE DROP ACROSS COILS AND FILTERS, AND FAN EXTERNAL STATIC PRESSURE. REPORT SHALL INCLUDE NOTES OF ANY DEFICIENCES. SUBMIT TAB REPORT TO THE ARCHITECT AND ENGINEER PRIOR TO BEGINNING DEMOLITION WORK.
5. CONTRACTOR SHALL PROVIDE MECHANICAL WORK FOR PHASING AS REQUIRED OR DIRECTED BY THE ARCHITECT. COORDINATE WITH ARCHITECTURAL PHASING PLANS. TEMPORARY MECHANICAL SERVICES SHALL BE PROVIDED WHEN NEW WORK AFFECTS SERVICES NEEDING TO REMAIN ACTIVE. ORGANIZE WORK TO MINIMIZE THE DURATION OF EXISTING UTILITY SERVICE INTERRUPTIONS. DEMOLITION WORK SHOWN PARTIALLY REPRESENTS CONDITIONS AT THE END OF CONSTRUCTION. TEMPORARY HVAC CONSTRUCTION SUCH AS DUCTWORK, PIPING AND REBALANCING IN-BETWEEN PHASES WHICH SHALL BE PROVIDED BY CONTRACTOR TO MAINTAIN SERVICE TO EXISTING SPACES IS NOT FULLY REPRESENTED IN THESE DOCUMENTS.
6. NO EXISTING PIPE OR DUCT SHALL BE LEFT OPEN AFTER PARTIAL REMOVAL. PIPES AND DUCTS SHALL EITHER BE CAPPED OR MADE READY FOR CONNECTION TO NEW WORK. MATERIALS USED FOR CAPPING SYSTEMS SHALL MATCH EXISTING UTILITY SERVICE.
7. ALL EXISTING FLOOR OPENINGS WHERE PIPE IS REMOVED SHALL BE PATCHED TO MATCH EXISTING FLOOR AND MAINTAIN ASSEMBLY FIRE RATING
8. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING FLOOR PENETRATIONS (ABOVE & BELOW) ARE PROPERLY FIRE STOPPED AFTER THE DEMOLITION
9. FIELD VERIFY ALL EXISTING PIPE LOCATIONS, SIZES, AND ELEVATIONS
10. REMOVE EXISTING ABANDONED PIPE HANGERS, RODS, AND SUPPORTS
11. ALL LINES THAT ARE TO BE REMOVED SHALL BE CAPPED AT A MAIN LINE, RISER OR STACK
12. ALL MECHANICAL SYSTEMS SERVING OTHER SPACES OR FLOORS THAT RUN THROUGH THE PROJECT AREA SHALL REMAIN ACTIVE DURING CONSTRUCTION SO AS NOT TO CAUSE ANY DISRUPTION TO THESE OTHER SPACES
13. ALL NEW AND EXISTING AIR DISTRIBUTION DEVICES LOCATED WITHIN PROJECT AREA SHALL BE FITTED WITH TEMPORARY CONSTRUCTION FILTERS THROUGHOUT PROJECT DURATION TO HELP PREVENT ACCUMULATION OF DUST IN DEVICES AND DUCTWORK
14. CONTRACTOR SHALL REMOVE OR RELOCATE EXISTING THERMOSTATS WHERE NECESSARY. REMOVED THERMOSTATS SHALL BE RETURNED TO OWNER
15. PROPERLY REMOVE AND DISPOSE OF ALL EXISTING TO BE REMOVED HVAC EQUIPMENT, DUCTWORK, AIR DISTRIBUTION DEVICES, HYDRONIC PIPING, SYSTEMS ETC.. CONSULT WITH OWNER AND OBTAIN OWNERS APPROVAL PRIOR TO DISPOSAL OF REMOVED MATERIAL.
16. ANY WORK REQUIRED OUTSIDE OF THE CONSTRUCTION LIMITS MUST BE COORDINATED WITH THE PROJECT MANAGER FOR METHOD OF ISOLATION. EXISTING UTILITY SERVICES SHALL REMAIN ACTIVE THROUGHOUT CONSTRUCTION DURATION. NEW UTILITY TIE-INS TO EXISTING SYSTEMS WHICH CANNOT BE ISOLATED WITHOUT AFFECTING AREAS OUTSIDE THE PROJECT AREA SHALL BE WITH HOT-TAPS.
17. REPROGRAM BUILDING CONTROLS TO REFLECT DEMOLITION WORK AFFECTING AIR TERMINAL UNITS, T-STATS, CONTROL VALVES, ETC.
18. ALL EXISTING BUILDING LIFE SAFETY COMPONENTS SUCH AS EXIT SIGNAGE, EXIT LIGHTS, FIRE ALARM, FIRE SPRINKLERS, ETC SHALL REMAIN CONTINUOUSLY OPERATIONAL AND FREE OF OBSTRUCTION FOR AREAS OUTSIDE OF THE CONSTRUCTION ZONE IN ORDER TO MAINTAIN BUILDING OCCUPANCY DURING CONSTRUCTION.

GENERAL NOTES

1. VERIFY EVERY ASPECT OF THE PROPOSED WORK AS DESCRIBED OR IMPLIED BY THE CONTRACT DOCUMENTS
2. PROVIDE ONLY NEW MATERIALS WITHOUT DEFECTS AND OF THE HIGHEST QUALITY OF THEIR SPECIFIED CLASS AND KIND
3. INSTALL ALL EQUIPMENT SO THAT ALL CODE-REQUIRED AND MANUFACTURER-RECOMMENDED SERVICING CLEARANCES ARE MAINTAINED. ADJUSTMENTS IN THESE LOCATIONS SHALL BE MADE BY THE CONTRACTOR TO FULLY COORDINATE WITH BUILDING CONDITIONS. MAINTAIN A MINIMUM OF 3FT CLEARANCE AROUND EQUIPMENT FOR SERVICING.
4. ALL ITEMS THAT REQUIRE ACCESS, I.E. FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE INCLUDING BUT NOT LIMITED TO ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, AND CONTROL DEVICES
5. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE MECHANICAL DRAWINGS REGARDING BUILDING CONSTRUCTION, DIMENSION AND ARRANGEMENT. LINES THAT REQUIRE SLOPE, SUCH AS PLUMBING WASTE LINES SHALL TAKE PRECEDENCE OVER ELECTRICAL LINES. CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL TRADES TO AVOID CONFLICTS AND SHALL PROVIDE ALL OFFSETS AND EQUIPMENT AS REQUIRED TO FIT THE MECHANICAL WORK INTO THE AVAILABLE SPACE.
6. READ ALL NOTES AND REMARKS SUPPLIED ON EQUIPMENT SCHEDULES
7. COORDINATE ALL SERVICE OUTAGES WITH OWNER. PROVIDE OWNER WITH WRITTEN NOTICE AT LEAST 48 HOURS PRIOR TO SHUTDOWN INDICATING DATE, DURATION, UTILITIES AFFECTED, AND TRADES AFFECTED. FINAL DATE OF SHUTDOWN TO BE DETERMINED BY DUKE AND MAY DIFFER FROM REQUESTED DATE.
8. CEILINGS REQUIRING REMOVAL FOR NEW WORK NOT INDICATED TO BE REMOVED ON ARCHITECTURAL PLANS SHALL BE REMOVED AND REPLACED AS REQUIRED BY THE GENERAL CONTRACTOR TO ACCOMMODATE NEW WORK
9. COORDINATE LIGHT, PIPING, AND DUCT LOCATIONS CLOSELY WITH E.C. PRIOR TO BEGINNING WORK
10. COORDINATE PIPING, EQUIPMENT, ROOF DRAIN PENETRATIONS, AND DUCT LOCATIONS IN MECHANICAL ROOMS WITH PLUMBING CONTRACTOR BEFORE BEGINNING INSTALLATION
11. COORDINATE INSTALLATION OF EQUIPMENT WITH GENERAL CONTRACTOR AND OTHER TRADES TO MAINTAIN MANUFACTURER REQUIRED MINIMUM SERVICE ACCESS
12. DUCTWORK AND PIPING ELEVATION CHANGES, TRANSITIONS, AND OFFSETS MAY NOT BE SHOWN AND SHALL BE PROVIDED AS REQUIRED. PROVIDE ADDITIONAL FITTINGS AS REQUIRED BASED ON COORDINATION DRAWINGS PREPARED BY MC.
13. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR THE PROPER INSTALLATION OF WORK AND TO REPAIR ANY DAMAGE DONE DURING INSTALLATION
14. CONSULT GENERAL CONTRACTOR FOR INFORMATION ABOUT STAGING AREAS TO BE USED DURING CONSTRUCTION
15. REFER TO ARCHITECTURAL DRAWINGS FOR WALL ELEVATIONS AND REFLECTED CEILING PLANS FOR LOCATIONS OF HVAC DEVICES
16. PROVIDE ADHESIVE LABELS ON CEILING GRID TO IDENTIFY TERMINAL BOXES AND VALVES LOCATED ABOVE NEW CEILINGS
17. REFER TO ARCHITECTURAL LIFE SAFETY PLANS AND DRAWINGS FOR RATED WALL AND FLOOR ASSEMBLY LOCATIONS
18. ADJUSTABLE THERMOSTATS SHALL BE MOUNTED AT 48" FROM FINISHED FLOOR TO TOP OF DEVICE IN ACCORDANCE WITH ADA ANSI 308
19. ALL AIR DISTRIBUTION DEVICES, AIR TERMINAL UNITS, COILS, AND EQUIPMENT, ETC. SHALL BE COORDINATED WITH THE OTHER BUILDING TRADES FOR PROPER LOCATION AND TO PREVENT INTERFERENCE WITH THE LIGHTS, PLUMBING, CONDUIT, ETC.
20. DUCT SIZES SHOWN INDICATE NET INSIDE DIMENSIONS
21. INSULATE ALL EXISTING DUCTWORK AND PIPING TO REMAIN AFFECTED BY NEW WORK. EXISTING TO REMAIN DUCTWORK AND PIPING WITHIN THE PROJECT AREA WITHOUT INSULATION SHALL BE INSULATED PER SPECIFICATIONS. INSULATION DAMAGE CAUSED BY TIE-INS TO EXISTING DUCTWORK AND PIPING SHALL BE REPAIRED.
22. INSTALL MANUAL VOLUME DAMPERS IN LOW PRESSURE SUPPLY, RETURN, AND EXHAUST AIR SYSTEMS FOR EACH AIR DISTRIBUTION DEVICE AND AS REQUIRED FOR SYSTEM AIR BALANCING. VOLUME DAMPERS SHALL BE INSTALLED AT EACH BRANCH TAKEOFF, CLOSE TO THE MAIN. LOCATE DAMPERS AWAY FROM AIR DISTRIBUTION DEVICES, NEAR DUCT MAINS, AND MAINTAIN EASY ACCESSIBILITY.
23. THE TAB CONTRACTOR SHALL DETERMINE WHETHER A BALANCING DAMPER IS INSTALLED FOR EACH NEW AND EXISTING TO REMAIN AIR DISTRIBUTION DEVICE AND SHALL NOTIFY THE DESIGN AND CONSTRUCTION TEAM IF A DAMPER IS MISSING.
24. ALL MEDIUM PRESSURE BRANCH TAKE-OFFS SHALL BE MADE WITH 45 DEGREE LEAD IN, STANDARD RADIUS BELL MOUTH, OR 45 DEG. ROUND UNLESS NOTED OTHERWISE
25. DUCT ELBOWS 30" WIDE AND LESS SHALL TYPICALLY BE STANDARD RADIUS ELBOWS WITH A MINIMUM CENTER LINE RADIUS OF ONE AND ONE-HALF THE DUCT WIDTH (1.5 X W). WHERE AVAILABLE SPACE PREVENTS USE OF LONG RADIUS ELBOWS, PROVIDE (1.0 X W) SHORT RADIUS ELBOW WITH VANES. USE OF SQUARE ELBOWS AND USE OF TURNING VANES SHALL BE REVIEWED WITH DESIGNER BEFORE USE AND SHALL ONLY BE USED ON A CASE BY CASE BASIS.
26. MITERED ELBOWS AND TURNS SHALL TYPICALLY NOT BE USED. WHERE AVAILABLE SPACE PREVENTS USE OF RADIUS ELBOWS, MITERED TURNS IN DUCTWORK 45° THROUGH 90° SHALL BE PROVIDED WITH TURNING VANES UNLESS SPECIFICALLY NOTED OTHERWISE. SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1-1/2" MAXIMUM SPACE BETWEEN VANES NAD A 3/4" TRAILING EDGE. WHEN DUCT WIDTH IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.
27. LOW PRESSURE FLEXIBLE DUCT SHALL BE OF A LENGTH NO GREATER THAN 5'-0" AND SHALL CONTAIN ELBOWS AND BENDS BEING NO GREATER THAN 90° WITH A MINIMUM RADIUS OF ONE AND ONE-HALF THE DUCT DIAMETER (1.5 X D)
28. FLEXIBLE DUCTWORK SHALL BE LABELED IN ACCORDANCE WITH UL 181. FLEXIBLE DUCTWORK IS NOT ALLOWED ON HIGH PRESSURE SYSTEMS, ABOVE INACCESSIBLE CEILINGS, OR ON EXHAUST SYSTEMS.
29. WHERE FIRE ALARM RELAYS ARE INDICATED PROVIDE ADDRESSABLE IAM RELAYS AS REQUIRED
30. IN AREAS OF THE BUILDING WHERE EXISTING DUCTS, PIPING, CONDUITS, CONTROLS, LIGHTS, AND ITEMS OF EQUIPMENT ARE TO REMAIN AND MAY INTERFERE WITH THE INSTALLATION OF NEW SYSTEMS, THE MECHANICAL CONTRACTOR SHALL COORDINATE AND MAKE ADJUSTMENTS IN THE NEW AND EXISTING SYSTEMS TO MAKE INSTALLATION OF THE NEW SYSTEMS AS INDICATED
31. MINIMUM PIPE SIZE IS 3/4" WHERE SIZE IS NOT INDICATED ON PLANS
32. ALL BRANCH PIPING TAPS SHALL BE FROM THE TOP OR SIDE OF MAIN PIPING
33. ALL NEW HOT WATER PIPING SHALL SLOPE UP IN THE DIRECTION OF FLOW WHEREVER POSSIBLE. PROVIDE ALL NECESSARY MANUAL AIR VENTS REQUIRED TO VENT AIR FROM THE PIPING SYSTEMS. PROVIDE ALL NECESSARY DRAINS VALVES WITH HOSE END ADAPTERS REQUIRED TO PROPERLY DRAIN PIPING SYSTEMS. DRAIN VALVES SHALL BE AT LOW POINTS IN THE SYSTEM.
34. COORDINATE ALL WORK WITH PROJECT PHASING. SEE ARCHITECTURAL DRAWINGS FOR PHASING.

APPENDIX B

2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)
MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone 4A

ASHRAE Std. 90.1-2013 Table D-1
winter dry bulb: 15°F
summer dry bulb: 90°F

Interior design conditions
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

Building heating load: N/A
Building cooling load: N/A

Mechanical Spacing Conditioning System
Unitary
description of unit: N/A
heating efficiency: N/A
cooling efficiency: N/A
size category of unit: N/A
Boiler
Size category. If oversized, state reason.: N/A
Chiller
Size category. If oversized, state reason.: N/A

List equipment efficiencies: See Schedules

PIPING SYMBOLS LEGEND

— HWS —	HOT WATER SUPPLY PIPING
— HWR —	HOT WATER RETURN PIPING
	EXISTING PIPING
	PIPING TO BE DEMOLISHED
	NEW PIPING
	PIPE RISER UP
	PIPE RISER DOWN
	PIPE CAP
	TEE OFF TOP
	DIRECTION OF FLOW
	UNION
	ISOLATION VALVE
	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	AUTOMATIC FLOW CONTROL VALVE / FLOW LIMITING VALVE
	BALANCING VALVE (CIRCUIT SETTER) W/ SHUT OFF VALVE
	MANUAL AIR VENT
	STRAINER WITH BLOW DOWN
	PETE'S PLUG (PT PLUG)

DUCTWORK SYMBOLS LEGEND

T AT-1	THERMOSTAT – SERVICE: AIR TERMINAL UNIT 1
18/14	RECTANGULAR DUCT (W/H) INSIDE CLEAR DIM.
	NEW DUCT
	EXISTING DUCT
	EXISTING DUCT/EQUIPMENT TO BE DEMOLISHED
	DUCT ELBOW WITH TURNING VANES
FD	FIRE DAMPER (FD)
VD	MANUAL VOLUME DAMPER / BALANCING DAMPER (VD)
	SUPPLY AIR DUCT IN SECTION
	RETURN DUCT IN SECTION
	EXHAUST DUCT IN SECTION
	DUCTWORK TURNING DOWN
	DUCTWORK TURNING UP
A=375	AIR DISTRIBUTION DEVICE TYPE "A" BALANCED FOR 375 CFM
	FLEXIBLE AIR DUCT
1	MECHANICAL KEYED NOTE NO. 1
	END OF DEMOLITION
	CONNECT TO EXISTING
LC	PHOENIX LAB CONTROL
SS	PHOENIX FUME HOOD SASH POSITION SENSOR
CT	120 ELECTRICAL J-BOX FOR HVAC CONTROLS. VOLTAGE TRANSFORMERS ABOVE CEILING. SEE ELECTRICAL DRAWINGS.

MECHANICAL SHEET INDEX

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Revisions

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Project Number: 23-067
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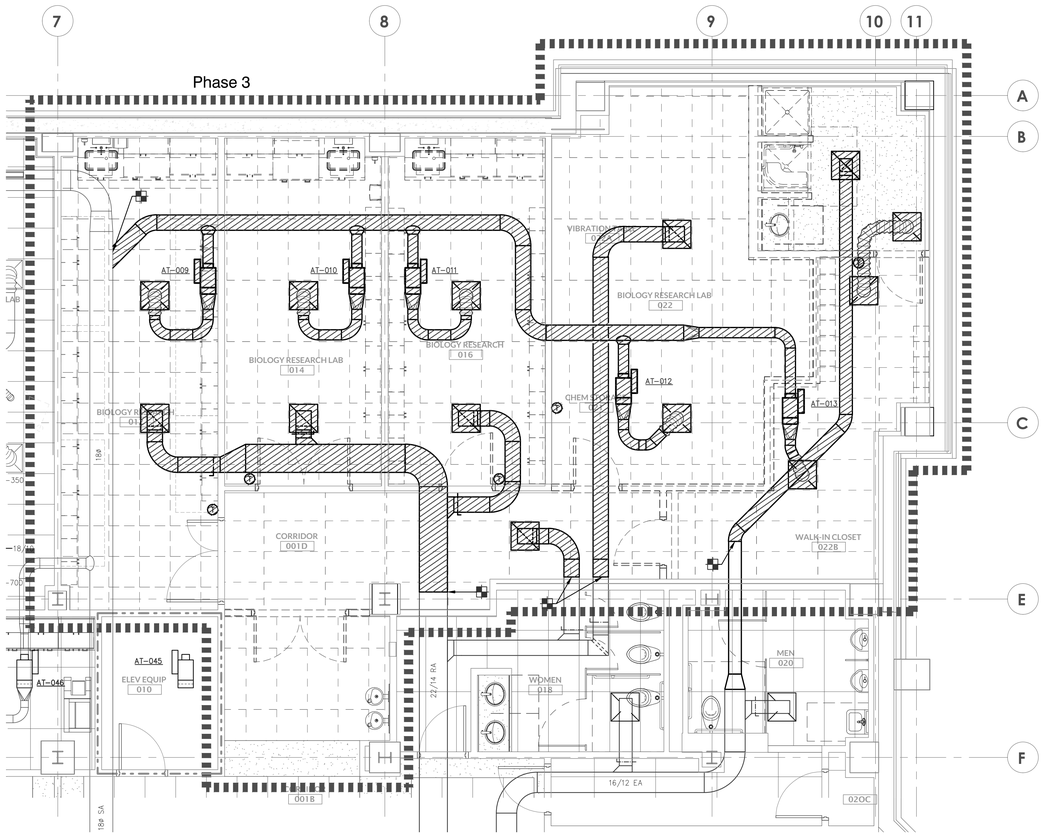
Sheet Title

Mechanical Symbol Legend, Notes & Abbreviations

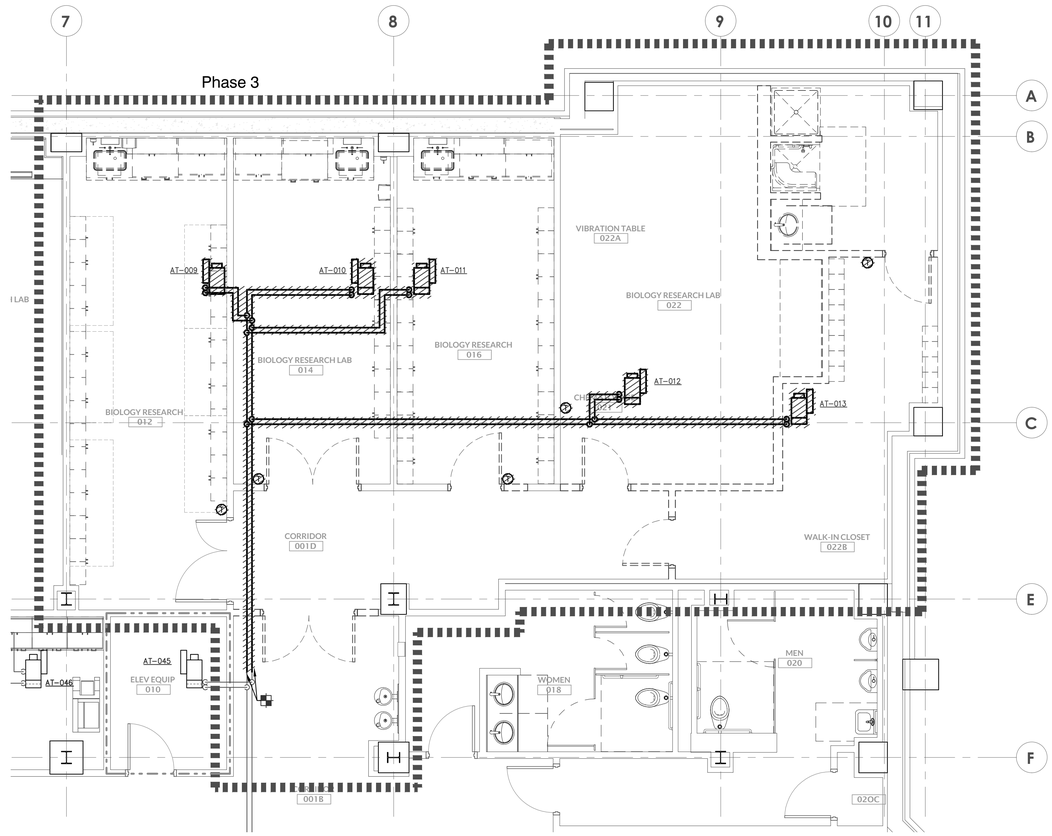
Sheet Number

M001



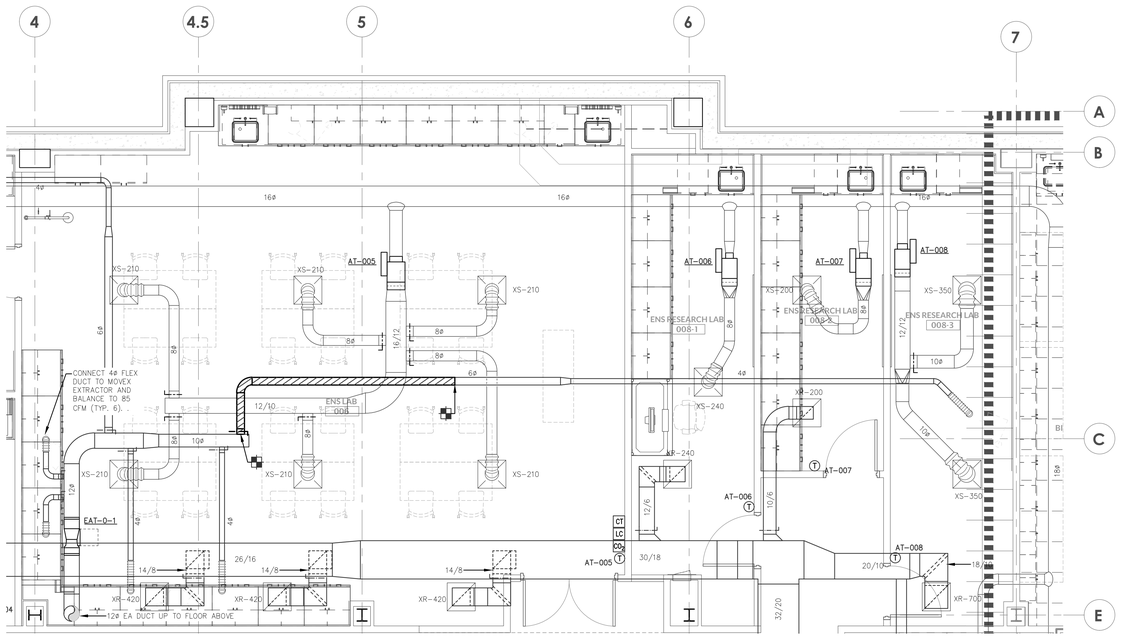
1 M100 Mechanical Ductwork Demolition Plan - Level 0

SCALE: 1/4" = 1'–0"



2 M100 Mechanical Piping Demolition Plan - Level 0

SCALE: 1/4" = 1'–0"



3 M100 Mechanical Ductwork Demolition Plan - Level 0

SCALE: 1/4" = 1'–0"

ENS LAB 008-3

RATED WALL LEGEND

	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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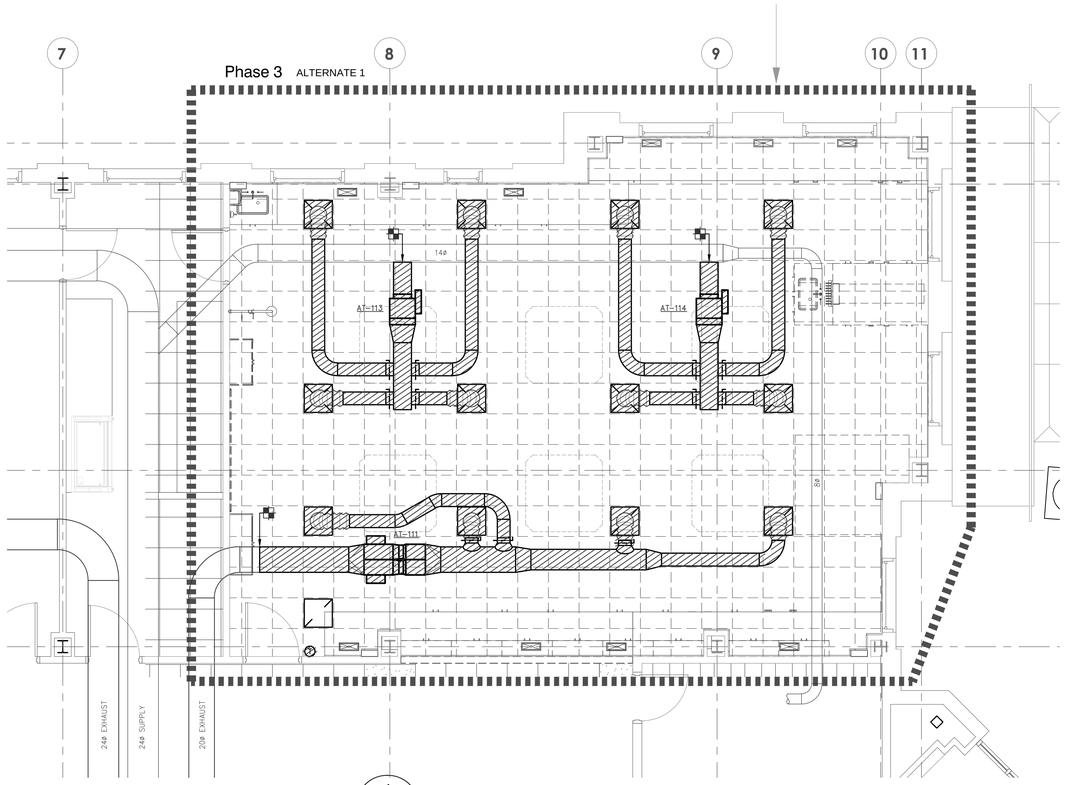
Sheet Title

Mechanical Demolition Plan - Level 0

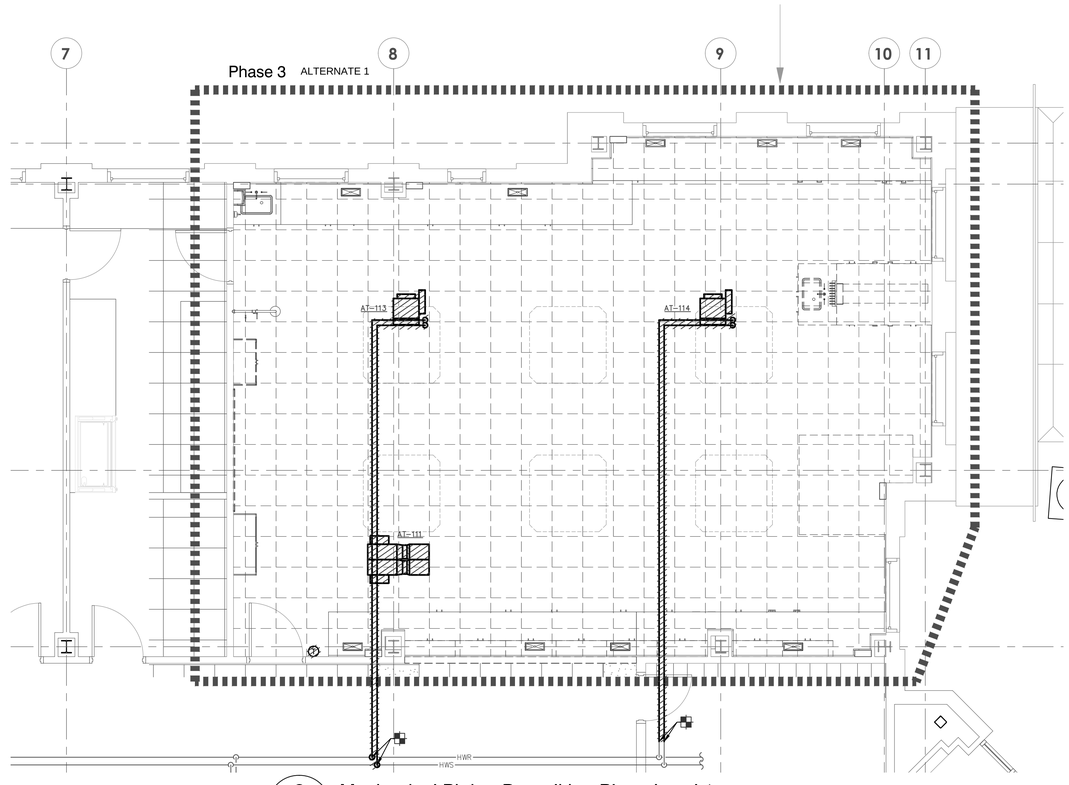
Sheet Number

M100



1 M101 Mechanical Ductwork Demolition Plan - Level 1

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



2 M101 Mechanical Piping Demolition Plan - Level 1

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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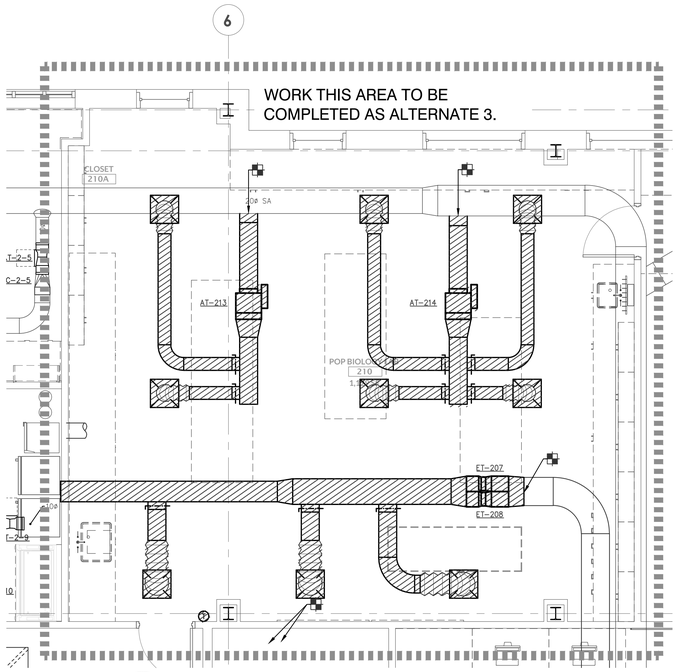
Sheet Title

Mechanical Demolition Plan - Level 1

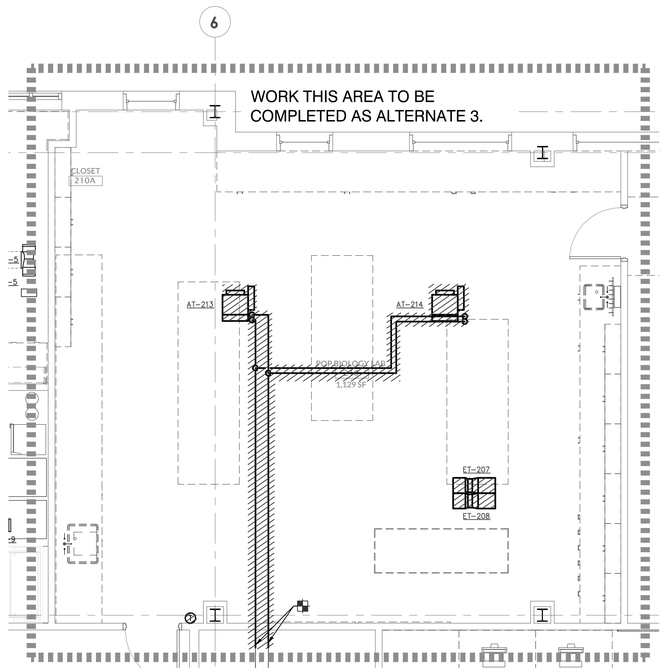
Sheet Number

M101



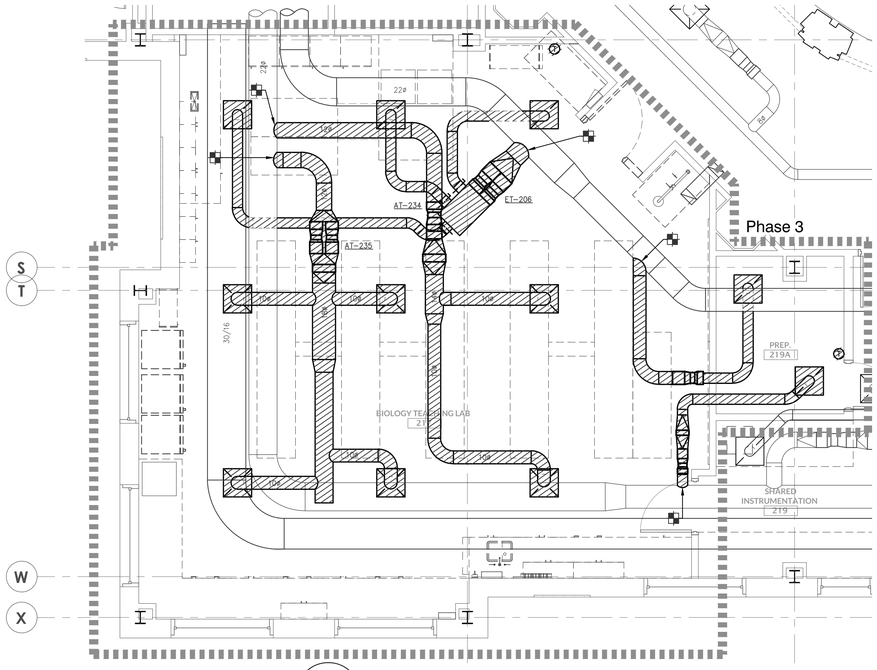
1 M102 Mechanical Ductwork Demolition Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 210



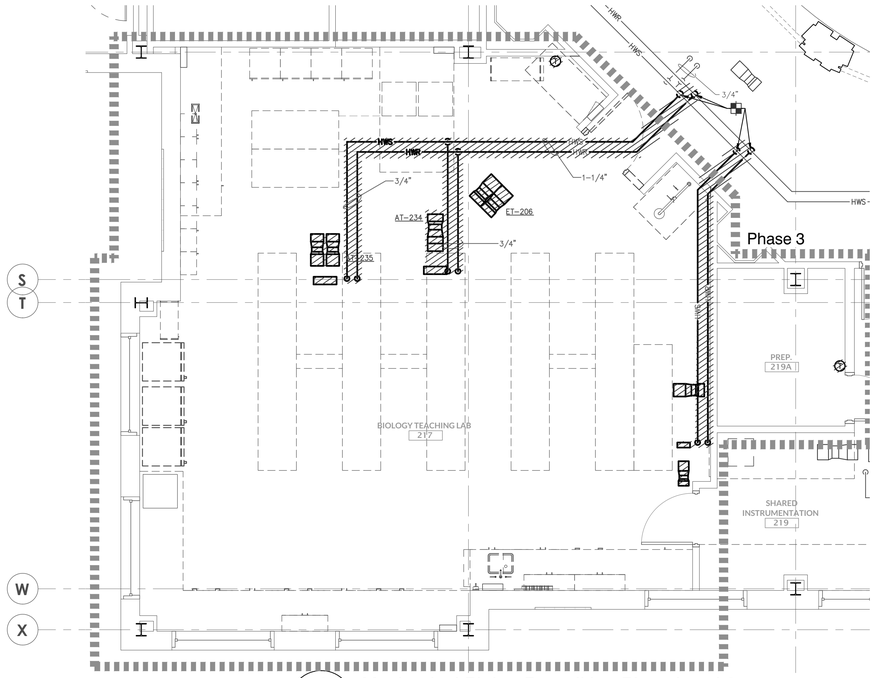
2 M102 Mechanical Piping Demolition Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 210



3 M102 Mechanical Ductwork Demolition Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 217



4 M102 Mechanical Piping Demolition Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 217

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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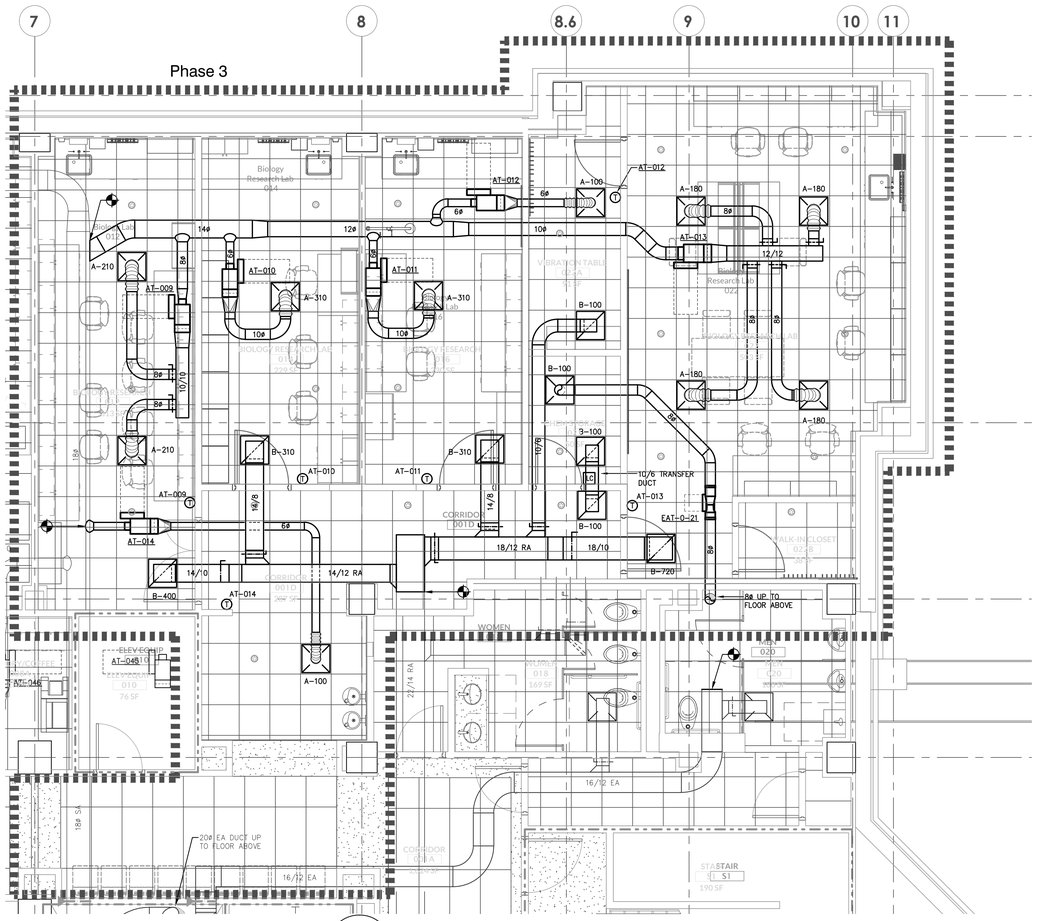
Sheet Title

Mechanical Demolition Plan - Level 2

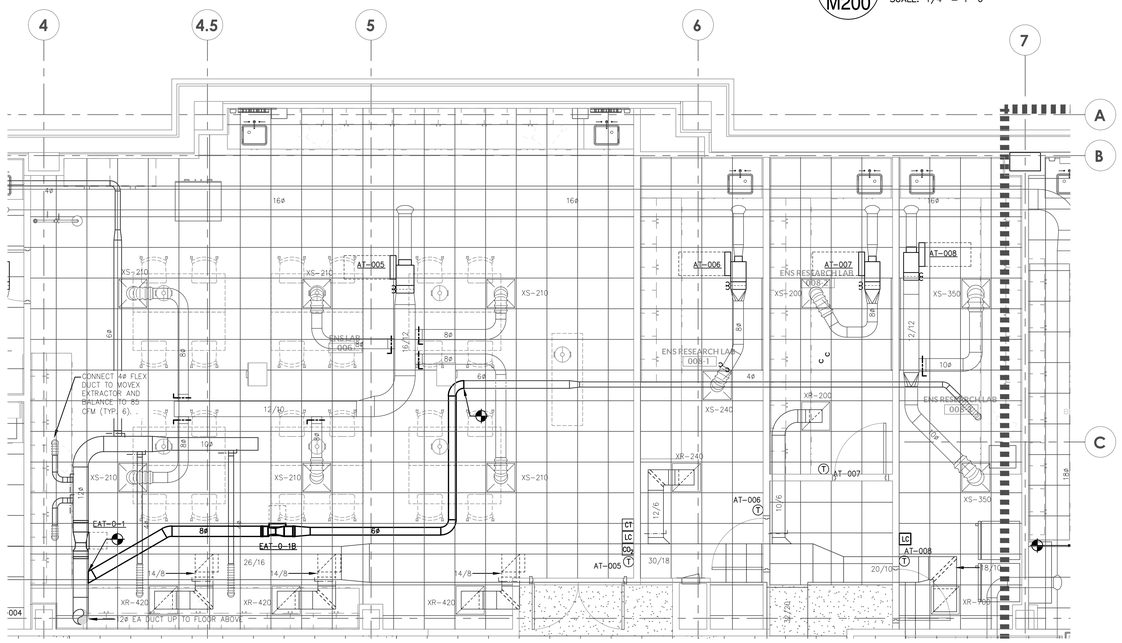
Sheet Number

M102



1 M200 Mechanical Ductwork Renovation Plan - Level 0
SCALE: 1/4" = 1'-0"

2 M200 Mechanical Piping Renovation Plan - Level 0
SCALE: 1/4" = 1'-0"



1 M200 Mechanical Ductwork Renovation Plan - Level 0
SCALE: 1/4" = 1'-0"

RATED WALL LEGEND
1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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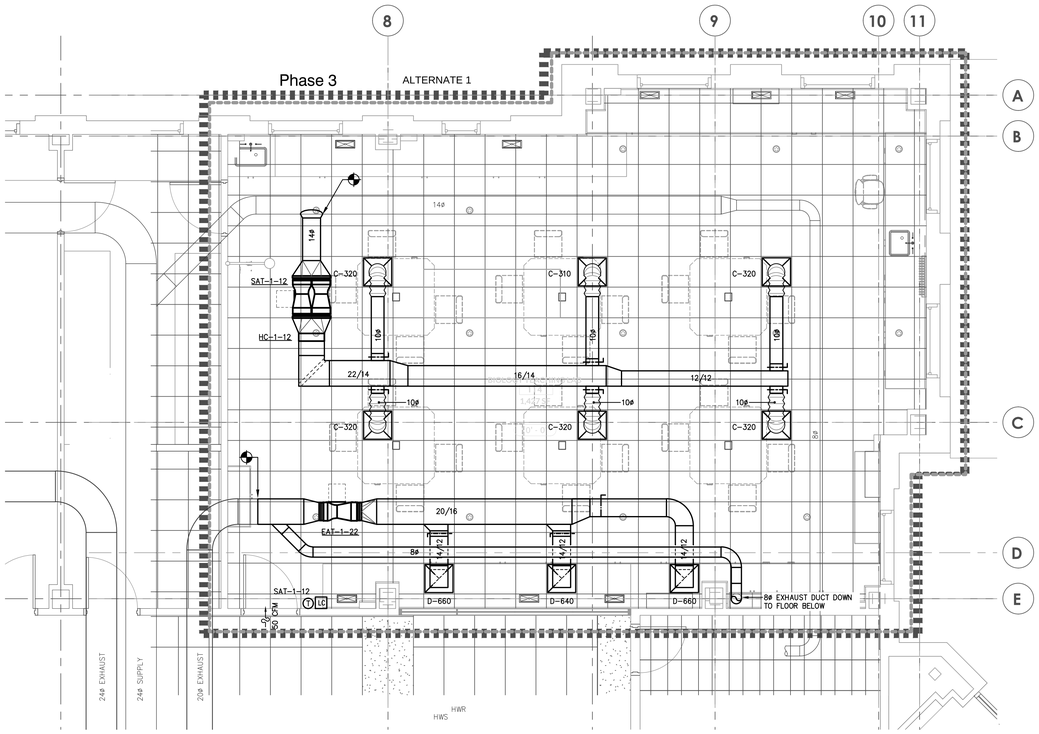
Sheet Title

Mechanical Renovation Plan - Level 0

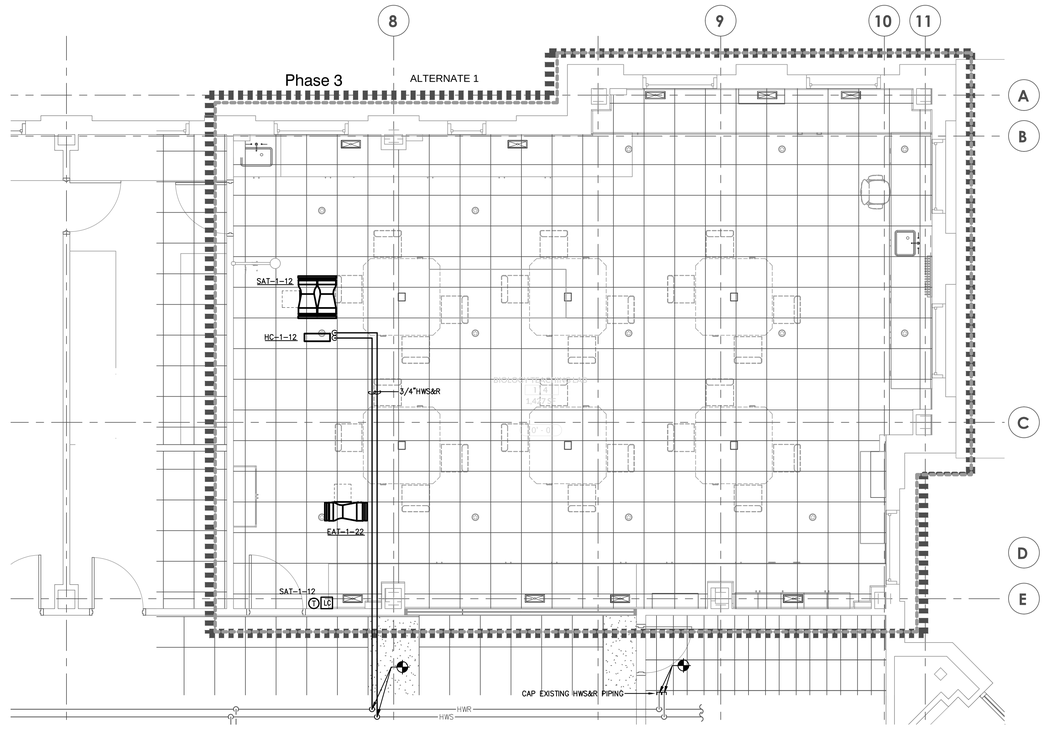
Sheet Number

M200



1 M201 Mechanical Ductwork Renovation Plan - Level 1

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



2 M201 Mechanical Piping Renovation Plan - Level 1

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

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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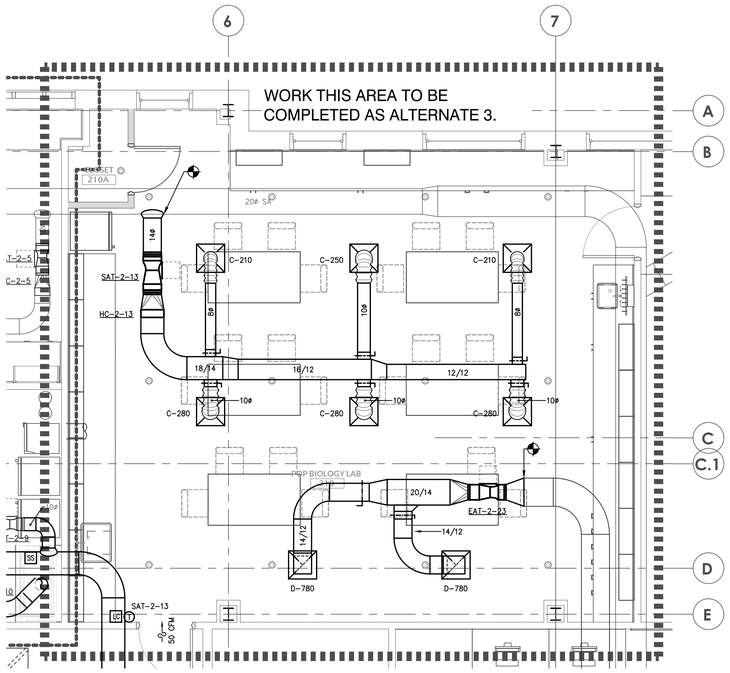
Sheet Title

Mechanical Renovation Plan - Level 1

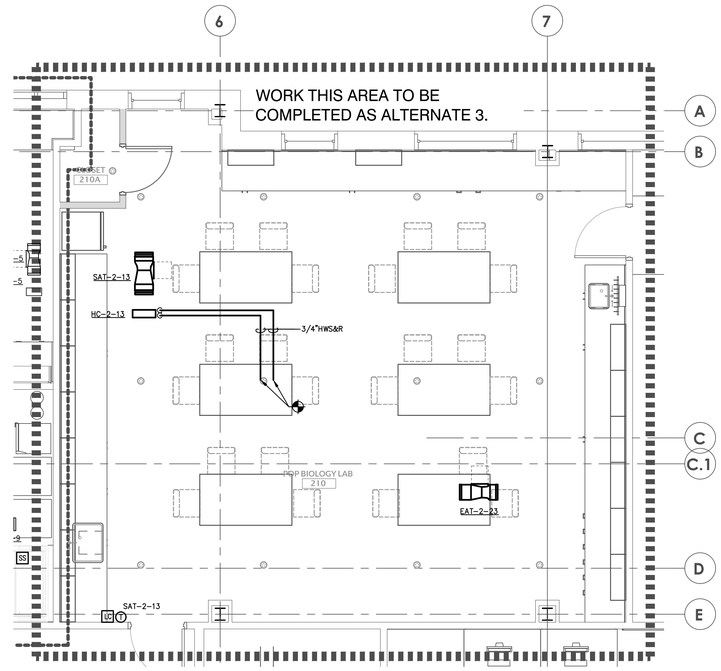
Sheet Number

M201



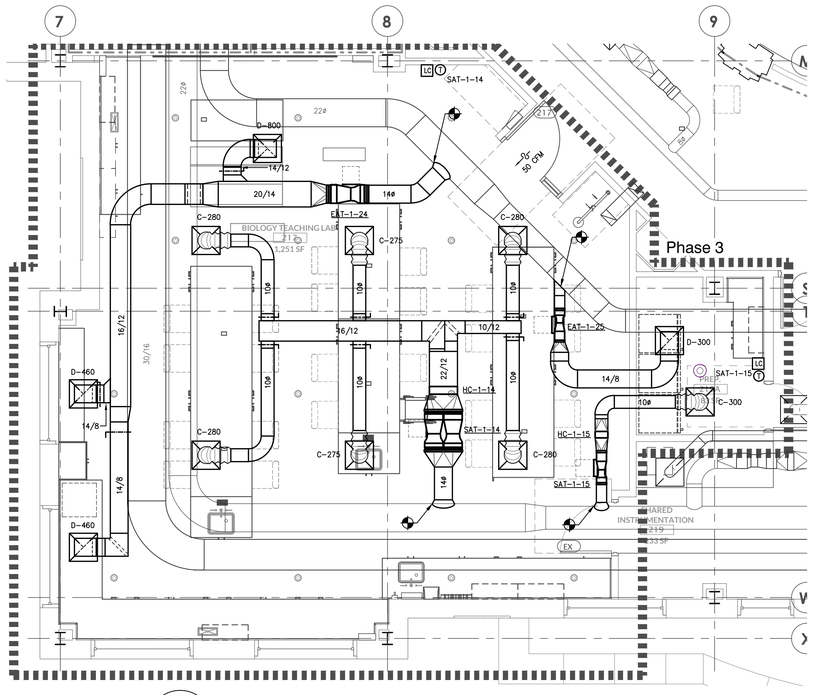
1 M202 Mechanical Ductwork Renovation Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 210



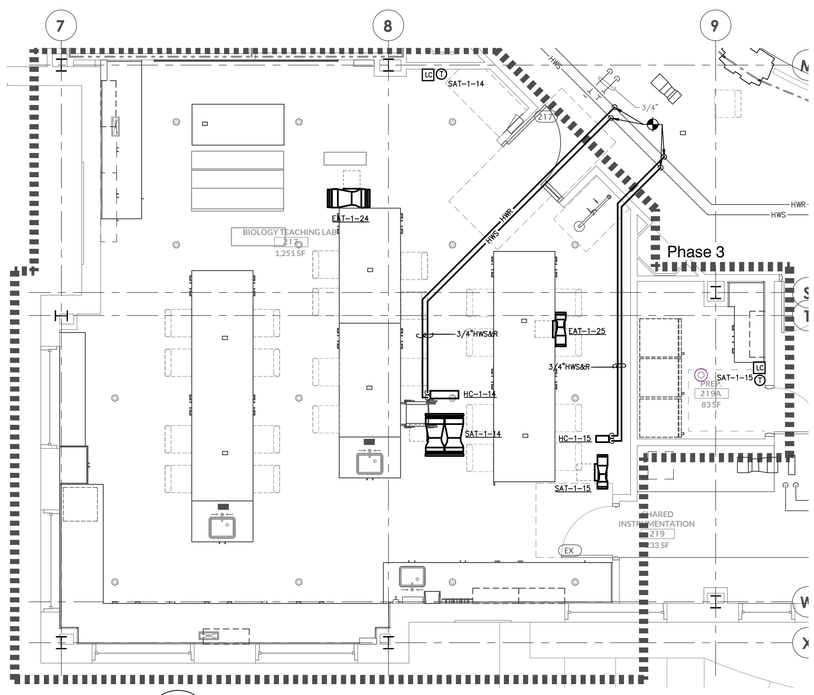
2 M202 Mechanical Piping Renovation Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 210



3 M202 Mechanical Ductwork Renovation Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 217



4 M202 Mechanical Piping Renovation Plan - Level 2

SCALE: 1/4" = 1'-0" LAB 217

RATED WALL LEGEND

1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

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Mechanical Renovation Plan - Level 2

Sheet Number

M202

BAS - SEQUENCE OF OPERATIONS

EXISTING BUILDING AIR HANDLING UNIT

THE EXISTING AHU START, STOP, DISCHARGE AIR TEMPERATURE, AND DUCT STATIC PRESSURE CONTROL WILL BE MAINTAINED BY THE RECENTLY INSTALLEI ALC CONTROLS.

EXISTING BUILDING EXHAUST FANS

THE EXISTING BUILDING EXHAUST FANS START, STOP, AND DUCT STATIC PRESSURE CONTROL WILL BE MAINTAINED BY THE EXISTING CONTROLS.

NEW VARIABLE AIR VOLUME TERMINALS

RUN CONDITIONS – SCHEDULED:

THE UNIT WILL RUN ACCORDING TO A USER DEFINEABLE TIME SCHEDULE IN THE FOLLOWING MODES:

OCCUPIED MODE: THE UNIT WILL MAINTAIN THE FOLLOWING:
- A 74°F (ADJ.) COOLING SETPOINT
- A 70°F (ADJ.) HEATING SETPOINT

UNOCCUPIED MODE: THE UNIT WILL MAINTAIN THE FOLLOWING:
- A 85°F (ADJ.) COOLING SETPOINT
- A 60°F (ADJ.) HEATING SETPOINT

ALARMS WILL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SET-POINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP. IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SET-POINT BY A USER DEFINABLE AMOUNT (ADJ.)

ZONE SET-POINT ADJUST:

THE OCCUPANT WILL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.

ZONE OPTIMAL START:

THE UNIT WILL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM WILL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF THE SCHEDULED OCCUPIED PERIOD.

ZONE UNOCUPIED OVERRIDE:

THE TIMED LOCAL OVERRIDE CONTROL WILL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT WILL AUTOMATICALLY RETURN TO THE SCHEDULE.

REVERSING VARIABLE VOLUME TERMINAL UNIT – FLOW CONTROL:

THE UNIT WILL MAINTAIN ZONE SET-POINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:

OCCUPIED:

WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SET-POINT, THE ZONE DAMPER WILL MODULATE BETWEEN MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SET-POINT AND THE HEATING SET-POINT, THE ZONE DAMPER WILL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION (ADJ.).

WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE CONTROLLER WILL ENABLE HEATING TO MAINTAIN THE ZONE TEMPETATURE AT ITS HEATING SET-POINT. ADDITIONALLY, IF WARM AIR IS AVALABLE FROM THE AHU, THE ZONE DAMPER WILL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM HEATING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

UNOCCUPIED:

WHEN THE ZONE IS UNOCCUPIED THE ZONE DAMPER WILL CONTROL TO ITS MINIMUM UNOCCUPIED AIRFLOW (ADJ.)

WHEN THE ZONE TEMPERATURE IS GREATER THAN ITS COOLING SET-POINT, THE ZONE DAMPER WILL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

WHEN THE ZONE TEMPERATURE IS LESS THAN ITS UNOCCUPIED HEATING SET-POINT, THE CONTROLLER WILL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT THE SET-POINT. ADDITIONALLY, IF WARM AIR IS AVAILBLE FROM THE AHU, THE ZONE DAMPER WILL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE AUXILIARY HEATING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

REHEATING COIL VALVE:

THE CONTROLLER WILL MEASURE THE ZONE TEMPERATURE AND MODULATE THE REHEATING COIL VALVE OPEN ON A DROP IN TEMPERATURE TO MAINTAIN ITS HEATING SET-POINT.

REHEATING – HIGH DISCHARGE AIR TEMPERATURE LIMIT:

THE CONTROLLER WILL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 20°F (ADJ.) ABOVE THE ZONE TEMPERATURE.

DISCHARGE AIR TEMPERATURE:

THE CONTROLLER WILL MONITOR THE DISCHARGE AIR TEMPERATURE.

ALARMS WILL BE PROVIDED AS FOLLOWS:

HIGH DISCHARGE AIR TEMP.: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THATN 120°F (ADJ.).

LOW DISCHARGE AIR TEMP.: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40 °F (ADJ.).

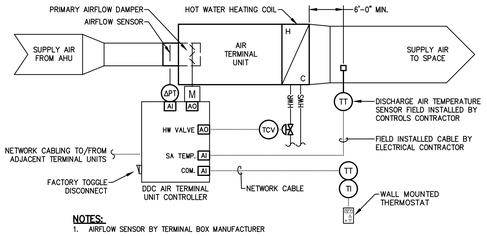
ENVIRONMENTAL INDEX:

WHEN THE ZONE IS OCCUPIED, THE CONTROLLER WILL MONITOR THE DEVIATION OF THE ZONE TEMPERATURE FROM THE HEATING OR COOLING SET-POINT. THE CONTROLLER WILL ALSO MONITOR THE HUMIDITY AND CARBON DIOXIDE LEVELS AND COMPARE THEM TO COMFORT CONDITIONS. THE DATA WILL BE USED TO CALCULATE A 0 – 100% *ENVIRONMENTAL INDEX* THAT GIVE AN INDICATION OF HOW WELL THE ZONE IS MAINTAINING COMFORT CONDITIONS. THE CONTROLLER WILL ALSO CALCULATE THE PERCENTAGE OF TIME SINCE THE OCCUPANCY BEGAN THAT THE ENVIRONMENTS INDEX IS 70% OR HIGHER. OPTIONALLY, A WEIGHTING FACTOR CAN BE CONFIGURED TO ADJUST THE CONTRIBUTION OF THE ZONE TO THE ROLL-UP AVERAGE INDEX BASED UPON THE FLOOR AREA OF THE ZONE, IMPORTANCE OF THE ZONE, OR OTHER STATIC CRITERIA.

VARIABLE VOLUME LABORATORY AIRFLOW CONTROL SYSTEM (LACS)

EACH NEW RENOVATED LABORATORY WILL CONTAIN A VARIABLE VOLUME LABORATORY AIRFLOW CONTROL SYSTEM (LACS) BY PHOENIX CONTROLS. THE LACS WILL CONTROL LABORATORY SUPPLY AND GENERAL ROOM EXHAUST AIRFLOWS, ROOM TEMPERATURE, ROOM AIRFLOW OFFSET PRESSURIZATION CONTROL FOR BOTH OCCUPIED AND UNOCCUPIED PERIODS. REFER TO 230995, SECTION 2.5 FOR OPERATION SEQUENCE.

INSTRUMENT & CONTROLS SYMBOLS	
AI	ANALOG INPUT – DDC POINT
AO	ANALOG OUTPUT – DDC POINT
TT	TEMPERATURE TRANSMITTER
TI	TEMPERATURE INDICATOR
TCV	TEMPERATURE CONTROL VALVE
ΔPT	DIFFERENTIAL PRESSURE TRANSMITTER



NOTES:

1. AIRFLOW SENSOR BY TERMINAL BOX MANUFACTURER
2. DDC CONTROLLER / ACTUATOR SUPPLIED AND FIELD INSTALLED BY CONTROLS CONTRACTOR
3. FACTORY INSTALLED CONTROL PANEL SHALL INCLUDE CONTROL POWER TRANSFORMER AND DISCONNECT SWITCH. SEE ELECTRICAL DRAWINGS FOR POWER CIRCUITING.
4. COORDINATE ELECTRICAL ENCLOSURE ORIENTATION AND MOUNTING PRIOR TO PROCUREMENT
5. MAINTAIN MINIMUM 36" CLEARANCE IN FRONT OF 0–150 VAC CONTROL PANELS PER NEC.

10 / M301 — Air Terminal Unit with HW Heat Controls

SCALE: NONE — DDC - Pressure Independent

DDC POINTS LIST

	HARDWARE POINTS: INPUT: ANALOG: COMM /DATA INTERFACE	TEMPERATURE	HUMIDITY	TEMP. SETPOINT ADJUST	DIFFERENTIAL PRESSURE	STATIC PRESSURE	SPEED	OXYGEN CONCENTRATION	CURRENT	FLOW RATE
AIR TERMINAL UNITS - HW HEAT	■									
PRIMARY AIR DAMPER					■	■				■
HOT WATER CONTROL VALVE										
PRIMARY AIRFLOW					■	■				■
SUPPLY AIR TEMPERATURE		■								
SPACE TEMPERATURE		■		■						
HOT WATER HEATING COIL										
HOT WATER CONTROL VALVE										
SUPPLY AIR TEMPERATURE		■								
SPACE TEMPERATURE		■		■						

HARDWARE POINTS: INPUT: BINARY	PULSE METER	POSITION SWITCH	STATUS	CURRENT SENSING RELAY	HIGH / LOW LIMIT	FIRE ALARM RELAY	FAULT / ALARM
AIR TERMINAL UNITS - HW HEAT			■				
PRIMARY AIR DAMPER							
HOT WATER CONTROL VALVE							
PRIMARY AIRFLOW							
SUPPLY AIR TEMPERATURE							
SPACE TEMPERATURE							
HOT WATER HEATING COIL							
HOT WATER CONTROL VALVE							
SUPPLY AIR TEMPERATURE							
SPACE TEMPERATURE							

HARDWARE POINTS: OUTPUT: ANALOG	SET-POINT ADJUSTMENT	ACTUATOR POSITION	SPEED
AIR TERMINAL UNITS - HW HEAT			
PRIMARY AIR DAMPER	■	■	
HOT WATER CONTROL VALVE	■	■	
PRIMARY AIRFLOW			
SUPPLY AIR TEMPERATURE			
SPACE TEMPERATURE			
HOT WATER HEATING COIL			
HOT WATER CONTROL VALVE	■	■	
SUPPLY AIR TEMPERATURE			
SPACE TEMPERATURE			

HARDWARE POINTS: OUTPUT: BINARY	OPEN / CLOSE	SPEED SIGNAL	PILOT LIGHT ALARM	ON / OFF / AUTO	START / STOP
AIR TERMINAL UNITS - HW HEAT					
PRIMARY AIR DAMPER					
HOT WATER CONTROL VALVE					
PRIMARY AIRFLOW					
SUPPLY AIR TEMPERATURE					
SPACE TEMPERATURE					
HOT WATER HEATING COIL					
HOT WATER CONTROL VALVE					
SUPPLY AIR TEMPERATURE					
SPACE TEMPERATURE					

SYSTEM FEATURES: ANALOG VALUE	ALARM	SETPOINT ADJUSTMENT	HIGH / LOW VALUE
AIR TERMINAL UNITS - HW HEAT			
PRIMARY AIR DAMPER			
HOT WATER CONTROL VALVE			
PRIMARY AIRFLOW		■	■
SUPPLY AIR TEMPERATURE			■
SPACE TEMPERATURE		■	■
HOT WATER HEATING COIL			
HOT WATER CONTROL VALVE			
SUPPLY AIR TEMPERATURE			■
SPACE TEMPERATURE		■	■

SYSTEM FEATURES: BINARY VALUE	FAILURE / TROUBLE ALARM	HAND MODE ALARM	STATUS	TREND	OPERATORS WORKSTATION GRAPHIC
AIR TERMINAL UNITS - HW HEAT	■				■
PRIMARY AIR DAMPER					■
HOT WATER CONTROL VALVE					■
PRIMARY AIRFLOW				■	■
SUPPLY AIR TEMPERATURE					■
SPACE TEMPERATURE				■	■
HOT WATER HEATING COIL					
HOT WATER CONTROL VALVE					■
SUPPLY AIR TEMPERATURE					■
SPACE TEMPERATURE				■	■

NOTES:

1. SEE SCHEMATIC DIAGRAMS AND SEQUENCE OF OPERATIONS FOR ALL SENSORS AND DEVICES

DUCT MOUNTED HOT WATER HEATING COIL SCHEDULE

COIL DESIGNATION	REHEAT COIL CONDITIONS: CFM	EAT	LAT	EWT	LWT	MBH	GPM	MAX APD.	MAX WPD.	COIL DIMENSIONS: HEIGHT	WIDTH	FACE VELOCITY
HC-1-12	1,910	58	72	180	160	28.9	2.9	0.2" WG	5 FT	14 IN	22 IN	893 FPM
HC-2-13	1,510	58	72	180	160	22.8	2.3	0.2" WG	5 FT	14 IN	18 IN	863 FPM
HC-2-14	1,670	58	72	180	160	25.3	2.5	0.2" WG	5 FT	12 IN	22 IN	911 FPM
HC-2-15	300	58	72	180	160	4.5	0.5	0.2" WG	5 FT	8 IN	10 IN	540 FPM

NOTES:
1. BASIS OF DESIGN: TRANE
2. 5/8" SEAMLESS COPPER TUBES
3. ALUMINUM FINS
4. 6" H x 24" LONG VINYL IDENTIFICATION MARKERS EACH COIL
5. PROVIDE MINIMUM 2-ROW COILS
6. PROVIDE HEADERED COILS

VARIABLE AIR VOLUME TERMINAL SCHEDULE

DESIG	MODEL	PRIMARY AIR: SIZE	MAX CFM	MIN CFM	HEATING: CFM	EAT F°	LAT F°	BTUH	GPM	VOLTS/ PHASE	NC @ 1.5" WG	FAN HP	SP INCHES WG
AT-009	PRICE SDV	7	420	130	210	52	85	7484	0.7	-	25	-	0.51
AT-010	PRICE SDV	6	310	95	155	52	85	5524	0.6	-	22	-	0.63
AT-011	PRICE SDV	6	310	95	155	52	85	5524	0.6	-	22	-	0.63
AT-012	PRICE SDV	6	100	30	50	52	85	1782	0.2	-	22	-	0.42
AT-013	PRICE SDV	9	720	220	360	52	85	12830	1.3	-	24	-	0.40
AT-014	PRICE SDV	6	100	30	50	52	85	1782	0.2	-	22	-	0.42

REMARKS:
1. AIR TERMINAL UNIT MANUFACTURER BASIS OF DESIGN: PRICE
2. NC LEVEL IS DISCHARGE NC FOR SINGLE DUCT AIR TERMINALS
3. AIR DP IS MAXIMUM ACROSS ASSEMBLY AND INCLUDES 2 ROW HEATING COIL FOR HEATING TERMINALS
4. ENTERING HOT WATER TEMPERATURE = 140 °F, LEAVING HOT WATER TEMPERATURE = 120 °F
5. MAXIMUM WATER PRESSURE DROP IS 5 FEET
6. HW COIL IS SIZED FOR 100% AIRFLOW
7. PROVIDE FIBER-FREE INSULATION
8. MINIMUM TERMINAL SIZE SHALL BE 6"
9. PROVIDE FACTORY INSTALLED INSULATED ACCESS DOOR UPSTREAM OF RHC WITH QUARTER TURN LATCHES
10. TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT WITH DIRECT DIGITAL CONTROLS
11. HOT WATER HEATING COILS SHALL BE HEADERED TYPE WITH MINIMUM TWO-ROWS

AIR DISTRIBUTION SCHEDULE

DESIG	TYPE	CFM RANGE	NECK SIZE	FACE SIZE	ROUND ADAPTER	MAX NC	MAX TP	FRAME	CONSTRUCTION	MODEL	NOTES
A	LOUVERED FACE SUPPLY DIFFUSER	0 - 120	9x9	24x24	6"Ø	15	0.10	LAY-IN	ALUMINUM	AMDA	1 - 4
		121 - 210	9x9	24x24	8"Ø	18	0.10				
		211 - 340	12x12	24x24	10"Ø	25	0.10				
B	LOUVERED FACE RETURN GRILLE	0 - 220	10x10	24x24	8"Ø	17	0.06	LAY-IN	ALUMINUM	635	1 - 4
		221 - 440	14x14	24x24	N/A	20	0.06				
		441 - 730	18x18	24x24	N/A	20	0.06				
C	PERFORATED SUPPLY DIFFUSER	0 - 210	8"Ø	24x24	N/A	23	0.05	LAY-IN	ALUMINUM	APDF	1 - 3, 5
		211 - 270	10"Ø	24x24	N/A	23	0.05				
D	PERFORATED EXHAUST DIFFUSER	0 - 775	14x14	24x24	N/A	15	0.05	LAY-IN	ALUMINUM	PDDR	1 - 3

NOTES
1. LISTED PERFORMANCE SHOWN IS BASED PRICE INDUSTRIES. BASES OF DESIGN IS PRICE.
2. WHITE POWDER COAT FINISH WITH BLACK INTERIOR BACK PAN. PROVIDE ALL SUPPLY AIR DIFFUSERS WITH INSULATED BACKPANS.
3. DEVICES LOCATED IN ACOUSTICAL TILE CEILINGS SHALL BE PROVIDED WITH FACTORY SHEET METAL PANEL.
4. PROVIDE FACTORY ROUND ADAPTOR WITH OPENING CENTERED IN FACE.
5. PROVIDE FACTORY DEFLECTORS IN A 4 WAY PATTERN SETTING.

LAB AIRFLOW CONTROL VALVE SCHEDULE

VALVE TAG	ROOM SERVED	VALVE SERVICE	VALVE INLET SIZE, INCH DIA.	PART NUMBER	SPACE OCCUPIED: MAX. AIRFLOW (CFM)	MIN. AIRFLOW (CFM)	SPACE UNOCCUPIED: MAX. AIRFLOW (CFM)	MIN. AIRFLOW (CFM)	ROOM OFFSET (CFM)	REMARKS
EAT-0-1B	ENS LAB 008-3	SNORKEL EXHAUST	8	EXVA108M-AMEHZ-PSL	**85**	0	**85**	0	N/A	SEE ALL BELOW
EAT-0-21	CHEMISTRY STORAGE 021	GENERAL EXHAUST	8	EXVA108M-AMEHZ-PSL	**100**	100	**100**	100	100 (-)	SEE ALL BELOW
SAT-1-12	BIOLOGY TEACHING LAB 114	SUPPLY AIR	14	MAVA114M-AMEHZ-PSL	**1910**	1250	**1350**	960		
EAT-1-22	BIOLOGY TEACHING LAB 114	GENERAL EXHAUST	14	EXVA114M-AMEHZ-PSL	**1960**	1300	**960**	550	50 (-)	SEE ALL BELOW
SAT-2-13	POP BIOLOGY LAB 210	SUPPLY AIR	14	MAVA114M-AMEHZ-PSL	**1510**	990	**1100**	760		
EAT-2-23	POP BIOLOGY LAB 210	GENERAL EXHAUST	14	EXVA114M-AMEHZ-PSL	**1560**	1040	**760**	500	50 (-)	SEE ALL BELOW
SAT-2-14	BIOLOGY TEACHING LAB 217	SUPPLY AIR	14	MAVA114M-AMEHZ-PSL	**1670**	1080	**1280**	840		
EAT-2-24	BIOLOGY TEACHING LAB 217	GENERAL EXHAUST	14	EXVA114M-AMEHZ-PSL	**1720**	1130	**850**	550	50 (-)	SEE ALL BELOW
SAT-2-15	PREP ROOM 219A	SUPPLY AIR	8	MAVA108M-AMEHZ-PSL	**300**	150	**300**	100		
EAT-2-25	PREP ROOM 219A	GENERAL EXHAUST	8	EXVA108M-AMEHZ-PSL	**300**	150	**300**	100	0	SEE ALL BELOW

NOTES
1. "PART NUMBER" INDICATED IN SCHEDULE IS FOR PHOENIX CONTROLS
2. BARE ALUMINUM FOR SUPPLY AND GENERAL EXHAUST APPLICATIONS.
3. ALL VALVES TO BE CONNECTED TO EXISTING PHOENIX LACS PCI-8000
4. SUPPLY VALVES TO BE PROVIDED WITH DISCHARGE TEMPERATURE SENSORS AND SPACE TEMPERATURE SENSORS TO MATCH RENOVATED PHOENIX INSTALLATION
5. LACS PROVIDER TO COORDINATE WIRING INSTALLATION AND SYSTEM INTEGRATION WITH BAS CONTRACTOR
6. SPACE OCCUPIED COLUMNS INDICATE AIRFLOW RATE AT 8 AIR CHANGES PER HOUR. SPACE UNOCCUPIED COLUMNS INDICATE AIRFLOW RATE AT 4 AIR CHANGES PER HOUR.
7. TEXT IN BOLD INDICATES MINIMUM AND MAXIMUM AIRFLOW RATES FOR SIZING PHOENIX AIRFLOW CONTROL VALVES

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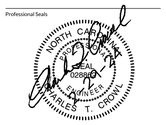


ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

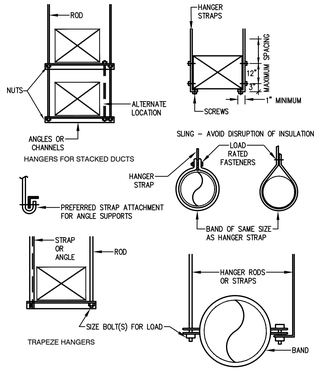
Project Number: 23-067
Drawn: RAS
Checked: CTC
Date: 02/29/2024

Sheet Title

Mechanical Schedules and Sequence of Operations

Sheet Number

M301

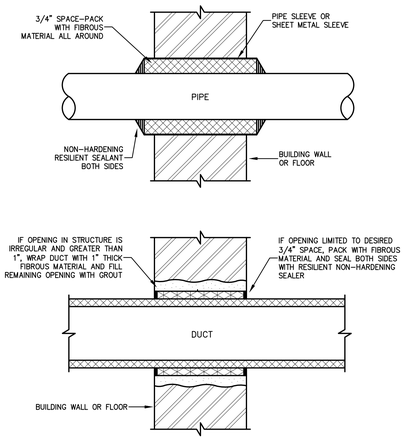


NOTES:

1. REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUTIES. DO NOT EXCEED LOAD RATINGS FOR METHOD USED.
2. PROVIDE TRAPEZE HANGERS FOR OVAL DUCTS & RECTANGULAR DUCTS 36" & WIDER AND FOR MEDIUM AND HIGH PRESSURE DUCTS
3. SUPPORT CHANNEL TRAPEZE HANGERS BY RODS
4. HANGER RODS SHALL BE ATTACHED WITH WASHER, THREAD LOCKER, & LOCKING NUT

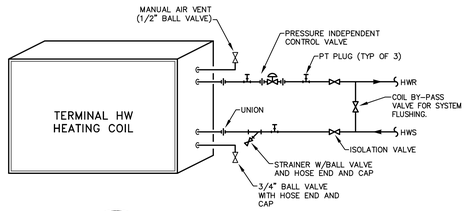
8 / M401 Typical Duct Hangers

SCALE: NONE



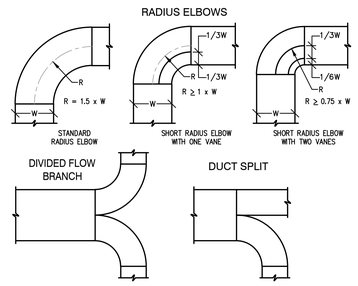
7 / M401 Typical Wall Penetration Details

SCALE: NONE — Non-Rated or Smoke-Tight



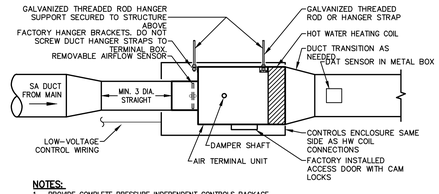
6 / M401 Terminal HW Coil Detail

SCALE: NONE



5 / M401 Low Pressure Branch Duct Details

SCALE: NONE

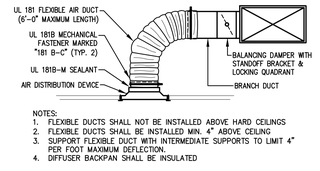


NOTES:

1. PROVIDE COMPLETE PRESSURE INDEPENDENT CONTROLS PACKAGE
2. PROVIDE NEC REQUIRED 3'-0" ACCESS CLEARANCE IN FRONT OF CONTROL PANEL. COORDINATE HAND CONFIGURATION OF CONTROL PANEL WITH ALL OTHER TRADES PRIOR TO PROCUREMENT.
3. CONTROL PANEL AND HOT WATER PIPING ACCESSORIES SHALL BE ACCESSIBLE WITHIN 24" OF CEILING
4. SEE COIL PIPING DETAIL AND VAV TERMINAL BOX SCHEDULE FOR ADDITIONAL REQUIREMENTS
5. WHERE HEATING COILS ARE NOT FACTORY INSULATED, FIELD INSTALL INSULATION ON HEATING COIL

4 / M401 Terminal Unit Installation

SCALE: NONE — Hot Water Heating Coil

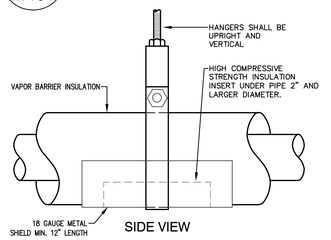


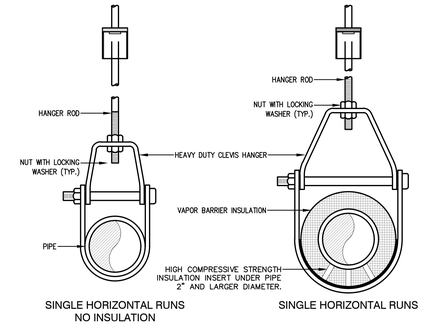
NOTES:

1. FLEXIBLE DUCTS SHALL NOT BE INSTALLED ABOVE HARD CEILINGS
2. FLEXIBLE DUCTS SHALL BE INSTALLED MIN. 4" ABOVE CEILING
3. SUPPORT FLEXIBLE DUCT WITH INTERMEDIATE SUPPORTS TO LIMIT 4" PER FOOT MAXIMUM DEFLECTION.
4. DIFFUSER BACKPAN SHALL BE INSULATED

3 / M401 Air Device Connection Detail

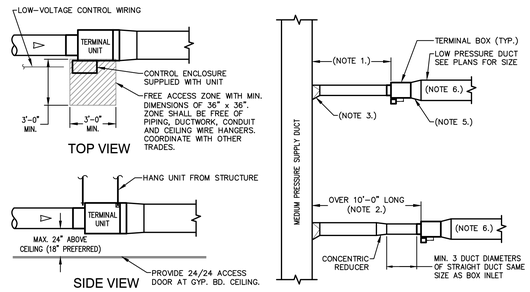
SCALE: NONE





2 / M401 Clevis Hanger Detail

SCALE: NONE



NOTES:

1. PROVIDE 3 DUCT DIAMETERS, MINIMUM 24" LONG, SECTION OF STRAIGHT SHEET METAL DUCT (MAXIMUM LENGTH OF 10') AT THE INLET OF EACH TERMINAL UNIT. SEE TERMINAL UNIT SCHEDULE FOR INLET DUCT SIZE.
2. PROVIDE SHEET METAL DUCT OF ONE SIZE LARGER THAN VAV TERMINAL INLET FOR LENGTH OVER 6'-0".
3. PROVIDE 45 DEGREE ENTRY BOOT (IN LIEU OF CONICAL TAP OR SPIN COLLAR) AT EACH CONNECTION TO MEDIUM PRESSURE DUCTWORK.
4. SEE PLANS FOR DISCHARGE DUCT SIZE.
5. PROVIDE TRANSITION FITTING FROM VAV BOX DISCHARGE TO FULL SIZE OF DISCHARGE DUCT SIZE INDICATED ON PLANS.
6. SEE PLANS FOR DISCHARGE DUCT SIZE.

1 / M401 Terminal Unit Inlet & Discharge Ductwork

SCALE: NONE

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McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
Drawn:	RAS
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Date:	02/29/2024

Sheet Title

Mechanical Details

Sheet Number

M401

LIGHT FIXTURE SCHEDULE

SYMBOL/LABEL	PRODUCT IMAGE	MANUFACTURER	MODEL DESIGNATION	LAMPING	VOLTAGE	VA	FIXTURE DESCRIPTION
A		LSI INDUSTRIES OR APPROVED EQUAL	SFP22-LED-FS2-UNV-DIM	LED 3000-5100 LUMEN 3500-5000 KELVIN CRI = 80	120-277V	45W MAX	2'X2' LED FLAT PANEL WITH PMMA ACRYLIC DIFFUSER, 120° BEAM ANGLE PROVIDES HIGH VERTICAL ILLUMINANCE LEVELS, FIELD SELECTABLE CCT AND LUMEN FOR (9) POSSIBLE COMBINATIONS AND 0-10V, 10%-100% DIMMING STANDARD. 5 YEAR WARRANTY AND SUITABLE FOR DAMP LOCATIONS. ALL FIXTURES TO BE SET TO MAXIMUM LUMEN OUTPUT.
B		LSI INDUSTRIES OR APPROVED EQUAL	LPEC22-LED-39L-UNV-DIM1-35	LED 3982 LUMEN 3500 KELVIN CRI = 80	120V	30.6W	2'x2' LED LOW PROFILE TROFFER FOR OFFICE SPACES WITH 0-10V 1-100% DIMMING STANDARD AND 60,000 HOURS MINIMUM LIFE EXPECTANCY.
C		LSI INDUSTRIES OR APPROVED EQUAL	SFP24-LED-FS2-UNV-DIM	LED 5052 LUMEN 3500 KELVIN CRI = 80 MIN	120-277V	55W MAX	2'X4' LED FLAT PANEL WITH PMMA ACRYLIC DIFFUSER, 120° BEAM ANGLE PROVIDES HIGH VERTICAL ILLUMINANCE LEVELS, FIELD SELECTABLE CCT AND LUMEN FOR (9) POSSIBLE COMBINATIONS AND 0-10V, 10%-100% DIMMING STANDARD. 5 YEAR WARRANTY AND SUITABLE FOR DAMP LOCATIONS. ALL FIXTURES TO BE SET TO MAXIMUM LUMEN OUTPUT.
D		LSI INDUSTRIES OR APPROVED EQUAL	LPEC24-LED-40L-UNV-DIM1-35	LED 4063 LUMEN 3500 KELVIN CRI = 80	120V	32.1W	2'x4' LED LOW PROFILE TROFFER FOR OFFICE SPACES WITH 0-10V 1-100% DIMMING STANDARD AND 60,000 HOURS MINIMUM LIFE EXPECTANCY.
E		LSI INDUSTRIES OR APPROVED EQUAL	SFP24-LED-FS2-UNV-DIM	LED 5052 LUMEN 3500 KELVIN CRI = 80 MIN	120-277V	55W MAX	2'X4' LED FLAT PANEL WITH PMMA ACRYLIC DIFFUSER, 120° BEAM ANGLE PROVIDES HIGH VERTICAL ILLUMINANCE LEVELS, FIELD SELECTABLE CCT AND LUMEN FOR (9) POSSIBLE COMBINATIONS AND 0-10V, 10%-100% DIMMING STANDARD. 5 YEAR WARRANTY AND SUITABLE FOR DAMP LOCATIONS. COORDINATE WITH THE USER TO DETERMINE DESIRED COLOR TEMP AND LUMEN SETTINGS FOR FIXTURES IN 'FISH' AREAS.
F		PRIMUS OR APPROVED EQUAL	FC7-M-35K-DD-UNV-SWF2D-A-2	LED 1840 LUMEN 3500 KELVIN CRI = 80	120-277V	13W	UNDERCABINET LIGHTING. 2' NOMINAL LENGTH.
X		COOPER/SURE-LITES OR APPROVED EQUAL	APX-6-R	LED	120V	2W	CEILING MOUNT LED EXIT SIGN WITH RED LETTERS ON WHITE THERMOPLASTIC HOUSING. PROVIDE WITH UNIVERSAL MOUNT AND CHEVRONS AS INDICATED ON THE PLANS. AC OPERATION ONLY.

NOTES:

1. FIXTURES SHALL BE APPROVED WITH ALL NECESSARY MOUNTING HARDWARE, OPTIONS, LAMPS AND COMPONENTS AS REQUIRED FOR THE INSTALLATION AND AS DESCRIBED IN THE SCHEDULE.
2. ALL LAMPS SHALL BE 3500°K UNLESS OTHERWISE NOTED.
3. ARCHITECT TO SELECT ALL FINISH COLORS TO THE ELECTRICAL CONTRACTOR.
4. PROVIDE SEPARATE POWER SUPPLIES, MOUNTING BRACKETS, END CAPS, ACCESSORIES AND ALL COMPONENTS TO ENSURE A COMPLETE AND CLEAN INSTALLATION.
5. COORDINATE EXACT MOUNTING DETAILS, COLORS AND LENGHTS WITH ARCHITECTURAL DETAILS PRIOR TO ORDERING.
6. ALL EXIT SIGNS AND EMERGENCY LIGHTS SHALL BE CIRCUITED TO THE LINE SIDE OF THE LOCAL AREA LIGHTING SWITCH.
7. EQUAL FIXTURES IN APPEARANCE, QUALITY AND PERFORMANCE MAY BE SUBMITTED UNLESS OTHERWISE NOTED BY THE ENGINEER, ARCHITECT OR OWNER.

OCCUPANCY SENSOR SCHEDULE

SYMBOL /LABEL	MANUFACTURER	MODEL	POWER PACK	GENERAL DESCRIPTION
$ OS	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSSMT SERIES	NO	ONE POLE SWITCH ON SINGLE YOKE WITH INTEGRAL OCCUPANCY SENSOR. TYPICAL FOR SMALL SINGLE OCCUPANCY SPACES WITH SINGLE DRIVER/BALLAST FIXTURES.
$ 2P/OS	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSSMD SERIES	NO	TWO POLE SWITCH ON SINGLE YOKE WITH INTEGRAL OCCUPANCY SENSOR. TYPICAL FOR SMALL SINGLE OCCUPANCY SPACES WITH DUAL SWITCH FIXTURES. (1P SHALL BE FOR EXHAUST FAN(S) IN BATHROOMS.)
ϕ OS	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSD10 SERIES	NO	ONE POLE DIMMER SWITCH ON SINGLE YOKE WITH INTEGRAL OCCUPANCY SENSOR. TYPICAL FOR SMALL SINGLE OCCUPANCY SPACES WITH SINGLE DRIVER/BALLAST FIXTURES.
OS HW	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSMLR SERIES	YES	PROVIDE LOW VOLTAGE HALLWAY TYPE OCCUPANCY SENSOR WITH LONG NARROW COVERAGE PATTERN AND POWER PACK FOR AREA COVERED. MOUNT AT 8'AFF. TYPICAL FOR ALL CORRIDORS.
OS 2/HW	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSWWV SERIES	YES	LOW VOLTAGE CORNER MOUNTED WIDE ANGLE, EXTENDED RANGE OCCUPANCY SENDOR. FIELD COORDINATE WITH ROOM EQUIPMENT AND CURTAINS. MOUNT AT APPROXIMATELY 10'AFF.
OS	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OSC-10 (1000SF) OSC-20 (2000SF)	YES	LOW VOLTAGE CEILING MOUNTED OCCUPANCY SENSOR WITH POWER PACK. SET AT MAXIMUM TIME DELAY FOR TOILETS.
PP	LEVITON OR EQUAL BY WATTSOPPER, LUTRON	OPP-20		20A, 120V POWER PACK FOR OCCUPANCY SENSORS.

* – ARCHITECT TO SELECT COLOR OF ALL DEVICE FROM CURRENT AVAILABLE OFFERING FROM MANUFACTURER UNLESS OTHERWISE NOTED.

FLOORBOX SCHEDULE

SYMBOL /LABEL	SIZE	SERVICES	CONNNECTIVITY	GENERAL DESCRIPTION
FB	6"	POWER	(1) 3/4"	2-HR FIRE RATED POKE-THRU WITH (2) DUPLEX RECEPTACLES, CENTER MOUNTING PLATE FOR COMMUNICATIONS AND AV CONNECTORS, AND LOW PROFILE TILE FLOOR FLANGE OF FINISH TO BE SELECTED BY THE OWNER AND ARCHITECT. UTILIZE LEGRAND EVOLUTION SERIES CATALOG 6ATCPXX WHERE 'XX' REPRESENTS THE FINISH. FLOOR BOX FURNISHED WITH (2) DUPLEX RECEPTACLES WITH MOUNTING PLATES, CENTER COMPARTMENT WITH MOUNTING PLATES FOR COMMUNICATIONS AND AV, AND BOTTOM FEED COMPARTMENT FOR CONDUIT CONNECTION. PROVIDE 3/4" CONDUIT FOR POWER AND CAPACITY TO ADD 1-1/4" CONDUIT FOR FUTURE AV/DATA. PROVDE SUBMITTALS TO ENGINEER AND ARCHITECT FOR APPROVAL. EQUAL BY HUBBELL ACCEPTABLE.
		AV / DATA	(1) 1-1/4"	
FB2	6"	POWER	(1) 3/4"	ON GRADE, CONCRETE FLOOR BOX WITH DIVIDER FOR SEPARATE POWER AND LOW VOLTAGE SERVICES. BOX SHALL HAVE (1) 3/4" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, (1) 1-1/4" CONDUIT FOR AV. PROVIDE RECTANGULAR FLUSH COVER FOR TILE WITH NO INSERT. COLOR TO BE SELECTED BY ARCHITECT. HUBBELL CFB 4-GANG SERIES OR EQUAL BY LEGRAND OR FSR. PROVIDE RECEPTACLES AS SHOWN ON POWER PLANS.
		AV / DATA	(1) 1-1/4"	

NOTES:

CEILING SERVICE PANEL SCHEDULE

EQUIPMENT	MANUFACTURER	MODEL		GENERAL DESCRIPTION
CEILING SERVICE PANEL	PROVIDED BY LAB EQUIPMENT PROVIDER	SEE LAB EQUIPMENT PROVIDER		2'X2' CEILING SERVICE PANEL FOR POWER, DATA AND GAS SERVICE CONNECTIONS FROM CEILING TO LAB STATIONS. ELECTRICAL CONTRACTOR TO INSTALL DEVICE BOXES, LOCKING TYPE RECEPTACLES, COVER PLATES AND WIRING PER PLANS.

USB RECEPTACLE SCHEDULE

SYMBOL /LABEL	MANUFACTURER
USB ϕ	(1) HUBBELL TAMPER RESISTANT DUPLEX RECEPTACLE AND (2) PORT USB CHARGER MODEL USB20XZY. 'Y' INDICATES COLOR. (SEE NOTE 1.)

NOTES:

1. COORDINATE COLOR OF DEVICES WITH ARCHITECT BETWEEN: BLACK, BROWN, GRAY, IVORY, ALMOND OR WHITE.

ALTERNATE INFORMATION

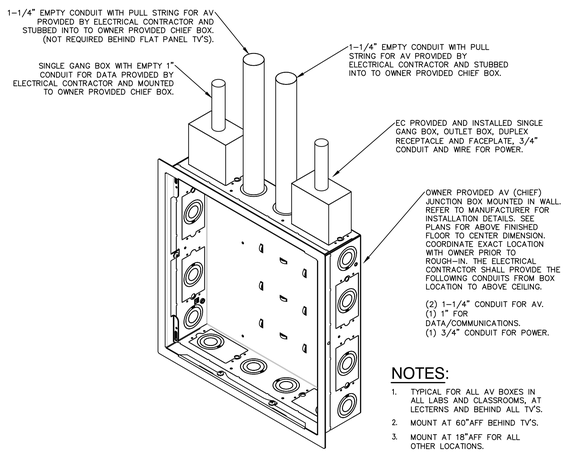
ALTERNATE	ROOM	DESCRIPTION	
1	BIOLOGY TEACHING LAB 114	BASE BID:	NO WORK IS TO BE DONE IN THIS AREA.
		ALTERNATE:	REFER TO DEMOLITION AND RENOVATION SHEETS FOR SCOPE OF WORK TO BE DONE.
3	POP BIOLOGY LAB 210	BASE BID:	NO WORK IS TO BE DONE IN THIS AREA.
		ALTERNATE:	REFER TO DEMOLITION AND RENOVATION SHEETS FOR SCOPE OF WORK TO BE DONE.

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL REMOVE ONLY THOSE EXISTING LIGHT FIXTURES, SWITCHES, RECEPTACLES, POWER JUNCTION AND OUTLET BOXES, VOICE AND DATA TELECOMMUNICATION OUTLETS, TELEVISION OUTLETS, FIRE ALARM SYSTEM DEVICES AND OUTLETS, AND ASSOCIATED ELECTRICAL AND SIGNALING SYSTEM PANELS, CABINETS AND EQUIPMENT AS INDICATED ON DEMOLITION DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT SERVICES TO THIS SAME EQUIPMENT FOR REMOVAL BY THE GENERAL CONTRACTOR. COORDINATE THE DISCONNECTION AND DEMOLITION OF EQUIPMENT CLOSELY WITH THE GENERAL CONTRACTOR. DEVICES NOT INDICATED ON DRAWINGS ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. REMOVE POWER AND SIGNALING SYSTEMS WIRING AND RACEWAY CIRCUITRY WHICH SERVES FIXTURES, DEVICES, OUTLETS AND/OR EQUIPMENT BEING REMOVED. REMOVE THIS CIRCUITRY BACK TO ITS SOURCE OR BACK TO THE POINT WHERE CIRCUITRY REMAINS TO CONTINUE SERVING EXISTING ITEMS. RECONNECT AND EXTEND CIRCUITRY TO MAINTAIN POWER AND SIGNALING SERVICES TO REMAINING EQUIPMENT. ALL REMAINING FEED-THRU PULL BOXES, OUTLETS AND JUNCTION BOXES SHALL BE ACCESSIBLE.
3. THE MAIN BACKBONE WIRING CIRCUITRY INFRASTRUCTURE OF THE VOICE AND DATA TELECOMMUNICATION, FIRE ALARM, AND TELEVISION SHALL REMAIN. ONLY INDIVIDUAL DEVICE/ROOM CIRCUITS SERVING REMOVED DEVICE/EQUIPMENT SHALL BE REMOVED BACK TO REMAINING MAIN BACKBONE CIRCUITRY.
4. REMOVE EXISTING INDICATED LIGHT FIXTURES, ELECTRICAL DEVICES, SURFACE MOUNT RACEWAY, AND EQUIPMENT UNLESS OTHERWISE NOTED.
5. PATCH AREAS WHERE DEVICES, LIGHT FIXTURES AND EQUIPMENT IS REMOVED TO MATCH EXISTING FINISH.
6. ALL CONDUIT SHALL BE CONCEALED IN WALL, ABOVE CEILING OR BELOW FLOOR. CUT AND PATCH TO MATCH EXISTING FINISH.
7. COORDINATE ANY AND ALL WORK WITH ALL OTHER TRADES PRIOR TO DEMOLITION SO AS TO AVOID CONFLICT DURING CONSTRUCTION.
8. ALL PANEL DIRECTORIES SHALL BE UPDATED INDICATING EQUIPMENT SERVED AND ROOM NUMBER (AS INDICATED ON FINAL BUILDING ROOM SIGNAGE) OF EQUIPMENT LOCATION, OR SPARE, OR SPACE. DIRECTORIES SHALL BE TYPED. OLD DIRECTORIES SHALL BE TURNED OVER TO THE OWNER.
9. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS IN ORDER TO OBTAIN A FULL UNDERSTANDING OF WORK TO BE DONE. THE CONTRACTOR SHALL INSPECT AND OBSERVE THE EXISTING SITE, BUILDING, STRUCTURAL, PLUMBING, MECHANICAL AND ELECTRICAL CONDITIONS PRIOR TO BEGINNING DEMOLITION AND SHALL PERFORM HIS WORK IN A MANNER TO ACCOMMODATE THESE EXISTING CONDITIONS.
10. NOT ALL DEVICES ARE SHOWN WITHIN THIS AREA. CONTRACTOR SHALL COORDINATE EXACT DEMOLITION AREA WITH ARCHITECTURAL PLANS PRIOR TO BEGINNING WORK.
11. ALL EXISTING POWER PANELS SHOWN ON DEMOLITION PLANS SHALL BE PROTECTED DURING ALL PHASES OF DEMOLITION. PANELS SHALL BE CLEANED, INSPECTED, AND CIRCUIT BREAKERS REPLACED AS REQUIRED.
12. WHERE DEVICES ARE REMOVED IN AN EXISTING WALL TO REMAIN, PROVIDE BLANK STAINLESS STEEL COVER PLATE.
13. ALL SHUTDOWNS AND SERVICE INTERRUPTIONS MUST BE COORDINATED AND REQUESTED THROUGH THE OWNER'S STAFF AT LEAST 72 HOURS IN ADVANCE OF EXPECTED SHUTDOWN.
14. THE CONTRACTORS SHALL COORDINATE ALL WORK TO BE PERFORMED WITH THE ARCHITECTURAL PLANS AND PROVIDE ALL NECESSARY TEMPORARY MEASURES THAT ARE REQUIRED TO TO ENSURE THAT THE DATA, SECURITY, INTERCOM AND FIRE ALARM SYSTEMS ARE FULLY FUNCTIONAL IN ALL REQUIRED AREAS DURING ALL PHASES OF CONSTRUCTION.

GENERAL ELECTRICAL NOTES:

1. THE CONTRACTOR SHALL VERIFY EQUIPMENT NAMEPLATE INFORMATION BEFORE INSTALLING CONDUIT, WIRING, CIRCUIT BREAKERS, DISCONNECT SWITCHES OR FUSES.
2. IN THE EVENT THE CONTRACTOR CHOOSES TO USE PRODUCTS OTHER THAN THE BASIS OF DESIGN, HE ASSUMES FULL RESPONSIBILITY FOR COORDINATION AND INTEGRATION OF SUCH ITEMS. THE FUNCTIONAL DESIGN INTEGRITY OF ALL SYSTEMS AND COMPONENTS SHALL BE MAINTAINED. VOLTAGES, LOADS, WIRE SIZES AND QUANTITIES, DISCONNECT SWITCHES AND FUSE SIZES, PHYSICAL SIZE, LOCATIONS, CLEARANCES, ETC. SHALL BE FULLY COORDINATED BY THE ELECTRICAL CONTRACTOR AND SHALL BE HIS RESPONSIBILITY. ANY ADDITIONAL COST RESULTING FROM SAID SUBSTITUTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE ELECTRICAL DRAWINGS REGARDING BUILDING CONSTRUCTION, DIMENSION AND ARRANGEMENT. LINES THAT REQUIRE SLOPE, SUCH AS PLUMBING WASTE LINES SHALL TAKE PRECEDENCE OVER ELECTRICAL LINES. CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL TRADES TO AVOID CONFLICTS AND SHALL PROVIDE ALL OFFSETS AND EQUIPMENT AS REQUIRED TO FIT THE ELECTRICAL WORK INTO THE AVAILABLE SPACE.
4. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE, HAVE A GROUND BAR, A NEUTRAL BAR AND TOOL DEFEATABLE INTERLOCKS.
5. COORDINATE ANY AND ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION SO AS TO AVOID CONFLICT DURING CONSTRUCTION.
6. ALL PANELS SHALL HAVE TYPED, COMPLETED DIRECTORIES INDICATING EQUIPMENT SERVED AND ROOM NUMBER (AS INDICATED ON FINAL BUILDING ROOM SIGNAGE) OF EQUIPMENT LOCATION, OR SPARE, OR SPACE.
7. COORDINATE ALL DEVICES AND OUTLETS ABOVE, BELOW AND ABOUT CASEWORK CLOSELY WITH CASEWORK CONTRACTOR IN ORDER TO LOCATE AT THE PROPER LOCATION AND HEIGHT.
8. THE CONTRACTOR SHOULD READ AND UNDERSTAND THE ENTIRE SET OF CONSTRUCTION DOCUMENTS WHICH INCLUDES BUT IS NOT LIMITED TO THE SPECIFICATIONS, ARCHITECTURAL, CIVIL, STRUCTURAL AND ALL ENGINEERING DRAWINGS, SO THAT HE MAY UNDERSTAND THE FULL SCOPE OF WORK AND CONVEY THE PROPER REQUIRED MATERIALS AND METHODS OF INSTALLATION TO THE ESTIMATORS, SUPPLIERS AND INSTALLERS.
9. THE CONTRACTOR SHALL INSPECT AND OBSERVE THE EXISTING SITE, BUILDING, STRUCTURAL, PLUMBING, MECHANICAL AND ELECTRICAL CONDITIONS PRIOR TO BEGINNING WORK AND SHALL PROVIDE AND INSTALL FIXTURES, DEVICES AND EQUIPMENT IN A MANNER TO ACCOMMODATE THESE EXISTING CONDITIONS.
10. NO EXISTING POWER (CIRCUIT BREAKER, DISCONNECT SWITCHES, ETC.) IS TO BE TURNED OFF UNTIL VERIFIED THAT IT IS NOT IN CURRENT USE AND UNTIL APPROVED BY THE OWNER.
11. ALL ELECTRICAL EQUIPMENT AND WIRING SHALL BE 75 DEG. RATED.
12. FINAL LOCATIONS OF ALL POWER DEVICES SHALL BE COORDINATED WITH FINAL EQUIPMENT PLAN PRIOR TO ROUGH-IN OF ANY LOCATIONS.
13. ALL SHUTDOWNS AND SERVICE INTERRUPTIONS MUST BE COORDINATED AND REQUESTED THROUGH THE OWNER AT LEAST 72 HOURS IN ADVANCE OF EXPECTED SHUTDOWN.
14. ELECTRICAL CONTRACTOR SHALL FIRE SEAL ALL PENETRATIONS THRU FIRE RATED WALLS. REFER TO PME SHEET FOR U.L. PENETRATION DETAILS.
15. ALL LOW VOLTAGE WIRING SHALL BE PLENUM RATED.
16. EXIT AND EMERGENCY LIGHTING UNITS SHALL BE CIRCUITED TO THE LINE SIDE OF THE LOCAL SWITCH TO ENSURE OPERATION IN A LOSS OF NORMAL POWER SITUATION.
17. ALL CONDUITS IN FINISHED AREAS SHALL BE CONCEALED UNDERSLAB, IN WALLS. ANY CONDUIT THAT MUST BE EXPOSED IN UNFINISHED AREAS SHALL BE NEATLY ROUTED PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE.
18. NEW TELEDATA OUTLETS SHOWN WILL BE BY THE ELECTRICAL CONTRACTOR AND SHALL INCLUDE BACKBOXES AND CONDUIT WITH PULL STRINGS. STUB CONDUIT TO ABOVE NEAREST LAY-IN CEILING. ALL OTHER TELEDATA WORK INCLUDING, BUT NOT LIMITED TO PULLING CABLES, EQUIPMENT, INSTALLING, TERMINATING, TESTING AND LABELING OF CABLES, FACEPLATES AND JACKS SHALL BE BY THE OWNER'S VENDOR.
19. ALL EXISTING TO REMAIN RECEPTACLES AND COVER PLATES IN RENOVATED SPACES TO BE CHANGED TO WHITE.
20. RECEPTACLES ON EMERGENCY POWER SHALL BE RED.
21. ELECTRICAL CONTRACTOR SHALL REWORK ALL EXISTING LIGHTING CIRCUITS SERVING EACH AREA TO THE NEW LIGHTING LAYOUTS AS SHOWN AS WELL AS PROVIDING NEW SWITCHING AND OCCUPANCY SENSORS.
22. TOMBSTONE HOUSINGS FOR RECEPTACLES SHALL BE DIECAST ALUMINUM WITH BRUSHED SATIN FINISH. PROVIDE CUT SHEETS WITH ELECTRICAL SUBMITTALS. CONTRACTOR TO FIELD COORDINATE CONDUIT FROM FLOOR THROUGH TABLES TO TABLE TOP TOMBSTONES PRIOR TO ROUGH-IN. CONDUIT SHALL BE CONCEALED OR ROUTED AS INCONSPICUOUSLY AS POSSIBLE WHERE IT CAN'T BE CONCEALED.



NOTES:

1. TYPICAL FOR ALL AV BOXES IN ALL LABS AND CLASSROOMS, AT LECTERNS AND BEHIND ALL TV'S.
2. MOUNT AT 60"AFF BEHIND TV'S.
3. MOUNT AT 18"AFF FOR ALL OTHER LOCATIONS.

1 / E001 AV (CHIEF) Backbox Detail

SCALE: NTS

SPECIAL SYSTEMS SYMBOLS

SYMBOL	DESCRIPTION
	SECURITY CONTROL PANEL
PS	SECURITY SYSTEM REMOTE POWER SUPPLY
ZE	SECURITY SYSTEM REMOTE ZONE EXPANDER
	SECURITY CAMERA
	MULTI-DIRECTIONAL SECURITY CAMERA
CR	WALL MOUNTED CARD ACCESS READER
KP	WALL MOUNTED KEYPAD
M	MOTION DETECTOR (LR – LONG RANGE)
DH	MAGNETIC DOOR HOLDER
PP	AUTO DOOR OPERATOR PUSH PLATE
	DOORBELL / PUSH BUTTON
DC	DOOR CONTACT
BS	LIGHTING CONTROL SYSTEM BUS POWER SUPPLY
DS	DAYLIGHT SENSOR (ORIENT TOWARDS EXTERIOR WINDOW)
OS	OCCUPANCY SENSOR (ORIENT TOWARDS ROOM ENTRY)
ES	ELECTRIC STRIKE FOR DOOR
EL	ELECTRIC LATCH FOR DOOR
REX	CEILING MOUNTED INFRARED REQUEST TO EXIT DEVICE
PB	EMERGENCY DURESS PUSH BUTTON

ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION
48"	DIMENSION ABOVE FINISHED FLOOR
30ADS	30A DISCONNECT SWITCH
30AF	30A FUSE FOR DISCONNECT SWITCH
AC	ABOVE COUNTER OR CASEWORK (COORDINATE WITH ARCHITECT)
ACT	ABOVE CEILING TILE
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AORA	AREA OF RESCUE ASSISTANCE
ATS	AUTOMATIC TRANSFER SWITCH
BFG	BELOW FINISHED GRADE
C	CEILING MOUNTED DEVICE
COAX	COAX (RG6) OUTLET
COFFEE	DEDICATED COFFEE OUTLET
DISH	DEDICATED DISHWASHER OUTLET
EC	ELECTRICAL CONTRACTOR
ER	EXISTING DEVICE TO BE RELOCATED
ETR	EXISTING TO REMAIN
EWC	DEDICATED ELECTRIC WATER COOLER OUTLET
EX. OR EXIST.	EXISTING
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FREEZ	DEDICATED FREEZER OUTLET
GFI	GROUND FAULT INTERRUPTER
HK	HOUSEKEEPING OUTLET
IC	DEVICE MOUNTED IN COUNTER OR CASEWORK
IH	INTERCOM HANDSET
K	KEYED SWITCH
LR	LONG RANGE
LSOLS	LINE SIDE OF LOCAL SWITCH
MC	MECHANICAL CONTRACTOR
MICRO	DEDICATED MICROWAVE OUTLET
OPE	OWNER PROVIDED EQUIPMENT
OPOI	OWNER PROVIDED OWNER INSTALLED EQUIPMENT
OPCI	OWNER PROVIDED CONTRACTOR INSTALLED EQUIPMENT
PC	PLUMBING CONTRACTOR
POE	POWER OVER ETHERNET
PROJ	PROJECTOR OUTLET
RANGE	DEDICATED RANGE OUTLET
RE	RELOCATE EXISTING DEVICE
REFRIG	DEDICATED REFRIGERATOR OUTLET
UC	DEVICE OR EQUIPMENT MOUNTED UNDERCOUNTER
UON	UNLESS OTHERWISE NOTED
SER	SERVICE ENTRANCE RATED
SU	STUB UP CONDUIT INTO FIXED CASEWORK
TP	TAMPER RESISTANT DEVICE
W	WALL MOUNTED DEVICE
WP	WEATHERPROOF WHILE IN USE HEAVY DUTY METAL COVER
WAP	WIRELESS ACCESS POINT (CEILING MOUNTED)

NOTE:

NOT ALL DEVICES ARE IDENTIFIED IN THE LIST ABOVE. REFER TO DRAWINGS FOR ADDITIONAL INFORMATION

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	DOWN LIGHT (REFER TO SCHEDULE FOR TYPE)
	TRACK LIGHT (REFER TO SCHEDULE FOR TYPE)
	LAY-IN TROFFER (REFER TO SCHEDULE FOR TYPE)
	NIGHT LIGHT (REFER TO SCHEDULE FOR TYPE)
	WALL MOUNT EMERGENCY LIGHT (REFER TO SCHEDULE FOR TYPE)
	CEILING MOUNT EMERGENCY LIGHT (REFER TO SCHEDULE FOR TYPE)
	EXIT LIGHT (REFER TO SCHEDULE FOR TYPE)
$	LIGHT CONTROL SWITCH (3 OR 4-WAY OR KEYED AS INDICATED)
$$	DUAL SWITCHES
ϕ	DIMMER SWITCH
A–15	NEW HOMERUN (EX. PANEL "A", CIRCUIT 15)
	NEW UNSWITCHED LIGHTING CIRCUIT
	NEW POWER OR LIGHTING CIRCUIT
	DUPLEX RECEPTACLE
FB	FLOORBOX MOUNTED DUPLEX RECEPTACLE
	240VAC RECEPTACLE
	DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
CR	CEILING MOUNTED CORD REEL
	SPECIFIC NEMA PLUG – REFER TO PLANS FOR TYPE
	DISCONNECT SWITCH – REFER TO DISCONNECT SCHEDULE FOR DETAILS
	POWER PANEL – SEE PLANS AND SCHEDULES FOR DETAILS
SP	CEILING MOUNTED SPEAKER
IS	WALL OR CEILING MOUNTED INTERCOM SPEAKER
J	POWER SYSTEM JUNCTION BOX
PC	PHOTOCELL
TC	TIMECLOCK
PP	POWER / TELECOM DIVIDED POWER POLE
TR	BLANK GFI TRIP UNIT
ELTS	EMERGENCY LIGHTING TRANSFER SWITCH

MISCELLANEOUS SYMBOLS

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED OCCUPANCY SENSOR
OS DT	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
OS1	WALL MOUNTED OCCUPANCY SENSOR (TYPE DESIGNATION)
FB	FLOOR BOX – SEE FLOORBOX SCHEDULE FOR DETAILS

FIRE ALARM SYMBOLS

SYMBOL	DESCRIPTION
S	SMOKE DETECTOR
H	HEAT DETECTOR
	MANUAL PULL STATION
V #	VISUAL ONLY NOTIFICATION DEVICE (# INDICATES CANDELA)
H #	HORN AND STROBE NOTIFICATION DEVICE (# INDICATES CANDELA)
DD	DUCT MOUNTED SMOKE DETECTOR
DH	FIRE ALARM CONTROLLED DOOR HOLD-OPEN
FAA	RECESSED MOUNT FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
TS	TAMPER SWITCH
FS	FLOW SWITCH
LT	LOW TEMPERATURE SENSOR
CM	CONTROL MODULE
MM	MONITOR MODULE
R	RELAY
DTS	DAMPER TEST SWITCH
TCM	TELECOMMUNICATION MODULE WITH REMOTE SERVICES
CO	CARBON MONOXIDE DETECTOR WITH SOUNDER BASE
SD T/R	FIRE ALARM BEAM SMOKE DETECTOR (T – TRASMITTER, R – RECEIVER)

TELECOM / AUDIO VIDEO SYMBOLS

SYMBOL	DESCRIPTION
AV	AUDIO/VISUAL OUTLET FOR OPE
TV	TELEVISION OUTLET WITH (1) DATA AND (1) CATV JACK FOR OPE
#	TELECOM OUTLET (# INDICATES QUANTITY OF CAT6 CABLES)
	TELECOM OUTLET WITH (2) CAT6 CABLES
AC	TELECOM OUTLET LOCATED ABOVE COUNTERTOP
IC	TELECOM OUTLET LOCATED IN CASEWORK/COUNTERTOP
ELEV	ELEVATOR EQUIPMENT CONNECTION WITH (2) DEDICATED PHONE LINES
SEC	SECURITY EQUIPMENT CONNECTION WITH (2) DEDICATED PHONE LINES
FA	FIRE ALARM EQUIPMENT CONNECTION WITH (2) DEDICATED PHONE LINES
J	TELECOM SYSTEM JUNCTION BOX
	POE WIRELESS NETWORK ACCESS POINT
PROJ	CEILING MOUNTED PROJECTOR BY OTHERS

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL BUILDINGS

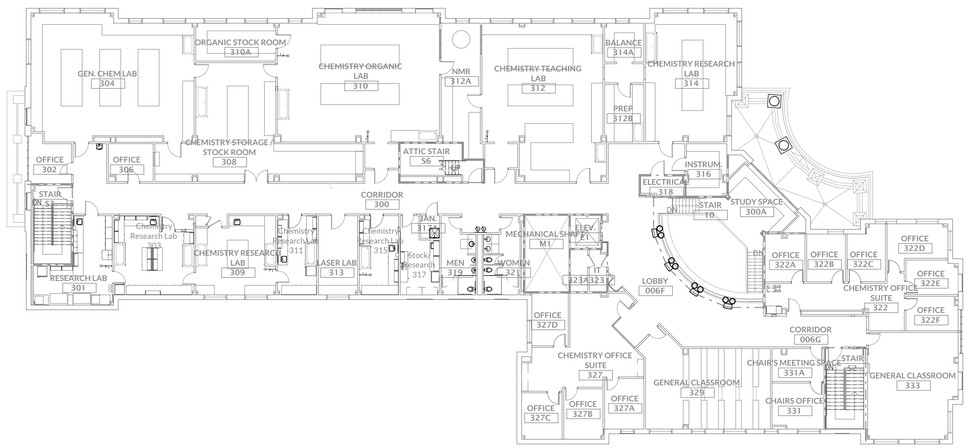
ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE (SELECT ONE)

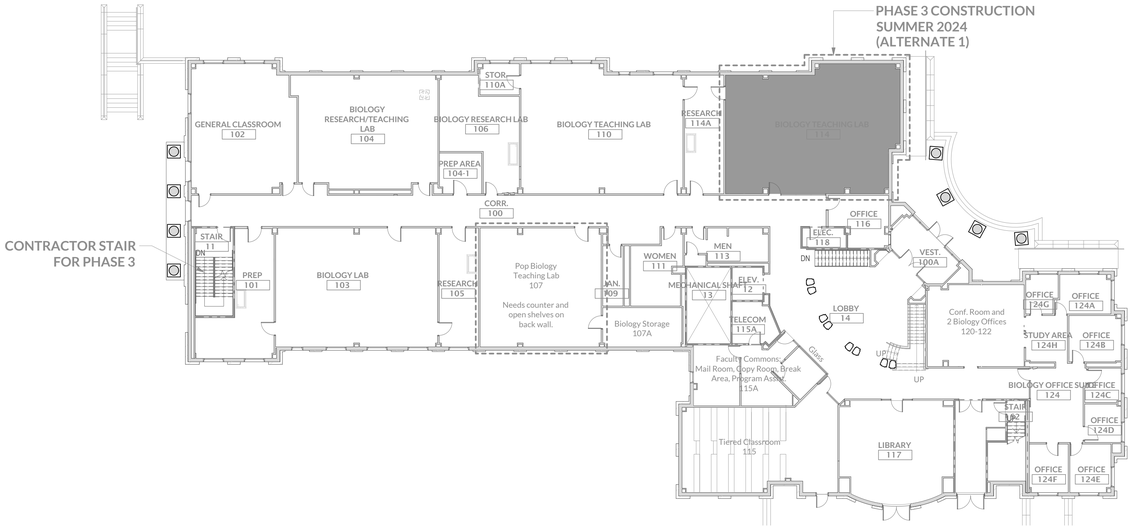
ENERGY CODE :	X	PRESCRIPTIVE		PERFORMANCE
ASHRAE 90.1 :		PRESCRIPTIVE		PERFORMANCE

LIGHTING SCHEDULE (EACH FIXTURE TYPE)

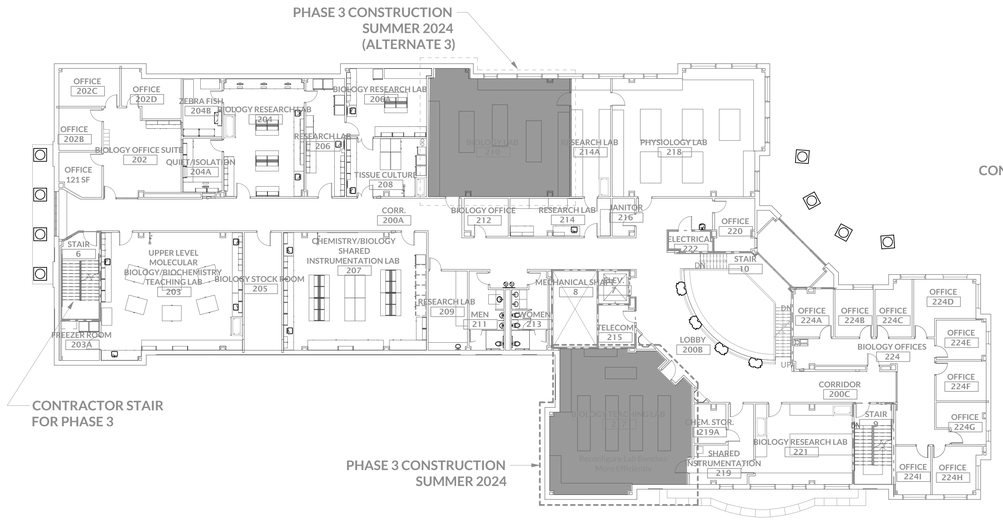
LAMP TYPE REQUIRED IN FIXTURE	–	SEE FIXTURE SCHEDULE			
NUMBER OF LAMPS IN FIXTURE	–	SEE FIXTURE SCHEDULE			
BALLAST TYPE USED IN FIXTURE	–	SEE FIXTURE SCHEDULE			
NUMBER OF BALLASTS IN FIXTURE	–	SEE FIXTURE SCHEDULE			
TOTAL WATTAGE PER FIXTURE	–	SEE FIXTURE SCHEDULE			
TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED	–	SPC X SPC	13121	SPECIFIED	15522 ALLOWED
TOTAL EX



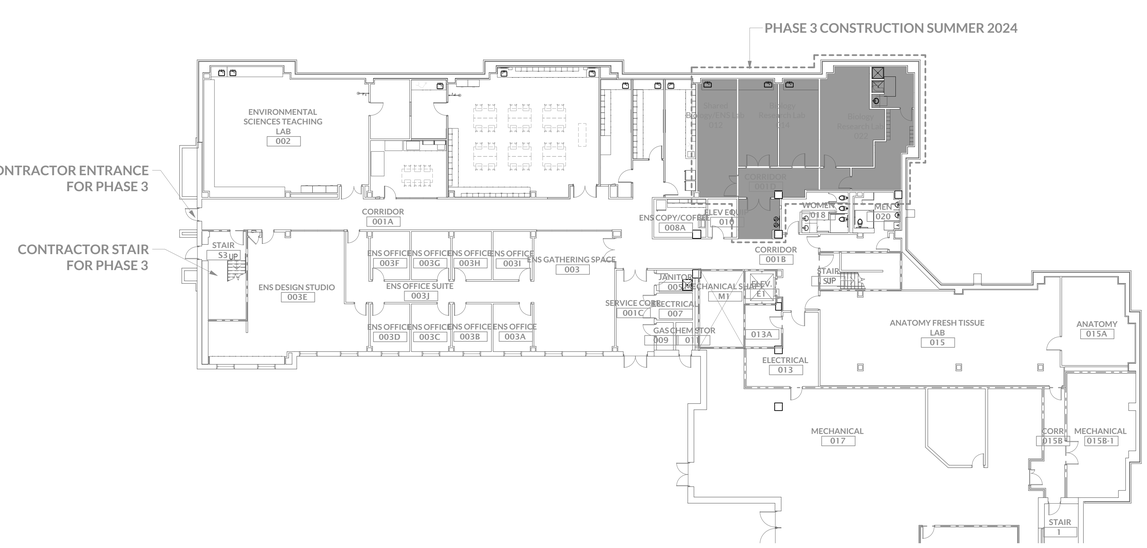
4 Level 3 - Electrical Overall Renovation - Phase 3
E002 SCALE: 1/16" = 1'–0"
NO WORK THIS PHASE



2 Level 1 - Electrical Overall Renovation - Phase 3
E002 SCALE: 1/16" = 1'–0"



3 Level 2 - Electrical Overall Renovation - Phase 3
E002 SCALE: 1/16" = 1'–0"



1 Level 0 - Electrical Overall Renovation - Phase 3
E002 SCALE: 1/16" = 1'–0"

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025899 DENNIS HAYES

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
Drawn:	ANR
Checked:	JDH
Date:	02/29/2024

Sheet Title

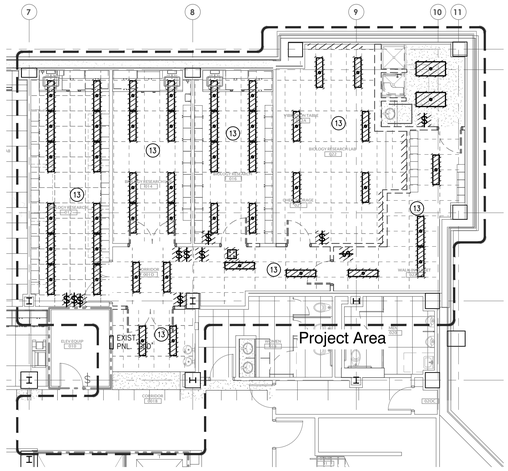
Electrical Phasing Plan

Sheet Number

E002

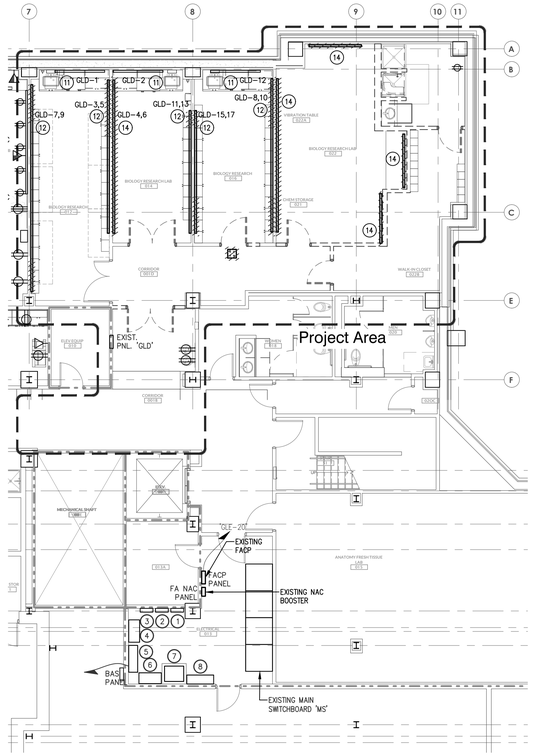
ELECTRICAL KEYNOTES:

1. EXISTING PANEL 'GHA' TO REMAIN.
2. EXISTING PANEL 'GLE' TO REMAIN.
3. EXISTING PANEL 'GEHA' TO REMAIN.
4. EXISTING 'MZI' TO REMAIN.
5. EXISTING EMERGENCY DISTRIBUTION PANEL 'EHDP' TO REMAIN.
6. EXISTING AUTOMATIC TRANSFER SWITCH 'ATS' TO REMAIN.
7. EXISTING TRANSFORMER 'XG' TO REMAIN.
8. EXISTING DISTRIBUTION PANEL 'DP-G' TO REMAIN.
9. ALL EXISTING TO REMAIN AND NEW RECEPTACLES SHALL BE WHITE WITH WHITE COVER PLATES. REPLACE EXISTING TO REMAIN AS REQUIRED.
10. CEILING MOUNTED SPEAKERS TO BE REMOVED BY OWNER.
11. EXISTING WIREMOLD TO REMAIN. DEVICES TO BE GFI PROTECTED IF NOT ALREADY.
12. EXISTING WIREMOLD TO BE SHORTENED TO ALLOW FOR INSTALLATION OF NEW CASEWORK, OPENING, EQUIPMENT OR FLOOR MOUNTED STORAGE CABINETS. REWORK CIRCUITS AND NEW LINE FEEDS FOR WIREMOLD AS REQUIRED. FIELD COORDINATE EXACT END POINT AND ADD END CAP.
13. REWORK EXISTING NORMAL AND EMERGENCY LIGHTING CIRCUITS AS REQUIRED FOR NEW LIGHTS, LAYOUT AND CONTROLS AS SHOWN ON RENOVATION PLANS.
14. EXISTING WIREMOLD TO BE REMOVED COMPLETE AND TURNED OVER TO THE OWNER FOR SPARE.



2 / E100 Lighting Demolition Plan - Level 0

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



1 / E100 Electrical Demolition Plan - Level 0

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

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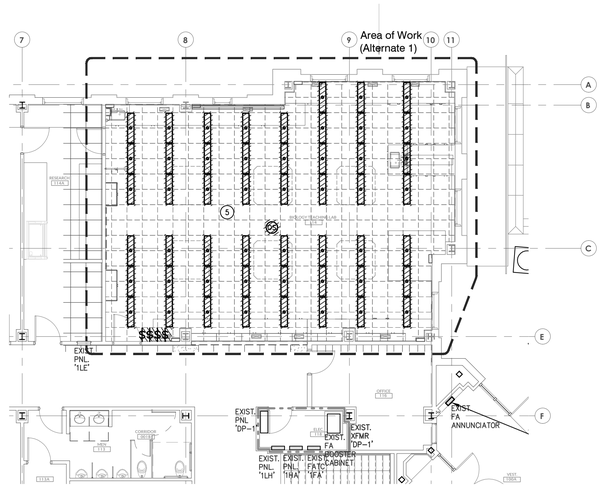
Sheet Title

Electrical Demolition Plan - Level 0

Sheet Number

E100



2 E101 **Lighting Demolition Plan - Level 1**

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

1 E101 **Electrical Demolition Plan - Level 1**

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

ELECTRICAL RENOVATION KEYNOTES:

1. EXISTING WIREMOLD TO BE REMOVED AND REPLACED WITH NEW WIREMOLD AS SHOWN IN RENOVATION PLANS. REWORK CIRCUITS FEEDING WIREMOLD AS REQUIRED.
2. DEMOLISH EXISTING FLOOR BOX COMPLETE. REWORK EXISTING CIRCUIT AS REQUIRED.
3. EXISTING DEVICES TO BE CHANGED TO GFI TYPE.
4. ALL EXISTING TO REMAIN AND NEW RECEPTACLES SHALL BE WHITE WITH WHITE COVER PLATES. REPLACE EXISTING TO REMAIN AS REQUIRED.
5. REWORK EXISTING NORMAL AND EMERGENCY LIGHTING CIRCUITS AS REQUIRED FOR NEW LIGHTS, LAYOUT AND CONTROLS AS SHOWN ON RENOVATION PLANS.
6. EXISTING WIREMOLD TO REMAIN. DEVICES TO BE GFI PROTECTED IF NOT ALREADY.

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

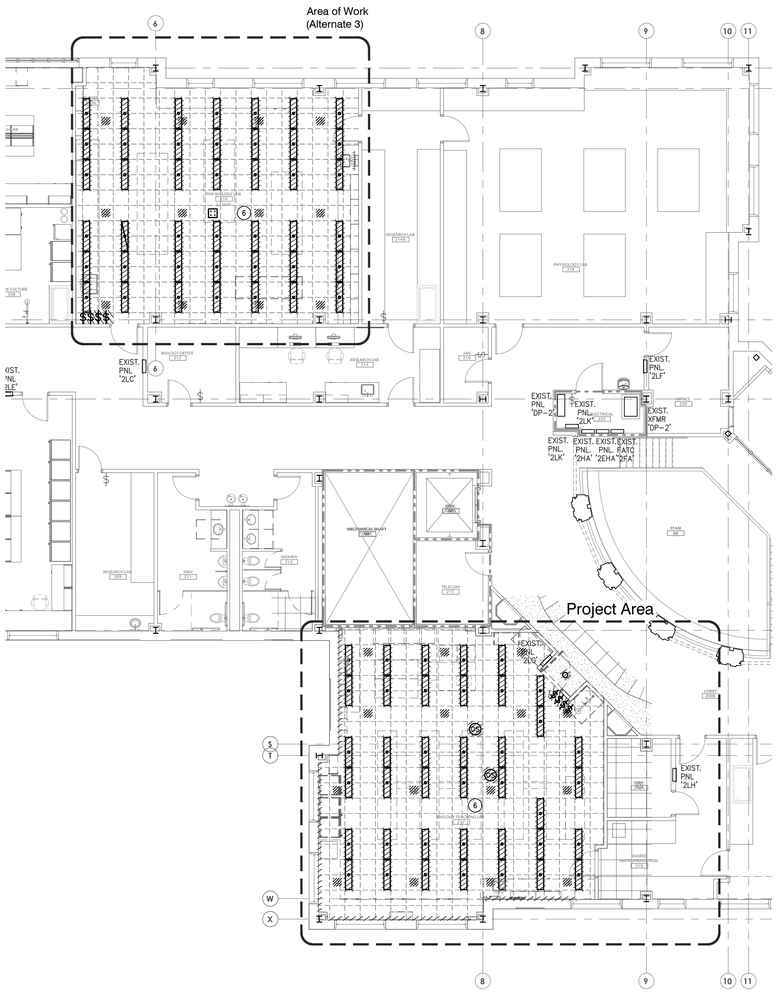
Electrical Demolition Plan - Level 1

Sheet Number

E101

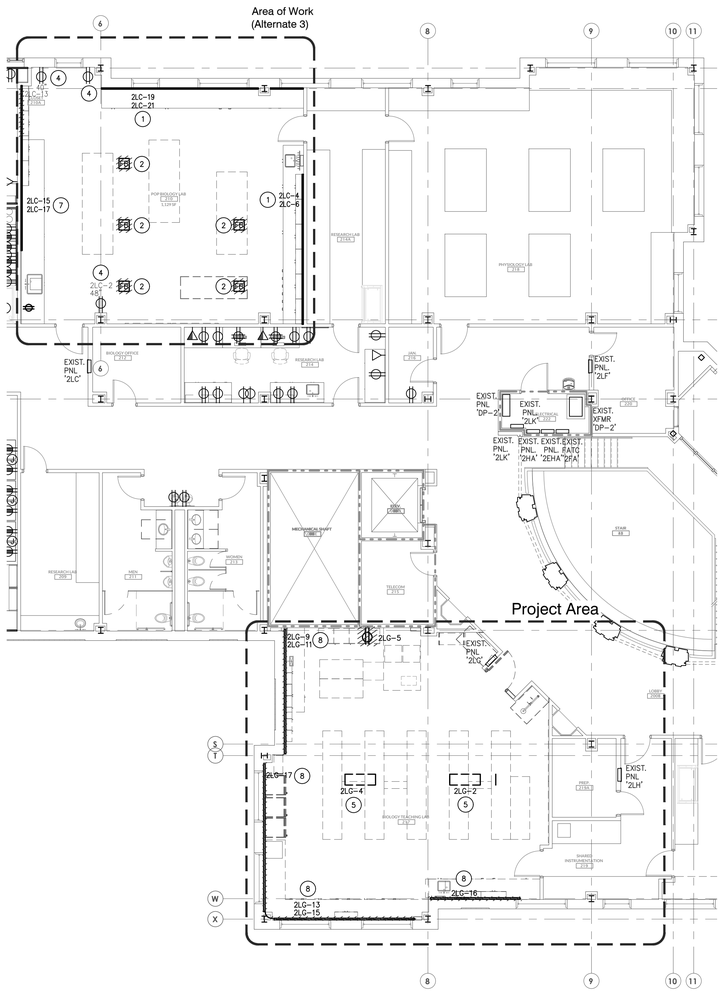
ELECTRICAL RENOVATION KEYNOTES:

1. EXISTING WIREMOLD TO REMAIN.
2. DEMOLISH EXISTING FLOOR BOX COMPLETE. REWORK EXISTING CIRCUIT AS REQUIRED.
3. EXISTING DEVICES TO BE CHANGED TO GFI TYPE.
4. ALL EXISTING TO REMAIN AND NEW RECEPTACLES SHALL BE WHITE WITH WHITE COVER PLATES. REPLACE EXISTING TO REMAIN AS REQUIRED.
5. EXISTING POWER STUBBED UP IN FLOOR MOUNTED CASEWORK TO BE REMOVED BACK TO SOURCE. BREAKERS TO BE TURNED OFF AND LABELED SPARE IF NO EXISTING TO REMAIN DOWNSTREAM DEVICES NEED TO BE ENERGIZED.
6. REWORK EXISTING NORMAL AND EMERGENCY LIGHTING CIRCUITS AS REQUIRED FOR NEW LIGHTS, LAYOUT AND CONTROLS AS SHOWN ON RENOVATION PLANS.
7. EXISTING WIREMOLD TO BE SHORTENED TO ALLOW FOR INSTALLATION OF NEW CASEWORK, OPENING, EQUIPMENT OR FLOOR MOUNTED STORAGE CABINETS. REWORK CIRCUITS AND NEW LINE FEEDS FOR WIREMOLD AS REQUIRED. FIELD COORDINATE EXACT END POINT AND ADD END CAP.
8. EXISTING WIREMOLD TO BE REMOVED COMPLETE AND REPLACED AS SHOWN IN THE RENOVATION PLANS. EXISTING CIRCUITS TO BE REWORKED AS REQUIRED FOR NEW WIREMOLD.



2 / E102 Lighting Demolition Plan - Level 2

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



1 / E102 Electrical Demolition Plan - Level 2

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

RATED WALL LEGEND

	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Revisions

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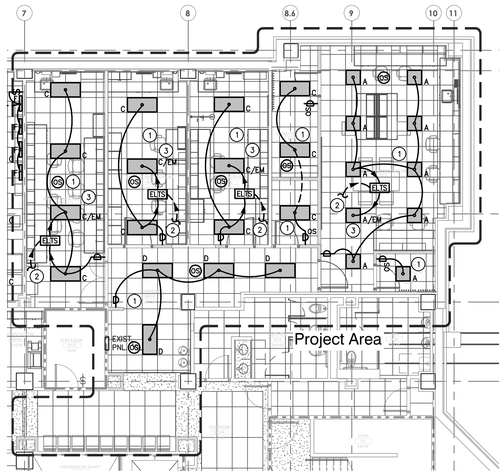
Sheet Title

Electrical Demolition Plan - Level 2

Sheet Number

E102



2 E200 Lighting Renovation Plan - Level 0

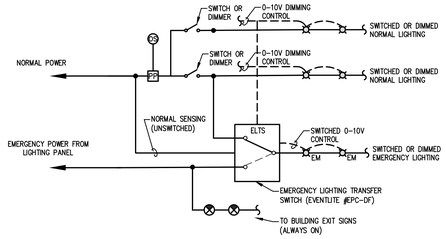
SCALE: 1/8" = 1'-0"

GENERAL DESCRIPTION OF LIGHTING CONTROLS:

1. LOW VOLTAGE OCCUPANCY SENSORS IN A SPACE CONTROL A POWER PACK THAT SWITCHES THE ENTIRE SPACE.
2. THE POWER PACK IS INSTALLED AHEAD OF ANY ROOM ZONE SWITCHES / DIMMERS.
3. FIXTURES DESIGNATED AS '_/EM' WILL HAVE AN EMERGENCY LIGHTING TRANSFER SWITCH OR SHUNT RELAY INSTALLED AHEAD OF THE FIXTURE. THIS DEVICE WILL ALLOW THE EMERGENCY FIXTURES TO BE CONTROLLED WITH THE ROOM OCCUPANCY SENSORS AND SWITCHES / DIMMERS DURING NORMAL OPERATION AND TRANSFER TO UNSWITCHED EMERGENCY POWER DURING AN INTERRUPTION TO NORMAL POWER.
4. THE ELTS NEEDS A NORMAL POWER SWITCHED / DIMMED INPUT, A NORMAL POWER UNSWITCHED INPUT, AND AN UNSWITCHED EMERGENCY POWER INPUT. THE '_/EM' FIXTURES ARE FED FROM THE LOAD SIDE OF THE ELTS.
5. IN SPACES WITH DIMMING CONTROLS THE 0-10V DIMMING CONTROL CABLE FOR THE '_/EM' FIXTURES ALSO HAS TO BE SWITCHED BY THE ELTS.
6. SEE LIGHTING CONTROL SCHEMATICS THIS PAGE FOR TYPICAL WIRING DIAGRAM AND ADDITIONAL DETAILS.

ELECTRICAL RENOVATION KEYNOTES:

1. EXISTING LIGHTING CIRCUITS TO BE REWORKED AS REQUIRED FOR NEW LIGHTING LAYOUTS AS SHOWN.
2. CONNECT TO UNSWITCHED EMERGENCY CIRCUIT. REWORK EXISTING AREA EMERGENCY CIRCUIT AS REQUIRED.
3. REWORK NORMAL AND EMERGENCY CIRCUITS TO NEW FIXTURES AS REQUIRED SEE DETAIL 3/E200.
4. 2'X2' LAY-IN SERVICE PANEL WITH (2) 120V, 20A TWIST LOCK RECEPTACLES AND DATA OUTLET AT EACH LOCATION.
5. NEW DEVICES SHALL BE GFI TYPE.
6. NEW WIREMOLD TO BE INSTALLED ABOVE CASEWORK. ALL RECEPTACLES TO BE GFI PROTECTED.

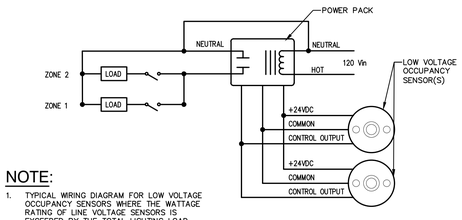


3 E200 Emergency Lighting Control Schematic

SCALE: NONE

NOTES:

1. THIS DETAIL REPRESENTS A TYPICAL ROOM INSTALLATION. SEE PLANS FOR EXACT EQUIPMENT SIZES AND LOCATIONS.

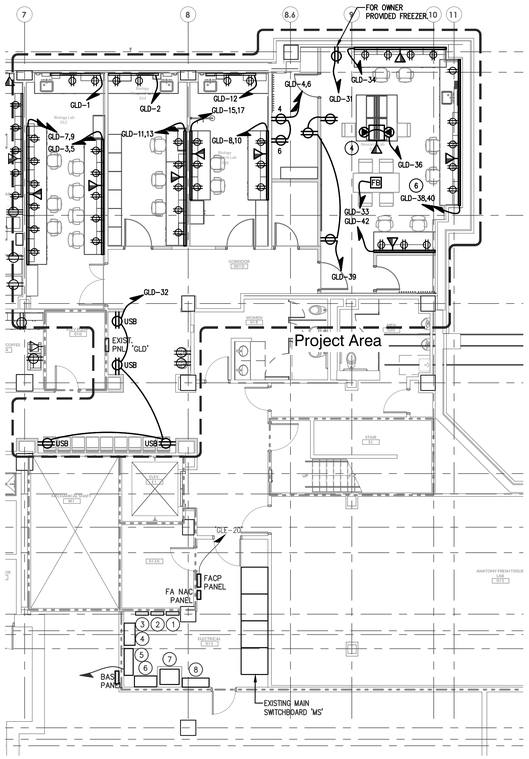


NOTE:

1. TYPICAL WIRING DIAGRAM FOR LOW VOLTAGE OCCUPANCY SENSORS WHERE THE WATTAGE RATING OF LINE VOLTAGE SENSORS IS EXCEEDED BY THE TOTAL LIGHTING LOAD.

4 E200 Occupancy Sensor Wiring

SCALE: NONE LOW VOLTAGE



1 E200 Electrical Renovation Plan - Level 0

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Key Plan

Revisions

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Sheet Title

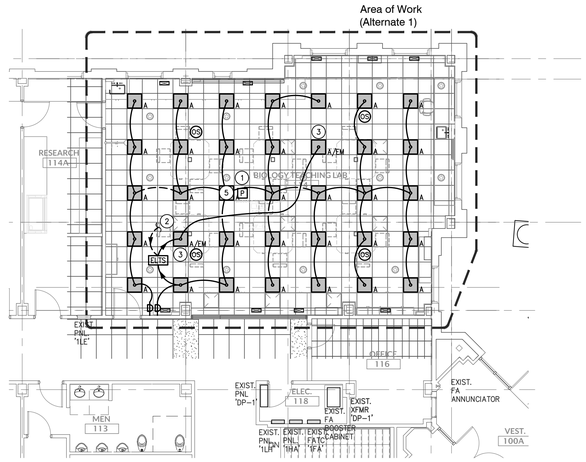
Electrical Renovation Plan - Level 0

Sheet Number

E200

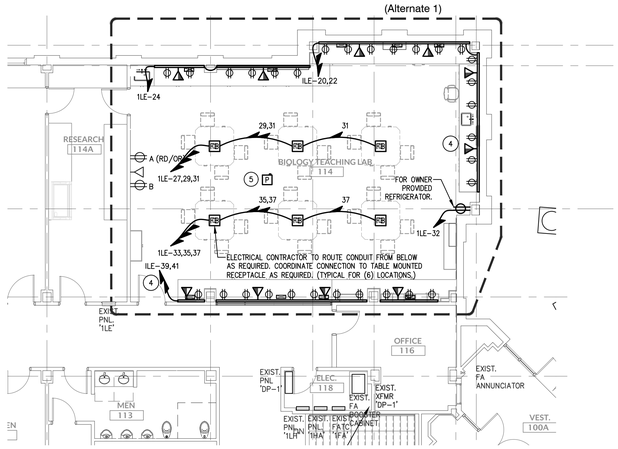
ELECTRICAL RENOVATION KEYNOTES:

1. EXISTING LIGHTING CIRCUITS TO BE REWORKED AS REQUIRED FOR NEW LIGHTING LAYOUTS AS SHOWN.
2. CONNECT TO UNSWITCHED EMERGENCY CIRCUIT. REWORK EXISTING AREA EMERGENCY CIRCUIT AS REQUIRED.
3. REWORK NORMAL AND EMERGENCY CIRCUITS TO NEW FIXTURES AS REQUIRED SEE DETAIL 3/E200.
4. NEW WIREMOLD TO BE INSTALLED ABOVE CASEWORK. ALL RECEPTACLES TO BE GFI PROTECTED.
5. EXISTING PROJECTOR TO BE RELOCATED AS REQUIRED FOR NEW LIGHTING LAYOUT. REWORK EXISTING POWER AND DATA CONNECTIONS AS REQUIRED.



2 E201 **Lighting Renovation Plan - Level 1**

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



1 E201 **Electrical Renovation Plan - Level 1**

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

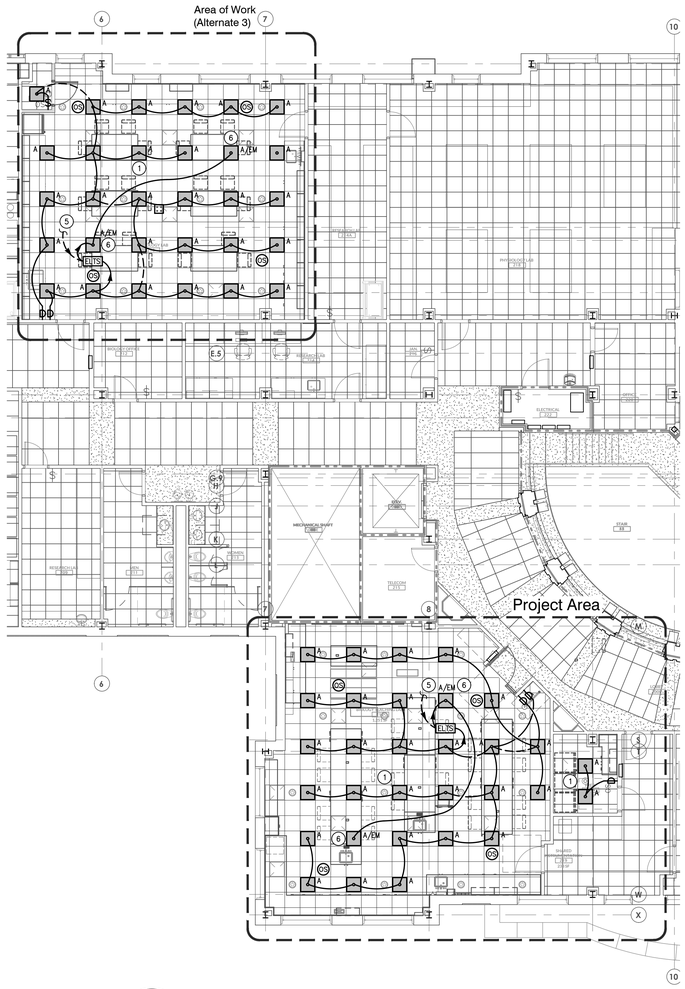
Electrical Renovation Plan - Level 1

Sheet Number

E201

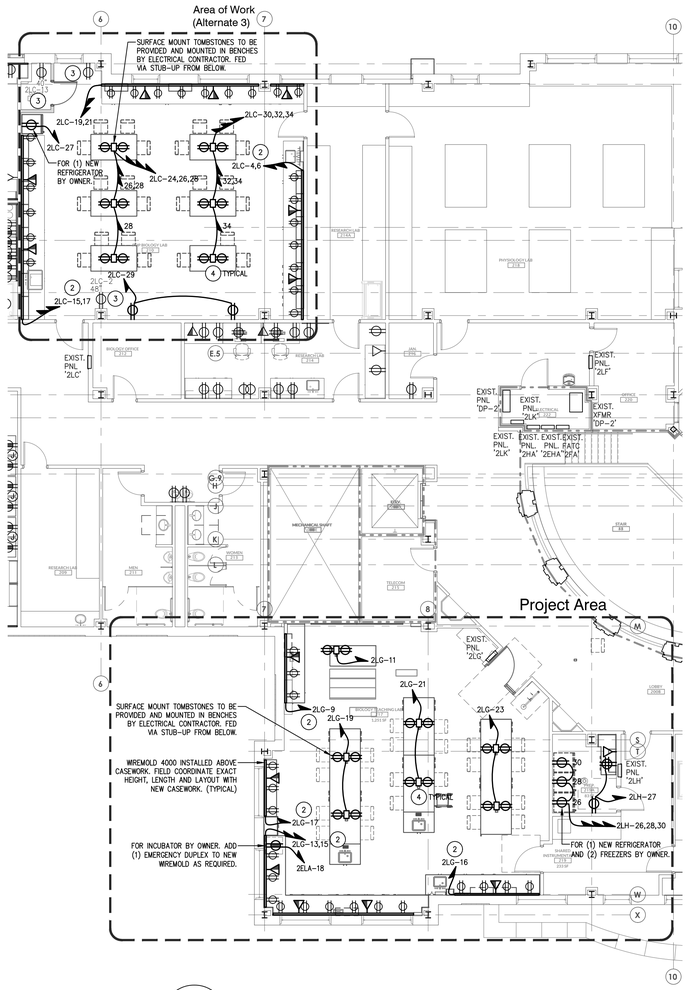
ELECTRICAL RENOVATION KEYNOTES:

1. EXISTING WIREMOLD TO BE SHORTENED TO ALLOW FOR INSTALLATION OF NEW CASEWORK, OPENING, EQUIPMENT OR FLOOR MOUNTED STORAGE CABINETS. REWORK CIRCUITS FEEDING WIREMOLD AS REQUIRED. FIELD COORDINATE EXACT END POINT AND ADD END CAP.
2. NEW WIREMOLD TO BE INSTALLED ABOVE CASEWORK. ALL RECEPTACLES TO BE GFI PROTECTED.
3. EXISTING DEVICE TO BE CHANGED TO WHITE WITH WHITE COVER PLATE.
4. TOMBSTONE OUTLETS FOR POWER AND DATA FED FROM BELOW. 1"CONDUIT FOR DATA.
5. CONNECT TO UNSWITCHED EMERGENCY CIRCUIT. REWORK EXISTING AREA EMERGENCY CIRCUIT AS REQUIRED.
6. REWORK NORMAL AND EMERGENCY CIRCUITS TO NEW FIXTURES AS REQUIRED SEE DETAIL 3/E200.



2 / E202 Lighting Renovation Plan - Level 2

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



1 / E202 Electrical Renovation Plan - Level 2

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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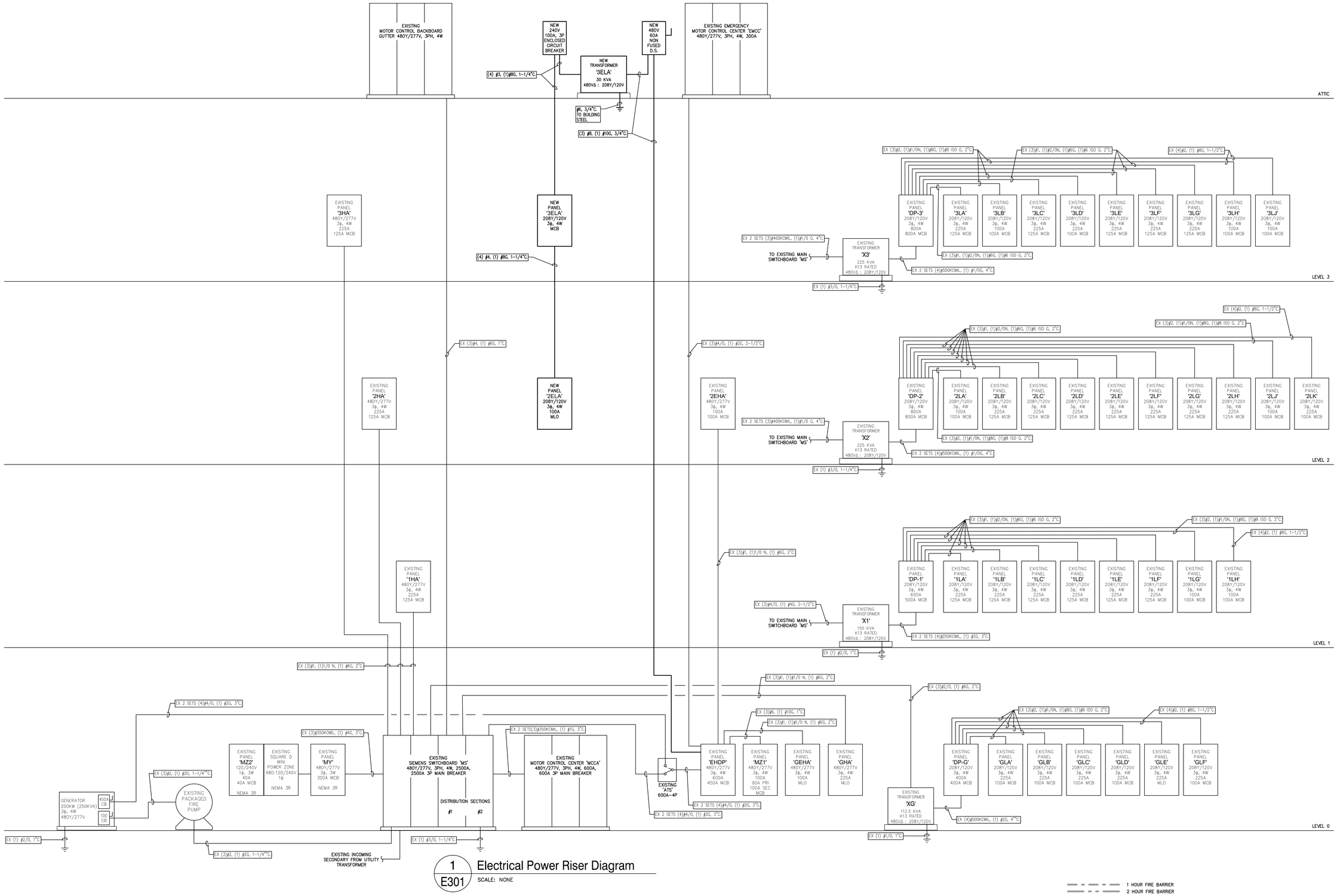
Sheet Title

Electrical Renovation Plan - Level 2

Sheet Number

E202



1 E301 Electrical Power Riser Diagram

SCALE: NONE

P:\PROJECTS\2023\23-067 ELON MCMICHAEL SCIENCE CENTER PHASE 3\3.0 CAD\3.2D ELECTRICAL\E301.DWG PLOTTED: 3/11/2024 10:48 AM BY: BRUCE NEWMAN

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Sheet Title

Electrical Power Riser

Sheet Number

E301

EXISTING PANEL 'QLD'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
5	1	360	WIREMOLD - 912	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	WIREMOLD - 914	360	2	
	3	720	WIREMOLD - 912	EX	EX	EX	EX	20	900	20	12	12	3/4"		**REC - VIBRATION**	180	4	
	5	720	WIREMOLD - 913	EX	EX	EX	EX	20	900	20	12	12	-	-	**REC - VIBRATION**	180	6	
	7	720	WIREMOLD - 913	EX	EX	EX	EX	20	1440	20	EX	EX	EX	EX	WIREMOLD - 916	720	8	
	9	720	WIREMOLD - 913	EX	EX	EX	EX	20	1440	20	EX	EX	EX	EX	WIREMOLD - 916	720	10	
	11	720	WIREMOLD - 914	EX	EX	EX	EX	20	1440	20	EX	EX	EX	EX	WIREMOLD - 916	720	12	
	13	720	WIREMOLD - 914	EX	EX	EX	EX	20	1080	20	EX	EX	EX	EX	PROJECTOR, FISEUM ROOM 005	360	14	4
	15	720	WIREMOLD - 915	EX	EX	EX	EX	20	1080	20	EX	EX	EX	EX	MONITORS ROOM 006	360	16	4
	17	720	WIREMOLD - 915	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	UNKNOWN LOAD	540	18	
	19	720	TRANSFORMER #1 ROOM 004	EX	EX	EX	EX	3/4"	1260	20	EX	EX	EX	EX	UNKNOWN LOAD	540	20	
	21	720	UNKNOWN LOAD	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	UNKNOWN LOAD	540	22	
	23	720	TRANSFORMER #1 ROOM 004	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	UNKNOWN LOAD	540	24	
	25	500		EX	EX	EX	EX	30	1400	20	EX	EX	EX	EX		900	26	
	27	500	UNKNOWN LOAD	EX	EX	EX	EX	20	1400	20	EX	EX	EX	EX	TREADMILL ROOM 012	900	28	
	29	500		EX	EX	EX	EX	-	1400	-	EX	EX	EX	EX		900	30	
	31	360	**REFRIG - 022**	3/4"	12	12	12	20	1080	20	12	12	12	3/4"	**REC - CORRIDOR BENCHES**	720	32	
	33	360	**FLOORBOX REC - 022**	3/4"	12	12	12	20	1080	20	12	12	12	3/4"	**WIREMOLD - LAB 022**	720	34	
	35	720	REC ROOM 002	EX	EX	EX	EX	20	1440	20	12	12	12	3/4"	**CEILING SERVICE PANEL - 022**	720	36	
	37	720		EX	EX	EX	EX	20*	1440	20	12	12	12	3/4"	**WIREMOLD - LAB 022**	720	38	
	39		SPACE						720	20	12	12	12	3/4"	**WIREMOLD - LAB 022**	720	40	
	41		SPACE						720	20	12	12	12	3/4"	**WIREMOLD - LAB 022**	720	42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 225 BUSS AMPS, N/A MLO, 100 FEEDER AMPS, X MCB, 125 MCB AMPS

4 WIRE, X GROUND BAR, X SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	70.17	PHASE A:	8.42
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-G'	65.67	PHASE B:	7.88
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	70.17	PHASE C:	8.42
4	BREAKER WAS OFF DURING SURVEY	68.67	TOTAL CONNECTED	24.72
5	BREAKER HANDLE IS BROKEN AND TO BE REPLACED DURING THIS RENOVATION	49.72	TOTAL DEMAND *	17.90

EXISTING PANEL 'LLE'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
	1	540	PREP 1100/114A - REC	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 114 - REC	360	2	
	3	540	PREP 1100/114A - REC	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 114 - REC	360	4	
	5	720	117 ROUND 4500 - 111	EX	EX	EX	EX	20	1080	20	EX	EX	EX	EX	LAB 114 - REC	360	6	
	7	540	PREP 1100/114A - REC	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 114 - REC	360	8	
	9	540	PREP 1100/114A - REC	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 114 - REC	360	10	
	11	540	PREP 1100/114A - REC	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 114 - REC	360	12	
	13	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	14	
	15	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	16	
	17	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	18	
	19	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	20	
	21	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	22	
	23	360	LAB 114 - REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 114 - REC	360	24	
	25	360	OFFICE 112 - REC	EX	EX	EX	EX	20	1080	20	EX	EX	EX	EX	LAB 114 ENGRSH EXT 111	720	26	
5	27	360	**WIREMOLD - 114**	3/4"	12	12	12	20	720	20	EX	EX	EX	EX	UNKNOWN LOAD	360	28	
5	29	360	**WIREMOLD - 114**	-	-	12	12	20	720	20	EX	EX	EX	EX	UNKNOWN LOAD	360	30	
5	31	360	**WIREMOLD - 114**	-	-	12	12	20	540	20	12	12	12	3/4"	**REFRIGERATOR - 114**	180	32	
5	33	360	**WIREMOLD - 114**	3/4"	12	12	12	20	360	20	EX	EX	EX	EX	**SPACE**		34	
5	35	360	**WIREMOLD - 114**	-	-	12	12	20	360	20	EX	EX	EX	EX	**SPACE**		36	
5	37	360	**WIREMOLD - 114**	-	-	12	12	20	360	30	EX	EX	EX	EX	LIEBERT TVSS		38	
5	39	360	**WIREMOLD - 114**	3/4"	12	12	12	20	360	3P	EX	EX	EX	EX	(SURGE SUPPRESSOR)		40	
5	41	360	**WIREMOLD - 114**	-	-	12	12	20	360								42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 225 BUSS AMPS, N/A MLO, 125 FEEDER AMPS, X MCB, 125 MCB AMPS

4 WIRE, X GROUND BAR, X SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	43.50	PHASE A:	5.22
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-I'	39.00	PHASE B:	4.68
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	40.50	PHASE C:	4.86
4	BREAKER WAS OFF DURING SURVEY	41.00	TOTAL CONNECTED	14.76
5	**ELECTRICAL CONTRACTOR SHALL VERIFY THAT BREAKERS ARE AVAILABLE.**	30.39	TOTAL DEMAND *	10.94

EXISTING PANEL 'QLC'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
	1	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	2	
	3	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	4	
	5	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	6	
	7	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	8	
	9	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	10	
	11	360	LAB 2/4B - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	12	
	13	360	LAB 219, 216B - RECEPTACLE	3/4"	12	12	12	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	14	
	15	360	LAB 210 - RECEPTACLE	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 210 - RECEPTACLE	360	16	
	17	360	LAB 210 - RECEPTACLE	EX	EX	EX	EX	20	860	20	EX	EX	EX	EX	HVAC CONTROLS TRAN SF	500	18	
	19	360	LAB 210 - RECEPTACLE	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	FUME HOOD - 208	900	20	
	21	360	LAB 210 - RECEPTACLE	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	PHOENIX 225A 3Ø4	900	22	
	23	100	LAB 219B - LIFETAC	EX	EX	EX	EX	20	1260	20	12	12	12	3/4"	**LAB 219 - RECEPTACLE**	360	24	
	25	500	CONTROLS EAT 204D, 219	EX	EX	EX	EX	20	860	20	12	12	-	-	**LAB 219 - RECEPTACLE**	360	26	
	27	180	**REFRIGERATOR - 219**	3/4"	12	12	12	20	540	20	12	12	-	-	**LAB 219 - RECEPTACLE**	360	28	
	29	360	**LAB 219 - RECEPTACLE**	3/4"	12	12	12	20	720	20	12	12	12	3/4"	**LAB 219 - RECEPTACLE**	360	30	
	31	900	207 - REC	EX	EX	EX	EX	30	1260	20	12	12	-	-	**LAB 219 - RECEPTACLE**	360	32	
	33	500		EX	EX	EX	EX	20*	1260	20	12	12	-	-	**LAB 219 - RECEPTACLE**	360	34	
	35		SPACE						0						SPACE		36	
	37		SPACE					0		30	EX	EX	EX	EX	LIEBERT TVSS		38	
	39		SPACE						0	3P	EX	EX	EX	EX	(SURGE SUPPRESSOR)		40	
	41		SPACE						0	-	EX	EX	EX	EX			42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 225 BUSS AMPS, N/A MLO, 125 FEEDER AMPS, X MCB, 125 MCB AMPS

4 WIRE, X GROUND BAR, X SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	46.17	PHASE A:	5.54
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-2'	43.50	PHASE B:	5.22
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	35.67	PHASE C:	4.28
4	BREAKER WAS OFF DURING SURVEY	41.78	TOTAL CONNECTED	15.04
5		40.54	TOTAL DEMAND *	14.60

EXISTING PANEL 'LLG'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
	1	360	REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	REC	360	2	4
	3	900	REC - INCUBATOR	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	REC	360	4	
	5	500	REC - BIOSAFETY CABINET	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	REC	360	6	
	7	900	REC - BIOSAFETY CABINET	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	REC	360	8	
	9	360	REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	REC	360	10	
	11	360	REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	REC	360	12	
	13	360	REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	REC	360	14	
	15	360	REC	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	REC	360	16	
	17	360	REC	EX	EX	EX	EX	20	660	20	EX	EX	EX	EX	CONTROLS EAT 224D, 224B	500	18	
4	19	720	**LAB 217 - REC**	3/4"	12	12	12	20	720	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE	540	20	4
4	21	720	**LAB 217 - REC**	3/4"	12	12	12	20	1080	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE	360	22	
4	23	720	**LAB 217 - REC**	-	-	12	12	20	1220	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE	540	24	
4	25		UNKNOWN LOAD / SPARE	EX	EX	EX	EX	20	360	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE	900	26	
4	27		UNKNOWN LOAD / SPARE	EX	EX	EX	EX	20	360	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE	360	28	
4	29		UNKNOWN LOAD / SPARE	EX	EX	EX	EX	20	0	20	EX	EX	EX	EX	UNKNOWN LOAD / SPARE		30	4
	31		SPACE						0						SPACE		32	
	33		SPACE						0						SPACE		34	
4	35		SPACE						0						SPACE		36	
4	37		SPACE						0	30	EX	EX	EX	EX	LIEBERT TVSS		38	
4	39		SPACE						0	3P	EX	EX	EX	EX	(SURGE SUPPRESSOR)		40	
4	41		SPACE						0	-	EX	EX	EX	EX			42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 225 BUSS AMPS, N/A MLO, 125 FEEDER AMPS, X MCB, 125 MCB AMPS

4 WIRE, X GROUND BAR, X SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	31.50	PHASE A:	3.78
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-2'	34.50	PHASE B:	4.14
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	33.83	PHASE C:	4.06
4	BREAKER WAS OFF DURING SURVEY	33.28	TOTAL CONNECTED	11.98
5		27.28	TOTAL DEMAND *	9.82

EXISTING PANEL '2LH'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
	1	360	REC ROOM 213	EX	EX	EX	EX	20	1260	20	EX	EX	EX	EX	LAB 211 INCUBATOR REC	900	2	
	3	360	REC ROOM 213 A-CMAT	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 211 REC	360	4	
	5	360	REC ROOM 212	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 211 REC	360	6	
	7	360	REC ROOM 212	EX	EX	EX	EX	20	720	20	EX	EX	EX	EX	LAB 221 HOOD	360	8	
	9	1000	REC ROOM 212 - DISHWASH	EX	EX	EX	EX	20	1320	20	EX	EX	EX	EX	LAB 211	360	10	
	11	540	RM 212 STERILE CONTROL	EX	EX	EX	EX	20	900	20	EX	EX	EX	EX	LAB 211	360	12	
	13	360	REC ROOM 212	EX	EX	EX	EX	20	1080	30	EX	EX	EX	EX	LAB 211 REC	720	14	
	15	360	REC ROOM 212	EX	EX	EX	EX	20	1080	3P	EX	EX	EX	EX		720	16	
	17	360	REC ROOM 212	EX	EX	EX	EX	20	360	20					LAB 211 REC		18	4
	19	360	REC ROOM 212	EX	EX	EX	EX	20	360	20					LAB 211 REC		20	4
	21	720	REC ROOM 212	EX	EX	EX	EX	3P	1080	20					LAB 211 REC	360	22	
	23	720		EX	EX	EX	EX	3P	1080	20	EX	EX	EX	EX	LAB 211 REC	360	24	
	25	900	LIGHTS ROOM 213	EX	EX	EX	EX	20	1080	20	**12**	**12**	**12**	**3/4"**	**REFRIGERATOR - 218A**	**180**	26	
4	27	**540**	**PREP 218A - REC**	**3/4"**	**12**	**12**	**12**	20	720	20	**12**	**12**	**12**	**3/4"**	**REFRIGERATOR - 218A**	**180**	28	
4	29		SPACE						1080	20	**12**	**12**	**-**	**-**	**FREEZER - 218A**	**180**	30	
	31	500	EAT 204 TRANSFORMER	EX	EX	EX	EX	20	500	0					SPACE		32	
4	33		SPARE					20	0	0					SPACE		34	
4	35		SPARE					20	0	0					SPACE		36	
	37	540	RM 212 STERILE CONTROL	EX	EX	EX	EX	20	540	30	EX	EX	EX	EX	LIEBERT TVSS		38	
4	39		SPARE					20	0	3P	EX	EX	EX	EX	(SURGE SUPPRESSOR)		40	
4	41		SPARE					20	0	-	EX	EX	EX	EX			42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 225 BUSS AMPS, N/A MLO, 125 FEEDER AMPS, X MCB, 125 MCB AMPS

4 WIRE, X GROUND BAR, X SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	46.17	PHASE A:	5.54
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-2'	41.33	PHASE B:	4.96
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	27.00	PHASE C:	3.24
4	BREAKER WAS OFF DURING SURVEY	35.17	TOTAL CONNECTED	13.74
5		30.54	TOTAL DEMAND *	12.80

EXISTING PANEL '2ELA'

NOTES	CKT	LOAD	DESCRIPTION	COND	EGC	N	W	CB	LOAD	CB	W	N	EGC	COND	DESCRIPTION	LOAD	CKT	NOTES
	1	180	RECEPTACLE - 106	3/4"	12	12	12	20	1260	20	12	12	12	3/4"	REC - TANKS - 204B	1080	2	
	3	900	INCUBATOR - 208	3/4"	12	12	12	20	1080	20	12	12	12	-	REC - TANKS - 204B	1080	4	
	5	900	INCUBATOR - 208	3/4"	12	12	12	20	1080	20	12	12	12	3/4"	REC - EQUIP - 204B	180	6	
	7	900	REFRIGERATOR - 208	3/4"	12	12	12	20	1800	20	12	12	12	3/4"	FREEZER - 206	900	8	
	9	900	REFRIGERATOR - 208	3/4"	12	12	12	20	1800	20	12	12	12	3/4"	FREEZER - 206	900	10	
	11	900	FREEZER - 207	3/4"	12	12	12	20	1800	20	12	12	12	3/4"	FREEZER - 206	900	12	
	13	900	FREEZER - 207	3/4"	12	12	12	20	1800	20	12	12	12	3/4"	FREEZER - 206	900	14	
	15	900	FREEZER - 207	3/4"	12	12	12	20	1600	20	12	12	12	3/4"	REFRIGERATOR - 206A	900	16	
	17	900	FREEZER - 207	3/4"	12	12	12	20	1000	20	**12**	**12**	**12**	**3/4"**	**INCUBATOR - 217**	**900**	18	
	19	900	FREEZER - 207	3/4"	12	12	12	20	900	0					SPARE		20	
	21	900	FREEZER - 207	3/4"	12	12	12	20	900	0					SPARE		22	
	23		SPARE					20	0	0					SPARE		24	
	25		SPARE					20	0	0					SPARE		26	
	27		SPARE					20	0	0					SPARE		28	
	29		SPARE					20	0	0					SPARE		30	
	31		SPARE					20	0	0					SPARE		32	
	33		SPACE						0						SPACE		34	
	35		SPACE						0						SPACE		36	
	37		SPACE						0	30	EX	EX	EX	EX	LIEBERT TVSS		38	
	39		SPACE						0	3P	EX	EX	EX	EX	(SURGE SUPPRESSOR)		40	
	41		SPACE						0	-	EX	EX	EX	EX			42	
		N/A																

208Y / 120 VOLTS, 3 PHASE, 100 BUSS AMPS, X MLO, 80 FEEDER AMPS, N/A MCB, MCB AMPS

4 WIRE, X GROUND BAR, SE RATED

RECESSED MOUNT, NEMA 1, 10K A/C MINIMUM

NOTES:		AMPS	PHASE TOTALS:	KVA
1	SIEMENS TYPE S3 PANELBOARD WITH LIEBERT 3P, 4W 225A TVSS	48.00	PHASE A:	5.76
2	FED FROM EXISTING DISTRIBUTION PANEL 'DF-2'	54.00	PHASE B:	6.48
3	PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE	39.00	PHASE C:	4.68
4	BREAKER WAS OFF DURING SURVEY	47.00	TOTAL CONNECTED	16.92
5		37.39	TOTAL DEMAND *	13.46

PANEL KEY PLAN

		QLD	2LG
		1LE	2LH
		2LC	2ELA

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ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Professional Seals

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number: 23-067
Drawn:
Checked:
Date: 02/29/2024

Sheet Title

Electrical Panel Schedules

Sheet Number

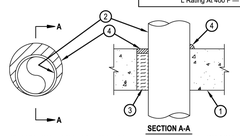
E401

System No. C-AJ-1149

CAJ 1149

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating —2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
W Rating — Class 1 (See Item 4)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks *. Max diam of opening is 12 in. (305 mm). 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 installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in. (point contact) to max 1-1/4 in. (32 mm). The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. Packing Material — Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation for nom 4 in. diam (and smaller) pipes, conduits or tubings and a min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation for pipe greater than nom 4 in. diam, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
4. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. W Rating applies only when CFS-S SIL GG, CFS-S SIL SL (floors only), CP601S, CP604 sealant or FS-ONE MAX Intumescent Sealant is used. For W Rating when FS-ONE MAX is used, packing material to be a min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CP604, CFS-S SIL GG, CFS-S SIL SL (floors only), CP606 or FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

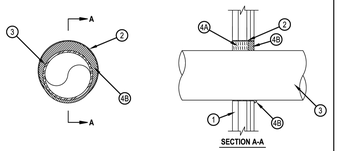
Hilti Firestop Systems

System No. W-L-1206

WL 1206

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Items 1 and 4)	F Rating — 1 and 2 Hr (See Items 1 and 4)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 and 2 Hr (See Items 1 and 4)
	FTH Rating — 0 Hr



SECTION A-A

1. Wall Assembly — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — "C-T" shaped studs 1-5/8 in. (41 mm) wide by 2-1/2 in. (64 mm) deep, fabricated from 25 MSG galv steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One layer of nom 1 in. (25 mm) thick, 24 in. (610 mm) wide gypsum liner and one or two layers of nom 5/8 in. (16 mm) thick, 4 ft. (1.27 m) wide gypsum board with square or tapered edges. The gypsum board types, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 10-1/2 in. (267 mm).

1A. Wall Assembly — As an alternate to the above wall assembly, the 1 or 2 Hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and 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. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 10-1/2 in. (267 mm).
   The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Metallic Sleeve — Max 10-1/2 in. (267 mm) diam cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. 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 gypsum board layers. Sleeve may also be formed of No. 8 steel wire mesh having a min 1 in. (25 mm) lap along the longitudinal seam.

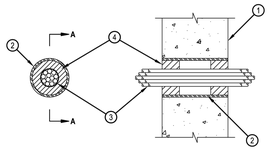
Hilti Firestop Systems

System No. W-J-3050

WJ 3050

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 4 Hr	F Rating — 4 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
	FH Rating — 4 Hr
	FTH Rating — 1 Hr



SECTION A-A

1. Wall Assembly — Min 7-1/2 in. (191 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 4 in. (102 mm). See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Steel Sleeve — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe sleeve friction fit in nom 4 in. (102 mm) diam circular opening core drilled through wall. Length of steel sleeve to be equal to thickness of wall.
3. Cables — Aggregate cross sectional area of cables in opening to be max 33 percent of the cross sectional area of the opening. Cables installed either concentrically or eccentrically within the firestop system. The annular space between cables and the steel sleeve shall be min 1/4 in. (6 mm) to max 1 in. (25 mm). Cables to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:
   A. 7/C (with ground) No. 12 AWG cable, with PVC insulation and outer jacket.
   B. Max 25 pair No. 24 AWG (or smaller) copper conductor telephone cable with PVC insulation, with PVC jacket.
   C. Max RG59/U (or smaller) coaxial cable with fluorinated ethylene insulation and jacketing.
   D. 3/C (with ground) No. 10 AWG bare copper ground metal clad cable with a PVC jacket.
   E. Multiple 24 fiber-optical communication cables jacketed with polyvinyl chloride and having a max outside diam of 1/2 in. (13 mm).
4. Fill, Void or Cavity Material*—Sealant — Min 2 in. (51 mm) thickness of fill material applied within annulus, flush with both surfaces of the wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

System No. W-L-1206

WL 1206

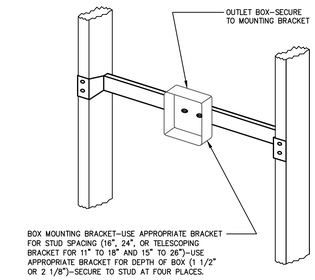
3. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. An annular space of min 0 in. (0 mm, point contact) to max 1-7/8 in. (48 mm) is required within firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 6 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 4 in. (102 mm) diam steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. Flexible Steel Conduit+ — Nom 2 in. (51 mm) diam (or smaller) flexible steel conduit.
   See Flexible Metal Conduit (DUZ) category in the Electrical Construction Equipment Directory for names of manufacturers.
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1-5/8 or 2-1/4 in. (41 or 57 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into sleeve on one side of the wall as permanent form for 1 and 2 Hr walls, respectively. Packing material to be recessed from the room side of wall to accommodate the required thickness of fill material. In alternate wall assembly, packing material to be flush with either side of the wall and recessed from the other side of the wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material — Sealant* — Min 1-1/2 in. (38 mm) thickness applied within sleeve, flush with the surface of wall. At the point contact location between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/wall interface.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.
•Bearing the UL Listing Mark

Hilti Firestop Systems

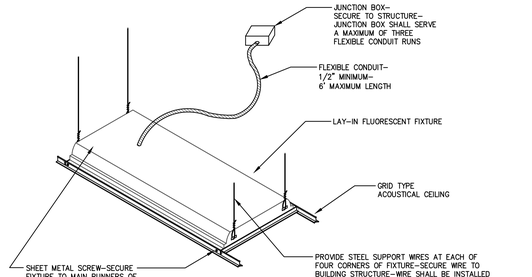
1 E501 UL Penetration Details

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



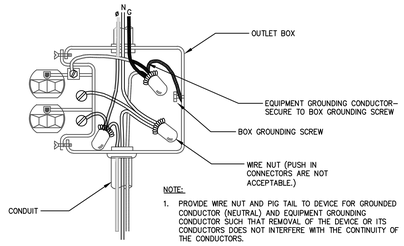
2 E501 Outlet Box Mounting

NONE



3 E501 Lay-In Light Fixture Installation

NONE

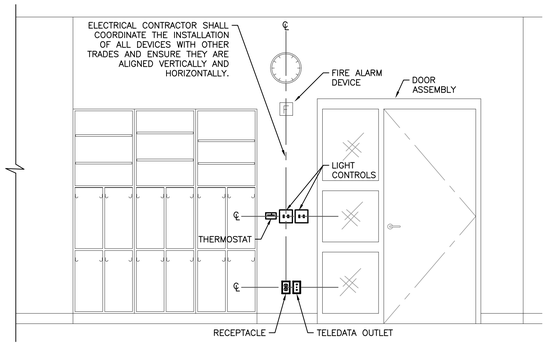


NOTE:

1. PROVIDE WIRE NUT AND PIG TAIL TO DEVICE FOR GROUNDED CONDUCTOR (NEUTRAL) AND EQUIPMENT GROUNDING CONDUCTOR SUCH THAT REMOVAL OF THE DEVICE OR ITS CONDUCTORS DOES NOT INTERFERE WITH THE CONTINUITY OF THE CONDUCTORS.
2. EQUIPMENT GROUNDING CONDUCTOR SHALL BE CONTINUOUS THROUGH BOX.

4 E501 Receptacle Wiring Detail

NONE

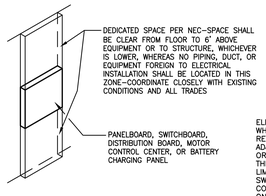


5 E501 Device Coordination Detail

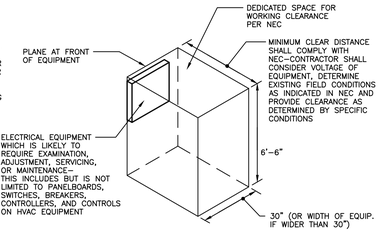
SCALE: Not To Scale — Typical for all locations

NOTE:

1. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL DEVICES WITH ARCHITECT PRIOR TO FINALIZING CONDUIT INSTALLATION SO THAT BACKBOX LOCATIONS CAN BE ADJUSTED TO MEET ARCHITECT APPROVAL.



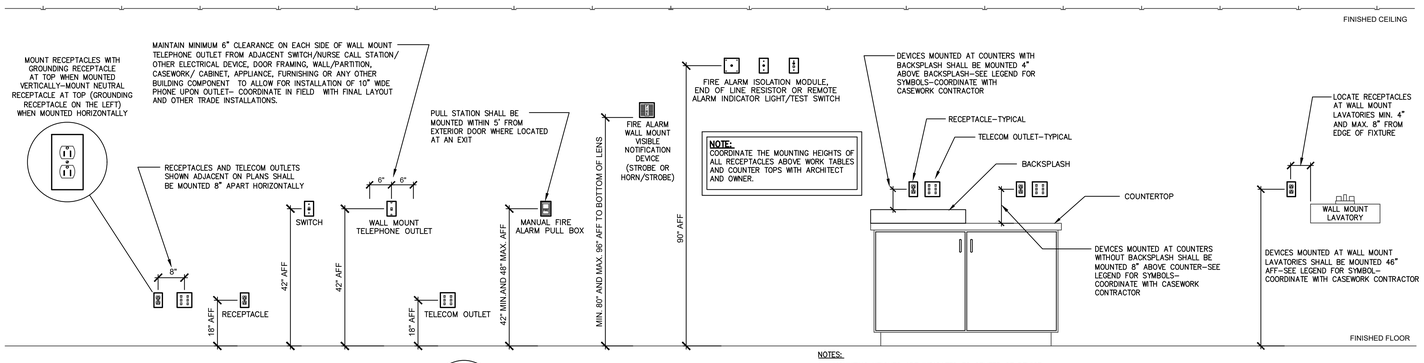
DEDICATED SPACE REQUIREMENTS



WORKING CLEARANCE REQUIREMENTS

6 E501 Electrical Equipment Dedicated Space & Working Clearance

SCALE: NONE

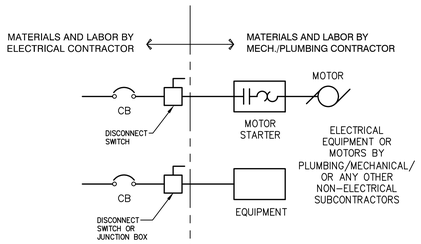


7 E501 Typical Electrical Elevations

NONE

NOTES:

1. MOUNTING HEIGHTS ARE INDICATED TO CENTER OF DEVICE UNLESS NOTED OTHERWISE.
2. REFER TO DETAIL 1/ES.2 AND TO THE ARCHITECTURAL INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION ON COORDINATING DEVICE INSTALLATIONS.
3. INSTALL RECEPTACLES, DATA OUTLETS, SWITCHES AT HEIGHTS IN ACCORDANCE WITH THE ADA REQUIREMENTS OF ANSI A117.1.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL DEVICES WITH ARCHITECT PRIOR TO FINALIZING CONDUIT INSTALLATION SO THAT BACKBOX LOCATIONS CAN BE ADJUSTED TO MEET ARCHITECT APPROVAL.



NOTES:

CONTRACTORS SHALL COORDINATE WITH EACH OTHER TO VERIFY EQUIPMENT NAMEPLATE RATINGS AND LOCATIONS BEFORE INSTALLATION OF CONDUIT, WIRING, CIRCUIT BREAKER, DISCONNECT SWITCH, OR FUSES. WHERE FUSED DISCONNECTS ARE SPECIFIED IN THE ELECTRICAL CONSTRUCTION DOCUMENTS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE APPROPRIATELY SIZED FUSES.

NOTES:

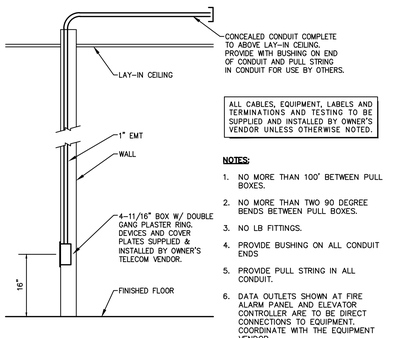
EQUIPMENT PROVIDED BY NON–ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY THE SUBCONTRACTOR PROVIDING THE EQUIPMENT. THIS INSTALLATION SHALL INCLUDE:

1. ALL POWER CONDUIT AND WIRING ON THE LOAD SIDE OF THE DISCONNECT SWITCH.
2. ALL CONTROLS AND CONTROL CONDUIT AND WIRING.

ALL CONDUIT AND WIRING (POWER AND CONTROL) INSTALLED BY THE NON–ELECTRICAL SUBCONTRACTORS SHALL BE INSTALLED BY A LICENSED ELECTRICAL CONTRACTOR PER THE DIVISION 26 SPECIFICATIONS AND SHALL BE INSPECTED BY THE ELECTRICAL INSPECTOR HAVING JURISDICTION.

8 E501 Motor / Equipment Installation - Division of Work

SCALE: NONE

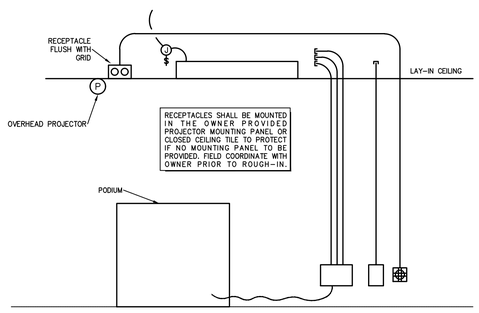


NOTES:

1. NO MORE THAN 100' BETWEEN PULL BOXES.
2. NO MORE THAN TWO 90 DEGREE BENDS BETWEEN PULL BOXES.
3. NO LB FITTINGS.
4. PROVIDE BUSHING ON ALL CONDUIT ENDS
5. PROVIDE PULL STRING IN ALL CONDUIT.
6. DATA OUTLETS SHOWN AT FIRE ALARM PANEL AND ELEVATOR CONTROLLER ARE TO BE DIRECT CONNECTIONS TO EQUIPMENT. COORDINATE WITH THE EQUIPMENT VENDOR.

9 E501 Telecom Outlet Detail

NONE



10 E501 Overhead Projector Installation

SCALE: NONE

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Professional Seals

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

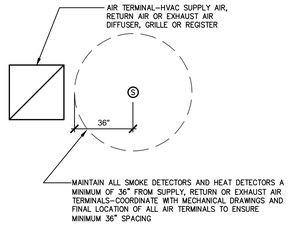
Project Number:	23-067
Drawn:	ANR
Checked:	JDH
Date:	02/29/2024

Sheet Title

Electrical Details

Sheet Number

E501



1 FA001 **Smoke & Heat Detector Clearance From Air Terminals**
SCALE: NONE

FIRE ALARM MATRIX

ELON - McMICHAEL SCIENCE CENTER

FIRE ALARM SYSTEM INPUTS

		FIRE ALARM SYSTEM OUTPUTS																																								
		CONTROL UNIT ANNUNCIATION									NOTIFICATION									FIRE SAFETY CONTROL									SUPPLEMENTARY												
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	ACTUATE GENERAL EVACUATION ALARM INDICATOR	ACTUATE UNIQUE CO DETECTION SUPERVISORY SIGNAL	ACTUATE HORN NOTIFICATION DEVICES – ENTIRE BUILDING	ACTUATE STROBE NOTIFICATION DEVICES – ENTIRE BUILDING	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISORY STATION	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION			RECALL ELEVATOR TO PRIMARY RECALL FLOOR	RECALL ELEVATOR TO ALTERNATE RECALL FLOOR	SHUT DOWN THE APPLICABLE HVAC UNIT	ALLOW THE HVAC UNITS TO RUN	CLOSE RELAY TO SHUNT TRIP ELEVATOR POWER	CLOSE FIRE/SMOKE DAMPERS ASSOCIATED WITH UNIT	RELEASE MAGNETIC DOOR HOLDS	SHUT DOWN HVAC UNITS		REMOTE ANNUNCIATORS TO MMC MAIN PANEL DISPLAY	CLOSE ATRIUM FIRE SHUTTERS	SHUNT TRIP POWER TO ELEVATOR							
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE									
1	BUILDING MANUAL PULL STATIONS		•					•	•		•	•	•	•											•	•	•															1
2	SMOKE DETECTORS		•					•	•		•	•	•	•											•	•	•															2
3	HEAT DETECTORS		•					•	•		•	•	•	•											•	•	•															3
4	DUCT SMOKE DETECTORS WITH RELAY – HVAC UNITS				•	•							•		•						•			•			•														4
5	SPRINKLER SYSTEM TAMPER SWITCH				•	•							•		•												•														5
6	SPRINKLER SYSTEM LOW TEMP SENSOR				•	•							•		•												•														6
7	SPRINKLER SYSTEM FLOW SWITCHES	•	•					•	•		•	•	•	•											•	•	•															7
8	FIRE PUMP RUNNING	•	•					•					•		•												•															8
9	FIRE PUMP, PHASE REVERSAL				•	•		•					•		•												•															9
10	FIRE PUMP SYSTEM AC POWER LOSS				•	•		•					•		•												•															10
11	OPEN CIRCUIT						•	•					•			•											•															11
12	GROUND FAULT						•	•					•			•											•															12
13	NOTIFICATION APPLIANCE CIRCUIT SHORT						•	•					•			•											•															13
14	FIRE ALARM SYSTEM DISABLED						•	•					•			•											•															14
15	FIRE ALARM SYSTEM AC POWER FAILURE						•	•					•			•											•															15
16	FIRE ALARM SYSTEM LOW BATTERY						•	•					•			•											•															16
17	HVAC BYPASS SWITCH OVERRIDE DURING FIRE ALARM REPAIRS				•	•							•			•						•					•															17
18	ELEVATOR LOBBY SMOKE DETECTORS – PRIMARY LEVEL	•	•					•	•		•	•	•	•						•					•	•	•															18
19	ELEVATOR LOBBY SMOKE DETECTORS – ALTERNATE LEVELS	•	•					•	•		•	•	•	•	•	•			•						•	•	•															19
20	ELEVATOR SHAFT / MACHINE ROOM SMOKE DETECTOR	•	•					•	•		•	•	•	•	•	•			•						•	•	•															20
21	ELEVATOR SHAFT / MACHINE ROOM HEAT DETECTOR	•	•					•	•		•	•	•	•	•	•			•						•	•	•				•											21
22	SMOKE DETECTORS IN ATRIUM / LOBBY ALL FLOORS	•	•					•	•		•	•	•	•											•	•	•	•														22
23																																									23
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE									

FIRE ALARM NOTES:

THE FOLLOWING NOTES DETAIL THE GENERAL INTENT OF THE FIRE ALARM SCOPE OF WORK. THE FIRE ALARM SYSTEM SHALL FULLY COMPLY WITH THE PLANS AND SPECIFICATIONS AND ALL APPLICABLE CODES. THESE NOTES APPLY TO ALL FIRE ALARM SHEETS.

1 THIS PROJECT WILL REVISE THE EXISTING FIRE ALARM SYSTEM DEVICE LOCATIONS AND ADD NEW DEVICES WHERE REQUIRED FOR THE EXISTING ADDRESSABLE FIRE ALARM SYSTEM THAT WAS INSTALLED IN A PREVIOUS PHASE. SEE SCOPE OF WORK FOR DETAILS.

2 THIS RISER DIAGRAM DOES NOT ACCURATELY DEPICT THE NUMBER OF DEVICES REQUIRED TO BE INSTALLED. COUNT THE ACTUAL NUMBER OF DEVICES FROM THE PROVIDED FLOOR PLANS.

3 THE CONTRACTOR SHALL FURNISH ALL PARTS, MATERIALS, AND LABOR CUSTOMARILY REQUIRED OR PROVIDED FOR A COMPLETE AND OPERATING TURN-KEY SYSTEM INSTALLATION, IN ACCORDANCE WITH ALL REQUIREMENTS APPLICABLE, EVEN IF EACH NEEDED ITEM IS NOT SPECIFICALLY SHOWN OR DESCRIBED IN THE PROJECT PLANS OR SPECIFICATIONS.

4 THE FIRE ALARM SYSTEM SHALL COMPLY WITH APPLICABLE PROVISIONS OF THE NC BUILDING CODE, NFPA 70 – NATIONAL ELECTRICAL CODE (NEC), NFPA 72 – NATIONAL FIRE ALARM CODE AND THE 2018 NC BUILDING CODE.

5 ALL WIRING SHALL TERMINATE AT DEVICE TERMINAL BLOCKS (NO SPLICES IN THE SYSTEM OTHER THAN TERMINAL BLOCKS). "WIRE NUTS" AND CRIMP SPLICES WILL NOT BE PERMITTED. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AND WIRE TERMINATIONS AT THE FACP AND OTHER CONTROL EQUIPMENT, NAC BOOSTER PANELS AND ANY APPLICABLE TERMINAL CABINETS.

6 MAINTAIN A MINIMUM OF 3' DISTANCE FROM ALL HVAC SUPPLY AND RETURN GRILLES WHEN INSTALLING SMOKE / HEAT DETECTORS. COORDINATE WITH MECHANICAL CONTRACTOR.

7 FIRE ALARM WIRING SHALL BE PLENUM RATED AND RUN AS OPEN CABLE ABOVE LAY-IN CEILINGS. WIRING FROM FIRE ALARM DEVICES TO ABOVE CEILING SHALL BE RUN IN CONDUIT CONCEALED IN WALLS WITH WALL CONDUIT STUBBED OUT 6" ABOVE FINISHED CEILING. CONDUITS CARRYING CLASS "A" WIRING SHALL MAINTAIN A MINIMUM OF 4" SEPARATION BETWEEN OUTGOING AND RETURN LOOPS. WIRING NOT ABOVE ACCESSIBLE CEILINGS SHALL BE IN CONDUIT.

8 ALL NOTIFICATION DEVICES WITH A STROBE COMPONENT MUST BE SYNCHRONIZED THROUGHOUT THE BUILDING.

9 ALL EXTERIOR DEVICES SHALL BE RATED FOR THE ENVIRONMENT, INCLUDING COLD WEATHER RATINGS.

10 EXISTING ISOLATION MODULES AT THE BEGINNING, MIDDLE AND END OF EACH ADDRESSABLE LOOPS TO REMAIN.

11 EXISTING PROTECTION AGAINST VOLTAGE TRANSIENTS AND SURGES FOR FIRE ALARM CIRCUITS ENTERING AND LEAVING THE BUILDING (HOT BOX, PIV, ETC.) TO REMAIN.

12 FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A COMPLETE SET OF SUBMITTALS WITH SPECIFICATION SHEETS, SHOP DRAWINGS, AND BATTERY CALCULATIONS FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS TO INCLUDE ALL DEVICES, SYSTEM RISER WITH MATRIX AND SYSTEM INTERCONNECTION DRAWINGS WITH WIRING DIAGRAMS TO INTERFACE WITH SPRINKLER, HVAC AND AREA OF RESCUE SYSTEMS. FIRE ALARM CONTRACTOR TO PROVIDE ANY ADDITIONAL NAC POWER BOOSTERS FOR NOTIFICATION DEVICES.

13 FIRE ALARM CONTRACTOR TO DETERMINE NUMBER OF NOTIFICATION APPLIANCE CIRCUITS AS WELL AS CORRECT BATTERY SIZES FOR EMERGENCY BACKUP POWER.

14 THE EXISTING FIRE ALARM REMOTE ANNUNCIATOR SHALL REMAIN AT THE FIRE DEPARTMENT ENTRANCE.

15 AT THE END OF THE PROJECT THE ENTIRE FIRE ALARM SYSTEM SHALL BE COMPLETELY TESTED IN THE PRESENCE OF THE LOCAL AHJ. PROVIDE 7 DAYS ADVANCE NOTICE OF THESE TESTS.

16 PROVIDE NFPA 72 FORM TO REFLECT THE ENTIRE SYSTEM INCLUDING ALL NEW DEVICES AND CIRCUITS AS WELL AS ALL EXISTING TO REMAIN DEVICES BEING MONITORED BY THE NEW SYSTEM.

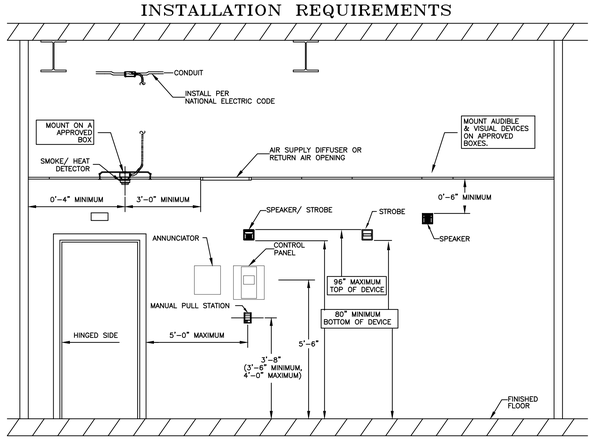
17 PROVIDE NEW ZONE MAPS TO REFLECT THE ENTIRE SYSTEM INCLUDING ALL NEW DEVICES AS WELL AS ALL EXISTING TO REMAIN DEVICES BEING MONITORED BY THE NEW SYSTEM.

FIRE ALARM SCOPE OF WORK:

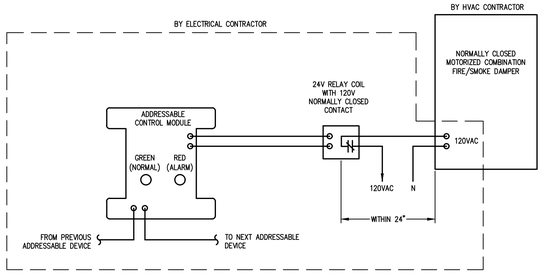
THIS PROJECT WILL MAINTAIN THE EXISTING SIMPLEX FIRE ALARM SYSTEM INSTALLED IN A PREVIOUS PHASE. THE GENERAL SCOPE OF WORK IS DETAILED BELOW.

1. MAINTAIN THE EXISTING HEADEND SIMPLEX FIRE ALARM CONTROL PANEL WITH A NEW SIMPLEX FIRE ALARM CONTROL PANEL IN THE SAME LOCATION.
2. MAINTAIN THE EXISTING COMMUNICATOR CONNECTED TO EXISTING PHONE LINES IN THE SAME LOCATION.
3. MAINTAIN THE EXISTING REMOTE ANNUNCIATOR IN THE SAME LOCATION.
4. MAINTAIN THE EXISTING ZONES AS SHOWN ON SHEET E301. UNLESS NOTED OTHERWISE IN PLANS, MAINTAIN EXISTING ADDRESSABLE MONITOR MODULES FOR ALL EXISTING ZONES.
5. MAINTAIN THE EXISTING ADDRESSABLE CIRCUITS AND SMOKE / HEAT DETECTION DEVICES THROUGHOUT. SEE PLANS FOR LOCATIONS.
6. MAINTAIN THE EXISTING PULL STATIONS UNLESS NOTED OTHERWISE IN PLANS.
7. MAINTAIN THE EXISTING NOTIFICATION CIRCUITS AND VISUAL / AUDIBLE NOTIFICATION DEVICES THROUGHOUT. ALL NEW DEVICES TO BE FULLY SYNCHRONIZED.
8. MAINTAIN THE EXISTING ADDRESSABLE CONTROL MODULES / RELAYS AS REQUIRED FOR ELEVATOR CONTROLS – PRIMARY RECALL, ALTERNATE RECALL, FIREMAN'S HAT LIGHT, AND SHUNT TRIP CONTROL CIRCUIT. 120V SHUNT TRIP CONTROL POWER SHALL BE MONITORED FOR LOSS OF POWER.
9. MAINTAIN THE EXISTING ADDRESSABLE MONITOR MODULES FOR FIRE PUMP – PHASE REVERSAL, PUMP RUNNING, LOSS OF POWER.
10. MAINTAIN THE EXISTING ADDRESSABLE MONITOR MODULES AS REQUIRED FOR ALL FIRE SPRINKLER SYSTEM COMPONENTS – MAIN ENTRANCE (TAMPERS, FLOWS, TEMPERATURE SWITCHES, ETC.), FLOOR ZONES (TAMPERS AND FLOWS). ALL EXISTING ZONES TO BE MONITORED.
11. MAINTAIN THE EXISTING ADDRESSABLE MONITOR MODULE FOR FIRE SPRINKLER PIV TAMPER SWITCH.
12. MAINTAIN THE EXISTING ADDRESSABLE CONTROL MODULES AND RELAYS AS REQUIRED TO CONTROL FIRE SHUTTERS IN MAIN LOBBY ATRIUM.
13. MAINTAIN THE EXISTING ADDRESSABLE MONITOR MODULE FOR EXISTING DUCT DETECTOR ZONE(S).
14. MAINTAIN THE EXISTING NOTIFICATION CIRCUIT POWER SUPPLY ON EACH FLOOR TO POWER CIRCUITS NOTIFICATION CIRCUITS. PROVIDE NEW CIRCUIT WIRING AS REQUIRED FOR CIRCUITS BASED ON CIRCUIT LOAD AND VOLTAGE DROP. ALL NEW NOTIFICATION DEVICES TO BE INSTALLED AS SHOWN ON PLANS.

NFPA 72 AND ADA DEVICE INSTALLATION REQUIREMENTS



2 FA001 **Fire Alarm Device Mounting Heights**
SCALE: NONE



3 FA001 **Fire/Smoke Damper Detail**
SCALE: NONE

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Professional Seals

ELON UNIVERSITY

McMichael Science Center Renovation - Phase 3

314 East Haggard Ave., Elon, NC 27244

Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

Project Number:	23-067
Drawn:	ANR
Checked:	JDH
Date:	02/29/2024

Sheet Title

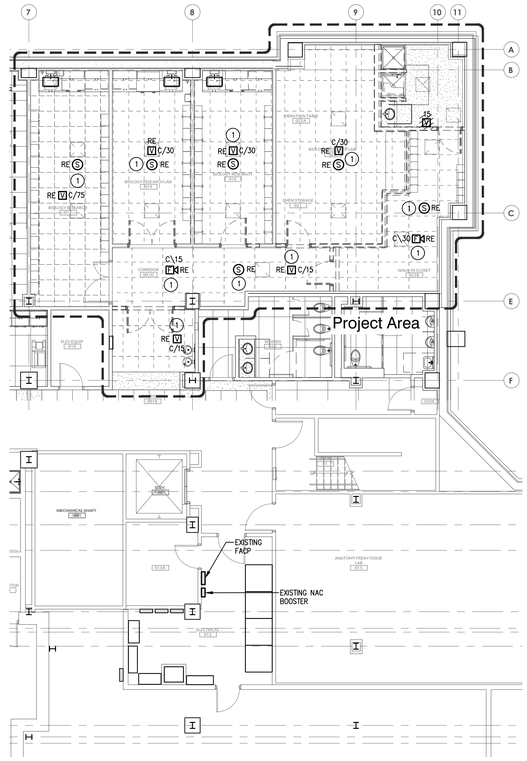
Fire Alarm Notes, Details & Matrix

Sheet Number

FA001

FIRE ALARM DEMOLITION KEYNOTES:

1. EXISTING FIRE ALARM DEVICES TO BE REMOVED FROM EXISTING CEILING GRID AND PROTECTED THROUGHOUT DEMOLITION AND RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.



1 FA100 Fire Alarm Demolition Plan - Level 0

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

North

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Key Plan

Revisions

No.	Date	Description

Original drawing is 30" x 42". Do not scale contents of this drawing.

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Sheet Title

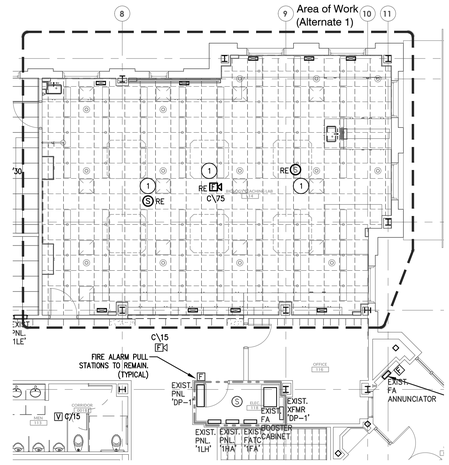
Fire Alarm Demolition Plan - Level 0

Sheet Number

FA100

FIRE ALARM DEMOLITION KEYNOTES:

1. EXISTING FIRE ALARM DEVICES TO BE REMOVED FROM EXISTING CEILING GRID AND PROTECTED THROUGHOUT DEMOLITION AND RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.



1 FA101 Fire Alarm Demolition Plan - Level 1

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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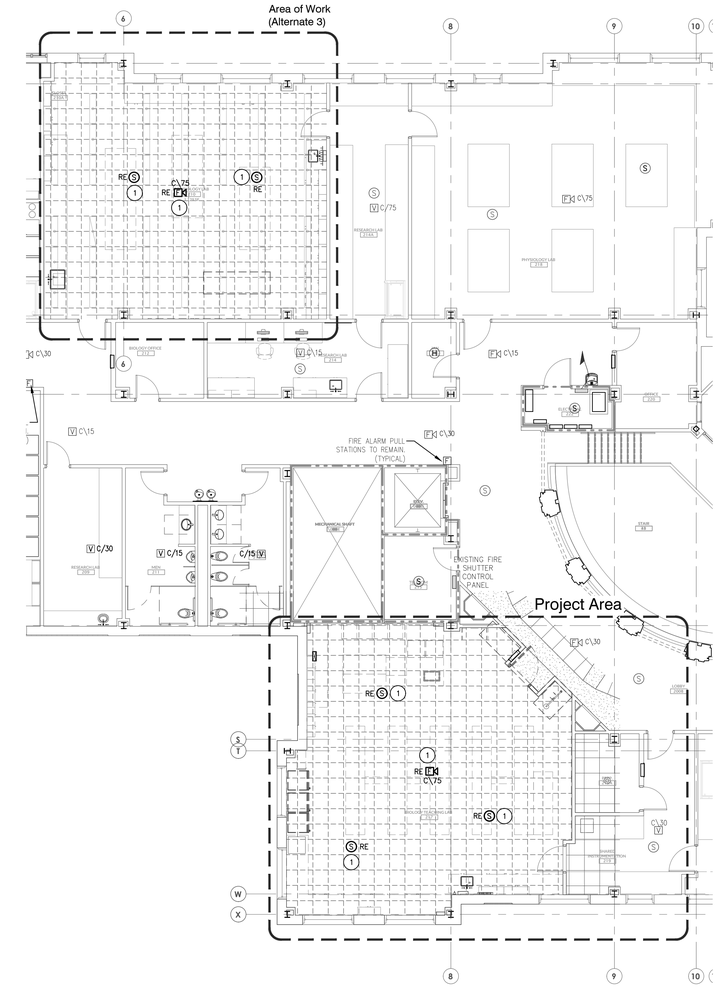
Fire Alarm Demolition Plan - Level 1

Sheet Number

FA101

FIRE ALARM DEMOLITION KEYNOTES:

1. EXISTING FIRE ALARM DEVICES TO BE REMOVED FROM EXISTING CEILING GRID AND PROTECTED THROUGHOUT DEMOLITION AND RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.



1 FA102 Fire Alarm Demolition Plan - Level 2

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

RATED WALL LEGEND

	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

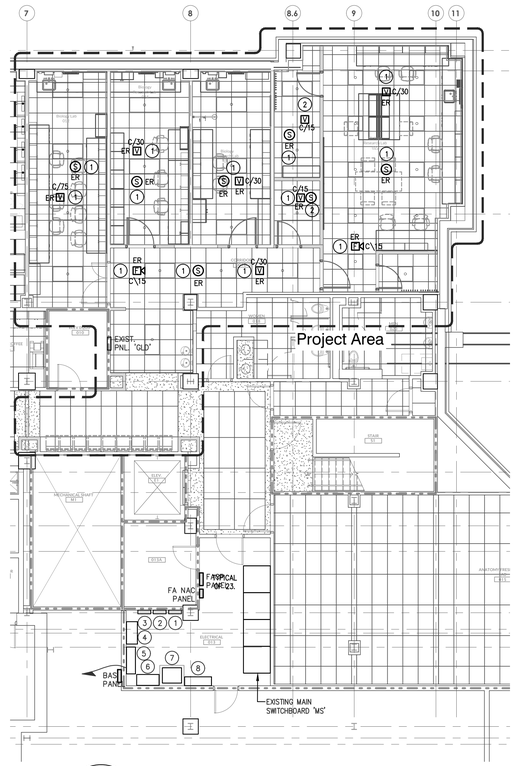
Fire Alarm Demolition Plan - Level 2

Sheet Number

FA102

FIRE ALARM RENOVATION KEYNOTES:

1. EXISTING FIRE ALARM DEVICES TO BE RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.
2. NEW FIRE ALARM DEVICE TO BE INSTALLED.



1 FA200 Fire Alarm Renovation Plan - Level 0
SCALE: 1/8" = 1'-0"

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

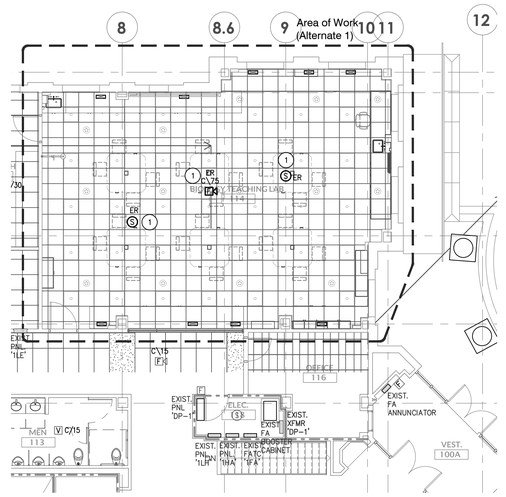
Fire Alarm Renovation Plan - Level 0

Sheet Number

FA200

FIRE ALARM RENOVATION KEYNOTES:

1. EXISTING FIRE ALARM DEVICES TO BE RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.



1 FA201 Fire Alarm Renovation Plan - Level 1

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

RATED WALL LEGEND

	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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Sheet Title

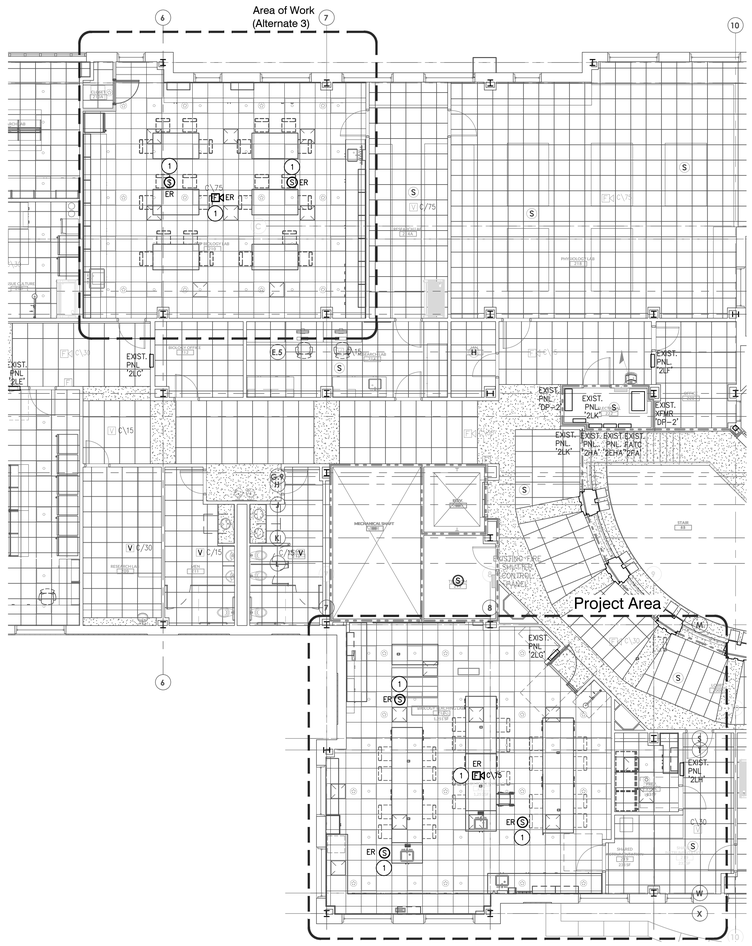
Fire Alarm Renovation Plan - Level 1

Sheet Number

FA201

FIRE ALARM RENOVATION KEYNOTES: (f)

1. EXISTING FIRE ALARM DEVICES TO BE RE-INSTALLED IN LOCATIONS SHOWN IN RENOVATION PLANS.



1 FA202 **Fire Alarm Renovation Plan - Level 2**

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

RATED WALL LEGEND	
	1 HOUR FIRE BARRIER
	2 HOUR FIRE BARRIER

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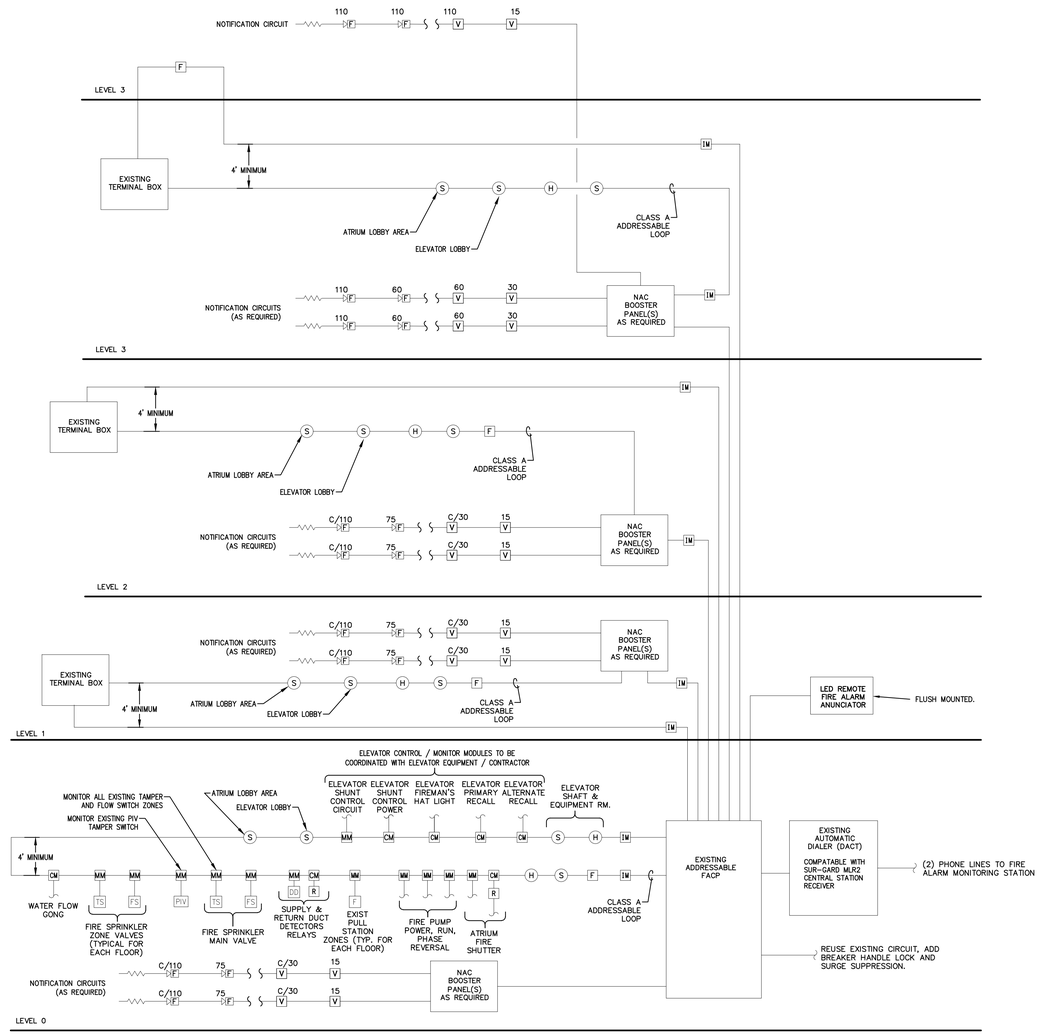
Fire Alarm Renovation Plan - Level 2

Sheet Number

FA202



2 / FA301 Fire Alarm Riser Diagram

SCALE: NONE

RENOVATION

FIRE ALARM RISER NOTES:

1. RISER IS DIAGRAMMATIC AND DOES NOT SHOW ALL DEVICES. REFER TO PLANS, SPECIFICATIONS, AND EXISTING ZONE TABLE FOR DEVICE QUANTITIES.
2. ALL DEVICES AND EQUIPMENT ARE EXISTING UNLESS OTHERWISE NOTED IN THE PLANS AND RISER.
3. THIS PROJECT GENERALLY RELOCATES EXISTING DEVICES WITH THE EXCEPTION OF A FEW NEW DEVICES. SEE PLANS FOR QUANTITIES OF EACH.
4. REWORK NOTIFICATION AND INITIATION CIRCUITS AS REQUIRED FOR RELOCATED/NEW DEVICES.

1 HOUR FIRE BARRIER
2 HOUR FIRE BARRIER

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Fire Alarm Riser

Sheet Number

FA301