



LANCASTER, South Carolina

USC LANCASTER BRADLEY HALL PHYSICS LAB UPGRADES

JAMES BRADLEY ARTS & SCIENCES BUILDING

476 HUBBARD DR.

State Project #H37-9519

GMK Project #19010.01

APRIL 11, 2019

ISSUE FOR: CONSTRUCTION DOCUMENTS

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REVISIONS		
number	item	date

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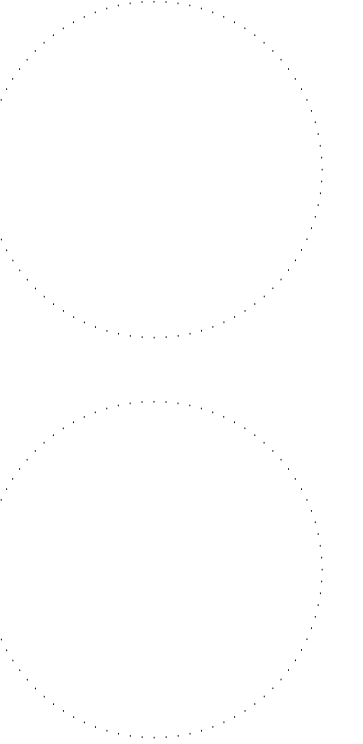
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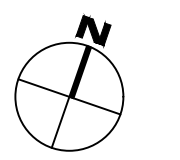
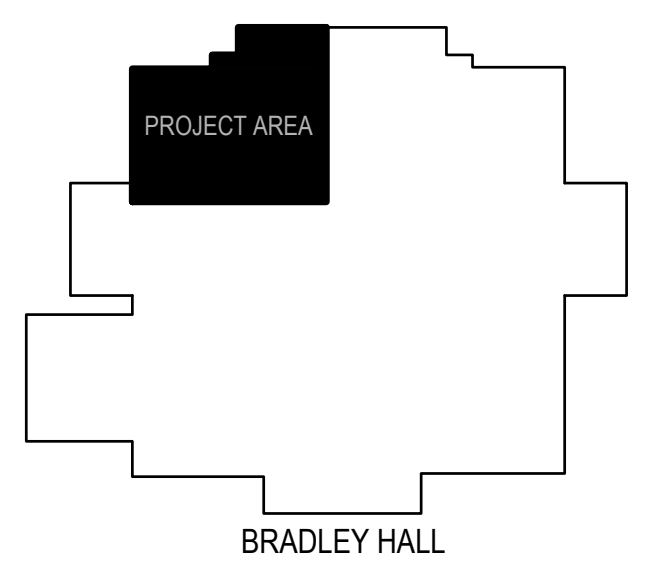
LOCATOR MAP



SET NO.



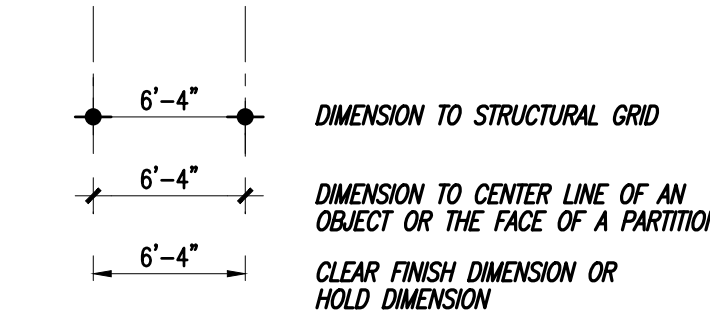
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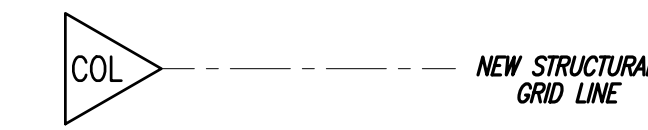
1 GENERAL NOTES

- 1. NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF EXISTING CONDITIONS THAT ARE CONTRARY TO THOSE REPRESENTED WITHIN THE DRAWINGS.
- 2. ALL VERTICAL AND HORIZONTAL DUCTS, PIPES, CONDUITS, ETC. (WHETHER SHOWN OR NOT) IN FINISHED ROOMS OR AREAS THROUGHOUT THE BUILDING, NOT CONCEALED, SHALL BE FURRED IN AND FINISHED TO MATCH ROOM FINISH.
- 3. ALL DIMENSIONS SHOWN ARE TO BE VERIFIED IN THE FIELD BEFORE PROCEEDING WITH WORK.

2 DIMENSION CONVENTIONS
N.T.S.



3 STRUCTURAL GRID CONVENTIONS
N.T.S.



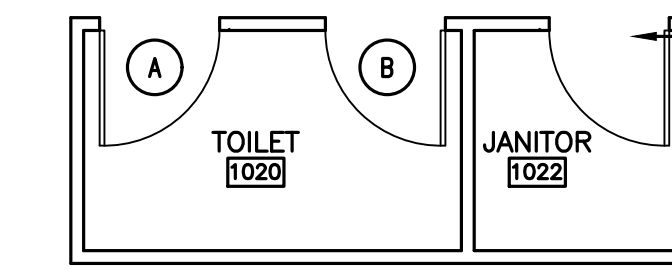
SERIES NUMBERING	SERIES DRAWING INFORMATION
A00	SYMBOLS
A0.1	LIFE SAFETY FLOOR PLANS
A1.0	DEMOLITION FLOOR PLANS AND/OR DEMOLITION ELEVATIONS AND DETAILS
A2.0	FLOOR PLANS, ROOF PLANS AND ENLARGED FLOOR PLANS
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A4.0	BUILDING SECTIONS, EXTERIOR WALL SECTIONS, EXTERIOR PLAN DETAILS, EXTERIOR WINDOWS AND DETAILS
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A6.0	INTERIOR ELEVATIONS
A7.0	REFLECTED CEILING PLANS AND ENLARGED REFLECTED CEILING PLANS AND DETAILS
A8.0	DOOR SCHEDULE, DOOR AND FRAME TYPES, PARTITIONS TYPES, INTERIOR DETAILS
A9.0	MILLWORK, SECTIONS AND DETAILS
A10.0	FINISH PLANS AND FINISH SCHEDULE
A11.0	EQUIPMENT FLOOR PLANS
A12.0	FURNITURE PLAN DRAWING SERIES

THE ARCHITECTURAL CONSTRUCTION DOCUMENT REFERENCE SYSTEM ABOVE REPRESENTS TYPICAL ARCHITECTURAL DOCUMENT SET LAYOUT. ENTIRE DRAWING SERIES MAY BE OMITTED WHEN NOT APPLICABLE TO THE PROJECT. DRAWING SERIES INFORMATION MAY ALSO BE COMBINED WITH OTHER SERIES INFORMATION WHERE SPACE PERMITS (I.E. A6.0 MAY INCLUDE BOTH INTERIOR ELEVATIONS AND MILLWORK DETAILS).

4 NUMBERING LEGEND

DOOR NUMBERING LEGEND

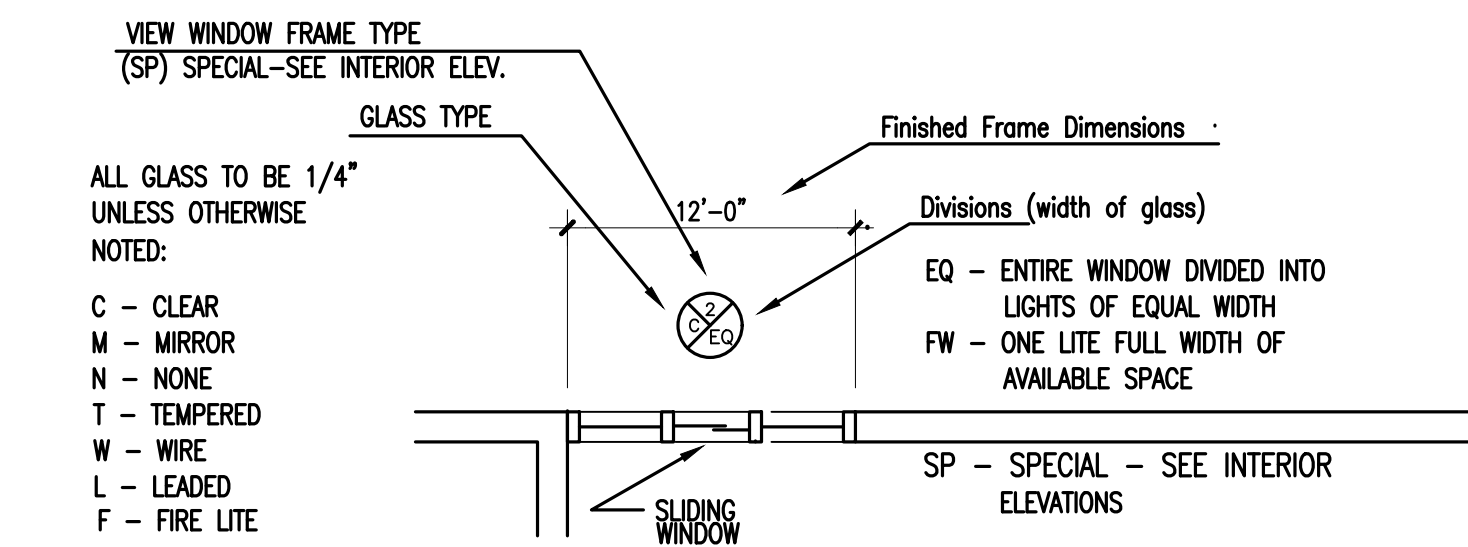
ROOMS WITH MULTIPLE DOORS HAVE "A", "B", ETC. DESIGNATIONS. DOORS SHOWN AT THE RIGHT WOULD BE SCHEDULED AS "1020A" AND "1020B", RELATED TO THE ROOM WHERE (A) AND (B) ARE SHOWN.



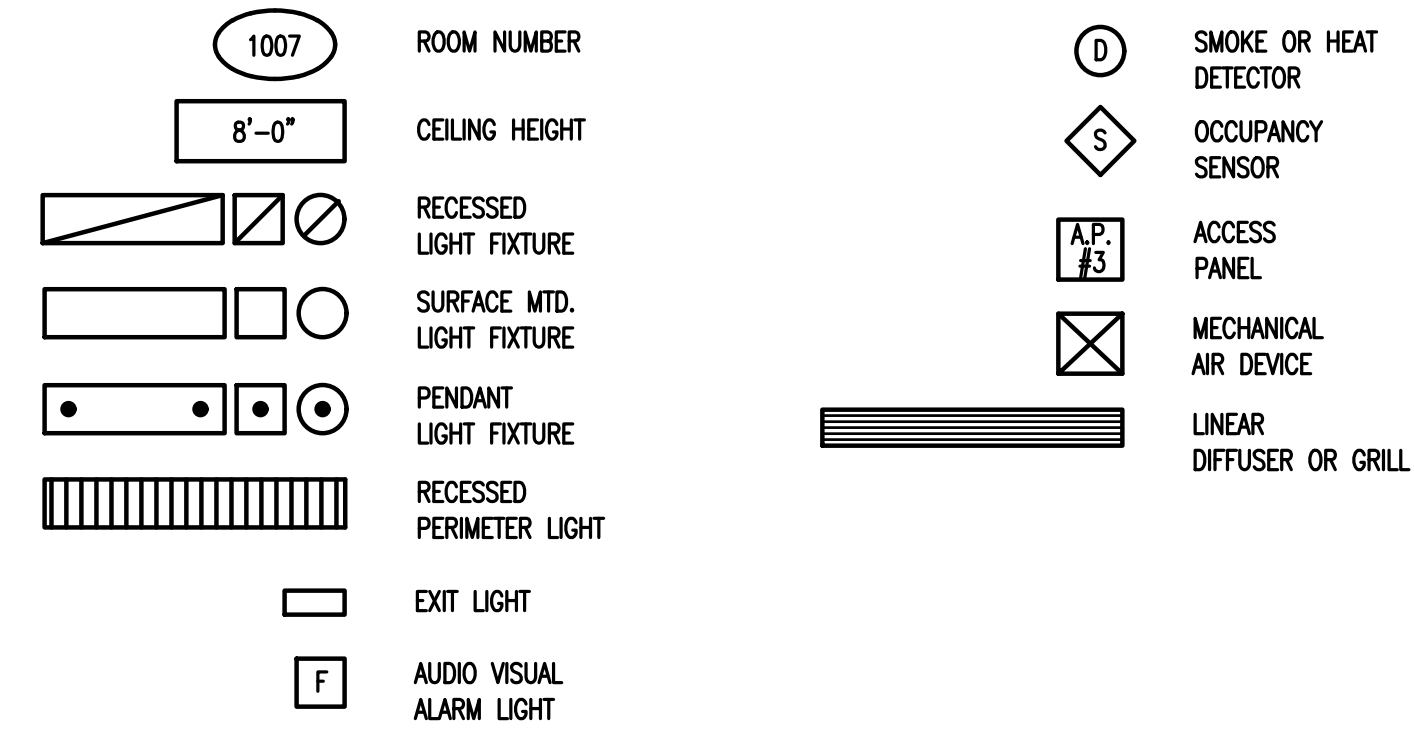
ROOMS WITH ONLY ONE DOOR HAVE NO DOOR INDICATION. THE DOOR NUMBER IN THE SCHEDULE WILL BE THE SAME AS THE ROOM NUMBER.

IN LOCATIONS WHERE NECESSARY TO AVOID CONFUSION, FULL DOOR NUMBERING IS SHOWN ON PLAN.

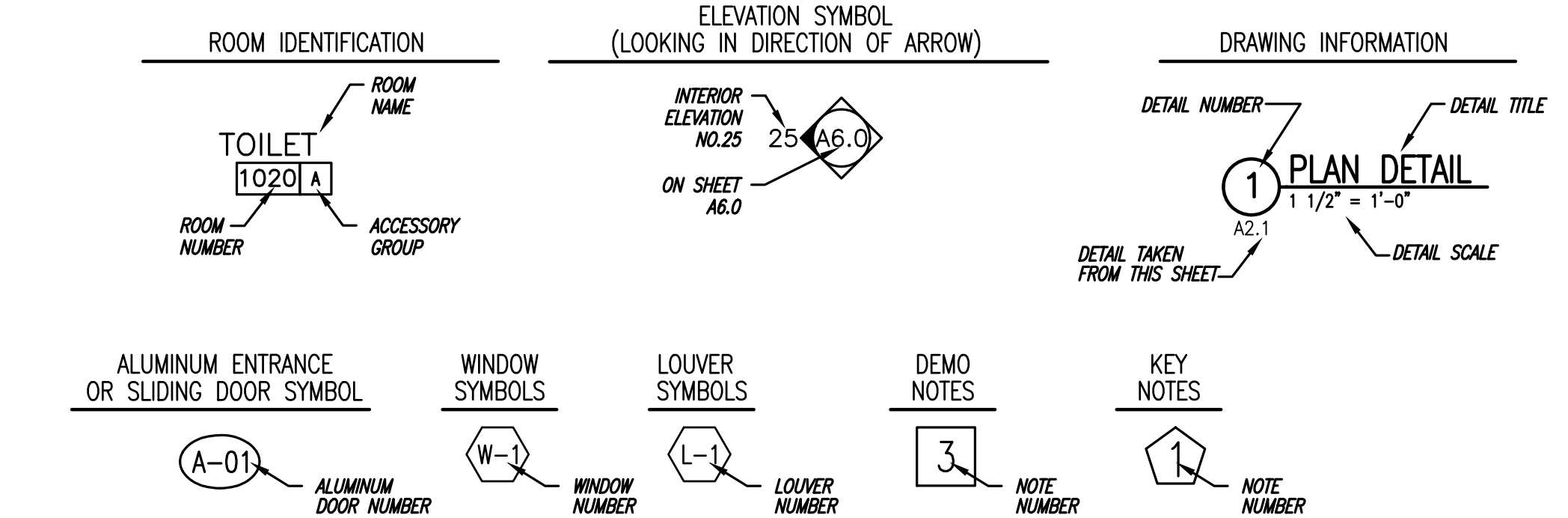
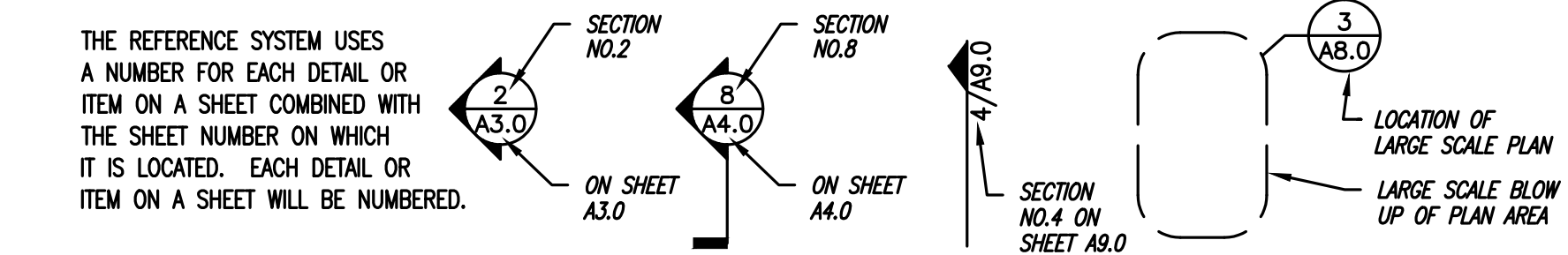
VIEW WINDOW SYMBOLS (ON PLANS)



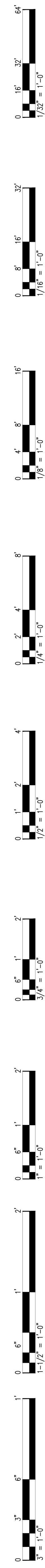
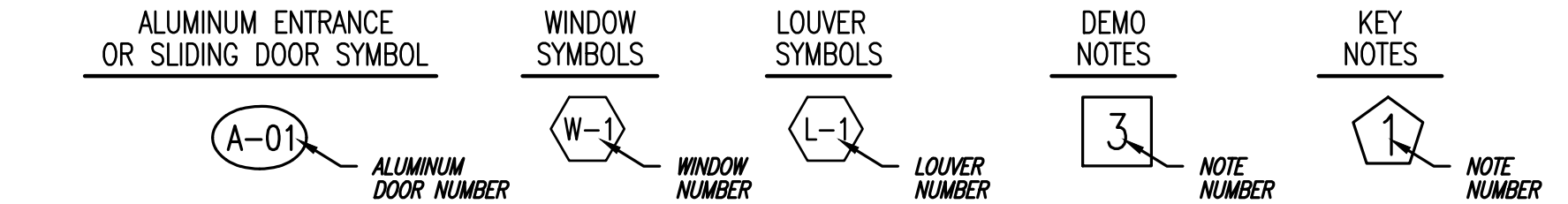
5 INTERIOR OPENING SYMBOLS
DOORS & VIEW WINDOWS
N.T.S.

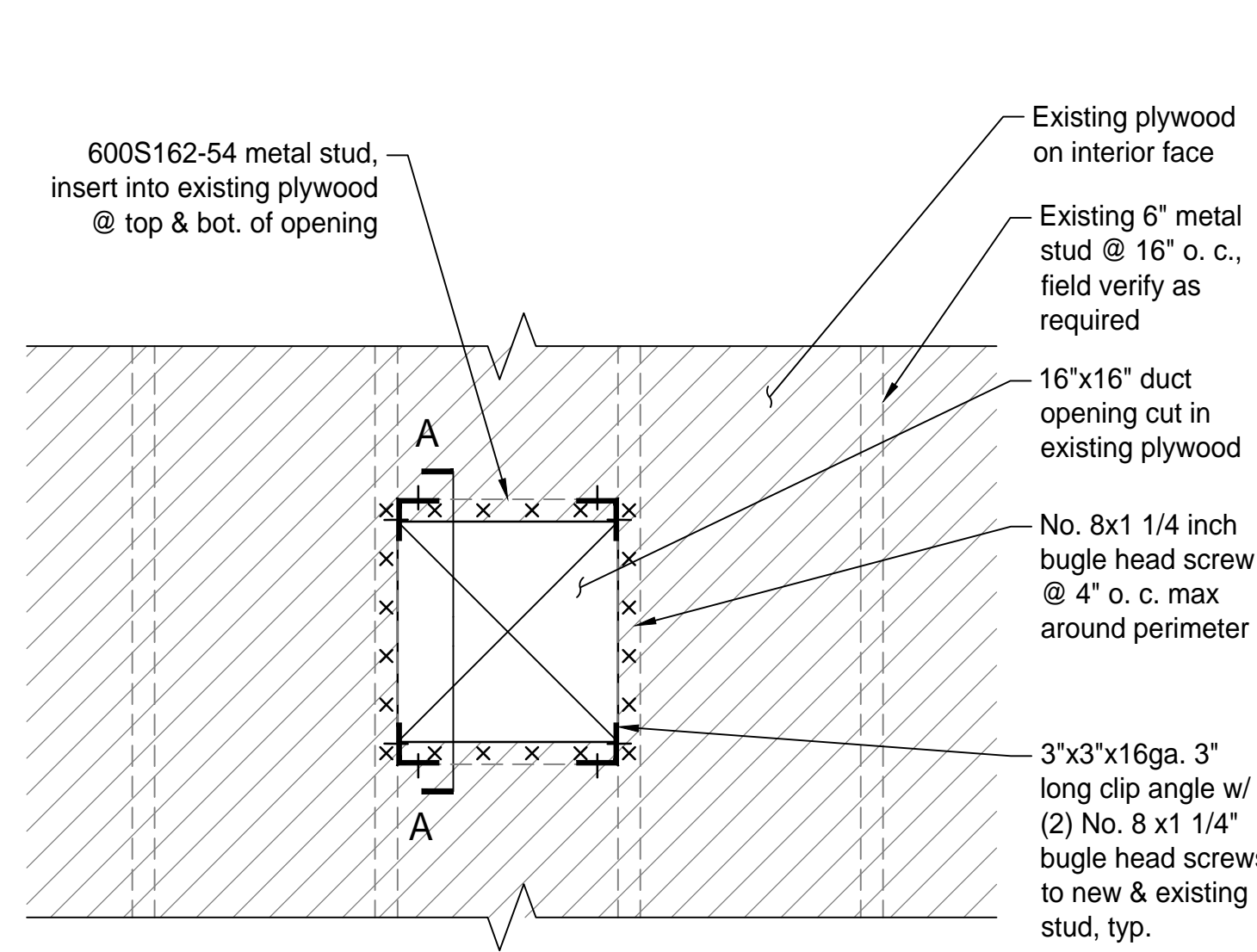
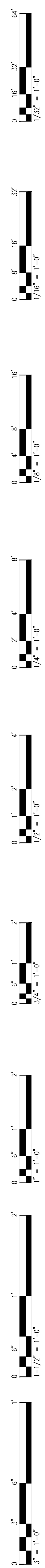


6 REFLECTED CEILING PLAN SYMBOLS

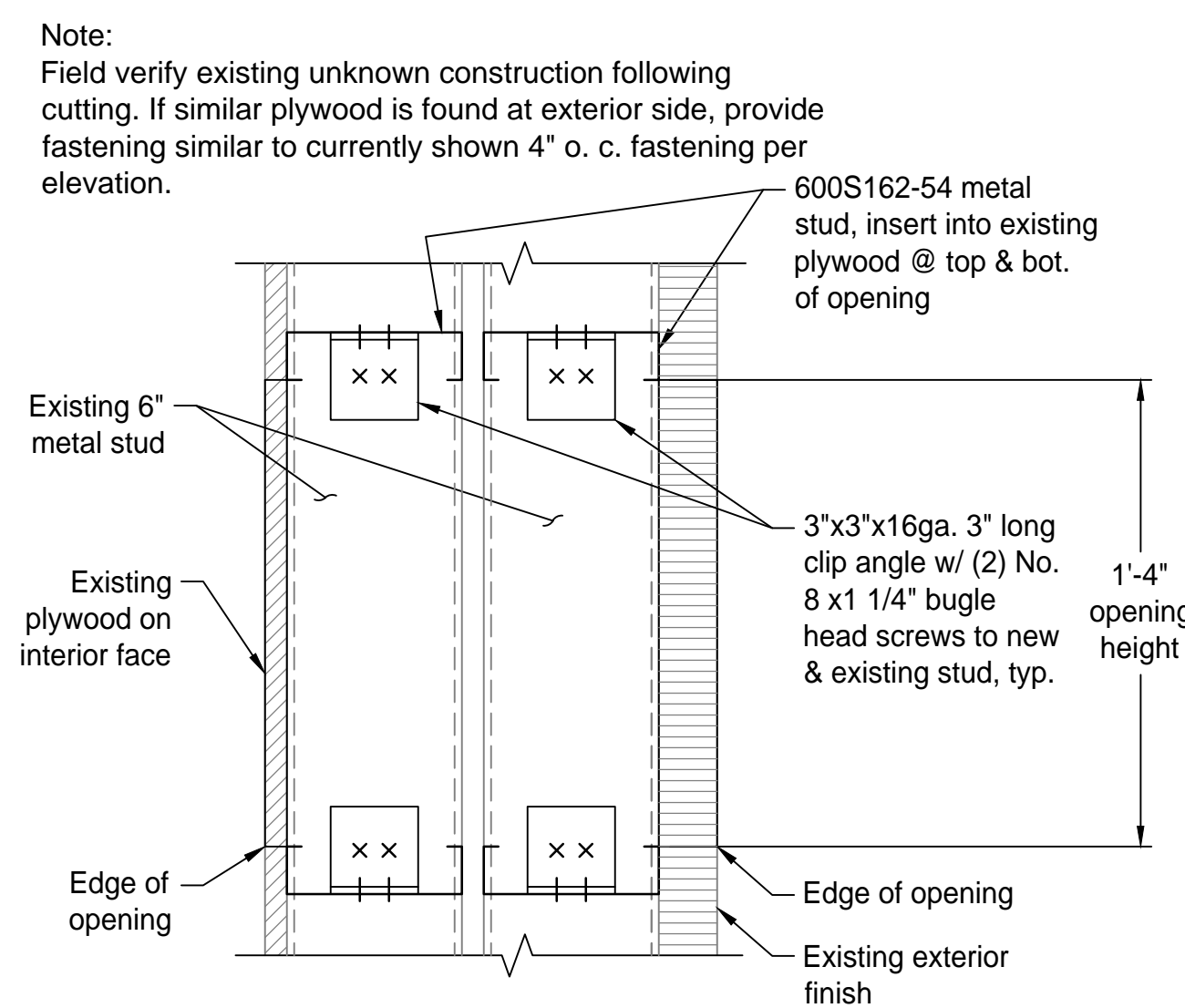


7 REFERENCE SYSTEM

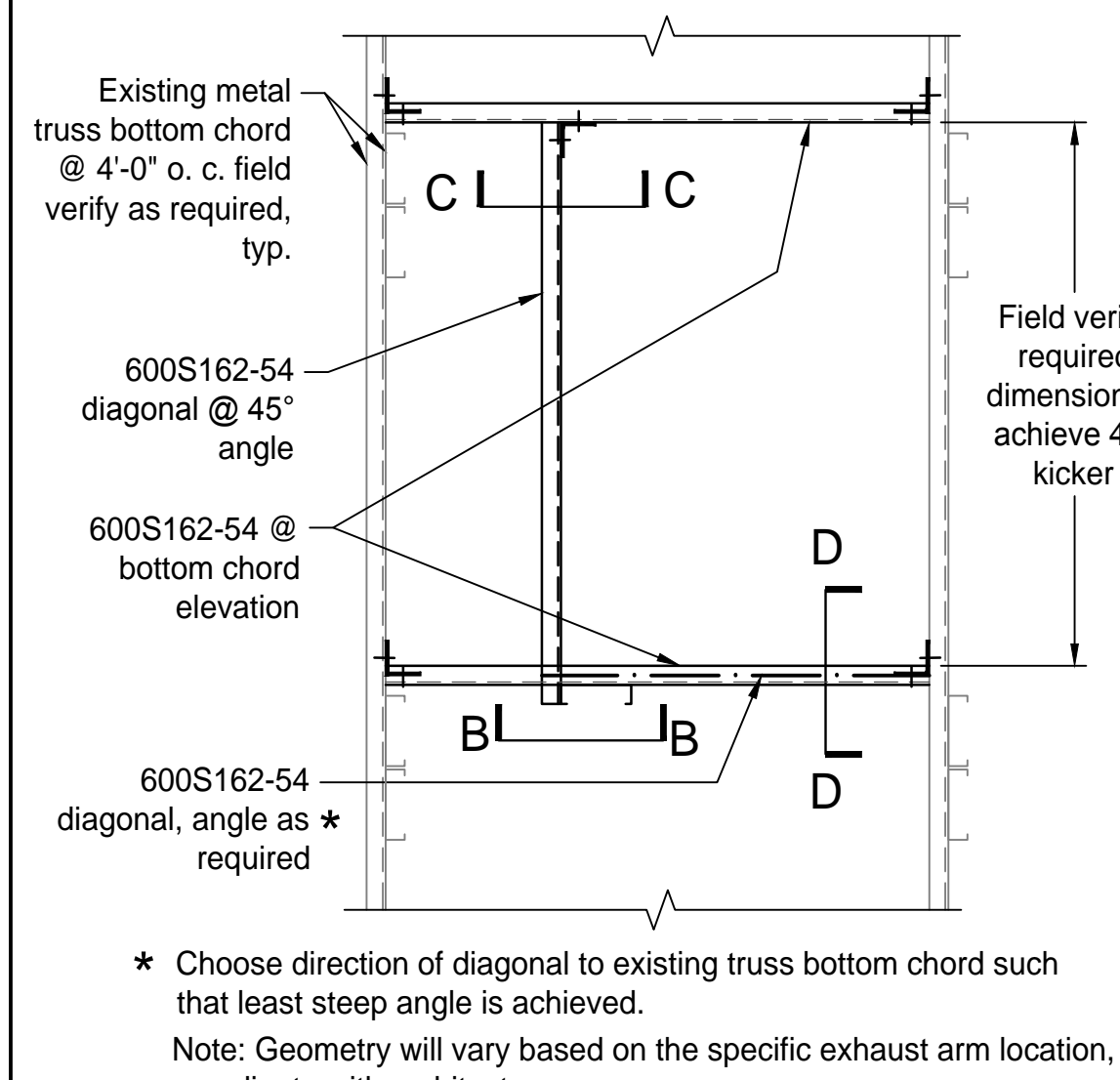




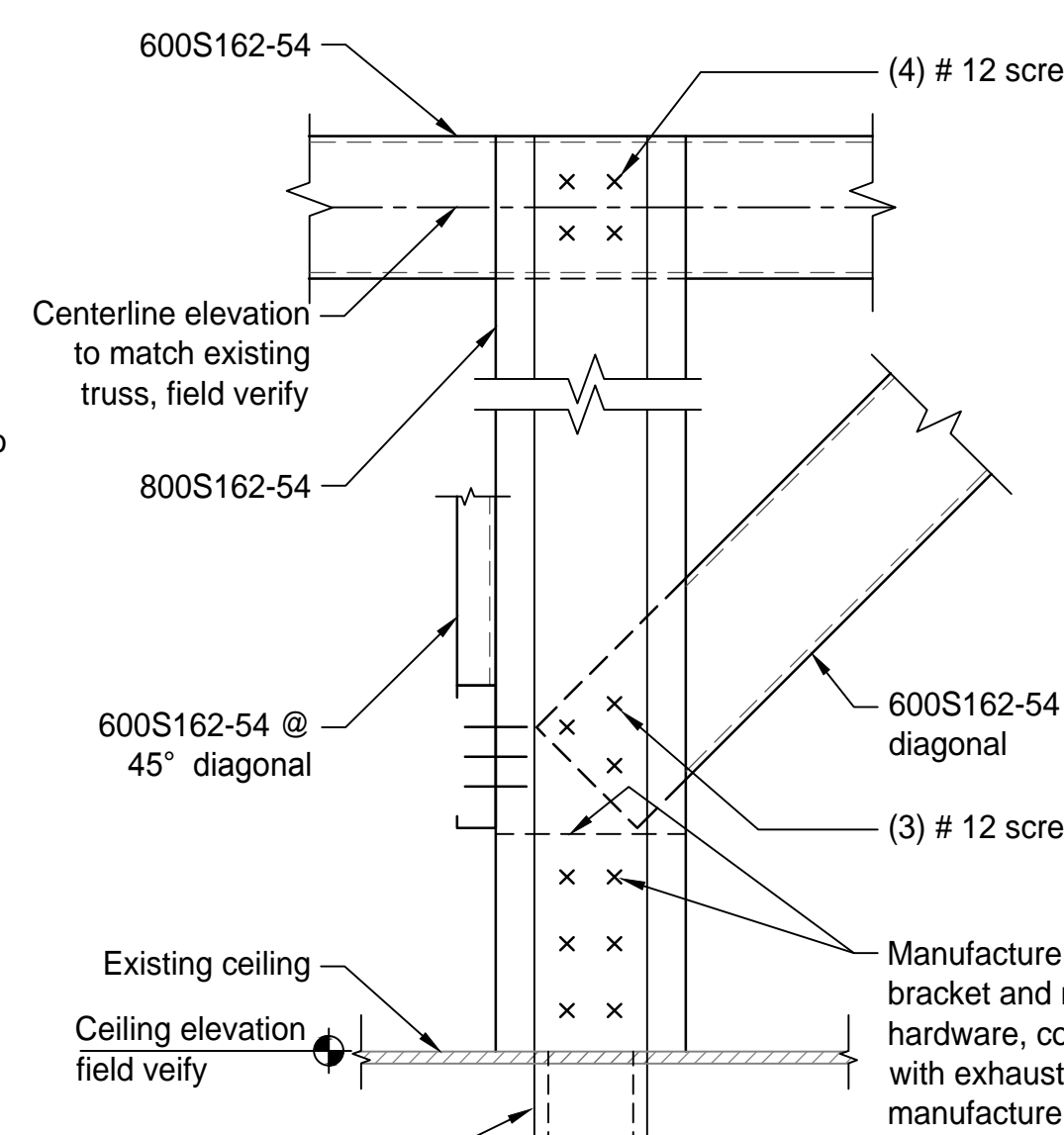
Elevation
Scale: 1" = 1'-0"



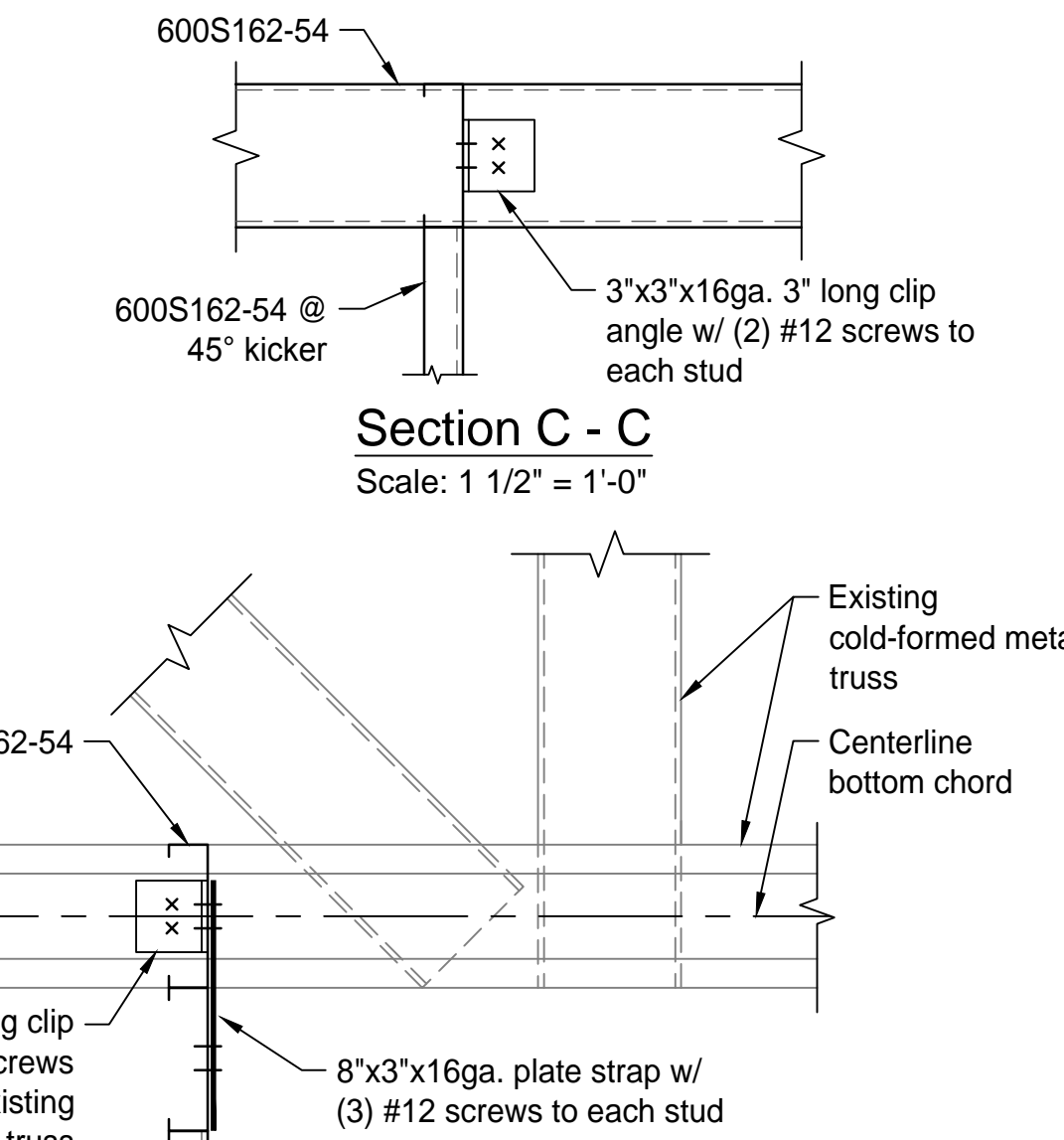
Section A - A
Scale: 2" = 1'-0"



Plan View
Scale: 3/4" = 1'-0"



Section B - B
Scale: 1 1/2" = 1'-0"



Section C - C
Scale: 1 1/2" = 1'-0"

Section D - D
Scale: 1 1/2" = 1'-0"

1 - Duct Opening Elevation

Scale: As noted

2 - Chem Lab Exhaust Arm Typical Support Plan

Scale: As noted

General Notes:

- Design Specifications: International Building Code (2015 Edition).
Design Loads:
Dead load: Actual
Occupancy Category: II
- In case of a discrepancy in dimensions or details, between Architectural and Structural Drawings, not affecting strength, the Architect's plans shall govern. For dimensions and details not shown, see Architect's plans.
- Where a detail is shown on Structural Drawings for one condition, it shall apply to all similar or like conditions, unless noted or shown otherwise on plans.
- All items shall be tightly anchored or attached square, plumb, and true, or in other planes and shapes as shown on the drawings. Joints shall be tight, even, and free of offsets. No field altering of any members will be allowed that will cause them not to be in accordance with the drawings and specifications, without written approval of the Project Engineer.
- The dimensions shown with a suffix "s" are approximate and shall be verified by the Contractor before fabrication.
- If the Contractor finds a difference between these drawings & existing conditions, or finds any other conditions which prohibit execution of the work as directed in these drawings, the Contractor shall notify the Engineer immediately.
- Any revision/modification to the original design during the shop drawing process, the Contractor shall clearly cloud line all the changes and shall receive approval from the Engineer in writing before fabrication. Any costs associated with correcting the unapproved change shall be at the Contractor's expense.

Metal Framing (light gage):

- All metal framing shall be designed, fabricated and erected in accordance with the American Iron and Steel Institute's "Specification for the Design of Cold Formed Steel Structural Members."
- Metal framing shall be of the size, gage and section properties indicated on the drawing or as required for the specific loading condition.
- All metal framing shall be saw cut, square and true. Cutting of metal framing with a torch will not be permitted.

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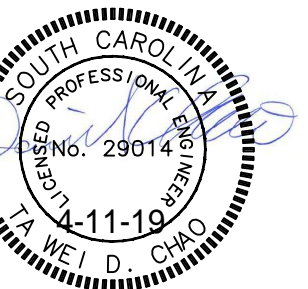
owner



USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720
project name
USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

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seals/signature

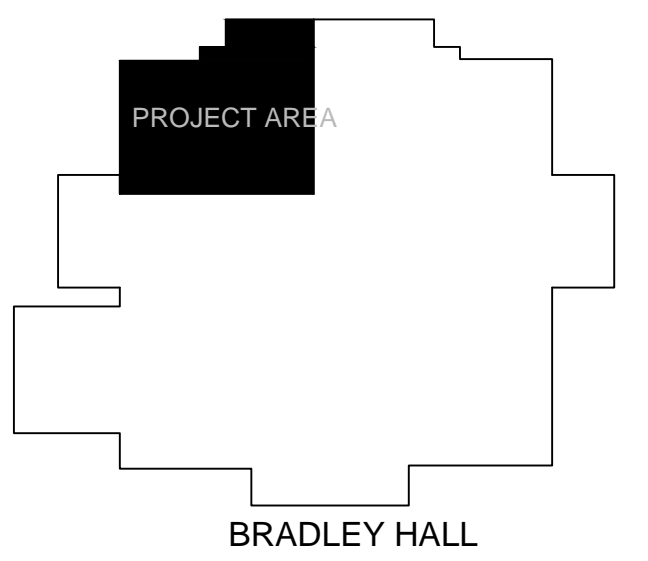


Issued for CONSTRUCTION DOCUMENTS

date
APRIL 11, 2019

number	item	date

key plan



sheet title

STRUCTURAL RENOVATION DETAILS

sheet number

S1.0

drawn by LPL
checked by C.JH

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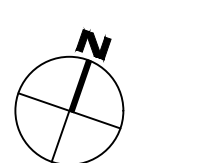
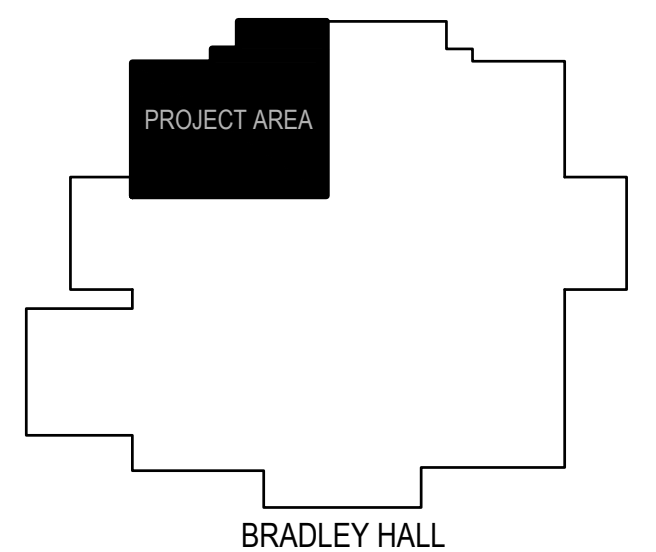
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number	item	date

key plan



sheet title
LIFE SAFETY FLOOR PLAN

sheet number

A0.2

drawn by DEW
checked by JS

LEGEND

- ⊗ EXIT SIGN. REFER TO ELECTRICAL PLANS
- FIRE EXTINGUISHER
- FEC FIRE EXTINGUISHER CIRCULAR REFERENCE TO ELECTRICAL PLANS
- ☒ EMERGENCY EXIT LIGHT REFER TO ELECTRICAL PLANS
- FAM FIRE ALARM ANNUNCIATOR PANEL REFER TO ELECTRICAL PLANS
- FAC FIRE ALARM CONTROL PANEL REFER TO ELECTRICAL PLANS
- ☑ FIRE ALARM PULL STATION REFER TO ELECTRICAL PLANS
- ☐ FIRE ALARM HORN OR HORN/STROBE REFER TO ELECTRICAL PLANS

FIRE AND SMOKE RATED WALL LEGEND
(BC 2015 Section 708)
▬ 1 Hour Fire Partition

CODE DATA

APPLICABLE CODES	LANCASTER COUNTY
A. International Building Code	2015 EDITION
B. International Plumbing Code	2015 EDITION
C. International Mechanical Code	2015 EDITION
D. International Fuel Gas Code	2015 EDITION
E. International Fire Code	2015 EDITION
F. International Energy Conservation Code	2009 EDITION
G. International Existing Building Code	2015 EDITION
H. National Electrical Safety Code	2014 EDITION
I. Life Safety Code (NFPA 101)	2012 EDITION
J. ICC/ANSI 117.1 Accessible and Usable Buildings & Facilities	2011 EDITION
K. ADA-Title III Public Accommodations	CURRENT EDITION
L. Other Regulations Promulgated By SCDEH Divisions of Water Supply & Wastewater	2010 EDITION

TYPE OF CONSTRUCTION — Type IV — Sprinkled

PRIMARY OCCUPANCY CLASSIFICATION

B Business

ALLOWABLE HEIGHT AND BUILDING AREA
(BC 2015, Table 504.3, 504.4, 506.2)

B Business

Max. No. of Stories — 6

Max. Height — 65 FEET

Reg. Area — 108,000 SF

ACTUAL BUILDING HEIGHT — 43'-0"

BUILDING GROSS AREA CALCULATION

Floor	Floor Total
Basement	5,989 SF
1st Floor	37,128 SF
2nd Floor	20,500 SF
Total	63,997 SF

BUILDING OCCUPANT LOAD
(BC 2015 Table 1004.1.2)

Floor	Usage	Occupant Load
Basement	Business	=1,407/100 GSF
	Mechanical Storage	=4,582/300 GSF
BASEMENT TOTAL		30
1st Floor	Business	=14,299/100 GSF
	Education (Classroom)	=11,457/20 NSF
	Assembly (Unconcentrated)	=4,926/15 NSF
	Assembly (Fixed Seats)	=NA/NA
1st FLOOR TOTAL		1,516
2nd Floor	Business	=8,032/100 GSF
	Education (Classroom)	=898/20 NSF
	Education (Labs)	=8,799/50 NSF
2nd FLOOR TOTAL		322

EXIT CAPACITY/EGRESS WIDTH — 1,516 x 0.20 = 304* Required
(BC 2015, 1005.3.2) 404* Provided (4 @ 65")
(4 @ 65")

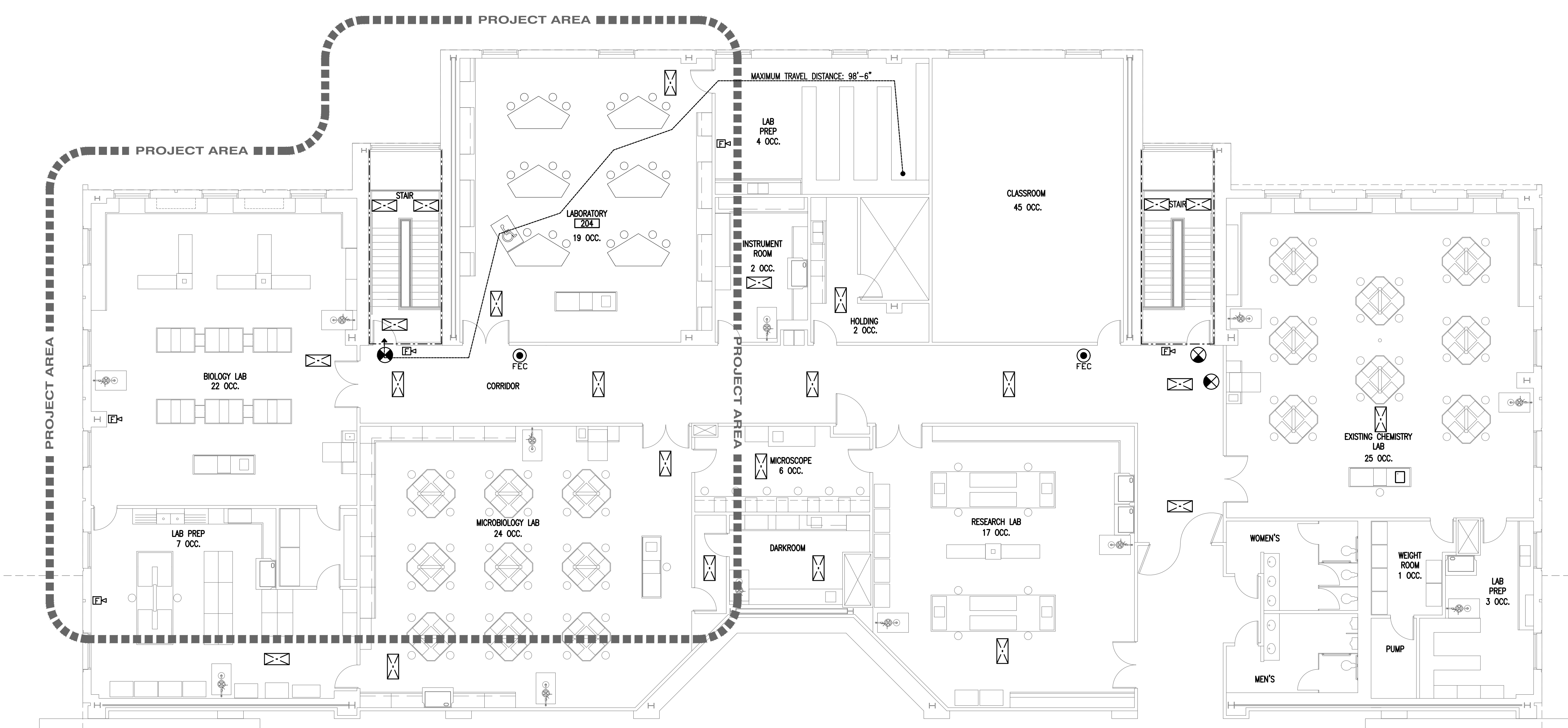
STAIR CAPACITY/EGRESS WIDTH — 322 x 0.30 = 97* Required
(BC 2015, 1005.3.1) 144* Provided (4 @ 36")

MAXIMUM EXIT TRAVEL — 250' (E Occupancy with Sprinkler)
(BC 2015, Table 1017.2)

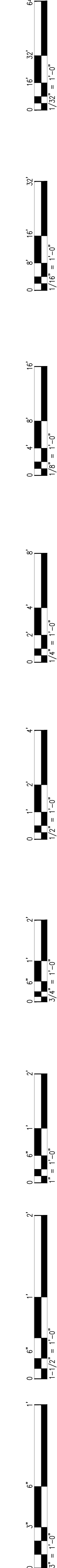
FIRE PROTECTION RATINGS (Type IV)
(BC 2015, Tables 601)

PARTY/FIRE WALL	4 HR
INTERIOR BEARING WALL	N/A
INTERIOR NON BEARING WALL	N/A
COLUMNS	N/A
Supporting More Than One Floor	N/A
Supporting One Floor Only	N/A
Supporting Roof Only	0
BEAMS, ORDERS, TRUSSES, ARCHES	N/A
Supporting More Than One Floor	N/A
Supporting One Floor Only	N/A
Supporting Roof Only	0
FLOOR/CEILING CONSTRUCTION	0
ROOF/CEILING CONSTRUCTION	0
SHAFT ENCLOSURES	1 HR
EXTERIOR BEARING WALLS	1 HR
EXTERIOR NON BEARING WALLS	0

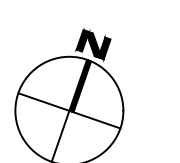
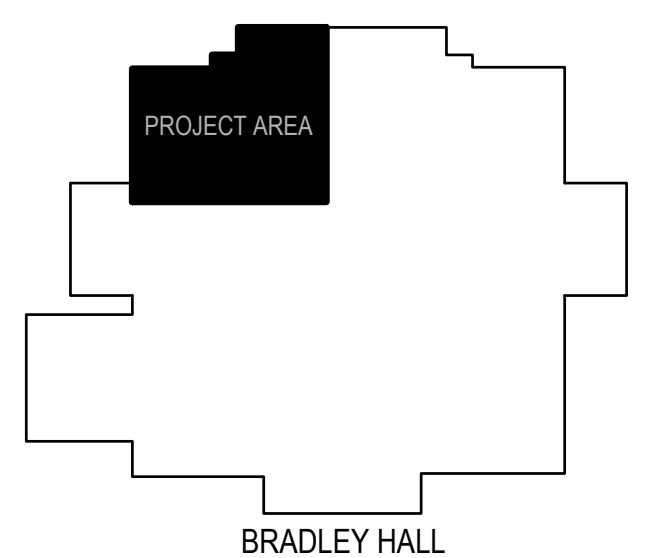
PROJECT IN FIRE DISTRICT, NO.
PROJECT IS NOT IN A WETLANDS, YES
PROJECT IS OCCUPANCY CATEGORY 3, SITE CLASS C
PROJECT IS SEISMIC DESIGN CATEGORY C



1 SECOND FLOOR LIFE SAFETY PLAN
1/8" = 1'-0"



number	item	date

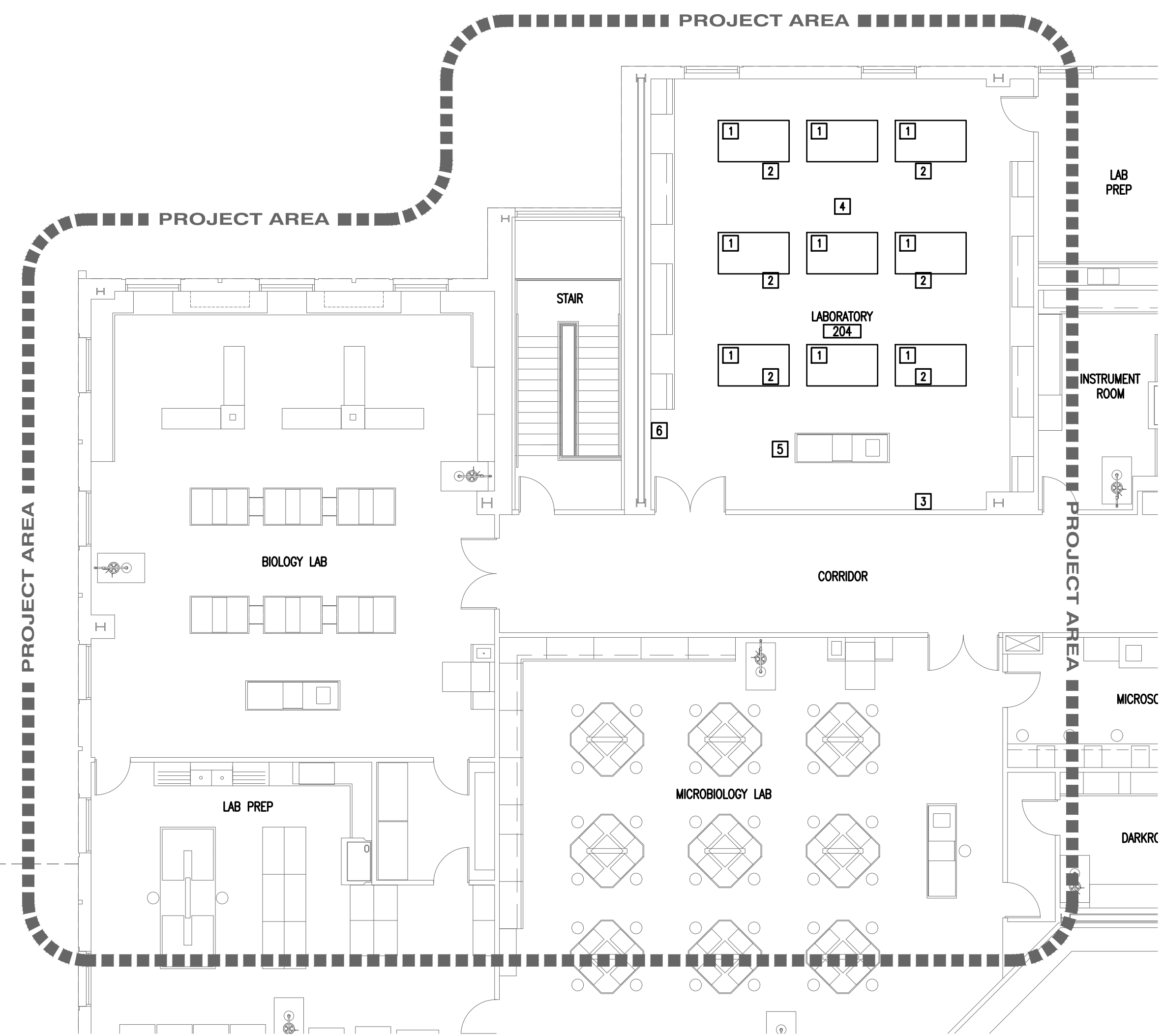


DEMOLITION FLOOR PLAN KEY NOTES

- 1 DEMO PHYSICS WORK STATIONS AND UTILITIES
 - 2 DEMO FLOORING WHERE REQUIRED TO SUPPLY ELECTRICAL, GAS, AND WATER FROM BELOW
 - 3 DEMO WALL AS NEEDED FOR NEW VALVE BOX INSTALLATION, SEE PLUMBING
 - 4 REMOVE 1ST FLOOR CEILING TO PROVIDE WORK AREA FOR NEW ELECTRICAL AND PLUMBING. REMOVE SECOND FLOOR CEILING AND GRID TO PROVIDE WORK AREA FOR NEW MECHANICAL. REINSTALL CEILING AND GRID IN ORIGINAL ORIENTATION AND HEIGHT. SALVAGE ALL CEILING TILE AND STACK IN CORRIDOR FOR PICKUP BY OWNER.
 - 5 DEMO FLOOR TO PROVIDE OPENING FOR A/V HOOKUP, SEE ELECTRICAL
 - 6 DEMO WALL TO PROVIDE OPENING FOR SNORKEL CONTROL SWITCH, SEE MECHANICAL
- DASHED LINES INDICATE ELEMENTS TO BE DEMOLISHED.

DEMOLITION FLOOR PLAN GENERAL NOTES

1. NOTIFY THE ARCHITECT IF DISCREPANCIES ARE DISCOVERED IN THE FIELD BETWEEN WHAT IS EXISTING AND WHAT IS SHOWN ON THE DRAWINGS. DO NOT PROCEED WITH DEMOLITION UNTIL THE DISCREPANCY IS RESOLVED BY THE ARCHITECT.
2. CONTRACTOR SHALL CLOSELY COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLANS.
3. NOT ALL DEMOLITION REQUIRED BY THE INSTALLATION OF NEW MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS IS NECESSARILY INDICATED ON THE ARCHITECTURAL PLANS. COORDINATE ADDITIONAL DEMOLITION WORK ON ELECTRICAL, PLUMBING AND MECHANICAL SHEETS.
4. WHENEVER DEMOLITION DAMAGES EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THOSE SURFACES TO THE FINISH AND QUALITY OF ADJACENT SURFACES OF THE ORIGINAL CONDITION.
5. THE CONTRACTOR SHALL TAKE ALL NECESSARY PROVISIONS TO PROTECT THE EXISTING CONSTRUCTION TO REMAIN. CONSTRUCT DUST PROOF BARRIERS AS REQUIRED TO PREVENT THE PASSAGE OF DUST INTO OCCUPIED AREAS.



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

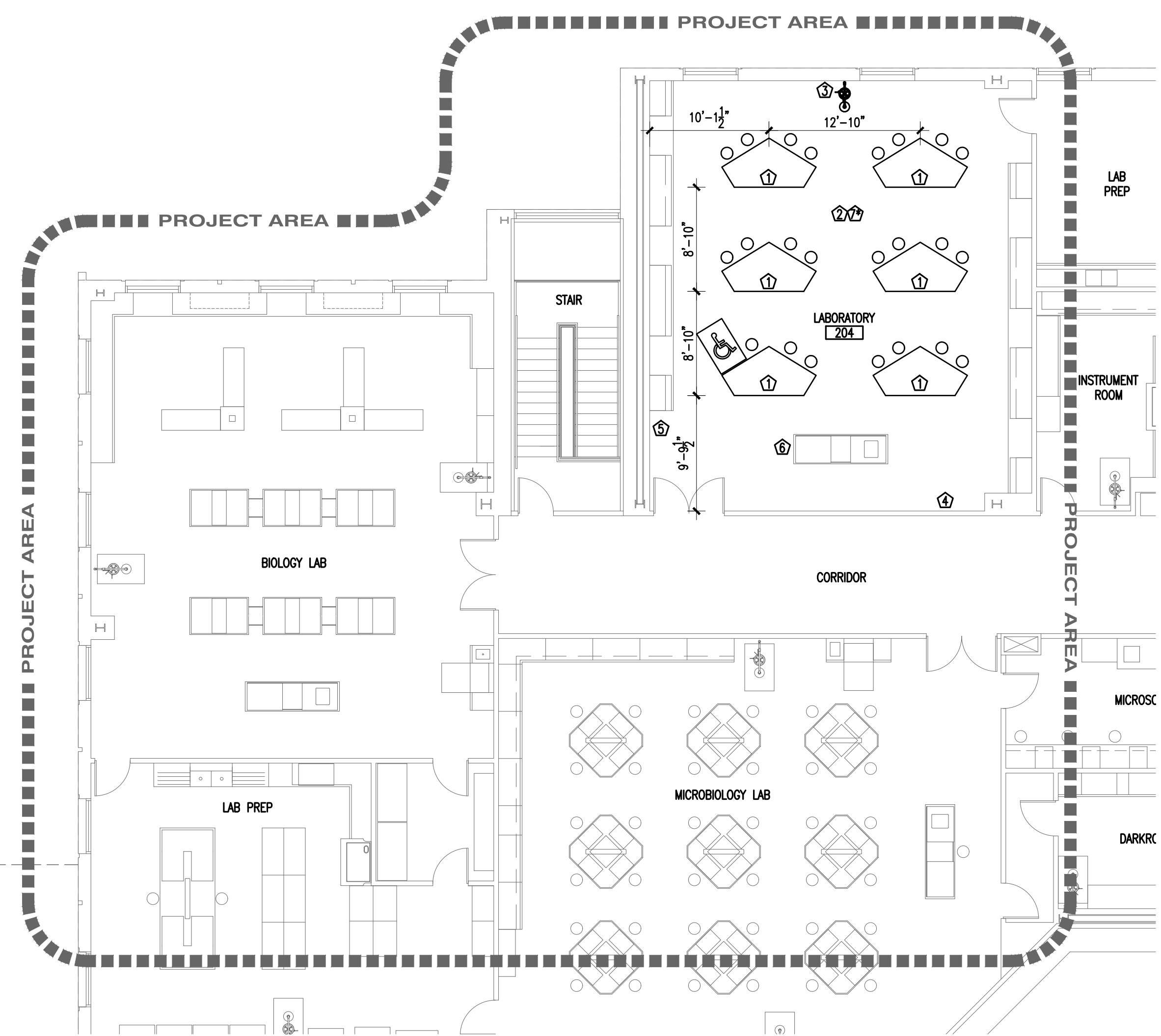
FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR		BASE	WALLS		CEILING		REMARKS
		FINISH	ACCENT		FINISH	WAINSCOT	FINISH	CROWN	
SECOND FLOOR									
204	CHEMISTRY	EPX*	-	EXISTING	PT	-	EXISTING	-	*PATCH EPOXY (BASE BID), FILL LEVEL AND RECOAT EPOXY (ALTERNATE)

FINISH LEGEND	
ITEM	SYMBOL
ACOUSTICAL CEILING TILE	ACT
EPOXY	EPX
PAINT	PNT
RUBBER BASE	RB
SEALED CONCRETE	SEALED

RENOVATION FLOOR PLAN KEY NOTES

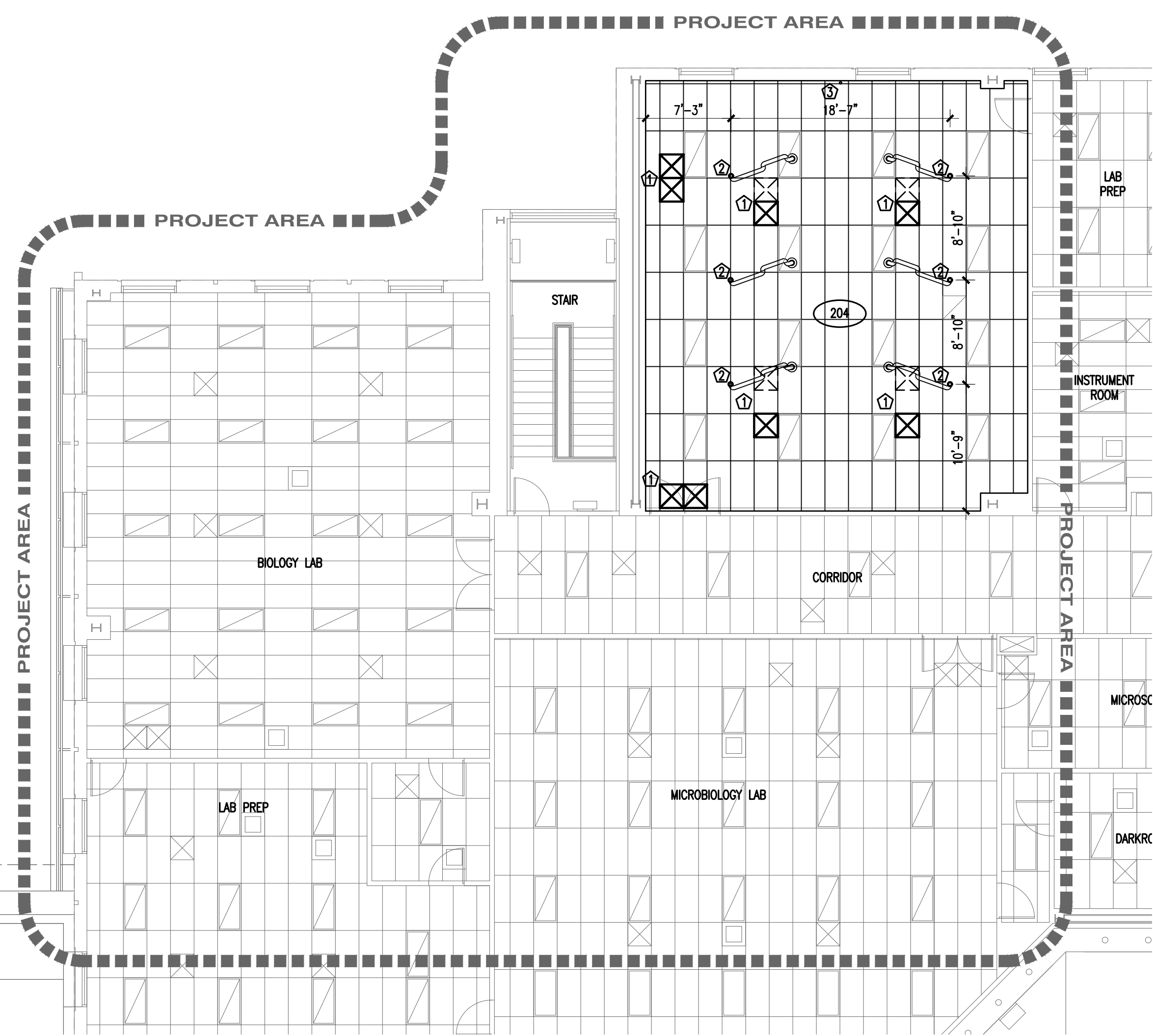
- 1 OWNER SUPPLIED LAB CASEWORK TO BE INSTALLED BY CONTRACTOR. COORDINATE WITH ENGINEERING DRAWINGS FOR NECESSARY ELECTRICAL, GAS, AND WATER CONNECTIONS TO PENETRATE FLOORING. REMOVE AND REPLACE ACOUSTICAL TILE ON FIRST FLOOR AS NEEDED TO INSTALL NEW PLUMBING, SEE PLUMBING DRAWINGS
- 2 PATCH EPOXY FLOORING WHERE PHYSICS WORK STATIONS ARE REMOVED, SEE ELECTRICAL AND PLUMBING FOR ADDITIONAL INFORMATION. (BASE BID)
- 3 NEW EYEWASH, SHOWER, AND GRAB BAR
- 4 PATCH AND PAINT WALL AS NEEDED AT NEW VALVE BOX, SEE PLUMBING
- 5 PATCH AND PAINT WALL AS NEEDED AT NEW EXHAUST CONTROLS, SEE MECHANICAL
- 6 PATCH CONCRETE AND EPOXY COATING AT NEW A/V LINE
- 7 **NEW COAT OF EPOXY THROUGHOUT ROOM AFTER PATCHING AND LEVELING (ALTERNATE)**



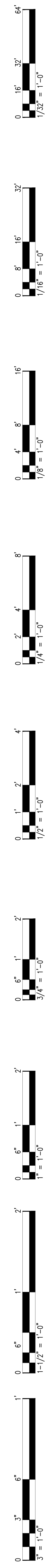
3 SECOND FLOOR
RENOVATION PLAN
1/8" = 1'-0"

REFLECTED CEILING PLAN KEY NOTES

- 1 REMOVE AND REPLACE EXISTING TILE TO ALLOW FOR NEW MECHANICAL AND PLUMBING, SEE MECHANICAL AND PLUMBING
- 2 SNORKEL HOODS SUSPENDED FROM STRUCTURE. COORDINATE LOCATIONS WITH OWNER.
- 3 SHOWER SUPPLY FROM ABOVE



2 SECOND FLOOR
REFLECTED CEILING PLAN
1/8" = 1'-0"



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consultants



owner



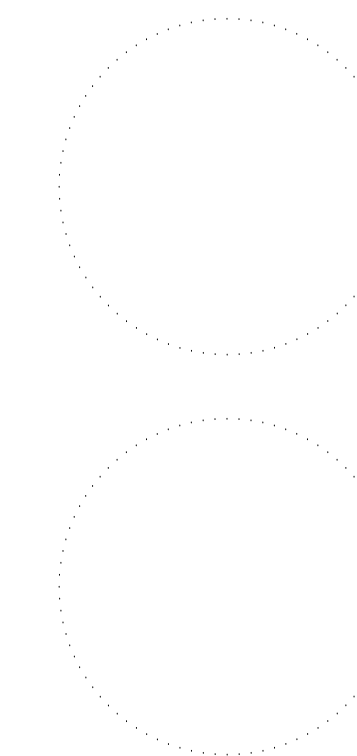
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LANCASTER, SC 29720

project name
USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

state project number
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project number
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seals/signature

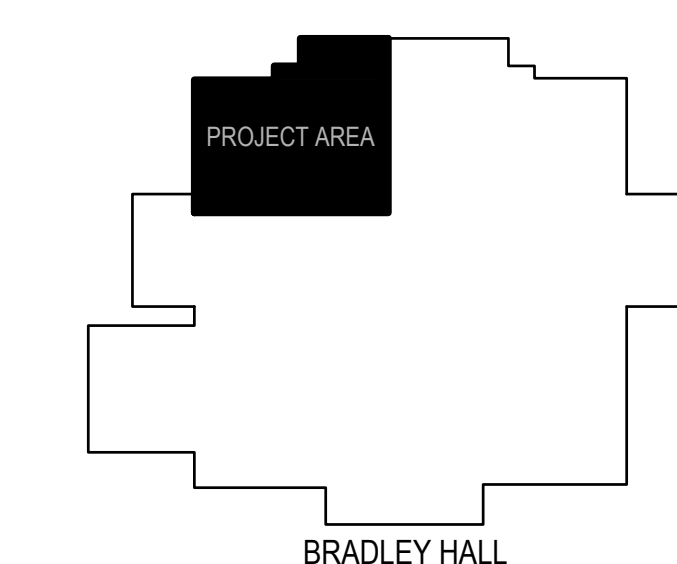


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key plan

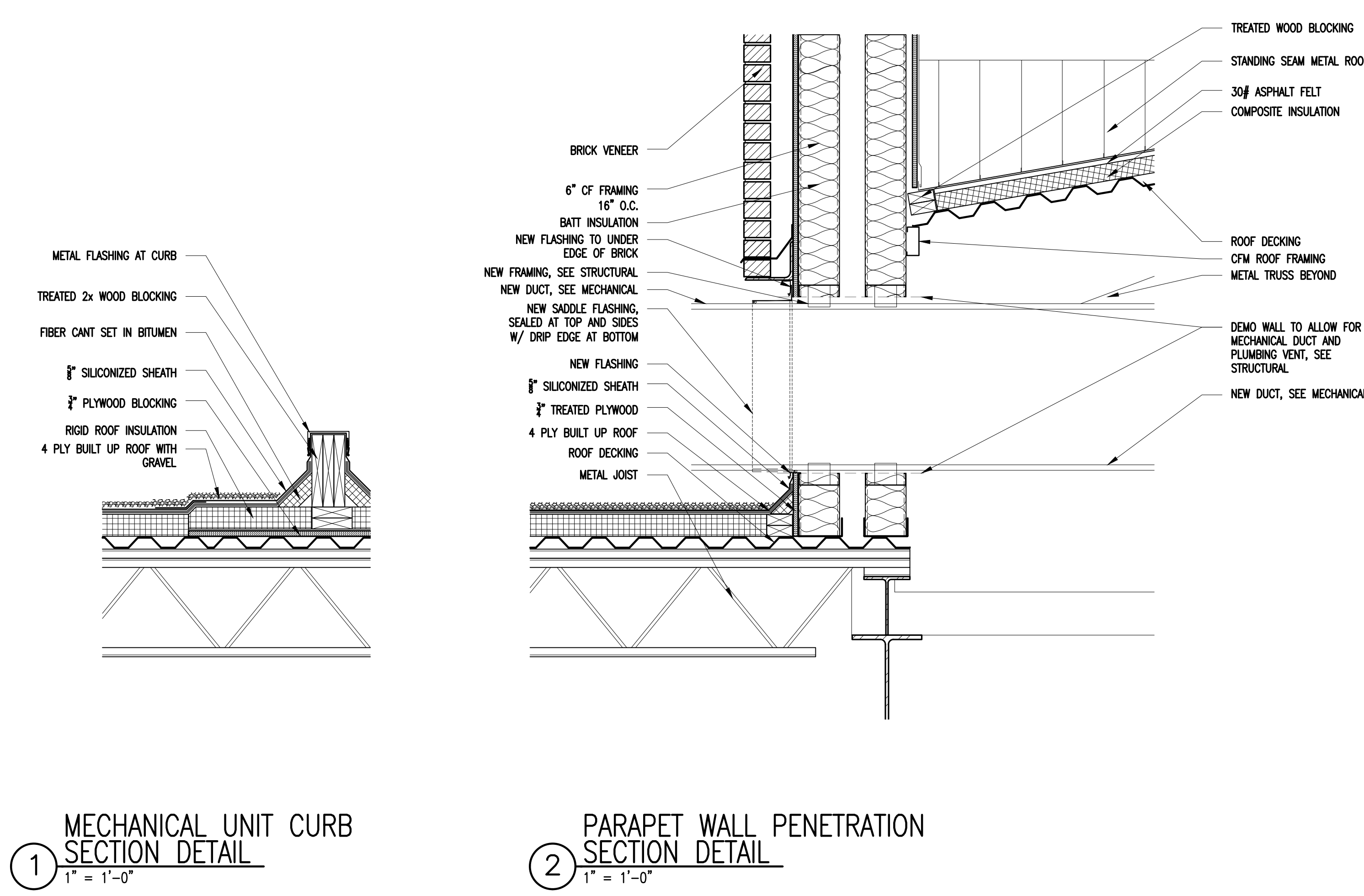


sheet title
ROOF PLAN AND DETAILS

sheet number

A2.3

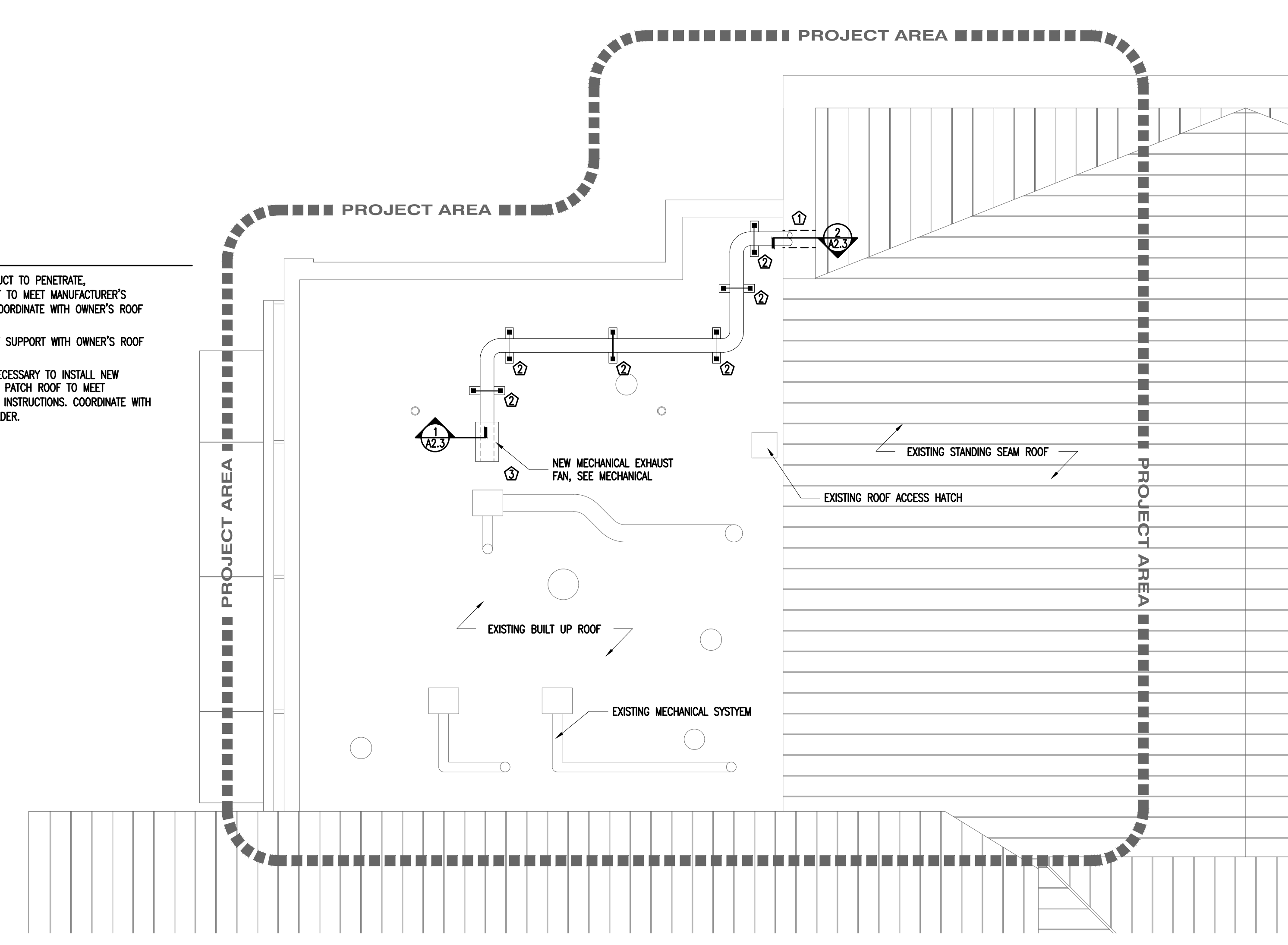
drawn by DEW
checked by JS



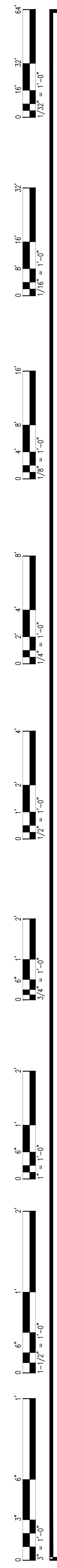
① MECHANICAL UNIT CURB SECTION DETAIL
1" = 1'-0"

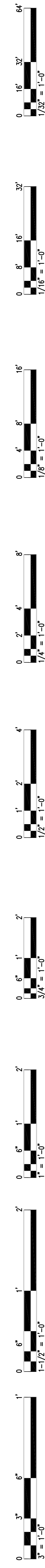
② PARAPET WALL PENETRATION SECTION DETAIL
1" = 1'-0"

- KEY NOTES
- ① CREATE WALL OPENING FOR DUCT TO PENETRATE. SEE STRUCTURAL. PATCH ROOF TO MEET MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE WITH OWNER'S ROOF WARRANTY HOLDER.
 - ② COORDINATE MECHANICAL DUCT SUPPORT WITH OWNER'S ROOF WARRANTY HOLDER.
 - ③ REMOVE ROOF MATERIAL AS NECESSARY TO INSTALL NEW MECHANICAL EQUIPMENT CURB. PATCH ROOF TO MEET MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE WITH OWNER'S ROOF WARRANTY HOLDER.



③ ROOF DEMOLITION/RENOVATION PLAN
1/8" = 1'-0"





PIPE IDENTIFICATION SCHEDULE

SERVICE TYPE	DECAL IDENTIFICATION	TAPE COLOR
COLD WATER SERVICE	COLD WATER SUPPLY	BLUE
HOT WATER	DOMESTIC HOT WATER	RED
HOT WATER RETURN	DOMESTIC HOT WATER RETURN	BEIGE
NATURAL GAS	NATURAL GAS	YELLOW
COMPRESSED AIR	COMP AIR	YELLOW
LABORATORY VACUUM	VACUUM	WHITE

1. PIPE SIZES 1-1/4" TO 4", USE 2-1/4" LETTERING.
2. PIPE SIZES 1" OR LESS, USE 1-1/4" LETTERING.

FIXTURE SIZE SCHEDULE

MARK	WASTE	VENT	CW	HW
SINK	2"	1 1/2"	1/2"	1/2"
EE-1	----	----	1/2"	1/2"
EES-1	----	----	1"	1"

NOTE: USE THESE SIZES FOR FIXTURE CONNECTIONS UNLESS OTHERWISE NOTED

THERMOSTATIC MIXING VALVE SCHEDULE

TAG NO.	LOCATION	TYPE	FLOW GPM	PRESS. DROP PSI	ENT. TEMP. °F	LEV. TEMP. °F	MFR.	MODEL	REMARKS
EMV-1	EES-1	THERMOSTATIC	44.0	20	115	85	BRADLEY	S19-2100	1,2

- MIXING VALVES SHALL INCLUDE MANUFACTURER'S RETURN FITTING, INTEGRAL THERMOMETER, INTEGRAL THERMOSTATIC RETURN LIMITER, INTEGRAL CHECKS AND STRAINERS.
- LOCATE ABOVE CEILING

WATER-HAMMER ARRESTER SCHEDULE

PDI UNITS	A	B	C	D	E	F
FIXTURE UNITS	1-11	12-32	33-60	61-113	114-154	155-330

PLUMBING FIXTURE SCHEDULE

EES-1, EMV-1; EMERGENCY EYEWASH AND SHOWER

- TYPE
 - A. WATERSAVER SSB909 BARRIER FREE SAFETY STATION WITH EYE/FACE WASH
- CONNECTION
 - A. 1-1/4" TEPID WATER
- SHOWER HEAD AND BOWL
 - A. 710" DIAMETER ORANGE ABS PLASTIC SHOWER HEAD
 - B. 11.5" DIAMETER STAINLESS STEEL EYE/FACE BOWL
- SHOWER VALVE
 - A. CHROME PLATED BRASS 1" IPS STAY-OPEN BALL VALVE WITH STAINLESS STEEL PULL ROD AND TRIANGULAR HANDLE
- EYEWASH HEADS
 - A. CHROME PLATED BRASS YOKE WITH TWIN, AERATED, EYEWASH HEADS
- VALVE
 - A. CHROME PLATED STAY-OPEN BALL VALVE WITH PUSH FLAG HANDLE
- SIGN
 - A. ANSI COMPLIANT IDENTIFICATION SIGN
 - B. UNIVERSAL IDENTIFICATION AND INSPECTION TAG
- MIXING VALVE EMV-1
 - A. WATERSAVER AP3800 EMERGENCY THERMOSTATIC MIXING VALVE
 - B. SURFACE MOUNTED ABOVE CEILING, PROVIDE MOUNTING BRACKETS AS NECESSARY.

P-1; LABORATORY DECK MOUNT DOUBLE GAS VALVE - LAB VACUUM

- TYPE
 - A. SIMILAR TO CHICAGO FAUCET 981-VR908GVCP, 90° DOUBLE FORGED BRASS VALVE BODY
 - B. FORGED BRASS VALVE BODY
 - C. CHROME PLATED BRASS BALL
 - D. CHROME FINISH
 - E. INDEX VALVE TO SERVICE TYPE
 - F. APPROVED FOR ADA COMPATIBILITY.
- CONNECTION
 - A. 3/8" IPS
- MOUNTING
 - A. DECK MOUNTED, SEE ARCH DWGS. & OWNER SUPPLIED SHOP DRAWINGS FOR CONTINUATION
 - B. COORDINATE FINAL MOUNTING LOCATION WITH OWNER/USER.

P-2; LABORATORY DECK MOUNT DOUBLE GAS VALVE - LAB COMPRESSED AIR

- TYPE
 - A. SIMILAR TO CHICAGO FAUCET 981-VR908GVCP, 90° DOUBLE FORGED BRASS VALVE BODY
 - B. FORGED BRASS VALVE BODY
 - C. CHROME PLATED BRASS BALL
 - D. CHROME FINISH
 - E. INDEX VALVE TO SERVICE TYPE
 - F. APPROVED FOR ADA COMPATIBILITY.
- CONNECTION
 - A. 3/8" IPS
- MOUNTING
 - A. DECK MOUNTED, SEE ARCH DWGS. & OWNER SUPPLIED SHOP DRAWINGS FOR CONTINUATION
 - B. COORDINATE FINAL MOUNTING LOCATION WITH OWNER/USER.

ABBREVIATIONS *

ABV	Above	NC	Normally Closed
AD	Access Door	NIC	Not in Contract
AF	Above Finished Floor	NO	Normally Open
BFP	Backflow Preventer	NPT	National Pipe Thread
CI	Cast Iron	NTS	Not To Scale
COL	Column Line	OFST	Over Flow Storm Drain
CONN	Connection	OK	Oxygen
CW	Cold Water	PC	Plumbing Contractor
DI	Dionized Water	P-#	Pump - No.
DN	Down	PRV	Pressure Reducing Valve
EC	Electrical Contractor	PSI	Pounds Per Square Inch
ELEV	Elevation	RD	Roof Drain
ET	Expansion Tank	SA	Shock Absorber
EMC-#	Electric Water Cooler	SH-#	Shower
FD	Floor Drain	SK-#	Sink
FL	Floor	SS	Stainless Steel
FT	Foot	ST	Storm Drain
GC	General Contractor	STD	Standard
GPH	Gallons Per Hour	TEMP	Temperature
GPM	Gallons Per Minute	TOS	Top of Steel
HW	Hot Water	TYP	Typical
HWR	Hot Water Return	U-#	Urinal
IE	Invert Elevation	VAC	Vacuum
L-#	Livability	VB	Vacuum Breaker
MA	Medical Air	V	Vent
MAX	Maximum	VTR	Vent Thru Roof
MC	Mechanical Contractor	W	Sanitary Waste
MIN	Minimum	WB-#	Wall Box
MPT	Male Pipe Thread	WC-#	Water Closet
MSB-#	Map Sink Basin	WTS	Water Tight Sleeve
N/A	Not Applicable		

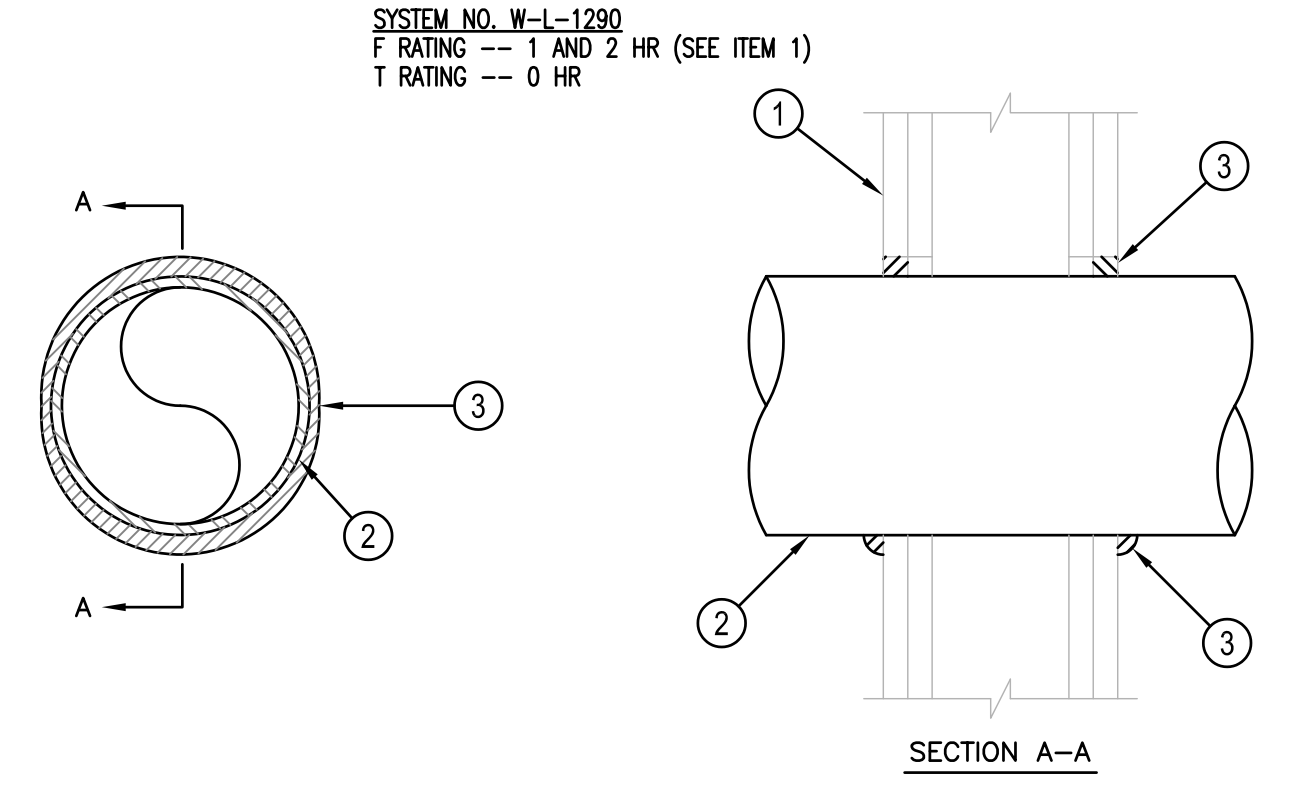
* Not All Abbreviations Used

PLUMBING GENERAL NOTES

- VERIFY EXACT LOCATION OF ALL PLUMBING FIXTURES IN OR ATTACHED TO CASEWORK WITH THE ARCHITECT AND THE MILLWORK SHOP DRAWINGS. COORDINATE PRIOR TO INSTALLATION.
- CONFIRM OR VERIFY EXACT LOCATION AND ACTUAL INVERT OF ACID WASTE LINES PRIOR TO INSTALLATION.
- DUE TO THE LARGE QUANTITY OF PIPING, DUCTWORK, CONDUIT, ETC. ABOVE THE CEILING COORDINATION WITH OTHER DISCIPLINES IS MANDATORY.
- LOCATE SHUT-OFF VALVE ABOVE CEILING AND IN LOCATIONS ACCESSIBLE FOR SERVICE. LOCATION SHALL COMPLY WITH THE REQUIREMENTS OF ALL CODES REFERENCED HEREIN.
- ALL SANITARY/ACID DRAINAGE PIPING 3" AND LARGER SHALL SLOPE 1/8" PER FOOT UNLESS NOTED OTHERWISE. ALL SANITARY/ACID DRAINAGE PIPING 2" AND SMALLER SHALL SLOPE 1/4" PER FOOT UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL REFERENCE DIVISION 22 OF THE SPECIFICATIONS AND EQUIPMENT SCHEDULE ON THIS SHEET FOR PLUMBING FIXTURES, EQUIPMENT, MATERIALS, PIPING, INSULATION, HANGERS, AND SUPPORTS.
- REFERENCE PLUMBING FIXTURE CONNECTION SCHEDULE ON THIS SHEET FOR LINE SIZES NOT SHOWN TO FIXTURES/EQUIPMENT.
- ALL FLOOR DRAINS SHALL BE INSTALLED PLUMB AND LEVEL WITH FINISHED FLOOR ELEVATION FOR SLAB INSTALLATION.
- CONTRACTOR SHALL PROVIDE HANGERS AND SUPPORTS FOR SEISMIC RESTRAINT PER THE 2015 INTERNATIONAL BUILDING CODE.
- ALL DRAINAGE PIPING AND PRESSURE SYSTEM PIPING SHALL BE RUN AS HIGH AS POSSIBLE TO BOTTOM OF STRUCTURE, UNLESS NOTED OTHERWISE. COORDINATE PIPE ROUTING WITH ALL OTHER TRADES.
- THE FOLLOWING PLUMBING SYSTEMS SHALL BE INSULATED: COLD WATER, HOT WATER, HOT WATER RECIRCULATION, P-TRAPS AND HORIZONTAL PIPING RECEIVING CONDENSATE ABOVE CEILING, HORIZONTAL ROOF DRAIN LEADERS (REFERENCE DIVISION 22 OF THE SPECIFICATIONS).
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE.
- CONTRACTOR SHALL MAKE PROVISIONS FOR EXPANSION LOOPS WHERE NECESSARY WHETHER OR NOT SHOWN ON DRAWINGS.
- OFFSET PLUMBING VENTS AND WATER PIPING AS NECESSARY TO AVOID CONFLICTS WITH DUCTWORK. SEE HVAC PLANS.
- IT IS THE INTENT AND MEANING OF THE DRAWINGS TO PROVIDE COMPLETE AND OPERABLE PLUMBING AND DRAINAGE SYSTEMS.
- ALL PLUMBING LINE SIZE REDUCTIONS SHALL BE MADE WITH REDUCERS AND/OR REDUCING FITTINGS.
- PLUMBING CONTRACTOR SHALL TEST EACH REDUCED PRESSURE BACKFLOW PREVENTER AND DOUBLE CHECK VALVE INSTALLED USING A CERTIFIED TESTER IN ACCORDANCE WITH SOUTH CAROLINA PRIMARY DRINKING WATER REGULATIONS.
- ALL GAS PIPING IN PARTITION WALLS SHALL BE ANNEALED COPPER WITH BRAZED JOINTS. A STEEL STRIKER BARRIER NOT LESS THAN 0.0508 INCH THICK SHALL BE INSTALLED BETWEEN THE PIPING AND THE FINISHED WALL EXTENDING AT LEAST 4 INCHES BEYOND CONCEALED PENETRATIONS OF PLATES, FIRE STUDS, WALL STUDS, ETC. GAS PIPING SHALL NOT BE INSTALLED IN CADY OR SOLID WALLS.
- PLUMBING CONTRACTOR TO MAKE FINAL CONNECTIONS ON ALL LAB FIXTURES.
- PROVIDE WAITS (BUT 3/8" DUAL CHECK VALVES AND DOWN STREAM OF SHUT OFF VALVE FOR DISHWASHER).
- THESE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW EXACT LOCATIONS OF FIXTURES AND EQUIPMENT. ALL OFFSETS AND FITTINGS FOR COMPLETE INSTALLATION MAY NOT BE DEFINED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT DIMENSIONS AT THE BUILDING AND ANY NECESSARY CHANGES MADE IN ACCORDANCE WITH STRUCTURAL CONDITIONS. EQUIPMENT TO BE INSTALLED AND COORDINATION WITH OTHER SYSTEMS. IF CONFLICTS CANNOT BE RESOLVED THEY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER.
- CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS INsofar AS THEY APPLY: NFPA 54, 2015 INTERNATIONAL BUILDING, GAS, PLUMBING AND MECHANICAL CODES.
- CONTRACTOR SHALL SECURE ALL PERMITS, INSURANCES, LICENSES AND TESTS REQUIRED FOR THIS WORK AND PAY ALL FEES IN CONNECTION THERWITH.
- ALL MATERIALS SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME AND BE U.L. LABELED IF REQUIRED. UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. ALL EQUIPMENT'S & PLATES, FIRE STUDS, WALL STUDS, ETC. - GAS PIPING SHALL NOT BE INSTALLED IN CADY OR SOLID WALLS.
- CONTRACTOR SHALL LOCATE AND SIZE ALL OPENINGS REQUIRED FOR PLUMBING EQUIPMENT AND PIPING, AND PROVIDE THIS INFORMATION TO THE GENERAL CONTRACTOR IN THE NOT TO DELAY BUILDING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE AND LOCATE SLEEVES AND INSERTS REQUIRED BEFORE THE FLOOR AND WALLS ARE BUILT OR SHALL BE RESPONSIBLE FOR THE COST OF CUTTING AND PATCHING REQUIRED FOR PIPES WHERE SLEEVES AND INSERTS WERE NOT INSTALLED OR WHERE THEY WERE INCORRECTLY LOCATED.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY THE CONTRACTOR OR OF THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL TO THE WORK OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO PERFORM THE CONSTRUCTION WORK IN ACCORDANCE WITH THE DRAWINGS.
- SLEEVE FLOOR PENETRATIONS PER SPECIFICATIONS AND SEAL PENETRATIONS WITH SILICONE.
- REFERENCE FINAL LAB EQUIPMENT SHOP DRAWINGS FOR VERIFICATION OF EXACT LOCATIONS OF ALL PLUMBING FIXTURES AND EQUIPMENT REQUIRING HOT WATER, COLD WATER, NATURAL GAS AND/OR COMPRESSED AIR. COORDINATE PRIOR TO INSTALLATION.

PLUMBING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
--- CW ---	COLD WATER LINE - NEW (CW)	--- ---	END CAP
--- CW ---	COLD WATER LINE - EXISTING (CW)	--- --- ---	UNION
--- HW ---	HOT WATER LINE - NEW (HW)	CO --- ---	INLINE CLEANOUT
--- HW ---	HOT WATER LINE - EXISTING (HW)	SA-A	SHOCK ABSORBER & TYPE
--- HWR ---	HOT WATER RECIRCULATING LINE (HWR)	FD	FLOOR DRAIN
--- AW ---	ACID WASTE LINE (AW)	●	BALL VALVE
--- AV ---	ACID WASTE VENT LINE (AV)	∇	GAS COOK
--- GAS ---	NATURAL GAS LINE - NEW (GAS)	--- X ---	PRV
--- VAC ---	LABORATORY VACUUM LINE - NEW (VACUUM)	◇	BALANCING VALVE
--- CA ---	COMPRESSED AIR LINE - NEW (CA)	--- Z ---	CHECK VALVE
--- CA ---	COMPRESSED AIR LINE - EXISTING (CA)	--- Z ---	CHECK VALVE
○/○	PIPE DOWN OR DROP (DN OR DROP)	●	POINT OF CONNECTION - NEW TO EXISTING
○	PIPE UP	///	AREA TO BE DEMOLISHED
○/○	PIPE BREAK OR CONTINUATION	□	WALL BOX
○/○	P-TRAP	◇	REDUCED PRESSURE BACKFLOW PREVENTER



- WALL ASSEMBLY --- THE 1 OR 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES.
 - A. STUDS --- REFER TO ARCH DETAILS FOR TYPE & CONSTRUCTION.
 - B. GYPSUM BOARD --- REFER TO ARCH DETAILS FOR TYPE & CONSTRUCTION. MAX DIM OF OPENING IS 5 IN. (THE HOURLY F & T RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.)
- THROUGH PENETRANT --- ONE METALLIC PIPE OR TUBING INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE ANNULAR SPACE BETWEEN THE PIPE OR TUBE & PERIPHERY OF THE OPENING SHALL BE MIN 0 IN (POINT CONTACT) TO MAX 1/2 IN. THE FOLLOWING TYPES & SIZES OF METALLIC PIPES MAY BE USED:
 - A. IRON PIPE --- NOM 4 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - B. COPPER PIPE --- SHALL FOLLOW WL-1243 SYSTEM.
- FILL VOID OR CAVITY MATERIAL --- SEALANT --- MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE & WALL, A MIN 1/2 IN DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE/WALL INTERFACE.
 - A. BEARING THE UL CLASSIFICATION MARK

① FIRE STOPPING DETAIL

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USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720

project name

USC LANCASTER BRADLEY HALL

PHYSICS LAB UPGRADES

state project number

H37-9519

project number

19010.01

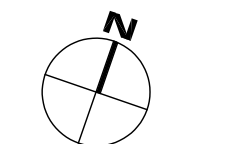
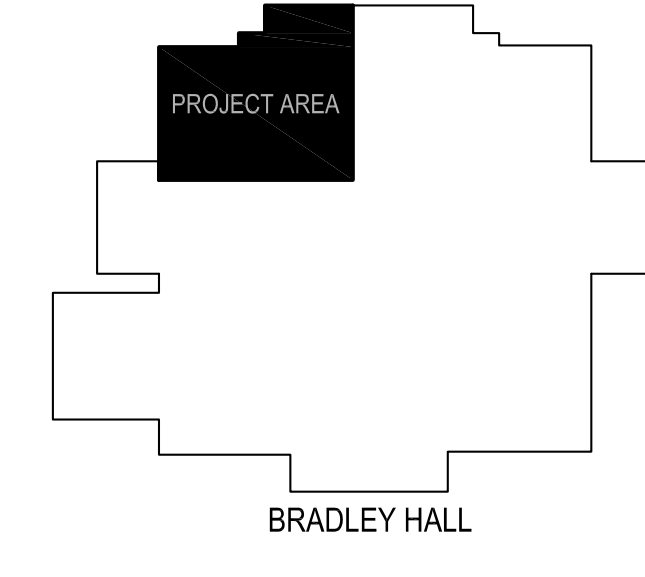
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PLUMBING SCHEDULES, NOTES, ABBREVIATIONS & SYMBOLS

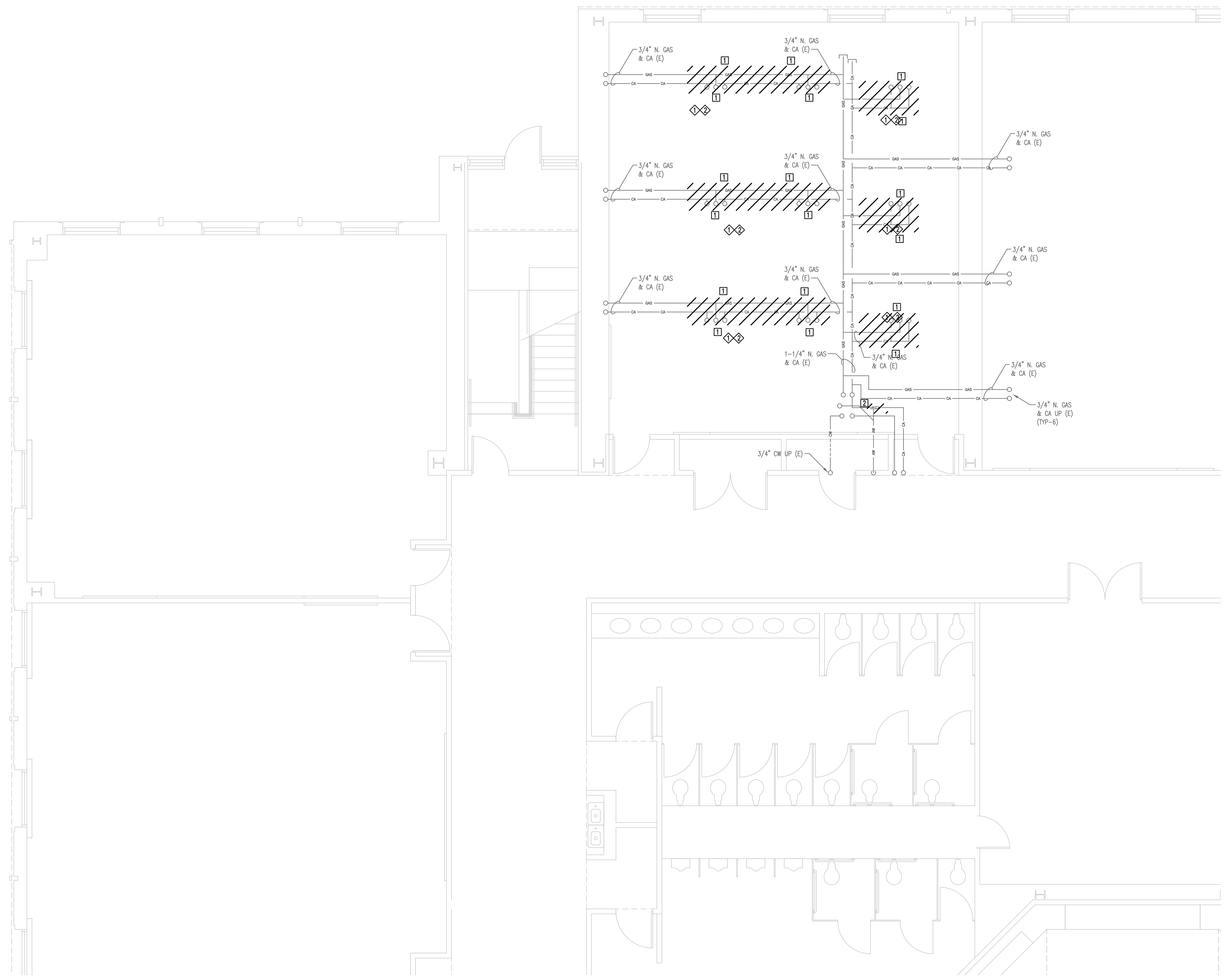
sheet number

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drawn by JWR

checked by JWB

0 16' 32' 1/32" = 1'-0"
 0 8' 16' 1/16" = 1'-0"
 0 4' 8" 1/8" = 1'-0"
 0 2' 4" 1/4" = 1'-0"
 0 1' 2" 1/2" = 1'-0"
 0 5' 1' 3/4" = 1'-0"
 0 2' 1' 1/2" = 1'-0"
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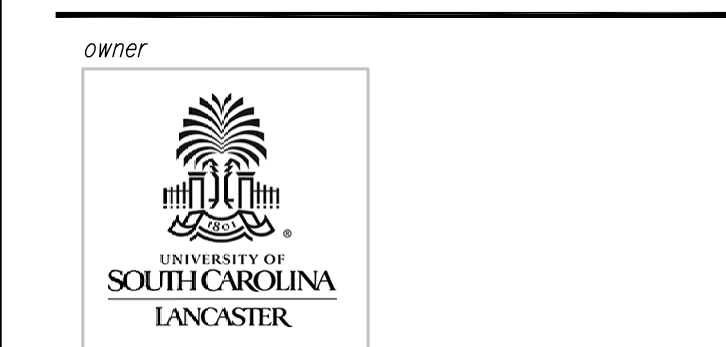


1 PARTIAL FIRST FLOOR - PLUMBING DEMOLITION
 1/4" = 1'-0"

- DEMOLITION KEYNOTES:**
- 1 DEMOLISH AND REMOVE EXISTING COMPRESSED AIR AND NATURAL GAS PIPING. SHOW CAP EXISTING PIPING TEMPORARY AND PREPARE PIPING FOR RENOVATION.
 - 2 DEMOLISH EXISTING END CLEANOUT FROM ACID WASTE PIPING AS SHOWN AND PREPARE FOR RENOVATION CONNECTION.

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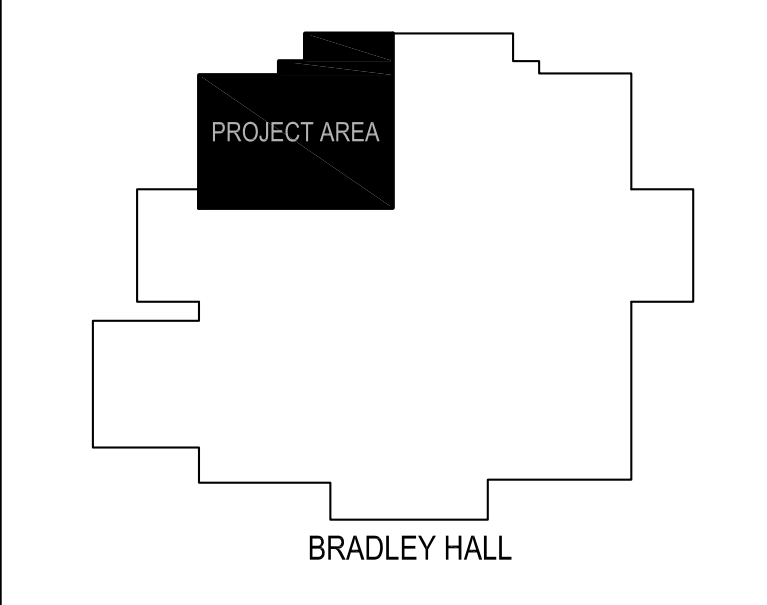
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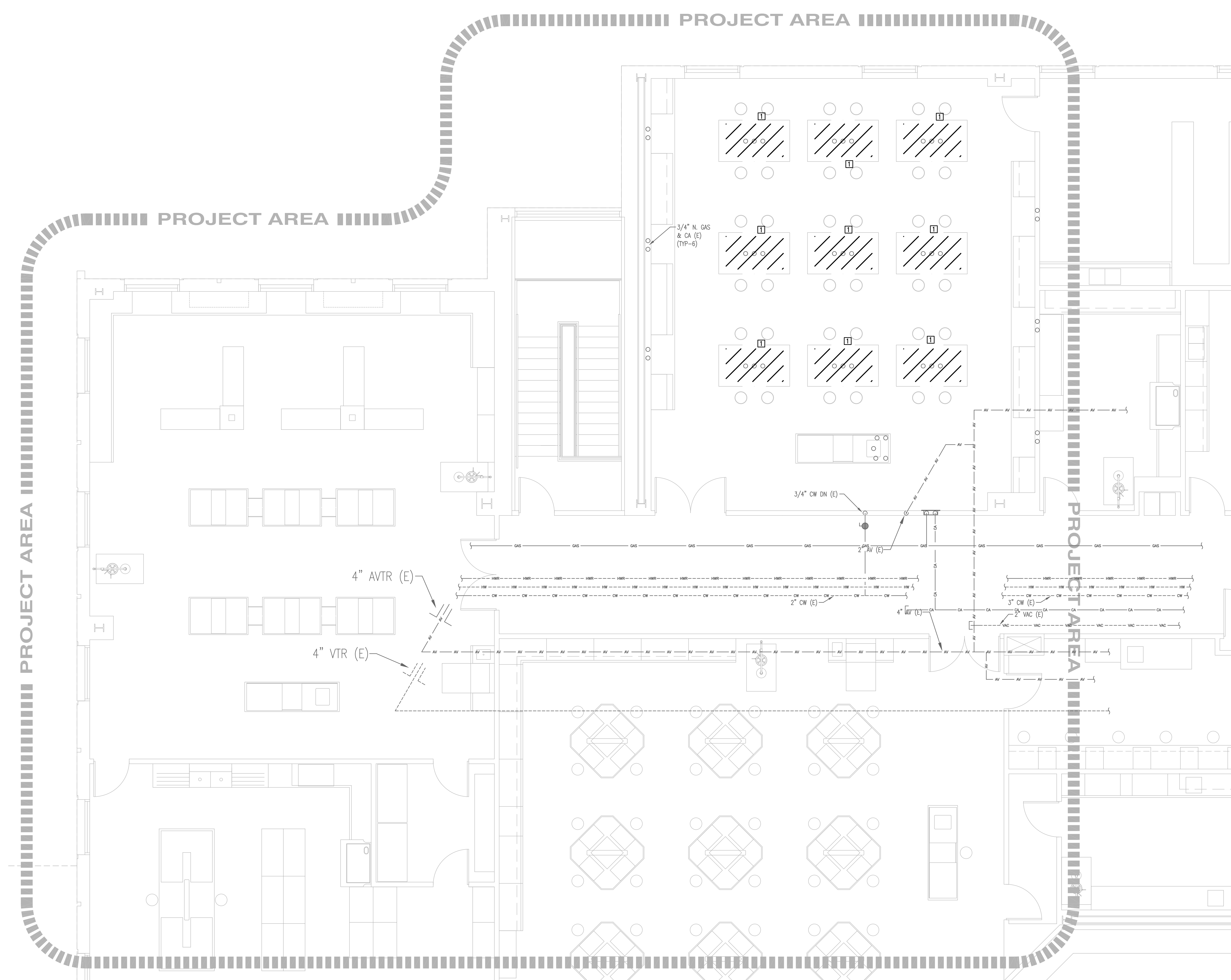
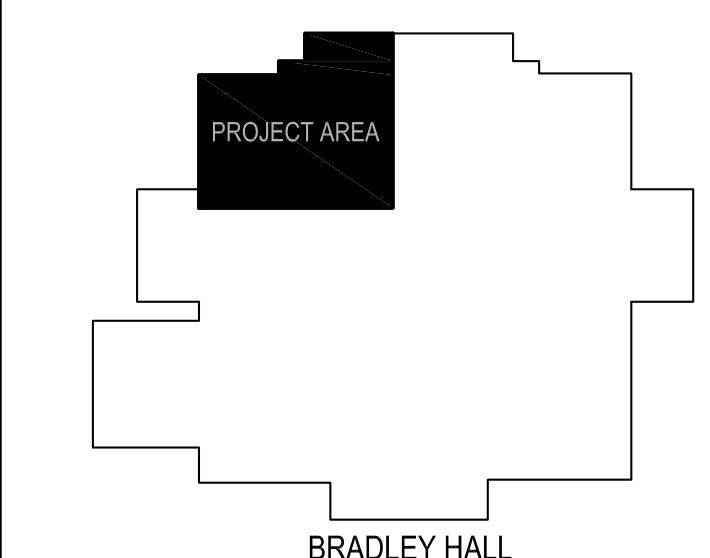
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**PARTIAL FIRST FLOOR
 PLUMBING DEMOLITION PLAN**

sheet number
P1.1

drawn by **JJR**
 checked by **JWB**



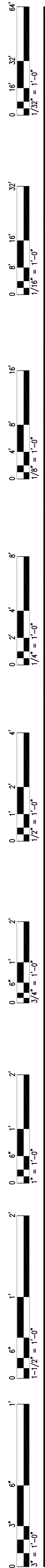
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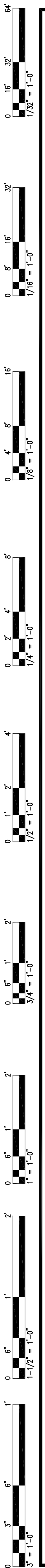


DEMOLITION KEYNOTES:

- [Hatched Box] DEMOLISH AND REMOVE EXISTING COMPRESSED AIR AND NATURAL GAS PIPING RISERS AS SHOWN. CAP EXISTING PIPING TEMPORARILY AND PREPARE PIPING FOR RENOVATION.

1 PARTIAL SECOND FLOOR – PLUMBING DEMOLITION
1/4" = 1'-0"





1 PARTIAL FIRST FLOOR - WASTE & VENT PLAN
1/4" = 1'-0"

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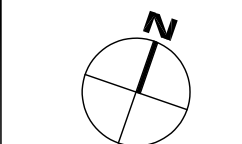
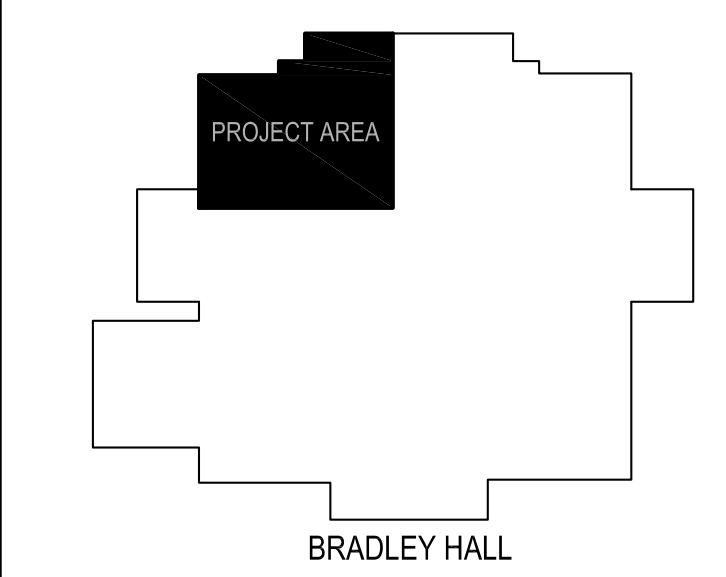
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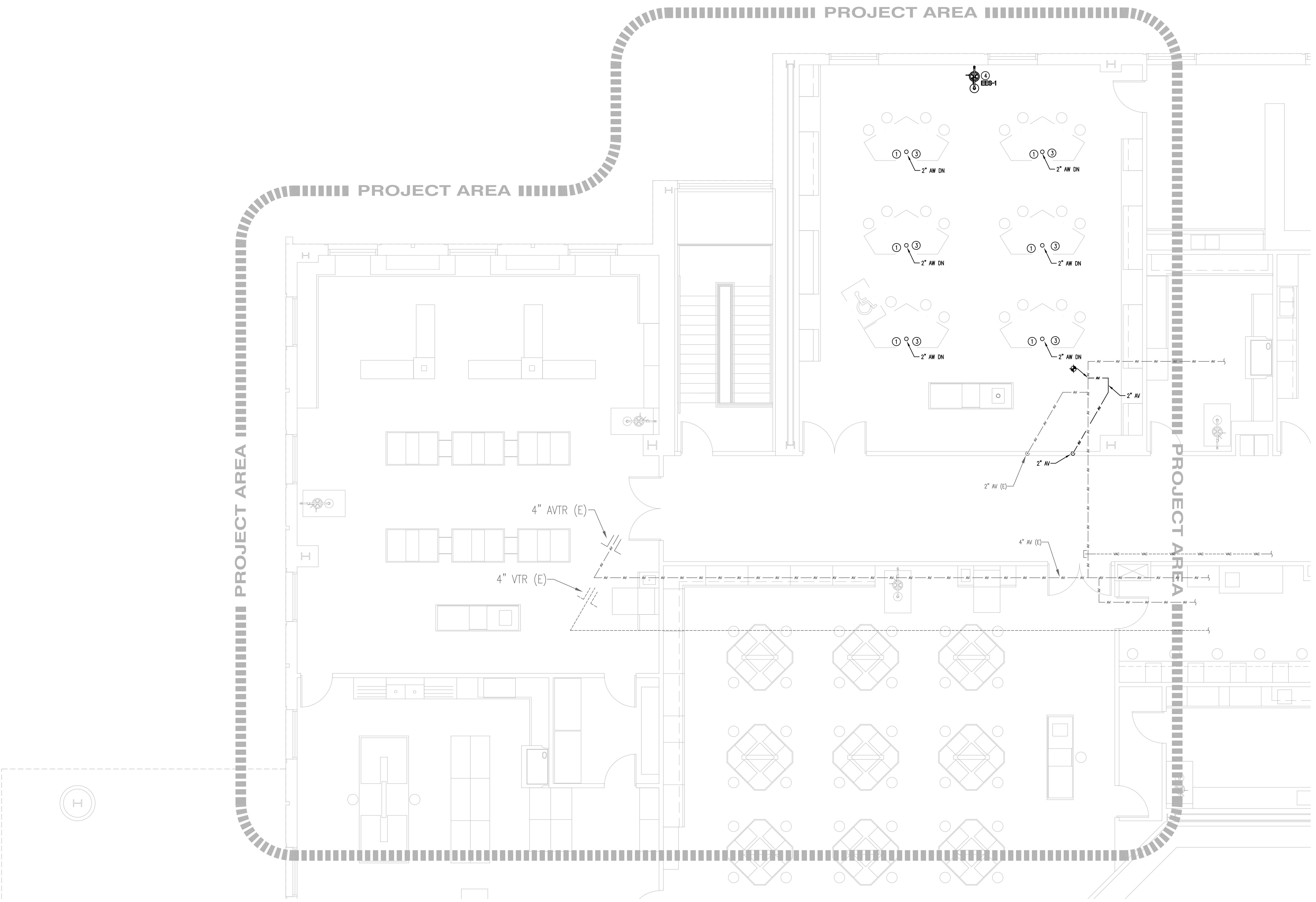
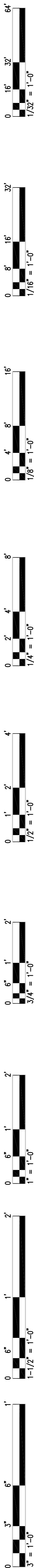


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WASTE & VENT PLAN

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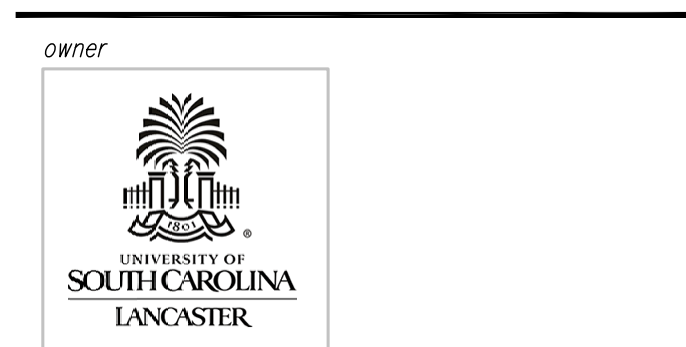
P2.1

drawn by **JJR**
checked by **JWB**



1 PARTIAL SECOND FLOOR - WASTE & VENT PLAN
1/4" = 1'-0"

- WASTE PIPING KEYNOTES:**
- 1 PROVIDE AND INSTALL NEW 2" ACID WASTE RISER. PC SHALL COORDINATE AND MAKE ALL FINAL CONNECTIONS WITH OWNER PROVIDED LAB EQUIPMENT. PC SHALL PROVIDE AND INSTALL ALL NECESSARY P-TRAPS AND ACCESSORIES TO COMPLETE CONNECTION TO ACID WASTE DRAIN SYSTEM FOR OWNER PROVIDED FIXTURE.
 - 2 PROVIDE AND INSTALL NEW 2" WASTE CONNECTION TO EMERGENCY EYEWASH SHOWER FIXTURE. ROUTE BELOW FLOOR AND CONNECT TO NEW ACID WASTE PIPING.
 - 3 SLEEVE AND SEAL FLOOR PENETRATIONS.
 - 4 PROVIDE ADEQUATE CLEARANCE BELOW EYEWASH BASIN DRAIN OUTLET TO PERMIT USE OF TESTING CONTAINER.



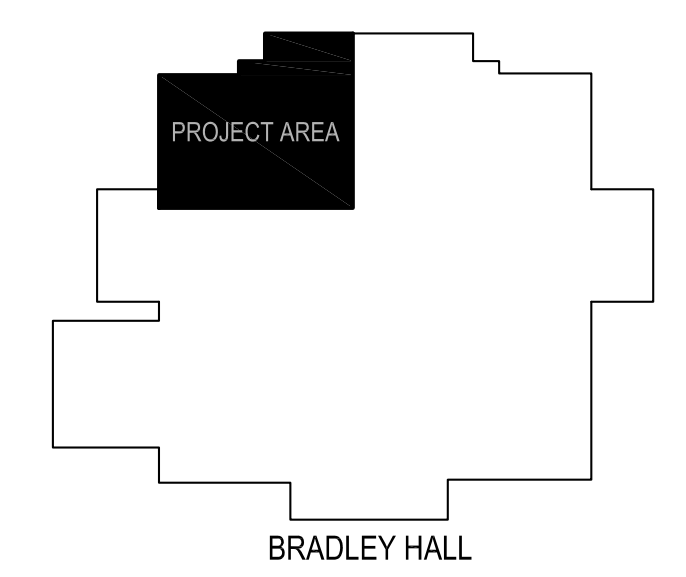
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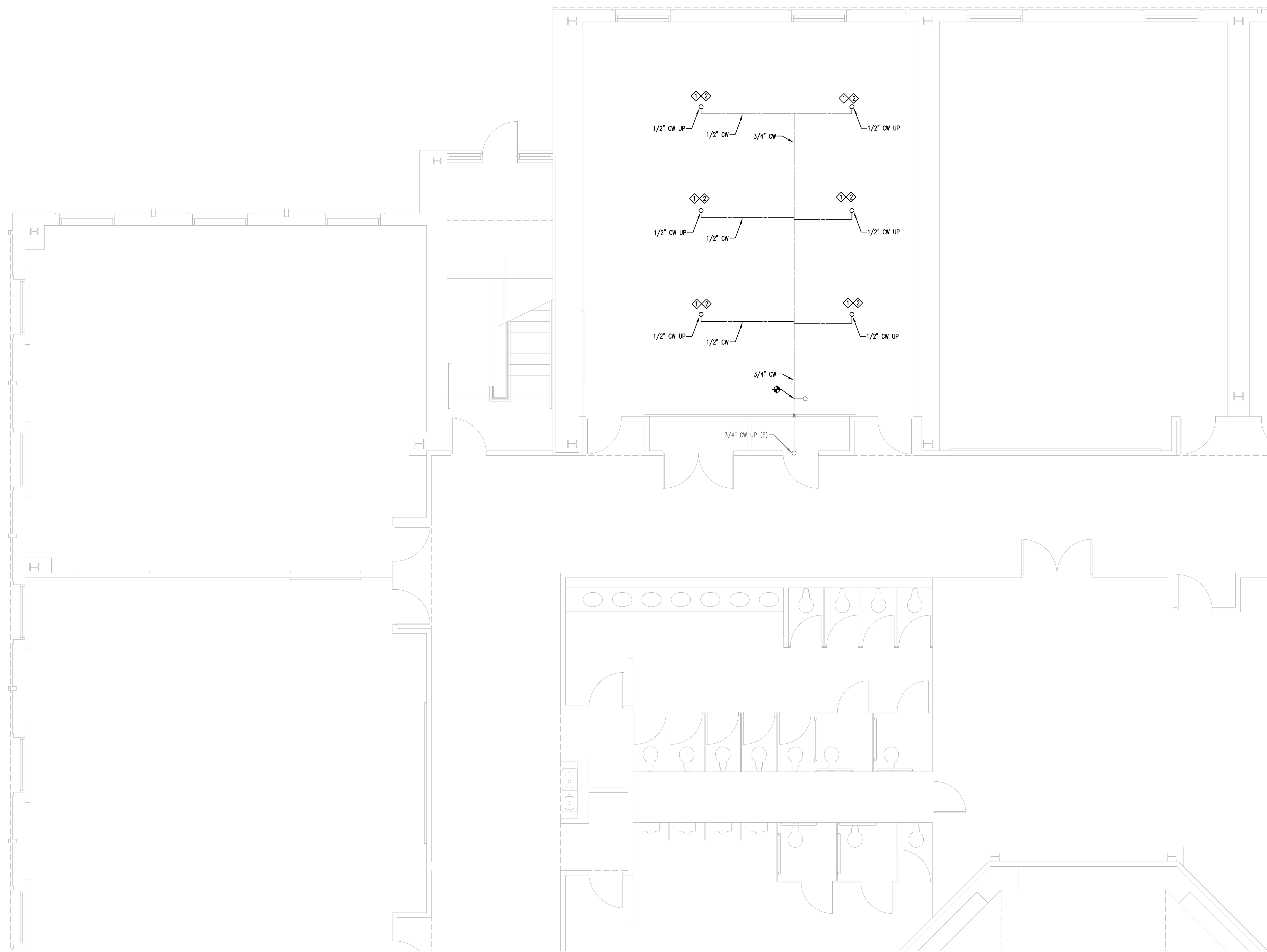
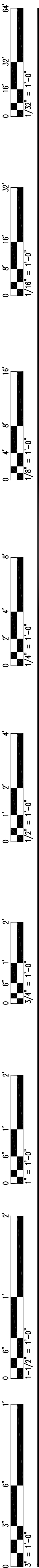


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PARTIAL SECOND FLOOR
WASTE & VENT PLAN

sheet number

P2.2

drawn by **JJR**
checked by **JWB**



- DOMESTIC SUPPLY PIPING KEYNOTES:**
- ◇ PROVIDE AND INSTALL NEW 1/2" CW RISERS. PC SHALL COORDINATE AND MAKE ALL FINAL CONNECTIONS WITH OWNER PROVIDED LAB EQUIPMENT. PC SHALL PROVIDE AND INSTALL ALL NECESSARY VALVES AND ACCESSORIES TO COMPLETE CONNECTION TO SUPPLY PIPING SYSTEMS FOR OWNER PROVIDED FIXTURE.
 - ◇ SLEEVE AND SEAL FLOOR PENETRATIONS.

① **PARTIAL FIRST FLOOR – DOMESTIC WATER PIPING PLAN**
1/4" = 1'-0"

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USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720

project name
USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

state project number
H37-9519

project number
19010.01

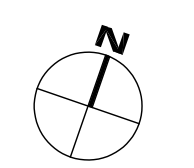
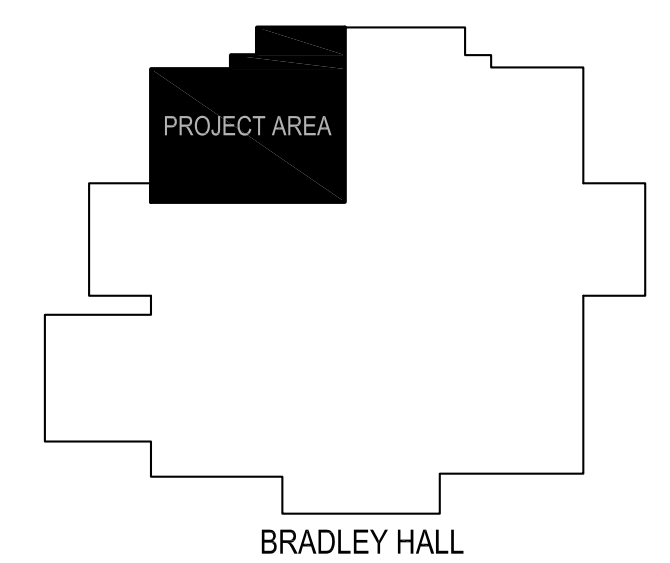
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sheet title
**PARTIAL FIRST FLOOR
DOMESTIC WATER PIPING PLAN**

sheet number

P3.1

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checked by **JWB**

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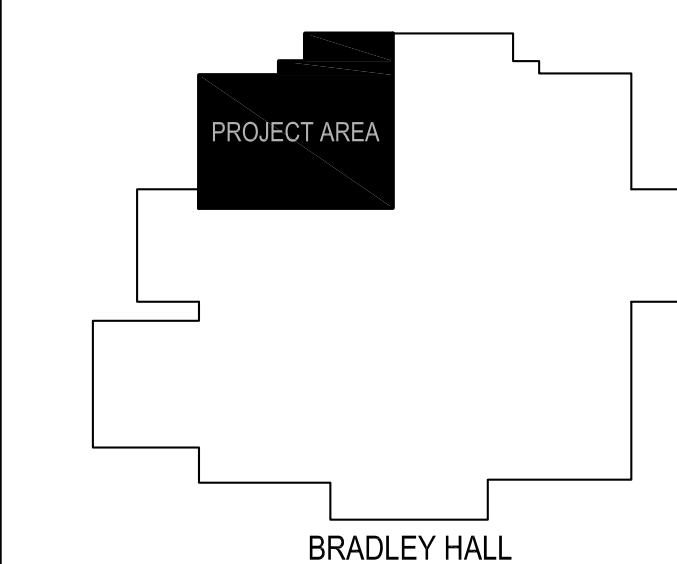
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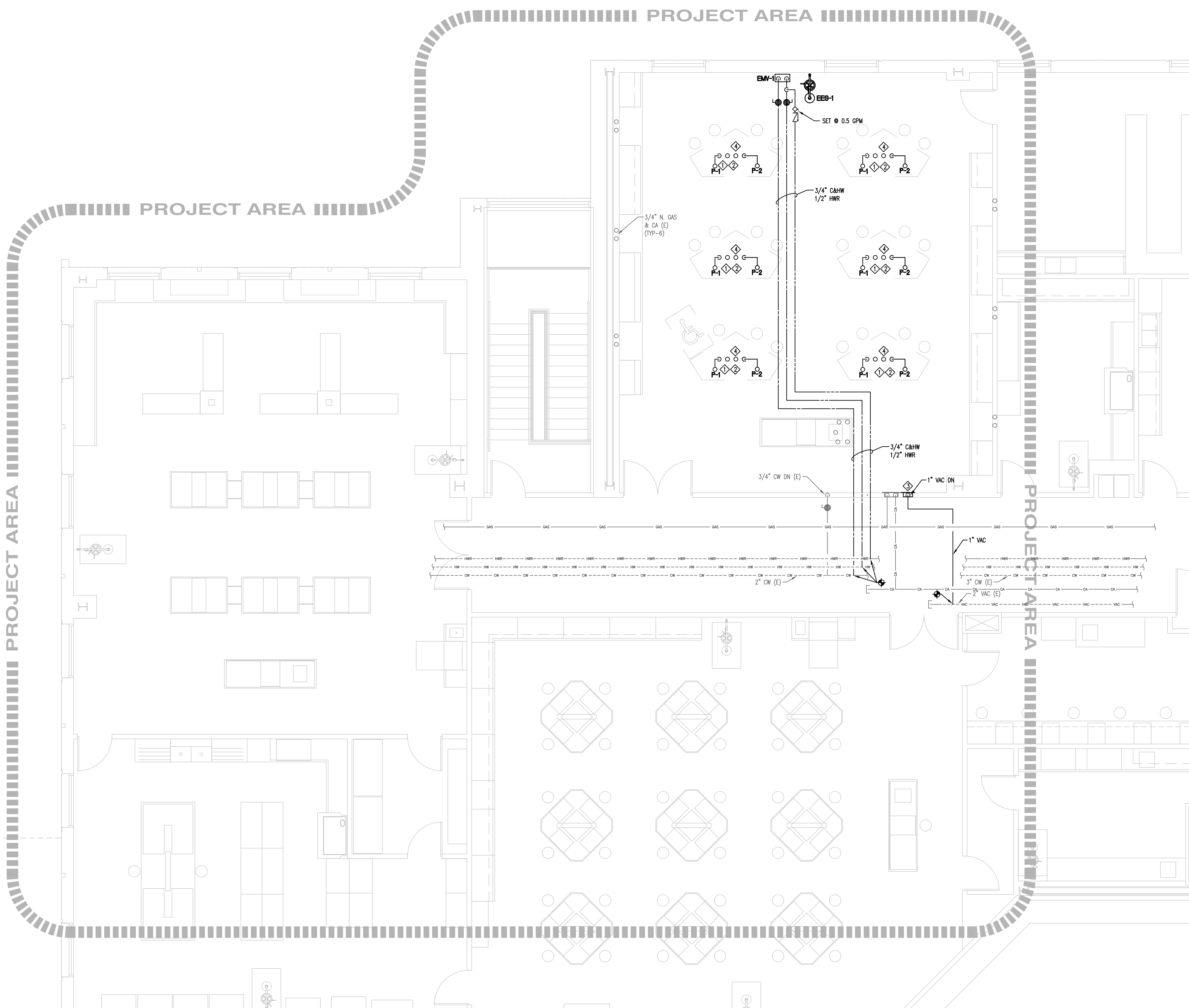
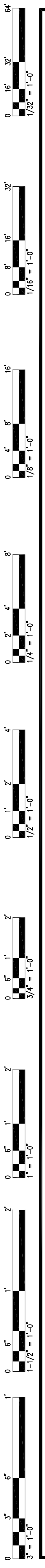


sheet title
**PARTIAL SECOND FLOOR
SUPPLY PIPING PLAN**

sheet number

P3.2

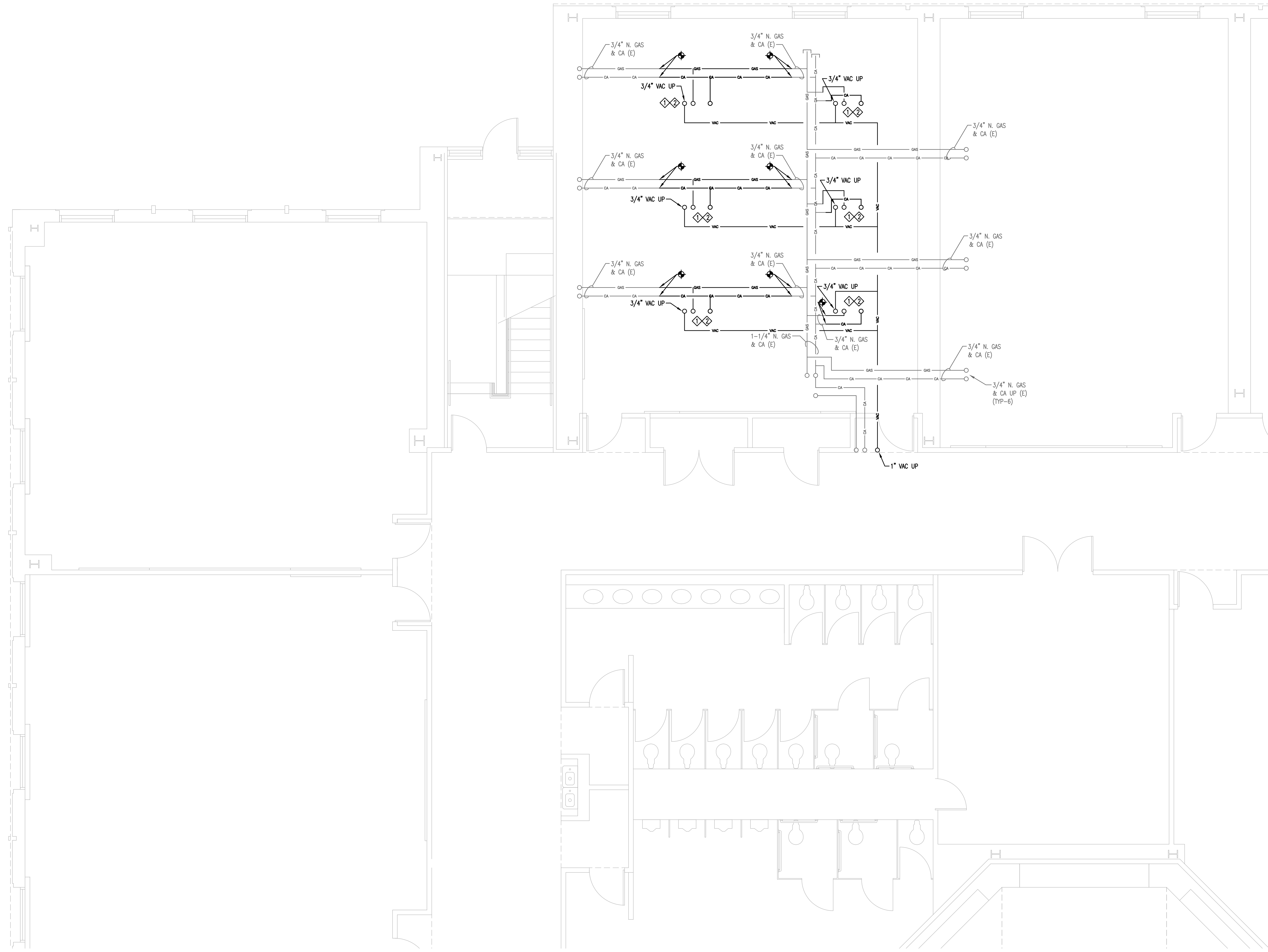
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checked by **JWB**



1 PARTIAL SECOND FLOOR - SUPPLY PIPING PLAN
1/4" = 1'-0"

- SUPPLY PIPING KEYNOTES:**
- ◇ PROVIDE AND INSTALL NEW 1/2" CW, 3/4" CA, N. GAS & VACUUM RISERS. PC SHALL COORDINATE AND MAKE ALL FINAL CONNECTIONS WITH OWNER PROVIDED LAB EQUIPMENT. PC SHALL PROVIDE AND INSTALL ALL NECESSARY VALVES AND ACCESSORIES TO COMPLETE CONNECTION TO SUPPLY PIPING SYSTEMS FOR OWNER PROVIDED FUTURE.
 - ◇ SLEEVE AND SEAL FLOOR PENETRATIONS.
 - ◇ PROVIDE AND INSTALL NEW RECESSED VALVE BOX FOR VACUUM SUPPLY RISER. COORDINATE ROUTING OF VACUUM RISER AND LOCATION OF 1/4 TURN LEVER HANDLE BALL VALVE TO ALLOW PROPER FUNCTION OF ISOLATION VALVE. VALVE BOX SHALL BE SIMILAR TO ACCIOR ARVIB RECESSED VALVE BOX.
 - ◇ PROVIDE AND INSTALL NEW 1/4 TURN LEVER HANDLE BALL VALVES AT 1/2" CW RISERS WITHIN OWNER PROVIDED AND CONTRACTOR INSTALLED CASEWORK. COORDINATE ACCESS AND LOCATION WITH CASEWORK DRAWINGS.

0 16' 32' 64' 1/32" = 1'-0"
 0 8' 16' 32' 1/16" = 1'-0"
 0 4' 8' 16' 1/8" = 1'-0"
 0 2' 4' 1/4" = 1'-0"
 0 1' 2' 1/2" = 1'-0"
 0 5' 10' 3/4" = 1'-0"
 0 2' 1' 1/4" = 1'-0"
 0 6' 11' 3/4" = 1'-0"
 0 3' 1'-0" = 1'-0"
 0 3' 1'-0" = 1'-0"
 0 3' 1'-0" = 1'-0"



- LAB GAS PIPING KEYNOTES:
- ◆ PROVIDE AND INSTALL NEW 3/4" CA, N. GAS & VACUUM RISERS. PC SHALL COORDINATE AND MAKE ALL FINAL CONNECTIONS WITH OWNER PROVIDED LAB EQUIPMENT. PC SHALL PROVIDE AND INSTALL ALL NECESSARY VALVES AND ACCESSORIES TO COMPLETE CONNECTION TO SUPPLY PIPING SYSTEMS FOR OWNER PROVIDED FIXTURE.
 - ◆ SLEEVE AND SEAL FLOOR PENETRATIONS.

1 PARTIAL FIRST FLOOR – LABORATORY GAS PIPING PLAN
1/4" = 1'-0"

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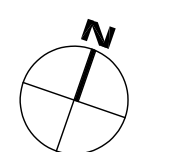
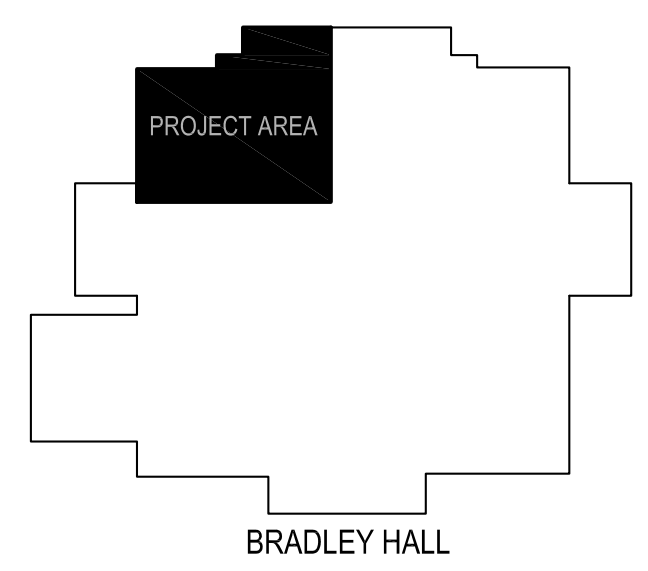
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PARTIAL FIRST FLOOR
LABORATORY GAS PIPING PLAN

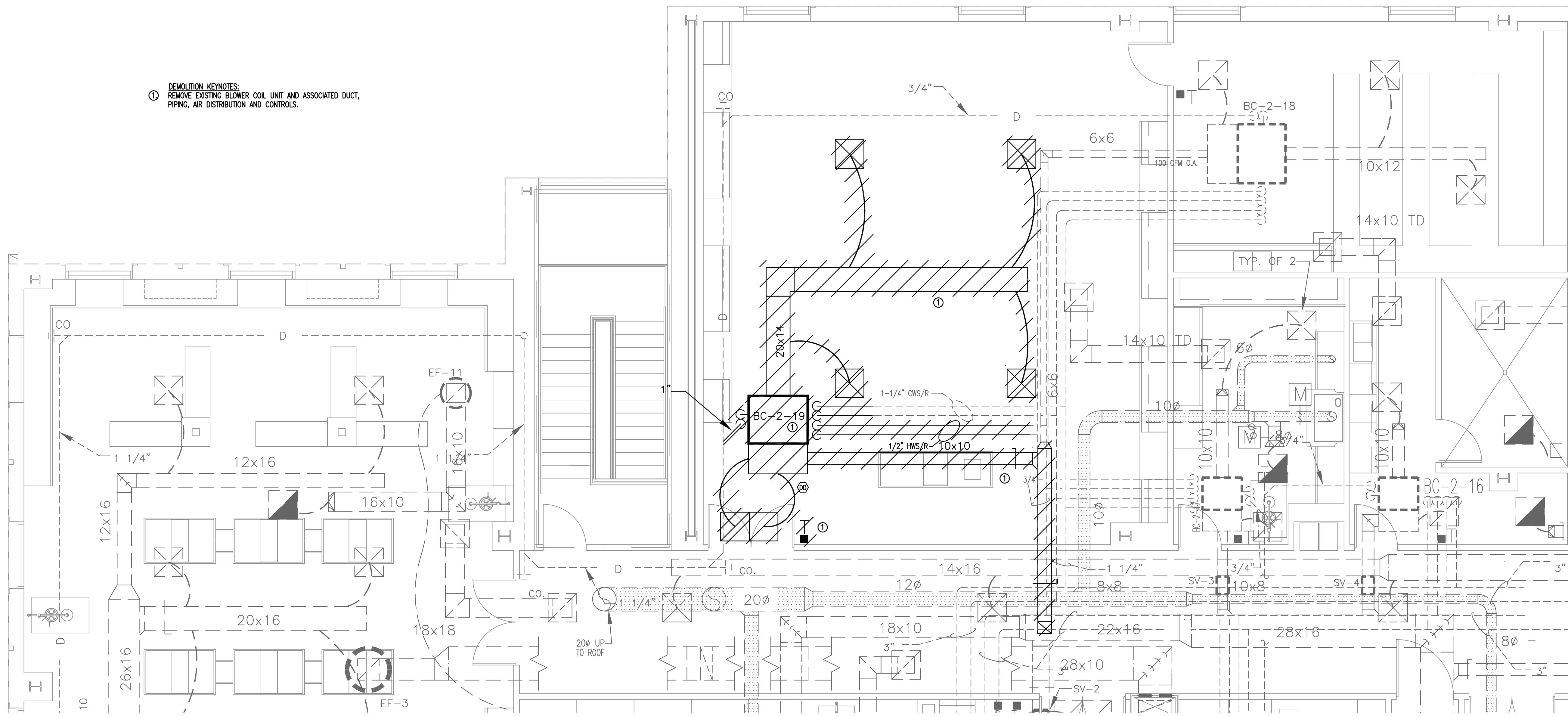
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checked by **JWB**

0 16" 32" 1/8" = 1'-0"
 0 8" 16" 1/16" = 1'-0"
 0 4" 8" 1/4" = 1'-0"
 0 2" 4" 1/8" = 1'-0"
 0 1" 2" 1/2" = 1'-0"
 0 6" 1" 1/8" = 1'-0"
 0 3" 6" 1/4" = 1'-0"
 0 1 1/2" 3" 1/2" = 1'-0"
 0 3/4" 1 1/2" 3/4" = 1'-0"
 0 15" 30" 1 1/4" = 1'-0"
 0 7 1/2" 15" 3/4" = 1'-0"

DEMOLITION KEYNOTES:
 ① REMOVE EXISTING BLOWER COIL UNIT AND ASSOCIATED DUCT,
 PIPING, AIR DISTRIBUTION AND CONTROLS.



① SECOND FLOOR LEVEL - HVAC DEMOLITION - DUCTWORK & PIPING
 1/4" = 1'-0"



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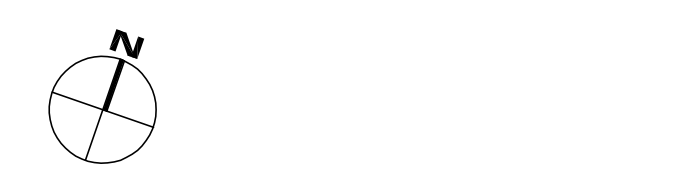
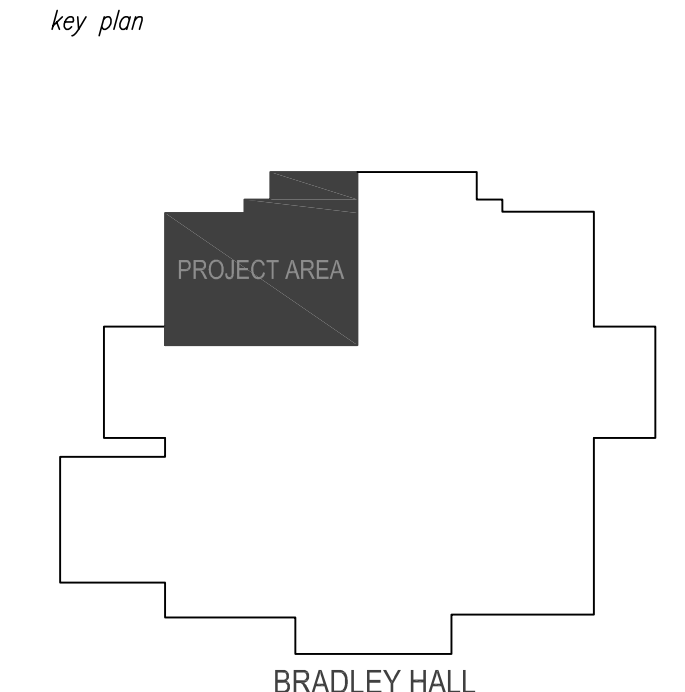
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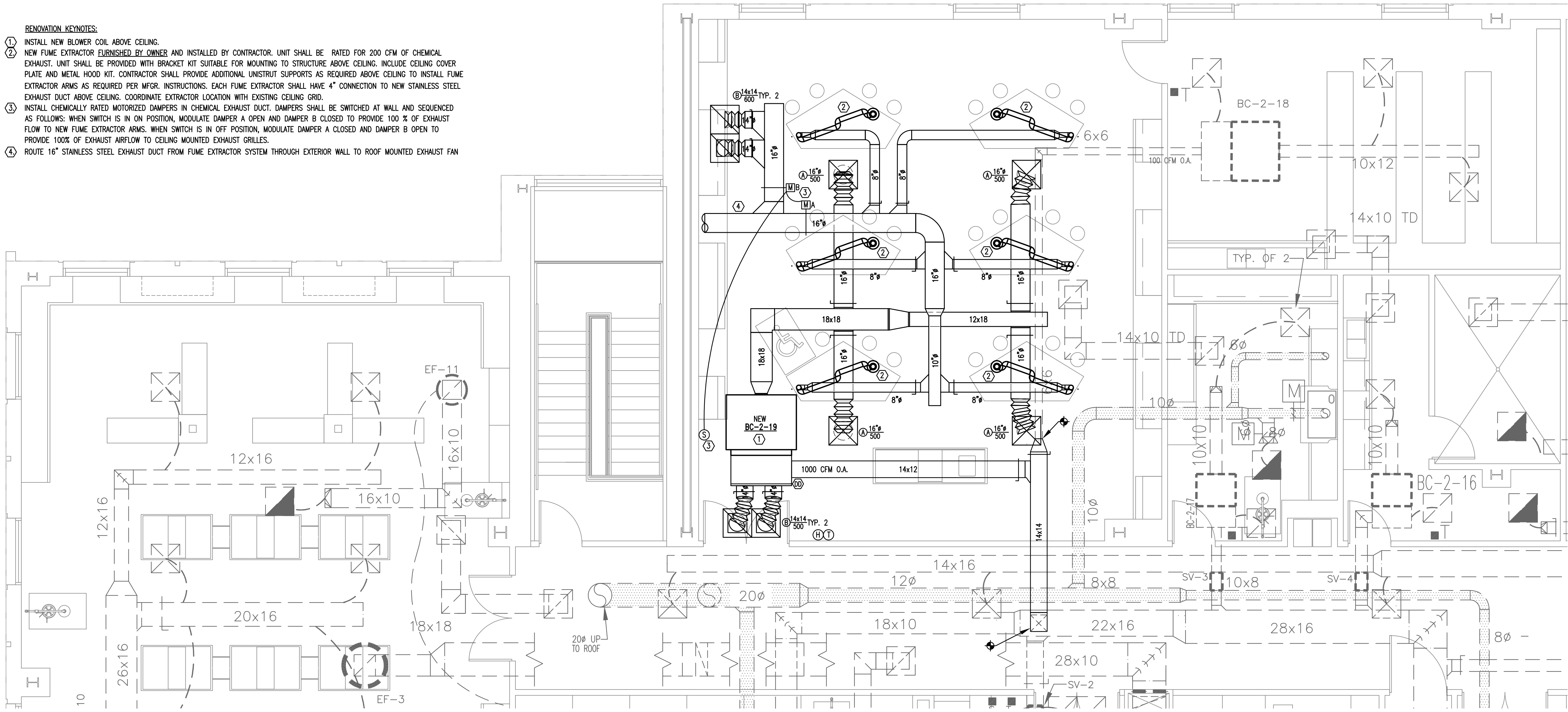
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 HVAC PLAN
 SECOND FLOOR
 DEMOLITION

sheet number
M1.2

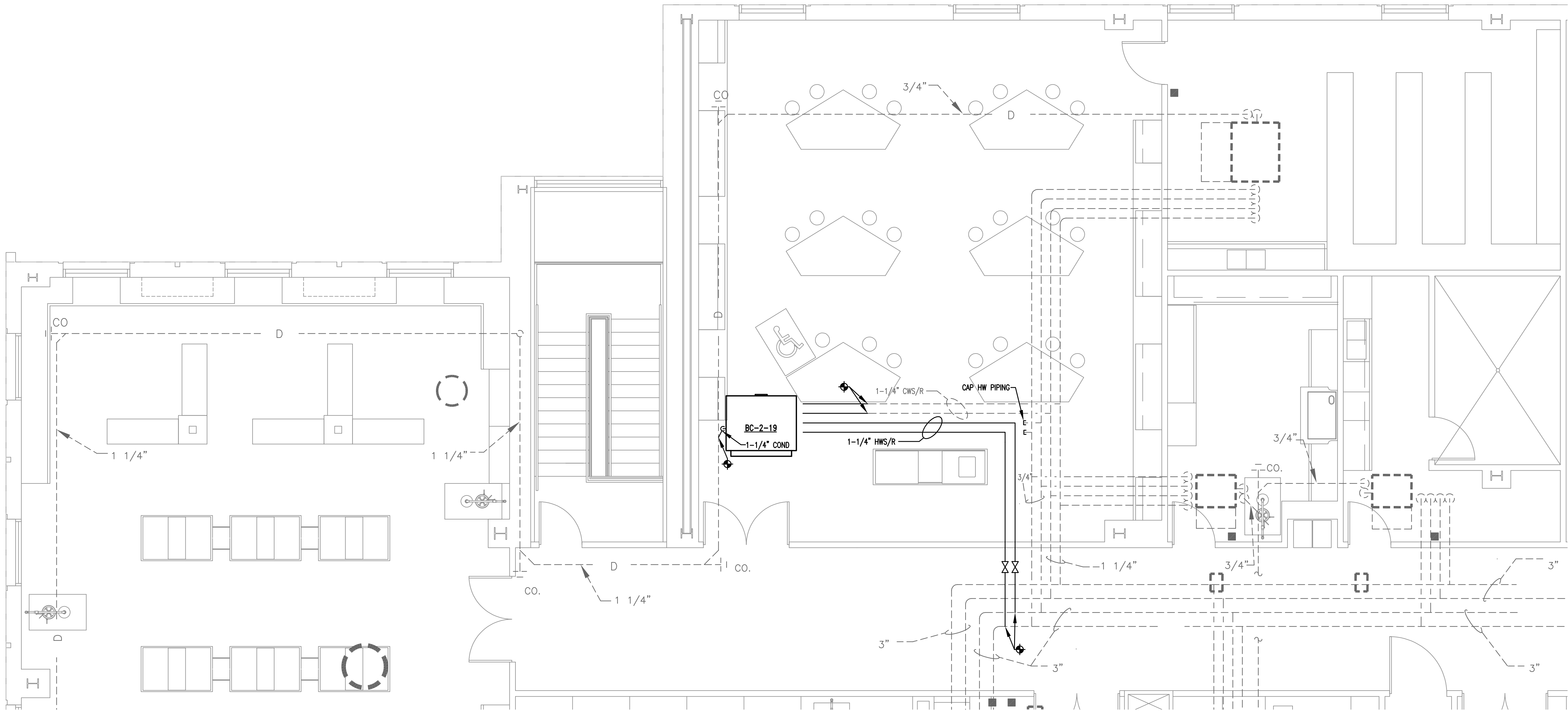
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0 16' 32' 1/16" = 1'-0"
0 8' 16' 1/8" = 1'-0"
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0 2' 4' 1/2" = 1'-0"
0 1' 2' 1/4" = 1'-0"
0 6" 1 1/2" = 1'-0"
0 3" 3/4" = 1'-0"
0 1 3/8" = 1'-0"
0 7/8" = 1'-0"
0 5/8" = 1'-0"
0 3/4" = 1'-0"
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0 1 1/4" = 1'-0"
0 3/4" = 1'-0"
0 1 1/4" = 1'-0"
0 3/4" = 1'-0"

- RENOVATION KEYNOTES:
1. INSTALL NEW BLOWER COIL ABOVE CEILING.
 2. NEW FUME EXTRACTOR FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR. UNIT SHALL BE RATED FOR 200 CFM OF CHEMICAL EXHAUST. UNIT SHALL BE PROVIDED WITH BRACKET KIT SUITABLE FOR MOUNTING TO STRUCTURE ABOVE CEILING. INCLUDE CEILING COVER PLATE AND METAL HOOD KIT. CONTRACTOR SHALL PROVIDE ADDITIONAL UNISTRUT SUPPORTS AS REQUIRED ABOVE CEILING TO INSTALL FUME EXTRACTOR ARMS AS REQUIRED PER MFGOR. INSTRUCTIONS. EACH FUME EXTRACTOR SHALL HAVE 4" CONNECTION TO NEW STAINLESS STEEL EXHAUST DUCT ABOVE CEILING. COORDINATE EXTRACTOR LOCATION WITH EXISTING CEILING GRID.
 3. INSTALL CHEMICALLY RATED MOTORIZED DAMPERS IN CHEMICAL EXHAUST DUCT. DAMPERS SHALL BE SWITCHED AT WALL AND SEQUENCED AS FOLLOWS: WHEN SWITCH IS IN ON POSITION, MODULATE DAMPER A OPEN AND DAMPER B CLOSED TO PROVIDE 100 % OF EXHAUST FLOW TO NEW FUME EXTRACTOR ARMS. WHEN SWITCH IS IN OFF POSITION, MODULATE DAMPER A CLOSED AND DAMPER B OPEN TO PROVIDE 100% OF EXHAUST AIRFLOW TO CEILING MOUNTED EXHAUST GRILLES.
 4. ROUTE 16" STAINLESS STEEL EXHAUST DUCT FROM FUME EXTRACTOR SYSTEM THROUGH EXTERIOR WALL TO ROOF MOUNTED EXHAUST FAN

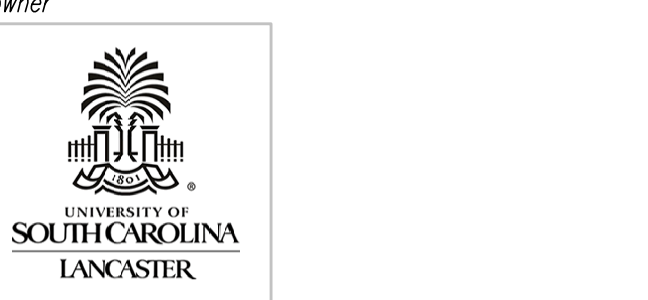


1 SECOND FLOOR LEVEL - HVAC RENOVATION - DUCTWORK
1/4"=1'-0"

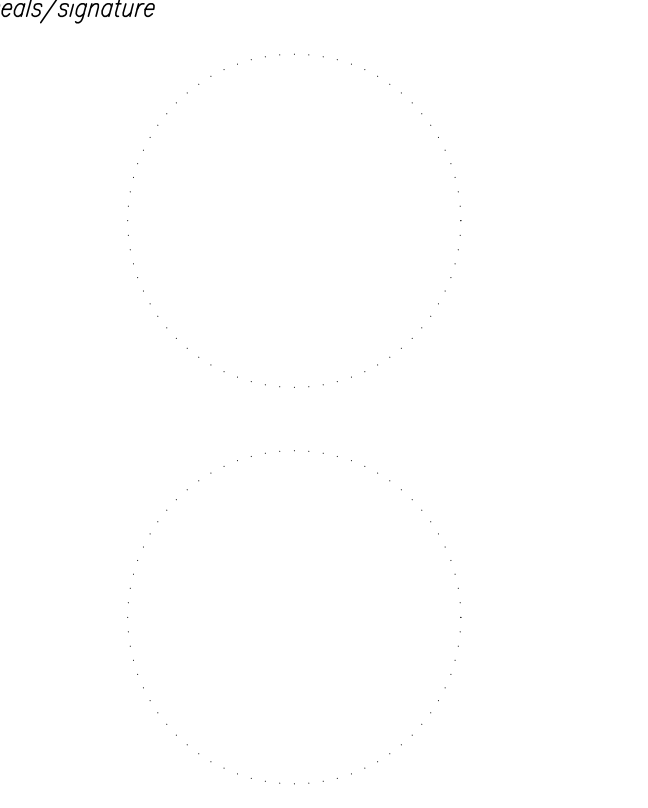


2 SECOND FLOOR LEVEL - HVAC RENOVATION - PIPING
1/4"=1'-0"

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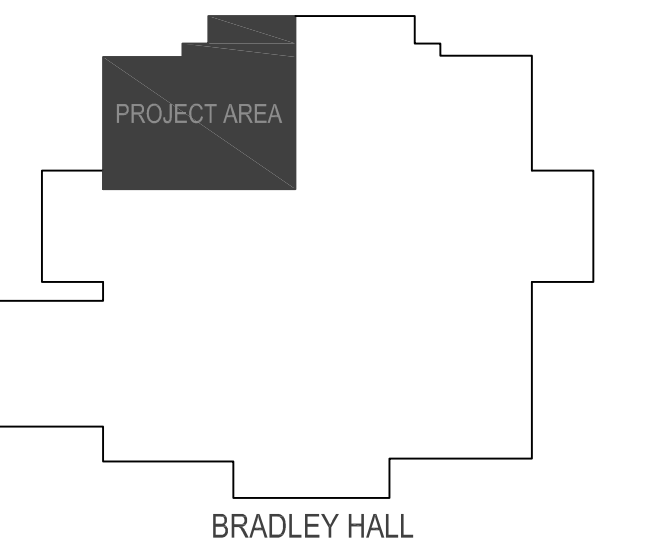


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HVAC PLAN
SECOND FLOOR
RENOVATION

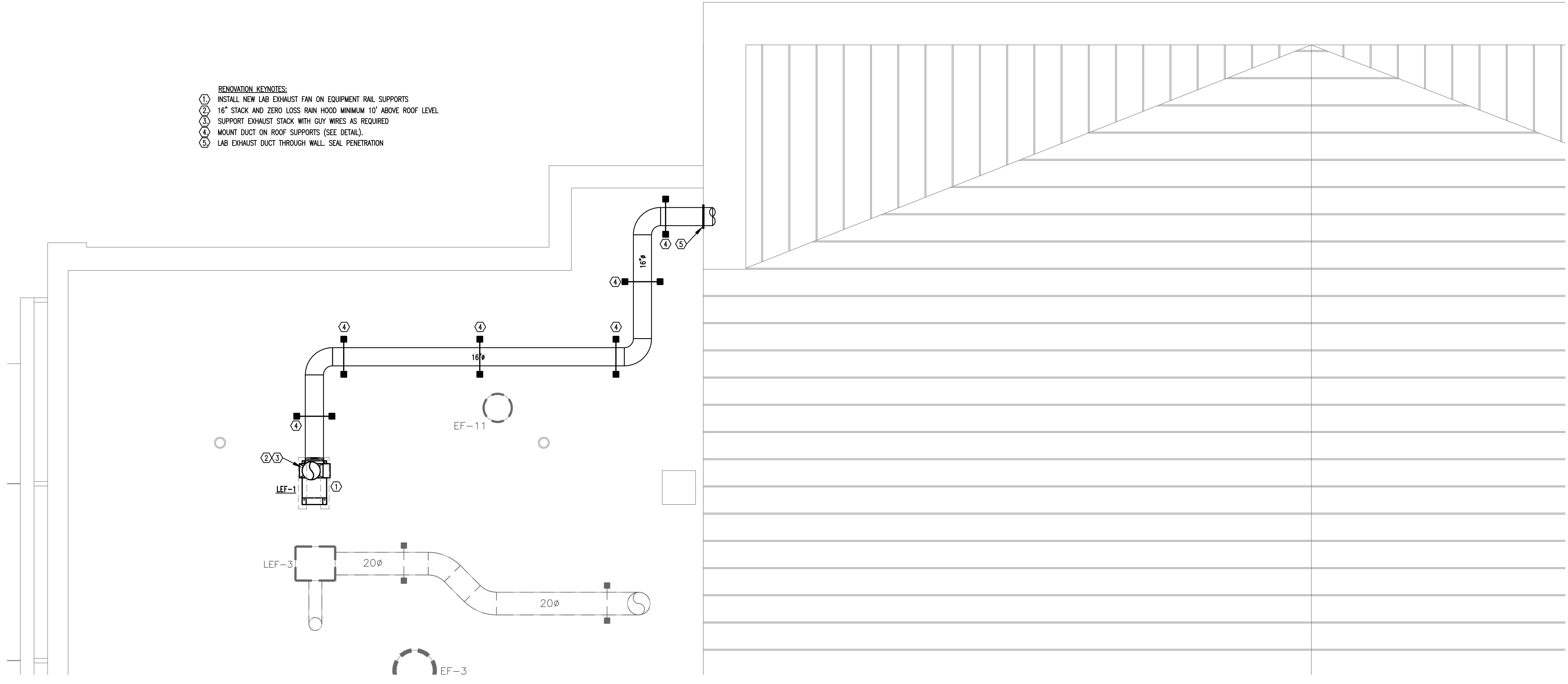
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checked by xxx



- RENOVATION KEYNOTES:
- ① INSTALL NEW LAB EXHAUST FAN ON EQUIPMENT RAIL SUPPORTS
 - ② 16" STACK AND ZERO LOSS RAIN HOOD MINIMUM 10' ABOVE ROOF LEVEL
 - ③ SUPPORT EXHAUST STACK WITH GUY WIRES AS REQUIRED
 - ④ MOUNT DUCT ON ROOF SUPPORTS (SEE DETAIL).
 - ⑤ LAB EXHAUST DUCT THROUGH WALL SEAL PENETRATION

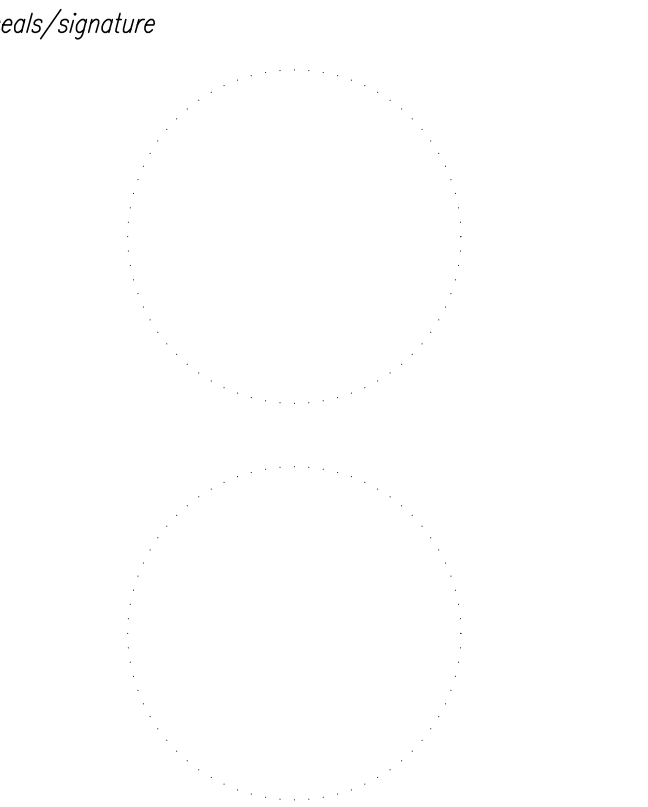


① ROOF LEVEL - HVAC RENOVATION - DUCTWORK
1/4"=1'-0"

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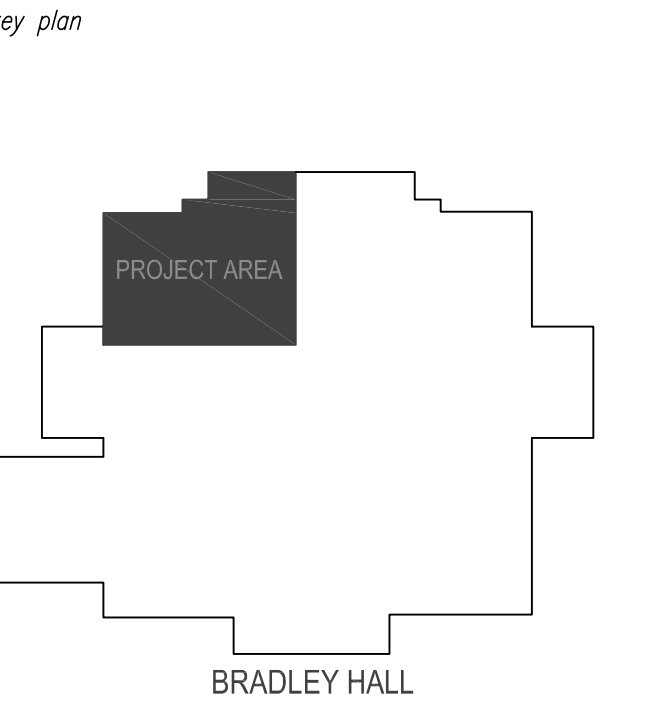
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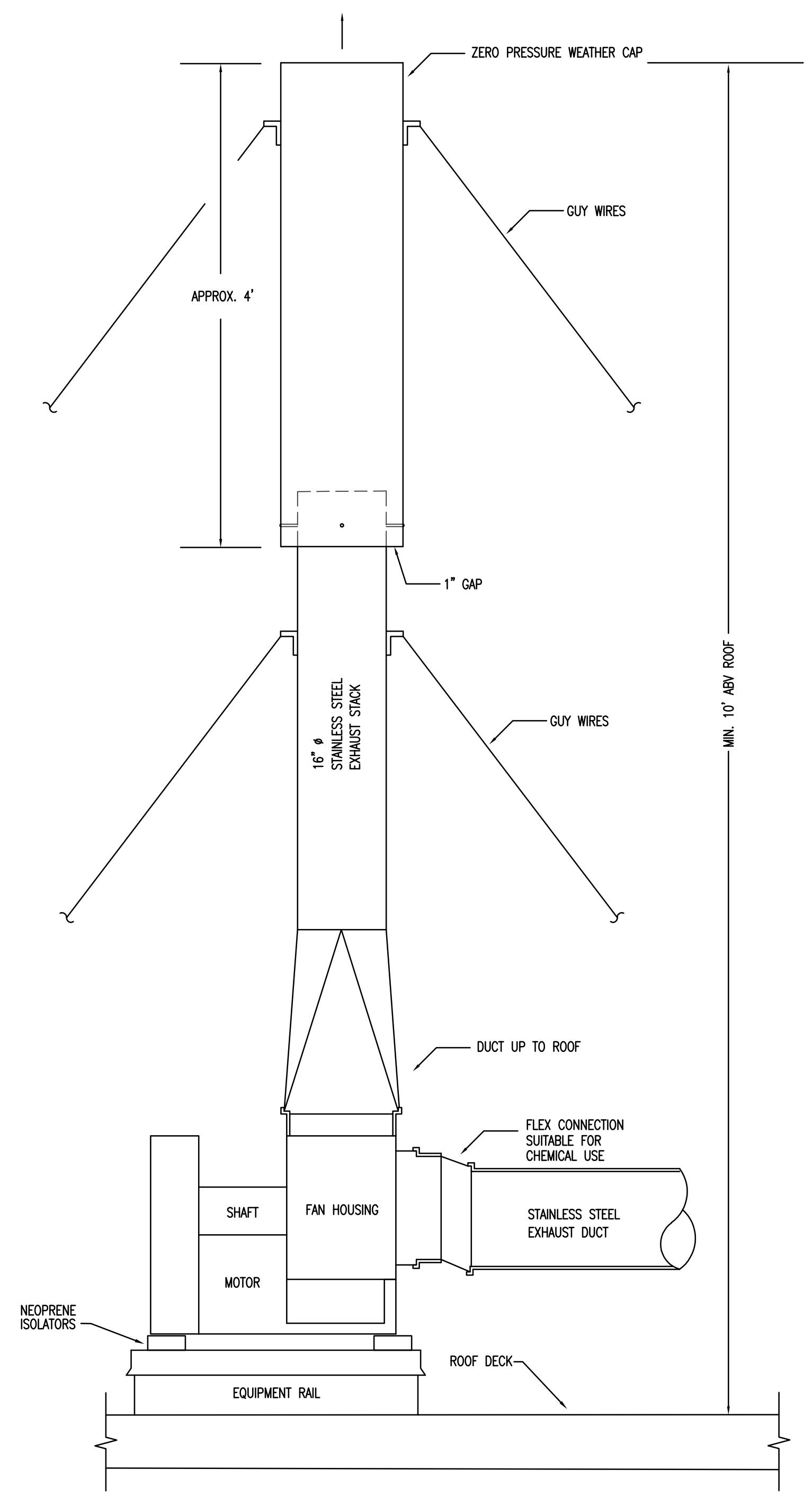
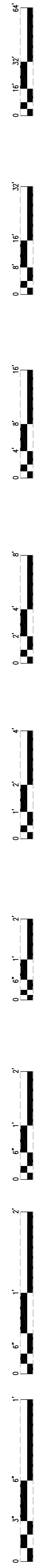
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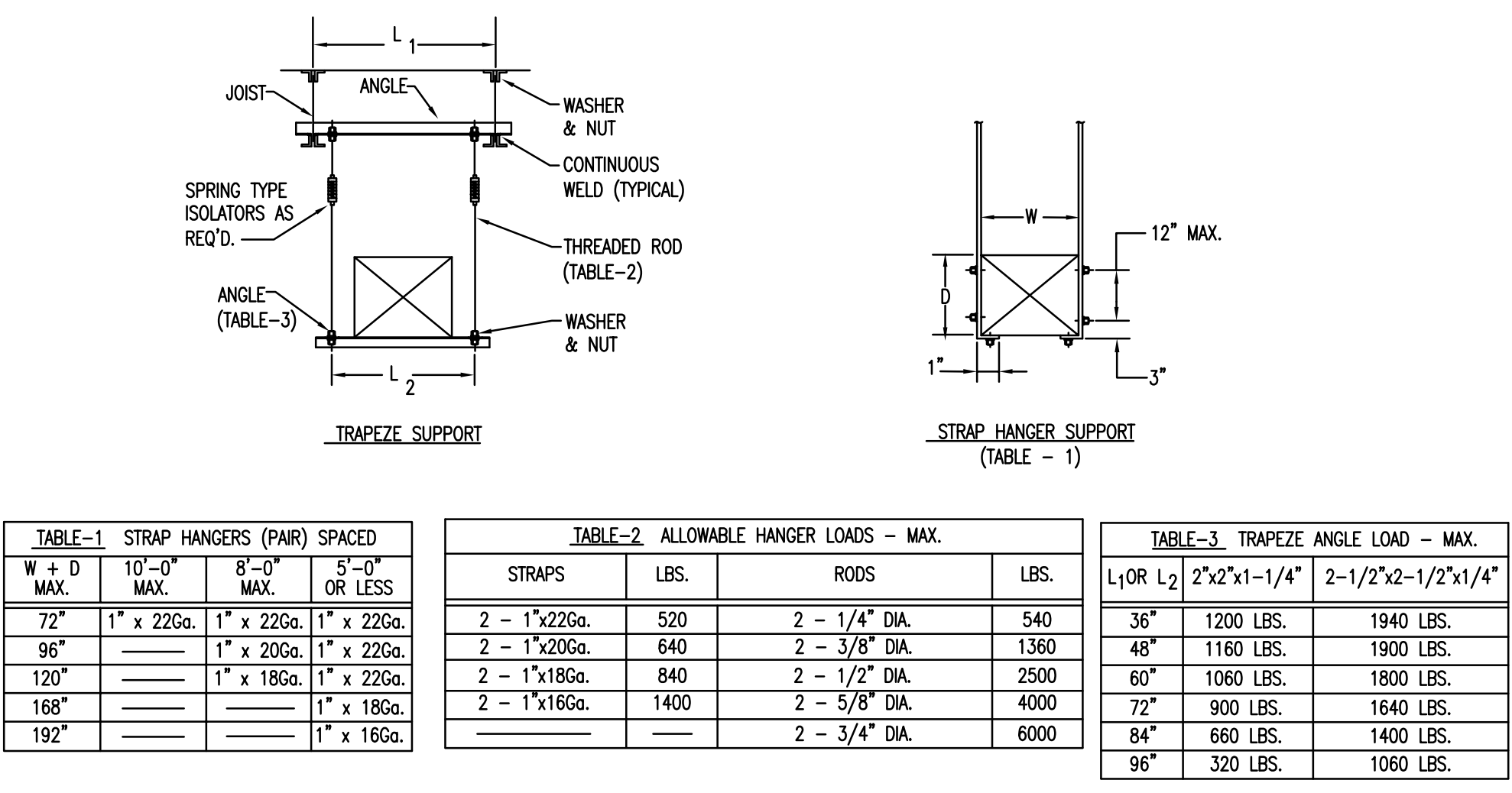
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HVAC PLAN
ROOF LEVEL
RENOVATION

sheet number
M2.3

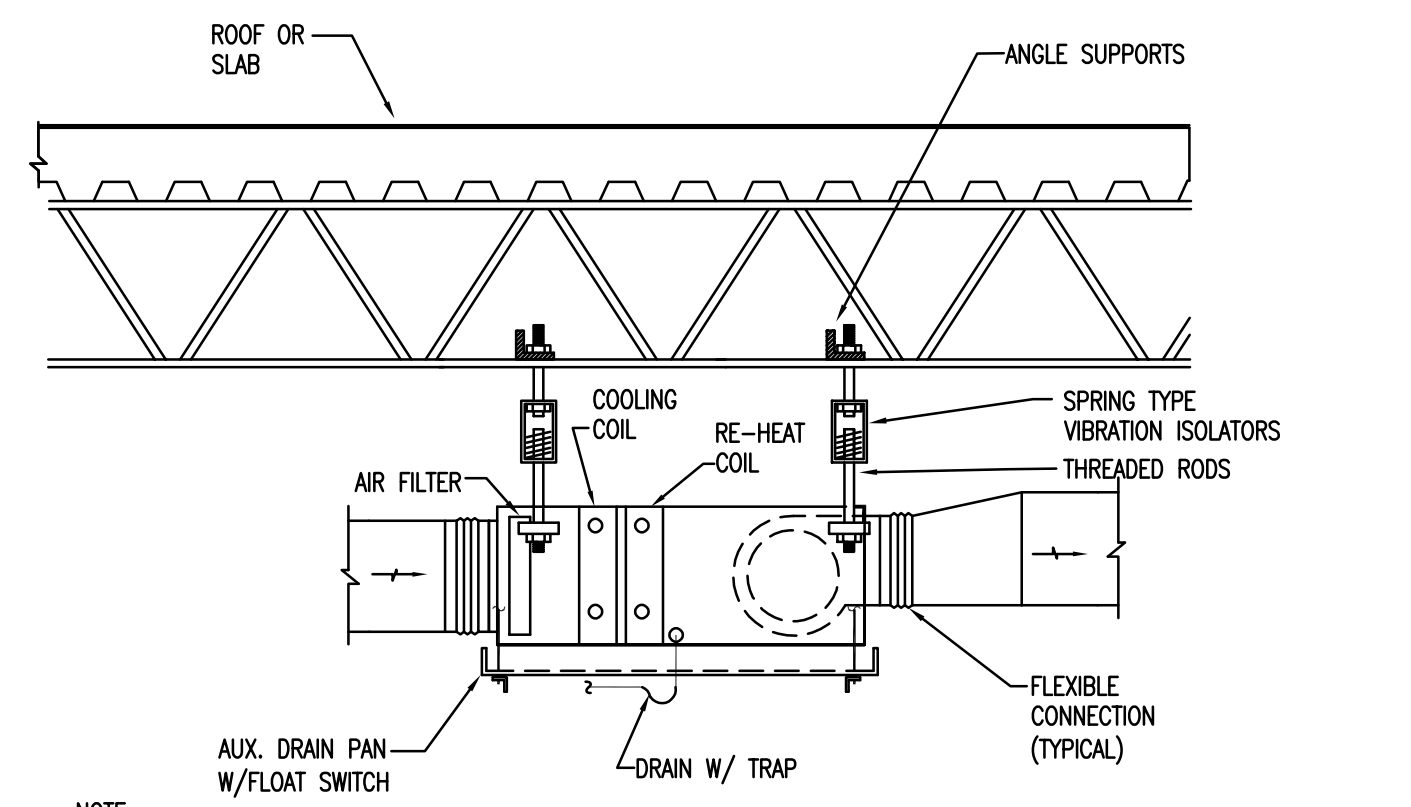
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9 LAB EXHAUST FAN DETAIL
NTS

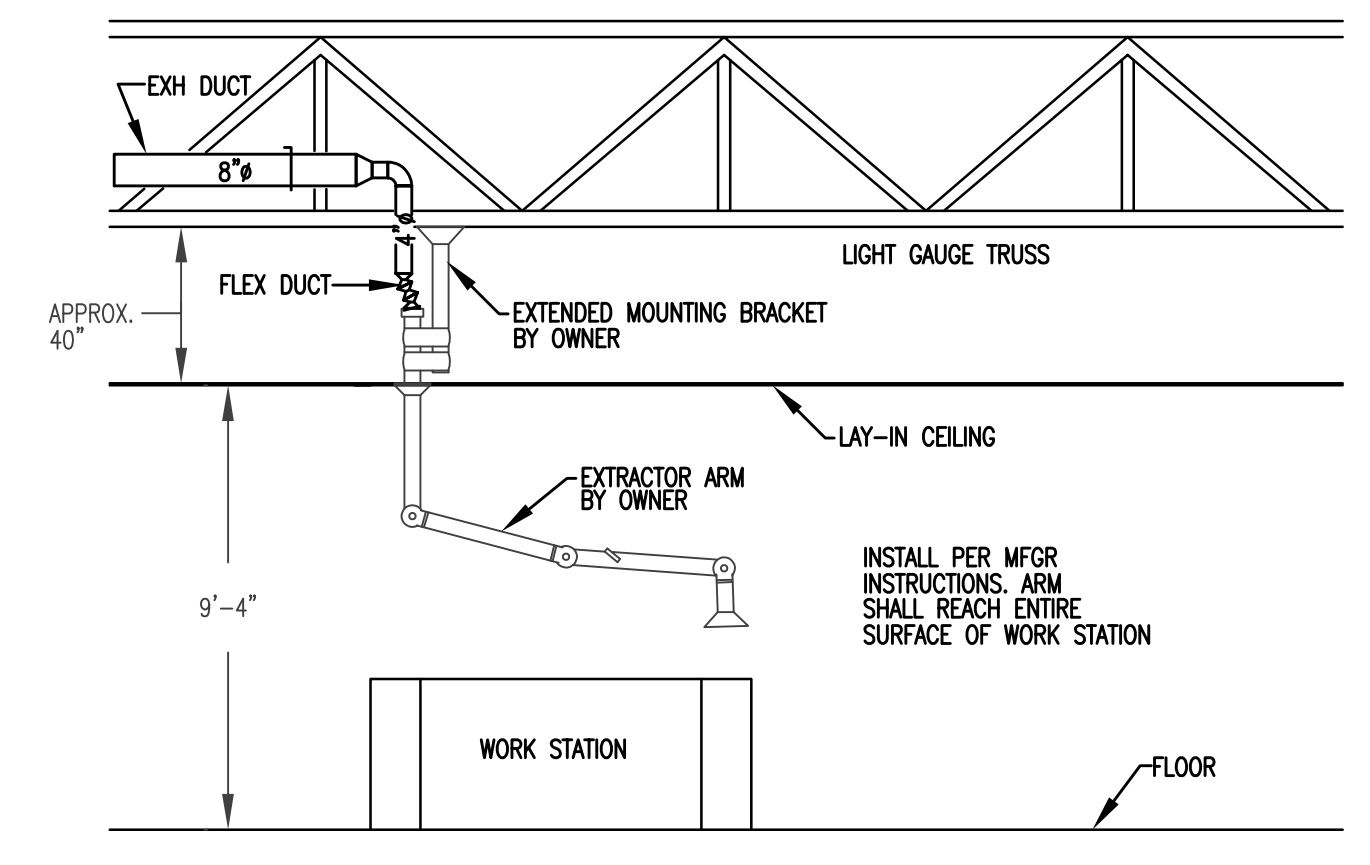


5 DUCT AND EQUIPMENT SUPPORT DETAILS
NTS

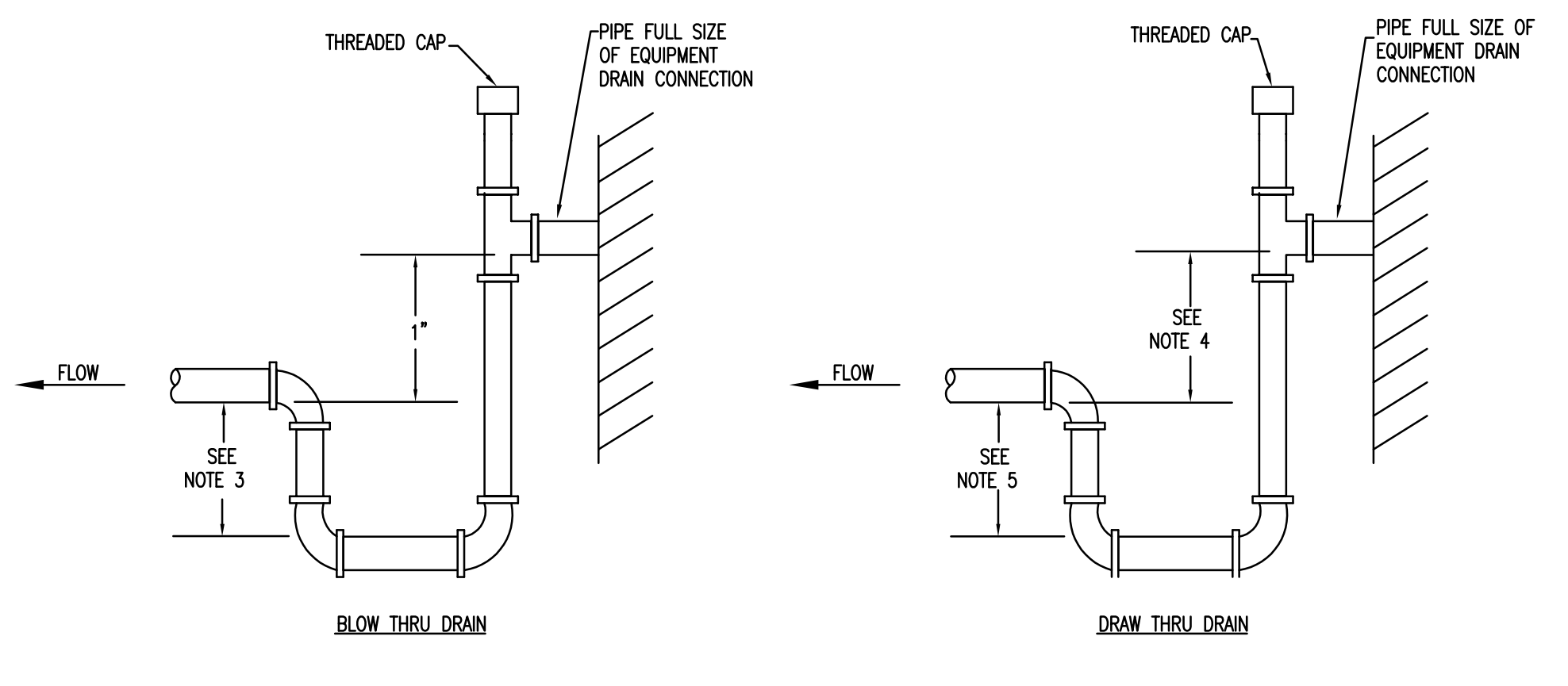


- NOTE:
- SUPPORT FROM OTHER ROOF TYPES OR SLABS SIMILARLY.
 - TRANSITION SUPPLY AND RETURN DUCT AS REQUIRED FOR CONNECTION TO FAN-COIL.
 - PROVIDE MANUFACTURERS RECOMMENDED CLEARANCE FOR MAINTENANCE AND A MINIMUM OF 12" CLEAR ALL AROUND.
 - MOUNT UNIT TO MAINTAIN SLOPE ON DRAIN LINE.
 - SPRING ISOLATORS AND FLEX CONNECTIONS REQUIRED ON UNITS OVER 1/2 HP.
 - PROVIDE A FACTORY INSTALLED FILTER HOUSING WITH SIDE OR BOTTOM ACCESS AS REQUIRED.
 - AUX. DRAIN PAN REQUIRED ON ALL EQUIPMENT W/COOLING COIL OR WHERE CONDENSATION IS POSSIBLE WITH FLOAT SWITCH.
 - THREADED RODS FOR AUXILIARY DRAIN PAN CAN BE THE SAME AS THE UNIT SUPPORT RODS IF THEY CAN BE PROPERLY INSTALLED (I.E. WITHOUT BENDING, INTERFERING WITH UNIT ACCESS, ETC.). OTHERWISE, THEY SHALL BE RUN SIMILAR TO UNIT SUPPORT RODS.
 - TERMINAL UNITS AND OTHER SIMILAR DEVICES WITH AND WITHOUT COILS AND WITH AND WITHOUT MOTORS INSTALLED SIMILAR.

6 SUSPENDED FAN COIL UNIT DETAIL - DUCTED
NTS

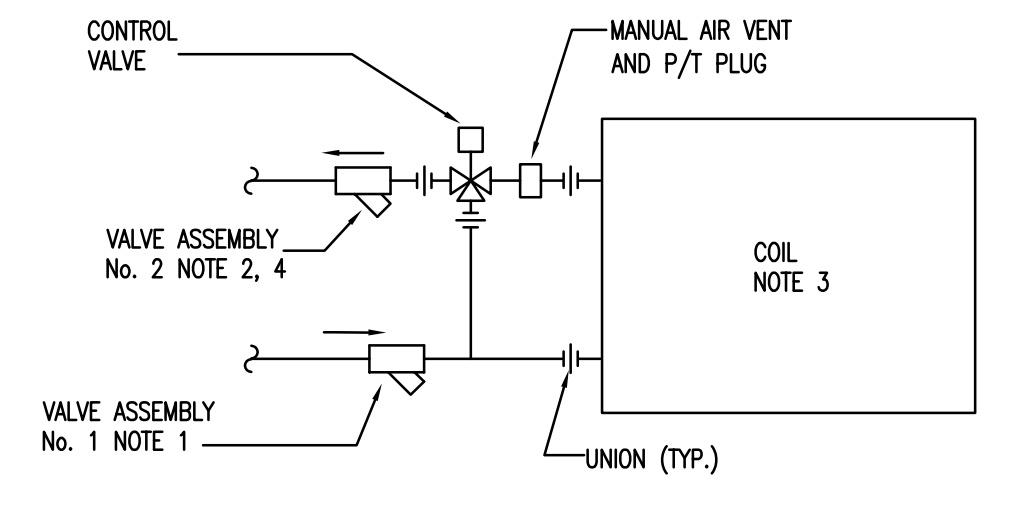


7 LAB EXHAUST SNORKEL DETAIL
NTS



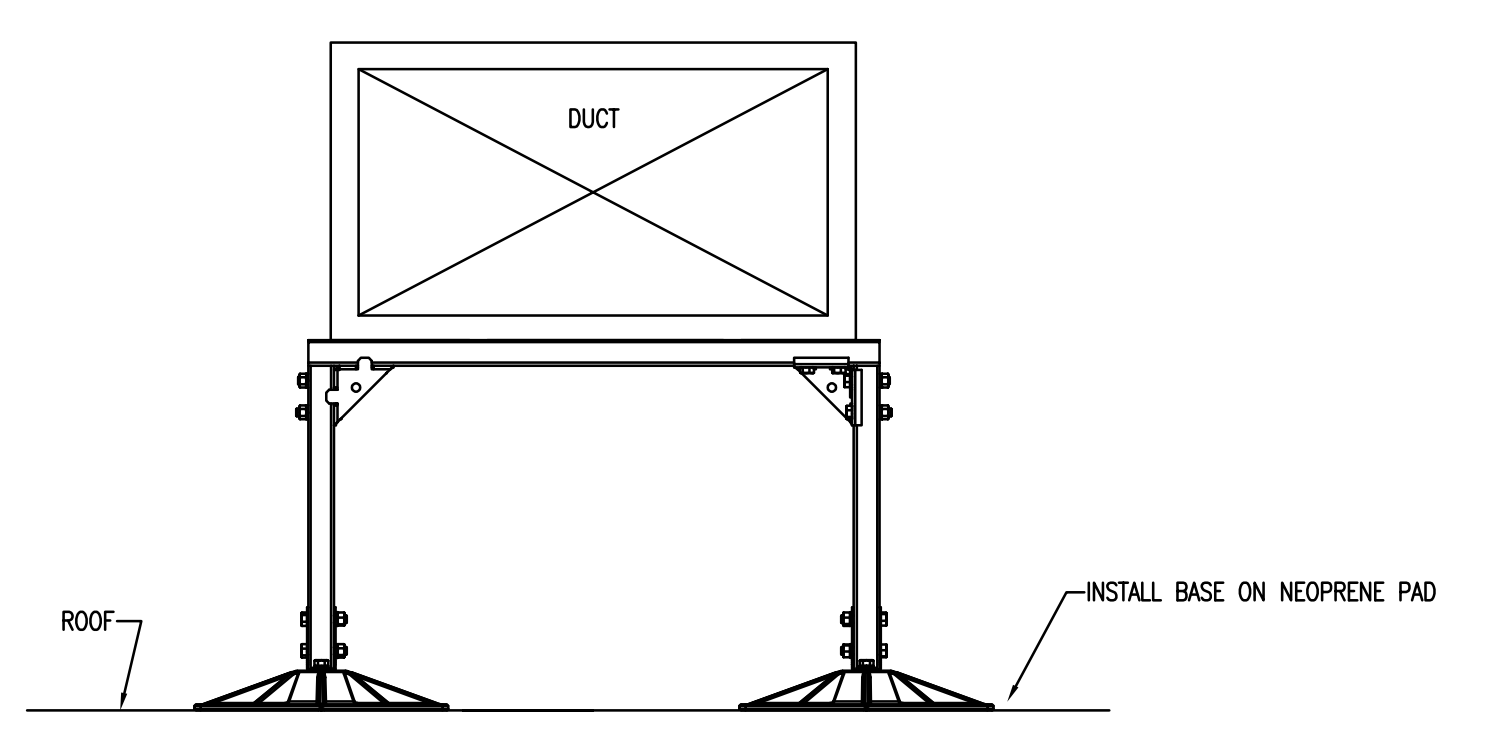
- NOTE:
- LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
 - TRAP SHALL NOT BLOCK ACCESS TO EQUIPMENT.
 - HEIGHT SHALL BE EQUAL TO 2 TIMES UNIT MAXIMUM POSITIVE STATIC PRESSURE.
 - HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM NEGATIVE STATIC PRESSURE PLUS 1".
 - HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM NEGATIVE STATIC PRESSURE.
 - PIPE TO NEAREST FLOOR DRAIN.

8 EQUIPMENT CONDENSATE DRAIN DETAIL
NTS



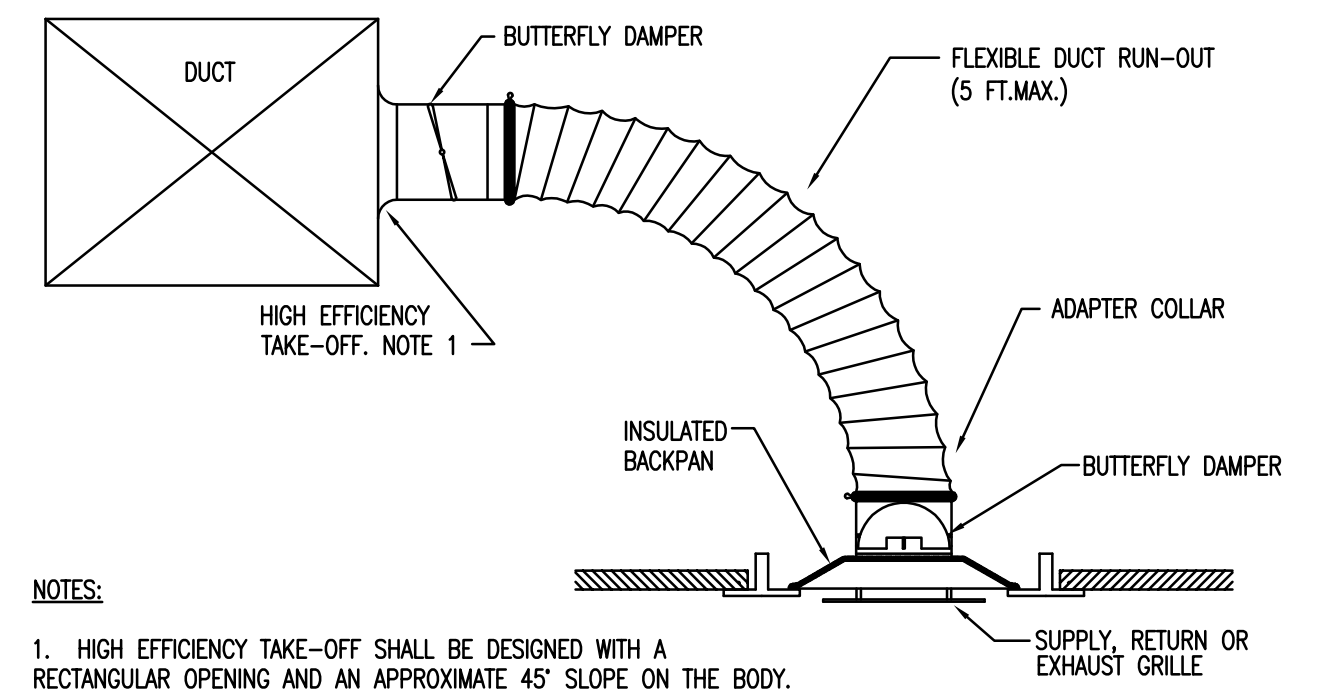
- NOTES:
- VALVE ASSEMBLY No. 1: COMBINATION BALL VALVE, Y-STRAINER, UNION, 2P/T'S, BYPASS ADAPTER, HOSE END DRAIN VALVE WITH CAP AND CHAIN.
 - VALVE ASSEMBLY No. 2: AUTOMATIC FLOW CONTROL VALVE, 2P/T'S, BALL VALVE.
 - PROVIDE ON EQUIPMENT UP TO 80 GPM.
 - IF FLOW MODULE CAN NOT BE REMOVED WITHOUT REMOVAL OF ASSEMBLY, THE BALL VALVES MUST BE SEPARATED FROM FLOW DEVICE BY A UNION.

1 THREE WAY COIL PIPING DETAIL
NTS



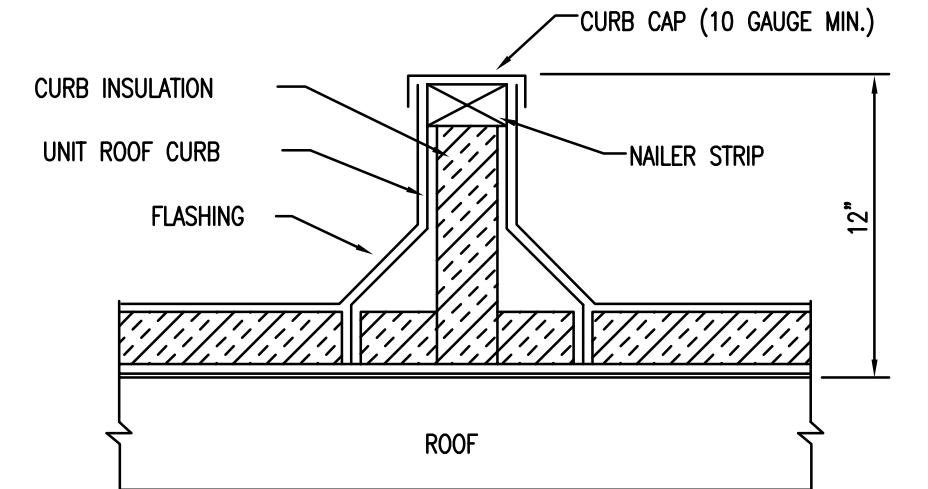
- NOTES:
- DUCT AND PIPE ROOFTOP SUPPORT SYSTEM EQUAL TO MRO INDUSTRIES MODEL DS FOR DUCT AND MODEL H FOR PIPING.

2 ROOFTOP DUCT SUPPORT DETAIL
NTS



- NOTES:
- HIGH EFFICIENCY TAKE-OFF SHALL BE DESIGNED WITH A RECTANGULAR OPENING AND AN APPROXIMATE 45° SLOPE ON THE BODY. A FLANGE IS TURNED OUT ON ALL FOUR SIDES WITH EACH CORNER BEING FILLED. THE FLANGE ALSO HAS PRE-PUNCHED HOLES FOR EASY INSTALLATION. THERE IS A CLOSED CELL NEOPRENE GASKET APPLIED TO THE FLANGE TO ASSURE A TIGHT SEAL. PROVIDE INTEGRAL BALANCING DAMPER IN TAKE-OFF.
 - PROVIDE MIN OF 3 DUCT DIAMETERS BETWEEN TAPS OR AFTER ELBOWS.

3 FLEX DUCT RUNOUT DETAIL
NTS



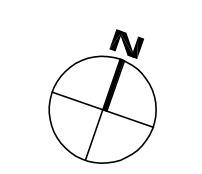
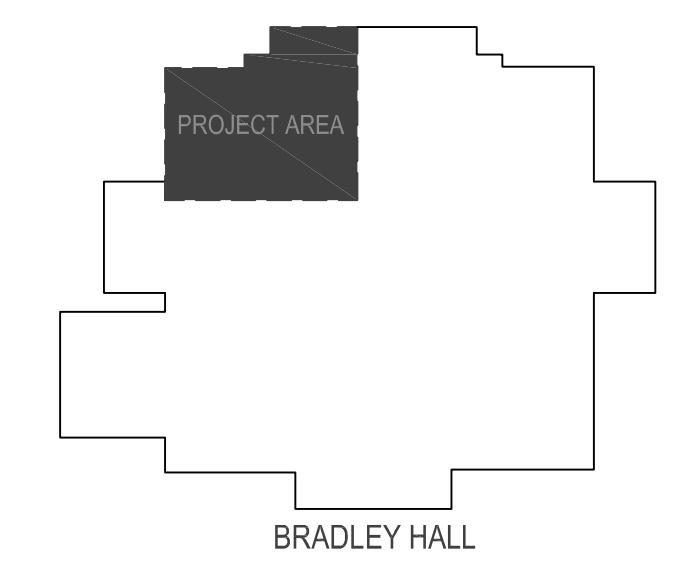
- NOTES:
- PROVIDE RAISED CURB. SEE SPECIFICATIONS.
 - SEE SPECIFICATIONS FOR TYPE OF BASE REQUIRED.
 - SPOT WELD OR ANCHOR CURB TO ROOF DECKING OR SUPPORTS PER SEISMIC REQUIREMENTS.
 - ATTACH CAP TO CURB 12" O.C. MINIMUM, 2 PER SIDE PROVIDE.
 - 3/4" SPACE BETWEEN CURB CAP AND CURB FOR ROOFING AND FLASHING.
 - COORDINATE INSTALLATION OF CURB CAP WITH ROOF FLASHING.

4 EQUIPMENT RAIL SUPPORT DETAIL
NTS



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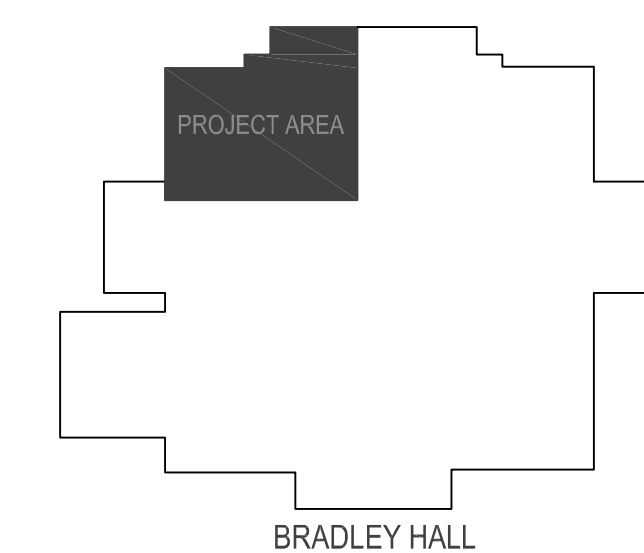
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sheet title
**HVAC
SCHEDULES**

sheet number

M7.1

drawn by **JWB**
checked by **xxx**

FAN COIL UNIT SCHEDULE

TAG	TYPE	CAPACITY CFM	ESP (IN. WG.)	TYPE	GPM	COOLING COIL				HEATING COIL				MOTOR		ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL	NOTES												
						EWT (F)	EWT (F)	PD (FT. WG.)	TOTAL CAPACITY (TONS)	EWT (F)	EWT (F)	PD (FT. WG.)	TOTAL CAPACITY (TONS)	WATTS	RPM																
BC-2-19	BLOWER COIL	2000	1	CHW	10.2	42	54	1.1	61.4	38.8	70	63	52.6	52.5	HW	8.8	180	180	8	---	85.5	55	---	94	---	95.3	---	277/1	ENVIRO-TEC	HDD30	1,2,3,4,5,6,7

1. DISCONNECT SWITCH
2. RETURN FLEEWAY
3. MERV6/MERV 11 FILTERS
4. SINGLE POINT POWER CONNECTION
5. HEATING COIL IN RE-HEAT POSITION
6. ECM MOTOR
7. SS DRAIN PLAN

FAN SCHEDULE

TAG	TYPE	CAPACITY CFM	E.S.P. (IN. WG.)	FAN RPM	MOTOR HP	ELECTRICAL (VOLTS/PHASE)	EMERGENCY POWER	MANUFACTURER	MODEL NO.	NOTES
LEF-1	VENT SET	1200	1"	2,084	1/2	120/1	NO	GREENHECK	USD-115-B	3,4,5,6

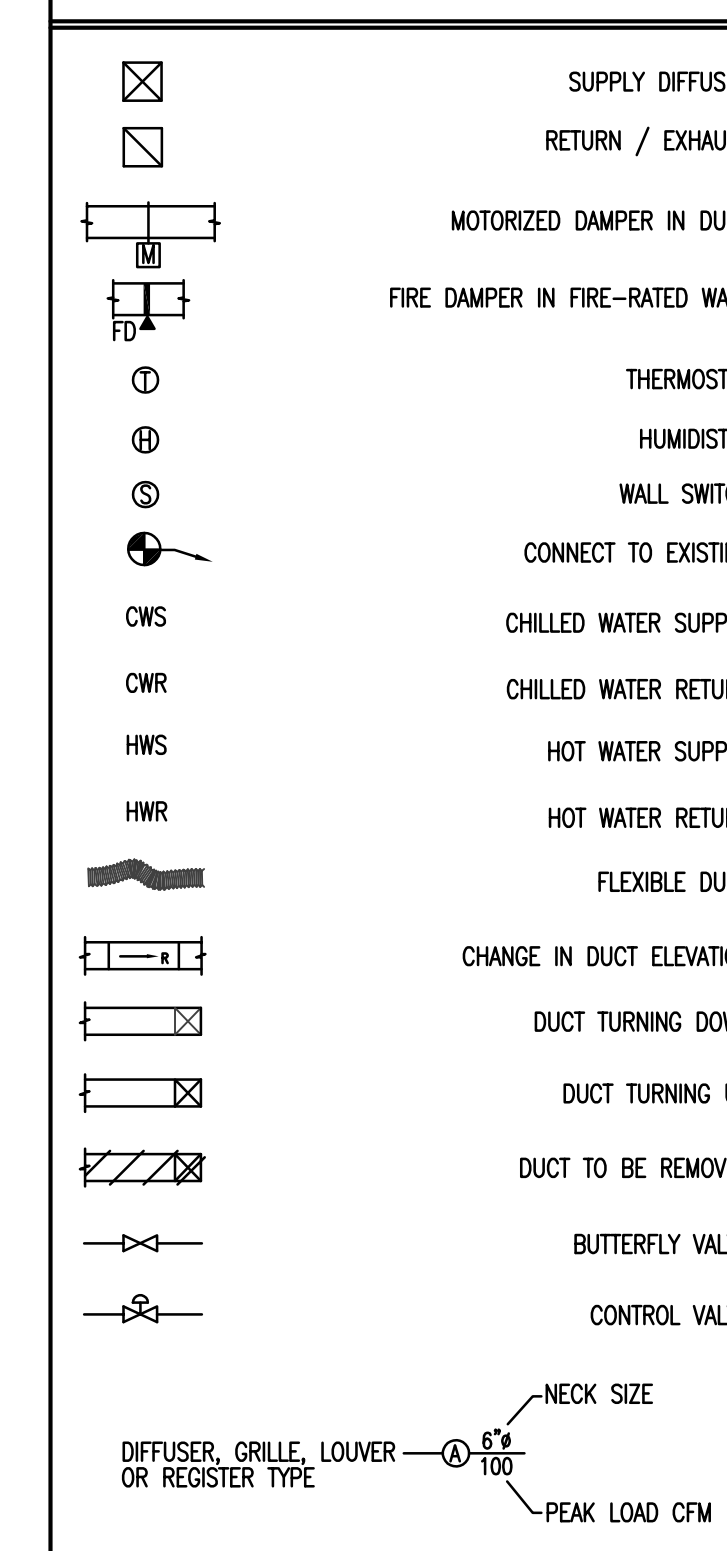
1. MOTORIZED BACKDRAFT DAMPER
2. GRAVITY BACKDRAFT DAMPER
3. SINGLE POINT CONNECTION
4. SPRING ISOLATORS
5. HI-PRO POLYESTER COATING
6. ECM MOTOR WITH SPEED DIAL CONTROL

AIR DISTRIBUTION SCHEDULE

TAG	DESCRIPTION	NECK	MODULE SIZE	MOUNT	CONSTR.	MFR.	MODEL	NOTES
A	SQUARE PLAQUE SUPPLY	AS SHOWN	24x24	LAY-IN	STEEL	PRICE	SERIES SPD	1,2,3
B	PERFORATED CEILING RETURN/EXHAUST	AS SHOWN	24x24	LAY-IN	STEEL	PRICE	SERIES PDR	1,3

1. FURNISH WITH OPPOSED BLADE DAMPER
2. 4-WAY DEFLECTION UNLESS NOTED OTHERWISE
3. BAKED ENAMEL OFF-WHITE FINISH
4. PROVIDE FACTORY INSULATED BACKPAN

HVAC LEGEND

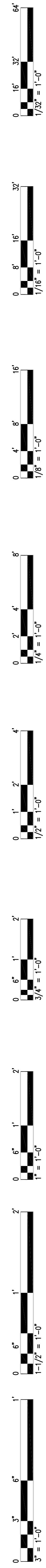


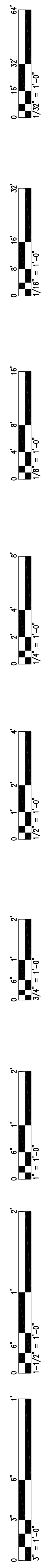
MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS; SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2. EXTEND ALL DRAIN LINES TO NEAREST FLOOR DRAIN OR AS INDICATED. ROUTE TO AVOID INTERFERENCE WITH PASSAGEWAYS. CONDENSATE DRAINS SHALL BE TRAPPED. SLOPE DRAIN LINES 1/8" PER FOOT.
3. ALL PIPING SHALL PITCH DOWN IN DIRECTION OF FLOW OR AS INDICATED ON DRAWINGS: 1" PER 40 FEET WITH MANUAL AIR VENTS AT ALL HIGH POINTS, AND 3/4" DRAIN VALVES AT ALL LOW POINTS.
4. ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
5. LOCATE ALL THERMOSTATS, HUMIDISTATS AND SWITCHES 4'-0" ABOVE FINISH FLOOR; ALIGN WITH LIGHT SWITCHES.
6. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE ADJACENT TO ELBOWS, TO PREVENT WEIGHT OF PIPING BEING PLACED ON THE EQUIPMENT. SUPPORT DETAILS SHALL BE SUBMITTED TO THE MECHANICAL ENGINEER.
7. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
8. CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
9. RUNOUTS SHALL PITCH DOWN IN DIRECTION OF FLOW A MINIMUM OF 1" IN 30 FEET.
10. AIR DISTRIBUTION SYSTEMS WITH MORE THAN ONE BRANCH OR MULTIPLE OUTLETS ON A BRANCH, SHALL HAVE VOLUME DAMPERS TO BALANCE AIR FLOWS. SPIN-IN FITTINGS ARE PERMITTED FOR CONNECTING FLEX DUCT TO BRANCH OR TRUNK DUCTS WHERE FLEX DUCTS ARE INDICATED. IF FLEX DUCT CANNOT BE CONNECTED WITH A SPIN-IN, A HARD DUCTED TAKEOFF MUST BE PROVIDED.
11. 45 DEGREE TAKEOFFS SHALL BE USED ON ALL HARD DUCTED SUPPLY BRANCHES.
12. MOUNT CONCEALED FAN COIL UNIT HIGH ENOUGH ABOVE CEILING FOR PROPER SLOPE ON DRAIN LINE.
13. ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED.
14. PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLATION OF DUCT, DUCT HEATERS, AIR VOLUME CONTROLLERS, FAN COIL UNITS, EXHAUST FANS, SUPPLY FANS, AND ALL OTHER EQUIPMENT AND APPURTENANCES.
15. ALL SUPPLY/RETURN DUCT IS GALVANIZED SHEET METAL. ALL EXHAUST DUCT SHALL BE STAINLESS STEEL, EXCEPT AS NOTED.
16. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
17. ALL HYDRONIC UNITS LOCATED IN CONCEALED LOCATIONS SHALL HAVE AUXILIARY DRAIN PANS.
18. AIR DISTRIBUTION UNITS SHALL HAVE TRIM REQUIRED FOR FINISHED SERVICE.
19. COORDINATE ORIENTATION OF SUPPLY AND RETURN PIPING BEFORE FABRICATION.
20. PROVIDE DIELECTRIC FITTINGS AT ALL LOCATIONS WHERE DISSIMILAR METALS ARE JOINED IN PIPING AND DUCT SYSTEMS.

MECHANICAL DEMOLITION NOTES

1. DRAWINGS SHOW GENERAL INTENT OF DEMOLITION. QUANTITIES, LOCATIONS, SIZES AND EQUIPMENT ARE SHOWN TO INDICATE TYPE OF SYSTEM INSTALLED AND DOES NOT NECESSARILY REPRESENT EXACT CONDITIONS. CONTRACTOR SHALL FIELD VERIFY BEFORE BIDDING.
2. DEMOLITION OF EQUIPMENT, SYSTEMS, AND COMPONENTS SHALL INCLUDE ALL SUPPORTS, PADS, HANGERS, INSULATION, CONTROLS, STARTERS, ACCESSORIES, AND APPURTENANCES NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM.
3. WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM SHOWN TO REMOVED SHALL BE REMOVED TO THE ACTIVE MAIN OR BRANCH IF NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. THE ACTIVE MAIN OR BRANCH SHALL BE REPAIRED TO MATCH NEW INSTALLATION AS MUCH AS PRACTICAL. IF SYSTEM IS INSULATED, INSULATION SHALL BE PATCHED AND FINISHED REPAIR (IE: VAPOR BARRIER, COATING, ETC.).
4. PATCHING OF BUILDING STRUCTURES AND FINISHES SHALL PERTAIN TO ALL WALLS, FLOORS, SLABS, ROOFS, STRUCTURES, AND FINISHES. PATCHES SHALL MATCH EXISTING STRUCTURE, FIRE RATING AND FINISH.
5. ALL OPENINGS CREATED BY THE ABANDONMENT OR REMOVAL OF EXISTING SYSTEMS SHALL BE PATCHED.
6. ALL WALLS, ROOFS, SLABS, STRUCTURES, AND FINISHES WHOSE FINISH IS IRREGULAR DUE TO THE REMOVAL OF SYSTEMS, SUPPORTS, PADS, ACCESSORIES, AND APPURTENANCES SHALL BE PATCHED.
7. ALL FINISHES SHALL MATCH EXISTING FINISH. WHEN FINISH OBVIOUSLY DOES NOT MATCH EXISTING FINISH SUCH AS SHADE OF PAINT, AGE OF FINISH, ETC., THE FINISH SHALL BE APPLIED TO THE PATCH AND THE SURFACE IN ALL DIRECTIONS UNTIL A SURFACE CHANGE OF A MINIMUM OF 45 DEGREES.
8. REMOVAL OF SYSTEMS SHALL INCLUDE COMPLETE SYSTEM WHENEVER PRACTICAL. IF NOT, SYSTEM (IE: PIPE, CONDUIT, ETC.) SHALL BE REMOVED TO 1 INCH BELOW SURFACE.



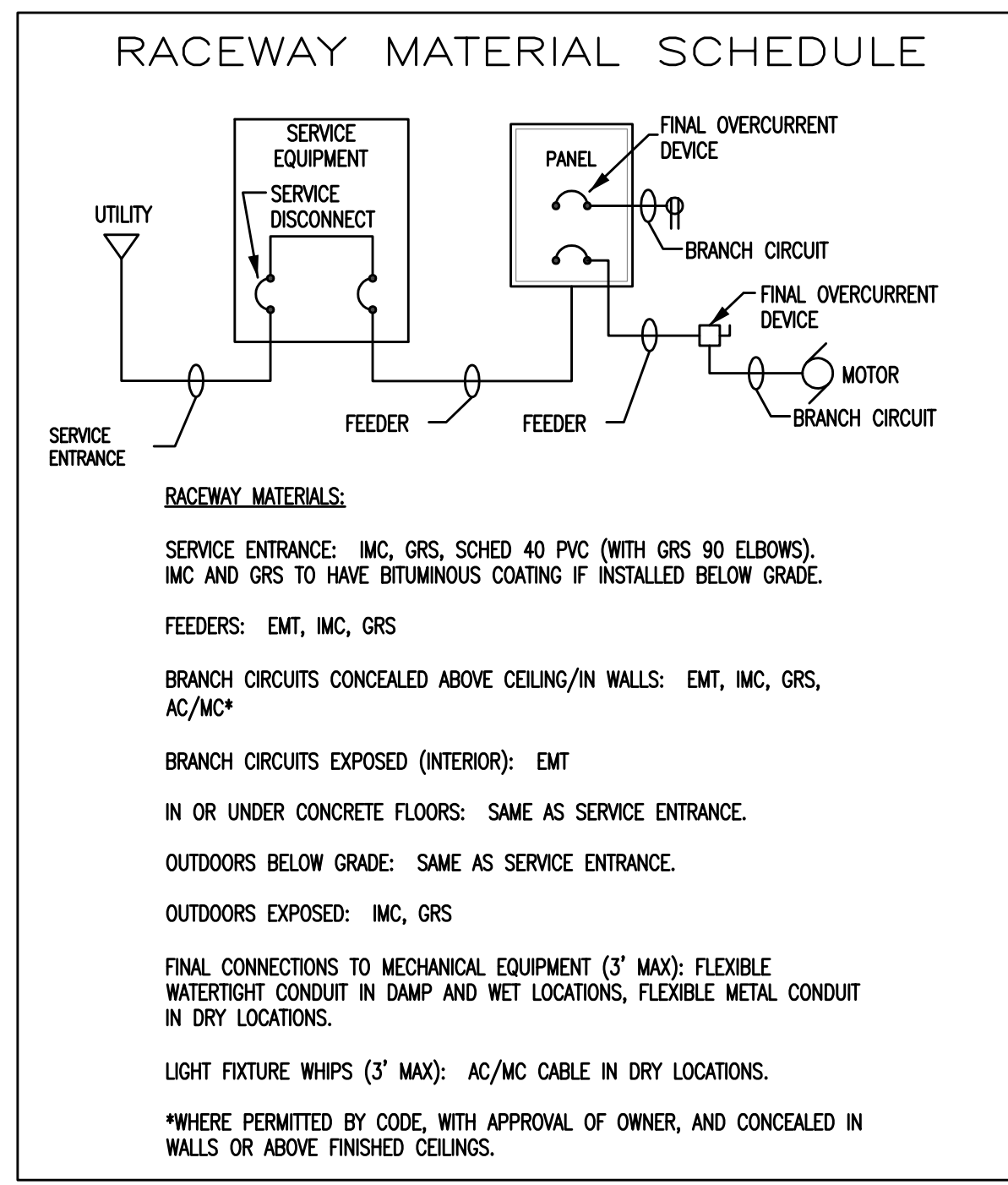


GENERAL NOTES:

- 1. DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
2. MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC.
3. ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSITRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT.
4. BRANCH CIRCUITS TO BE 2#12, 120ND, 3/4" MINIMUM. 20A 120V CIRCUITS LONGER THAN 75' TO BE 2#10, #10GND, 3/4" MINIMUM FOR VOLTAGE DROP. 20A, 120V CIRCUITS LONGER THAN 150' TO BE 2#8, #8GND, 3/4" MINIMUM FOR VOLTAGE DROP. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS.
5. ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
6. ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122.
7. PROVIDE PULL STRING IN ALL EMPTY RACEWAYS.
8. COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS.
9. DO NOT FLUSH MOUNT JUNCTION BOXES BACK TO BACK, STAGGER TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
10. CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUGH-IN DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS.
11. MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON JOB BY ARCHITECT UNLESS NOTED OTHERWISE.
12. SEAL ALL PENETRATIONS TO RATED WALLS, CEILING AND FLOORS WITH UL LISTED FIREPROOFING SYSTEM. THIS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL.
13. WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122.
14. ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE.
15. REMOVE DRYWALL DUST AND MUD FROM THE INTERIOR OF BOXES BEFORE INSTALLING DEVICES.
16. AT SUBSTANTIAL COMPLETION CLEAN ALL LIGHT FIXTURES AND CLEAN ALL DEVICES IN THE CONSTRUCTION AREAS. REPLACE DAMAGED DEVICES AND DEVICE PLATES AS NEEDED.
17. VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY.
18. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK WITH POWER, TELEPHONE AND CATV UTILITIES. ELECTRICAL CONTRACTOR TO PROVIDE ALL MATERIALS AND WORK FOR AS REQUIRED BY EACH UTILITY FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE RACEWAY(S) TO UTILITY CONNECTION POINT.
19. CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT.
20. ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES.
21. ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE.
22. ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT.
23. COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE BLOCKING AT ALL WALL MOUNTED DEVICES (TELEVISIONS, ETC.).
24. PROVIDE PLASTIC ENGRAVED NAMEPLATES ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT INCLUDING SWITCHBOARDS, PANELBOARDS, TRANSFER SWITCHES AND DISCONNECT SWITCHES. SWITCHBOARDS AND PANELBOARDS SHALL INDICATE NAME, SOURCE OF SUPPLY AND VOLTAGE. TRANSFER SWITCHES SHALL INDICATE NAME, SOURCE OF NORMAL AND EMERGENCY SUPPLY AND RATING. DISCONNECT SWITCHES SHALL INDICATE NAME OF EQUIPMENT BEING FED AND SOURCE CIRCUIT. ALL NAMEPLATES ON NORMAL POWER EQUIPMENT SHALL BE BLACK WITH WHITE LETTERING; ON GENERATOR FED EQUIPMENT, RED WITH WHITE LETTERING.
25. PROVIDE TYPEWRITTEN LABELS INDICATING SOURCE PANEL NAME AND CIRCUIT NUMBER FOR ALL 120V AND GREATER DEVICES INCLUDING ALL LIGHT SWITCHES AND RECEPTACLES. LABELS SHALL BE THERMAL TRANSFER TYPE, 3/8" WITH 1/4" LETTERING. WHITE BACKGROUND FOR BLACK DEVICES, CLEAR BACKGROUND OTHERWISE.

ELECTRICAL SYMBOL SCHEDULE - GENERAL
GENERAL
PP1-2,4
PP1-2,4
TCP*
PP1
CP
JUNCTION BOX, FLUSH WALL MOUNTED IN FINISHED WALLS, SURFACE MOUNTED WHERE INDICATED ON DRAWINGS. MINIMUM 4" SQUARE WITH APPROPRIATE REDUCING RING FOR DEVICE BEING INSTALLED. REFER TO TYPICAL MOUNTING HEIGHTS DETAIL WHERE MOUNTING HEIGHT IS NOT INDICATED ON DRAWINGS. SIZE PER NEC.
JUNCTION BOX, CEILING MOUNTED. SIZE PER NEC.
PLAN KEYNOTE, REFER TO KEYNOTE ON EACH DRAWING.

ELECTRICAL SYMBOL SCHEDULE - FIRE ALARM & NURSE CALL
FIRE ALARM
DUCT SMOKE DETECTOR WITH SAMPLING TUBE. INSTALLED ON RETURN OR RETURN AND SUPPLY AS REQUIRED, SEE DIV 15 DRAWINGS AND COORDINATE. "WP" DENOTES WEATHERPROOF HOUSING FOR OUTDOOR UNITS.



ELECTRICAL SYMBOL SCHEDULE - POWER
POWER
120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R, WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
HEAVY DUTY DISCONNECT SWITCH, SEE SCHEDULE.
WIRING DEVICE TYPICAL NOTATIONS
GF
WP
WC
TR
MW
TV
FIRE RATED POKE-THRU, EVOLUTION SERIES 4ATCBK BY LEGRAND OR APPROVED EQUAL. TRIM PLATE TYPE AND FINISH AS SELECTED BY ARCHITECT.
NOTE: ALL RECEPTACLES IN FACILITY SHALL BE HOSPITAL GRADE INCLUDING STANDARD DUPLEX AND GFCI DUPLEX TYPES.

ABBREVIATIONS
A AMPERE
AFT ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
BKR BREAKER
C CONDUIT
CATV CABLE TELEVISION CIRCUIT.
CKT CIRCUIT.
EC ELECTRICAL CONTRACTOR, DIVISION 28 (DIV 28).
EF EXHAUST FAN.
EMT ELECTRICAL METALLIC TUBING.
FCU FAN COIL UNIT.
GC GENERAL CONTRACTOR, DIVISION 00 THROUGH 14.
GF GROUND FAULT CIRCUIT INTERRUPTER.
GRS GALVANIZED RIGID STEEL CONDUIT.
HD HIGH INTENSITY DISCHARGE.
IC INTERMEDIATE METALLIC CONDUIT.
JB or J-BOX JUNCTION BOX.
KVA KILOWATT AMPERES.
KW KILOWATT.
MAX MAXIMUM.
MC MECHANICAL CONTRACTOR, DIVISION 23 (DIV 23).
MDP MAIN DISTRIBUTION PANEL.
MIN MINIMUM.
MFR MANUFACTURER.
NMC NONMETALLIC-SHEATHED CABLE.
V VOLT.
NEC NATIONAL ELECTRICAL CODE. (NFPA 70).
SWBD SWITCHBOARD.
TYP TYPICAL.
UNO UNLESS NOTED OTHERWISE.
WC WATER COOLER.
XFRM TRANSFORMER.

DISCONNECT SWITCH SCHEDULE
SWITCH DESCRIPTION
S-1 30A/2P
S-2 60A/2P
S-3 100A/2P
S-4 200A/2P
S-5 400A/2P
S-6 30A/3P
S-7 60A/3P
S-8 100A/3P
S-9 200A/3P
S-10 400A/3P
S-11 30A/4WSN
S-12 60A/4WSN
S-13 100A/4WSN
S-14 200A/4WSN
S-15 400A/4WSN
SWITCH NOTES:
1. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE.
2. 240V OR 600V TO SUIT CIRCUIT VOLTAGE.
3. ALL DISCONNECTS FUSIBLE UNLESS OTHERWISE NOTED, PROVIDE FUSES TO SUIT LOAD.
4. ENCLOSURES NEMA 3R OUTDOORS AND IN WET LOCATIONS, NEMA 1 ELSEWHERE UNLESS OTHERWISE NOTED.
5. ALL OUTDOOR DISCONNECTS SERVING GROUND MOUNTED HVAC UNITS SHALL NOT BE MOUNTED HIGHER THAN 36" ABOVE FINISHED GRADE.



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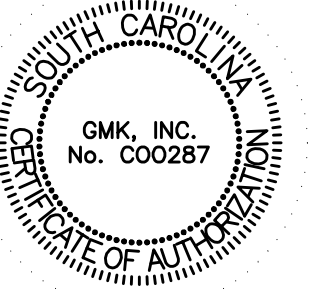
USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720

project name
USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

state project number
H37-9519

project number
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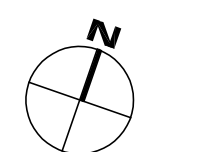
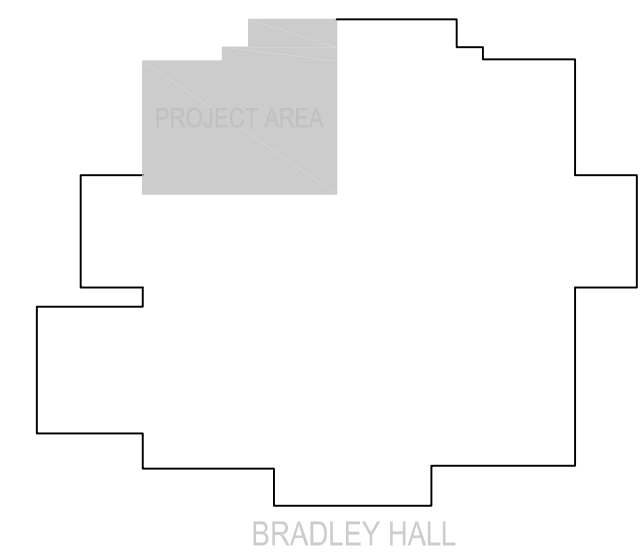


project for
CONSTRUCTION DOCUMENTS

date
APRIL 11, 2019

key plan table with columns: number, item, date

key plan



sheet title
ELECTRICAL GENERAL NOTES,
LEGENDS, AND DETAILS

sheet number

E0.1

drawn by RM
checked by SM

consultants



owner



USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720

project name

USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

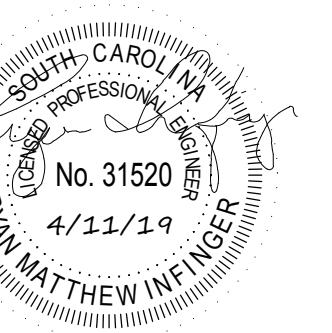
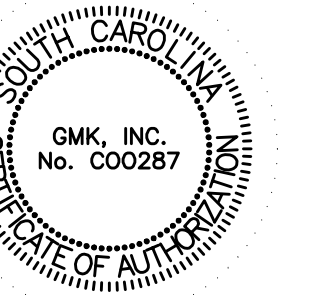
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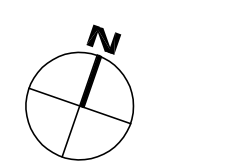
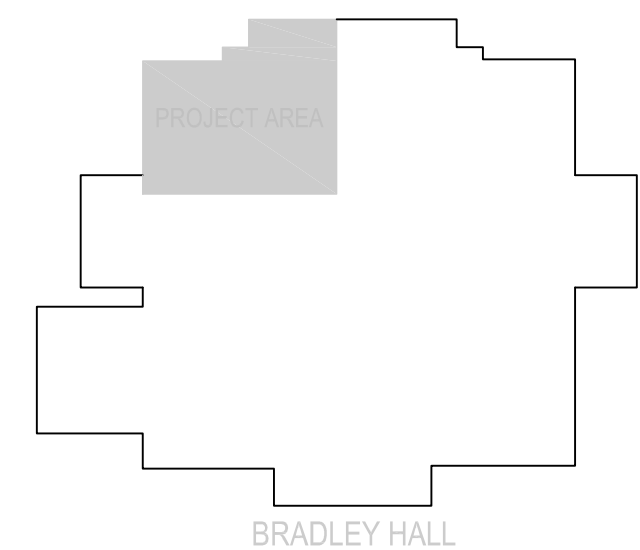


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key plan

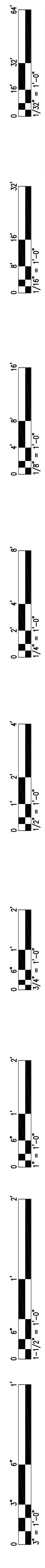


sheet title ELECTRICAL FIRST FLOOR PLAN AND PANEL SCHEDULES

sheet number

E1.1

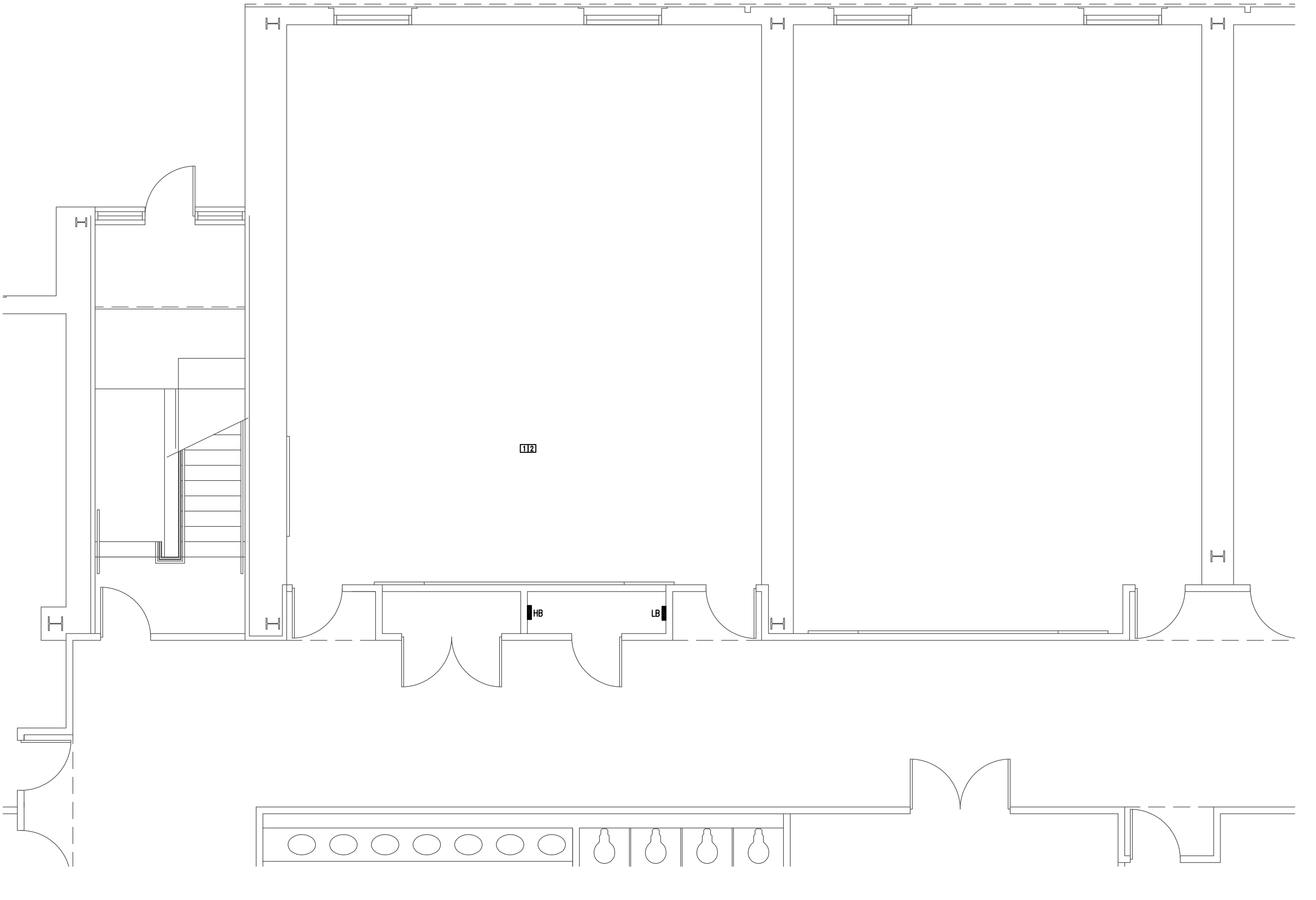
drawn by RMI checked by



DEMOLITION NOTES:

(1) EXISTING FIRE ALARM, A/V SPEAKERS, PROJECTOR, AND OTHER MISCELLANEOUS ITEMS ATTACHED TO CEILING SHALL BE SUPPORTED IN PLACE AND PROTECTED FOR DEMOLITION OF EXISTING CEILING GRID. DEVICES SHALL BE REINSTALLED ONCE NEW CEILING AND CEILING GRID IS INSTALLED.

(2) REMOVE EXISTING FLUORESCENT 2X4 LIGHT FIXTURES AND PROTECT DURING ADDITION OF HOOD EXHAUST. FIXTURES SHALL BE REINSTALLED AFTER HOOD EXHAUST WORK HAS BEEN COMPLETED. CLEAN AND RE-LAMP FIXTURES PRIOR TO REINSTALLATION.



FIRST FLOOR PLAN
1/4" = 1'-0"

EXISTING PANELBOARD SCHEDULE										PANEL HB		
480Y/277 VOLTS, 3 PHASE, 4 WIRE, 400 AMP MCB										LOCATION: 1ST FLOOR ELEC. RM 133		
										EXISTING INTERRUPTING CAPACITY		
CIR NO.	CIRCUIT DESIGNATION	TRIP/LOAD	CIR VA	VOLT-AMP/PHASE			CIR VA	TRIP/LOAD	CIRCUIT DESIGNATION	CKT NO.		
				PH A	PH B	PH C						
1	EXISTING	20/1	0	0	0	0	0		2			
3	EXISTING	20/1	0	0	0	0	50/3	EXISTING	4			
5	EXISTING	20/1	0	0	0	0		6				
7	EXISTING	40/3	0	0	0	0	30/3	EXISTING	8			
9	EXISTING	20/1	0	0	0	0	20/3	EXISTING	10			
11	EXISTING	20/1	0	0	0	0	20/3	EXISTING	12			
13	EXISTING	20/1	0	0	0	0		14				
15	EXISTING	20/1	0	0	0	0	20/3	EXISTING	16			
17	EXISTING	20/1	0	0	0	0		18				
19	EXISTING	20/1	0	0	0	0	20/1	EXISTING	20			
21	EXISTING	20/1	0	0	953	953	20/1	BC-2-18, BC-2-19	22			
23	EXISTING	20/1	0	0	0	0	20/1	EXISTING	24			
25	EXISTING	20/1	0	0	0	0	20/1	EXISTING	26			
27	EXISTING	20/1	0	0	0	0	20/1	EXISTING	28			
29	EXISTING	20/1	0	0	0	0	20/1	EXISTING	30			
31	EXISTING	20/1	0	0	0	0	20/1	EXISTING	32			
33	EXISTING	20/1	0	0	0	0	20/1	EXISTING	34			
35	EXISTING	20/1	0	0	0	0	20/1	EXISTING	36			
37	EXISTING	20/1	0	0	0	0	20/1	EXISTING	38			
39	EXISTING	100/3	0	0	0	0	20/1	EXISTING	40			
41	EXISTING	20/1	0	0	0	0	20/1	EXISTING	42			
TOTALS:				0	953	0	0					
FACTORS:				953	VA**	CONN	480	V (L-L)				
DEMAND:		1.0		953	VA**	DEM	1	A (DEM)				

PANEL SCHEDULE NOTES

* EXISTING CIRCUIT MODIFIED DURING CONSTRUCTION

** LOAD SHOWN IS ADDITIONAL TO EXISTING LOAD ALREADY CONNECTED TO PANELBOARD.

EXISTING PANELBOARD SCHEDULE										PANEL LE (SECTION 1)		
208Y/120 VOLTS, 3 PHASE, 4 WIRE, 225 AMP MCB WITH FEED THRU LUGS										LOCATION: 2ND FLOOR STORAGE		
										EXISTING INTERRUPTING CAPACITY		
CIR NO.	CIRCUIT DESIGNATION	TRIP/LOAD	CIR VA	VOLT-AMP/PHASE			CIR VA	TRIP/LOAD	CIRCUIT DESIGNATION	CKT NO.		
				PH A	PH B	PH C						
1	EXISTING	20/1	0	0	0	0	20/1	EXISTING	2			
3	EXISTING	20/1	0	0	0	0	20/1	EXISTING	4			
5	EXISTING	20/1	0	0	0	0	20/1	EXISTING	6			
7	EXISTING	20/1	0	0	0	0	20/1	EXISTING	8			
9	EXISTING	20/1	0	0	0	0	20/1	EXISTING	10			
11	EXISTING	20/1	0	0	0	0	20/1	EXISTING	12			
13	EXISTING	20/1	0	0	0	0	20/1	EXISTING	14			
15	EXISTING	20/1	0	0	250	250	20/1	LAB EXHAUST DAMPERS RM. 232	16			
17	EXISTING	20/1	0	0	0	0	20/1	EXISTING	18			
19	EXISTING	20/1	0	0	0	0	20/1	EXISTING	20			
21	EXISTING	20/1	0	0	0	0	20/1	EXISTING	22			
23	EXISTING	20/1	0	0	0	0	20/1	EXISTING	24			
25	EXISTING	20/1	0	0	0	0	20/1	EXISTING	26			
27	EXISTING	20/1	0	0	0	0	20/1	EXISTING	28			
29	EXISTING	20/1	0	0	0	0	20/1	EXISTING	30			
31	EXISTING	20/1	0	0	0	0	20/1	EXISTING	32			
33	EXISTING	20/1	0	0	0	0	20/1	EXISTING	34			
35	EXISTING	20/1	0	0	0	0	20/1	EXISTING	36			
37	EXISTING	20/1	0	0	0	0	20/1	EXISTING	38			
39	EXISTING	20/1	0	0	0	0	20/1	EXISTING	40			
41	EXISTING	20/1	0	0	0	0	20/1	EXISTING	42			
TOTALS:				0	250	0	208	V (L-L)				
FACTORS:				250	VA**	CONN	208	V (L-L)				
DEMAND:		1.0		250	VA**	DEM	1	A (DEM)				

PANEL SCHEDULE NOTES

* REUSE EXISTING 20A/1P SPARE BREAKER TO FEED NEW LOAD

** LOAD SHOWN IS ADDITIONAL TO EXISTING LOAD ALREADY CONNECTED TO PANELBOARD.

EXISTING PANELBOARD SCHEDULE										PANEL LE (SECTION 2)		
208Y/120 VOLTS, 3 PHASE, 4 WIRE, 225 AMP MLO										LOCATION: 2ND FLOOR STORAGE		
										EXISTING INTERRUPTING CAPACITY		
CIR NO.	CIRCUIT DESIGNATION	TRIP/LOAD	CIR VA	VOLT-AMP/PHASE			CIR VA	TRIP/LOAD	CIRCUIT DESIGNATION	CKT NO.		
				PH A	PH B	PH C						
43	EXISTING	20/1	0	0	0	0	20/1	EXISTING	44			
45	EXISTING	20/1	0	0	0	0	20/1	EXISTING	46			
47	EXISTING	20/1	0	0	0	0	20/1	EXISTING	48			
49	EXISTING	20/1	0	0	0	0	20/1	EXISTING	50			
51	EXISTING	20/1	0	0	0	0	20/1	EXISTING	52			
53	EXISTING	20/1	0	0	0	0	20/1	EXISTING	54			
55	EXISTING	20/1	0	0	0	0	20/1	EXISTING	56			
57	EXISTING	20/1	0	0	0	0	20/1	EXISTING	58			
59	EXISTING	20/1	0	0	0	0	20/1	EXISTING	60			
61	EXISTING	20/1	0	0	0	0	20/1	EXISTING	62			
63	EXISTING	20/1	0	0	0	0	20/1	EXISTING	64			
65	EXISTING	20/1	0	0	0	0	20/1	EXISTING	66			
67	EXISTING	20/1	0	0	0	0	20/1	EXISTING	68			
69	EXISTING	20/1	0	0	0	0	20/1	EXISTING	70			
71	EXISTING	20/1	0	0	0	0	20/1	EXISTING	72			
73	EXISTING	20/1	0	0	0	0	20/1	EXISTING	74			
75	EXISTING	20/1	0	0	0	0	20/1	EXISTING	76			
77	EXISTING	20/1	0	0	0	0	20/1	EXISTING	78			
79	R-LAB BENCHES RM. 232	20/1	1080	1080	0	0	20/1	EXISTING	80			
81	R-LAB BENCHES RM. 232	20/1	1080	1080	0	0	20/1	EXISTING	82			
83	LEF-1 (ROOF EXHAUST)	20/1	1176	1176	1176	0	20/1	EXISTING	84			
TOTALS:				1080	1080	1176	208	V (L-L)				
FACTORS:				3336	VA**	CONN	208	V (L-L)				
DEMAND:		1.0		3336	VA**	DEM	9	A (DEM)				

PANEL SCHEDULE NOTES

* EXISTING CIRCUIT MODIFIED DURING CONSTRUCTION

** LOAD SHOWN IS ADDITIONAL TO EXISTING LOAD ALREADY CONNECTED TO PANELBOARD.

*** PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE. NEW BREAKER TO MATCH EXISTING PANEL MANUFACTURER AND SHORT CIRCUIT RATINGS.

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consultants



owner



USC LANCASTER
476 HUBBARD DR.
LANCASTER, SC 29720

project name

USC LANCASTER BRADLEY HALL
PHYSICS LAB UPGRADES

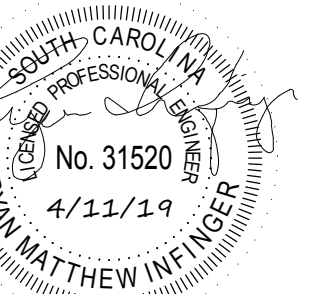
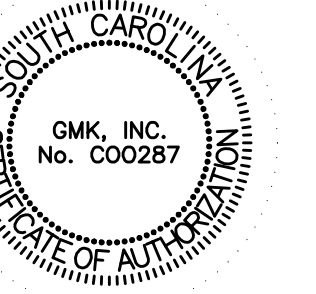
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H37-9519

project number

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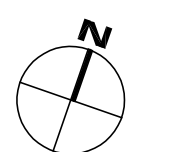
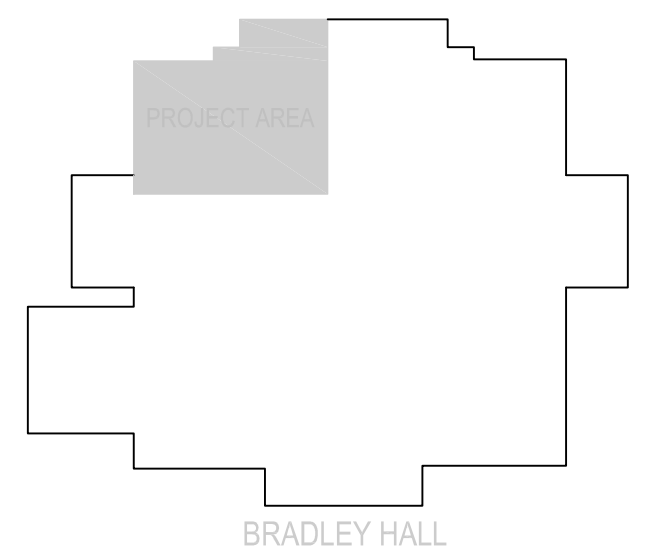
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date

APRIL 11, 2019

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key plan



sheet title

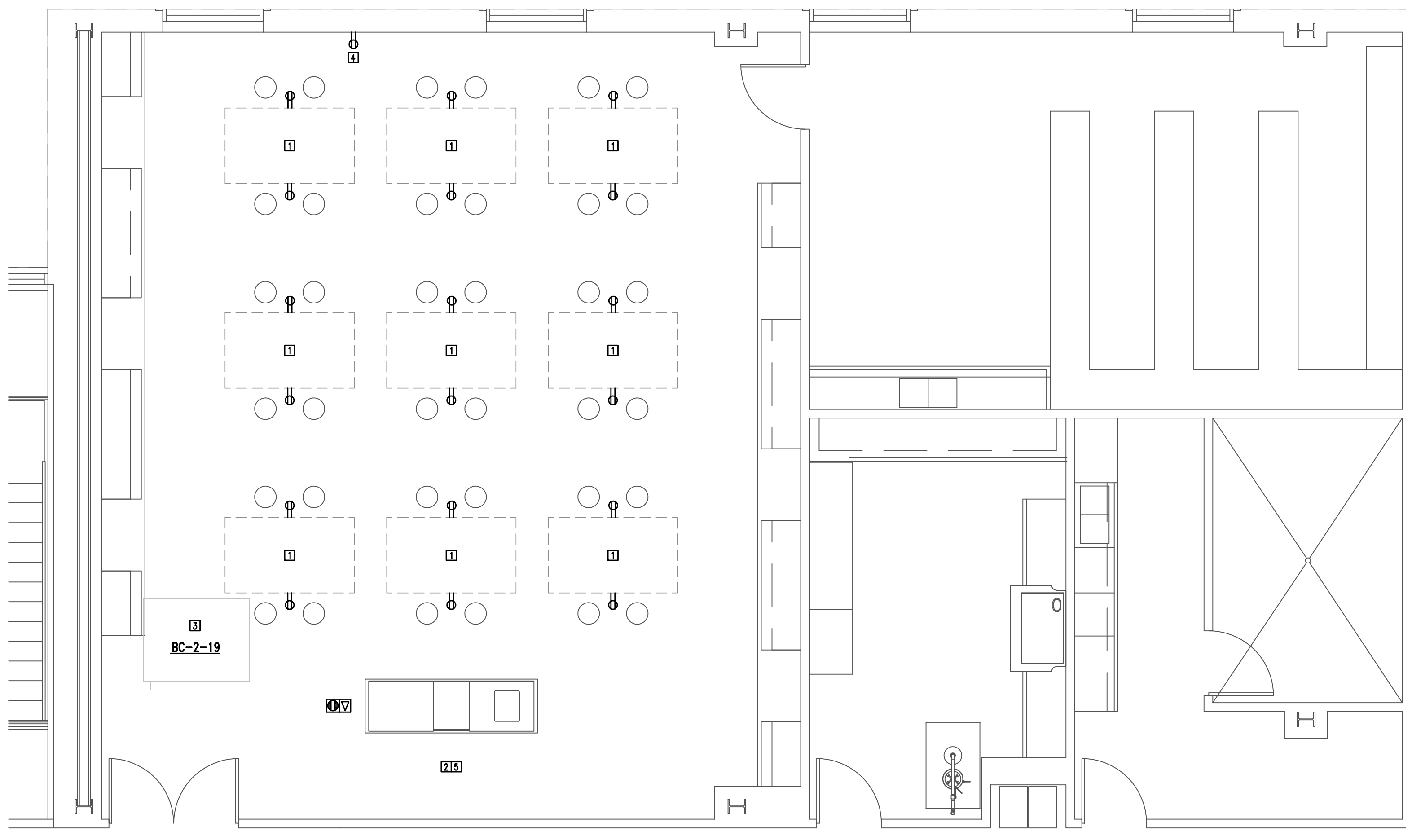
**ELECTRICAL SECOND FLOOR
DEMOLITION AND RENOVATION
PLANS**

sheet number

E2.1

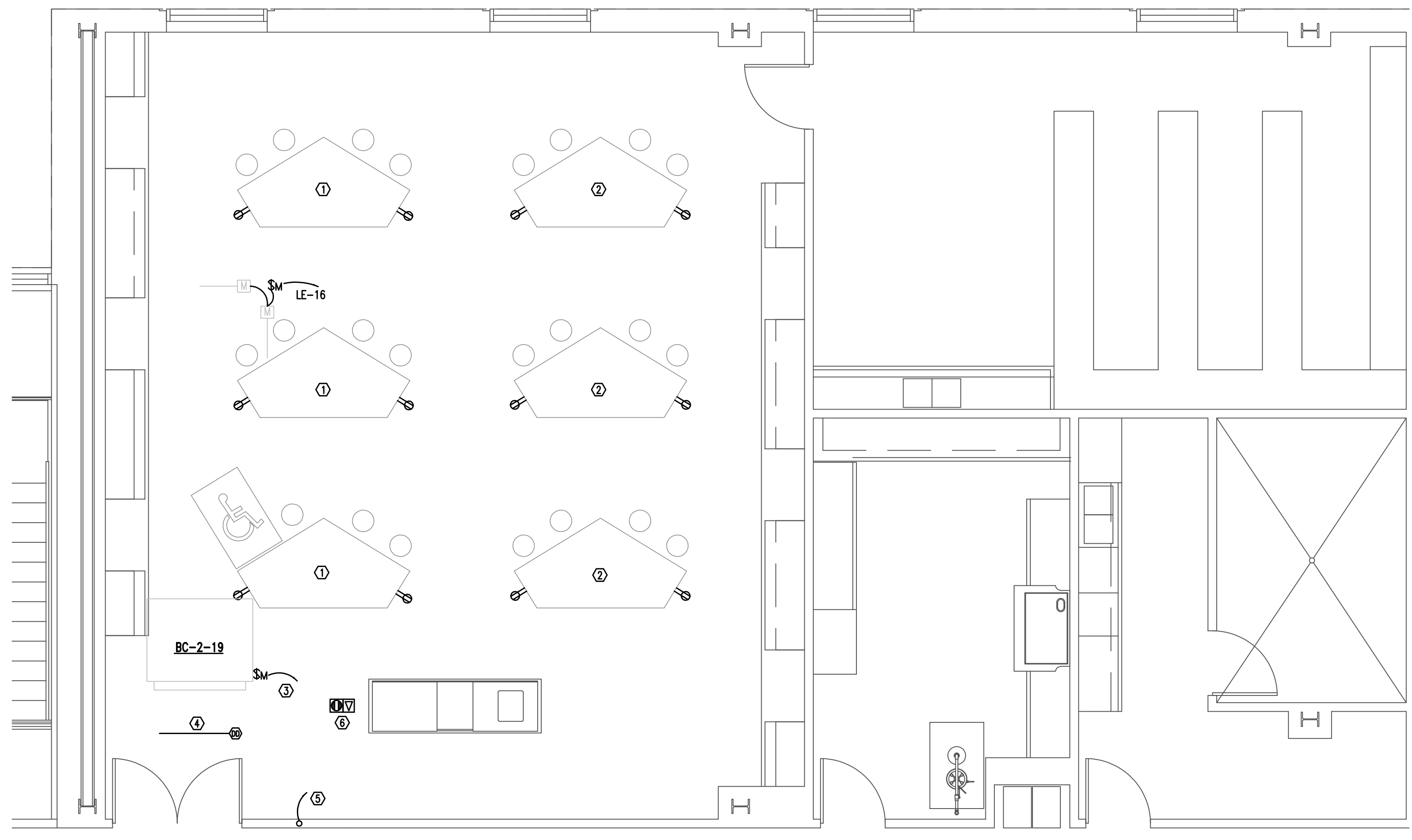
drawn by **RM**
checked by **RM**

0 8' 16' 32' 64'
1/32" = 1'-0"
0 4' 8' 16' 32'
1/16" = 1'-0"
0 2' 4' 8' 16'
1/8" = 1'-0"
0 1' 2' 4' 8'
1/4" = 1'-0"
0 0.5' 1' 2' 4'
1/2" = 1'-0"
0 0.25' 0.5' 1' 2'
1/4" = 1'-0"
0 0.125' 0.25' 0.5' 1' 2'
1/8" = 1'-0"



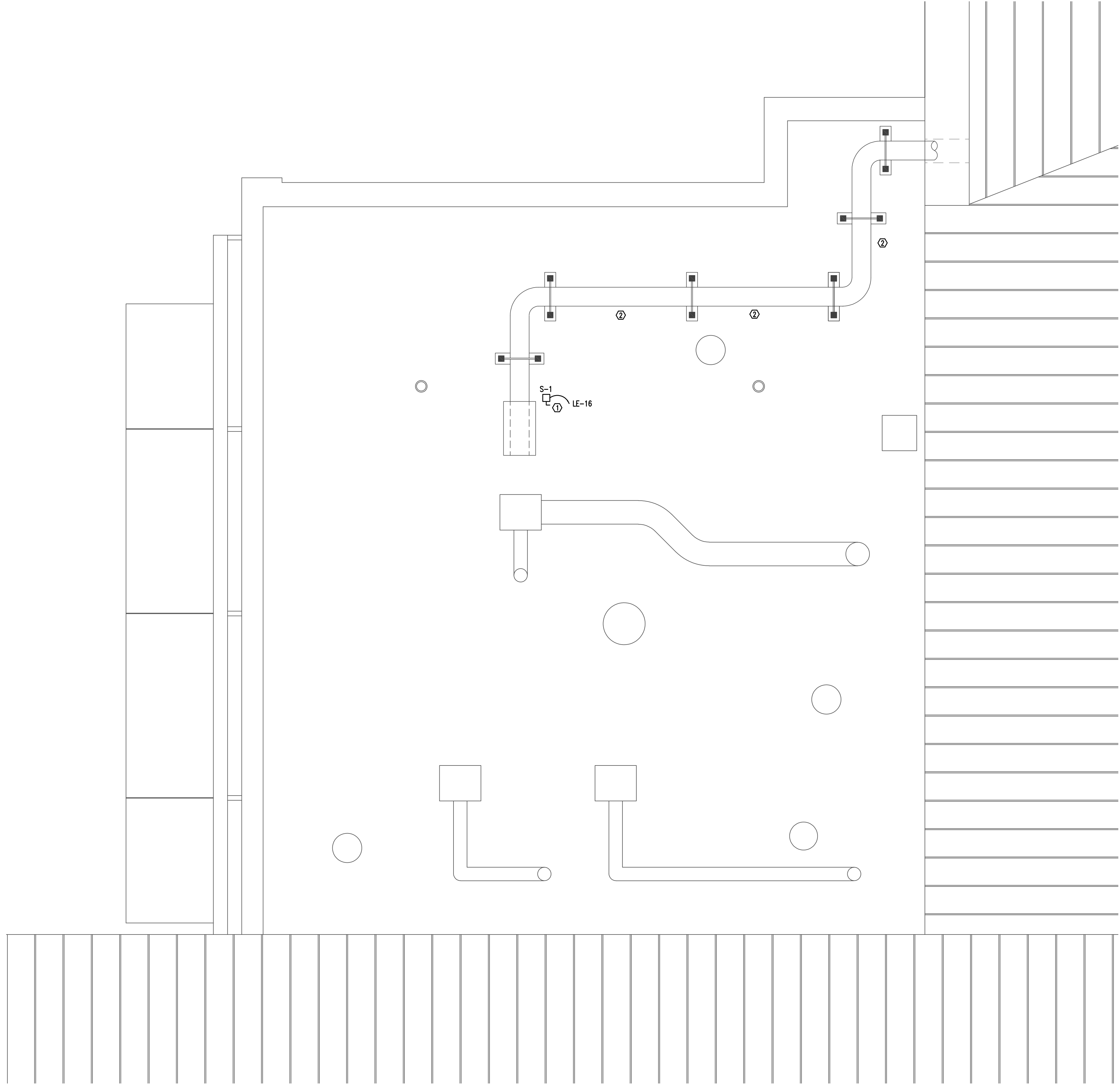
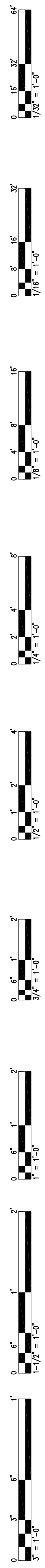
SECOND FLOOR DEMOLITION PLAN
1/4" = 1'-0"

- DEMOLITION NOTES:**
- 1. REMOVE EXISTING RECEPTACLES AND CONDUIT FEEDING EXISTING TABLES BEING DEMOLISHED BACK TO NEAREST JUNCTION BOX ABOVE 1ST FLOOR CEILING. EXISTING CIRCUITS SHALL BE PROTECTED FOR REUSE DURING RENOVATION. EXISTING RECEPTACLES ARE FED FROM EXISTING PANEL 'LE' CIRCUITS 79,81.
 - 2. REMOVE EXISTING FLUORESCENT 2X4 LIGHT FIXTURES AND PROTECT DURING ADDITION OF HOOD EXHAUST. FIXTURES SHALL BE REINSTALLED AFTER HOOD EXHAUST WORK HAS BEEN COMPLETED. CLEAN AND RE-LAMP FIXTURES PRIOR TO REINSTALLATION.
 - 3. EXISTING HVAC UNIT BEING REPLACED. EXISTING CIRCUIT SHALL REMAIN TO ACCOMMODATE NEW UNIT BEING INSTALLED. EXTEND CONDUIT AND WIRING AS NEEDED TO MAKE FINAL CONNECTIONS TO NEW UNIT.
 - 4. REMOVE EXISTING RECEPTACLE AND TIE EXISTING WIRING TOGETHER IN BOX. PROVIDE BLANK COVER PLATE COLORED TO MATCH EXISTING ROOM DEVICES.
 - 5. EXISTING FIRE ALARM, A/V SPEAKERS, PROJECTOR, AND OTHER MISCELLANEOUS ITEMS ATTACHED TO CEILING SHALL BE SUPPORTED IN PLACE AND PROTECTED FOR DEMOLITION OF EXISTING CEILING GRID. DEVICES SHALL BE REINSTALLED ONCE NEW CEILING AND CEILING GRID IS INSTALLED.



SECOND FLOOR RENOVATION PLAN
1/4" = 1'-0"

- RENOVATION NOTES:**
- 1. CIRCUIT NEW GFI OUTLETS FOR LAB BENCHES TO EXISTING PANEL 'LE' CIRCUIT 79 SALVAGED DURING DEMOLITION. EXTEND EXISTING CONDUIT AND WIRING TO OUTLETS. CONCEAL FLEX CONDUIT WITHIN LAB BENCH.
 - 2. CIRCUIT NEW GFI OUTLETS FOR LAB BENCHES TO EXISTING PANEL 'LE' CIRCUIT 81 SALVAGED DURING DEMOLITION. EXTEND EXISTING CONDUIT AND WIRING TO OUTLETS. CONCEAL FLEX CONDUIT WITHIN LAB BENCH.
 - 3. CIRCUIT NEW BC-2-19 TO EXISTING PANEL 'HE' CIRCUIT 22 SALVAGED DURING DEMOLITION. EXTEND EXISTING CONDUIT AND WIRE.
 - 4. TIE NEW DUCT DETECTOR INTO EXISTING FIRE ALARM INITIATION CIRCUIT LOCATED WITHIN ROOM.
 - 5. PROVIDE A 1" WITH PULLSTRING FROM ACCESSIBLE CEILING SPACE ABOVE FIRST FLOOR IN WALL TO CEILING ABOVE SECOND FLOOR FOR A/V CABLING FOR PROJECTOR.
 - 6. PROVIDE FIRE RATED POKE-THRU DIRECTLY BENEATH EXISTING A/V CABINET X-RAY FLOOR TO VERIFY ANY STRUCTURAL INTERFERENCES PRIOR TO INSTALLING POKE-THRU. COORDINATE EXACT LOCATION IN FIELD.



- RENOVATION NOTES:
- ① MOUNT DISCONNECT ON UNISTRUT RACK ADJACENT TO EXHAUST FAN.
 - ② ROUTE CONDUIT ADJACENT TO EXHAUST FAN DUCTWORK AND SUPPORT VIA DUCTWORK SUPPORTS. ENTER BUILDING WITH DUCTWORK ON SIDEWALL OF ROOF. COORDINATE EXACT LOCATION IN FIELD.

ROOF RENOVATION PLAN
1/4" = 1'-0"



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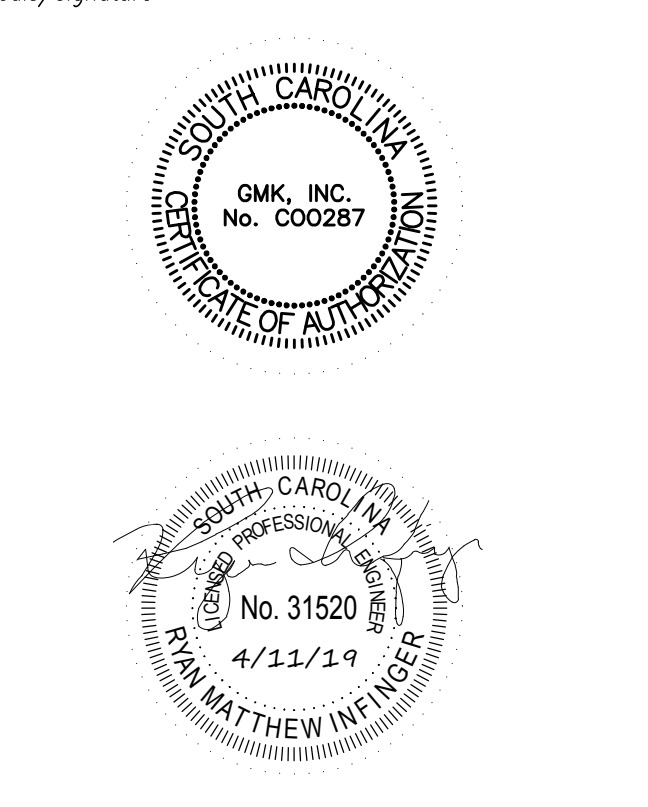
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SOUTH CAROLINA
LANCASTER

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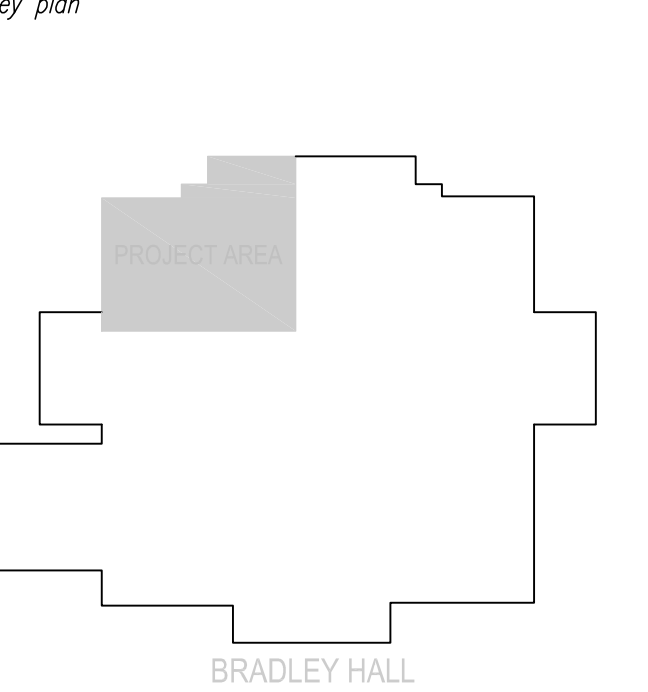
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APRIL 11, 2019

number	item	date



sheet title
**ELECTRICAL ROOF
RENOVATION PLAN**

sheet number
E3.1

drawn by **RM**
checked by **RM**