UNIVERSITY OF SOUTH CAROLINA

Columbia, SC

SUMWALT COLLEGE LABORATORY RENOVATIONS

State Project #H27-6098-FW
GMK Project #12044.02
December 20, 2013
CONSTRUCTION DOCUMENTS

Prepared by:

GMK ASSOCIATES, INC.
Design/Planning/Construction
1201 Main Street
Columbia, South Carolina 29201-3299
tel. 803-256-0000 fax 803-255-7243

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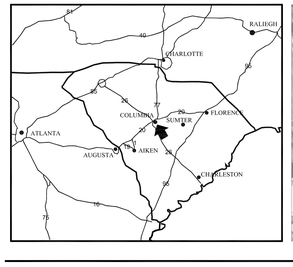
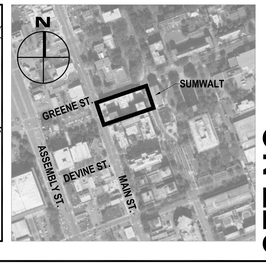
KEY PLAN





SET NO. ____

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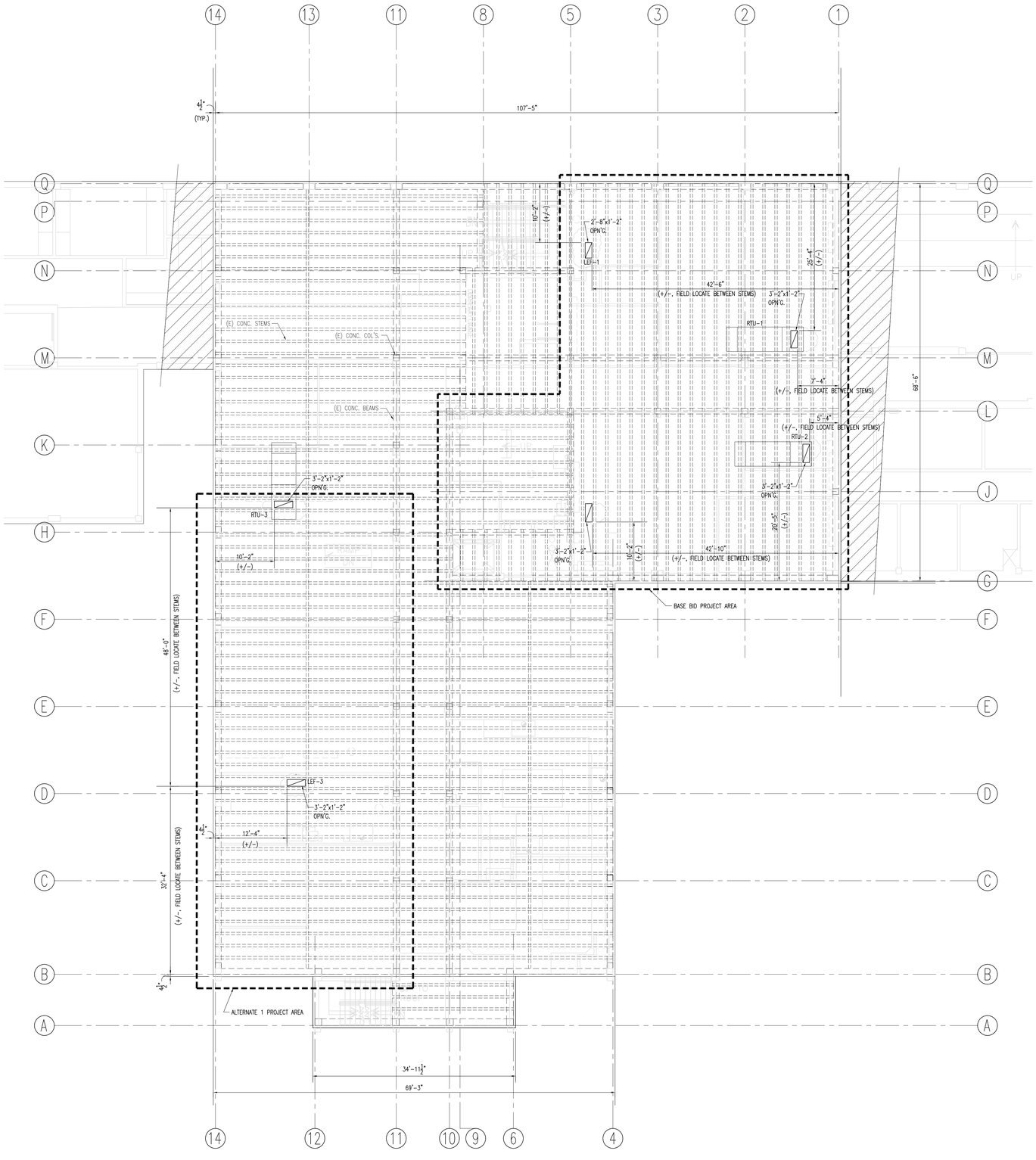


1 S1.01 **ROOF OPENING PLAN**

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

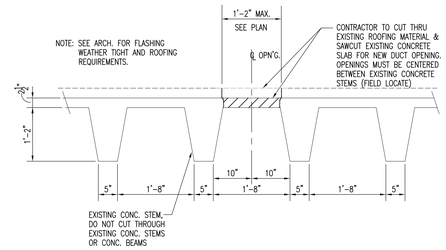
01000 GENERAL NOTES:

1. The Structural Engineer-Of-Record, CMC Cary Engineering, shall not be responsible for the means, methods, techniques, sequences, nor procedures of construction selected by the Contractor, or the safety precautions and programs incidental to the work of the Contractor. The Structural Engineer shall not be responsible for the failure of the Contractor to perform the construction work in accordance with these drawings.

2. The Contractor shall verify existing conditions and dimensions and notify the Structural Engineer of any discrepancies prior to fabrication and construction.

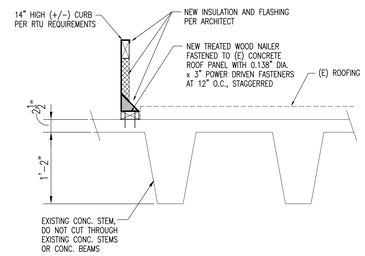
3. The Contractor shall inform the Structural Engineer, clearly and explicitly in writing, of any deviation or substitution of requirements of the contract documents. Contractor is responsible for coordinating all dimensions shown on the contract documents. Inconsistencies on the Structural drawings or between the Structural drawings and any other contract, shop, fabrication, or other drawings or information shall be brought to the attention of the Structural Engineer prior to proceeding with affected work.

4. Sections and details are shown to indicate specific conditions. Where sections and details are noted to be typical, these sections or details shall apply to other similar locations. Any location in question shall be brought to the attention of the Structural Engineer.



2 S1.01 **SECTION THRU NEW ROOF OPN'G.**

SCALE : 3/4" = 1'-0"



A S1.01 **NEW RTU CURB DETAIL**

SCALE : 1" = 1'-0"

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Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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STRUCTURAL ENGINEER-OF-RECORD

CMC CARY ENGINEERING
P.O. BOX 2525
GREENVILLE, SC 29602
PHONE: 864-609-5340
FAX: 864-609-5344
CMCCE PROJECT NO. 13-1157

owner

UNIVERSITY OF SOUTH CAROLINA

project name

SUMWALT COLLEGE LABORATORY RENOVATIONS

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seals/signature

SOUTH CAROLINA CMC CARY ENGINEERING No. C02124 CERTIFICATE OF AUTHORIZATION

issued for

CONSTRUCTION DOCUMENTS

date

DECEMBER 20, 2013

number	item	date

key plan

N

sheet title

ROOF MODIFICATION PLAN

sheet number

S1.01

drawn by D. DANN

checked by D. HOLINGSWORTH

TABLE 5-1 FLOOD HAZARD INFORMATION and FLOOD LOADS

FLOOR ZONE: ZONE X COMMUNITY NUMBER: 450836 PANEL NUMBER: 0251D

FLOOD HAZARD AREA
Base Flood Elevation N/A MSL NGVD or FIRM
Design Flood Elevation N/A MSL IBC 1612.3 and ASCE 24

NON HIGH-VELOCITY WAVE ACTION
Elevation of Lowest Proposed Floor N/A MSL Meet ASCE 24 Section 2.6.2.1
Dry floodproofing N/A Y/N per ASCE 24

HIGH-VELOCITY WAVE ACTION
Elevation of bottom of Lowest Horizontal Structural Member of lowest floor N/A MSL
Flotation resistant N/A Y/N per ASCE 24
Breakaway wall N/A Y/N per ASCE 24

IBC 1612 and SE-900, as applicable

ZONING CERTIFICATION
"I hereby certify that, to the best of my knowledge, these plans comply with applicable zoning ordinances, and that plans have been submitted to appropriate authority for their review and/or approval."

Signed: _____ Architect/Engineer _____ Date

If the project does not require a National Pollution Discharge Elimination System (NPDES) permit from SCDHEC, include the following certification on the Site Plan(s):

EROSION AND SEDIMENT REDUCTION/STORMWATER MANAGEMENT
Designer's Certification:
"I hereby certify that the measures in this plan are designed to control erosion, retain sediment on the site, and manage stormwater in a manner that neither any on-site nor off-site damage or problem is caused or increased, that all structural measures are designed to the minimum standards for health and safety, and that all the provisions of the plan are in compliance with the Regulations contained in Chapter 72, Article 2, SC Code of Regulations (Erosion and Sediment Reduction and Stormwater Management Regulations)."

Signed: _____ Engineer or Registered Landscape Architect (Circle one) _____ Date

NOTE: Where a fire wall is necessary to separate buildings, each building is to be provided individual code criteria tables 5-3 through 5-14. See IBC 503.1.2.

TABLE 5-3 BASIC BUILDING CODE INFORMATION
CONSTRUCTION CLASSIFICATION IIA Type (IBC 601)

OCCUPANCY GROUP (indicate all) BUSINESS (IBC 302)
(Note IBC 506.5)

OCCUPANCY GROUP (indicate most restrictive) BUSINESS (IBC Table 503)

Does building require Incidental Use Area Separation? NO Y/N (IBC 509)
Does building have Accessory Occupancy (ies)? NO Y/N (IBC 508.2)
SF
What percent of story is accessory occupancy? 0 Percent

Mixed Occupancy NO Y/N (IBC 508)
Non separated N/A Y/N (IBC 508.3)
Separated N/A Y/N (IBC 508.4)
(IBC 506.5)

OTHER FIRE PROTECTION SYSTEMS, DEVICES or FEATURES
If the building has any special or notable fire protection or safety feature or hazard the designers should list them here, describe the performance characteristics and refer to locations in construction documents. (e.g. fire extinguishers, smoke-evacuation/control/compartments. Note IBC 414.1.3.)

TABLE 5-4 BUILDING AREA
AREA LIMIT BY TABLE 503 OF IBC 37,500 SF
(Do not indicate increases for sprinklers & street frontage.) (area limitation per story)

AREA MODIFICATION FROM EQUATION 5-1 OF IBC
(Insert equation from IBC 506.1 with completed calculations in this box)
(Equation 5-1)

Aa = At + [At x If] + [At x Is] NA SF
(maximum modified area per story)

Aa = Allowable area per floor (square feet).
At = Tabular area per floor in accordance with Table 503
If = Area increase factor due to frontage (percent) as calculated in accordance with Section 506.2.
Is = Area increase due to sprinkler protection as calculated in accordance with Section 506.3.

(Repeat equation for each story of differing occupancies, IBC 506.5.2)

Note: footnote "e." from table 601 37,500 SF
(maximum area per story)

Total Allowed Area of Building (summary of all stories) 113,500 SF

AREA AS DESIGNED PER STORY (Repeat for each story) 27,570 SF (area per story)

Total Designed Area of Building 82,710 SF

TABLE 5-5 BUILDING HEIGHT

	AS DESIGNED		AS ALLOWED BY IBC	
	In Feet	In Stories	In Feet	In Stories
Without any Allowable Increase (per IBC Table 503)	43'	3	65'	5
Allowable Height Increase (per IBC 504.2)	N/A	N/A	N/A	N/A
Total Height including any Allowable Increase	43'	3	65'	5

TABLE 5-6 BUILDING DESIGN OCCUPANT LOAD

		A	B	C	D
Stories & Levels	Function of Space1	Floor Area2 (specify NSF or GSF)	Max Area allowed/Occupant3 (specify NSF or GSF)	OCCUPANTS on floor for this Function4	Design Occupant Load
FIRST	(1) CLASSROOM	(2) 27,570 GSF	(3) 100 SF/OCCUPANT	(4) 276 OCCUPANTS	
	Subtotal Design Occupant Load for This Story				(5) 276 OCCUPANTS
SECOND	(1) CLASSROOM	(2) 27,570 GSF	(3) 100 SF/OCCUPANT	(4) 276 OCCUPANTS	
	Subtotal Design Occupant Load for This Story				(5) 276 OCCUPANTS
THIRD	(1) CLASSROOM	(2) 27,570 GSF	(3) 100 SF/OCCUPANT	(4) 276 OCCUPANTS	
	Subtotal Design Occupant Load for This Story				(5) 276 OCCUPANTS
Add or delete rows as needed for each story & level of building (including mezzanine)					
Total Building Design Occupant Load					828 OCCUPANTS

Footnotes:
1. Provide the complete name of the Function of space using the left column of Table 1004.1.1 of the IBC.
2. Design Area per each occupant of this function on this floor in either Gross or Net square footage
3. Allowed Floor Areas in SF per Occupant per right column in Table 1004.1.1 of the IBC
4. Divide Column A (2) by Column B (3) for each function and enter the result, rounded up to the nearest whole person (4)
5 Subtotal all Column C values for this floor to yield the Design Occupant Load, (5)
6. Total Building Design Occupant Load -sum of all Column D value (6)

TABLE 5-7 GENERAL FIRE PROTECTION REQUIREMENTS

SEPARATIONS
Fireblocking Required NO Y/N per IBC Section 717
Draftstopping Required NO Y/N per IBC Section 717
Smoke Control System Required NO Y/N per IBC Section 909
Smoke Barriers Required NO Y/N per IBC Sections 407 and 408
Smoke Partitions Required NO Y/N per IBC Section 407
Fire Partition Required YES Y/N per IBC Section 709
Fire Barrier Required YES Y/N per IBC Section 707

ALARM & DETECTION
Fire Alarm System Required YES Y/N per IFC Section 907
Emergency Alarm System Required YES Y/N per IFC 908

SUPPRESSION
Standpipes Required NO Y/N per IFC Section 90
Sprinklers Required NO Y/N per IFC Section 903
Sprinklers Provided NO Y/N
Portable extinguishers required YES Y/N per IFC 906
Other suppression systems required NO Y/N per IFC 904
Smoke & heat vents required NO Y/N per IFC 910
Other: *(indicate other provided fire and life safety features not listed above, if any)*

TABLE 5-8 FIRE RESISTANCE RATING OF BUILDING ELEMENTS

BUILDING ELEMENT	Rating As Required (in hours)	Rating As Designed (in hours)	Testing Agency & Design No. (UL, FM, etc.)	Designers Wall/Partition Key Code
Structural Frame (per IBC Table 601)	1	1	N/A	
Bearing Walls Exterior Interior (per IBC Table 601)	N/A N/A	N/A N/A	N/A N/A	
Nonbearing Walls & Partitions Exterior Interior (per IBC Table 602)	0 0	0 0	N/A N/A	
Floor Construction including supporting beams & joists (per IBC Table 601)	1	1	N/A	
Roof Construction including supporting beams & joists (per IBC Table 601)	1	1	N/A	
Fire Walls (per IBC Section 706)	N/A	N/A	N/A	
Fire Barriers (per IBC Section 707 & 1009)	1	1	F.M. 4"CMU	
Shaft Enclosures (per IBC Section 713)	1	1	F.M. 4"CMU	
Fire Partitions (per IBC Section 708 & 1018)	1	1	F.M. 4"CMU	
Opening & Protective Listing by Category Fire Door (Corridors) Fire Door (Shafts, Exit Enclosures Incidental Accessory Spaces, Elevator Machine Rooms)	1/3 1½	1/3 1½	N/A N/A	
Laboratory Control Areas	1	1	U469 / F.M.	SEE A8.0 WALL TYPES

TABLE 5-9 STRUCTURAL DESIGN INFORMATION
OCCUPANCY CATEGORY(IES) *IBC Table 1607.1*

LIVE LOADS
Floor Live Load *FlV =* 80 *PSF CORRIDOR / 50 PSF CLASSROOMS*
Roof Live Load *RlV =* 20 *PSF*
Ground Snow Load *pg =* N/A *PSF* *IBC Figure 1608.2 (or ASCE 7)*

WIND LOADS
Analysis Procedure N/A *ASCE 7 or IBC 1609.6*
Basic Wind Speed *V3S =* N/A *MPH* *3 sec gust IBC Fig 1609*
Exposure Category
Wind Importance Factor *Iw =* N/A *ASCE 7(Table 6.1)*
Internal Pressure Coefficient *GCpi =* N/A *ASCE 7*
External Pressure Coefficient *GCp =* N/A *ASCE 7*

SEISMIC LOADS
Seismic Importance Factor *I =* N/A *ASCE 7*
Soil Class *IBC 1613.5.2*
Mapped Spectral Response Accelerations *Ss =* N/A *S1 =* N/A
Design Spectral Response Acceleration Parameters *SDS=* N/A *SD1=* N/A
Seismic Use Group *ASCE 7 (Seismic Occupancy Category IBC)*
Seismic Design Category *IBC Tables 1613.5.6(1) & 1613.5.6(2)*
Basic Seismic Force Resisting System
Design Base Shear *KIPS*
Seismic Response Coefficient(s) *Cs =* N/A *ASCE 7*
Response Modification Factor(s) *R =* N/A *ASCE 7*
Analysis Procedure

ARCHITECTURAL-MECHANICAL-ETC. LOADS 60 PSF *Provide as applicable: architectural items, mechanical, plumbing, etc. per ASCE 7*

SPECIAL LOADS N/A *Provide as applicable: abnormal items, moving loads, impact, hoisting, etc. per ASCE)*

**per IBC Chapter 16 and ASCE 7 -- Information may be shown on initial Structural Sheet of the drawings or on sheet with other code information. List floor design loads on structural plans.*

Table 5-10 PLUMBING INFORMATION

WATER SYSTEM
Service Line Size 3" Inches
Peak 100 GPM
Total Demand 245 No. Fixture Units

SANITARY SEWER SYSTEM
Loading N/A GPD
Service Line Size 6" Inches Slope (Existing Service) 1/8" min inches/ft

MINIMUM PLUMBING FIXTURES REQUIRED/PROVIDED (3RD FLOOR) per IPC Section 403 & Table 403.1

	Male-Required	Male-Provided	Female-Required	Female-Provided
Water Closets	4	4	3	3
Lavatories	3	2	2	2
Urinals*	0	2	N/A	N/A

OTHER FIXTURES per IPC Section 403 & Table 403.1

	Required	Provided
Drinking Fountains	3	1
Unisex toilet	0	0
Service Sink	1	1
Others (list)		
Urinals* - See IPC 419.2		

Where mixed Occupancies occur within buildings, expand this table to indicate Occupant loads for each
The minimum required toilet fixtures are calculated for the total Design Occupant Load indicated in Table 5-6

TABLE 5-12 MECHANICAL INFORMATION

AIR COMFORT SYSTEMS
Overall Thermal Transfer Value (OTTV): 12.25 (WALL), 3.62 (ROOF)
Building Cooling Load 344 SF / Ton
Building Heating Load 18 BTU / SF

OTHER LOADING FEATURES
Glass U Factor 0.5 Window to wall ratio 14.2%
Insulation Values Roof R-14 Exterior Walls R-3.6
Outside Air minimum while occupied 5090 CFM 245 OCCUPANTS

MECHANCIAL SYSTEMS, SERVICE SYSTEMS & EQUIPMENT
Briefly describe mechanical system: THIS BUILDING IS SERVED BY CHILLED WATER VAV AIR HANDLING UNITS AND TERMINAL BOXES WITH HOT WATER REHEAT. CHILLED WATER IS PULLED OFF A CENTRAL LOOP AND HOT WATER IS GENERATED BY AN EXISTING BOILER.
(The above data shall be considered a minimum and any special attribute required to meet the mechanical codes.)

TABLE 5-13 ELECTRICAL INFORMATION

SERVICE TRANSFORMER ☒ By Utility Co./By Agency

ELECTRICAL SERVICE INFORMATION
Service Voltage/Phase 480 / 277V / 3 Amperes
Service Entrance Conductors Size 500MCM Quantity per Phase
Total Connected Load 425 KVA
Estimated Maximum Demand 290 KVA
Available Fault Current in Symmetrical Amperes 10,500
Interrupting Capacity of Service Overcurrent Device 22,000

GROUNDING ELECTRODE SYSTEM COMPONENTS:
EXISTING (NEC 250)

EMERGENCY SERVICE INFORMATION
Emergency Generator YES 125 KW Voltage/Phase 480/ 277V/ 3 NAT GAS Fuel

Exit/Emergency Lights Backup Power ☐ Integral Battery ☒ Generator

Fire Alarm System ☒ Manual ☒ Automatic ☒ Addressable ☐ Class A ☒ Class B

LIGHTNING PROTECTION PROVIDED NO

COMMUNICATIONS COORDINATED ☒ Yes ☐ Not Required
Contact DSIT Network/Infrastructure Planning for applicability at (803) 896-0001

TABLE 5-14 DESIGN-RELATED CONSTRUCTION PERMITS/APPROVALS

The following list is not all-inclusive of every, permit and standards applicable to each project. Agencies and A/Es must delete non-applicable listings and add others for each specific project.

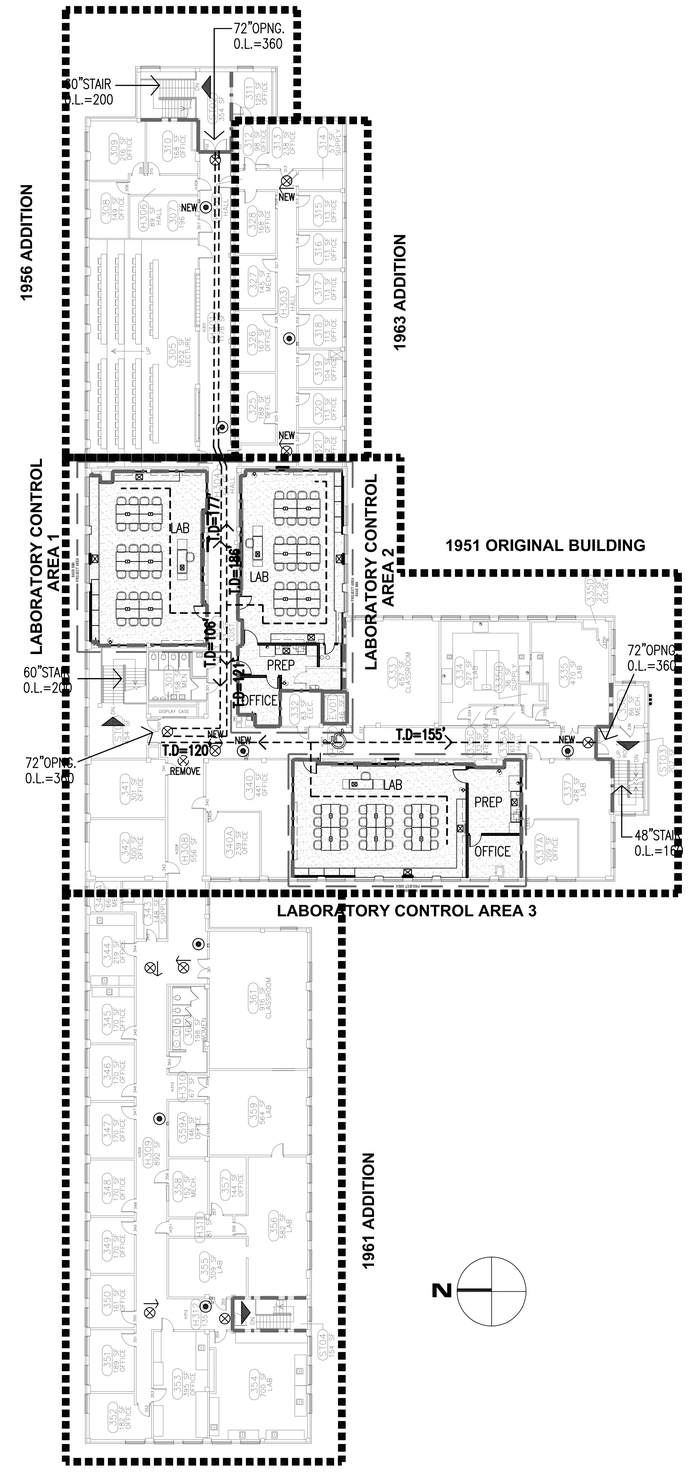
Type of Development	SC Law or Reg.	Where to Obtain Permit/	Approval/Status
Air pollutant discharge	48-1-100, R61-62.1	SCDHEC - Air Quality Control	IF ENCOUNTERED
Asbestos abatement	R61-86.1	SCDHEC - Air Quality Control	IF ENCOUNTERED
Fire Department (Local)	Various Local & State	Servicing Fire Department	IF ENCOUNTERED
Sanitary sewer, treatment & disposal	R61-56, 57	SCDHEC - Domestic Wastewater	IF ENCOUNTERED
Storm water discharge, erosion and sediment control	R61-9; R72-100-108	SCDHEC - Water Pollution Control; State Engineer; Local Authority	IF ENCOUNTERED
Waste discharge (sewage, industrial waste, etc.)	48-1-100, 110, R61-9	SCDHEC - Water Pollution Control	IF ENCOUNTERED
Water supply	44-55-40, R61-57, 58	SCDHEC - Water Supply Construction	IF ENCOUNTERED

For completion of this Table in the Bid Documents Stage it must indicate the status of each permit by insertion of "approved" and date in the status column. If not approved, indicate pending approval, phased approval and who (A/E, Agency, Contractor or Other) is to provide that documentation and anticipated date.

APPLICABLE CODES AND STANDARDS

International Building Code (IBC), 2012 Edition,
International Existing Building Code (IEBC), 2012 Edition, for ALTERATIONS-LEVEL 2
International Fire Code (IFC), 2012 Edition,
International Energy Conservation Code (IECC), 2009 Edition,
International Fuel Gas Code (IFGC), 2012 Edition,
International Mechanical Code (IMC), 2012 Edition,
International Plumbing Code (IPC), 2012 Edition
International Private Sewage Disposal Code (IPSDC), 2012 Edition,
International Property Maintenance Code (IPMC), 2012 Edition,
National Electrical Code (NEC) [NFPA-70], 2011 Edition
National Electrical Safety Code, ANSI-C2-2012 Edition
Latest edition of the American National Standards Institute, Inc. (ANSI) document A117.1, Accessible and Usaeble Buildings and Facilities
State Fire Marshal rules, regulations, and policies
South Carolina Elevator, Code, & Regulations
State of SC Telephone Equipment Room and Communications/Data Systems Policies as formulated by the Division of State Information Technology (DSIT).

SYMBOLS LEGEND
DESIGNATED EMERGENCY EXIT
HANDICAPPED ACCESSIBLE
FIRE EXTINGUISHER LOCATION
1 HOUR FIRE RESISTIVE CONSTRUCTION
FIRE ALARM PULL STATIONS
EXIT LIGHTS
EMERGENCY LIGHTS



1 THIRD FLOOR LIFE SAFETY PLAN
1/16" = 1'-0"

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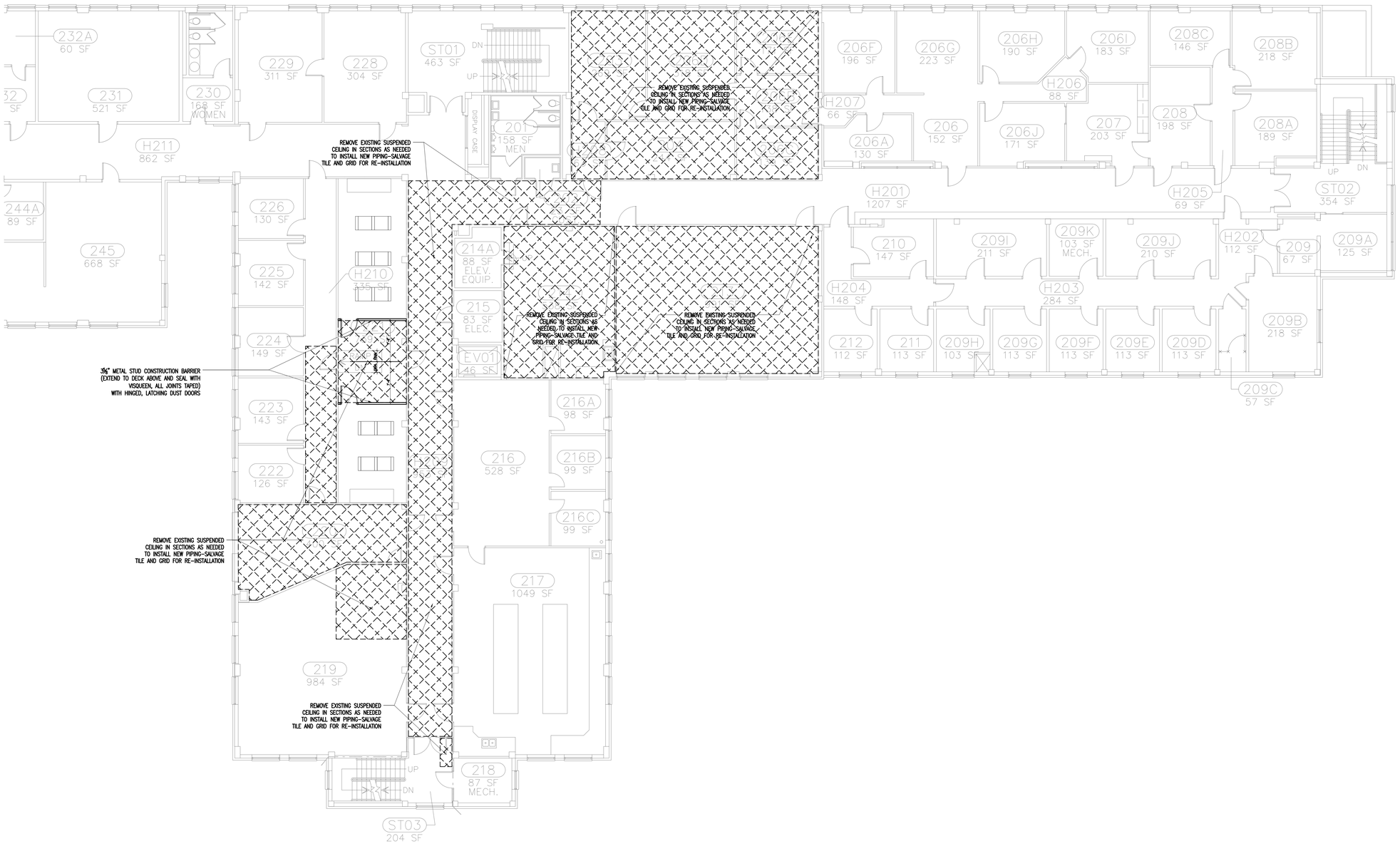
number	*item*	*date*

key plan

sheet title
CODE DATA AND THIRD FLOOR LIFE SAFETY PLAN

sheet number
CF1

drawn by RTC
checked by TMW



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number	*item*	*date*

key plan

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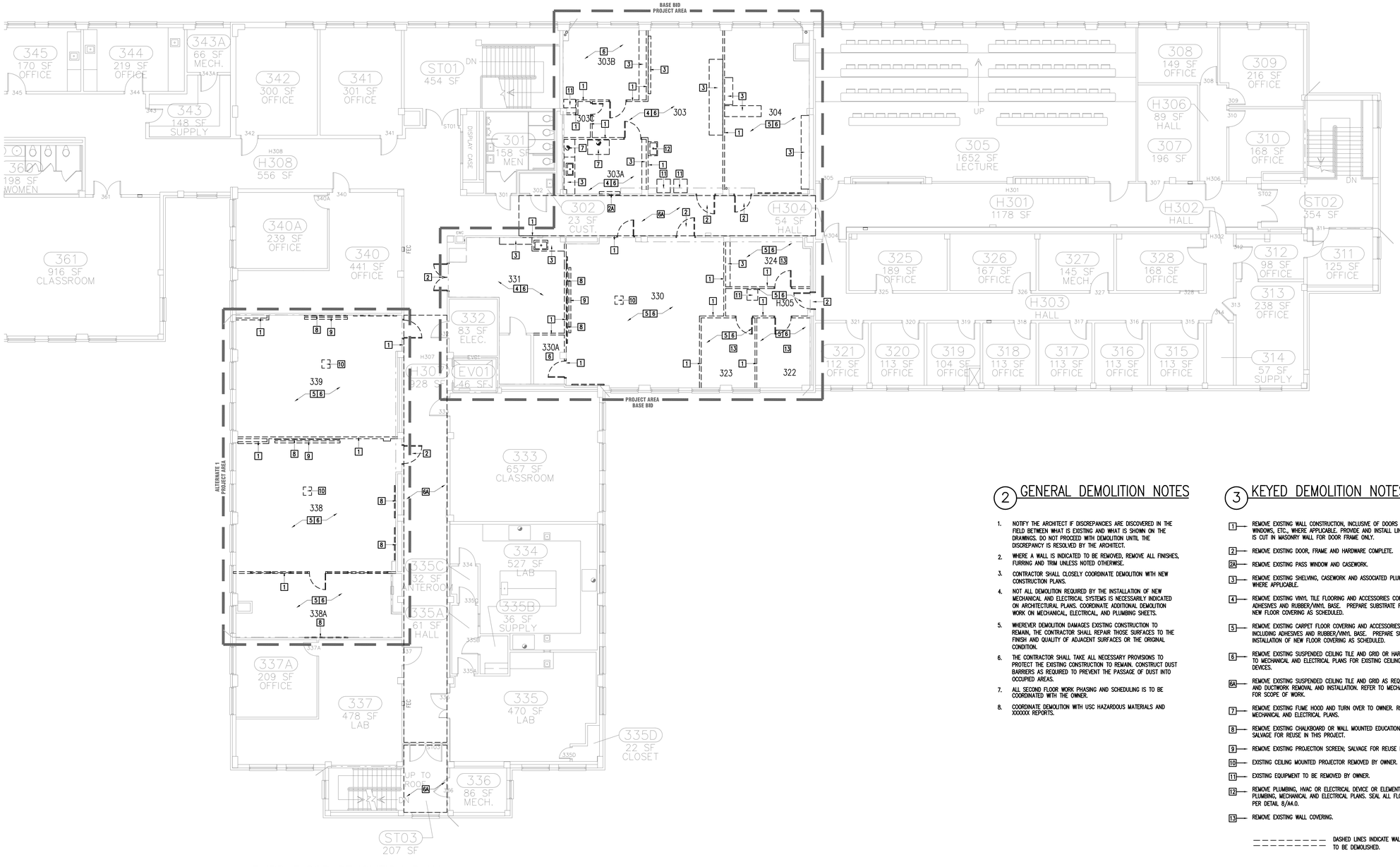
PARTIAL SECOND FLOOR DEMOLITION PLAN

sheet number
A1.2

drawn by RTC
checked by TMW



1 THIRD FLOOR DEMOLITION PLAN

1/8" = 1'-0"

2 GENERAL DEMOLITION 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. WHERE A WALL IS INDICATED TO BE REMOVED, REMOVE ALL FINISHES, FURRING AND TRIM UNLESS NOTED OTHERWISE.
3. CONTRACTOR SHALL CLOSELY COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLANS.
4. NOT ALL DEMOLITION REQUIRED BY THE INSTALLATION OF NEW MECHANICAL AND ELECTRICAL SYSTEMS IS NECESSARILY INDICATED ON ARCHITECTURAL PLANS. COORDINATE ADDITIONAL DEMOLITION WORK ON MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS.
5. WHEREVER DEMOLITION DAMAGES EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THOSE SURFACES TO THE FINISH AND QUALITY OF ADJACENT SURFACES OR THE ORIGINAL CONDITION.
6. THE CONTRACTOR SHALL TAKE ALL NECESSARY PROVISIONS TO PROTECT THE EXISTING CONSTRUCTION TO REMAIN. CONSTRUCT DUST BARRIERS AS REQUIRED TO PREVENT THE PASSAGE OF DUST INTO OCCUPIED AREAS.
7. ALL SECOND FLOOR WORK PHASING AND SCHEDULING IS TO BE COORDINATED WITH THE OWNER.
8. COORDINATE DEMOLITION WITH USC HAZARDOUS MATERIALS AND XXXXXX REPORTS.

3 KEYED DEMOLITION NOTES

1 — REMOVE EXISTING WALL CONSTRUCTION, INCLUSIVE OF DOORS AND FRAMES, VIEW WINDOWS, ETC., WHERE APPLICABLE. PROVIDE AND INSTALL LINTEL WHERE OPENING IS CUT IN MASONRY WALL FOR DOOR FRAME ONLY.

2 — REMOVE EXISTING DOOR, FRAME AND HARDWARE COMPLETE.

2A — REMOVE EXISTING PASS WINDOW AND CASEWORK.

3 — REMOVE EXISTING SHELVING, CASEWORK AND ASSOCIATED PLUMBING FIXTURES, WHERE APPLICABLE.

4 — REMOVE EXISTING VINYL TILE FLOORING AND ACCESSORIES COMPLETE INCLUDING ADHESIVES AND RUBBER/VINYL BASE. PREPARE SUBSTRATE FOR INSTALLATION OF NEW FLOOR COVERING AS SCHEDULED.

5 — REMOVE EXISTING CARPET FLOOR COVERING AND ACCESSORIES COMPLETE INCLUDING ADHESIVES AND RUBBER/VINYL BASE. PREPARE SUBSTRATE FOR INSTALLATION OF NEW FLOOR COVERING AS SCHEDULED.

6 — REMOVE EXISTING SUSPENDED CEILING TILE AND GRID OR HARD CEILINGS. REFER TO MECHANICAL AND ELECTRICAL PLANS FOR EXISTING CEILING SUPPORTED DEVICES.

6A — REMOVE EXISTING SUSPENDED CEILING TILE AND GRID AS REQUIRED FOR PIPING AND DUCTWORK REMOVAL AND INSTALLATION. REFER TO MECHANICAL DRAWINGS FOR SCOPE OF WORK.

7 — REMOVE EXISTING FUME HOOD AND TURN OVER TO OWNER. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL PLANS.

8 — REMOVE EXISTING CHALKBOARD OR WALL MOUNTED EDUCATIONAL DEVICE; SALVAGE FOR REUSE IN THIS PROJECT.

9 — REMOVE EXISTING PROJECTION SCREEN; SALVAGE FOR REUSE IN THIS PROJECT.

10 — EXISTING CEILING MOUNTED PROJECTOR REMOVED BY OWNER.

11 — EXISTING EQUIPMENT TO BE REMOVED BY OWNER.

12 — REMOVE PLUMBING, HVAC OR ELECTRICAL DEVICE OR ELEMENT. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL PLANS. SEAL ALL FLOOR PENETRATIONS PER DETAIL 8/A4.0.

13 — REMOVE EXISTING WALL COVERING.

- - - - - - - - - - DASHED LINES INDICATE WALLS TO BE DEMOLISHED.

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Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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owner

UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

issued for
CONSTRUCTION DOCUMENTS

date
DECEMBER 20, 2013

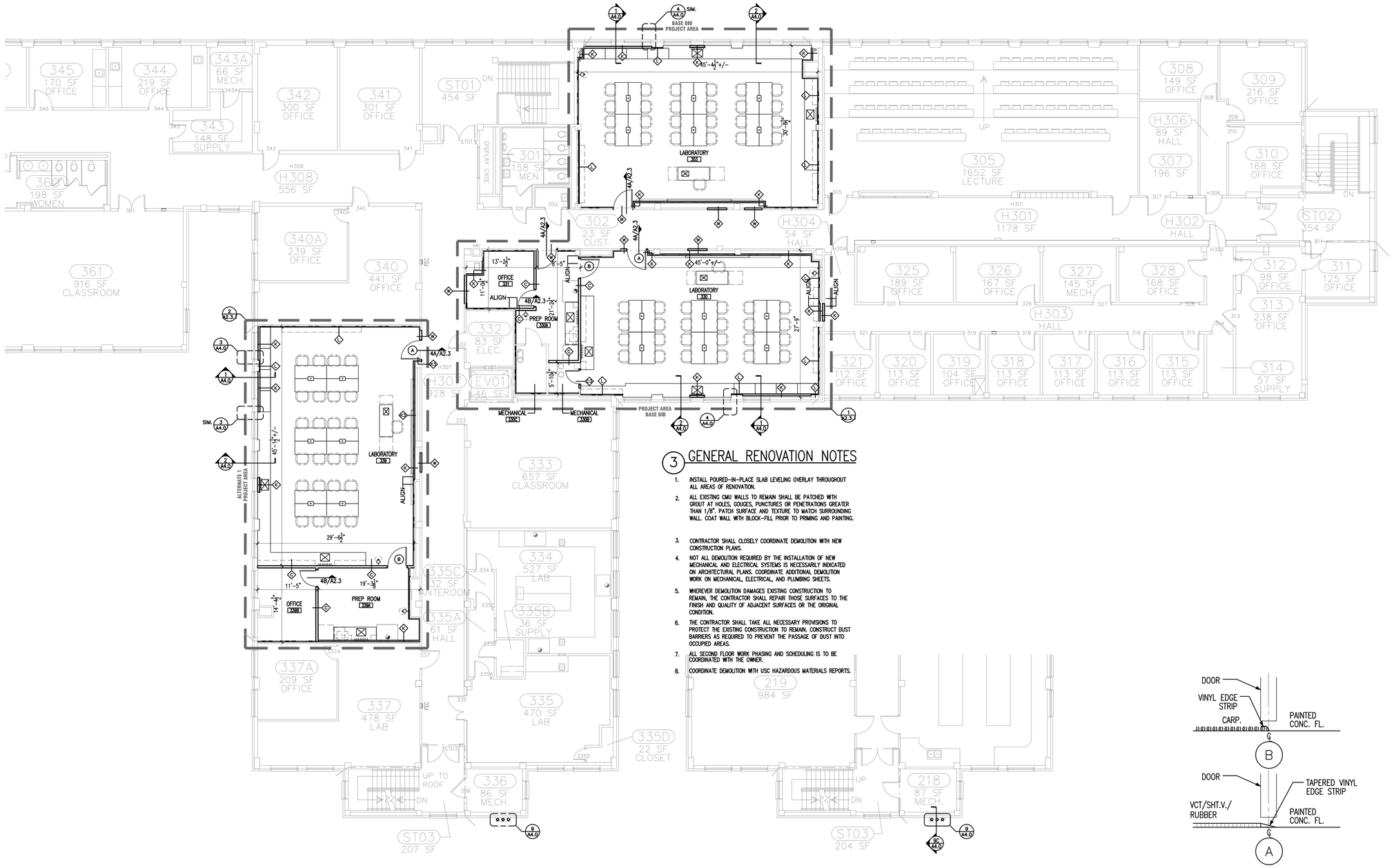
number	*item*	*date*

key plan

sheet title
PARTIAL THIRD FLOOR DEMOLITION PLAN

sheet number
A1.3

drawn by KBN
checked by TMW



1 THIRD FLOOR RENOVATION PLAN
1/8" = 1'-0"

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

3 GENERAL RENOVATION NOTES

1. INSTALL POURED-IN-PLACE SLAB LEVELING OVERLAY THROUGHOUT ALL AREAS OF RENOVATION.
2. ALL EXISTING CMU WALLS TO REMAIN SHALL BE PATCHED WITH GROUT AT HOLES, GOUGES, PUNCTURES OR PENETRATIONS GREATER THAN 1/8". PATCH SURFACE AND TEXTURE TO MATCH SURROUNDING WALL. COAT WALL WITH BLOCK-FILL PRIOR TO PRIMING AND PAINTING.
3. CONTRACTOR SHALL CLOSELY COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLANS.
4. NOT ALL DEMOLITION REQUIRED BY THE INSTALLATION OF NEW MECHANICAL AND ELECTRICAL SYSTEMS IS NECESSARILY INDICATED ON ARCHITECTURAL PLANS. COORDINATE ADDITIONAL DEMOLITION WORK ON MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS.
5. WHEREVER DEMOLITION DAMAGES EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THOSE SURFACES TO THE FINISH AND QUALITY OF ADJACENT SURFACES OR THE ORIGINAL CONDITION.
6. THE CONTRACTOR SHALL TAKE ALL NECESSARY PROVISIONS TO PROTECT THE EXISTING CONSTRUCTION TO REMAIN. CONSTRUCT DUST BARRIERS AS REQUIRED TO PREVENT THE PASSAGE OF DUST INTO OCCUPIED AREAS.
7. ALL SECOND FLOOR WORK PHASING AND SCHEDULING IS TO BE COORDINATED WITH THE OWNER.
8. COORDINATE DEMOLITION WITH USC HAZARDOUS MATERIALS REPORTS.

4 FLOOR DIVISION DETAILS
NO SCALE

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Design/Planning/Construction
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Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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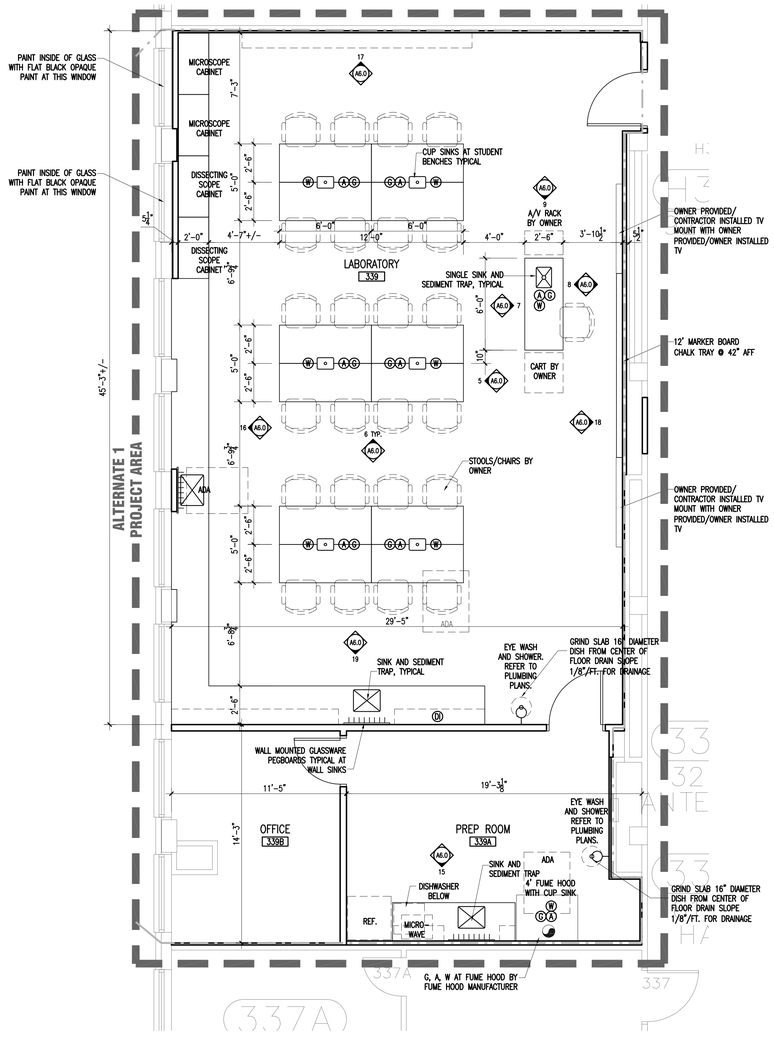
number	item	date

key plan

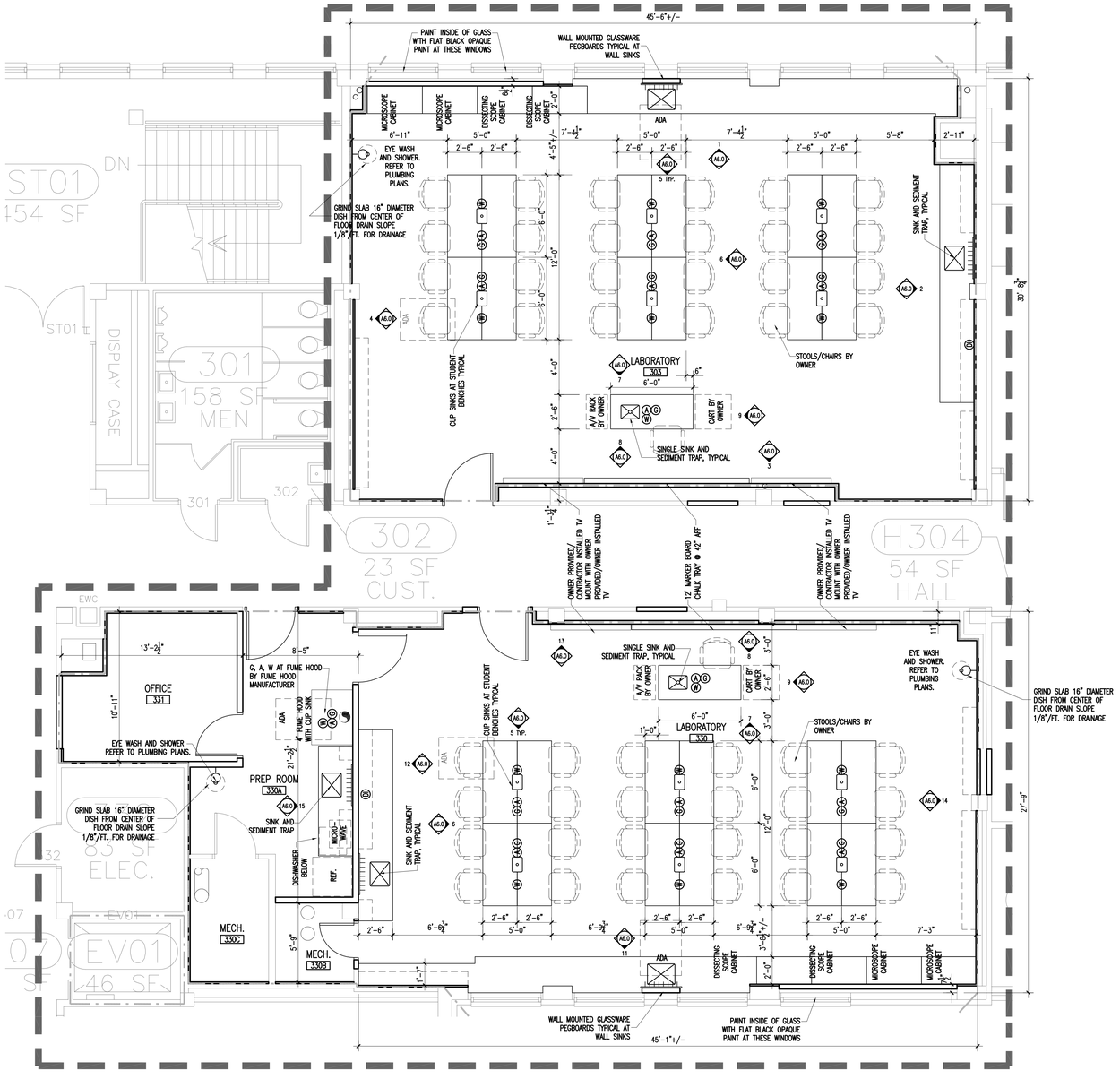
sheet title
PARTIAL SECOND AND THIRD FLOOR RENOVATION PLANS

sheet number
A2.3

drawn by RTC
checked by TMW



2 ENLARGED PARTIAL THIRD FLOOR PLAN – ALTERNATE 1
1/4" = 1'-0"



1 ENLARGED PARTIAL THIRD FLOOR PLAN – BASE BID
1/4" = 1'-0"

LEGEND
- (C) GAS OUTLET FITTING – BENCH MOUNTED
- (A) COMPRESSED AIR OUTLET FITTING – BENCH MOUNTED
- (W) WATER FAUCET – REFER TO PLUMBING PLANS
- (DI) DEIONIZED WATER OWNER SUPPLIED UNIT
- ADA ADA/ANSI ACCESSIBLE CABINET AND FIXTURES

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date
DECEMBER 20, 2013

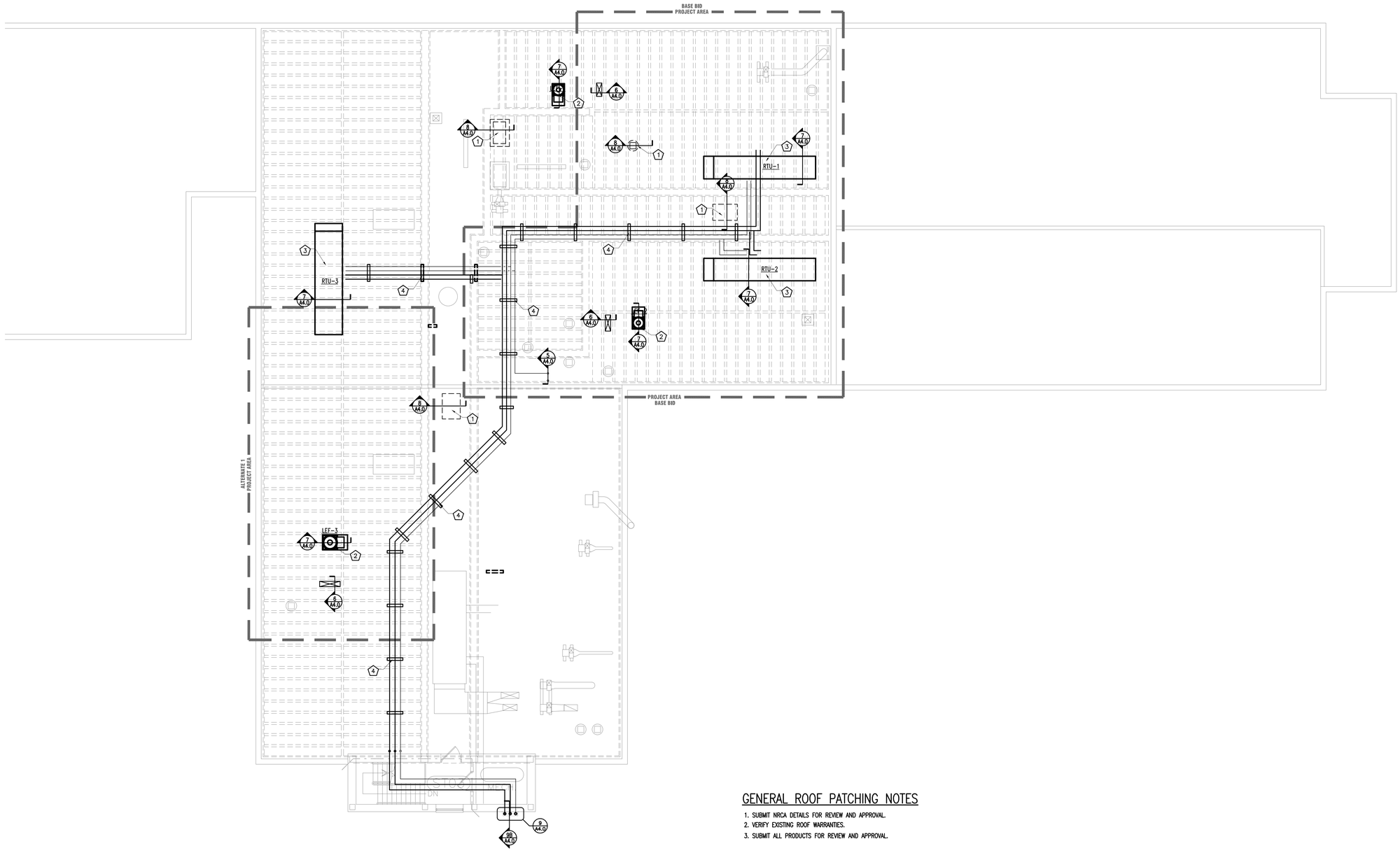
number	item	date

key plan

sheet title
ENLARGED EQUIPMENT LAYOUT PLANS

sheet number
A2.3.1

drawn by RTC
checked by TWW



1 ROOF RENOVATION PLAN

1/8" = 1'-0"

GENERAL ROOF PATCHING NOTES

1. SUBMIT NRCA DETAILS FOR REVIEW AND APPROVAL.
2. VERIFY EXISTING ROOF WARRANTIES.
3. SUBMIT ALL PRODUCTS FOR REVIEW AND APPROVAL.

KEYED ROOF PLAN NOTES

1. REFER TO MECHANICAL DRAWING FOR REMOVAL OF ROOF MOUNTED EQUIPMENT. SEAL ROOF PENETRATIONS AND PATCH ROOFING AND INSULATION PER DETAIL 8/A4.0.
2. REFER TO MECHANICAL DRAWING FOR EXHAUST FAN. REFER TO STRUCTURAL DRAWING FOR CURB FRAMING.
3. REFER TO MECHANICAL DRAWINGS FOR AIR HANDLER. REFER TO STRUCTURAL DRAWING FOR CURB FRAMING.
4. REFER TO MECHANICAL DRAWINGS FOR PIPING AND SUPPORT FRAMES.

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key plan

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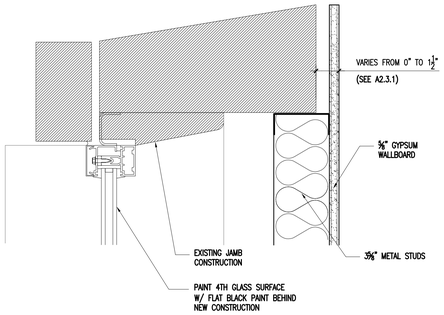
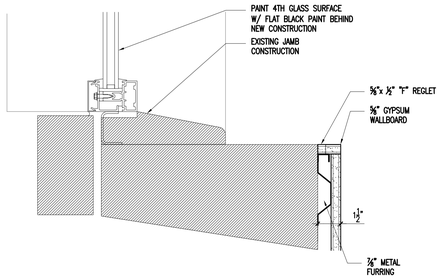
sheet title
PARTIAL ROOF RENOVATION PLAN

sheet number
A2.4

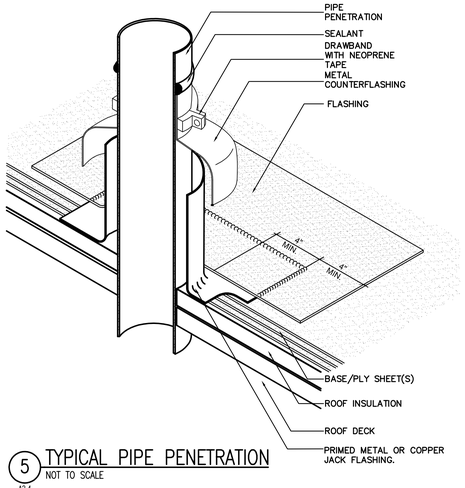
drawn by RTC
checked by TMW



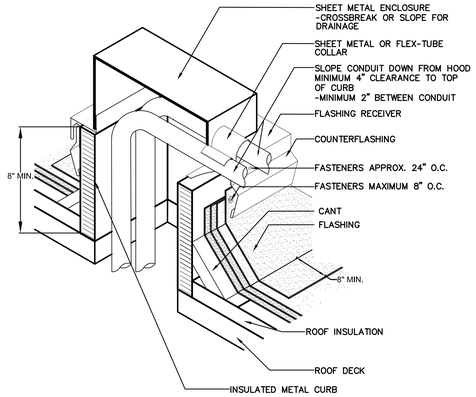
3 JAMB DETAIL
3" = 1'-0"



4 JAMB DETAIL
3" = 1'-0"



5 TYPICAL PIPE PENETRATION
A2.4
NOT TO SCALE



6 TYPICAL PIPING & CONDUIT PENETRATION (SQUARE DUCT PENETRATION SIMILAR)
A2.4
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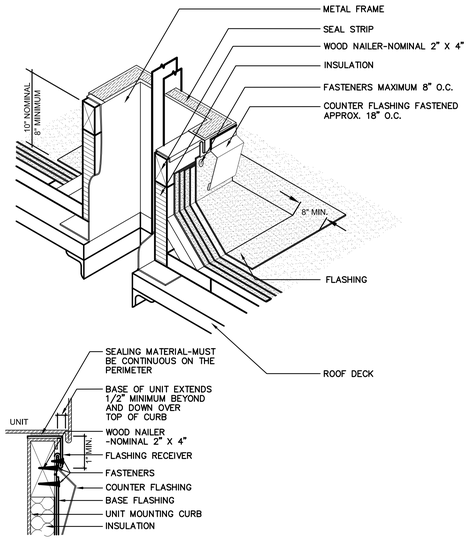

7 ROOF EQUIPMENT CURB DETAIL
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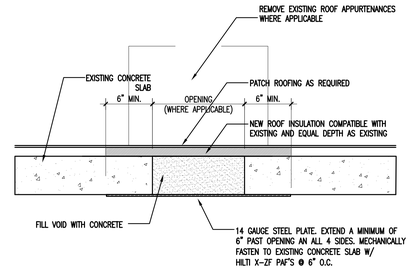
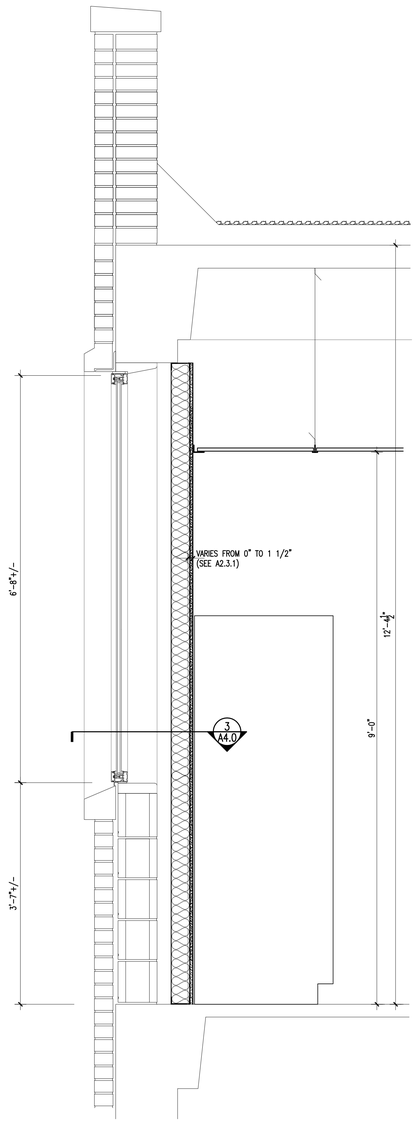
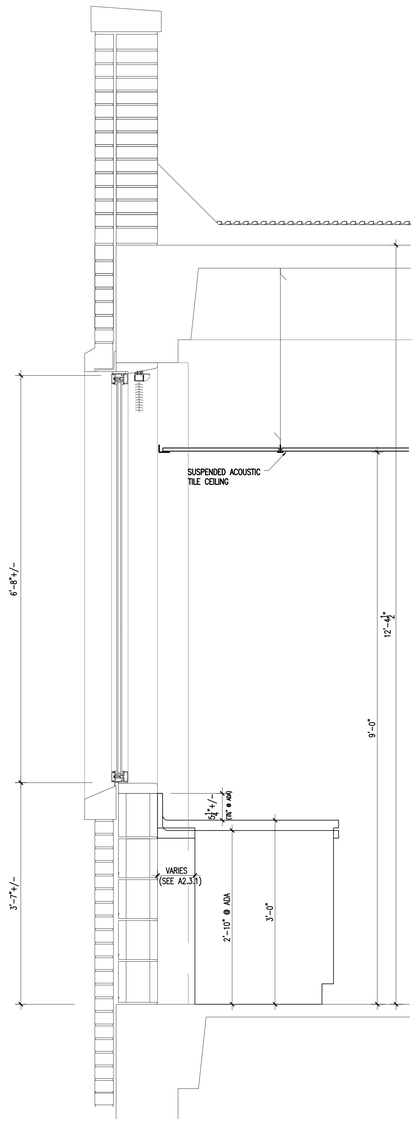


8 TYPICAL ROOF AND THIRD FLOOR PATCH DETAIL
1 1/2" = 1'-0"

(NOTE: THIRD FLOOR PATCH SIMILAR WITH ALL REFERENCES TO ROOFING DELETED.)



1 WALL SECTION
1" = 1'-0"



2 WALL SECTION
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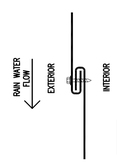
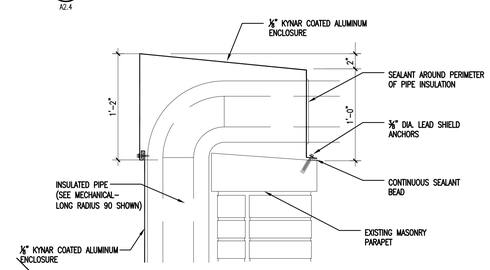
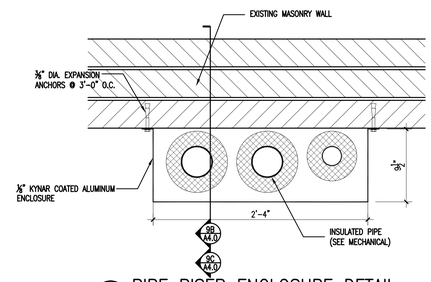


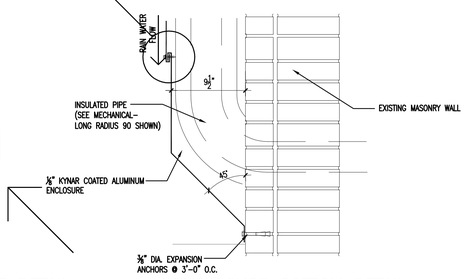
9A TYPICAL JOINT DETAIL
3" = 1'-0"



9B ENCLOSURE CAP DETAIL
1 1/2"= 1'-0"



9 PIPE RISER ENCLOSURE DETAIL
1 1/2" = 1'-0"



9C ENCLOSURE BOTTOM DETAIL
1 1/2"= 1'-0"

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number	item	date

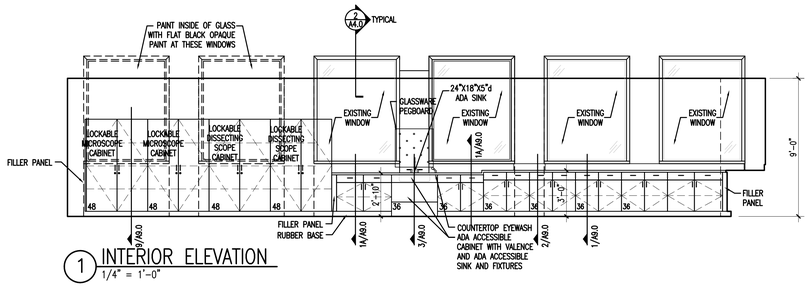
key plan

N

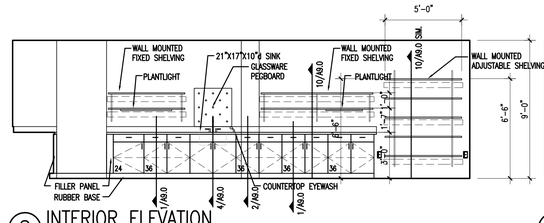
sheet title
WALL SECTIONS AND DETAILS
ROOF DETAILS
PIPE ENCLOSURE DETAILS

sheet number
A4.0

drawn by RTC
checked by TMW



1 INTERIOR ELEVATION
1/4" = 1'-0"



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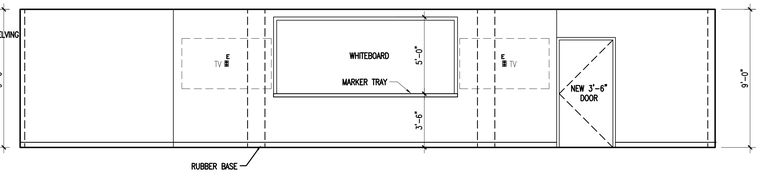

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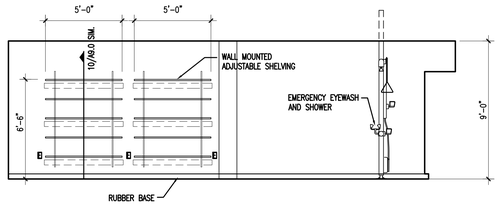
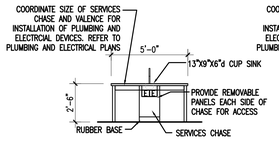


4 INTERIOR ELEVATION
1/4" = 1'-0"



5 INTERIOR ELEVATION
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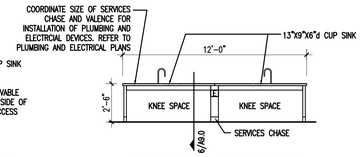

6 INTERIOR ELEVATION
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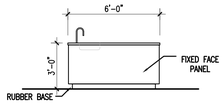

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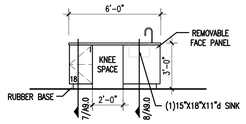

8 INTERIOR ELEVATION
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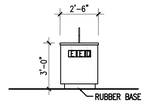

9 INTERIOR ELEVATION
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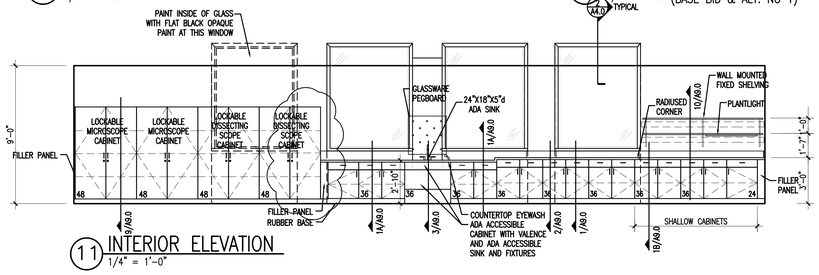
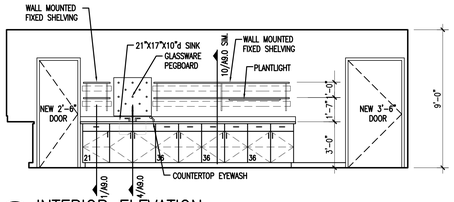
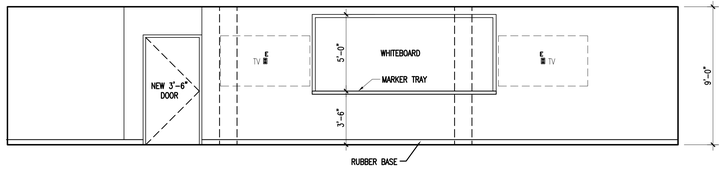
10 NOT USED



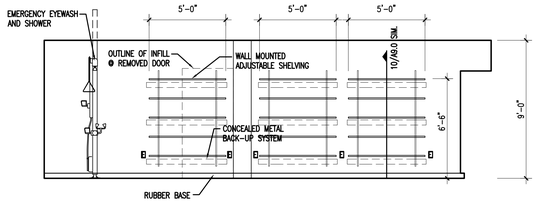
11 INTERIOR ELEVATION
1/4" = 1'-0"



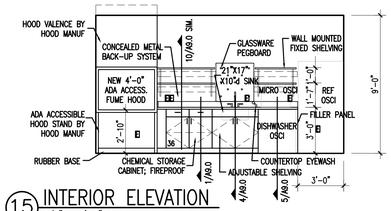
12 INTERIOR ELEVATION
1/4" = 1'-0"



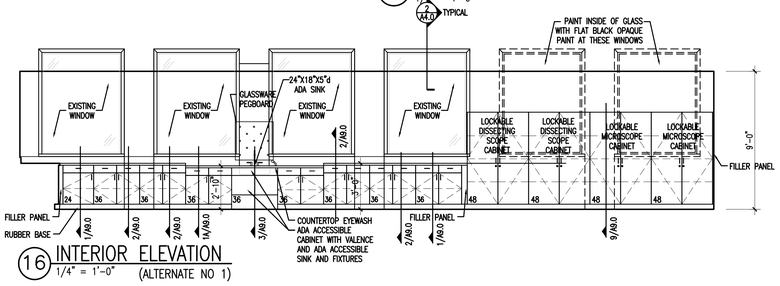
13 INTERIOR ELEVATION
1/4" = 1'-0"



14 INTERIOR ELEVATION
1/4" = 1'-0"



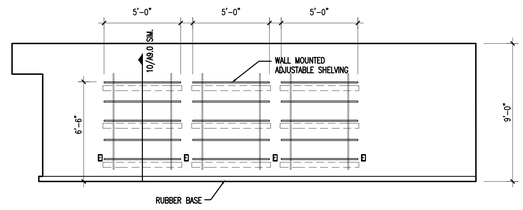
15 INTERIOR ELEVATION
1/4" = 1'-0" (BASE BID & ALT. NO 1)



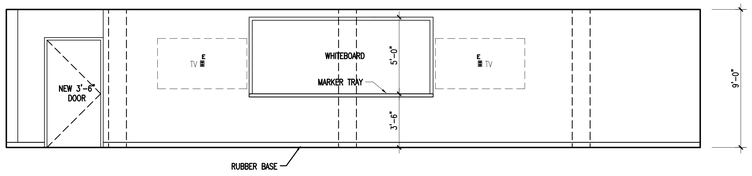
16 INTERIOR ELEVATION
1/4" = 1'-0" (ALTERNATE NO 1)

NOTE:
OSCI – OWNER SUPPLIED, CONTRACTOR INSTALLED

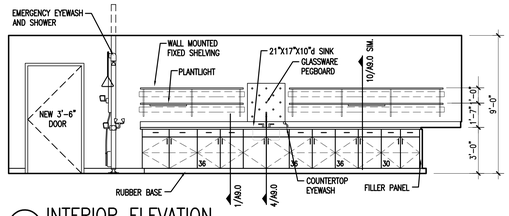
E – POWER/DATA. REFER TO ELECTRICAL PLANS.



17 INTERIOR ELEVATION
1/4" = 1'-0" (ALTERNATE NO 1)



18 INTERIOR ELEVATION
1/4" = 1'-0" (ALTERNATE NO 1)



19 INTERIOR ELEVATION
1/4" = 1'-0" (ALTERNATE NO 1)

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Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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consultants

owner

UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

issued for
CONSTRUCTION DOCUMENTS

date
DECEMBER 20, 2013

number	item	date

key plan

N

sheet title
INTERIOR ELEVATIONS

sheet number
A6.0

drawn by RTC
checked by TMW

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

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Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
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number	item	date

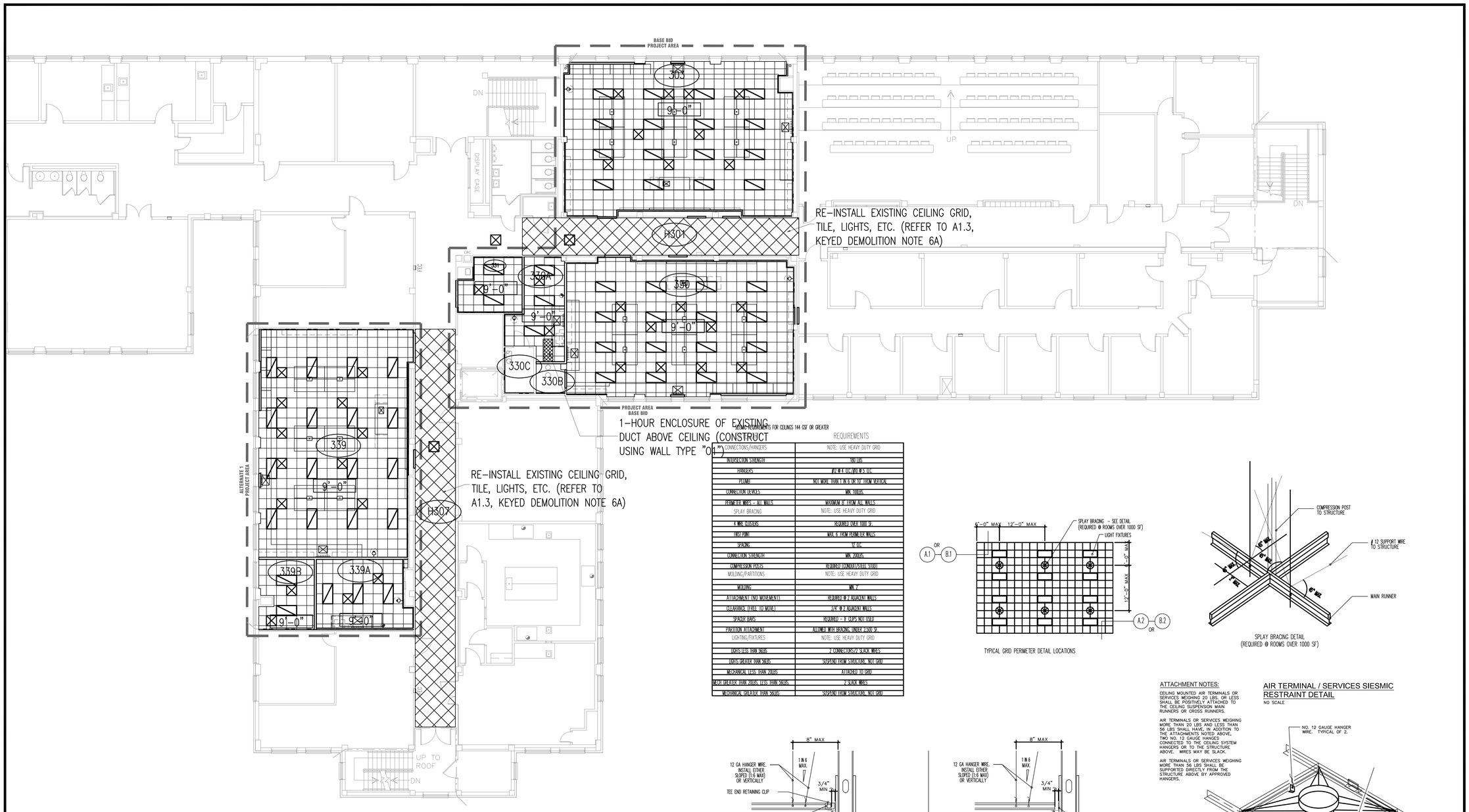
key plan

N

sheet title
PARTIAL SECOND FLOOR REFLECTED CEILING PLAN

sheet number
A7.2

drawn by RTC
checked by TMW



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

SEISMIC REQUIREMENTS FOR CEILINGS 144 GSF OR GREATER

	REQUIREMENTS
CONNECTIONS/HANGERS	NOTE: USE HEAVY DUTY GRID
INTERSECTION STRENGTH	180 LBS
HANGERS	#12 @ 4' O.C./#10 @ 5' O.C.
PLUMB	NOT MORE THAN 1 IN 6 OR 10" FROM VERTICAL
CONNECTION DEVICES	MIN. 300LBS.
PERIMETER WIRES - ALL WALLS	MAXIMUM 8" FROM ALL WALLS
SPLAY BRACING	NOTE: USE HEAVY DUTY GRID
4 WAY CLUSTERS	REQUIRED OVER 1000 SF.
FIRST POINT	MAX. 6' FROM PERIMETER WALLS
SPACING	12' O.C.
CONNECTION STRENGTH	MIN. 300LBS.
COMPRESSION POSTS	REQUIRED (CONDUIT/SHEET STUD)
MOLDING/PARTITIONS	NOTE: USE HEAVY DUTY GRID
MOLDING	MIN. 2"
ATTACHMENT (NO MOVEMENT)	REQUIRED @ 2 ADJACENT WALLS
CLEARANCE (FREE TO MOVE)	3/4" @ 2 ADJACENT WALLS
SPACER BARS	REQUIRED - 9' CLIPS NOT USED
PARTITION ATTACHMENT	ALTERNATE WITH BRACING UNDER 2,500 SF.
LIGHTING/FIXTURES	NOTE: USE HEAVY DUTY GRID
LIGHTS LESS THAN 56LBS	2 CONNECTORS/2" SLACK WIRES
LIGHTS GREATER THAN 56LBS	SUSPEND FROM STRUCTURE, NOT GRID
MECHANICAL LESS THAN 20LBS	ATTACHED TO GRID
MECH. GREATER THAN 20LBS, LESS THAN 56LBS	2 SLACK WIRES
MECHANICAL GREATER THAN 56LBS	SUSPEND FROM STRUCTURE, NOT GRID

TYPICAL GRID PERIMETER DETAIL LOCATIONS

SPLAY BRACING DETAIL
(REQUIRED @ ROOMS OVER 1000 SF)

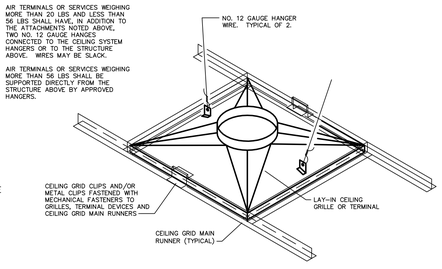
ATTACHMENT NOTES:

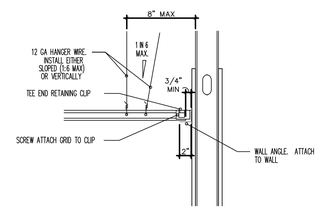
CEILING MOUNTED AIR TERMINALS OR SERVICES WEIGHING 20 LBS. OR LESS SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION MAIN RUNNERS OR CROSS RUNNERS.

AIR TERMINALS OR SERVICES WEIGHING MORE THAN 20 LBS AND LESS THAN 56 LBS SHALL HAVE, IN ADDITION TO THE ATTACHMENTS NOTED ABOVE, TWO NO. 12 GAUGE HANGES CONNECTED TO THE CEILING SYSTEM HANGERS OR TO THE STRUCTURE ABOVE. WIRES MAY BE SLACK.

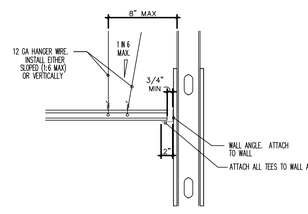
AIR TERMINALS OR SERVICES WEIGHING MORE THAN 56 LBS SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY APPROVED HANGERS.

AIR TERMINAL / SERVICES SIESMIC RESTRAINT DETAIL
NO SCALE



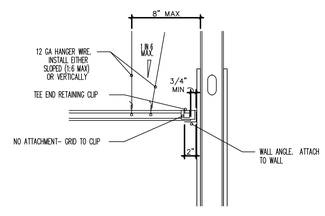


A.1 DETAIL @ TWO ADJACENT WALLS WITH GRID ATTACHED TO WALL ANGLE

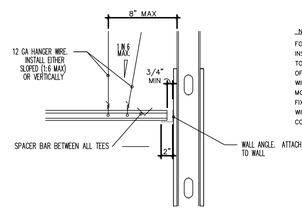


B.1 DETAIL @ TWO ADJACENT WALLS WITH GRID ATTACHED TO WALL ANGLE

OR

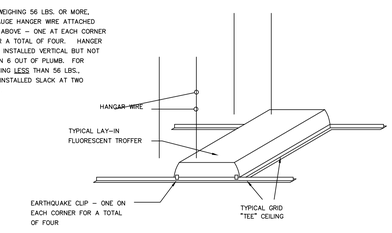


A.2 DETAIL @ TWO ADJACENT WALLS WITH NO ATTACHMENT TO WALL ANGLES



B.2 DETAIL @ TWO ADJACENT WALLS WITH NO ATTACHMENT TO WALL ANGLES

NOTE:
FOR FIXTURES WEIGHING 56 LBS. OR MORE, INSTALL #12 GAUGE HANGER WIRE ATTACHED TO STRUCTURE ABOVE – ONE AT EACH CORNER OF FIXTURE FOR A TOTAL OF FOUR. HANGER WIRES MUST BE INSTALLED VERTICAL BUT NOT MORE THAN 1 IN 6 OUT OF PLUMB. FOR FIXTURES WEIGHING LESS THAN 56 LBS., WIRES MAY BE INSTALLED SLACK AT TWO CORNERS ONLY.



2 SEISMIC CEILING DETAILS
NOT TO SCALE

GMK ASSOCIATES, INC.
Design/Planning/Construction
1201 Main Street, Suite 2100
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tel. 803-256-0000
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key plan

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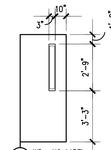
sheet title
PARTIAL THIRD FLOOR REFLECTED CEILING PLAN SEISMIC CEILING DETAILS

sheet number
A7.3

drawn by RTC
checked by TMW

1. ALL DOORS ARE 7'-0" HIGH UNLESS OTHERWISE NOTED
2. ASTRAGAL REQUIRED AT DOUBLE EGRESS DOORS

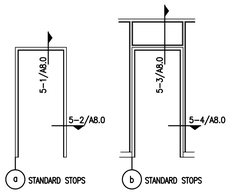


- (B) WD- NO LABEL 1/4" TEMPERED GLASS
- (B1) MTL- NO LABEL 1/4" TEMPERED GLASS
- (B2) WD- 3/4 HR. "C" LABEL 1/4" WIRE SAFETY GLASS
- (B3) MTL- 3/4 HR. "C" LABEL 1/4" WIRE SAFETY GLASS
- (B4) WD- 1-1/2 HR. "B"LABEL 1/4" WIRE SAFETY GLASS
- (B5) MTL- 1-1/2 HR. "B"LABEL 1/4" WIRE SAFETY GLASS

- (A) WD- NO LABEL
- (A1) MTL- NO LABEL
- (A2) WD- 3/4 HR. "C" LABEL
- (A3) MTL- 3/4 HR. "C" LABEL
- (A4) WD- 1-1/2 HR. "B"LABEL
- (A5) MTL- 1-1/2 HR. "B"LABEL
- (A6) WD- 3 HR. "A"LABEL
- (A7) MTL- 3 HR. "A"LABEL
- (A8) MTL- EXTERIOR INSULATED
- (A9) WD- 20 MIN. CERTIFIED CONSTRUCTION
- (A10) WD- 20 MIN. CERTIFIED CONSTRUCTION- 7'-10" HIGH
- (A11) MTL- 3 HR. "A" LABEL

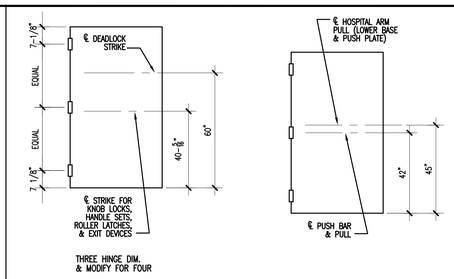
1 DOOR TYPES

NOTES:

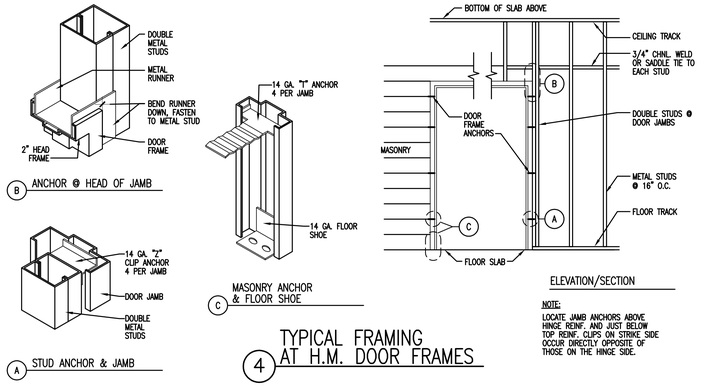


2 FRAME TYPES

NOTES: LABELED DOORS REQUIRE LABELED FRAMES

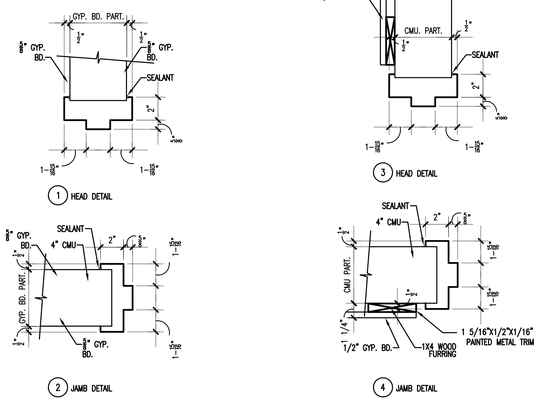


3 DOOR HARDWARE LOCATIONS



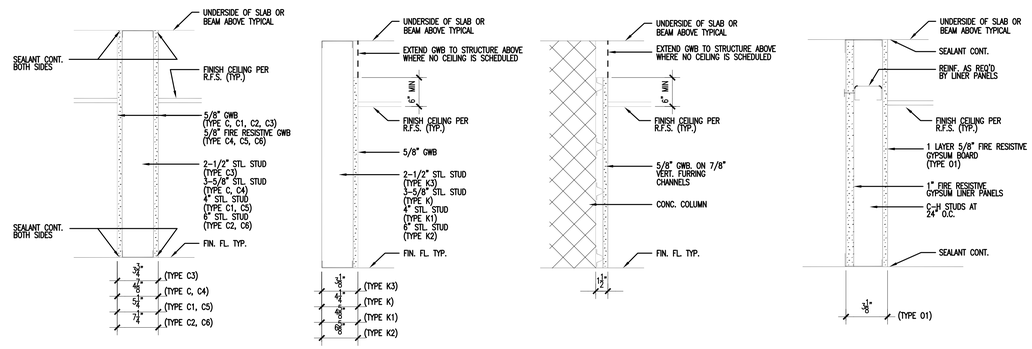
NOTE:
LOCATE JAMB ANCHORS ABOVE HINGE REINF. AND JUST BELOW TOP REINF. CLIPS ON STRIKE SIDE OCCUR DIRECTLY OPPOSITE OF THOSE ON THE HINGE SIDE.

4 TYPICAL FRAMING AT H.M. DOOR FRAMES



5 HEAD/JAMB DETAILS

NOTE: GROUT ALL FRAMES SOLID.

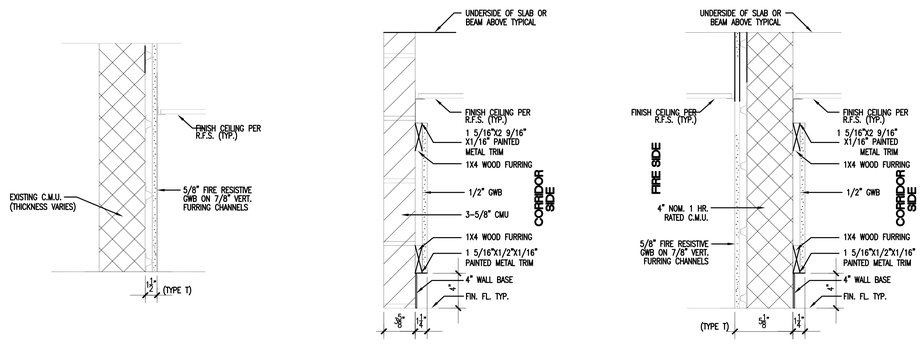


C NON-RATED TYPES: C, C1, C2, C3
1 HR. U.L. DES. U465 TYPES: C4, C5, C6
STC 40 GA FILE NO. WP 1200

K NON-RATED TYPES: K, K1, K2, K3

L NON-RATED TYPES: L

O 1 HR. U.L. DES. U469 TYPE: O1



T 1 HR. RATED TYPE: T

W NON-RATED TYPE: W

X 1 HR. RATED TYPE: X

6 WALL TYPES

DOOR SCHEDULE

	ROOM NAME	DOOR NUMBER	DOOR ELEV	DOOR SIZE	FRAME ELEV	HDWR SET
BASE BID	BIOLOGY LAB	303	B2	3'-6" X 7'-0"	b	CLASSROOM FUNCTION
	BIOLOGY LAB	330-A	B2	3'-6" X 7'-0"	b	CLASSROOM FUNCTION
	BIOLOGY LAB	330-B	B	3'-6" X 7'-0"	a	STOREROOM FUNCTION
	PREP ROOM	330A	A	3'-6" X 7'-0"	b	STOREROOM FUNCTION
	OFFICE	331	A	3'-0" X 7'-0"	a	OFFICE FUNCTION
	MECHANICAL	330B	A	2'-6" X 7'-0"	a	STOREROOM FUNCTION
ALT.1	BIOLOGY LAB	339-A	B2	3'-6" X 7'-0"	b	CLASSROOM FUNCTION
	BIOLOGY LAB	339-B	B	3'-6" X 7'-0"	a	STOREROOM FUNCTION
	OFFICE	339B	A	3'-0" X 7'-0"	a	OFFICE FUNCTION

DOOR HARDWARE:
1. ALL HARDWARE TO BE BHMA OPERATIONAL GRADE 1 – HEAVY DUTY COMMERCIAL.
2. ALL HARDWARE SHALL MEET ANSI 117.1 AND ADA AS APPLICABLE.
3. FINISH SHALL BE SATIN NICKEL, OR MATCH EXISTING FINISH IF DIFFERENT.
4. KEYING SHALL BE COORDINATED WITH OWNER AND KEYS PROVIDED.
5. EXACT TRIM, FINISH AND STYLE SHALL MATCH EXISTING 3RD FLOOR HARDWARE.
6. HARDWARE SUPPLIER SHALL COORDINATE WITH DOOR AND FRAME SUPPLIER ON PREPARATION FOR HARDWARE.
7. MINIMUM 7 YEAR WARRANTY
8. SUBMIT SCHEDULE, SPECS, PRODUCT DATA TO THE ARCHITECT FOR APPROVAL AS PER SECTION 01300.

OFFICE FUNCTION
A. 3 MORTISE HINGES EACH DOOR LEAF FOR DOORS UP TO 3'-6" WIDE. FOR DOORS OVER 3'-6" WIDE PROVIDE 4 HINGES.
B. 1 MORTISE LOCKSET (LEVER), OFFICE FUNCTION.
C. DOOR SILENCERS IN FRAME.
D. OVERHEAD STOP OR WALL BUMPER AS REQUIRED

CLASSROOM FUNCTION
A. 3 MORTISE HINGES EACH DOOR LEAF FOR DOORS UP TO 3'-6" WIDE. FOR DOORS OVER 3'-6" WIDE PROVIDE 4 HINGES.
B. 1 MORTISE LOCKSET (LEVER), CLASSROOM FUNCTION.
C. DOOR SILENCERS IN FRAME.
D. OVERHEAD STOP OR WALL BUMPER AS REQUIRED

STOREROOM FUNCTION
A. 3 MORTISE HINGES EACH DOOR LEAF FOR DOORS UP TO 3'-6" WIDE.
B. 1 MORTISE LOCKSET (LEVER), STOREROOM FUNCTION.
C. DOOR SILENCERS IN FRAME.
D. OVERHEAD STOP OR WALL BUMPER AS REQUIRED.

FINISH SCHEDULE

	ROOM NUMBER	ROOM NAME	SURFACE	FLOOR MATERIAL	FLOOR ACCENT	BASE	WALLS MATERIAL/FINISH	WALLS ACCENT	CEILING MATERIAL	CEILING ACCENT	REMARKS
BASE BID	303	LABORATORY		EP PNT	–	RB	PNT	–	ACT	–	–
	330	LABORATORY		EP PNT	–	RB	PNT	–	ACT	–	–
	330A	PREP ROOM		EP PNT	–	RB	PNT	–	ACT	–	–
	331	OFFICE		CPT	–	RB	PNT	–	ACT	–	–
	330B	MECHANICAL		EP PNT	–	RB	PNT	–	PNT	–	–
ALT.1	339	LABORATORY		EP PNT	–	RB	PNT	–	ACT	–	–
	339A	PREP ROOM		EP PNT	–	RB	PNT	–	ACT	–	–
	339B	OFFICE		CPT	–	RB	PNT	–	ACT	–	–

LEGEND:
CPT – CARPET
PNT – PAINT

GENERAL NOTES:
1. WHERE PAINT IS CALLED FOR, PAINT ALL WALLS OF THE ROOM WHETHER NEW OR EXISTING. REFER TO NOTES ON FLOOR PLANS.

6 PARTITION TYPES

NO SCALE

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key plan

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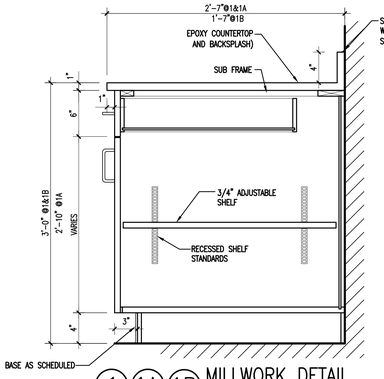
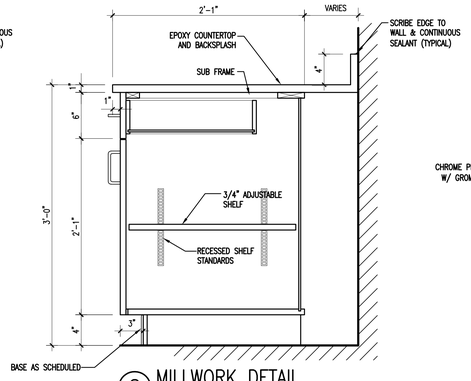
sheet title
DOOR SCHEDULE, DOOR AND FRAME TYPES AND DETAILS
PARTITION TYPES, FINISH SCHEDULE

sheet number
A8.0

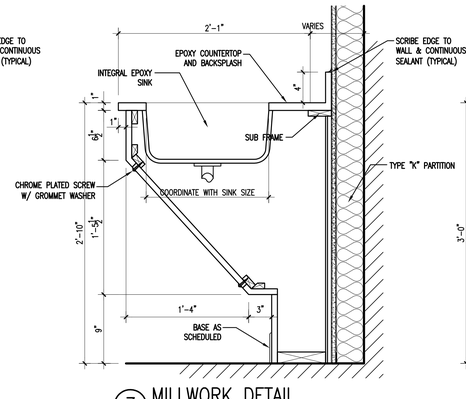
drawn by RTC
checked by TMW



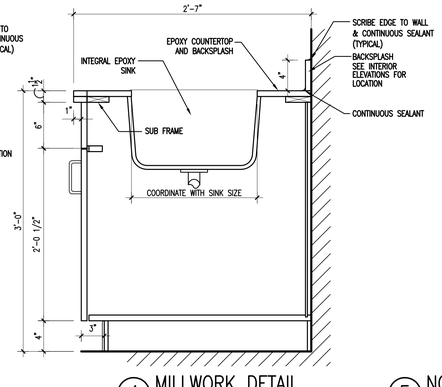
1 1A 1B MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



2 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



3 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0

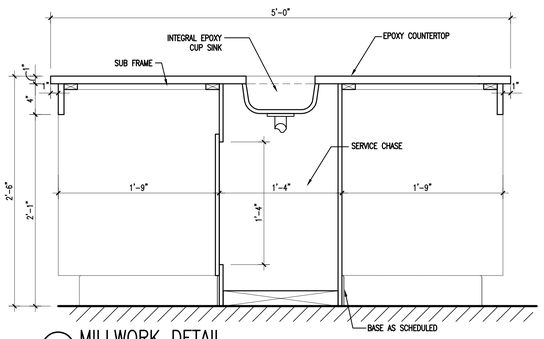


4 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0

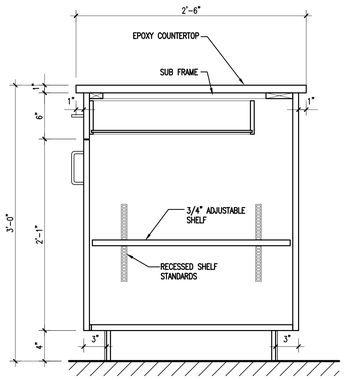
5 NOT USED

1. BACKSPLASH HEIGHT FOR ALL CABINETS ON EXTERIOR WALL TO TERMINATE AT BOTTOM OF SLOPED CONCRETE. REFER TO DETAILS ON SHEET A4.0.

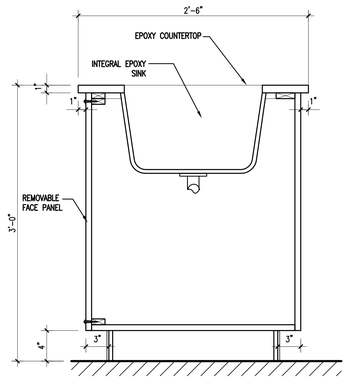
GENERAL NOTES FOR ALL MILLWORK



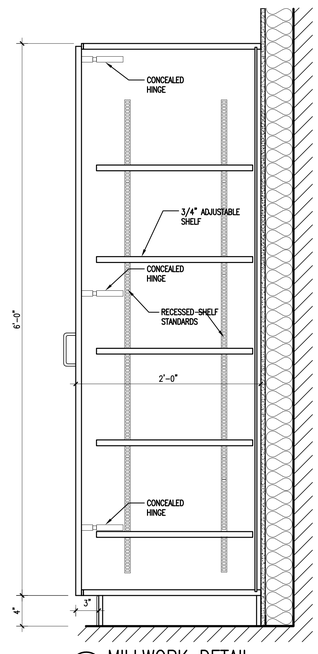
6 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



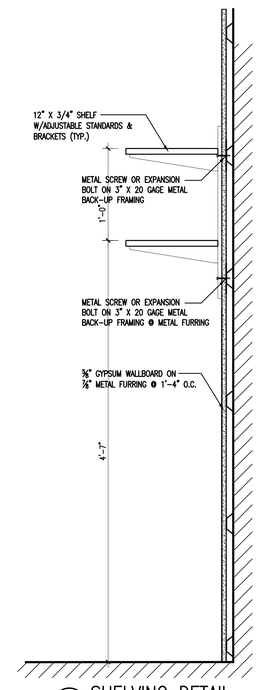
7 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



8 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



9 MILLWORK DETAIL
1 1/2"=1'-0"
A6.0



10 SHELVING DETAIL
1 1/2"=1'-0"
A6.0

GMK ASSOCIATES, INC.
Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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consultants

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UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

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CONSTRUCTION DOCUMENTS

date
DECEMBER 20, 2013

number	item	date

key plan

N

sheet title
MILLWORK DETAILS

sheet number
A9.0

drawn by RTC
checked by TMW

PLUMBING FIXTURE SCHEDULE

SK-1; LABORATORY SWIVEL FAUCET
1. TYPE
   A. WATERSAVER L412VB DECK MOUNT SWIVEL LAB FAUCET
   B. 8" GOOSENECK FAUCET
   C. VACUUM BREAKER
2. CONNECTION
   A. 1/2" CW & HW, 1-1/2" ACID WASTE
3. MOUNTING
   A. INTEGRAL COUNTER MOUNT AS SHOWN ON ARCH DRAWINGS.
4. SUPPLIES
   A. MCGUIRE 165LK WITH LOOSE KEY STOPS.
   B. FOUR ARM HANDLES
   C. AERATOR TIP
5. DRAIN
   A. CHARLOTTE PIPE AW-1A ACID WASTE.
6. TRAP
   A. ACID WASTE.

SK-2; LABORATORY DECK MOUNT FAUCET
1. TYPE
   A. WATERSAVER L611VB RIGID DECK MOUNT LAB FAUCET
   B. SERRATED TIP
   C. VACUUM BREAKER
2. CONNECTION
   A. 1/2" CW, 1-1/2" ACID WASTE
3. MOUNTING
   A. INTEGRAL COUNTER MOUNT AS SHOWN ON ARCH DRAWINGS.
4. SUPPLIES
   A. MCGUIRE 165LK WITH LOOSE KEY STOPS. SERRATED TIP
   B. FOUR ARM HANDLES
5. DRAIN
   A. CHARLOTTE PIPE AW-1A ACID WASTE.
6. TRAP
   A. ACID WASTE.

SK-3; LABORATORY DECK MOUNT FAUCET (ADA)
1. TYPE
   A. WATERSAVER L611VB RIGID DECK MOUNT LAB FAUCET
   B. SERRATED TIP
   C. VACUUM BREAKER
2. CONNECTION
   A. 1/2" CW, 1-1/2" ACID WASTE
3. MOUNTING
   A. INTEGRAL COUNTER MOUNT AS SHOWN ON ARCH DRAWINGS.
4. SUPPLIES
   A. MCGUIRE 165LK WITH LOOSE KEY STOPS. SERRATED TIP
   B. WRIST BLADE HANDLES
5. DRAIN
   A. CHARLOTTE PIPE AW-1A ACID WASTE.
6. TRAP
   A. ACID WASTE.

SK-4; LABORATORY SWIVEL FAUCET (ADA)
1. TYPE
   A. WATERSAVER L412VB DECK MOUNT SWIVEL LAB FAUCET
   B. 8" GOOSENECK FAUCET
   C. VACUUM BREAKER
2. CONNECTION
   A. 1/2" CW & HW, 1-1/2" ACID WASTE
3. MOUNTING
   A. INTEGRAL COUNTER MOUNT AS SHOWN ON ARCH DRAWINGS.
4. SUPPLIES
   A. MCGUIRE 165LK WITH LOOSE KEY STOPS.
   B. WRIST BLADE HANDLES
   C. AERATOR TIP
5. DRAIN
   A. CHARLOTTE PIPE AW-1A ACID WASTE.
6. TRAP
   A. ACID WASTE.

P-1; LABORATORY DECK MOUNT DOUBLE GAS VALVE
1. TYPE
   A. WATERSAVER L4200-132SWSA. 180° DOUBLE
   D. FORGED BRASS VALVE BODY
   E. CHROME PLATED BRASS BALL WITH MOLDED TEFLON SEALS
   F. CHROME FINISH
2. CONNECTION
   A. 3/8" IPS
3. MOUNTING
   A. DECK MOUNTED, SEE ARCH DWGS. FOR CONTINUATION

FD-1; FLOOR DRAIN (MED TRAFFIC ROUND TOP)
1. TYPE
   A. CHARLOTTE PIPE AW-160MS
2. TOP
   A. 6" STAINLESS STEEL.
3. CONNECTION
   A. 3" ACID WASTE
4. TRAP
   A. ACID WASTE DEEP SEAL.

EE-1, EMV-1; EMERGENCY EYE/FACE WASH
1. TYPE
   A. WATERSAVER EW806 DECK MOUNTED SWIVEL EYEWASH WITH DUAL SPRAY-HEADS.
2. CONNECTION
   A. 1/2" TEMPERED WATER
3. HEADS
   A. ABS PLASTIC PROTECTIVE COVERED EYEWASH HEADS.
4. VALVE
   A. CHROME PLATED BRASS STAY-OPEN BALL VALVE WITH EXTENDED HANDLE
5. SIGN
   A. ALUMINUM DESIGNED FOR WALL MOUNTING LABELED "EMERGENCY EYEWASH FOUNTAIN".
6. VACUUM BREAKER
   A. WATERSAVER IN-LINE VACUUM BREAKER BETWEEN VALVE AND SPRAY HEADS
7. MIXING VALVE, EMV-1
   A. WATERSAVER AF3602 EMERGENCY THERMOSTATIC MIXING VALVE
8. VALVE MOUNTING
   A. SURFACE MOUNTED STAINLESS STEEL CABINET

EES-1, EMV-2; EMERGENCY EYEWASH AND SHOWER
1. TYPE
   A. BRADLEY S19-310 UU SAFETY STATION WITH EYE/FACE WASH
2. CONNECTION
   A. 1-1/4" TEPID WATER
3. SHOWER HEAD AND BOWL
   A. 10" DIAMETER ABS PLASTIC SHOWER HEAD
   B. 11.5" DIAMETER STAINLESS STEEL EYE/FACE BOWL
4. SHOWER VALVE
   A. CHROME PLATED BRASS 1" IPS STAY-OPEN BALL VALVE WITH STAINLESS STEEL PULL ROD AND TRIANGULAR HANDLE
5. EYEWASH HEADS
   A. CHROME PLATED BRASS YOKE WITH TWIN, AERATED, EYEWASH HEADS
6. VALVE
   A. CHROME PLATED STAY-OPEN BALL VALVE WITH PUSH FLAG HANDLE
7. SIGN
   A. UNIVERSAL IDENTIFICATION AND INSPECTION TAG.
8. MIXING VALVE EMV-2
   A. BRADLEY NAVIGATOR S19-2100 EFX25 EMERGENCY MIXING VALVE
   B. SURFACE MOUNTED ABOVE CEILING

WB-1; DISHWASHER BOX WITH HW FITTINGS.
1. TYPE
   A. GUY GRAY MODEL AB9201
2. CONNECTION
   A. 1/2" HW CONNECTION FTGS. BY PC.
   (PC SHALL CONNECT HW LINES TO DISHWASHER AS PER MANUFACTURER'S RECOMMENDATIONS.)
3. CW SUPPLY FITTING
   A. 1/4" OD COMPRESSION ANGLE VALVE FOR OUTLET FURNISHED AND INSTALLED IN BOX BY PC
4. INSTALLATION
   A. 16" AFF

WB-2; REFRIGERATOR WATER BOX WITH CW FITTINGS.
1. TYPE
   A. GUY GRAY MODEL AB9201
2. CONNECTION
   A. 1/2" CW CONNECTION FTGS. BY PC.
   (PC SHALL CONNECT CW LINES TO REFRIGERATOR AS PER MANUFACTURER'S RECOMMENDATIONS.)
3. CW SUPPLY FITTING
   A. 1/4" OD COMPRESSION ANGLE VALVE FOR OUTLET FURNISHED AND INSTALLED IN BOX BY PC
   (PC TO CONNECT REFRIGERATOR LINES TO ONE WB-2.)
4. INSTALLATION
   A. 16" AFF

CO (EXPOSED PIPING CLEANOUT)
1. TYPE
   A. PIPING.
2. MANUFACTURER
   A. CHARLOTTE PIPE
3. STANDARD
   A. ASTM F2618
4. MATERIAL
   A. CPVC CHEMICAL WASTE.
5. SHAPE
   A. ROUND
6. COVER FINISH
   A. NONE.
7. CLOSURE PLUG
   A. PLASTIC COUNTERSUNK

PIPE IDENTIFICATION SCHEDULE

SERVICE TYPE	DECAL IDENTIFICATION	TAPE COLOR
COLD WATER SERVICE	COLD WATER SUPPLY	GREEN
HOT WATER	DOMESTIC HOT WATER	YELLOW
HOT WATER RETURN	DOMESTIC HOT WATER RETURN	YELLOW
NATURAL GAS	GAS	GREEN
COMPRESSED AIR	COMP AIR	YELLOW

1. PIPE SIZES 1-1/4" TO 6", USE 2-1/4" LETTERING.
2. PIPE SIZES 1" OR LESS, USE 1-1/4" LETTERING.

FIXTURE SIZE SCHEDULE

MARK	WASTE	VENT	CW	HW
SK	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

ABBREVIATIONS *

ABV	Above	NC	Normally Closed
AD	Access Door	NIC	Not in Contract
AFF	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	OX	Oxygen
CW	Cold Water	PC	Plumbing Contractor
DI	Deionized 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
EWC-#	Electric Water Cooler	SH-#	Shower
FD	Floor Drain	SK-#	Sink
FL	Floor	SS	Stainless Steel
FT	Feet	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-#	Lavatory	VB	Vacuum Breaker
MA	Medical Air	V	Sanitary 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-#	Mop Sink Basin	WTS	Water Tight Sleeve
N/A	Not Applicable		

* Not All Abbreviations Used

PLUMBING GENERAL NOTES

1. VERIFY EXACT LOCATION OF ALL PLUMBING FIXTURES IN OR ATTACHED TO CASEWORK WITH THE ARCHITECT AND THE MILLWORK SHOP DRAWINGS. COORDINATE PRIOR TO INSTALLATION.
2. CONFIRM OR VERIFY EXACT LOCATION AND ACTUAL INVERT OF ACID WASTE LINES PRIOR TO INSTALLATION.
3. DUE TO THE LARGE QUANTITY OF PIPING, DUCTWORK, CONDUIT, ETC. ABOVE THE CEILING COORDINATION WITH OTHER DISCIPLINES IS MANDATORY.
4. LOCATE SHUT-OFF VALVE ABOVE CEILING AND IN LOCATIONS ACCESSIBLE FOR SERVICE. LOCATION SHALL COMPLY WITH THE REQUIREMENTS OF ALL CODES REFERENCED HEREIN.
5. 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.
6. CONTRACTOR SHALL REFERENCE DIVISION 15 OF THE SPECIFICATIONS AND EQUIPMENT SCHEDULE ON DRAWING P0.0 FOR PLUMBING FIXTURES, EQUIPMENT, MATERIALS, PIPING, INSULATION, HANGERS, AND SUPPORTS.
7. REFERENCE PLUMBING FIXTURE CONNECTION SCHEDULE ON DRAWING P0.0 FOR LINE SIZES NOT SHOWN TO FIXTURES/EQUIPMENT.
8. ALL FLOOR DRAINS SHALL BE INSTALLED PLUMB AND LEVEL WITH FINISHED FLOOR ELEVATION FOR SLAB INSTALLATION.
9. CONTRACTOR SHALL PROVIDE HANGERS AND SUPPORTS FOR SEISMIC RESTRAINT PER THE 2012 NTERNATIONAL BUILDING CODE.
10. 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.
11. THE FOLLOWING PLUMBING SYSTEMS SHALL BE INSULATED: COLD WATER, HOT WATER, HOT WATER RECIRCULATION, P-TRAPS AND HORIZONTAL PIPING RECEIVING CONDENSATE ABOVE CEILINGS, HORIZONTAL ROOF DRAIN LEADERS (REFERENCE DIVISION 15 OF THE SPECIFICATIONS).
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE.
13. ALL WALL HUNG FIXTURES SHALL BE SEALED BETWEEN WALL AND FIXTURES WITH WHITE SILICONE CAULKING.
14. ALL COUNTER MOUNTED FIXTURE RIMS SHALL BE SEALED WITH SILICONE CAULKING.
15. LOCATE FLOOR CLEANOUTS PAST LIMITS OF THE CASEWORK.
16. CONTRACTOR SHALL MAKE PROVISIONS FOR EXPANSION LOOPS WHERE NECESSARY WHETHER OR NOT SHOWN ON DRAWINGS.
17. OFFSET PLUMBING VENTS, WATER PIPING AS NECESSARY TO AVOID CONFLICTS WITH DUCTWORK. SEE HVAC PLANS.
18. IT IS THE INTENT AND MEANING OF THE DRAWINGS TO PROVIDE COMPLETE AND OPERABLE PLUMBING AND DRAINAGE SYSTEMS.
19. CONTRACTOR SHALL BE BOUND BY THE REQUIREMENTS OF THE UNDERGROUND UTILITIES DAMAGE PREVENTION ACT, STATUTE 58-35-10.
20. ALL PLUMBING LINE SIZE REDUCTIONS SHALL BE MADE WITH REDUCERS AND/OR REDUCING FITTINGS.
21. 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.
22. 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 STOPS, WALL STUDS, ETC... GAS PIPING SHALL NOT BE INSTALLED IN CMU OR SOLID WALLS.
23. PLUMBING CONTRACTOR TO MAKE FINAL CONNECTIONS ON ALL LAB FIXTURES.
24. PROVIDE WATTS #7C BACKFLOW PREVENTER AND DOWN STREAM OF DUAL OUTLET SHUT OFF VALVE FOR DISHWASHER.
25. 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.
26. CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS INSOFAR AS THEY APPLY: NFPA 54, 2012 INTERNATIONAL BUILDING, GAS AND PLUMBING CODES.
27. CONTRACTOR SHALL SECURE ALL PERMITS, INSPECTIONS, LICENSES AND TESTS REQUIRED FOR THIS WORK AND PAY ALL FEES IN CONNECTION THEREWITH.
28. 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 OF A SIMILAR TYPE SHALL BE OF THE SAME MANUFACTURER.H
29. CONTRACTOR SHALL LOCATE AND SIZE ALL OPENINGS REQUIRED FOR PLUMBING EQUIPMENT AND PIPING; AND PROVIDE THIS INFORMATION TO THE GENERAL CONTRACTOR IN TIME NOT TO DELAY BUILDING CONSTRUCTION.
30. 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.
31. 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.

PLUMBING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD WATER LINE - ABOVE GROUND (CW)	FCO	FLOOR CLEANOUT
	HOT WATER LINE - ABOVE GROUND (HW)	CO	INLINE CLEANOUT
	HOT WATER RECIRCULATING LINE (HWR)	WCO	WALL CLEANOUT
AW	ACID WASTE LINE (AW)	FD	FLOOR DRAIN
AV	ACID WASTE VENT LINE (AV)		BALL VALVE
G	NATURAL GAS LINE (G)		GAS COCK
CA	COMPRESSED AIR LINE (CA)		PRV
	PIPE DOWN OR DROP (DN OR DROP)		PUMP
	PIPE UP		BALANCING VALVE
	PIPE BREAK OR CONTINUATION		CHECK VALVE
	P-TRAP		DUAL CHECK VALVE
	END CAP		DOUBLE CHECK VALVE
	UNION		CHECK VALVE
	STRAINER		POINT OF CONNECTION - NEW TO EXISTING
	WALL BOX		AREA TO BE DEMOLISHED
BFP	REDUCED PRESSURE BACKFLOW PREVENTER		

THERMOSTATIC MIXING VALVE SCHEDULE

TAG NO.	LOCATION	TYPE	FLOW GPM	PRESS. DROP PSI	ENT. TEMP. °F	LEV. TEMP. °F	MFR.	MODEL	REMARKS
EMV-1	EW-1	THERMOSTATIC	6.0	20	115	85	WATERSAVER	AP3602	1,3
EMV-2	EW-2	THERMOSTATIC	44.0	20	115	85	BRADLEY	S19-2100	1,2

1. MIXING ASSEMBLY SHALL INCLUDE MANUFACTURER'S RETURN FITTING, INTEGRAL THERMOMETER, INTEGRAL THERMOSTATIC RETURN LIMITER, INTEGRAL CHECKS AND STRAINERS.
2. LOCATE ABOVE CEILING
3. LOCATE BELOW CABINET

HOT WATER RECIRCULATION PUMP SCHEDULE

TAG NO.	LOCATION	TYPE	SPECIFIC GRAVITY	FLOW GPM	TEMP. °F	SERVICE	HEAD TDH FT (PSI)	MOTOR HP	MOTOR RPM	MOTOR TYPE	ELECTRICAL CHARACTERISTICS VOLTS	PHASE	HERTZ	REMARKS
RP-1	MECH ROOM	IN-LINE	1.0	6	108	HW RECIRC	22	1/12	2650	ODP	115	1 ø	60	B & G MODEL PL-30 BRONZE BODY

CONTROLED BY AQUASTAT WITH ON /OFF SWITCH

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

WATER HEATER SCHEDULE

TAG NO.	SERVING	FUEL	STORAGE (GAL.)	RECOVERY (GPH)	TEMP RISE °F	INPUT KW	ELECTRICAL CHARACTERISTICS VOLTS	PHASE	HERTZ	MANUFACTURER/MODEL	NOTES
WH-1	MECHANICAL ROOM	ELECT.	50	49	100	3@4KW	208	1ø	60	STATE / CSB 52 12 SFE*	1,2,3

1 - OR APPROVED EQUAL
2 - PROVIDE THERMOMETER ON HOT WATER
3 - TOTAL CONNECTED LOAD - 12KW

AIR COMPRESSOR SCHEDULE

TAG NO.	LOCATION	MFR. & MODEL	CAPACITY CFM	INLET/OUTLET PRESSURE PSIG	RECEIVER / TANK CAP. GAL.	DIA. IN.	LENGTH IN.	MOTOR MIN. HP	RPM	TYPE	ELECTRICAL CHARACTERISTICS VOLTS	PHASE	HERTZ	ACCESSORIES
AC-1	MECH. ROOM 1ST FLR	QUINCY QR -25 / FF325	10.4 (EACH)	80 PSIG (MIN)	80	---	---	(2) 3.0	459	ODP	480	3ø	60	2, 3, 5

1. PROVIDE CONTROL PANEL W/ STARTER, HOUR METER, SOLENOID UNLOADER VALVE AND ALTERNATOR
2. PROVIDE CONTROL PANEL TO PROVIDE LEAD / LAG CONTROL, MAGNETIC STARTER AND ODP MOTORS.
3. PROVIDE A QUINCY MODEL QPNC 50 AIR DRYER.
4. MAGNETIC STARTER AND ODP MOTORS.
5. PROVIDE EACH MOTOR CIRCUIT WITH A DISCONNECT SWITCH.

GMK ASSOCIATES, INC.
Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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owner

UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

issued for
CONSTRUCTION DOCUMENTS

date
DECEMBER 20, 2013

number	item	date

key plan

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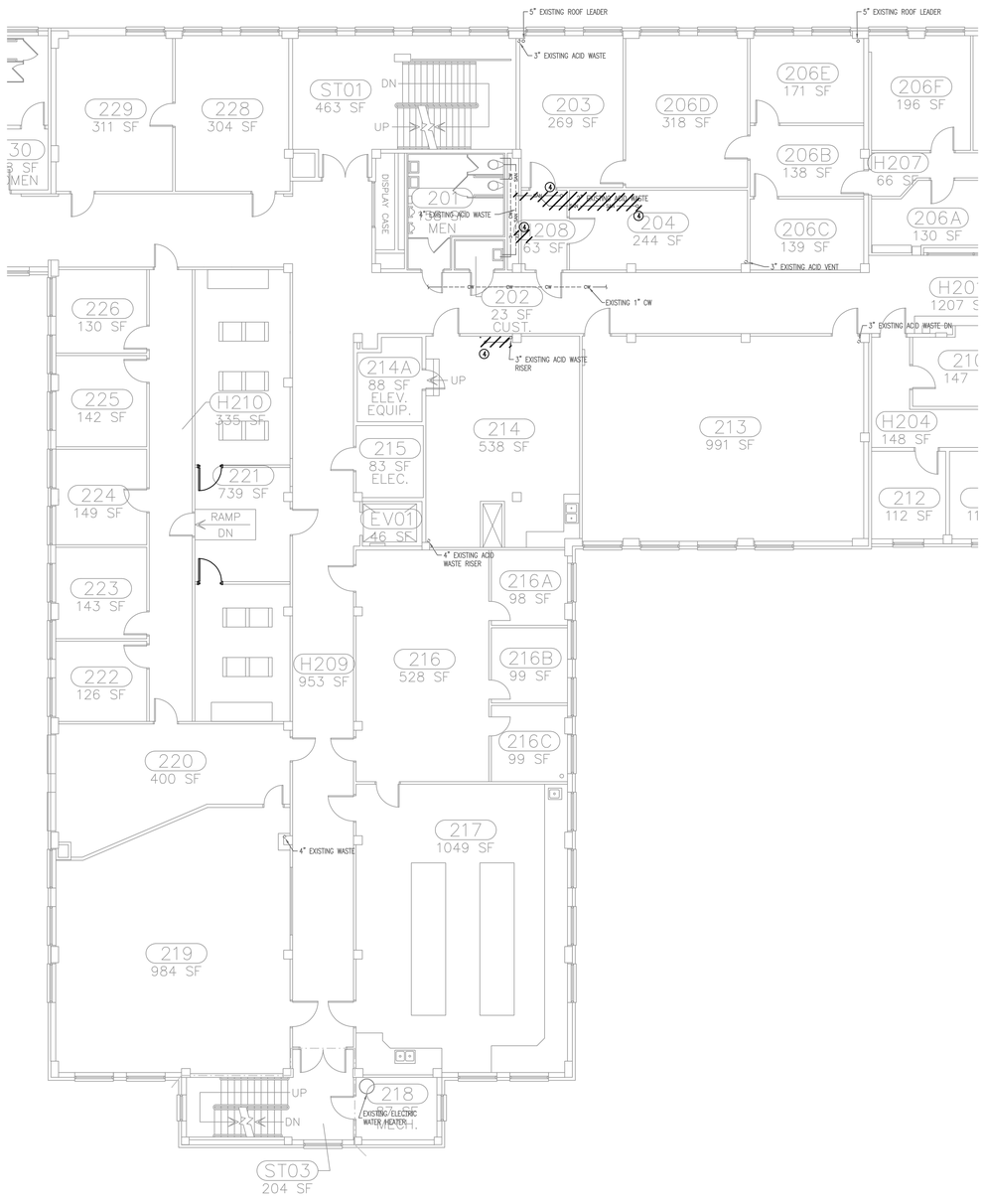
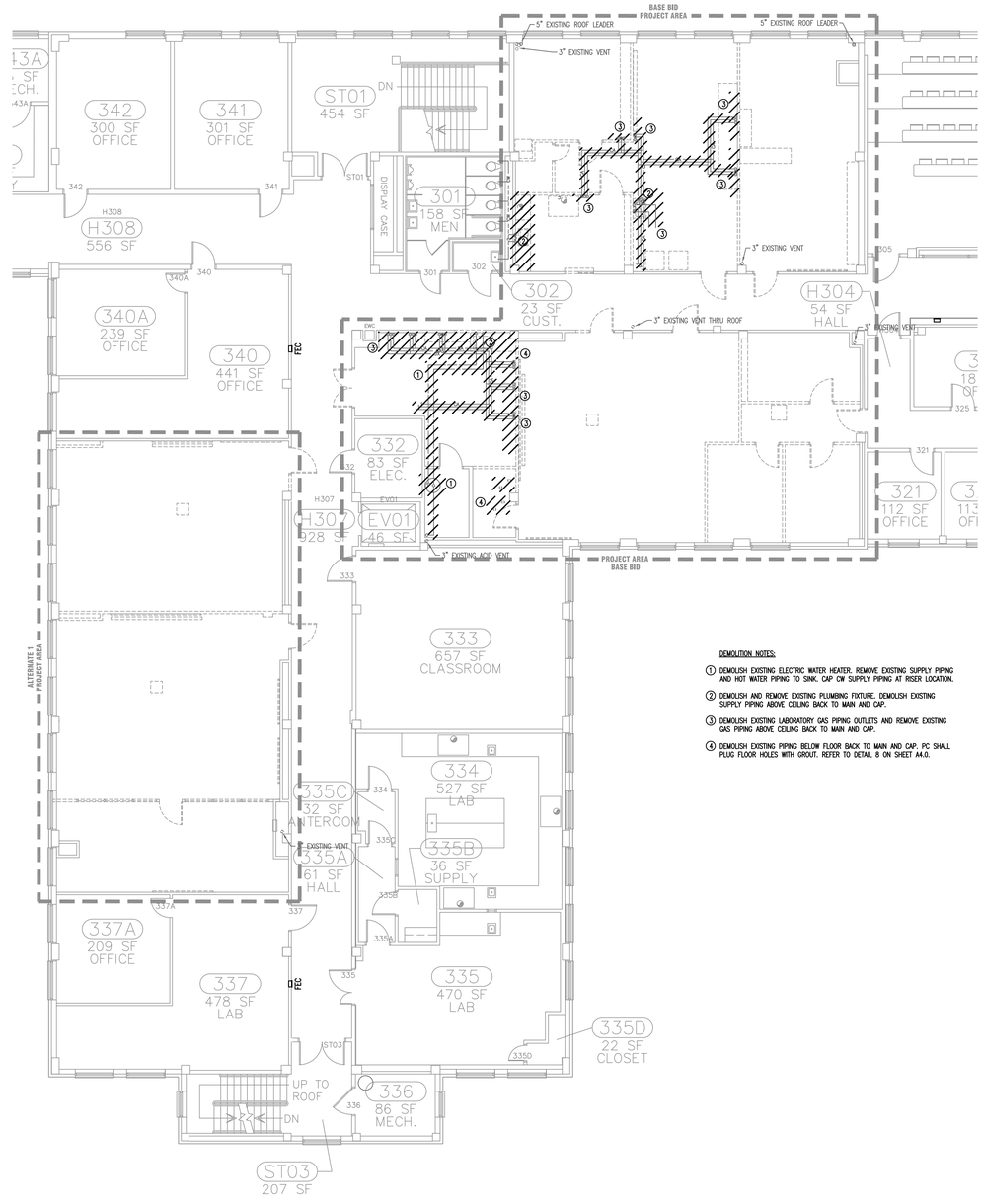
sheet title
PLUMBING NOTES, LEGEND ABBREVIATIONS AND SCHEDULES

sheet number
P0.0

drawn by JJR
checked by ---



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



DEMOLITION NOTES:

1. DEMOLISH EXISTING ELECTRIC WATER HEATER. REMOVE EXISTING SUPPLY PIPING AND HOT WATER PIPING TO SINK. CAP CW SUPPLY PIPING AT RISER LOCATION.
2. DEMOLISH AND REMOVE EXISTING PLUMBING FIXTURE. DEMOLISH EXISTING SUPPLY PIPING ABOVE CEILING BACK TO MAIN AND CAP.
3. DEMOLISH EXISTING LABORATORY GAS PIPING OUTLETS AND REMOVE EXISTING GAS PIPING ABOVE CEILING BACK TO MAIN AND CAP.
4. DEMOLISH EXISTING PIPING BELOW FLOOR BACK TO MAIN AND CAP. PC SHALL PLUG FLOOR HOLES WITH GROUT. REFER TO DETAIL 8 ON SHEET A4.0.

2 PARTIAL THIRD FLOOR PLAN – PLUMBING DEMOLITION
1/8"=1'-0"

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Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE
LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

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date
DECEMBER 20, 2013

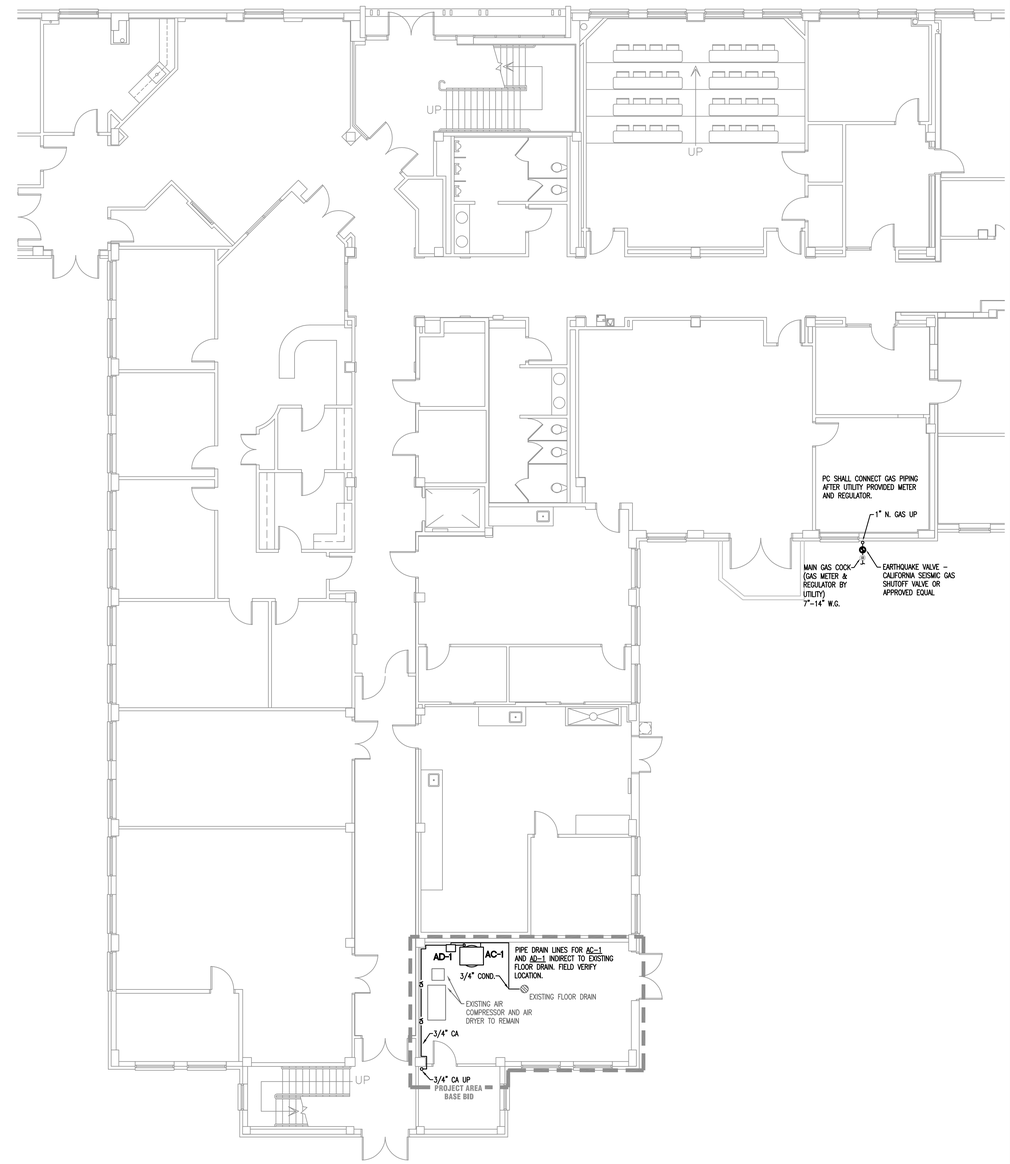
number	*item*	*date*

key plan

sheet title
PARTIAL SECOND AND THIRD FLOOR PLUMBING DEMOLITION PLAN

sheet number
P1.3

drawn by JJR
checked by JWB



1 PARTIAL FIRST FLOOR PLAN – SUPPLY & GAS PIPING
1/8"=1'-0"

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Design/Planning/Construction
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Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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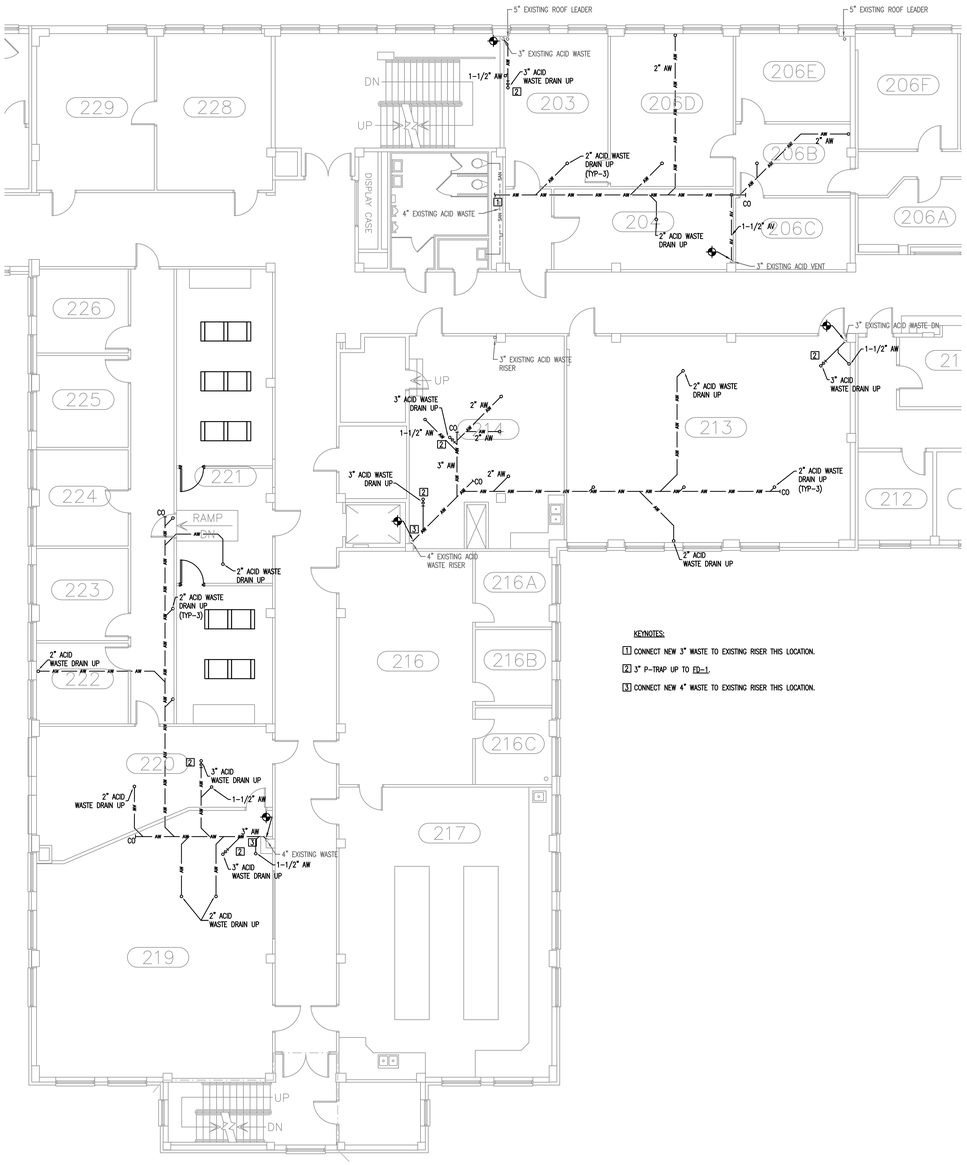
sheet title
PARTIAL FIRST FLOOR PLAN
PLUMBING RENOVATION

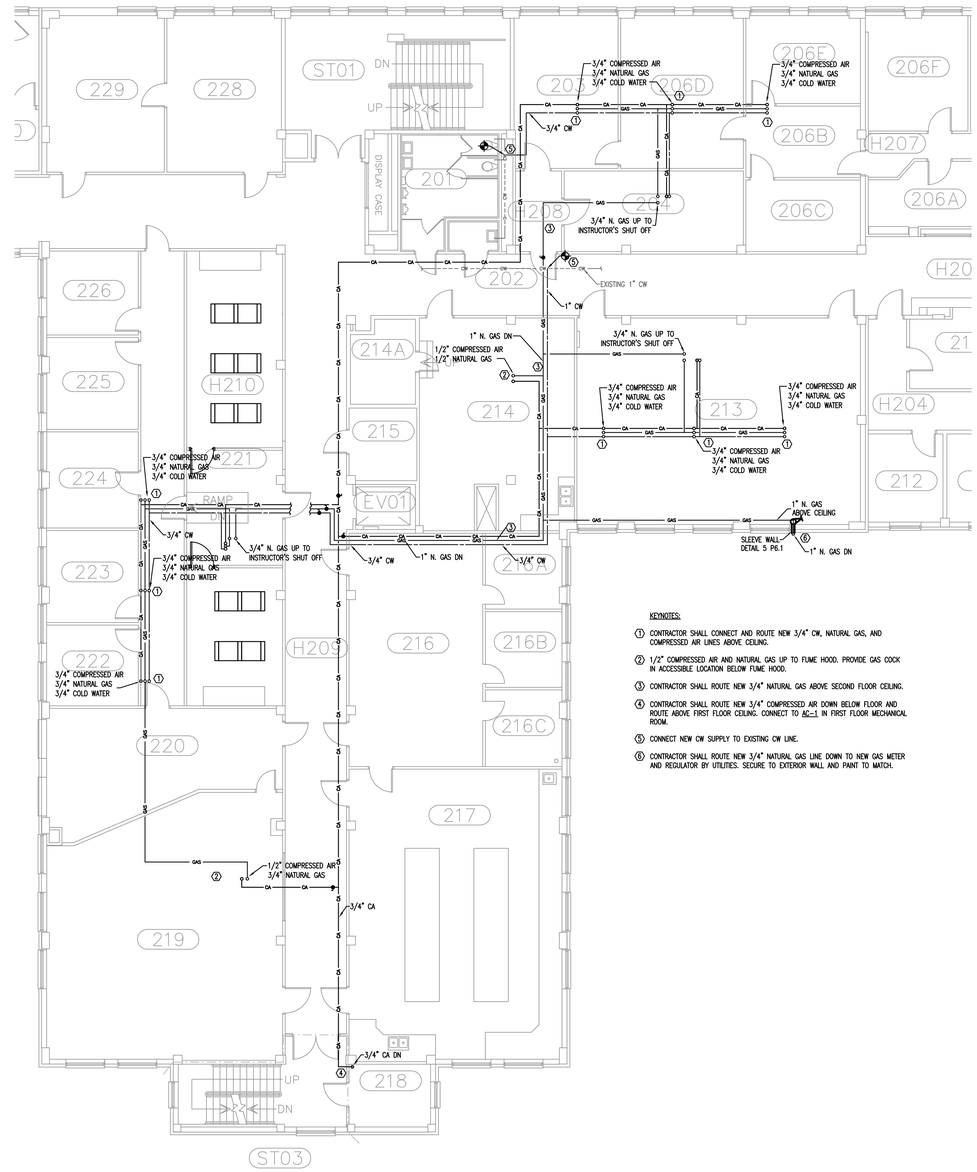
sheet number
P2.1

drawn by JJR
checked by JWB



KEYNOTES:

1. CONNECT NEW 3" WASTE TO EXISTING RISER THIS LOCATION.
2. 3" P-TRAP UP TO FD-1.
3. CONNECT NEW 4" WASTE TO EXISTING RISER THIS LOCATION.



KEYNOTES:

1. CONTRACTOR SHALL CONNECT AND ROUTE NEW 3/4" CW, NATURAL GAS, AND COMPRESSED AIR LINES ABOVE CEILING.
2. 1/2" COMPRESSED AIR AND NATURAL GAS UP TO FUME HOOD. PROVIDE GAS COCK IN ACCESSIBLE LOCATION BELOW FUME HOOD.
3. CONTRACTOR SHALL ROUTE NEW 3/4" NATURAL GAS ABOVE SECOND FLOOR CEILING.
4. CONTRACTOR SHALL ROUTE NEW 3/4" COMPRESSED AIR DOWN BELOW FLOOR AND ROUTE ABOVE FIRST FLOOR CEILING. CONNECT TO AC-1 IN FIRST FLOOR MECHANICAL ROOM.
5. CONNECT NEW CW SUPPLY TO EXISTING CW LINE.
6. CONTRACTOR SHALL ROUTE NEW 3/4" NATURAL GAS LINE DOWN TO NEW GAS METER AND REGULATOR BY UTILITIES. SECURE TO EXTERIOR WALL AND PAINT TO MATCH.

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Columbia, S.C. 29201
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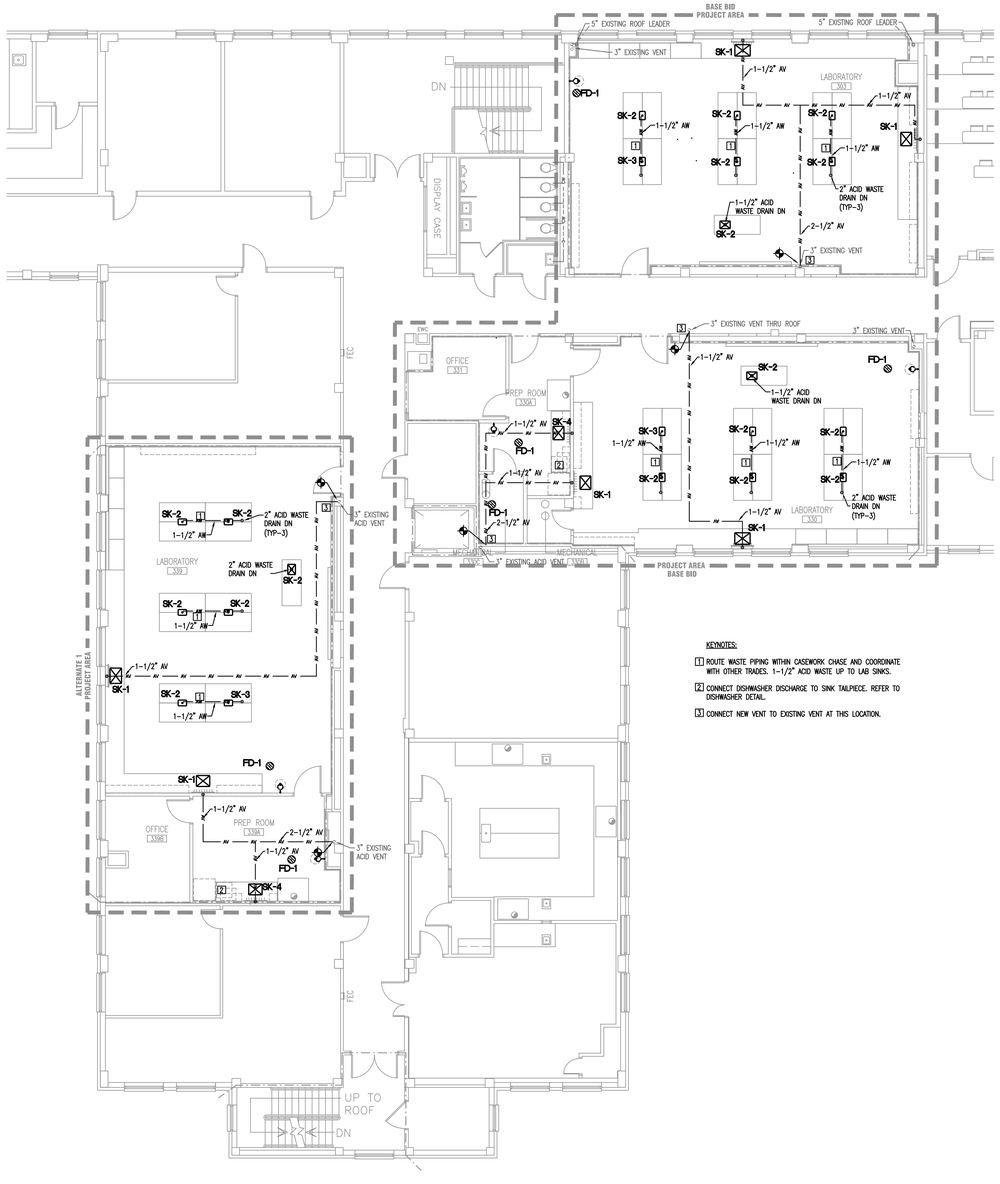
sheet title
PARTIAL SECOND FLOOR PLAN PLUMBING RENOVATION

sheet number
P2.2

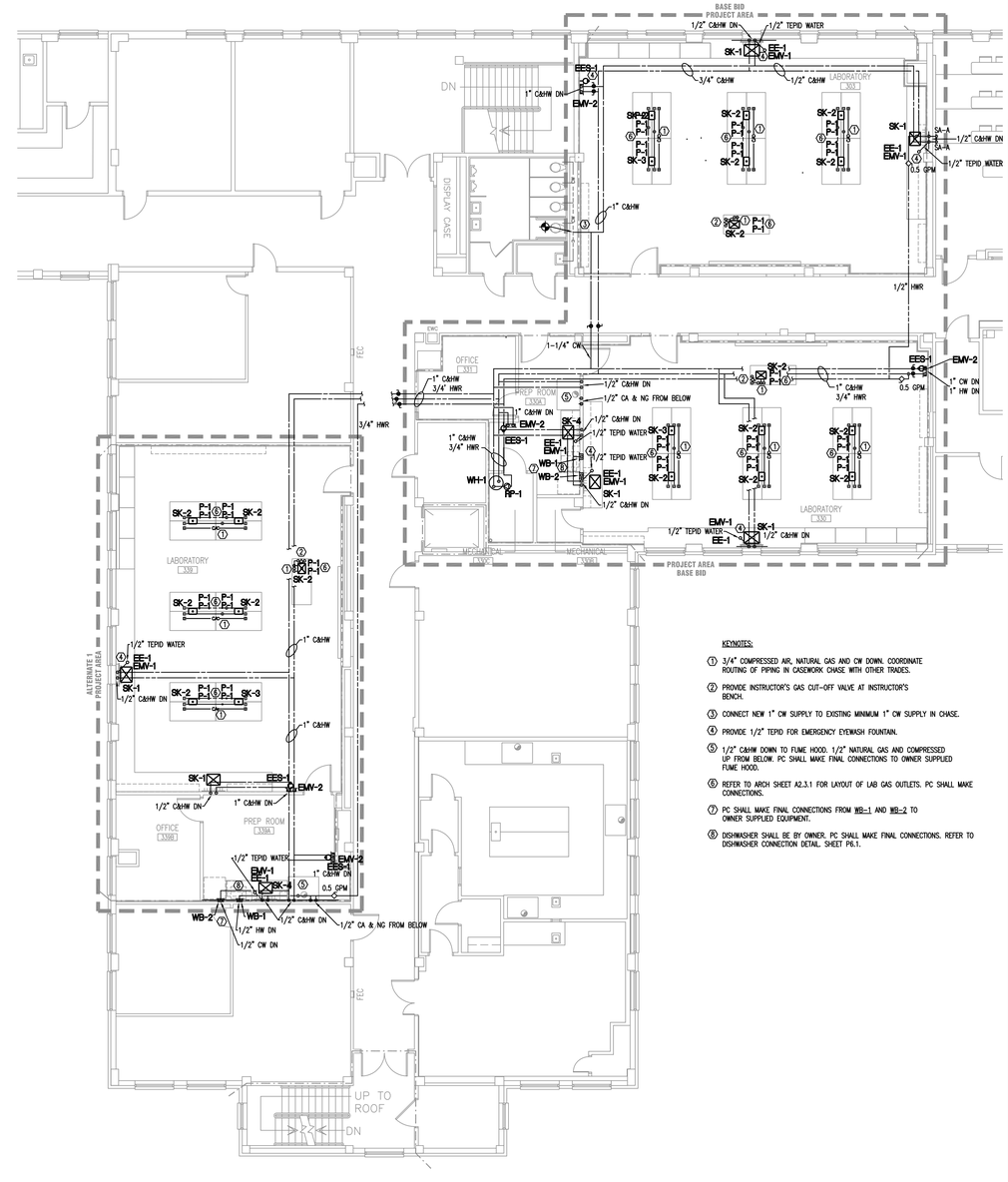
drawn by JJR
checked by JWB



KEYNOTES:

1. ROUTE WASTE PIPING WITHIN CASEWORK CHASE AND COORDINATE WITH OTHER TRADES. 1-1/2" ACID WASTE UP TO LAB SINKS.
2. CONNECT DISHWASHER DISCHARGE TO SINK TAILPIECE. REFER TO DISHWASHER DETAIL.
3. CONNECT NEW VENT TO EXISTING VENT AT THIS LOCATION.

1 PARTIAL THIRD FLOOR PLAN – WASTE & VENT PIPING
1/8"=1'-0"



KEYNOTES:

1. 3/4" COMPRESSED AIR, NATURAL GAS AND CW DOWN. COORDINATE ROUTING OF PIPING IN CASEWORK CHASE WITH OTHER TRADES.
2. PROVIDE INSTRUCTOR'S GAS CUT-OFF VALVE AT INSTRUCTOR'S BENCH.
3. CONNECT NEW 1" CW SUPPLY TO EXISTING MINIMUM 1" CW SUPPLY IN CHASE.
4. PROVIDE 1/2" TEPID FOR EMERGENCY EYEWASH FOUNTAIN.
5. 1/2" C&HW DOWN TO FUME HOOD. 1/2" NATURAL GAS AND COMPRESSED UP FROM BELOW. PC SHALL MAKE FINAL CONNECTIONS TO OWNER SUPPLIED FUME HOOD.
6. REFER TO ARCH SHEET A2.3.1 FOR LAYOUT OF LAB GAS OUTLETS. PC SHALL MAKE CONNECTIONS.
7. PC SHALL MAKE FINAL CONNECTIONS FROM WB-1 AND WB-2 TO OWNER SUPPLIED EQUIPMENT.
8. DISHWASHER SHALL BE BY OWNER. PC SHALL MAKE FINAL CONNECTIONS. REFER TO DISHWASHER CONNECTION DETAIL. SHEET P6.1.

2 PARTIAL THIRD FLOOR PLAN – SUPPLY & GAS PIPING
1/8"=1'-0"

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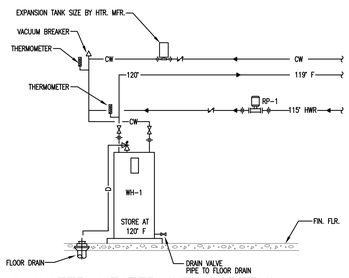
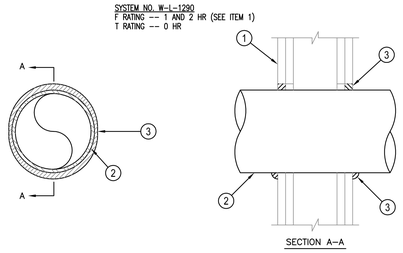


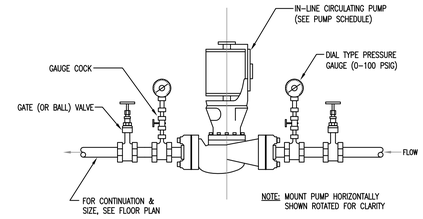
1 WATER HEATER WH-1 DETAIL
NTS



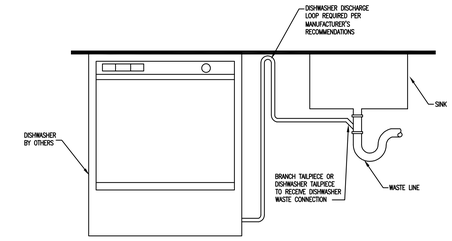
1. WALL ASSEMBLY -- THE 1 OR 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES.
   A. STUDS -- REFER TO ARCH DETAILS FOR TYPE & CONSTRUCTION.
   B. GYPSUM BOARD*- -- REFER TO ARCH DETAILS FOR TYPE & CONSTRUCTION. MAX DIAM OF OPENING IS 5 IN. (THE HOURLY F & T RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.)
2. 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
3. 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 ½ IN DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE/WALL INTERFACE.

*BEARING THE UL CLASSIFICATION MARK

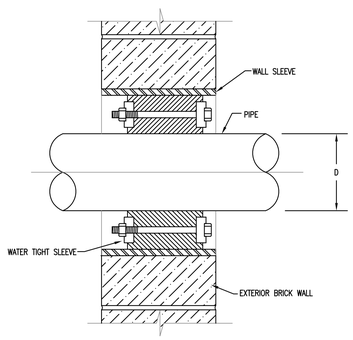
2 FIRE STOPPING DETAIL
NTS



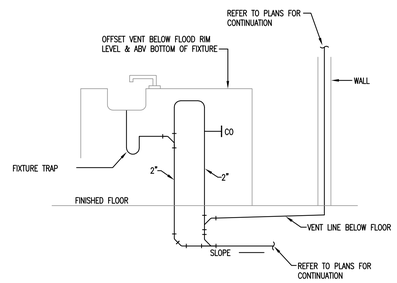
3 RECIRCULATING PUMP DETAIL
NTS



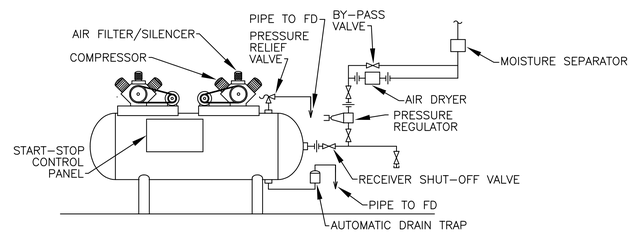
4 DISHWASHER CONNECTION DETAIL
NTS



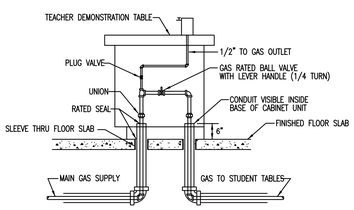
5 EXTERIOR PIPE PENETRATION DETAIL
NTS



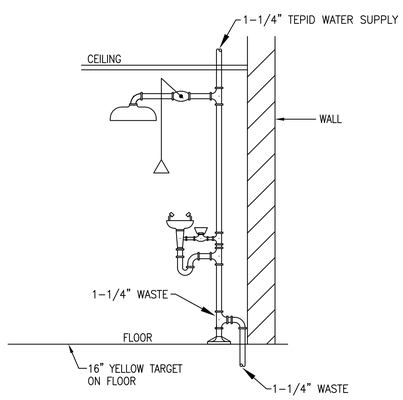
6 ISLAND VENT DETAIL
NTS



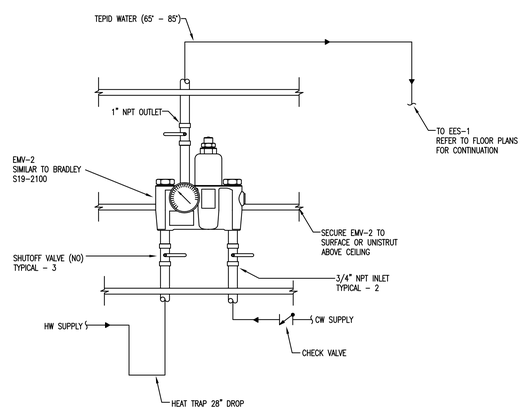
7 AIR COMPRESSOR PIPING
NTS



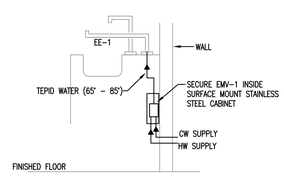
8 GAS PIPING RISER TEACHER'S DEMO TABLE
NTS



9 EMERGENCY EYEWASH SHOWER DETAIL
NTS



(EMV-2)
10 THERMOSTATIC MIXING VALVE DETAIL
NTS

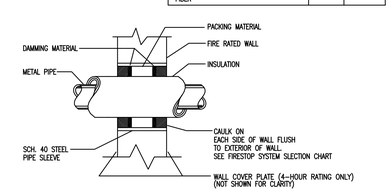


(EE-1 & EMV-1)
11 EMERGENCY EYEWASH CONNECTION DETAIL
NTS

FIRESTOP SYSTEM SELECTION CHART

PENETRATION ITEM	FIRE RATING	UL SYSTEM NO.
METAL PIPE THROUGH GYPSUM WALL		
1/2" - 17" STEEL PIPE	2-HOUR	WL1058
1/2" - 30" STEEL PIPE 1/2" - 6" COPPER PIPE (NO SLEEVE)	1-HOUR OR 2-HOUR	WL1054
METAL INSULATED PIPE THROUGH GYPSUM WALL		
1/2" - 4" STEEL PIPE	1-HOUR	WL5022
1/2" - 2" STEEL PIPE	2-HOUR	WL5027
1/2" - 10" STEEL PIPE (NO SLEEVE)	2-HOUR	WL5029
METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
12" - 21" STEEL PIPE(NO SLEEVE)	3-HOUR	CAJ1156
1/2" - 20" STEEL PIPE 1/2" - 6" COPPER PIPE THROUGH STEEL SLEEVE	3-HOUR	CAJ1155
1/2" - 10" STEEL PIPE (NO SLEEVE) 1/2" - 4" COPPER PIPE (NO SLEEVE)	3-HOUR	CAJ1154
8" - 10" STEEL PIPE(NO SLEEVE) WHERE FLEXIBLE SEALANT IS REQUIRED	2-HOUR	CAJ1158

PENETRATION ITEM	FIRE RATING	UL SYSTEM NO.
METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
1/2" - 6" STEEL PIPE 1/2" - 4" EMT OR STEEL CONDUIT (NO SLEEVE) WHERE FLEXIBLE SEALANT IS REQUIRED	3-HOUR	CAJ1150
1/2" - 24" STEEL PIPE	4-HOUR	CAJ1079
MULTIPLE METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
12" OR SMALLER STEEL PIPE AND/OR 4" OR SMALLER COPPER PIPE, EMT OR CONDUIT	3-HOUR	CAJ1140
INSULATED METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
1/2" - 8" STEEL PIPE WITH 1" THICK GLASS FIBER	2-HOUR	CAJ5046
1/2" - 6" STEEL PIPE OR 1/2" - 4" COPPER PIPE, EMT OR CONDUIT WITH 1-1/2" GLASS FIBER	2-HOUR	CAJ5045
MULTIPLE INSULATED PIPES, MAXIMUM QUANTITY OF 4 1/2" -3" STEEL PIPE, COPPER PIPE, EMT OR CONDUIT WITH 3/4" GLASS FIBER	3-HOUR	CAJ5044



1 RATED WALL PENETRATION
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Design/Planning/Construction
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Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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sheet title
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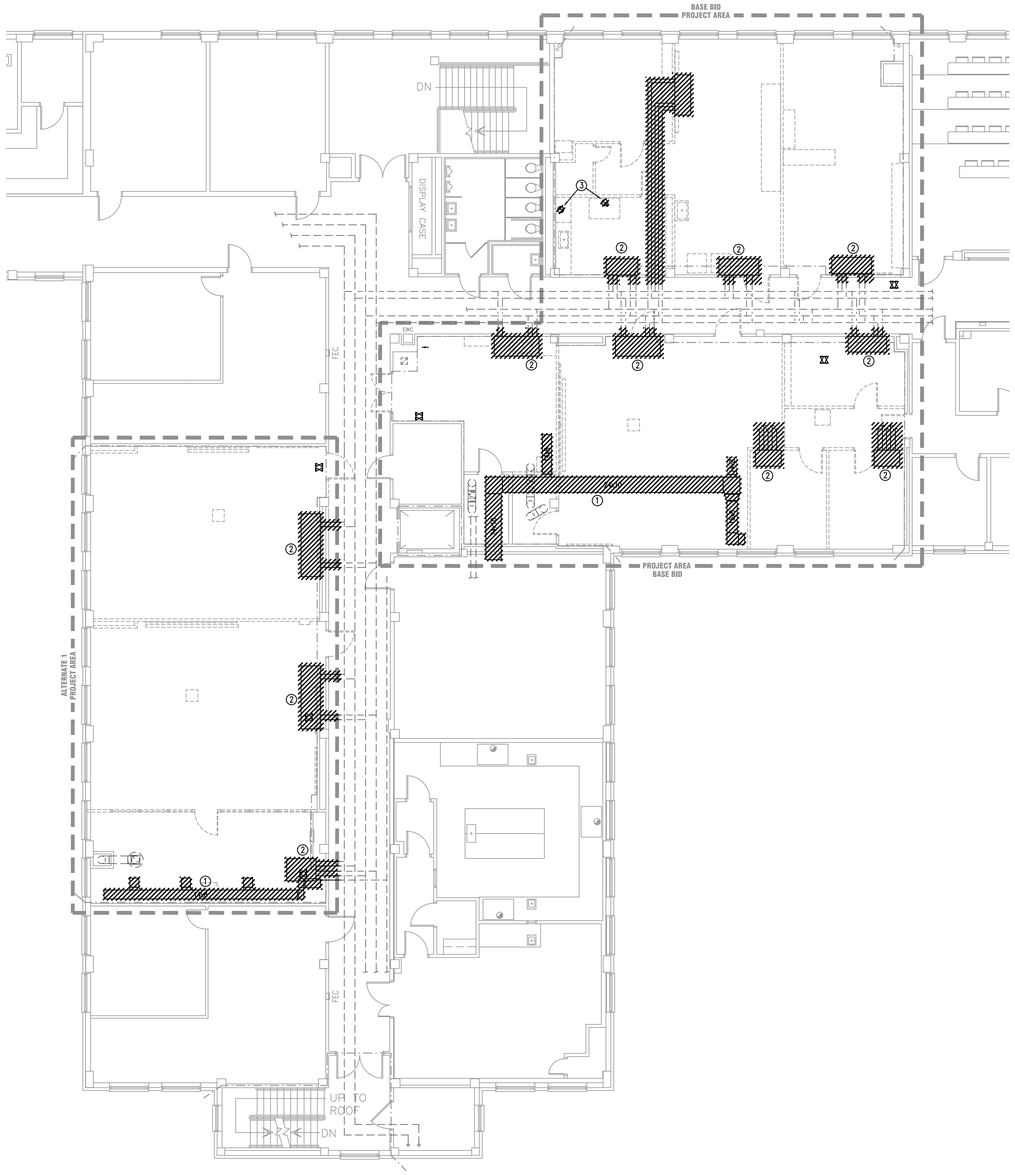
sheet number
P6.1

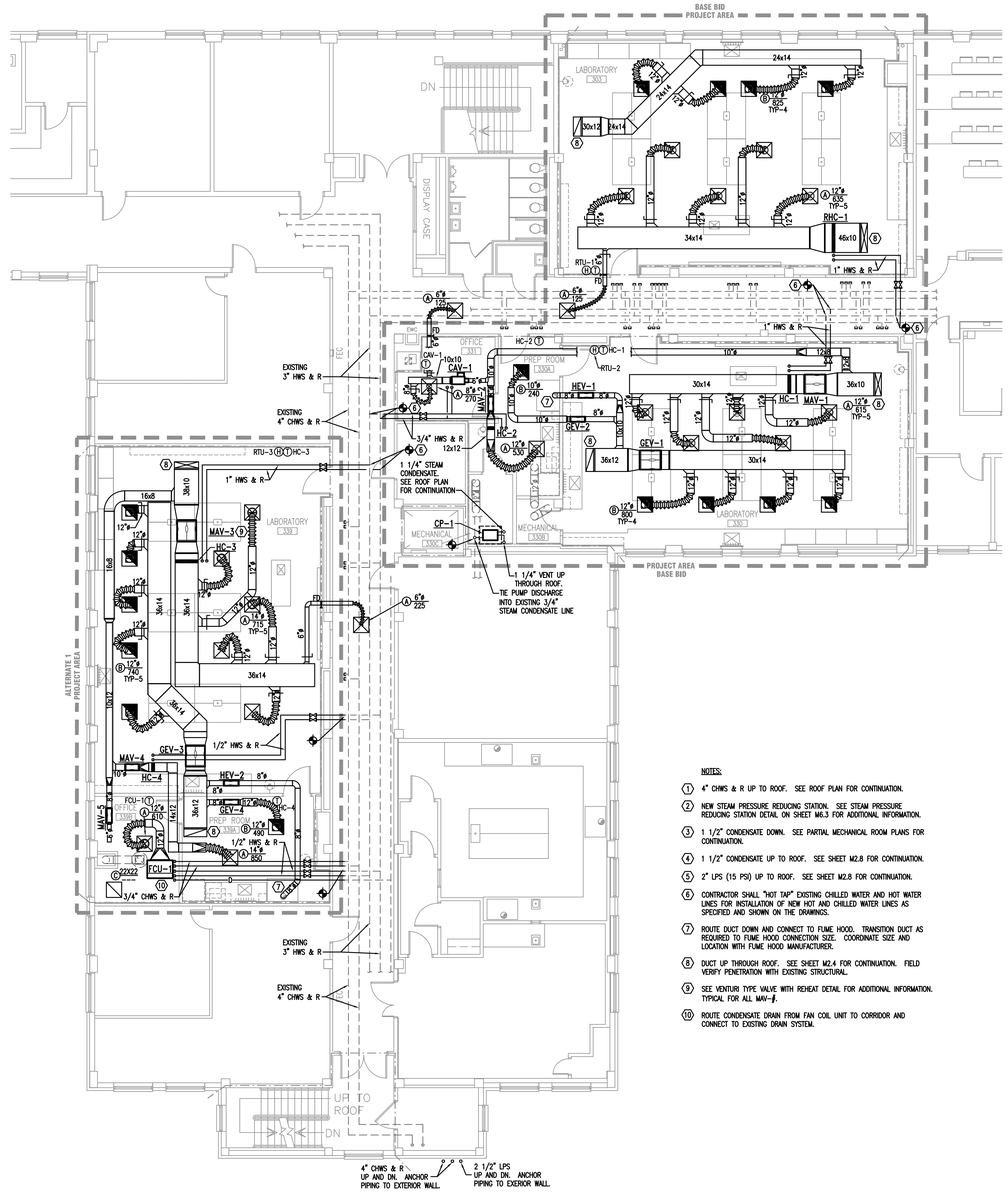
drawn by JJR
checked by JWB



DEMOLITION NOTES:

1. REMOVE EXISTING DUCTWORK AND PIPING AS HATCHED ON PLAN.
2. REMOVE EXISTING FAN COIL UNIT, ASSOCIATED CONTROLS, AND CAP PIPING BACK ABOVE CORRIDOR CEILING.
3. REMOVE ALL ASSOCATED DUCTWORK AND CONTROLS CONNECTED TO FUME HOODS. FIELD VERIFY EXHAUST FAN ASSOCATED WITH FUME HOODS AND REMOVE EXHAUST FANS AND PATCH ROOF OPENINGS.

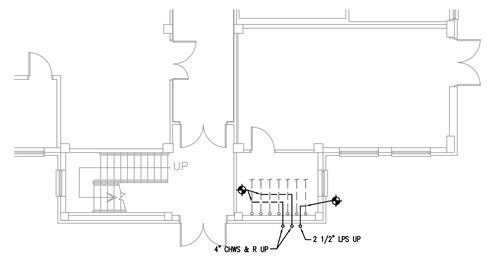
1 PARTIAL THIRD FLOOR PLAN – HVAC DEMOLITION
1/8"=1'-0"



NOTES:

1. 4" CHWS & R UP TO ROOF. SEE ROOF PLAN FOR CONTINUATION.
2. NEW STEAM PRESSURE REDUCING STATION. SEE STEAM PRESSURE REDUCING STATION DETAIL ON SHEET M6.3 FOR ADDITIONAL INFORMATION.
3. 1 1/2" CONDENSATE DOWN. SEE PARTIAL MECHANICAL ROOM PLANS FOR CONTINUATION.
4. 1 1/2" CONDENSATE UP TO ROOF. SEE SHEET M2.8 FOR CONTINUATION.
5. 2" LPS (15 PSI) UP TO ROOF. SEE SHEET M2.8 FOR CONTINUATION.
6. CONTRACTOR SHALL "HOT TAP" EXISTING CHILLED WATER AND HOT WATER LINES FOR INSTALLATION OF NEW HOT AND CHILLED WATER LINES AS SPECIFIED AND SHOWN ON THE DRAWINGS.
7. ROUTE DUCT DOWN AND CONNECT TO FUME HOOD. TRANSITION DUCT AS REQUIRED TO FUME HOOD CONNECTION SIZE. COORDINATE SIZE AND LOCATION WITH FUME HOOD MANUFACTURER.
8. DUCT UP THROUGH ROOF. SEE SHEET M2.4 FOR CONTINUATION. FIELD VERIFY PENETRATION WITH EXISTING STRUCTURAL.
9. SEE VENTURI TYPE VALVE WITH REHEAT DETAIL FOR ADDITIONAL INFORMATION. TYPICAL FOR ALL MAV-#.
10. ROUTE CONDENSATE DRAIN FROM FAN COIL UNIT TO CORRIDOR AND CONNECT TO EXISTING DRAIN SYSTEM.

2 PARTIAL THIRD FLOOR PLAN – HVAC RENOVATION
1/8"=1'-0"



3 PARTIAL FIRST FLOOR PLAN – HVAC
1/8"=1'-0"

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Design/Planning/Construction
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sheet title
PARTIAL FIRST & THIRD FLOOR PLAN - HVAC DEMOLITION AND RENOVATION

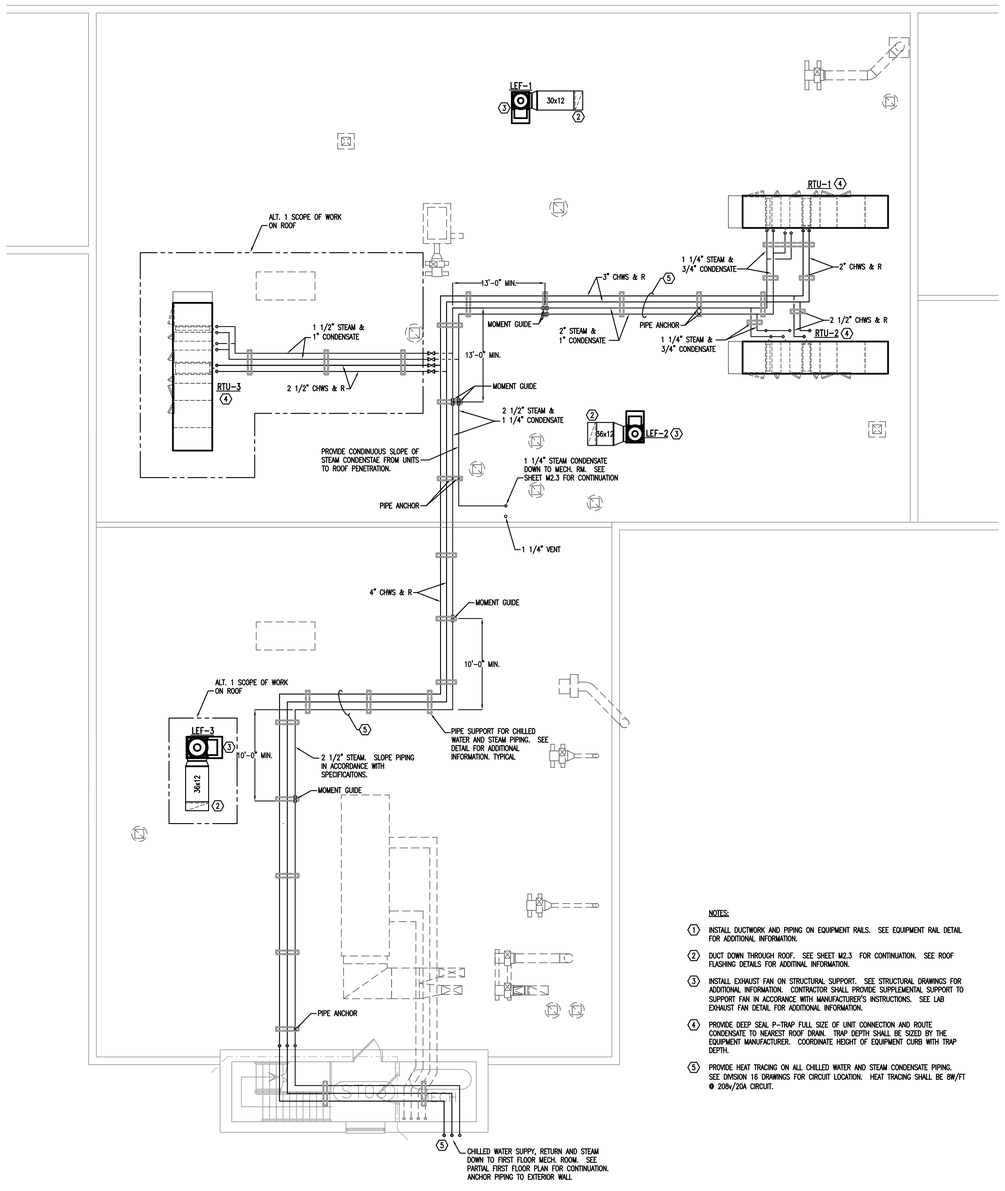
sheet number
M2.3

drawn by JDR
checked by JDR

DEMOLITION NOTES:

1. REMOVE EXISTING VENT FAN AND CAP EXISTING CURB.
2. REMOVE EXISTING EXHAUST FAN, DUCTWORK, SUPPORTS, ALL ASSOCIATED WIRING, CONTROL AND PATCH ROOF OPENING. SEE ARCHITECTURAL DETAIL 8/A4.0 FOR ADDITIONAL INFORMATION.

1 PARTIAL ROOF PLAN – HVAC DEMOLITION
1/8"=1'-0"



NOTES:

1. INSTALL DUCTWORK AND PIPING ON EQUIPMENT RAILS. SEE EQUIPMENT RAIL DETAIL FOR ADDITIONAL INFORMATION.
2. DUCT DOWN THROUGH ROOF. SEE SHEET M2.3 FOR CONTINUATION. SEE ROOF FLASHING DETAILS FOR ADDITINAL INFORMATION.
3. INSTALL EXHAUST FAN ON STRUCTURAL SUPPORT. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL PROVIDE SUPPLEMENTAL SUPPORT TO SUPPORT FAN IN ACCORANCE WITH MANUFACTURER'S INSTRUCTIONS. SEE LAB EXHAUST FAN DETAIL FOR ADDITIONAL INFORMATION.
4. PROVIDE DEEP SEAL P-TRAP FULL SIZE OF UNIT CONNECTION AND ROUTE CONDENSATE TO NEAREST ROOF DRAIN. TRAP DEPTH SHALL BE SIZED BY THE EQUIPMENT MANUFACTURER. COORDINATE HEIGHT OF EQUIPMENT CURB WITH TRAP DEPTH.
5. PROVIDE HEAT TRACING ON ALL CHILLED WATER AND STEAM CONDENSATE PIPING. SEE DIVISION 16 DRAWINGS FOR CIRCUIT LOCATION. HEAT TRACING SHALL BE 8W/FT @ 208v/20A CIRCUIT.

2 PARTIAL ROOF PLAN – HVAC RENOVATION
1/8"=1'-0"

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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owner

UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
12044.02

seals/signature

issued for
CONSTRUCTION DOCUMENTS

date
DECEMBER 20, 2013

number	item	date

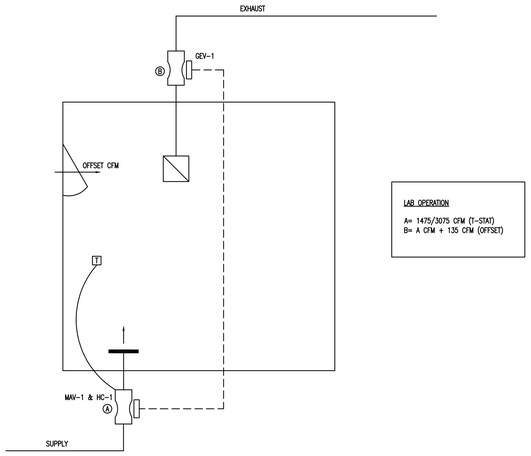
key plan

N

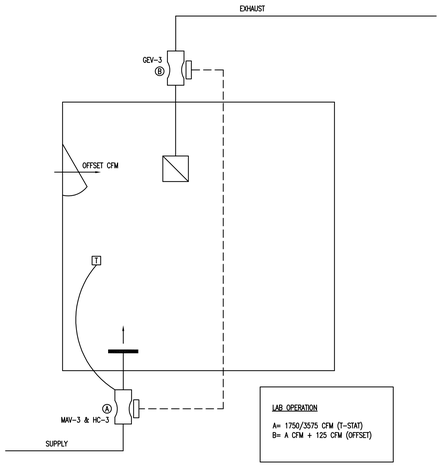
sheet title
PARTIAL ROOF PLAN HVAC DEMOLITION AND RENOVATION

sheet number
M2.4

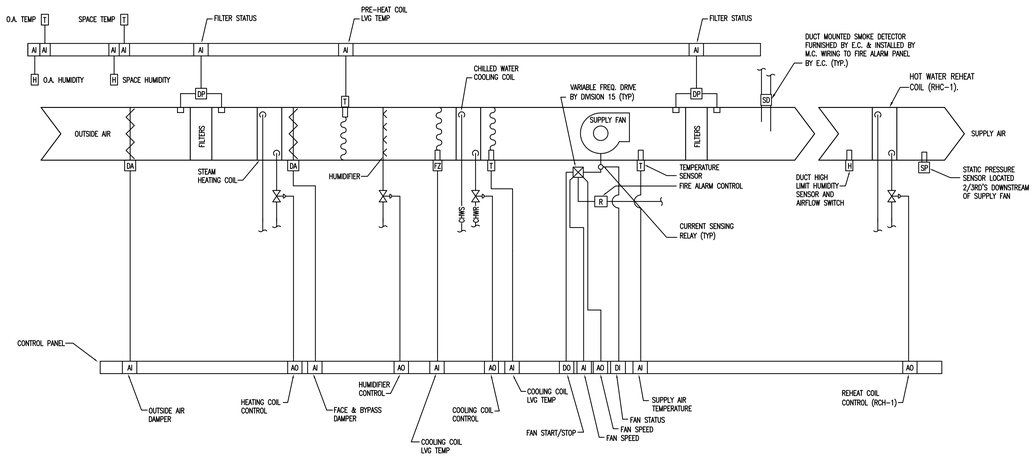
drawn by JDR
checked by JDR



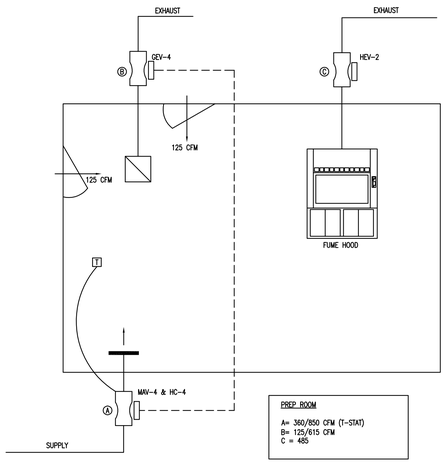
1 LAB 330 CONTROL SCHEMATIC
NTS



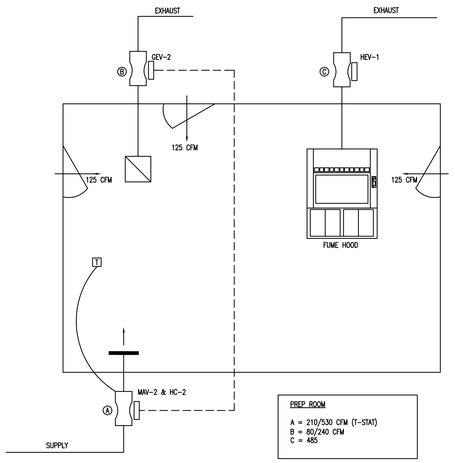
2 LAB 339 CONTROL SCHEMATIC
NTS



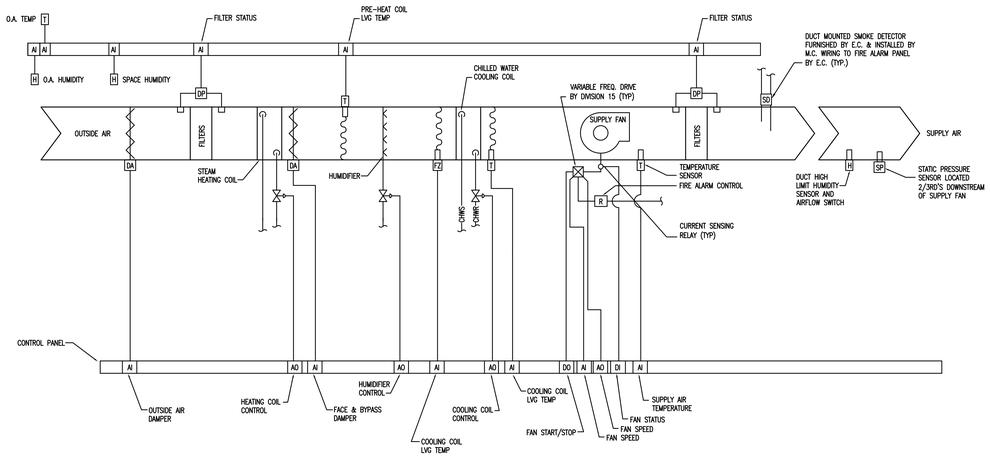
3 RTU-1 CONTROL DIAGRAM
NTS



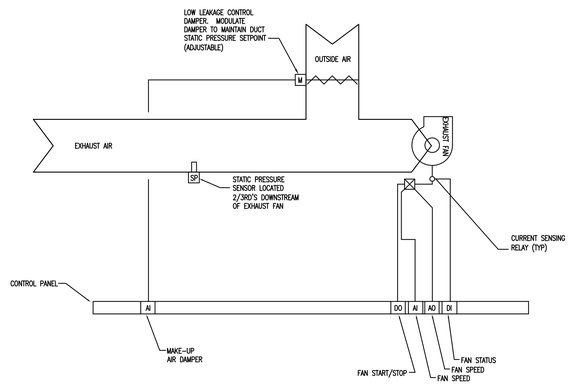
4 PREP ROOM 339A CONTROL SCHEMATIC
NTS



5 PREP ROOM 330A CONTROL SCHEMATIC
NTS



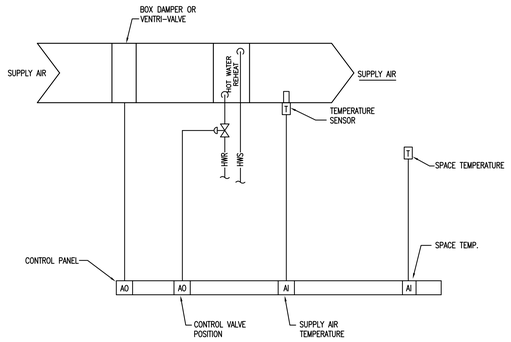
6 RTU-2,3 CONTROL DIAGRAM
NTS



NOTES:

1. TYPICAL FOR ALL LAB EXHAUST FANS.

7 LAB EXHAUST FAN CONTROL DIAGRAM
NTS



NOTES:

1. TYPICAL FOR ALL VAV, CAV, AND MAV BOXES

8 TERMINAL BOX CONTROL DIAGRAM
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1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
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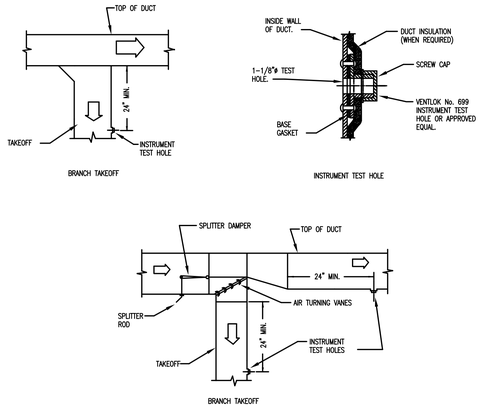
key plan

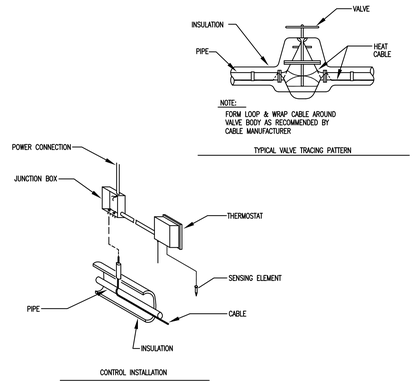
sheet title
HVAC CONTROL SCHEMATICS

sheet number
M5.1

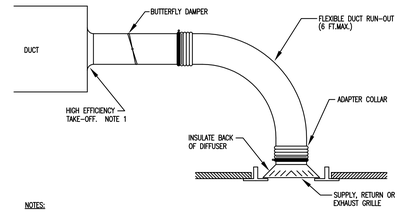
drawn by JDR
checked by JDR



1 TYPICAL LOW PRESSURE DUCT DETAILS
NTS



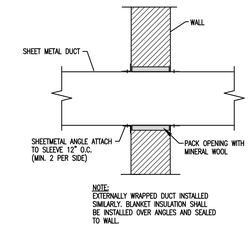
2 HEAT CABLE DETAIL
NTS



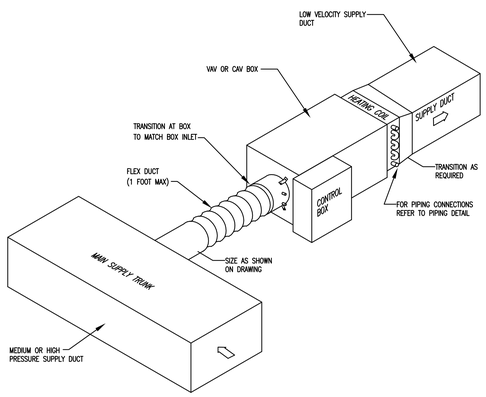
NOTES:

1. 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.
2. PROVIDE MIN OF 3 DUCT DIAMETERS BETWEEN TAPS OR AFTER ELBOWS.

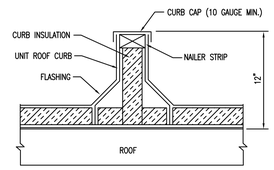
3 FLEXIBLE DUCT CONNECTION TO GRILL
NTS



4 DUCT THRU NON-RATED WALL
NTS



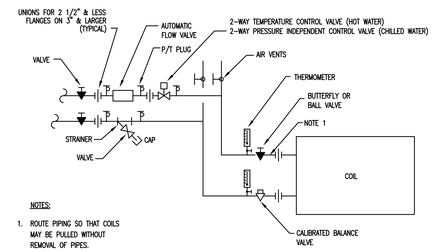
5 SHUT OFF TYPE VAV OR CAV DETAIL
NTS



NOTES:

1. PROVIDE RAISED CANT. SEE SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR TYPE OF BASE REQUIRED.
3. SPOT WELD OR ANCHOR CURB TO ROOF DECKING OR SUPPORTS PER SEISMIC REQUIREMENTS.
4. ATTACH CAP TO CURB 12" O.C. MINIMUM, 2 PER SIDE PROVIDE
5. 3/4" SPACE BETWEEN CURB CAP AND CURB FOR ROOFING AND FLASHING.
6. COORDINATE INSTALLATION OF CURB CAP WITH ROOF FLASHING.

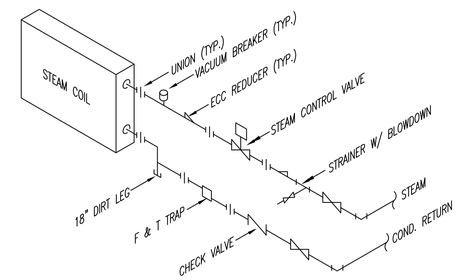
6 EQUIPMENT RAIL DETAIL
NTS



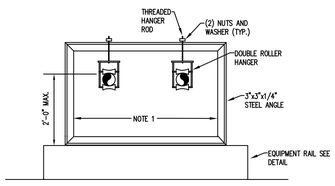
NOTES:

1. ROUTE PIPING SO THAT COILS MAY BE PULLED WITHOUT REMOVAL OF PIPES.

7 TWO WAY COIL PIPING DETAIL
NTS



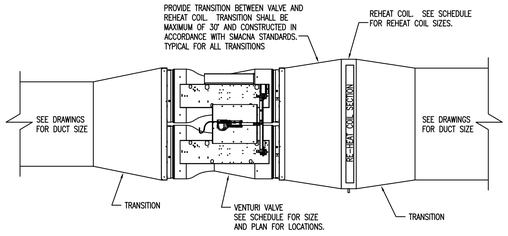
8 STEAM COIL PIPING DETAIL
NTS



NOTES:

1. WIDTH SHALL BE AS SMALL AS POSSIBLE AND NO GREATER THAN 3 FEET.
2. ALL SUPPORTS SHALL BE CLEANED, PRIMED AND PAINTED WITH 2 COATS OF INDUSTRIAL ENAMEL.
3. ALL HANGERS, FASTENERS, THREADED ROD AND ACCESSORIES SHALL BE HOT DIPPED GALVANIZED, ALUMINUM OR STAINLESS STEEL.
4. ALTERNATIVE INSTALLATIONS MAY BE APPROVED IF SUBMITTED IN WRITING WITH FULL DESCRIPTION AND SKETCHES TO ENGINEER.
5. BEFORE FINISH PAINTING, ALL METAL (EXCEPT FOR HOT DIPPED GALVANIZED, STAINLESS STEEL OR ALUMINUM) SHALL BE COATED WITH RUST INHIBITIVE PRIMER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

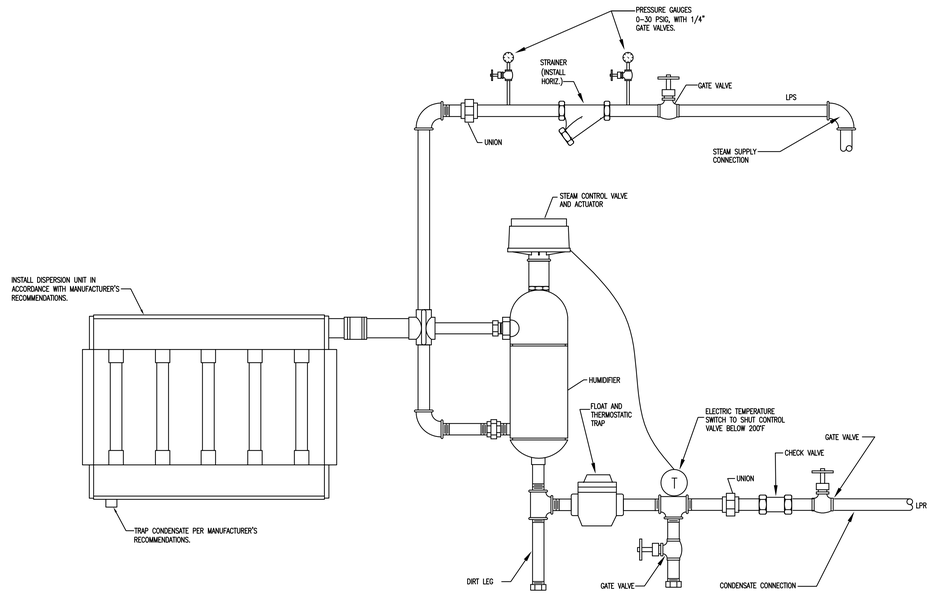
9 EXTERIOR PIPE SUPPORT ON ROOF DETAIL
NTS



NOTES:

1. INSTALL VENTURI VALVE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. INSTALLATION FOR SINGLE AND TRIPPLE VALVE BODIES SIMILIAR.

10 VENTURI TYPE (MAV-#) VALVE WITH REHEAT DETAIL
NTS



11 STEAM HUMIDIFIER DETAIL
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Columbia, S.C. 29201
tel. 803-256-0000
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sheet title
HVAC DETAILS

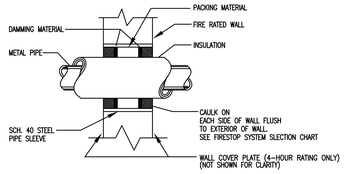
sheet number
M6.1

drawn by JDR
checked by JDR

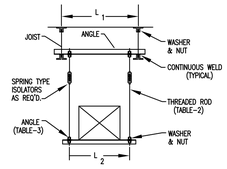
FIRESTOP SYSTEM SELECTION CHART

PENETRATION ITEM	FIRE RATING	UL SYSTEM NO.
METAL PIPE THROUGH GYPSUM WALL		
1/2" – 17" STEEL PIPE	2–HOUR	WL1058
1/2" – 30" STEEL PIPE 1/2" – 8" COPPER PIPE (NO SLEEVE)	1–HOUR OR 2–HOUR	WL1054
METAL INSULATED PIPE THROUGH GYPSUM WALL		
1/2" – 4" STEEL PIPE	1–HOUR	WL5022
1/2" – 2" STEEL PIPE	2–HOUR	WL5027
1/2" – 10" STEEL PIPE (NO SLEEVE)	2–HOUR	WL5029
METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
12" – 21" STEEL PIPE(NO SLEEVE)	3–HOUR	CAJ1156
1/2" – 20" STEEL PIPE 1/2" – 6" COPPER PIPE THROUGH STEEL SLEEVE	3–HOUR	CAJ1155
1/2" – 10" STEEL PIPE (NO SLEEVE) 1/2" – 4" COPPER PIPE (NO SLEEVE)	3–HOUR	CAJ1154
8" – 10" STEEL PIPE(NO SLEEVE) WHERE FLEXIBLE SEALANT IS REQUIRED	2–HOUR	CAJ1158

PENETRATION ITEM	FIRE RATING	UL SYSTEM NO.
METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
1/2" – 6" STEEL PIPE 1/2" – 4" EMT OR STEEL CONDUIT (NO SLEEVE) WHERE FLEXIBLE SEALANT IS REQUIRED	3–HOUR	CAJ1150
1/2" – 24" STEEL PIPE	4–HOUR	CAJ1079
MULTIPLE METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
12" OR SMALLER STEEL PIPE AND/OR 4" OR SMALLER COPPER PIPE, EMT OR CONDUIT	3–HOUR	CAJ1140
INSULATED METAL PIPE THROUGH CONCRETE/CONCRETE BLOCK		
1/2" – 8" STEEL PIPE WITH 1" THICK GLASS FIBER	2–HOUR	CAJ5046
1/2" – 6" STEEL PIPE OR 1/2" – 4" COPPER PIPE, EMT OR CONDUIT WITH 1–1/2" GLASS FIBER	2–HOUR	CAJ5045
MULTIPLE INSULATED PIPES, MAXIMUM QUANTITY OF 4. 1/2" –3" STEEL PIPE, COPPER PIPE, EMT OR CONDUIT WITH 3/4" GLASS FIBER	3–HOUR	CAJ5044



1 RATED WALL PENETRATION
NTS



TRAPEZE SUPPORT

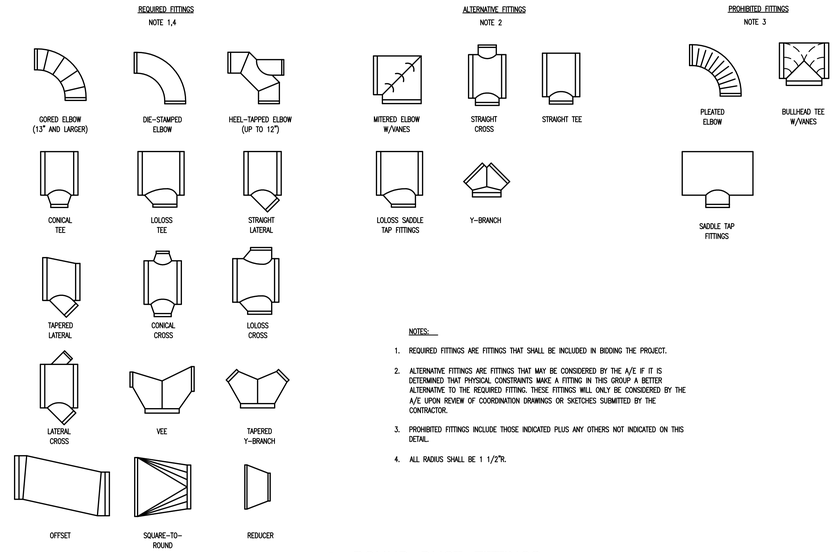
STRAP HANGER SUPPORT
(TABLE – 1)

TABLE–1 STRAP HANGERS (PAIR) SPACED			
W + D MAX.	10'–0" MAX.	8'–0" MAX.	5'–0" OR LESS
72"	1" x 22Ga.	1" x 22Ga.	1" x 22Ga.
96"	———	1" x 20Ga.	1" x 22Ga.
120"	———	1" x 18Ga.	1" x 22Ga.
168"	———	———	1" x 18Ga.
192"	———	———	1" x 16Ga.

TABLE–2 ALLOWABLE HANGER LOADS – MAX.			
STRAPS	LBS.	RODS	LBS.
2 – 1"x22Ga.	520	2 – 1/4" DIA.	540
2 – 1"x20Ga.	640	2 – 3/8" DIA.	1360
2 – 1"x18Ga.	840	2 – 1/2" DIA.	2500
2 – 1"x16Ga.	1400	2 – 5/8" DIA.	4000
———	———	2 – 3/4" DIA.	6000

TABLE–3 TRAPEZE ANGLE LOAD – MAX.		
L_1 OR L_2	2"x2"x1–1/4"	2–1/2"x2–1/2"x1/4"
36"	1200 LBS.	1940 LBS.
48"	1160 LBS.	1900 LBS.
60"	1060 LBS.	1800 LBS.
72"	900 LBS.	1640 LBS.
84"	660 LBS.	1400 LBS.
96"	320 LBS.	1060 LBS.

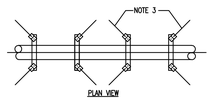
2 DUCT AND EQUIPMENT SUPPORT DETAILS
NTS



NOTES:

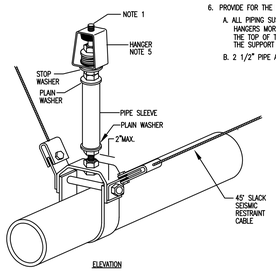
1. REQUIRED FITTINGS ARE FITTINGS THAT SHALL BE INCLUDED IN BIDDING THE PROJECT.
2. ALTERNATIVE FITTINGS ARE FITTINGS THAT MAY BE CONSIDERED BY THE A/E IF IT IS DETERMINED THAT PHYSICAL CONSTRAINTS MAKE A FITTING IN THIS GROUP A BETTER ALTERNATIVE TO THE REQUIRED FITTING. THESE FITTINGS WILL ONLY BE CONSIDERED BY THE A/E UPON REVIEW OF COORDINATION DRAWINGS OR SKETCHES SUBMITTED BY THE CONTRACTOR.
3. PROHIBITED FITTINGS INCLUDE THOSE INDICATED PLUS ANY OTHERS NOT INDICATED ON THIS DETAIL.
4. ALL RADIUS SHALL BE 1 1/2"R.

3 ROUND DUCT FITTINGS
NTS

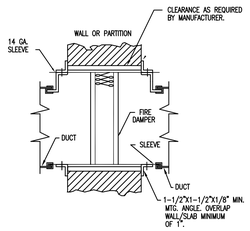


NOTES

1. ATTACH ROD TO STRUCTURE. PROVIDE 1/4" CLEARANCE BETWEEN STRUCTURE AND TOP OF ISOLATOR OF NUT.
2. PROVIDE TWO NUTS WITH 1/8" CLEARANCE BETWEEN BOTTOM OF ISOLATOR AND WASHER.
3. CABLE SHALL BE AT 45 DEGREES FROM PIPE AND CEILING. ALTERNATE DIRECTIONS EVERY OTHER SET OF CABLES.
4. CABLE, ROD, SLEEVE, HANGER AND SPACING SHALL BE CALCULATED BY VIBRATION ISOLATOR VENDOR. BUT IN NO CASE SHALL BE LESS THAN MIN. SIZE SPECIFIED.
5. PROVIDE VIBRATION ISOLATOR WHEN SPECIFIED.
6. PROVIDE FOR THE FOLLOWING (NEW AND/OR EXIST. PIPING):
   A. ALL PIPING SUSPENDED BY INDIVIDUAL HANGERS MORE THAN 12" IN LENGTH FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
   B. 2 1/2" PIPE AND GREATER.



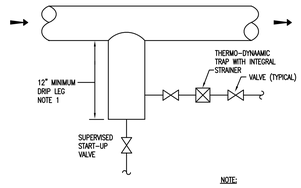
5 PIPE SEISMIC DETAIL
NTS



NOTES:

1. PROVIDE FIRE DAMPERS IN ALL 1 HR. THRU 4 HR. WALLS, SLABS, AND PARTITIONS SHOWN ON ARCH. AND MECH. DRAWINGS.
2. PROVIDE DUCT ACCESS DOOR. ACCESS DOOR SHALL BE LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE OF THE DAMPER AND ITS OPERATING PARTS. ACCESS DOOR SHALL BE LABELED "FIRE DAMPER". THE LETTERS SHALL NOT BE LESS THAN 0.5 INCHES IN HEIGHT.
3. PROVIDE ALL CEILING, FLOOR, AND WALL ACCESS DOORS NECESSARY FOR ACCESS TO FIRE DAMPER.
4. FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF UL 555 AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ONLY FIRE DAMPERS LABELED FOR USE IN DYNAMIC SYSTEMS SHALL BE INSTALLED IN HEATING, VENTILATION AND AIR–CONDITIONING SYSTEMS DESIGNED TO OPERATE WITH FANS ON DURING A FIRE.
5. BLANKET INSULATION SHALL BE INSTALLED OVER ANGELS AND SEALED TO WALL.
6. DAMPER BLADES SHALL BE LOCATED OUT OF THE AIR STREAM.
7. SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS INSTALLED SIMILARLY.

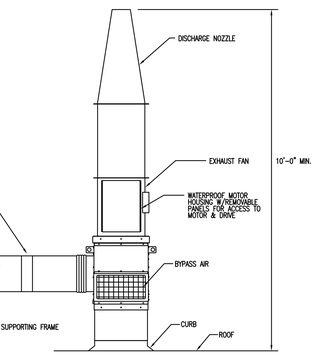
6 FIRE DAMPER DETAIL
NTS



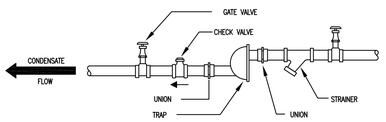
NOTE:

1. DRIP LEG SAME DIAMETER AS HEADER.

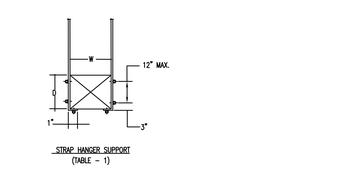
7 DRIP LEG DETAIL (30 PSIG AND ABOVE)
NTS



4 LAB EXHAUST FAN DETAIL
NTS



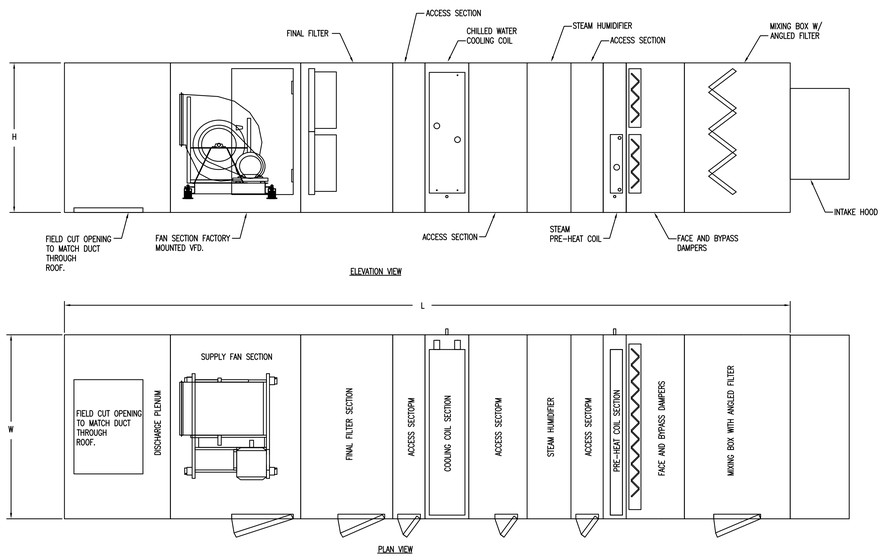
8 F & T TRAP DETAIL
NTS



NOTE:

1. DRIP LEG SAME DIAMETER AS HEADER.

9 DRIP LEG DETAIL (UP TO 30 PSIG)
NTS

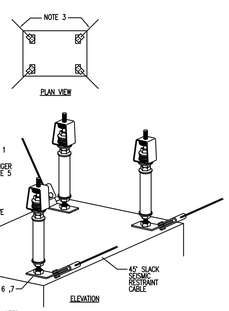


OVERALL UNIT DIMENSIONS			
TAG	MAX. LENGTH "L"	MAX. WIDTH "W"	MAX. HEIGHT "H"
RTU–1	227.25	50.5	41.25
RTU–2	227.25	50.5	41.25
RTU–3	231.25	61.5	41.25

NOTES:

1. PROVIDE ACCESS DOORS, AS SHOWN ABOVE. (ORIENTATION DETERMINED BY "FACING" DISCHARGE AIRFLOW). RTU–2 & 3 ACCESS DOORS SHALL BE LEFT HAND ORIENTATION.
2. PROVIDE ACCESS DOORS, AS SHOWN ABOVE. (ORIENTATION DETERMINED BY "FACING" DISCHARGE AIRFLOW). RTU–1 ACCESS DOORS SHALL BE RIGHT HAND ORIENTATION.
3. LEFT HAND COIL AND CONDENSATE DRAIN CONNECTIONS (ORIENTATION DETERMINED BY "FACING" DISCHARGE AIRFLOW) ON RTU–1.
4. RIGHT HAND COIL AND CONDENSATE DRAIN CONNECTIONS (ORIENTATION DETERMINED BY "FACING" DISCHARGE AIRFLOW) ON RTU–2 & 3.
5. EQUIPMENT MANUFACTURER SHALL CONSTRUCT UNIT SO THE MODULES CAN BE DISASSEMBLED TO FIT THROUGH AN EXISTING 36" DOOR (35" CLEAR). EQUIPMENT MODULES SHALL BE BRACED TO ALLOW ROTATION (FOR TRANSPORT) WITHOUT VOIDING EQUIPMENT WARRANTY.

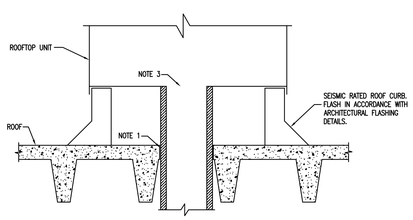
13 ROOFTOP UNIT CONFIGURATION DETAIL
NTS



NOTES

1. ATTACH ROD TO STRUCTURE. PROVIDE 1/4" CLEARANCE BETWEEN STRUCTURE AND TOP OF ISOLATOR OF NUT.
2. PROVIDE TWO NUTS WITH 1/8" CLEARANCE BETWEEN BOTTOM OF ISOLATOR AND WASHER.
3. CABLE SHALL BE AT 45 DEGREES FROM UNIT AND CEILING. ALTERNATE DIRECTIONS EVERY OTHER SET OF CABLES.
4. CABLE, ROD, SLEEVE, HANGER AND SPACING SHALL BE CALCULATED BY VIBRATION ISOLATOR VENDOR. BUT IN NO CASE SHALL BE LESS THAN MIN. SIZE SPECIFIED.
5. PROVIDE VIBRATION ISOLATOR WHEN SPECIFIED.
6. PROVIDE TWO NUTS ON INTERIOR OF UNIT.
7. EQUIPMENT MAY BE TRAPEZE MOUNTED. TRAPEZE SHALL BE SECURED TO UNIT.

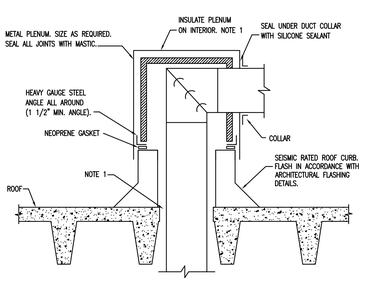
10 SUSPENDED EQUIPMENT SEISMIC DETAIL
NTS



NOTES:

1. INSULATION SHALL BE CONTINUOUS THROUGH PENETRATION.
2. FIELD COORDINATE DUCT PENETRATIONS.
3. FIELD CUT OPENING IN ROOFTOP UNIT TO MATCH DUCT THROUGH ROOF PENETRATION.

11 SUPPLY DUCT THROUGH STRUCTURE DETAIL
NTS



NOTES:

1. INSULATION SHALL BE CONTINUOUS THROUGH PENETRATION.
2. FIELD COORDINATE DUCT PENETRATIONS.

12 EXHAUST DUCT THROUGH STRUCTURE DETAIL
NTS

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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checked by JDR

ABBREVIATIONS

ABV	Above	MBH	Thousand BTU/Hr (thousands)
AFF	Above Finished Floor	MIN	Minimum
BHP	Brake Horsepower	MPS	Medium Pressure Steam
CAV–#	Constant Volume Terminal Box – No. #	N/A	Not Applicable
CFM	Cubic Feet Per Minute	NIC	Not In Contract
CC–1	Cooling Coil No. 1	NTS	Not To Scale
CHWS	Chilled Water Supply	OA	Outside Air
CHWR	Chilled Water Return	OBD	Opposed Blade Damper
CP–#	Steam Condensate Pump – No. #	OD	Outside Diameter
DD	Duct Smoke Detector	PD	Pressure Drop
DB	Dry Bulb Temperature	PHC–1	Pre–Heat Coil No. 1
EAT	Entering Air Temperature	RA	Return Air
ELEC	Electric or Electrical	RET	Return
EWB	Entering Air Wet Bulb	RHC–#	Reheat Coil – No. #
EWT	Entering Water Temperature	RH	Relative Humidity
F–#	Filter Type No.	RTU–#	Rooftop Unit – No. #
FCU–#	Fan Coil Unit – No. #	SA	Supply Air
FL	Floor	SEER	Seasonal Energy Efficiency Ratio
GEV–#	General Exhaust Valve – No. #	SHT	Sheet
H–1	Humidifier No. 1	SP	Static Pressure
HC–#	Heating Coil – No. #	SPEC	Specifications
HEV–#	Hood Exhaust Valve – No. #	SPL	Supply
HWS	Hot Water Supply	T	Thermostat
HWR	Hot Water Return	T–1	Terminal Box – No. 1
HP	Horsepower	TEMP	Temperature
LAT	Leaving Air Temperature	TSTAT	Thermostat
LEF–#	Lab Exhaust Fan – No. #	TYP	Typical
LWB	Leaving Air Wet Bulb	VFD	Variable Frequency Drive
LWT	Leaving Water Temperature	WB	Wet Bulb Temperature
MAV–#	Make–up Air Valve – No. #	WPD	Water Pressure Drop (in. w.g)
MAX	Maximum		

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. REMOVAL OF SYSTEMS SHALL INCLUDE COMPLETE SYSTEM WHENEVER PRACTICAL. IF NOT, SYSTEM (IE: PIPE, CONDUIT, ETC.) SHALL BE REMOVED TO 1 INCH BELOW SURFACE.

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 EXTERIOR AND SPILL ON GRADE. ROUTE TO AVOID INTERFERENCE WITH PASSAGEWAYS. CONDENSATE DRAINS SHALL BE TRAPPED. SLOPE DRAIN LINES 1/8" PER FOOT.
3. ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
4. 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.
5. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
6. ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED.
7. PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLATION OF DUCT, EXHAUST FANS, AND ALL OTHER EQUIPMENT AND APPURTENANCES.
8. ALL DUCT IS GALVANIZED SHEET METAL EXCEPT AS NOTED.
9. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
T	TEMPERATURE SENSOR OR THERMOSTAT		CEILING SUPPLY DIFFUSER, RETURN GRILLE W/ FLEX DUCT CONN. FOR RETURN OR EXHAUST AIR; SEE "DIFFUSER & GRILLE SCHEDULE"	18x12 12x12	TRANSITION, FLAT ON BOTTOM (FOB) FLAT ON TOP (FOT, IF APPLICABLE)
S	WALL SWITCH		EXISTING DUCT WORK TO REMAIN		TURNING VANES
H	WALL HUMIDISTAT		EXISTING DUCT WORK TO BE REMOVED	DD	DUCT SMOKE DETECTORS
	CONNECT TO EXISTING		DUCT TURNING DOWN	CR	CONCEALED REGULATOR
18x12	RECTANGULAR DUCT SIZE, FIRST FIGURE IS SIDE SHOWN		DUCT TURNING UP	L	MANUAL VOLUME DAMPER
18"ø	ROUND DUCT SIZE	Water	UNION	A 6"ø / 100	A – DIFFUSER TAG 6"ø – NECK SIZE 100 – CFM
R	CHANGE OF ELEVATION, RISER (R), DROP (D)		STRAINER		GATE VALVE
	ACOUSTICAL LINING INSULATION		STRAINER WITH BLOW OFF		CONTROL VALVE, TWO WAY
	FLEXIBLE DUCT		ECCENTRIC REDUCER FLAT ON TOP		END CAP
CHWS	CHILLED WATER SUPPLY		TEE OUTLET UP		ELBOW TURNED DOWN
CHWR	CHILLED WATER RETURN		TEE OUTLET DOWN		ELBOW TURNED UP
	CONCENTRIC REDUCER				ECCENTRIC REDUCER FLAT ON BOTTOM

AIR DISTRIBUTION SCHEDULE

TAG	DESCRIPTION	NECK	MODULE SIZE	MOUNT	CONSTR.	MFGR	MODEL	NOTES
A	SQUARE PLAQUE CEILING SUPPLY	AS SHOWN	24x24	LAY–IN	ALUMINUM	PRICE	SERIES ASPD	2,3
B	EGG CRATE EXHAUST	AS SHOWN	24x24	LAY–IN	ALUMINUM	PRICE	SERIES 80	3

1. FURNISH WITH OPPOSED BLADE DAMPER
2. 4–WAY DEFLECTION UNLESS NOTED OTHERWISE
3. BAKED ENAMEL OFF–WHITE FINISH
4. 1–WAY BLOW
5. FURNISH WITH 2 SETS OF REPLACEMENT FILTERS

TERMINAL BOX SCHEDULE

TAG NO.	AREA SERVED	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	PIPE RUNOUT SIZE (INCHES)	REHEAT COIL GPM	REHEAT COIL MBH	REHEAT COIL EWT (°F)	REHEAT COIL LWT (°F)	PRIMARY NC @ 1.5" SP DISCH/RAD.	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
CAV–1	OFFICE	395	395	1.0	3/4"	1.3	12.8	180	160	---	6"	---	TRANE	VCWF06	1,2,4

1. ELECTRIC ACTUATOR
2. CONTROL POWER TRANSFORMER
3. SOUND ATTENUATOR
4. 2 ROW COIL
5. ACCESS PANEL
6. DUAL WALL CONSTRUCTION

STEAM CONDENSATE PUMP SCHEDULE

TAG	SERVICE	TYPE	FLOW (GPM)	HEAD FT (PSI)	EFFICIENCY (%)	MOTOR HP	MOTOR RPM	MOTOR TYPE	ELECTRICAL (VOLTS/PHASE)	EMERGENCY POWER	MANUFACTURER	MODEL	NOTES
CP–1	---	STEAM COND.	6	34.65	---	1/3	1750	ODP	120/1	NO	BELL AND GOSSETT	SERIES CC	---

1. SKID–MOUNTED
2. INTERNAL RELIEF VALVE (SET AT 60 PSIG)

STEAM HUMIDIFIER SCHEDULE

TAG	LOCATION	TYPE	DUCT SIZE	CFM	CAPACITY (LBS/HR)	STEAM PRESS. (PSIG)	MAXIMUM ABSORPTION DISTANCE	AIR PD (IN W.C.)	MANUFACTURER	MODEL	NOTES
H–1	RTU–1	---	---	1750	34.85	15	6"	0.006	DRI–STEEM	ULTRA–50RB LV	1,2,3,4,5,6,7
H–2	RTU–2	---	---	2000	39.53	15	6"	0.008	DRI–STEEM	ULTRA–50RB LV	1,2,3,4,5,6,7

1. FULL MODULATING CONTROL
2. HI–LIMIT SENSOR
3. DUCT MOUNTED HUMIDITY SENSOR
4. HUMIDIFIER ON EMERGENCY POWER
5. PRESSURE AIRFLOW PROVING SWITCH
6. STEAM TRAP
7. ELECTRONIC ACTUATOR

GENERAL EXHAUST VALVE SCHEDULE

TAG NO.	AREA SERVED	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	PRIMARY NC @ 1.5" SP DISCH/RAD.	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
GEV–1	---	3200	1610	1.25	---	30X15	---	PHOENIX CONTROLS	TEVA214M–ALMHZ	1,3,6,7
GEV–2	---	240	80	1.25	---	8	---	PHOENIX CONTROLS	TEVAF08M–ALMHZ	1,3,6,7

1. HIGH SPEED ELECTRIC ACTUATOR
2. LOW SPEED ELECTRIC ACTUATOR
3. CONTROL POWER TRANSFORMER
4. CORROSION–RESISTANT COATING ON VALVE
5. CONNECT TO TWO POSITION WALL SWITCH
6. SEE LAB CONTROL DIAGRAMS FOR MORE INFORMATION
7. FLANGED CONNECTION

COIL SCHEDULE

TAG	LOCATION	SERVICE	CAPACITY CFM	MAX. AIR VELOCITY (FPM)	MIN. FACE AREA (SQ. FT.)	AIR PRESS DROP (IN. WG.)	CAPACITY TOTAL MBH	CAPACITY SENS. MBH	CAPACITY KW	AIR TEMPERATURE ENTERING DB °F	AIR TEMPERATURE ENTERING WB °F	AIR TEMPERATURE LEAVING DB °F	AIR TEMPERATURE LEAVING WB °F	WATER ENTERING TEMP. °F	WATER LEAVING TEMP. °F	WATER GPM	WATER MAX. WPD (FT. WATER)	STEAM PRESSURE	STEAM COIL COND. (LB/HR)	MINIMUM NO. OF ROWS	MAXIMUM NO. OF FINS/FT.	ELECTRICAL (VOLTS/PHASE)	NOTES
CC–1	RTU–1	COOLING	3300	413	7.99	0.774	250.25	155.10	---	95	75.2	52.6	52.5	46	58	41.6	13.15	---	---	8	117	---	---
PHC–1	RTU–1	HEATING	3300	508	6.50	0.078	143.2	---	---	20.0	---	60.0	---	---	---	---	---	15	151.3	1	43	---	1
CC–2	RTU–2	COOLING	4000	501	7.99	1.096	291.86	189.12	---	95.4	74.6	52.70	52.60	46	58	48.5	17.22	---	---	8	133	---	---
PHC–2	RTU–2	HEATING	4000	615	6.50	0.196	173.52	---	---	20.0	---	60.0	---	---	---	---	---	15.0	183.4	1	46	---	1

1. STEAM PRESSURE = 50 PSIG
2. 2–WAY VALVE
3. 3–WAY VALVE
4. MINIMUM WATER VELOCITY = 4 FEET PER SECOND

FAN SCHEDULE

TAG	TYPE	CAPACITY CFM	E.S.P. (IN. WG.)	MOTOR HP	MOTOR RPM	ELECTRICAL (VOLTS/PHASE)	EMERGENCY POWER	MANUFACTURER	MODEL NO.	NOTES
LEF–1	VENT SET	3300	0.5	5	1725	460/3/60	NO	GREENHECK	VEXTOR–H–18–15	3,6,9,10,11,12,13
LEF–2	VENT SET	3925	1.75	5	1725	460/3/60	NO	GREENHECK	VEXTOR–H–18–15	3,6,9,10,11,12,13

1. MOTORIZED BACKDRAFT DAMPER
2. GRAVITY BACKDRAFT DAMPER
3. DISCONNECT SWITCH
4. BIRDSCREEN
5. SEISMIC ROOF CURB
6. BELT GUARD
7. FILTER
8. ECM MOTOR W/VFD
9. BYPASS DAMPER
10. PLENUM
11. CHEMICAL RESIST FLEX CONNECTION
12. VFD IN NEMA 3R ENCLOSURE
13. SPRING ISOLATORS

AIR HANDLING UNIT SCHEDULE

TAG	SERVICE	CAPACITY CFM	MINIMUM O.A.	FAN TYPE	STATIC PRESS. IN. W.G. TOTAL	STATIC PRESS. IN. W.G. EXT	FAN RPM	FAN BHP	MOTOR RPM	MOTOR HP	LAT UNIT (°F)	ELECTRICAL VOLTS/PHASE	EMERGENCY POWER	AIR VOLUME CONTROL	PREHEAT COIL EQ. NO.	HEATING COIL EQ. NO.	COOLING COIL EQ. NO.	PRE–FILTER (%)	FINAL FILTER (%)	HUMIDIFIER EQ. NO.	MANUFACTURER	MODEL	REMARKS
RTU–1	SUPPLY	3300	3300	AF	4.643	1.3	2857	3.881	1800	5.0	55.0	208/3	NO	VFD	PHC–1	RHC–1	CC–1	30	85	---	TRANE	PCC 08	1,2,3
RTU–2	SUPPLY	4000	4000	AF	6.641	2.5	3434	6.752	1800	7.5	55.0	208/3	NO	VFD	PHC–2	---	CC–2	30	85	---	TRANE	PCC 08	1,2

1. FACTORY MOUNTED VFD
2. SINGLE POINT POWER CONNECTION
3. DUCT MOUNTED REHEAT COIL

DUCT REHEAT COIL SCHEDULE

TAG NO.	AREA SERVED	MINIMUM BOX CFM	COIL SIZE (WXL)	PIPE RUNOUT SIZE (INCHES)	REHEAT COIL GPM	REHEAT COIL MBH	REHEAT COIL EWT (°F)	REHEAT COIL LWT (°F)	MAX. WPD FT W.C.	MAX. APD IN W.C.	NOTES
HC–1	LAB 330	1465	30X18	1"	5.8	58.4	180	160	5.0	0.25	1,2
HC–2	PREP RM 330A	210	12X12	3/4"	0.8	7.5	180	160	5.0	0.25	1,2
RHC–1	PREP RM 303	1625	46x10	1"	6.5	65.1	180	160	5.0	0.25	1,2

1. PROVIDE DUCT TRANSITION UPSTREAM AND DOWNSTREAM OF REHEAT COIL
2. TWO ROW COIL

HOOD EXHAUST VALVE SCHEDULE

TAG NO.	AREA SERVED	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	PRIMARY NC @ 1.5" SP DISCH/RAD.	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
HEV–1	---	485	485	1.25	---	8	---	PHOENIX CONTROLS	CEVBF08M–ACMHZ	4,6,7

1. HIGH SPEED ELECTRIC ACTUATOR
2. LOW SPEED ELECTRIC ACTUATOR
3. CONTROL POWER TRANSFORMER
4. CORROSION–RESISTANT COATING ON VALVE
5. CONNECT TO TWO POSITION WALL SWITCH
6. SEE LAB CONTROL DIAGRAMS FOR MORE INFORMATION
7. FLANGED CONNECTION

MAKEUP AIR VALVE SCHEDULE

TAG NO.	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	REHEAT COIL	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	TRACKING VALVE	MANUFACTURER	MODEL NO.	NOTE
MAV–1	3075	1465	1.25	HC–1	30X15	120/1	GEV–1	PHOENIX CONTROLS	TSVA214M–ALMHZ	1,2,3,4
MAV–2	530	210	1.25	HC–2	8	120/1	GEV–2	PHOENIX CONTROLS	TSVAF08M–ALMHZ	1,2,3,4

1. LOW SPEED ELECTRIC ACTUATOR
2. CONTROL POWER TRANSFORMER
3. REHEAT COIL MOUNTED IN DUCT
4. FLANGED CONNECTION

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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number	item	date

key plan

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sheet title
HVAC LEGENDS, ABBREVIATIONS, NOTES, AND SCHEDULES

sheet number
M7.1

drawn by JDR
checked by JDR

DUCT REHEAT COIL SCHEDULE (ALTERNATE NO. 1)

TAG NO.	AREA SERVED	MINIMUM BOX CFM	COIL SIZE (WXL)	PIPE RUNOUT SIZE (INCHES)	REHEAT COIL				MAX. WPD FT W.C.	MAX. APD IN W.C.	NOTES
					GPM	MBH	EWT (°F)	LWT (°F)			
HC-3	LAB 339	1750	36X18	1"	6.8	68.3	180	160	5.0	0.25	1,2
HC-4	PREP RM 338	360	14X12	1/2"	1.2	12.4	180	160	5.0	0.25	1,2

1. PROVIDE DUCT TRANSITION UPSTREAM AND DOWNSTREAM OF REHEAT COIL
2. TWO ROW COIL

FAN SCHEDULE (ALTERNATE NO. 1)

TAG	TYPE	CAPACITY CFM	E.S.P. (IN. WG.)	MOTOR		ELECTRICAL (VOLTS/PHASE)	EMERGENCY POWER	MANUFACTURER	MODEL NO.	NOTES
				HP	RPM					
LEF-3	VENT SET	4675	1.75	5	1725	460/3/60	NO	GREENHECK	VEKTOR-H-18-15	3,6,9,10,11,12,13

1. MOTORIZED BACKDRAFT DAMPER
2. GRAVITY BACKDRAFT DAMPER
3. DISCONNECT SWITCH
4. BIRDSCREEN
5. SEISMIC ROOF CURB
6. BELT GUARD
7. FILTER
8. ECM MOTOR W/VFD
9. BYPASS DAMPER
10. PLENUM
11. CHEMICAL RESIST FLEX CONNECTION
12. VFD IN NEMA 3R ENCLOSURE
13. SPRING ISOLATORS

HOOD EXHAUST VALVE SCHEDULE (ALTERNATE NO. 1)

TAG NO.	AREA SERVED	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	PRIMARY NC @ 1.5" SP DISCH/RAD.	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
HEV-2	---	485	485	1.25	---	8	---	PHOENIX CONTROLS	CDV8F08M-ACNHZ	4,6,7

1. HIGH SPEED ELECTRIC ACTUATOR
2. LOW SPEED ELECTRIC ACTUATOR
3. CONTROL POWER TRANSFORMER
4. CORROSION-RESISTANT COATING ON VALVE
5. CONNECT TO TWO POSITION WALL SWITCH
6. SEE LAB CONTROL DIAGRAMS FOR MORE INFORMATION
7. FLANGED CONNECTION

MAKEUP AIR VALVE SCHEDULE (ALTERNATE NO. 1)

TAG NO.	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	REHEAT COIL	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	TRACKING VALVE	MANUFACTURER	MODEL NO.	NOTE
MAV-3	3575	1750	1.25	HC-3	30X15	120/1	GEV-3	PHOENIX CONTROLS	TSVA214M-ALNHZ	1,2,3,4
MAV-4	850	360	1.25	HC-4	10	120/1	GEV-4	PHOENIX CONTROLS	TSVAF10M-ALNHZ	1,2,3,4
MAV-5	125	125	1.25	---	8	120/1	---	PHOENIX CONTROLS	CSVAF08M-ACNHZ	1,2,3,4

1. LOW SPEED ELECTRIC ACTUATOR
2. CONTROL POWER TRANSFORMER
3. REHEAT COIL MOUNTED IN DUCT
4. FLANGED CONNECTION

GENERAL EXHAUST VALVE SCHEDULE (ALTERNATE NO. 1)

TAG NO.	AREA SERVED	MAXIMUM BOX CFM	MINIMUM BOX CFM	MIN. INLET S.P. (W.C.)	PRIMARY NC @ 1.5" SP DISCH/RAD.	INLET SIZE (INCHES)	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
GEV-3	---	3700	1280	1.25	---	30X15	---	PHOENIX CONTROLS	TSVA214M-ALNHZ	1,3,6,7
GEV-4	---	490	125	1.25	---	8	---	PHOENIX CONTROLS	TSVAF08M-ALNHZ	1,3,6,7

1. HIGH SPEED ELECTRIC ACTUATOR
2. LOW SPEED ELECTRIC ACTUATOR
3. CONTROL POWER TRANSFORMER
4. CORROSION-RESISTANT COATING ON VALVE
5. CONNECT TO TWO POSITION WALL SWITCH
6. SEE LAB CONTROL DIAGRAMS FOR MORE INFORMATION
7. FLANGED CONNECTION

STEAM HUMIDIFIER SCHEDULE (ALTERNATE NO. 1)

TAG	LOCATION	TYPE	DUCT SIZE	CFM	CAPACITY (LBS/HR)	STEAM PRESS. (PSIG)	MAXIMUM ABSORPTION DISTANCE	AIR PD (IN W.C.)	MANUFACTURER	MODEL	NOTES
H-3	RTU-3	---	---	2250	45.30	15	6"	0.006	DRI-STEEM	ULTRA-50RB LV	1,2,3,4,5,6,7

1. FULL MODULATING CONTROL
2. HI-LIMIT SENSOR
3. DUCT MOUNTED HUMIDITY SENSOR
4. HUMIDIFIER ON EMERGENCY POWER
5. PRESSURE AIRFLOW PROVING SWITCH
6. STEAM TRAP
7. ELECTRONIC ACTUATOR

FAN COIL UNIT SCHEDULE (ALTERNATE NO. 1)

TAG	TYPE	CAPACITY CFM	ESP (IN. WG.)	COOLING COIL							HEATING COIL			MOTOR #1		MOTOR #2		MCA	ELECTRICAL (VOLTS/PHASE)	MANUFACTURER	MODEL	NOTES
				CAPACITY (MBH)		ENTERING		LEAVING		GPM	TYPE	MBH	GPM	HP	RPM	HP	RPM					
				TOTAL	SENS.	DB °F	WB °F	DB °F	WB °F													
FCU-1	HORIZONTAL	550	0.4	10.4	10.0	75.0	63.0	57.9	56.6	2.1	WATER	24.0	2.1	0.22	1473	---	---	3.88	120/1	TRANE	FCC806	1,3,4

1. DISCONNECT SWITCH
2. RETURN PLENUM
3. FILTER
4. SINGLE POINT POWER CONNECTION

COIL SCHEDULE (ALTERNATE NO. 1)

TAG	LOCATION	SERVICE	CAPACITY CFM	MAX. AIR VELOCITY (FPM)	MIN. FACE AREA (SQ. FT.)	AIR PRESS DROP (IN. WG.)	CAPACITY			AIR TEMPERATURE				WATER				STEAM		MINIMUM NO. OF ROWS	MAXIMUM NO. OF FINS/FT.	ELECTRICAL (VOLTS/PHASE)	NOTES
							TOTAL MBH	SENS. MBH	KW	ENTERING		LEAVING		ENTERING TEMP., °F	LEAVING TEMP., °F	GPM	MAX. WPD (FT. WATER)	PRESSURE	COIL COND. (LB/HR)				
										DB °F	WB °F	DB °F	WB °F										
CC-3	RTU-3	COOLING	5000	544	9.19	1.318	355.7	220.4	---	91.8	73.7	52	51.9	46	58	59.1	14.85	---	---	8	141	---	---
PHC-3	RTU-3	HEATING	5000	612	8.17	0.123	216.9	---	---	20.0	---	60.0	---	---	---	---	---	15.0	229.3	1	46	---	---

1. STEAM PRESSURE = 50 PSIG
2. 2-WAY VALVE
3. 3-WAY VALVE
4. MINIMUM WATER VELOCITY – 4 FEET PER SECOND

AIR HANDLING UNIT SCHEDULE (ALTERNATE NO. 1)

TAG	SERVICE	CAPACITY CFM	MINIMUM O.A.	FAN TYPE	STATIC PRESS. IN. W.G.		FAN		MOTOR		LAT UNIT (°F)	ELECTRICAL VOLTS/PHASE	EMERGENCY POWER	AIR VOLUME CONTROL	PREHEAT COIL EQ. NO.	HEATING COIL EQ. NO.	COOLING COIL EQ. NO.	PRE-FILTER (%)	FINAL FILTER (%)	HUMIDIFIER EQ. NO.	MANUFACTURER	MODEL	REMARKS
					TOTAL	EXT	RPM	BHP	RPM	HP													
RTU-3	SUPPLY	5000	5000	AF	7.013	2.5	2680	9.070	1800	10.0	55.0	208/3	NO	VFD	PHC-3	---	CC-3	30	85	---	TRANE	PCC 10	1,2

1. FACTORY MOUNTED VFD
2. SINGLE POINT POWER CONNECTION

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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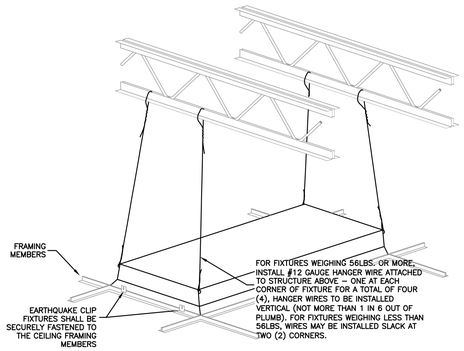
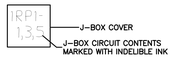


1 RECESSED LIGHTING FIXTURE DETAIL
NTS

WHERE FIXTURES ARE HUNG IN A FIRE RATED CEILING, THE CEILING CONTRACTOR SHALL PROVIDE FIRE PROTECTION AS SHOWN IN UL FIRE RESISTANCE BOOK AS DESIGN NOTE P230 OR P510.



ALL EXPOSED J–BOXES, NOT INCLUDING ELECTRICAL OR MECHANICAL ROOMS, SHALL BE MARKED ON THE INSIDE COVER. ALL OTHERS SHALL BE MARKED ON THE OUTSIDE.

ALL J–BOXES CONTAINING FIRE ALARM CIRCUITS SHALL BE PAINTED RED.

ALL J–BOXES CONTAINING SOUND CIRCUITS SHALL BE PAINTED GREEN.

2 J–BOX COVER DETAIL
NTS

ALL CONDUIT SHALL BE INSTALLED IN A NEAT AND ORDERLY MANNER, PERPENDICULAR TO ALL BUILDING WALLS AND BEAMS AND SHALL COMPLY STRICTLY WITH ALL CODES AND REQUIREMENTS OF THE NEC, NFPA, AND UL WITH NO EXCEPTIONS.

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LP1–2,4	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MAORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.		ELECTRICAL CIRCUIT BREAKER PANELBOARD.
LP1–2,4	BRANCH CIRCUIT RACEWAY. RUN IN AND/OR UNDER SLAB. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.	GF WP 8	DUPLEX RECEPTACLE, 120 VOLT, 20 AMP, WALL MOUNTED, GROUND FAULT CIRCUIT INTERRUPTER, 16" AFF. THE NUMBER DENOTES CIRCUIT NUMBER. "WP" DENOTES WEATHERPROOF COVER.
	FLEXIBLE CONDUIT. WEATHERPROOF TYPE WHEN CONNECTED TO MOTORS. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE INSTALLED. INSTALL GROUND WIRE WIRE #12 AWG MINIMUM.	GF 8	DUPLEX RECEPTACLE, 120 VOLT, 20 AMP, WALL MOUNTED. THE NUMBER DENOTES CIRCUIT NUMBER. "GF" DENOTES GFCI RECEPTACLE.
ESSPOT STORAGE 118S	SPACE NAME AND NUMBER. COORDINATE WITH ARCHITECTURAL SPACE NUMBER.	8	2 – 120 VOLT, 20 AMP DUPLEX RECEPTACLES, WALL MOUNTED, 16" AFF, UNLESS OTHERWISE NOTED. THE NUMBER DENOTES CIRCUIT NUMBER.
X	CEILING MOUNTED FLOURESCENT LIGHT FIXTURE. LETTER DENOTES TYPE OF FIXTURE IS EXISTING. SEE LIGHTING PLAN.	GF 8	2 – 120 VOLT, 20 AMP DUPLEX RECEPTACLES, WALL MOUNTED. THE NUMBER DENOTES CIRCUIT NUMBER. "GF" DENOTES GFCI RECEPTACLE.
4	EXIT SIGN. REFER TO FIXTURE SCHEDULE. DARKENED AREA DENOTES SIGN FACE. NUMBER DENOTES CIRCUIT NUMBER. STEM DESIGNATES WALL MOUNTING. NO STEM DENOTES CEILING MOUNTED.	8	DUPLEX RECEPTACLE, 20 AMP, 120 VOLT, CEILING MOUNTED. NUMBER DENOTES CIRCUIT NUMBER.
4	DOUBLE FACED EXIT SIGN. NOTATION SAME AS ABOVE. ARROWS DENOTE EXIT DIRECTION.	WP	FLUSH WALL MOUNTED JUNCTION BOX, SIZED PER NEC. "WP" DENOTES NEMA 3R WEATHERPROOF. PROVIDE AND INSTALL A FLUSH COVER PLATE.
$	LIGHT SWITCH, SPST, 20A, 48" AFF.		JUNCTION BOX, MOUNTED ABOVE CEILING, SIZED PER NEC. REFER TO THE NEC TO MAINTAIN CLEARANCES.
$3	LIGHT SWITCH, 3–WAY, 20A, 48" AFF.	1,3 20A	RECEPTACLE, 240 VOLT, WALL MOUNTED. THE ONE NUMBER DENOTES THE AMPERE RATING. THE TWO NUMBER DENOTES CIRCUIT NUMBER.
$4	LIGHT SWITCH, 4–WAY, 20A, 48" AFF.	1,3 20A	RECEPTACLE, 240 VOLT, WALL MOUNTED HIGH. THE ONE NUMBER DENOTES THE AMPERE RATING. THE TWO NUMBER DENOTES CIRCUIT NUMBER.
$M	MANUAL MOTOR STARTER FOR USE AS A DISCONNECT ON FRACTIONAL HORSEPOWER MOTORS.	EF	FRACTIONAL HORSEPOWER MOTOR.
	CEILING MOUNTED PROJECTOR	S–1	SURFACE WALL MOUNTED DISCONNECT SWITCH. HEAVY DUTY.
•	DENOTES THAT ELECTRICAL DEVICE IS SURFACE MOUNTED.		SURFACE WALL MOUNTED COMBINATION STARTER/DISCONNECT SWITCH. HEAVY DUTY.

COMMUNICATIONS/SIGNAL		ABBREVIATIONS	
	SINGLE PORT VOICE OUTLET RECEPTACLE. FLUSH WALL MOUNTED, 16" AFF.	A	AMPERE.
	TWO PORT COMBINATION TELEPHONE AND DATA OUTLET RECEPTACLE, FLUSH WALL MOUNTED. SINGLE GANG, 16". DOT	AFF	ABOVE FINISHED FLOOR.
	TWO PORT COMBINATION TELEPHONE AND DATA OUTLET RECEPTACLE SAME AS ABOVE, EXCEPT MOUNTED 48" AFF OR HIGHER.	ATS	AUTOMATIC TRANSFER SWITCH
	SINGLE GANG DATA OUTLET. FLUSH WALL MOUNTED, 16" AFF.	BKR	BREAKER.
	SINGLE GANG DATA OUTLET. FLUSH WALL MOUNTED, 48" AFF OR HIGHER.	C	CONDUIT.
	TELEPHONE OUTLET. FLUSH WALL MOUNTED, 48" AFF OR HIGHER.	CKT	CIRCUIT.
	WALL MOUNTED FIRE ALARM HORN WITH FLASHING LIGHT. NUMBER DENOTES LIGHT LEVEL OF STROBE.	EC	ELECTRICAL CONTRACTOR, DIVISION 16.
15	FIRE ALARM VISUAL UNIT WITH STROBE LIGHT, MOUNTED 80" AFF OR 12" BELOW CEILING, WHICHEVER IS LOWER. NUMBER DENOTES LIGHT LEVEL OF STROBE.	EF	EXHAUST FAN.
30	CEILING MOUNTED SMOKE DETECTOR. IONIZATION.	FCU	FAN COIL UNIT.
S10	CEILING MOUNTED HEAT DETECTOR. 130°.	GC	GENERAL CONTRACTOR, DIVISION 00 THROUGH 14.
H10	PHOTOELECTRIC SMOKE DETECTOR MOUNTED ON AIR DUCT WITH SAMPLING TUBE THE FULL WIDTH OF DUCT, FURNISHED AND WIRED BY THE EC, INSTALLED BY THE MC.	GF	GROUND FAULT CIRCUIT INTERRUPTER.
D10	CEILING MOUNTED FIRE ALARM HORN WITH FLASHING LIGHT. NUMBER DENOTES LIGHT LEVEL OF STROBE.	JB or J–BOX	JUNCTION BOX.
15		KVA	KILOVOLT AMPERES.
		KW	KILOWATT.
		MAX	MAXIMUM.
		MC	MECHANICAL CONTRACTOR, DIVISION 15.
		MDP	MAIN DISTRIBUTION PANEL.
		MIN	MINIMUM.
		V	VOLT.
		VFD	VARIABLE FREQUENCY DRIVE
		NEC	2008 NATIONAL ELECTRICAL CODE. (NFPA 70).
		SWBD	SWITCHBOARD.
		TYP	TYPICAL.
		wc	WATER COOLER.
		XFMR	TRANSFORMER.

LIGHT FIXTURE SCHEDULE

	TYPE	DESCRIPTION	CATALOG NO.	LAMPS
A	A	FLUORESCENT, 2' x 4', 3 LAMP RECESSED TROFFER NO PRE PAINT. WITH ONE 1–LAMP BALLAST AND ONE 2–LAMP BALLAST.	LITHONIA 2GT8–332–A12125–MVOLT–1/1,1/2–GEB10IS–PAF	3–F32T8/SPX41
	A2	FLUORESCENT, 2' x 4', 2 LAMP RECESSED TROFFER NO PRE PAINT.	LITHONIA 2GT8–232–A12125–MVOLT–GEB10IS–PAF	2–F32T8/SPX41
	A3	FLUORESCENT, 2' x 4', 3 LAMP RECESSED TROFFER NO PRE PAINT. WITH ONE 2–LAMP BALLAST AND ONE 1–LAMP BALLAST ON EMERGENCY BATTERY BACK–UP.	LITHONIA 2GT8–332–A12125–MVOLT–1/1,1/2–GEB10IS–EL14	3–F32T8/SPX41
EXIT		EXIT LIGHT. SEE PLANS TO DETERMINE WHICH UNITS ARE SINGLE / DOUBLE FACED WALL OR CEILING MOUNTED. WALL MOUNTED EXIT LIGHTS SHALL BE MOUNTED AT 6" ABOVE TOP OF DOOR FRAME. LED.	MCPHILBEN #CXL–3–R–W 120 VOLT INPUT	LED
	NOTE #1:	ALL RECESSED LIGHT FIXTURES SHALL BE HUNG WITH 4 HANGER WIRES SO THAT THE WEIGHT IS INDEPENDENT OF THE CEILING GRID. ALL RECESSED FIXTURES SHALL BE INSTALLED WITH EARTHQUAKE CLIPS. ALL 2' AND 4' FLUORESCENT FIXTURES SHALL BE EQUIPPED WITH T8 LAMPS AND ELECTRONIC BALLASTS, UNLESS OTHERWISE NOTED. COORDINATE FIXTURE LOCATIONS WITH THE REFLECTED CEILING PLAN AND THE HVAC PLAN.		
	NOTE #2:	THE NUMBER AFTER THE FIXTURE CATALOG NUMBER DENOTES NUMBER OF BALLASTS (EXAMPLE: 1/4 DENOTES 1 – 4 LAMP BALLAST).		

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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ELECTRICAL SYMBOLS, SCHEDULES, AND DETAILS

sheet number
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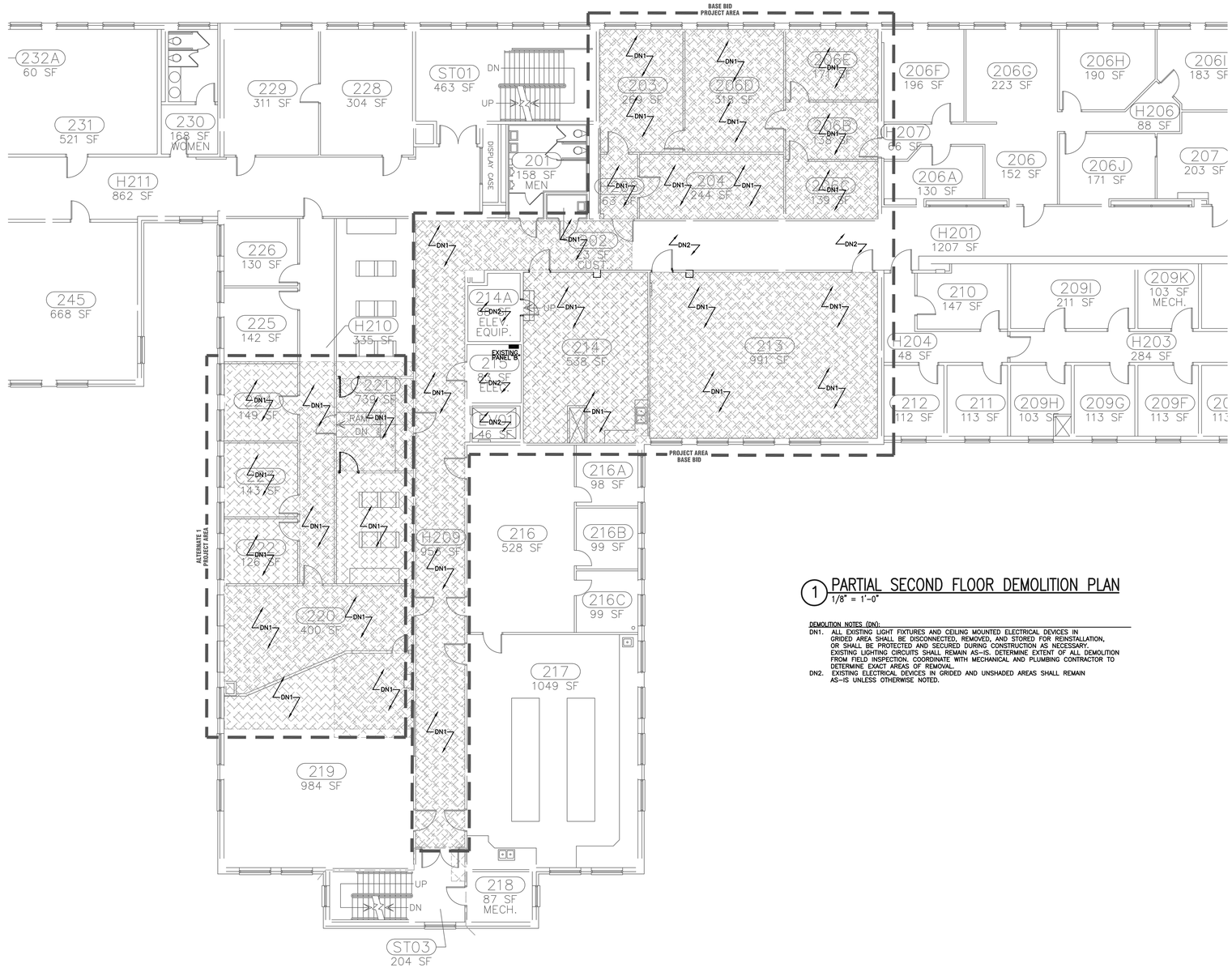
drawn by TLK
checked by JBF



1 PARTIAL SECOND FLOOR DEMOLITION PLAN

1/8" = 1'-0"

DEMOLITION NOTES (DN):

DN1. ALL EXISTING LIGHT FIXTURES AND CEILING MOUNTED ELECTRICAL DEVICES IN GRIDED AREA SHALL BE DISCONNECTED, REMOVED, AND STORED FOR REINSTALLATION, OR SHALL BE PROTECTED AND SECURED DURING CONSTRUCTION AS NECESSARY. EXISTING LIGHTING CIRCUITS SHALL REMAIN AS-IS. DETERMINE EXTENT OF ALL DEMOLITION FROM FIELD INSPECTION. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTOR TO DETERMINE EXACT AREAS OF REMOVAL.

DN2. EXISTING ELECTRICAL DEVICES IN GRIDED AND UNSHADED AREAS SHALL REMAIN AS-IS UNLESS OTHERWISE NOTED.

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Design/Planning/Construction
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Columbia, S.C. 29201
tel. 803-256-0000
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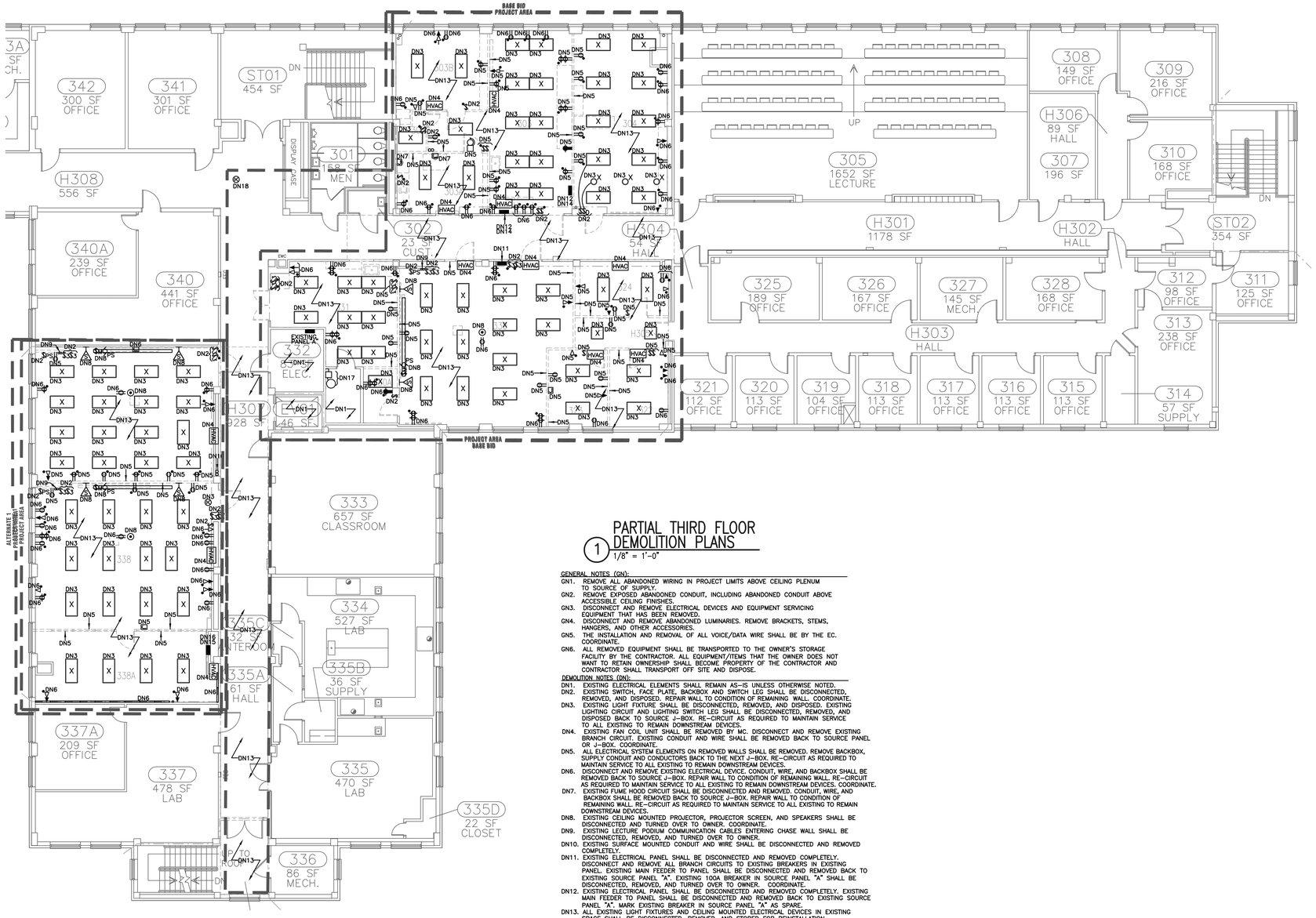
checked by JBF



1 PARTIAL THIRD FLOOR DEMOLITION PLANS

1/8" = 1'-0"

GENERAL NOTES (GN):

GN1. REMOVE ALL ABANDONED WIRING IN PROJECT LIMITS ABOVE CEILING PLENUM TO SOURCE OF SUPPLY.

GN2. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES.

GN3. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVICING EQUIPMENT THAT HAS BEEN REMOVED.

GN4. DISCONNECT AND REMOVE ABANDONED LUMINARIES. REMOVE BRACKETS, STEMS, HANGERS, AND OTHER ACCESSORIES.

GN5. THE INSTALLATION AND REMOVAL OF ALL VOICE/DATA WIRE SHALL BE BY THE EC. COORDINATE.

GN6. ALL REMOVED EQUIPMENT SHALL BE TRANSPORTED TO THE OWNER'S STORAGE FACILITY BY THE CONTRACTOR. ALL EQUIPMENT/ITEMS THAT THE OWNER DOES NOT WANT TO RETAIN OWNERSHIP SHALL BECOME PROPERTY OF THE CONTRACTOR AND CONTRACTOR SHALL TRANSPORT OFF SITE AND DISPOSE.

DEMOLITION NOTES (DN):

DN1. EXISTING ELECTRICAL ELEMENTS SHALL REMAIN AS-IS UNLESS OTHERWISE NOTED.

DN2. EXISTING SWITCH, FACE PLATE, BACKBOX AND SWITCH LEG SHALL BE DISCONNECTED, REMOVED, AND DISPOSED. REPAIR WALL TO CONDITION OF REMAINING WALL. COORDINATE.

DN3. EXISTING LIGHT FIXTURE SHALL BE DISCONNECTED, REMOVED, AND DISPOSED. EXISTING LIGHTING CIRCUIT AND LIGHTING SWITCH LEG SHALL BE DISCONNECTED, REMOVED, AND DISPOSED BACK TO SOURCE J-BOX. RE-CIRCUIT AS REQUIRED TO MAINTAIN SERVICE TO ALL EXISTING TO REMAIN DOWNSTREAM DEVICES.

DN4. EXISTING FAN COIL UNIT SHALL BE REMOVED BY MC. DISCONNECT AND REMOVE EXISTING BRANCH CIRCUIT. EXISTING CONDUIT AND WIRE SHALL BE REMOVED BACK TO SOURCE PANEL OR J-BOX. COORDINATE.

DN5. ALL ELECTRICAL SYSTEM ELEMENTS ON REMOVED WALLS SHALL BE REMOVED. REMOVE BACKBOX, SUPPLY CONDUIT AND CONDUCTORS BACK TO THE NEXT J-BOX. RE-CIRCUIT AS REQUIRED TO MAINTAIN SERVICE TO ALL EXISTING TO REMAIN DOWNSTREAM DEVICES.

DN6. DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICE. CONDUIT, WIRE, AND BACKBOX SHALL BE REMOVED BACK TO SOURCE J-BOX. REPAIR WALL TO CONDITION OF REMAINING WALL. RE-CIRCUIT AS REQUIRED TO MAINTAIN SERVICE TO ALL EXISTING TO REMAIN DOWNSTREAM DEVICES. COORDINATE.

DN7. EXISTING FUME HOOD CIRCUIT SHALL BE DISCONNECTED AND REMOVED. CONDUIT, WIRE, AND BACKBOX SHALL BE REMOVED BACK TO SOURCE J-BOX. REPAIR WALL TO CONDITION OF REMAINING WALL. RE-CIRCUIT AS REQUIRED TO MAINTAIN SERVICE TO ALL EXISTING TO REMAIN DOWNSTREAM DEVICES.

DN8. EXISTING CEILING MOUNTED PROJECTOR, PROJECTOR SCREEN, AND SPEAKERS SHALL BE DISCONNECTED AND TURNED OVER TO OWNER. COORDINATE.

DN9. EXISTING LECTURE PODIUM COMMUNICATION CABLES ENTERING CHASE WALL SHALL BE DISCONNECTED, REMOVED, AND TURNED OVER TO OWNER.

DN10. EXISTING SURFACE MOUNTED CONDUIT AND WIRE SHALL BE DISCONNECTED AND REMOVED COMPLETELY.

DN11. EXISTING ELECTRICAL PANEL SHALL BE DISCONNECTED AND REMOVED COMPLETELY. DISCONNECT AND REMOVE ALL BRANCH CIRCUITS TO EXISTING BREAKERS IN EXISTING PANEL. EXISTING MAIN FEEDER TO PANEL SHALL BE DISCONNECTED AND REMOVED BACK TO EXISTING SOURCE PANEL "A". EXISTING 100A BREAKER IN SOURCE PANEL "A" SHALL BE DISCONNECTED, REMOVED, AND TURNED OVER TO OWNER. COORDINATE.

DN12. EXISTING ELECTRICAL PANEL SHALL BE DISCONNECTED AND REMOVED COMPLETELY. EXISTING MAIN FEEDER TO PANEL SHALL BE DISCONNECTED AND REMOVED BACK TO EXISTING SOURCE PANEL "A". MARK EXISTING BREAKER IN SOURCE PANEL "A" AS SPARE.

DN13. ALL EXISTING LIGHT FIXTURES AND CEILING MOUNTED ELECTRICAL DEVICES IN EXISTING SPACE SHALL BE DISCONNECTED, REMOVED, AND STORED FOR REINSTALLATION, OR SHALL SHALL BE PROTECTED AND SECURED DURING CONSTRUCTION AS NECESSARY. DETERMINE EXTENT OF ALL DEMOLITION FROM FIELD INSPECTION. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTOR TO DETERMINE EXACT AREAS OF REMOVAL.

DN14. DISCONNECT AND REMOVE ALL BRANCH CIRCUITS TO EXISTING DEVICES IN PROJECT LIMITS. EXISTING BRANCH CIRCUITS TO EXISTING DEVICES OUTSIDE OF PROJECT LIMITS SHALL BE RE-CIRCUITED TO PANEL "A1". SEE PANEL "A1" LOCATION SHEET E3.3. COORDINATE.

DN15. EXISTING ELECTRICAL PANEL SHALL BE DISCONNECTED AND REMOVED COMPLETELY. EXISTING MAIN SUPPLY FEEDER TO PANEL SHALL BE DISCONNECTED AND REMOVED BACK TO EXISTING 2ND FLOOR SOURCE PANEL "B". MARK EXISTING BREAKER IN SOURCE PANEL "B" AS SPARE. SEE SHEET E1.2 FOR EXISTING SOURCE PANEL "B" LOCATION.

DN16. DISCONNECT AND REMOVE ALL BRANCH CIRCUITS TO EXISTING DEVICES IN PROJECT LIMITS. EXISTING BRANCH CIRCUITS TO EXISTING DEVICES OUTSIDE OF PROJECT LIMITS SHALL BE RE-CIRCUITED TO PANEL "A3". SEE PANEL "A3" LOCATION SHEET E3.3. COORDINATE.

DN17. EXISTING WATER HEATER CIRCUIT SHALL BE DISCONNECTED AND REMOVED COMPLETLY. CONDUIT, WIRE, AND BACKBOX SHALL BE REMOVED BACK TO SOURCE J-BOX OR PANEL.

DN18. DISCONNECT AND REMOVE EXISTING EXIT LIGHT. EXISTING EXIT LIGHT CIRCUIT SHALL REMAIN AND BE EXTENDED AS REQUIRED TO NEW EXIT LIGHT FIXTURE AS SHOWN ON SHEET E2.4. COORDINATE.

GMK ASSOCIATES, INC.

Design/Planning/Construction
1201 Main Street, Suite 2100
Columbia, S.C. 29201
tel. 803-256-0000
fax 803-255-7243

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UNIVERSITY OF SOUTH CAROLINA

project name
SUMWALT COLLEGE LABORATORY RENOVATIONS

State project number
H27-6098-FW

project number
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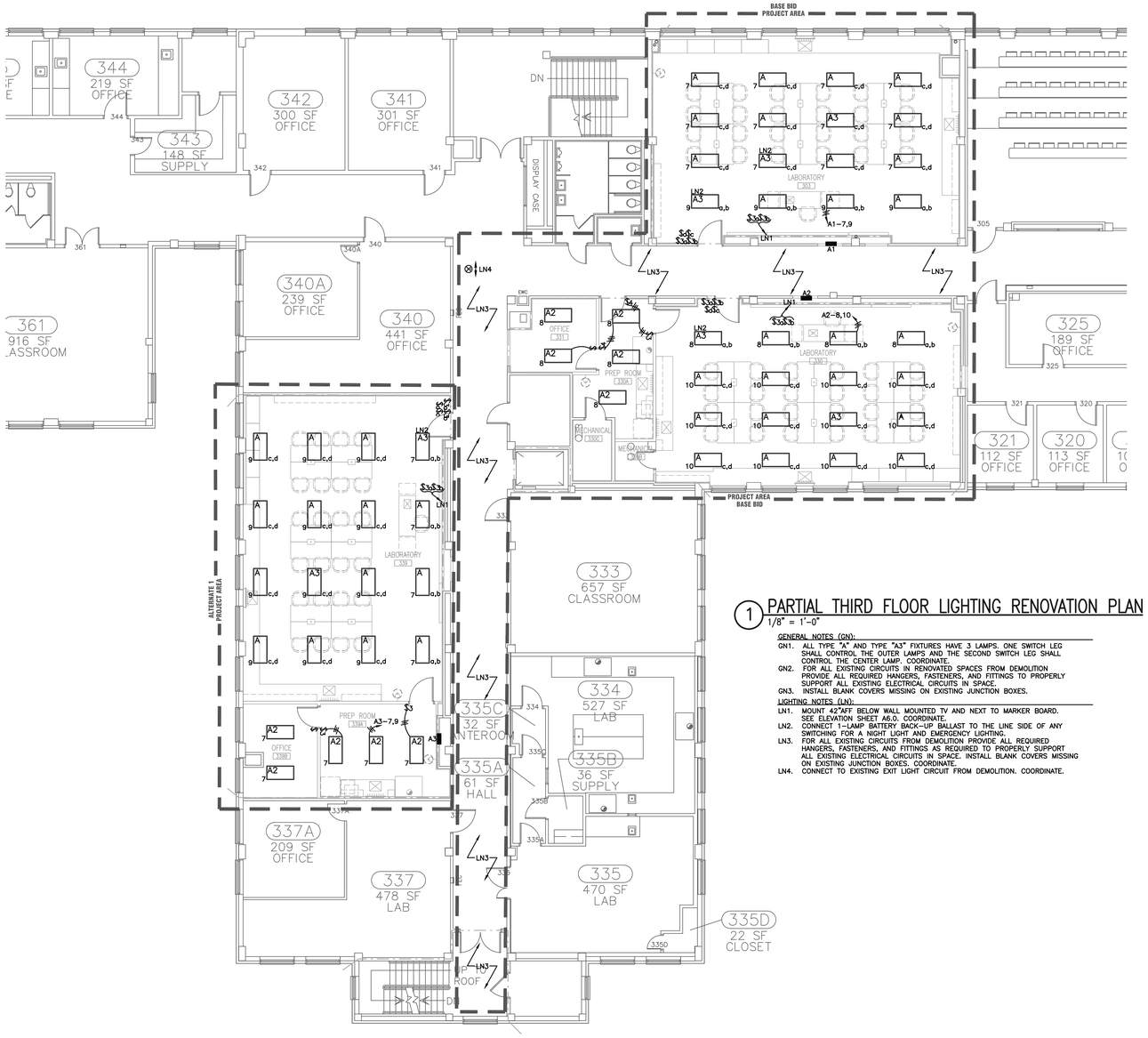
sheet title
PARTIAL THIRD FLOOR DEMOLITION PLAN

sheet number
E1.3

drawn by TLK
checked by JBF



1 PARTIAL THIRD FLOOR LIGHTING RENOVATION PLAN

1/8" = 1'-0"

GENERAL NOTES (GN):

GN1. ALL TYPE "A" AND TYPE "A3" FIXTURES HAVE 3 LAMPS. ONE SWITCH LEG SHALL CONTROL THE OUTER LAMPS AND THE SECOND SWITCH LEG SHALL CONTROL THE CENTER LAMP. COORDINATE.

GN2. FOR ALL EXISTING CIRCUITS IN RENOVATED SPACES FROM DEMOLITION PROVIDE ALL REQUIRED HANGERS, FASTENERS, AND FITTINGS TO PROPERLY SUPPORT ALL EXISTING ELECTRICAL CIRCUITS IN SPACE.

GN3. INSTALL BLANK COVERS MISSING ON EXISTING JUNCTION BOXES.

LIGHTING NOTES (LN):

LN1. MOUNT 42"AFF BELOW WALL MOUNTED TV AND NEXT TO MARKER BOARD. SEE ELEVATION SHEET A6.0. COORDINATE.

LN2. CONNECT 1-LAMP BATTERY BACK-UP BALLAST TO THE LINE SIDE OF ANY SWITCHING FOR A NIGHT LIGHT AND EMERGENCY LIGHTING.

LN3. FOR ALL EXISTING CIRCUITS FROM DEMOLITION PROVIDE ALL REQUIRED HANGERS, FASTENERS, AND FITTINGS AS REQUIRED TO PROPERLY SUPPORT ALL EXISTING ELECTRICAL CIRCUITS IN SPACE. INSTALL BLANK COVERS MISSING ON EXISTING JUNCTION BOXES. COORDINATE.

LN4. CONNECT TO EXISTING EXIT LIGHT CIRCUIT FROM DEMOLITION. COORDINATE.

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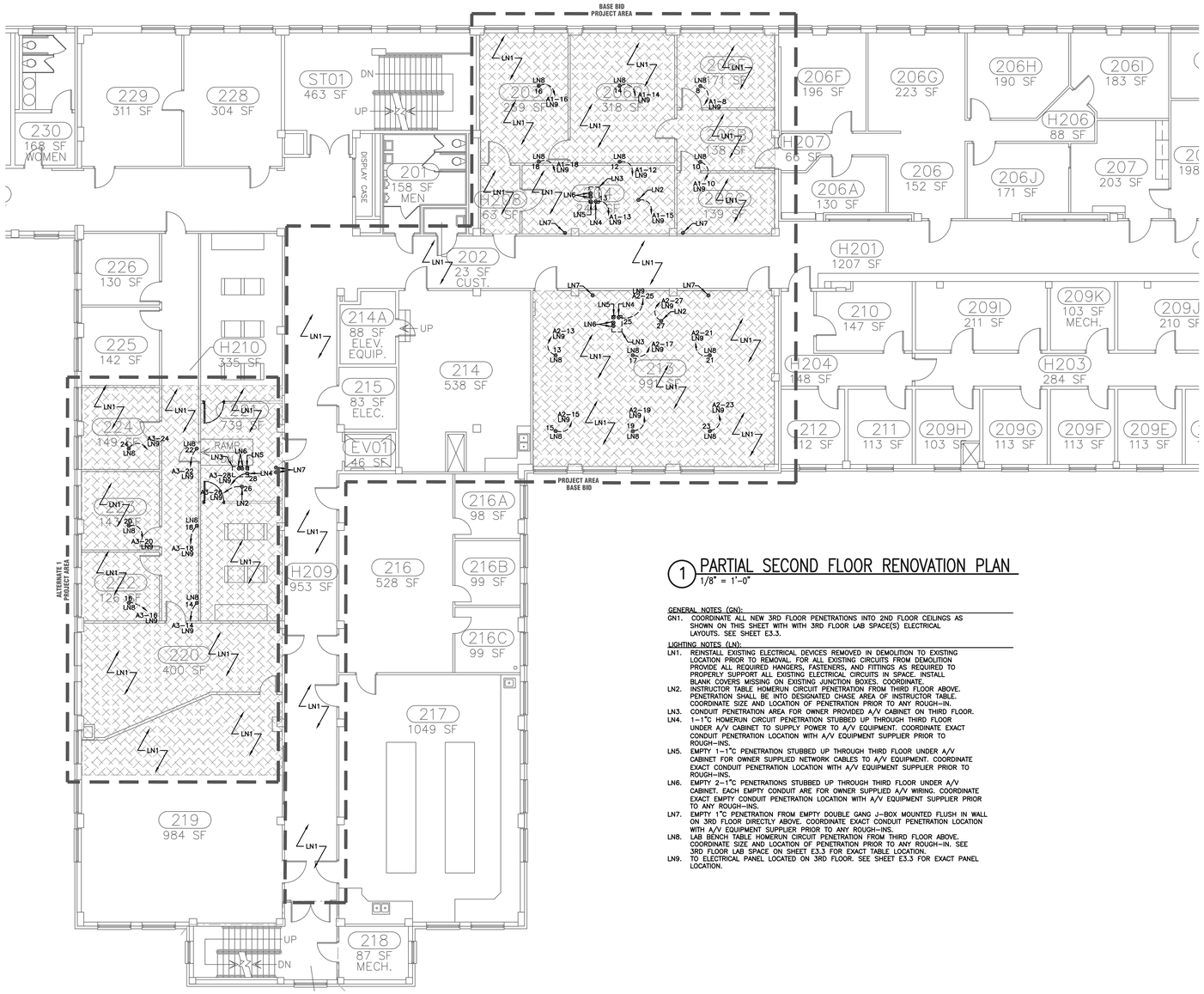
drawn by TLK
checked by JBF



1 PARTIAL SECOND FLOOR RENOVATION PLAN

1/8" = 1'-0"

GENERAL NOTES (GN):

GN1. COORDINATE ALL NEW 3RD FLOOR PENETRATIONS INTO 2ND FLOOR CEILINGS AS SHOWN ON THIS SHEET WITH WITH 3RD FLOOR LAB SPACE(S) ELECTRICAL LAYOUTS. SEE SHEET E3.3.

LIGHTING NOTES (LN):

LN1. REINSTALL EXISTING ELECTRICAL DEVICES REMOVED IN DEMOLITION TO EXISTING LOCATION PRIOR TO REMOVAL. FOR ALL EXISTING CIRCUITS FROM DEMOLITION PROVIDE ALL REQUIRED HANGERS, FASTENERS, AND FITTINGS AS REQUIRED TO PROPERLY SUPPORT ALL EXISTING ELECTRICAL CIRCUITS IN SPACE. INSTALL BLANK COVERS MISSING ON EXISTING JUNCTION BOXES. COORDINATE.

LN2. INSTRUCTOR TABLE HOMERUN CIRCUIT PENETRATION FROM THIRD FLOOR ABOVE. PENETRATION SHALL BE INTO DESIGNATED CHASE AREA OF INSTRUCTOR TABLE. COORDINATE SIZE AND LOCATION OF PENETRATION PRIOR TO ANY ROUGH-IN.

LN3. CONDUIT PENETRATION AREA FOR OWNER PROVIDED A/V CABINET ON THIRD FLOOR.

LN4. 1-1"C HOMERUN CIRCUIT PENETRATION STUBBED UP THROUGH THIRD FLOOR UNDER A/V CABINET TO SUPPLY POWER TO A/V EQUIPMENT. COORDINATE EXACT CONDUIT PENETRATION LOCATION WITH A/V EQUIPMENT SUPPLIER PRIOR TO ROUGH-INS.

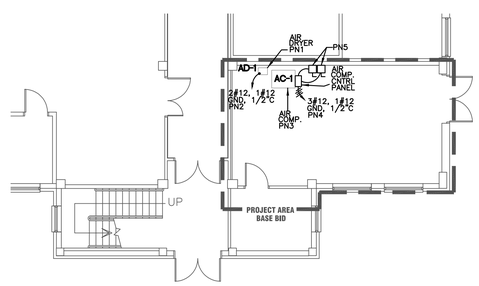
LN5. EMPTY 1-1"C PENETRATION STUBBED UP THROUGH THIRD FLOOR UNDER A/V CABINET FOR OWNER SUPPLIED NETWORK CABLES TO A/V EQUIPMENT. COORDINATE EXACT CONDUIT PENETRATION LOCATION WITH A/V EQUIPMENT SUPPLIER PRIOR TO ROUGH-INS.

LN6. EMPTY 2-1"C PENETRATIONS STUBBED UP THROUGH THIRD FLOOR UNDER A/V CABINET. EACH EMPTY CONDUIT ARE FOR OWNER SUPPLIED A/V WIRING. COORDINATE EXACT EMPTY CONDUIT PENETRATION LOCATION WITH A/V EQUIPMENT SUPPLIER PRIOR TO ANY ROUGH-INS.

LN7. EMPTY 1"C PENETRATION FROM EMPTY DOUBLE GANG J-BOX MOUNTED FLUSH IN WALL ON 3RD FLOOR DIRECTLY ABOVE. COORDINATE EXACT CONDUIT PENETRATION LOCATION WITH A/V EQUIPMENT SUPPLIER PRIOR TO ANY ROUGH-INS.

LN8. LAB BENCH TABLE HOMERUN CIRCUIT PENETRATION FROM THIRD FLOOR ABOVE. COORDINATE SIZE AND LOCATION OF PENETRATION PRIOR TO ANY ROUGH-IN. SEE 3RD FLOOR LAB SPACE ON SHEET E3.3 FOR EXACT TABLE LOCATION.

LN9. TO ELECTRICAL PANEL LOCATED ON 3RD FLOOR. SEE SHEET E3.3 FOR EXACT PANEL LOCATION.



2 PARTIAL FIRST FLOOR RENOVATION PLAN

1/8" = 1'-0"

POWER NOTES (PN):

PN1. AIR DRYER FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR. SINGLE POINT CONNECTION WIRED BY ELECTRICAL. COORDINATE FOR EXACT LOCATION.

PN2. EC SHALL FURNISH AND INSTALL A 20A/1P/120V BREAKER IN NEAREST EXISTING 120/208V ELECTRICAL PANEL IN SPACE TO POWER AIR DRYER. COORDINATE.

PN3. AIR COMPRESSOR FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR. ELECTRICAL CONNECTION AT COMPRESSOR CONTROL PANEL. COORDINATE FOR EXACT LOCATION.

PN4. EC SHALL FURNISH AND INSTALL A 20A/3P/480V BREAKER IN NEAREST EXISTING 277/480V ELECTRICAL PANEL IN SPACE TO POWER COMPRESSOR. COORDINATE.

PN5. EC SHALL FURNISH A 20A/3P/3W/480V/NF/NEMA 3R DISCONNECT SWITCH FOR EACH COMPRESSOR PUMP. EC SHALL MAKE ALL PUMP TO DISCONNECT TO CONTROL PANEL WIRE INNER-CONNECTIONS.

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PARTIAL SECOND FLOOR RENOVATION PLAN

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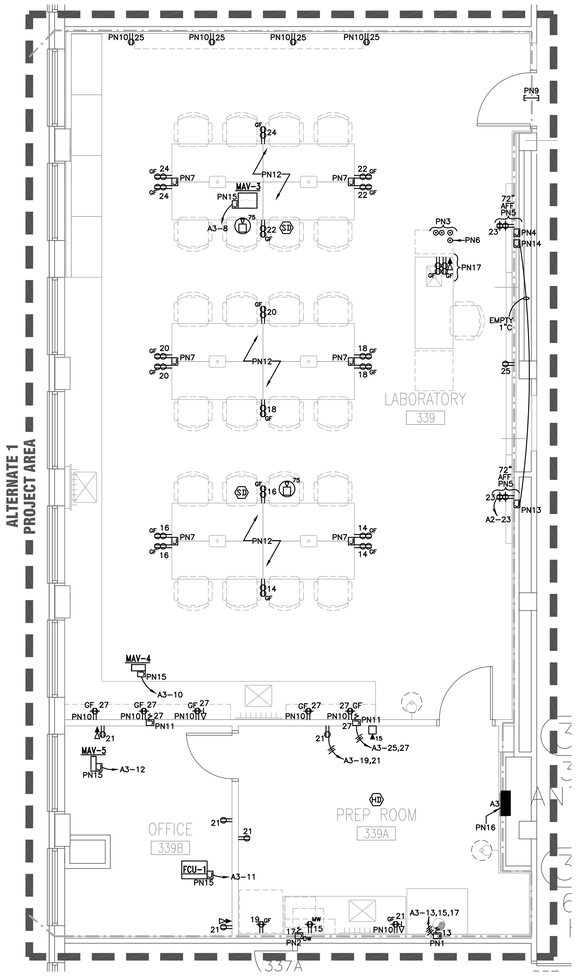
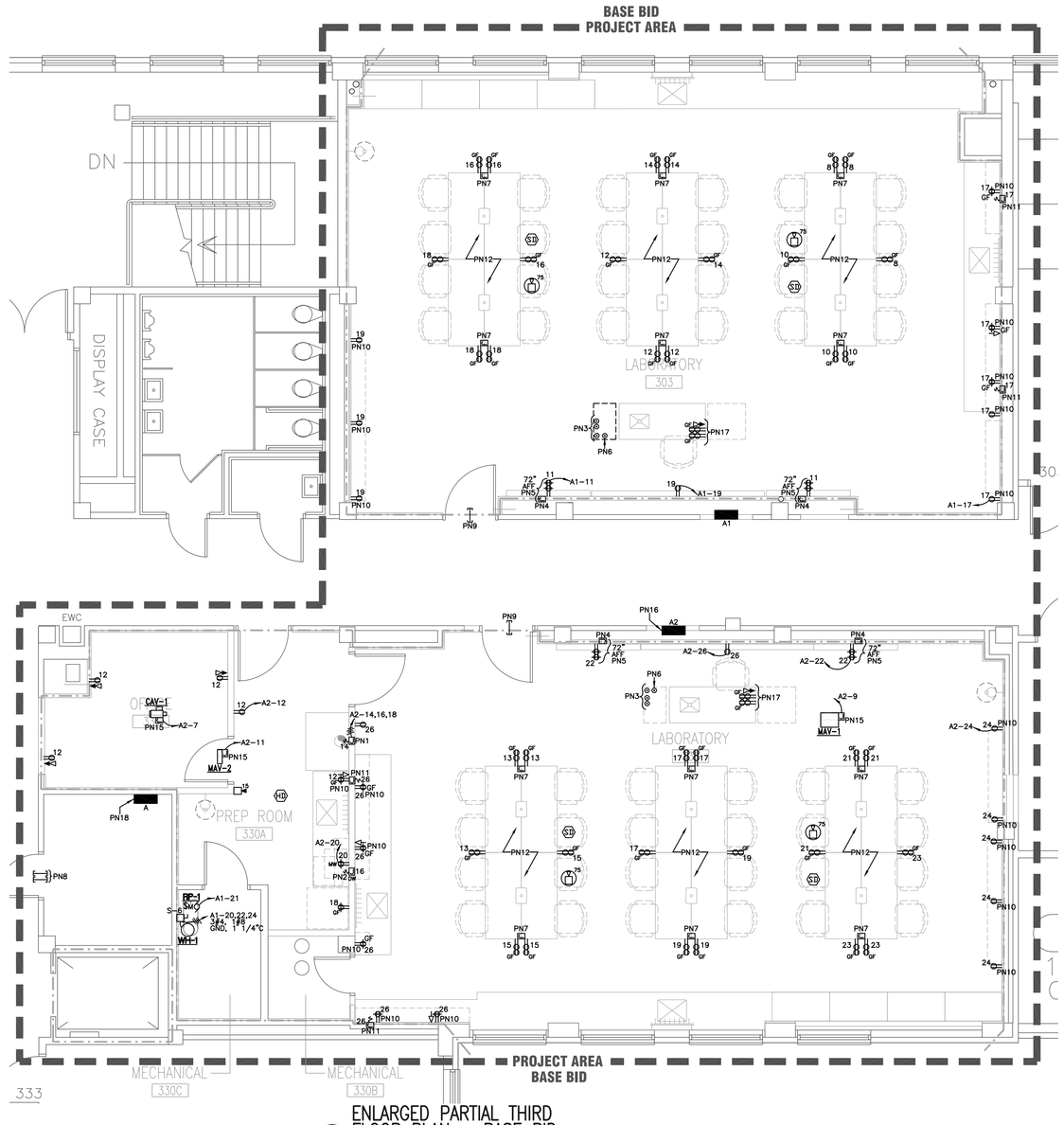
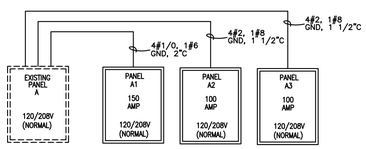


1 ENLARGED PARTIAL THIRD FLOOR PLAN – ALTERNATE BID
1/4" = 1'-0"



2 ENLARGED PARTIAL THIRD FLOOR PLAN – BASE BID
1/4" = 1'-0"



POWER RISER DIAGRAM
NTS

TYPE : AQ, SURFACE
BUS AMPS : 150 AMPS
MAIN : MLO
VOLTAGE : 120–208V/3ø/4W/SN
SOURCE : PANEL A

PANEL NAME A1
RMS SYM AMPS 42K AIC
SYSTEM NORMAL

LOAD NAME	RATING	POLES	MLO A B C		POLES	RATING	LOAD NAME
RTU–1	40	3	1 ◆ 2 3 ◆ 4 5 ◆ 6	3	3	40	LEF–1
LIGHTING	20	1	7 ◆ 8	1	20		TABLE RECEPTACLES
LIGHTING			9 ◆ 10				
WALL MOUNTED TV'S			11 ◆ 12				
A/V EQUIPMENT			13 ◆ 14				
A/V EQUIPMENT			15 ◆ 16				
RECEPTACLES			17 ◆ 18				
RECEPTACLES			19 ◆ 20				
RP–1			21 ◆ 22	3	70		WH–1
HEAT TRACE			23 ◆ 24				
SPACE			25 ◆ 26				SPACE
			27 ◆ 28				
			29 ◆ 30				

PANEL A1
NORMAL – 120/208 VOLTS
SOURCE: PANEL A

TYPE : AQ, SURFACE
BUS AMPS : 100 AMPS
MAIN : MLO
VOLTAGE : 120–208V/3ø/4W/SN
SOURCE : PANEL A

PANEL NAME A2
RMS SYM AMPS 42K AIC
SYSTEM NORMAL

LOAD NAME	RATING	POLES	MLO A B C		POLES	RATING	LOAD NAME
RTU–2	60	3	1 ◆ 2 3 ◆ 4 5 ◆ 6	3	3	40	LEF–2
CAV–1	20	1	7 ◆ 8	1	20		LIGHTING
MAV–1			9 ◆ 10				LIGHTING
MAV–2			11 ◆ 12				RECEPTACLES
TABLE RECEPTACLES			13 ◆ 14				FUMEHOOD
			15 ◆ 16				DISHWASHER
			17 ◆ 18				FRIDGE
			19 ◆ 20				MICROWAVE
			21 ◆ 22				WALL MOUNTED TV'S
			23 ◆ 24				RECEPTACLES
A/V EQUIPMENT			25 ◆ 26				RECEPTACLES
A/V EQUIPMENT			27 ◆ 28				HEAT TRACE
SPACE			29 ◆ 30				SPACE
			31 ◆ 32				
			33 ◆ 34				
			35 ◆ 36				
			37 ◆ 38				
			39 ◆ 40				
			41 ◆ 42				

PANEL A2
NORMAL – 120/208 VOLTS
SOURCE: PANEL A

TYPE : AQ, SURFACE
BUS AMPS : 100 AMPS
MAIN : MLO
VOLTAGE : 120–208V/3ø/4W/SN
SOURCE : PANEL A

PANEL NAME A3
RMS SYM AMPS 42K AIC
SYSTEM NORMAL

LOAD NAME	RATING	POLES	MLO A B C		POLES	RATING	LOAD NAME
RTU–3	80	3	1 ◆ 2 3 ◆ 4 5 ◆ 6	3	3	40	LEF–3
LIGHTING	20	1	7 ◆ 8	1	20		MAV–3
LIGHTING			9 ◆ 10				MAV–4
FCU–1			11 ◆ 12				MAV–5
FUMEHOOD			13 ◆ 14				TABLE RECEPTACLES
MICROWAVE			15 ◆ 16				
DISHWASHER			17 ◆ 18				
FRIDGE			19 ◆ 20				
RECEPTACLES			21 ◆ 22				
WALL MOUNTED TV'S			23 ◆ 24				
RECEPTACLES			25 ◆ 26				A/V EQUIPMENT
RECEPTACLES			27 ◆ 28				A/V EQUIPMENT
SPACE			29 ◆ 30				HEAT TRACE
			31 ◆ 32				SPACE
			33 ◆ 34				
			35 ◆ 36				
			37 ◆ 38				
			39 ◆ 40				
			41 ◆ 42				

PANEL A3
NORMAL – 120/208 VOLTS
SOURCE: PANEL A

POWER NOTES (PN):

PN1. FLEX AND CONNECT TO FUME HOOD. COORDINATE WITH EQUIPMENT WIRING WIRING REQUIREMENTS AND MAKE OPERABLE.
PN2. FLEX AND CONNECT TO DISHWASHER. COORDINATE WITH EQUIPMENT WIRING WIRING REQUIREMENTS AND MAKE OPERABLE.
PN3. CONDUIT STUB–UP AREA FOR A/V EQUIPMENT CABINET. SEE SHEET E2.0 FOR CONDUIT SIZE AND DESCRIPTION OF EACH PENETRATION.
PN4. FURNISH AND INSTALL AN EMPTY DOUBLE GANG ELEC. BOX MOUNTED IN THE WALL NEXT TO THE QUAD RECEPTACLE. COORDINATE EXACT MOUNTING LOCATION WITH A/V SUPPLIER. RUN AN EMPTY 1"C FROM DOUBLE GANG ELEC. BOX DOWN TO FINISH FLOOR THAT PENETRATES TO FLOOR BELOW. SEE CIRCUIT HOMERUN, FLOOR PENETRATION, AND DESCRIPTION ON 2ND FLOOR RENOVATION PLAN E3.2.
PN5. ELECTRICAL DEVICES SHALL NOT BE ROUGHED IN UNTIL EXACT MOUNTING LOCATION OF OWNER PROVIDED TV'S HAS BEEN DETERMINED AND COORDINATED WITH A/V SUPPLIER.
PN6. FURNISH AND INSTALL A DOUBLE GANG ELECTRICAL BOX WITH 2 FEET OF FLEXIBLE CONDUIT WITH A 90° FLEXIBLE CONDUIT FITTING ON THE 1"C STUB–UP. SEE CIRCUIT HOMERUN, FLOOR PENETRATION, AND DESCRIPTION ON 2ND FLOOR RENOVATION PLAN E3.2.
PN7 . EC SHALL FURNISH AND INSTALL J–BOX INSIDE THE CHASE WALLS OF BENCH TABLE. SEE CIRCUIT HOMERUN, FLOOR PENETRATION, AND DESCRIPTION ON 2ND FLOOR RENOVATION PLAN E3.2.
PN8. 4"C SLEEVE WITH GROMMETED ENDS ABOVE CEILING FOR DATA WIRE.
PN9. 2"C SLEEVE WITH GROMMETED ENDS ABOVE CEILING FOR DATA WIRE.
PN10. RECEPTACLE SHALL BE LOCATED BELOW WALL MOUNTED SHELVING. COORDINATE EXACT LOCATION PRIOR TO ANY ROUGH–INS. SEE SHEET A6.0.
PN11. J–BOX FOR OWNER PROVIDED HARD WIRED PLANT LIGHT. FLEX, CONNECT, AND MOUNT OWNER PROVIDED LIGHT. SEE ELEVATION ON SHEET A6.0 FOR EXACT MOUNTING LOCATION.
PN12. SEE SHEET A6.0 FOR EXACT MOUNTING HEIGHT AND LOCATION OF RECEPTACLES IN STUDENT TABLE. COORDINATE.
PN13. FURNISH AND INSTALL AN EMPTY DOUBLE GANG ELEC. BOX MOUNTED IN THE WALL NEXT TO THE QUAD RECEPTACLE. COORDINATE EXACT MOUNTING LOCATION WITH A/V SUPPLIER.
PN14. RUN AN EMPTY 1"C FROM DOUBLE GANG ELEC. BOX DOWN TO FINISH FLOOR THAT PENETRATES TO FLOOR BELOW. SEE CIRCUIT HOMERUN, FLOOR PENETRATION, AND DESCRIPTION ON 2ND FLOOR RENOVATION PLAN E3.2.
PN15. CONTROL POWER J–BOX FOR MECHANICAL UNIT LOCATED ABOVE CEILING.
PN16. NEW 100A PANEL SHALL BE CIRCUITED TO EXISTING 100A/208V/3P SPARE BREAKER FROM DEMOLITION LOCATED IN EXISTING PANEL "A". SEE POWER RISER DIAGRAM THIS SHEET.
PN17. SEE CIRCUIT HOMERUN, FLOOR PENETRATION, AND DESCRIPTION ON 2ND FLOOR RENOVATION PLAN E3.2.
PN18. FURNISH AND INSTALL A 150A/208V/3P BREAKER TO FEED PANEL "A1" IN EXISTING 100A/3P BREAKER SPACE FROM DEMOLITION. SEE POWER RISER DIAGRAM THIS SHEET.

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ENLARGED PARTIAL THIRD FLOOR RENOVATION PLANS

sheet number
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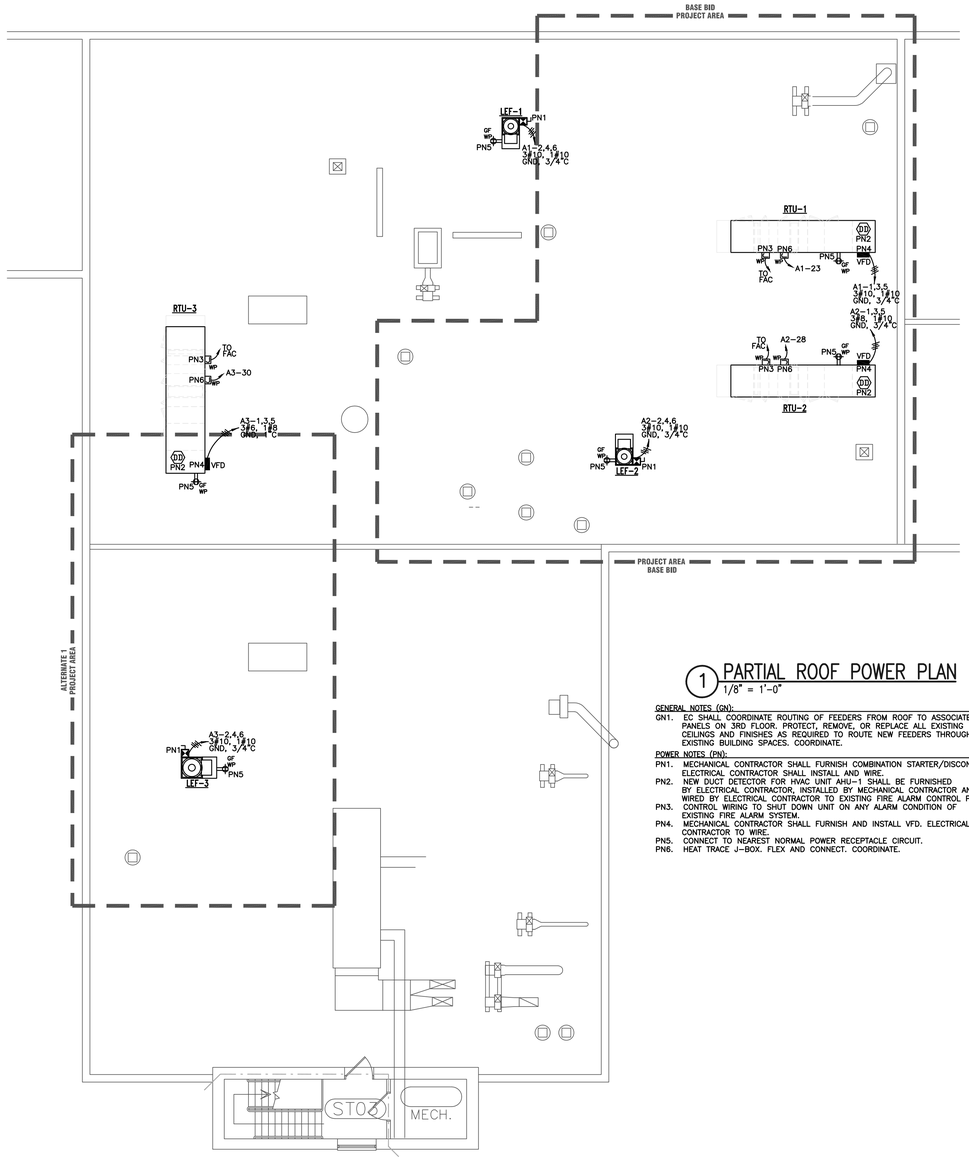
drawn by TLK
checked by JBF



1 PARTIAL ROOF POWER PLAN
1/8" = 1'-0"

GENERAL NOTES (GN):

GN1. EC SHALL COORDINATE ROUTING OF FEEDERS FROM ROOF TO ASSOCIATED PANELS ON 3RD FLOOR. PROTECT, REMOVE, OR REPLACE ALL EXISTING CEILINGS AND FINISHES AS REQUIRED TO ROUTE NEW FEEDERS THROUGH EXISTING BUILDING SPACES. COORDINATE.

POWER NOTES (PN):

PN1. MECHANICAL CONTRACTOR SHALL FURNISH COMBINATION STARTER/DISCONNECT. ELECTRICAL CONTRACTOR SHALL INSTALL AND WIRE.

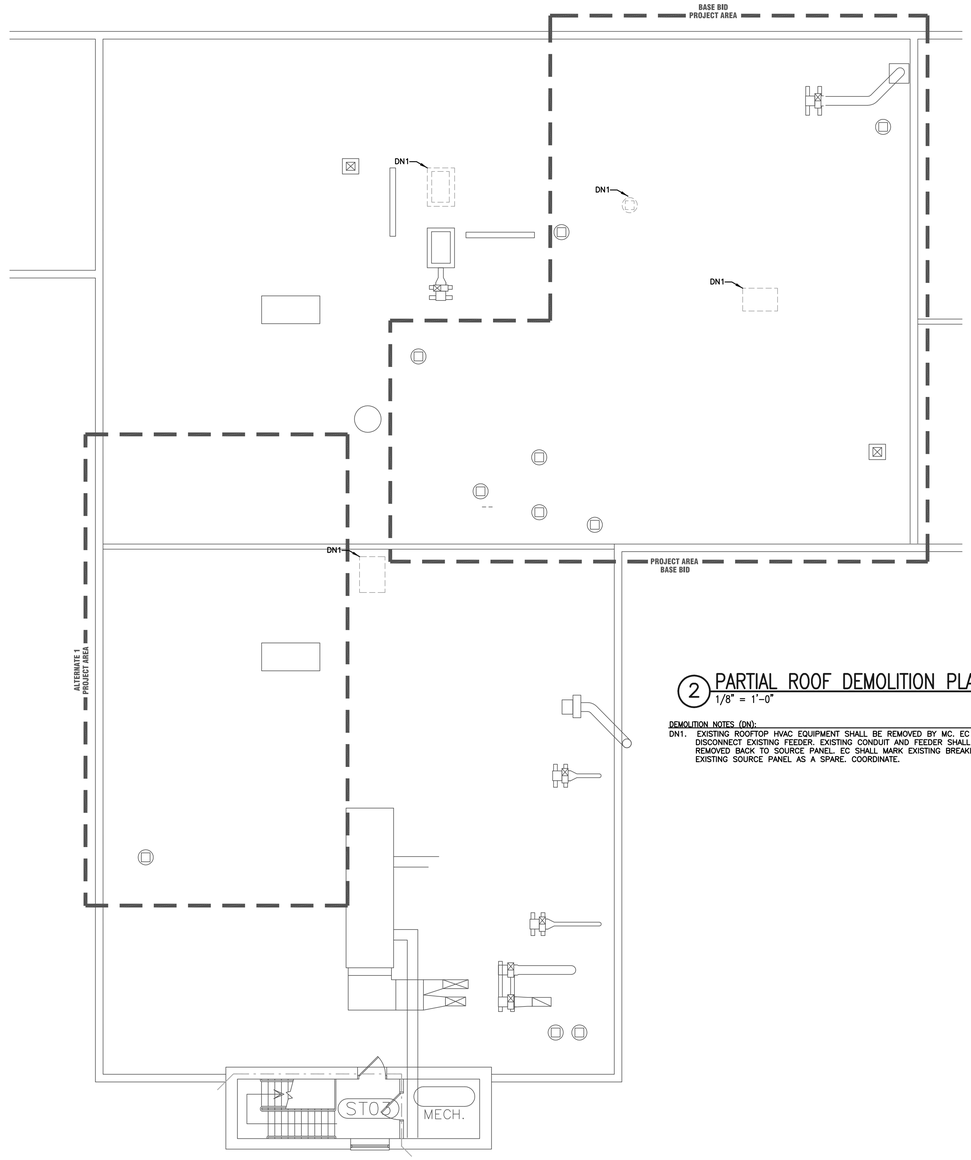
PN2. NEW DUCT DETECTOR FOR HVAC UNIT AHU-1 SHALL BE FURNISHED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR TO EXISTING FIRE ALARM CONTROL PANEL.

PN3. CONTROL WIRING TO SHUT DOWN UNIT ON ANY ALARM CONDITION OF EXISTING FIRE ALARM SYSTEM.

PN4. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL VFD. ELECTRICAL CONTRACTOR TO WIRE.

PN5. CONNECT TO NEAREST NORMAL POWER RECEPTACLE CIRCUIT.

PN6. HEAT TRACE J-BOX. FLEX AND CONNECT. COORDINATE.



2 PARTIAL ROOF DEMOLITION PLAN
1/8" = 1'-0"

DEMOLITION NOTES (DN):

DN1. EXISTING ROOFTOP HVAC EQUIPMENT SHALL BE REMOVED BY MC. EC SHALL DISCONNECT EXISTING FEEDER. EXISTING CONDUIT AND FEEDER SHALL BE REMOVED BACK TO SOURCE PANEL. EC SHALL MARK EXISTING BREAKER IN EXISTING SOURCE PANEL AS A SPARE. COORDINATE.

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PARTIAL ROOF DEMOLITION AND POWER PLANS

sheet number
E3.4

drawn by TLK
checked by JBF