

WARDLAW AHU-1 REPLACEMENT

STATE PROJECT NUMBER H27-6100 COLUMBIA, SC

CONSTRUCTION DOCUMENTS

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1.1 SECTIONS & DETAILS

CAMPUS PLANNING
AND CONSTRUCTION
COLUMBIA, SC 29208

SEAL

CHECKED BY: BJJ

ORIG. BY

DATE

DRAWN BY: BJJ

DATE

DRAWING: 14420-T1

DATE: 28AUG15

BUILDING: 080

REV.

DESCRIPTION

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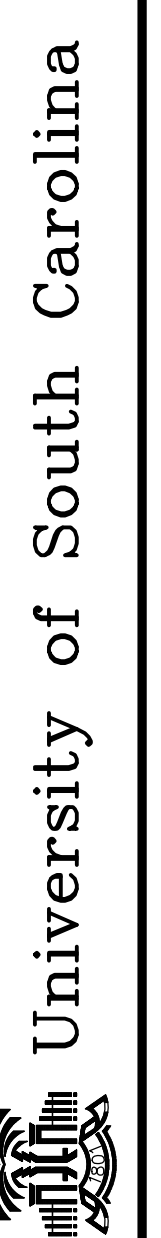
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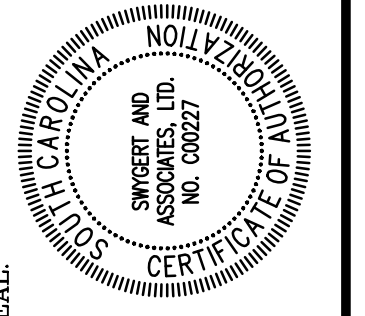
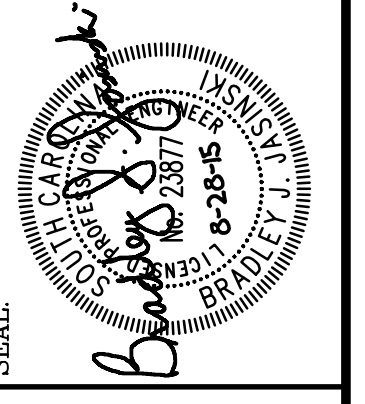
PROJECT TITLE: WARDLAW AHU-1 REPLACEMENT

STATE PROJECT NUMBER H27-6100



Swygart & Associates CONSULTING ENGINEERS <small>DBA Swygart & Assoc., Ltd. Telephone: (803) 791-9300 Post Office Box 11089 Fax: (803) 791-0830 Columbia, S.C. 29211 mail@swygart-associates.com</small>	T1 OF SHEET IN SET: OF
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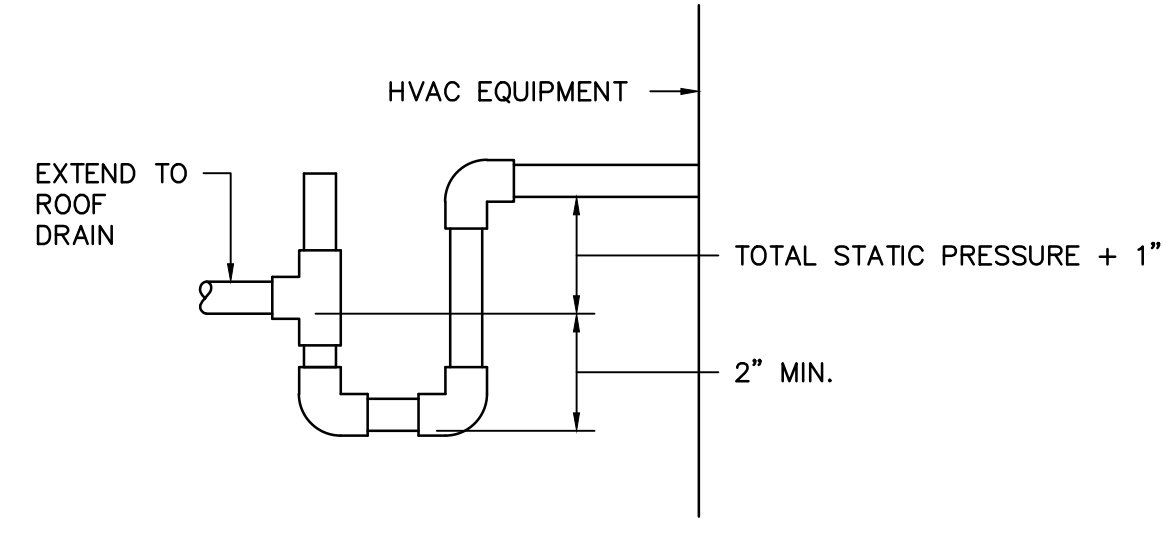
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DATE:	28AUG15
DESCRIPTION:	15105-M3
DRAWING:	
REVISION:	
DATE:	
DESCRIPTION:	

ISOLATION AND SEISMIC SCHEDULE				
OCCUPANCY CATEGORY = III			SEISMIC DESIGN CATEGORY = D	
EQUIPMENT TAG	COMPONENT TP	ISOLATION SPECIFICATION	SEISMIC REST. SPECIFICATION	ISOLATION DEFLECTION
AIR HANDLING UNITS (ROOF)	1.0	INTERNAL BY MANUFACTURER	NOTE 1	2"

1. ANCHOR BOLTS FOR NON-ISOLATED AND INTERNALLY ISOLATED EQUIPMENT SHALL BE SIZED BY THE SEISMIC RESTRAINT SUPPLIER.

AHU-1 SCHEDULE																
SECTION	YORK MODEL NO.	TOTAL CFM	OUTDOOR AIR-CFM	ESP IN. WG	BRAKE H.P.	MOTOR H.P.	COOLING COIL			HEATING COIL			FACE VEL. MAX-FFM	REMARKS		
							EADB/WB	LADB/WB	GPM	WTR. P.D. FT. WTR.	EADB	LADB			GPM	WTR. P.D. FT. WTR.
CAV	YC	10,000	-	3.0	12.66	15	83.4/66.6	50.8/50.6	94.0	16.4	55	84.0	21.2	0.2	500	1-9
VAV	YC	30,000	-	3.0	41.3	50	83.4/66.6	50.8/50.6	340.4	18.3	55	77.5	59.0	6.8	500	
RA	YC	46,000	7,000	1.0	31.2	(3) 15	-	-	-	-	-	-	-	-	-	

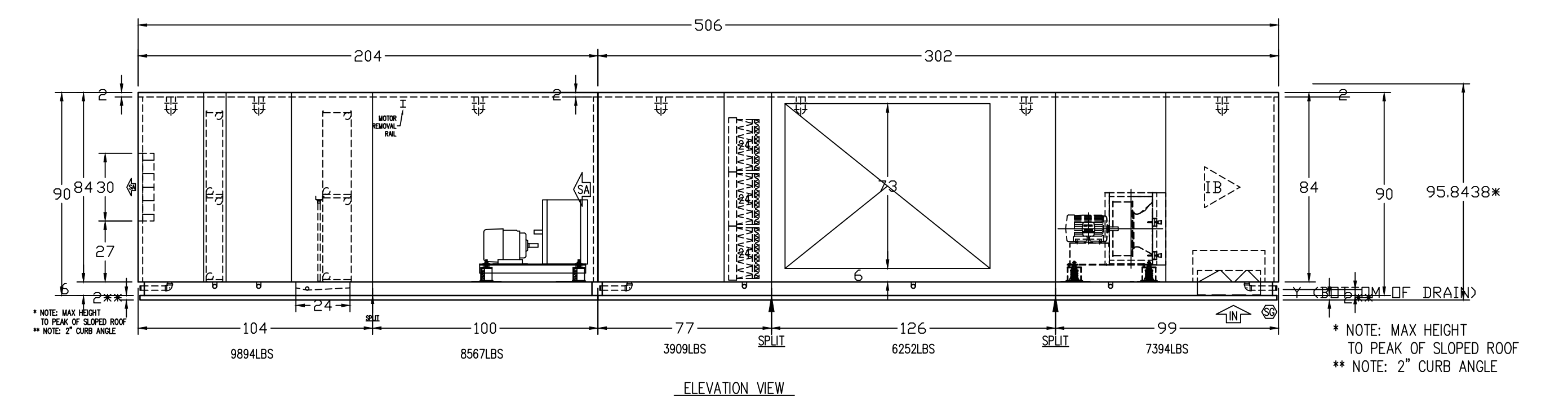
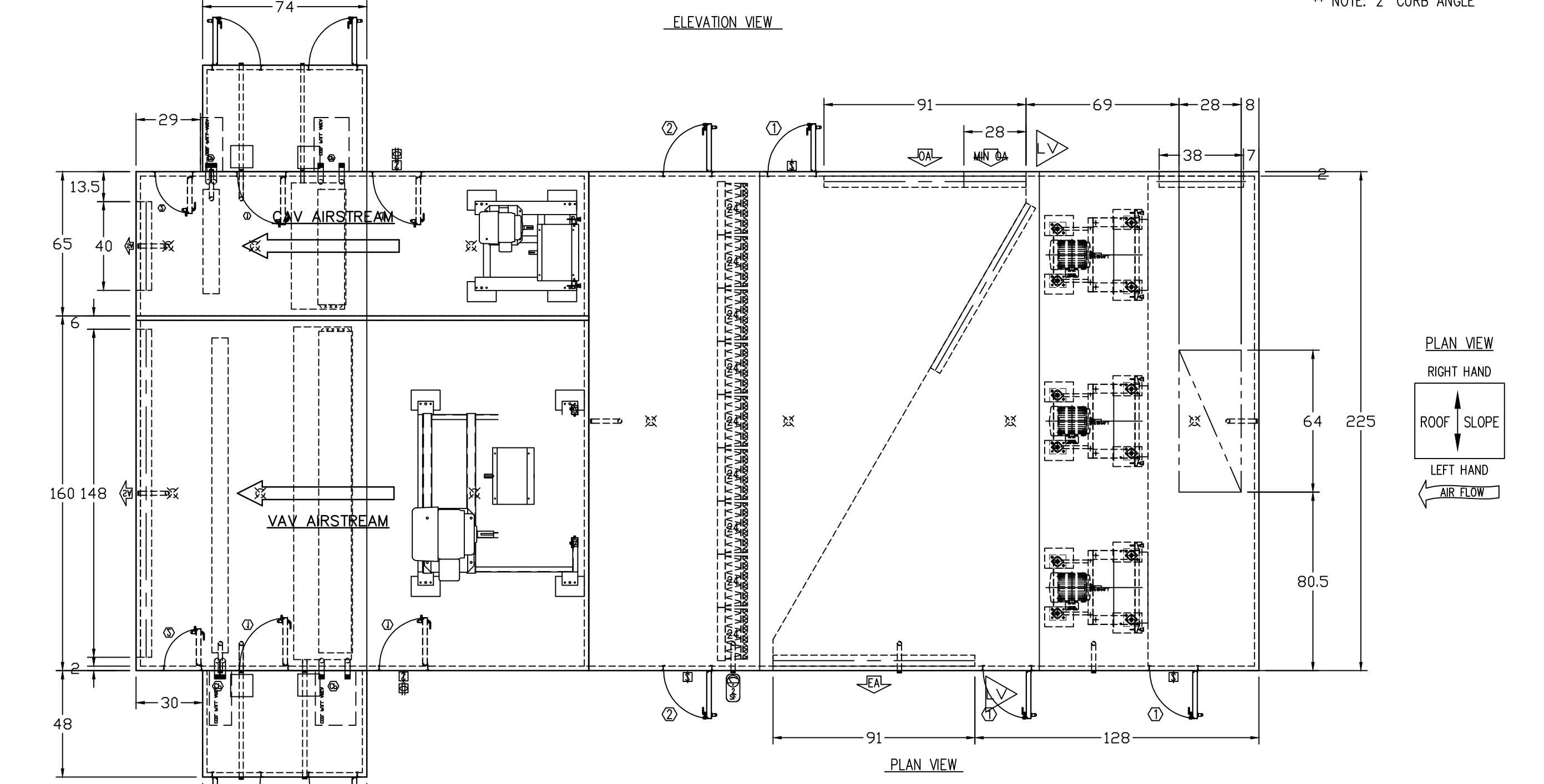
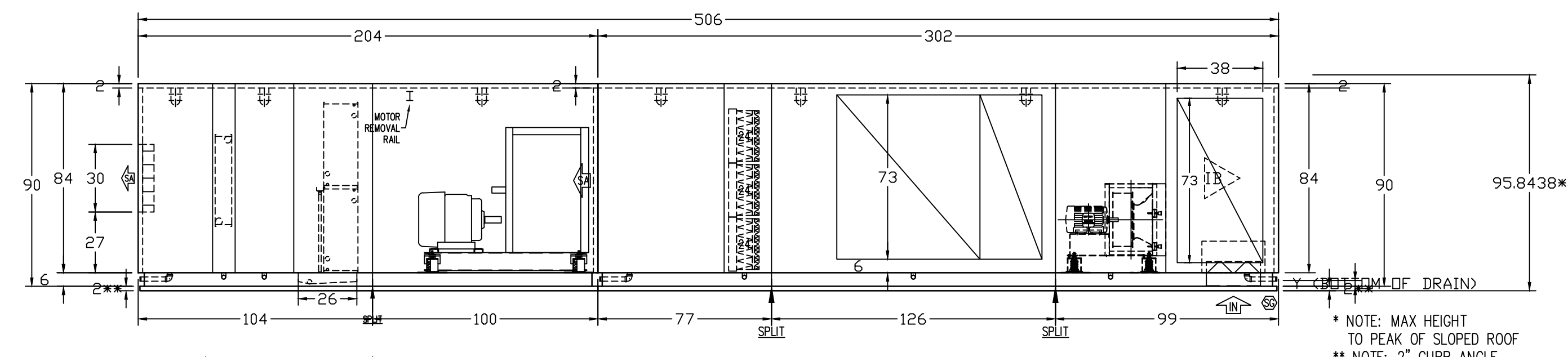
1. UNIT SELECTION SHALL INCLUDE 0.20" FILTER LOAD AND 6% BELT AND DRIVE LOSSES.
2. ENTERING CHILLED WATER TEMPERATURE SHALL BE 48°F AND THE WATER TEMPERATURE RISE SHALL BE 10°F.
3. ENTERING HOT WATER TEMPERATURE SHALL BE 180°F WITH 30°F DROP.
4. PROVIDE WEATHER PROOF 18 GA. G-90 GALVANIZED STEEL DOUBLE WALL CONSTRUCTION, 2" THICK POLYURETHANE FOAM INSULATION, AND WHITE ELASTOMERIC ROOF COATING.
5. PROVIDE FILTER SECTION WITH 2" MERV 8 PREFILTERS AND 12" MERV 14 FINAL FILTERS.
6. INSTALL DUCT SMOKE DETECTORS PROVIDED BY THE ELECTRICAL CONTRACTOR, WIRED TO SHUT THE UNIT DOWN UPON SENSING PRODUCTS OF COMBUSTION.
7. FANS SHALL BE INTERNALLY ISOLATED.
8. FURNISH HAND/OFF/AUTO VARIABLE FREQUENCY DRIVE FOR CAV FAN, VAV FAN, AND RETURN FANS. THE THREE RETURN FANS SHALL UTILIZE A SINGLE VFD.
9. PROVIDE WITH SMOKE DAMPER ON BOTTOM RETURN AIR INLET, SIDE RETURN AIR INLET, CAV OUTLET, AND VAV OUTLET.



CONDENSATE DRAIN DETAIL
NO SCALE

LEGEND	
SYMBOL	DESCRIPTION
↔ CWS ↔	CHILLED WATER SUPPLY LINE
↔ CWR ↔	CHILLED WATER RETURN LINE
↔ HWS ↔	HOT WATER SUPPLY LINE
↔ HWR ↔	HOT WATER RETURN LINE
↔ D ↔	DRAIN LINE
⊘	SHUTOFF VALVE
⊘	CHECK VALVE
⊘	STRAINER WITH BLOWDOWN
⊘	BUTTERFLY VALVE
⊘	BALANCING VALVE
⊘	UNION
⊘	PIPE TURNS TO, AWAY
⊘	THERMOMETER / PRESSURE GAGE
⊘	THERMOMETER WELL CAPPED / GAGE COCK
⊘	CONCENTRIC REDUCER
⊘	ECCENTRIC REDUCER
⊘	THERMOSTAT
⊘	RETURN, EXHAUST, FRESH AIR DUCTWORK
48x24	48"x24" RECTANGULAR DUCT
⊘	DUCT SMOKE DETECTOR
⊘	CONNECTION POINT OF NEW TO EXISTING

- ### GENERAL NOTES
- VISIT SITE PRIOR TO BIDDING. THIS CONTRACTOR SHALL DETERMINE DIFFICULTY OF INSTALLATION AND REFLECT THIS IN HIS BIDDING.
 - DO NOT SCALE DRAWINGS. THIS CONTRACTOR SHALL VERIFY ALL EXISTING ITEMS AND LOCATIONS IN THE FIELD.
 - ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
 - THIS CONTRACTOR SHALL COORDINATE STEEL OPENINGS AND EQUIPMENT SUPPORT WITH STEEL SHOP DRAWINGS TO CONFIRM DIMENSIONS MATCH WITH EQUIPMENT SUPPLIER.
 - EXISTING PIPE, DUCTWORK, CONDUIT, ETC THAT INTERFERES WITH THE ROUTING OF NEW SYSTEMS SHALL BE RELOCATED. THIS CONTRACTOR SHALL INCLUDE THE COST OF SUCH IN HIS BID UNLESS NOTED OTHERWISE.
 - WATER SYSTEMS SHALL BE DRAINED AS REQUIRED FOR INSTALLATION OF WORK. UPON COMPLETION, SYSTEM SHALL BE FILLED WITH WATER AND VENTED OF ALL AIR.
 - ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS.
 - ALL MECHANICAL ITEMS EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED. COORDINATE WITH ROOFING CONTRACTOR.
 - ALL PIPING IS SHOWN DIAGRAMMATIC. HOWEVER, THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED FITTINGS, PIPING AND INSULATION FOR ALL OFFSETS AND/OR CHANGES IN ELEVATION.
 - EXTEND ALL DRAIN LINES TO NEAREST ROOF DRAIN OR AS INDICATED - SO ROUTED AS TO AVOID INTERFERENCE WITH PASSAGEWAYS AND MAINTENANCE. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED PER STATIC PRESSURE REQUIREMENTS.
 - ALL VALVES AND SPECIALTIES SHALL BE LINE SIZE UNLESS NOTED OTHERWISE. USING ECCENTRIC REDUCERS ON AUTOMATIC VALVES AS REQUIRED.
 - MINIMUM PIPE SIZE SHALL BE 3/4-INCH UNLESS INDICATED OTHERWISE.
 - ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE PROVIDED TO PREVENT WEIGHT OF PIPING BEING PLACED ON EQUIPMENT.
 - PROVIDE AND INSTALL HEAT TRACE TAPE ON ALL EXTERIOR HOT AND CHILLED WATER PIPING.
 - ALL DUCTWORK SPECIFIED TO BE LINED SHALL BE INCREASED IN SIZE TO ALLOW FOR LINER.
 - DUCTWORK TO AIR HANDLING UNIT, OUTSIDE OF BUILDING, SHALL BE WRAPPED WITH ALUMINUM JACKET AND SEALED WEATHER TIGHT.
 - ALL OPEN END DUCTS SHALL HAVE 1/4-INCH MESH GALVANIZED SCREEN IN REMOVABLE FRAME.
 - PROVIDE FOR ACCESS TO ALL EQUIPMENT REQUIRING CLEANING OR ADJUSTMENT.
 - THIS CONTRACTOR SHALL PROVIDE ALL ITEMS OF MISCELLANEOUS STEEL AS REQUIRED FOR INSTALLATION OF ALL MECHANICAL ITEMS.
 - REMOVAL AND REPLACEMENT OF CEILING, AS REQUIRED FOR INSTALLATION OF NEW WORK, SHALL BE DONE BY THIS CONTRACTOR.
 - THIS CONTRACTOR SHALL DO ALL CONTROL WIRING. ELECTRICAL CONTRACTOR WILL DO ALL POWER WIRING. ALL WIRING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE. CONTROL WIRING SHALL BE CONCEALED WITHIN WALL. DUCT DETECTORS SHALL BE FURNISHED UNDER SEPARATE FIRE ALARM CONTRACT AND INSTALLED BY DIVISION 23. POWER WIRING AND FIRE ALARM CONNECTIONS SHALL BE PROVIDED UNDER SEPARATE FIRE ALARM CONTRACT. CONTROL WIRING FOR UNIT SHUTDOWN AND SMOKE DAMPER CONTROL SHALL BE BY DIVISION 23.
 - INSTRUMENT TEST HOLES SHALL BE LOCATED IN EACH SUPPLY DUCT OR ZONE DUCT, IN EACH RETURN AIR DUCT AND EACH OUTSIDE AIR DUCT.
 - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY DISMANTLING OF EQUIPMENT TO BE REMOVED.
 - ITEMS REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY.



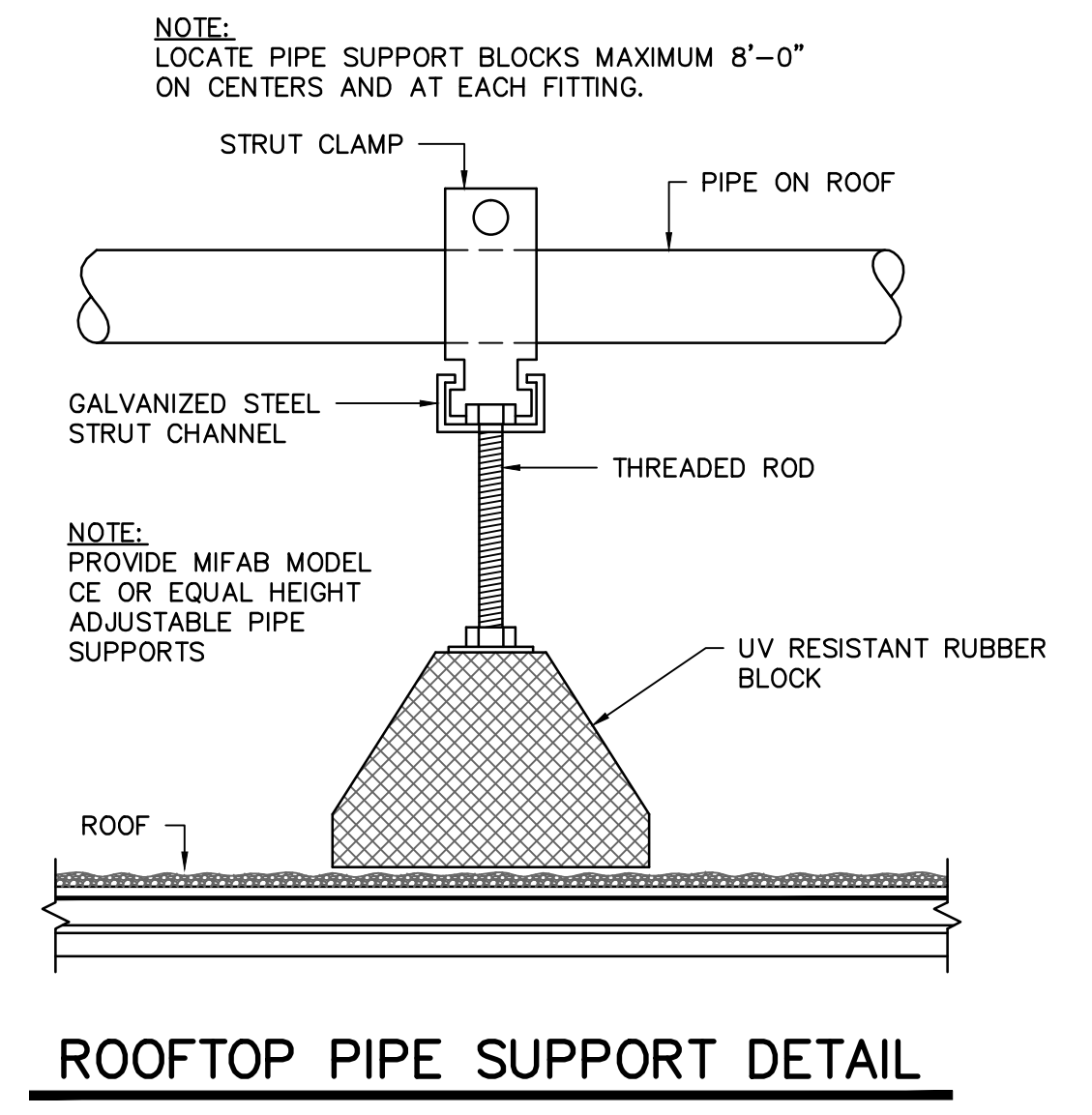
AHU-1 DETAILS
NO SCALE

UNIT CONSTRUCTION	
Model:	YC-1PF
Construction:	Weather Proof
Base:	6" X 1.92" X 8.2#/ft structural steel channel painted w/ 3 to 5 mil DFT Champagne Enamel.
Base Insulation:	2" Polyurethane Foam
Exterior Material:	18 Ga. Champagne Pre-paint
Roof Material:	18 Ga. G-90 Galvanized w/ White Elastomeric Roof Coating

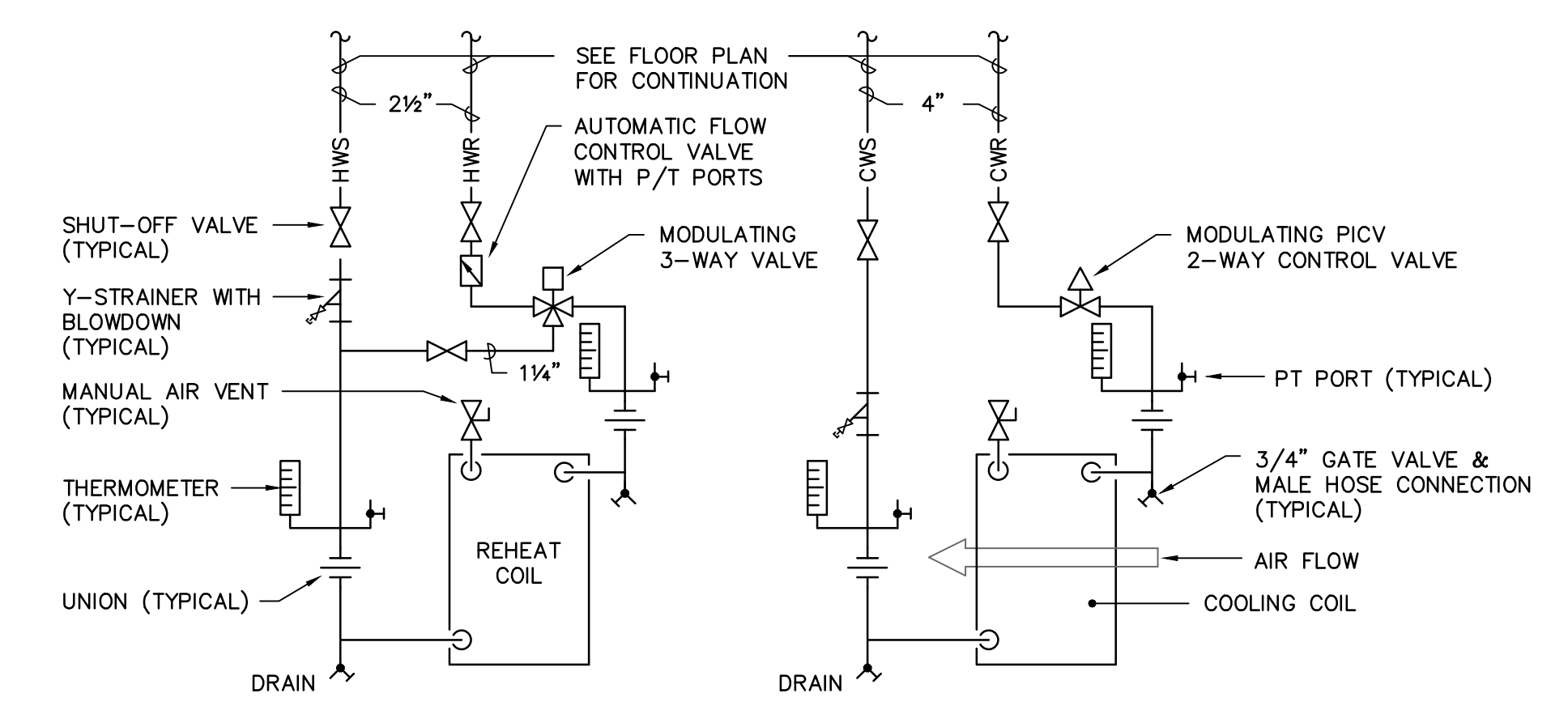
NOTES:
FOR ACTUAL OVERALL CABINET WIDTH DIMENSIONS ADD:
- DOOR HANDLES: 3"
- WATER COIL CONNECTIONS: 5"
- ROOF OVERHANG: 2"
- OPENING FLANGES: 1.5"
- LIGHT SWITCHES, CONVENIENCE OUTLETS: 4"

ACCESS DOOR LIST					
#	Width	Height	Window / Options	FST	Mount.
①	23	72	None / Std, SFY	SS	Vert.
②	23	72	None / Std, TSPTI, GSKT	SS	Vert.

DRAIN PAN AND FLOOR DRAIN OUTLET LOCATIONS		
SECT #	DIAMETER	Y
FLOOR DRAINS	1.25	2.6



ROOFTOP PIPE SUPPORT DETAIL
NO SCALE

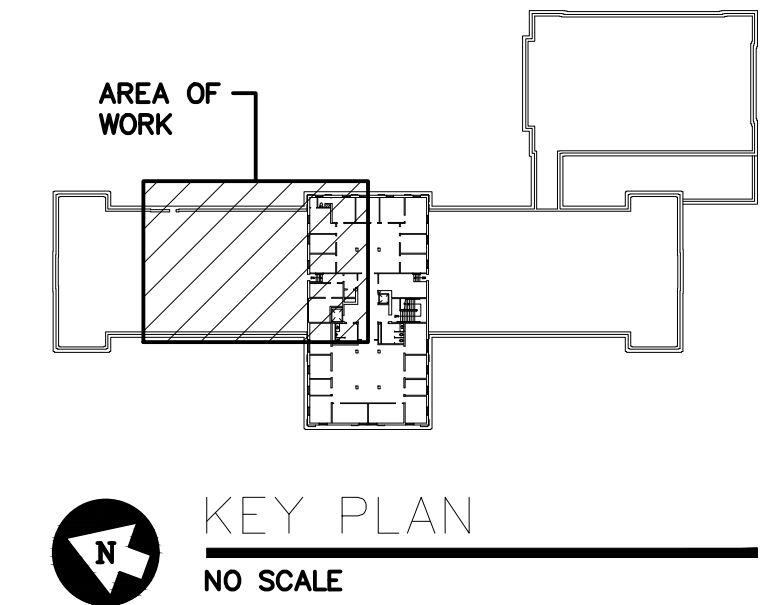
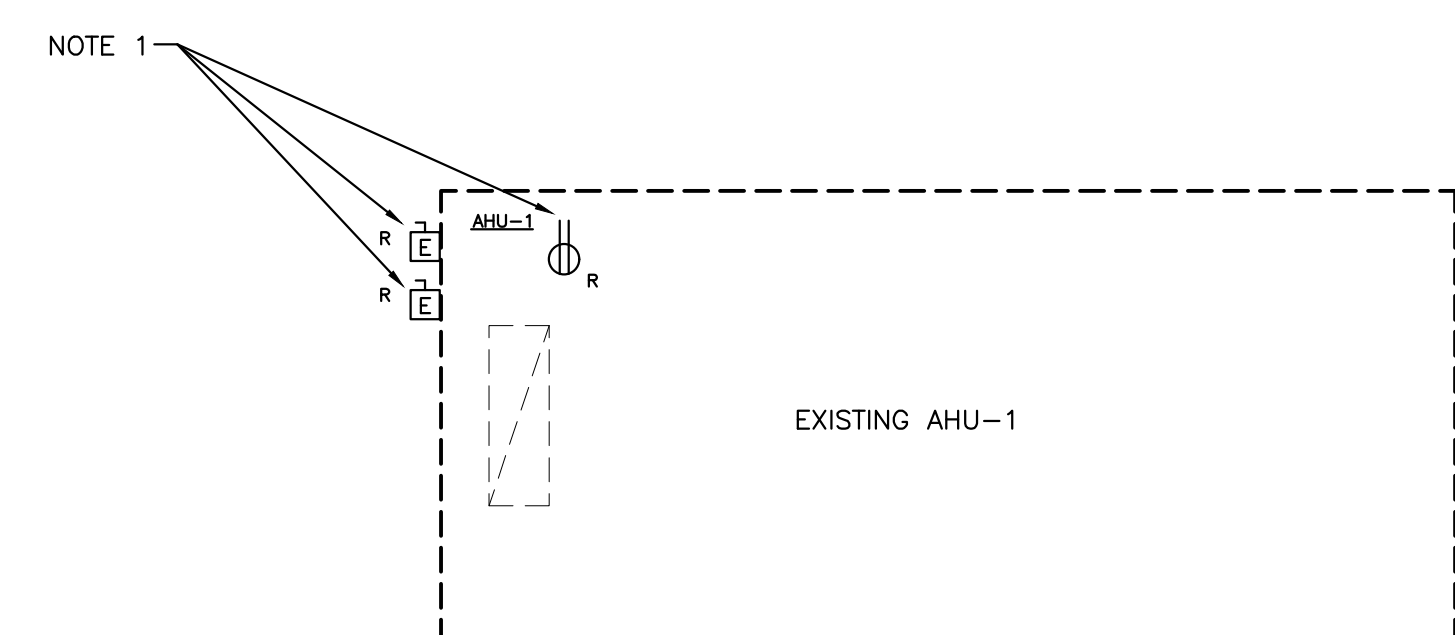
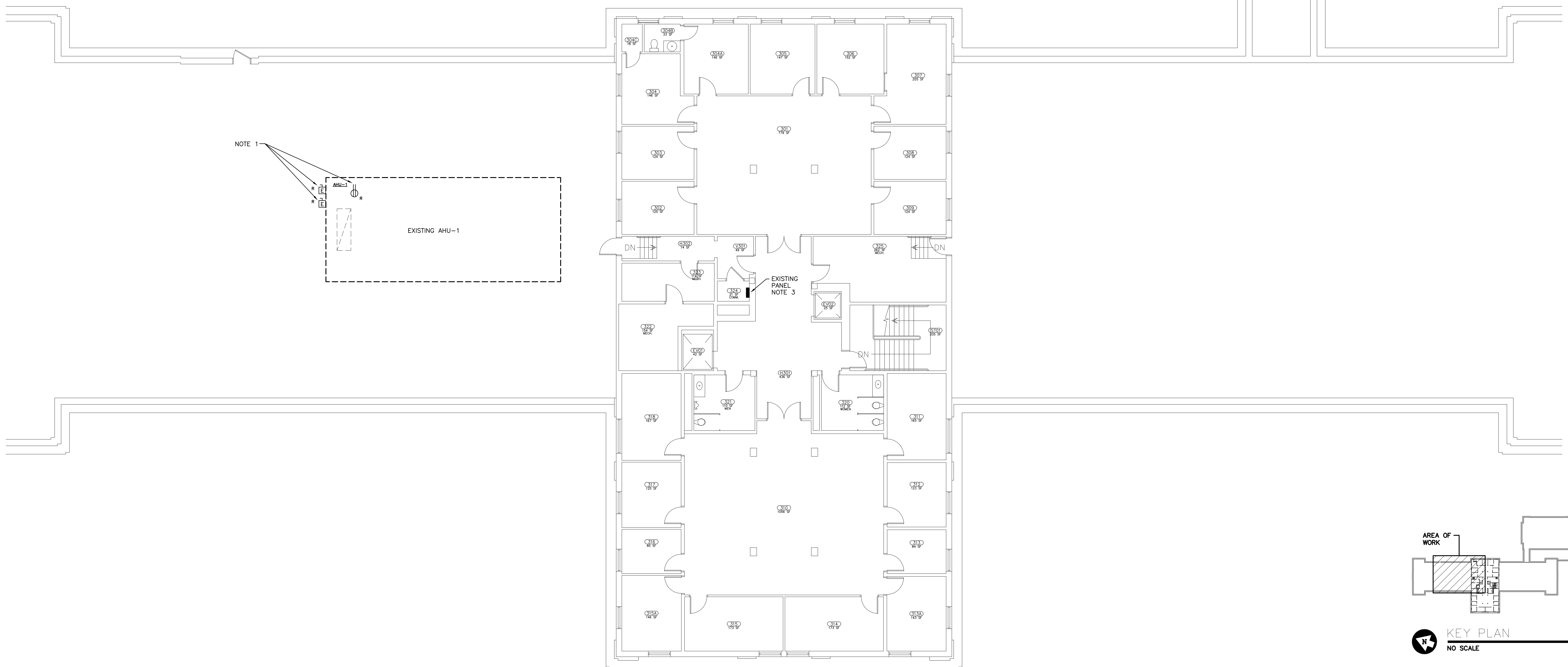
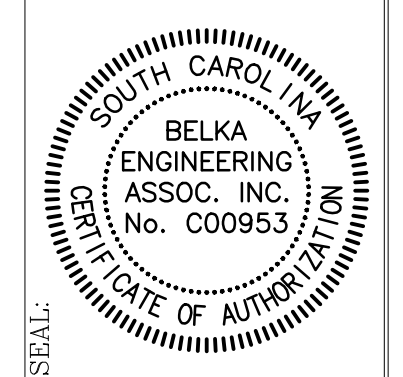


AHU-1 CAV AND VAV COIL PIPING DETAIL
NO SCALE

ELECTRICAL SYMBOL LEGEND	
	20 AMP DUPLEX RECEPTACLE, INTEGRAL IN AHU (GFI = GROUND FAULT INTERRUPTER; WP = WEATHERPROOF METALLIC "IN-USE" TYPE COVER)
	DUCT TYPE SMOKE DETECTOR. (NOTE 2)
	DUCT DETECTOR TEST STATION. (NOTE 2)
	EXISTING ELECTRICAL PANELBOARD, SURFACE MOUNTED
	EXISTING SAFETY DISCONNECT SWITCH TO BE REMOVED.
	ELECTRICAL SAFETY DISCONNECT SWITCH. "M" DENOTES DISCONNECT SWITCH INTEGRAL WITH MECHANICAL EQUIPMENT.

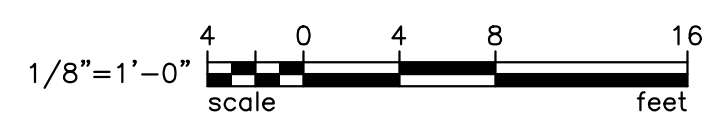
ELECTRICAL DEMOLITION NOTES	
1.	CONTRACTOR SHALL DISCONNECT EXISTING ELECTRICAL CIRCUITS AT AHU-1 AND DEMOLISH BRANCH CIRCUIT BACK TO EXISTING PANELBOARD (SEE PLAN FOR LOCATION). REMOVE EXISTING DISCONNECT SWITCHES THAT FED AHU-1. EXISTING 400 AMP BREAKER SHALL REMAIN IN PLACE. CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING 120V CIRCUIT TO RECEPTACLE INSIDE EXISTING AHU-1 TO BE REUSED DURING RENOVATION.
2.	THE BUILDING FIRE ALARM SYSTEM IS BEING UPGRADED UNDER A SEPARATE CONTRACT. REMOVE EXISTING DUCT SMOKE DETECTORS AND TEST STATIONS FROM EXISTING AHU-1.
3.	EXISTING PANEL IS A GENERAL ELECTRICAL "CCB" TYPE, 600A 240V, 3 PHASE, 3 WIRE.

**CAMPUS PLANNING
AND CONSTRUCTION**
 COLUMBIA, SC 29208



ELECTRICAL DRAWING INDEX	
E1	PARTIAL THIRD FLOOR/ROOF PLAN - ELECTRICAL DEMOLITION
E2	PARTIAL THIRD FLOOR/ROOF PLAN - ELECTRICAL RENOVATION

1 PARTIAL THIRD FLOOR/ROOF PLAN - ELECTRICAL DEMOLITION
 E1 SCALE: 1/8" = 1'-0"



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 (803) 731-0650 fax (803) 731-2880
 EMAIL: zstringfield@bellsouth.net

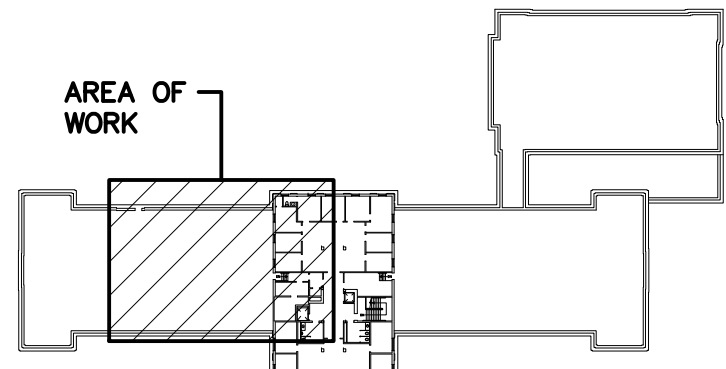
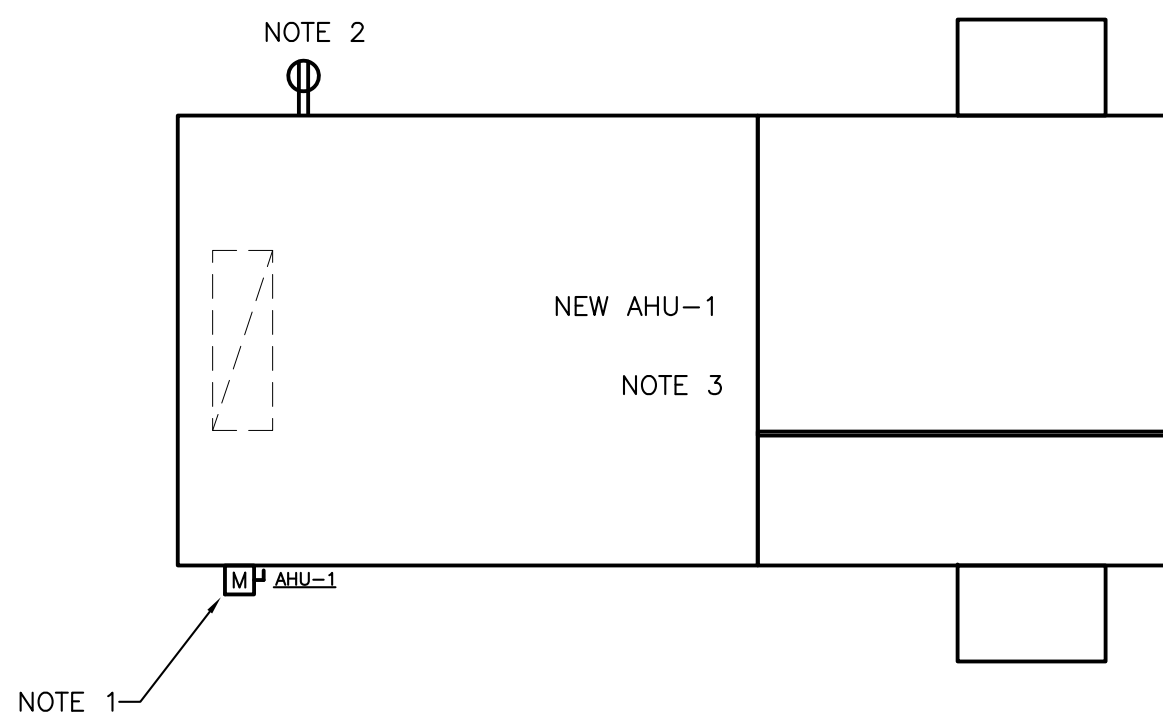
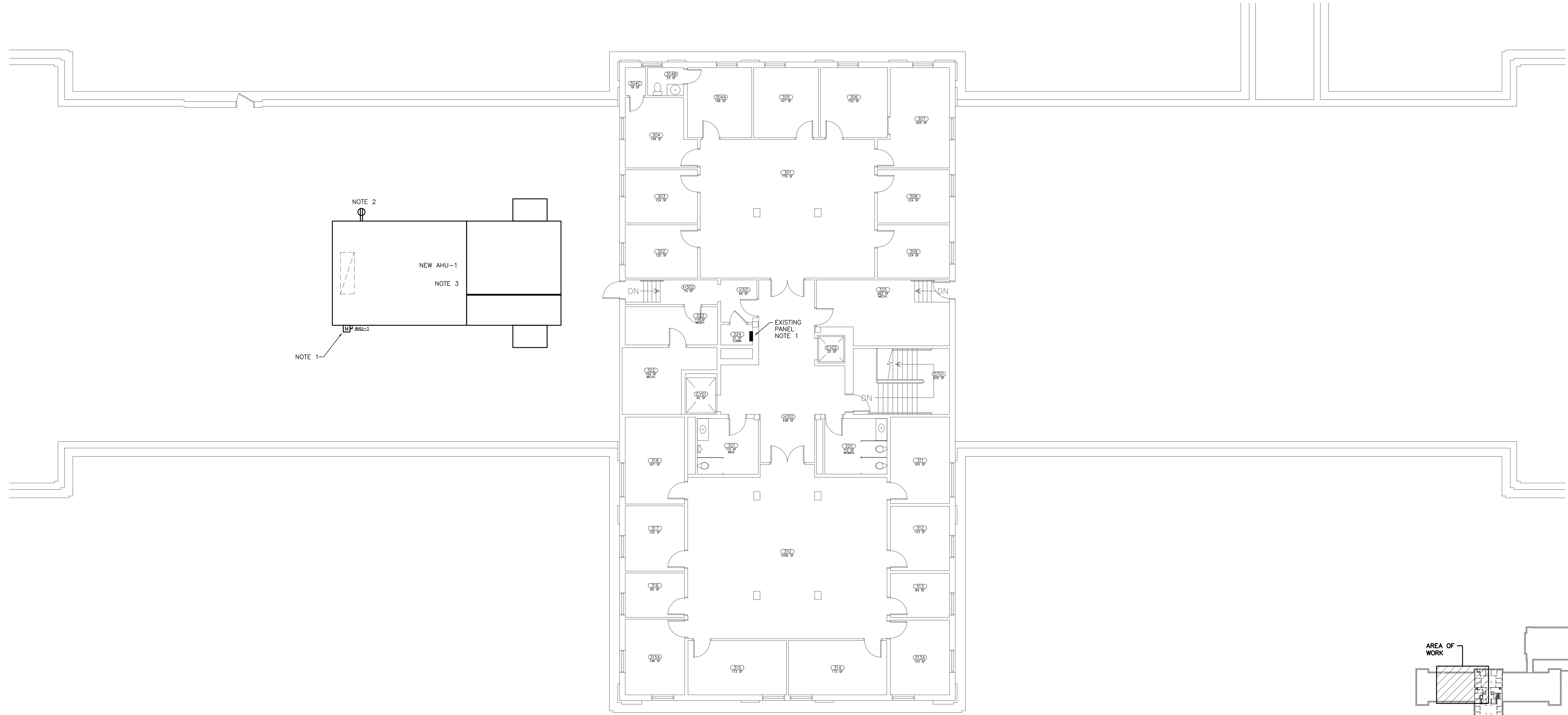
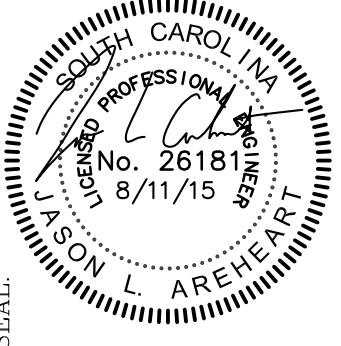
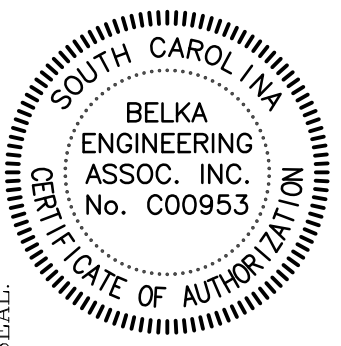
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PROJECT TITLE: **WARDLAW AHU REPLACEMENT**
 STATE PROJECT NUMBER H27-6100
 University of South Carolina
 US21510 SHEET: **E1**
 1 OF 2
 SHEET IN SET: OF

ELECTRICAL RENOVATION NOTES

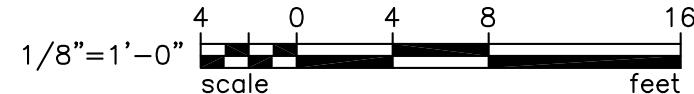
1. PROVIDE 3#500kcmil, 1#3 IN 3" CONDUIT FROM EXISTING 400 AMP BREAKER IN EXISTING PANEL (SEE PLAN FOR LOCATION) TO NEW DISCONNECT SWITCH FOR AHU-1.
2. FEED NEW RECEPTACLE ON AHU-1 WITH EXISTING 120V RECEPTACLE CIRCUIT.
3. ALL AHU-1 RELATED FIRE ALARM DEVICES SHALL BE PROVIDED UNDER SEPARATE CONTRACT.

CAMPUS PLANNING AND CONSTRUCTION
COLUMBIA, SC 29208



KEY PLAN
NO SCALE

1 PARTIAL THIRD FLOOR/ROOF PLAN – ELECTRICAL RENOVATION
E2 SCALE: 1/8" = 1'-0"



US21510

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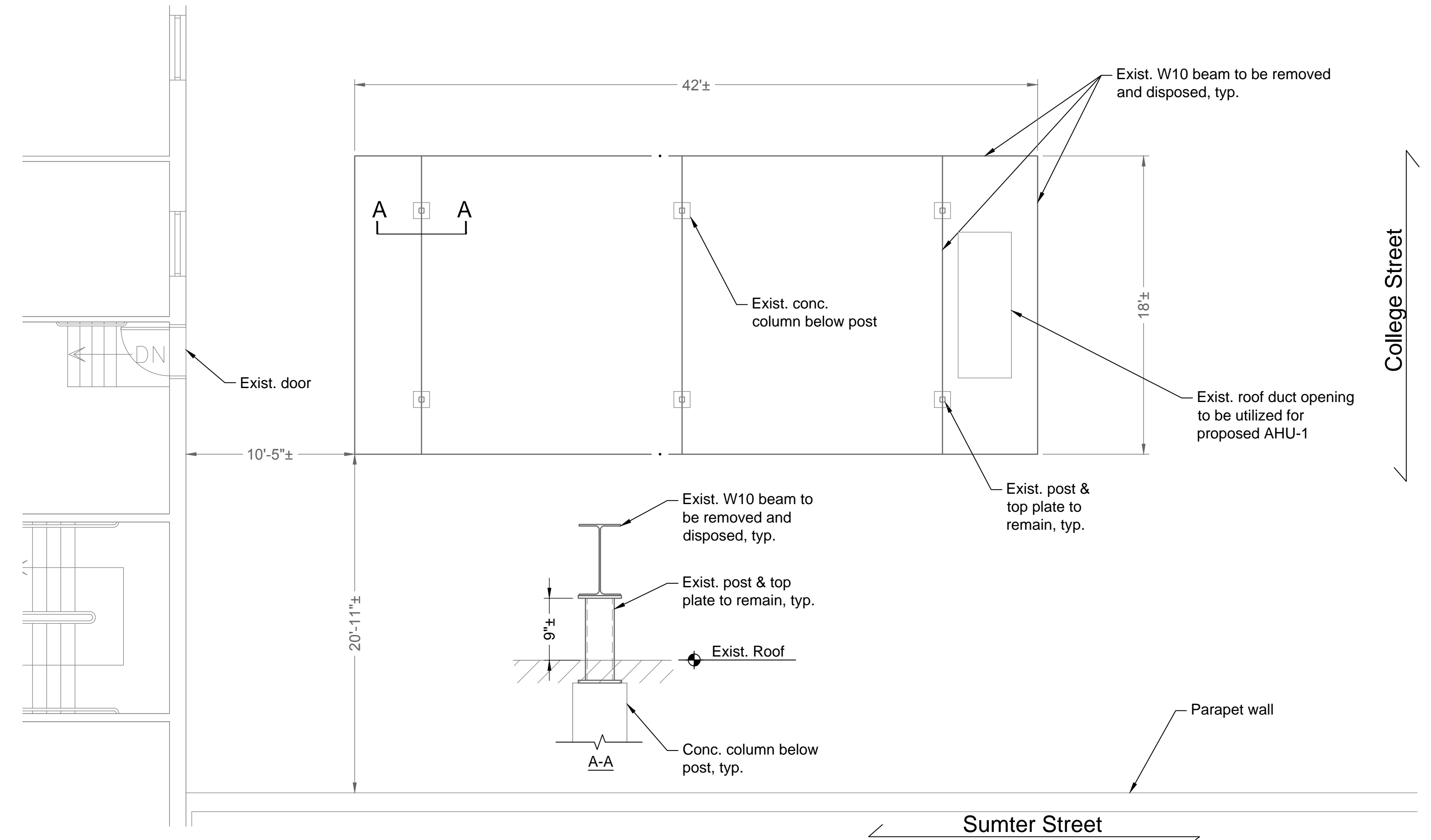
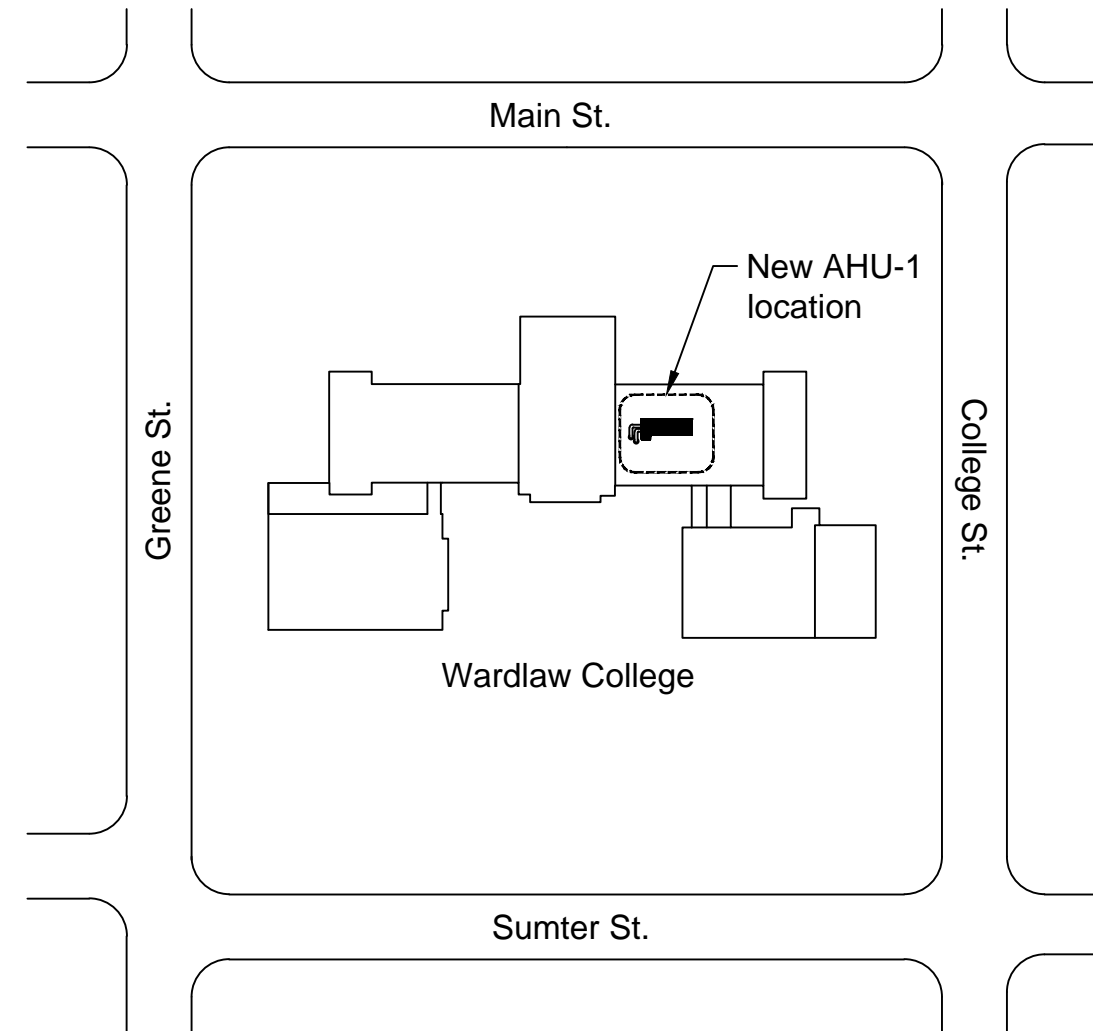
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PROJECT TITLE:	WARDLAW AHU REPLACEMENT				
STATE PROJECT NUMBER:	H27-6100				
UNIVERSITY:	University of South Carolina				
SHEET:	E2				
SHEET IN SET:	2 OF 2				
OF					

General Notes:

- Design Specifications: International Building Code (2012 Edition).
Design Loads:
Dead load: Actual
HVAC Unit Weight: 40,000 lbs.
Wind Velocity: 115 MPH
Exposure Category: B
Site Class: Assumed D
Mapped Spectral Response Accelerations: $S_s=0.416$ g, $S_1=0.142$ g
Site coefficients: $F_a=1.467$, $F_v=2.232$
Seismic design category: C
Response modification factor: $ap=2.5$
Deflection amplification factor: $R_p=6$
Seismic Analysis Procedure: Equivalent lateral force procedure.
- In case of a discrepancy in dimensions or details, between Mechanical and Structural Drawings, not affecting strength, the Mechanical plans shall govern. For dimensions and details not shown, see Mechanical plans.
- Where a detail is shown on Structural Drawings for one condition, it shall apply to all similar or like conditions, unless noted or shown otherwise on plans.
- All items shall be tightly anchored or attached square, plumb, and true, or in other planes and shapes as shown on the drawings. Joints shall be tight, even, and free of offsets. No field altering of any members will be allowed that will cause them not to be in accordance with the drawings and specifications, without written approval of the Project Engineer.
- The dimensions shown with a suffix "±" are approximate and shall be verified by the Contractor before fabrication.
- If the Contractor finds a difference between these drawings & existing conditions, or finds any other conditions which prohibit execution of the work as directed in these drawings, the Contractor shall notify the Engineer immediately.
- Any revision/modification to the original design during the shop drawing process, the Contractor shall clearly cloud line all the changes and shall receive approval from the Engineer in writing before fabrication. Any costs associated with correcting the unapproved change shall be at the Contractor's expense.
- Use caution not to damage existing roofing materials during field welding and installation.
- Existing structural members including steel post and cap plate shall be cleaned and repainted in a color matching the existing or approved by the owner. The paint shall consist of one coat of anti-rust primer and one coat of finish paint in a different color than the primer.

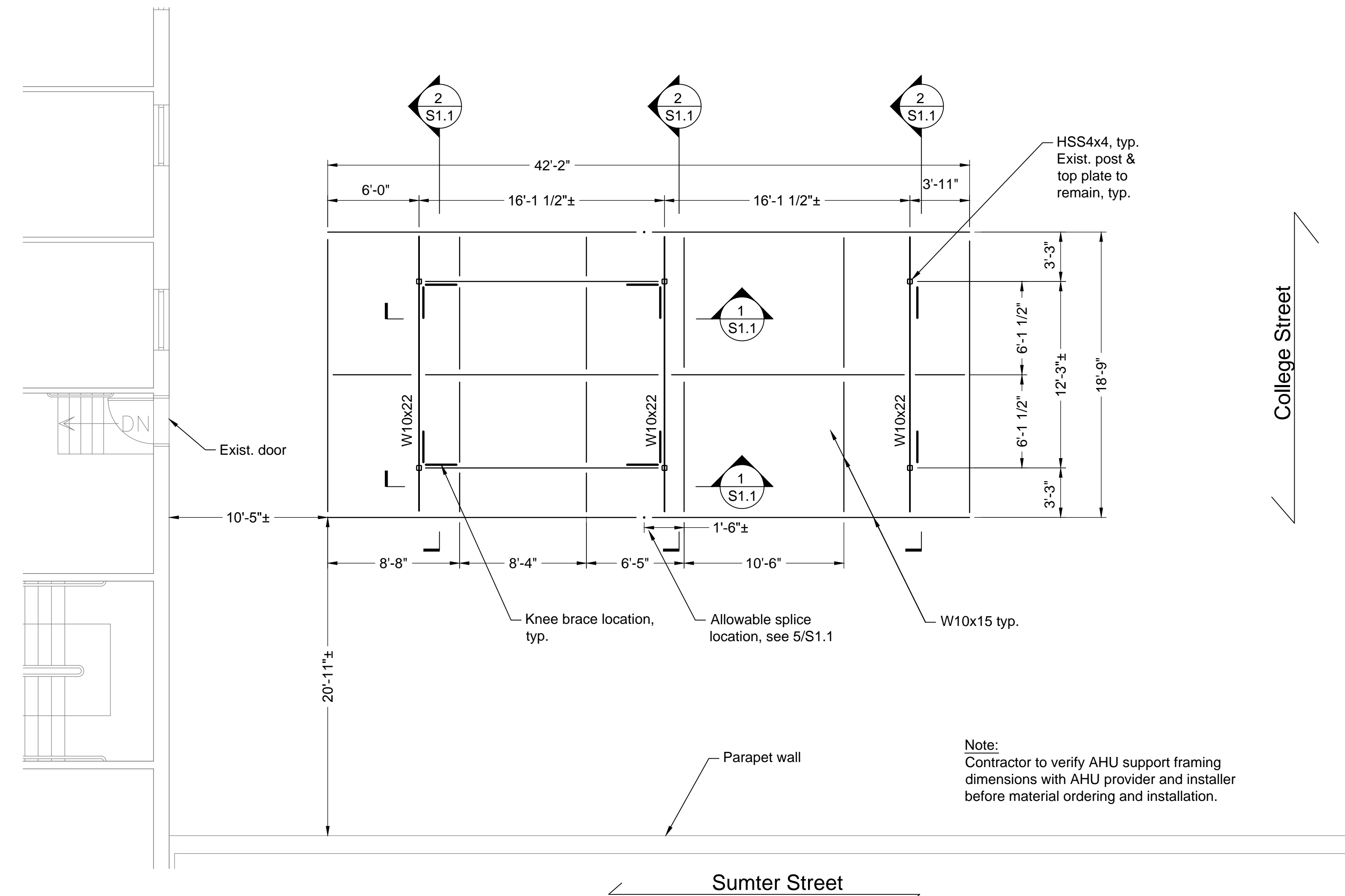
Structural and Miscellaneous Steel:

- All structural and miscellaneous steel shall conform to the Fourteenth Edition of the AISC "Specification for the Design, Fabrication & Erection of Structural steel for Buildings" and all its supplements, and to the AISC "Code of Standard Practice for Steel Buildings and Bridges".
- All structural steel shall conform to ASTM A-36, $F_y=36,000$ PSI unless otherwise noted.
- Steel W-Shapes shall conform to ASTM A992, $F_y=50,000$ PSI.
- All welded connections shall be done with E70XX electrodes with 3/16" min. material. U.O.N. All welding shall comply with AWS D1-1 structural welding code the latest edition.
- All bolts shall be A325 bolts, unless otherwise noted.
- No openings in beams shall be permitted without the written permission of the engineer.
- The use of a gas-cutting torch in the field for cutting holes or for correcting fabrication errors will not be permitted on structural framing members except w/ the written approval of the Engineer for each specification.
- All structural steel shall be hot-dipped galvanized according to ASTM 123 where noted. All connections, hardware shall be hot-dipped galvanized according to ASTM 153. All galvanizing damaged by welding shall be repaired by Z.R.C. cold galvanizing paint.



1 - Existing Conditions / Demolition Plan

Scale: 3/16 = 1'-0"



2 - New AHU-1 Support Framing Plan

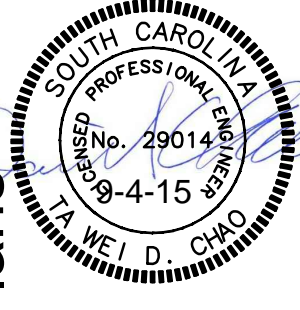
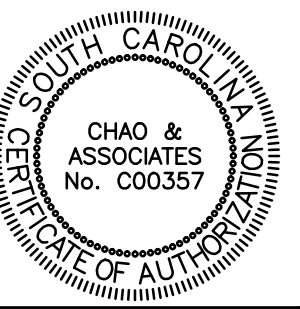
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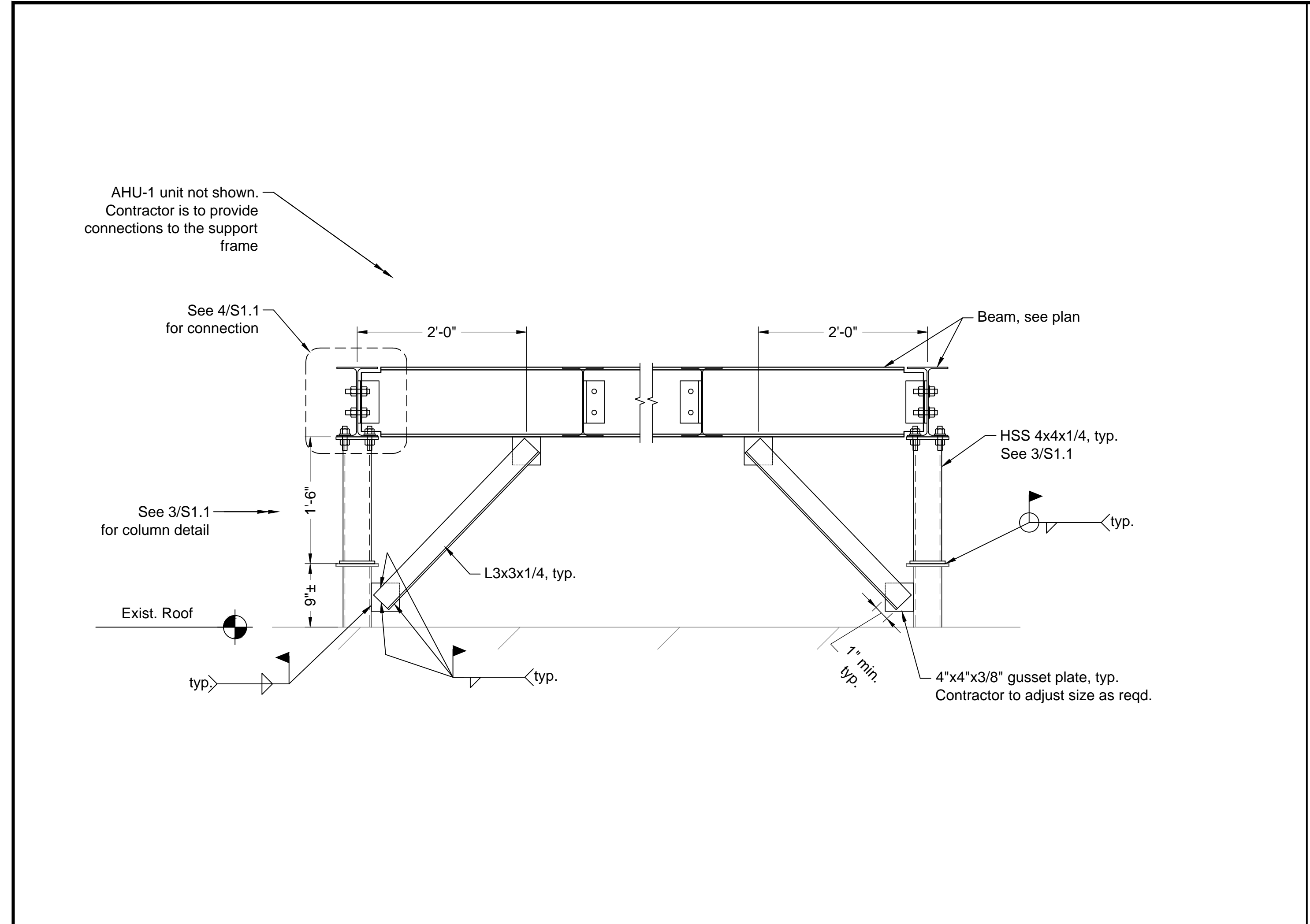
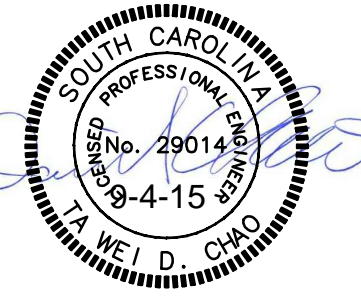
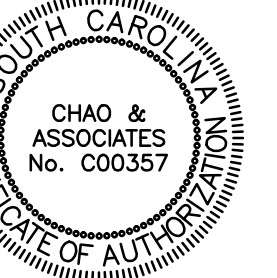
General Notes, Demolition & Framing Plans
Wardlaw Building AHU-1 Replacement
Prepared for:
The University of South Carolina
Columbia, SC

Drawn: TKS
Revised:
Checked: TL

Project No.: 392301B
File: 392301B.dwg

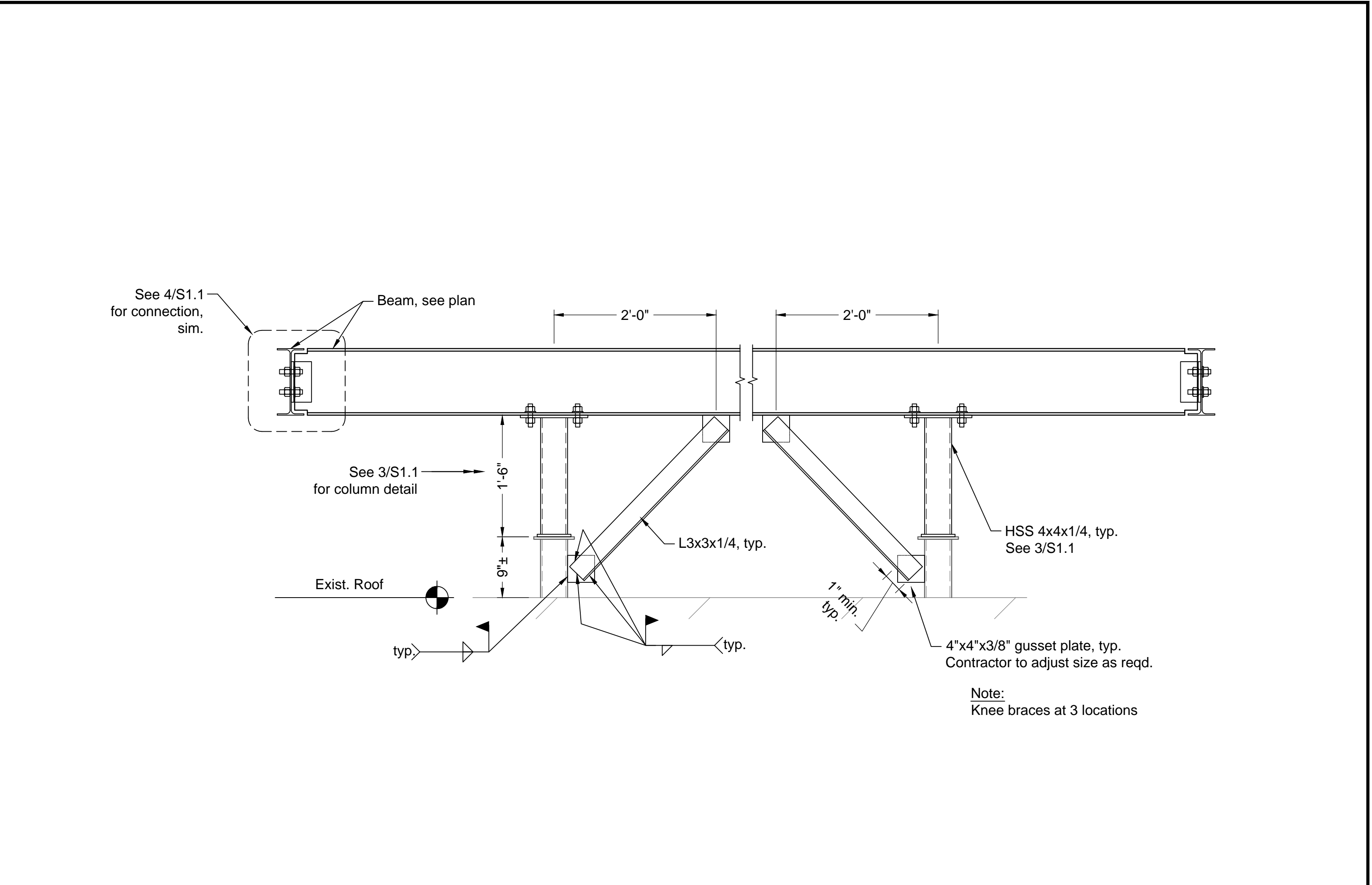
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August 24, 2015
Date



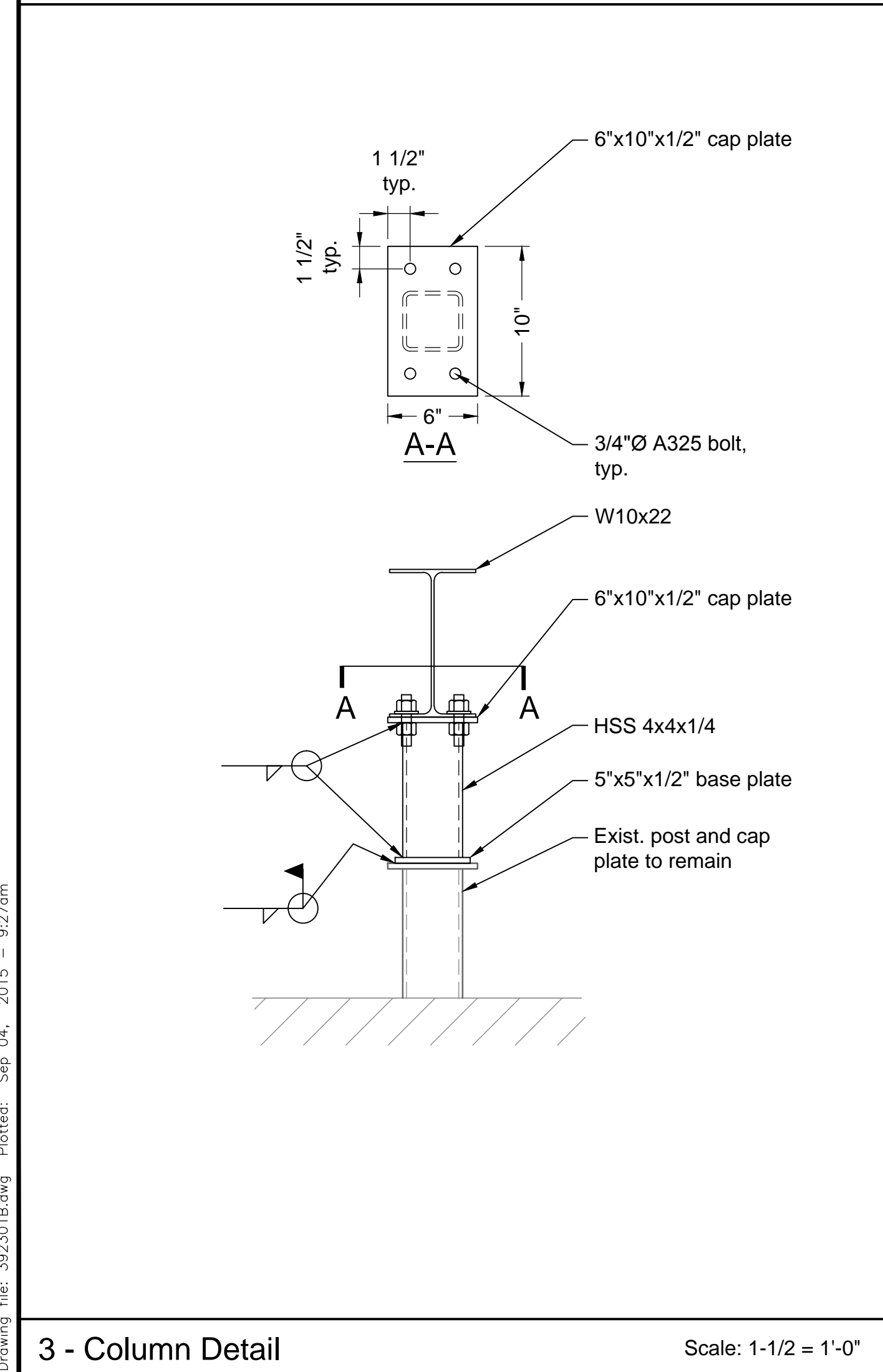
1 - Section @ Knee Braces (2 locations total)

Scale: 1" = 1'-0"



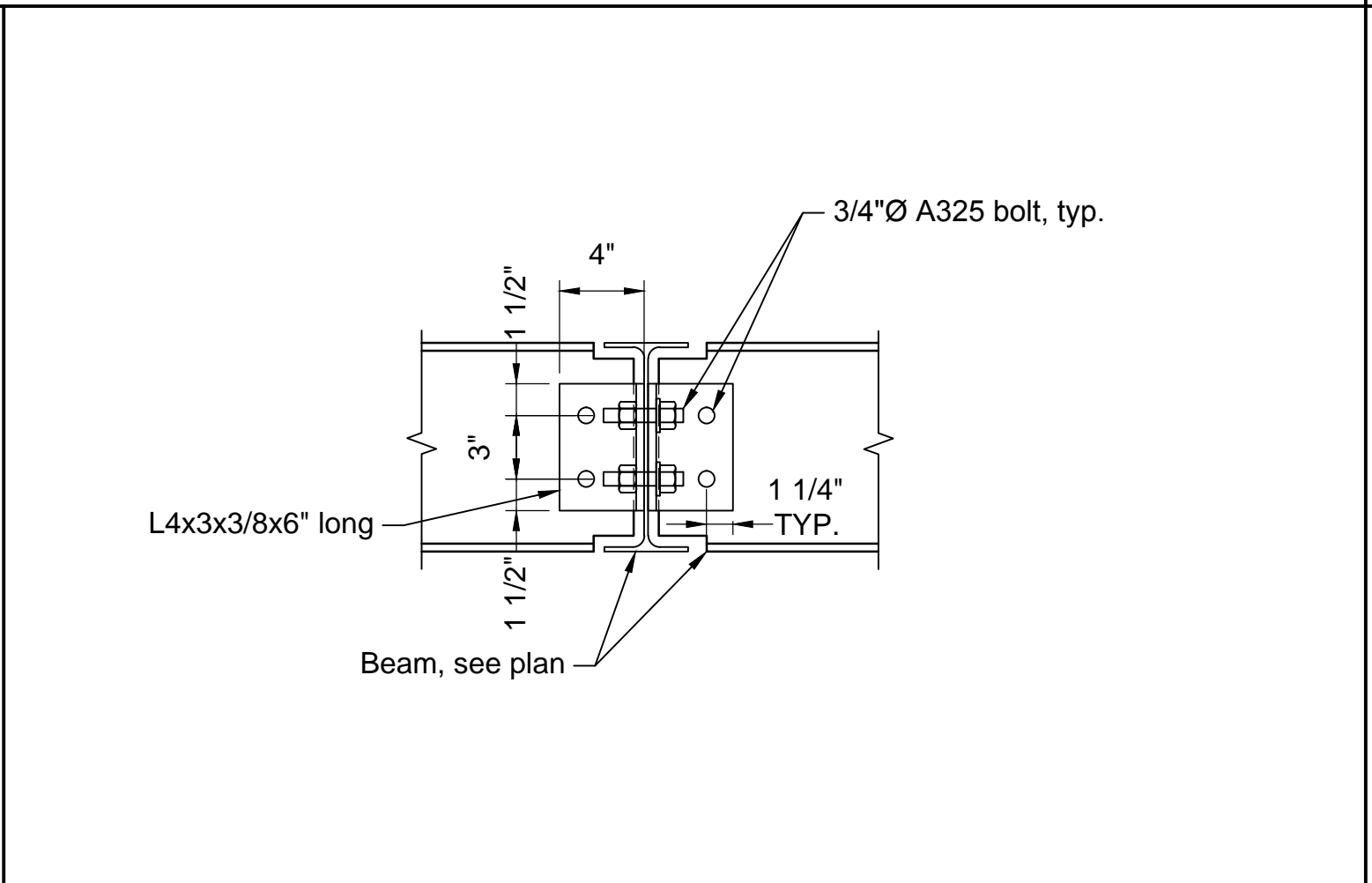
2 - Section

Scale: 1" = 1'-0"



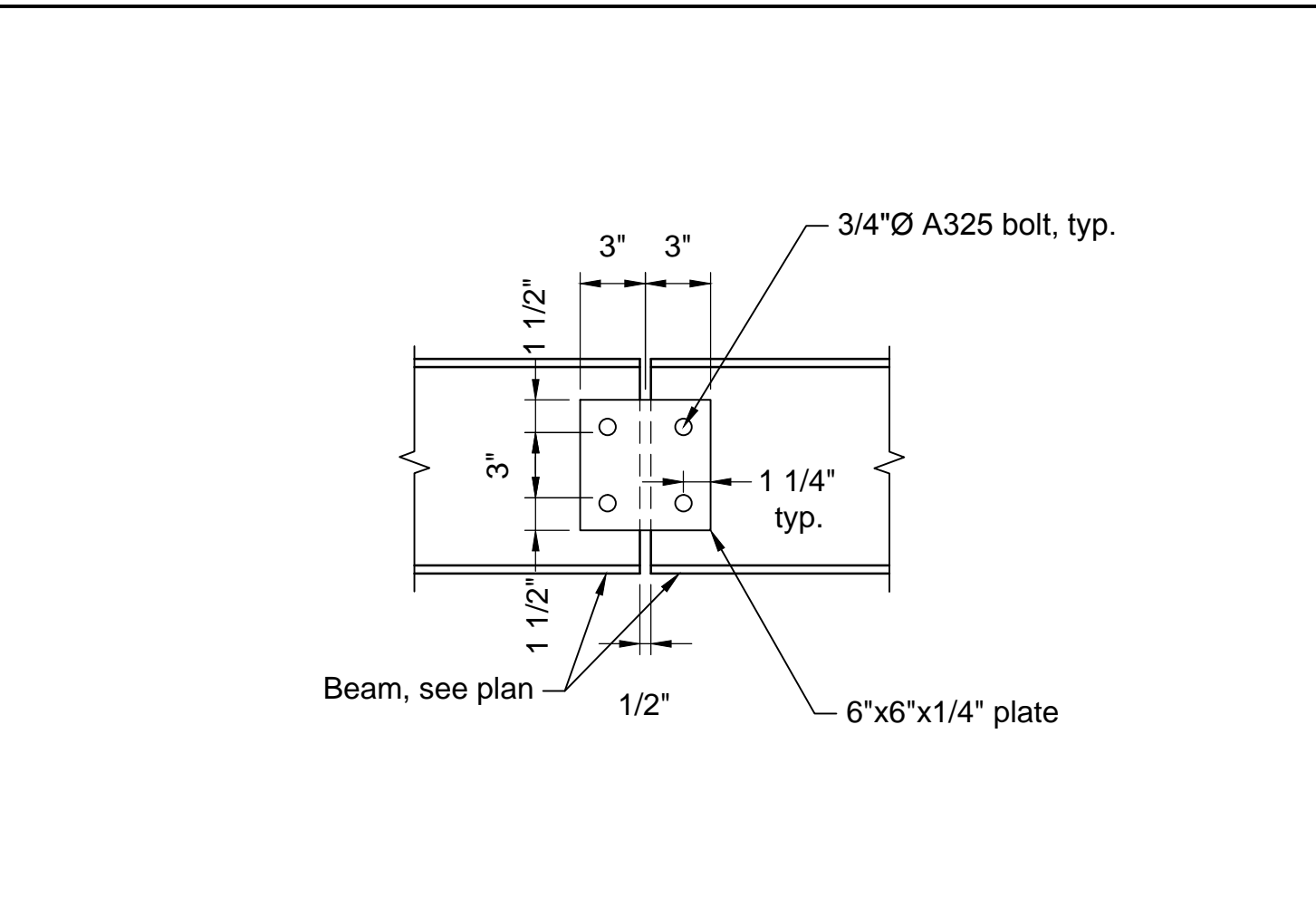
3 - Column Detail

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



4 - Beam Connection Detail

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



5 - Beam Splice Detail

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