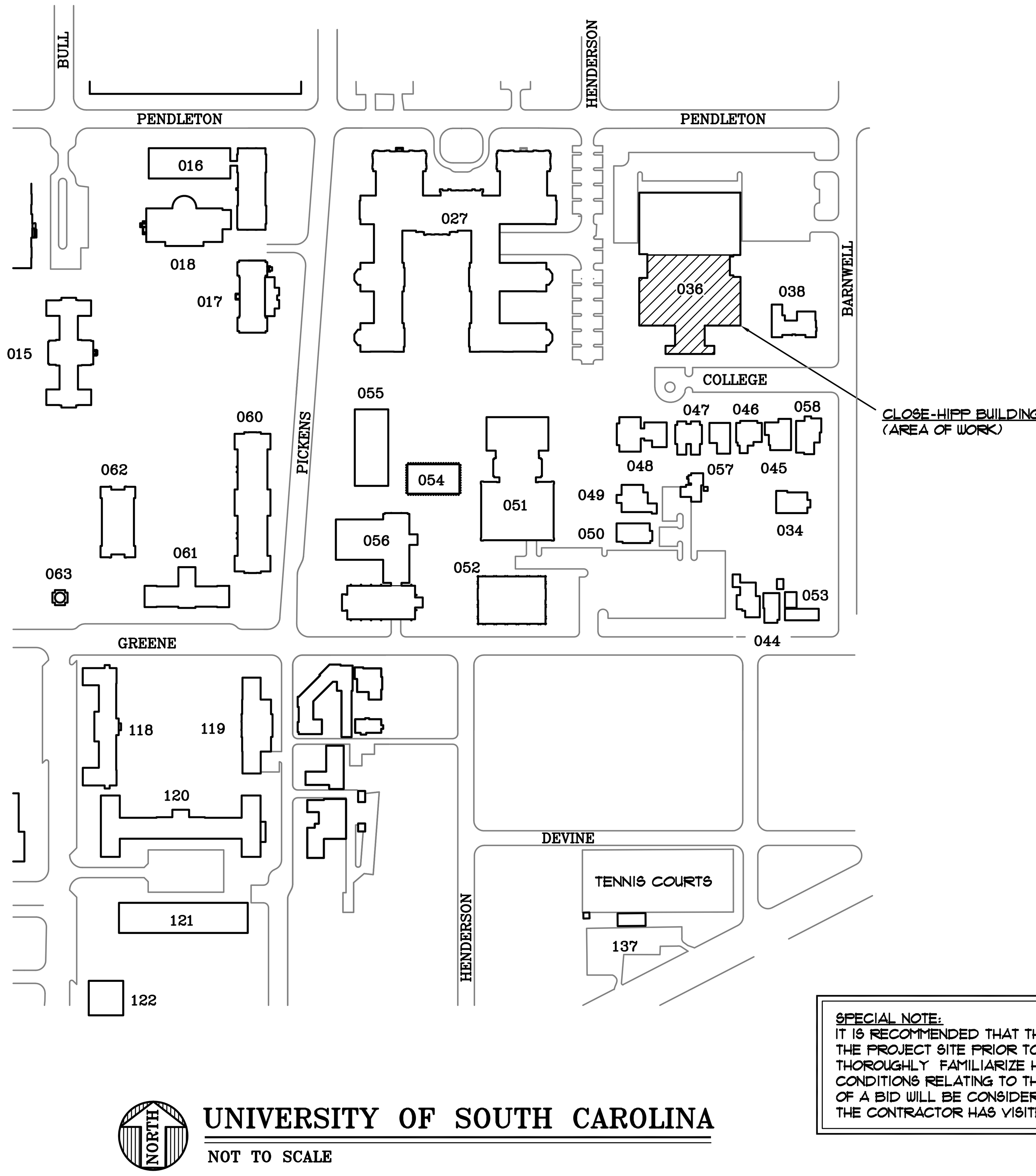
USC DM - CLOSE BUILDING AHU UPGRADES

THE UNIVERSITY OF SOUTH CAROLINA
COLUMBIA, SOUTH CAROLINA

STATE PROJECT # H27-6117
USC PROJECT # 50002911-2

FACILITIES PLANNING AND CONSTRUCTION



SPECIAL NOTE:
IT IS RECOMMENDED THAT THE CONTRACTOR VISIT THE PROJECT SITE PRIOR TO SUBMITTING BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXIST CONDITIONS RELATING TO THIS PROJECT. SUBMISSION OF A BID WILL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE OF WORK.

INDEX OF DRAWINGS

MECHANICAL ENGINEER

MECHANICAL DESIGN, INC.
4403 BROAD RIVER ROAD
COLUMBIA, S.C. 29210
(803) 731-9834

ARCHITECT

WATSON TATE SAVORY
1316 WASHINGTON ST. SUITE 100
COLUMBIA, S.C. 29201
(803) 799-5181

CODE REVIEW INFORMATION

PROJECT DESIGNED IS ACCORDANCE WITH:
1. International Building Code - 2012 Edition.
2. International Plumbing Code - 2012 Edition.
3. International Mechanical Code - 2012 Edition.
4. National Electric Code - 2011 Edition.
5. Seismic Design Category D

SYMBOLS

	NEW MATERIALS
	EXISTING TO BE REMOVED
GPM	WATER FLOWRATE, GALLONS PER MINUTE
ECHS	EXISTING CHILLED WATER SUPPLY
ECHR	EXISTING CHILLED WATER RETURN
CHS	NEW CHILLED WATER SUPPLY
CHR	NEW CHILLED WATER RETURN
	PIPE TURNING DOWN
	PIPE TURNING UP
	GLOBE VALVE
	BALL VALVE (2-1/2" & SMALLER) BUTTERFLY VALVE (3" & LARGER)
	CHECK VALVE
	STRAINER
	UNION
P	PNEUMATIC CONTROL VALVE
M	MOTOR OPERATED CONTROL VALVE
	PRESSURE REGULATING VALVE
CTE	CONNECT TO EXISTING
FLD	FLOOR DRAIN

GENERAL NOTES

1. DO NOT SCALE DRAWINGS. ROUGH FROM EQUIPMENT MANUFACTURER'S DRAWINGS AND EXISTING CONDITIONS.
2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. DUCT SIZES SHOWN ON DRAWINGS ARE INTERIOR DIMENSIONS.
3. WHENEVER THE WORD "PROVIDE" IS USED IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
4. INSTALLATION OF EQUIPMENT, AND PIPING, INCLUDING VIBRATION ISOLATION SHALL COMPLY WITH 2012 INTERNATIONAL BUILDING CODE FOR SEISMIC PROTECTION.
5. ALL MATERIALS CALLED FOR TO BE REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER. ANY ITEM THE OWNER DOES NOT WANT TO KEEP SHALL BE REMOVED FROM THE SITE.
6. PROVIDE ALL ITEMS OF MISCELLANEOUS STEEL AS REQUIRED FOR INSTALLATION OF WORK.
7. PROVIDE PROTECTION OF THE EXISTING ROOF AND STRUCTURE AS NOTED ON THE DRAWINGS AND AS REQUIRED FOR CONSTRUCTION.
8. PIPING SYSTEMS SHALL BE DRAINED AS REQUIRED FOR THE INSTALLATION OF WORK.
9. PROVIDE FOR ACCESS TO ALL MECHANICAL ITEMS REQUIRING CLEANING OR ADJUSTMENT.
10. PIPING SHALL BE KEPT CLEAN OF DEBRIS DURING INSTALLATION.

SOUTH CAROLINA
MECHANICAL DESIGN, INC.
Columbia, SC
No. C00096
CERTIFICATE OF AUTHORIZATION

MECHANICAL DESIGN INC.
4403 Broad River Road
Columbia, S.C. 29210
(803) 731-9834
(803) 731-9837 FAX
CONTACT: JUSTIN VARCO
COMM. NO. 163290

OFFICE OF
FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL: SOUTH CAROLINA PROFESSIONAL ENGINEER LICENSED No. 32935 04-15-16 JUSTIN J. VARCO

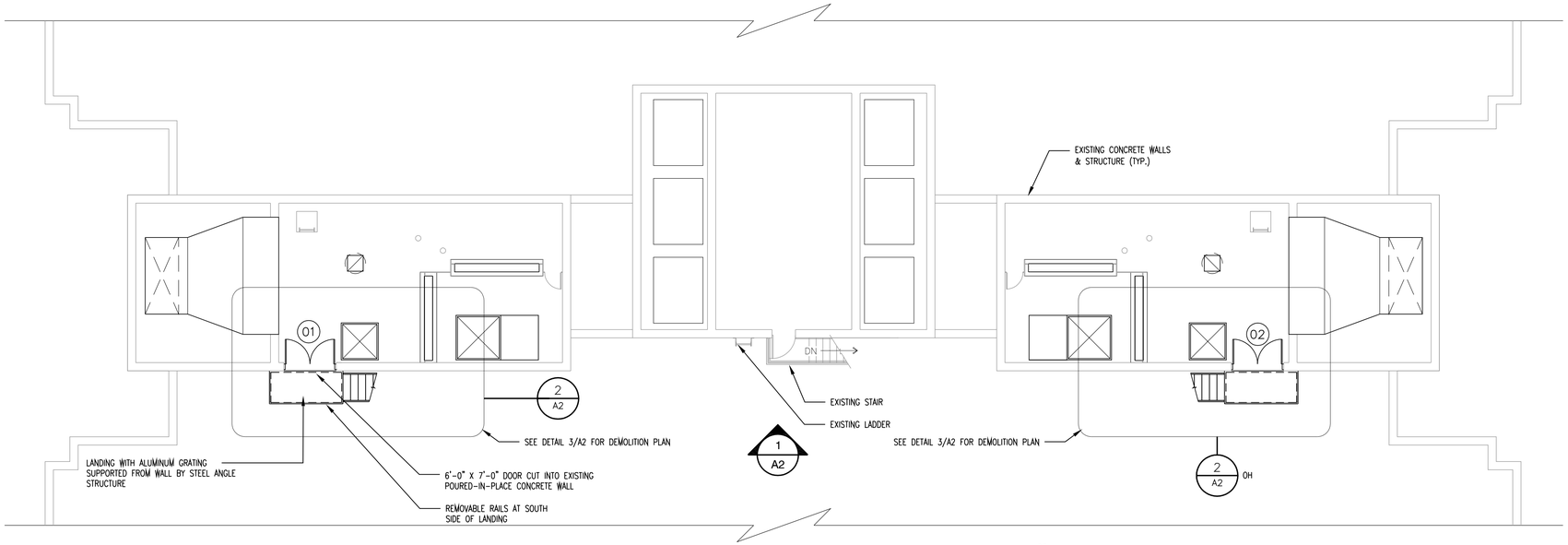
BUILDING:	DRAWING:	DATE:	DRAWN BY:	CHECKED BY:
036	CLOSE-HIPP C1	04/15/2016	JJV	CDW

REV.	DESCRIPTION	DATE	ORIG. BY	DRAWN BY

PROJECT TITLE: USC DEFERRED MAINTENANCE – CLOSE BUILDING AHU UPGRADES
S.C. STATE PROJ. NO. H27-6117
USC PROJ. NO. 50002911-2
University of South Carolina

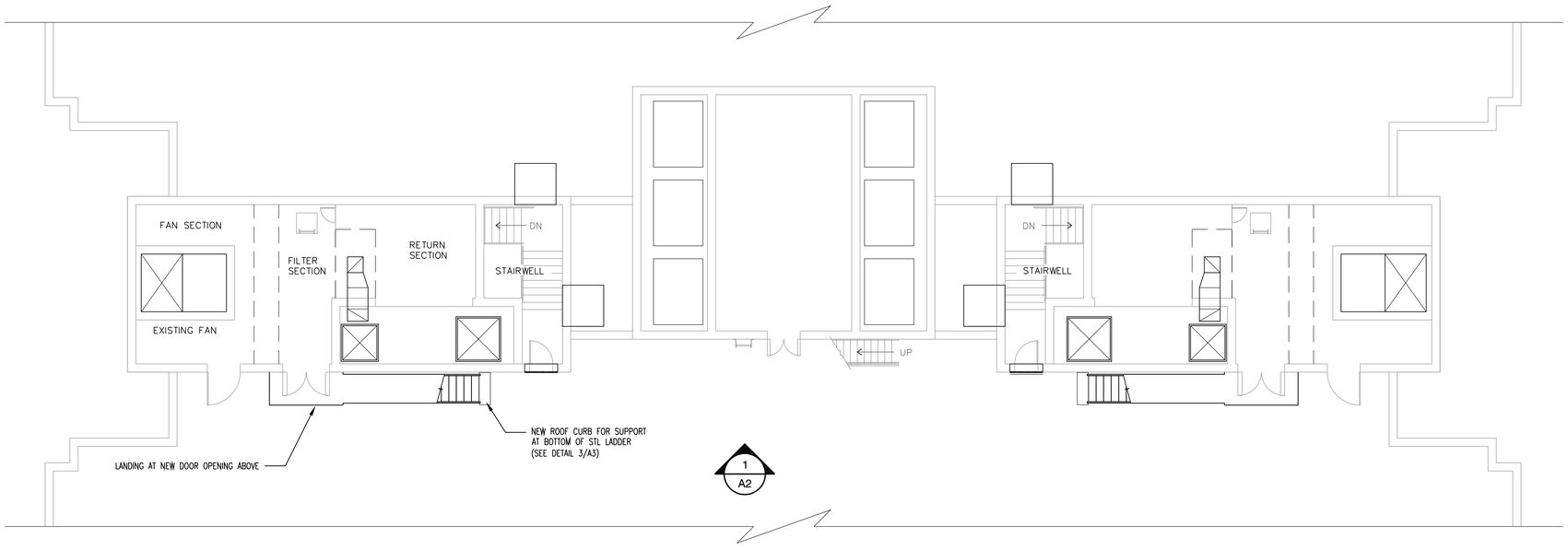
SHEET: C1 OF 1

SHEET IN SET: 1 OF 7



2/A1 UPPER PENTHOUSE FLOOR PLAN

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

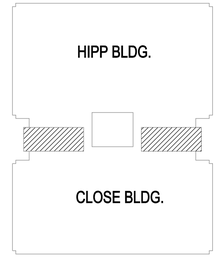


1/A1 LOWER PENTHOUSE FLOOR PLAN

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

GENERAL NOTES - ROOF PROTECTION

1. LOOSELY LAY 1.5" (MIN.) MOLDED EXPANDED POLYSTYRENE (MSPS) OR 1.5" (MIN.) OF POLYISOCYANURATE OVER THE ROOF SURFACE.
2. LOOSELY LAY .75" (NOMINAL) PLYWOOD OR OSB OVER THE MEPS/POLYISO.
3. MSPS/POLYISO MUST EXTEND A MINIMUM OF 1" PAST EDGES OF PLYWOOD/OSB.
4. IF MSPS/POLYISO GETS CRUSHED DURING CONSTRUCTION, REPLACE IN KIND.
5. THIS PROTECTION TO BE USED IN ALL AREAS USED FOR CONSTRUCTION (STORAGE/LAY-DOWN, FOOT TRAFFIC, ETC.) AND SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES.
6. SYSTEM SHALL BE CONNECTED LATERALLY TO PREVENT ANY MATERIAL FROM SHIFTING AND/OR BECOMING AIRBORNE.



KEY PLAN

NO SCALE

STATE OF SOUTH CAROLINA
WATSON TATE SAVORY, INC.
COLUMBIA, SC
ARF.100837
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
J. SANDERS TATE
COLUMBIA, SC
2813
REGISTERED ARCHITECT

WTS
WATSON TATE SAVORY

OFFICE OF
FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL:

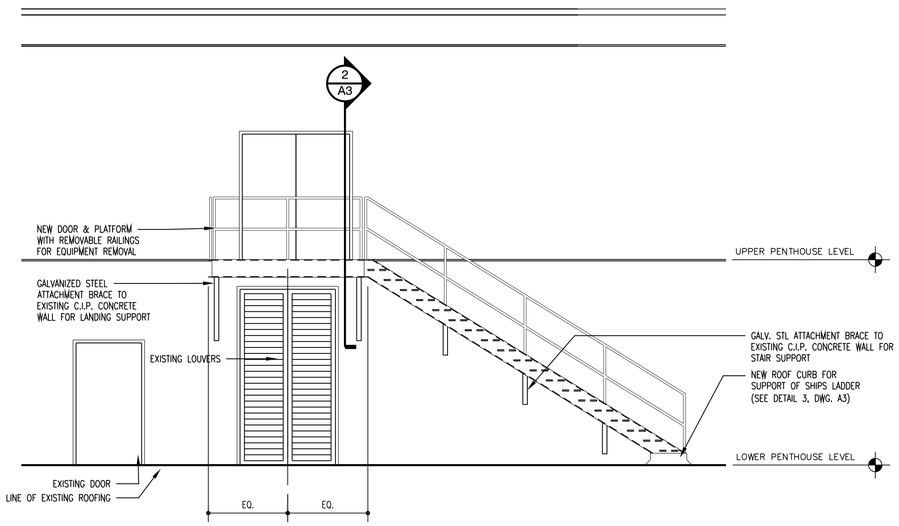
DRAWN BY:	CHECKED BY:
DATE: 04/15/2016	DRAWN BY: RRF
DESCRIPTION	DATE / ORIG. BY / DRAWN BY: JST

BUILDING: 036
REV.
DRAWING:

PROJECT TITLE:
USC DEFERRED MAINTENANCE – CLOSE BUILDING AHU UPGRADES
S.C. STATE PROJ. NO. H27-6117
USC PROJ. NO. 50002911-2
University of South Carolina

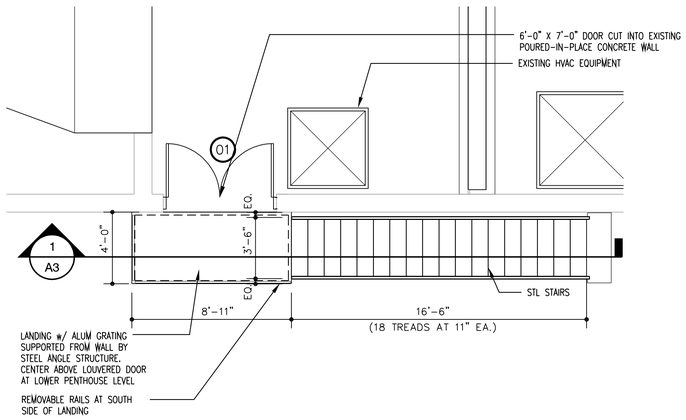
SHEET: A1 OF

SHEET IN SET: 2 OF 7



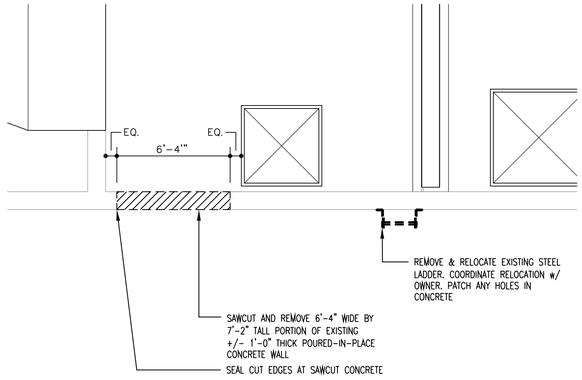
1 A2 ENLARGED PENTHOUSE ELEVATION

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



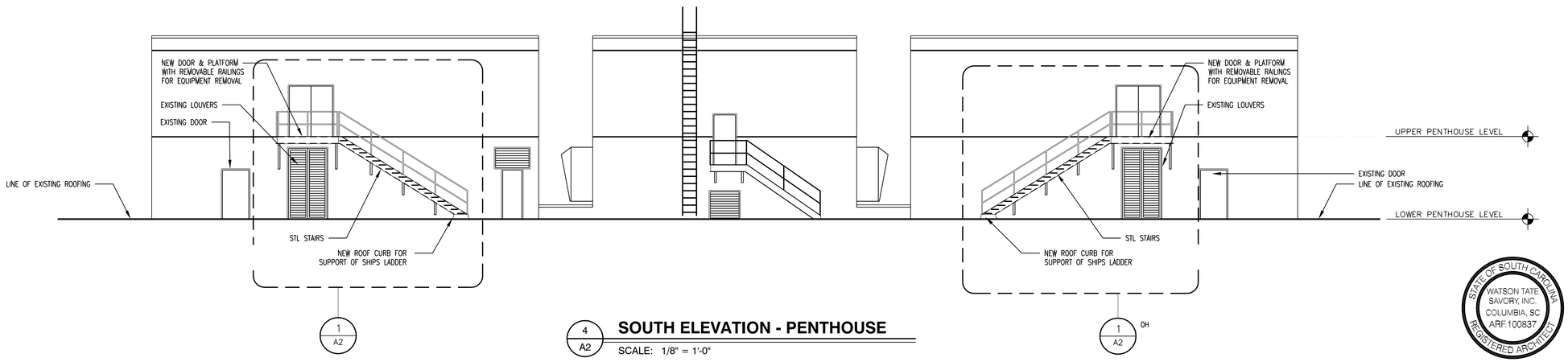
2 A2 ENLARGED PENTHOUSE FLOOR PLAN

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



3 A2 ENLARGED DEMOLITION FLOOR PLAN

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



4 A2 SOUTH ELEVATION - PENTHOUSE

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

STATE OF SOUTH CAROLINA — WATSON TATE SAVORY, INC. COLUMBIA, SC ARF.100837 — REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA — J. SANDERS TATE COLUMBIA, SC 2813 — REGISTERED ARCHITECT

WTS
WATSON TATE SAVORY

OFFICE OF
FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL:

DRAWN BY	CHECKED BY: JST
DATE: RRF	ORIG. BY DRAWN BY
DATE: 04/15/2016	
DESCRIPTION	

BUILDING: 036
DRAWING:
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S.C. STATE PROJ. NO. H27-6117
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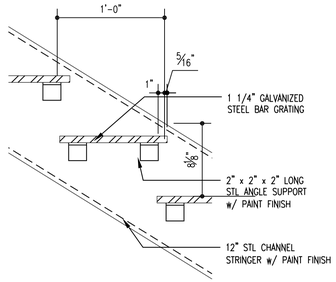
University of South Carolina

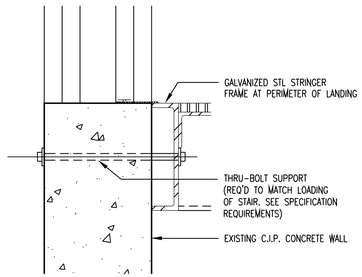
SHEET: A2
OF

SHEET IN SET: 3 OF 7



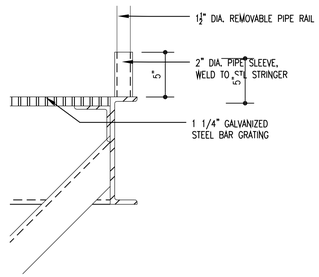
4 A3 **TREAD DETAIL**

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



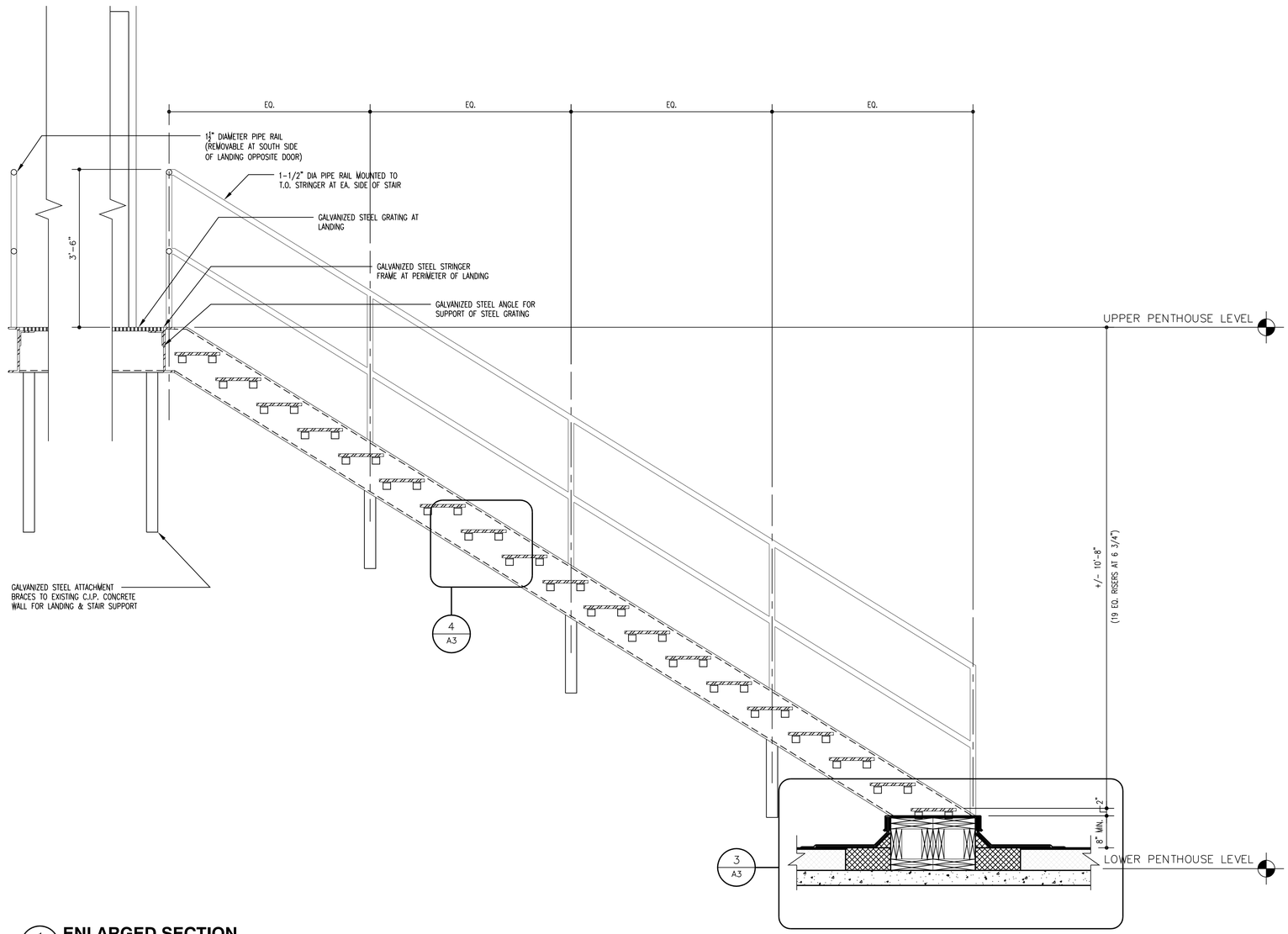
5 A3 **LANDING DETAIL**

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



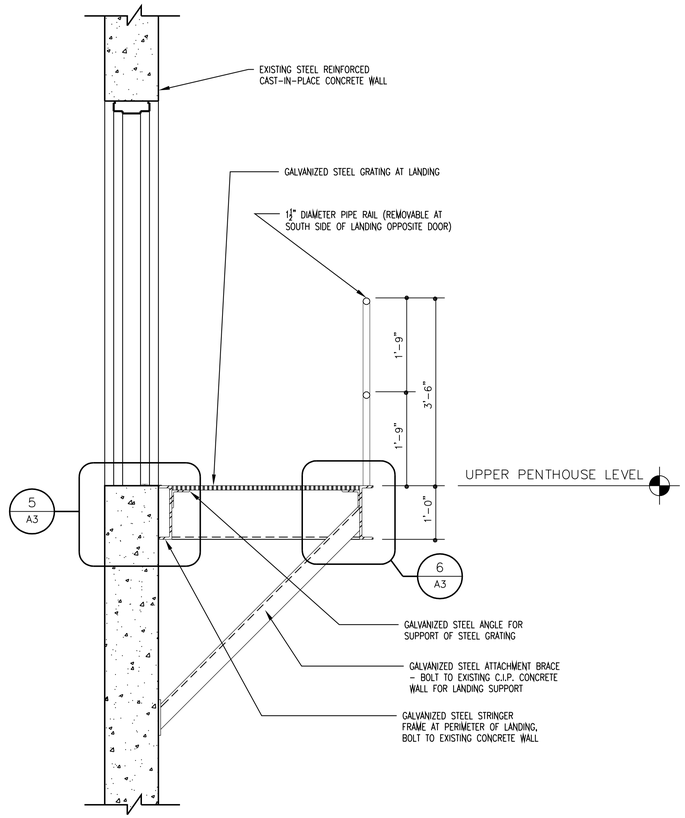
6 A3 **RAILING DETAIL**

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



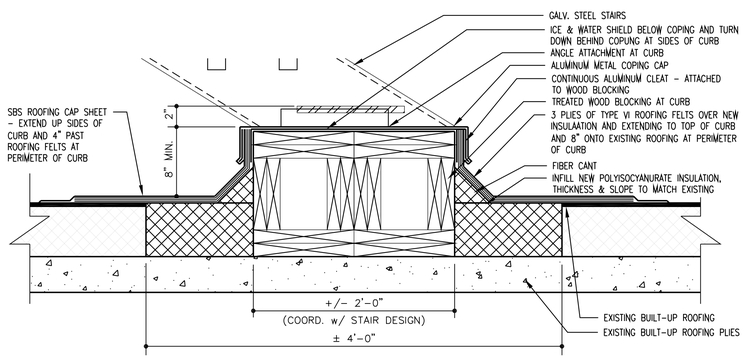
1 A3 **ENLARGED SECTION**

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



2 A3 **ENLARGED SECTION**

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



3 A3 **ENLARGED CURB DETAIL**

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

STATE OF SOUTH CAROLINA
WATSON TATE SAVORY, INC.
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COLUMBIA, SC
2813
REGISTERED ARCHITECT

WTS
WATSON TATE SAVORY

OFFICE OF
FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL:

CHECKED BY: JST
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DRAWN BY: RRF
DATE:

DATE: 04/15/2016
DESCRIPTION

DRAWING:
BUILDING: 036
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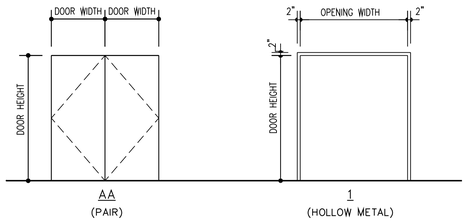
SHEET: A3
OF

SHEET IN SET: 4 OF 7

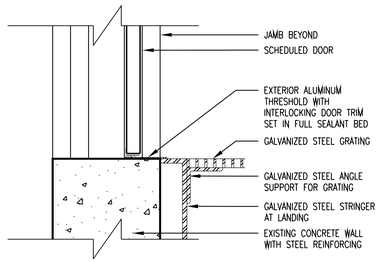
DOOR SCHEDULE

DOOR MARK	DOOR SIZE	DOOR TYPE	THK.	MATL.	FINISH	RATING	FRAME TYPE	FRAME DETAILS			HDW	REMARKS
								HEAD	JAMB	SILL		
01	PR (3'-0" x 6'-0")	AA	1 3/4"	HM	PAINT	—	1	H1	J1	S1	01	* PROVIDE AIR SEAL TO REDUCE AIR LEAKAGE
02	PR (3'-0" x 6'-0")	AA	1 3/4"	HM	PAINT	—	1	H1	J1	S1	01	* PROVIDE AIR SEAL TO REDUCE AIR LEAKAGE



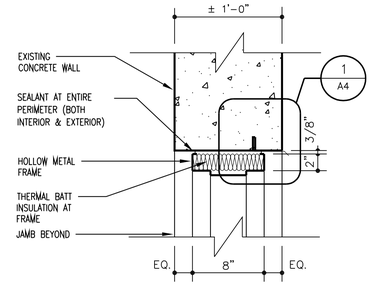
DOOR & FRAME TYPE ELEVATIONS

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



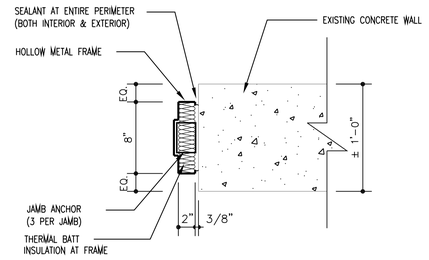
S1 DOOR SILL DETAIL

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



H1 DOOR HEAD DETAIL

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



J1 DOOR JAMB DETAIL

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

1/A4 DRIP FLASHING AT HM FRAME

SCALE: 3" = 1'-0"

STATE OF SOUTH CAROLINA
WATSON TATE SAVORY, INC.
COLUMBIA, SC
ARF.100837
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
J. SANDERS TATE
COLUMBIA, SC
2813
REGISTERED ARCHITECT

WTS
WATSON TATE SAVORY

OFFICE OF
FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL:

CHECKED BY: JST
ORIG. BY DRAWN BY

DRAWN BY: RRF
DATE:

DATE: 04/15/2016
DESCRIPTION

BUILDING: 036
DRAWING:
REV.

PROJECT TITLE: USC DEFERRED MAINTENANCE - CLOSE BUILDING AHU UPGRADES
S.C. STATE PROJ. NO. H27-6117
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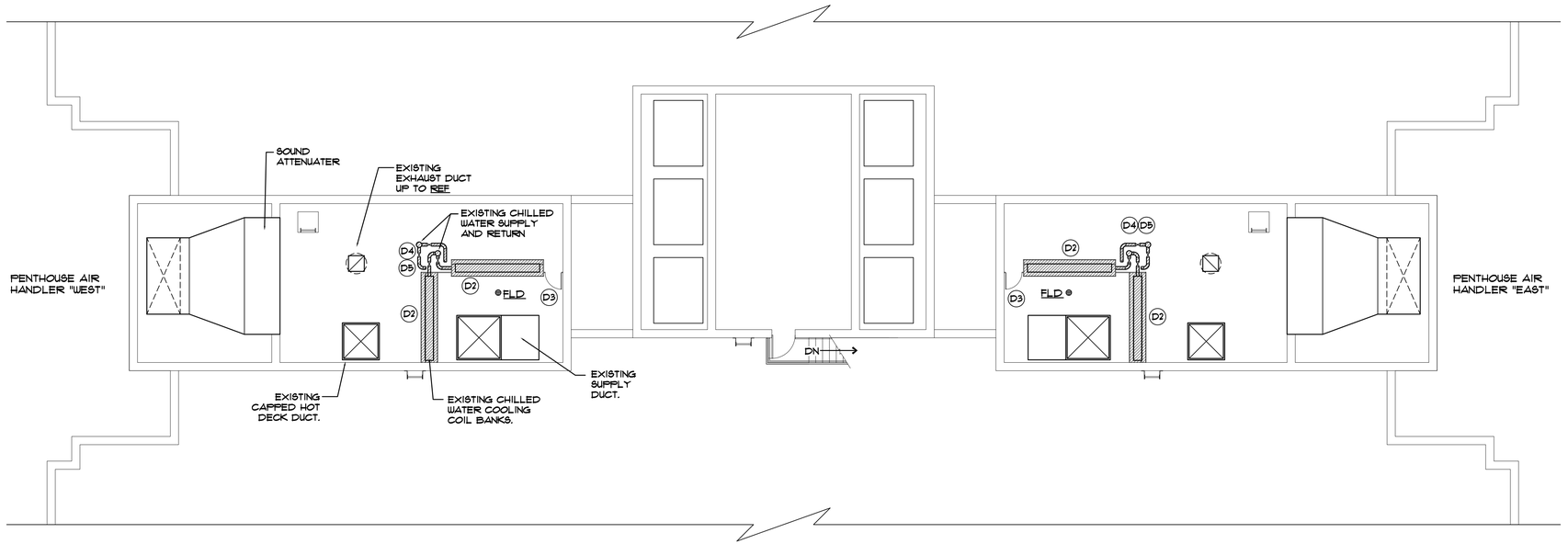
University of South Carolina

SHEET: A4
OF
SHEET IN SET: 5 OF 7



HVAC DEMOLITION FLOOR PLAN

SCALE: 1/8" = 1'-0" PENTHOUSE 2ND LEVEL

DEMOLITION NOTES

(D1) ALL HVAC MATERIAL AND EQUIPMENT MADE OBSOLETE BY THE SCOPE OF THIS WORK SHALL BE REMOVED FROM THE SITE. EQUIPMENT AND MATERIAL OF VALUE (REFRIGERANT, COPPER WIRING, COPPER PIPING, CONTROL VALVES, CONTROL COMPONENTS, ETC.) SHALL BE TURNED OVER TO THE OWNER AND DELIVERED UNDAMAGED TO THE LOCATION ON SITE WHERE DIRECTED BY THE OWNER. ALL OTHER DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE.

(D2) REMOVE EXISTING CHILLED WATER COOLING COILS COMPLETE, INCLUDING CONDENSATE DRAIN PANS, ISOLATION VALVES, AND SUPPORTS.

(D3) REMOVE EXISTING ACCESS DOOR. PROVIDE NEW AS INDICATED ON RENOVATION PLANS.

(D4) REMOVE EXISTING CHILLED WATER SUPPLY AND RETURN PIPING INCLUDING SUPPORTS AND EXISTING CONTROL VALVE.

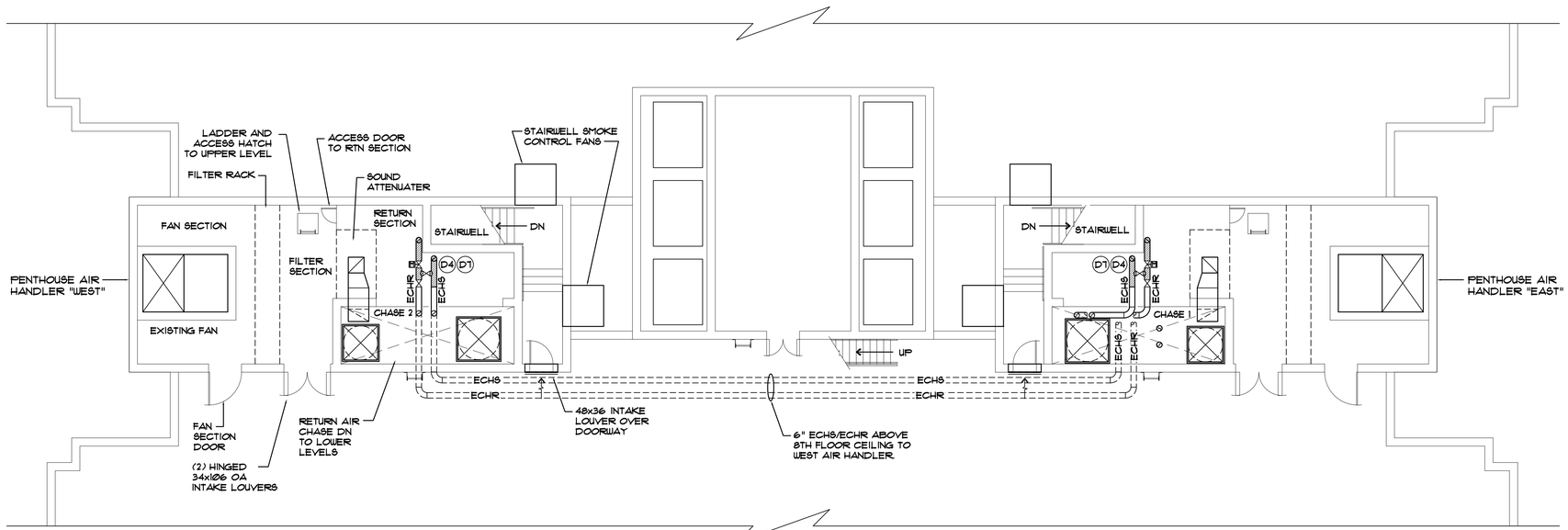
(D5) PATCH EXISTING CHILLED WATER SUPPLY AND RETURN PIPING PENETRATIONS.

(D6) PROVIDE ADEQUATE PROTECTION OF THE EXISTING ROOF BY LOOSELY LAYING 1-1/2" (MINIMUM) MOLDED EXPANDED POLYSTYRENE (MEPS) OR 1-1/2" (MINIMUM) OF POLYISOCYANURATE, OVER THE ROOF SURFACE. IN ADDITION TO, LOOSELY LAY 3/4" (NOMINAL) PLYWOOD OR OSB OVER THE MEPS/POLY ISO. MEPS/POLY ISO MUST EXTEND A MINIMUM OF 1' PAST EDGES OF PLYWOOD/OSB. IF THE MEPS/POLY ISO GETS CRUSHED DURING CONSTRUCTION, REPLACE IN KIND. THIS PROTECTION TO BE USED IN ALL AREAS THAT WILL BE USED FOR CONSTRUCTION (STORAGE/LAYDOWN, FOOT TRAFFIC, ETC.) AND WILL BE IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES. MAKE SURE THE SYSTEM IS CONNECTED LATERALLY TO PREVENT ANY MATERIAL FROM SHIFTING, AND/OR BECOMING AIRBORNE.

(D7) IT IS THE CONTRACTORS RESPONIBLITY TO VERIFY ALL EXISTING SITE CONDITIONS, PIPE SIZES, AND DIRECTIONS OF WATER FLOW. PROVIDE NECESSARY OFFSETS IN ORDER TO CONNECT NEW COILS PER THE DETAILS AND FLOOR PLANS.

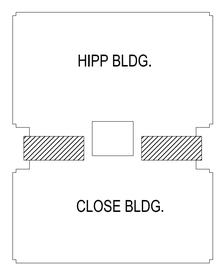
SPECIAL NOTE:

PROVIDE TEMPORARY COOLING FOR THE FIRST FLOOR ADMINISTRATIVE AREA 102. TEMPORARY COOLING SHALL BE AVAILABLE DURING ALL PERIODS THE BUILDING AIR HANDLERS ARE SHUT DOWN. THE TEMPORARY COOLERS SHALL MAINTAIN A MAXIMUM TEMPERATURE OF 74°F. APPROXIMATE SQUARE FOOTAGE OF SPACE IS 3,500 SF WITH (12) OFFICES, (2) CONFERENCE ROOMS, AND (1) LARGE LOBBY. MAXIMUM COOLING TONNAGE IS 15 TONS. TEMPORARY COOLERS SHALL BE PLACED IN MANNER THAT DOES NOT OBSTRUCT EMERGENCY EGRESS. DROP CORDS, DUCTS, AND CONDENSATE DRAINS SHALL BE SUPPORTED PROPERLY AND TAPPED OVER AS TO NOT CREATE TRIPPING HAZARDS. PROVIDE TEMPORARY ELECTRICAL POWER AS REQUIRED BY COOLERS.



HVAC DEMOLITION FLOOR PLAN

SCALE: 1/8" = 1'-0" PENTHOUSE 1ST LEVEL



KEY PLAN
NO SCALE

SOUTH CAROLINA MECHANICAL DESIGN, INC. Columbia, SC No. C00096 CERTIFICATE OF AUTHORIZATION

MECHANICAL DESIGN INC.
4403 Broad River Road
Columbia, S.C. 29210
(803) 731-9834
(803) 731-9837 FAX
CONTACT: JUSTIN VARCO COMM. NO. 163290

OFFICE OF FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL: CAROLINA ENGINEERING SERVICES LICENSED PROFESSIONAL ENGINEER JUSTIN VARCO No. 32935 04-15-16

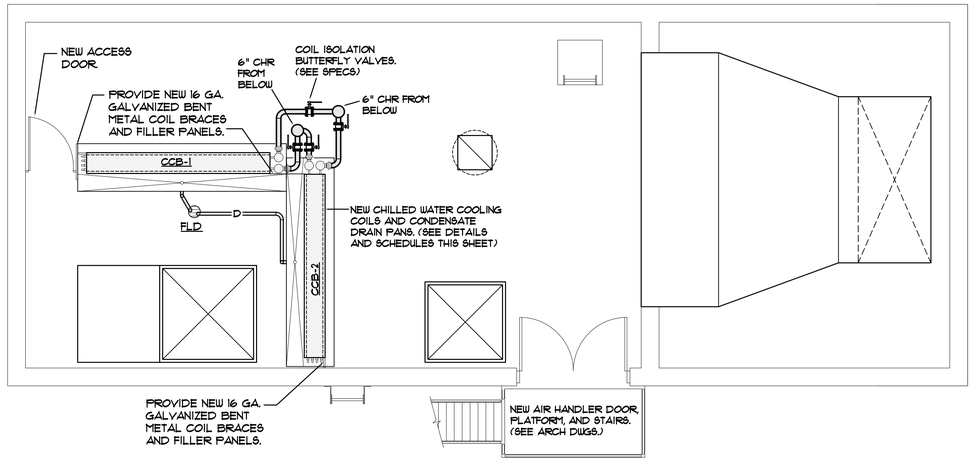
DRAWN BY: JJV	CHECKED BY: CDW
DATE: 04/15/2016	ORIG. BY DRAWN BY
DRAWING: CLOSE-HIPP M1	BUILDING: 036
DESCRIPTION	REV.
DATE	

PROJECT TITLE: USC DEFERRED MAINTENANCE – CLOSE BUILDING AHU UPGRADES
S.C. STATE PROJ. NO. H27-6117
USC PROJ. NO. 50002911-2
University of South Carolina

SHEET: M1 OF 2

SHEET IN SET: 6 OF 7

NOTE:
COIL LAYOUT AND PIPING INDICATED BELOW IS TYPICAL FOR THE WEST PENTHOUSE AIR HANDLER AS WELL, ONLY REVERSED.



HVAC RENOVATION FLOOR PLAN

SCALE: 1/4" = 1'-0" EAST AIR HANDLER 2ND LEVEL

AIR HANDLING UNIT CHILLED WATER COIL SCHEDULE

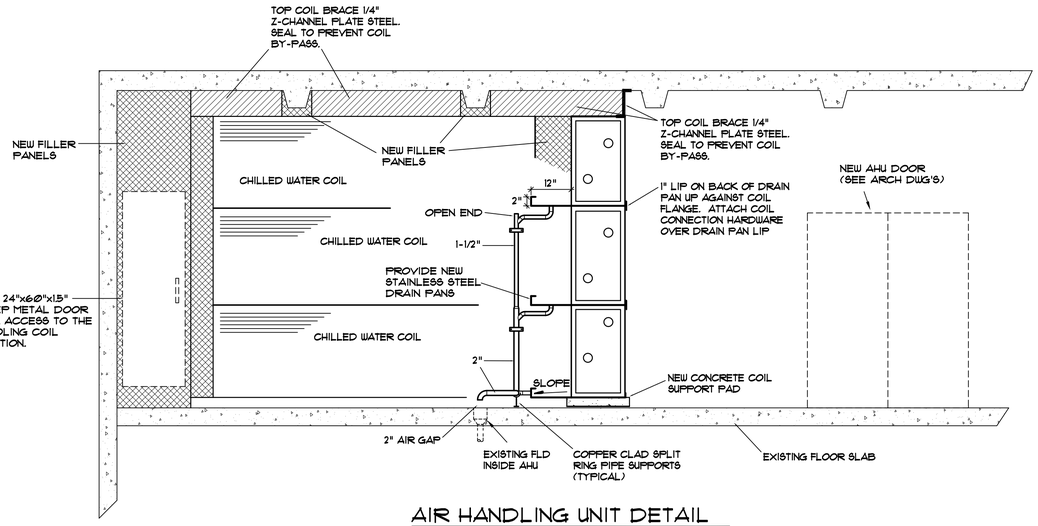
MARK	MANUF. MODEL (1)	AIRFLOW (CFM)	NEW COOLING COIL (4)														
			TOTAL MBH	SENS. MBH	MAX AIR P.D.	ENT. AIR °FDB	ENT. AIR °FWB	LVG. AIR °FDB	LVG. AIR °FWB	GPM	EWT (°F)	LWT (°F)	MAX WTR P.D. (FT.)	RUNOUT PIPE SIZE	SIZE LENGTH	SIZE HEIGHT	FINS/IN.	ROWS
EAST PENTHOUSE UNIT																		
CCB-1	TEMTROL 5WC	48,000 (3)	1,898.4 (3)	1,470.0 (3)	0.8"	83.5	67.5	55	54	315 (3)	48.0	60.0	15'	3"	120"	40" TALL PER COIL (3 COILS TOTAL)	8	8
CCB-2	TEMTROL 5WC	48,000 (3)	1,898.4 (3)	1,470.0 (3)	0.8"	83.5	67.5	55	54	315 (3)	48.0	60.0	15'	3"	120"	40" TALL PER COIL (3 COILS TOTAL)	8	8
WEST PENTHOUSE UNIT																		
CCB-3	TEMTROL 5WC	49,000 (3)	1,929.0 (3)	1,496.6 (3)	0.8"	83.5	67.5	55	54	320 (3)	48.0	60.0	15'	3"	120"	40" TALL PER COIL (3 COILS TOTAL)	8	8
CCB-4	TEMTROL 5WC	49,000 (3)	1,929.0 (3)	1,496.6 (3)	0.8"	83.5	67.5	55	54	320 (3)	48.0	60.0	15'	3"	120"	40" TALL PER COIL (3 COILS TOTAL)	8	8

(1) FIELD MEASURE FOR EXACT COIL DIMENSIONS. (MATCH EXISTING)

(2) BY TEMTROL, HEATCRAFT, TRANE, JCI, DAIKIN OR ACCEPTABLE EQUAL

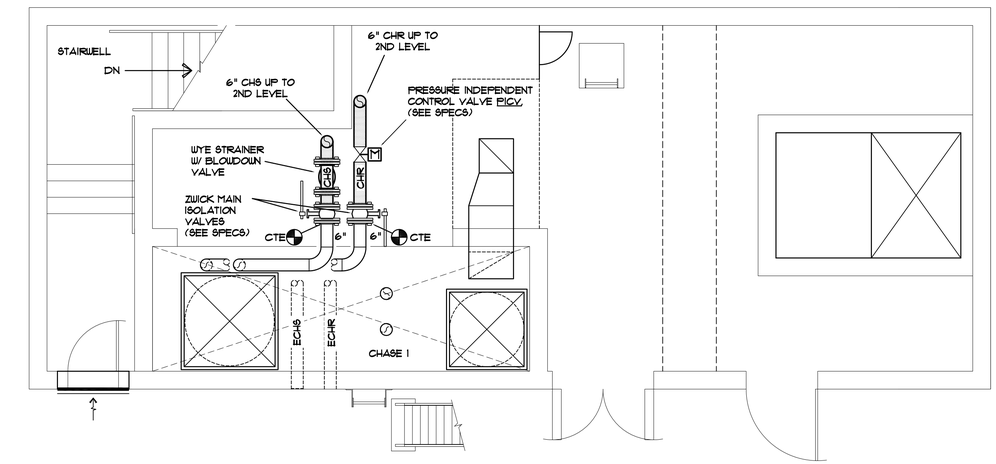
(3) LISTED VALUE IS TOTAL FOR COIL BANK MADE UP OF 3 INDIVIDUAL COILS.

(4) PROVIDE AHRI CERTIFIED COILS, WITH 5/8" COPPER TUBES, .0Ø1" ALUMINUM CORRUGATED FINS, AND A 16 GA. 3Ø4 STAINLESS STEEL CASING.



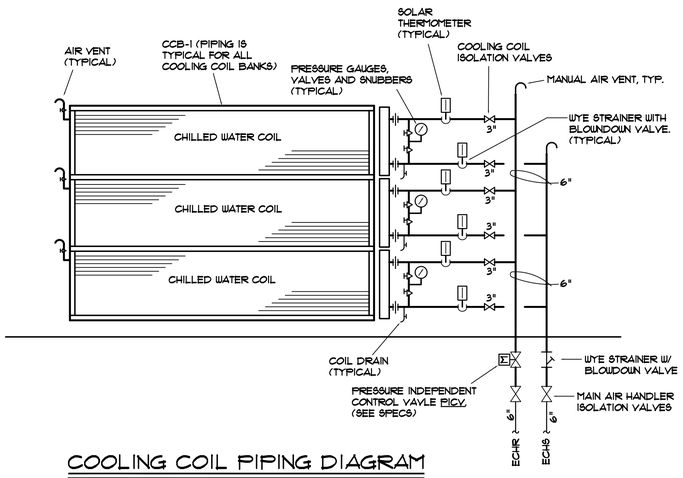
AIR HANDLING UNIT DETAIL

NOT TO SCALE



HVAC RENOVATION FLOOR PLAN

SCALE: 1/4" = 1'-0" EAST AIR HANDLER 1ST LEVEL



COOLING COIL PIPING DIAGRAM

NOT TO SCALE

SOUTH CAROLINA MECHANICAL DESIGN, INC. Columbia, SC No. C00096 CERTIFICATE OF AUTHORIZATION

MECHANICAL DESIGN INC.
4403 Broad River Road
Columbia, S.C. 29210
(803) 731-9834
(803) 731-9837 FAX
CONTACT: JUSTIN VARCO COMM. NO. 163290

OFFICE OF FACILITIES MANAGEMENT
COLUMBIA, SC 29208

SEAL: CAROLINA ENGINEERS LICENSED PROFESSIONAL JUSTIN VARCO No. 32935 04-15-16

CHECKED BY:	CDW
DRAWN BY:	JJV
DATE:	04/15/2016
DRAWING:	CLOSE-HIPP M2
BUILDING:	036
REV:	

PROJECT TITLE: USC DEFERRED MAINTENANCE – CLOSE BUILDING AHU UPGRADES

S.C. STATE PROJ. NO. H27-6117
USC PROJ. NO. 50002911-2

University of South Carolina

SHEET: M2 OF 2

SHEET IN SET: 7 OF 7