

H27-Z159 / CP00391833

CAPSTONE GIBBES COURT KITCHEN RENOVATIONS

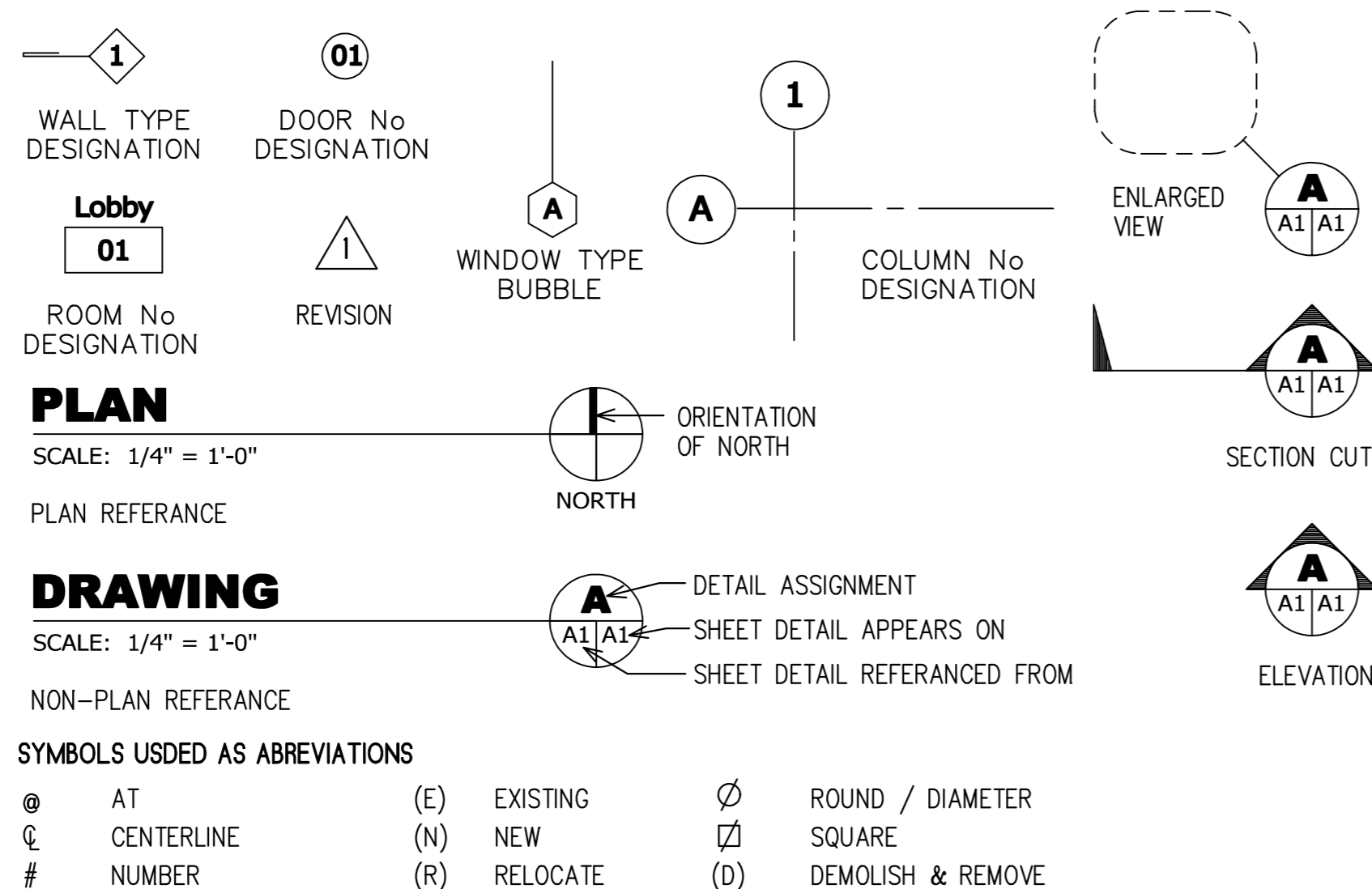
For USC in
Columbia, S.C.

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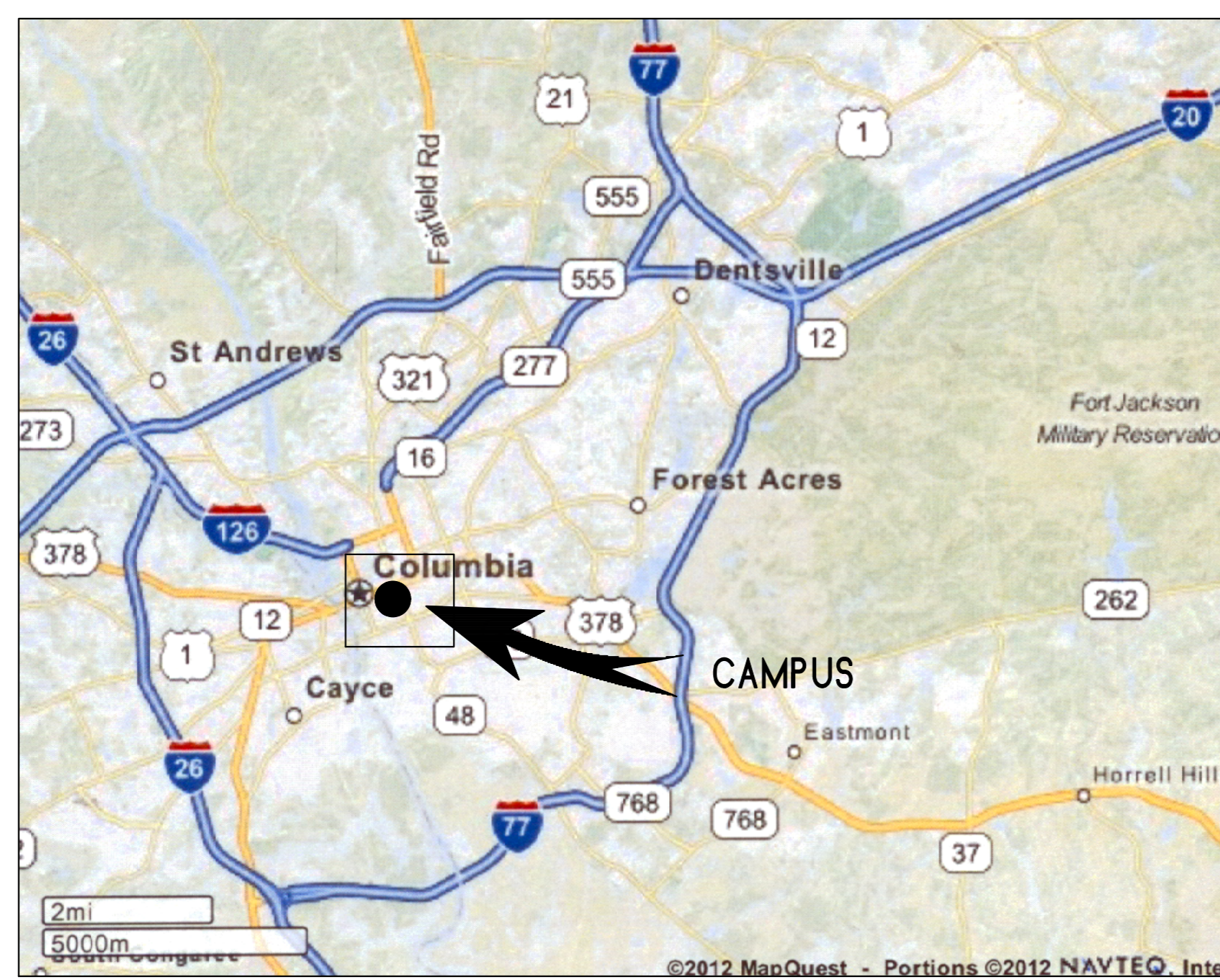
ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
ADA	AMERICAN WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AHS	ABOVE HUNG CEILING
BLDG	BUILDING
BT	BASE TILE
CLG	CEILING
CT	CERAMIC TILE
CLR	CLEAR / CLEARANCE
CONST	CONSTRUCTION
CUST	CUSTOM
EA	EACH
E/A	EXHAUST AIR
EC	ELECTRICAL CONTRACTOR
EXIST	EXISTING
EXT	EXTERIOR
FA	FIRE ALARM
FIN	FINISH
FPF	FLOOR PAINT FINISH
FRP	FIBER REINFORCED PANEL
G	GROUT
GC	GENERAL CONTRACTOR
GL	GLASS / GLAZING
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HT	HEIGHT
INT	INTERIOR
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTF	METAL FINISH
MTL	METAL
NTS	NOT TO SCALE
ORD	OVERFLOW ROOF DRAIN
PA	PAINT FINISH
PART	PARTITION
PCF	POWDER COAT FINISH
PC	PLUMBING CONTRACTOR
PL	PLASTIC LAMINATE
PRT	PART
PSI	POUNDS PER SQUARE INCH
QT	QUARRY TILE
R/A	RETURN AIR
RB	RUBBER BASE
RD	ROOF DRAIN
REIN	REINFORCE (ED) (ING)
S/A	SUPPLY AIR
SF	SQUARE FOOT
SPC	SPACE
SPF	SPECIAL PAINT FINISH
SS	STAINLESS STEEL
STD	STANDARD
TGC	TENANT GENERAL CONTRACTOR
THK	THICK (NESS)
TI	TENANT IMPROVEMENT
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WCF	WALL COVER FINISH
WD	WOOD
WF	WOOD FINISH

SYMBOLS



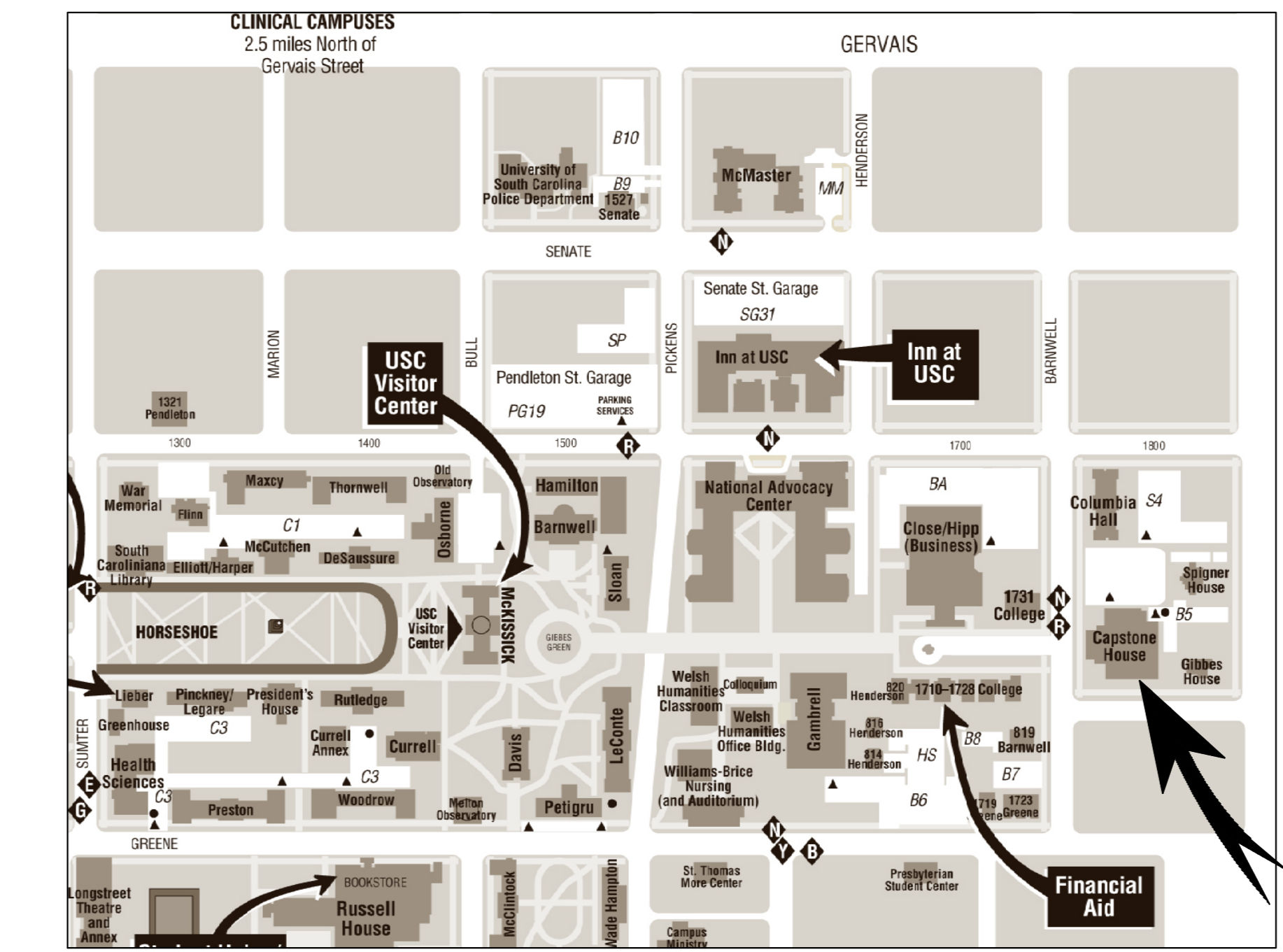
VICINITY MAP



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CAMPUS MAP



PROJECT TEAM

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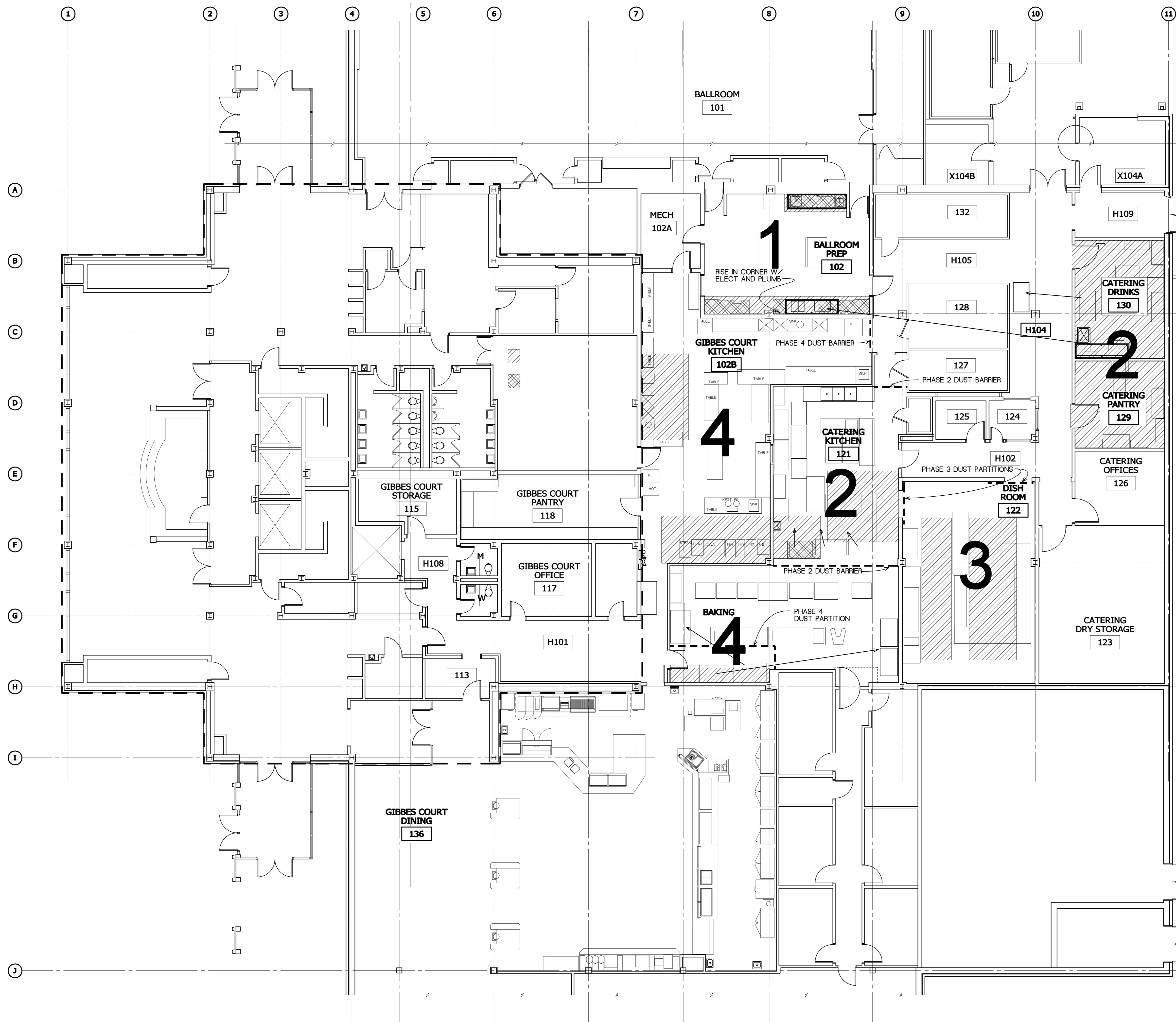
PROJECT SUMMARY

PROJECT INCLUDES NEW HVAC TO THE KITCHEN AND SUPPORTING AREAS FOR THE GIBBES KITCHEN AND CATERING KITCHEN LOCATED ON THE GROUND FLOOR OF THE CAPSTONE BUILDING. PROJECT INCLUDES SELECTIVE DEMOLITION OF QUARRY TILE FLOOR AND INSTALLATION OF NEW QUARRY TILE FLOORING AND ACCESSORIES WHERE FLOOR WAS REMOVED. PROJECT INCLUDES ADDITIONAL MISC WORK DESCRIBED ON DRAWINGS AND IN SPECIFICATIONS.

SITE - CAPSTONE HOUSE

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BY MAY 13 SODEXO WILL:

- EMPTY PANTRY 118 OF ALL INVENTORY BY USING IT OR TRANSFERRING IT
- PACK ALL GIBBES SMALLWARES ETC INTO GIBBES WALK-IN FREEZER & LOCK FREEZER
- MOVE INVENTORY OF 130 DRINKS TO 118 PANTRY
- MOVE INVENTORY OF 129 PANTRY TO 118 PANTRY
- MOVE CATERING FUNCTIONS TO GIBBES KITCHEN

PHASE 1

- PHASE 1 IS LIMITED TO BALLROOM PREP ROOM 102
- SCHEDULE START TIME AND DURATION WITH SODEXO TO AVOID CONFLICTS
- WITH FUNCTIONS HELD IN BALLROOM AND MINIMIZE DURATION
- REMOVE TILE AND SETTING BED INDICATED AS PHASE 1
- INSTALL NEW SETTING BED AND TILE INDICATED AS PHASE 1
- INSTALL NEW STAINLESS STEEL TABLES AND SHELVES ENUMERATED ON SHEET A1 FOR PURCHASE AND INSTALLATION BY THIS CONTRACT
- INSTALL NEW HOT & COLD WATER PLUMBING LINES AS INDICATED IN ROOM 102
- RE-ROUTE EXISTING ELECTRICAL CIRCUITS FOR COFFEE MAKER AND TEA MAKER
- MOVE EXISTING COFFEE AND TEA MAKERS FROM ROOM 130 TO ROOM 102 AND CONNECT PLUMBING AND ELECTRICAL UTILITIES
- PARTS OF PHASE 2 MAY BEGAIN PRIOR TO COMPLETING PHASE 1 BUT WORK IN ROOM 130 CANNOT BEGIN UNTIL PHASE 1 IS COMPLETE
- CLEAN ROOM 102 FOR IMMEDIATE RE-OCCUPANCY BY SODEXO

PHASE 2

- PHASE 2 INCLUDES WORK IN ROOMS 121, 129 AND 130
- MOVE TABLES FROM 121 TO DINING 136
- DISCONNECT AND MOVE OVEN, FRYER AND TILT SKILLET IN 121 TO NORTH WEST CORNER OF 121 FOR STORAGE DURING WORK THIS PHASE
- MOVE SHELVING FROM 130 DRINKS TO DINING 136
- MOVE ICE MACHINE FROM 130 DRINKS TO H104 HALL FOR STORAGE DURING WORK THIS PHASE
- MOVE SHELVING FROM 129 PANTRY TO 136 DINING
- INSTALL PHASE 2 DUST PARTITIONS
- PERFORM DEMOLITION OF TILE AND SETTING BED INDICATED FOR WORK PHASE 2
- INSTALL NEW SETTING BED AND TILE INDICATED FOR PHASE 2

PHASE 3

- PHASE 3 IS LIMITED TO DISH ROOM 122
- THIS ROOM AND THE EQUIPMENT IN IT ARE USED THROUGHOUT THE SUMMER
- SCHEDULE START TIME AND DURATION WITH SODEXO TO BEST FIT A TIME WHEN THE ROOM IS NOT VITAL AND MINIMIZE DURATION
- INSTALL TEMPORARY DUST BARRIERS INDICATED FOR PHASE 3
- PERFORM DEMOLITION OF TILE AND SETTING BED INDICATED FOR WORK PHASE 3
- INSTALL NEW SETTING BED AND TILE INDICATED FOR PHASE 3
- CLEAN ROOM 122 FOR IMMEDIATE RE-OCCUPANCY BY SODEXO

PHASE 4

- PHASE 4 INCLUDES BAKING AND GIBBES KITCHEN 102B
- PHASE 4 CANNOT BEGIN UNTIL PHASES 1, 2 AND 3 ARE COMPLETE AND THE FOLLOWING PREPARATIONS ARE MADE
- CLEAN ROOMS 121, 129 AND 130
- REMOVE TEMPORARY PARTITIONS OF PHASES 2 AND 3
- RETURN COOKING EQUIPMENT IN ROOM 121 TO ORIGINAL POSITION AND RECONNECT
- RETURN TABLES FROM DINING TO ROOM 121 AND PLACE IN ORIGINAL POSITION
- RETURN SHELVING FROM DINING TO ROOM 129 AND PLACE IN ORIGINAL POSITION
- RETURN ICE MACHINE FROM HALL, H104 TO ORIGINAL POSITION IN ROOM 130 AND RECONNECT
- RETURN SHELVING FROM DINING TO ROOM 130 AND PLACE IN ORIGINAL POSITION
- INSTALL NEW CIRCUITS FOR COFFEE AND TEA MAKER IN ORIGINAL LOCATION
- MOVE TABLE, COFFEE AND TEA MAKING FROM 102 TO ORIGINAL POSITION IN ROOM 130 AND RECONNECT
- ALLOW TIME FOR SODEXO TO MOVE CATERING OPERATIONS FROM 102B AND 118 BACK INTO 121, 129 AND 130
- THEN
- MOVE REACH IN REFRIG / FREEZERS AT BAKING TO WEST WALL OF BAKING
- MOVE TABLE EAST WALL BAKING TO DINING AND MOVE ROLL IN FREEZER TO EAST WALL
- INSTALL TEMPORARY DUST BARRIERS INDICATED FOR PHASE 4
- REMOVE EQUIPMENT AS NECESSARY TO PERFORM WORK AND STORE EITHER IN ROOM 102B OR 118
- PERFORM DEMOLITION OF TILE AND SETTING BED INDICATED FOR WORK PHASE 4
- INSTALL NEW SETTING BED AND TILE INDICATED FOR PHASE 4
- REINSTALL EQUIPMENT IN ORIGINAL LOCATION AND RECONNECT
- CLEAN PHASE 4 WORK AREA

NOTES

DO NOT START ANY PHASE UNTIL ALL COMPONENTS FOR THAT PHASE ARE DELIVERED TO THE JOB SITE INSURING THAT EACH ROOM AFFECTED BY THAT PHASE WILL BE OFFLINE FOR THE SHORTEST DURATION POSSIBLE

PHASES MAY OVERLAP TO ALLOW FOR CONTINUOUS WORK HOWEVER ITEMS NOTED TO BE MOVED AND SET UP FOR USE MUST BE IN PLACE AND OPERABLE BEFORE SUBSEQUENT PHASES CAN BEGIN

PHASING OF WORK APPLIES PRIMARILY TO FLOORING WORK - TO EXTENT POSSIBLE CO-ORDINATE HVAC DEMO TO BE PERFORMED IN EACH AREA WITH PHASING PLAN - AT OTHER LOCATIONS FOR HVAC DEMO ISOLATE DEMOLITION DUST AND DEBRIS AT POINT OF WORK CLEAN UP EACH DAY AT POINT OF WORK BE AWARE OF COOKING OPERATIONS AND SCHEDULE DEMO SO THAT COOKING IS NOT CONTAMINATED AND COOKING OPERATIONS MAY CONTINUE

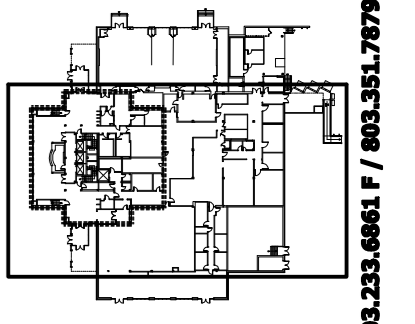
PHASING AND ORIENTATION PLAN

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



Job Number: 1309
 Drawn by: Inf
 File name: 1309 GIBBES.DWG
 Plotted on: 4/25/2014
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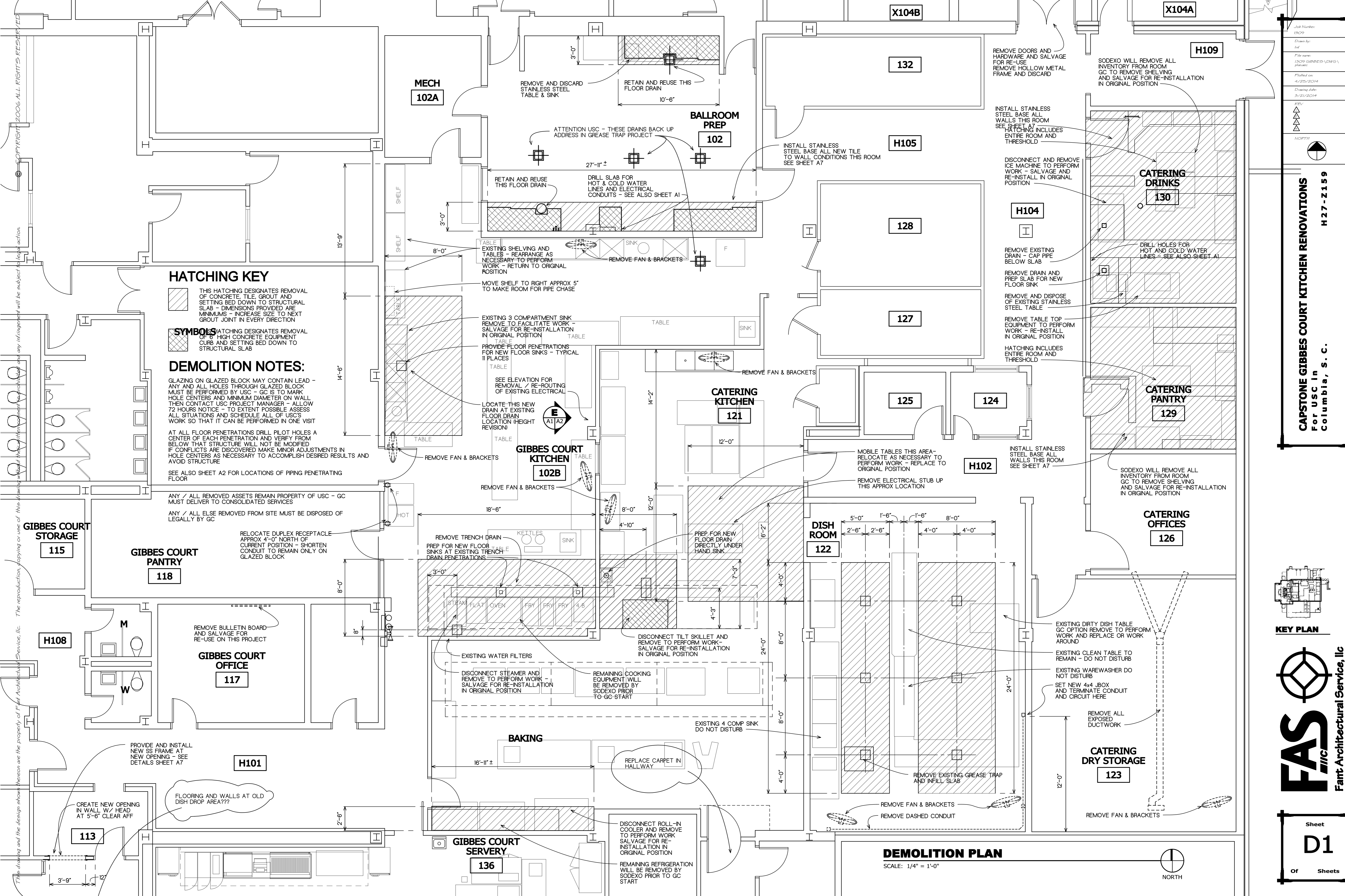
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KEY PLAN

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HATCHING KEY

THIS HATCHING DESIGNATES REMOVAL OF CONCRETE, TILE, GROUT AND SETTING BED DOWN TO STRUCTURAL SLAB - DIMENSIONS PROVIDED ARE MINIMUMS - INCREASE SIZE TO NEXT GROUT JOINT IN EVERY DIRECTION

THIS HATCHING DESIGNATES REMOVAL OF 6" HIGH CONCRETE EQUIPMENT CURB AND SETTING BED DOWN TO STRUCTURAL SLAB

DEMOLITION NOTES:

GLAZING ON GLAZED BLOCK MAY CONTAIN LEAD - ANY AND ALL HOLES THROUGH GLAZED BLOCK MUST BE PERFORMED BY USC - GC IS TO MARK HOLE CENTERS AND MINIMUM DIAMETER ON WALL THEN CONTACT USC PROJECT MANAGER - ALLOW 72 HOURS NOTICE - TO EXTENT POSSIBLE ASSESS ALL SITUATIONS AND SCHEDULE ALL OF USC'S WORK SO THAT IT CAN BE PERFORMED IN ONE VISIT

AT ALL FLOOR PENETRATIONS DRILL PILOT HOLES AT CENTER OF EACH PENETRATION AND VERIFY FROM BELOW THAT STRUCTURE WILL NOT BE MODIFIED IF CONFLICTS ARE DISCOVERED MAKE MINOR ADJUSTMENTS IN HOLE CENTERS AS NECESSARY TO ACCOMPLISH DESIRED RESULTS AND AVOID STRUCTURE

SEE ALSO SHEET A2 FOR LOCATIONS OF PIPING PENETRATING FLOOR

ANY / ALL REMOVED ASSETS REMAIN PROPERTY OF USC - GC MUST DELIVER TO CONSOLIDATED SERVICES

ANY / ALL ELSE REMOVED FROM SITE MUST BE DISPOSED OF LEGALLY BY GC

RELOCATE DUPLEX RECEPTACLE APPROX 4'-0" NORTH OF CURRENT POSITION - SHORTEN CONDUIT TO REMAIN ONLY ON GLAZED BLOCK

REMOVE BULLETIN BOARD AND SALVAGE FOR RE-USE ON THIS PROJECT

GIBBES COURT OFFICE

PROVIDE AND INSTALL NEW SS FRAME AT NEW OPENING - SEE DETAILS SHEET A7

FLOORING AND WALLS AT OLD DISH DROP AREA???

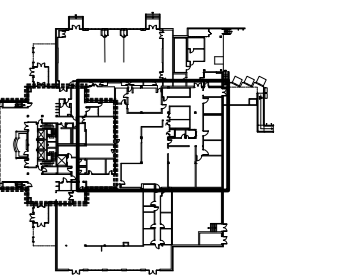
CREATE NEW OPENING IN WALL W/ HEAD AT 5'-6" CLEAR AFF

Job Number: 13079
 Drawn by: Inf
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 Plotted on: 4/25/2014
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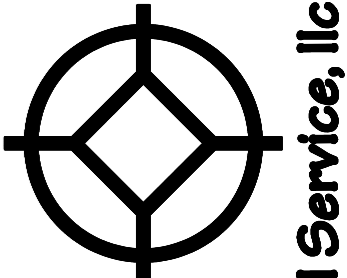
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NOTES

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KEY PLAN

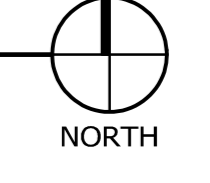


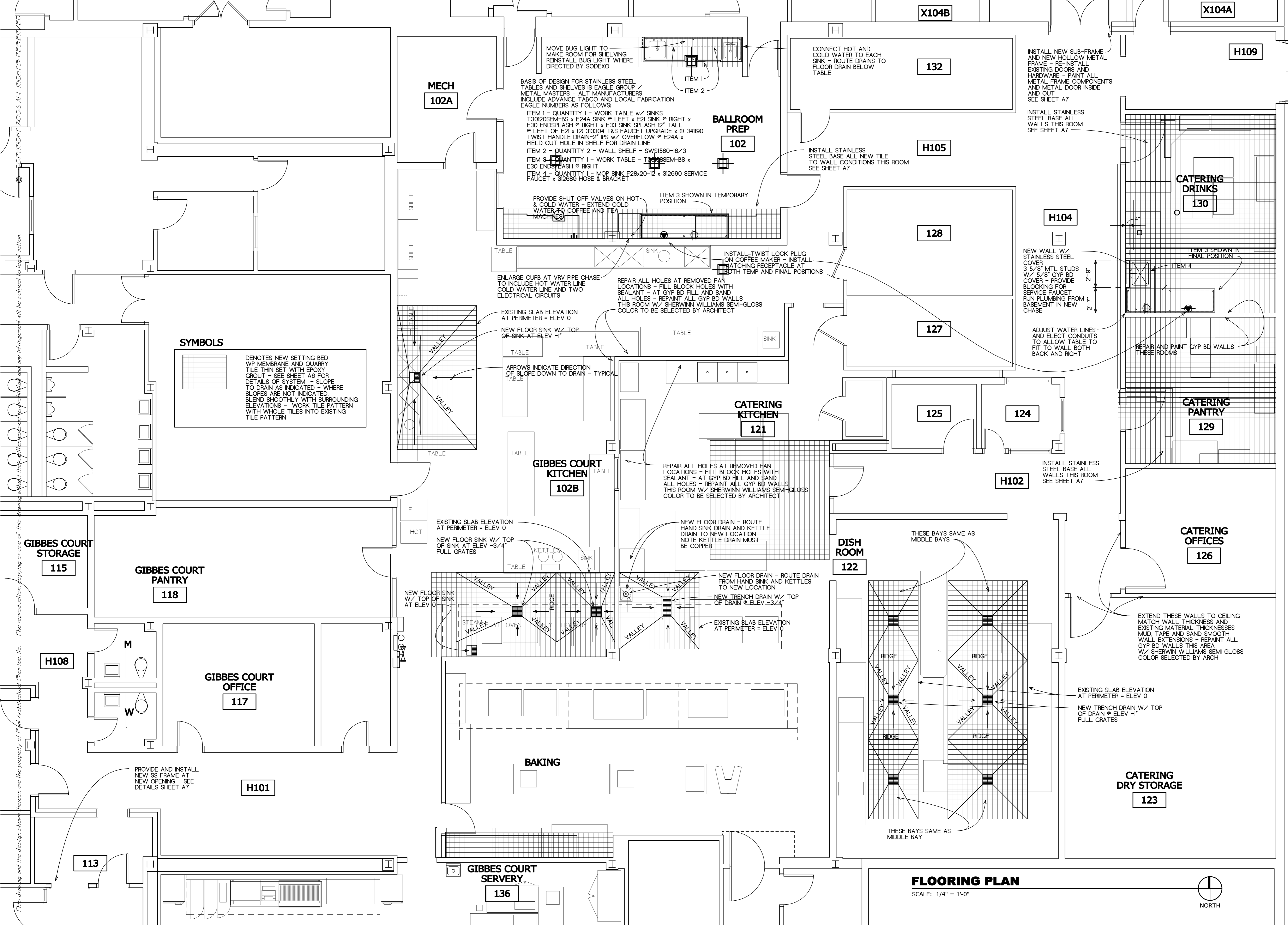
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DEMOLITION PLAN

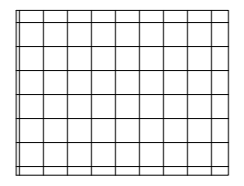
SCALE: 1/4" = 1'-0"





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SYMBOLS

 DENOTES NEW SETTING BED WP MEMBRANE AND QUARRY TILE THIN SET WITH EPOXY GROUT - SEE SHEET A6 FOR DETAILS OF SYSTEM - SLOPE TO DRAIN AS INDICATED - WHERE SLOPES ARE NOT INDICATED, BLEND SMOOTHLY WITH SURROUNDING ELEVATIONS - WORK TILE PATTERN WITH WHOLE TILES INTO EXISTING TILE PATTERN

MOVE BUG LIGHT TO MAKE ROOM FOR SHELVING REINSTALL BUG LIGHT WHERE DIRECTED BY SODEXO

BASIS OF DESIGN FOR STAINLESS STEEL TABLES AND SHELVES IS EAGLE GROUP / METAL MASTERS - ALL MANUFACTURERS INCLUDE ADVANCE TABCO AND LOCAL FABRICATION EAGLE NUMBERS AS FOLLOWS:
 ITEM 1 - QUANTITY 1 - WORK TABLE w/ SINKS T3020SEM-BS x E24A SINK @ LEFT x E21 SINK @ RIGHT x E30 ENDSPLASH @ RIGHT x E33 SINK SPLASH 12" TALL @ LEFT OF E21 x (2) 313304 T&S FAUCET UPGRADE x (1) 341190 TWIST HANDLE DRAIN-2" IPS w/ OVERFLOW @ E24A x FIELD CUT HOLE IN SHELF FOR DRAIN LINE
 ITEM 2 - QUANTITY 2 - WALL SHELF - SW51560-16/3
 ITEM 3 - QUANTITY 1 - WORK TABLE - T3020SEM-BS x E30 ENDSPLASH @ RIGHT
 ITEM 4 - QUANTITY 1 - MOP SINK F28x20-12 x 312690 SERVICE FAUCET x 312689 HOSE & BRACKET

ENLARGE CURB AT VRV PIPE CHASE TO INCLUDE HOT WATER LINE COLD WATER LINE AND TWO ELECTRICAL CIRCUITS

REPAIR ALL HOLES AT REMOVED FAN LOCATIONS - FILL BLOCK HOLES WITH SEALANT - AT GYP BD FILL AND SAND ALL HOLES - REPAINT ALL GYP BD WALLS THIS ROOM W/ SHERWINN WILLIAMS SEM-GLOSS COLOR TO BE SELECTED BY ARCHITECT

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

NEW FLOOR SINK W/ TOP OF SINK AT ELEV -1'

ARROWS INDICATE DIRECTION OF SLOPE DOWN TO DRAIN - TYPICAL

REPAIR ALL HOLES AT REMOVED FAN LOCATIONS - FILL BLOCK HOLES WITH SEALANT - AT GYP BD FILL AND SAND ALL HOLES - REPAINT ALL GYP BD WALLS THIS ROOM W/ SHERWINN WILLIAMS SEM-GLOSS COLOR TO BE SELECTED BY ARCHITECT

NEW FLOOR DRAIN - ROUTE DRAIN FROM HAND SINK AND KETTLES TO NEW LOCATION NOTE KETTLE DRAIN MUST BE COPPER

NEW FLOOR DRAIN - ROUTE DRAIN FROM HAND SINK AND KETTLES TO NEW LOCATION

NEW TRENCH DRAIN W/ TOP OF DRAIN @ ELEV -3/4"

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

REPAIR ALL HOLES AT REMOVED FAN LOCATIONS - FILL BLOCK HOLES WITH SEALANT - AT GYP BD FILL AND SAND ALL HOLES - REPAINT ALL GYP BD WALLS THIS ROOM W/ SHERWINN WILLIAMS SEM-GLOSS COLOR TO BE SELECTED BY ARCHITECT

NEW FLOOR DRAIN - ROUTE DRAIN FROM HAND SINK AND KETTLES TO NEW LOCATION

NEW TRENCH DRAIN W/ TOP OF DRAIN @ ELEV -1" FULL GRATES

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

REPAIR ALL HOLES AT REMOVED FAN LOCATIONS - FILL BLOCK HOLES WITH SEALANT - AT GYP BD FILL AND SAND ALL HOLES - REPAINT ALL GYP BD WALLS THIS ROOM W/ SHERWINN WILLIAMS SEM-GLOSS COLOR TO BE SELECTED BY ARCHITECT

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EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

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NEW FLOOR DRAIN - ROUTE DRAIN FROM HAND SINK AND KETTLES TO NEW LOCATION

NEW TRENCH DRAIN W/ TOP OF DRAIN @ ELEV -1" FULL GRATES

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

CONNECT HOT AND COLD WATER TO EACH SINK - ROUTE DRAINS TO FLOOR DRAIN BELOW TABLE

INSTALL STAINLESS STEEL BASE ALL NEW TILE TO WALL CONDITIONS THIS ROOM SEE SHEET A7

INSTALL STAINLESS STEEL BASE ALL NEW TILE TO WALL CONDITIONS THIS ROOM SEE SHEET A7

INSTALL TWIST LOCK PLUG ON COFFEE MAKER - INSTALL MATCHING RECEPTACLE AT BOTH TEMP AND FINAL POSITIONS

INSTALL TWIST LOCK PLUG ON COFFEE MAKER - INSTALL MATCHING RECEPTACLE AT BOTH TEMP AND FINAL POSITIONS

ADJUST WATER LINES AND ELECT CONDUITS TO ALLOW TABLE TO FIT TO WALL BOTH BACK AND RIGHT

ADJUST WATER LINES AND ELECT CONDUITS TO ALLOW TABLE TO FIT TO WALL BOTH BACK AND RIGHT

REPAIR AND PAINT GYP BD WALLS THESE ROOMS

REPAIR AND PAINT GYP BD WALLS THESE ROOMS

INSTALL STAINLESS STEEL BASE ALL WALLS THIS ROOM SEE SHEET A7

INSTALL STAINLESS STEEL BASE ALL WALLS THIS ROOM SEE SHEET A7

EXTEND THESE WALLS TO CEILING MATCH WALL THICKNESS AND EXISTING MATERIAL THICKNESSES MUD, TAPE AND SAND SMOOTH WALL EXTENSIONS - REPAINT ALL GYP BD WALLS THIS AREA W/ SHERWIN WILLIAMS SEM GLOSS COLOR SELECTED BY ARCH

EXTEND THESE WALLS TO CEILING MATCH WALL THICKNESS AND EXISTING MATERIAL THICKNESSES MUD, TAPE AND SAND SMOOTH WALL EXTENSIONS - REPAINT ALL GYP BD WALLS THIS AREA W/ SHERWIN WILLIAMS SEM GLOSS COLOR SELECTED BY ARCH

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

NEW TRENCH DRAIN W/ TOP OF DRAIN @ ELEV -1" FULL GRATES

EXISTING SLAB ELEVATION AT PERIMETER = ELEV 0

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NEW TRENCH DRAIN W/ TOP OF DRAIN @ ELEV -1" FULL GRATES

INSTALL NEW SUB-FRAME AND NEW HOLLOW METAL FRAME - RE-INSTALL EXISTING DOORS AND HARDWARE - PAINT ALL METAL FRAME COMPONENTS AND METAL DOOR INSIDE AND OUT SEE SHEET A7

INSTALL STAINLESS STEEL BASE ALL WALLS THIS ROOM SEE SHEET A7

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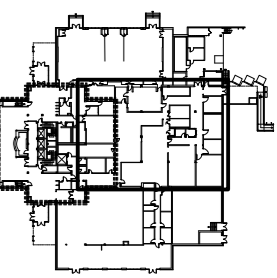
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INSTALL STAINLESS STEEL BASE ALL WALLS THIS ROOM SEE SHEET A7

Job Number: 1309
 Drawn by: Inf
 File name: 1309 GIBBES.DWG
 Plotted on: 4/25/2014
 Drawing date: 5/31/2014

CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
 For USC in Columbia, S. C.
 H 27 - Z 159

KEY PLAN

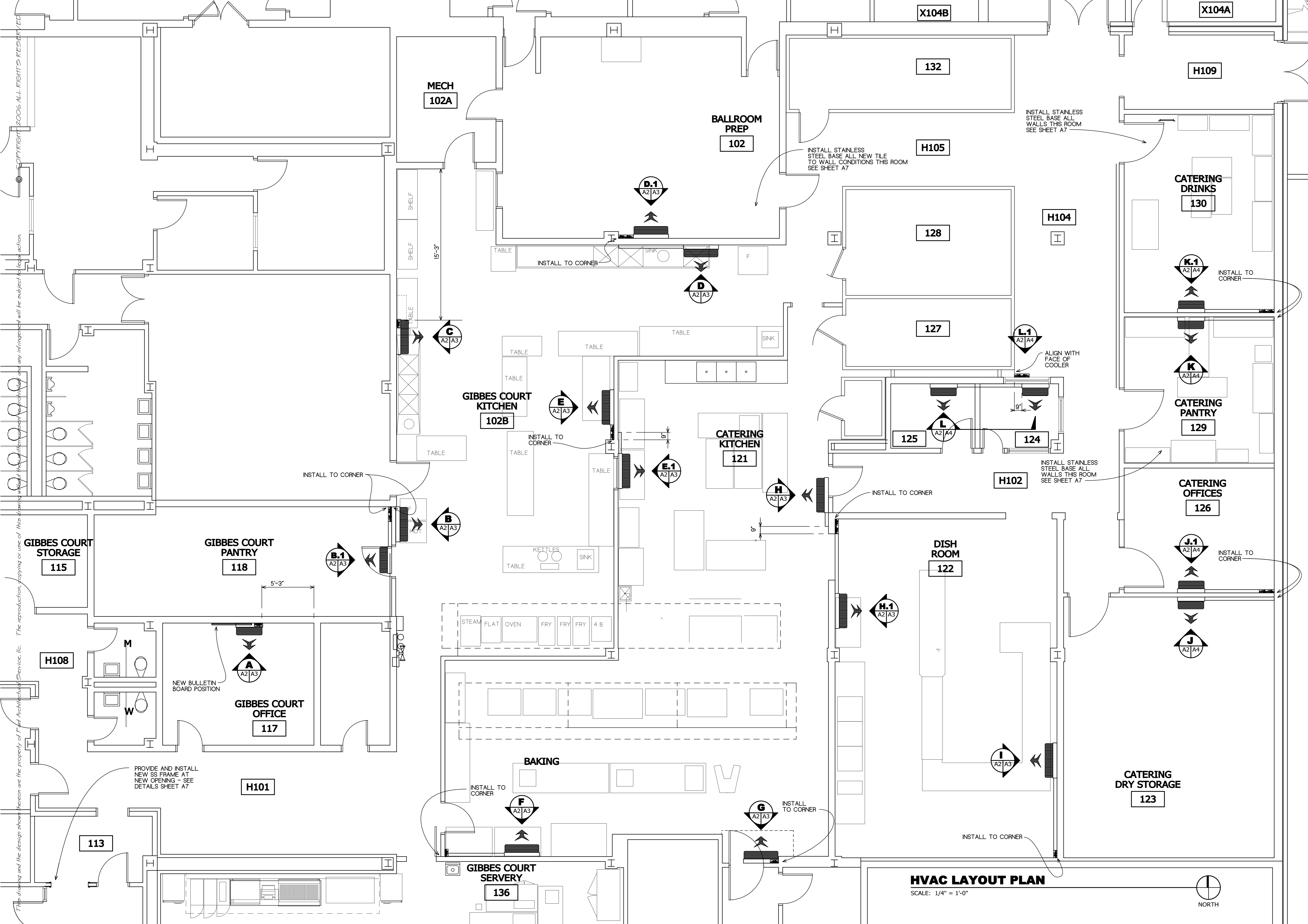


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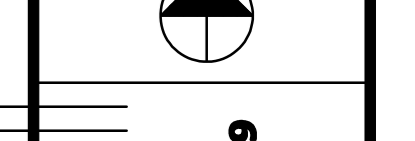
FLOORING PLAN
 SCALE: 1/4" = 1'-0"



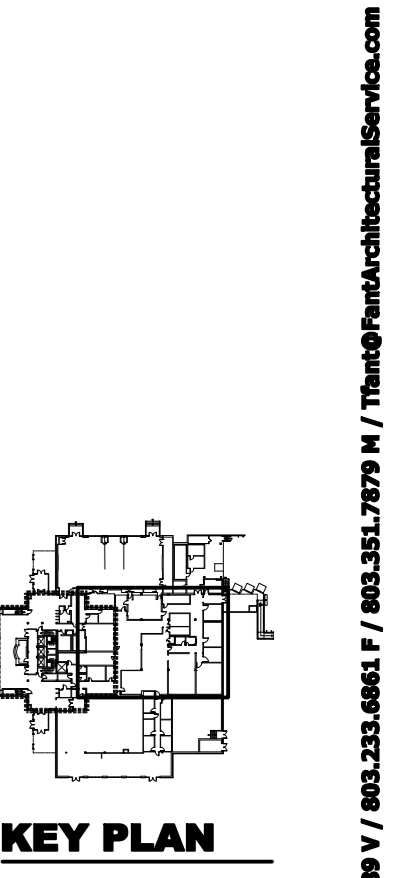


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Plotted on	4/25/2014
Drawing date	5/31/2014



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 For USC in
 Columbia, S. C.

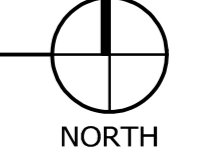


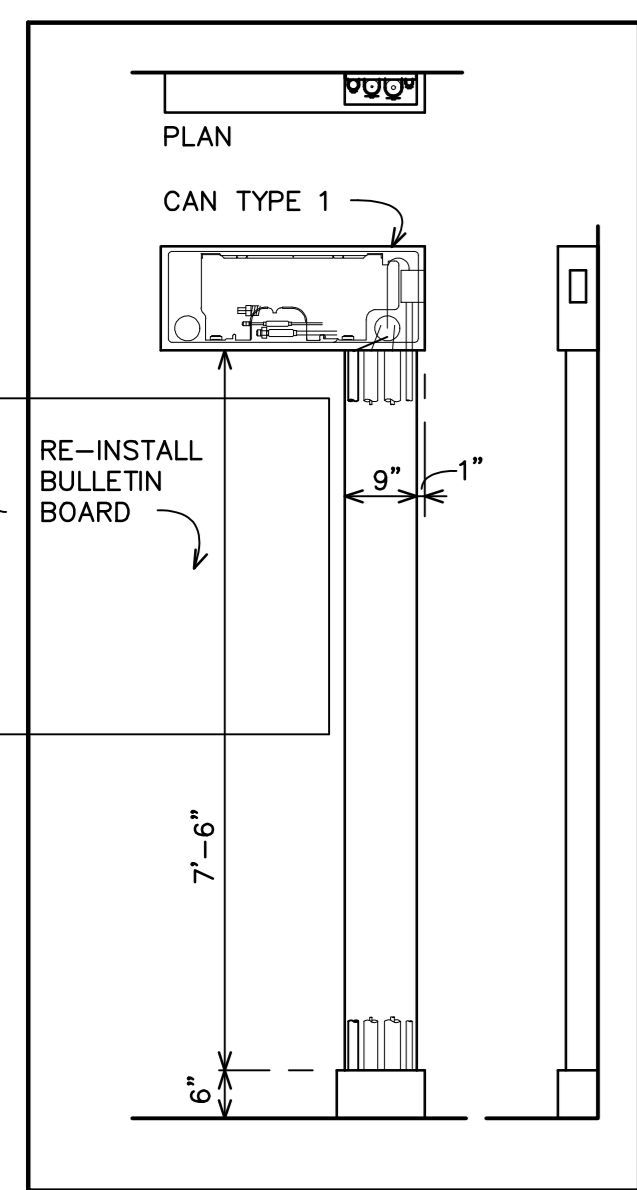
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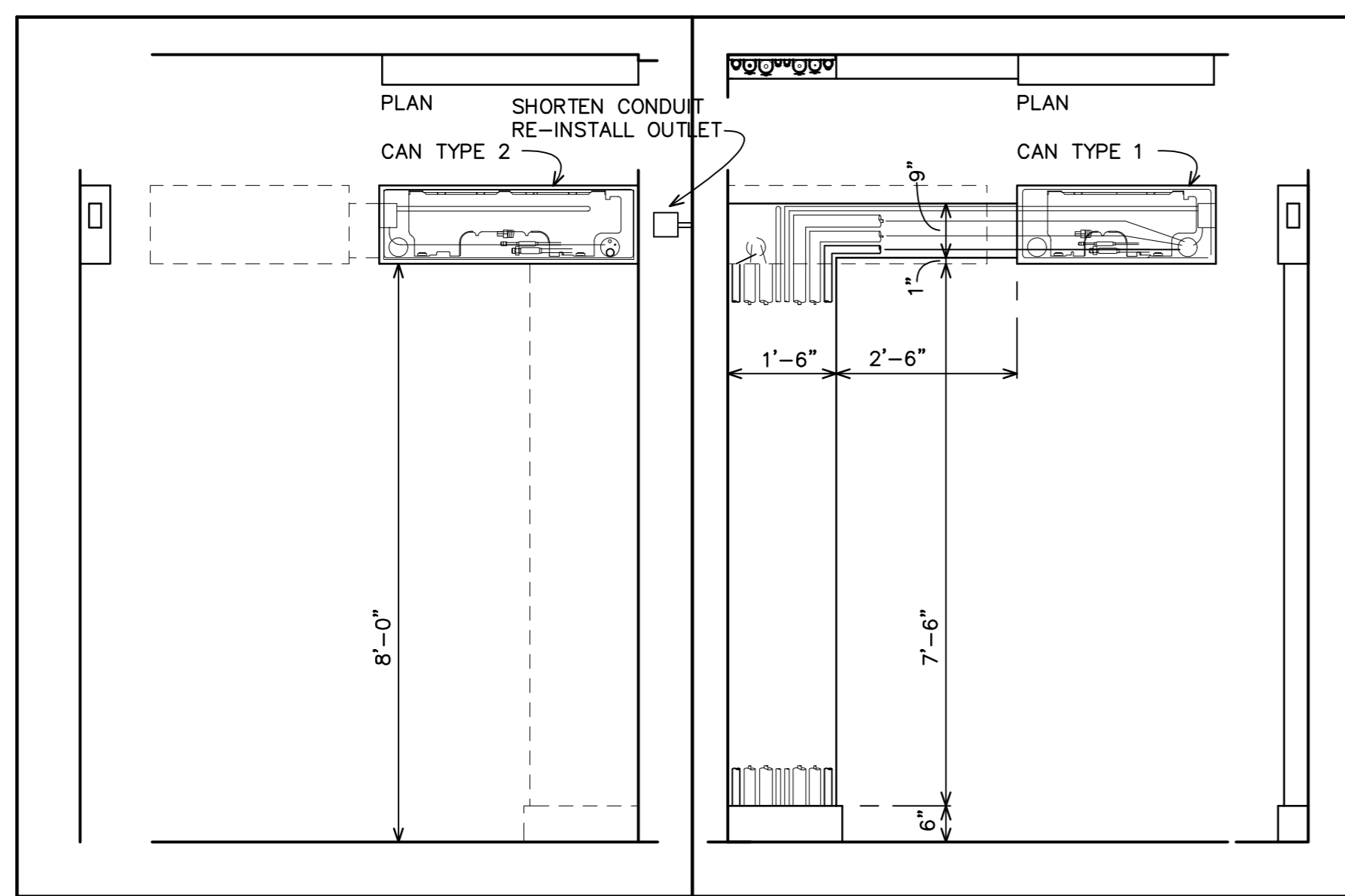
HVAC LAYOUT PLAN

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

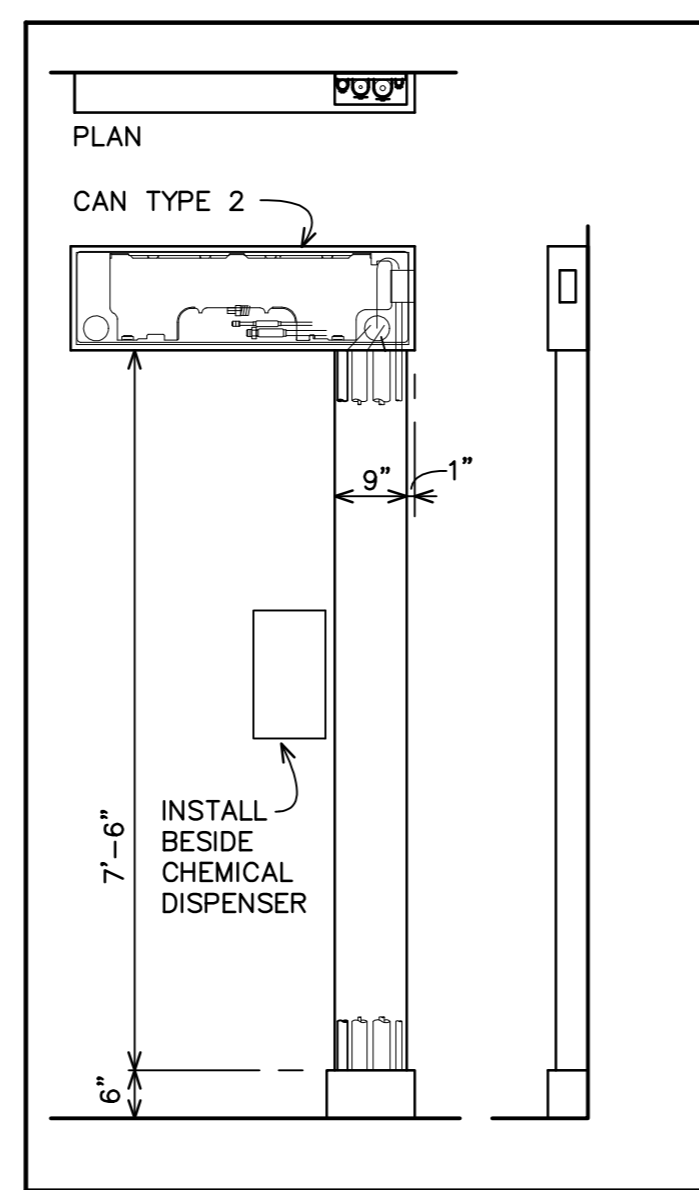




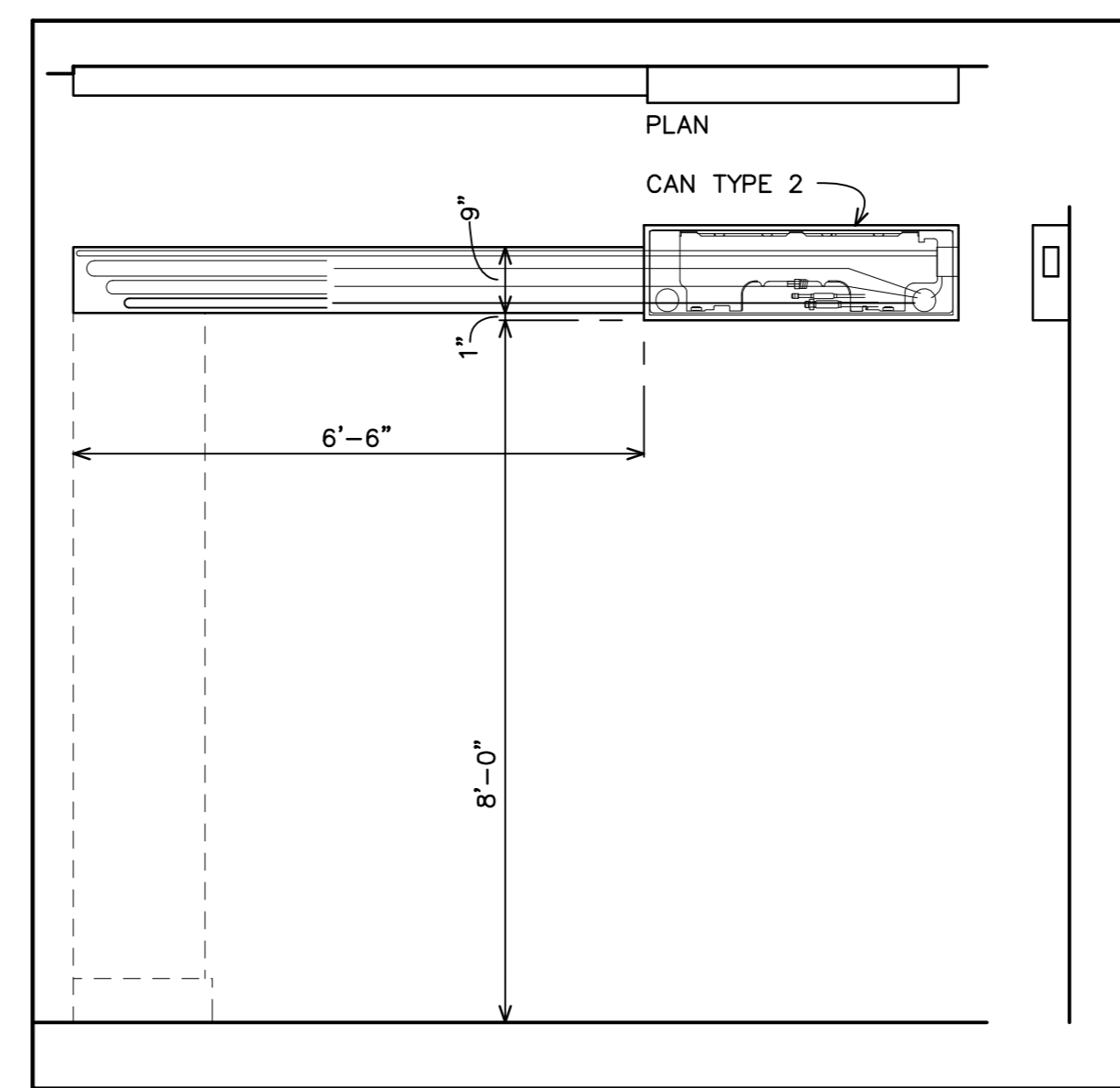
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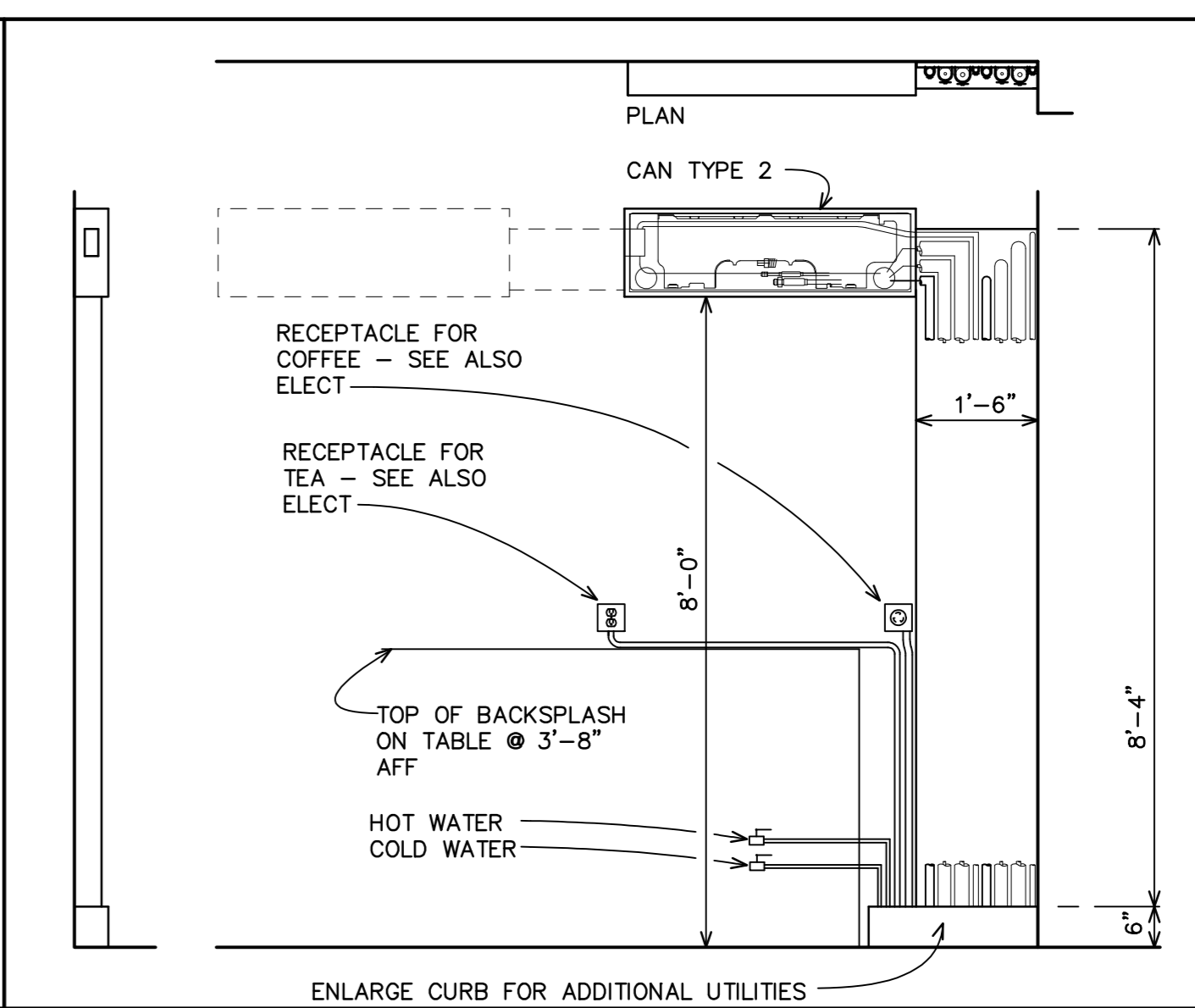
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B.1
A1 | A3

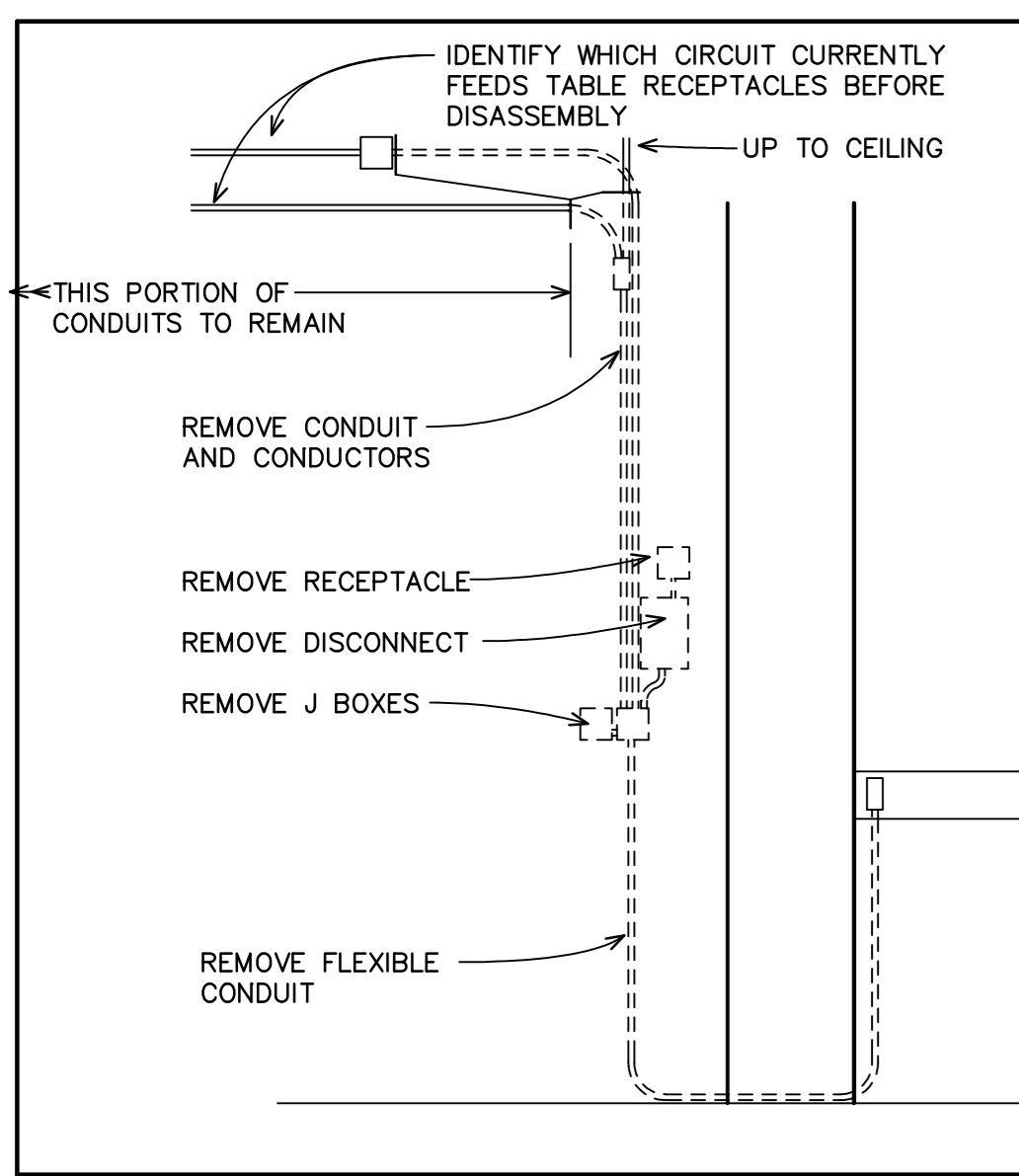


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A1 | A3

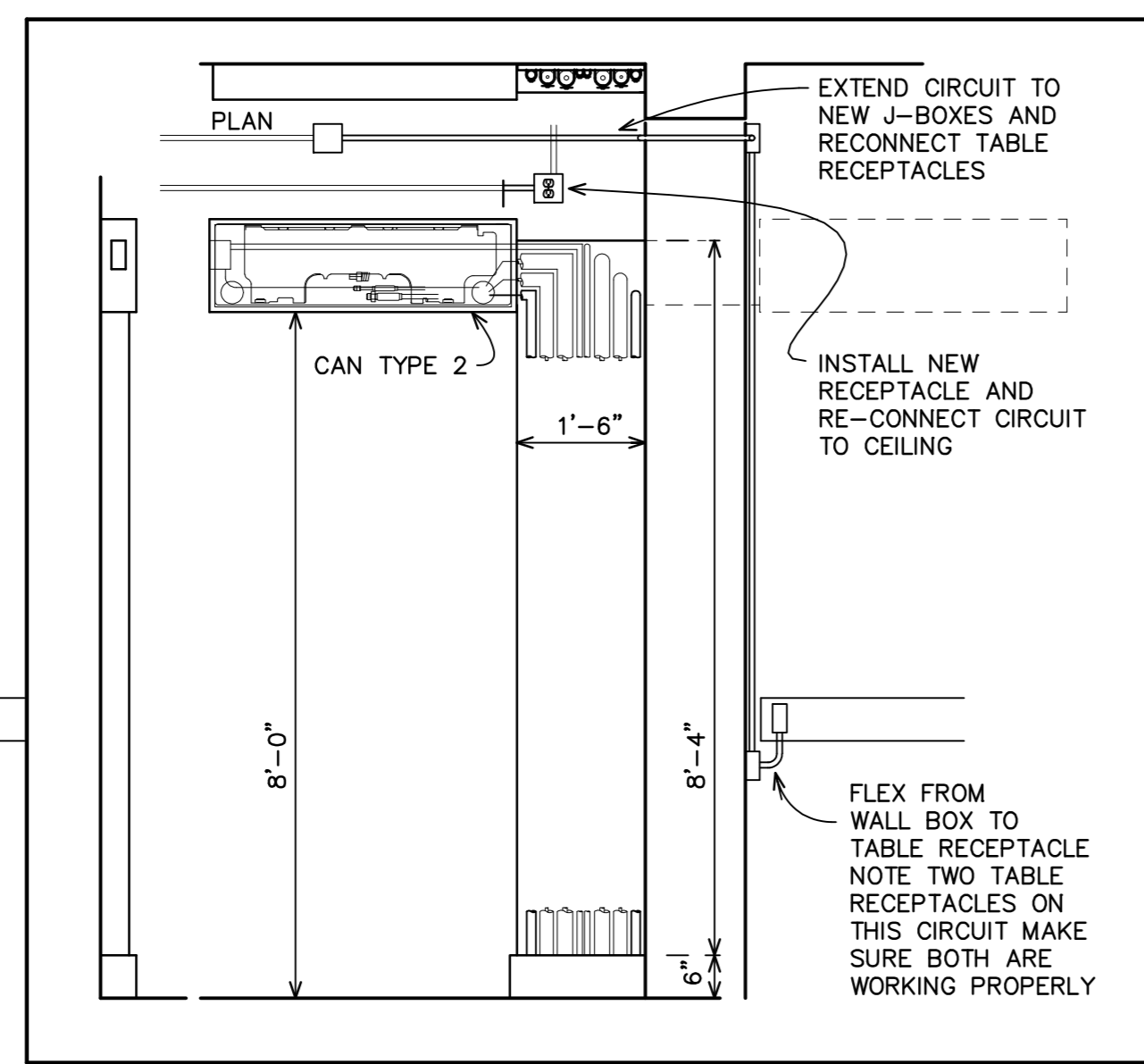


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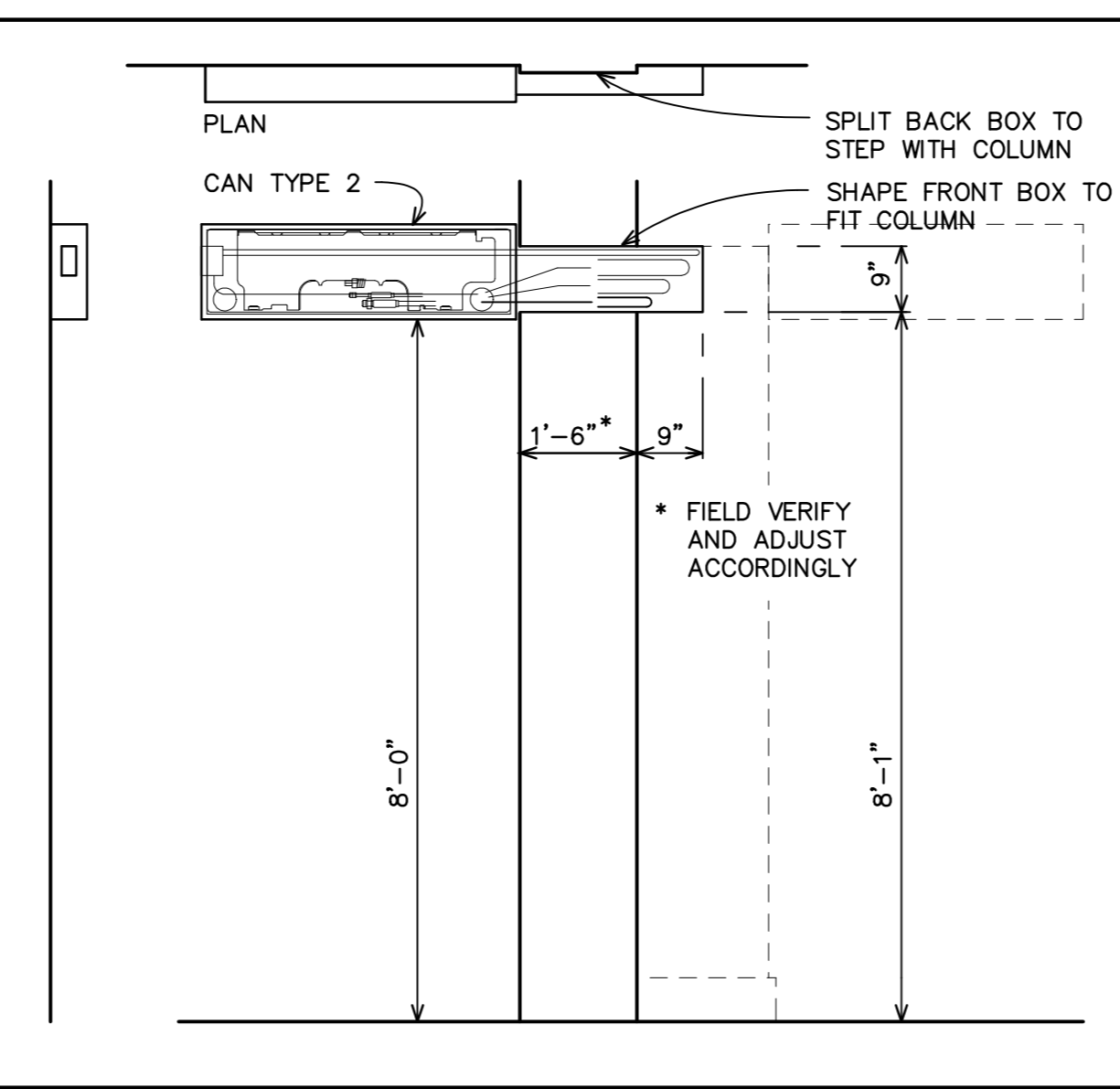
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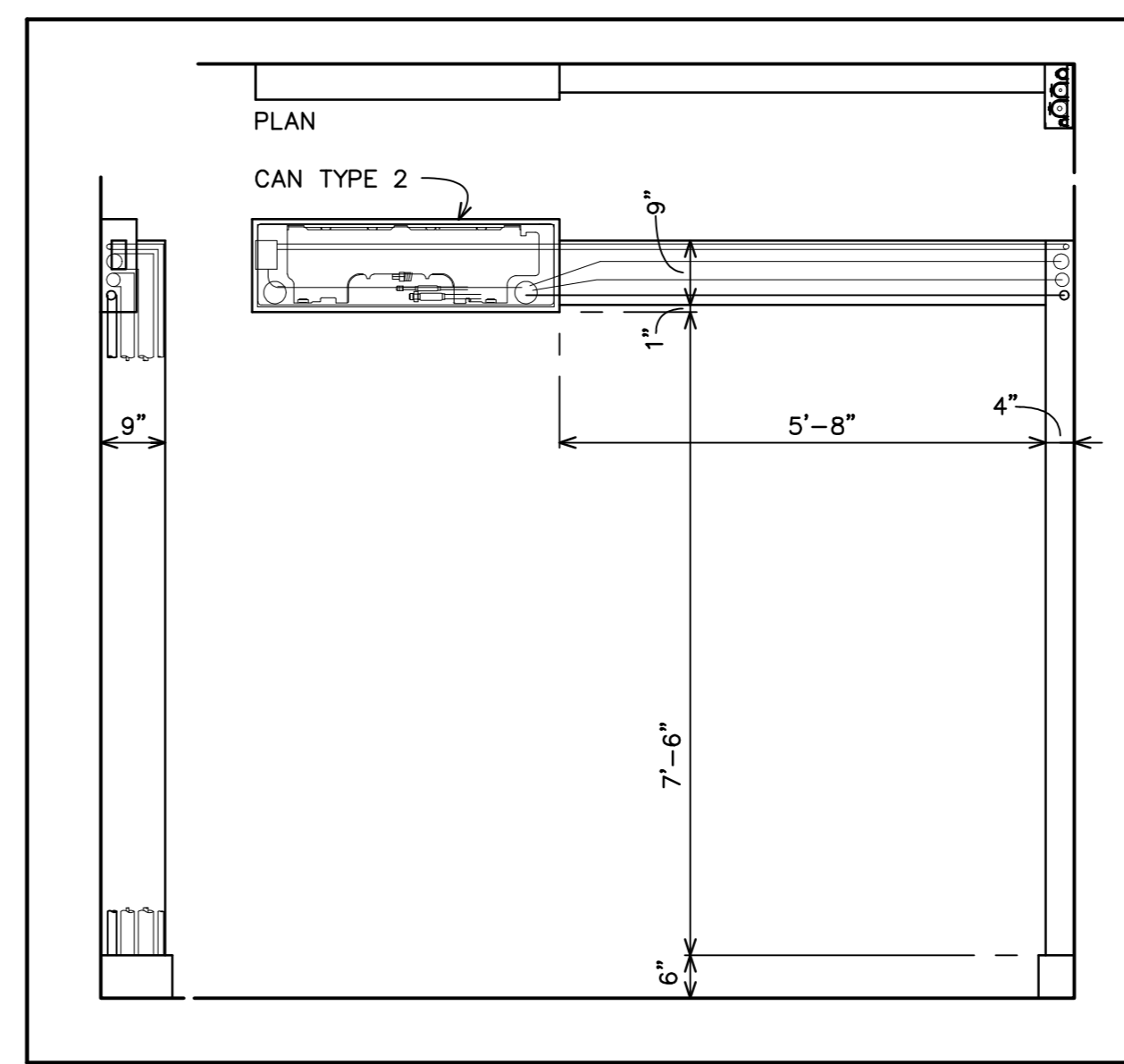
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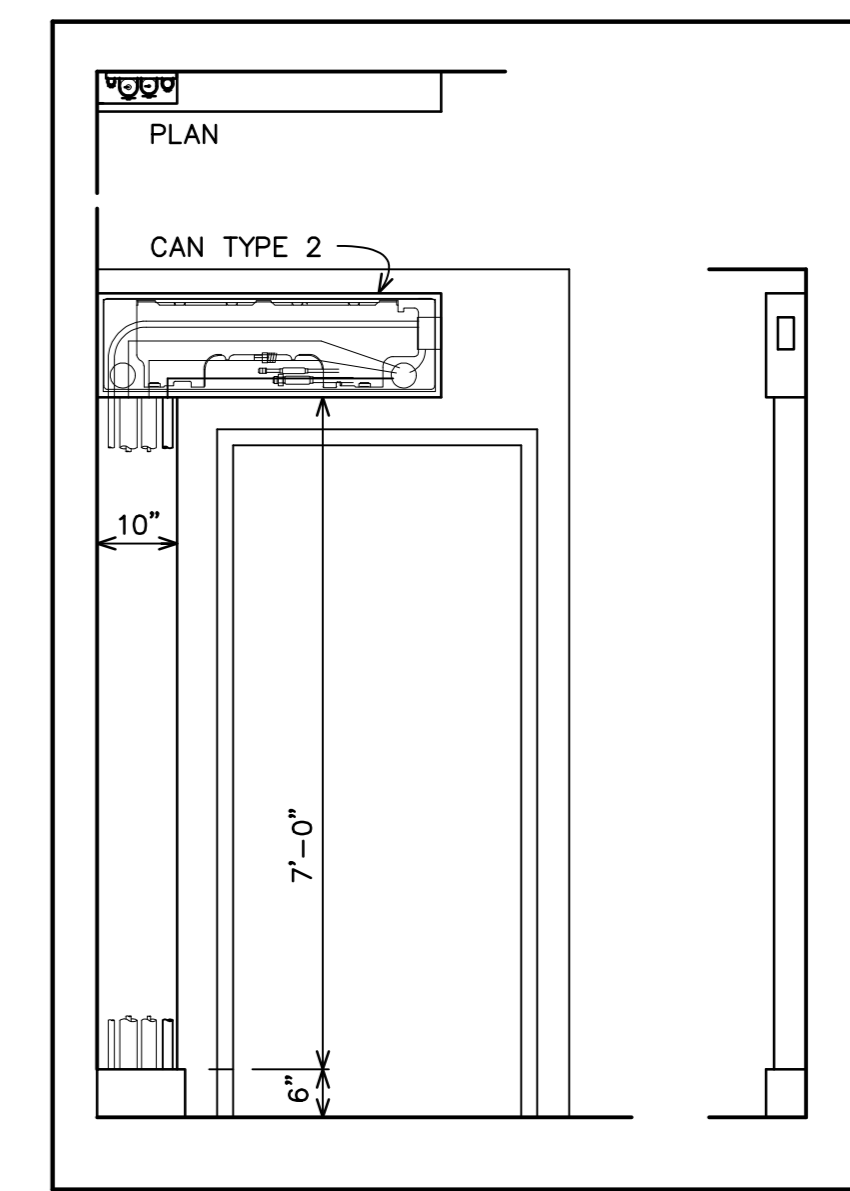
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C
A1 | A3

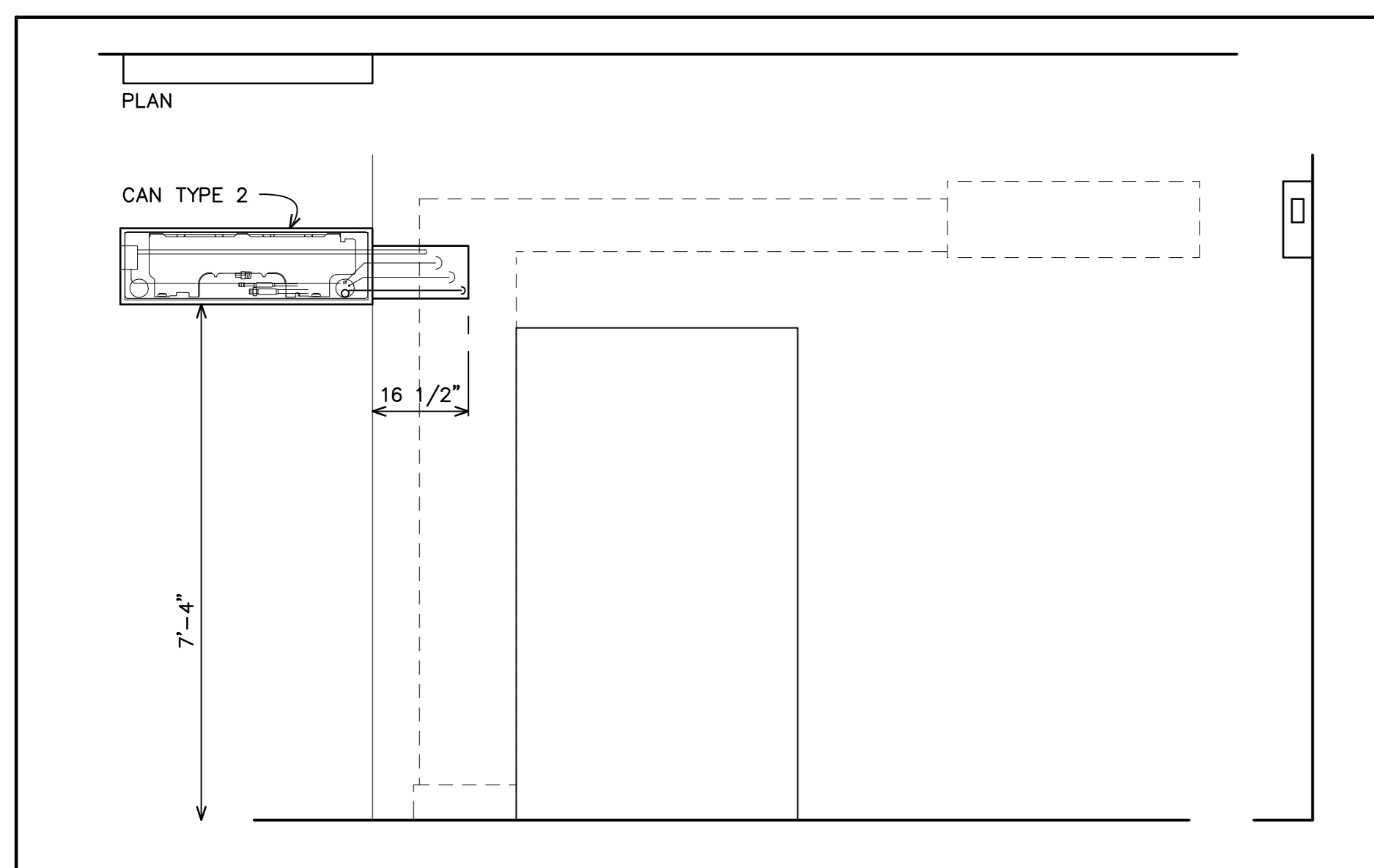


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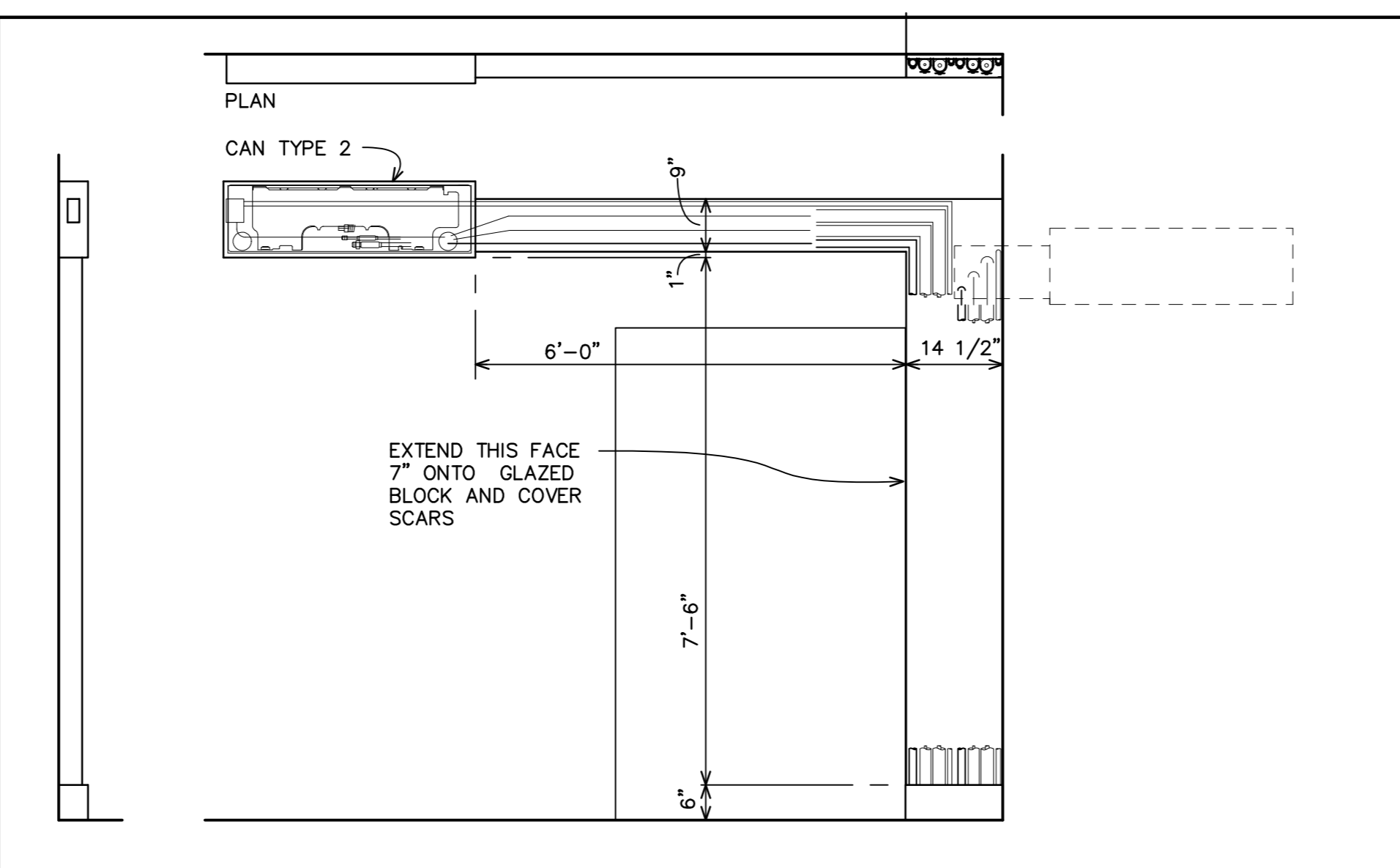


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A1 | A3

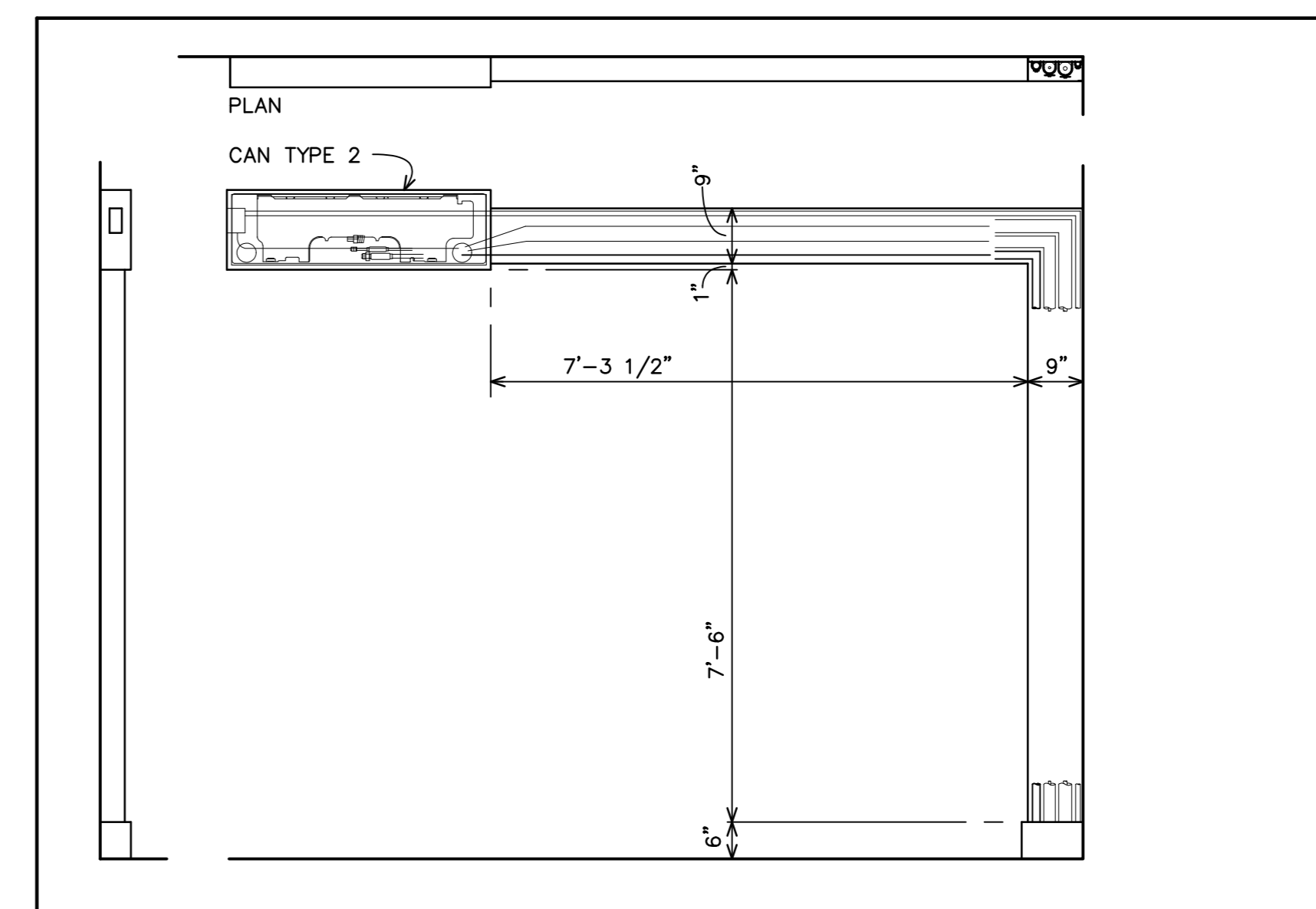
DEMOLITION



H
A1 | A3



H.1
A1 | A3



I
A1 | A3

SURFACE MOUNTED CHASE ELEVATIONS

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

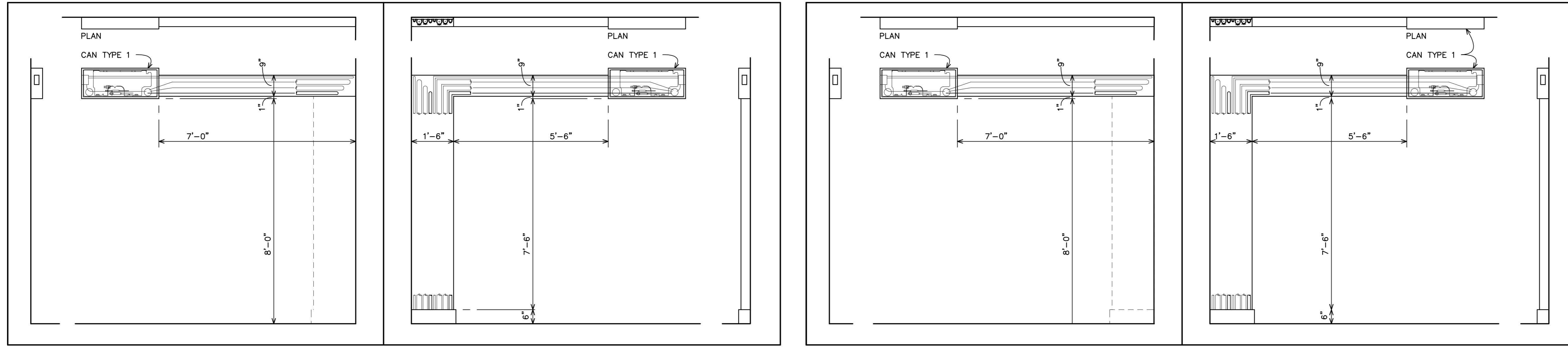
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 Drawn by: Inf
 File name: 1509 GIBBES.DWG
 PFA:inf
 Plotted on: 4/25/2014
 Drawing date: 5/21/2014

KEY
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 For USC in
 Columbia, S. C.
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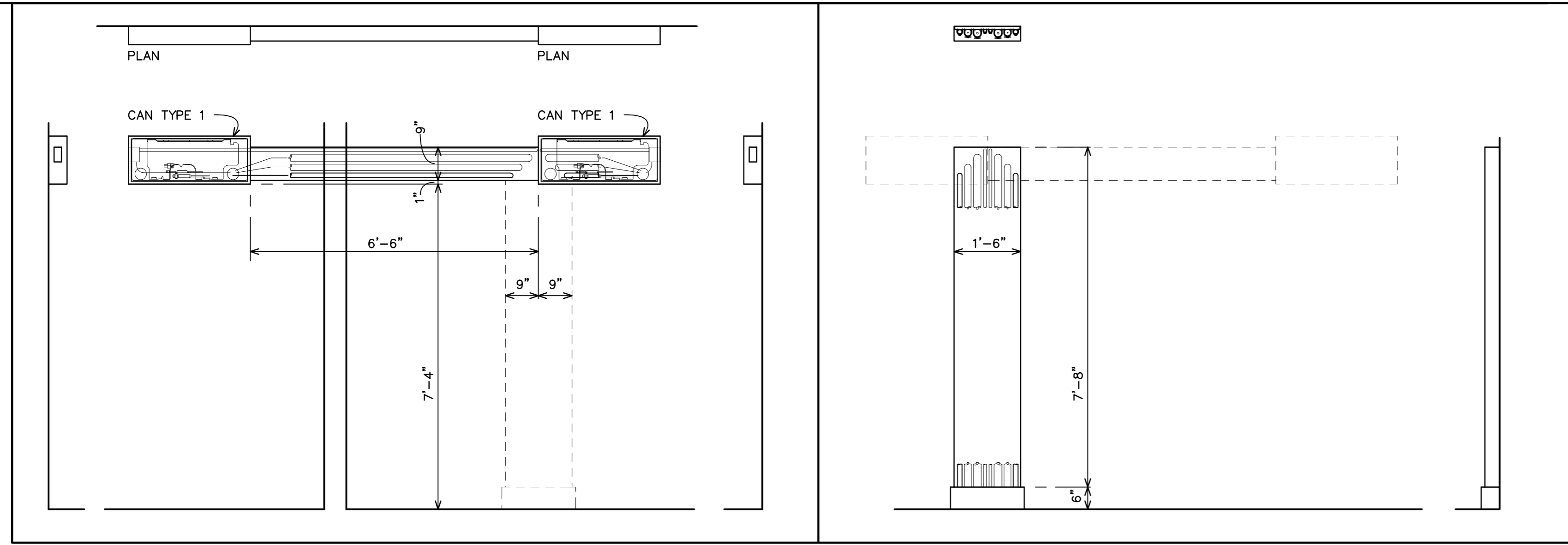


J
A1 | A4

J.1
A1 | A4

K
A1 | A4

K.1
A1 | A4



L
A1 | A4

L.1
A1 | A4

SURFACE MOUNTED CHASE ELEVATIONS

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

Job Number
1509

Drawn by
Inf

File name
1509 GIBBES.DWG
PFA-2014

Plotted on
4/25/2014

Drawing date
5/21/2014

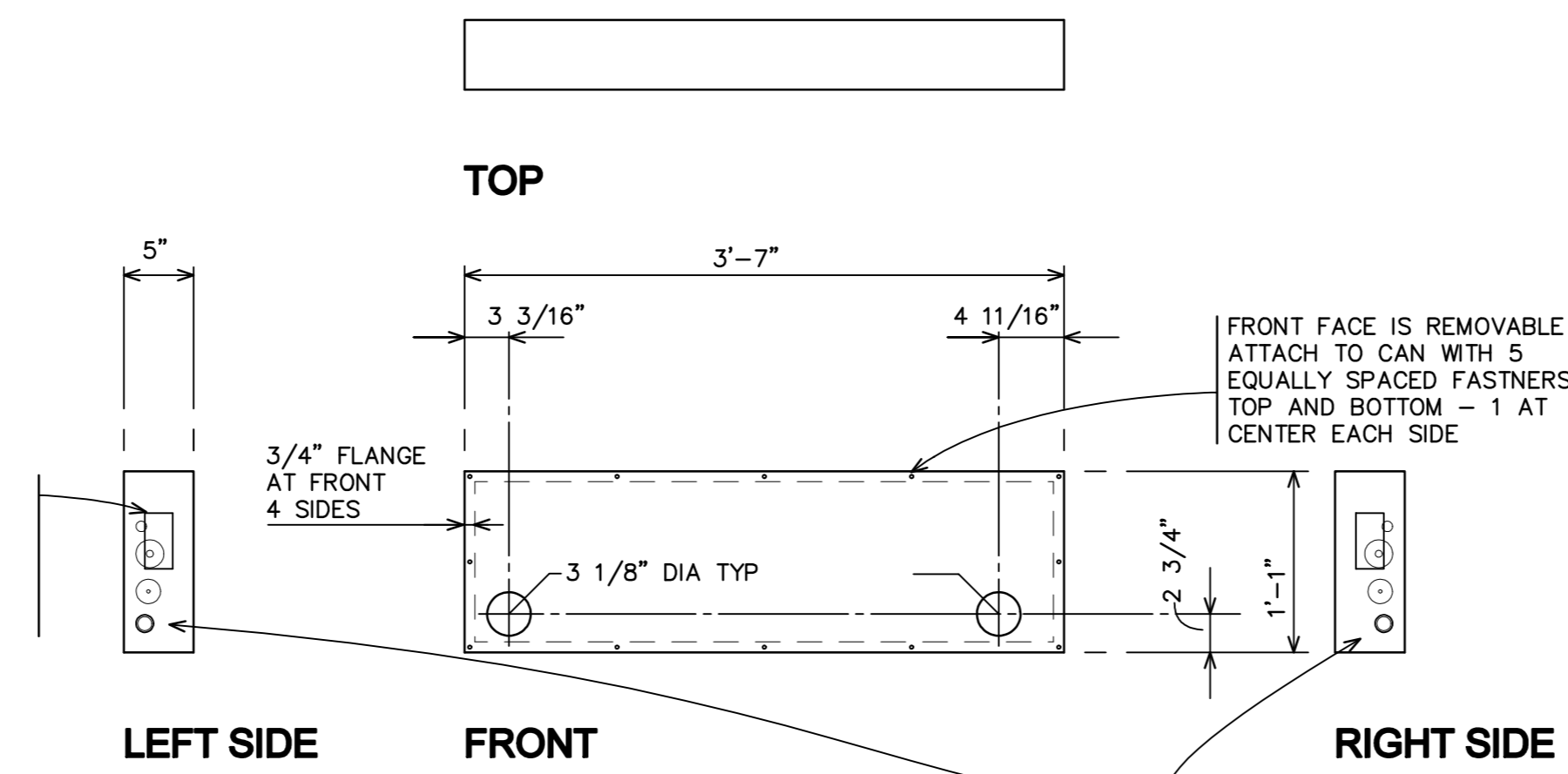
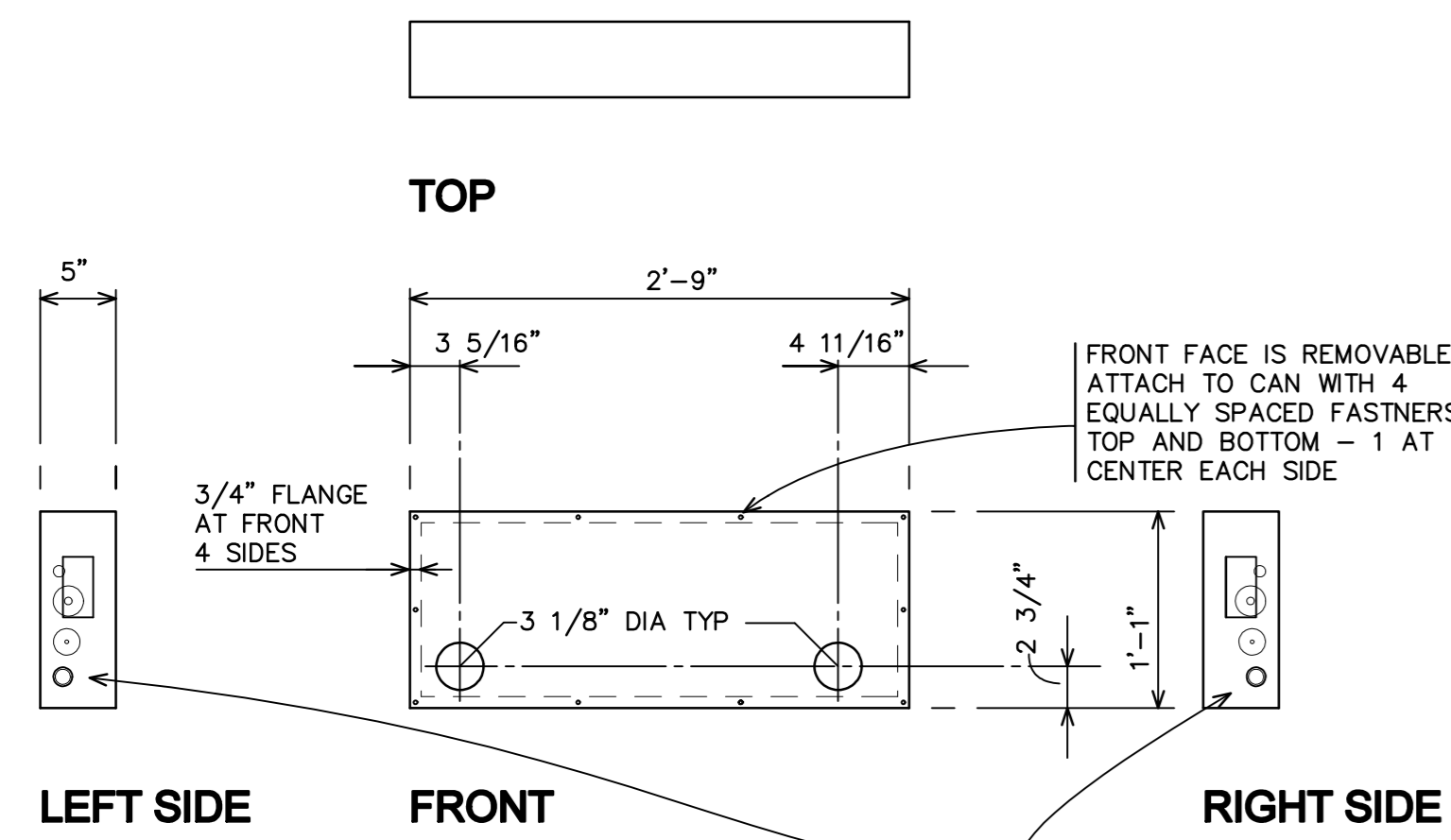
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For USC in
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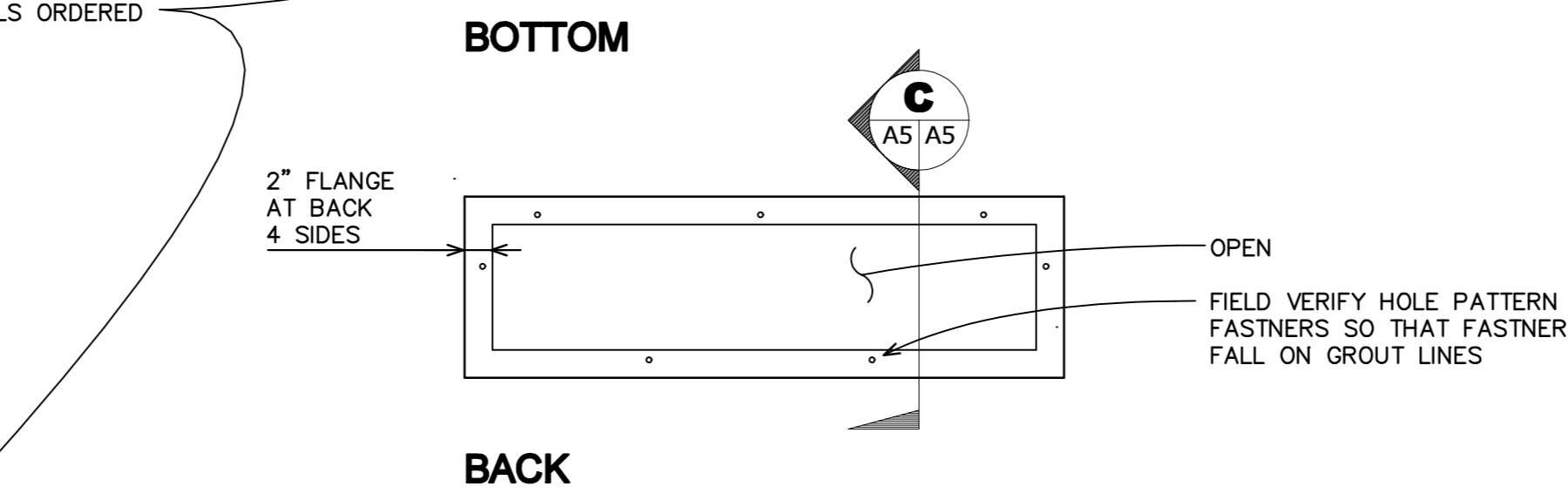
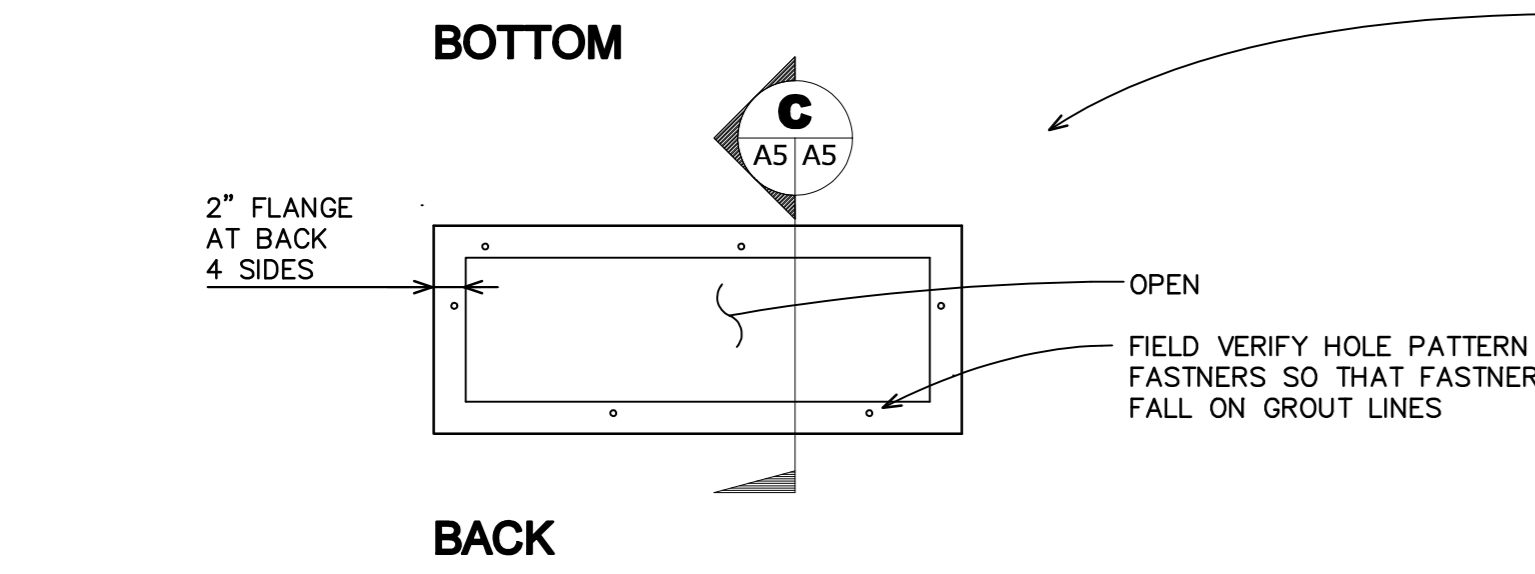
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A4
Of
Sheets



NOTE:
ALL SIZES SHOWN ARE BASED ON PRINTED LITERATURE BY THE "BASIS OF DESIGN" MANUFACTURER - VERIFY AND MODIFY AS NECESSARY TO FIT ACTUAL MODELS ORDERED

PIPING WILL ENTER CAN FROM ONE OF THREE LOCATIONS, LEFT RIGHT OR BOTTOM CO-ORDINATE ENTRY LOCATION AND PREPARE OPENINGS FOR PIPE IN ONE LOCATION

PIPING WILL ENTER CAN FROM ONE OF THREE LOCATIONS, LEFT RIGHT OR BOTTOM CO-ORDINATE ENTRY LOCATION AND PREPARE OPENINGS FOR PIPE IN ONE LOCATION



CAN TYPE 1

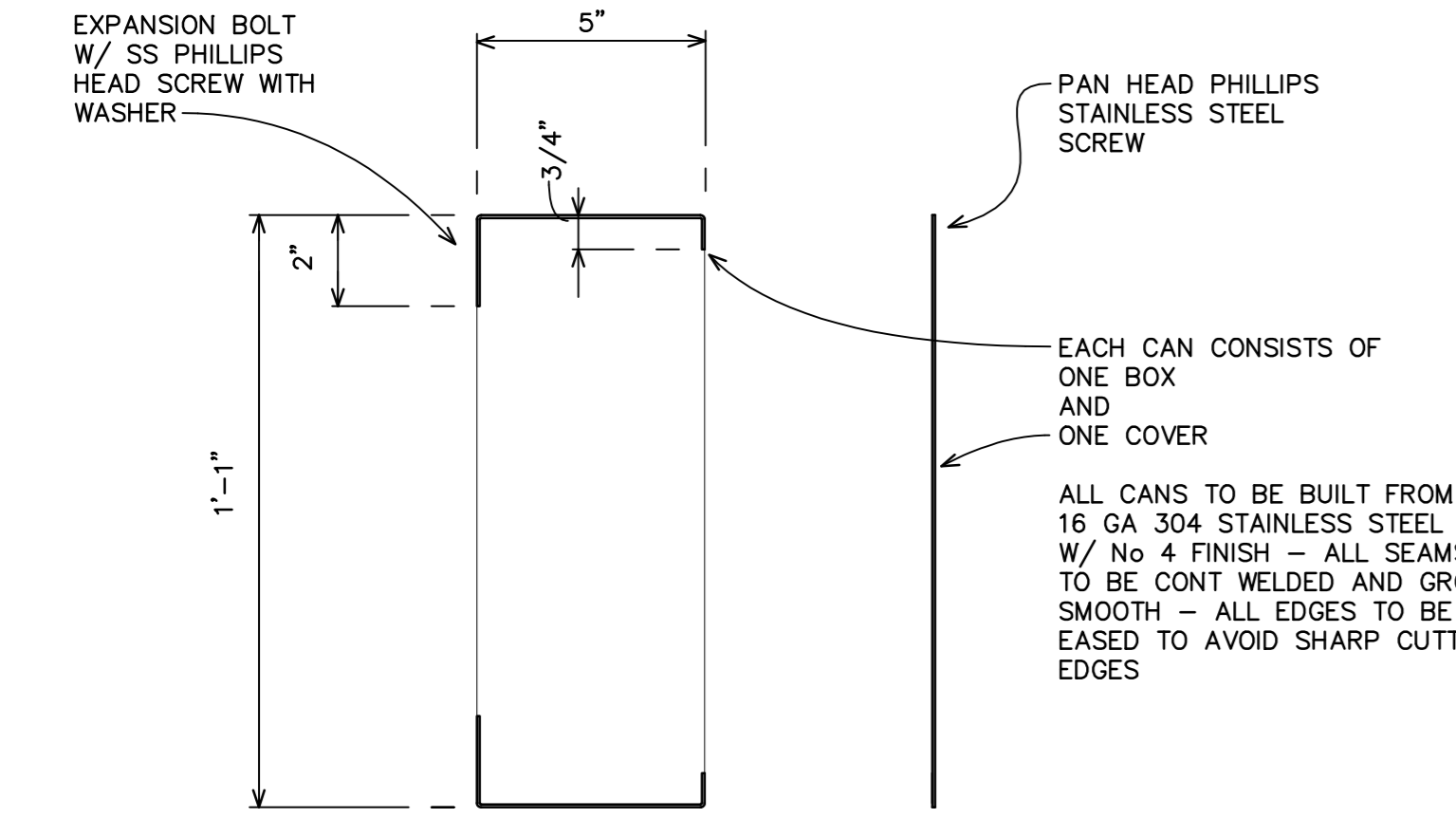
SCALE: 1" = 1'-0"

A
A2 | A5

CAN TYPE 2

SCALE: 1" = 1'-0"

B
A2 | A5

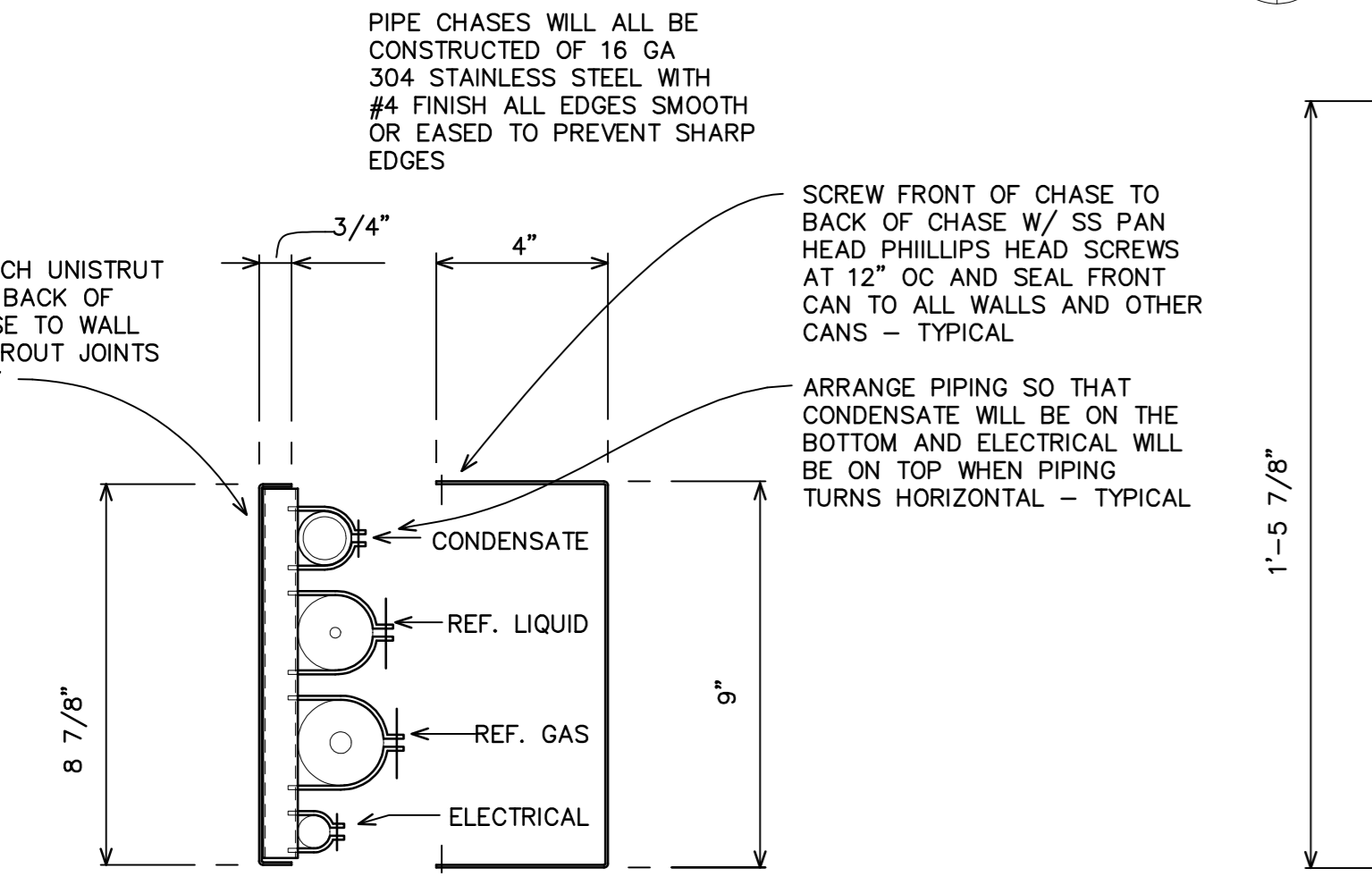


EACH CAN CONSISTS OF ONE BOX AND ONE COVER
ALL CANS TO BE BUILT FROM 16 GA 304 STAINLESS STEEL W/ NO 4 FINISH - ALL SEAMS TO BE CONT WELDED AND GROUND SMOOTH - ALL EDGES TO BE EASED TO AVOID SHARP CUTTING EDGES

CAN SECTION

SCALE: 3" = 1'-0"

C
A5 | A4



SCREW FRONT OF CHASE TO BACK OF CHASE W/ SS PAN HEAD PHILLIPS HEAD SCREWS AT 12" OC AND SEAL FRONT CAN TO ALL WALLS AND OTHER CANS - TYPICAL
ARRANGE PIPING SO THAT CONDENSATE WILL BE ON THE BOTTOM AND ELECTRICAL WILL BE ON TOP WHEN PIPING TURNS HORIZONTAL - TYPICAL

9" VERT OR HORZ PIPE CHASE]

SCALE: 3" = 1'-0"

D
A5 | A5

18" VERT PIPE CHASE

SCALE: 3" = 1'-0"

E
A5 | A5

CORNER PIPE CHASE

SCALE: 3" = 1'-0"

F
A5 | A5

MOVE OBSTRUCTIONS AS NOTED - WHEN AN OBSTRUCTION CANNOT BE MOVED, CUT BACK WORK AROUND OBSTRUCTION AND DAP OUT FRONT TO ACCEPT OBSTRUCTION WITH MINIMAL OVERALL IMPACT SEAL ALL JOINTS OF OBSTRUCTION TO BOX

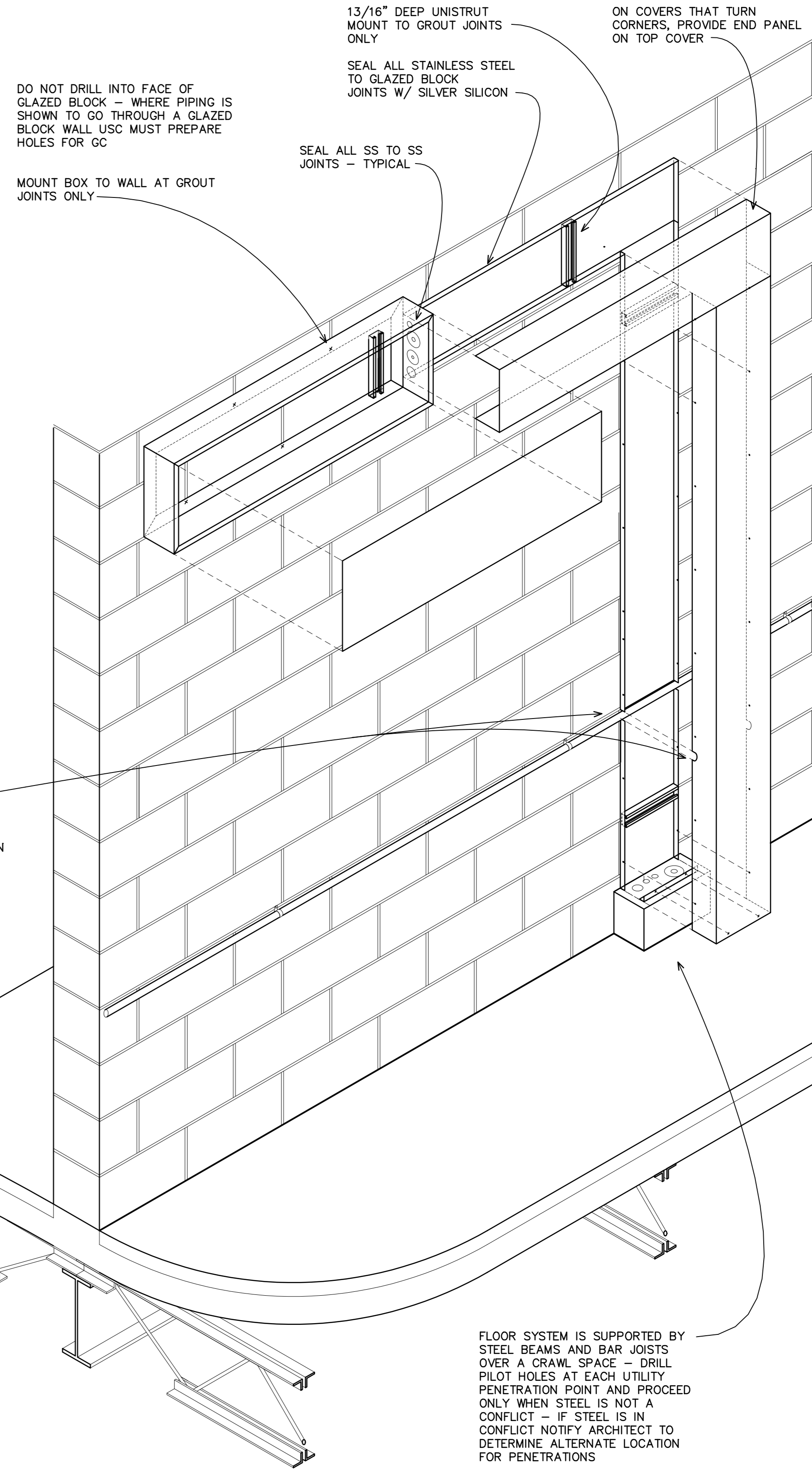
NOTE: 18" CORNER PIPE CHASE SHOWN 9" CORNER PIPE CHASE SIM

FLOOR SYSTEM IS SUPPORTED BY STEEL BEAMS AND BAR JOISTS OVER A CRAWL SPACE - DRILL PILOT HOLES AT EACH UTILITY PENETRATION POINT AND PROCEED ONLY WHEN STEEL IS NOT A CONFLICT - IF STEEL IS IN CONFLICT NOTIFY ARCHITECT TO DETERMINE ALTERNATE LOCATION FOR PENETRATIONS

CAN SECTION

SCALE: 2" = 1'-0"

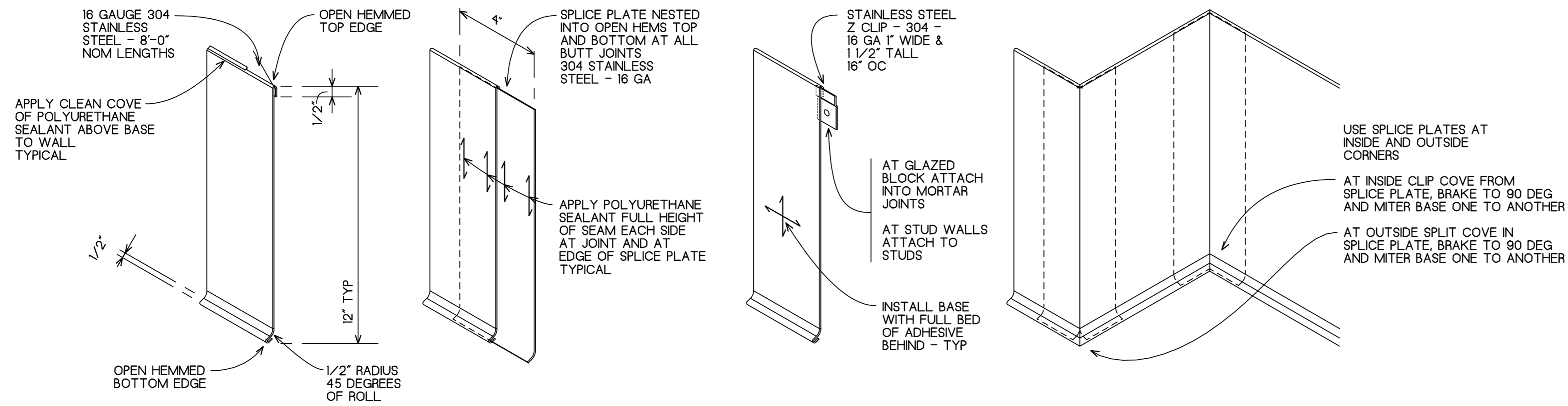
G
A2 | A5



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Drawn by	Inf
File name	1509 GIBBES.DWG
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Drawing date	5/21/2014
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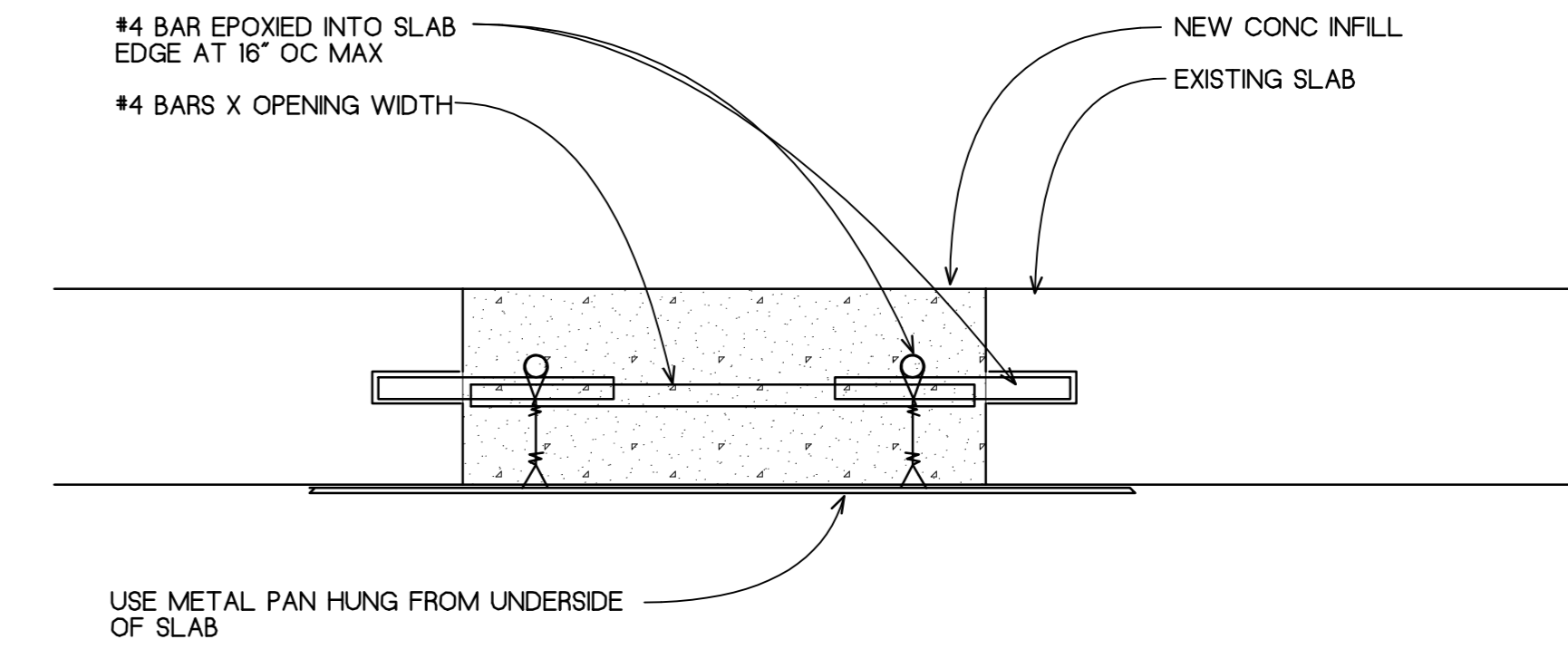
CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
For USC in Columbia, S. C.
H 27 - Z 159





STAINLESS STEEL BASE DETAILS

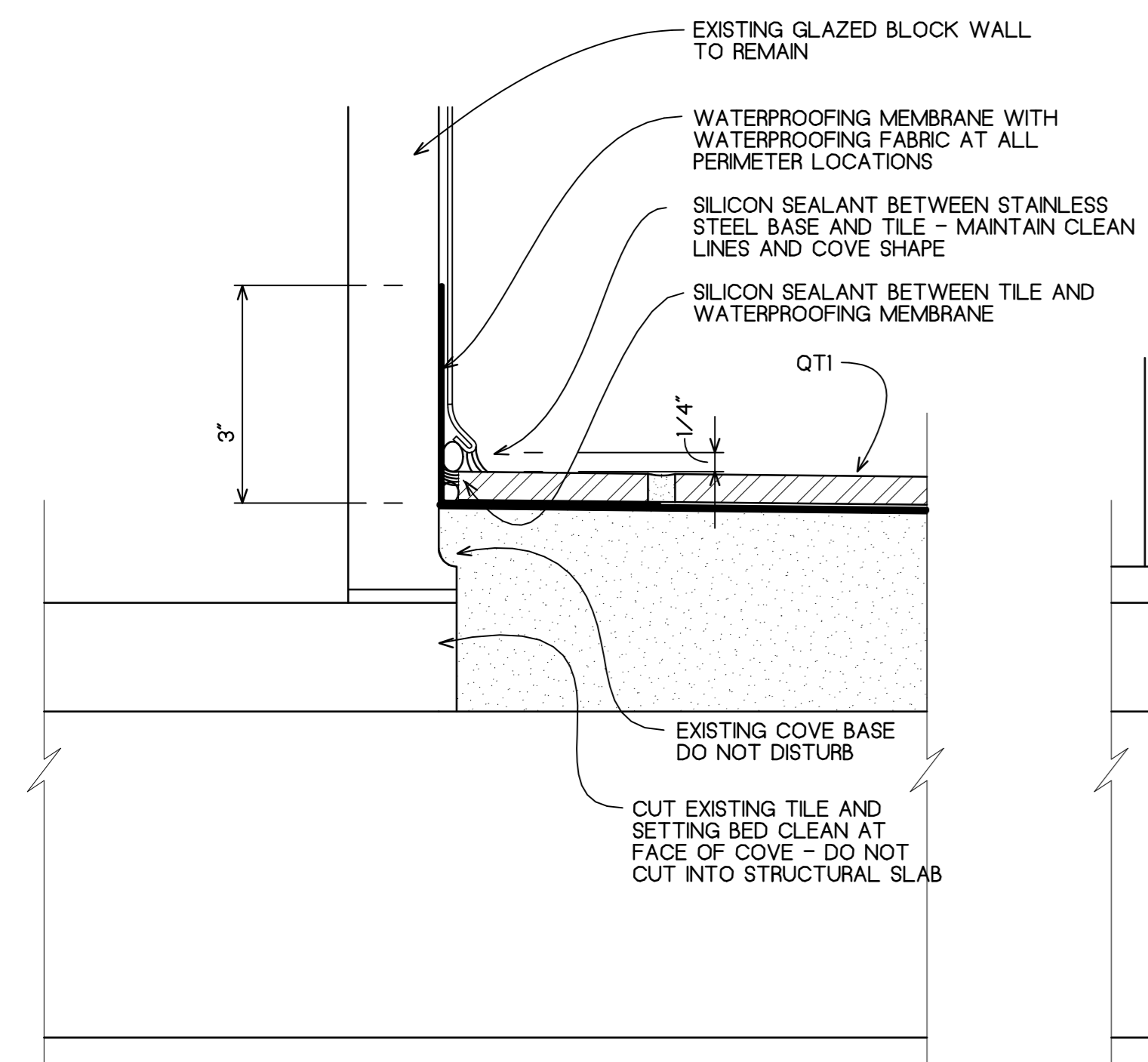
SCALE: 3" = 1'-0"



SLAB REPAIR DETAILS

SCALE: 3" = 1'-0"

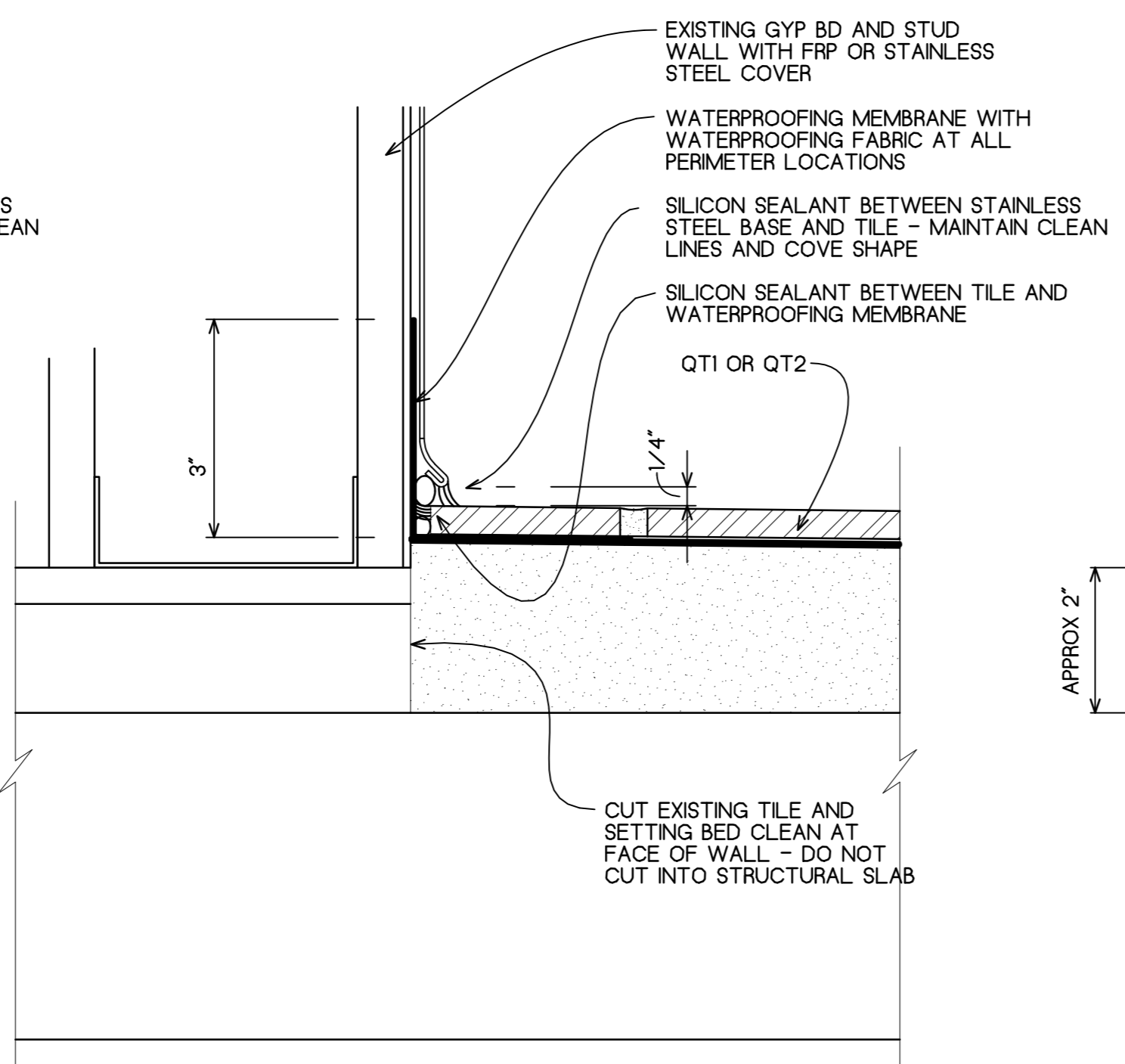
B
A6/A6



WP TERMINATION AT GLAZED BLOCK

SCALE: 6" = 1'-0"

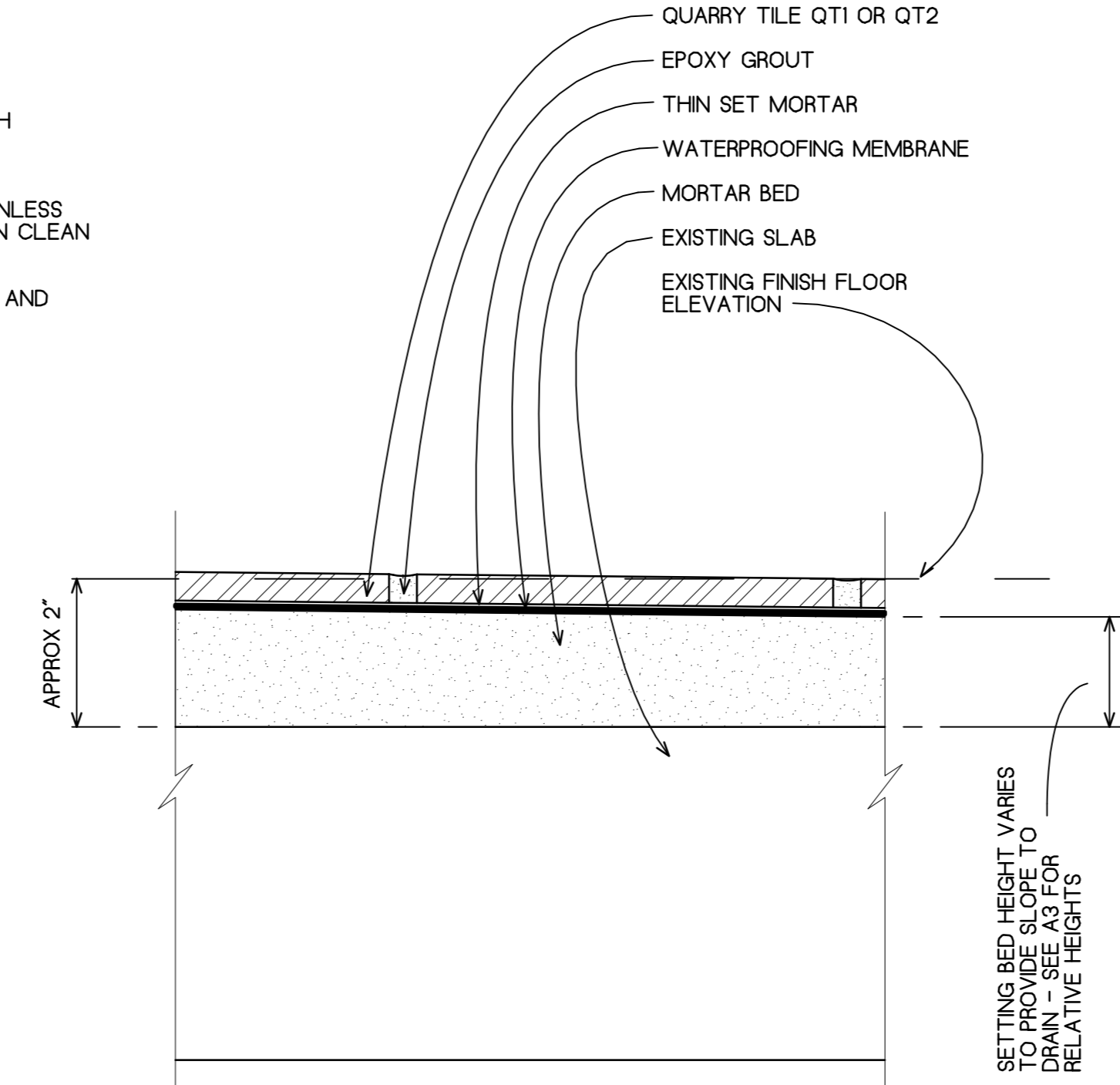
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A6/A6



WP TERMINATION AT STUD WALLS

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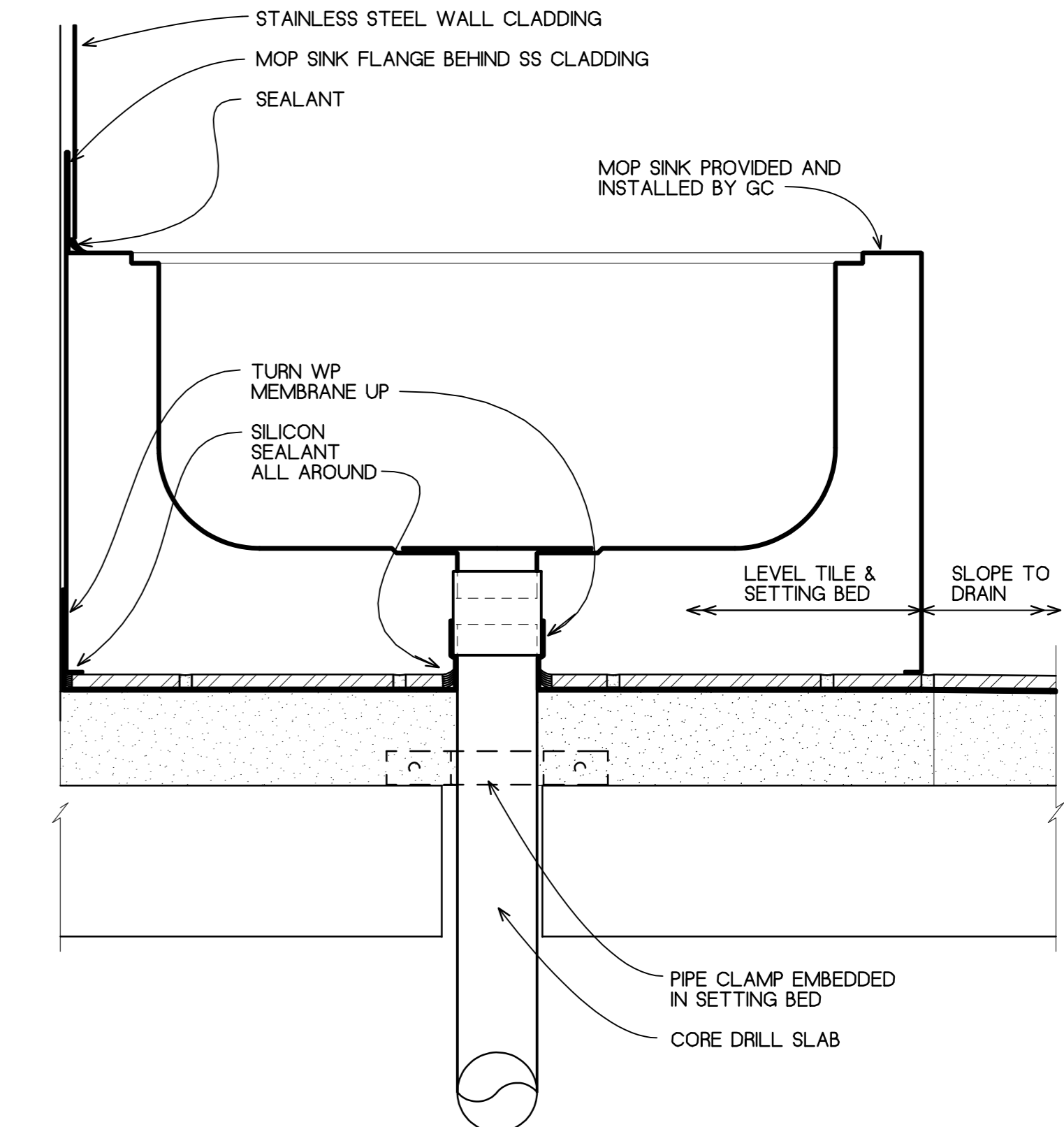
D
A6/A6



TYPICAL FLOOR CONSTRUCTION

SCALE: 6" = 1'-0"

E
A6/A6



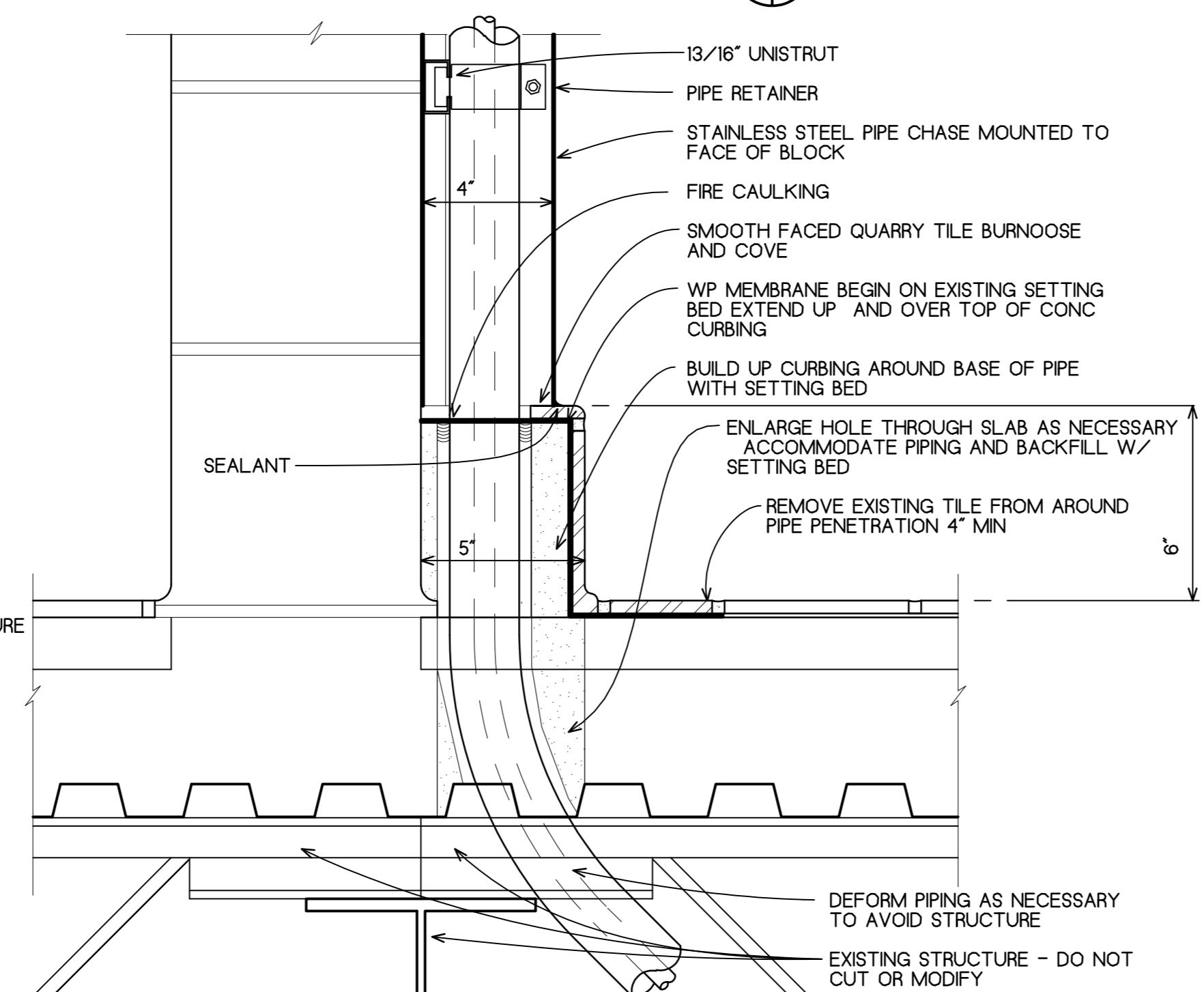
MOP SINK DETAILS

SCALE: 6" = 1'-0"

F
A6/A6

MATERIAL SPECIFICATIONS

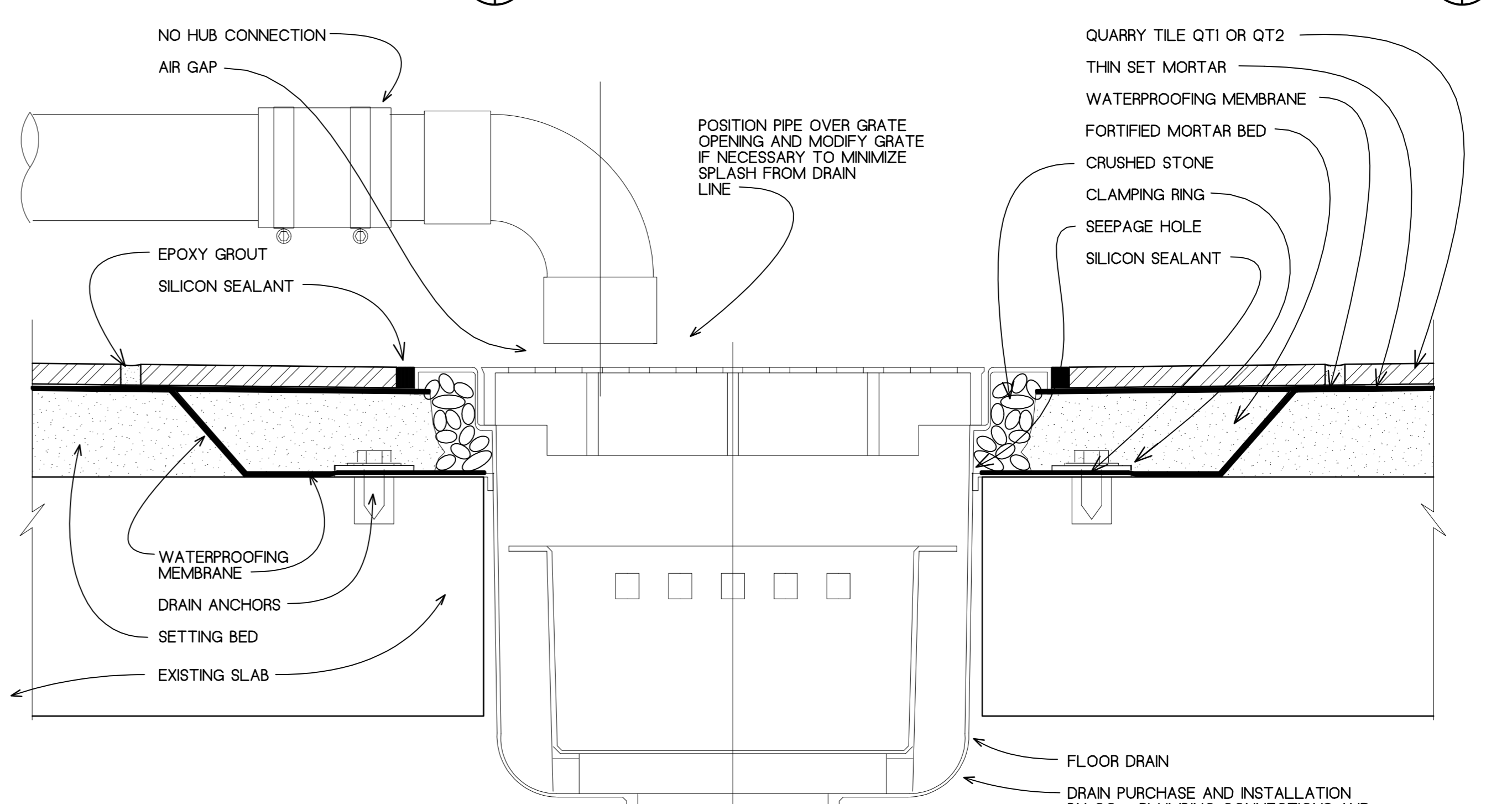
- SEALANT - SONOLASTIC NP-1 ONE-COMPONENT, HIGH PERFORMANCE, NONPRIMING, GUN-GRADE, ELASTOMERIC POLYURETHANE SEALANT BY SONNEBORN (BASF)
- FIRE SEALANT - FIRECODE SMOKE-SOUND SEALANT BY USG
- EXPANSION BOLT - 1/4" TRUBOLT TYPE 316 - SWW1422 BY RED HEAD
- QUARRY TILE QT1 - SURETREAD WITH QUARRY GUARD AND MICROBAN BY DAL TILE - MATCH EXISTING COLOR
- QUARRY TILE TRIM - SMOOTH FACE IN BULLNOSE, COVE BASE, INSIDE CORNER AND COVE OUTSIDE CORNERS - MATCH QT1 COLOR
- SILICON SEALANT - LATASIL BY LATICRETE - MATCH GROUT COLOR
- EPOXY GROUT - SPECTRALOCK PRO PREMIUM GROUT BY LATICRETE - MATCH EXISTING COLOR
- THIN SET MORTAR - 254 PLATINUM ONE STEP, POLYMER FORTIFIED BY LATICRETE
- WATERPROOFING MEMBRANE - HYDRO BARRIER BY LATICRETE - MIN 2 LAYERS APPLIED 90 DEGREES TO EACH OTHER
- FORTIFIED MORTAR BED - 3701 FORTIFIED MORTAR BED BY LATICRETE
- WATERPROOFING FABRIC - 6" LATICRETE REINFORCING FABRIC - FOLDED IN HALF & EMBEDDED IN FIRST COAT OF HYDRO BARRIER - APPLY SECOND COAT OF HYDRO BARRIER OVER FABRIC - ENSURE COMPLETE COVERAGE
- FLOOR DRAIN - AO SMITH STAINLESS STEEL, 12x12 FLOOR RECEPTOR 8" SUMP DEPTH W/ EXTRA-HEAVY-DUTY GRATE, ANCHOR FLANGE WITH SEEPAGE HOLES AND CLAMP COLLAR WITH SEDIMENT BUCKET
- REBAR EPOXY - HILTI HIT-RE-500-SD EPOXY ADHESIVE
- CONCRETE INFILL - 5000 PSI HIGH EARLY YIELD CONCRETE AT SMALL HOLES 10,000 PSI NON SHRINK GROUT MAY BE SUBSTITUTED



WP TERMINATION AT PIPE CHASES

SCALE: 3" = 1'-0"

G
A6/A6



WP TERMINATION AT FLOOR DRAINS

SCALE: 6" = 1'-0"

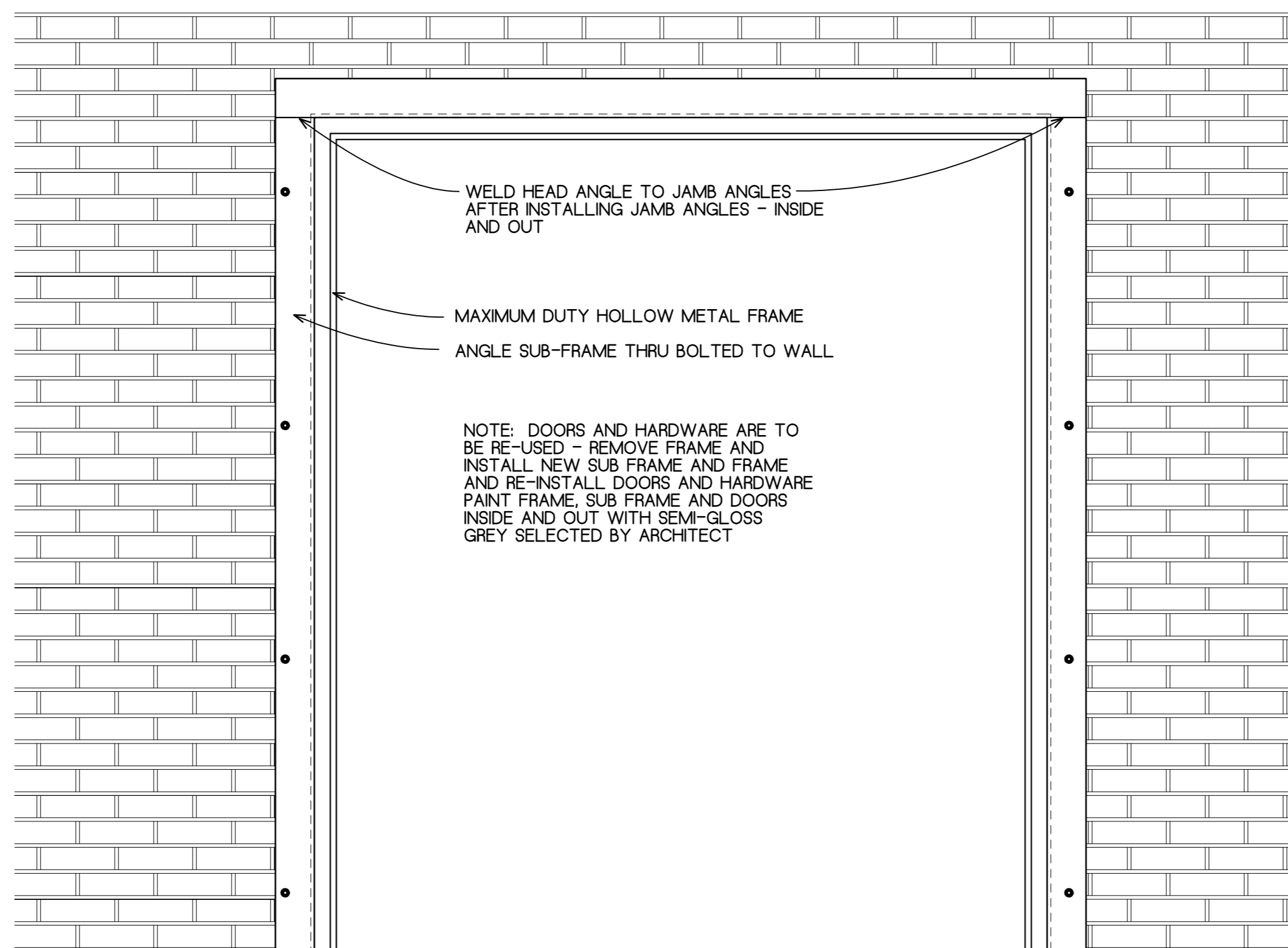
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 File name: 1509_GIBBES.DWG
 Plotted on: 4/25/2014
 Drawing date: 5/21/2014
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 For USC in Columbia, S. C.
 H 27 - Z 159

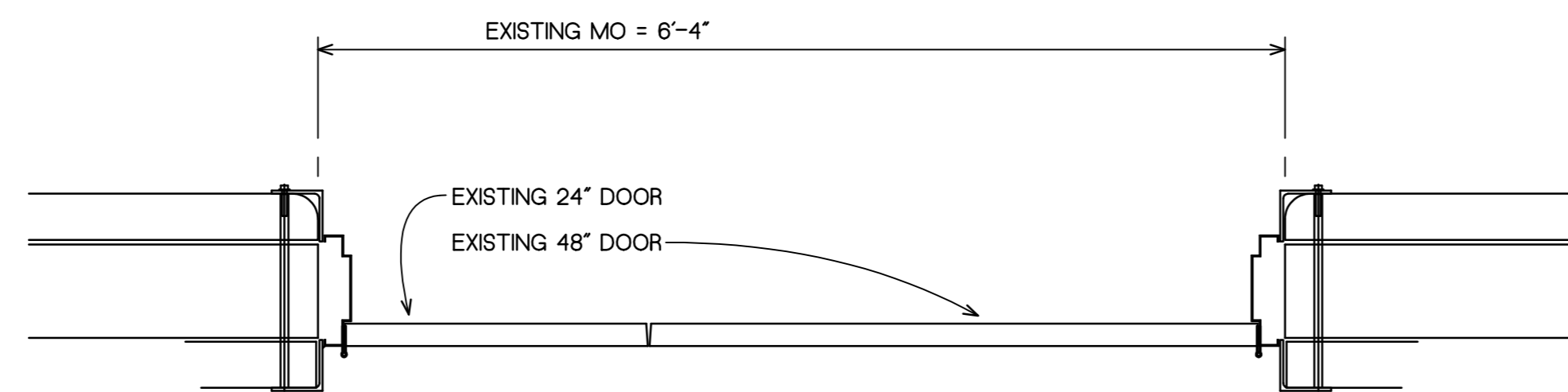
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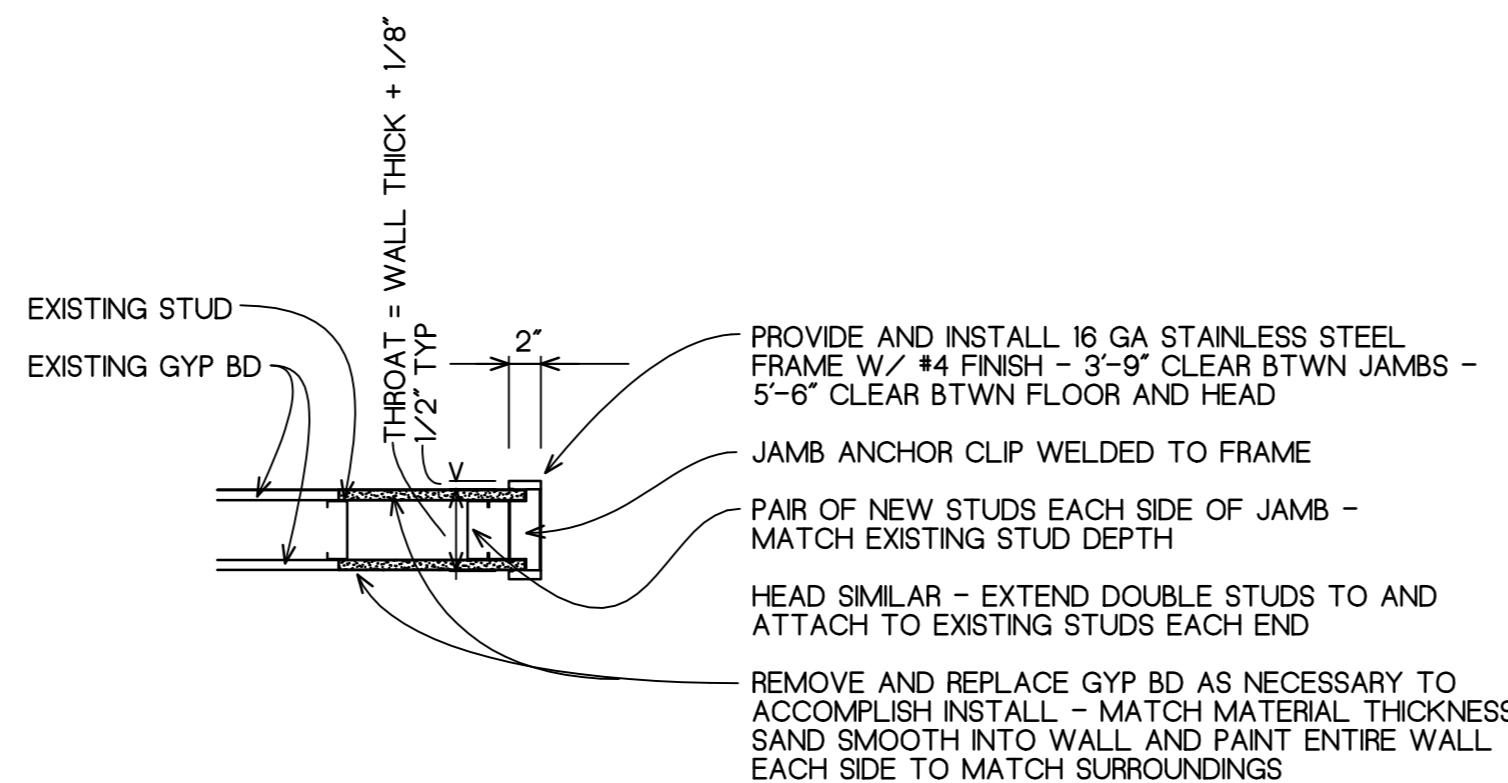
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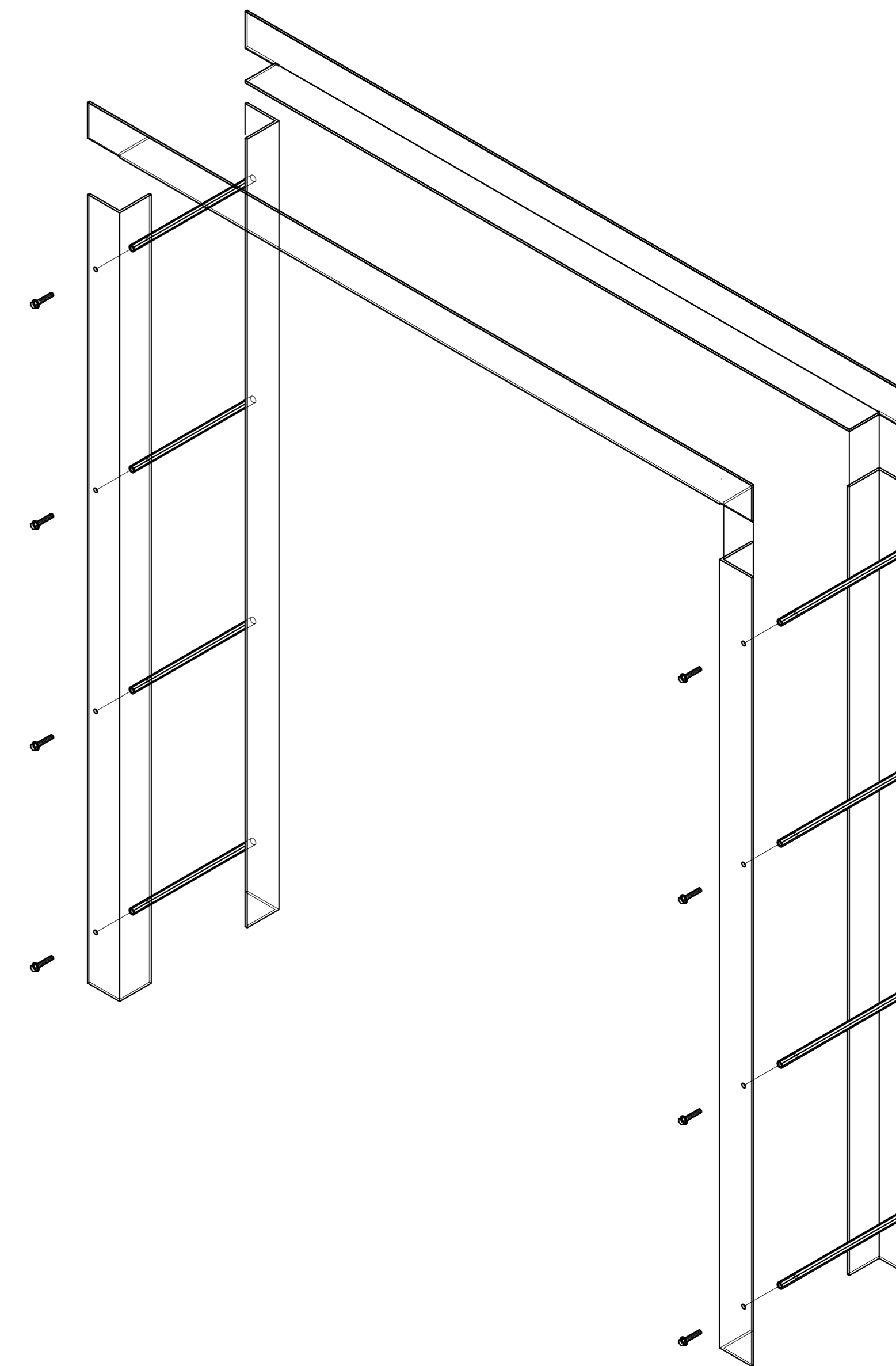
PROPOSED PLAN

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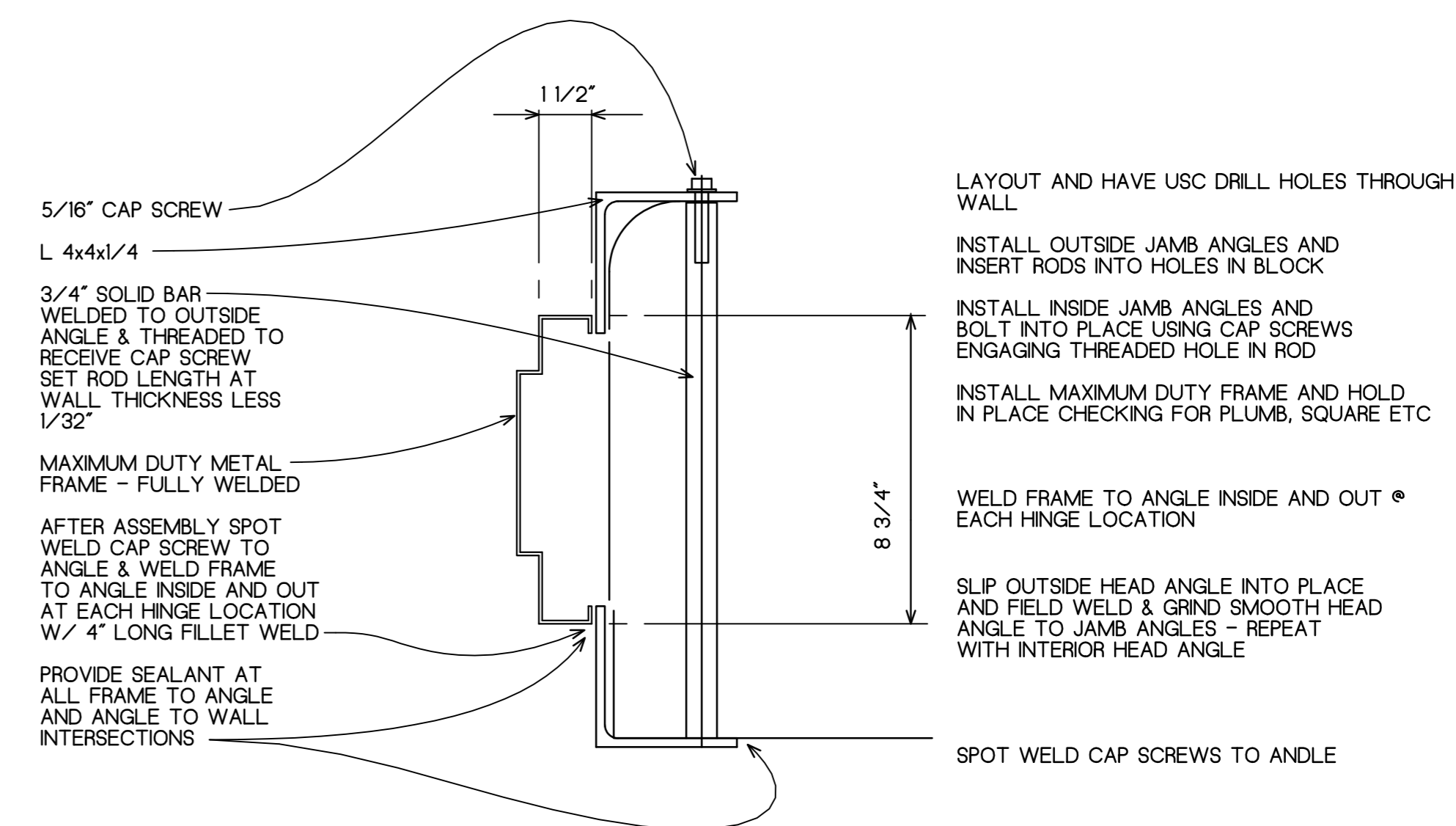
FRAMED OPNG @ RM 113

SCALE: 1" = 1'-0"



ISOMETRIC

SCALE: 1" = 1'-0"



JAMB DETAIL

SCALE: 1" = 1'-0"



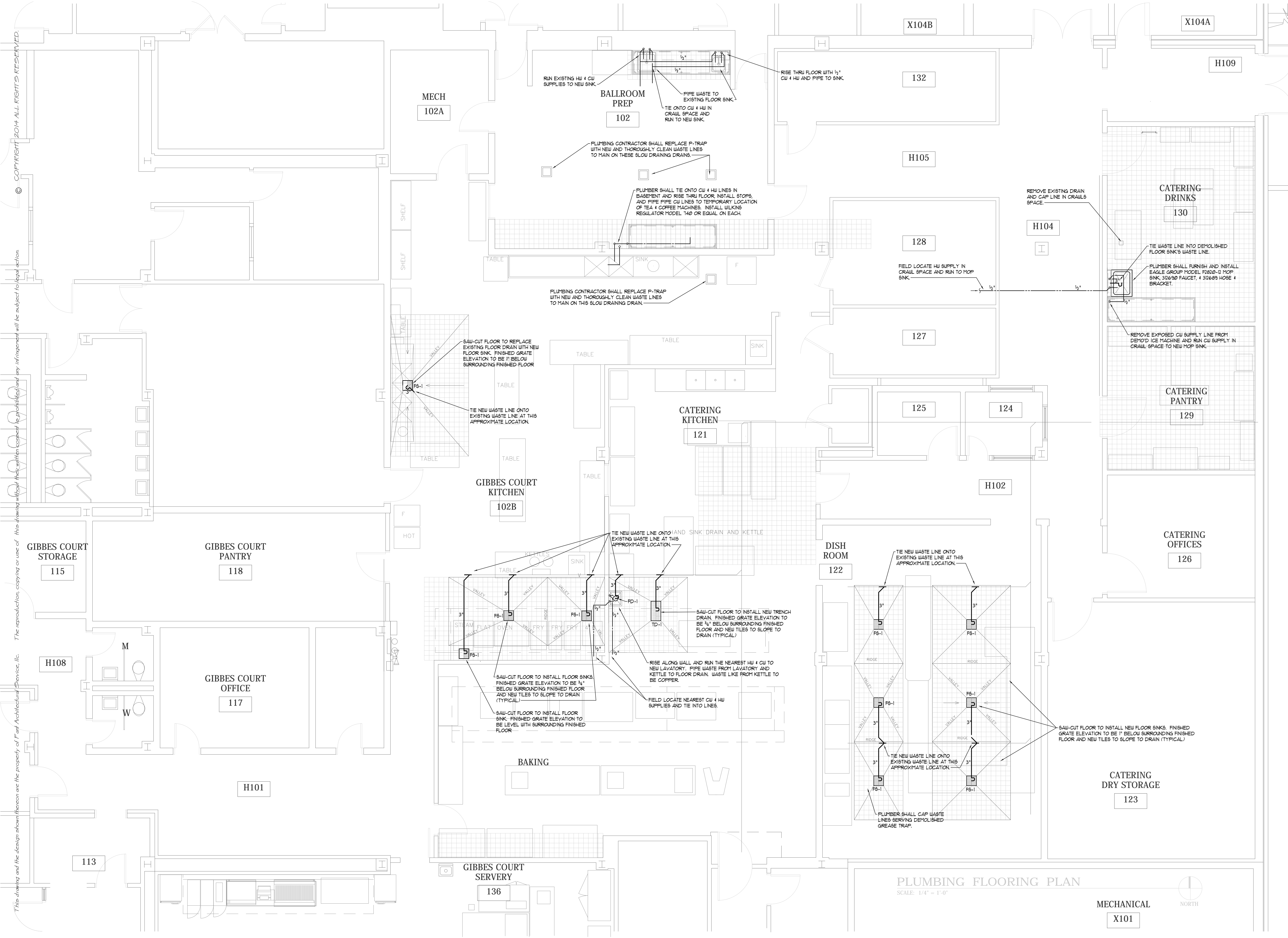
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Drawn by Inf
File name 1209 GIBBES.DWG Rev: 0
Plotted on 4/25/2014
Drawing date 5/21/2014
REV ▲ ▲ ▲
NORTH

CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
For USC in
Columbia, S. C.
CP00391833

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Job Number: H27-2159
 Drawn by: FEF
 File name: 12-28 P1 PLUMBING PLAN
 Plotted on:
 Drawing date: 3-21-2014

MECH 102A
 BALLROOM PREP 102
 MECH 102B
 GIBBES COURT KITCHEN 102B
 GIBBES COURT OFFICE 117
 GIBBES COURT PANTRY 118
 GIBBES COURT STORAGE 115
 GIBBES COURT SERVERY 136
 CATERING KITCHEN 121
 DISH ROOM 122
 CATERING DRY STORAGE 123
 CATERING PANTRY 129
 CATERING OFFICES 126
 CATERING DRINKS 130
 CATERING 132
 CATERING 128
 CATERING 127
 CATERING 125
 CATERING 124

MECH 102A
 BALLROOM PREP 102
 MECH 102B
 GIBBES COURT KITCHEN 102B
 GIBBES COURT OFFICE 117
 GIBBES COURT PANTRY 118
 GIBBES COURT STORAGE 115
 GIBBES COURT SERVERY 136
 CATERING KITCHEN 121
 DISH ROOM 122
 CATERING DRY STORAGE 123
 CATERING PANTRY 129
 CATERING OFFICES 126
 CATERING DRINKS 130
 CATERING 132
 CATERING 128
 CATERING 127
 CATERING 125
 CATERING 124

PLUMBING FLOORING PLAN
 SCALE: 1/4" = 1'-0"

MECHANICAL
 NORTH

Capstone Gibbes Court Kitchen Renovations
 For USC in
 Columbia, S. C.
 H 27 - 2159

FELKEL & HASTINGS
 Mechanical Engineers
 Columbia, S.C. 29205
 Comm. No.: 13-38
 Date: 04-25-14

FELKEL & HASTINGS
 MECHANICAL ENGINEERS
 No. 000429

FELKEL & HASTINGS
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 No. 000429

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Sheet
 P1
 Of 2 Sheets

DRAIN SCHEDULE							
SYMBOL	JOSAM NO.	SMITH NO.	ADVANCE TABCO, INC.	SIZE	TOP MATERIAL	BODY MATERIAL	ACCESSORIES
FD-1	30000-A	2010-A	_____	5"	P/B	C.I.	SQUARE TOP
FS-1	49043AS-15-31	3008	_____	3"	P/B	PORCELAIN COATED C.I.	12" x 12", GRATE AS SHOWN ON PLANS
TD-1	_____	_____	FTG-1224-X	3"	S.S.	STAINLESS STEEL	12" x 24", FULL GRATE

PLUMBING SPECIFICATIONS

RELATED DOCUMENTS:

THE PROVISIONS OF THE INSTRUCTIONS TO BIDDERS AND THE SUPPLEMENTARY INSTRUCTIONS (ARTICLES 9 & 10), GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS, PARTS I AND II OF THESE SPECIFICATIONS SHALL GOVERN THE WORK UNDER ALL DIVISIONS OR SECTIONS THE SAME AS IF INCORPORATED THEREIN AND ARE BINDING ON THE CONTRACTOR AND EACH SUBCONTRACTOR.

SCOPE:

THESE SPECIFICATIONS TOGETHER WITH THE ACCOMPANYING PLUMBING DRAWINGS ARE INTENDED TO PROVIDE COMPLETE PLUMBING INSTALLATION FOR THE RENOVATION AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS.

GENERAL:

ALL WORK SHALL BE PERFORMED BY SKILLED AND CAPABLE WORKMEN UNDER COMPETENT SUPERVISION, EMPLOYING LATEST AND BEST PRACTICES OF THE TRADE. WORK SHALL BE INSTALLED ACCORDING TO THE ADOPTED LOCAL PLUMBING CODE, AND SHALL MEET WITH PLUMBING INSPECTOR'S APPROVAL IN EVERY RESPECT. LOCAL CODE SHALL APPLY WHERE SUCH CODE EXCEEDS REQUIREMENTS OF THIS SPECIFICATION. IN ABSENCE OF CODE OR AUTHORITIES, INSTALL ALL WORK ACCORDING TO THE INTERNATIONAL PLUMBING CODE.

PLUMBING CONTRACTOR SHALL OBTAIN ALL PERMITS AND LICENSES, AT HIS OWN EXPENSE, AND SHALL PAY ALL SERVICE CHARGES REQUIRED FOR PROSECUTION OF THIS WORK.

PLUMBING DRAWINGS ARE DIAGRAMMATIC ONLY, AND DO NOT SHOW ALL OFFSETS, FITTINGS, ETC. COORDINATE WORK WITH OTHER TRADES, FURNISHING AND INSTALLING ALL FITTINGS, OFFSETS, ETC., REQUIRED AT NO ADDITIONAL COST TO OWNER.

MATERIALS:

SOIL, WASTE, AND VENT PIPING - CAST IRON WITH FOUR BAND NO-HUB COUPLINGS AS MANUFACTURED BY CHARLOTTE PIPE AND FOUNDRY.

CLEANOUTS AND DRAINS - JOSAM, SMITH, OR ZURN.

WATER PIPING - DIELECTRIC COUPLINGS AND UNIONS SHALL BE EPCO, MAYCO, WARRICK.
ALL WATER PIPING RUN INSIDE OF BUILDING SHALL BE TYPE "L" COPPER.

VALVES - BALL TYPE AS MANUFACTURED BY JENKINS BROTHERS CO., OR HAMMOND.

FIXTURES - ALL FIXTURES SHALL BE NEW, FIRST QUALITY, AND FREE FROM DEFECTS. FIXTURES SHALL BE FURNISHED COMPLETE WITH SUPPLY PIPES, STOP VALVES, TRAPS, FAUCETS, ESCUTCHEONS, HANGERS, SUPPORTS, SINK FRAMES, ETC.

INSULATION - OWENS-CORNING CO. UL RATED "FIBERGLAS 25 ASJ" NONCOMBUSTIBLE HEAVY DENSITY PIPE INSULATION ON ALL WATER PIPING.

GUARANTEE:

ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP COVERED BY THIS CONTRACT SHALL BE FREE FROM DEFECTS OF ANY NATURE FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.

PLUMBING SPECIFICATIONS

SOIL, AND WASTE PIPING - CAST IRON AS MANUFACTURED BY CHARLOTTE PIPE AND FOUNDRY, FOUR BAND NO-HUB COUPLINGS.

CLEANOUTS AND DRAINS - J. R. SMITH OR JOSAM.

VENT PIPING - FURNISH AND INSTALL ALL VENT PIPING AS INDICATED ON PLANS USING CAST IRON PIPE AS MANUFACTURED BY CHARLOTTE PIPE AND FOUNDRY.

WATER PIPING - DIELECTRIC COUPLINGS AND UNIONS SHALL BE EPCO, MAYCO, WARRICK.
ALL WATER PIPING RUN INSIDE OF BUILDING AND IN CRAWL SPACE SHALL BE TYPE "L" COPPER.

FIXTURES - ALL FIXTURES SHALL BE NEW, FIRST QUALITY, AND FREE FROM DEFECTS. FIXTURES SHALL BE FURNISHED COMPLETE WITH SUPPLY PIPES, STOP VALVES, TRAPS, FAUCETS, ESCUTCHEONS, HANGERS, SUPPORTS, SINK FRAMES, ETC.

INSULATION - OWENS-CORNING CO. UL RATED "FIBERGLAS 25 ASJ" NONCOMBUSTIBLE HEAVY DENSITY PIPE INSULATION ON ALL WATER PIPING.

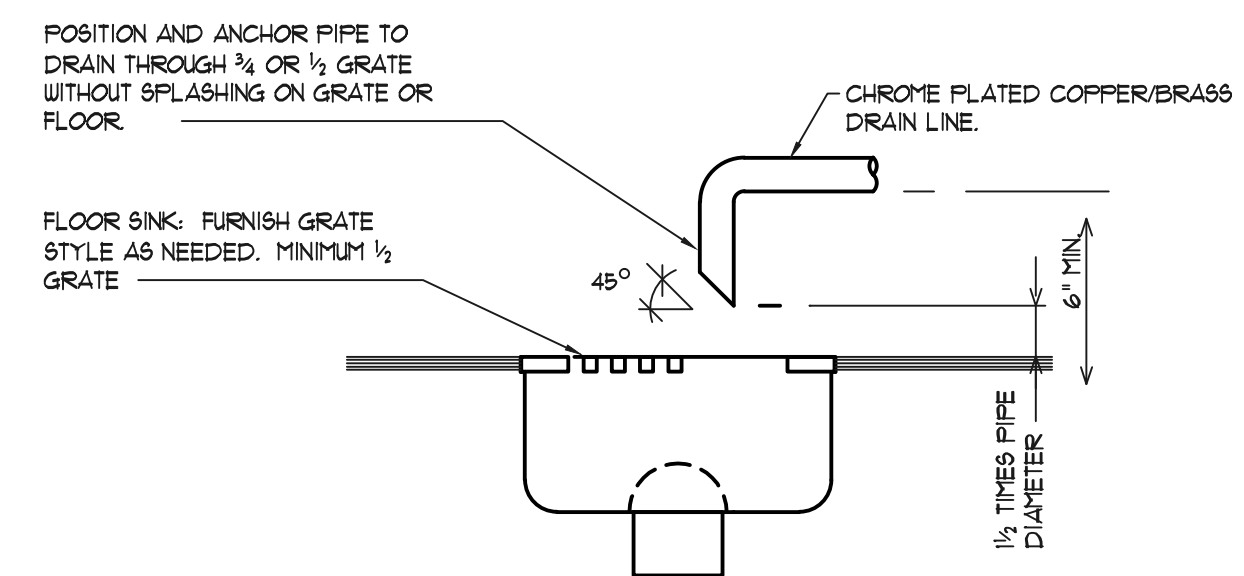
GUARANTEE - ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP COVERED BY THIS CONTRACT SHALL BE FREE FROM DEFECTS OF ANY NATURE FOR A PERIOD OF ONE YEAR.

PLUMBING NOTES

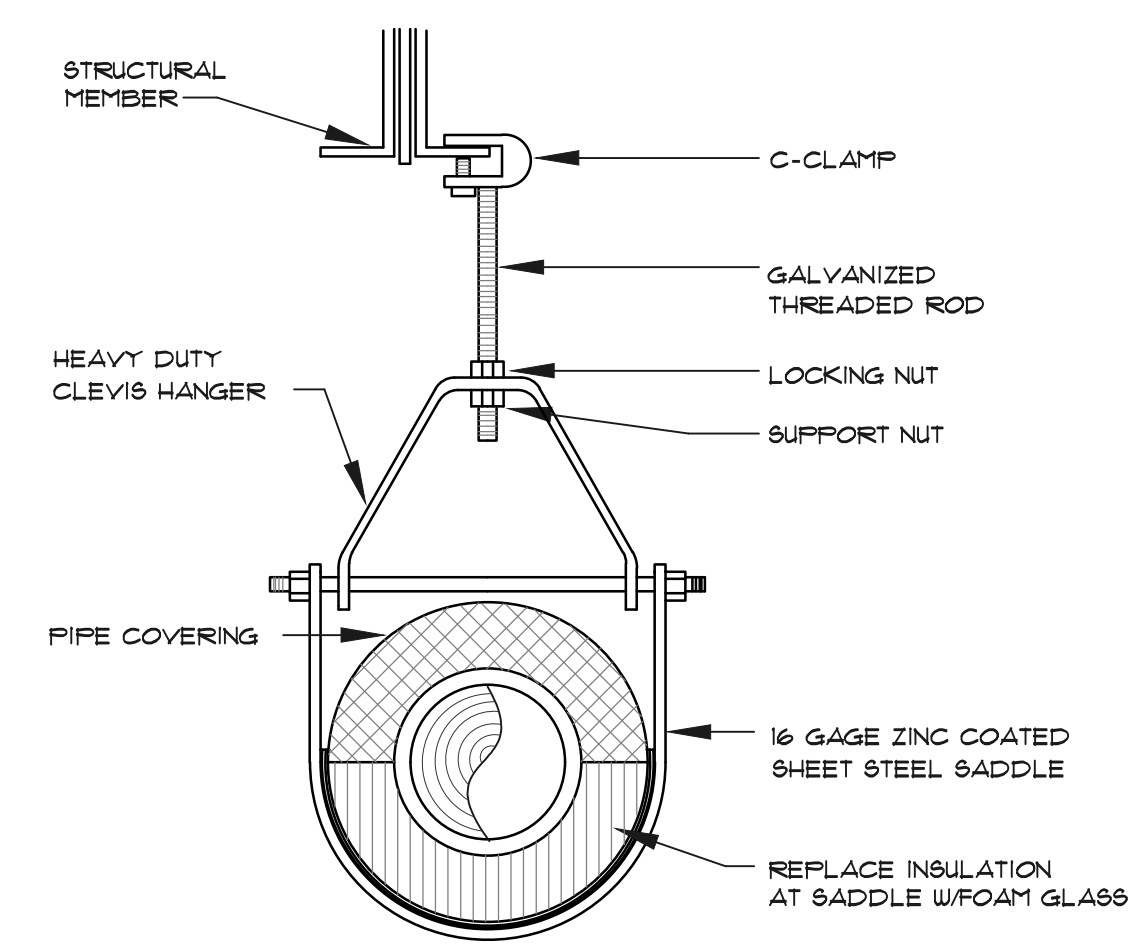
- DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS, FIXTURE, LOCATIONS, ETC.
- EXCEPT WHERE PIPE SPACE IS PROVIDED OR UNLESS OTHERWISE NOTED, ALL SUPPLY, WASTE AND VENT RISERS SHALL BE RUN IN WALLS AND PARTITIONS.
- GENERALLY HOT AND COLD WATER PIPING RUN IN CRAWL SPACE, SEE PLANS.
- COORDINATE CLOSELY WITH ALL WORK DONE UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE AND CONFLICT.
- CONTRACTOR WILL ROUGH-IN ALL WASTE AND SUPPLIES TO SPECIAL EQUIPMENT ACCORDING TO MANUFACTURER'S SHOP DRAWINGS AND MAKE FINAL CONNECTIONS. ALL SUPPLIES WILL BE VALVED.
- CONTRACTOR WILL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
- PLUMBING CONTRACTOR SHALL SAW-CUT FLOOR AS REQUIRED TO INSTALL NEW WASTE PIPING BELOW FLOOR SLAB. GENERAL CONTRACTOR SHALL REPAIR FLOOR TO MATCH BACK TO EXISTING, SEE ARCHITECTURAL PLANS.
- ALL WATER PIPING SHALL BE INSULATED AS DIRECTED IN SPECIFICATIONS.

PLUMBING SYMBOLS

	SOIL OR WASTE PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	CLEANOUT IN WALL
	CLEANOUT IN FLOOR OR TO GRADE
	BALL VALVE
	FLOOR DRAIN
	FLOOR SINK



TYPICAL INDIRECT DRAIN



NOTE: TRAPEZE HANGERS ALSO ACCEPTABLE.

PIPE HANGER DETAIL
NOT TO SCALE

Job Number: H27-2109
 Drawn by: PEF
 File name: 15-08 P2 NSD
 Plotted on: _____
 Drawing date: 5-21-2014
 PEF

H 27 - Z 159
Capstone Gibbes Court Kitchen Renovations
For USC in
Columbia, S. C.

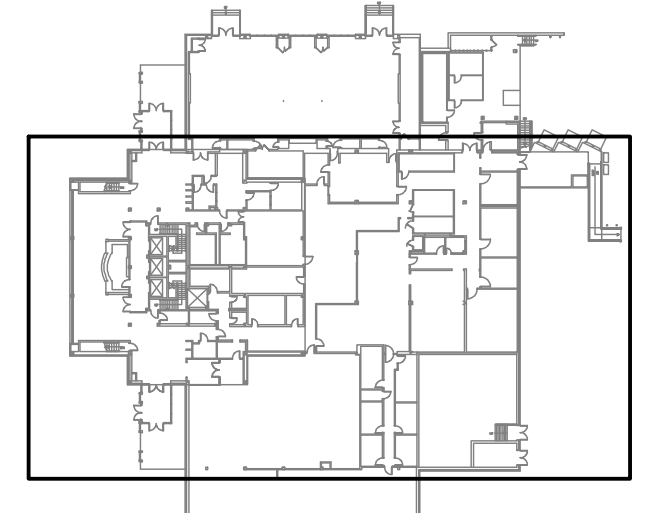
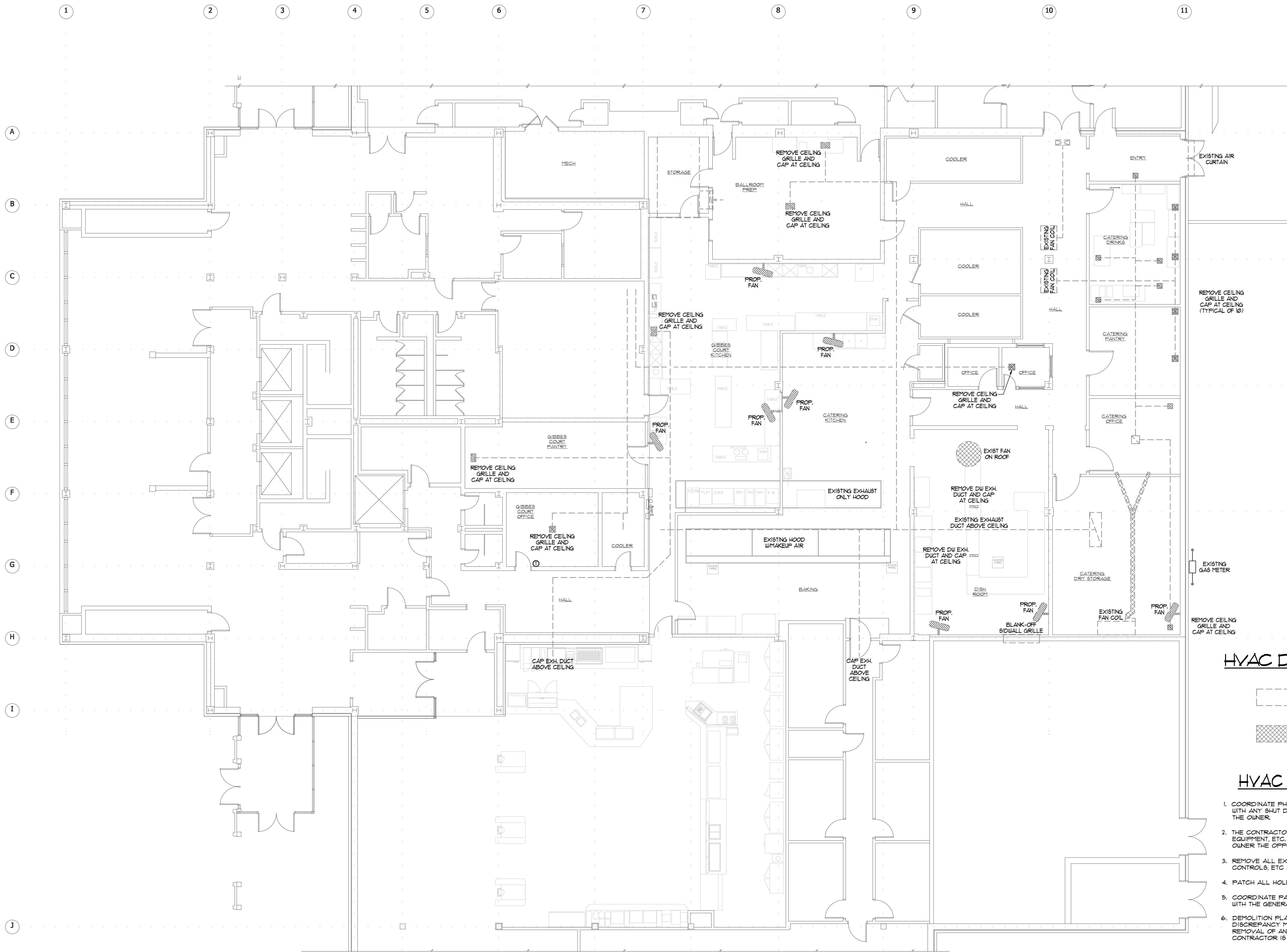
CAROLINA PROFESSIONAL ENGINEERS
 No. 12548
 FLOOR DRAIN
 FLOOR SINK

CAROLINA PROFESSIONAL ENGINEERS
 No. 00042
 CERTIFICATE OF ACHIEVEMENT

FELKEL & HASTINGS
 2725 Cypress Street
 Columbia, S.C. 29205
 Comm. No.: 13-38
 Date: 04-23-14

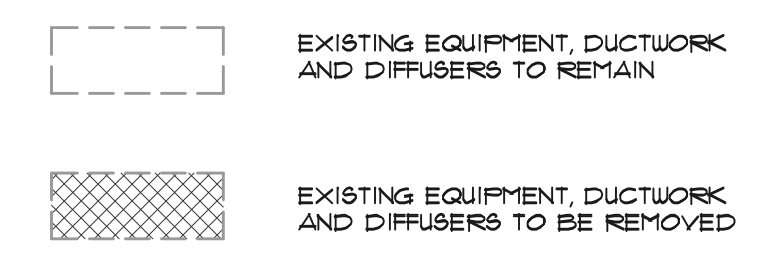
FAS
Fant Architectural Service, Inc
 3610 Landmark Dr., Suite C, Columbia SC, 29204-4038 / 803.233.3889 Y / 803.233.6861 F / Tiant@FantArchitecturalService.com

Sheet
P2
 Of 2 Sheets



KEY PLAN

HVAC DEMOLITION LEGEND

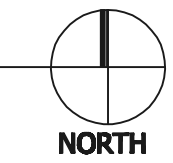


HVAC DEMOLITION NOTES

1. COORDINATE PHASING OF ALL DEMOLITION AND NEW WORK ALONG WITH ANY SHUT DOWNS REQUIRED FOR SYSTEM CHANGE OVER, WITH THE OWNER.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE DISPOSAL OF ALL HVAC EQUIPMENT, ETC. TO BE REMOVED AFTER FIRST ALLOWING THE OWNER THE OPPORTUNITY TO KEEP ANY ITEMS HE CHOOSES.
3. REMOVE ALL EXISTING HVAC EQUIPMENT, DUCTWORK, PIPING, GRILLES, CONTROLS, ETC AS INDICATED ON THE DEMOLITION PLAN.
4. PATCH ALL HOLES IN EXISTING DUCTWORK THAT IS TO REMAIN.
5. COORDINATE PATCHING OF THE REMAINING FLOOR AND WALL OPENINGS WITH THE GENERAL CONTRACTOR.
6. DEMOLITION PLANS ARE BASED ON "AS-BUILT" PRINTS, SOME FIELD DISCREPANCY MAY EXIST. IF THERE IS ANY DOUBT CONCERNING THE REMOVAL OF AN ITEM SHOWN OR NOT SHOWN ON THESE PLANS, THE CONTRACTOR IS TO CONSULT THE ENGINEER PRIOR TO REMOVAL.

HVAC DEMOLITION PLAN

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



SOUTH CAROLINA
 FENNEL & HASTINGS,
 CONSULTING
 MECHANICAL
 ENGINEERS
 No. 000429
 CERTIFICATE OF AUTHORIZATION
 SOUTH CAROLINA
 PROFESSIONAL
 ENGINEERS
 No. 12548
 LOUIS C. BUSTO

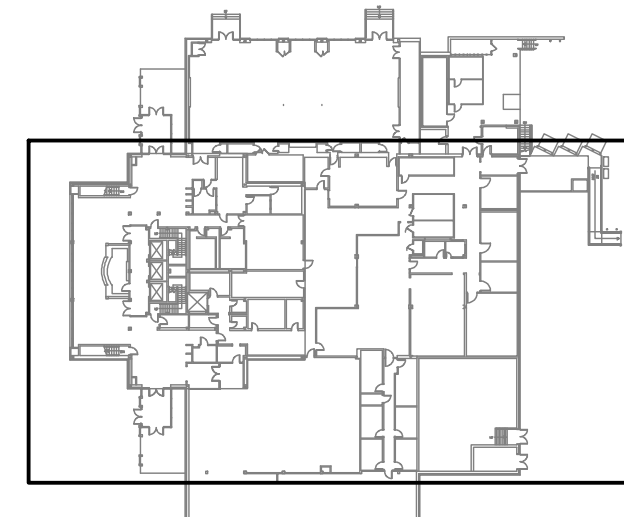
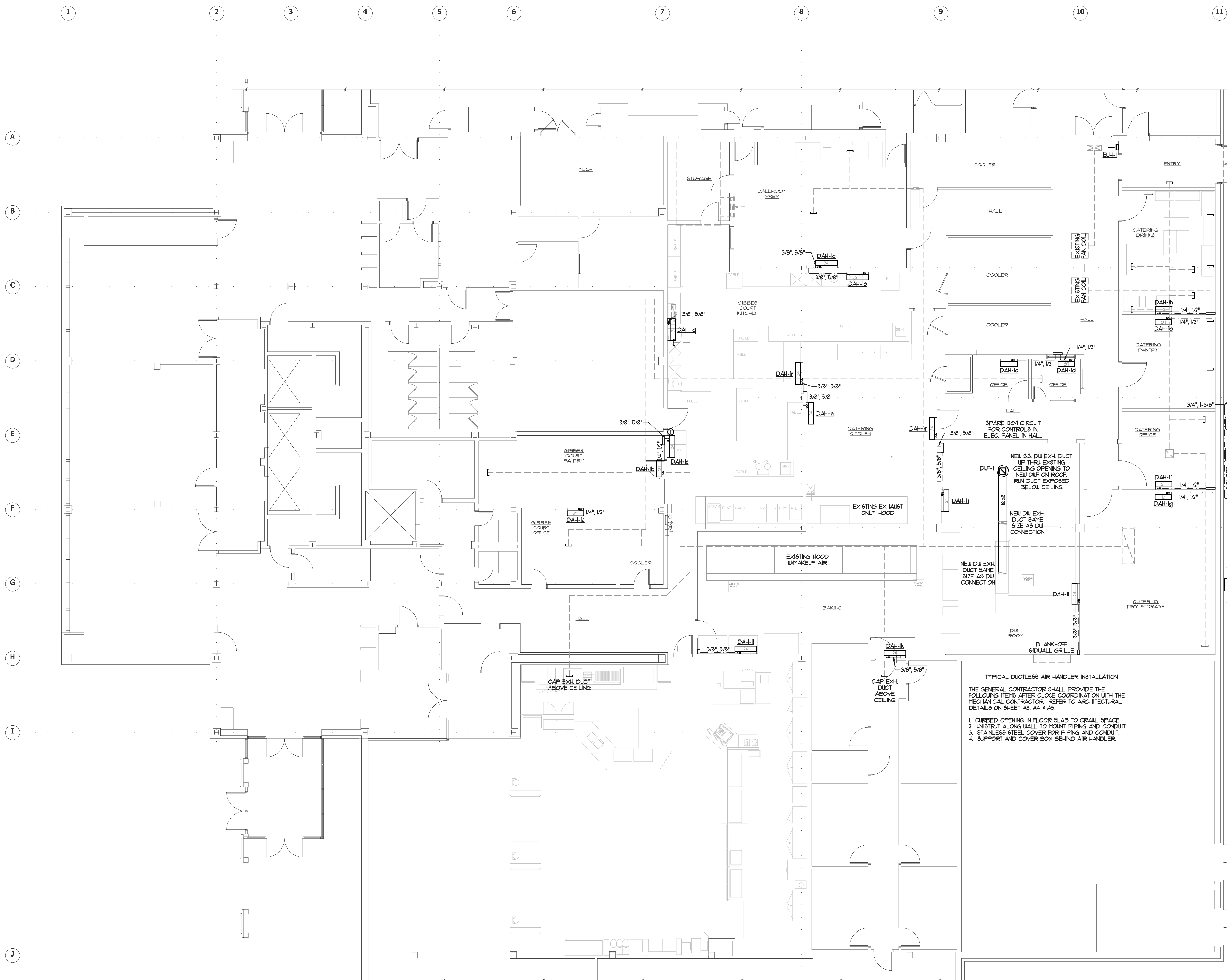
FELKEL & HASTINGS
 Mechanical Engineers
 2725 Cypress Street
 Columbia, S.C. 29205
 Comm. No.: 13-38 Date: 04-25-14

Job Number	1509
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File name	
Plotted on	
Drawing Date	3/21/14
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CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
 For USC in
 Columbia, S. C.
 H 27 - Z159

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 3619 Landmark Dr, Suite C, Columbia SC, 29204-4038 / 803.333.3999 V / 803.333.7279 M / Ttans@fantarchitecturalservice.com

Sheet	MD1
Of 5 Sheets	



KEY PLAN

ROUTE REFRIG. PIPING INTO CRAWL SPACE. SEE SHEET PG FOR CONTINUATION.

DASHED LINE REPRESENTS BOTH LIQUID & GAS REFRIGERANT PIPING OF DIFFERENT SIZES. 3/8" 3/4" INDICATES LIQUID, GAS REFRIGERANT LINES SIZES. EXACT PIPE SIZES SHALL BE DETERMINED BY VRY SUPPLIER PRIOR TO INSTALLATION. PROVIDE PIPE LENGTHS, VERTICAL RISE AND NUMBER OF ELBOWS TO SUPPLIER FOR SIZING.

3/8" 3/4" CU-A
3/8" 3/4" CU-B
4" CONC. PAD
MIN. SERVICE CLEARANCE

EXISTING GAS METER

TYPICAL DUCTLESS AIR HANDLER INSTALLATION

THE GENERAL CONTRACTOR SHALL PROVIDE THE FOLLOWING ITEMS AFTER CLOSE COORDINATION WITH THE MECHANICAL CONTRACTOR. REFER TO ARCHITECTURAL DETAILS ON SHEET A3, A4 & A5.

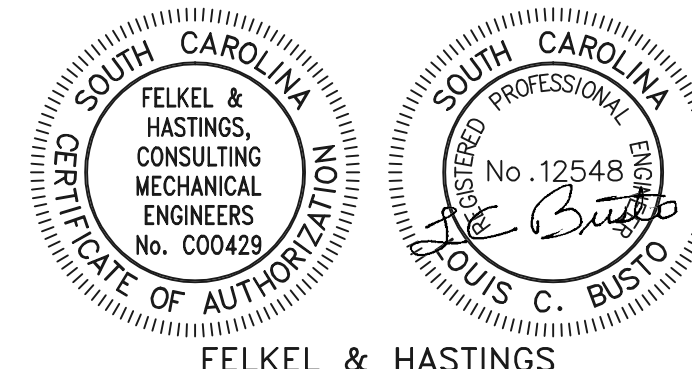
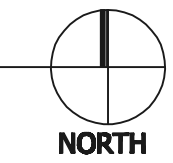
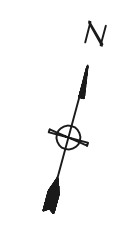
1. CURBED OPENING IN FLOOR SLAB TO CRAWL SPACE.
2. UNISTRUT ALONG WALL TO MOUNT PIPING AND CONDUIT.
3. STAINLESS STEEL COVER FOR PIPING AND CONDUIT.
4. SUPPORT AND COVER BOX BEHIND AIR HANDLER.

HVAC LEGEND

- ⊙ THERMOSTAT
- TS REMOTE TEMPERATURE SENSOR
- O OCCUPANCY SENSOR
- CCF-1 CABINET CEILING FAN NO. 1
- REF-1 ROOF EXHAUST FAN NO. 1
- ICF-1 IN-LINE CABINET FAN NO. 1
- ACF-1 AIR CURTAIN FAN NO. 1
- WEF-1 WALL EXHAUST FAN NO. 1
- DAH-1 AIR HANDLER NO. 1
- CU-1 CONDENSING UNIT NO. 1
- EUH-1 ELECTRIC WALL HEATER NO. 1
- REFRIGERANT PIPING (LIQUID AND GAS)
- CLEANOUT
- CONDENSATE DRAIN LINE
- NATURAL GAS LINE
- EXISTING DUCTWORK, PIPING OR EQUIPMENT TO REMAIN
- NEW DUCTWORK, PIPING OR EQUIPMENT BY CONTRACTOR

HVAC FLOOR PLAN

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



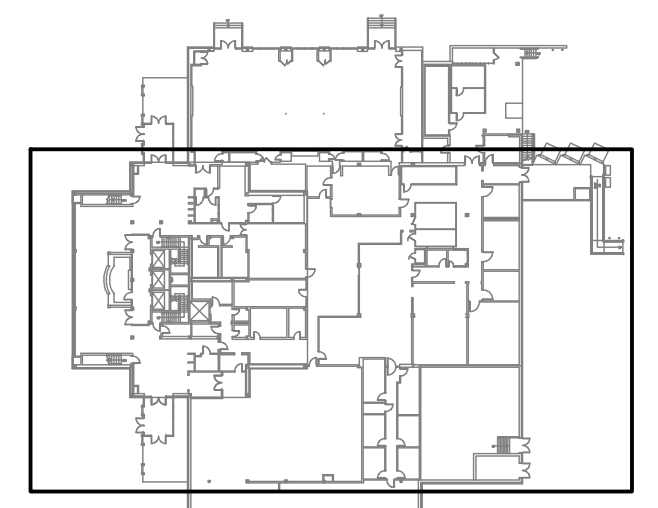
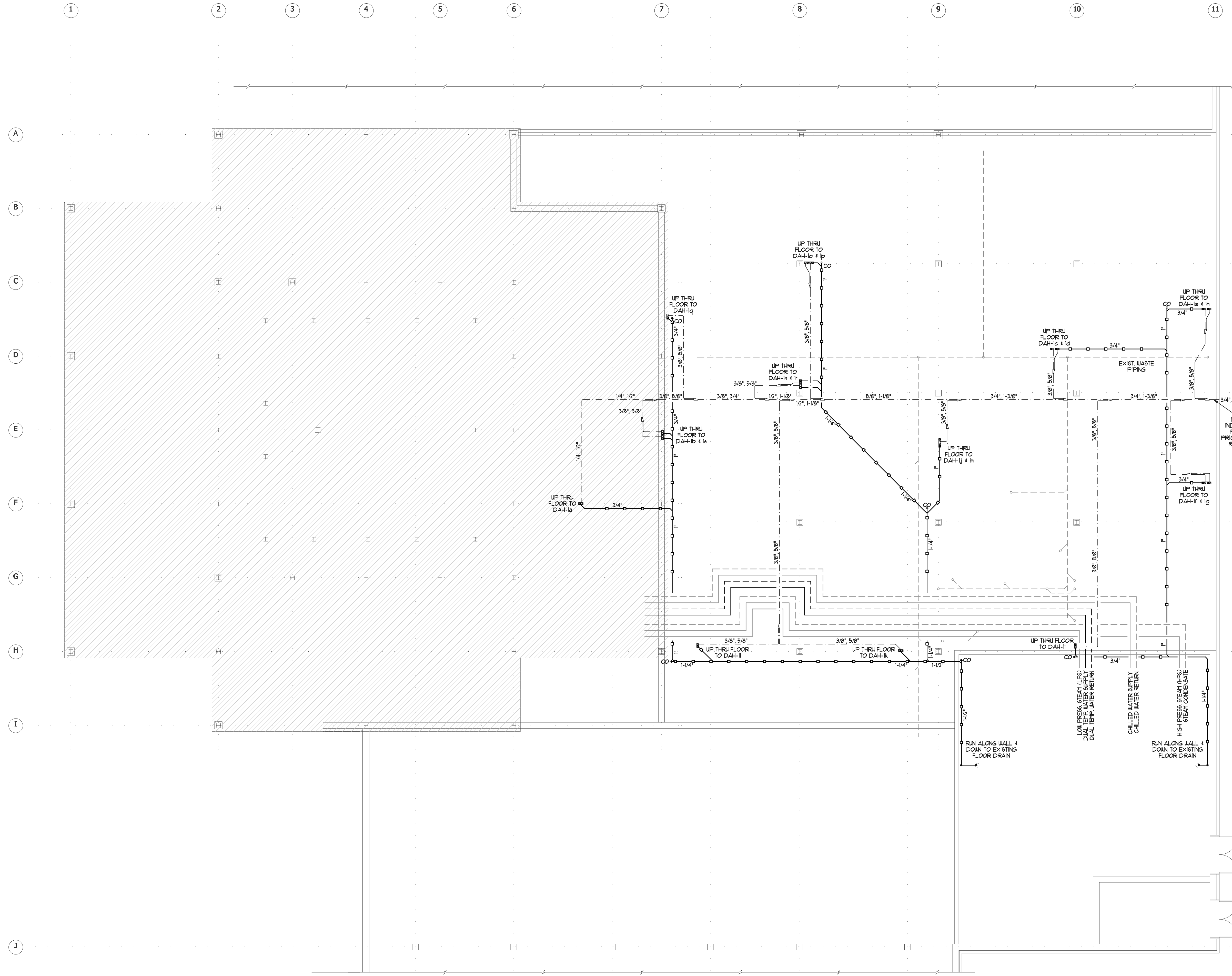
FELKEL & HASTINGS
Mechanical Engineers
2725 Cypress Street
Columbia, S.C. 29205
Comm. No.: 13-38 Date: 04-25-14

Job Number	1309
Drawn by	lch
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Drawing Date	3/21/14
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CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
For USC in Columbia, S. C.
H 27 - Z159



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Of 5 Sheets	

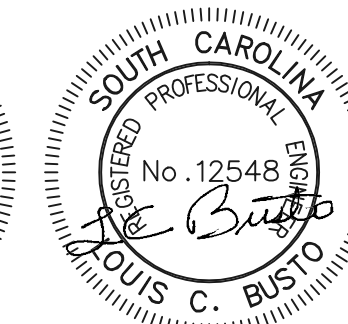
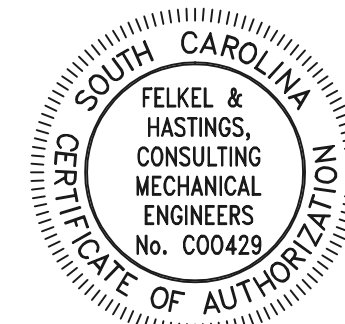
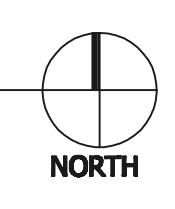


KEY PLAN

DASHED LINE REPRESENTS BOTH LIQUID & GAS REFRIGERANT PIPING OF DIFFERENT SIZES. 3/4", 1-3/8" INDICATES LIQUID, GAS REFRIGERANT LINES SIZES. EXACT PIPE SIZES SHALL BE DETERMINED BY R.V.V. SUPPLIER PRIOR TO INSTALLATION. PROVIDE PIPE LENGTHS, VERTICAL RISE AND NUMBER OF ELBOUS TO SUPPLIER FOR SIZING

HVAC CRAWL SPACE PLAN

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



FELKEL & HASTINGS
Mechanical Engineers
2725 Cypress Street
Columbia, S.C. 29205
Comm. No.: 13-38 Date: 04-25-14

Job Number	1509
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File name	
Plotted on	
Drawing Date	3/21/14
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For USC in
Columbia, S. C.
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Of 5 Sheets

HVAC GENERAL NOTES

1. REFER TO ARCHITECTURAL PLANS FOR THE EXACT LOCATIONS OF ALL WALL MOUNTED DUCTLESS AIR HANDLERS AND HORIZONTAL / VERTICAL PIPING CHASES. PIPE CHASES TO ACCOMMODATE INSULATED REFRIGERANT PIPING, CONDENSATE DRAIN PIPING AND ELECTRICAL CONDUIT.

2. ALL ROOF MOUNTED EQUIPMENT REQUIRING SERVICE SHALL BE LOCATED A MINIMUM OF 10 FT. FROM THE EDGE OF ANY ROOF THAT IS 30' OR MORE ABOVE FLOOR, GRADE OR ADJOINING ROOF. OTHERWISE COORDINATE WITH THE GENERAL CONTRACTOR TO PROVIDE A 42" HIGH GUARD RAIL EXTENDING 30" BEYOND EACH END OF THE EQUIPMENT PER 2009 IMC 304.11.

3. COORDINATE WITH THE GENERAL CONTRACTOR THE EXACT LOCATION OF ALL WALL AND FLOOR PENETRATIONS. AVOID PENETRATING ANY STRUCTURAL MEMBERS UNLESS NOTED ON THE ARCHITECTURAL PLANS. WHERE CONFLICTS ARISE, THE MECHANICAL CONTRACTOR SHALL SUBMIT A DRAWING TO THE ENGINEER SHOWING HIS PROPOSED SOLUTION.

4. DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.

5. VERIFY ALL THERMOSTAT LOCATIONS WITH THE ARCHITECT AND OWNER.

6. ROUTE 3/4" CONDENSATE LINE FROM EACH DUCTLESS AIR HANDLER DOWN IN VERTICAL CHASE AND INTO CRAWL SPACE. CONDENSATE LINES SHALL BE TRAPPED IN CRAWL SPACE AND SLOPED 1/8" PER FOOT IN HORIZONTAL RUNS.

7. MOUNT ALL THERMOSTATS 4'-0" ABOVE FINISHED FLOOR AS MEASURED TO THE CONTROL POINT.

8. IF EQUIPMENT TO BE SUPPLIED BY CONTRACTOR IS DIFFERENT THAN THAT SPECIFIED IN PLANS OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL DISCIPLINES ANY CHANGES NEEDED BECAUSE OF UNIT SIZE, ROOF OPENING SIZE, HEIGHT, LOCATION, ELECTRICAL SERVICE, ETC.

9. COORDINATE VOLTAGE OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING EQUIPMENT. ALL POWER AND CONTROL WIRING TO SWITCHES AND ALL OTHER CONTROL COMPONENTS IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. IT IS HIS RESPONSIBILITY TO COORDINATE WITH HIS SUBCONTRACTORS TO ENSURE THAT THIS PRICE IS INCLUDED IN THE OVERALL MECHANICAL PRICE.

VRV DUCTLESS SPLIT SYSTEM HEAT PUMP SCHEDULE

SYMBOL	MFR.	INDOOR UNIT DATA								OUTDOOR UNIT DATA				S.E.E.R.	TOTAL HEATING MBH AT E.A.T. OF 70°F DB/ 60°F WB AND 95°F O.A.	C.O.P.		REFRIG. (R410A) CONNECTION LINE SIZE LIQ & GAS	MAX. LINE L/H (FT.)	REMARKS			
		MODEL NO.	TYPE	CFM HI / LO	NO. OF SPEEDS	APPROX. WEIGHT (LBS.)	(MCA (AMPS)/ Max FS (AMPS))	VOLTAGE CHAR.	FRESH AIR (CFM)	ELEC. HEATER K.W.	MODEL NO.	APPROX. WEIGHT (LBS.)	(MCA (AMPS)/ Max FS (AMPS))			VOLTAGE CHAR.	UNIT				ASHRAE 90.1 MIN.		
																	TOT.					SENS.	UNIT
CU-1	DAIKIN									RXYQ264				268	---	11.7	---	3.5	---	---	---	3	
CU-1A	DAIKIN									RXYQ72	450	30/35	208-3-60								3/8 & 3/4	---	
CU-1B	DAIKIN									RXYQ96	650	43/50	208-3-60								3/8 & 7/8	---	
CU-1C	DAIKIN									RXYQ96	650	43/50	208-3-60								3/8 & 7/8	---	
DAH-1a	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1b	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1c	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1d	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1e	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1f	DAIKIN	FXAQ07	HIGH WALL MOUNT	260/160	2	30	0.4/15	208-1-60	---					7.0	5.0	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1g	DAIKIN	FXAQ12	HIGH WALL MOUNT	290/180	2	30	0.4/15	208-1-60	---					11.1	7.2	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1h	DAIKIN	FXAQ12	HIGH WALL MOUNT	290/180	2	30	0.4/15	208-1-60	---					11.1	7.2	---					1/4 & 1/2	---	1, 2, 3, 4
DAH-1i	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1j	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1k	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1l	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1m	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1n	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1o	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1p	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1q	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1r	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4
DAH-1s	DAIKIN	FXAQ24	HIGH WALL MOUNT	635/470	2	35	0.6/15	208-1-60	---					22.3	14.3	---					3/8 & 5/8	---	1, 2, 3, 4

1. FURNISH WITH RA TEMPERATURE SENSOR.
2. FURNISH WITH BUILT-IN CONDENSATE PUMP.
3. FURNISH WITH BACnet INTERFACE.
4. FURNISH WITH FULL PORT 900 PSI RATED BALL VALVE WITH SCHRADER PORT FOR BOTH LIQUID AND SUCTION LINE.

VENTILATING EQUIPMENT SCHEDULE

SYMBOL	MFR.	MODEL NO.	FAN				MOTOR			CAPACITY		SPACES SERVED	TYPE FAN	CONTROLS	WEIGHT (LBS.)	REMARKS
			TYPE	DIA.	RPM	MAX. SONES	NO. OF SPEEDS	HP OR AMPS	VOLTAGE CHAR.	CFM	S.P. (IN)					
DWF-1	GREENHECK	CUBE-099	CENT.	10	1500	9	1	1/4 HP	120-1-60	600	0.75	DISHWASHER	ROOF UPBLAST	HOOD SWITCH	70	1, 2, 3

1. FURNISH WITH DISCONNECT.
2. FURNISH WITH BACKDRAFT DAMPER.
3. FURNISH WITH ADAPTER ROOF CURB.

ELECTRIC HEATER SCHEDULE

SYMBOL	MFR.	MODEL NO.	TYPE	INPUT KW	VOLTAGE CHAR.	STAGE	CFM	WEIGHT (LBS.)	REMARKS
EWH-1	MARKEL	3320	WALL	3.0	208-1-60	1	---	25	1, 2, 3

1. FURNISH WITH INTEGRAL DISCONNECT.
2. FURNISH WITH TAMPER-PROOF THERMOSTAT AND COVER PLATE.
3. FURNISH WITH FULL SURFACE MOUNTING KIT.

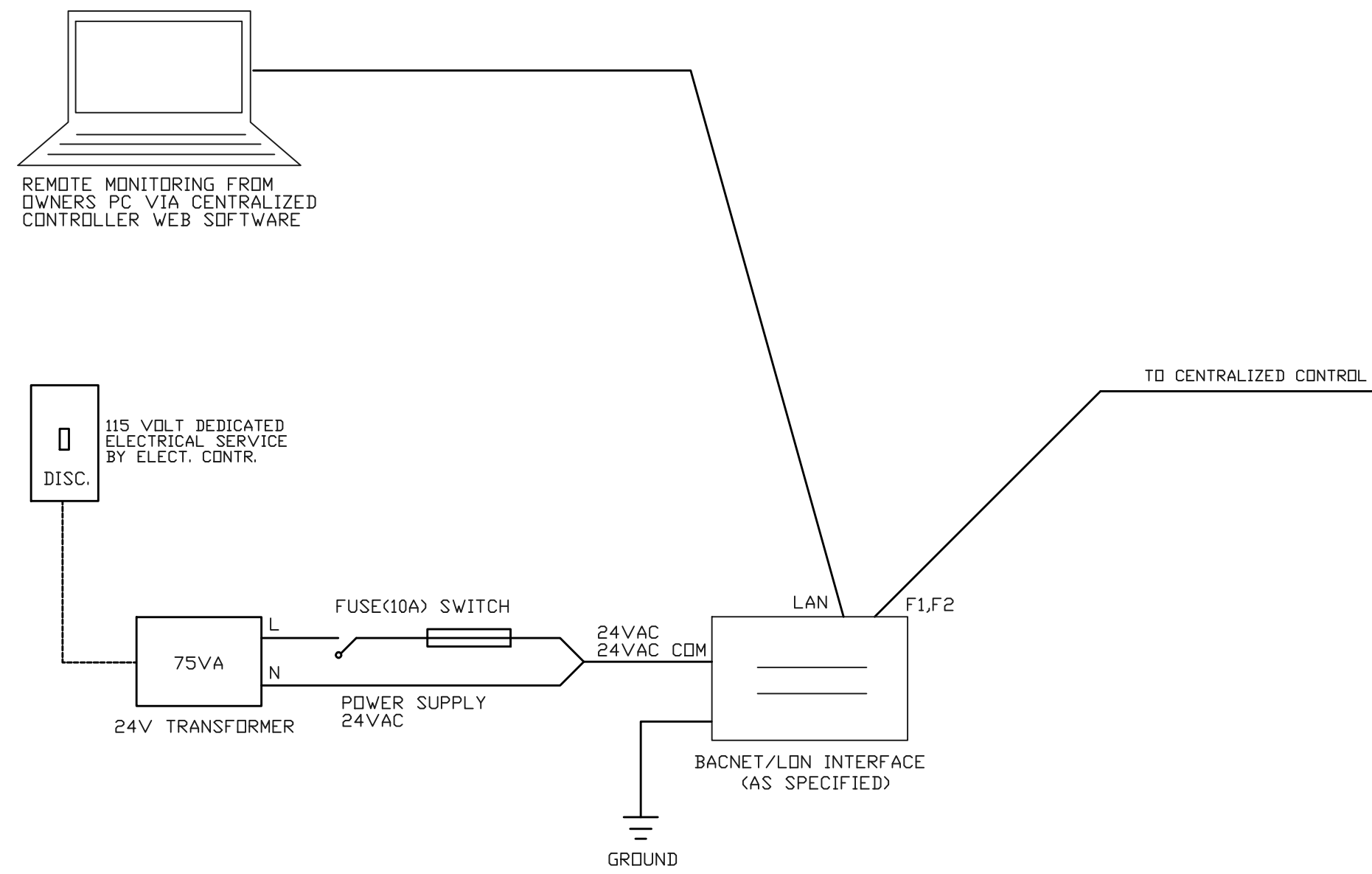
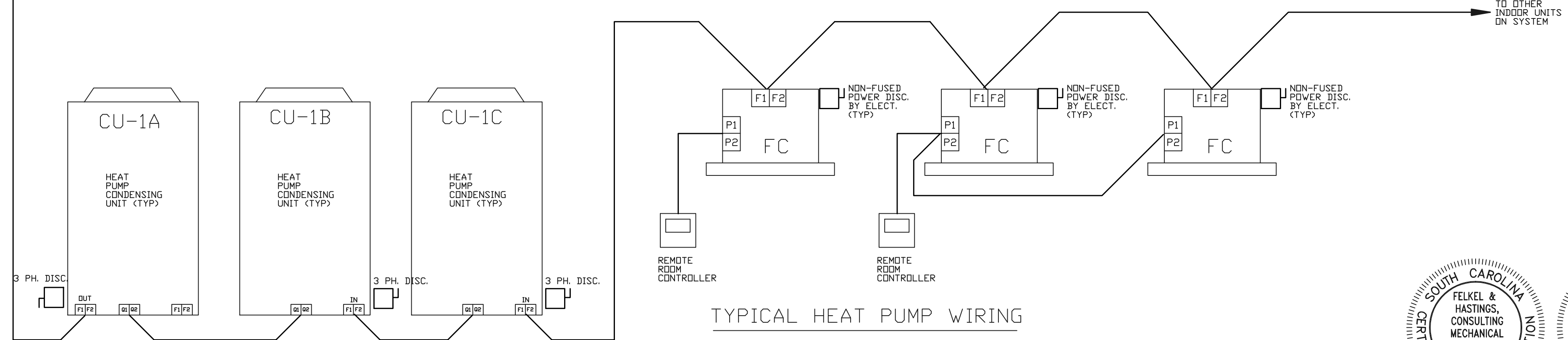


DIAGRAM - CENTRALIZED CONTROL/NETWORK WIRING

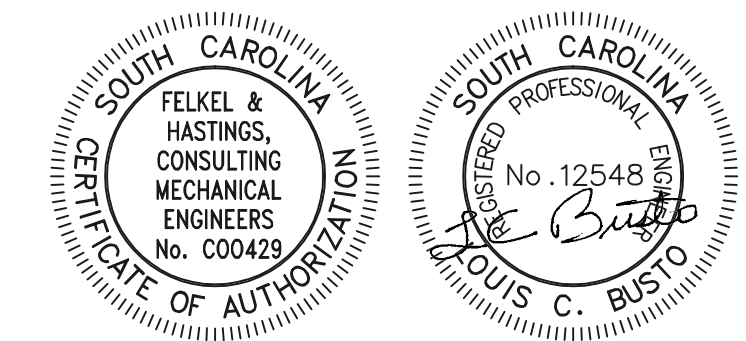
(REFER TO MANUFACTURERS INSTRUCTIONS)

GENERAL NETWORK WIRING NOTE:

1. MAINTAIN A MINIMUM OF 3" SEPARATION BETWEEN CONTROL WIRING AND POWER WIRING TO AVOID INTERFERENCE
2. DISCONNECTS FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR (TYPICAL)
3. CONTROL WIRING SHALL BE PER MANUFACTURERS RECOMMENDATIONS. (i.e. 16/2 STRANDED, NON-SHIELDED COPPER)



TYPICAL HEAT PUMP WIRING



FELKEL & HASTINGS
Mechanical Engineers
2725 Cypress Street
Columbia, S.C. 29205
Comm. No.: 13-38 Date: 04-25-14

Job Number: 1309
Drawn by: kch
File name:
Plotted on:
Drawing Date: 3/21/14
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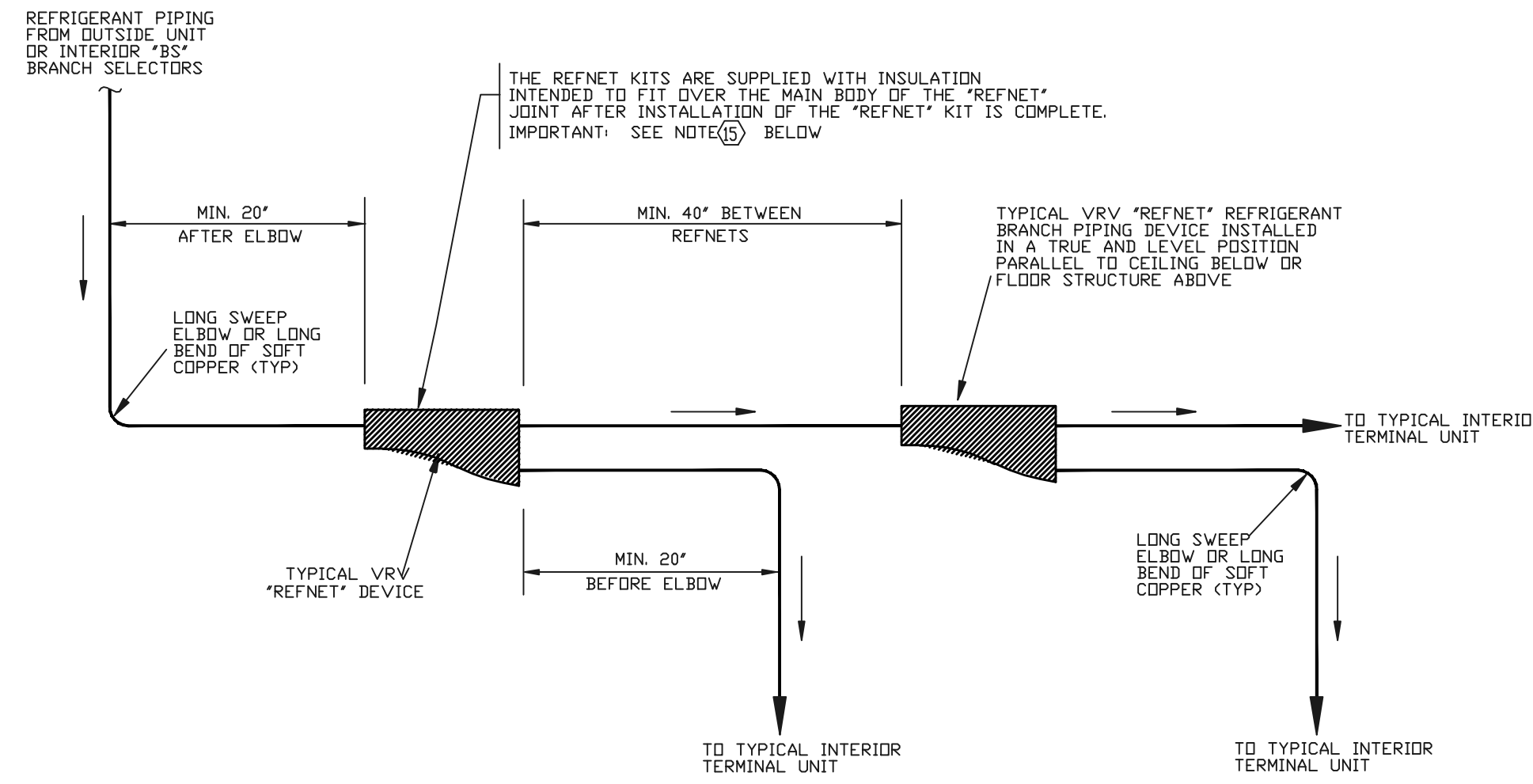


DIAGRAM - PLAN VIEW OF TYPICAL "REFNET" INSTALLATION FOR BRANCH REFRIGERANT PIPING

(REFER TO MANUFACTURERS INSTRUCTIONS)

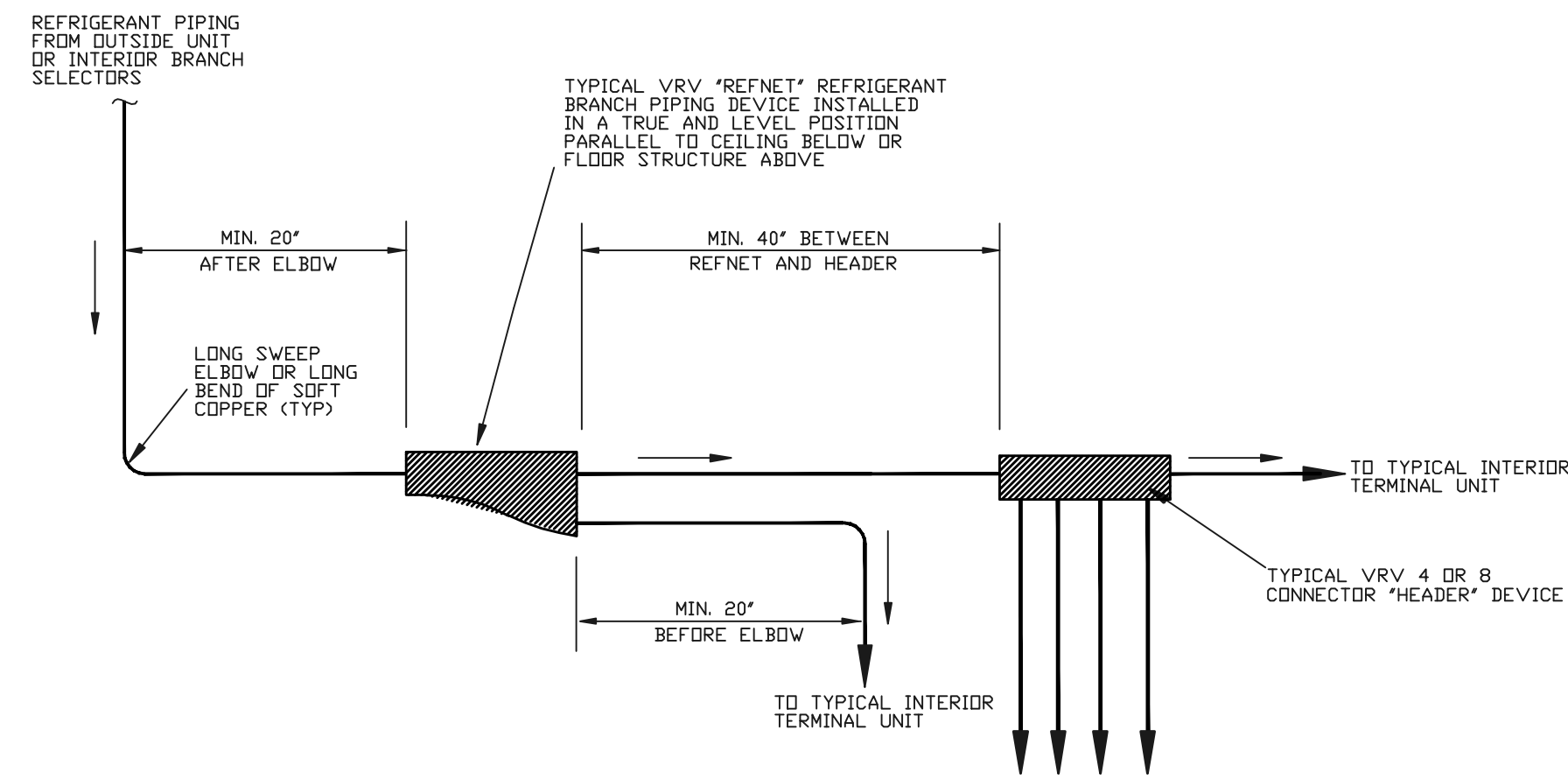
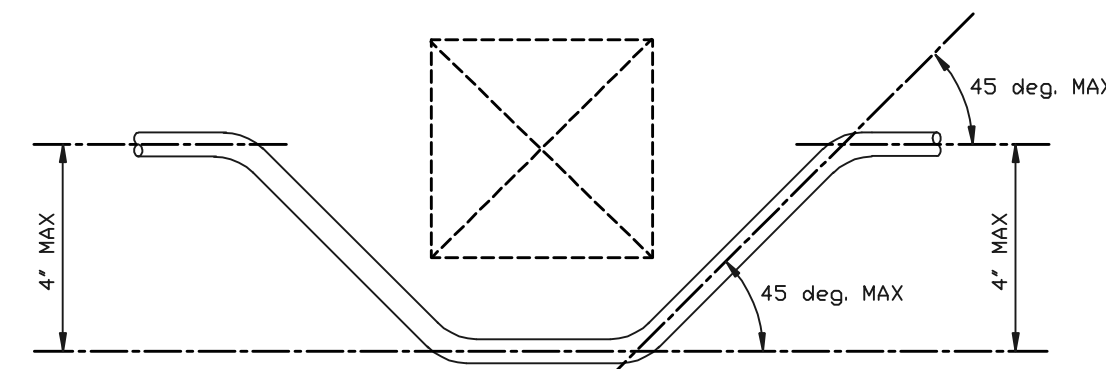
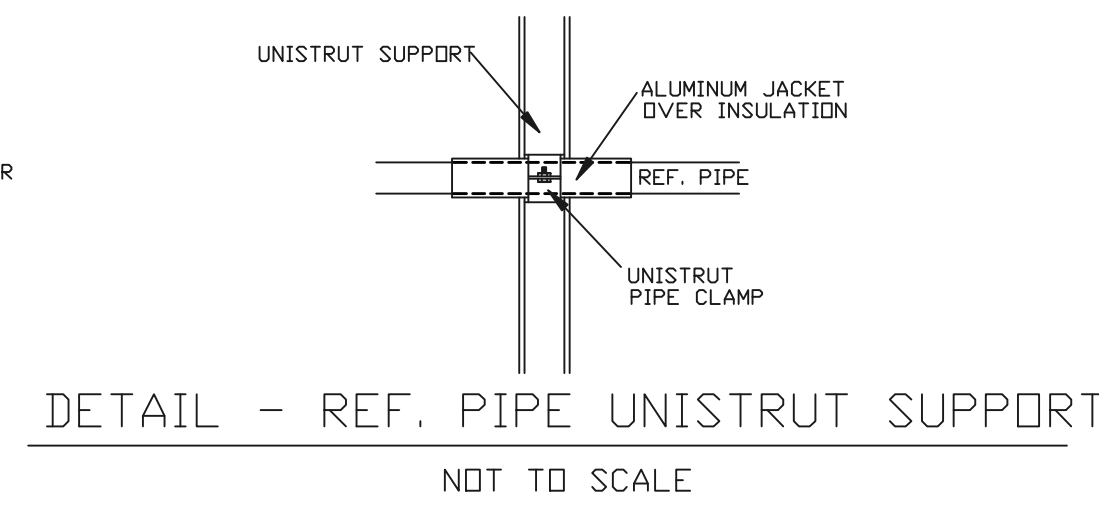
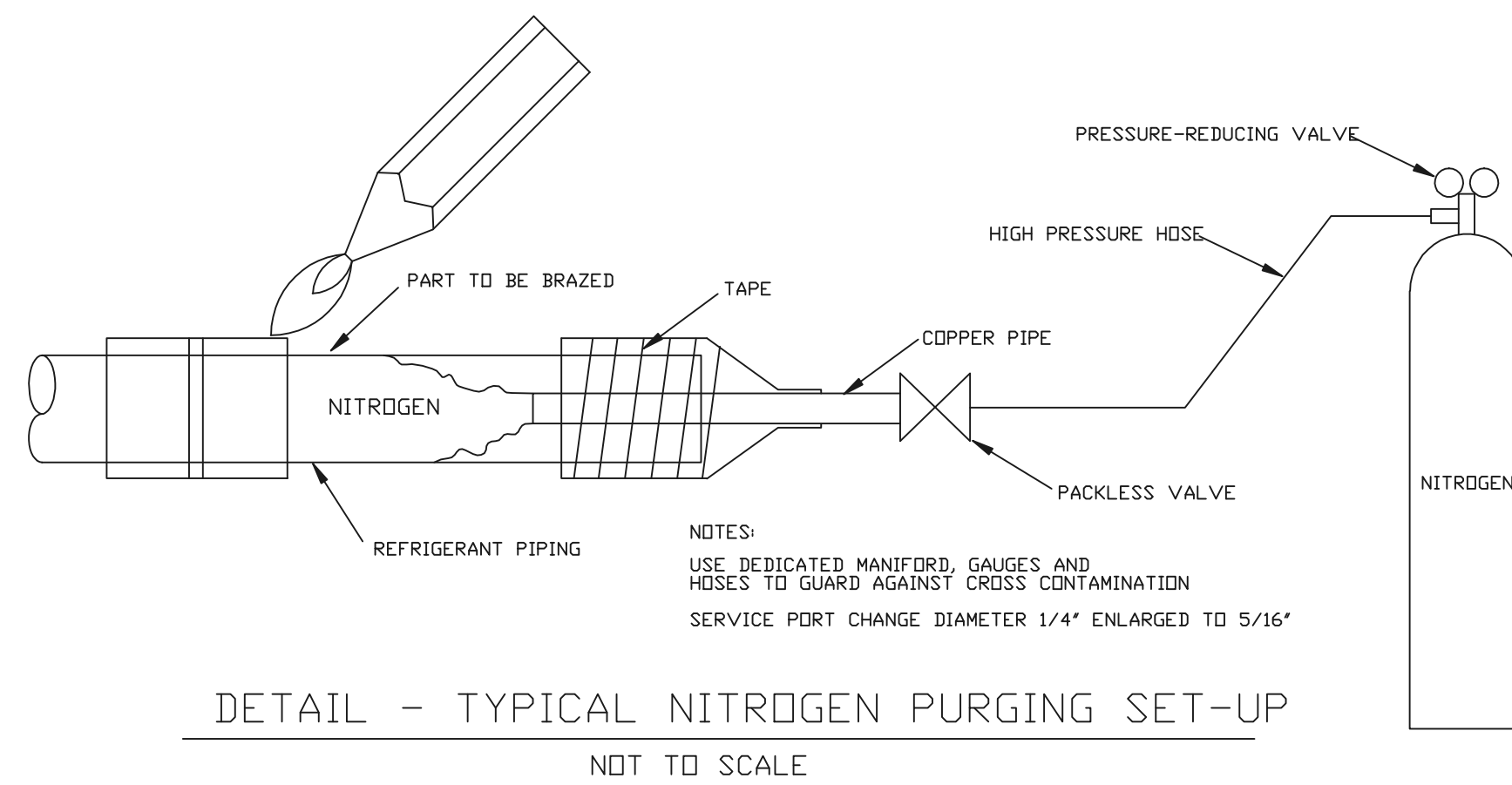
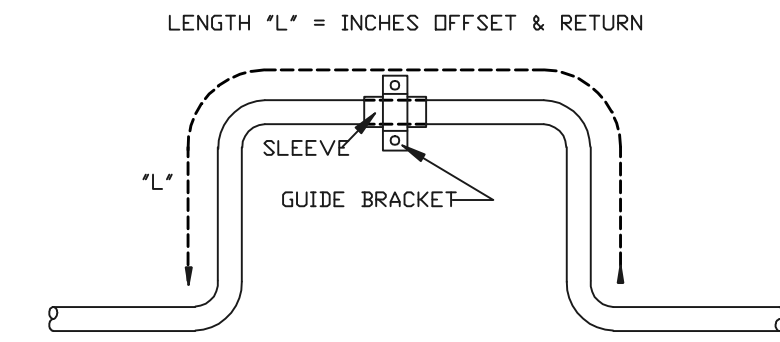


DIAGRAM - PLAN VIEW OF "REFNET" & "HEADER" INSTALLATION FOR BRANCH REFRIGERANT PIPING

(REFER TO MANUFACTURERS INSTRUCTIONS)

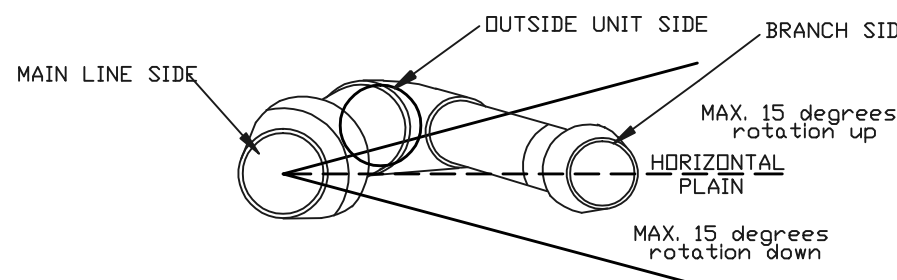


DETAIL - PIPING OFFSET BELOW OBJECT ELEVATION VIEW



NOTE: CALCULATION FOR EXPANSION AND CONTRACTION SHOULD BE BASED ON THE AVERAGE COEFFICIENT OF EXPANSION OF COPPER WHICH IS 0.000094 INCH PER INCH PER DEGREE F, BETWEEN 70 DEGREES F AND 210 DEGREES F.
(EXAMPLE: EXPANSION OF A 100 DEGREE F RISE FOR EACH 100 FT. OF ANY SIZE IS 1.128 INCHES)
EXPANSION DIMENSION 'L' FOR OFFSET & RETURN TO BE BASED ON THE EXPECTED EXPANSION INCHES PER DIMENSION OF PIPE

DETAIL - EXPANSION LOOPS PLAN VIEW



NOTE: THIS SAME HORIZONTAL APPLICATION APPLIES TO HEADERS.

DETAIL - MAXIMUM ROTATION OF HORIZONTAL INSTALLED "REFNET"

(REFER TO MANUFACTURERS INSTRUCTIONS)

NOTES FOR VRV REFRIGERANT PIPING

- ① ALL JOINTS SHALL BE BRAZED EXCEPT AT THE INDOOR UNITS WHICH SHALL BE FLARED
- ② ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE MECHANICAL DESIGN. ANY DEVIATION SHALL BE SUBMITTED FOR PRIOR APPROVAL TO THE MECHANICAL ENGINEER PRIOR TO INSTALLATION. SELECTED COPPER TUBE MUST BE OF SUITABLE WALL THICKNESS FOR HIGHER OPERATION PRESSURES.
- ③ FLARING: FLARED TUBE ENDS SHOULD HAVE A SMOOTH, EVEN ROUND FLARE OF SUFFICIENT LENGTH TO FULLY ENGAGE THE MATING SURFACE OF THE FLARE NUT, WITHOUT PROTRUDING INTO THE THREADS. USE ONLY "PVE" OR "PDE" REFRIGERATION OIL WHEN MAKING FLARES. DEDICATED FLARE BLOCK AND TOOL IS RECOMMENDED. ONLY USE SYNTHETIC OIL ON THE FLARE TOOL.
- ④ ALL PIPING SHALL BE A MINIMUM OF TYPE "L" "ACR" RATED STRAIGHT PIPE (UNLESS SPECIFIED OTHERWISE) FOR R-410A. WHERE ALLOWED IN THE SPECIFICATION, TYPE "L" "ACR" RATED ROLLED SOFT COPPER PIPING (AFTER ANNEALING) SHALL HAVE SUFFICIENT WALL THICKNESS FOR A CONTINUOUS OPERATING PRESSURE OF 600 PSI. PER ASME B 31.5-2010
- ⑤ DRY NITROGEN: DRY NITROGEN MUST BE USED DURING ALL BRAZING (PRESSURE REGULATED TO 3 PSI) TO PREVENT COPPER PLATE OR OXIDATION FORMATION.
- ⑥ PRESSURE TESTING: TIGHTEN DOWN STOP VALVES BEFORE ANY PRESSURE TESTING TO PREVENT NITROGEN FROM LEAKING BACK THROUGH CONDENSER AND CONTAMINATING REFRIGERANT. PRESSURE TESTING SHALL BE DONE IN THREE (3) STEPS.
STEP 1- LEAK CHECK 3 MINUTES AT 150 PSI.
STEP 2- LEAK CHECK AFTER 5 MINUTES AT 325 PSI.
STEP 3- LEAK CHECK AFTER 24 HOURS AT 550 PSI.
ALWAYS CHECK FLARE NUTS FOR LEAKS USING BUBBLE SOLUTION, BE SURE TO USE A RECOMMENDED PRODUCT. DO NOT USE A WATERDOWN FAIRY LIQUID SOLUTION. THESE PROCEDURES MUST BE ADHERED TO, DOCUMENTED AND INCLUDED IN THE CONTRACTORS PRICE.
- ⑦ LEAK TESTING AND EVACUATION SHALL BE DONE IN ACCORDANCE WITH THE US EPA "GREEN CHILL BEST PRACTICES" GUIDELINE ENSURING LEAK-TIGHT INSTALLATION OF COMMERCIAL REFRIGERANT EQUIPMENT.
- ⑧ EVACUATION PROCEDURES: EVACUATION PROCEDURES SHALL BE PERFORMED AS FOLLOWS:
A. EVACUATE THE SYSTEM TO 4000 MICRONS. BREAK VACUUM WITH DRY NITROGEN TO A PRESSURE OF 2-3 PSI AND HOLD FOR 15 MINUTES.
B. EVACUATE SYSTEM TO 1500 MICRONS AND MAINTAIN FOR 20 MINUTES. BREAK VACUUM WITH DRY NITROGEN TO A PRESSURE OF 2-3 PSI AND HOLD FOR 15 MINUTES.
C. EVACUATE SYSTEM TO BELOW 500 MICRONS AND HOLD FOR 60 MINUTES.
D. EVACUATE SYSTEM TO BELOW 300 MICRONS AND HOLD FOR 24 HOURS.
VACUUM PUMP CHECK VALVE SHOULD BE USED TO PREVENT MINERAL OIL FROM BEING DRAWN INTO THE SYSTEM. THESE PROCEDURES MUST BE ADHERED TO, DOCUMENTED AND INCLUDED IN THE CONTRACTORS PRICE.
- ⑨ REFRIGERANT CHARGING: WEIGH IN ADDITIONAL REFRIGERANT WITH DIGITAL SCALES. CALCULATE CHARGE BASED ON TOTAL LINE LENGTH PLUS 10%/FT OF DIAMETER. CHECK WITH EACH UNIT MODEL FOR CORRECT MULTIPLIER. AFTER THE AMOUNT OF REFRIGERANT TO BE ADDED IS DETERMINED, WRITE IT DOWN ON THE LABEL ON THE BACK SIDE OF THE FRONT COVER. AFTER THE VACUUM/DRYING IS COMPLETE, CHARGE THE ADDITIONAL REFRIGERANT IN ITS LIQUID STATE THROUGH THE LIQUID STOP VALVE SERVICE PORT. MAKE SURE TO USE INSTALLATION TOOLS YOU EXCLUSIVELY USE ON R410A INSTALLATIONS TO WITHSTAND THE PRESSURE AND TO PREVENT FOREIGN MATERIAL FROM MIXING INTO THE SYSTEM.
- ⑩ ALL REFRIGERANT PIPING AND "REFNETS" EXTERIOR TO THE BUILDING SHALL HAVE ALUMINUM JACKET COVERING THE INSULATION IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
EQUIVALENT TO "PARCO-CHILDERS METAL" ALUMINUM ROLL JACKETING .016" THICK, COMPLYING WITH 3105/3003 STANDARD ALLOYS, STUCCO EMPRESSED FINISH WITH POLYSURELYN MOISTURE RETARDER. PROVIDE 1/2" ALUMINUM BAND CLAMP EVERY 10 TO 12'.
- ⑪ INSULATION TECHNIQUES: ALL PIPE WORK MUST BE INSULATED ALONG IT'S FULL RUN USING CODE COMPLIANT (25/50 RATED), ARMAFLEX MODEL "UT/SOLAFLEX", 1" THICK, HIGH TEMPERATURE & UV RESISTANT CLOSED CELL INSULATION. INSULATION OF PIPES SHOULD BE DONE AFTER PERFORMING WORK REQUIRED BY NOTE B (AIR TIGHT TEST AND VACUUM DRYING). INSULATE THE LIQUID PIPING, THE HP/LP GAS PIPING, THE GAS PIPING, THE EQUALIZER PIPE (BETWEEN THE OUTSIDE UNITS FOR THE OUTSIDE MULTI SYSTEM) AND THESE PIPE CONNECTIONS. INSULATION SHALL WITHSTAND TEMPERATURES OF 248 DEGREES F OR MORE FOR THE HP/LP GAS PIPING, THE EQUALIZER PIPE AND GAS PIPING. COVER FLARE NUTS ON THE FAN COILS USING THE INSULATION PROVIDED OR CONDENSATION WILL OCCUR CAUSING LEAKS.
- ⑫ UN-INSULATED JOINTS WILL CONDENSE MOISTURE AROUND THE FITTINGS. LINE COMPONENTS: DO NOT INSTALL DRIERS, OIL TRAPS, SIGHT GLASSES, OR ANY OTHER LINE COMPONENT IN THE PIPE WORK AS THIS WILL EFFECT THE PERFORMANCE AND WARRANTY.
- ⑬ VRV SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASHRAE 15.
- ⑭ VRV SYSTEMS SHALL BE INSTALLED BY A MANUFACTURER CERTIFIED AND TRAINED CONTRACTING COMPANY AND SHALL HAVE DOCUMENTATION OF VRV INSTALLATION & COMMISSIONING TRAINING. FIELD SUPERINTENDENT SHALL HAVE VRV TRAINING AND CERTIFICATION. CERTIFICATION TRAINING AND COMMISSIONING DOCUMENTATION TO BE FURNISHED WITH THE CONTRACTORS BID AND/OR NOTICE TO PROCEED.
VRV SUPPLIER SHALL INCLUDE A SPECIAL VRV TOOL KIT ALLOWANCE FOR THE INSTALLING CONTRACTOR CONSISTING OF:
A. STANDARD R-410A GAUGE KIT WITH MULTIPLE TOOLS
B. TORQUE WRENCH SET
C. R-410A FLARE TOOL
D. R-410A PLASTIC FLARE SIZE GAUGE
IF INSTALLING CONTRACTOR DOES NOT CURRENTLY HAVE THESE SPECIAL TOOLS.
- ⑮ IN APPLICATIONS WHERE THE "REFNET" KITS ARE INSTALLED IN AN ENVIRONMENT REQUIRING FIRE-RATED MATERIAL TO BE USED, IT IS NECESSARY FOR THE INSTALLER TO OBTAIN FROM A THIRD PARTY SUPPLIER AND TO UTILIZE, FOR INSULATION, FIRE-RATED MATERIALS THAT MEET ALL APPLICABLE BUILDING CODES AND OTHER REQUIREMENTS. THE FACTORY SUPPLIED INSULATION SHOULD BE DISCARDED IN A MANNER MEETING ALL APPLICABLE LAWS.

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 For USC in Columbia, S. C.
 H 27 - Z159

SOUTH CAROLINA
 FELKEL & HASTINGS,
 CONSULTING MECHANICAL ENGINEERS
 No. 12548
 No. C00429
 LOUIS C. BUSTO

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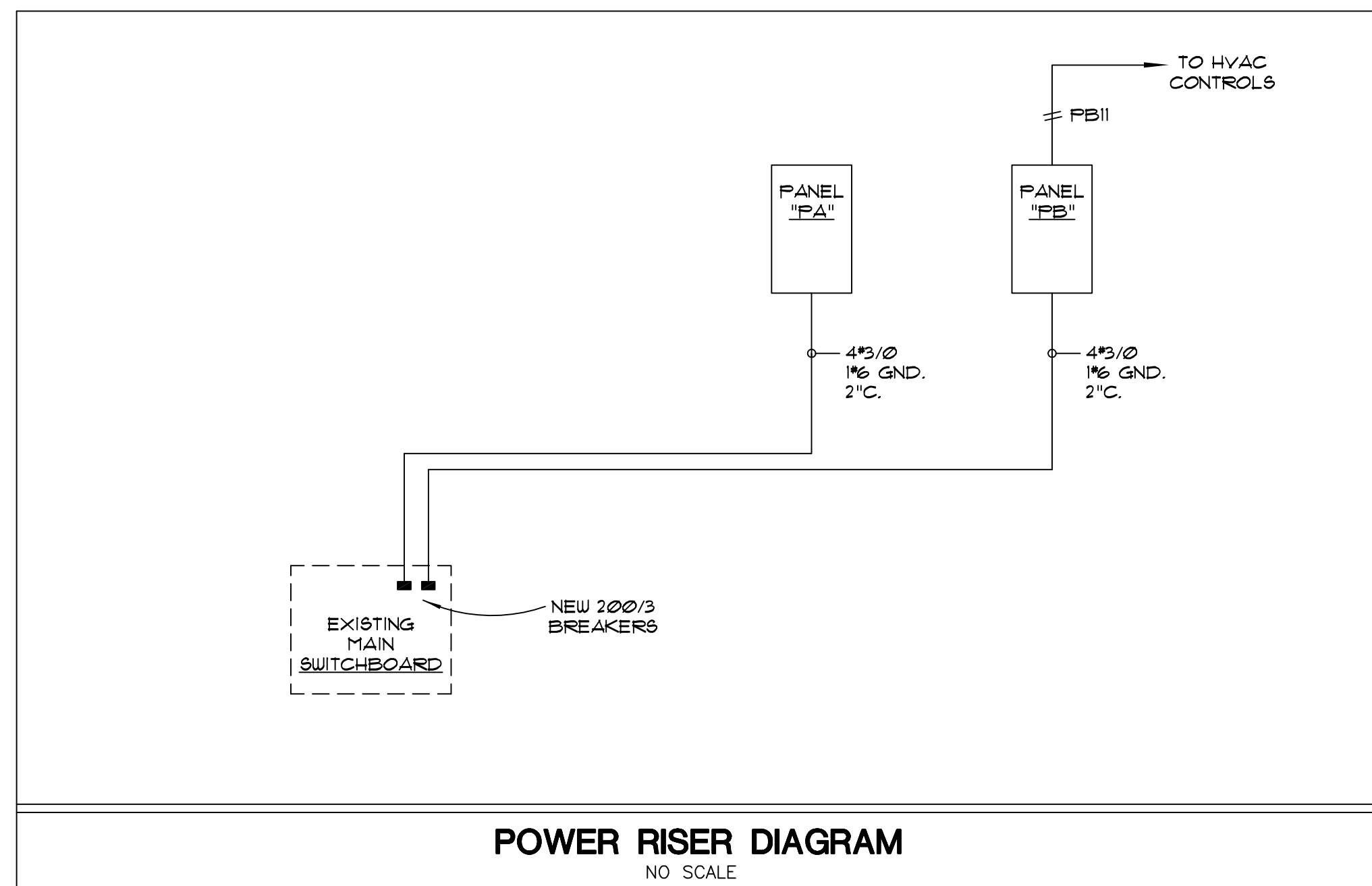
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ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
⊕	ELECTRICALLY OPERATED DOOR BY THE GENERAL CONTRACTOR. WIRE ACCORDING TO THE SHOP DRAWINGS.
⊕	COOPER T1URVGF20 20-AMP 125-VOLT G.F.I. DUPLEX RECEPTACLE INSTALLED HORIZONTALLY WITH RACO 15061-0 WEATHERPROOF COVER - COLOR AS SELECTED BY THE ARCHITECT
⊕	INDOOR A/C UNIT BY MECHANICAL CONTRACTOR. INSTALL A TWO POLE MOTOR RATED TOGGLE SWITCH IN THE END PANEL FOR DISCONNECTING MEANS. SEE DETAILS OF THE UNIT ENCLOSURE ON THE ARCHITECTURAL PLANS.
⊕	OUTDOOR A/C UNIT BY MECHANICAL CONTRACTOR
⊕	DISHWASHER FAN BY MECHANICAL CONTRACTOR
⊕	ELECTRIC WALL HEATER BY MECHANICAL CONTRACTOR
—	PANELBOARD
⊕	BRANCH CIRCUIT RACEWAY RUN UNDERFLOOR. ARROWHEAD DENOTES RUN TO PANELBOARD. CROSSLINES DENOTE NUMBER OF 1/2 PHASE OR NEUTRAL CONDUCTORS. INSTALL CODE SIZE GROUNDING CONDUCTOR IN ADDITION TO CONDUCTORS SHOWN. SUBSCRIPT DENOTES CIRCUIT NUMBER.
⊕	SAME AS NEXT ABOVE - ADDITIONAL SUBSCRIPT DENOTES CONDUCTOR SIZE

GENERAL NOTES	
1.	DO NOT SCALE THESE DRAWINGS. ALL ROUGHING IN SHALL BE TAKEN FROM THE ARCHITECTURAL DRAWINGS AND DIMENSIONS.
2.	CONSULT THE MECHANICAL DRAWINGS IN DETAIL FOR THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT BEFORE ROUGHING IN. ALL MECHANICAL EQUIPMENT SHALL BE ROUGHED IN AND WIRED ACCORDING TO THE SHOP DRAWINGS. IT IS THE INTENT OF THE WIRING SHOWN ON THESE PLANS TO GIVE A BASIS FOR BIDDING, AND ANY DEVIATIONS REQUIRED BY THE SHOP DRAWINGS SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
3.	THE DRAWINGS AND SPECIFICATIONS ARE COMPLIMENTARY TO EACH OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
4.	DRAWINGS INDICATE GENERALLY THE LOCATION OF EQUIPMENT AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. IF DUE TO JOB CONDITIONS IT IS FOUND NECESSARY TO CHANGE THE LOCATION OF SAME, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER AND AS APPROVED BY THE ENGINEER.
5.	ANY WORK, ELECTRICAL OR ALLIED, INSTALLED WITHOUT REGARD TO THE WORK OF OTHER CRAFTS WHICH MUST, IN THE OPINION OF THE ENGINEER, BE MOVED IN ORDER TO PERMIT THE PROPER INSTALLATION OF OTHER WORK, SHALL BE MOVED AS A PART OF THIS SECTION WITHOUT EXTRA CHARGE.
6.	REMOVE ALL EXISTING ELECTRICAL WORK MADE OBSOLETE BY NEW WORK. RACEWAY EXPOSED SHALL BE REMOVED. RACEWAY ABOVE CEILING SHALL BE REMOVED. RACEWAY UNDERFLOOR OR CONCEALED IN WALLS SHALL HAVE CONDUCTORS AND OUTLET BOXES REMOVED, AND RACEWAY ABANDONED.
7.	ALL SALVAGE SHALL REMAIN PROPERTY OF THE OWNER.
8.	GLAZING ON GLAZED BLOCK MAY CONTAIN LEAD - ANY AND ALL HOLES THROUGH GLAZED BLOCK MUST BE PERFORMED BY USC - GC IS TO MARK HOLE CENTERS AND MINIMUM DIAMETER ON WALL THEN CONTACT USC PROJECT MANAGER - ALLOW 72 HOURS NOTICE - TO EXTENT POSSIBLE ACCESS ALL SITUATIONS AND SCHEDULE ALL OF USC'S WORK SO THAT IT CAN BE PERFORMED IN ONE VISIT.

SCHEDULE FOR PANEL "PA"									
MOUNTING		SURFACE MOUNTED		120 / 208		VOLTAGE			
BUS SIZE		225 AMPS		THREE PHASE / FOUR WIRE		WIRING			
TYPE		3R		MAIN LUGS ONLY		MAINS			
CKT	DESCRIPTION	AMPS	POLE	POLE	AMPS	DESCRIPTION	CKT		
1	CU-1A	35	3	3	50	CU-1B	2		
3							4		
5							6		
7	CU-1C	50	3	1	20	RECEPTACLE	8		
9				1	20	SPARE	10		
11				1	20	SPARE	12		
13	SPACE					SPACE	14		
15	SPACE					SPACE	16		
17	SPACE					SPACE	18		
19	SPACE					SPACE	20		
21	SPACE					SPACE	22		
23	SPACE					SPACE	24		
25	SPACE					SPACE	26		
27	SPACE					SPACE	28		
29	SPACE					SPACE	30		

SCHEDULE FOR PANEL "PB"									
MOUNTING		SURFACE MOUNTED		120 / 208		VOLTAGE			
BUS SIZE		225 AMPS		THREE PHASE / FOUR WIRE		WIRING			
TYPE		NGOD		200/3 MAIN BREAKER		MAINS			
CKT	DESCRIPTION	AMPS	POLE	POLE	AMPS	DESCRIPTION	CKT		
1	DAH UNITS	20	2	2	20	DAH UNITS	2		
3							4		
5	DAH UNITS	20	2	2	20	DAH UNITS	6		
7							8		
9	SPARE	20	1	1	20	DISHWASHER FAN	10		
11	HVAC CONTROLS	20	1	1	20	SPARE	12		
13	WALL HEATER	20	2	1	20	SPARE	14		
15				1	20	SPARE	16		
17	SPARE	20	1	1	20	SPARE	18		
19	SPARE	20	1	1	20	SPARE	20		
21	SPARE	20	1	1	20	SPARE	22		
23	SPARE	20	1	1	20	SPARE	24		
25	SPACE					SPACE	26		
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31	SPACE					SPACE	32		
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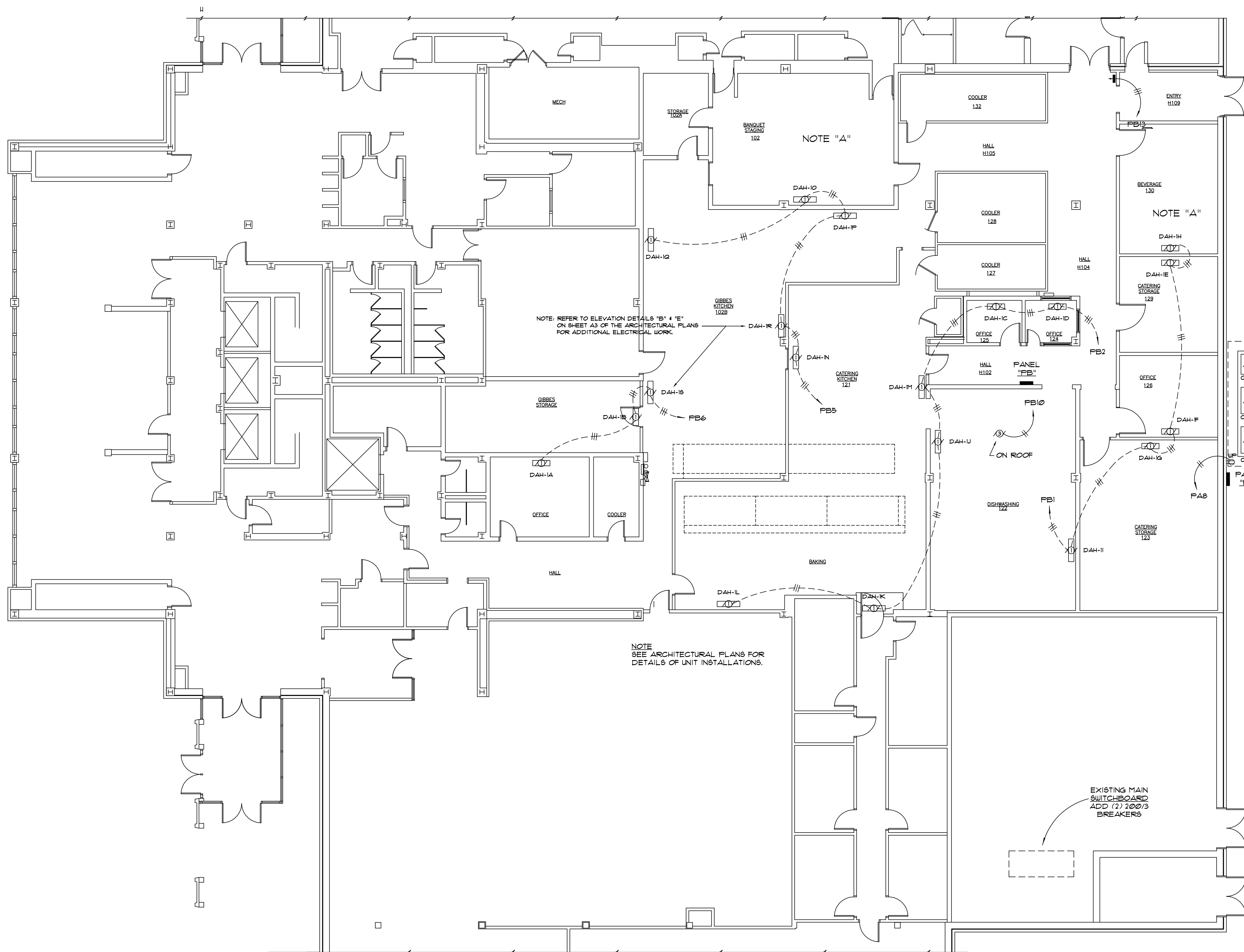
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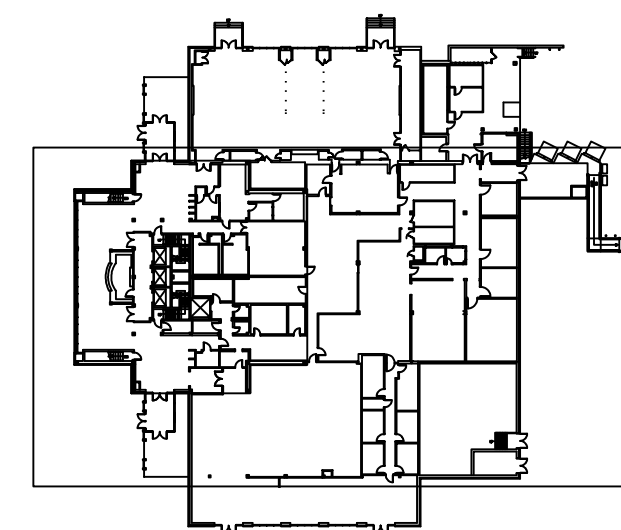
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NOTE "A": THE EXISTING TEA AND COFFEE MAKERS TO BE RELOCATED FROM AREA 130 TO AREA 102. EXTEND THE EXISTING CIRCUITS TO THE NEW LOCATION FOR TEMPORARY OPERATION.

AFTER FLOORING WORK IS COMPLETE IN AREA 130 THE TEA AND COFFEE MAKERS ARE TO BE MOVED BACK TO THEIR ORIGINAL POSITION. NEW POWER OUTLETS TO BE PROVIDED FED FROM PANEL "PB".

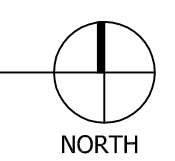
THE TEMPORARY TEA AND COFFEE OUTLETS IN AREA 102 SHALL BECOME PERMINATE SPARE OUTLETS AND SHALL REMAIN FED FROM THE EXISTING CIRCUITS.



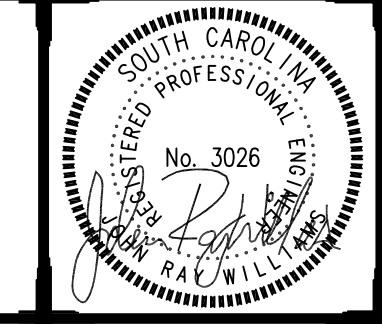
KEY PLAN

ELECTRICAL PLAN

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



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ELECTRICAL SPECIFICATIONS

SECTION 16010 – GENERAL PROVISIONS

PART 1 – GENERAL

RELATED DOCUMENTS: Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this Section.

WORK INCLUDED: The work covered under these specifications includes all labor, materials, equipment and services necessary to provide lighting and power systems, service entrances, branch circuiting, feeders, panels, wiring devices, and other items shown on the plans or specified. All operations—including cutting, channeling, chasing, excavating, and backfilling—necessary for the installation of complete electrical systems and the wiring of electrical equipment shall be performed in accordance with this section of the specifications and the accompanying drawings. The principal items include but are not limited to the following: Conduit and Fittings, Wires and Cables, Wire Connections, Outlet Boxes, Wiring Devices, Panelboards, Disconnect Switches, Fuses, Pulling Cables, Grounding, Branch Circuits and Feeder Circuits.

DRAWINGS: The drawings and specifications are complementary to each other and what is called for by one shall be as binding as if called for by both. Any work, electrical or allied, installed without regard to the work of other crafts which must in the opinion of the Engineer be moved in order to permit the proper installation of other work shall be moved as a part of this section without extra charge. Drawings indicate generally the location of equipment and are to be followed as closely as possible. If due to job conditions it is found necessary to change the location of same, such changes shall be made without additional cost to the Owner and as approved by the Engineer.

CODES AND STANDARDS: National Electrical Code, 2011 Edition; National Electrical Safety Code; IBC 2012 and Local Electrical Code.

PERMITS AND FEES: Apply and pay for all permits.

MATERIALS: All materials shall be new with Underwriter's Laboratories, Inc., label as applicable. Within 30 days after award of General Contract submit a complete list of materials and equipment to be used on the job with all data necessary for approvals of any substitute items. Resubmission of disapproved items within 15 days of the date of rejection is required; otherwise material will be selected by the Architect with no change in contract price. Lay out electrical work by architectural dimensions and details as applicable. Do not scale the electrical drawings for locations.

SUBSTITUTIONS AND APPROVALS: Bids and contract prices shall be based on material and equipment as specified unless written approval is obtained prior to the bid date for any deviations. Requests for prior approvals must be received by the Engineer at least ten working days before the bid date. The Contractor may obtain a list of prior approvals by contacting the Engineer. Requests for approvals shall be submitted in the form of a letter with two copies minimum on the letterhead of the submitting firm. The letter is to state that the items submitted are in accordance with the Plans and Specifications except for any deviations which are to be itemized and listed. Include as listed enclosures two copies of any catalog cuts, manufacturer's installation recommendations, shop drawings, etc. Items approved shall not be construed as authorizing any deviations from the Plans and Specifications unless such deviations are clearly listed in itemized form in a submittal letter as indicated above. The Contractor shall be responsible for verifying all dimensions with available space conditions with provisions for proper access and for proper services and construction requirements. The Contractor is to bear any additional cost for the required changes in associated items which are directly or indirectly related to the substituted unit. The Engineer encourages any manufacturer or supplier to submit to the Architect equal quality electrical equipment for approval prior to bidding. If in the opinion of the Architect and Engineer the equipment is equal and suitable for the project, the Architect will by Addendum make it a part of the Bid Documents prior to bidding. After bidding no further substitutions will be accepted.

GUARANTEE: The Electrical Contractor shall guarantee all equipment specified and indicated on the drawings or substituted for a period of one year from the date of acceptance of the building. Defective material and workmanship shall be corrected within guarantee period at no cost to the Owner.

COMPLETION OF WORK: The entire system shall be free of all shorts and grounds, and the equipment shall be bonded and grounded in full compliance with local and national codes. Test the system in the presence of the Architect and/or Electrical Engineer. Defray costs for all adjustments necessary to bring the system up to standards set forth by the Contract Documents at no additional cost to the Owner. All the Engineer's scheduled visits to the job site shall be conducted with a principal of the Electrical Contracting Firm present.

SUBMITTAL OF SHOP DRAWINGS FOR REVIEW: Contractors, both sub and general, shall check and stamp their approval to all shop drawings prior to submittal to the Architect. The following equipment/material shall be submitted to the Architect for his review: Conduit, Conductors, Connectors, Wiring Devices, Panelboards and Disconnect Switches. All submittals shall be made at one time as a single package in loose-leaf binder form.

BROCHURES: After all shop drawings and substitutions have been approved, furnish to the Architect three complete brochures of all equipment and materials incorporated into the project. One copy will be retained by the Engineer; one copy will be for the Architect; and one copy will be given to the Owner for his future use.

END OF SECTION 16010

SECTION 16050 – BASIC MATERIALS AND METHODS

PART 1 – GENERAL

RELATED DOCUMENTS: Drawings and General Provisions of the Contract including General and Supplementary Conditions and Division 1 Specifications apply to work of this section.

WORK INCLUDED THIS SECTION: The work required under this section covers the installation of the items specified herein and as indicated on the Drawings and should include but not be limited to the following: Conduit and fittings, Wire and cable, Wire connections, Outlet boxes, Device plates, Wiring devices, Panelboards, Disconnect switches, Fuses and Pulling cables.

WORK INCLUDED OTHER SECTIONS: The installation of other items of electrical work are covered in other sections of the Specifications.

SHOP DRAWINGS AND MATERIALS LISTS: Drawings for all listed equipment shall be submitted to the Architect. Approved shop drawing shall be received from the Architect before the installation of any material involved.

PART 2 – PRODUCTS

CONDUIT AND FITTINGS: Feeders shall be hot-dipped rigid galvanized steel or intermediate metal conduit (MC) above grade in accordance with UL Standard No. 6 or UL Standard No. 1242. All raceways in wet areas shall be hot-dipped rigid galvanized steel conduit or intermediate metal conduit (MC) in accordance with UL Standard No. 6 or UL Standard No. 1242. Raceways for connection to vibrating equipment shall be flexible metallic conduit in dry locations and weatherproof flexible metallic in wet locations. Raceways except as noted above shall be hot-dipped rigid steel conduit, intermediate metal conduit (MC), or electrical metallic tubing (EMT). Conduit shall be of the sizes required to accommodate the number of conductors in accordance with the tables given in the current edition of the National Electrical Code or as noted on the drawings. The minimum size of conduit shall be 1/2 inch. Conduit fittings for rigid galvanized steel or intermediate metal conduit (MC) shall be threaded type. Bushings shall have insulated throats. Fittings for electrical metallic tubing (EMT) shall be interlocking compression type, rain and concrete tight, pressure cast with steel nuts and insulated throats. Fittings for PVC shall be as recommended by the manufacturer. Hangers shall be galvanized, malleable iron type. Use trapeze type for groups of conduits. Expansion joints shall be steel conduit expansion joints with ground straps and clamps.

WIRE AND CABLES: No wire smaller than No. 12 shall be installed unless indicated. All conductors shall be copper. No. 12 and 10 conductors shall be solid conductor, rated 600 volts, Type THW, THWN or XHHW. THHN may be used in dry locations only. No. 8 and larger conductors shall be as above except stranded conductor. Wires and cable approved shall be manufactured by Amco, General Electric, Okonite, Rome Cable, Triangle, Southwire, Hatfield, Lanese or approved equal.

COLOR CODE AND MARKERS: Provide color coding for all service, feeder, branch, control, and signaling circuit conductors. Color shall be green for grounding conductors and white for neutrals. Where neutrals of more than one system are installed in the same raceway or box, the other neutral shall be white with a colored (not green) stripe. The color of the ungrounded conductors in different voltage systems shall be as follows: 120/208 volt branch circuits -- Phase A – Black, Phase B – Red, and Phase C – Blue. Wire markers shall be E-Z Code, Brady, or approved equal. Provide 1" x 3" laminated, engraved nameplates for cabinets, panelboards, switches, transformers and all other major equipment. Each nameplate shall have name and voltages as applicable and be attached by means of two screws.

WIRE CONNECTIONS: Wire No. 8 and smaller shall be connected with approved connectors. These connectors shall be UL listed pressure-type connectors rated at 600 volts maximum (or 1,000 volts when enclosed in a fixture). Joints, taps and splices in Wire No. 6 and larger shall be made with solderless connectors and taped to provide insulation equal to the factory insulation on the wire.

OUTLET BOXES: Boxes, extensions and rings shall be sheradized or galvanized. Boxes shall be ganged where two or more devices occur at the same location. All boxes in strict accordance with Article No. 370 of the National Electric Code except that no box will be less than the minimum specified. Verify the number and size of all boxes for mechanical and plumbing equipment with Mechanical or Plumbing Contractor and install accordingly. Ceiling boxes shall be 4" x 4" x 1-1/2" minimum. Wall boxes for switches and receptacles shall be 1-1/2" deep and of one-piece construction.

DEVICE PLATES: Plates for switches and receptacles shall be jumbo smooth plain ivory, brown or other color plastic as selected by the Architect. Plates for telephone shall be blank type.

WIRING DEVICES: All duplex receptacles shall be side or back wired with two screws per terminal. A third grounding pole shall be connected to the metal mounting yoke. The grounding pole shall be grounded by a separate No. 12 green grounding conductor. No. 5242 Series will not be acceptable. All receptacles except duplex type shall be complete with appropriate mating cord-grip plug. Although only one manufacturer is specified on Drawings, switches and receptacles may be as manufactured by Cooper, Hubbell, P & S, or approved equal.

PANELBOARDS: All panelboards shall be 20" minimum width per section. Panelboards shall be circuit breaker equipped. Single-pole breakers shall be full module size; two-pole breakers shall not be installed in a single module. Multipole circuit breakers shall be of common trip type having a single operating handle. Panelboards shall have lugs in the top and/or bottom to accommodate wire as indicated on the Drawings. Provide a neutral bus for connection of both feeder and branch circuit neutral wires. A separate ground bus bonded to the steel cabinet shall be provided in the panel for connection of all ground wires and shall be marked with a green stripe along the front of the bus. All panelboard locks shall use a common key. Panelboard shall be manufactured by General Electric, Square D, Siemens, Cutler Hammer, or approved equal. See the Drawings for schedule.

PULLING CABLES: Pulling cables shall be No. 12 AWG zinc-coated steel or plastic having not less than 200 pound tensile strength.

HEATING, PLUMBING AND AIR CONDITIONING: Provide power wiring to all motors, to heating elements through starters and line voltage aquastats, and to any additional wiring indicated on the Drawings. Provide all disconnect switches and outlet boxes as required. The mechanical section of the work shall furnish all starters for installation under this section.

PART 3 – EXECUTION

CONDUIT AND FITTINGS: Conduit shall be stored on suitable supports so it is not in contact with the earth and is protected from the weather. All raceways shall be concealed unless otherwise noted. Except conduit in slab and underfloor, all conduits shall be neatly installed parallel and at right angles to floors and walls. Conduits shall be supported above ceilings by suitable angle iron pipe hangers fastened to approved type anchors. Above ceilings and in walls conduits shall be supported by malleable iron pipe straps secured by expansion bolts. At least one support shall be used for each six feet of conduit. In no case shall wire be used to support raceways. Conduits concealed in concrete or masonry construction shall be firmly secured in place within slab and in walls during construction operations. Where conduit installed in concrete or masonry extends across building joints, expansion joints shall be installed. Joints shall be cut square, reamed smooth, and drawn up tight. Ream raceways; all conduits shall be clean and water free prior to pulling in wire and cable. Butt ends into couplings. A maximum of three 90-degree bends shall be installed in any run. Install no pull box in an inaccessible location. Fasten raceway to boxes with locknut and bushing. Electrical metallic tubing (EMT) shall be secured for grounding purposes by means of concrete-tight connections of the interlocking compression ring or stainless steel multi-point locking ring type. Set screws or indentation fittings shall not be acceptable. EMT 3/4-inch or larger shall be provided with insulated connectors. Plug raceways until concrete, masonry, and plastering work is complete. All raceways for future wiring shall have a pull wire installed. All raceway penetrating the fire-rated walls shall be "fire-stopped" to meet the rating of the wall. Refer to the architectural section of the contract documents related to fire-rated walls.

WIRE AND CABLE: All conductors shall be installed in a neat and workmanlike manner with care being taken that conductors are not kinked, scored, or damaged during installation. The conductors terminating at each wired outlet shall be left not less than eight inches long at their outlet fitting to facilitate the installation of devices or fixtures. Where two or more pairs of conductors or circuits enter an outlet, the several pairs of circuits shall be neatly spliced and made mechanically and electrically secure to one or more single or multiple conductors. The neutral wire of all branch circuits shall have a white coating, and connections to single-pole switches shall be so made that the operation of the switch opens the ungrounded leg. The final connection to recessed fixtures shall be made with the conductor in flexible conduit.

COLOR CODE AND MARKERS: Tape feeders in enclosures with color tape. Mark wires within panelboard with self-sticking label bearing number corresponding to circuit number on the Drawings. Connect these wires to the corresponding breaker in the panel. Mark circuit numbers in outlet boxes only where color coding is repeated by having two or more wires of the same color.

WIRE CONNECTIONS: Wiring connections shall be as shown on the Drawings for a complete installation.

OUTLET BOXES: Except where conduit is run exposed, all boxes shall be rigidly secured in position and shall be so set that the front edge of the cover or plaster ring shall be flush with the finished wall or ceiling line or not more than 1/8" back of same. Where outlet boxes appear in brick, block, or tile walls the height of the box shall be varied to permit the top or bottom to line up with a joint.

PANELBOARDS: Before manufacturing the panelboards, drawings shall be submitted showing dimensions of each panelboard cabinet, gutter space, gage and trim, main bus and terminal ratings, manufacturer's name and type of breakers, and details of construction of the panelboard to determine compliance with the Specifications. Panelboards shall be installed plumb with the top 6"-6" above the floor where possible. Panelboard cabinets shall be rigidly secured in place with the panelboard centered in the cabinet. Panelboard numbering shall be as specified on the Drawings. Submit schematic diagram of each panelboard indicating all breakers and numbering. A typed directory shall be installed. All panelboards required by U.L. to have ventilation openings shall have tamper-proof barriers installed to prevent direct access to buses. Remove all panel covers during the final inspection.

PULLING CABLES: Install pulling cable in all empty raceways to be used for future wiring.

HEATING, PLUMBING AND AIR CONDITIONING: Consult the Mechanical Drawings in detail for exact location of all equipment. Wiring for mechanical equipment is diagrammatic; consult manufacturer's shop drawings for the exact requirements and install accordingly. Verify with the manufacturer the number of wires required and install accordingly. Verify with the Mechanical Contractor the number and sizes of buses required and install the correct number. Install starters furnished under the mechanical system. The mechanical section will do all control wiring.

END OF SECTION 16050

SECTION 16400 – ELECTRICAL DISTRIBUTION SYSTEM

PART 1 – GENERAL

RELATED DOCUMENTS: Drawings and General Provisions of the Contract including General and Supplementary Conditions and Division 1 Specifications apply to work of this section.

WORK INCLUDED THIS SECTION: The work required under this section covers the installation of the items specified herein and as indicated on the Drawings and should include but not be limited to the following: Grounding, Branch Circuits and Feeder Circuits.

WORK INCLUDED OTHER SECTIONS: The installation of other items of electrical work are covered in other sections of the Specifications.

VOLTAGE: Service and distribution voltage shall be as indicated on the Drawings.

SHOP DRAWINGS AND MATERIALS LISTS: Drawings for all listed equipment shall be submitted to the Architect. Approved shop drawing shall be received from the Architect before the installation of any material involved.

PART 2 – PRODUCTS

GROUNDING: Provide grounding conductors as shown on plan. Conductors shall be copper.

BRANCH CIRCUITS: All branch circuits shall be copper and sized as shown on the Drawings.

FEEDER CIRCUITS: Feeders shall be copper and sized as shown on the Drawings.

PART 3 – EXECUTION

GROUNDING: All exposed non-current-carrying metallic parts of the electrical equipment, raceway system, and neutral conductors of the wiring system shall be grounded. Ground motors in accordance with codes. Install "green" grounding conductors in all raceway.

BRANCH CIRCUITS: Wire smaller than No. 12 AWG shall not be used for any branch circuit. If the conduit distance from the panelboard to the first outlet exceeds 100 feet at 120 volts, the minimum size for this run shall be No. 10 AWG with the minimum between outlets as No. 12 AWG. All wiring from branch lighting circuits shall be run as single phase, two wire. A common neutral is allowed for three circuits provided that the circuits are on different phases. If it is necessary that two or more circuits be placed on the same phase in any run, a separate neutral must be run for each circuit.

FEEDER CIRCUITS: These shall be installed and connected as shown.

END OF SECTION 16400

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CAPSTONE GIBBES COURT KITCHEN RENOVATIONS
For U.S.C. in Columbia, S.C.
H27-Z159

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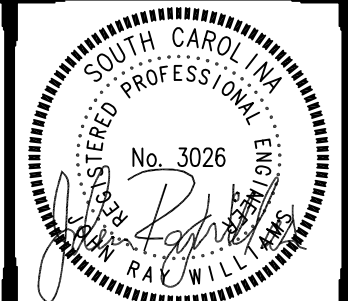
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