SYMBOL
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DESCRIPTION

## - BACKFLOW PREVENTER (DOUBLE CHECK TYPE)

FLOW SWITCH

OUTSIDE STEM AND YOKE VALVE

## OUTSIDE STEM AND YOKE VALVE WITH TAMPER SWITCH

SPRINKLER HEAD

## SIDEWALL SPRINKLER HEAD

FIRE DEPARTMENT SIAMESE CONNECTION (WALL MOUNTED)

FIRE DEPARTMENT SIAMESE CONNECTION (FREE-STANDING)

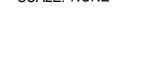
DRY PIPE VALVE

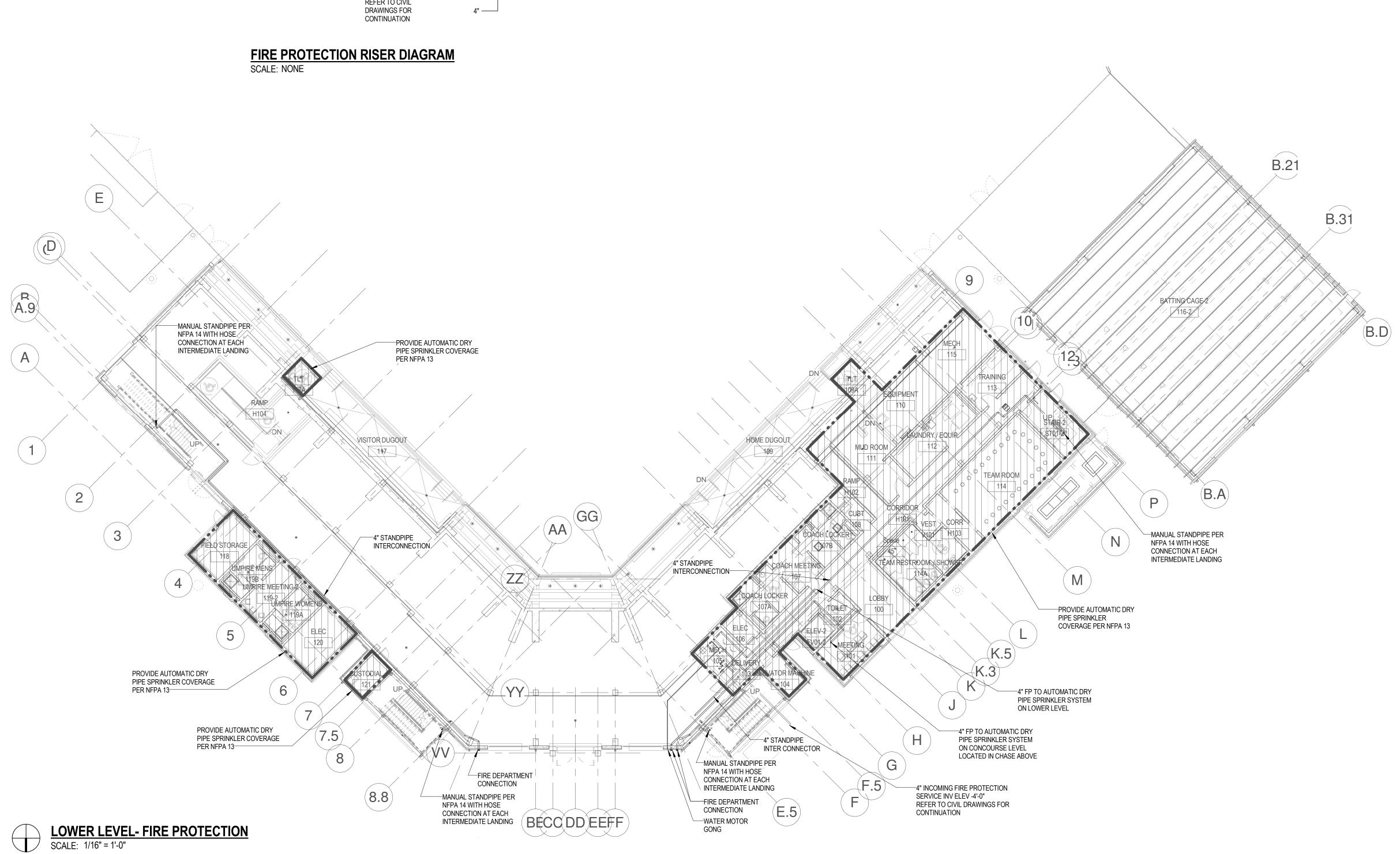
WATER MOTOR GONG

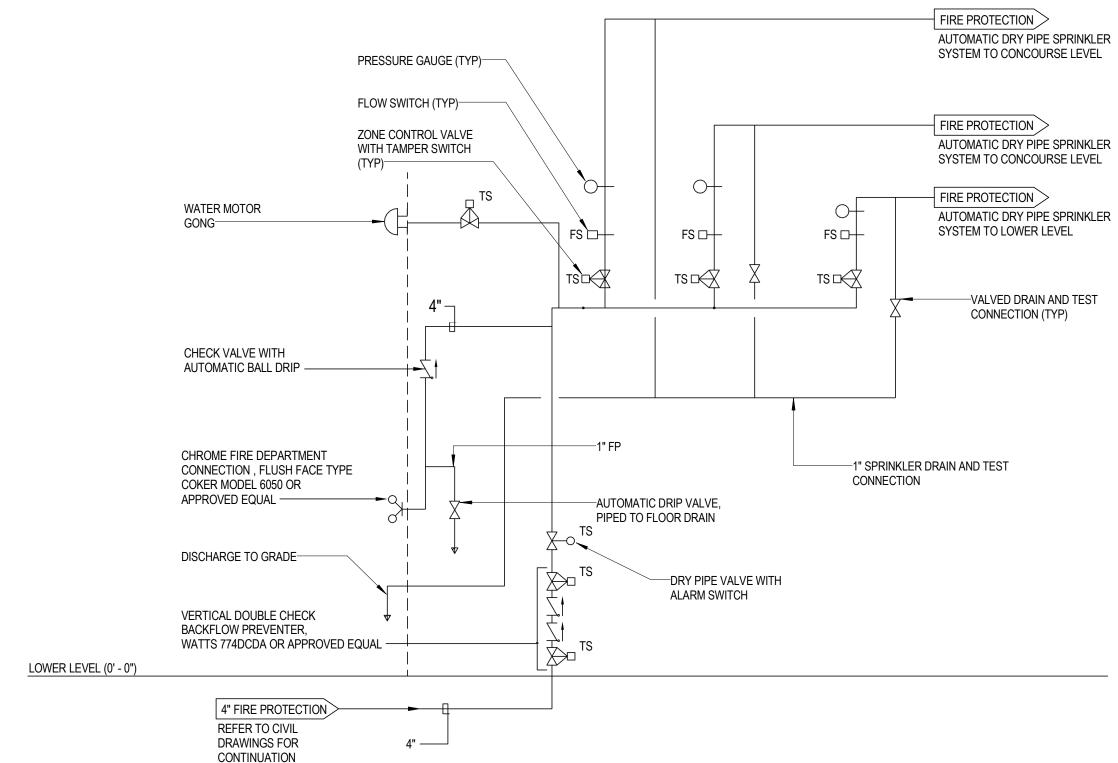
TWO-HOSE CONNECTION WALL HYDRANT

PRESSURE GAUGE

## FIRE PROTECTION SYMBOLS SCALE: NONE





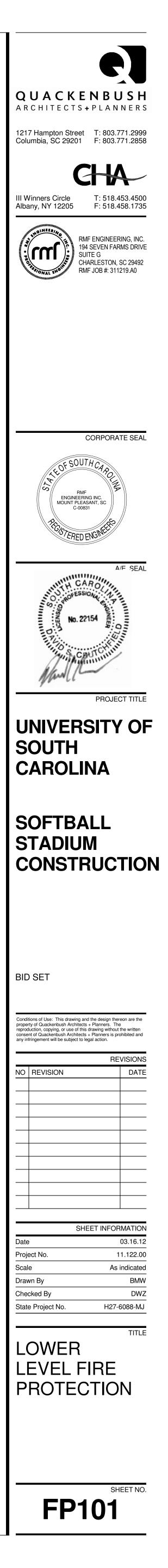


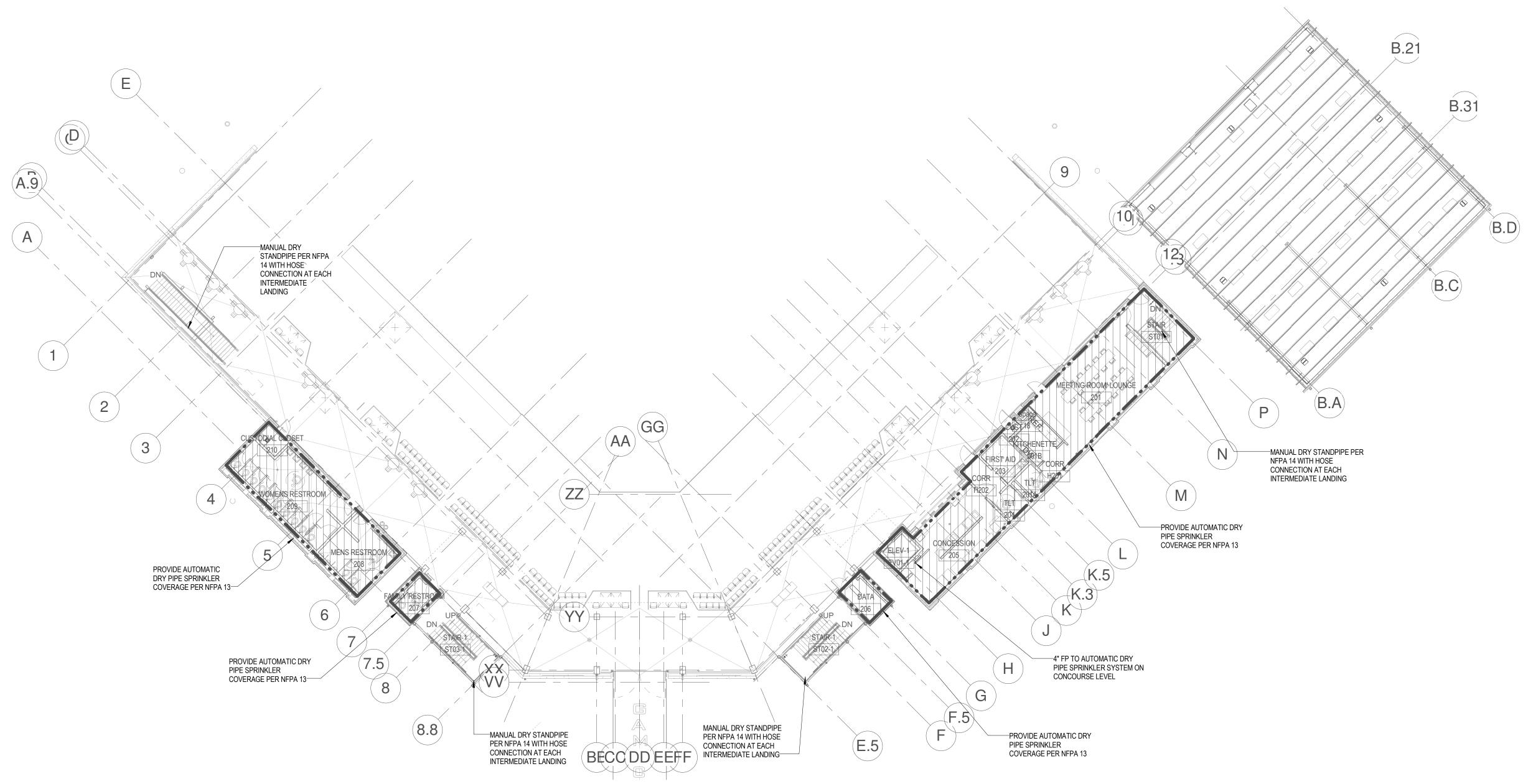


## **GENERAL NOTES**

1. CONTRACTOR SHALL COORDINATE LOCATION OF HVAC REGISTERS, PLUMBING, DUCTWORK, EQUIPMENT AND SPRINKLER HEADS. SPRINKLER HEAD LOCATION SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE INSTALLATION.

GRAPHIC SCALE 16 8 0 SCALE: 1/16" = 1'-0" UNIT OF MEASURE: FEET



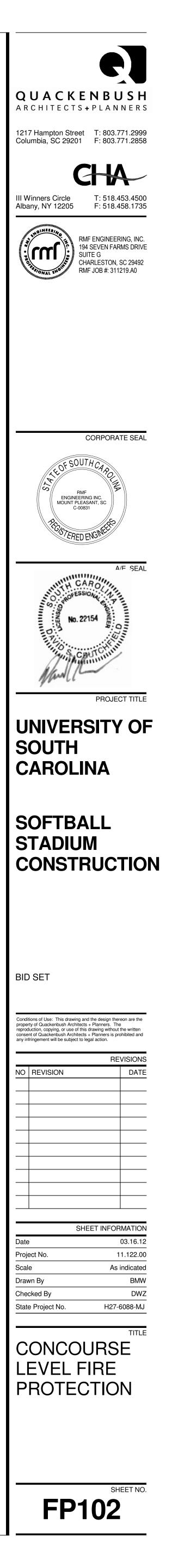


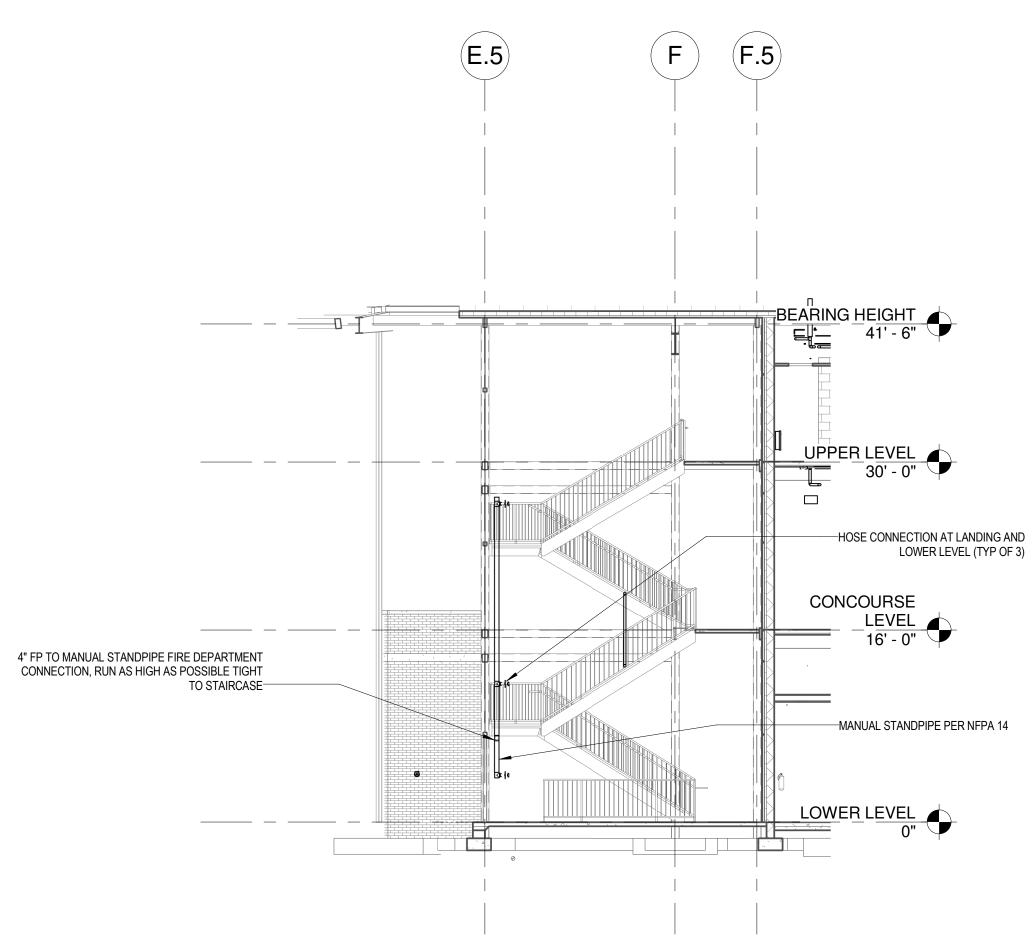
CONCOURSE LEVEL - FIRE PROTECTION SCALE: 1/16" = 1'-0"

## **GENERAL NOTES**

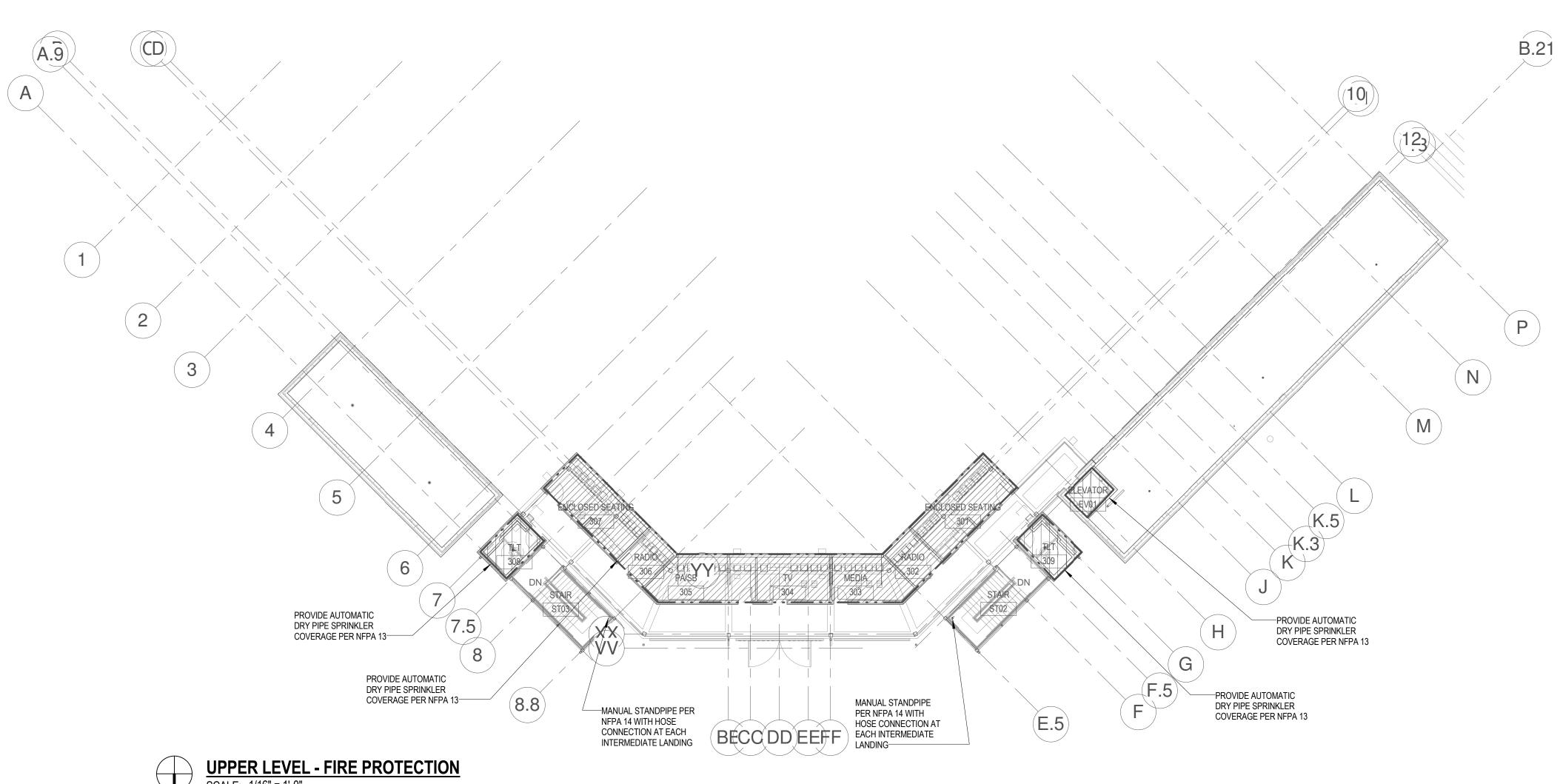
1. CONTRACTOR SHALL COORDINATE LOCATION OF HVAC REGISTERS, PLUMBING, DUCTWORK, EQUIPMENT AND SPRINKLER HEADS. SPRINKLER HEAD LOCATION SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE INSTALLATION.

> GRAPHIC SCALE 16 8 0 SCALE: 1/16" = 1'-0" UNIT OF MEASURE: FEET



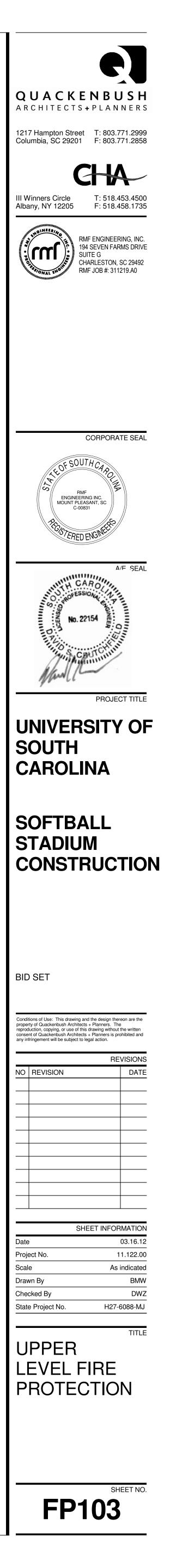


MANUAL STANDPIPE SCALE:  $1/8^{\circ} = 1^{\circ}-0^{\circ}$ 



## 

UPPER LEVEL - FIRE PROTECTION SCALE: 1/16" = 1'-0"



<u>SYMBOL</u>	DESCRIPTION
AD-X ET-X FD-X FS-X GI-X GRU-X HWG-X OI-X P-X RD-X RP-X SE-X SP-X WBP-X WH-X WH-X	AREA DRAIN DESIGNATION EXPANSION TANK DESIGNATION FLOOR DRAIN DESIGNATION FLOOR SINK DESIGNATION GREASE INTERCEPTOR DESIGNATION GREASE RECOVERY UNIT DESIGNATION HOT WATER GENERATOR DESIGNATION OIL INTERCEPTOR DESIGNATION PLUMBING FIXTURE DESIGNATION ROOF / OVERFLOW DRAIN DESIGNATION RECIRCULATING PUMP DESIGNATION SEWAGE EJECTOR DESIGNATION SUMP PUMP DESIGNATION WATER BOOSTER PUMP DESIGNATION WATER METER DESIGNATION WATER HEATER DESIGNATION
SYMBOL	DESCRIPTION
	VENT THROUGH ROOF
	TRAP ARM
$\nearrow$	URINAL / WATER CLOSET (WALL MOUNTED)
Ţ	URINAL / WATER CLOSET (WALL MOUNTED)
$\bigtriangledown$	FLOOR / ROOF DRAIN

CLEAN OUT (WALL / PIPE)

CLEAN OUT (FLOOR)

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**SYMBOL** 

A	COMPRESSED AIR	HRR	HEAT RECOVERY RETURN
		HRS	HEAT RECOVERY SUPPLY
BCWR	BEARING COOLING WATER RETURN	HS	HEATING WATER SUPPLY
BCWS	BEARING COOLING WATER SUPPLY	HTHW	HIGH TEMPERATURE HEATING WATER SUPPLY
BO	BLOW OFF	HTWR	HIGH TEMPERATURE HEATING WATER RETURN
BTU	BRITISH THERMAL UNIT	HW	HOT WATER
BTUH	BRITISH THERMAL UNITS PER HOUR	HWR	HOT WATER RECIRCULATION
CA	CONTROL AIR	IA	INSTRUMENT AIR
CBD	CONTINUOUS BLOWDOWN		
CC	CAMPUS CONDENSATE	KW	KILOWATTS
CF	CHEMICAL FEED		
CFM	CUBIC FEET PER MINUTE	LP	LIQUID PROPANE
CHEL	CHELANT	LPG	LIQUID PETROLEUM GAS
CHR	CHILLED WATER RETURN	LPR	LOW PRESSURE STEAM RETURN
CHS	CHILLED WATER SUPPLY	LPS	LOW PRESSURE STEAM SUPPLY
		LFO	LOW PRESSURE STEAM SUPPLY
CO			
CW	COLD WATER, DOMESTIC CITY WATER	MAV	MANUAL AIR VENT
		MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
DHR	DISTRIBUTION HEATING WATER RETURN	MCC	MOTOR CONTROL CENTER
DHS	DISTRIBUTION HEATING WATER SUPPLY	MOD	MOTOR OPERATED DAMPER
DIA	DIAMETER	MPR	MEDIUM PRESSURE STEAM RETURN
DW	DISTILLED WATER	MPS	MEDIUM PRESSURE STEAM SUPPLY
		-	
EA	EXHAUST AIR	N/A	NOT APPLICABLE
ED	EQUIPMENT DRAIN	NC	NORMALLY CLOSED
EJ	EXPANSION JOINT	NO	NORMALLY OPEN
		No	NUMBER
#2FOR	NUMBER 2 FUEL OIL RETURN	NPSH	NET POSITIVE SUCTION HEAD
		INF OFF	NET FOSTIVE SOCTION TIEAD
#2FOS	NUMBER 2 FUEL OIL SUPPLY	05	
#6FOR	NUMBER 6 FUEL OIL RETURN	OD	OVERFLOW DRAIN
#6FOS	NUMBER 6 FUEL OIL SUPPLY		
F	FIRE LINE	PA	PLANT AIR
F&T	FLOAT AND THERMOSTATIC	PC	PUMPED CONDENSATE
FD	FORCED DRAFT	PCR	PUMP CONDENSATE RECIRCULATION
FDV	FIRE DEPARTMENT VALVE	PPH	POUNDS PER HOUR
FF	FINISHED FLOOR	PSIG	POUNDS PER SQUARE INCH GAUGE
FFE	FINISHED FLOOR ELEVATION		
FOF	FUEL OIL FILL	RA	RETURN AIR, RELIEF AIR
FOO	FUEL OIL OVERFLOW	RDR	ROOF DRAIN
FOSUCT	FUEL OIL SUCTION	RPM	REVOLUTIONS PER MINUTE
FOT	FUEL OIL TRANSFER	RV	RELIEF VENT
FOVENT	FUEL OIL VENT	RX	REMOVE EXISTING
FPM	FEET PER MINUTE		
FPS	FEET PER SECOND	SA	SUPPLY AIR
FW	FEED WATER	SAN	SANITARY
FWR	FEED WATER RECIRCULATION	SS	STAINLESS STEEL
FWS	FEED WATER SUPPLY	SSUL	SODIUM SULFITE
°F	DEGREES FAHRENHEIT	STDR	STORM DRAIN
		SW	SOFT WATER
G	NATURAL GAS		
GAL	GALLON, GALLONS	TW	TREATED WATER
GPH	GALLONS PER HOUR	TYP	TYPICAL
GPM	GALLONS PER MINUTE		
GPIVI		VD	VOLUME DAMPER
GPINI			
HPR	HIGH PRESSURE STEAM RETURN	VFD	VARIABLE FREQUENCY DRIVE
	HIGH PRESSURE STEAM RETURN HIGH PRESSURE STEAM SUPPLY	VFD VSD	VARIABLE FREQUENCY DRIVE VARIABLE SPEED DRIVE

## DESCRIPTION

## BACKFLOW PREVENTER (DUAL CHECK TYPE)

REDUCED PRESSURE BACKFLOW PREVENTER

## CO CLEAN OUT (WALL / PIPE)

CO CLEAN OUT (FLOOR)

HB COLD WATER INTERIOR HOSE BIB

### - WH EXTERIOR WALL HYDRANT (FREEZE PROOF)

## - HED HOSE END DRAIN VALVE

AREA DRAIN

FLOOR DRAIN

## FLOOR DRAIN WITH TRAP PRIMING LINE

## FLOOR SINK

ROOF DRAIN

## ROOF OVERFLOW DRAIN

## REDUCER

## GATE VALVE

## TEMPERING VALVE

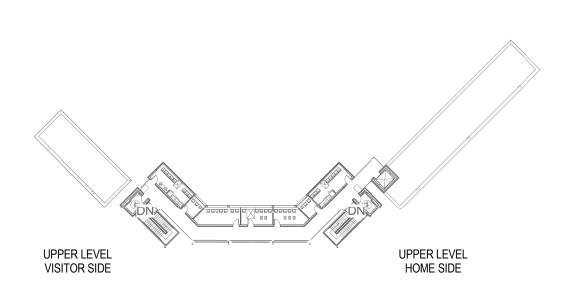
## WATER METER

## PUMP

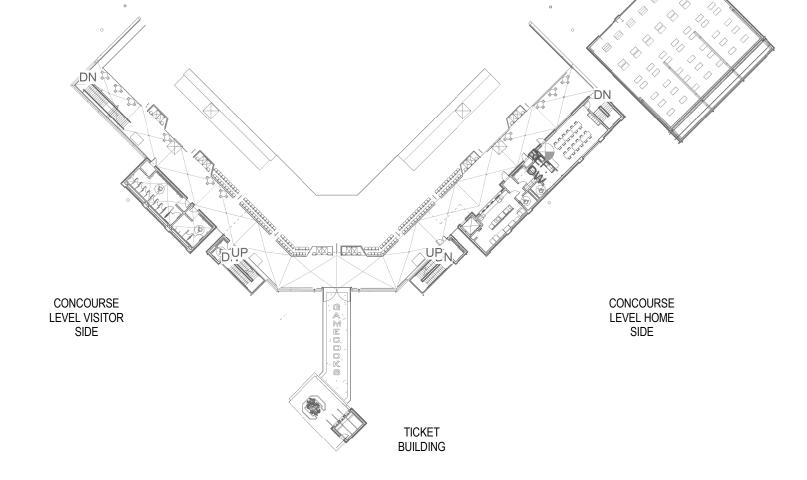
## CHECK VALVE

## SHUT-OFF VALVE TYP

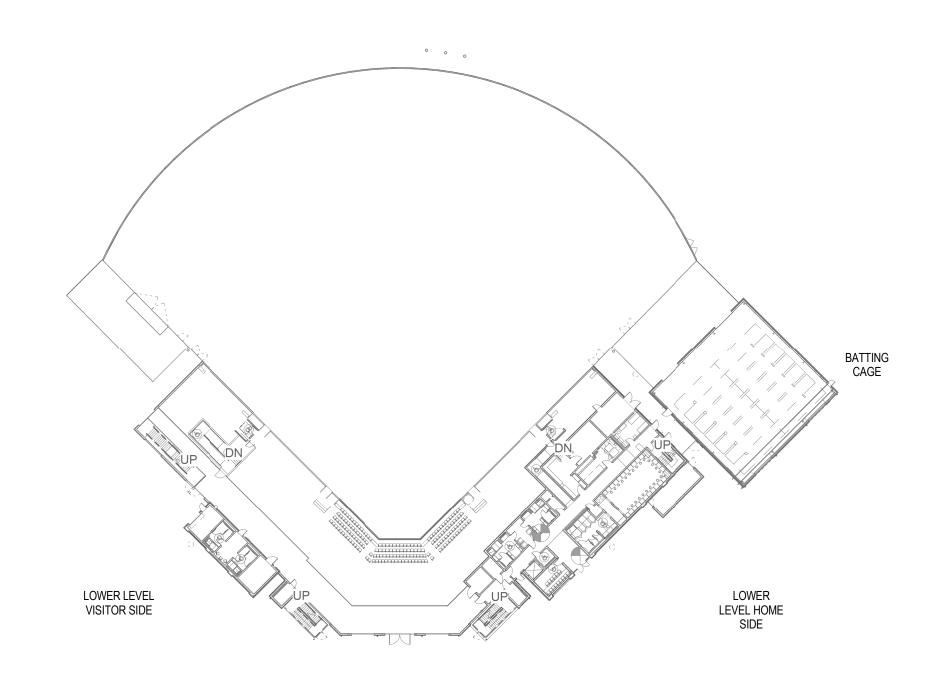
# UPPER LEVEL KEY PLAN SCALE: 1" = 50'-0"

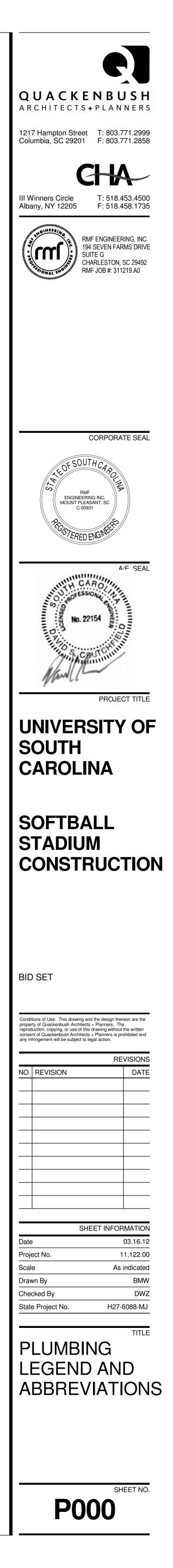


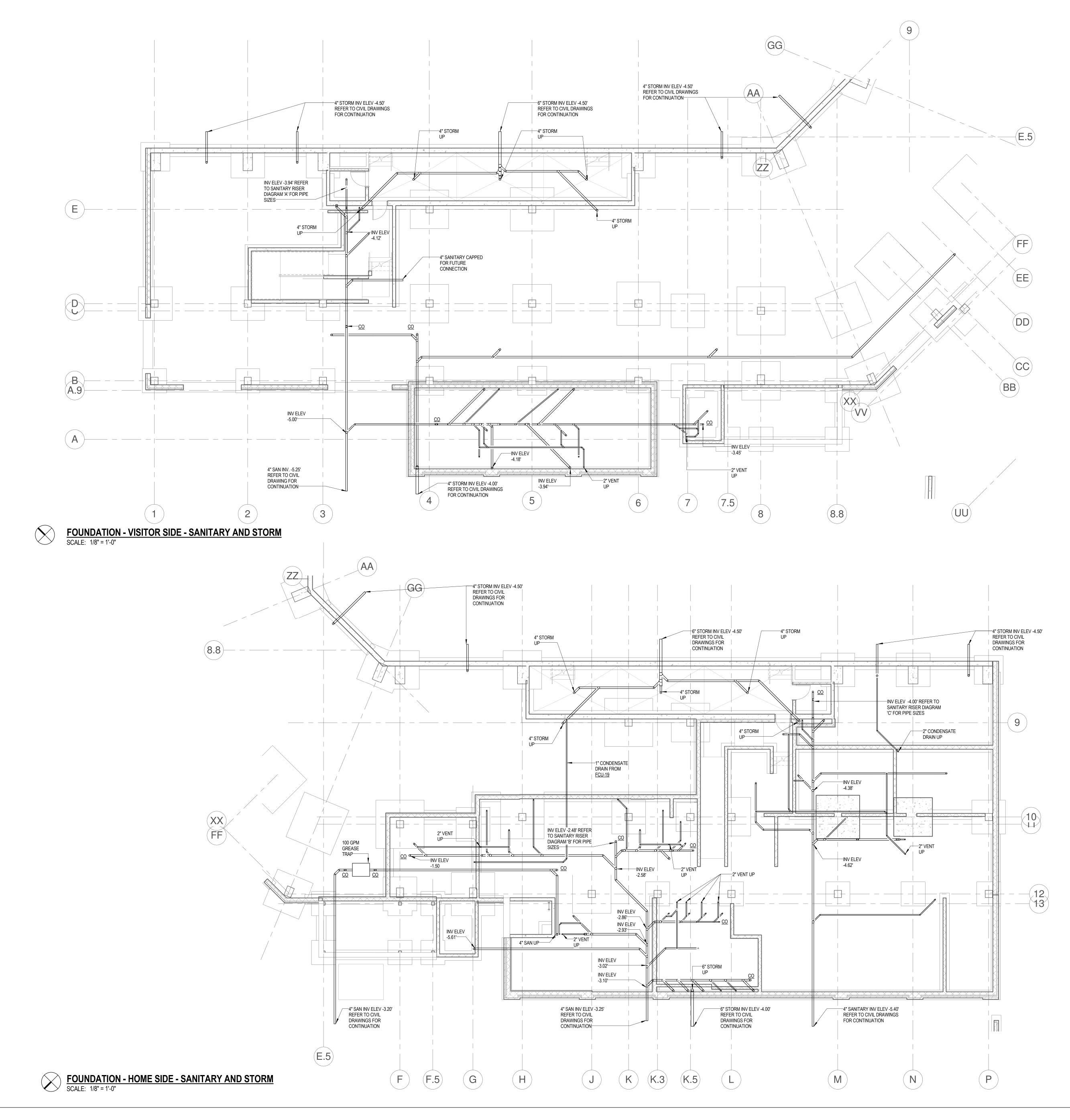
## CONCOURSE LEVEL KEY PLAN SCALE: 1" = 50'-0"



LOWER LEVEL KEY PLAN SCALE: 1" = 50'-0"







1. ALL PIPE SHALL BE ROUTED IN UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED.

PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.
 PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED.

4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

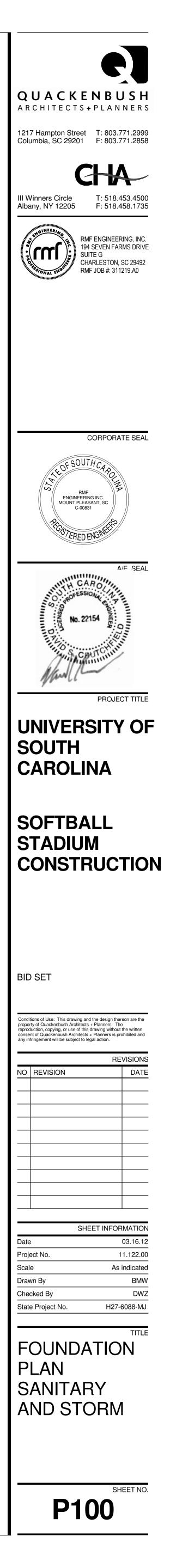
5. LOWER LEVEL FINISHED FLOOR IS AT 0'-0".

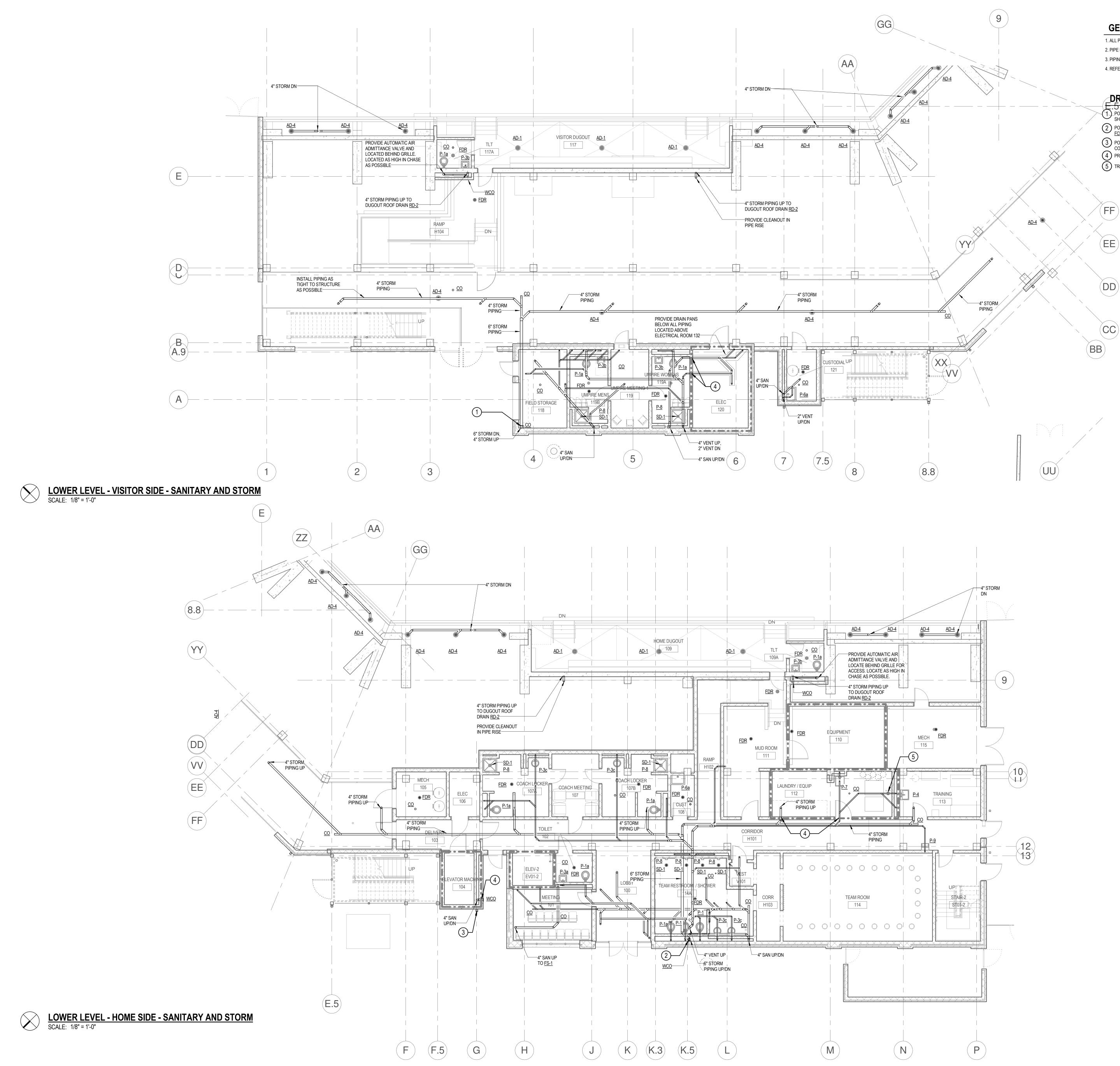
 GRAPHIC SCALE

 8
 4
 0
 8
 16

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

 UNIT OF MEASURE:
 FEET
 1/8"
 1/8"
 1/8"





1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED. 2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.

3. PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED. 4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

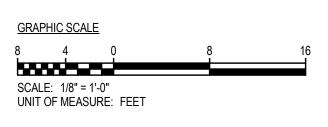
## **DRAWING NOTES**

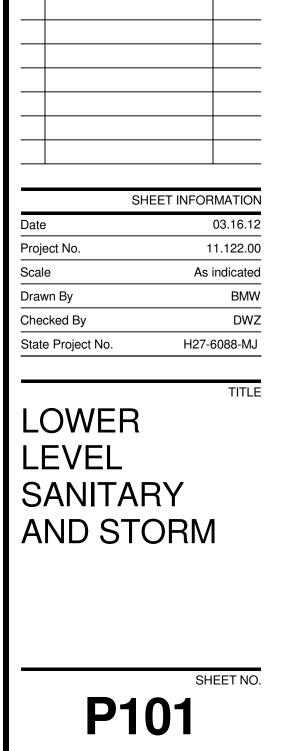
POINT OF CONNECTION FOR 2" CONDENSATE DRAIN PIPING FROM FAN COIL UNITS FCU-07, AND FCU-08. REFER TO SHEET M201 FOR CONTINUATION OF CONDENSATE PIPING.

2 POINT OF CONNECTION FOR 2 1/2" CONDENSATE DRAIN PIPING FROM FAN COIL UNITS <u>FCU-01</u>, <u>FCU-02</u>, <u>FCU-03</u>, <u>FCU-04</u>, AND <u>FCU-05</u>. REFER TO SHEET M201 FOR CONTINUATION OF CONDENSATE PIPING.

3 POINT OF CONNECTION FOR 1" CONDENSATE DRAIN PIPING FROM FAN COIL UNIT <u>FCU-06</u>. REFER TO SHEET M201 FOR CONTINUATION OF CONDENSATE PIPING. (4) PROVIDE FIRE RATED PIPE PENETRATION.

(5) TRENCH DRAIN, REFER TO DETAIL ON DRAWING P500.





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REVISIONS

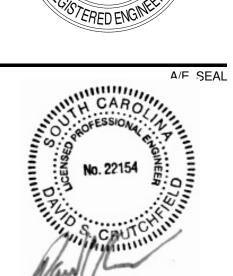
DATE

BID SET

NO REVISION

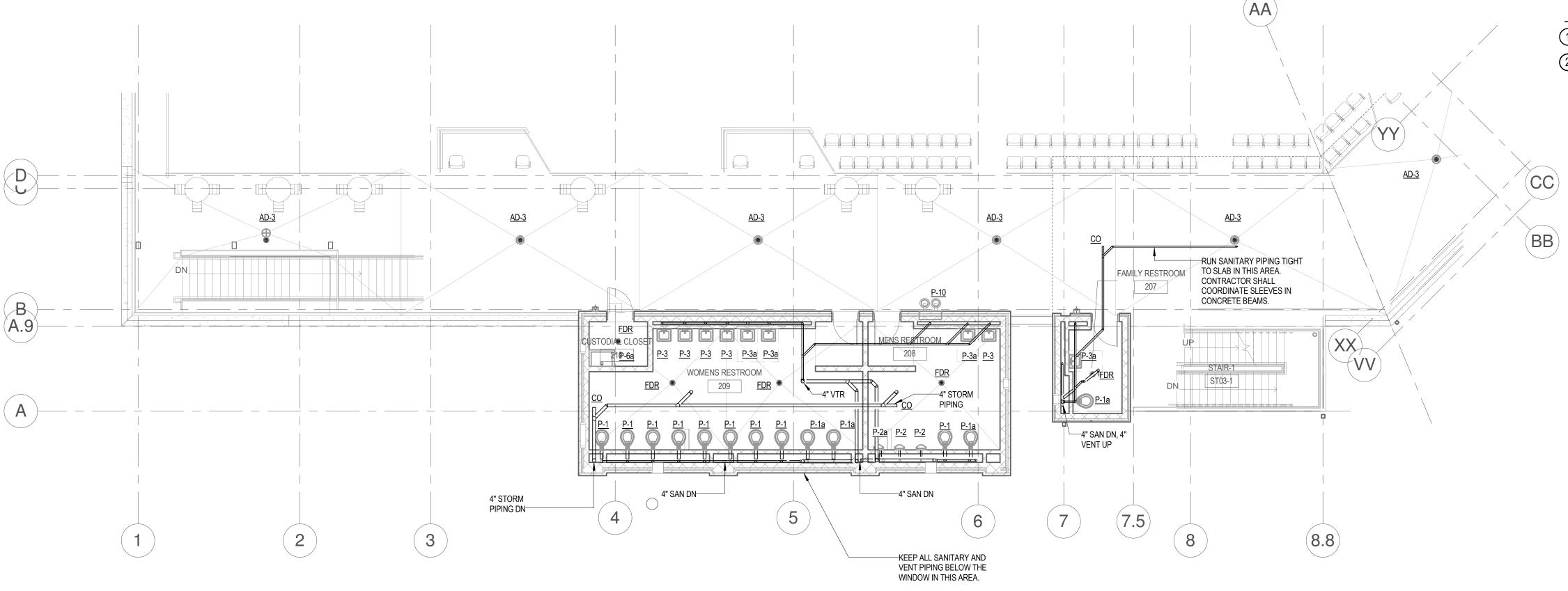






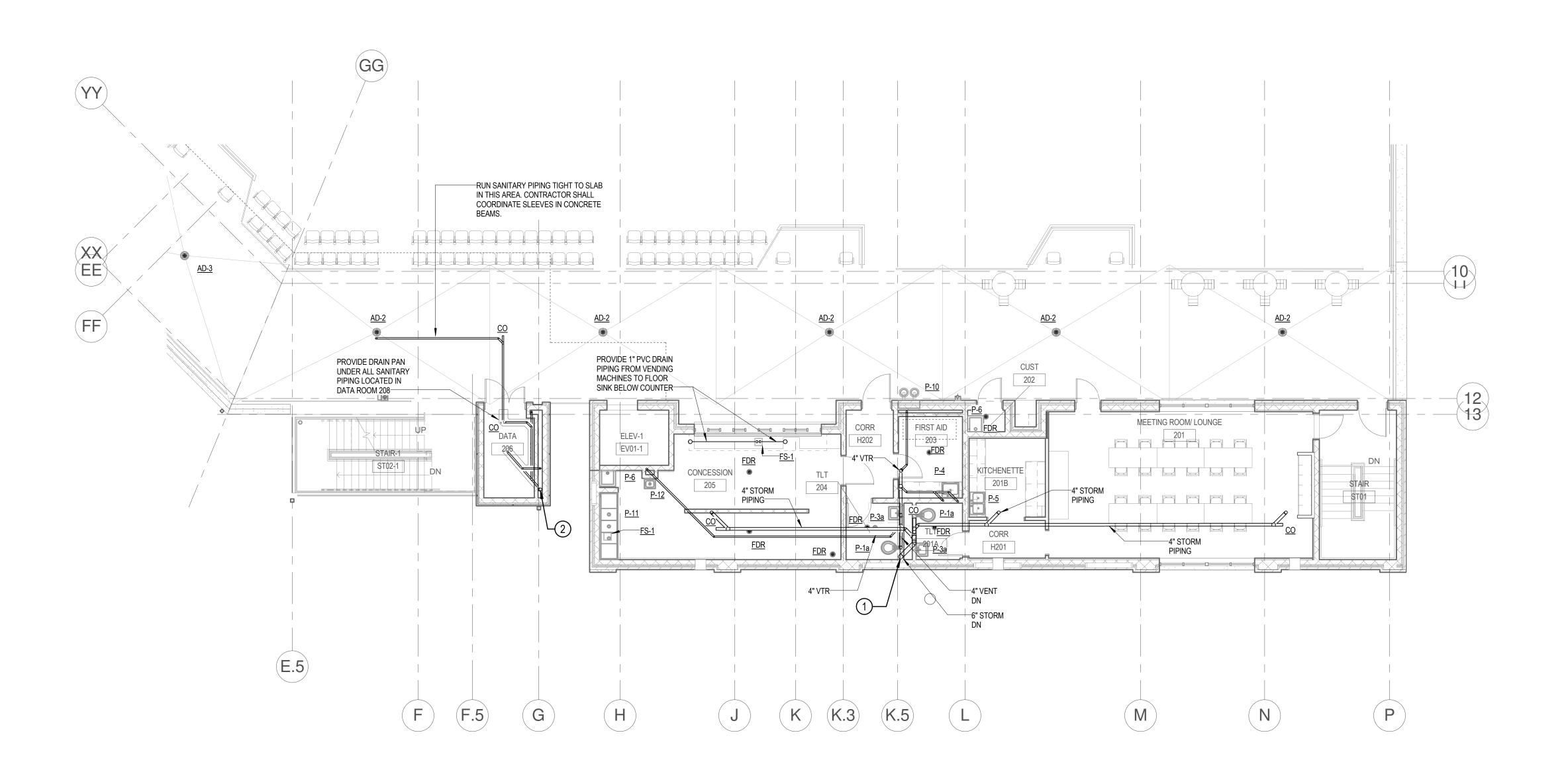








CONCOURSE LEVEL - VISITOR SIDE - SANITARY AND STORM SCALE: 1/8" = 1'-0"





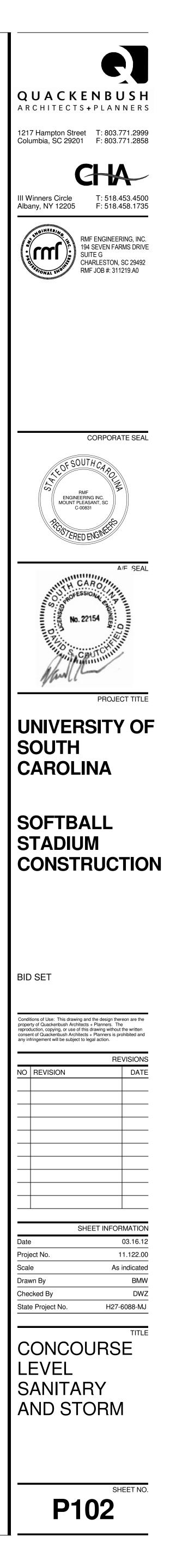
1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED.

2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR. 3. PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED. 4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

## **DRAWING NOTES**

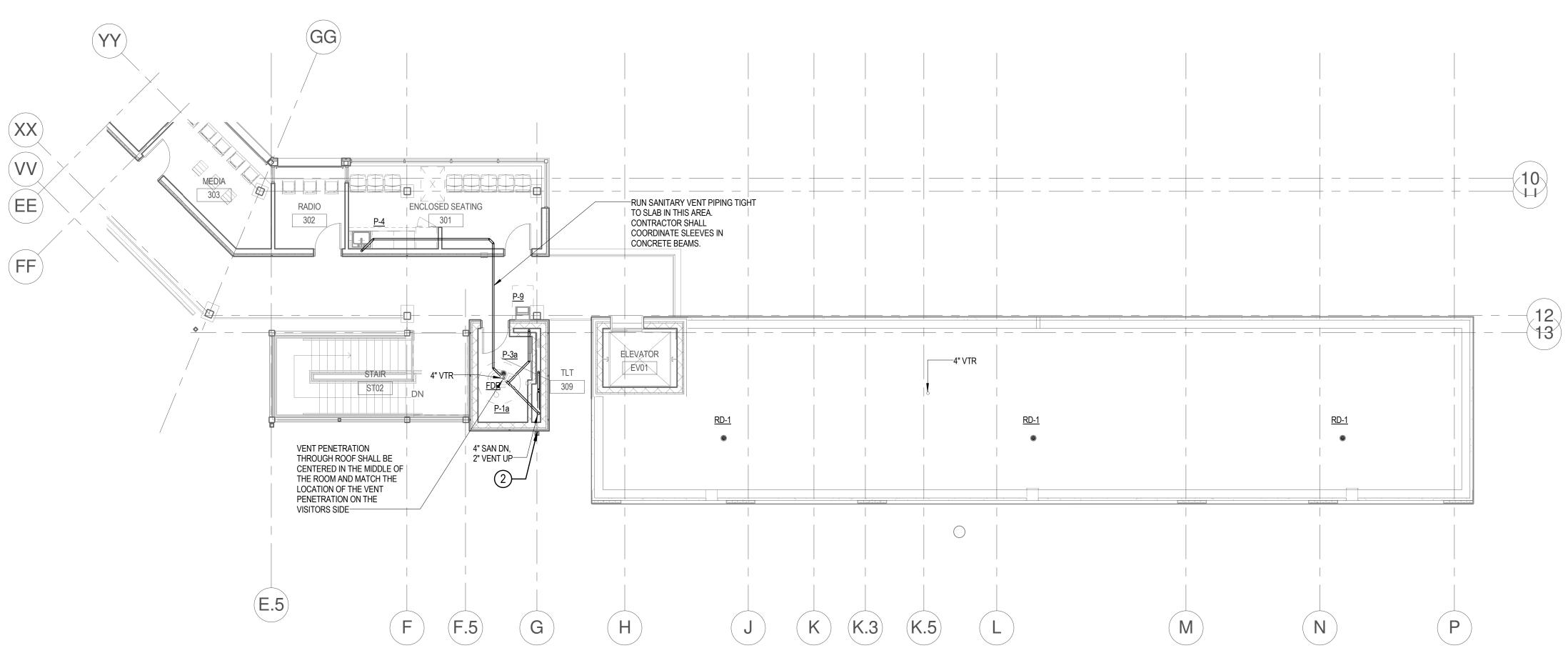
1 POINT OF CONNECTION FOR 1 1/2" CONDENSATE DRAIN PIPING FROM FAN COIL UNIT <u>FCU-09</u> REFER TO SHEET M202 FOR CONTINUATION OF CONDENSATE PIPING. 2 POINT OF CONNECTION FOR 1" CONDENSATE DRAIN PIPING FROM FAN COIL UNIT <u>FCU-10</u>. REFER TO SHEET M202 FOR CONTINUATION OF CONDENSATE PIPING.

> GRAPHIC SCALE 8 4 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET

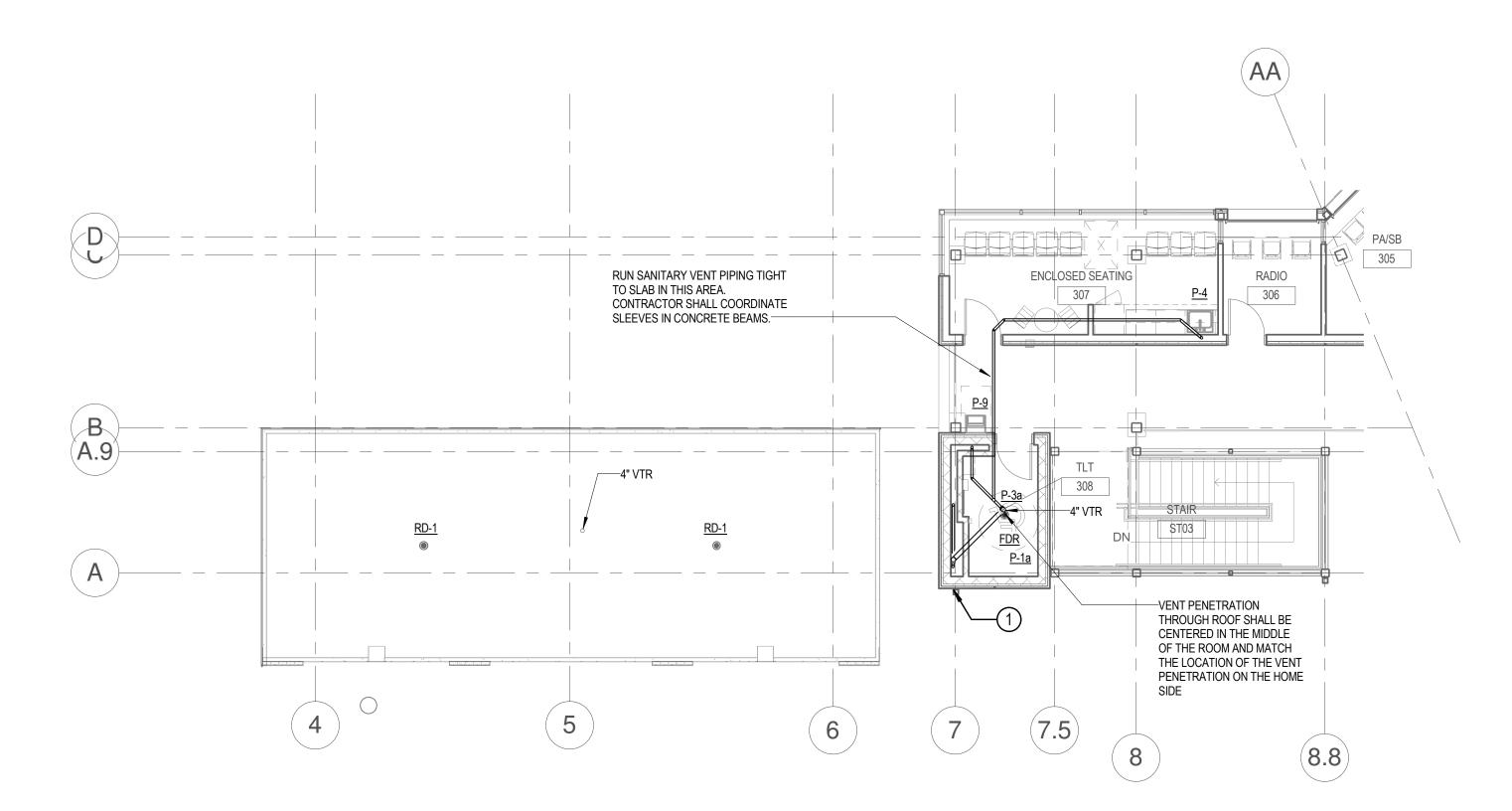




# UPPER LEVEL - VISITOR SIDE - SANITARY AND STORM SCALE: 1/8" = 1'-0"







## **GENERAL NOTES**

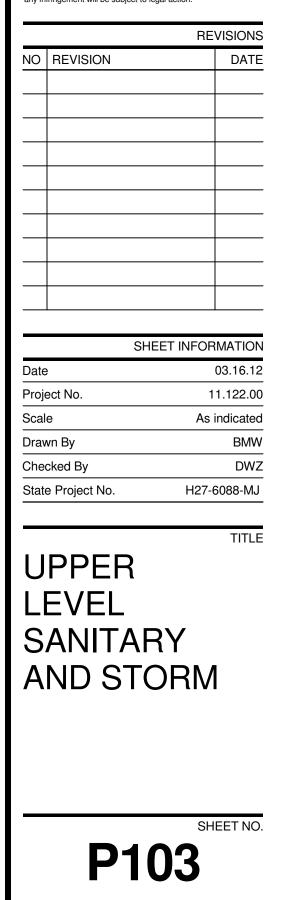
1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED.

- 2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.
- 3. PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED. 4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

## **DRAWING NOTES**

- 1 POINT OF CONNECTION FOR 2 1/2" CONDENSATE DRAIN PIPING FROM FAN COIL UNITS <u>FCU-15</u>, <u>FCU-16</u>, <u>FCU-17</u>, AND <u>FCU-18</u>. REFER TO SHEET M203 FOR CONTINUATION OF CONDENSATE PIPING.
- 2 POINT OF CONNECTION FOR 2 1/2" CONDENSATE DRAIN PIPING FROM FAN COIL UNITS <u>FCU-12</u>, <u>FCU-13</u>, AND <u>FCU-14</u>. REFER TO SHEET M203 FOR CONTINUATION OF CONDENSATE PIPING.

GRAPHIC SCALE 8 4 0 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET

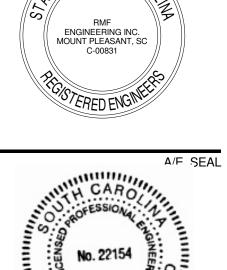


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BID SET









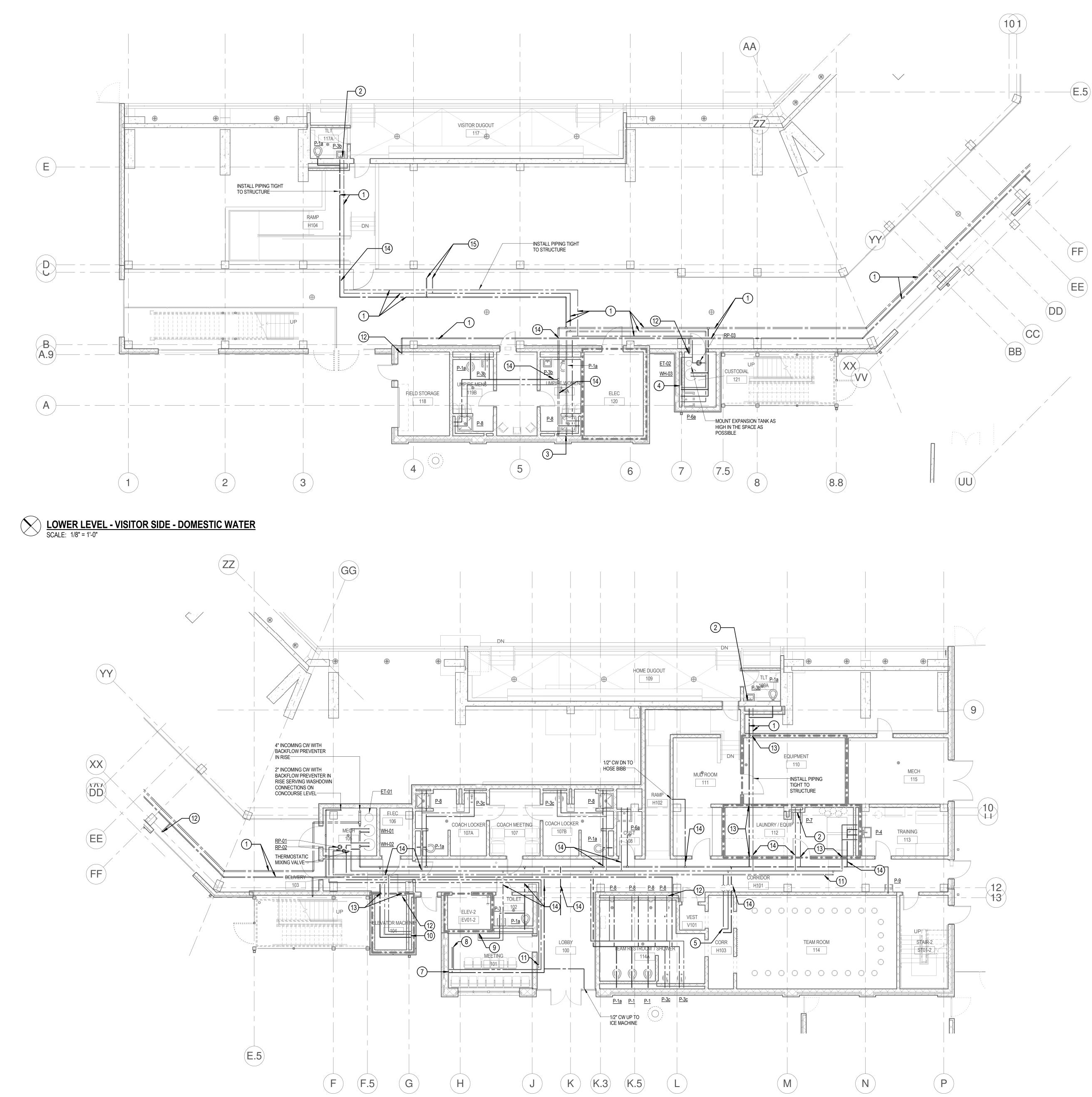


III Winners Circle T: 518.453.4500 Albany, NY 12205 F: 518.458.1735

RMF JOB #: 311219.A0

RMF ENGINEERING, INC. CHARLESTON, SC 29492





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LOWER LEVEL - HOME SIDE - DOMESTIC WATER SCALE: 1/8" = 1'-0"

## GENERAL NOTES

1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED.

2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.

PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED.
 REFER TO RISER DIAGRAMS FOR PIPE SIZES.

## DRAWING NOTES

1 INSULATE AND HEAT TRACE ALL DOMESTIC WATER PIPING LOCATED IN UNHEATED AREAS.

2 PROVIDE TAMPER PROOF HOSE BIBB (HB-1) UNDER THE SINK.

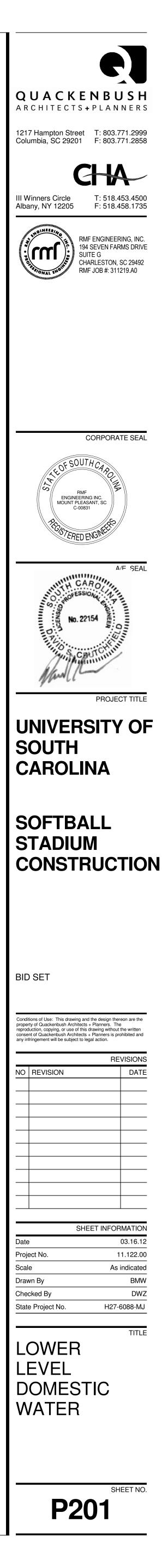
- 3" CW, 1 1/2" HW, AND 1 1/2" HWR UP
- (4) 1 1/2" CW, 1" HW, AND 1" HWR UP
- 5 2" CW, 1 1/4" HW, AND 1 1/4" HWR UP
- 6 1/2" CW UP
- (7) 1" CW, AND 1" HW UP
- 8 1/2" CW AND HW UP
- 9 3/8" CW AND HW UP
- (10) 1 1/2" CW, 1/2" HW, AND 1/2" HWR UP
- (11) BALANCING VALVE
- (12) 2" CW UP TO WASHDOWN CONNECTION.
- (13) PROVIDE FIRE RATED PIPE PENETRATION.
- (14) PROVIDE SHUT-OFF VALVES AT PIPE BRANCH.
- (15) PROVIDE 1 1/2" CW AND 1" HW BRANCH WITH VALVE. CAP PIPE FOR FUTURE CONNECTION.

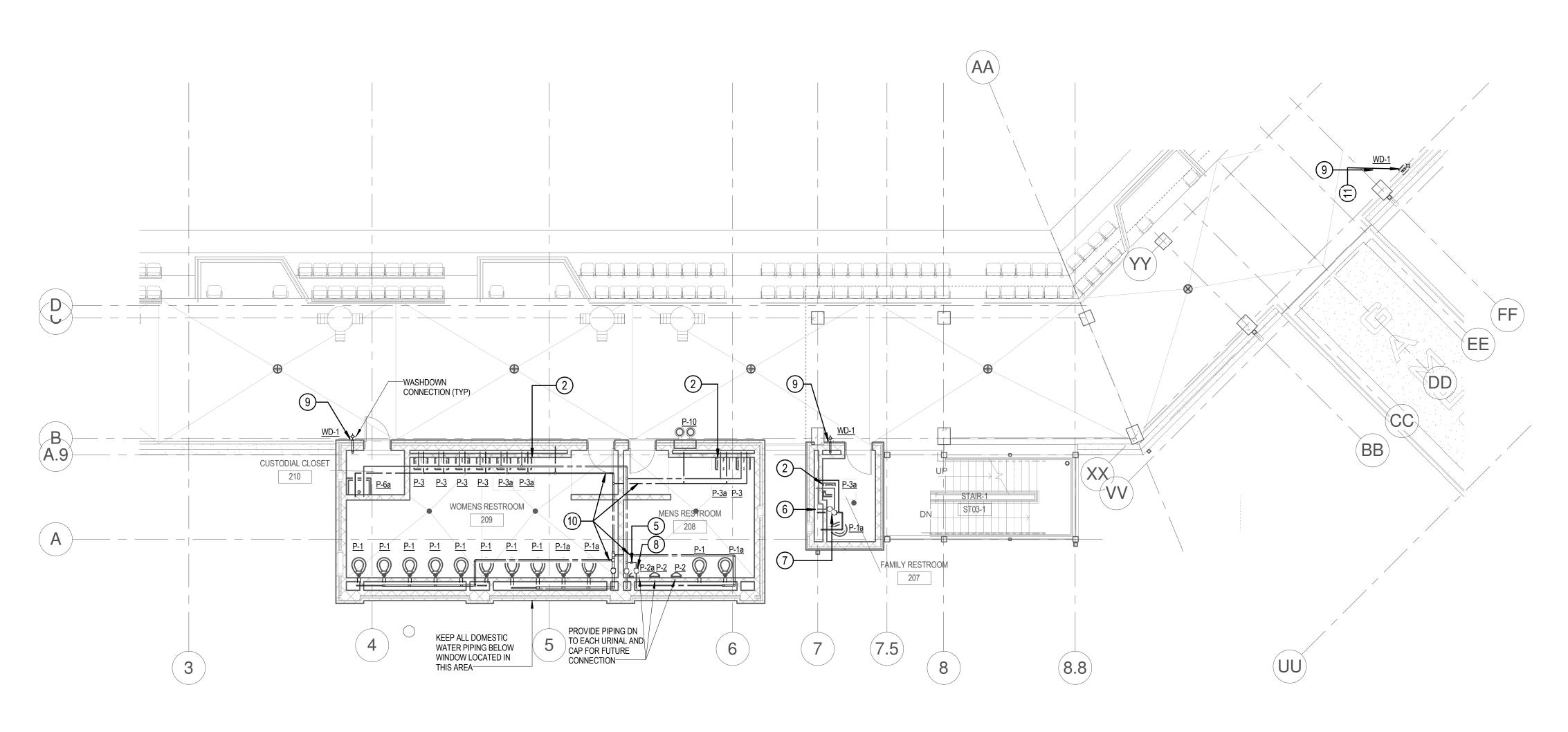
 GRAPHIC SCALE

 8
 4
 0
 8
 16

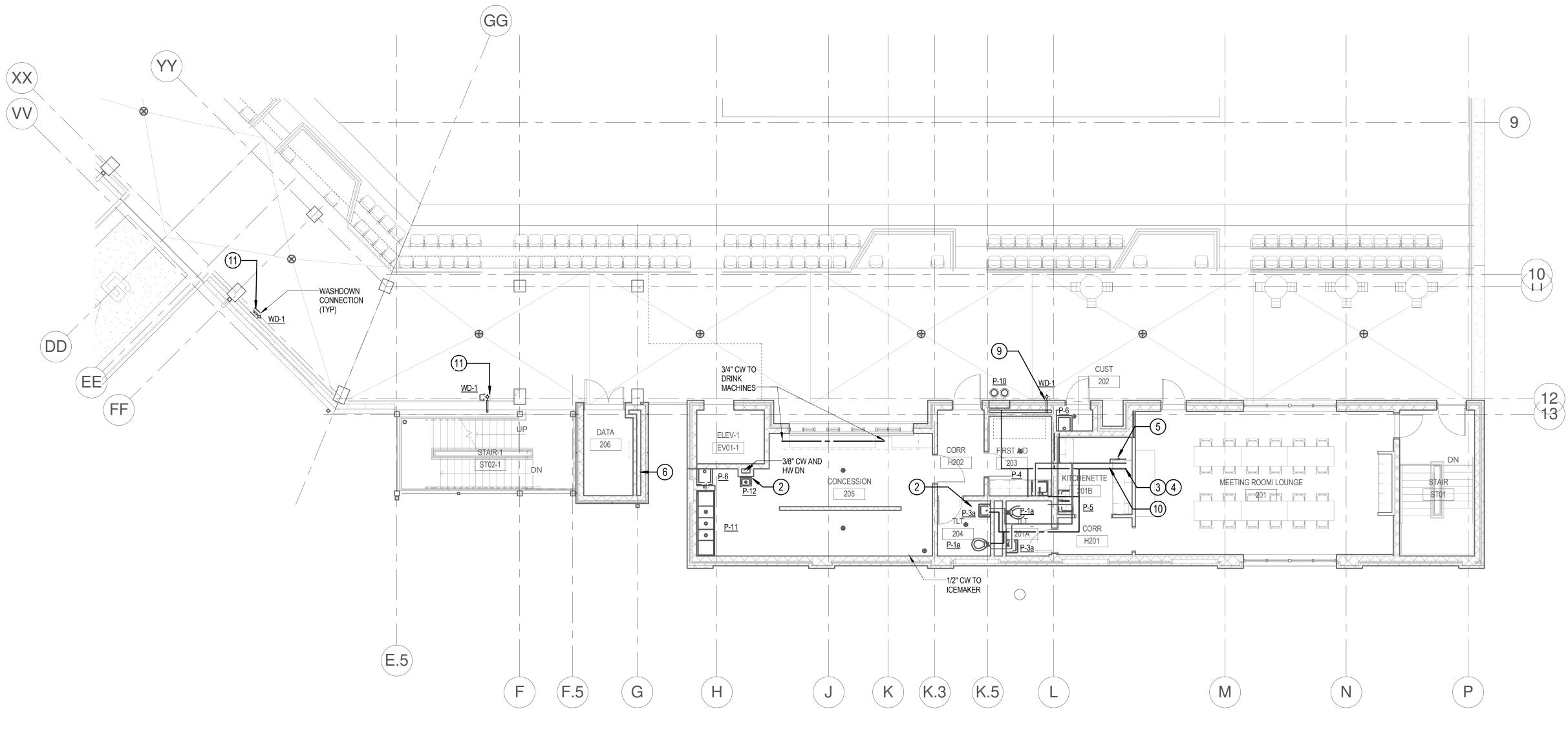
 SCALE:
 1/8" = 1'-0"
 1/8"
 1/8"
 1/8"

 UNIT OF MEASURE:
 FEET
 1/8"
 1/8"
 1/8"











1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED.

- 2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.
- 3. PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED. 4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

## DRAWING NOTES

(1) INSULATE AND HEAT TRACE ALL DOMESTIC WATER PIPING LOCATED IN UNHEATED AREAS.

(2) PROVIDE TAMPER PROOF HOSE BIBB (HB-1) UNDER THE SINK.

(3) 1" CW, 1" HW, AND 1/2" HWR DN

- (4) PROVIDE A SHUT-OFF VALVE ON CW, HW, AND HWR IN THE RISE.
- 5 BALANCING VALVE

6 1" CW, 1/2" HW, AND 1/2" HWR UP AND DN.

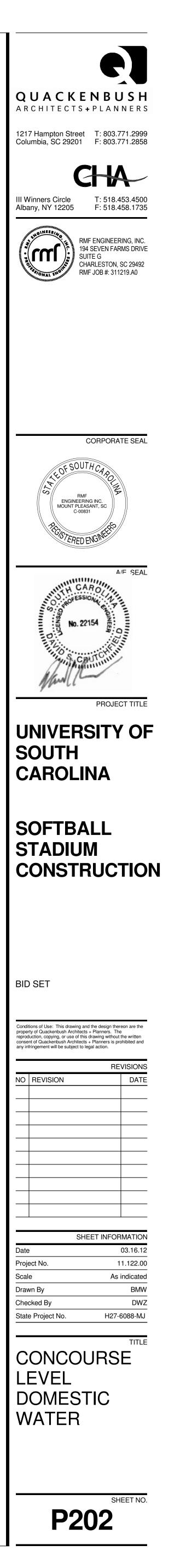
(7) provide a shut-off value on the CW, and HW.

8 PROVIDE A SHUT-OFF VALVE ON THE CW, HW, AND HWR.

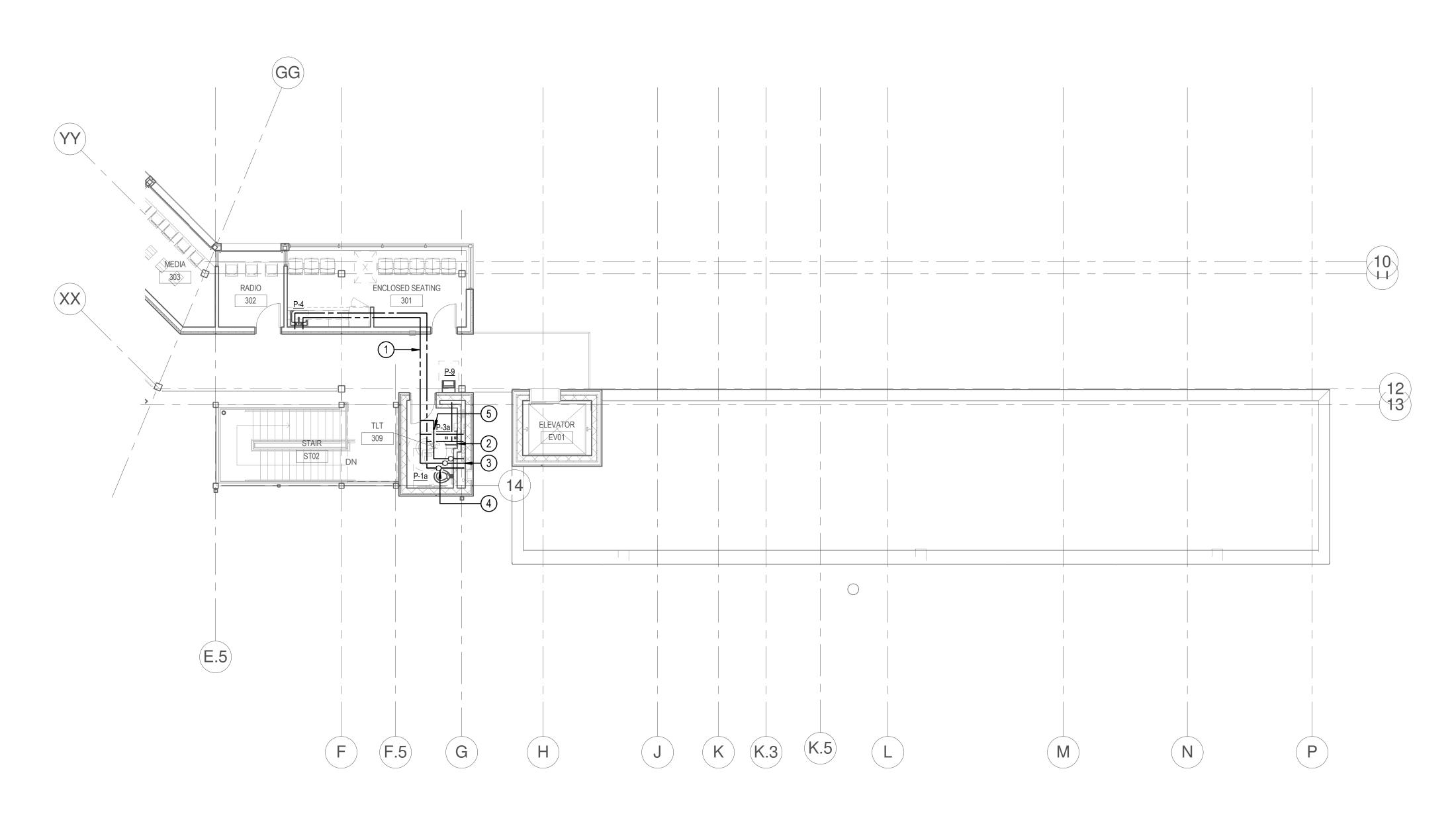
- 9 PROVIDE LOCKABLE STAINLESS STEEL ACCESS DOOR FOR SHUT-OFF VALVE LOCATED IN THE RISE.
- (10) PROVIDE SHUT-OFF VALVES AT PIPE BRANCH.

11 PROVIDE 10"x10" TUBE STEEL ENCLOSURE WITH LOCKABLE ACCESS DOOR FOR SHUT-OFF VALVE LOCATED IN THE

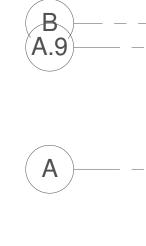
GRAPHIC SCALE 8 4 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET

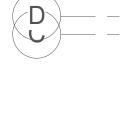


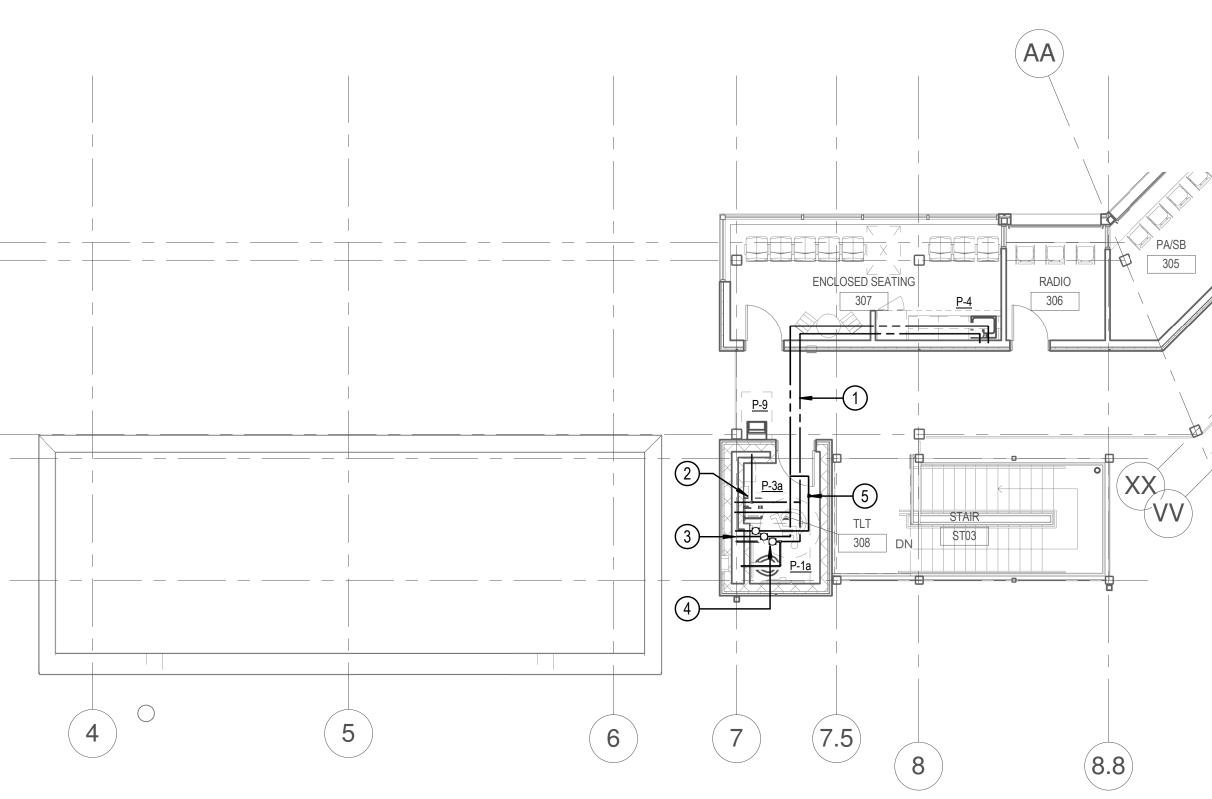










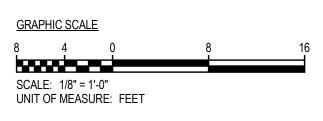


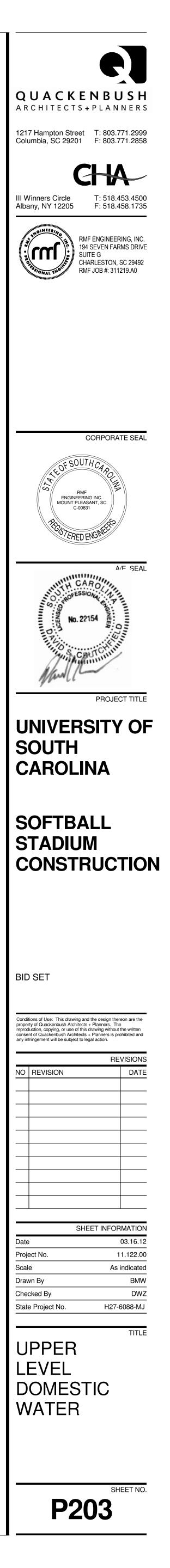
1. ALL PIPE SHALL BE ROUTED IN CEILING SPACE, UNDERSLAB, AND IN WALLS UNLESS OTHERWISE NOTED. 2. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING SHALL BE BY THE CONTRACTOR.

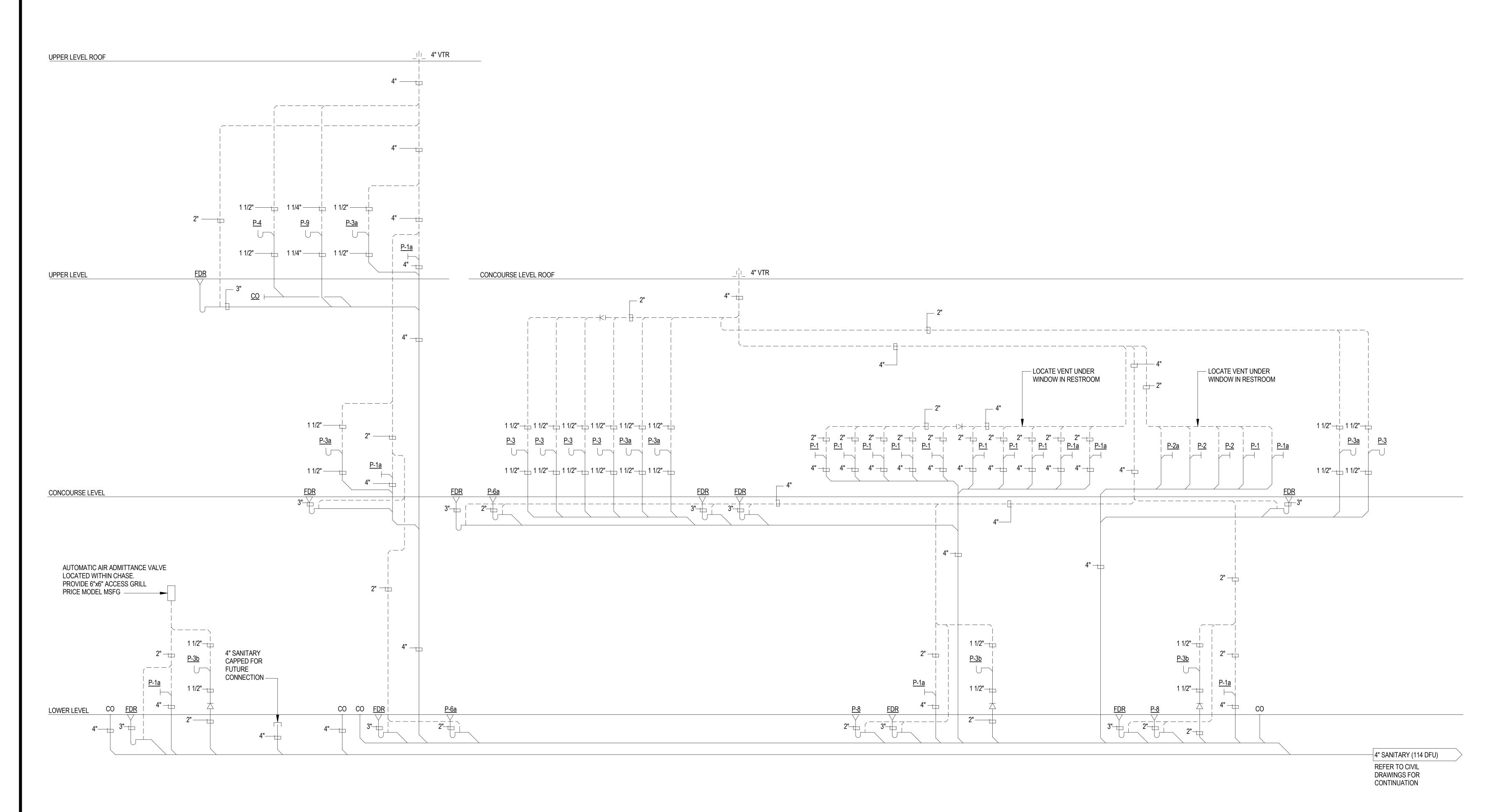
3. PIPING UP TO THE PLUMBING FIXTURES SHALL BE SIZED PER THE FIXTURE SCHEDULE ON P600 UNLESS OTHERWISE NOTED. 4. REFER TO RISER DIAGRAMS FOR PIPE SIZES.

## DRAWING NOTES

- (1) INSULATE AND HEAT TRACE ALL DOMESTIC WATER PIPING LOCATED IN UNHEATED AREAS.
- (2) PROVIDE TAMPER PROOF HOSE BIBB (HB-1) UNDER THE SINK.
- (3) 1" CW, 1" HW, AND 1/2" HWR DN
- (4) PROVIDE A SHUT-OFF VALVE ON CW, HW, AND HWR.
- 5 BALANCING VALVE
- 6 1" CW, 1/2" HW, AND 1/2" HWR UP AND DN.

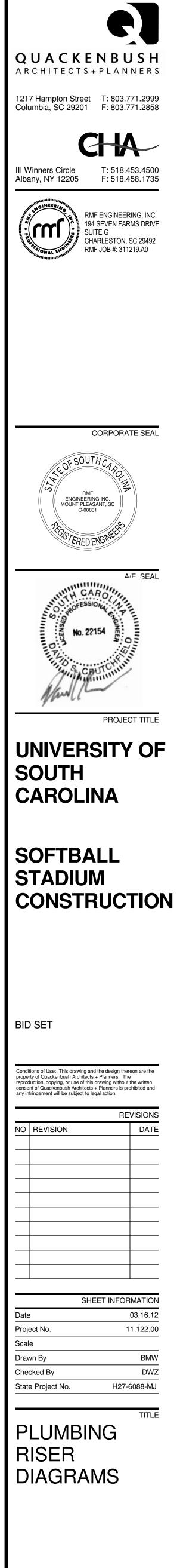






9/2012 12:14:55 PN

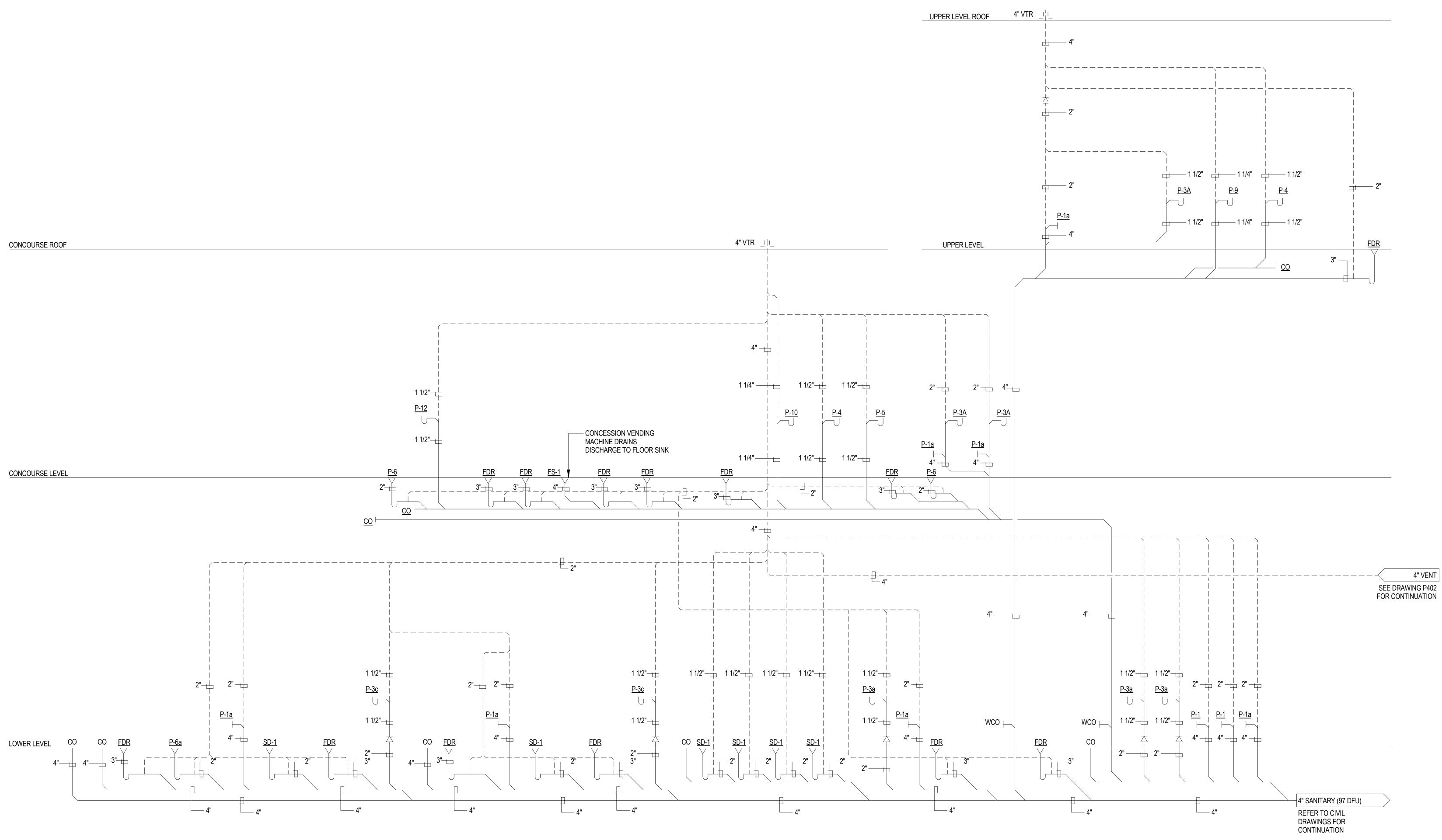
SCALE: NONE

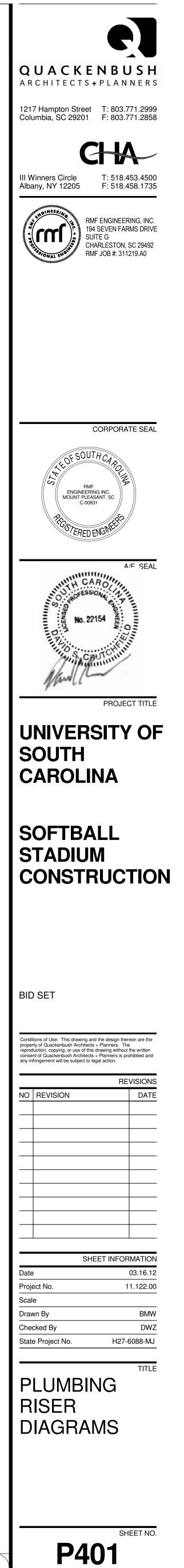


SHEET NO.

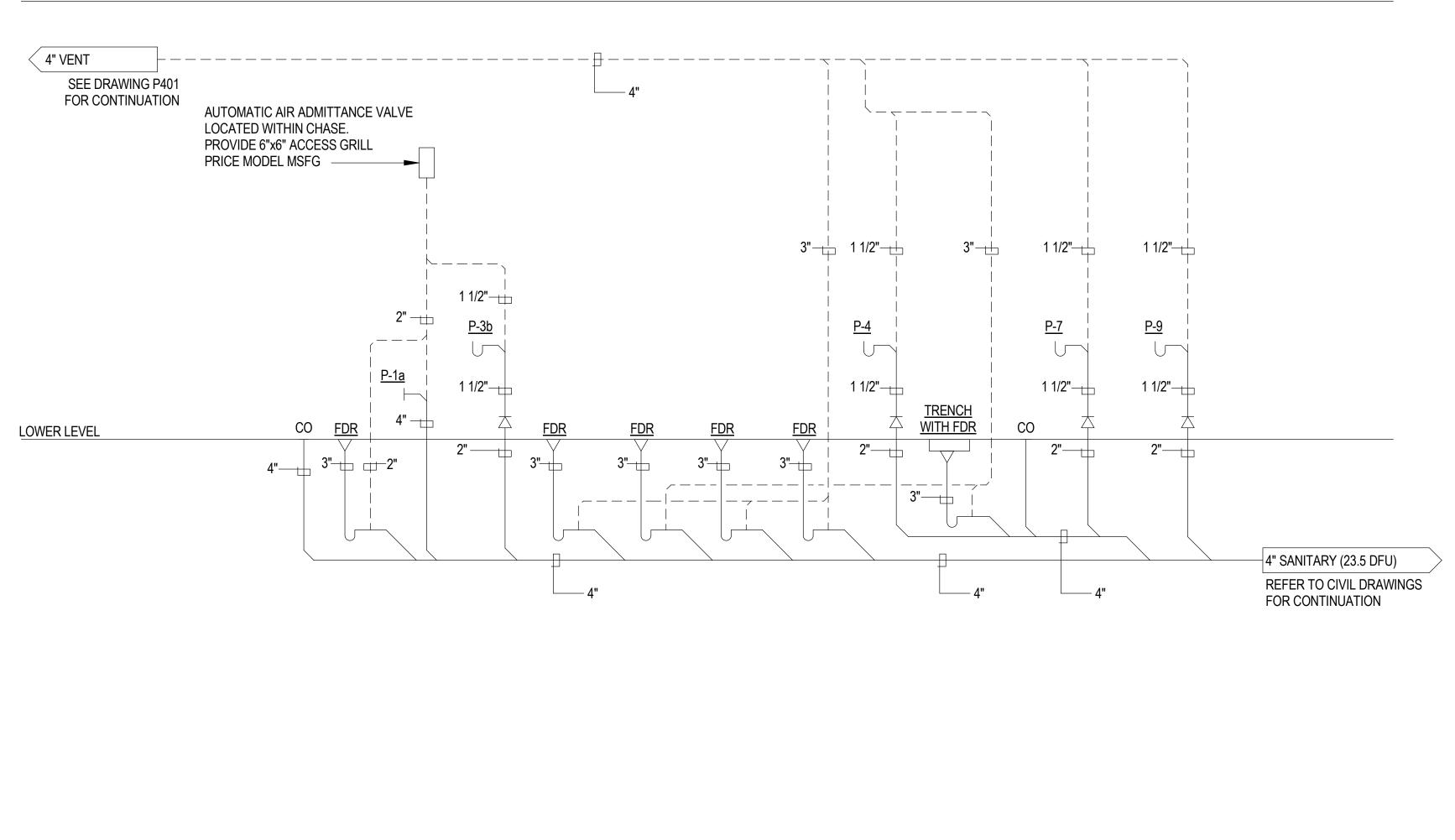
**P400** 

1





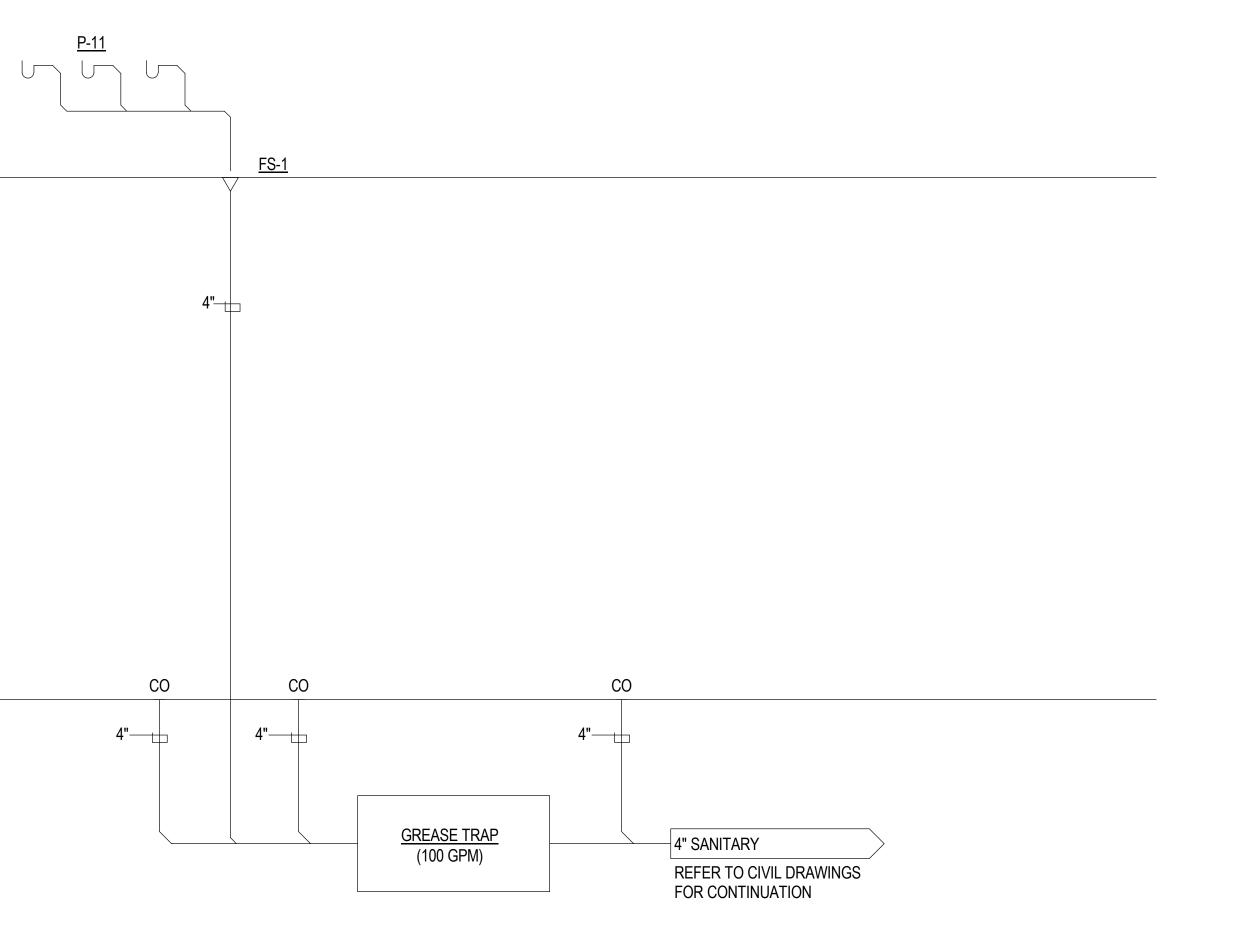


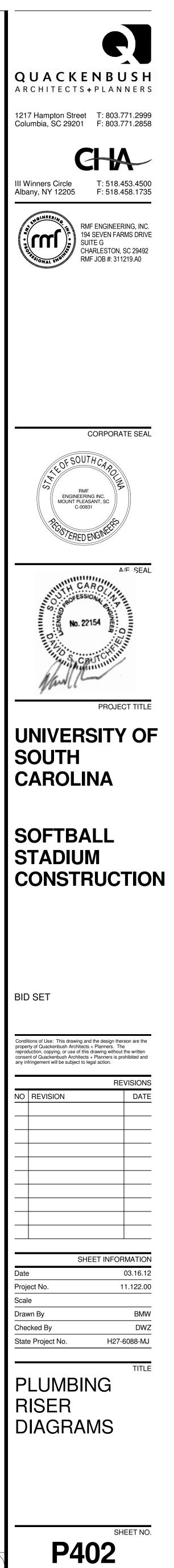


CONCOURSE LEVEL

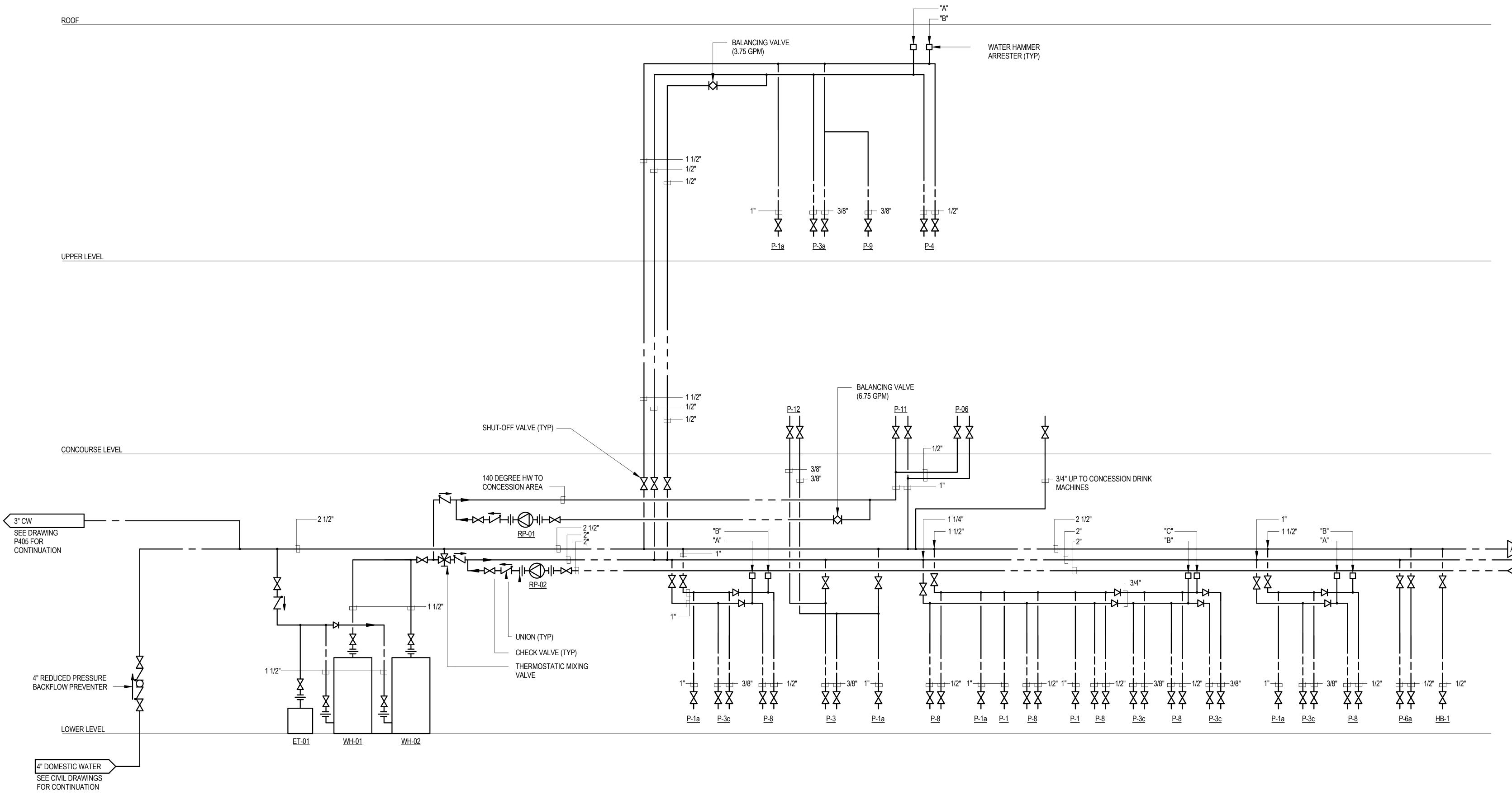
LOWER LEVEL

SCALE: 1





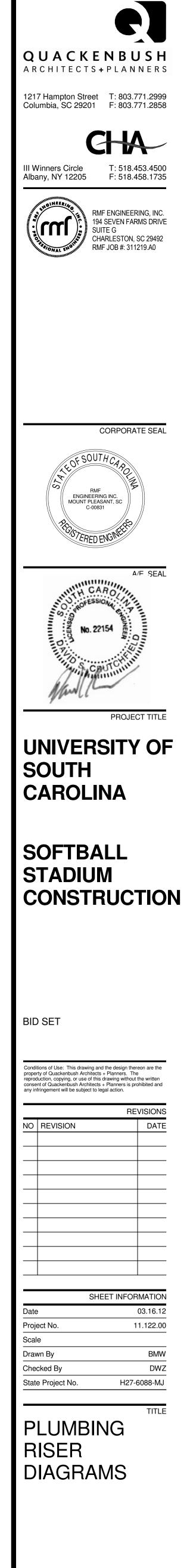
SCALE: 2



	WATER HAMMER ARRESTER SCHEDULE										
SIZE	ZE THREAD SIZE FIXTURE UNIT DASIS OF DESIGN										
Α	1/2	1-11	WILKINS MODEL: 1250-A								
В	3/4	12-32	WILKING MODEL: 1250-B								
С	1	33-60	WILKINS MODEL: 1250-C								
D	1	61-113	WILKINS MODEL: 1250-D								

SHEET NO.

P403







	WATER HAMMER ARRESTER SCHEDULE										
SIZE         THREAD SIZE INCH         FIXTURE UNIT CAPACITY         BASIS OF DESIGN											
Α	1/2	1-11	WILKINS MODEL: 1250-A								
В	3/4	12-32	WILKING MODEL: 1250-B								
С	C 1 33-60 WILKINS MODEL: 1250-										
D	1	61-113	WILKINS MODEL: 1250-D								

LOWER LEVEL

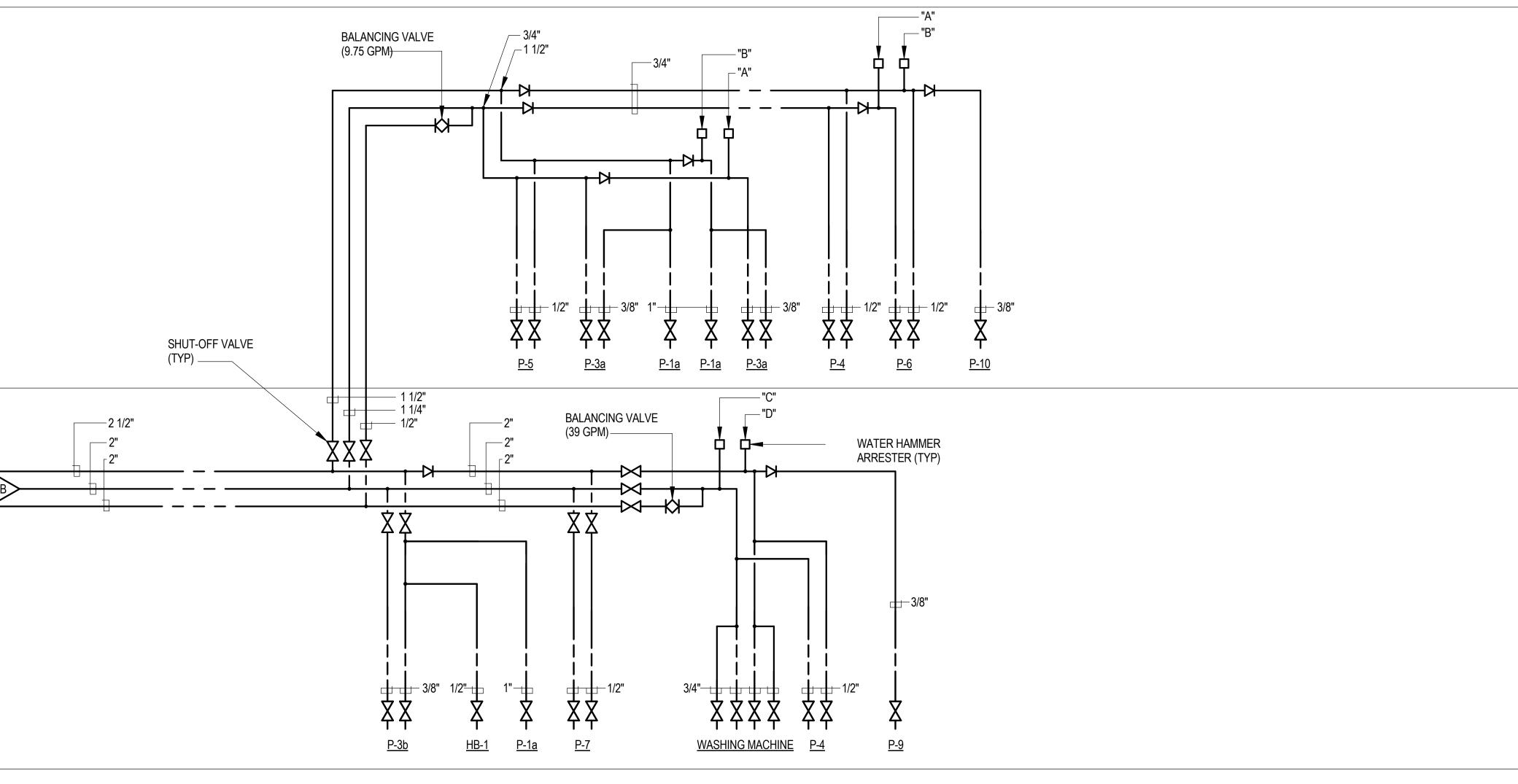


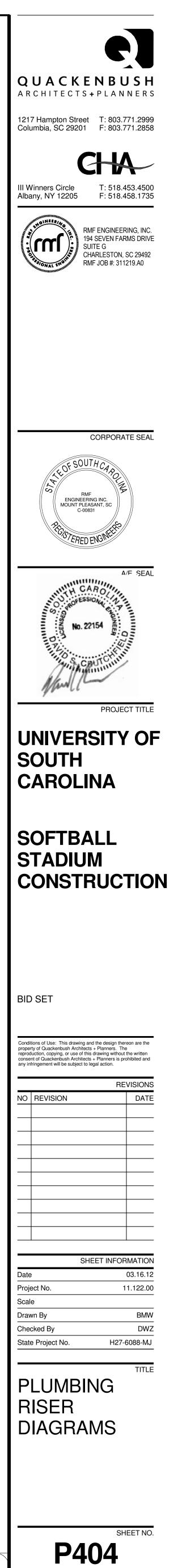


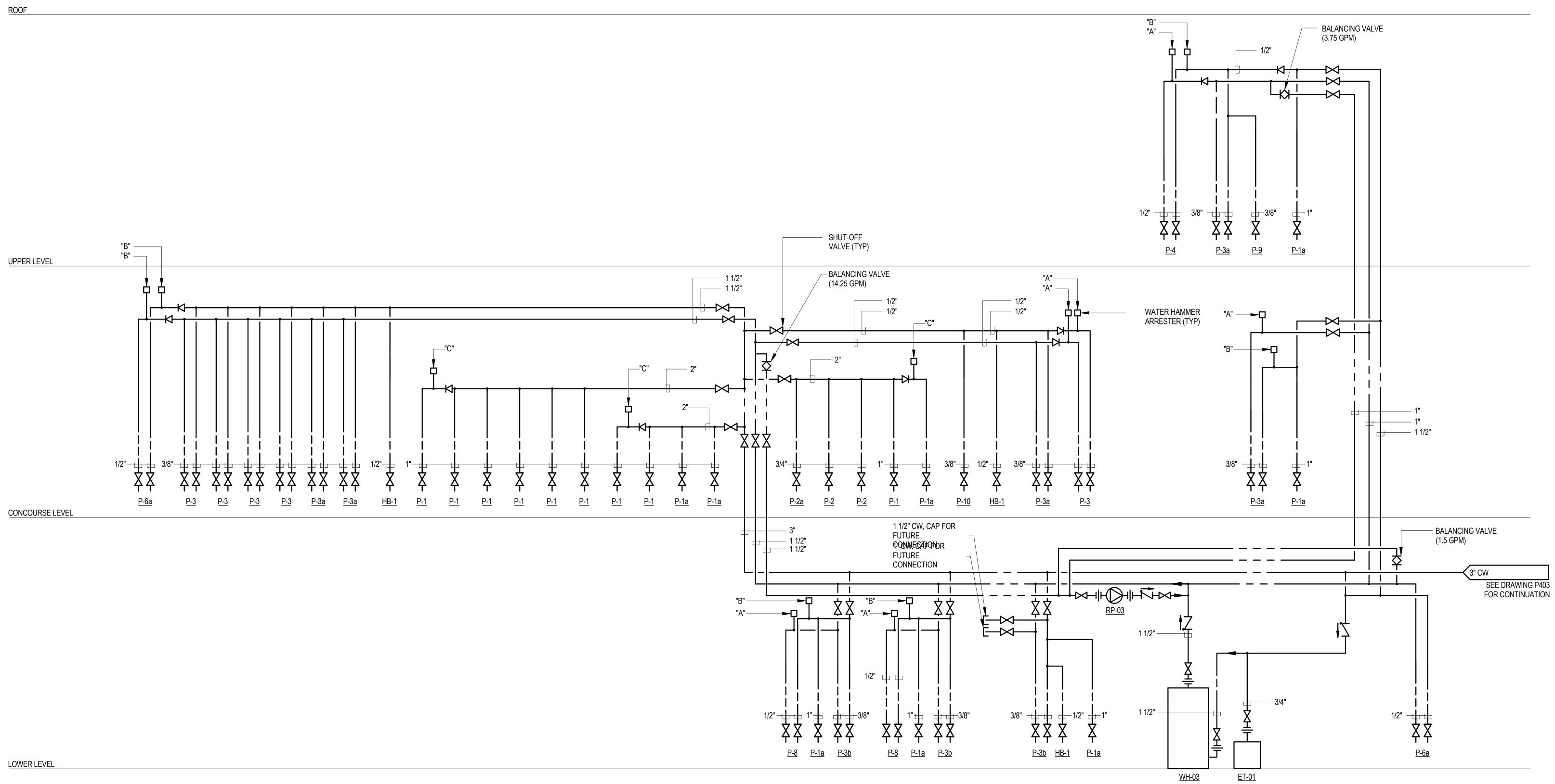
CONCOURSE LEVEL

UPPER LEVEL

ROOF

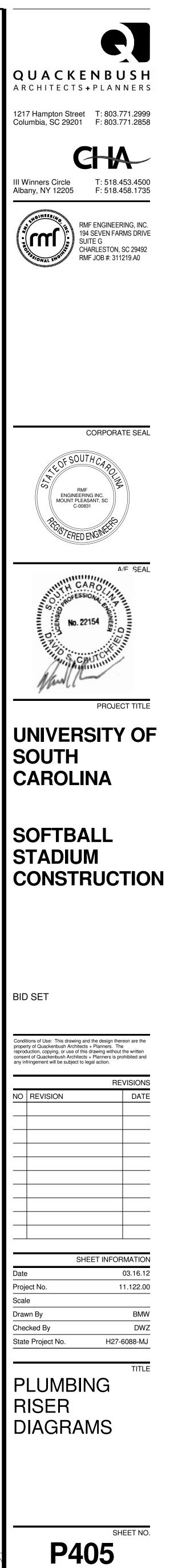


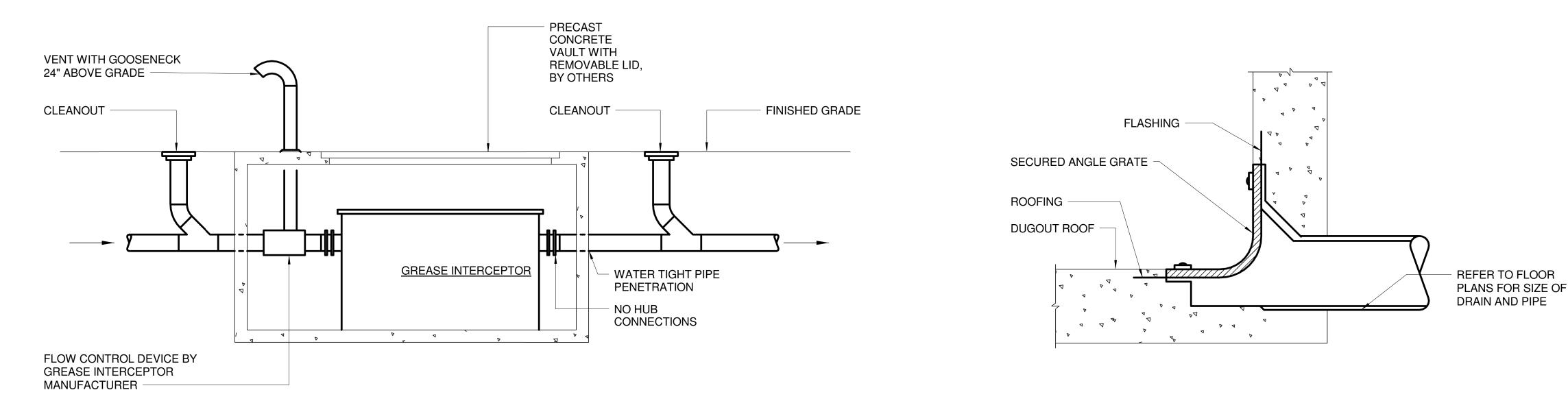




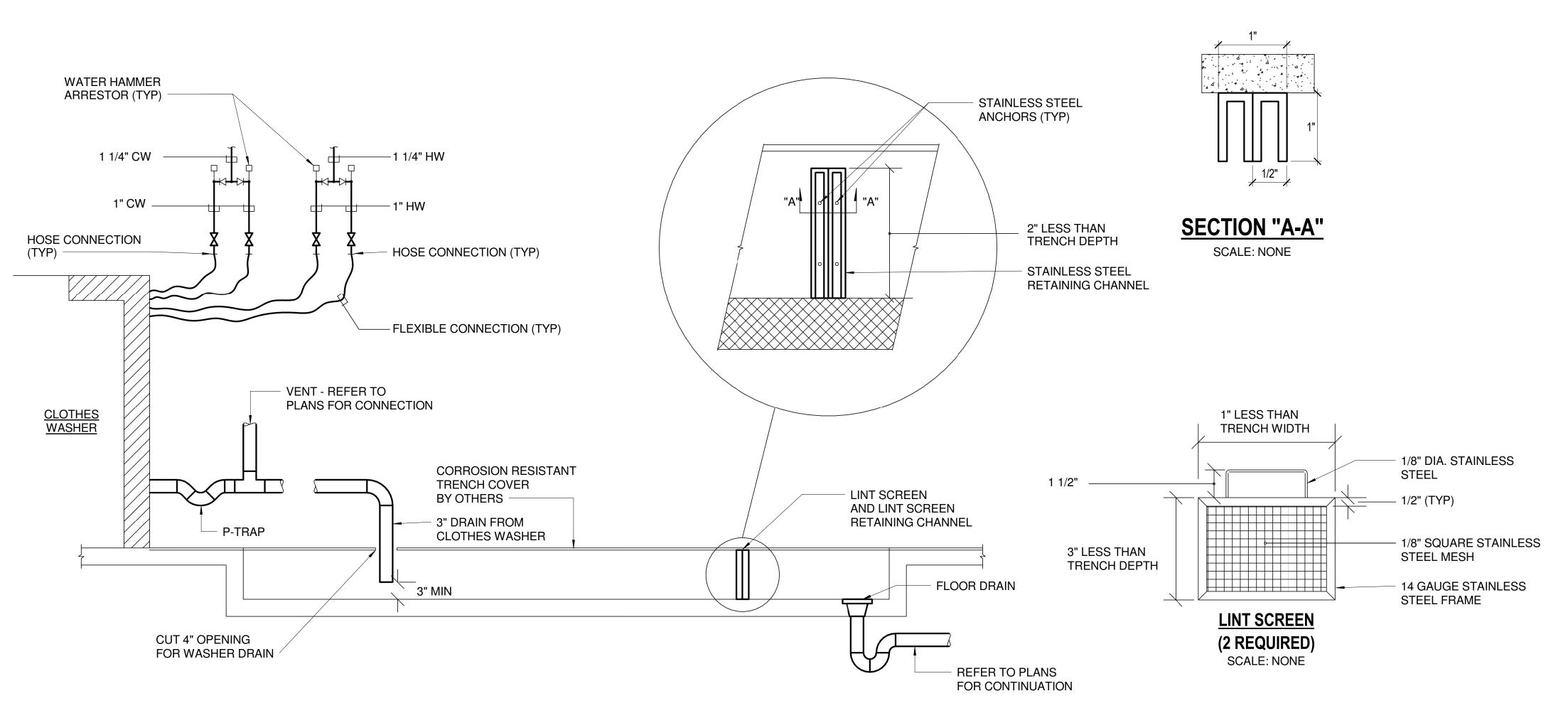
WATER HAMMER ARRESTER SCHEDULE											
SIZE	SIZE THREAD SIZE FIXTURE UNIT INCH CAPACITY BASIS OF DESIGN										
A	1/2	1-11	WILKINS MODEL: 1250-A								
В	3/4	12-32	WILKING MODEL: 1250-B								
С	1	33-60	WILKINS MODEL: 1250-C								
D	1	61-113	WILKINS MODEL: 1250-D								

## DOMESTIC WATER - RISER DIAGRAM - EAST SIDE



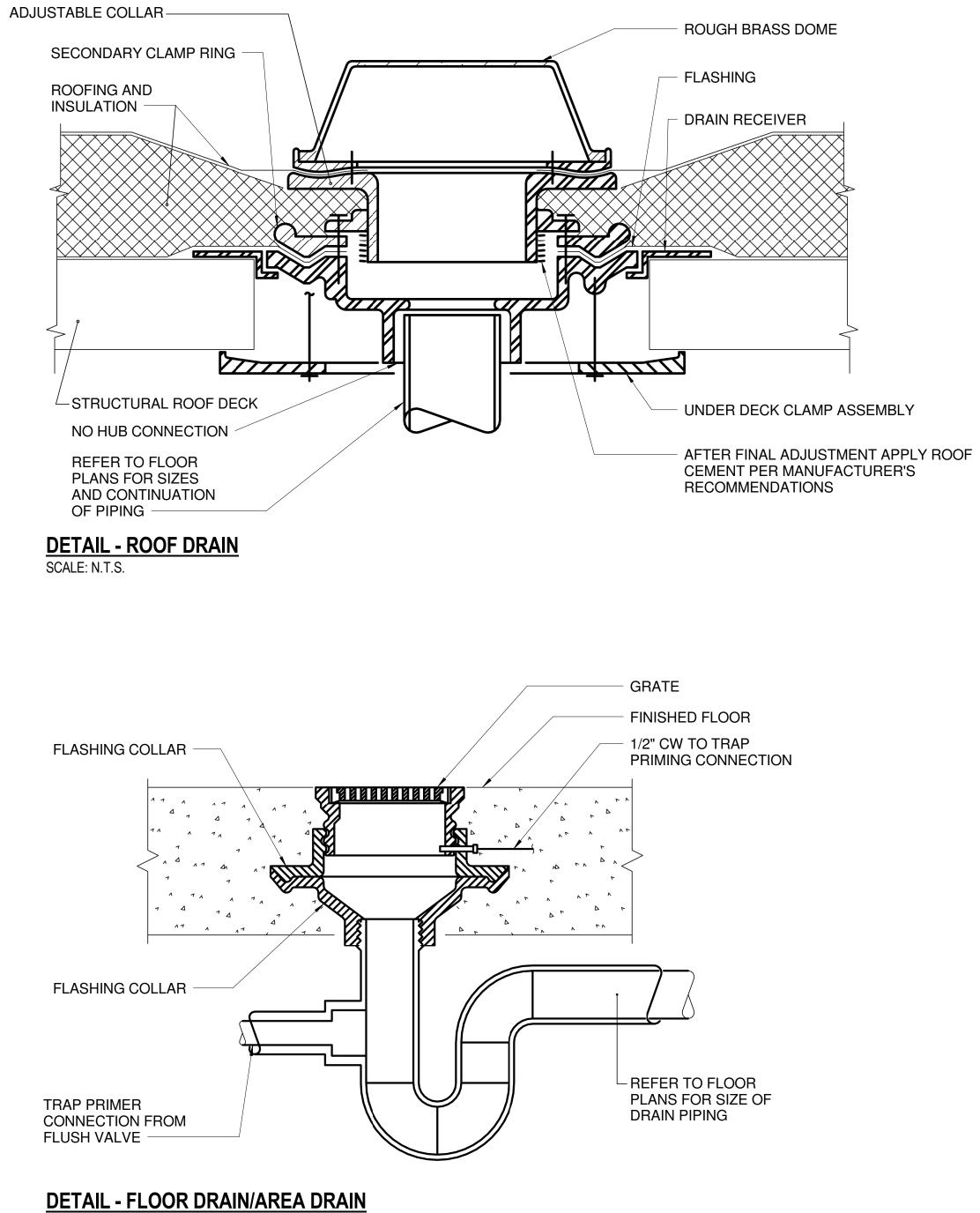




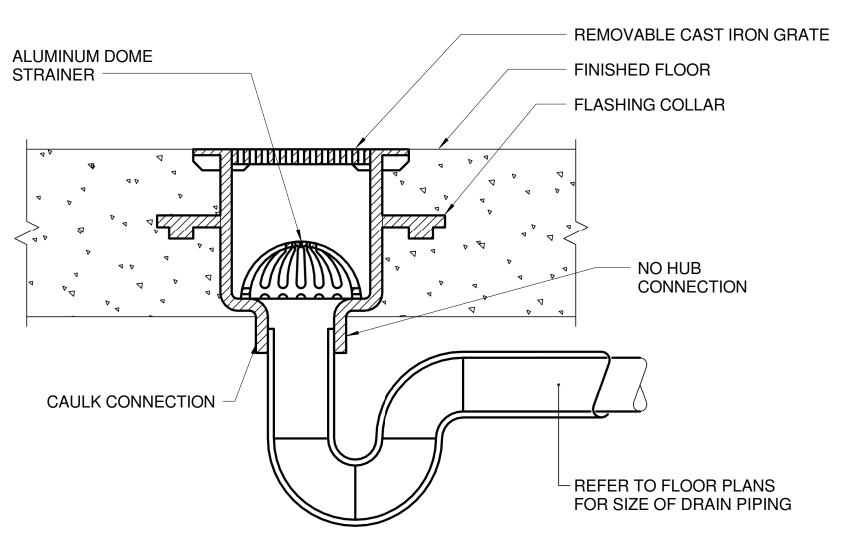


## **DETAIL - WASHER CONNECTION AND DRAIN TRENCH**

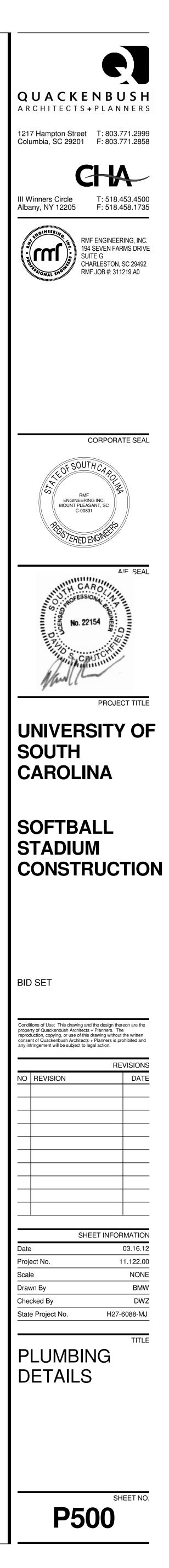
DETAIL - DUGOUT ROOF DRAIN (RD-2) SCALE: N.T.S.

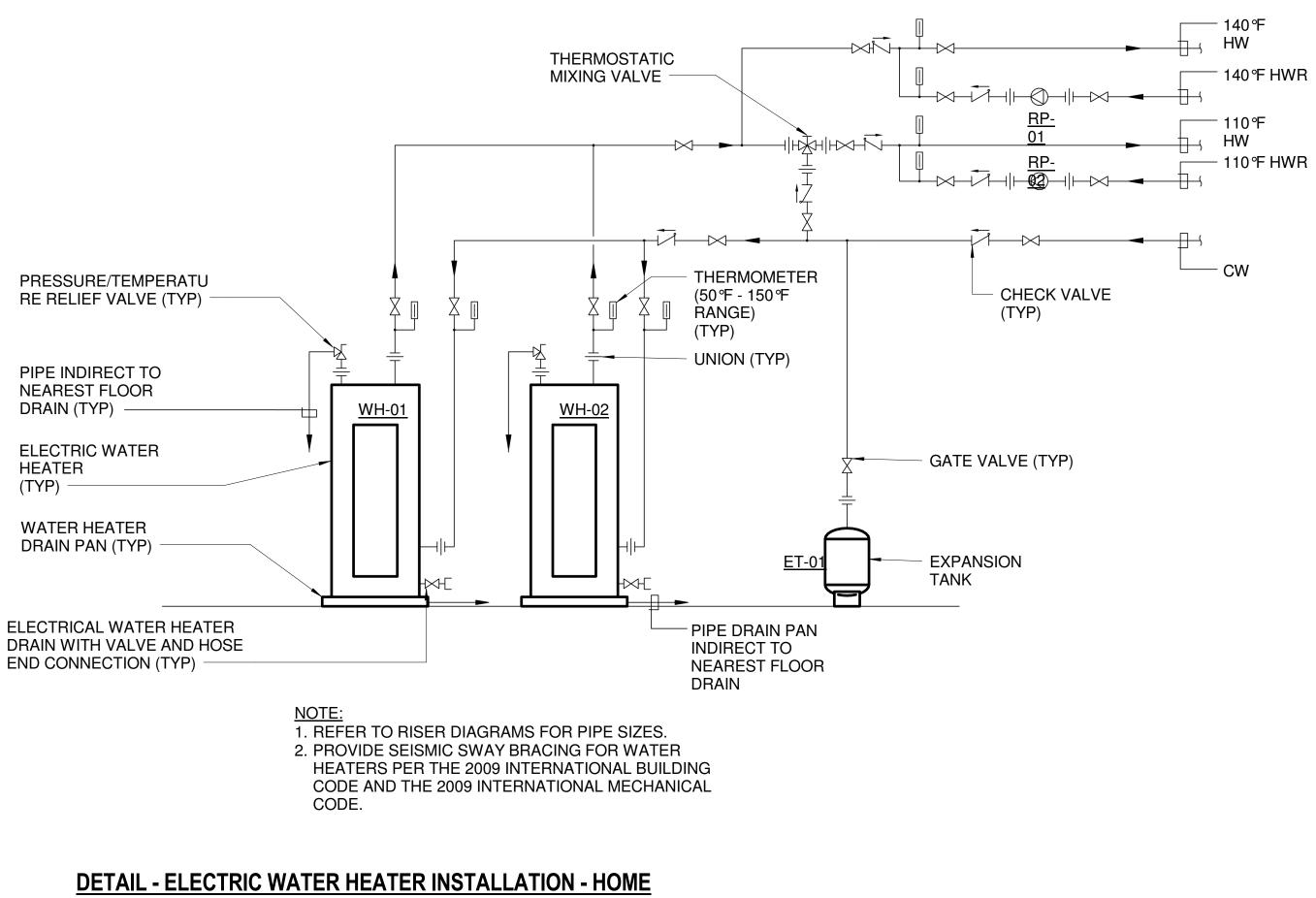


SCALE: N.T.S.

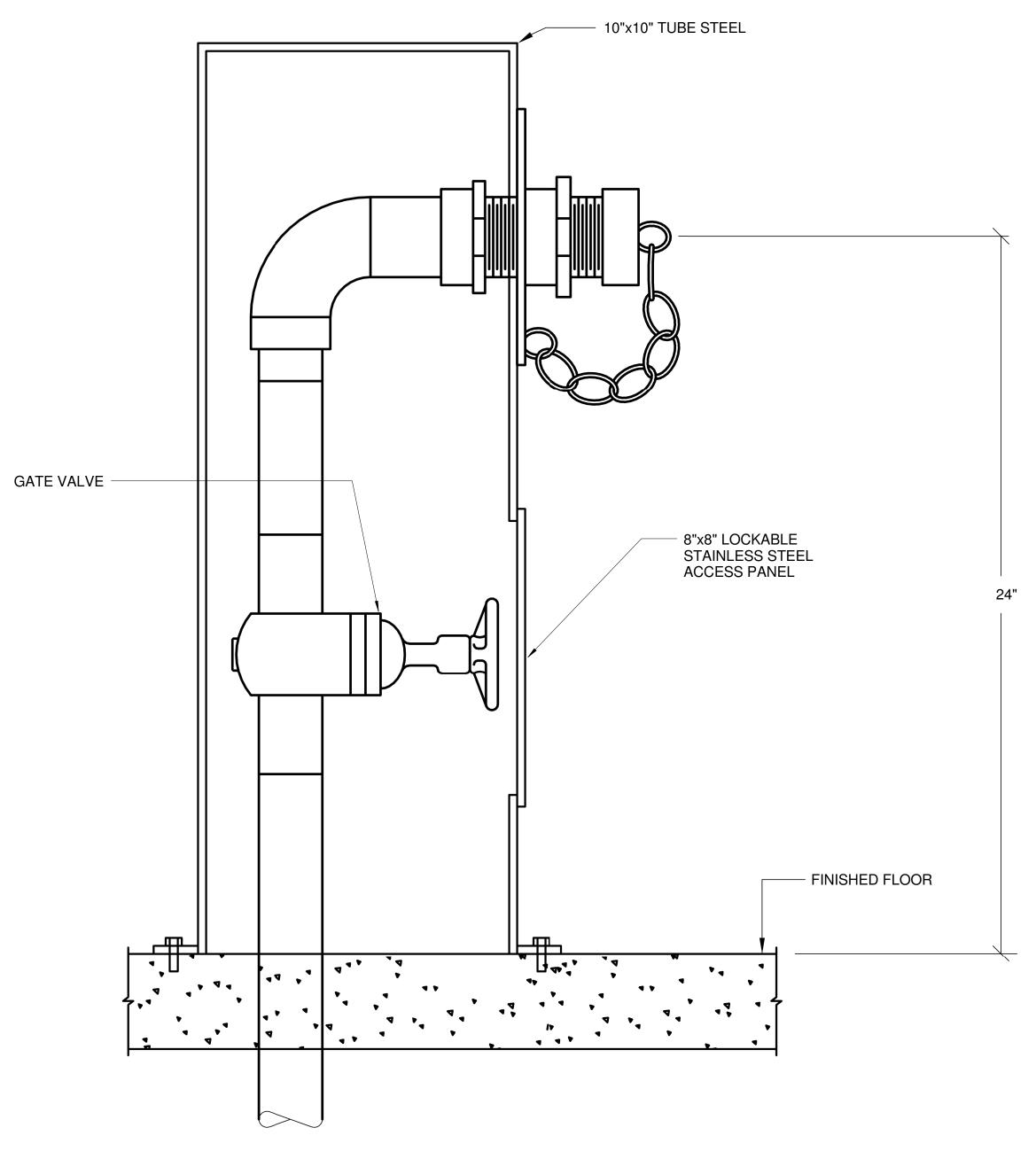








SIDE SCALE: N.T.S.



**DETAIL - FREE STANDING WASHDOWN CONNECTION** SCALE: N.T.S.

## PRESSURE/TEMPERATURE RELIEF VALVE (TYP)

## PIPE INDIRECT TO NEAREST FLOOR DRAIN (TYP) —

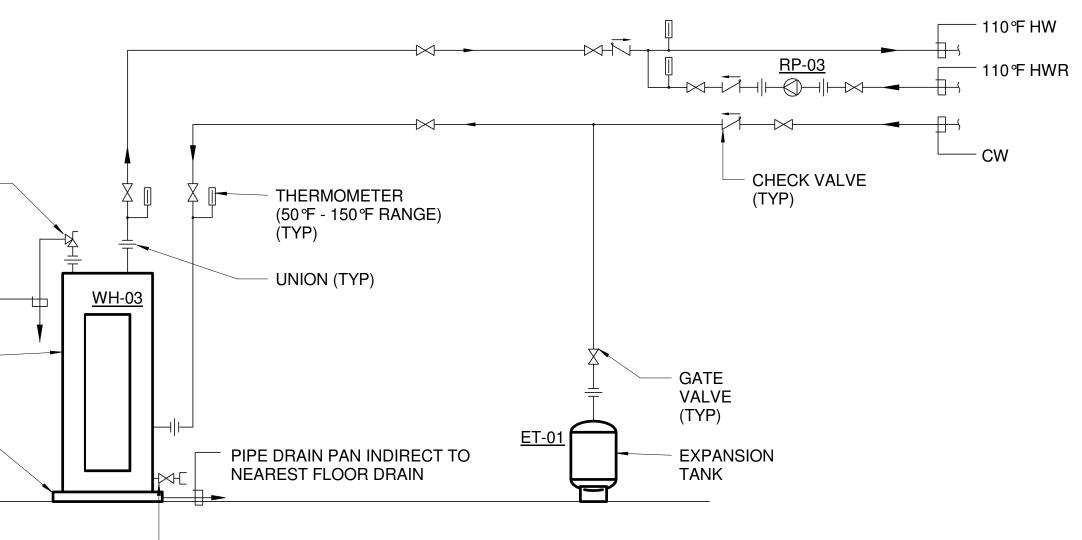
ELECTRIC WATER HEATER (TYP) -

WATER HEATER DRAIN PAN (TYP)

## ELECTRICAL WATER HEATER DRAIN WITH VALVE AND HOSE END CONNECTION (TYP)

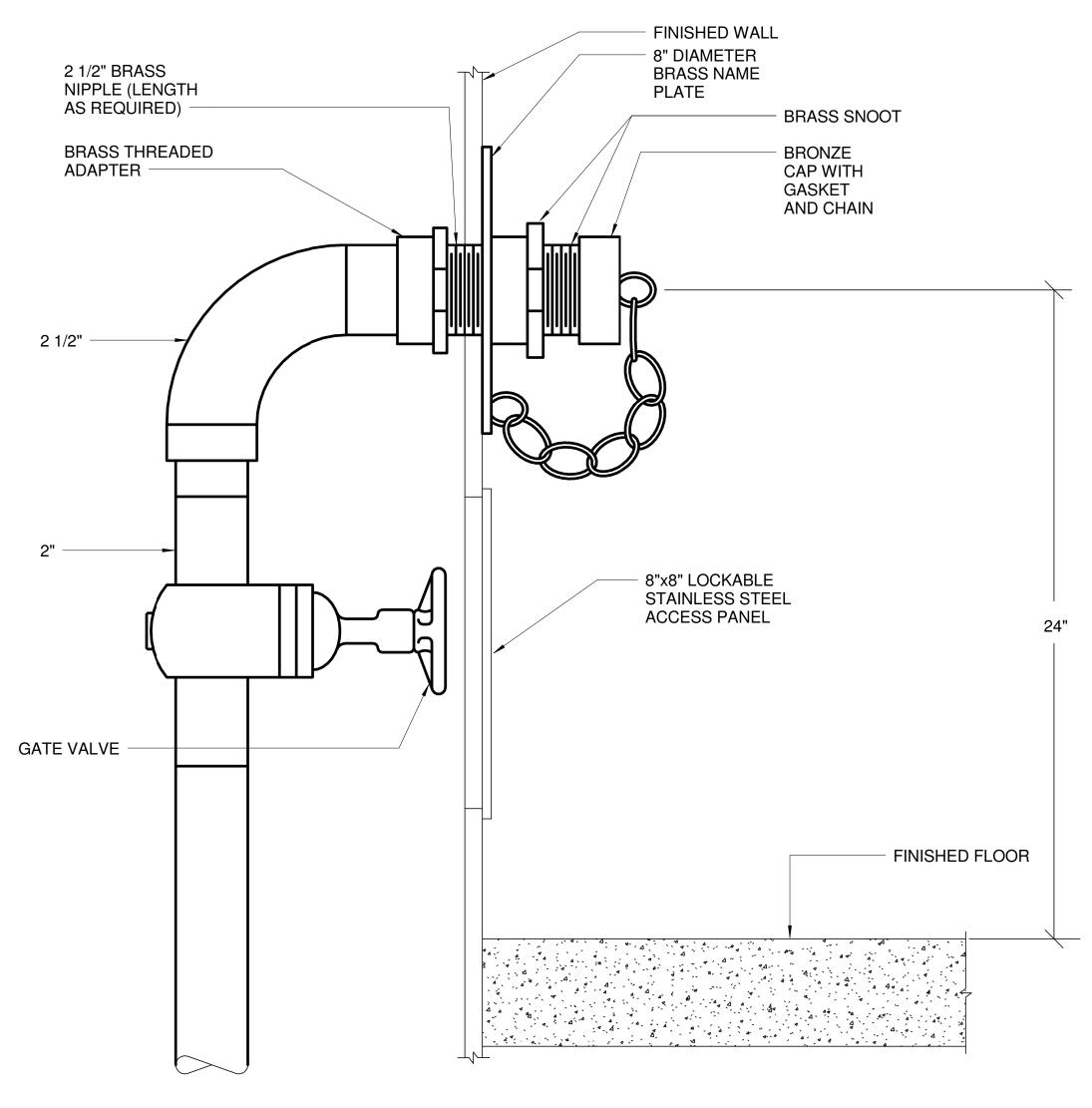
CODE.

# SIDE SCALE: N.T.S.

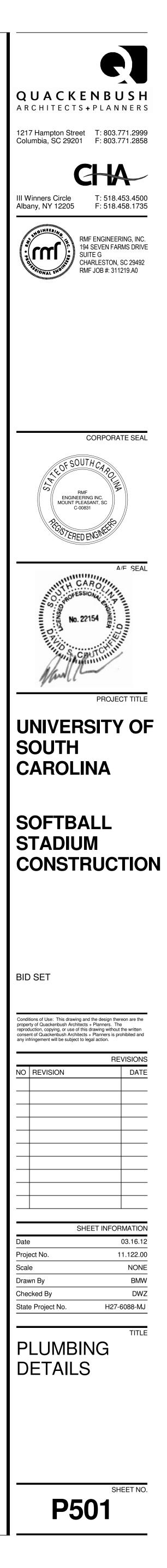


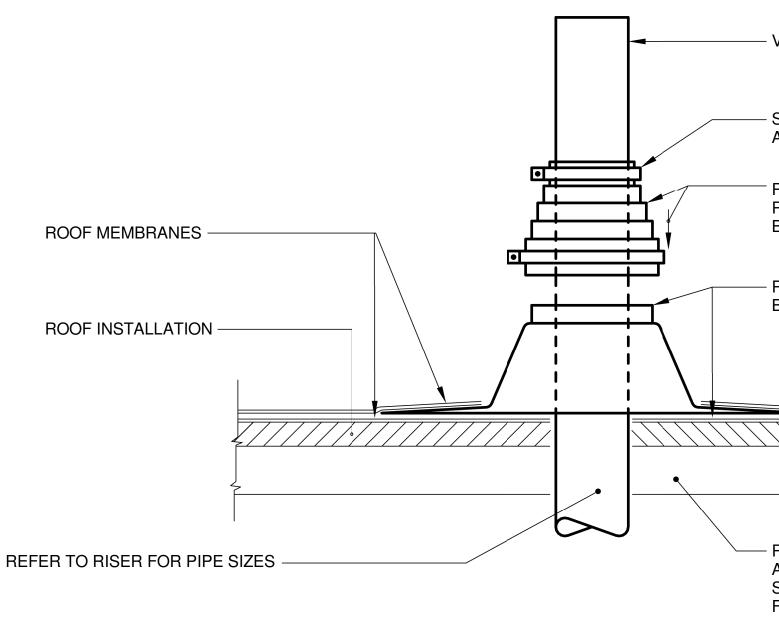
<u>NOTE:</u> 1. REFER TO RISER DIAGRAMS FOR PIPE SIZES. 2. PROVIDE SEISMIC SWAY BRACING FOR WATER HEATERS PER THE 2009 INTERNATIONAL BUILDING CODE AND THE 2009 INTERNATIONAL MECHANICAL

## **DETAIL - ELECTRIC WATER HEATER INSTALLATION - VISITOR**

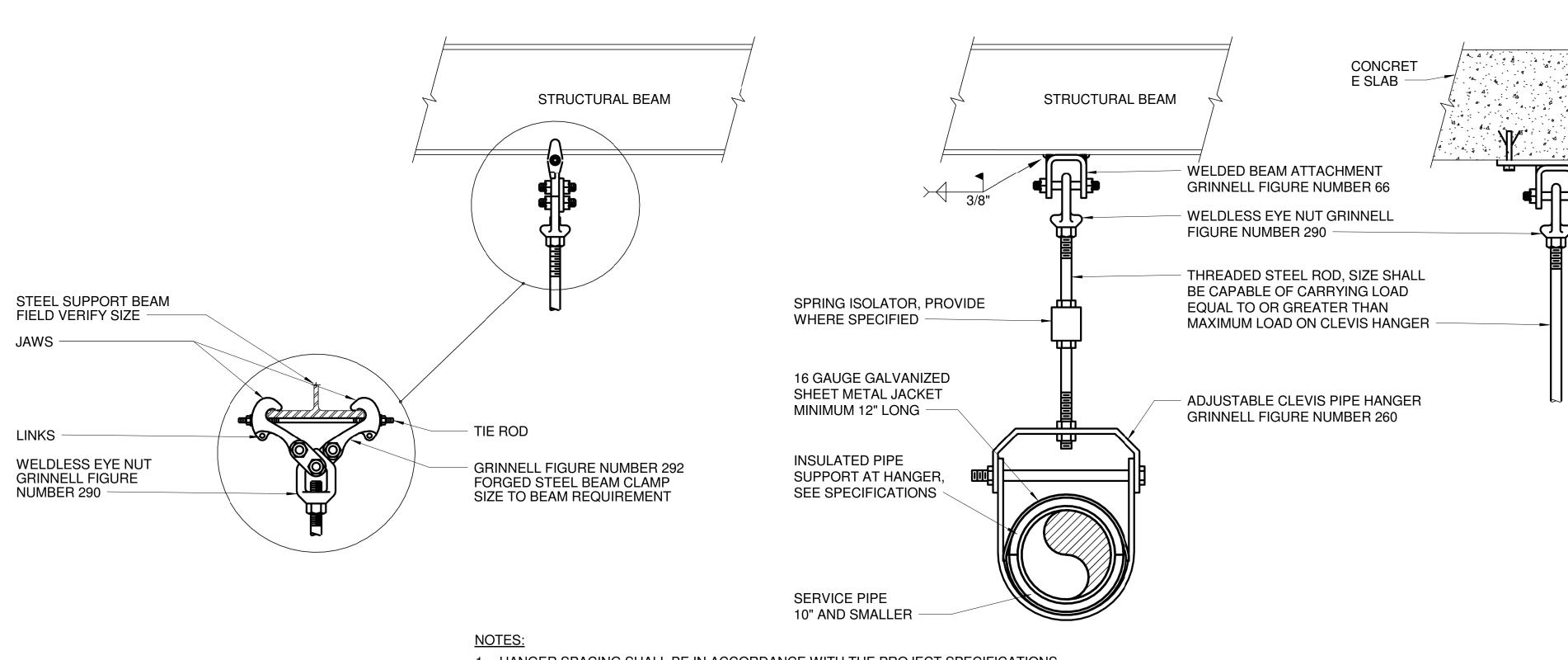


**DETAIL - WASHDOWN CONNECTION (WD-1)** SCALE: N.T.S.





DETAIL - SANITARY VENT THROUGH ROOF SCALE: N.T.S.



DETAIL - PIPE HANGERS SCALE: N.T.S. - VENT THROUGH ROOF

- STAINLESS STEEL ADJUSTABLE CLAMPS

PATE STEPPED
 POLYVINYL CHLORIDE
 BOOT CLAMPED TO BASE

- PATE SPUN ALUMINUM BASE SET IN MASTIC

REFER TO	

ARCHITECTURAL/ STRUCTURAL DRAWINGS FOR ROOF CONSTRUCTION

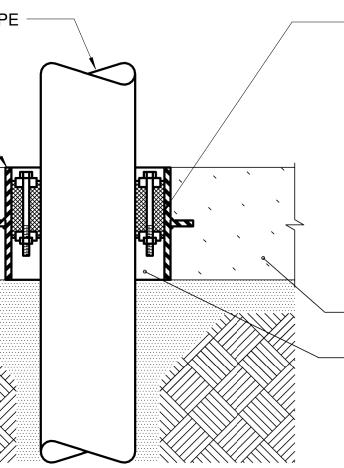
SCHEDULE 40 ASTM A106 GRADE B GALVANIZED STEEL PIPE SLEEVE (SIZE AS REQUIRED TO ACCOMMODATE	SERVICE PIF
PIPE AND SEAL) 2"x1/2" THICK STEEL WATER STOP AND	
ANCHOR AROUND ENTIRE SLEEVE	
CRUSHED STONE (REFER TO STRUCTURAL DRAWINGS)	

DETAIL - PIPE PENETRATION AT GRADE SCALE: N.T.S.

 HANGER SPACING SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 CLEVIS TYPE PIPE HANGERS SHALL BE USED FOR PIPE SIZES 10" AND SMALLER AND WHEN PIPING

PIPE SIZES 10" AND SMALLER AND WHEN PIPING SYSTEMS ARE STATIONARY.

3. DETAIL IS GENERAL TO THE PROJECT.

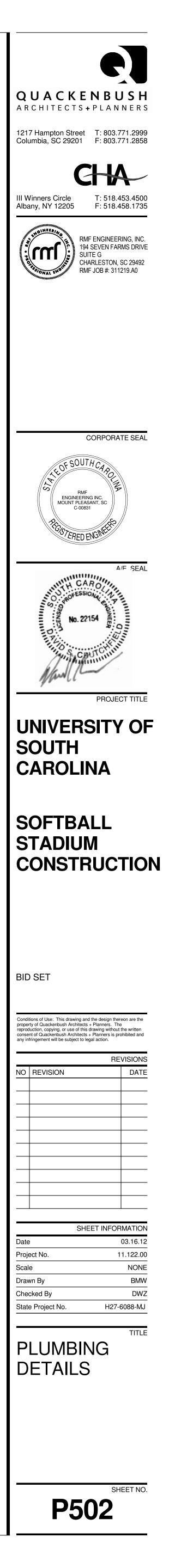


LINKED WATERTIGHT
 SLEEVE ASSEMBLY WITH
 INSULATING NEOPRENE
 SEALS, AND STAINLESS
 STEEL TIGHTENING NUTS
 AND BOLTS (PROVIDE
 APPROPRIATE MATERIALS
 FOR SERVICE PIPE
 TEMPERATURES)

 CONCRETE FLOOR (REFER TO STRUCTURAL DRAWINGS)
 PACK REMAINING VOID WITH OAKUM AND CAULK

4-WEDGE ANCHOR BOLTS BY RED HEAD PER PLATE

PER PLATE
 CONCRETE CLEVIS
 PLATE GRINNELL FIGURE
 NUMBER 49



	PLUMBING FIXTURE SCHEDULE											
		ROUGH-IN CONNECTION					FIXTURE UNITS					
DESIGNATION	FIXTURE	CW	HW	SAN	VENT	STORM	CW	HW	SAN	BASIS OF DESIGN	MOUNTING HEIGHTS	REMARKS
P-1	WATER CLOSET	1	-	4	4	-	10	-	4.0	AMERICAN STANDARD 3351.001, AMERICAN STANDARD 6065.121.002	STANDARD	
P-1a	WATER CLOSET (ADA)	1	-	4	4	-	10	-	4.0	AMERICAN STANDARD 3351.001, AMERICAN STANDARD 6065.121.002	17"-19" TOP OF SEAT	MOUNTED FOR HANDICAP USE
P-2	WATERLESS URINAL	-	-	2	2	-	-	-	2.0	AMERICAN STANDARD 6150.100	24"	
P-2a	WATERLESS URINAL (ADA)	-	-	2	2	-	-	-	2.0	AMERICAN STANDARD 6150.100	17"	MOUNTED FOR HANDICAP USE
P-3	LAVATORY (WALL MOUNT)	3/8	3/8	1 1/4	1 1/4	-	1.5	1.5	1.0	AMERICAN STANDARD 0195.073, AMERICAN STANDARD 6055.205, AMERICAN STANDARD 605XTMV	31" TOP OF RIM	
P-3a	LAVATORY (WALL MOUNT - ADA)	3/8	3/8	1 1/4	1 1/4	-	1.5	1.5	1.0	AMERICAN STANDARD 0195.073, AMERICAN STANDARD 6055.205, AMERICAN STANDARD 605XTMV	34" TOP OF RIM, 29" APRON/KNEEE CLEARANCE	MOUNTED FOR HANDICAP USE
P-3b	LAVATORY (WALL MOUNT - ADA)	3/8	3/8	1 1/4	1 1/4	-	1.5	1.5	1.0	AMERICAN STANDARD 0195.073, AMERICAN STANDARD 7402.172V15	34" TOP OF RIM, 29" APRON/KNEEE CLEARANCE	MOUNTED FOR HANDICAP USE
P-3c	LAVATORY (COUNTER MOUNT)	3/8	3/8	1 1/4	1 1/4	-	1.5	1.5	1.0	AMERICAN STANDARD 0476.028, AMERICAN STANDARD 7402.172V15	34" TOP OF RIM, 29" APRON/KNEEE CLEARANCE	MOUNTED FOR HANDICAP USE
P-4	KITCHEN SINK, SINGLE BOWL	1/2	1/2	1 1/2	1 1/2	-	1.0	1.0	2.0	AMERICAN STANDARD 15SB.252283.073, AMERICAN STANDARD 4275.550		
P-5	KITCHEN SINK, DOUBLE BOWL	1/2	1/2	1 1/2	1 1/2	-	1.0	1.0	2.0	AMERICAN STANDARD 17DB.332284.073, AMERICAN STANDARD 4275.551		
P-6	MOP SINK	1/2	1/2	3	3	-	2.25	2.25	2.0	FIAT SB-2424, FIAT 830-AA		
P-6a	MOP SINK	1/2	1/2	3	3	-	2.25	2.25	2.0	FIAT SB-3624, FIAT 830-AA		
P-7	LAUNDRY SINK	1/2	1/2	3	3	-	2.25	2.25	2.0	ZURN MS2622, FIAT 830-AA		
P-8	SHOWER	1/2	1/2	-	-	-	3.0	3.0	-	AMERICAN STANDARD T675.507		
P-9	DRINKING FOUNTAIN, SINGLE	3/8		(2) 1 1/4	1 1/4	-	0.25		0.5	ELKAY VRCGRN8		
P-10	DRINKING FOUNTAIN, DOUBLE	3/8		1 1/4	1 1/4	-	0.25		0.5	ELKAY VRCHDTL8SC		
P-11	3 COMPARTMENT CONCESSION SINK	1/2	1/2	3	3	-	2.25	2.25	2.0	ELKAY SS8354LR, ELKAY LK940 ARC TUBE		
P-12	HANDWASH SINK CONCESSION	3/8	3/8	1 1/4	1 1/4	-	1.5	1.5	1.0	ELKAY CHSB1716C		
HB-1	HOSE BIBB	1/2	-	-	-	-	1.5	-	-	JOSAM 71050		
FDR	FLOOR DRAIN	-	-	3	2	-	-	-	2.0	JOSAM 31003		TRAP PRIME ALL FLOOR DRAINS
AD-1	DUGOUT AREA DRAIN	-	-	-	-	4	-	-	-	JOSAM 32330-SD-19		
AD-2	CONCOURSE AREA DRAIN	-	-	-	-	4	-	-	-	JOSAM 24200		WATERPROOF FLOOR CONSTRUCTION
AD-3	CONCOURSE AREA DRAIN	-	-	-	-	4	-	-	-	JOSAM 32330-SD-19		
AD-4	LOWER LEVEL AREA DRAIN	-	-	-	-	4	-	-	-	JOSAM 32330-SD-19		
RD-1	ROOF DRAIN	-	-	-	-	4	-	-	-	JOSAM 21500-6		
RD-2	ROOF DRAIN (PARAPET TYPE)	-	-	-	-	4	-	-	-	JOSAM 24724		
SD-1	SHOWER DRAIN	-	-	2	1 1/2	1 1/2	-	-	2.0	JOSAM 31002		
FS-1	FLOOR SINK	-	-	4	-	-	-	-	-	JOSAM 49340A-LF-3		

NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.

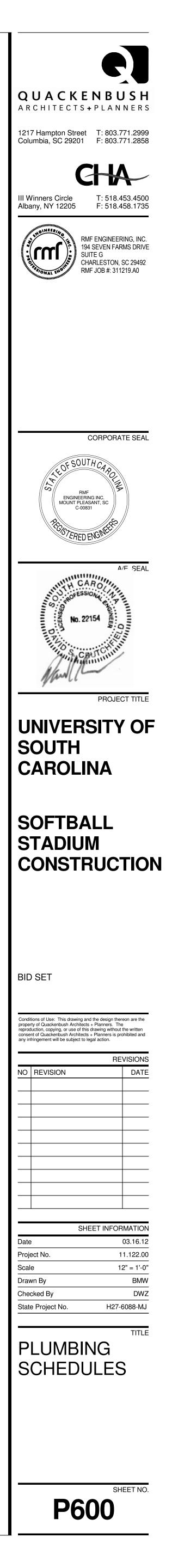
	DOMESTIC WATER HEATER SCHEDULE										
DESIG	CAPACITY GALLON	RECOVERY 100° RISE GALLONS	NUMBER OF ELEMENTS	TOTAL kW	ELECTRICAL	APPROX SHIPPING WEIGHT LBS.	BASIS OF DESIGN				
WH-01	200	221	3	54	480/3/60	900	BRADFORD WHITE VR200-54				
WH-02	200	221	3	54	480/3/60	900	BRADFORD WHITE VR200-54				
WH-03	200	221	3	54	480/3/60	900	BRADFORD WHITE VR200-54				

<u>NOTES</u>: 1. WATER HEATERS SHALL BE PROVIDED WITH HEATING ELEMENTS FOR SIMULTANEOUS OPERATION.

EXPANSION TANK SCHEDULE										
DESIGNATIONSERVICETYPETANK VOLUME GALLONDIMENSIONS DIAMETER INCHESDRY WEIGHT WEIGHT LBSBASIS OF DESIGN										
ET-01	DOMESTIC WATER	DIAPHRAGM	22.0	16	32	88	WATTS DETA-42			
ET-02	DOMESTIC WATER	DIAPHRAGM	5.0	12	14	28	WATTS DETA-12			

# /R200-54 /R200-54 /R200-54

	RECIRCULAT	ING PUMP DUTY	
DESIGNATION:	<u>RP-01</u>	<u>RP-02</u>	<u>RP-03</u>
SERVICE :	DOMESTIC HOT WATER (140°F)	DOMESTIC HOT WATER	DOMESTIC HOT WATER
CAPACITY (GPM) :	6.75	52.5	19.5
HEAD (FT) :	15	20	15
MOTOR WATTS :	130	300	300
MOTOR RPM :	3300	3250	2650
ELECTRICAL :	1 PH/115 V	1 PH/115 V	1 PH/115 V
BASIS OF DESIGN :	BELL & GOSSETT PL-36	BELL & GOSSETT PL-130	BELL & GOSSETT PL-55





## EQUIPMENT DESIGNATIONS DESCRIPTION AIR COOLED CONDENSING UNIT DESIGNATION

BRANCH CONTROLLER DESIGNATION EXHAUST FAN DESIGNATION EXPANSION TANK DESIGNATION ELECTRIC UNIT HEATER DESIGNATION ELECTRIC WALL HEATER DESIGNATION FAN COIL UNIT DESIGNATION HEAT RECOVERY COIL DESIGNATION HEAT RECOVERY STEAM GENERATOR DESIGNATION HEAT RECOVERY WHEEL DESIGNATION RADIANT CEILING PANEL RECIRCULATION FAN VENTILATION EXHAUST FAN DESIGNATION

DUCTWORK SYMBOLS

DESCRIPTION

HUMIDISTAT

THERMOSTAT

**AIR FLOW** 

TEMPERATURE SENSOR

SUPPLY AIR DIFFUSER

RETURN AIR GRILLE

EXHAUST AIR GRILLE

LINEAR DIFFUSER

FIRE DAMPER

SMOKE DAMPER

SMOKE DETECTOR

FLEXIBLE CONNECTION

DUCTWORK W/ SOUND LINING

HORIZONTAL ACCESS DOOR

VERTICAL ACCESS DOOR

RECTANGULAR BRANCH TAKE-OFF

BELL MOUTH BRANCH TAKE-OFF

ROUND DUCT DROP OFF BOTTOM

SQUARE TO ROUND TRANSITION

SUPPLY / OUTSIDE AIR DUCT RISER

EXHAUST / RELIEF AIR DUCT RISER

RETURN AIR DUCT RISER

DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)

ALL WELDED VEHICLE EXHAUST DUCT CONNECTION

ROUND BRANCH TAKE-OFF

DUCT TRANSITION

ELBOW W/ DOUBLE THICKNESS TURNING VANES

SYMBOL  $\square$  $\square$  $\square$ ----- FD FSD COMBINATION FIRE / SMOKE DAMPER

VD VOLUME DAMPER MOD MODULATING DAMPER \_\_\_\_\_

\_\_\_\_\_  $\square$ \_\_\_\_\_ \_\_\_\_\_ E E 

14 14 14 0 

UP/DN  $\searrow$ 

> $\odot$

X AIR DEVICE TYPE CFM

AIR DEVICE IDENTIFIER

ROUND DUCT RISER

## **MECHANICAL ABBREVIATIONS**

NOTE: THIS IS A STANDARD ABBREVIATION LIST. SOME ABBREVIATIONS MAY NOT APPEAR ON THE ACCOMPANYING DRAWINGS.

#	ARD ABBREVIATION LIST. SOME ABBREVIATIONS MAY NOT APP	HWS	HEATING WATER SUPPLY
\$ %	DOLLAR PERCENT	HZ	HERTZ
& +	AND PLUS	IA ICW	INSTRUMENT AIR INDUSTRIAL COLD WATER
-	MINUS	IHR	INDUSTRIAL HOT WATER RECIRCULAT
<	DIVIDE BY, PER LESS THAN	IHW IN	INDUSTRIAL HOT WATER INCH, INCHES
= >	EQUALS, EQUAL TO GREATER THAN	INV EL	INVERT ELEVATION
x x"	MULTIPLY BY, BY INCHES, INCH	KW	KILOWATTS
x x'	FEET, FOOT	L	LONG, LENGTH
± ≤	PLUS OR MINUS LESS THAN OR EQUAL TO	LA LAT	LABORATORY AIR LEAVING AIR TEMPERATURE
≥	GREATER THAN OR EQUAL TO	LBS LBS/HR	POUNDS POUNDS PER HOUR
@	AT	LN	LIQUID NITROGEN
A AAV	COMPRESSED AIR AUTOMATIC AIR VENT	LP LPG	LIQUID PROPANE LIQUID PETROLEUM GAS
ACV AD	AUTOMATIC CONTROL VALVE ACCESS DOOR, AREA DRAIN	LPR LPS	LOW PRESSURE STEAM RETURN LOW PRESSURE STEAM SUPPLY
AF	ANTIFREEZE	LV	LABORATORY VENT, LABORATORY VA
AFF AMD	ABOVE FINISHED FLOOR AMP METERING DEVICE	LW LWT	LABORATORY WASTE LEAVING WATER TEMPERATURE
ATC	AUTOMATIC TEMPERATURE CONTROL	MA	MEDICAL AIR
BAS BBD		MAV	MANUAL AIR VENT MAXIMUM
BCWR	BOILER BLOWDOWN BEARING COOLING WATER RETURN	MAX MBH	THOUSAND BRITISH THERMAL UNITS F
BCWS BDD	BEARING COOLING WATER SUPPLY BACKDRAFT DAMPER	MCC MEQ	MOTOR CONTROL CENTER MECHANICAL EQUIPMENT
BFP BHP	BACKFLOW PREVENTER BRAKE HORSEPOWER	MH-# MIN	MANHOLE MINIMUM
BMS	BUILDING MANAGEMENT SYSTEM	MISC	MISCELLANEOUS
BO BTU	BLOW OFF BRITISH THERMAL UNIT	MO MOD	MOTOR OIL PIPING MOTOR OPERATED DAMPER
BTUH	BRITISH THERMAL UNIT PER HOUR	MPR MPS	MEDIUM PRESSURE STEAM RETURN MEDIUM PRESSURE STEAM SUPPLY
CA	CONTROL AIR	MV	MEDICAL VACUUM
CBD CC	CONTINUOUS BLOWDOWN CAMPUS CONDENSATE	Ν	NITROGEN
CCMS CD	CENTRAL CONTROL AND MONITORING SYSTEM CONDENSATE DRAIN	NA, N/A NC	NOT APPLICABLE NOISE CRITERIA, NORMALLY CLOSED
CF	CHEMICAL FEED	NFPA	NATIONAL FIRE PROTECTION ASSOCIA
CFM CHEL	CUBIC FEET PER MINUTE CHELANT	NG NO	NATURAL GAS NORMALLY OPEN, NITROUS OXIDE
CHR CHS	CHILLED WATER RETURN CHILLED WATER SUPPLY	No NOM	NUMBER NOMINAL
CHX	CHILLED WATER HEAT EXCHANGER	NPSH	NET POSITIVE SUCTION HEAD
CO CO2	CLEANOUT CARBON DIOXIDE	NPW	NON-POTABLE WATER
CS CT	CLEAN STEAM CURRENT TRANSFORMER	O OA	OXYGEN OUTSIDE AIR
CW	COLD WATER, DOMESTIC CITY WATER	OD	OVERFLOW DRAIN
CWR CWS	CONDENSER WATER RETURN CONDENSER WATER SUPPLY	OED OF	OPEN ENDED DUCT OVERFLOW
°C	DEGREE(S) CELSIUS	OS&Y	OUTSIDE STEM AND YOKE
D	DEEP, DRAIN WATER	P&ID	PROCESS AND INSTRUMENTATION DIA
DB DDC	DECIBEL, DRY BULB DIRECT DIGITAL CONTROL	PA PC	PLANT AIR PUMPED CONDENSATE
DESIG DHR	DESIGNATION DISTRIBUTION HEATING WATER RETURN	PCHR PCHS	PRIMARY CHILLED WATER RETURN PRIMARY CHILLED WATER SUPPLY
DHS	DISTRIBUTION HEATING WATER SUPPLY	PCP	PUMP CONTROL PANEL
DHWR DHWS	DOMESTIC HOT WATER RETURN DOMESTIC HOT WATER SUPPLY	PCR PCWR	PUMPED CONDENSATE RECIRCULATION PROCESS COOLING WATER RETURN
DIA, Ø DIR	DIAMETER DEIONIZED WATER RETURN	PCWS PD	PROCESS COOLING WATER SUPPLY PRESSURE DROP, PUMP DISCHARGE
DIS	DEIONIZED WATER SUPPLY	PG	PILOT GAS
DL DN	DOOR LOUVER DOWN	PGR PGS	PROCESS GLYCOL WATER RETURN PROCESS GLYCOL WATER SUPPLY
DSP DTR	DRY SPRINKLER PIPE DUAL TEMPERATURE RETURN	PH PHR	PHASE PRIMARY HEATING RETURN
DTS	DUAL TEMPERATURE SUPPLY	PHS	PRIMARY HEATING SUPPLY
DW	DISTILLED WATER	PIV PPH	POST INDICATING VALVE POUNDS PER HOUR
EA EAT	EXHAUST AIR ENTERING AIR TEMPERATURE	PRV PSI	PRESSURE REDUCING VALVE, PRESSU POUNDS PER SQUARE INCH
ED	EQUIPMENT DRAIN	PSIG	POUNDS PER SQUARE INCH GAUGE
EJ ELEV	EXPANSION JOINT ELEVATION	PW	POTABLE WATER
EMS EQ	ENERGY MANAGEMENT SYSTEM EQUIPMENT, EQUALIZING	RA RAF	RETURN AIR, RELIEF AIR RETURN AIR FAN
ES	ELECTRIC SWITCH	RD	REFRIGERANT DISCHARGE
ESP EVAC	EXTERNAL STATIC PRESSURE GAS EVACUATION	RDR RH	ROOF DRAIN RELATIVE HUMIDITY
EWT EX	ENTERING WATER TEMPERATURE EXISTING	RHR RHS	REHEAT WATER RETURN REHEAT WATER SUPPLY
		RI	REMOVE AND REINSTALL
#2FOR #2FOS	NUMBER 2 FUEL OIL RETURN NUMBER 2 FUEL OIL SUPPLY	RL ROR	REFRIGERANT LIQUID REVERSE OSMOSIS WATER RETURN
#6FOR #6FOS	NUMBER 6 FUEL OIL RETURN NUMBER 6 FUEL OIL SUPPLY	ROS RPM	REVERSE OSMOSIS WATER SUPPLY REVOLUTIONS PER MINUTE
F F&T	FIRE LINE FLOAT AND THERMOSTATIC TRAP	RS RV	REFRIGERANT SUCTION
FC	FLEXIBLE CONNECTION	RX	RELIEF VENT, REFRIGERANT VENT REMOVE EXISTING
FD FDR	FIRE DAMPER, FOUNDATION DRAIN FLOOR DRAIN	SA	SUPPLY AIR
FDV FF	FIRE DEPARTMENT VALVE FINISHED FLOOR	SAN SCHR	SANITARY, SOIL, WASTE SECONDARY CHILLED WATER RETURN
FFE	FINISHED FLOOR ELEVATION	SCHS	SECONDARY CHILLED WATER SUPPLY
FIN/FT FIN/INCH	FINS PER FOOT FINS PER INCH	SD SF	STORM DRAIN, SMOKE DETECTOR SQUARE FOOT
FM FMF	FLOWMETER FLOWMETER FITTING	SHR SHS	SECONDARY HEATING WATER RETURI SECONDARY HEATING WATER SUPPLY
FO	FUEL OIL	SL	SOUND LINING
FOF FOO	FUEL OIL FILL FUEL OIL OVERFLOW	SP SPR	STATIC PRESSURE SPRINKLER LINE
FOR FOS	FUEL OIL RETURN FUEL OIL SUPPLY	SQ FT SS	SQUARE FOOT STAINLESS STEEL
FOSUCT FOT	FUEL OIL SUCTION FUEL OIL TRANSFER	SSUL STDR	SODIUM SULFITE
FOTP	FUEL OIL TRANSFER PUMP	STDR SW	STORM DRAIN SOFT WATER
FOV FPM	FUEL OIL VENT FEET PER MINUTE	TS	TAMPER SWITCH
FPS FS	FEET PER SECOND FLOW SWITCH	TSP TW	TOTAL STATIC PRESSURE TREATED WATER
FT	FOOT, FEET	TWR	TEMPERED WATER RETURN
FW FWR	FEED WATER FEED WATER RECIRCULATION	TWS TYP	TEMPERED WATER SUPPLY TYPICAL
FWS °F	FEED WATER SUCTION DEGREE(S) FAHRENHEIT	ΔT	TEMPERATURE DIFFERENCE
		UCD	
G GAL	NATURAL GAS GALLON, GALLONS	UL	UNDERWRITERS LABORATORIES
GEN GHR	GENERATOR GLYCOL HEATING RETURN	V VD	VACUUM, VOLTS VOLUME DAMPER
GHS	GLYCOL HEATING SUPPLY	VENT	VENTILATION
GPH GPM	GALLONS PER HOUR GALLONS PER MINUTE	VFD VPD	VARIABLE FREQUENCY DRIVE VACUUM PUMP DISCHARGE
GR	AUTOMOTIVE LUBRICATION PIPING	VSD VTR	VARIABLE SPEED DRIVE VENT THROUGH ROOF
Н НВ	HIGH HOSE BIB		
HB HED	HOSE BIB HOSE END DRAIN VALVE	W WB	WATTS, WIDE WET BULB
HP HPR	HORSEPOWER HIGH PRESSURE STEAM RETURN	WC WG	WATER COLUMN WATER GAUGE
HPS	HIGH PRESSURE STEAM SUPPLY	WH	WALL HYDRANT
hr Hrr	HEATING WATER RETURN HEAT RECOVERY RETURN	WWF WWM	WELDED WIRE FABRIC WELDED WIRE MESH
HRS HRSG	HEAT RECOVERY SUPPLY HEAT RECOVERY STEAM GENERATOR		
HS	HEATING WATER SUPPLY		
ht hthr	HEIGHT HIGH TEMPERATURE HEATING WATER RETURN		
HTHS HW	HIGH TEMPERATURE HEATING WATER SUPPLY HOT WATER		
HWR	HOT WATER RECIRCULATION		
HWR	HEATING WATER RETURN		

) WATER WATER RECIRCULATION WATER

EUM GAS STEAM RETURN STEAM SUPPLY ENT, LABORATORY VACUUM VASTE

ISH THERMAL UNITS PER HOUR OL CENTER QUIPMENT

, NORMALLY CLOSED PROTECTION ASSOCIATION

AND YOKE NSTRUMENTATION DIAGRAM

NSATE WATER RETURN WATER SUPPLY PANEL

NSATE RECIRCULATION NG WATER RETURN NG WATER SUPPLY P, PUMP DISCHARGE

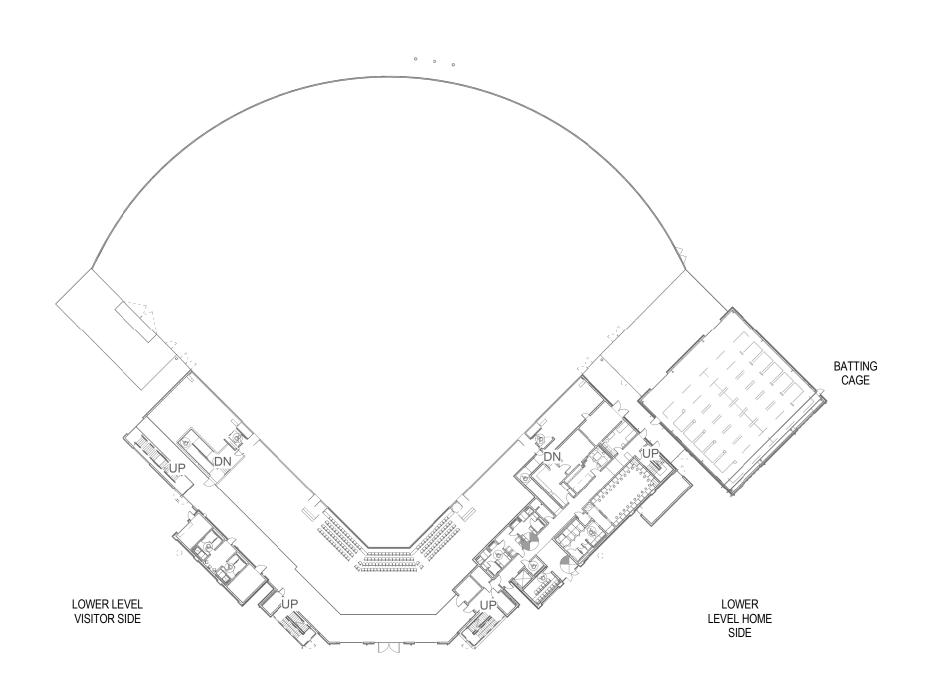
G SUPPLY G VALVE JCING VALVE, PRESSURE REGULATING VALVE QUARE INCH

LIEF AIR ISCHARGE

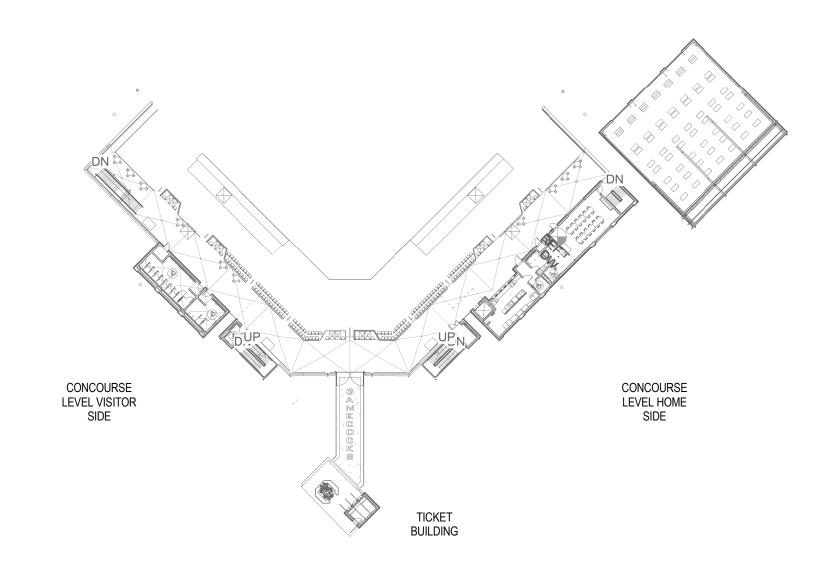
WASTE ILLED WATER RETURN LED WATER SUPPLY

MOKE DETECTOR ATING WATER RETURN ATING WATER SUPPLY

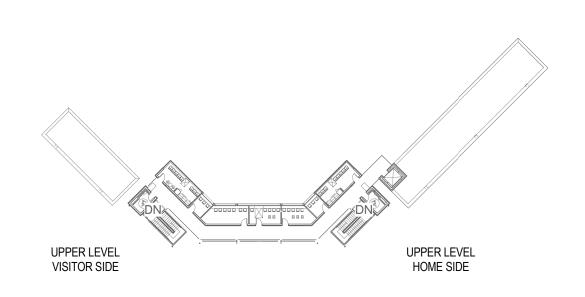
ABRIC IESH



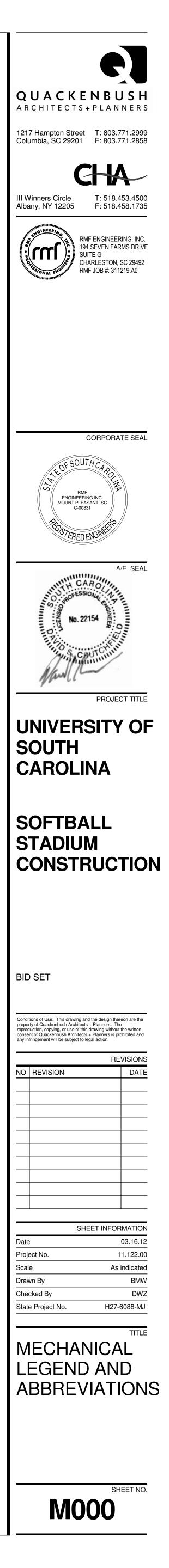


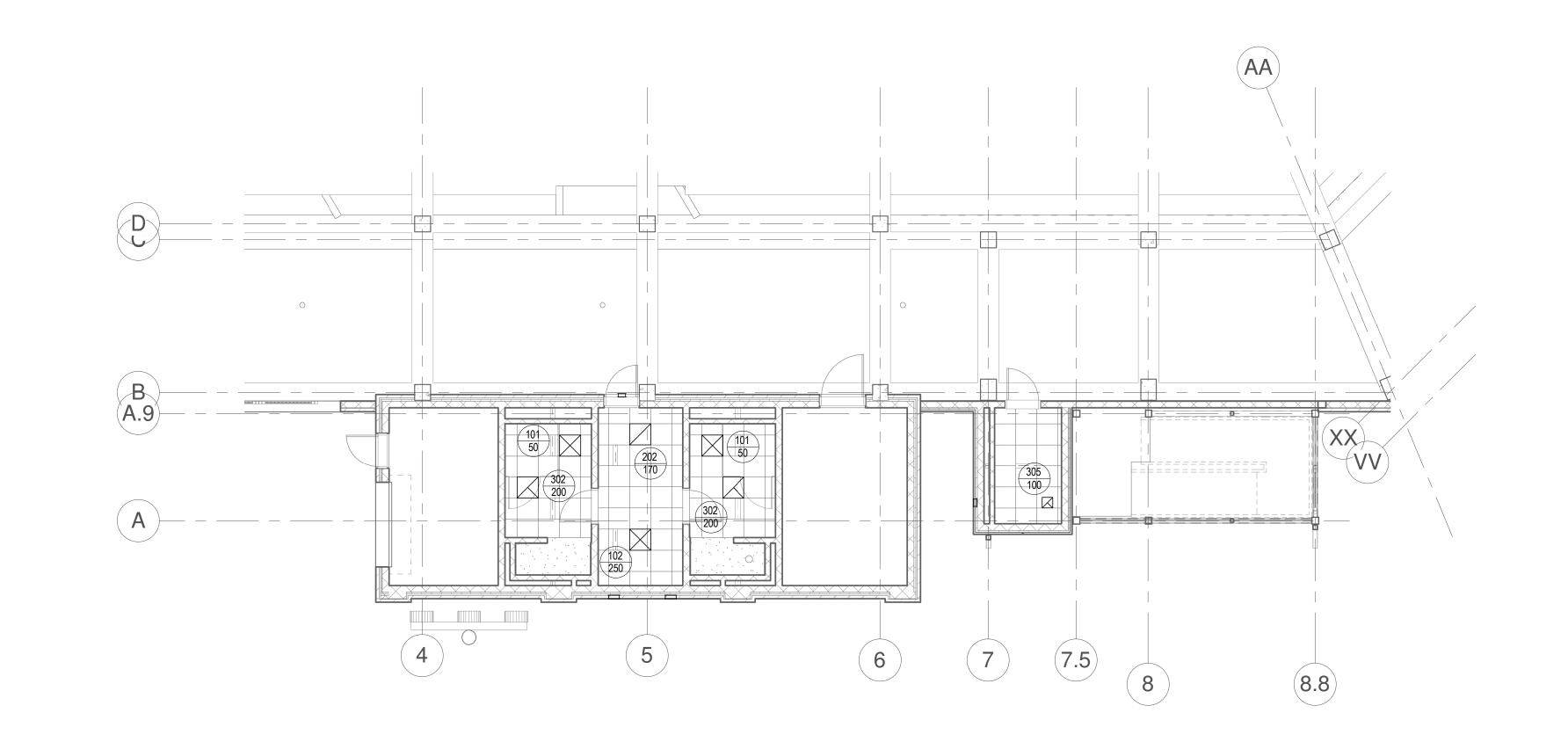


CONCOURSE LEVEL KEY PLAN MECH SCALE: 1" = 50'-0"

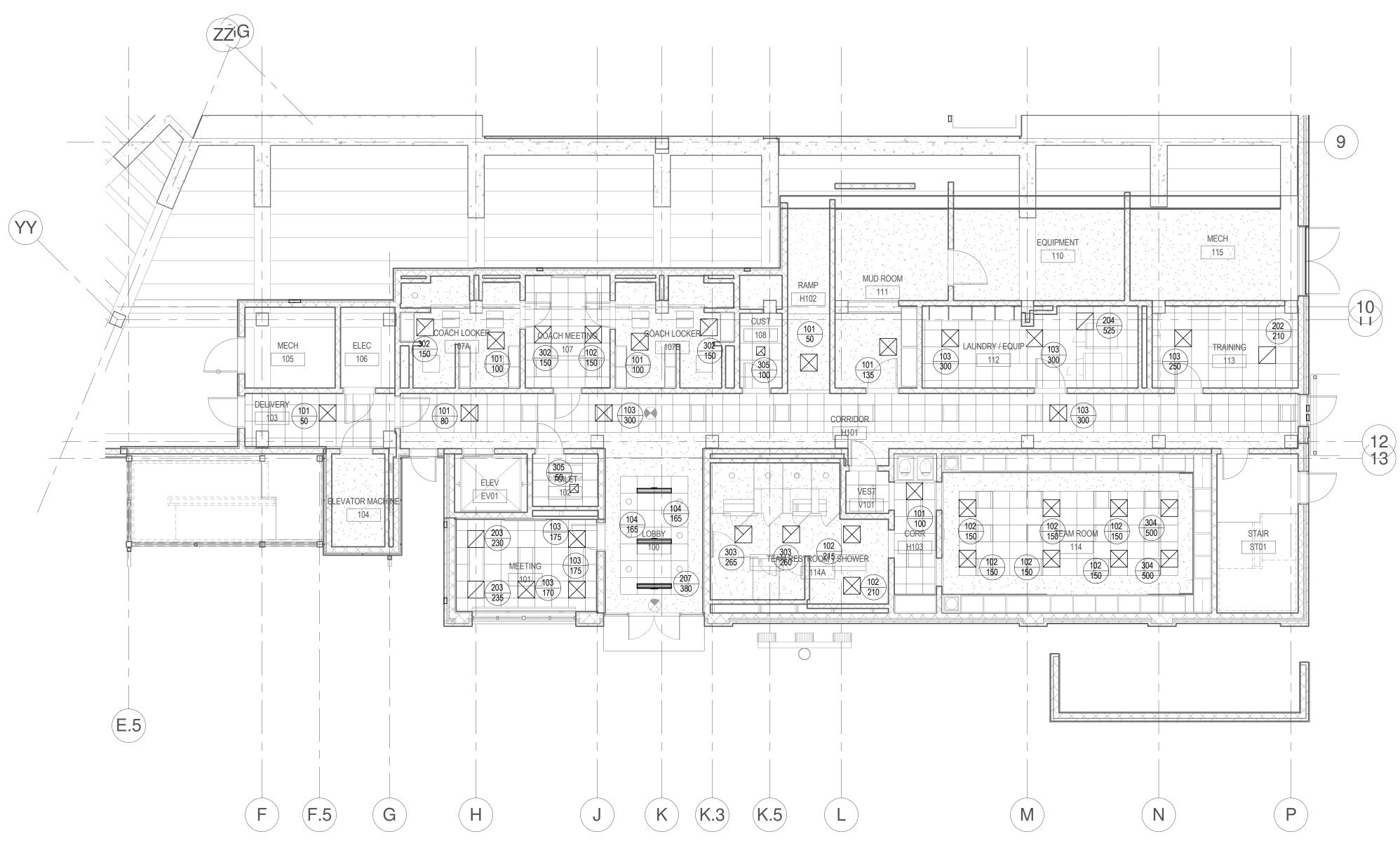


UPPER LEVEL KEY PLAN MECH SCALE: 1" = 50'-0"





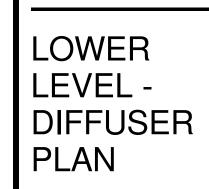
**LOWER LEVEL - VISITOR SIDE - DIFFUSER PLAN** SCALE: 1/8" = 1'-0"



**LOWER LEVEL - HOME SIDE - DIFFUSER PLAN** SCALE: 1/8" = 1'-0"

GRAPHIC SCALE 8 4 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET





	SHEET INFORMATION
Date	03.16.12
Project No.	11.122.00
Scale	1/8" = 1'-0"
Drawn By	BMW
Checked By	DWZ
State Project No.	H27-6088-MJ

TITLE

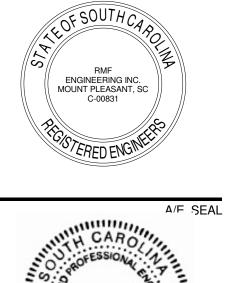
		REVISIONS
NO	REVISION	DATE

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No. 22154



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RMF ENGINEERING, INC.

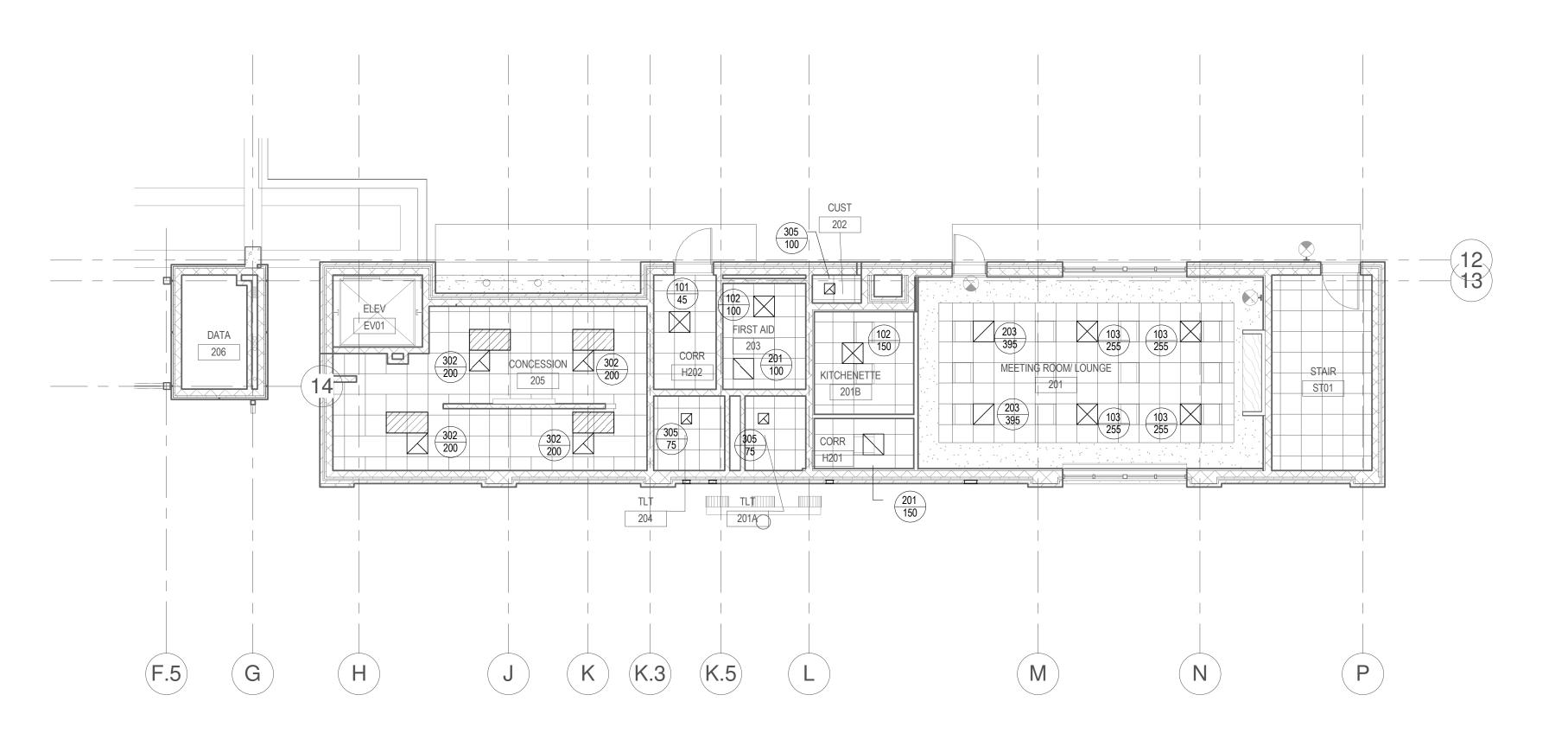
 III Winners Circle
 T: 518.453.4500

 Albany, NY 12205
 F: 518.458.1735

1217 Hampton Street T: 803.771.2999 Columbia, SC 29201 F: 803.771.2858

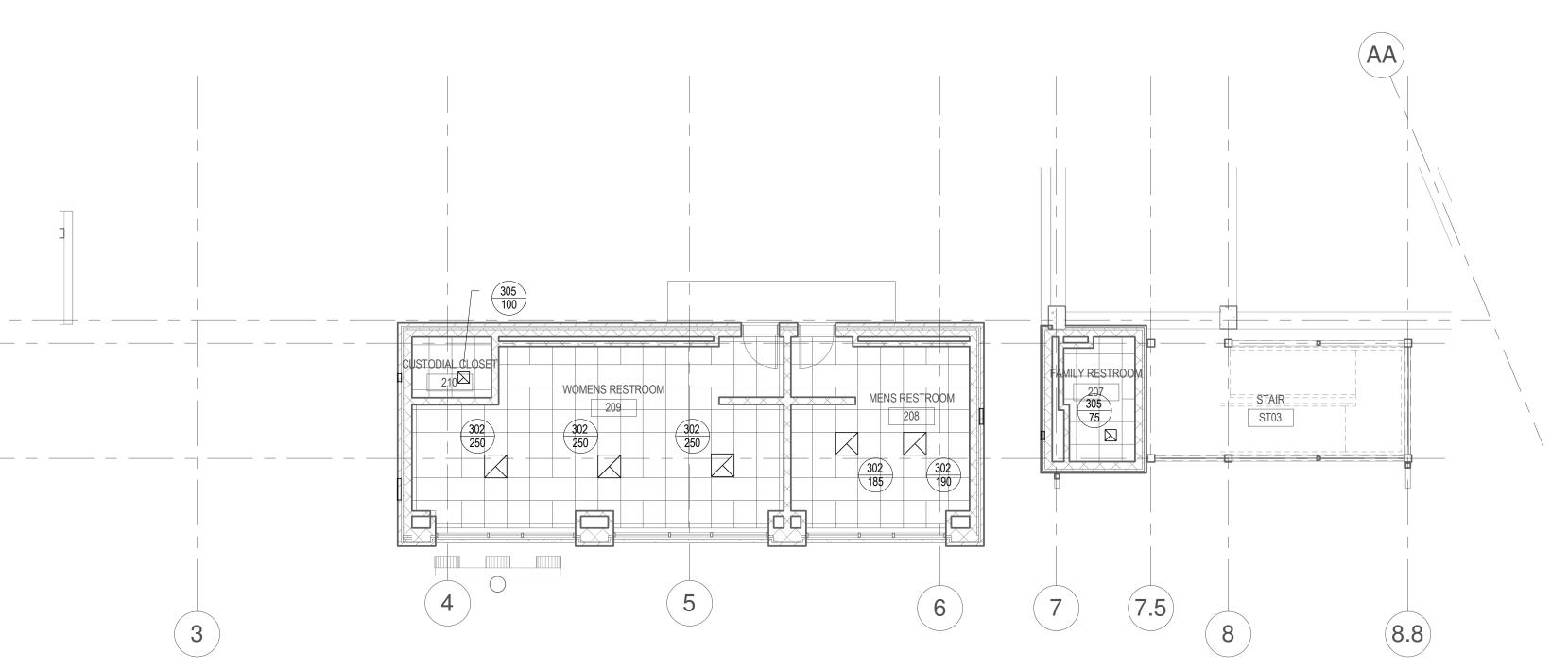
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# CONCOURSE LEVEL - HOME SIDE - DIFFUSER PLAN SCALE: 1/8" = 1'-0"



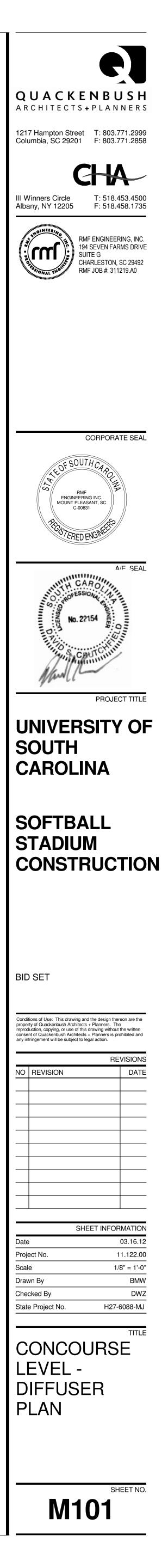
CONCOURSE LEVEL - VISITOR SIDE - DIFFUSER PLAN SCALE: 1/8" = 1'-0"

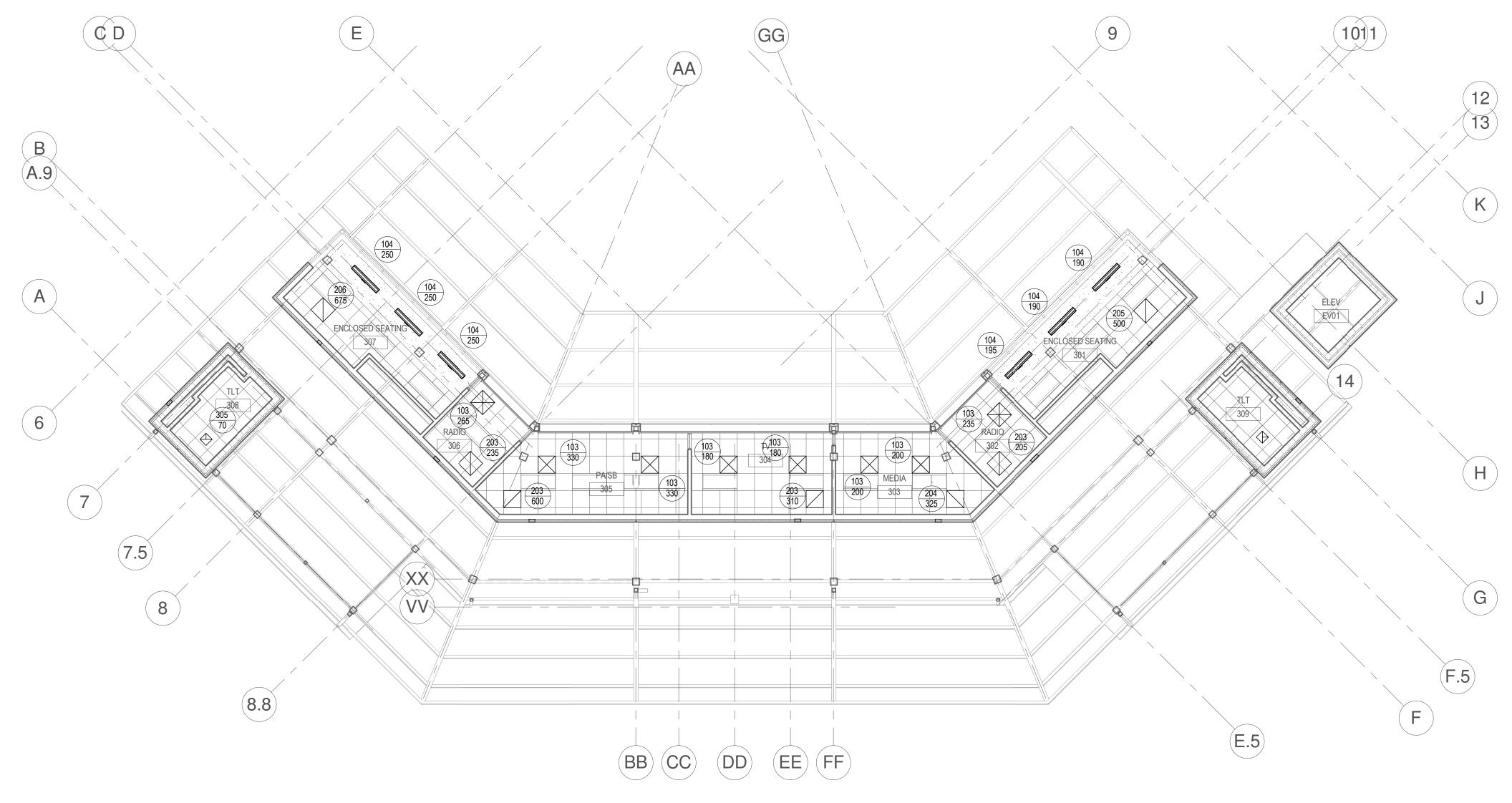






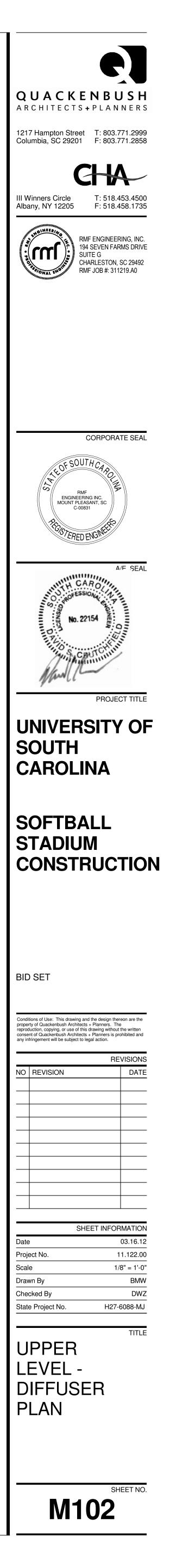
GRAPHIC SCALE 8 4 0 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET

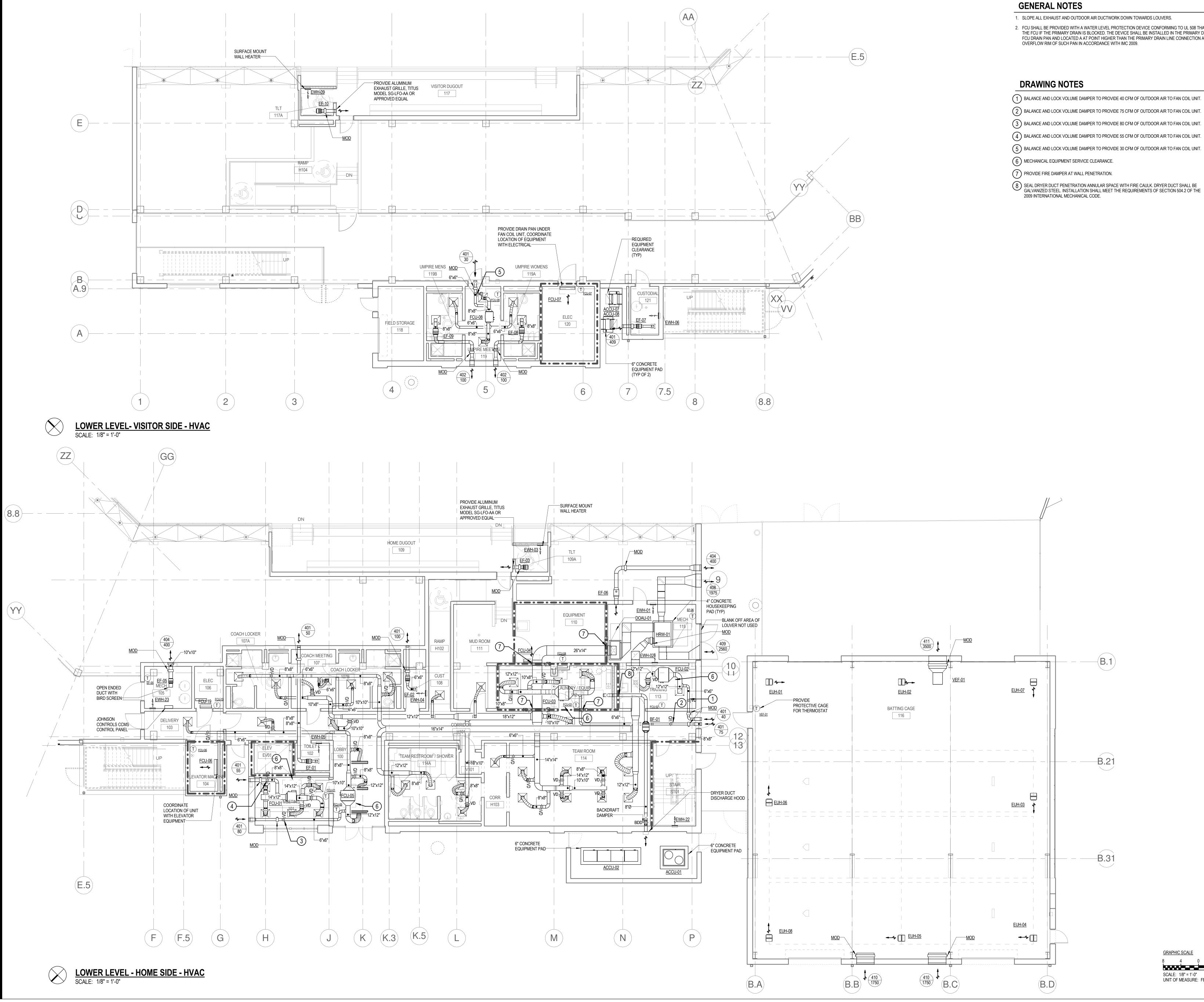




UPPER LEVEL - DIFFUSER PLAN SCALE: 1/8" = 1'-0"

GRAPHIC SCALE 8 4 0 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET



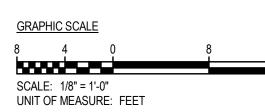






- 1. SLOPE ALL EXHAUST AND OUTDOOR AIR DUCTWORK DOWN TOWARDS LOUVERS.
- 2. FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE

- (1) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 40 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- (2) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 75 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- 3 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 80 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- (4) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 55 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- 5 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 30 CFM OF OUTDOOR AIR TO FAN COIL UNIT.







	SHEET INFORMATION
Date	03.16.12
Project No.	11.122.00
Scale	As indicated
Drawn By	BMW
Checked By	DWZ
State Project No.	H27-6088-MJ

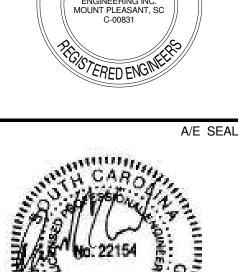
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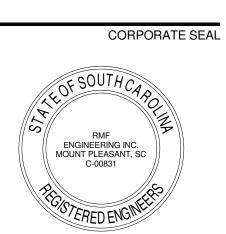
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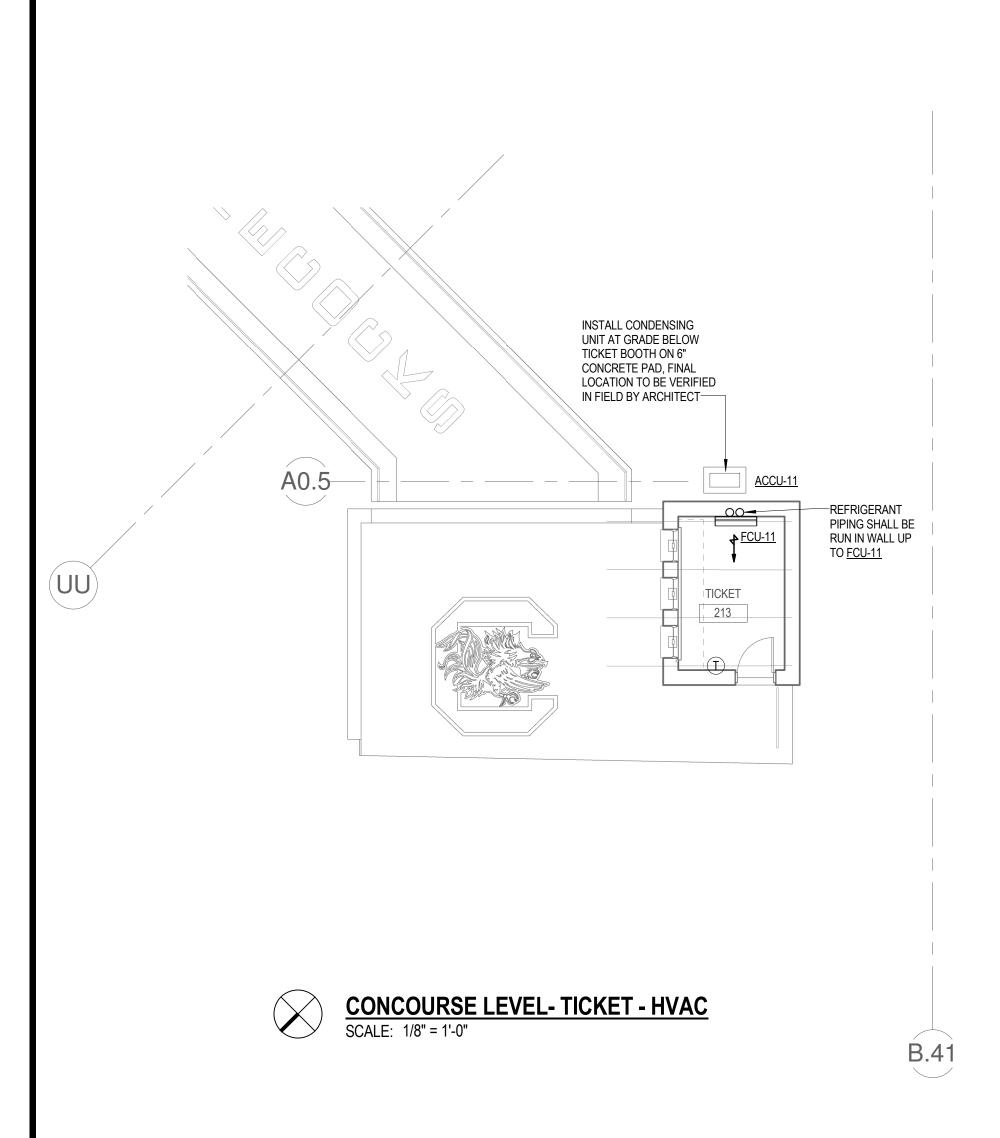
1217 Hampton Street T: 803.771.2999

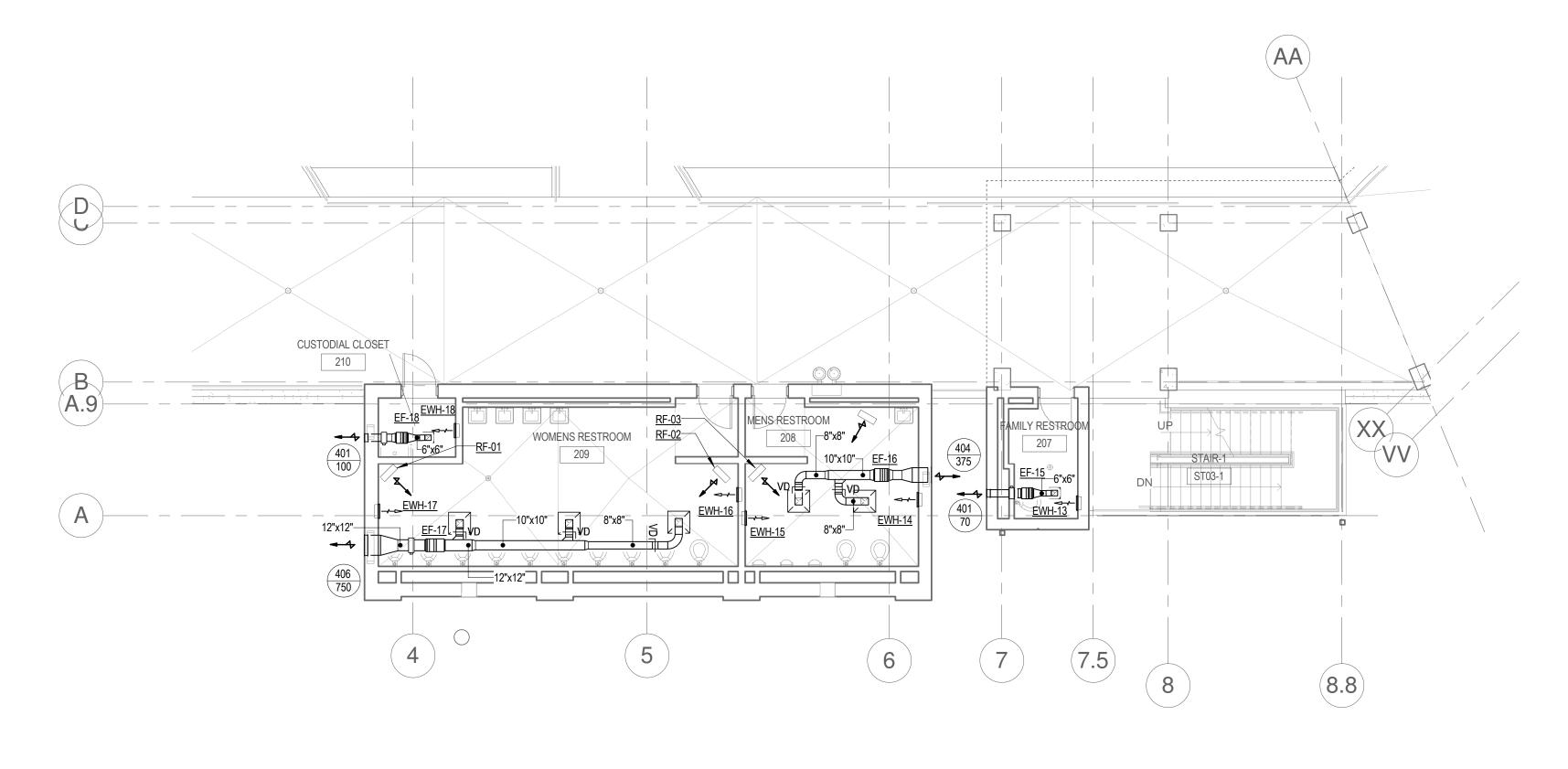
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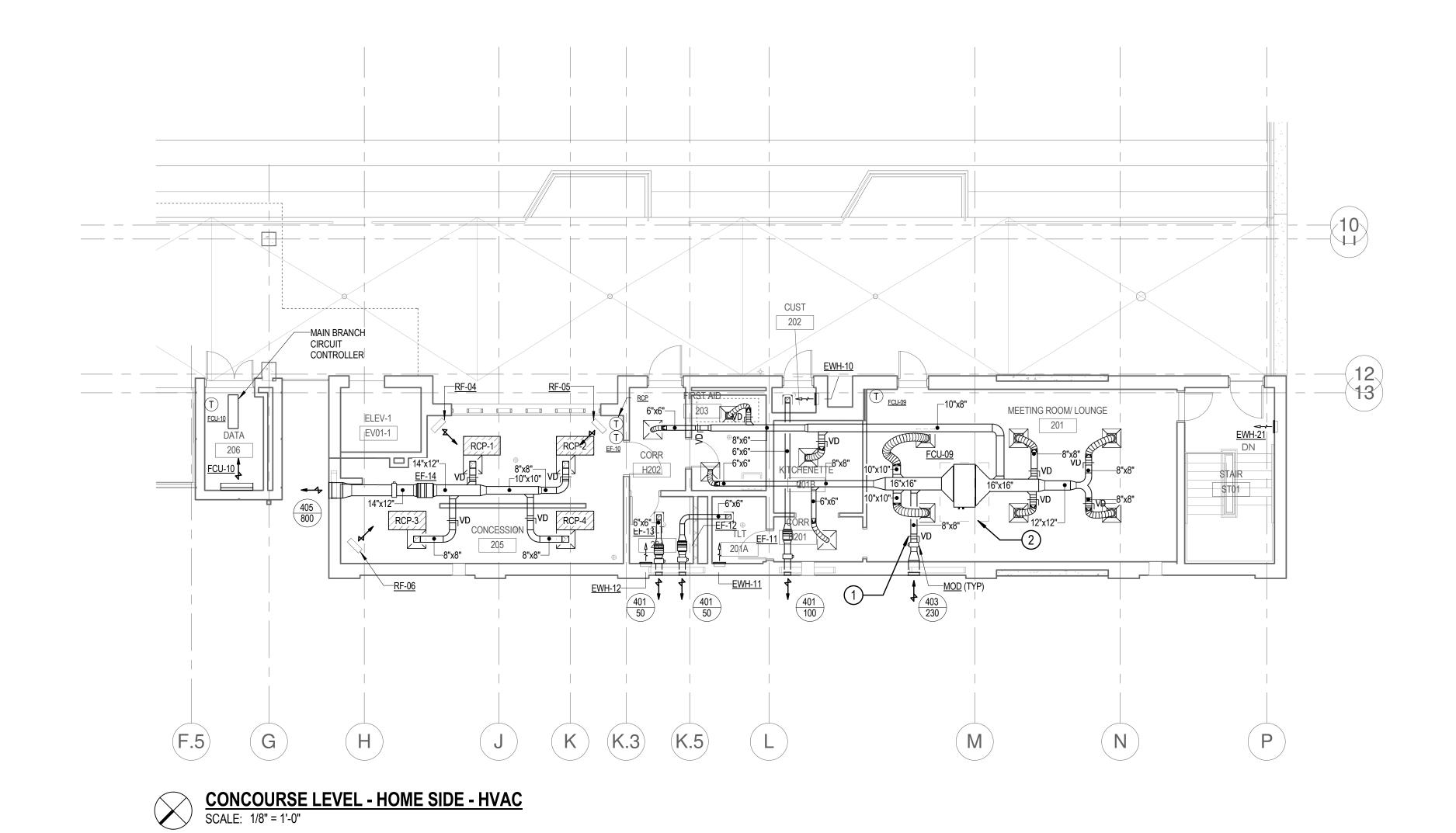
Albany, NY 12205 F: 518.458.1735







CONCOURSE LEVEL - VISITOR SIDE - HVAC SCALE: 1/8" = 1'-0"



## **GENERAL NOTES**

 SLOPE ALL EXHAUST AND OUTDOOR AIR DUCTWORK DOWN TOWARDS LOUVERS.
 FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN IN ACCORDANCE WITH IMC 2009.

## **DRAWING NOTES**

1 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 230 CFM OF OUTDOOR AIR TO FAN COIL UNIT.

(2) MECHANICAL EQUIPMENT SERVICE CLEARANCE

 GRAPHIC SCALE

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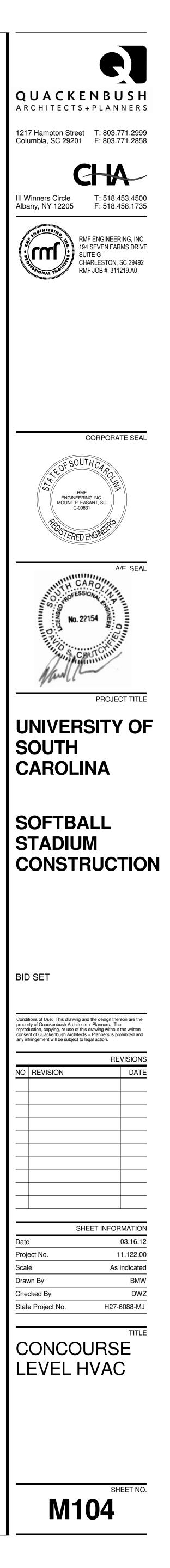
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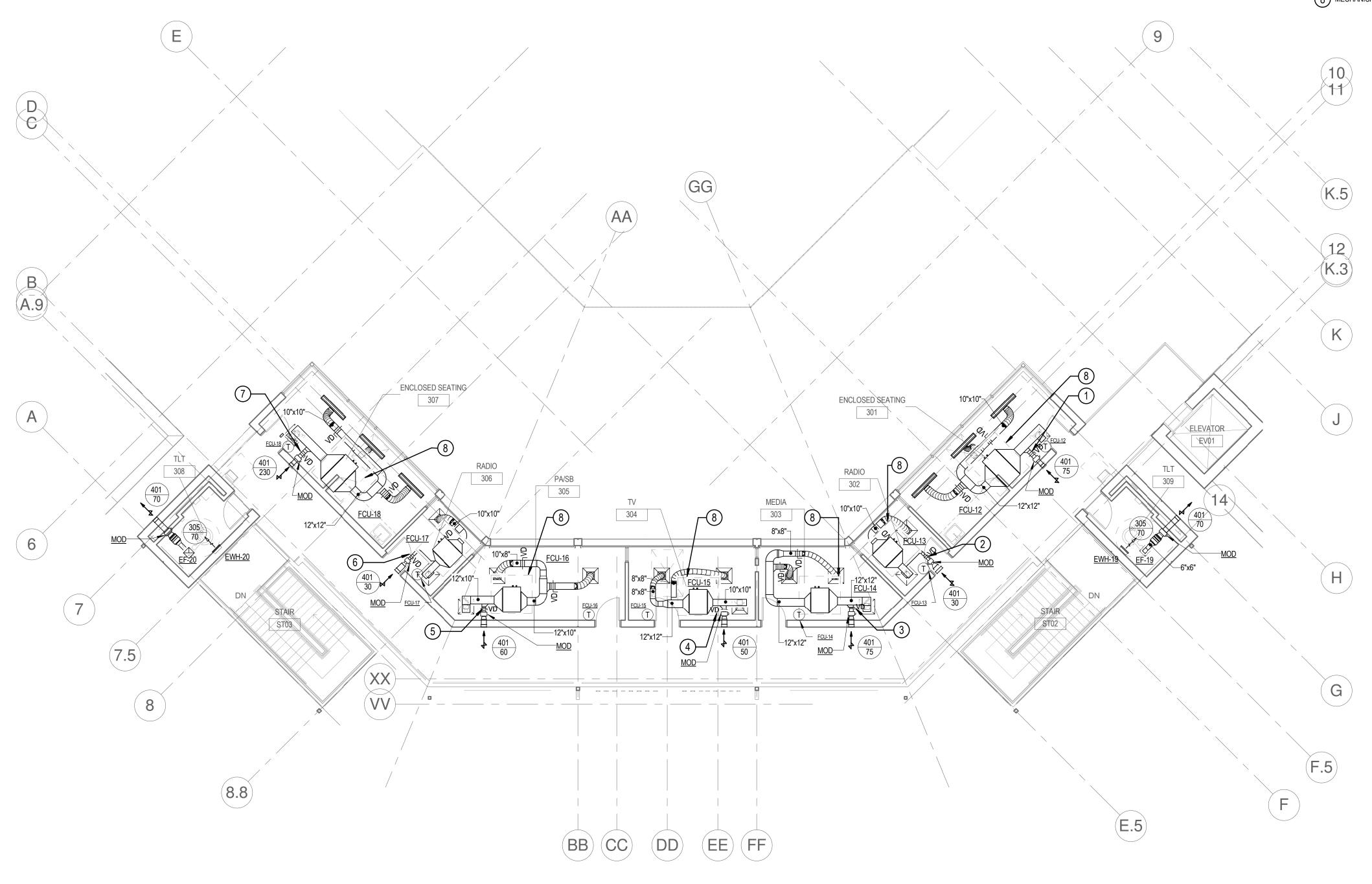
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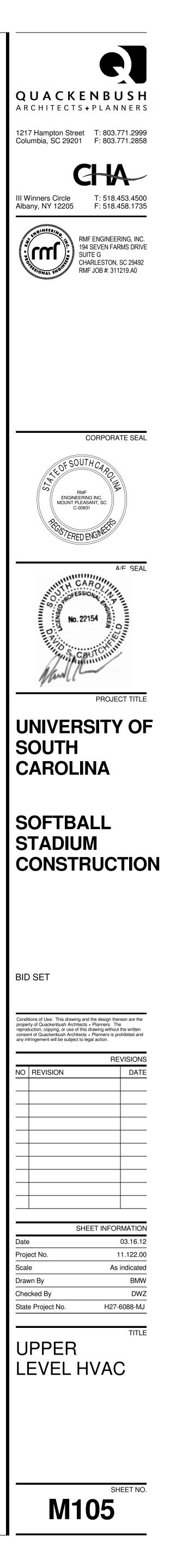
## **GENERAL NOTES**

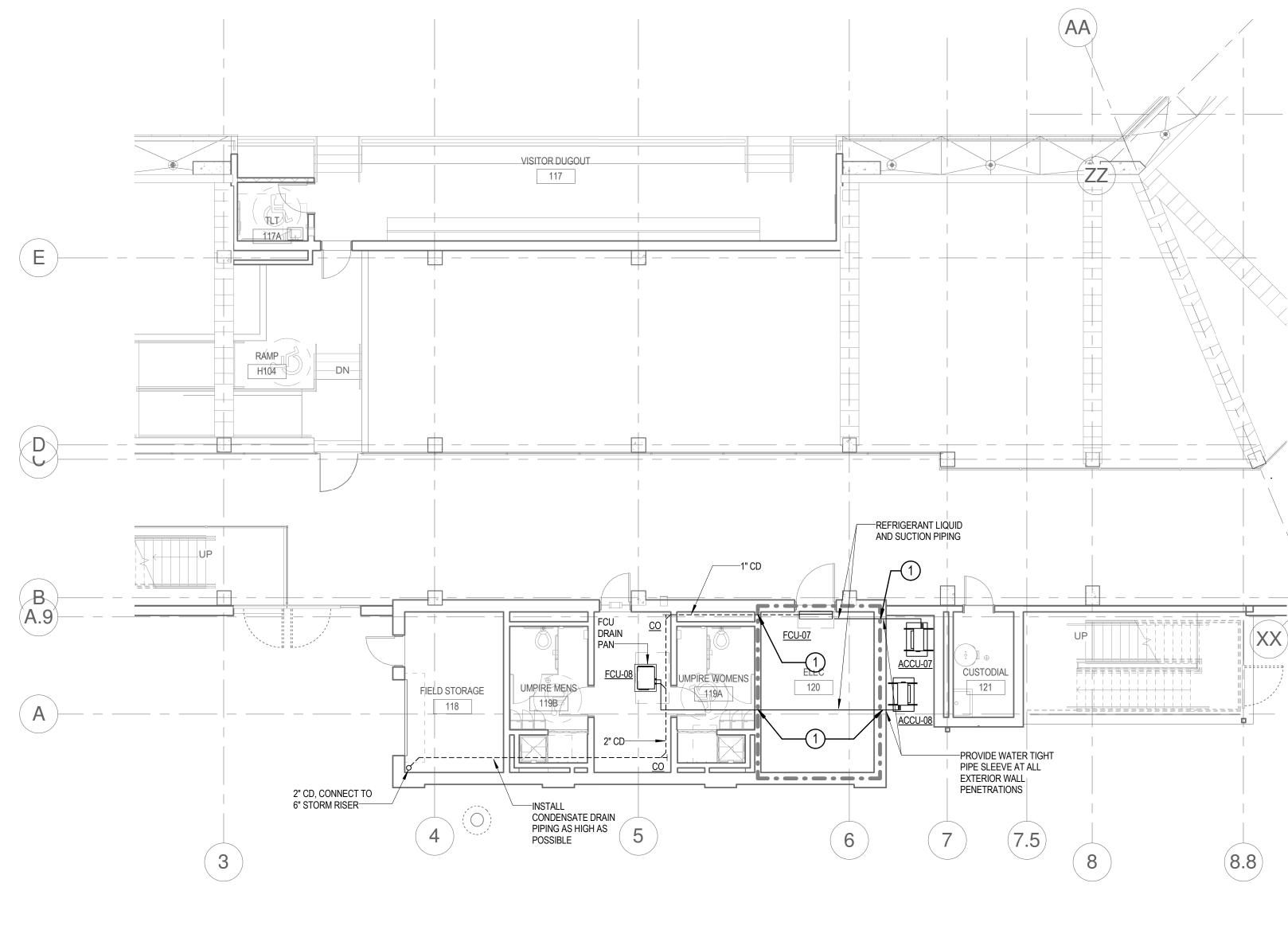
1. SLOPE ALL EXHAUST AND OUTDOOR AIR DUCTWORK DOWN TOWARDS LOUVERS.

 FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN IN ACCORDANCE WITH IMC 2009.

## DRAWING NOTES

- 1 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 75 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- 2 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 30 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- (3) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 75 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- (4) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 50 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- (5) BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 60 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- 6 BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 30 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- $\overline{(7)}$  BALANCE AND LOCK VOLUME DAMPER TO PROVIDE 75 CFM OF OUTDOOR AIR TO FAN COIL UNIT.
- 8 MECHANICAL EQUIPMENT SERVICE CLEARANCE

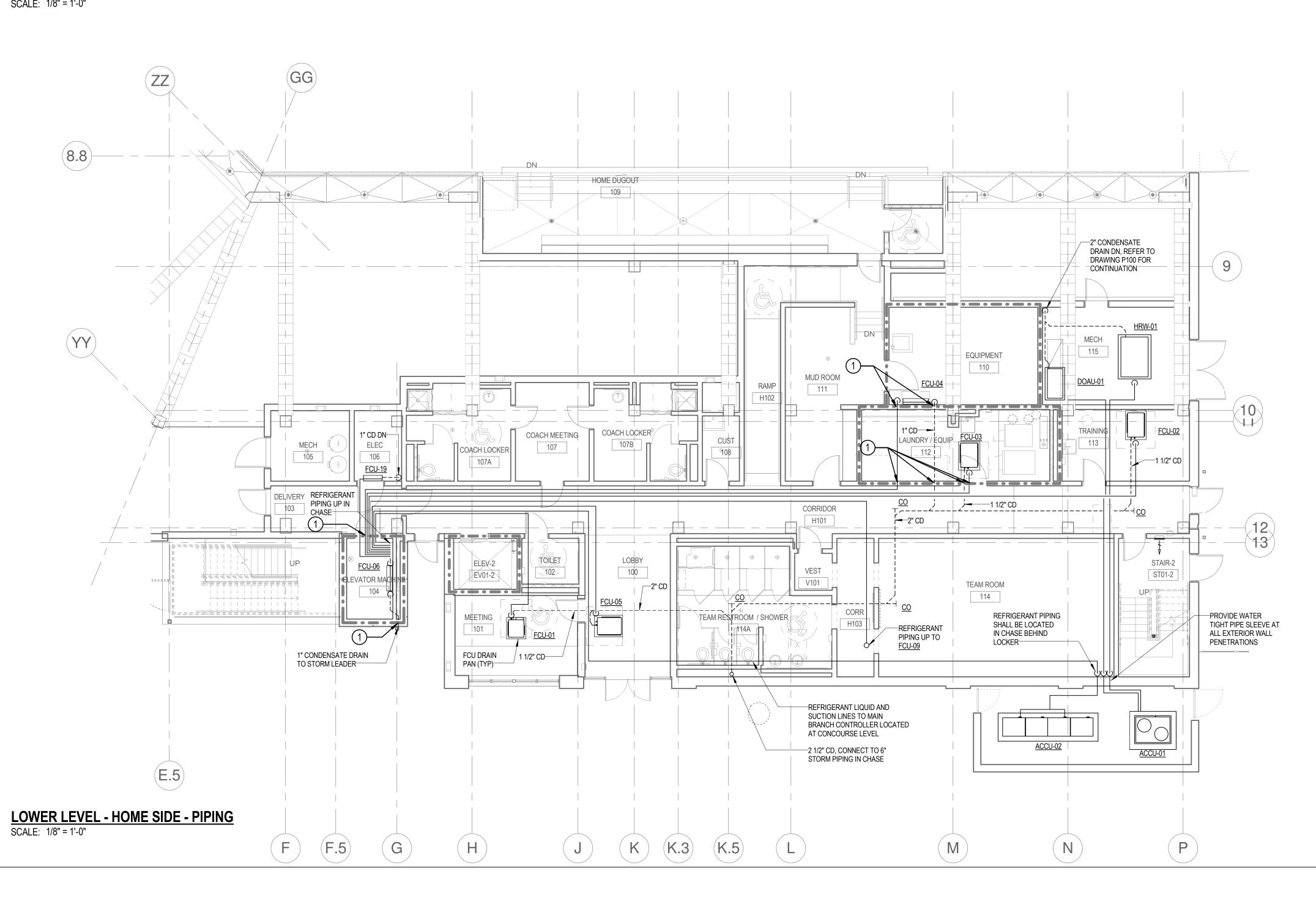






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**LOWER LEVEL - VISITOR SIDE - PIPING** SCALE: 1/8" = 1'-0"



(E.5)

## **GENERAL NOTES**

- 1. COORDINATE THE LOCATION OF ALL EQUIPMENT, PIPING, AND DUCTWORK WITH ALL OTHER TRADES (PLUMBING, FIRE PROTECTION, ELECTRICAL, ETC.) BEFORE INSTALLATION.
- 2. FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN IN ACCORDANCE WITH IMC 2009.
- 3. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING WILL BE DONE BY CONTRACTOR.
- 4. FOR CLARITY ONLY ONE REFRIGERANT LINE IS SHOWN PER SYSTEM. BOTH LIQUID AND SUCTION LINES ARE REQUIRED.

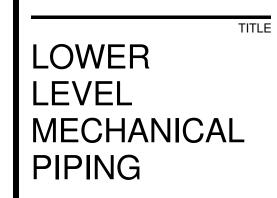
## **DRAWING NOTES**

1 PROVIDE FIRE RATED PENETRATION.

**GRAPHIC SCALE** 4 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET







	SHEET INFORMATION
Date	03.16.12
Project No.	11.122.00
Scale	As indicated
Drawn By	BMW
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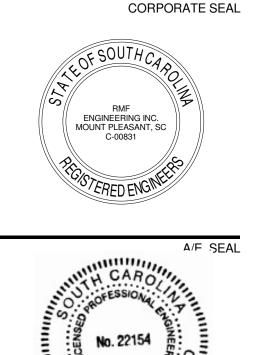
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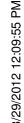
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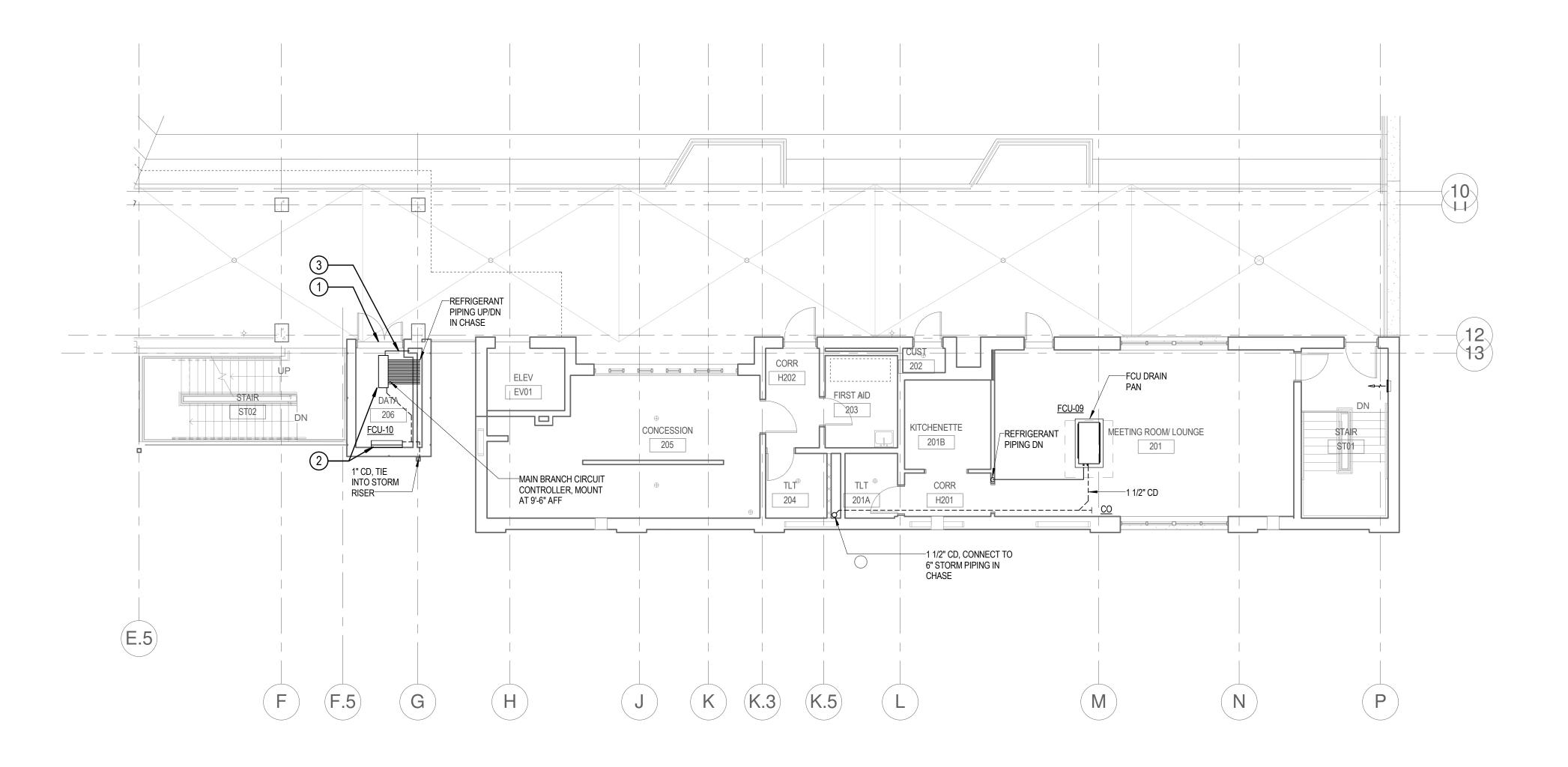
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Columbia, SC 29201 F: 803.771.2858

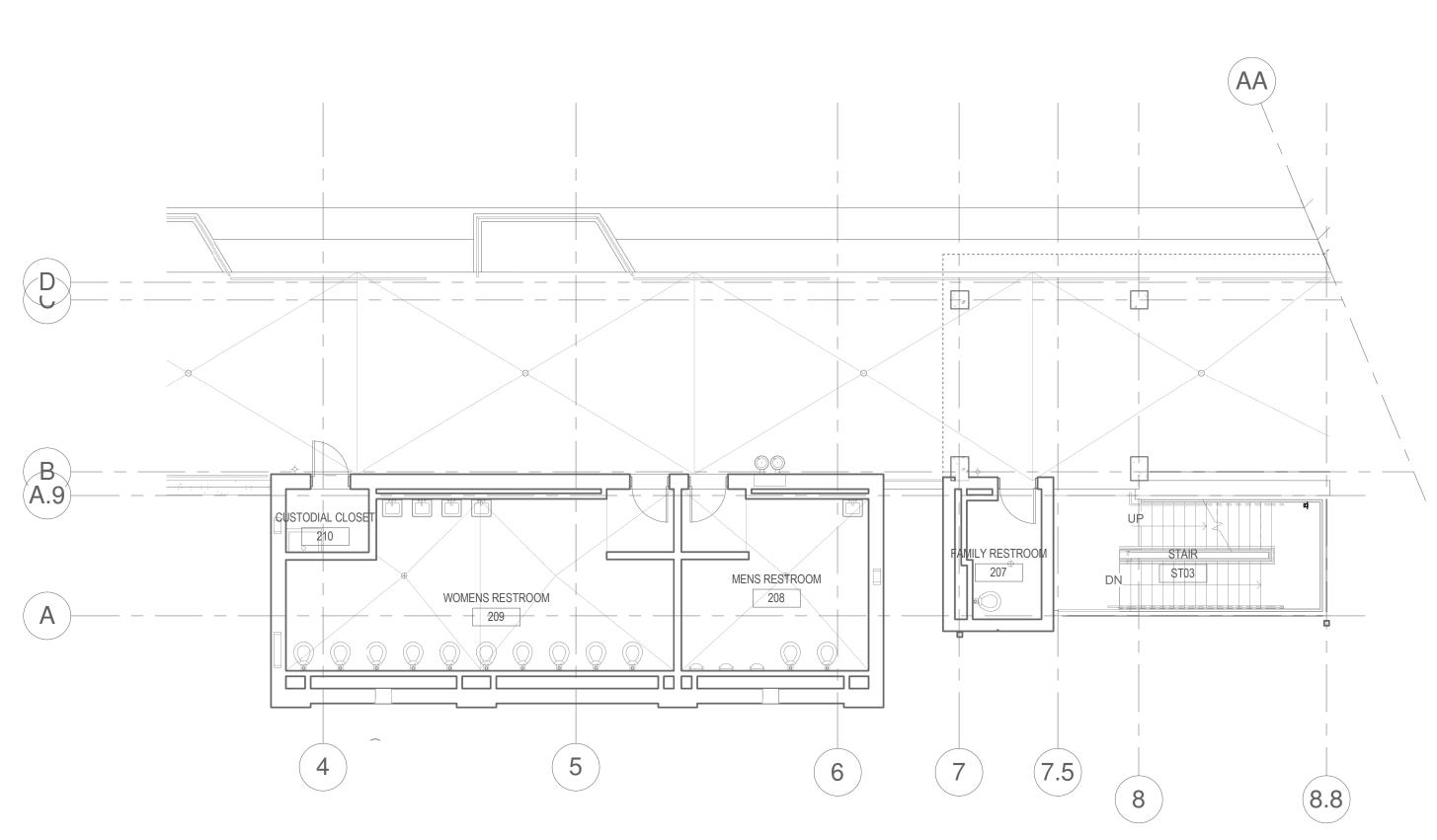
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CONCOURSE LEVEL - VISITOR SIDE - PIPING SCALE: 1/8" = 1'-0"







- 1. COORDINATE THE LOCATION OF ALL EQUIPMENT, PIPING, AND DUCTWORK WITH ALL OTHER TRADES (PLUMBING, FIRE PROTECTION, ELECTRICAL, ETC.) BEFORE INSTALLATION.
- 2. FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN IN ACCORDANCE WITH IMC 2009.
- 3. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING WILL BE DONE BY CONTRACTOR.
- 4. FOR CLARITY ONLY ONE REFRIGERANT LINE IS SHOWN PER SYSTEM. BOTH LIQUID AND SUCTION LINES ARE REQUIRED.

5. NO WORK ON THE VISITORS SIDE THIS LEVEL.

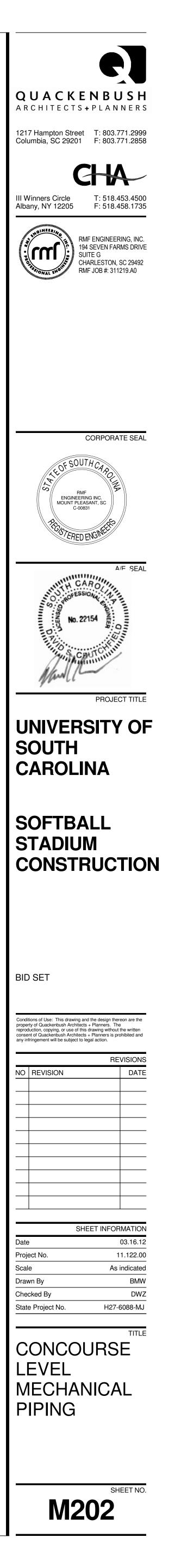
## **DRAWING NOTES**

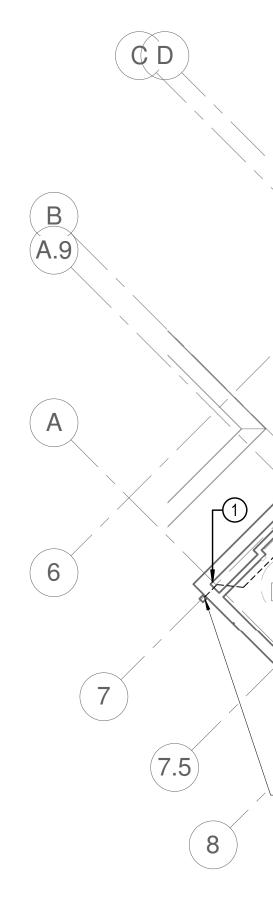
1 PROVIDE WATER TIGHT PIPE SLEEVE AT ALL EXTERIOR WALL PENETRATIONS.

2 PROVIDE DRAIN PAN UNDER FAN COIL UNIT AND BRANCH CONTROLLER.

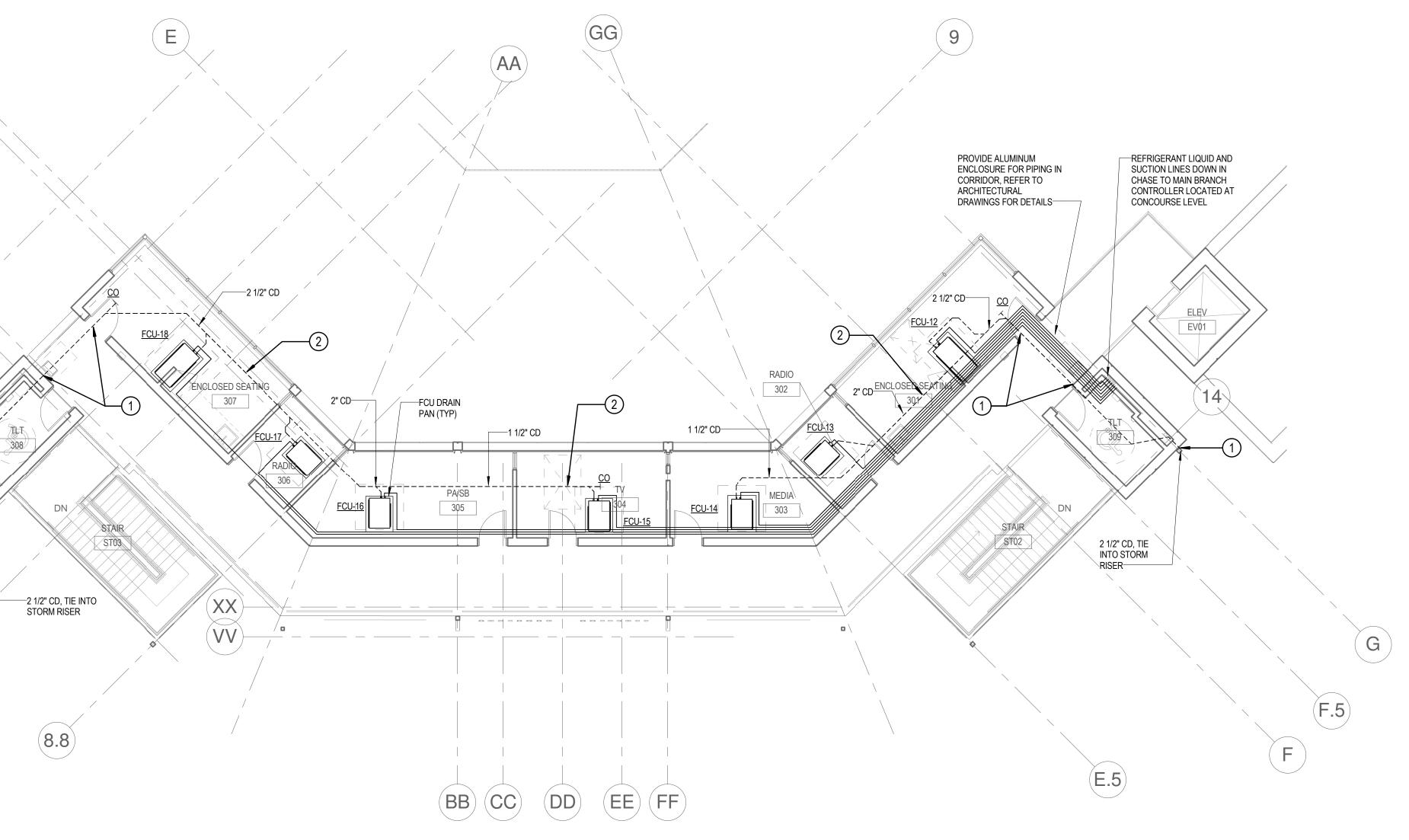
3 COORDINATE REFRIGERANT AND CONDENSATE PIPING WITH ELECTRICAL CONDUIT AND SANITARY PIPING WITHIN THE SPACE.

**GRAPHIC SCALE** 8 4 0 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET





UPPER LEVEL PIPINGSCALE: 1/8" = 1'-0"



## **GENERAL NOTES**

- 1. COORDINATE THE LOCATION OF ALL EQUIPMENT, PIPING, AND DUCTWORK WITH ALL OTHER TRADES (PLUMBING, FIRE PROTECTION, ELECTRICAL, ETC.) BEFORE INSTALLATION.
- 2. FCU SHALL BE PROVIDED WITH A WATER LEVEL PROTECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT-OFF THE FCU IF THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE OR FCU DRAIN PAN AND LOCATED A AT POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN IN ACCORDANCE WITH IMC 2009.
- 3. PIPE ROUTING SHOWN IS DIAGRAMMATICAL. FINAL ROUTING WILL BE DONE BY CONTRACTOR.
- 4. FOR CLARITY ONLY ONE REFRIGERANT LINE IS SHOWN PER SYSTEM. BOTH LIQUID AND SUCTION LINES ARE REQUIRED.

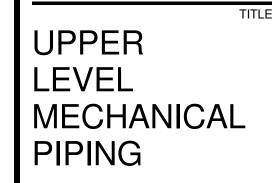
## **DRAWING NOTES**

(1) PROVIDE WATER TIGHT PIPE SLEEVE AT ALL EXTERIOR WALL PENETRATIONS.

2 INSTALL CONDENSATE PIPING AS HIGH AS POSSIBLE IN SPACE. UNITS WILL BE PROVIDED WITH CONDENSATE PUMP. REFER TO SCHEDULE ON DRAWING M600.

**GRAPHIC SCALE** 8 4 0 SCALE: 1/8" = 1'-0" UNIT OF MEASURE: FEET





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Date	03.16.12
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REVISIONS DATE NO REVISION

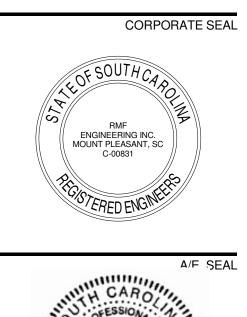
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- ACTIVATED.

a. ON THE DETECTION OF PRODUCTS OF COMBUSTION, DE-ENERGIZE THE FCU IN ACCORDANCE WITH NFPA-90A.

- 8. DURING UNOCCUPIED (NIGHT SETBACK) THE OUTDOOR AIR DAMPER WILL CLOSE AND REMAIN CLOSED.

- B. MORNING WARM-UP MODE:

- 1. DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS 1.5°F (ADJ.) OR MORE BELOW THE OCCUPIED HEATING SET-POINT, A MORNING WARM-UP SEQUENCE SHALL BE
- 7. WHEN THE SUPPLY FAN STATUS INDICATES THAT THE FAN STARTED, THE OUTSIDE AIR DAMPER WILL OPEN AND BE PROVEN OPEN BY THE END SWITCH.

- SYSTEM CONTROLLER SHALL INDICATE ALARM, DISABLE THE UNIT AND RETURN ALL CONTROLS TO THEIR NORMAL POSITION. 6. UPON ACTIVATION OF WATER LEVEL PROTECTION DEVICE THE BAS SHALL INDICATE ALARM, DISABLE THE UNIT AND RETURN ALL CONTROLS.
- REQUIREMENTS. 5. A FAILURE OF THE FAN COIL UNIT SUPPLY FAN, AS SERVED BY ITS CURRENT SENSING RELAY SHALL BE ALARMED TO THE SYSTEM CONTROLLER. UPON SEEING FAILURE, THE
- 4. THE INDOOR FAN COIL UNIT SHALL BE CONTROLLED TO MAINTAIN THE OCCUPIED AND UNOCCUPIED INDOOR SPACE TEMPERATURE SETPOINTS. THE FAN COIL UNIT SUPPLY FAN SHALL RUN CONTINUOUSLY WHEN THE UNIT IS ENERGIZED. THE UNIT REFRIGERANT CIRCUIT SHALL CYCLE ON/OFF BASED ON THE INDOOR HEATING AND COOLING
- 3. WHEN THE UNIT IS DE-ENERGIZED, ALL CONTROLS SHALL RETURN TO THEIR NORMAL POSITIONS, READY FOR RESTARTING.
- 1. THE FAN COIL UNIT SHALL BE MANUALLY INDEXED TO THE AUTOMATIC MODE AT THE SYSTEM H-O-A SWITCH. 2. THE FAN COIL UNIT SHALL BE ENERGIZED VIA REMOTE SIGNAL FROM THE SYSTEM CONTROLLER.
- A. SYSTEM CONTROL:
- GRAPHICAL INTERFACE TO SYSTEM INFORMATION. THE OPERATOR SHALL HAVE THE ABILITY TO CREATE AND EDIT SYSTEM DATABASE, VIEW CURRENT AND TRENDED INFORMATION, ACKNOWLEDGE ALARMS, AND PERFORM OPERATOR OVERRIDES AND OTHER OPERATOR TRANSACTIONS FROM THE PC WORKSTATION. 2. A PC WORKSTATION SHALL ALSO ACCESS A CCMS SITE REMOTELY THROUGH THE USE OF A STANDARD MODEM OR THROUGH OWNER'S ETHERNET CONNECTION. 1.3 FAN COIL UNIT
- 1. AN OPERATOR SHALL GAIN ACCESS TO THE SYSTEM VIA A PERSONAL COMPUTER (PC) WORKSTATION THAT RUNS THE CCMS SOFTWARE. THE WORKSTATION PROVIDES A
- (ADJUSTABLE), THE SYSTEM SHALL OPERATE IN HEATING MODE. 1.2 CENTRAL CONTROL AND MONITORING SYSTEM (CCMS) INTERFACE A. BUILDING CONTROL UNIT PANEL:
- OUTDOOR AIR SENSORS. ON A RISE IN TEMPERATURE TO 50°F (ADJUSTABLE) AND ABOVE, THE SYSTEM SHALL OPERATE IN COOLING MODE. ON A FALL IN TEMPERATURE BELOW 50°F G. CONTROLLING POINT FOR "HEATING", "COOLING", "OCCUPIED" AND "UNOCCUPIED" TEMPERATURE CHANGEOVER SHALL BE BY THE CCMS.
- SHALL BE 78°F AND 50% RH COOLING; 68°F AND 50% RH HEATING. E. TEMPERATURES SHALL BE OCCUPANT ADJUSTABLE 5°F WARMER OR COOLER. F. CCMS SHALL NORMALLY CONTROL THE SYSTEM HEATING AND COOLING MODES AS SELECTED IN ACCORDANCE WITH OUTDOOR AIR TEMPERATURES THROUGH THE BUILDING
- C. ALL TEMPERATURE SENSORS SHALL HAVE A DEAD-BAND OF 2°F. ALL HUMIDITY SENSORS SHALL HAVE A DEAD-BAND OF 5% RH. D. SPACE CONDITIONING SET-POINT SHALL BE 74°F AND 50% RH DURING COOLING OCCUPIED MODE AND 70°F AND 50% RH DURING HEATING OCCUPIED MODE. UNOCCUPIED SET-POINT
- 1.1 GENERAL NOTES A. REFER TO PLANS FOR LOCATIONS OF ALL ROOM THERMOSTATS, PANELS, DAMPERS AND EQUIPMENT; WHERE SUCH DEVICES ARE NOT INDICATED, HOWEVER REQUIRED BY THE SEQUENCES THEY SHOULD BE PROVIDED AND LOCATED IN THE FIELD BY THE ENGINEER AND ARCHITECT. B. ALL TEMPERATURE, HUMIDITY, PRESSURE AND TIME SET-POINTS SHALL BE FULLY ADJUSTABLE FROM THE CAMPUS METASYS SYSTEM (CCMS).
- FAN COIL UNIT (FCU) SEQUENCE OF OPERATION

POINT.

POINT.

D. SMOKE CONTROL:

1.4 ALARM POINTS

1.5 SYSTEM TRENDING

C. MORNING COOL-DOWN MODE:

1. SMOKE DETECTOR SHALL:

3. THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED.

NATIONAL FIRE ALARM CODE.

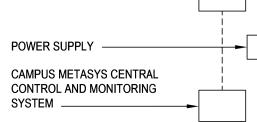
1. SPACE TEMPERATURE SET-POINT. 2. SPACE TEMPERATURE ACTUAL.

3. OUTSIDE AIR DAMPER POSITION.

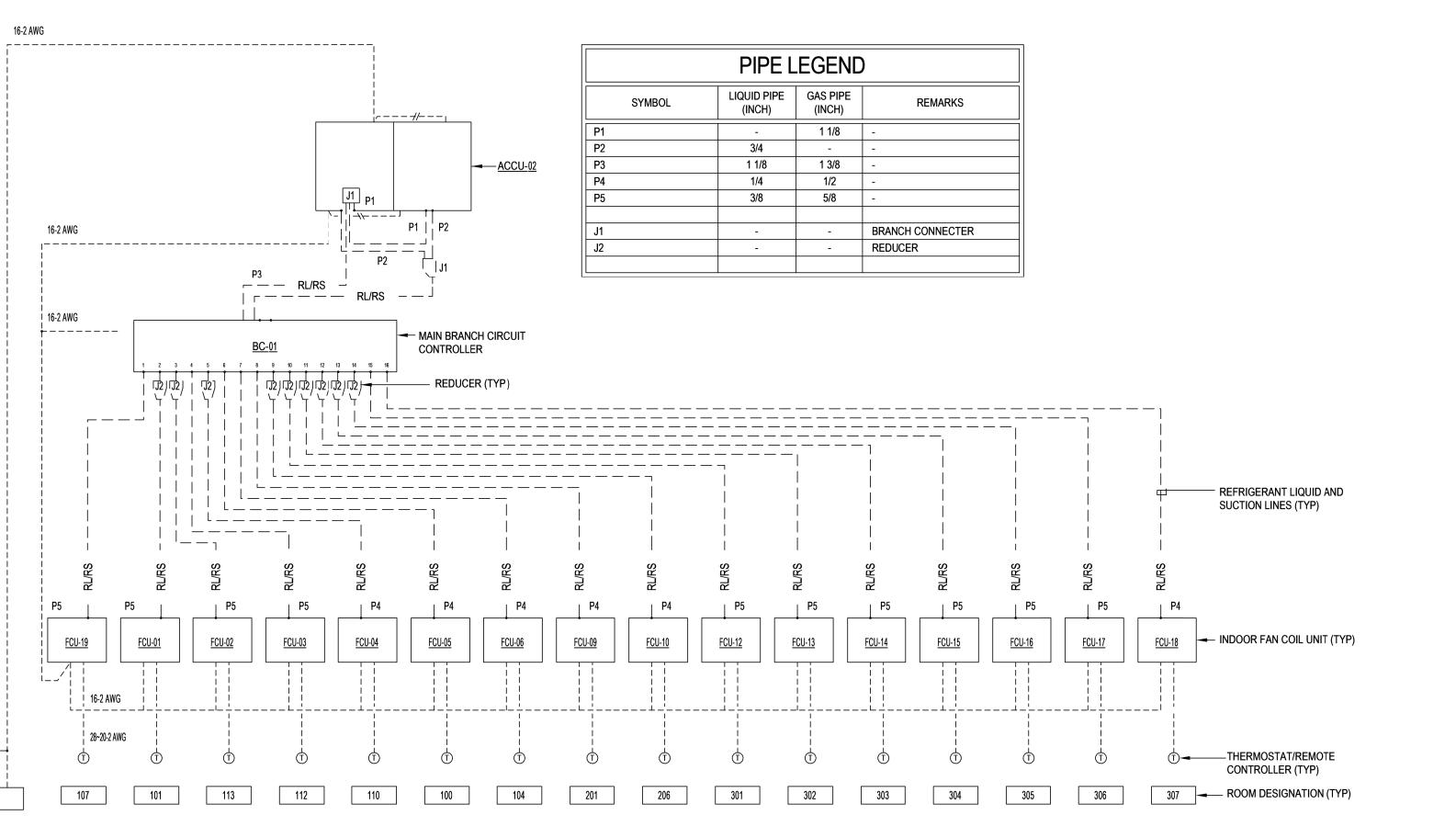
A. PROVIDE THE FOLLOWING ALARM POINTS PER SPACE. 1. HIGH TEMPERATURE ALARM - ALARM OVER 82°F.

2. LOW TEMPERATURE ALARM - ALARM 4°F BELOW THE ACTIVE SET-POINT.

3. FAN STATUS ALARM - ALARM ANY FAN SHOWING "ON" WHEN THE COMMAND IS "OFF".



CENTRAL CONTROLLER \_



2. THE SUPPLY FAN WILL START, THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED, AND REFRIGERANT CIRCUIT WILL CYCLE THE HEATING MODE TO SATISFY THE OCCUPIED SET

3. MORNING WARM-UP WILL TERMINATE WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SET-POINT OR THE OCCUPIED TIME PERIOD HAS STARTED.

1. DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SET-POINT, A MORNING COOL-DOWN SEQUENCE WILL BE ACTIVATED. 2. THE SUPPLY FAN WILL START, THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED, AND REFRIGERANT CIRCUIT WILL CYCLE THE COOLING MODE TO SATISFY THE OCCUPIED SET

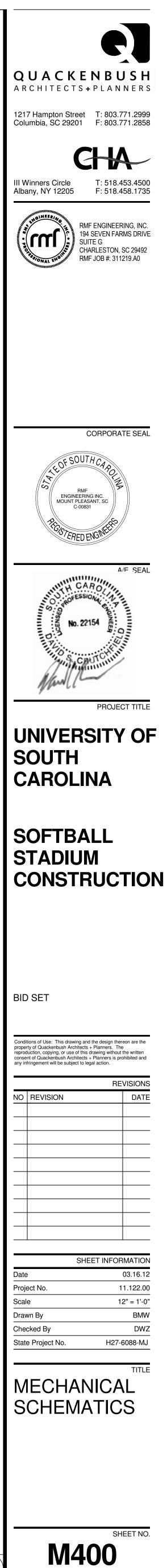
4. THE MORNING COOL-DOWN WILL TERMINATE WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED COOLING SET-POINT OR THE OCCUPIED TIME PERIOD HAS STARTED.

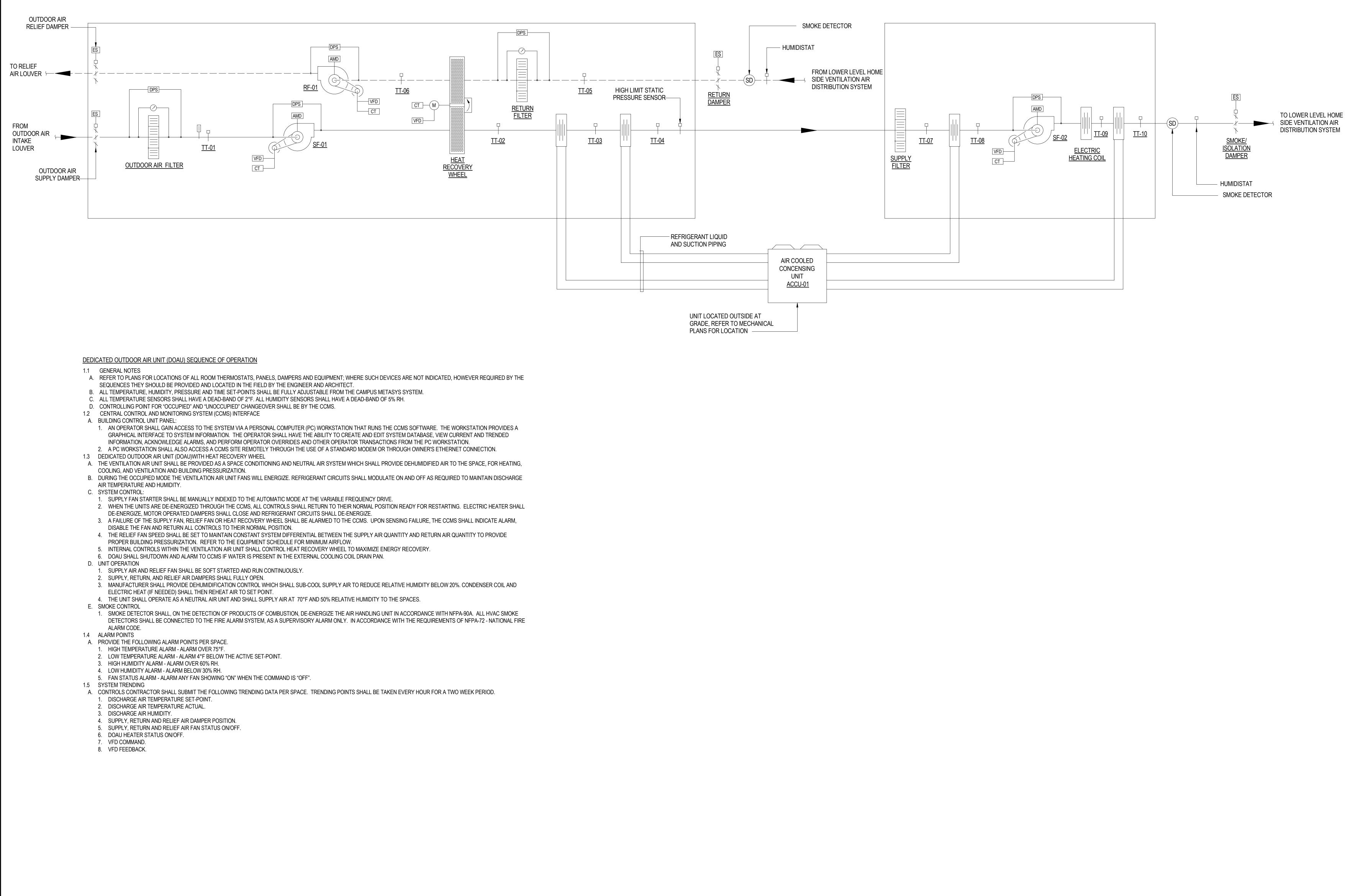
b. ALL HVAC SMOKE DETECTORS SHALL BE CONNECTED TO THE FIRE ALARM SYSTEM, AS A SUPERVISORY ALARM ONLY, IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA-71

A. CONTROLS CONTRACTOR SHALL SUBMIT THE FOLLOWING TRENDING DATA PER SPACE. TRENDING POINTS SHALL BE TAKEN EVERY HOUR FOR A TWO WEEK PERIOD.

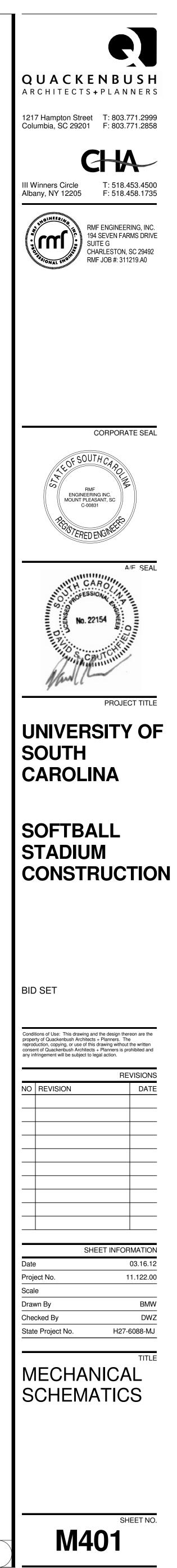
## **GENERAL NOTES**

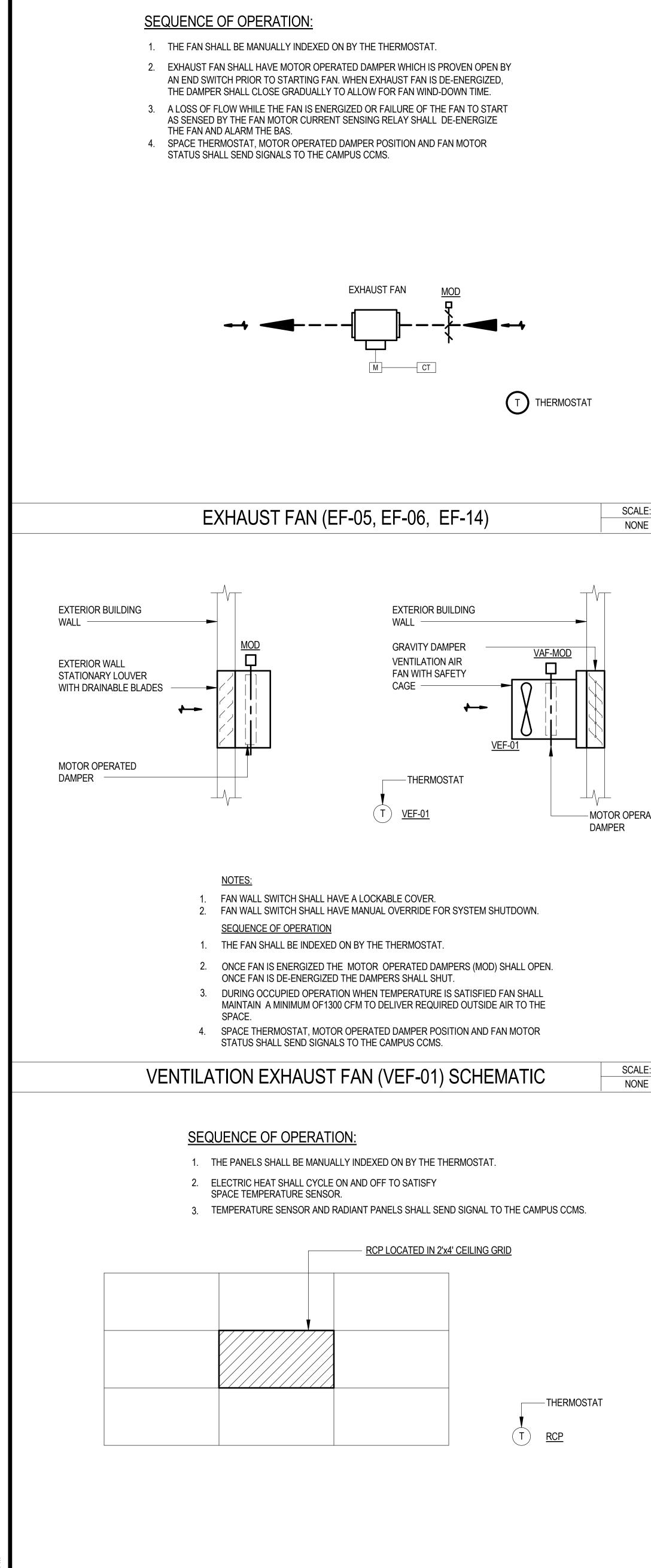
- 1. SCHEMATIC SHOWS TYPICAL PIPE SIZES, AND COMPONENTS REQUIRED FOR INSTALLATION OF THE BASIS OF DESIGN HEAT PUMP SYSTEM (MITSUBISHI-CITY MULTI). REFRIGERANT PIPING SHALL BE SIZED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS BASED ON THE PROJECT SPECIFIC LAYOUT AND LENGTH OF REFRIGERANT PIPING. PRIOR APPROVED MANUFACTURERS SHALL, PRIOR TO THE BID, PROVIDE TO THE CONTRACTOR A PROJECT SPECIFIC SCHEMATIC SHOWING ALL INFORMATION REQUIRED TO PRICE THE INSTALLATION OF THEIR HEAT PUMP SYSTEM. SCHEMATIC SHALL INCLUDE PIPE LENGTHS, PIPE SIZES, BRANCH/CIRCUIT CONTROLLERS, SPECIALTY PIPE FITTINGS/BRANCHES, ELECTRICAL LOADS AND CONTROLS. ANY SYSTEM COMPONENTS OR ELECTRICAL CHANGES REQUIRED TO INSTALL A HEAT PUMP SYSTEM OTHER THAN THE BASIS OF DESIGN SHALL BE INCLUDED IN THE PROJECT BID. INSTALLATION AND DESIGN OF ANY SYSTEM OTHER THAN THE BASIS OF DESIGN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND, AFTER THE PROJECT AWARD, BE OF NO ADDITIONAL COST TO THE OWNER.
- 2. HEAT PUMP SHALL BE CAPABLE OF PROVIDING SIMULTANEOUS HEATING AND COOLING TO EACH FAN COIL UNIT. PROVIDE LOW AMBIENT SYSTEM OPERATION SUCH THAT THE CONDENSING UNITS ARE CAPABLE OF OPERATING IN COOLING MODE DOWN TO -10 DEGREES FAHRENHEIT.
- 3. EACH FAN COIL UNIT SHALL BE PROVIDED WITH SERVICE SHUT-OFF VALVES FOR EACH FAN COIL UNITS HIGH AND LOW PRESSURE REFRIGERANT CONNECTION TO ALLOW SERVICE TO ANY INDOOR FAN COIL UNIT WITHOUT THE FIELD INTERRUPTION OF THE OVERALL SYSTEM OPERATION
- 4. ALL COMPRESSORS SHALL BE VARIABLE SPEED, INVERTER DRIVEN COMPRESSORS. 5. THE VARIABLE CAPACITY, HEAT PUMP HEAT RECOVERY AIR CONDITIONING SYSTEM SHALL BE TIED INTO THE NEW BUILDING CONTROL MANAGEMENT SYSTEM AT THE CENTRALIZED CONTROLLER. ALL SETPOINTS AND PROGRAMS MUST BE ABLE TO BE MONITORED AND ADJUSTED THROUGH THE CAMPUS METASYS CENTRAL CONTROL AND MONITORING SYSTEM (CCMS).



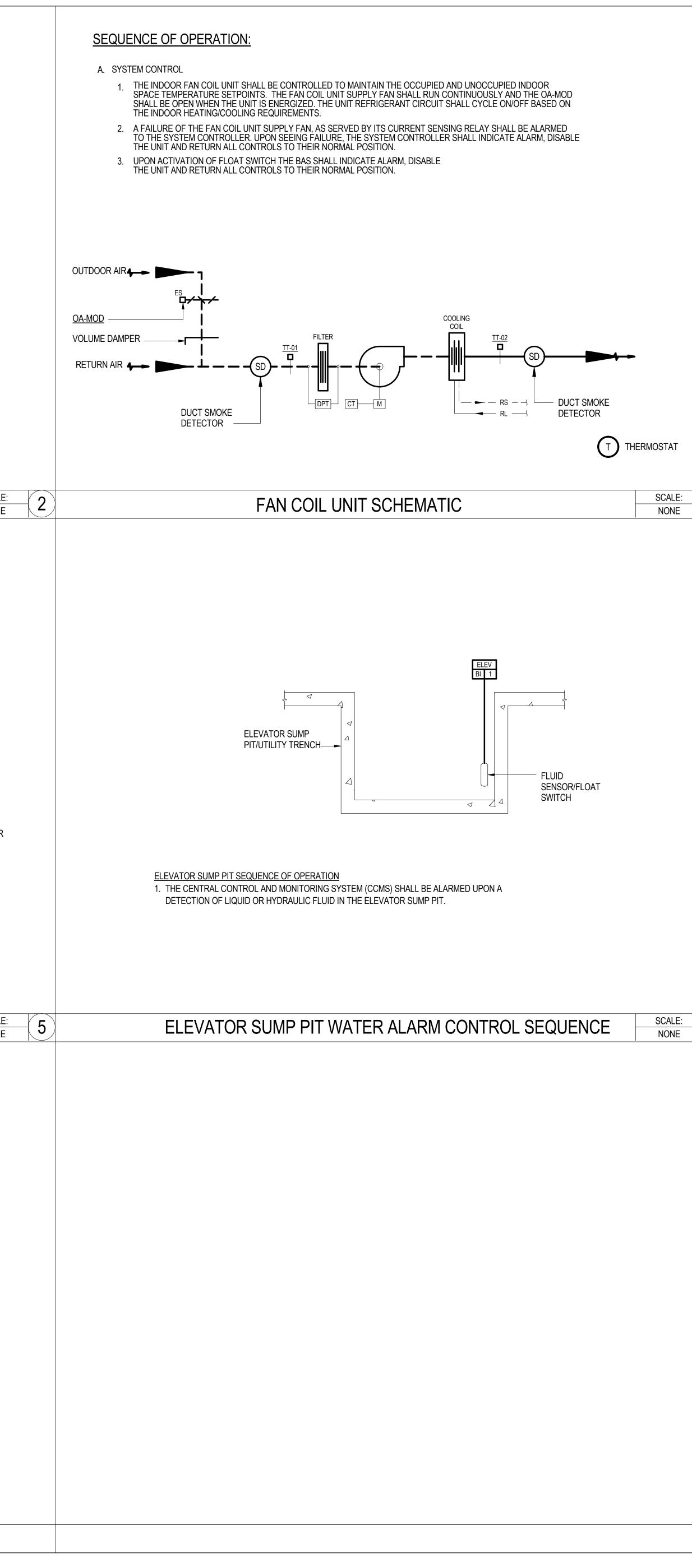


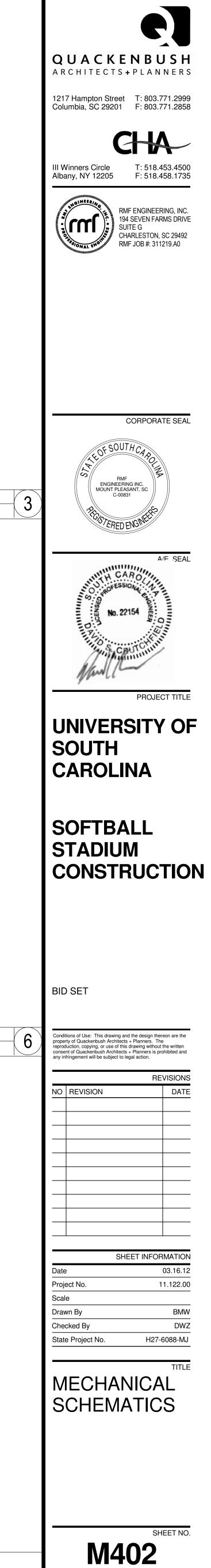






	SEQUENCE OF OPERATION: 1. THE FAN SHALL BE MANUALLY INDEXED ON BY THE ROOM OCCUPANCY SENSOR. 2. EXHAUST FAN SHALL HAVE MOTOR OPERATED DAMPER WHICH IS PROVEN OPEN BY AN END SWITCH PRIOR TO STARTING FAN. WHEN EXHAUST FAN IS DE-ENERGIZED, 3. ALOSS OF FLOW WHILE THE FAN IS ENERGIZED OR FAILURE OF THE FAN TO START AS SENSOB BY THE FAN MOTOR CUPERNT SENSING RELAY SHALL DE-ENERGIZE THE FAN AND ALARM THE BAS. 3. SPACE OCCUPANCY SENSOR, MOTOR OPERATED DAMPER POSITION AND FAN MOTOR STATUS SHALL SEND SIGNALS TO THE CAMPUS CCMS. 	ENSOR
E 1	EXHAUST FAN (EF-01 THROUGH 03,. EF-07 THROUGH 13, EF-15 THROUGH 20)	SCALE NONE
RATED	SEQUENCE OF OPERATION: 1. THE FAN SHALL BE MANUALLY INDEXED TO THE AUTOMATIC MODE AT THE H-O-A SWITCH. 2. ELECTRIC HEAT AND FAN SHALL CYCLE ON AND OFF TO SATISFY THE SPACE TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 3. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 4. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER FAN SHALL SEND SIGNAL TO THE CAMPUS CCMS. 5. TEMPERATURE SENSOR AND WALL HEATER (EWH) 5. TEMPERATURE SENSOR AND WALL HEATER (EWH) 5. TEMPERATURE SENSOR AND WALL HEATER SENSOR AND WALL HEATER (EWH) 5. TEMPERATURE SENSOR AND WALL SENSOR AND WALL HEATER (EWH)	RE SENSOR
E 4	ELECTRIC WALL HEATER SCHEMATIC	SCALE NONE





								INP	UTS											OUTI	PUTS	;					SYS	TEM	FEA	TUR	ΞS					
			MFA	م SUR	ANALO FD	G	CA	ALC.	_		E	BINA	ARY					BI	NAR	(		AN	ALOG				AL	ARM	S			F	PRO	GRAN	ЛS	GENERAL
SYSTEM APPARATUS OR AREA POINT DESCRIPTION	TEMPERATURE	VELOCITY PRESSURE	IRE		EVEL			ENTHALPY	STATUS (DIFF. PRESS.)	SMOKE			STATUS (AMPS) SGALARM	DAMPER END SWITCH	FAULT (VFD)	HIGH STATIC	START - STOP	DAMPER POSITION	VALVE POSITION	HAND-OFF-AUTO	DAMPER POSITION	VALVE POSITION	FAN SPEED SETPOINT ADJUSTABLE	I OW IIMIT	HIGH LIMIT	FAULT (VFD)	PROOF HICH STATIC DDESSI IDE	FIRE ALARM	HIGH DIFFERENTIAL PRESSURE	END SWITCH	FLUAI SWITCH	TIME SCHEDULING	ALTERNATE	TIME DELAY START		COLOR GRAPHICS
DEDICATED OUTDOOR AIR UNIT										x										Х										2	x	Х		X		X
OUTDOOR AIR SUPPLY DAMPER														X							Х															X
OUTDOOR AIR RELIEF DAMPER														X							Х															X
SMOKE ISOLATION DAMPER														X							Х							Х		х						X
RETURN DAMPER														x							Х														1	X
SUPPLY FAN (ERW)		x					x x					X	$\langle  $		X		X						Х			x	x							x x		X
RETURN FAN		x					x x					X	<		X		X						x			x	х							x x	(	X
HEAT RECOVERY WHEEL						2	x					X	<		X		X						х			x	х							x x		X
INLET AIR ( <u>TT-01)</u>	X				x			X																x	x											X
SA LEAVING HEAT RECOVERY WHEEL ( <u>TT-02</u> )	X				x			X																x	X											X
SA LEAVING EVAPORATOR COIL ( <u>TT-03</u> )	X				x			Х																x	x											X
SA LEAVING CONDENSER COIL ( <u>TT-04</u> )	x				x			X																x	x											X
RETURN AIR ( <u>TT-05</u> )	X				x			Х																x	x											X
SA LEAVING HEAT RECOVERY WHEEL ( <u>TT-06</u> )	x				x			X																x	x											X
SA ENTERING CONDENSER COIL (TT-07)	X				x			X																X	X											X
SA LEAVING CONDENSER COIL (TT-08)	X				x			Х																X	Х											X
SA LEAVING ELECTRIC HEATING COIL (TT-09)	X				x			Х																x	x											X
SA LEAVING HOT GAS REHEAT COIL (TT-10)	X				x			Х																X	Х											X
SUPPLY FILTER DPS			х																										х							X
RETURN FILTER DPS			x																										Х							X
STATIC PRESSURE SENSOR			x													x											×									X
SUPPLY HUMIDISTAT				х																			X		х									X	(	x
RETURN HUMIDISTAT				Х																			X		x									X	(	X
SUPPLY SMOKE DETECTOR										x																		Х								X
RETURN SMOKE DETECTOR										x																		Х								x
GLOBAL OUTDOOR AIR TEMP SENSOR	X												$\top$																						$\top$	x

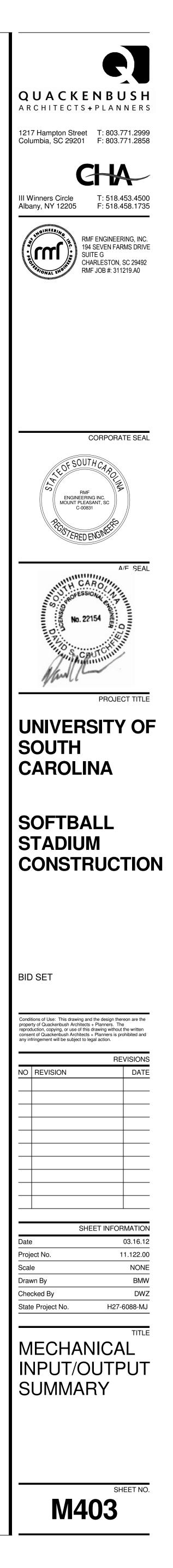
# DOAU-01 INPUT/OUTPUT SUMMARY SCALE: NONE

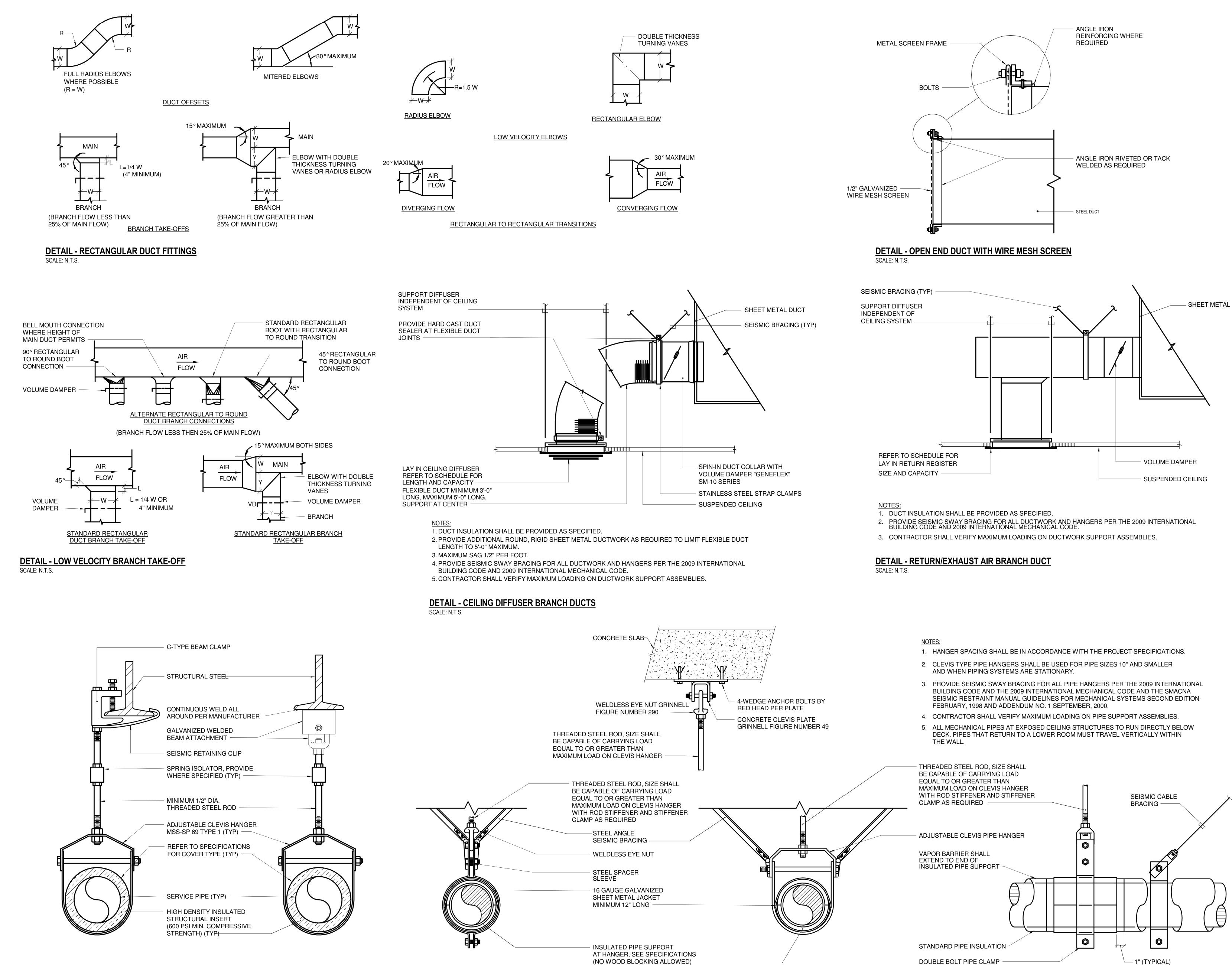
INPUT/OUTPUT SUMMARY: <u>FCU</u>
SYSTEM APPARATUS OR AREA POINT DESCRIPTION
FAN COIL UNITS
SUPPLY FAN
RETURN AIR ( <u>TT-01</u> )
SUPPLY AIR ( <u>TT-02</u> )
DIFFERENTIAL PRESSURE SENSOR
SMOKE DETECTOR (SUPPLY)
SMOKE DETECTOR (RETURN)
SPACE THERMOSTAT
OUTDOOR AIR DAMPER
GLOBAL OUTDOOR AIR TEMP SENSOR

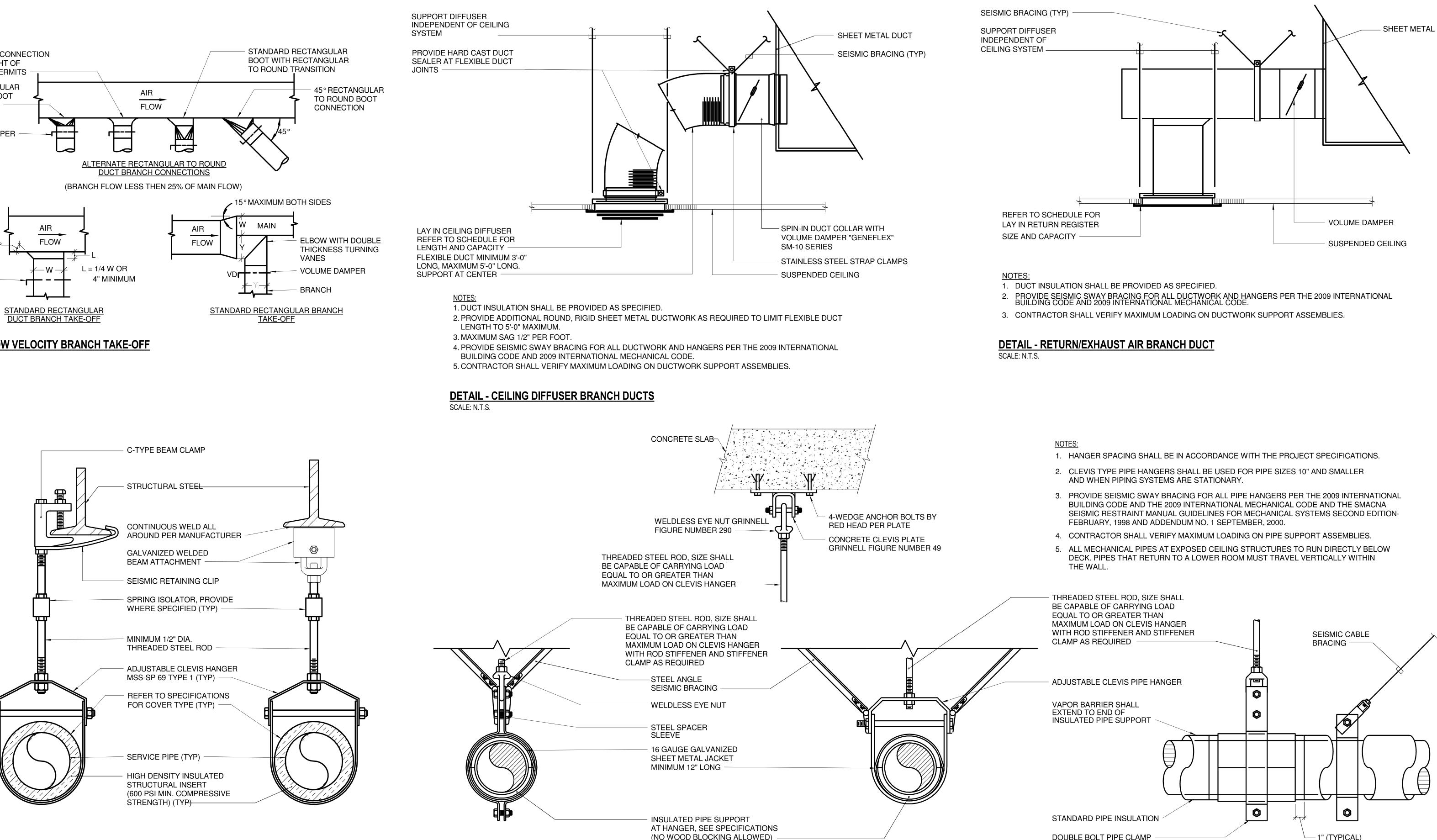
NOTES: 1. POINT LIST IS TYPICAL FOR ALL FAN COIL UNITS.

# FAN COIL UNIT INPUT/OUTPUT SUMMARY SCALE: NONE

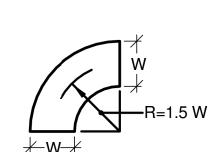
									I	NPU	TS													OU.	TPU	TS							S	YST	ΈM	FEA	١TU	RES	;								
		M	EAS					CAL	C.					BI	NAR	RY			1	1		BIN	IAR`	Y			ANA	LO	G			Т	Т	ALA	RM	s T		Т			PR	) GF	ram T	s	GE	NEF	?Al
TEMPERATURE	VELOCITY PRESSURE	STATIC PRESSURE	DIFFERENTIAL PRESSURE	RELATIVE HUMIDITY	CARBON DIOXIDE LEVEL	DEWPOINT	RUN TIME	CFM	ENTHALPY		STATUS (DIFF. PRESS.)	SMOKE	LOW TEMP LIMIT	HIGH HUM. LIMIT	STATUS (AMPS)	SG ALARM	DAMPER END SWITCH	FAULT (VFD)	HIGH STATIC		START - STOP	DAMPER POSITION	VALVE POSITION	HAND-OFF-AUTO		DAMPER POSITION	VALVE POSITION	FAN SPEED	SETPOINT ADJUSTABLE			FAUIT (VFD)	PROOF	HIGH STATIC PRESSURE	FIRE ALARM	HIGH DIFFERENTIAL PRESSURE	END SWITCH	FLOAT SWITCH		TIME SCHEDULING	ALTERNATE	TIME DELAY START	OCCUPIED/UNOCCUPIED		COLOR GRAPHICS		
																								Х														Х		Х			x		Х		
	Х						Х	х							Х				X		Х							х				X	X									x	X		х		
Х						х			Х																					×	X														х		
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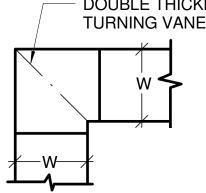


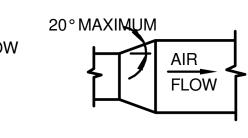


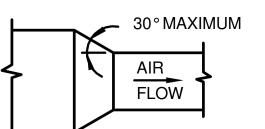


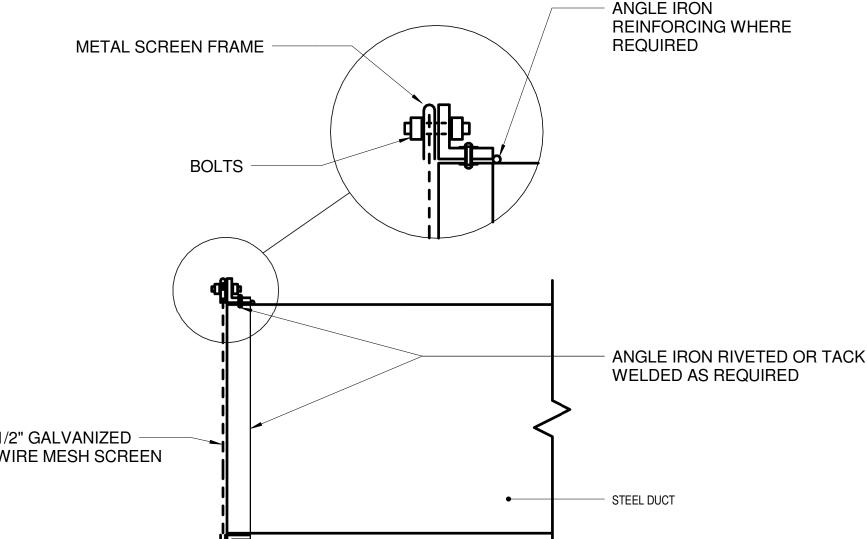
DETAIL - PIPE HANGER SCALE: N.T.S.

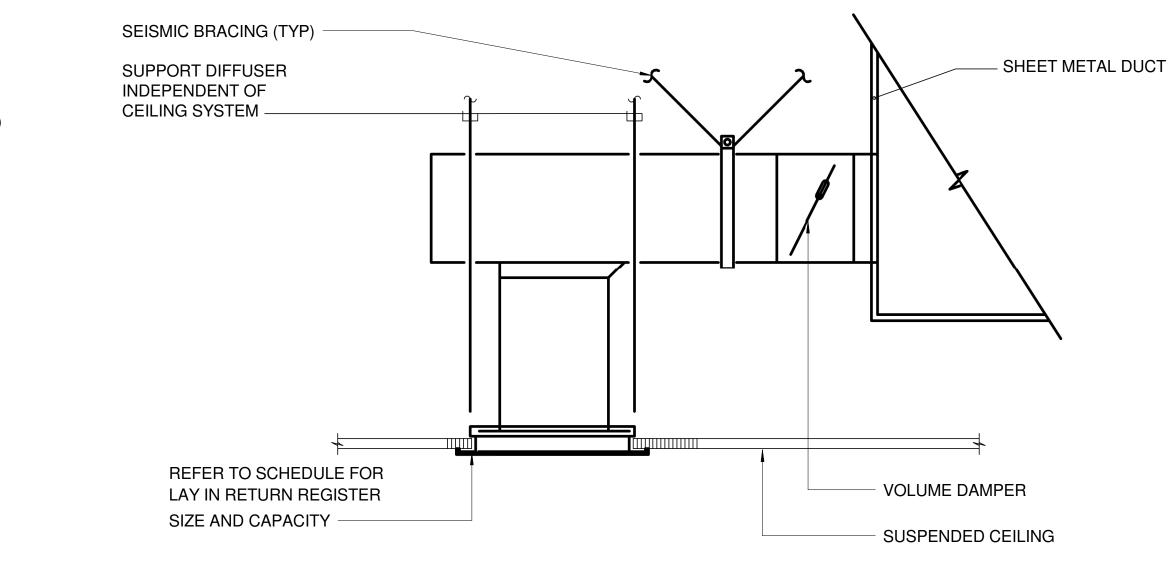




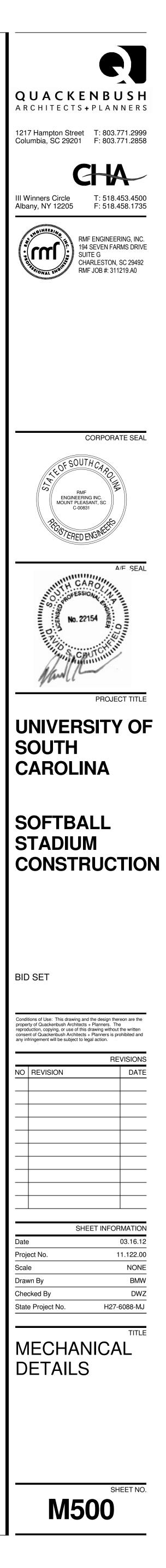


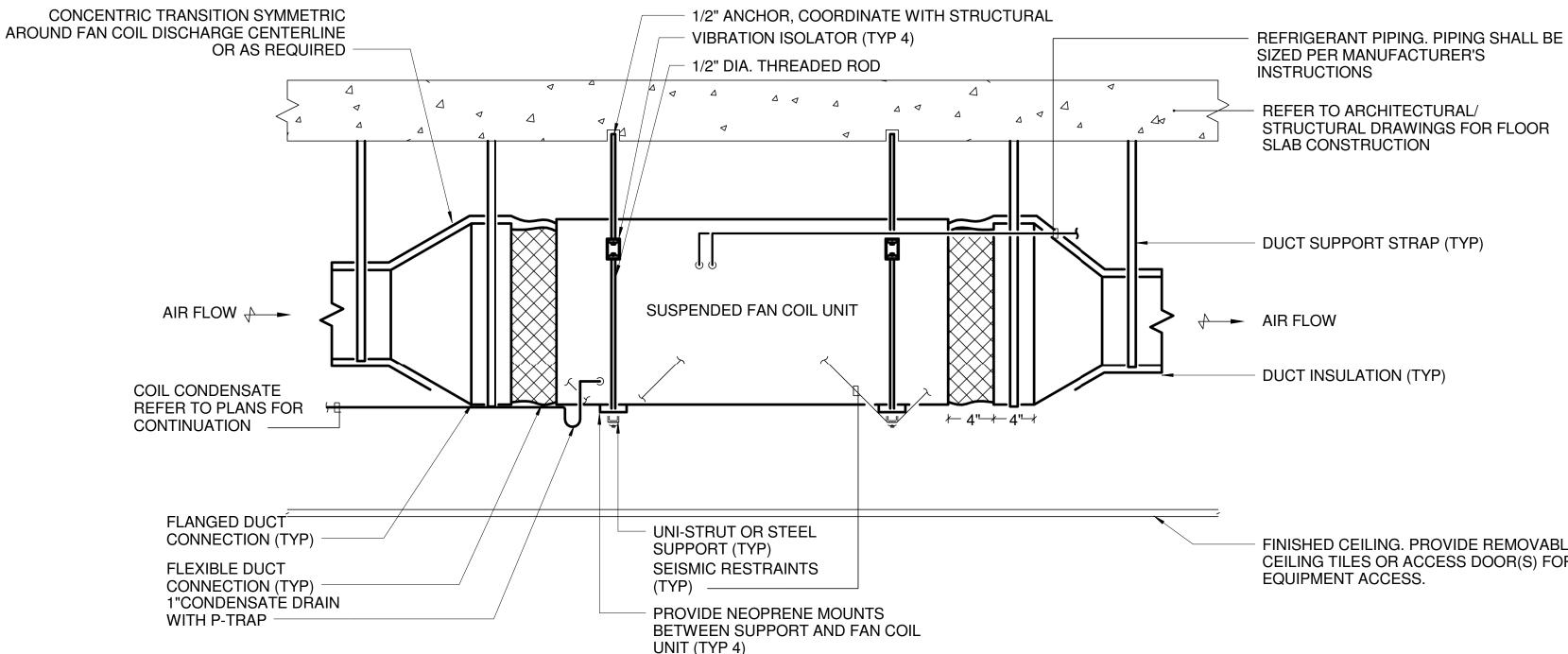






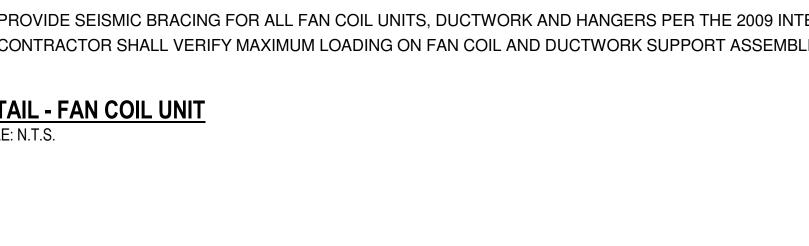
DOUBLE BOLT PIPE CLAMP

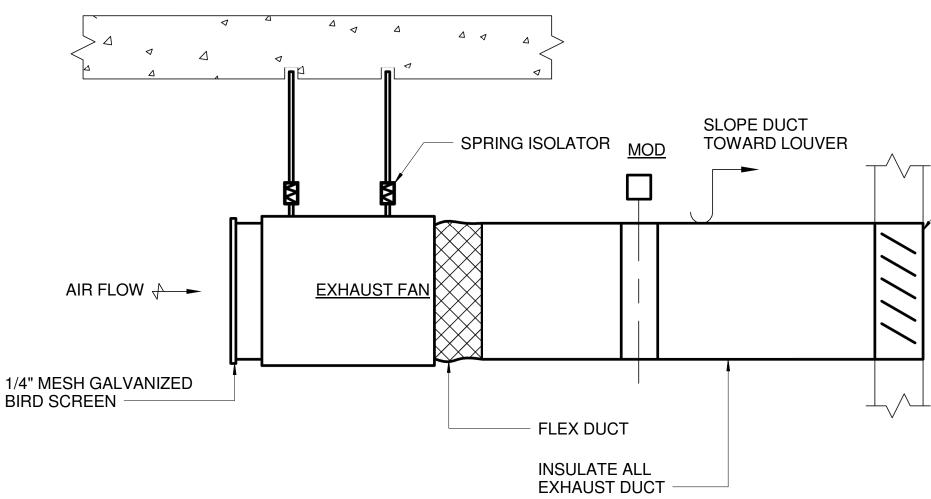




NOTES:

1. PROVIDE SEISMIC BRACING FOR ALL FAN COIL UNITS, DUCTWORK AND HANGERS PER THE 2009 INTERNATIONAL BUILDING CODE AND 2009 INTERNATIONAL MECHANICAL CODE. 2. CONTRACTOR SHALL VERIFY MAXIMUM LOADING ON FAN COIL AND DUCTWORK SUPPORT ASSEMBLIES.







SCALE: N.T.S.

# **DETAIL - INLINE EXHAUST FAN**

PURGE WATERTIGHT ON

EXTEND SLEEVE BEYOND

WALL MINIMUM 1" ON

EACH SIDE

FOR SIZE

SERVICE PIPE

**REFER TO PLANS** 

PACK WITH OAKUM

NOTE: CUT ONLY THOSE REBAR REQUIRED TO

ADMIT SLEEVE. ADJUST FINAL SLEEVE

LOCATION SO THAT A MINIMUM NUMBER

**DETAIL - PIPE SLEEVE IN EXTERIOR WALL** 

AND CAULK

OF REBAR ARE CUT.

SCALE: N.T.S.

EXTERIOR SIDE

SCALE: N.T.S.

- INTERNATIONAL BUILDING CODE AND 2009 INTERNATIONAL MECHANICAL CODE.
- 2. CONTRACTOR SHALL VERIFY MAXIMUM LOADING ON EXHAUST FAN AND DUCTWORK SUPPORT ASSEMBLIES.

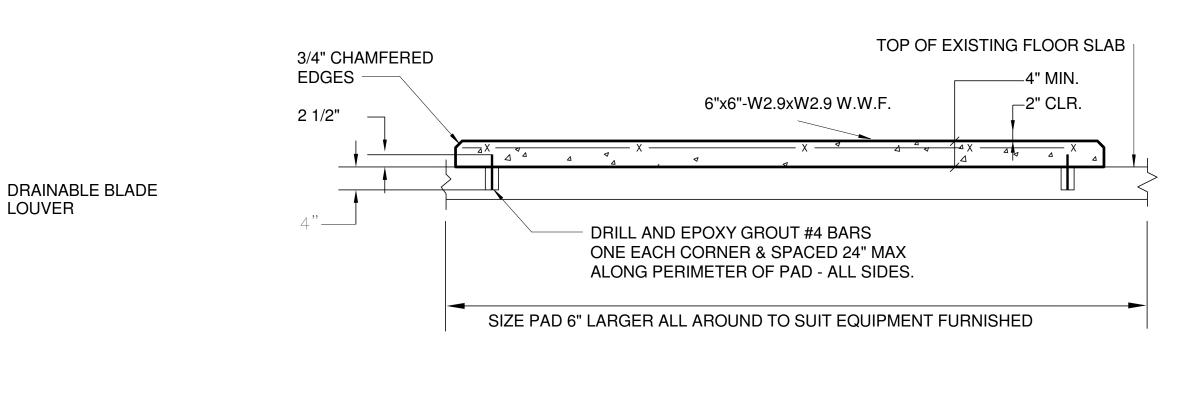
•

- 1. PROVIDE SEISMIC BRACING FOR ALL EXHAUST FANS, DUCTWORK AND HANGERS PER THE 2009
- NOTES:

**REFER TO ARCHITECTURAL**/ STRUCTURAL DRAWINGS FOR FLOOR SLAB CONSTRUCTION

DUCT SUPPORT STRAP (TYP)

FINISHED CEILING. PROVIDE REMOVABLE CEILING TILES OR ACCESS DOOR(S) FOR



NOTES:

- 1. THIS DETAIL APPLIES TO ALL MECHANICAL EQUIPMENT HOUSEKEEPING PAD INSTALLATIONS, UNLESS NOTED OTHERWISE,.
- 2. TROWELED FINISH.

SCHEDULED 40 BLACK

STEEL PIPE SLEEVE

MASONRY OR

CONCRETE WALL

"LINK SEAL" SEAL

CORE DRILL HOLE

AS REQUIRED FOR

GROUT SLEEVE INTO

WALL. REQUIRED IF

ANCHOR PLATE

IN PLACE.

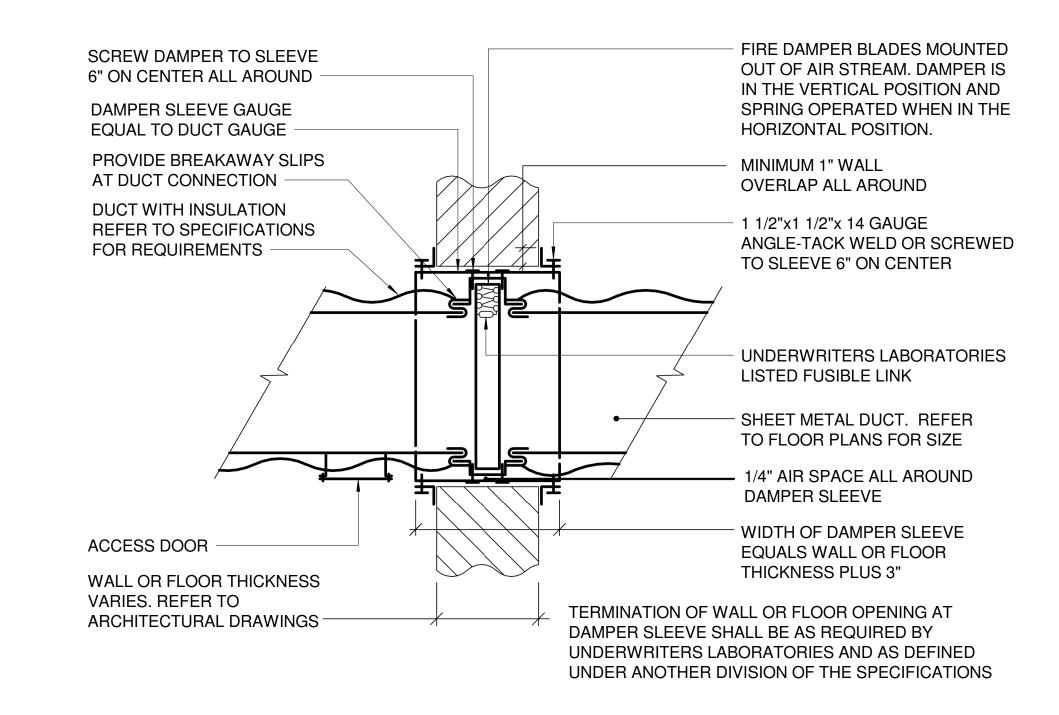
SLEEVE IS NOT CAST

WELDED TO SLEEVE

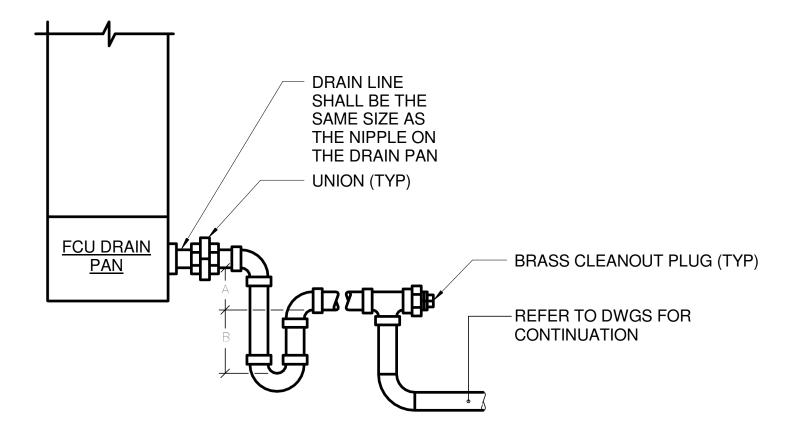
SERVICE PIPE

**DETAIL - HOUSEKEEPING PAD** SCALE: N.T.S.





## **DETAIL - FIRE DAMPER INSTALLATION (TYPICAL)** SCALE: N.T.S.

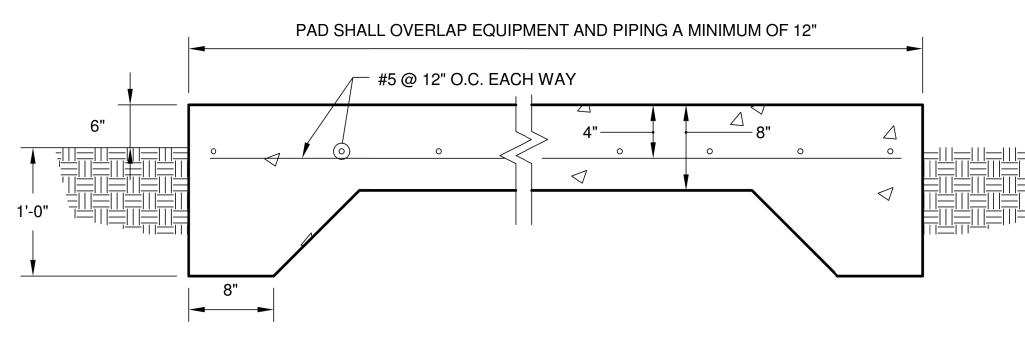


NOTE:

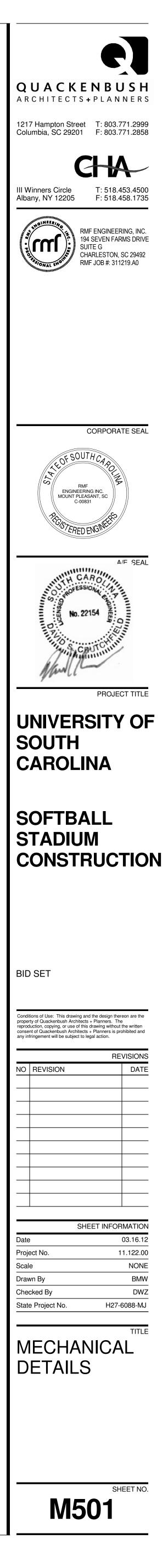
1. FOR THE DRAW THRU FAN COIL UNIT: A = THE FCU SUPPLY FAN TOTAL STATIC PRESSURE (INCHES) PLUS TWO (2) INCHES.

B = THE FCU SUPPLY FAN TOTAL STATIC PRESSURE (INCHES)

**DETAIL - COIL CONDENSATE P-TRAP** SCALE: N.T.S.







												C	EDICATE	D OU	ГDС	OR A	IR U	NIT SCH	IEDULE									
		FAN SECT	TION								COOLING MOD	E				REHEA	T COIL DA	TA	HE	EATING COIL	DATA		ELEC	TRICAL				
DESIGNATION	CFM	MINIMUM OA CFM	ESP INCH WG	MOTOR HP	R EA	AT °F	LA <sup>-</sup> DB	T °F WB	SENS MBH	TOTAL MBH	FACE AREA SF	NUMBER OF COILS	MAXIMUM FIN SPACING FIN/INCH	MINIMUM ROWS	EA DB		LAT °F DB WB	TOTAL MBH	EAT °F DB	LAT °F DB	TOTAL MBH	kW	TOTAL MCA	ELECTRICAL V/Ph/HZ	REFRIGERANT	WEIGHT LBS.	EER	BASIS OF DESIGN
DOAU-01	2560	2560	1.0	2.0	82	67	55	54	75.9	102.4	8.1	1	168	4	55.4	53.6	5.4 61.3	56.2	54.7	97.7	119.9	35	56	460/3/60	R-410a	1500	12.4	TRANE OWE090E4

NOTES:

1. DOAU -01 SHALL BE PROVIDED WITH A HEAT RECOVERY WHEEL REFER TO THE HEAT RECOVERY WHEEL SCHEDULE ON THIS SHEET. 2. ELECTRIC HEATING COIL SHALL BE PROVIDED WITH SCR CONTROL.

													HEAT	r Reco	OVER'	Y WHE	EL SC	CHEDI	JLE													
			SUPPLY FAN     EXHAUST FAN     ENTHALPY WHEEL     CFM     FACE VELOCITY					ENT	ERING AIR	TEMPERATU	JRE			LEAVING AIR TEMPERATURE																		
DESIG		N SERVICE	ESP	MOTOD	ESP	MOTOR	MOTOD			F	PM	SUMMER				WIN	ITER			SUM	IMER			WIN	TER		ELECTRICAL	TOTAL	BASIS OF			
			INCH	H MOTOR			4 1	INCH		MOTOR HP	SUPPLY EXF	EXHAUST	SUPPLY EXHAUS	EXHAUST	SUF	PLY	EXHA	NUST	SUP	PLY	EXH.	AUST	SUF	PPLY	EXH	IAUST	SUP	PLY	EXH/	AUST	V/Ph/HZ	MCA
			WG		WG					SULLI	LAHAUST	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB	°F DB	°F WB					
HRW-	01	DOAU-01	1.0	1.5	1.0	2.0	1.5	2560	1975	294	294	97	76	75	62	22	-	72	54	82	67	94	73	54	43	30	24	460/3/60	7.75	SEMCO FV4000		

						FÆ	AN SCHE	EDULE				
DESIG	SERVICE	TYPE	CFM	ESP INCH H₂O	APPROX RPM	MAX WATT	DRIVE	AMCA CONSTRUCTION CLASS	ELECTRICAL	APPROX WEIGHT (LBS)	BASIS OF DESIGN	REMARKS
EF-01	TOILET EXHAUST	IN-LINE	50	0.25	1189	69	DIRECT	A	120/1/60	70	COOK SQN	(2)
EF-02	JANITOR'S CLOSET	IN-LINE	100	0.25	1399	114	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-03	TOILET EXHAUST	IN-LINE	70	0.25	1189	69	DIRECT	А		70	COOK SQN	2
EF-05 EF-06	MECHANICAL ROOM 106 MECHANICAL ROOM 123	IN-LINE	400	0.25	2250	149	DIRECT	A	120/1/60	70	COOK SQN	
EF-00 EF-07	JANITOR'S CLOSET	IN-LINE IN-LINE	400	0.25	2250 1399	149 114	DIRECT	A A	120/1/60	70 70	COOK SQN	(2)
EF-08	TOILET EXHAUST	IN-LINE	100	0.25	1399	114	DIRECT	A	120/1/60	70	COOK SQN COOK SQN	(2)
EF-09	TOILET EXHAUST	IN-LINE	100	0.25	1410	119	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-10	TOILET EXHAUST	IN-LINE	70	0.25	1189	69	DIRECT	А	120/1/60	70	COOK SQN	(2)
EF-11	JANITOR'S CLOSET	IN-LINE	100	0.25	1399	114	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-12	TOILET EXHAUST	IN-LINE	70	0.25	1189	69	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-13	TOILET EXHAUST	IN-LINE	70	0.25	1189	69	DIRECT	А	120/1/60	70	COOK SQN	(2)
EF-14	CONCESSIONS	IN-LINE	800	0.50	1850	181	DIRECT	Α	120/1/60	100	COOK SQN	
EF-15	TOILET EXHAUST	IN-LINE	70	0.25	1189	69	DIRECT	Α	120/1/60	70	COOK SQN	
EF-16	TOILET EXHAUST	IN-LINE	375	0.50	2250	149	DIRECT	А	120/1/60	100	COOK SQN	(2)
EF-17	TOILET EXHAUST	IN-LINE	750	0.50	1828	181	DIRECT	Α	120/1/60	100	COOK SQN	(2)
EF-18	TOILET EXHAUST	IN-LINE	100	0.25	1399	114	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-19	TOILET EXHAUST	IN-LINE	70	0.25	1399	114	DIRECT	Α	120/1/60	70	COOK SQN	(2)
EF-20	TOILET EXHAUST	IN-LINE	70	0.25	1399	114	DIRECT	Α	120/1/60	70	COOK SQN	(2)
									120/1/60			
BF-01	LAUNDRY BOOSTER FAN	IN-LINE	750	0.50	2700	329	DIRECT	А	120/1/60	100	FANTECH FKD10	
									120/1/60			
VEF-01	BATTING CAGES	SIDEWALL	3500	0.15	1140	373	BELT	Α	120/1/60	150	COOK XLWH	
									120/1/60			
RF-01-03	GROUP RESTROOMS	WALL FAN	2000	-	-	160	DIRECT	А	120/1/60	50	COOK 18CAC11W	
RF-04-06	CONCESSIONS	WALL FAN	2000	-	-	160	DIRECT	A	120/1/60	50	COOK 18CAC11W	

<u>NOTE</u> 1. CLOTHES DRYER EXHAUST FAN SHALL MEET THE STANDARDS OUTLINED IN SECTION 504.7 OF THE 2009 INTERNATIONAL M 2. PROVIDE 277 VOLT TRANSFORMER FOR OPERATION WITH LIGHTING OCCUPANCY SENSORS.

		ELEC	TRIC W/	ALL HEAT	ER SCHE	DULE	
DESIGNATION	NOMINAL CFM	REQUIRED MBH	NUMBER OF ELEMENTS	CONNECTED KW	ELECTRICAL V/I/HZ	BASIS OF DESIGN	REMARKS
EWH-01	100	16.3	1	4.8	277/1/60	QMARK AWH4507	(1)(2)
EWH-02	100	16.3	1	4.8	277/1/60	QMARK AWH4507	
EWH-03	100	13.6	1	4.0	277/1/60	QMARK AWH4407	(1)(2)
EWH-04	100	13.6	1	4.0	277/1/60	QMARK AWH4407	(1)(2)
EWH-05	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-06	100	13.6	1	4.0	277/1/60	QMARK AWH4407	1
EWH-09	100	13.6	1	4.0	277/1/60	QMARK AWH4407	(1)(2)
EWH-10	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-11	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-12	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-13	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-14	100	16.3	1	4.8	277/1/60	QMARK AWH4507	
EWH-15	100	16.3	1	4.8	277/1/60	QMARK AWH4507	
EWH-16	100	16.3	1	4.8	277/1/60	QMARK AWH4507	
EWH-17	100	16.3	1	4.8	277/1/60	QMARK AWH4507	
EWH-18	100	13.6	1	4.0	277/1/60	QMARK AWH4407	1
EWH-19	100	13.6	1	4.0	277/1/60	QMARK AWH4407	1
EWH-20	100	13.6	1	4.0	277/1/60	QMARK AWH4407	
EWH-21	100	16.3	1	4.8	277/1/60	QMARK AWH4507	12
EWH-22	100	16.3	1	4.8	277/1/60	QMARK AWH4507	12
EWH-23	100	16.3	1	4.8	277/1/60	QMARK AWH4507	12

NOTE: 1. INSTALL HEATER SO THE BOTTOM OF THE UNIT IS AT 1'-0" ABOVE FINISHED FLOOR. 2. PROVIDE REQUIRED HARDWARE FOR SURFACE MOUNTED INSTALLATION.

ELECTRIC UNIT HEATER SCHEDULE NUMBER OF ELEMENTS NOMINAL CFM REQUIRED MBH ELECTRICAL CONNECTED DESIGNATION SERVICE V/I/HZ KW 480/3/60 EUH-01 - EHU-08 BATTING CAGES 700 26 7.5 1

	RADIAI	NT CEILIN	IG PANEL	SCHEDULE	
DESIGNATION	SERVICE	CONNECTED KW	ELECTRICAL V/I/HZ	BASIS OF DESIGN	REMARKS
RCP-01-RCP-04	CONCESSIONS	0.75	208/1/60	MARLEY ATH24488A	-

MECHANICAL CODE.	

AL	BASIS OF DESIGN	REMARKS
	REZNOR EGHB	-

		FAN	-			(								
DESIG	MAX CFM	MAX OA CFM	ESP	REFRIGERANT	EA <sup>-</sup> DB	r °F WB	COOLING TOTAL (MBH)	SCAPACITY SENSIBLE (MBH)	HEATING CAPACITY TOTAL (MBH AT 21°F)	MOUNTING	ELECTRICAL (V/I/Hz)	MCA	BASIS OF DESIGN	REMARKS
FCU-01	520	55	0.35	R-410A	75.9	63.7	15.8	12.7	6.8	CEILING SUSPENDED	208/1/60	2.24	MITSUBISHI PEFY	1
FCU-02	250	40	0.32	R-410A	75.6	63.5	6.2	5.4	2.3	CEILING SUSPENDED	208/1/60	1.05	MITSUBISHI PEFY	1
FCU-03	600	75	0.41	R-410A	73.3	61.3	12.7	12.0	2.0	CEILING SUSPENDED	208/1/60	1.56	MITSUBISHI PEFY	1
FCU-04	635	N/A	N/A	R-410A	80.0	67.0	24.0	18.0	5.0	WALL	208/1/60	0.54	MITSUBISHI PKFY	12
FCU-05	460	80	0.47	R-410A	76.0	63.7	13.3	10.6	7.7	CEILING SUSPENDED	208/1/60	1.56	MITSUBISHI PEFY	
FCU-06	635	N/A	N/A	R-410A	80.0	67.0	24.0	18.0	5.0	WALL	208/1/60	0.54	MITSUBISHI PKFY	12
FCU-07	635	N/A	N/A	R-410A	80.0	67.0	30.0	18.0	5.0	WALL	208/1/60	1.0	MITSUBISHI PKA	3
FCU-08	270	30	0.35	R-410A	74.3	62.2	4.8	4.3	1.1	CEILING SUSPENDED	208/1/60	1.0	MITSUBISHI SEZ	3
FCU-09	1315	230	0.44	R-410A	76.0	63.8	38.0	30.3	14.8	CEILING SUSPENDED	208/1/60	4.23	MITSUBISHI PEFY	12
FCU-10	635	N/A	N/A	R-410A	80.0	67.0	24.0	18.0	5.0	WALL	208/1/60	0.54	MITSUBISHI PKFY	12
FCU-11	240	N/A	N/A	R-410A	80.0	67.0	8.5	5.4	4.2	WALL	208/1/60	1.0	MITSUBISHI MSZ	2
FCU-12	575	75	0.40	R-410A	75.0	62.8	14.9	12.6	7.4	CEILING SUSPENDED	208/1/60	1.45	MITSUBISHI PEFY	12
FCU-13	235	30	0.35	R-410A	74.9	62.8	6.1	5.1	2.8	CEILING SUSPENDED	208/1/60	1.20	MITSUBISHI PEFY	12
FCU-14	400	75	0.38	R-410A	76.3	64.0	11.9	9.4	5.2	CEILING SUSPENDED	208/1/60	1.20	MITSUBISHI PEFY	1 2
FCU-15	360	50	0.35	R-410A	75.2	63.0	9.6	8.0	4.2	CEILING SUSPENDED	208/1/60	1.20	MITSUBISHI PEFY	12
FCU-16	660	60	0.35	R-410A	74.1	62.0	15.4	13.8	4.7	CEILING SUSPENDED	208/1/60	1.56	MITSUBISHI PEFY	
FCU-17	265	30	0.38	R-410A	74.6	62.5	6.6	5.7	3.0	CEILING SUSPENDED	208/1/60	1.05	MITSUBISHI PEFY	
FCU-18	750	75	0.40	R-410A	74.3	62.3	17.9	15.9	8.1	CEILING SUSPENDED	208/1/60	2.24	MITSUBISHI PEFY	
FCU-19	240	N/A	N/A	R-410A	80.0	67.0	8.5	5.4	4.2	WALL	208/1/60	1.0	MITSUBISHI PKFY	12

NOTE:

1. UNIT SHALL UTILIZE A VARIABLE REFRIGERANT FLOW SYSTEM CONNECTED TO ACCU-02.

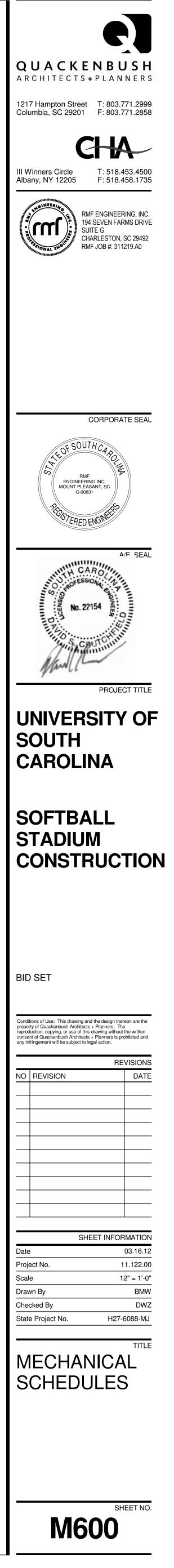
2. UNIT SHALL BE EQUIPPED WITH A CONDENSATE DISCHARGE PUMP, MITSUBISHI MODEL NUMBER SI1730-230. 3. UNIT IS PROVIDED WITH INTEGRAL CONDENSATE LIFT MECHANISM.

			D	X HEAT PU	JMP	SCH	EDUL	E					
	CAPACITY (MBH)	COMPRESSOR INDOOR											
DESIG.	0001100	No	FLA EACH	ELECTRIC (V/I/Hz)	Nia	RLA		DESIGN TE	EMP (°F DB)	REFRIGERANT	WEIGHT	BASIS OF DESIGN	
	COOLING	MOTOR			No		LRA	SUMMER	WINTER		LBS.		
ACCU-01	111.4	1	2.5	460/3/60	2	7.8	52.0	75	70	R-410A	510	TRANE OTA120E4	
ACCU-02	288	4	Х	460/3/60	4	37.9	-	72	70	R-410A	1500	MITSUBISHI PURY	
ACCU-07	30.0	1	0.75	208/1/60	1	12.0	14.0	72	70	R-410A	74	MITSUBISHI PUY	
ACCU-08	4.8	1	0.5	208/1/60	1	6.6	8.2	72	70	R-410A	74	MITSUBISHI SUZ	
ACCU-11	8.5	1	0.5	208/1/60	1	6.6	8.2	72	70	R-410A	74	MITSUBISHI MUZ	

		AIF	R DEVICE	E SCHED	ULE		
No CFM	SERVICE	TYPE	CFM	SIZE	BLOW	BASIS OF DESIGN	NECK SIZE
101	SUPPLY	LAY IN	0-150	24"x24"	4-WAY	TITUS PAS-AA	6" NECK
102	SUPPLY	LAY IN	151-250	24"x24"	4-WAY	TITUS PAS-AA	8" NECK
103	SUPPLY	LAY IN	251-320	24"x24"	4-WAY	TITUS PAS-AA	10" NECK
104	SUPPLY	LINEAR	150-300	4'-0" x 2 SLOT	15° DEFL	TITUS TBD-30	10" NECK
					-		
201	RETURN	CEILING FILTER GRILLE	0-100	24"x24"	-	TITUS 8FF	6" NECK
202	RETURN	CEILING FILTER GRILLE	101-175	24"x24"	-	TITUS 8FF	8" NECK
203	RETURN	CEILING FILTER GRILLE	176-275	24"x24"	-	TITUS 8FF	10" NECK
204	RETURN	CEILING FILTER GRILLE	276-400	24"x24"	-	TITUS 8FF	12" NECK
205	RETURN	CEILING FILTER GRILLE	401-525	24"x24"	-	TITUS 8FF	14" NECK
206	RETURN	CEILING FILTER GRILLE	526-700	24"x24"	-	TITUS 8FF	16" NECK
207	RETURN	LINEAR	300-400	4'-0" x 3-SLOT	-	TITUS TBR-30	10" NECK
301	EXHAUST	LAY IN	0-125	24"x24"	-	TITUS PAR-AA	6"x6" NECK
302	EXHAUST	LAY IN	126-225	24"x24"	-	TITUS PAR-AA	8"x8" NECK
303	EXHAUST	LAY IN	226-350	24"x24"	-	TITUS PAR-AA	10"x10" NECK
304	EXHAUST	LAY IN	351-500	24"x24"	-	TITUS PAR-AA	12"x12" NECK
305	EXHAUST	LAY IN	0-100	12"x12"	-	TITUS PAR-AA	6"x6" NECK
401	LOUVER	-	0-100	-			-
402	LOUVER	-	101-200	-			-
403	LOUVER	-	201-300	-			-
404	LOUVER	-	301-400	-			-
405	LOUVER	-	401-500	-			-
406	LOUVER	-	501-600	-			-
407	LOUVER	-	601-800	-			-
408	LOUVER	-	1800-2200	-			-
409	LOUVER	-	2000-3000	-			-
410	LOUVER	-	1750	-			-
411	LOUVER	-	3500	-			-

NOTE: 1. LOUVER SIZES ARE BASED ON A 50% FREE AREA OPENING AND AN AIR VELOCITY OF 500 FPM. 2. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL LOUVER LOCATION, SIZES, AND SPECIFICATIONS.

## DX FAN COIL UNIT SCHEDULE







	BUILDING DESIGN COMMISSIO	NING DATA
1.	OUTSIDE DESIGN CONDITIONS:	
	SUMMER (0.4%) : WINTER (99.6%) : EVAPORATION (0.4%) :	97°F DB/76°F WB 22°F DB 78°F
2.	GENERAL BUILDING CRITERIA	
	WALL U-FACTOR : GLASS U-FACTOR : GLASS SHADING COEFFICIENT : ROOF U-FACTOR :	0.061 0.260 0.690 0.040
3.	GENERAL BUILDING DESIGN LOAD REQUIREMENTS :	
	LIGHTING : PEOPLE : MISC EQUIPMENT :	1.1 - W/SF 250 BTUH/PERSON 1.5 - W/SF
4.	COMFORT HEATING :	70°F ± 5°F
5.	COMFORT COOLING & DEHUMIDIFICATION :	75°F ± 5°F/50% RH ± 10% RH
6.	MINIMUM BUILDING POSITIVE PRESSURE :	0.05"
7.	CODES: 2009 INTERNATIONAL BUILDING CODE 2009 INTERNATIONAL MECHANICAL CODE 2009 INTERNATIONAL PLUMBING CODE 2009 INTERNATIONAL FIRE CODE 2006 INTERNATIONAL ENERGY CONSERVATION CODE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS (LATEST EDITIONS) ASHRAE STANDARDS AND HANDBOOKS (LATEST EDITIONS) OWNER'S INSURANCE UNDERWRITER STANDARDS	

DUCT CONSTRUCTION AND LEAK TEST SCHEDULE											
	MAXIMUM	DUC									
DUCT SYSTEM	OPERATING PRESSURE INCH WG	CONSTRUCTION CLASS INCH WG	POSITIVE OR NEGATIVE	SMACNA DUCT SEAL CLASS	TEST REQUIRED YES/NO	TEST PRESSURE INCH WG	DUCT LEAK CLASS	REMARKS			
SUPPLY AIR	2"	2"	POSITIVE	В	NO	2"	12	(2)			
RETURN AIR	-2"	2"	NEGATIVE	В	NO	2"	12	3			
EXHAUST AIR	-2"	2"	NEGATIVE	В	NO	2"	12				

1 TEST PER SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, 1ST EDITION.

2 DOWNSTREAM OF UNIT (FROM FAN COIL UNIT TO AIR DEVICE).

(3) UPSTREAM OF UNIT.

