DRAWING NOTES

1. ROOF DRAIN AND ROOF DRAIN OVERFLOW LEADERS FROM ABOVE. DAYLIGHT ORD @ APPROX. 18" A.F.G. AND PROVIDE DOWNSPOUT NOZZLE (DN). DROP RD TO BELOW GRADE & ROUTE AS SHOWN. SEE SHEET PE-1A2 FOR CONTINUATION OF RD/ORD LEADER ABOVE.
2. 1/2" DCW RISES TO SERVE FIXTURE ABOVE. SEE SHEET PE-1A2 FOR FIXTURE LOCATION.
3. SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION.

FIRE PROTECTION NOTES

A. PROVIDE AND INSTALL COMPLETE FIRE PROTECTION SYSTEM INCLUDING BUT NOT LIMITED TO WET FIRE SPRINKLER SYSTEMS, GLYCOL SYSTEMS, ETC. AS REQUIRED FOR COMPLETE COVERAGE OF BUILDING.

B. REFER TO AND ADHERE TO ALL DRAWINGS, SPECIFICATIONS, ADDENDUMS, ETC., THAT CREATE THE CONTRACT DOCUMENTS.

C. SPRINKLER HEADS SHALL BE LOCATED AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. HEAD SHALL BE CENTERED IN TILES AND SYMMETRICALLY SPACED UNLESS OTHERWISE INDICATED ON REFLECTED CEILING PLANS. WHERE HEADS ARE NOT SHOWN, THEY SHALL BE SYMMETRICALLY SPACED. PROVIDE COMPLETE COVERAGE IN ALL CASES.

D. SPRINKLER CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS, AND SHALL ROUTE THE SPRINKLER PIPING SO AS TO MISS OTHER SYSTEMS. RAISE, LOWER AND OFFSET AS REQUIRED.

3" DN @ 18" A.F.G. COTG 3 3" SD
3" RD/ORD DOWN
3" RD 3" ORD
335 @ 1/8"SLOPE
TRASH A1119
CHILLER A1111
GENERATOR A1112
DN
CO
FD-1
3" VTR
4"
3"
CHWP 1 CHWP 2
GMU 1
HB-1
B 1 B 2 BOILERS
FS-2
DOCK A0176
MECHANICAL A1077
6" DN @ 18" A.F.G.
1 ET COTG
6"SD
HWP 1 HWP 2
WH
CA BRANCH CHIEF 1054
CA TNG CO A1056
LDR TNG CO A1057
OCS STAFF A1058
LDR TNG CO BRANCH CHIEF 1053
CORRIDOR A1055
OCS CDR A1059
OCS CLASSROOM A1060
RECEIVING A1075
SUPPLY STORAGE A1076
ISSUE / RECEIVING A1074
CORRIDOR A1080
STAIRS A1091
UP
3/4"
CORRIDOR A1041
SUPPLY NCO'S A1074
CLOSET A1073
ELEC A1072
CLOSET A1111
4"
WCO 2
3" WASTE FROM ABOVE
SERVICE HALL A1070
1 1/2"
1/2"
BILLETING A1082
CORRIDOR A1044
CLOSET A1050
CLOSET A1049
STOR A1042
STOR A1040
STOR A1039
CORRIDOR A1051
2ND BN NCOIC A1048
2ND BN CDR A1047
CORRIDOR A1045
CLASSROOM A1043
STORAGE A1038
2ND BN OPS SGT A1046
STAIRS A1092
UP
CLASSROOM A1061
54 / FBO A1071
CORRIDOR A1062
OPS SGT A1065
OPS STORAGE A1064
STUDENT ADMIN. OPS SPT A1063
OPS SGM A1064
WORK AREA A1066
S3 A1067
VAULT A1068
CORRIDOR A1055
STORAGE A1083
6" DN @ 18" A.F.G.
6" SD
2 3 COTG
WH
MEDICS A1086
CORRIDOR A1036
CORRIDOR A1042
SEE LARGE SCALE PLUMBING PLAN-A, SHEET PE-4A1 FOR PLUMBING IN THIS AREA.
SEE LARGE SCALE PLUMBING PLAN-B, SHEET PE-4A1 FOR PLUMBING IN THIS AREA.
WOMEN A1034
MEN A1035
AUTOMATION NCO'S A1023
COMP STORAGE A1022
GA A1021
WOMEN A1091
ELEV A1090
LATRINE A1087
CADRE BREAK ROOM A1084
EXAM RM A1088
CUSTODIAL A1094
CHASE A1093
ELEV EQUIP A1095
MEN A1096
GARAGE A1097
SI OPEN OFFICE A1100
SI OFFICE A1101
SHOWERS A1033
CORRIDOR A1026
BDE ROOM A1024
ELEC A1025
TEST CONTROL STORAGE A1020
TOC OFFICE A1019
4"
4"
4"
STAIRS A1032
UP
CLOSET A1013
AD A1014
CLOSET A1017
OFFICE STORAGE A1016
CLOSET A1015
DRILL FLOOR A1097
VEST'B A1027
HHD CDR & ISR A1012
CORRIDOR A1018
CORRIDOR A1096
1"
SHOWERS A1031
CHASE A1029
BREAK ROOM A1048
SI OFFICE A1103
SI OFFICE A1102
CORRIDOR A1017
CLOSET A1009
CLOSET A1007
CLOSET A1008
REST CBM A1006
STAFF DUTY A1004
STAIRS A1002
UP
ASSIST CMDT A1105
OPEN OFFICE A1104
CLOSET A1106
CLOSET A1107
CLOSET A1110
6" DN @ 18" A.F.G.
3 COTG
6" SD
STORAGE A1030
MECH A1010
REST CDR A1028
CONFERENCE ROOM A1005
LOBBY A1001
1ST BN OPS SGT A1104
1ST BN CMDT A1108
VESTIBULE A1000
3"SD
3 COTG
3" RD/SRD LEADER FROM ABOVE. SEE SHEET PE-1A2 FOR CONTINUATION.
3" DN @ 18" A.F.G.
BUILDING INVERT = 93'-0" GAS METER
6" SS
COTG 3
6" DN @ 18" A.F.G.
3 COTG
6"SD
6" FIRE PROTECTION
3" BUILDING WATER SUPPLY
NOTE: FOR PENETRATIONS THRU WALL AND FLOOR, REFERENCE FIRE STOP DETAILS ON ARCHITECTURAL SHEET G1-0A1.

FIRST FLOOR PLUMBING/FP PLAN

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

10 5 0 10 20

LICENSED PROFESSIONAL ENGINEER No. 270896 ROBERT JACK KESLER STATE OF UTAH

State of Utah
Department of Administrative Services

DFCM

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BUILDING NAME:
ADMINISTRATION

PROJECT TITLE:
TASS COMPLEX
CAMP WILLIAMS
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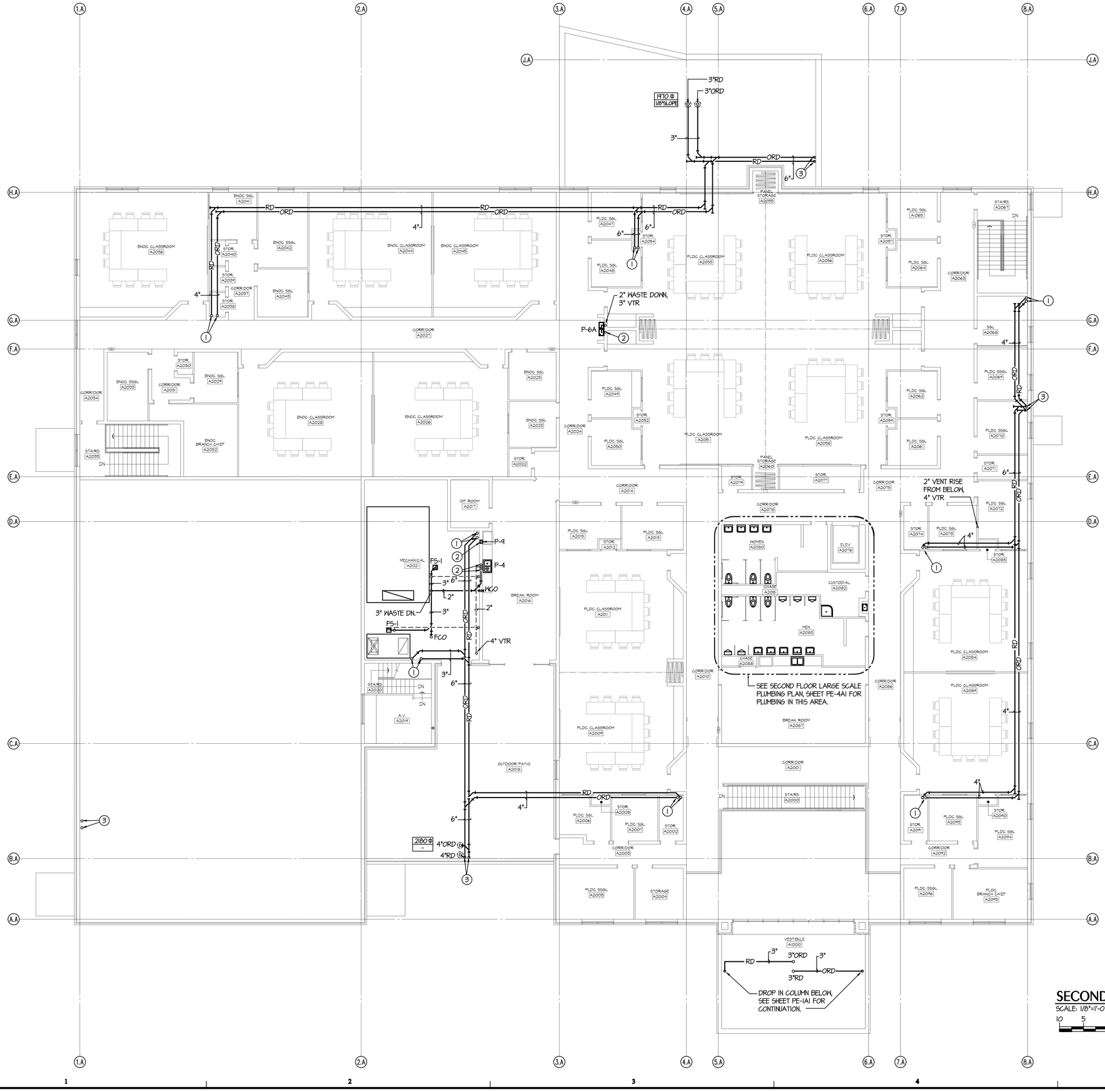
SHEET TITLE
ADMININISTRATION AND EDUCATION BUILDING
FIRST FLOOR
PLUMBING PLAN

SHEET NUMBER
PE-1A1
80 OF 146



DRAWING NOTES

1. ROOF DRAIN AND OVERFLOW ROOF DRAIN LEADERS FROM ABOVE, DROP TO FIRST FLOOR CEILING SPACE. SEE SHEET PE-1A3 FOR CONTINUATION.
2. HOT AND/OR COLD WATER FROM BELOW TO SERVE FIXTURES. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-A FOR CONTINUATION.
3. ROOF DRAIN AND OVERFLOW ROOF DRAIN LEADERS DOWN. SEE SHEET PE-1A1 FOR CONTINUATION.

FIRE PROTECTION NOTES

A. PROVIDE AND INSTALL COMPLETE FIRE PROTECTION SYSTEM INCLUDING BUT NOT LIMITED TO WET FIRE SPRINKLER SYSTEMS, GLYCOL SYSTEMS, ETC. AS REQUIRED FOR COMPLETE COVERAGE OF BUILDING.

B. REFER TO AND ADHERE TO ALL DRAWINGS, SPECIFICATIONS, ADDENDUMS, ETC., THAT CREATE THE CONTRACT DOCUMENTS.

C. SPRINKLER HEADS SHALL BE LOCATED AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. HEAD SHALL BE CENTERED IN TILES AND SYMMETRICALLY SPACED UNLESS OTHERWISE INDICATED ON REFLECTED CEILING PLANS. WHERE HEADS ARE NOT SHOWN, THEY SHALL BE SYMMETRICALLY SPACED. PROVIDE COMPLETE COVERAGE IN ALL CASES.

D. SPRINKLER CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS, AND SHALL ROUTE THE SPRINKLER PIPING SO AS TO MISS OTHER SYSTEMS. RAISE, LOWER AND OFFSET AS REQUIRED.

SECOND FLOOR PLUMBING PLAN

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

10 5 0 10 20

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STATE OF UTAH

SHEET TITLE

ADMININISTRATION AND EDUCATION BUILDING SECOND FLOOR PLUMBING PLAN

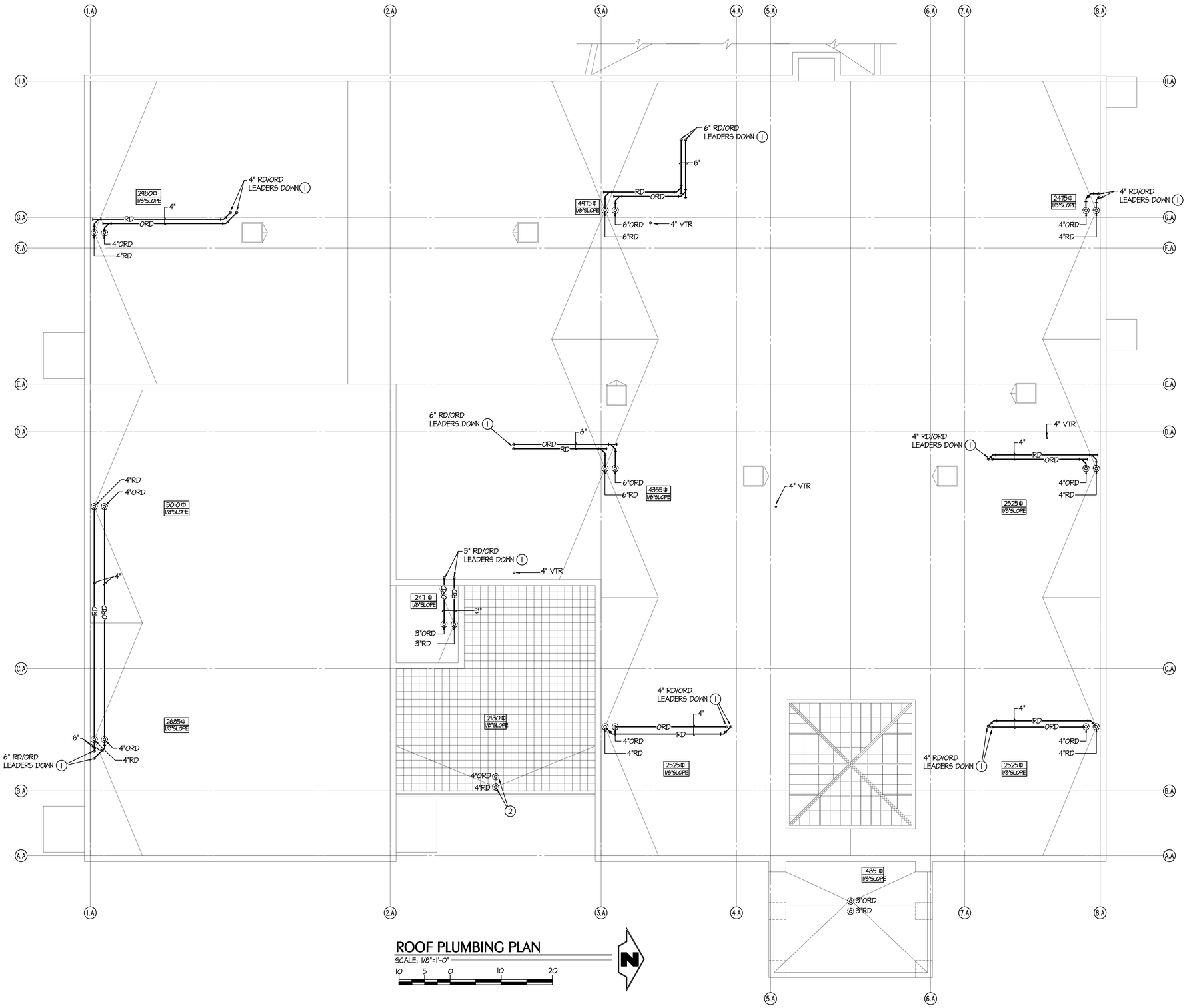
SHEET NUMBER

PE-1A2

81 OF 146

DRAWING NOTES

1. SEE SHEET PE-1A2 FOR CONTINUATION.
2. SEE SHEET PE-1A2 FOR ROOF DRAIN PIPING OF DECK AREA.



ROOF PLUMBING PLAN

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

10 5 0 10 20

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ADMININISTRATION AND EDUCATION BUILDING ROOF PLUMBING PLAN

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

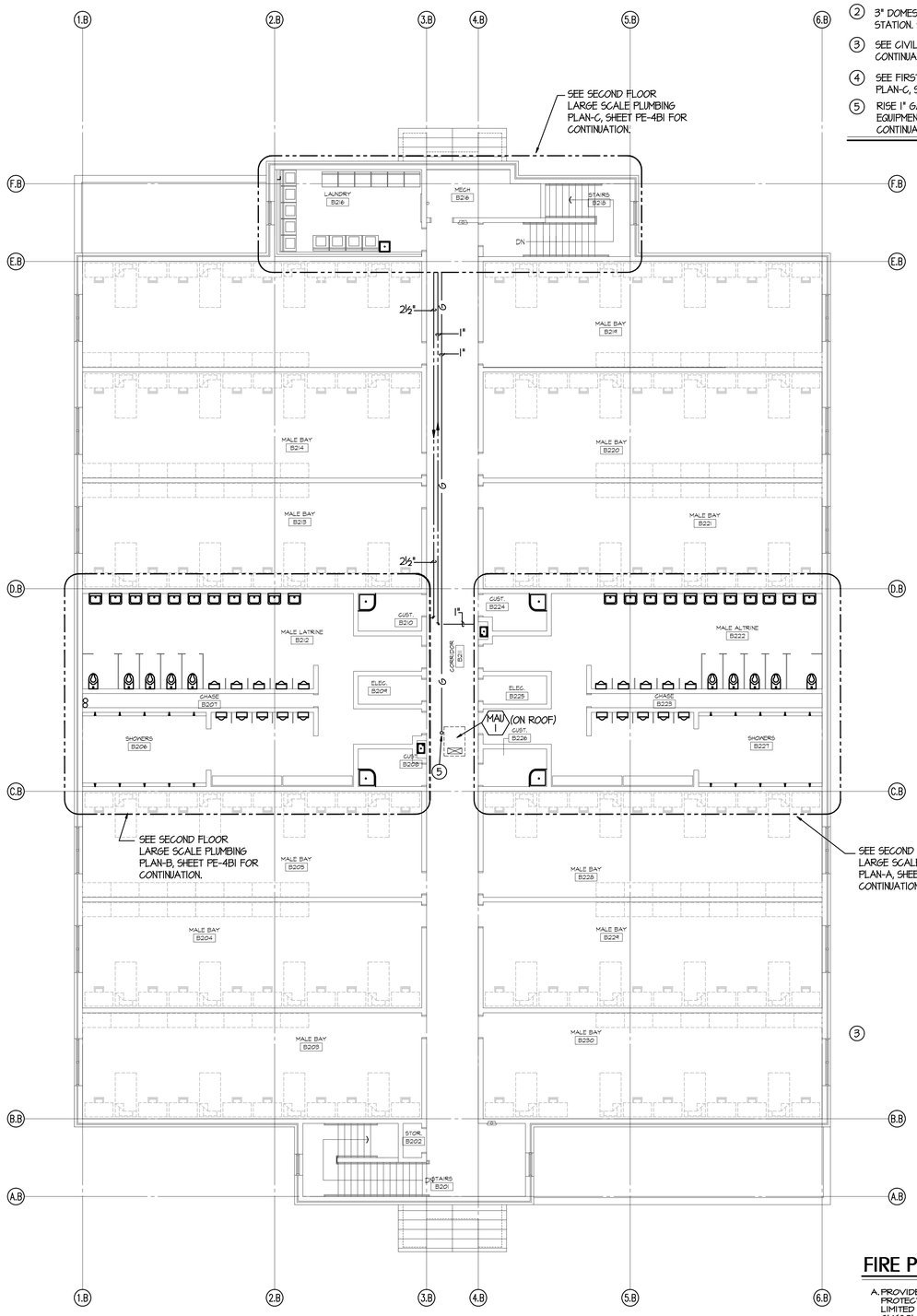
SHEET NUMBER

PE-1A3

82 OF 146

DRAWING NOTES

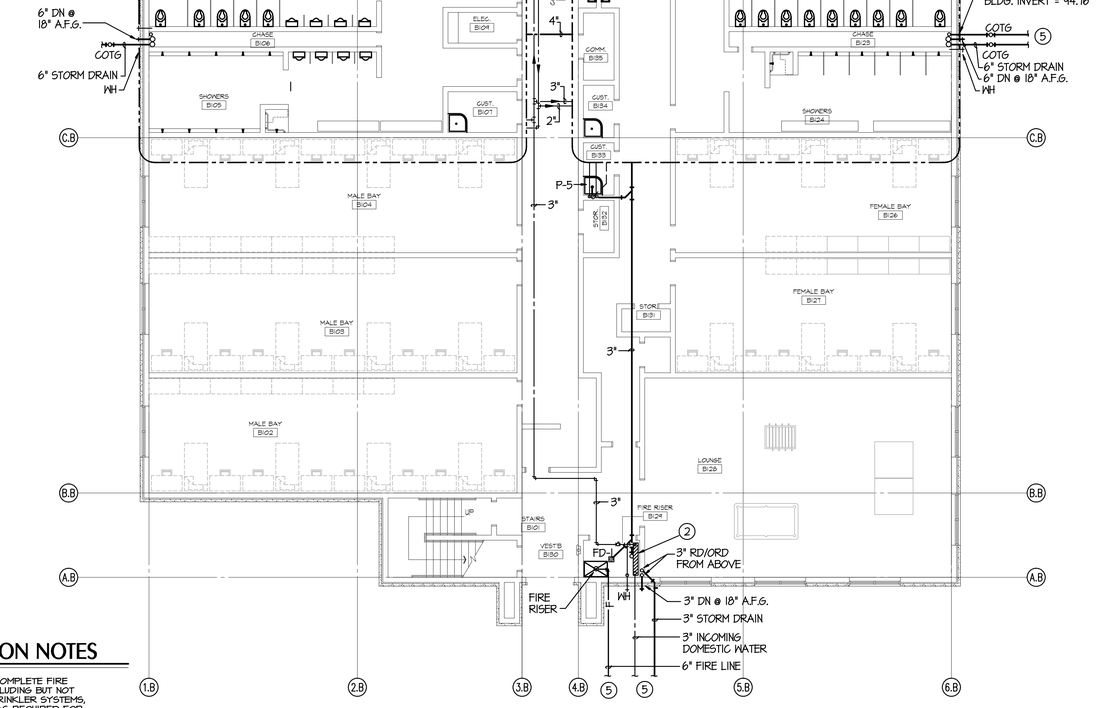
1. NEW GAS METER TO PROVIDE 4415 CFH @ 2 PSI PRESSURE TO BUILDING.
2. 3" DOMESTIC WATER PRESSURE REDUCING STATION. SEE DETAIL 2, SHEET PE-5B1.
3. SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION.
4. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-C, SHEET PE-4B1 FOR CONTINUATION.
5. RISE 1" GAS THRU ROOF TO ROOFTOP EQUIPMENT. SEE SHEET PE-1B2 FOR CONTINUATION.



SECOND FLOOR PLUMBING PLAN

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

10 5 0 10 20



FIRE PROTECTION NOTES

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D. SPRINKLER CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS, AND SHALL ROUTE THE SPRINKLER PIPING SO AS TO MISS OTHER SYSTEMS. RAISE, LOWER AND OFFSET AS REQUIRED.

NOTE:
FOR PENETRATIONS THRU WALL AND FLOOR, REFERENCE FIRE STOP DETAILS ON ARCHITECTURAL SHEET G1-0B1.

FIRST FLOOR PLUMBING PLAN

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

10 5 0 10 20

LICENSED PROFESSIONAL ENGINEER
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ROBERT JACK KESLER
STATE OF UTAH

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BAY BILLETING BUILDING PLUMBING FLOOR PLANS

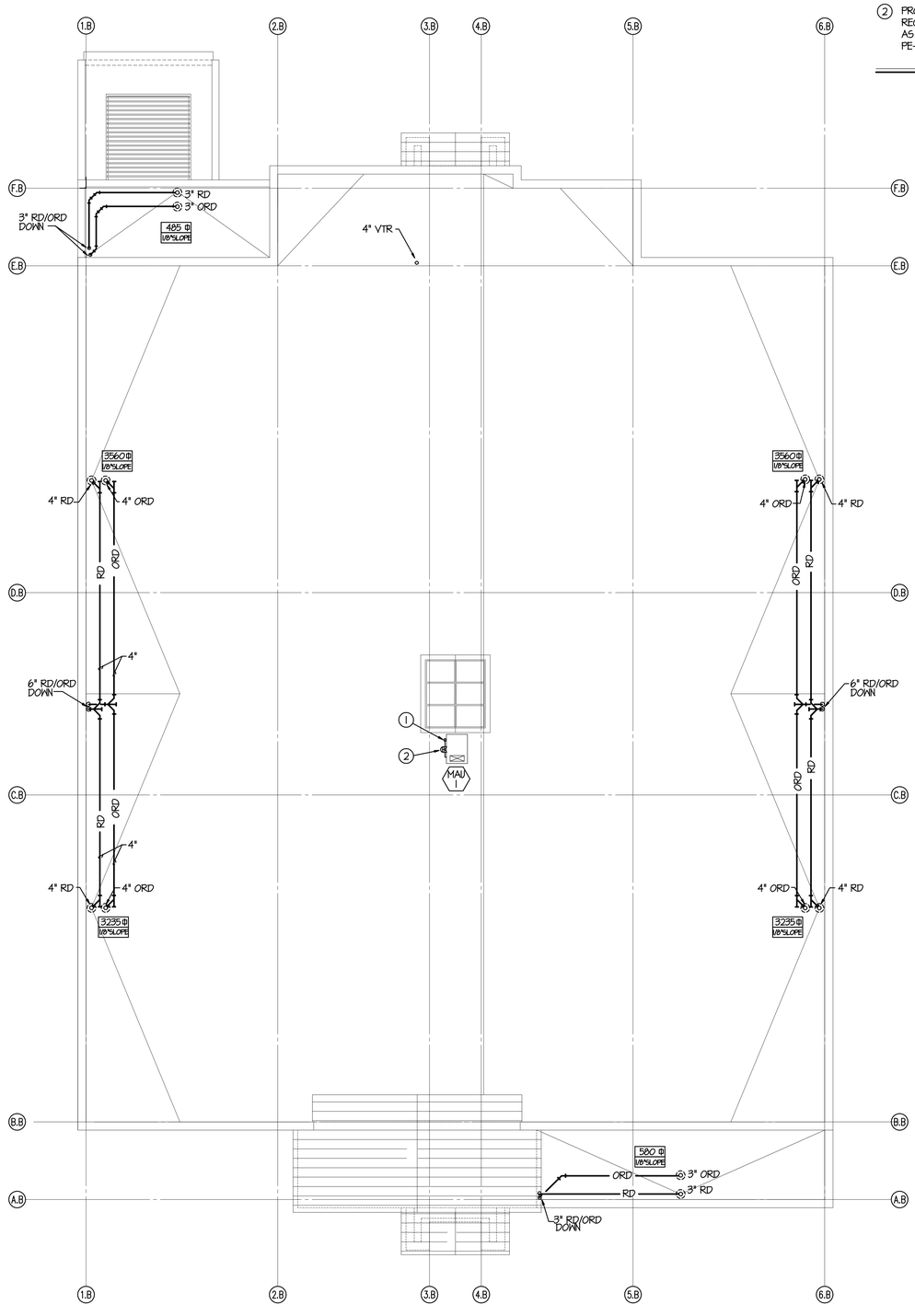
SHEET NUMBER

PE-1B1

83 OF 146

DRAWING NOTES

1. 1" GAS FROM BELOW, SEE SHEET PE-1B1 FOR CONTINUATION.
2. PROVIDE 2 PSI TO 4 OUNCE GAS PRESSURE REGULATOR. MAKE CONNECTION TO EQUIPMENT AS REQUIRED. SEE GAS FLOW DIAGRAM, SHEET PE-6B1.



ROOF PLUMBING PLAN

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

10 5 0 10 20

N

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

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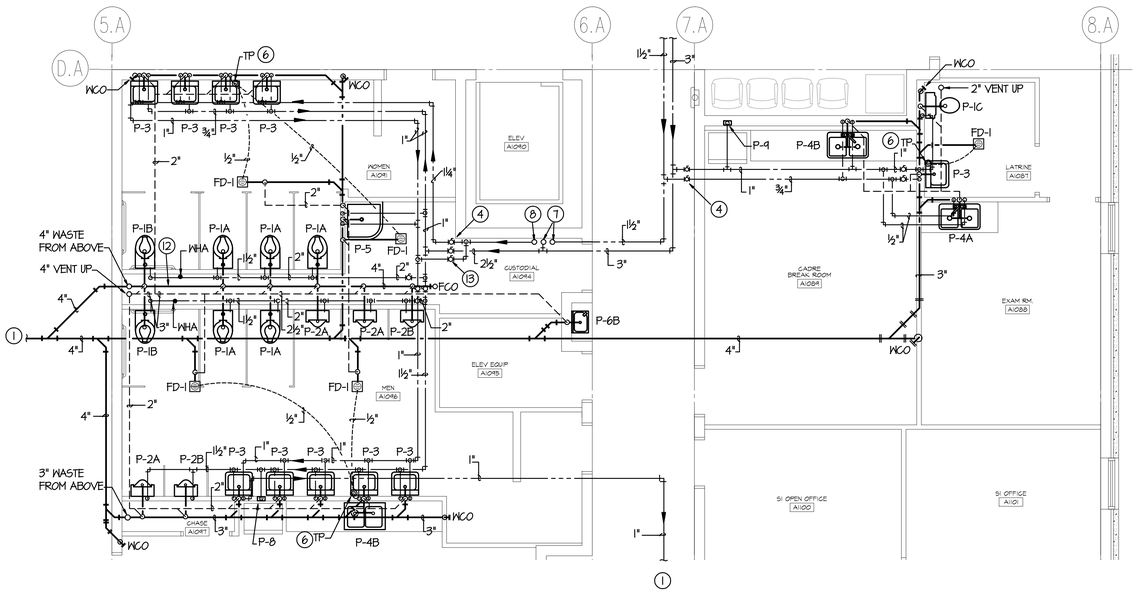
BAY BILLETING BUILDING
ROOF PLUMBING PLAN

SHEET NUMBER

PE-1B2

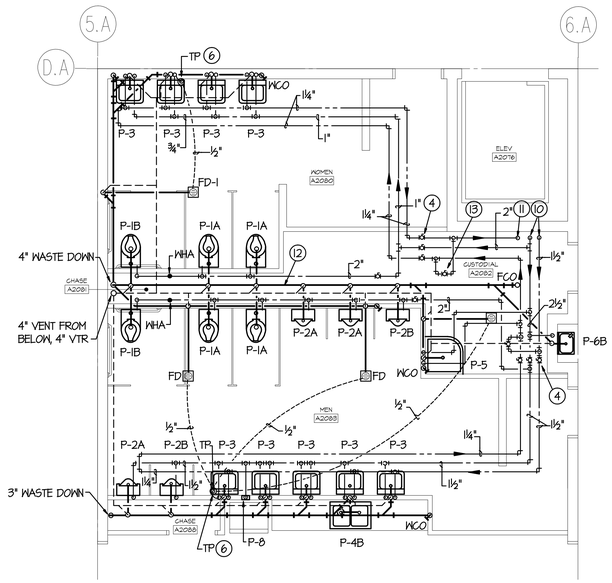


FIRST FLOOR
LARGE SCALE PLUMBING PLAN - B

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

5 0 10

SEE SHEET PE-4A1 FOR PIPING ISOMETRICS

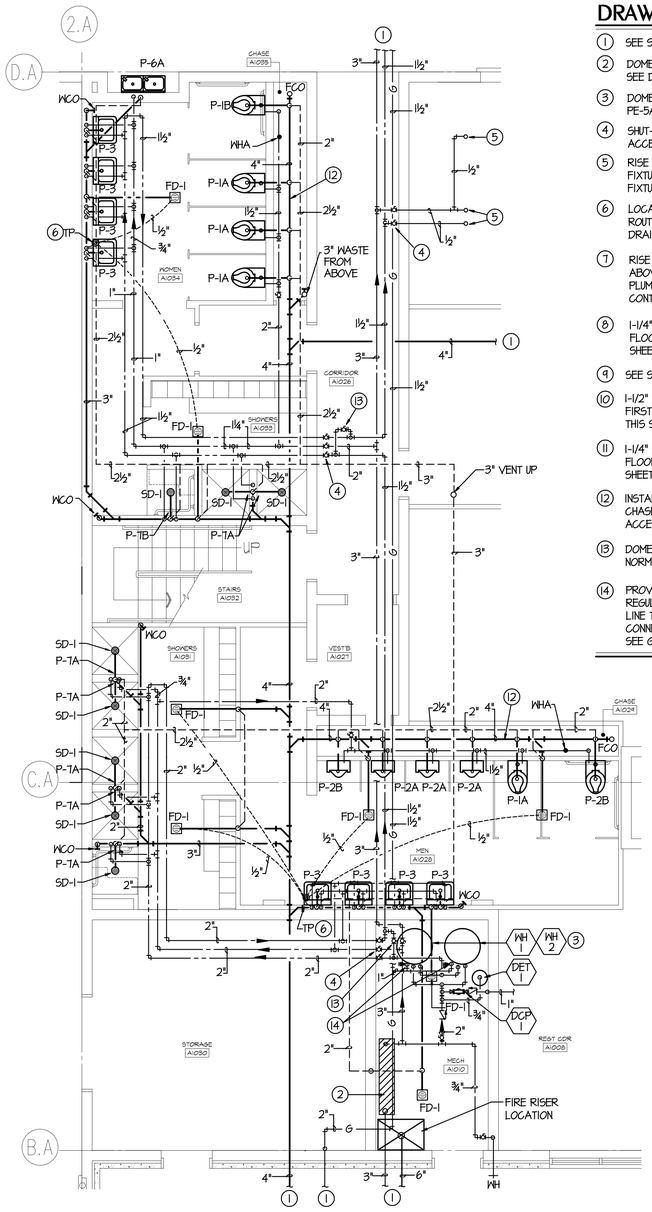


SEE SHEET PE-4A1 FOR PIPING ISOMETRICS

SECOND FLOOR
LARGE SCALE PLUMBING PLAN

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

5 0 10



SEE SHEET PE-4A1 FOR PIPING ISOMETRICS

FIRST FLOOR
LARGE SCALE PLUMBING PLAN - A

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

5 0 10

DRAWING NOTES

1. SEE SHEET PE-1A1 FOR CONTINUATION.
2. DOMESTIC WATER PRESSURE REDUCING STATION, SEE DETAIL 2, SHEET PE-5A1.
3. DOMESTIC WATER HEATERS, SEE DETAIL 1, SHEET PE-5A1.
4. SHUT-OFF VALVES, TYPICAL. LOCATE IN ACCESSIBLE LOCATION.
5. RISE HOT AND/OR COLD WATER TO SERVE FIXTURES ABOVE. SEE SHEET PE-1A2 FOR FIXTURE LOCATIONS.
6. LOCATE TRAP PRIMER BELOW LAVATORY. ROUTE 1/2" DCW BELOW FLOOR TO FLOOR DRAIN.
7. RISE 1-1/2" DHW AND 2-1/2" DCW TO FLOOR ABOVE. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN, THIS SHEET FOR CONTINUATION.
8. 1-1/4" DHW FROM FLOOR ABOVE, SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN, THIS SHEET FOR CONTINUATION.
9. SEE SHEET PE-1A2 FOR CONTINUATION.
10. 1-1/2" DHW AND 2-1/2" FROM FLOOR BELOW. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN, THIS SHEET FOR CONTINUATION.
11. 1-1/4" DHW DROPS TO FLOOR BELOW. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN, THIS SHEET FOR CONTINUATION.
12. INSTALL CARRIERS, PIPING, ETC. IN PLUMBING CHASE TIGHT TO ONE SIDE TO ALLOW FULL ACCESS TO CHASE.
13. DOMESTIC HOT WATER BYPASS VALVE, NORMALLY CLOSED.
14. PROVIDE 2 PSI TO 4 OUNCE GAS PRESSURE REGULATOR WITH VENT LIMITING DEVICE ON GAS LINE TO WATER HEATER. MAKE GAS CONNECTIONS TO WATER HEATER AS REQUIRED. SEE GAS FLOW DIAGRAM ON SHEET PE-6A1.

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UTAH NATIONAL GUARD

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Final Bid Documents

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April 16, 2007

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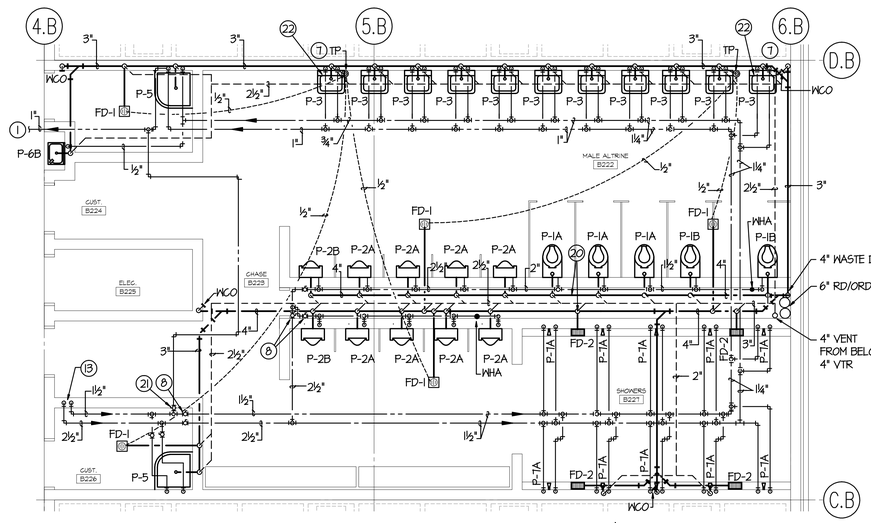
ADMININISTRATION AND EDUCATION BUILDING
LARGE SCALE
PLUMBING PLANS

SHEET NUMBER

PE-4A1

85 OF 146

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KISSLER
STATE OF UTAH

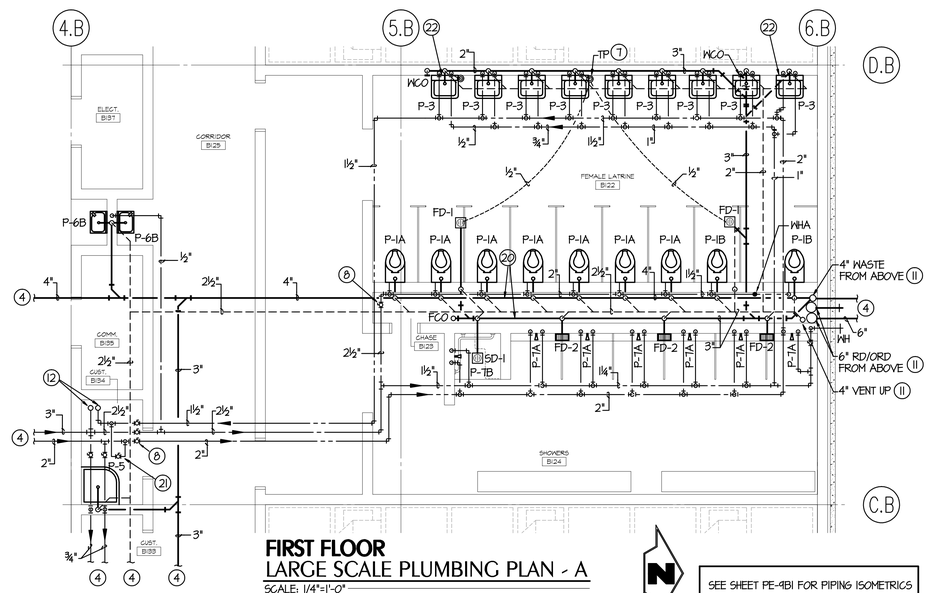


SECOND FLOOR
LARGE SCALE PLUMBING PLAN - A

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

5 0 10

SEE SHEET PE-4B1 FOR PIPING ISOMETRICS



FIRST FLOOR
LARGE SCALE PLUMBING PLAN - A

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

5 0 10

SEE SHEET PE-4B1 FOR PIPING ISOMETRICS

SECOND FLOOR
LARGE SCALE PLUMBING PLAN - B

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

5 0 10

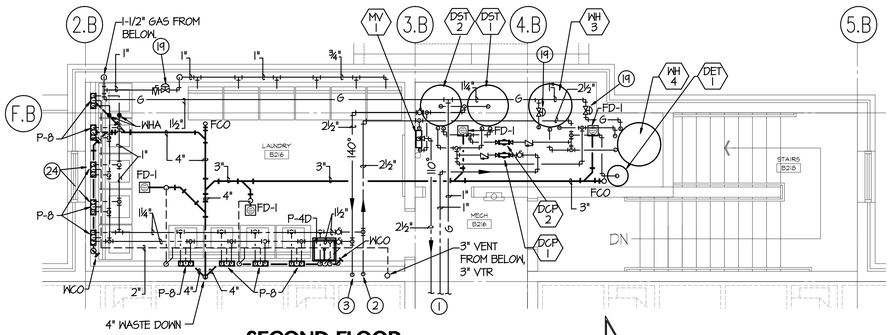
SEE SHEET PE-4B1 FOR PIPING ISOMETRICS

FIRST FLOOR
LARGE SCALE PLUMBING PLAN - B

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

5 0 10

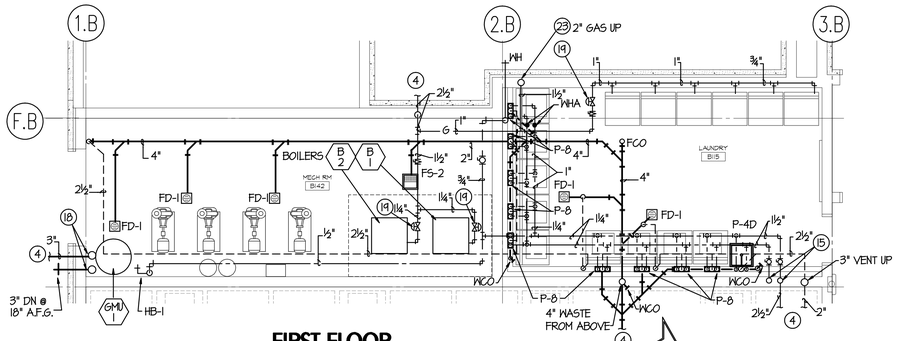
SEE SHEET PE-4B1 FOR PIPING ISOMETRICS



SECOND FLOOR
LARGE SCALE PLUMBING PLAN - C

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

5 0 10



FIRST FLOOR
LARGE SCALE PLUMBING PLAN - C

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

5 0 10

DRAWING NOTES

1. SEE SECOND FLOOR PLUMBING PLAN, SHEET PE-1B1 FOR CONTINUATION.
2. 2-1/2" DCW FROM BELOW, SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-C, THIS SHEET FOR CONTINUATION.
3. 1-1/4" DHW DROPS TO FLOOR BELOW. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-C, THIS SHEET FOR CONTINUATION.
4. SEE FIRST FLOOR PLUMBING PLAN, SHEET PE-1B1 FOR CONTINUATION.
5. 2" DHW AND 2-1/2" DCW RISERS. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-B, THIS SHEET FOR CONTINUATION.
6. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-B, THIS SHEET FOR CONTINUATION.
7. LOCATE TRAP PRIMER UNDER LAVATORY. ROUTE 1/2" DCW TO FLOOR DRAIN AS SHOWN.
8. SHUT-OFF VALVE, LOCATE IN AN ACCESSIBLE LOCATION. TYPICAL.
9. 2" DHW AND 2-1/2" DCW RISERS. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-B, THIS SHEET FOR CONTINUATION.
10. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-B, THIS SHEET FOR CONTINUATION.
11. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-A, THIS SHEET FOR CONTINUATION.
12. 2-1/2" DCW AND 1-1/2" DHW RISERS. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-A, THIS SHEET FOR CONTINUATION.
13. 2-1/2" DCW AND 1-1/2" DHW RISERS. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-A, THIS SHEET FOR CONTINUATION.
14. SEE FIRST FLOOR LARGE SCALE PLUMBING PLAN-A, THIS SHEET FOR CONTINUATION.
15. 2-1/2" DCW & 1-1/2" DHW RISERS, SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-C, THIS SHEET FOR CONTINUATION.
16. SEE PLUMBING ROOF PLAN, SHEET PE-1B2 AND FIRST FLOOR LARGE SCALE PLUMBING PLAN-A FOR CONTINUATION.
17. SEE PLUMBING ROOF PLAN, SHEET PE-1B2 AND FIRST FLOOR LARGE SCALE PLUMBING PLAN-B FOR CONTINUATION.
18. SEE PLUMBING ROOF PLAN, SHEET PE-1B2 FOR CONTINUATION.
19. 2 PSI TO 4 OUNCE GAS PRESSURE REGULATOR WITH VENT LIMITING DEVICE. SEE GAS FLOW DIAGRAM, SHEET PE-6B1.
20. INSTALL CARRIERS, PIPING, ETC. IN PLUMBING CHASE TIGHT TO EACH SIDE TO ALLOW FULL ACCESS TO CHASE.
21. DOMESTIC HOT WATER BYPASS VALVE, NORMALLY CLOSED.
22. PROVIDE ADA INSULATION ON THIS SINK ONLY. SEE SPECIFICATION FOR MANUFACTURER AND TYPE.
23. SEE SECOND FLOOR LARGE SCALE PLUMBING PLAN-C FOR CONTINUATION.
24. ROUTE WATER AND VENT PIPING IN THIS AREA TO AVOID CONFLICT WITH THE WINDOW.

State of Utah
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Provo, Utah, 84601
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Fax: (801) 374-0805

BUILDING NAME:

BILLETING

PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

UTAH NATIONAL GUARD

MARK	DATE	DESCRIPTION

ISSUE TYPE:
Final Bid Documents

ISSUE DATE:
April 16, 2007

DFCM PROJECT NO:	95059480
CAD PROJECT NO:	
CAD DWG FILE:	
DRAWN BY:	GWM
CHK'D BY:	RJK
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SHEET TITLE

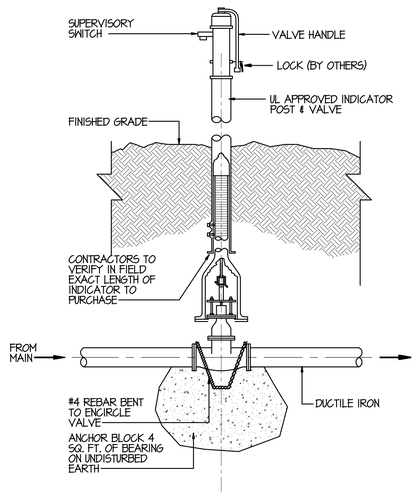
BAY BILLETING BUILDING
LARGE SCALE
PLUMBING PLANS

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

SHEET NUMBER

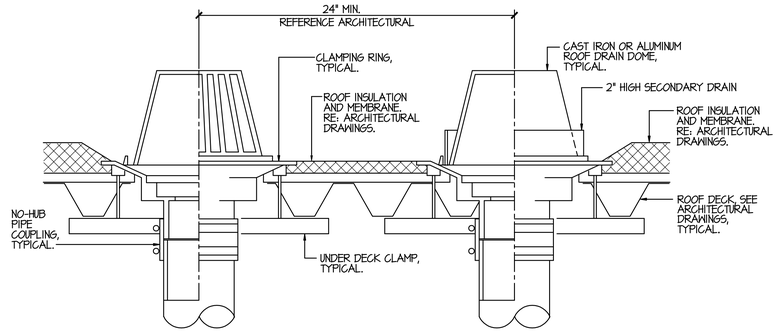
PE-4B1

86 OF 146



POST INDICATOR VALVE DETAIL

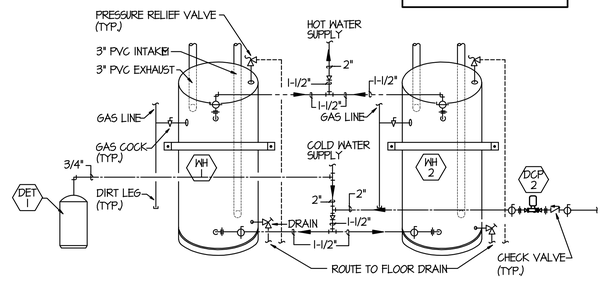
SCALE: NONE — 9 / PE-5A1



ROOF DRAIN DETAIL

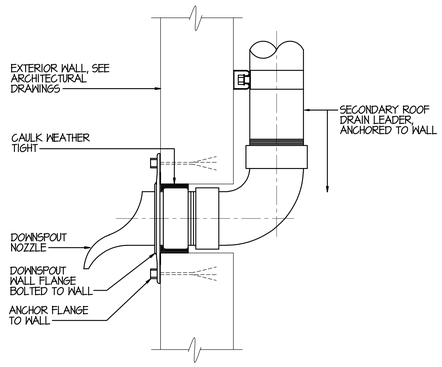
SCALE: NONE — 5 / PE-5A1

NOTE:
PROVIDE SEISMIC BRACING PER STATE CODE REQUIREMENTS. SEE 2003 IPC CHAPTER 5 "WATER HEATER" AND STATE AMENDMENTS.



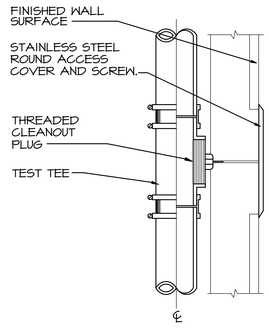
WATER HEATER DETAIL

SCALE: NONE — 1 / PE-5A1



DOWNSPOUT NOZZLE AT WALL DETAIL

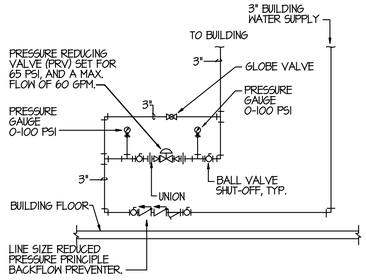
SCALE: NONE — 7 / PE-5A1



WALL CLEANOUT DETAIL

SCALE: NONE — 6 / PE-5A1

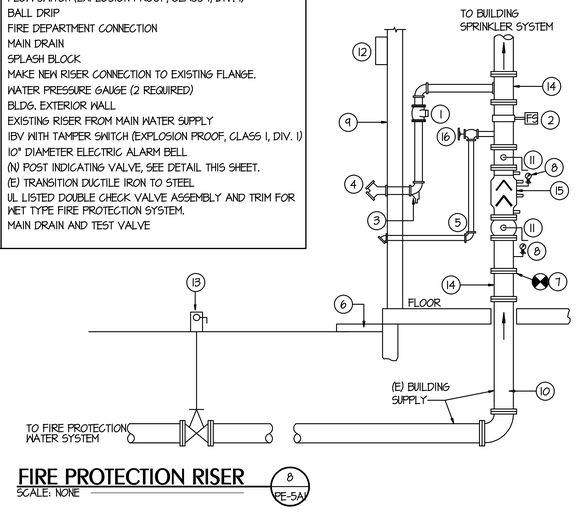
MOUNTING HEIGHT CHART	
LOCATION DESCRIPTION	CENTERLINE HEIGHT
URINAL	48"
LAVATORY	12"
SINK	12"
GENERAL WALL	12"
NOTE: COORDINATE WITH ARCHITECT PRIOR TO INSTALLING AT A HEIGHT OTHER THAN THAT LISTED ABOVE.	



PRV STATION DETAIL

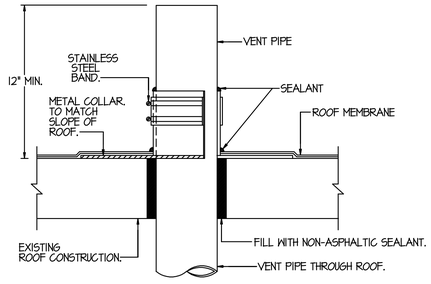
SCALE: NONE — 2 / PE-5A1

ITEM	DESCRIPTION
1.	CHECK VALVE
2.	FLOW SWITCH (EXPLOSION PROOF, CLASS I, DIV. I)
3.	BALL DRIP
4.	FIRE DEPARTMENT CONNECTION
5.	MAIN DRAIN
6.	SPLASH BLOCK
7.	MAKE NEW RISER CONNECTION TO EXISTING FLANGE.
8.	WATER PRESSURE GAUGE (2 REQUIRED)
9.	BLDG. EXTERIOR WALL
10.	EXISTING RISER FROM MAIN WATER SUPPLY
11.	IBV WITH TAMPER SWITCH (EXPLOSION PROOF, CLASS I, DIV. I)
12.	10" DIAMETER ELECTRIC ALARM BELL
13.	(N) POST INDICATING VALVE, SEE DETAIL THIS SHEET.
14.	(E) TRANSITION DUCTILE IRON TO STEEL
15.	UL LISTED DOUBLE CHECK VALVE ASSEMBLY AND TRIM FOR WET TYPE FIRE PROTECTION SYSTEM.
16.	MAIN DRAIN AND TEST VALVE



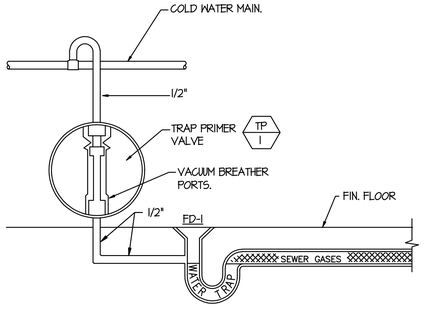
FIRE PROTECTION RISER

SCALE: NONE — 8 / PE-5A1



VENT THRU ROOF DETAIL

SCALE: NONE — 3 / PE-5A1



TRAP PRIMER DETAIL

SCALE: NONE — 4 / PE-5A1

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KISLER
STATE OF UTAH

State of Utah
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BUILDING NAME:
ADMINISTRATION

PROJECT TITLE:
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MARK	DATE	DESCRIPTION

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DFCM PROJECT NO: 95059480
CAD PROJECT NO:
CAD DWG FILE:
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SHEET TITLE
ADMININISTRATION AND EDUCATION BUILDING PLUMBING DETAILS

SHEET NUMBER
PE-5A1
87 OF 146

ITEM	DESCRIPTION
1.	CHECK VALVE
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5.	MAIN DRAIN
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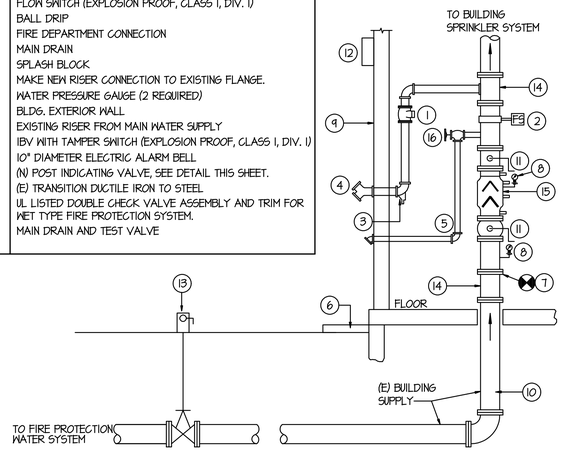
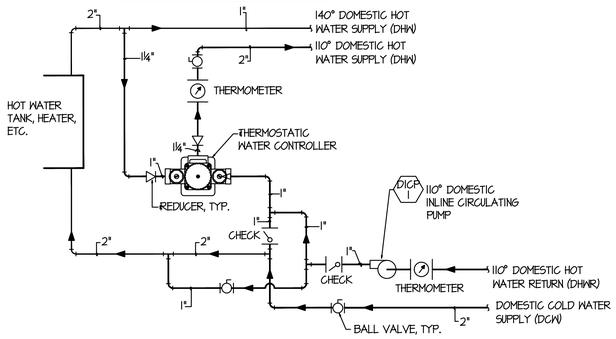


FIRE PROTECTION RISER
SCALE: NONE — 9 / PE-5B1

DETAIL BASED ON SYMMONS MODEL MIXING VALVE. CONTRACTOR TO INSTALL PIPING TO MIXING VALVE ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PIPING DIAGRAMS.



MIXING VALVE DETAIL
SCALE: NONE — 5 / PE-5B1

NOTE:
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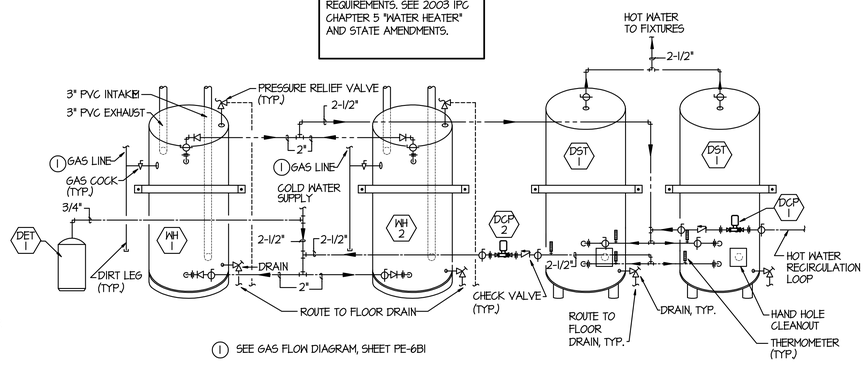
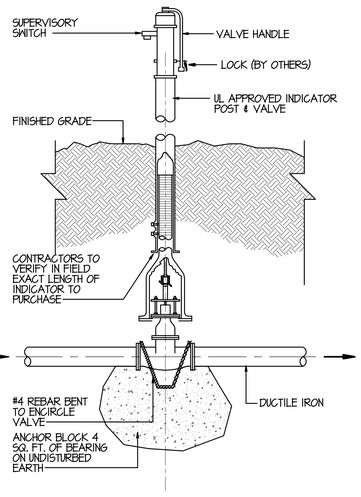
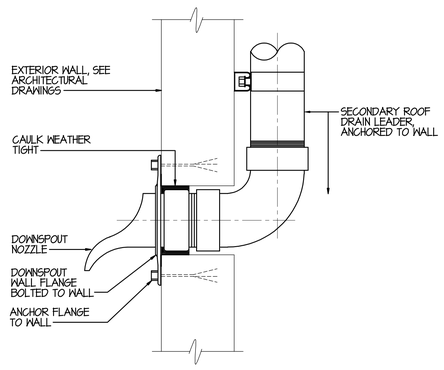


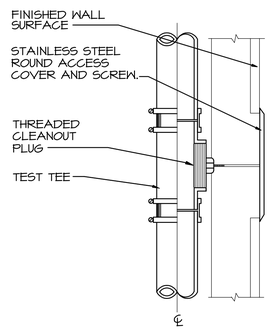
WATER HEATER DETAIL
SCALE: NONE — 1 / PE-5B1



POST INDICATOR VALVE DETAIL
SCALE: NONE — 10 / PE-5B1



DOWNSPOUT NOZZLE AT WALL DETAIL
SCALE: NONE — 7 / PE-5B1



WALL CLEANOUT DETAIL
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MOUNTING HEIGHT CHART	
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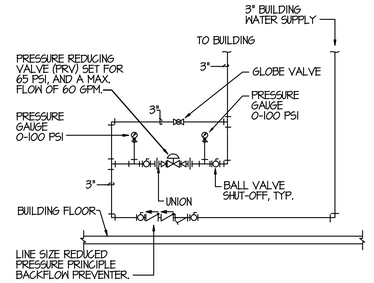
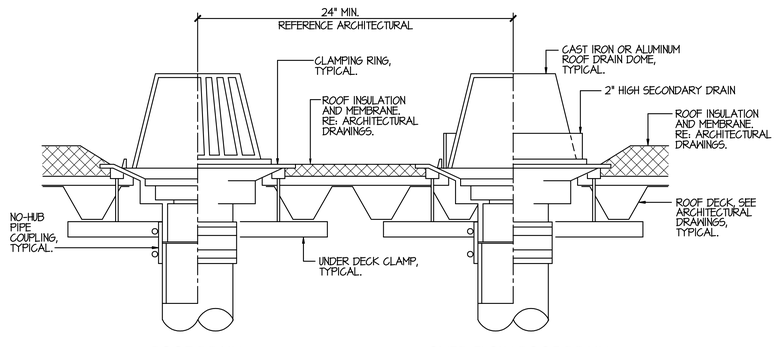
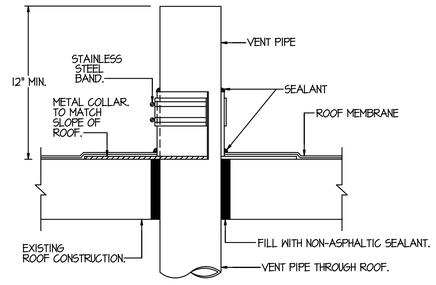


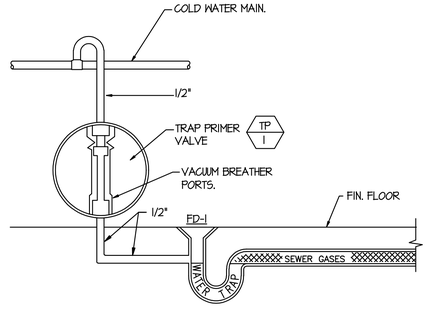
PRV STATION DETAIL
SCALE: NONE — 2 / PE-5B1



ROOF DRAIN DETAIL
SCALE: NONE — 8 / PE-5B1



VENT THRU ROOF DETAIL
SCALE: NONE — 3 / PE-5B1



TRAP PRIMER DETAIL
SCALE: NONE — 4 / PE-5B1

LICENSED PROFESSIONAL ENGINEER — No. 270896 — ROBERT JACK KESLER — STATE OF UTAH

State of Utah
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BUILDING NAME:
BILLETING

PROJECT TITLE:
TASS COMPLEX
CAMP WILLIAMS
UTAH NATIONAL GUARD

MARK	DATE	DESCRIPTION

ISSUE TYPE: Final Bid Documents

ISSUE DATE: April 16, 2007

DFCM PROJECT NO: 95059480
CAD PROJECT NO:
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DRAWN BY:
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SHEET TITLE
BAY BILLETING BUILDING PLUMBING DETAILS

SHEET NUMBER
PE-5B1
88 OF 146

GAS FIRED WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL NO.	SERVICE	TYPE	FUEL TYPE/ PRESSURE	STORAGE CAPACITY (GAL.)	RECOVERY RATE (100° RISE) (GPH)	INPUT CAPACITY (BTUH)	VOLTS/Φ/HZ.	WATER TEMP. IN/OUT	OVERALL SIZE	VENT CONN. SIZE	OPERATING WEIGHT (LBS.)	REMARKS
WH-1	A.O. SMITH - BTH-199	DOMESTC HOT WATER	FULLY CONDENSING	NAT. GAS	100	227	199,000	120/1/60	40/120	28"Øx75"H	3" PVC INTAKE 3" PVC EXHAUST	1271	PROVIDE VENT TERMINATION KIT
WH-2	A.O. SMITH - BTH-199	DOMESTC HOT WATER	FULLY CONDENSING	NAT. GAS	100	227	199,000	120/1/60	40/120	28"Øx75"H	3" PVC INTAKE 3" PVC EXHAUST	1271	PROVIDE VENT TERMINATION KIT

WATER HAMMER ARRESTER SCHEDULE

MARK	MANUFACTURER/MODEL #	FIXTURE UNITS	INLET SIZE	REMARKS
WHA-A	PPP SC-500	1-11	1/2"	PER PDI STANDARD PDI-WH 201
WHA-B	PPP SC-750	12-32	3/4"	PER PDI STANDARD PDI-WH 201
WHA-C	PPP SC-1000	33-60	1"	PER PDI STANDARD PDI-WH 201

DOMESTIC EXPANSION TANK

SYMBOL	TANK VOLUME GAL.	ACCEPT VOLUME GAL.	AMTROL MODEL	ARRANGEMENT	DUTY	REMARKS
DET-1	8.0	3.2	ST-20V-C	VERTICAL	DOMESTIC COLD WATER SYSTEM	-

DOMESTIC WATER CIRCULATING PUMPS

SYMBOL	GPM	FEET HEAD	SHUT-OFF HEAD	ELECTRICAL					B & G SIZE	REMARKS
				VOLTS	HERTZ	PHASE	HP	RPM		
DCP-1	4	6	8	115	60	1	1/12	1725	SERIES 100	BRONZE BODY

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DROP IN PIPE	FCO	FLOOR CLEAN OUT
	RISE IN PIPE	WCO	WALL CLEAN OUT
	VALVE IN RISE	CO	CLEAN OUT
— — —	COLD WATER	COTG	CLEAN OUT TO GRADE
------	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
------	DOMESTIC HOT WATER RECIRCULATING		2 WAY CONTROL VALVE
———	SEWER OR WASTE		3 WAY CONTROL VALVE
--------	VENT		BUTTERFLY VALVE
CWV	COMBINATION WASTE AND VENT		PLUG VALVE
G	GAS		GLOBE VALVE
SS	SANITARY SEWER - (OUTSIDE)		POST INDICATOR VALVE - (PIV)
D	DRAIN		AIR VENT WITH NEEDLE VALVE
SD	STORM DRAIN		VALVE BOX
RD	ROOF DRAIN LEADER		VALVE IN PIT
ORD	OVERFLOW ROOF DRAIN LEADER		INDICATOR GATE VALVE
#D 1/x"/FT	ROOF AREA SERVED DESIGN SLOPE OF ROOF DRAIN PIPING		STRAINER
	UNION		CONCENTRIC REDUCER
	GATE VALVE		ECCENTRIC REDUCER
	BALL VALVE	AC	AIR CUSHION TYPE WATER HAMMER ARRESTOR
	CHECK VALVE	WHA	GAS TYPE WATER HAMMER ARRESTOR
	SOLENOID VALVE		GAUGE COCK
	PRESSURE REDUCING VALVE - (PRV)		GAUGE WITH GAUGE COCK
	SAFETY OR RELIEF VALVE		THERMOMETER OR GAUGE WELL
	ANGLE VALVE		THERMOMETER
	FLOW CONTROLLER OR BALANCE VALVE		PRESSURE/TEMPERATURE TEST PLUG (PETE'S PLUG)
	NEW CONNECTION		PIPE ANCHOR
	CAP		PIPE GUIDE
FD	FLOOR DRAIN		GROOVED JOINT COUPLING
			BLIND FLANGE

PLUMBING ABBREVIATIONS

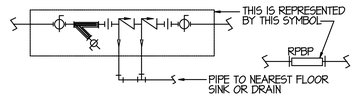
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DCW	DOMESTIC COLD WATER	DW	DIRECT WASTE
DHW	DOMESTIC HOT WATER	V	VENT
DHWR	DOMESTIC HOT WATER RECIRCULATING	W	SOIL / WASTE
VTR	VENT THROUGH ROOF	WCO	WALL CLEAN OUT
CWV	COMBINATION WASTE VENT	CO	CLEAN OUT
IW	INDIRECT WASTE	G	GAS
GW	GREASE WASTE	DN	DOWNSPOUT NOZZLE

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	COLD	HOT	TRAP	WASTE	VENT	SPECIFICATION SECTION
P-1A	WATER CLOSET, FLUSH VALVE TYPE, WALL MOUNTED, STANDARD	1"		INT.	3"	2"	22 40 00
P-1B	WATER CLOSET, FLUSH VALVE TYPE, WALL MOUNTED, ADA COMPLIANT	1"		INT.	3"	2"	22 40 00
P-1C	WATER CLOSET, TANK TYPE, FLOOR MOUNTED, ADA COMPLIANT	1/2"		INT.	3"	2"	22 40 00
P-2A	URINAL, STANDARD	3/4"		INT.	2"	2"	22 40 00
P-2B	URINAL, ADA COMPLIANT	3/4"		INT.	2"	2"	22 40 00
P-3	LAVATORY, WALL MOUNT, ADA COMPLIAN W/THERMOSTATIC MIXING VALVE	1/2"	1/2"	1-1/4"	1-1/2"	1-1/2"	22 40 00
P-4A	EXAM SINK, STAINLESS STEEL, DOUBLE BOWL	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-4B	BREAKROOM SINK, STAINLESS STEEL, DOUBLE BOWL, DISPOSER	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-4C	NOT USED						
P-4D	NOT USED						
P-5	SERVICE SINK, FLOOR MOUNTED	3/4"	3/4"	3"	3"	2"	22 40 00
P-6A	ELECTRIC WATER COOLER, BI-LEVEL	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-6B	ELECTRIC WATER COOLER, SINGLE	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-7A	SHOWER VALVE, STANDARD	1/2"	1/2"				22 40 00
P-7B	SHOWER VALVE, ADA COMPLIANT	1/2"	1/2"				22 40 00
P-8	NOT USED						
P-9	ICE MAKER CONNECTION BOX	1/2"					22 40 00
HB-1	HOSE BIBB, COLD WATER ONLY, INTERIOR	1/2"					22 40 00
HB-2	HOSE BIBB, COLD AND HOT WATER, INTERIOR	1/2"	1/2"				22 40 00
WH	WALL HYDRANT, NON-FREEZE, EXTERIOR	3/4"					22 40 00
FD-1	FLOOR DRAIN, 6" DIAMETER GRATE			2"	2"	2"	22 40 00
SD-1	SHOWER DRAIN, 6" DIAMETER GRATE			2"	2"	2"	22 40 00
FS-1	FLOOR SINK, 12" SQUARE, 8" DEEP SUMP			3"	3"	2"	22 40 00
FS-2	FLOOR SINK, 12" SQUARE, 8" DEEP SUMP			4"	4"	2"	22 40 00
RD	ROOF DRAIN, 15" DIAMETER GRATE						22 40 00
ORD	OVERFLOW ROOF DRAIN, 15" DIAMETER GRATE						22 40 00
DN	DOWNSPOUT NOZZLE						22 40 00
CO	CLEAN OUT						22 40 00
WCO	WALL CLEAN OUT						22 40 00
FCO	FLOOR CLEAN OUT						22 40 00
COTG	CLEAN OUT TO GRADE						22 40 00
TP	TRAP PRIMER	1/2"					22 11 00
WHA	WATER HAMMER ARRESTOR						22 11 00

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL PLUMBING FIXTURES, EQUIPMENT REQUIREMMENTS AND LOCATIONS, AND ALL RELATED UTILITIES WITH THE MECHANICAL AND ARCHITECTURAL PLANS AND SPECIFICATIONS AND SHALL PROVIDE ALL SERVICES AS REQUIRED.
2. ALL WALL-HUNG PLUMBING FIXTURES SHALL BE SECURELY ATTACHED TO AND SUPPORTED BY FLOOR MOUNTED CARRIERS OF ALL METAL CONSTRUCTION. FIXTURE HANGERS OR ARMS SHALL BE SUPPORTED FREE OF THE FINISHED WALL. HANGERS SHALL BE BY WADE, SMITH, JOSAM, OR ZURN.
3. EACH INDIVIDUAL FIXTURE SUPPLY SHALL BE PROVIDED WITH A CHROME-PLATED STOP VALVE WITH HAND WHEEL. VALVE SHALL BE WASHERLESS OR WASHER-TYPE AS APPROVED BY ENGINEER. STOPS SHALL BE ON BOTH HOT AND COLD WATER LINES.
4. FIXTURES AND ACCESSORIES SHALL BE AS SPECIFIED. EACH ITEM SHALL BE COMPLETE WITH CHROME-PLATED BRASS TRIM. SEE PLUMBING FIXTURE SCHEDULE.
5. CAULK WITH SILICONE COMPOUND AROUND ALL FIXTURES AT INTERFACE WITH WALLS AND/OR FLOOR.
6. ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE UTAH PLUMBING CODE AND/OR LOCAL ORDINANCES.
7. ALL FIXTURES SHALL BE AS SPECIFIED ON PLUMBING FIXTURE SCHEDULE, OR AN ENGINEER-APPROVED EQUIVALENT.

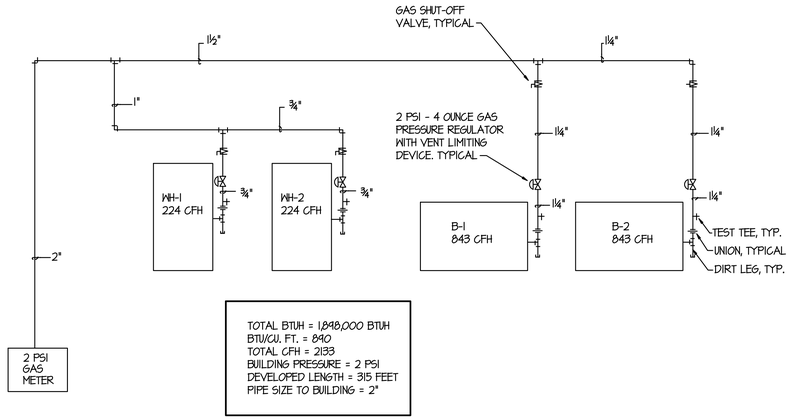


SYMBOL	SERVICE	SIZE	WATT'S MANUFACTURER NUMBER
BFP-3	WATER ENTRY	3"	909QT-FDA

BACK FLOW PREVENTER DETAIL

SCALE: NONE

(1 / PE-6A)



TOTAL BTUH = 1,848,000 BTUH
BTU/CU. FT. = 890
TOTAL CFH = 2133
BUILDING PRESSURE = 2 PSI
DEVELOPED LENGTH = 315 FEET
PIPE SIZE TO BUILDING = 2"

GAS FLOW DIAGRAM

SCALE: NONE

State of Utah
Department of Administrative Services

DFCM

Division of Facilities Construction & Management

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Utah National Guard

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WPA

475 North Freedom Blvd.
Provo, Utah, 84601

Tel: (801) 374-0800
Fax: (801) 374-0805

BUILDING NAME:

BILLETING

PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

UTAH NATIONAL GUARD

MARK	DATE	DESCRIPTION

ISSUE TYPE:
Final Bid Documents

ISSUE DATE:
April 16, 2007

DFCM PROJECT NO: 95059480

CAD PROJECT NO:

CAD DWG FILE:

DRAWN BY:

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SHEET TITLE

ADMININISTRATION AND EDUCATION BUILDING PLUMBING SCHEDULES

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

SHEET NUMBER

PE-6A1

GAS FIRED WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL NO.	SERVICE	TYPE	FUEL TYPE/ PRESSURE	STORAGE CAPACITY (GAL.)	RECOVERY RATE (100° RISE) (GPH)	INPUT CAPACITY (BTUH)	VOLTS/Ø/HZ.	WATER TEMP. IN/OUT	OVERALL SIZE	VENT CONN. SIZE	OPERATING WEIGHT (LBS.)	REMARKS
WH-3	A.O. SMITH - BTH-400	DOMESTIC HOT WATER	FULLY CONDENSING	NAT. GAS	130	480	399,900	120/1/60	40/140	28"Øx75"H	3" PVC INTAKE 3" PVC EXHAUST	1271	PROVIDE VENT TERMINATION KIT
WH-4	A.O. SMITH - BTH-400	DOMESTIC HOT WATER	FULLY CONDENSING	NAT. GAS	130	480	399,900	120/1/60	40/140	28"Øx75"H	3" PVC INTAKE 3" PVC EXHAUST	1271	PROVIDE VENT TERMINATION KIT

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DROP IN PIPE	FCO	FLOOR CLEAN OUT
	RISE IN PIPE	WCO	WALL CLEAN OUT
	VALVE IN RISE	CO	CLEAN OUT
	COLD WATER	COTG	CLEAN OUT TO GRADE
	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
	DOMESTIC HOT WATER RECIRCULATING		2 WAY CONTROL VALVE
	SEWER OR WASTE		3 WAY CONTROL VALVE
	VENT		BUTTERFLY VALVE
CWV	COMBINATION WASTE AND VENT		PLUG VALVE
G	GAS		GLOBE VALVE
SS	SANITARY SEWER - (OUTSIDE)		POST INDICATOR VALVE - (PIV)
D	DRAIN		AIR VENT WITH NEEDLE VALVE
SD	STORM DRAIN		VALVE BOX
RD	ROOF DRAIN LEADER		VALVE IN PIT
ORD	OVERFLOW ROOF DRAIN LEADER		INDICATOR GATE VALVE
#@ 1/4"/FT	ROOF AREA SERVED DESIGN SLOPE OF ROOF DRAIN PIPING		STRAINER
			CONCENTRIC REDUCER
	UNION		ECCENTRIC REDUCER
	GATE VALVE	AC	AIR CUSHION TYPE WATER HAMMER ARRESTOR
	BALL VALVE	WHA	GAS TYPE WATER HAMMER ARRESTOR
	CHECK VALVE		GAUGE COCK
	SOLENOID VALVE		GAUGE WITH GAUGE COCK
	PRESSURE REDUCING VALVE - (PRV)		THERMOMETER OR GAUGE WELL
	SAFETY OR RELIEF VALVE		THERMOMETER
	ANGLE VALVE		PRESSURE/TEMPERATURE TEST PLUG (PETE'S PLUG)
	FLOW CONTROLLER OR BALANCE VALVE		PIPE ANCHOR
	NEW CONNECTION		PIPE GUIDE
	CAP		GROOVED JOINT COUPLING
FD	FLOOR DRAIN		BLIND FLANGE

PLUMBING ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DCW	DOMESTIC COLD WATER	DW	DIRECT WASTE
DHW	DOMESTIC HOT WATER	V	VENT
DHWR	DOMESTIC HOT WATER RECIRCULATING	W	SOIL / WASTE
VTR	VENT THROUGH ROOF	WCO	WALL CLEAN OUT
CWV	COMBINATION WASTE VENT	CO	CLEAN OUT
IW	INDIRECT WASTE	G	GAS
GW	GREASE WASTE	DN	DOWNSPOUT NOZZLE

WATER HAMMER ARRESTER SCHEDULE

MARK	MANUFACTURER/MODEL #	FIXTURE UNITS	INLET SIZE	REMARKS
WHA-A	PPP SC-500	1-11	1/2"	PER PDI STANDARD PDI-WH 201
WHA-B	PPP SC-750	12-32	3/4"	PER PDI STANDARD PDI-WH 201
WHA-C	PPP SC-1000	33-60	1"	PER PDI STANDARD PDI-WH 201

DOMESTIC EXPANSION TANK

SYMBOL	TANK VOLUME GAL.	ACCEPT VOLUME GAL.	AMTROL MODEL	ARRANGEMENT	DUTY	REMARKS
DET-1	25	11.25	ST-60V-C	VERTICAL	DOMESTIC HOT WATER SYSTEM	-

DOMESTIC WATER CIRCULATING PUMPS

SYMBOL	GPM	FEET HEAD	SHUT-OFF HEAD	ELECTRICAL					B & G SIZE	REMARKS
				VOLTS	HERTZ	PHASE	HP	RPM		
DCP-1	4	6	8	115	60	1	1/12	1725	SERIES 100	BRONZE BODY
DCP-2	15	6	8	115	60	1	1/12	1725	SERIES 100	BRONZE BODY

DOMESTIC STORAGE TANK (DST)

SYMBOL	TANK CAPACITY GALLONS	DIAMETER	HEIGHT	A.O. SMITH MODEL	REMARKS
DST-1	200	32"	71"	T-JV-200M	VERTICAL

THERMOSTATIC MIXING VALVE SCHEDULE (HI-LOW SYSTEM)

SYMBOL	MANUFACTURER AND MODEL NO.	LOCATION	FLOW RATE (GPM)	ALLOWABLE PRESSURE DIFFERENTIAL (PSI)	INLET/OUTLET HOT WATER TEMP. (°F)	INLET SIZE	OUTLET SIZE	ACCESSORIES AND REMARKS
MV-1	SYMMONS - S-1000A	MECH. ROOM	63	10	40/110	1-1/2"	2"	--

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	COLD	HOT	TRAP	WASTE	VENT	SPECIFICATION SECTION
P-1A	WATER CLOSET, FLUSH VALVE TYPE, WALL MOUNTED, STANDARD	1"		INT.	3"	2"	22 40 00
P-1B	WATER CLOSET, FLUSH VALVE TYPE, WALL MOUNTED, ADA COMPLIANT	1"		INT.	3"	2"	22 40 00
P-1C	NOT USED						
P-2A	URINAL, STANDARD	3/4"		INT.	2"	2"	22 40 00
P-2B	URINAL, ADA COMPLIANT	3/4"		INT.	2"	2"	22 40 00
P-3	LAVATORY, WALL MOUNT, ADA COMPLIANT W/THERMOSTATIC MIXING VALVE	1/2"	1/2"	1-1/4"	1-1/2"	1-1/2"	22 40 00
P-4A	NOT USED						
P-4B	NOT USED						
P-4C	WORK SINK, COUNTER MOUNTED, STAINLESS STEEL, DOUBLE BOWL	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-4D	LAUNDRY SINK	3/4"	3/4"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-5	SERVICE SINK, FLOOR MOUNTED	3/4"	3/4"	3"	3"	2"	22 40 00
P-6A	ELECTRIC WATER COOLER, BI-LEVEL	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	22 40 00
P-6B	NOT USED						
P-7A	SHOWER VALVE, STANDARD	1/2"	1/2"				22 40 00
P-7B	SHOWER VALVE, ADA COMPLIANT (TWO HEADS)	1/2"	1/2"				22 40 00
P-8	CLOTHES WASHER CONNECTION BOX	3/4"	3/4"	2"	2"	2"	22 40 00
P-9	NOT USED						
HB-1	HOSE BIBB, COLD WATER ONLY, INTERIOR	1/2"					22 40 00
HB-2	HOSE BIBB, COLD AND HOT WATER, INTERIOR	1/2"	1/2"				22 40 00
WH	WALL HYDRANT, NON-FREEZE, EXTERIOR	3/4"					22 40 00
FD-1	FLOOR DRAIN, 6" DIAMETER GRATE			2"	2"	2"	22 40 00
SD-1	SHOWER DRAIN, 6" DIAMETER GRATE			2"	2"	2"	22 40 00
FS-1	FLOOR SINK, 12" SQUARE, 8" DEEP SUMP			3"	3"	2"	22 40 00
FS-2	FLOOR SINK, 12" SQUARE, 8" DEEP SUMP			4"	4"	2"	22 40 00
RD	ROOF DRAIN, CAST IRON DOME STRAINER						22 40 00
ORD	OVERFLOW ROOF DRAIN, 15" DIAMETER GRATE						22 40 00
DN	DOWNSPOUT NOZZLE						22 40 00
CO	CLEAN OUT						22 40 00
WCO	WALL CLEAN OUT						22 40 00
FCO	FLOOR CLEAN OUT						22 40 00
COTG	CLEAN OUT TO GRADE						22 40 00
TP	TRAP PRIMER	1/2"					22 11 00
WHA	WATER HAMMER ARRESTOR						22 11 00

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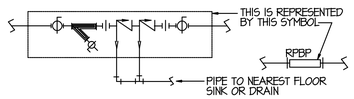
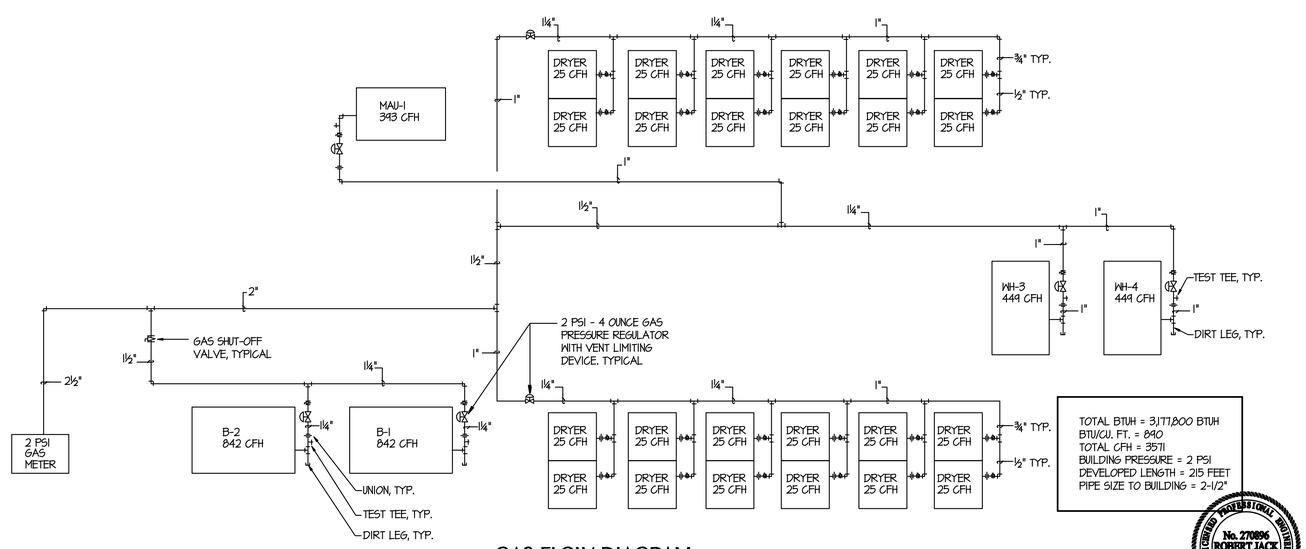


SYMBOL	SERVICE	SIZE	'WATTS' MANUFACTURER NUMBER
BFP-3	WATER ENTRY	3"	909QT-FDA

BACK FLOW PREVENTER DETAIL (1 / PE-6B1)
SCALE: NONE



GAS FLOW DIAGRAM
SCALE: NONE

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

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BUILDING NAME:
BILLETING

PROJECT TITLE:
TASS COMPLEX
CAMP WILLIAMS
UTAH NATIONAL GUARD

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ISSUE TYPE:
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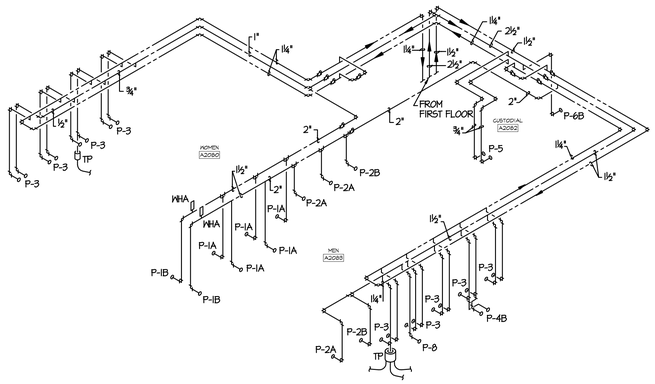
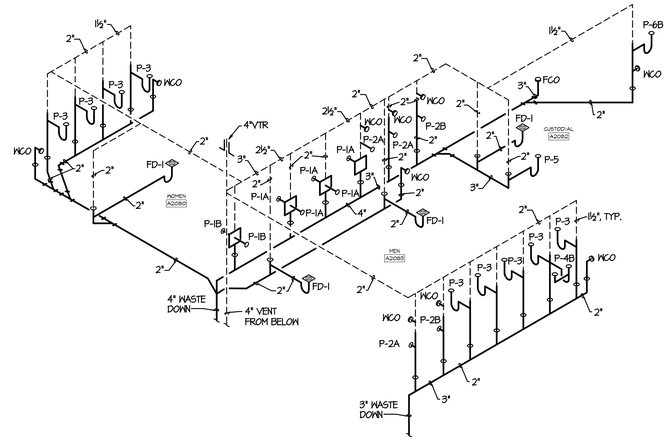
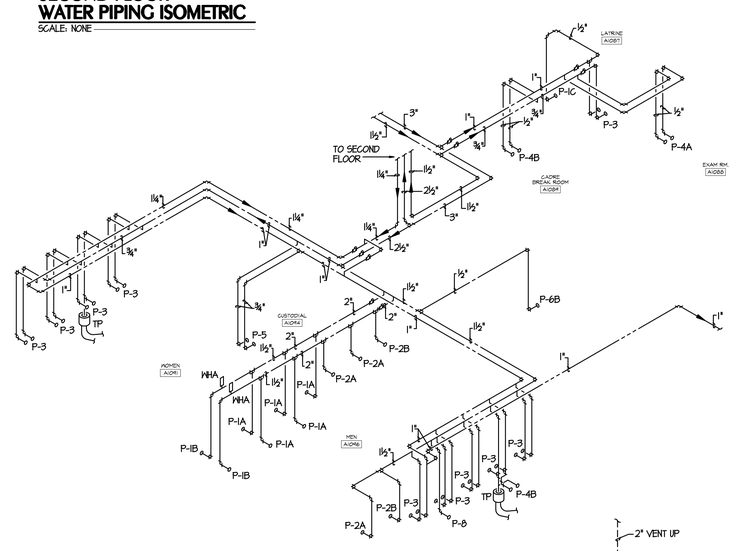
SHEET TITLE
ADMININISTRATION AND EDUCATION BUILDING PLUMBING SCHEDULES

SHEET NUMBER
PE-6B1

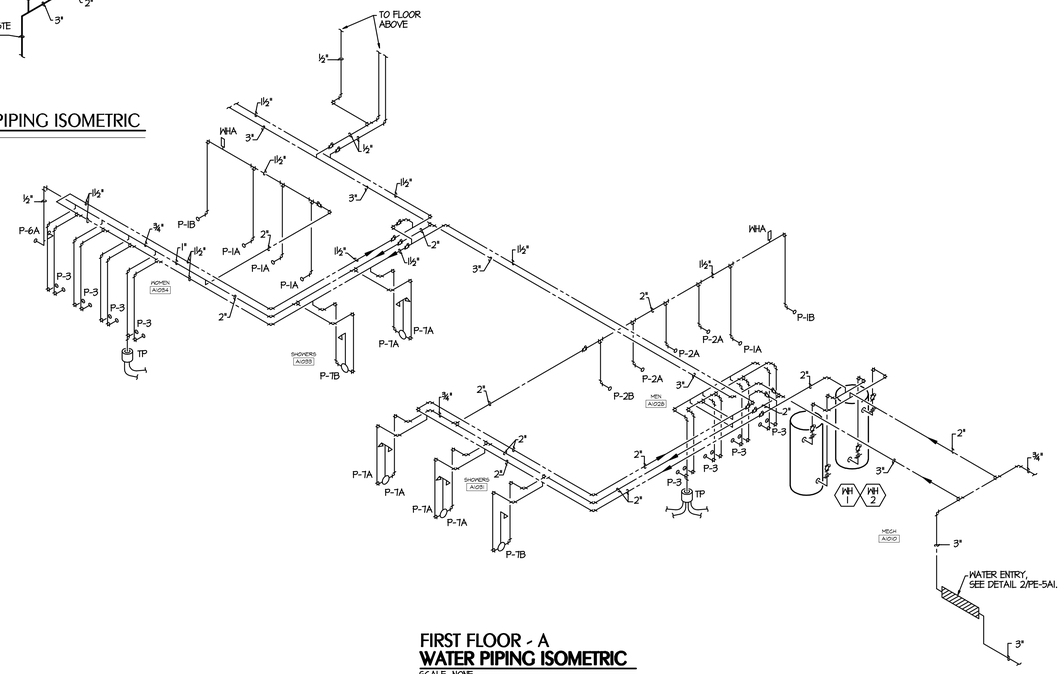




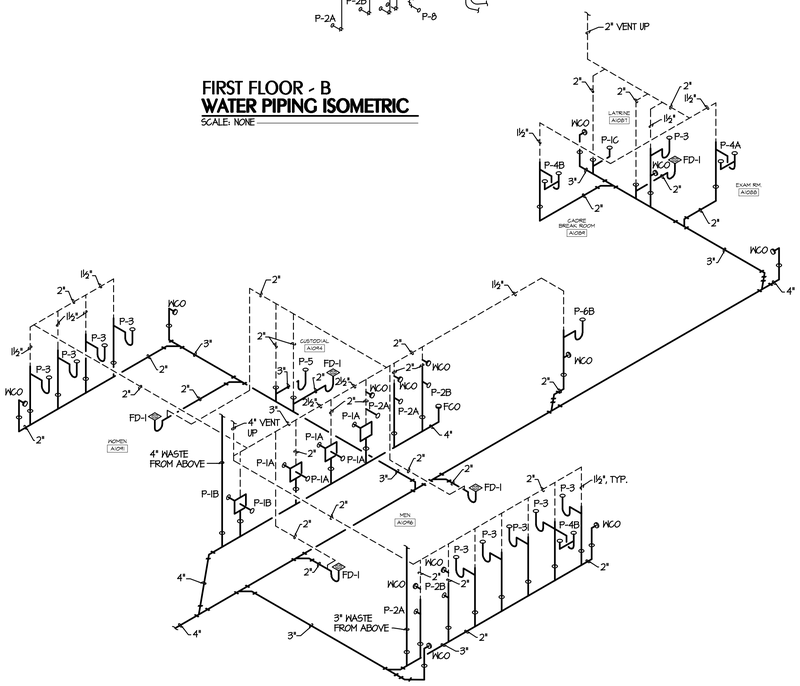
SECOND FLOOR
WATER PIPING ISOMETRIC
SCALE: NONE



SECOND FLOOR
SOIL/WASTE/VENT PIPING ISOMETRIC
SCALE: NONE

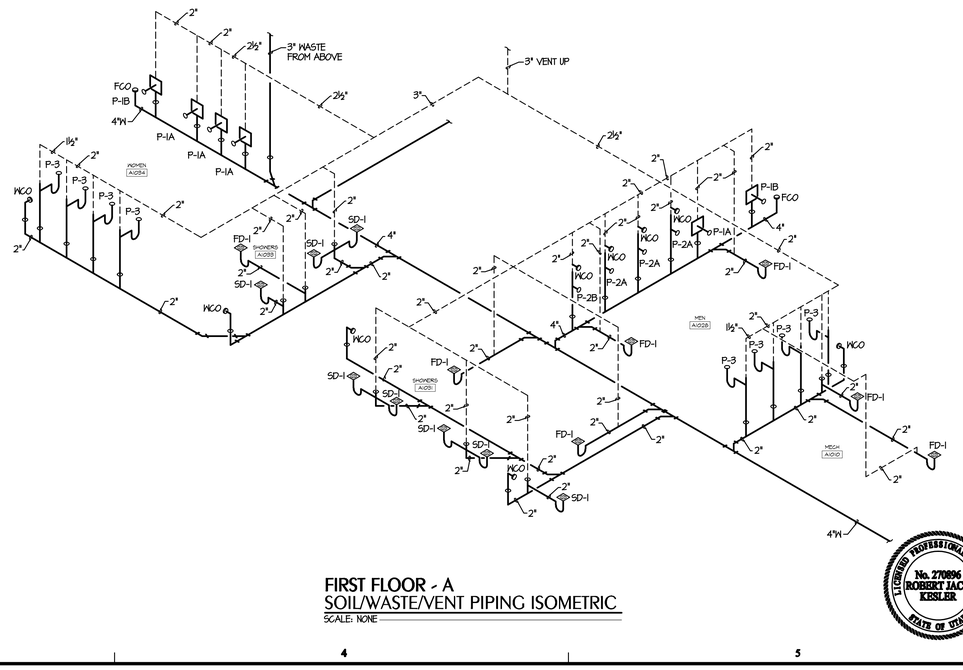


FIRST FLOOR - B
WATER PIPING ISOMETRIC
SCALE: NONE



FIRST FLOOR - B
SOIL/WASTE/VENT PIPING ISOMETRIC
SCALE: NONE

FIRST FLOOR - A
WATER PIPING ISOMETRIC
SCALE: NONE



FIRST FLOOR - A
SOIL/WASTE/VENT PIPING ISOMETRIC
SCALE: NONE

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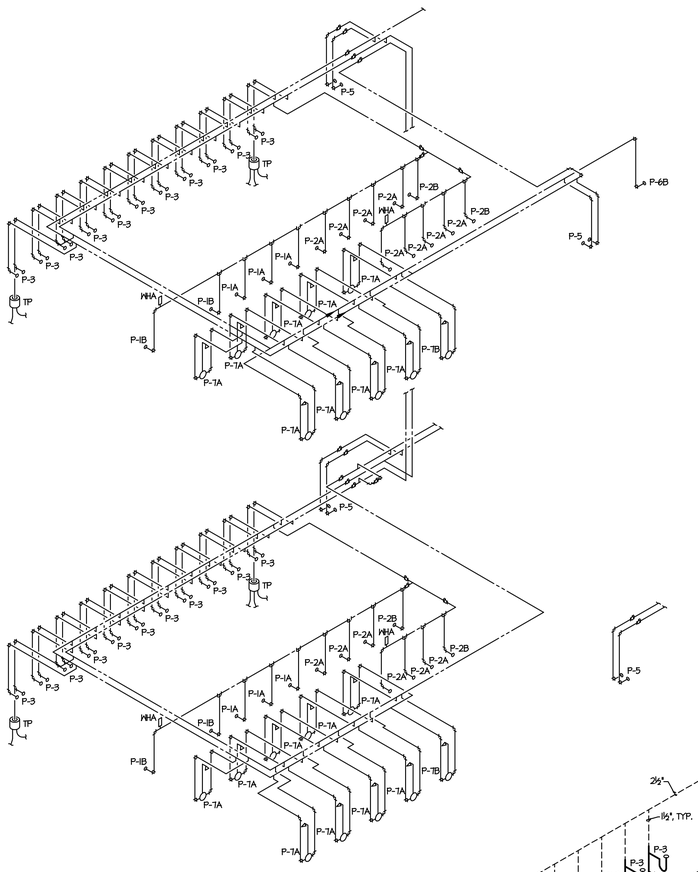
SHEET TITLE
ADMININISTRATION AND EDUCATION BUILDING PLUMBING ISOMETRICS

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

SHEET NUMBER
PE-9A1



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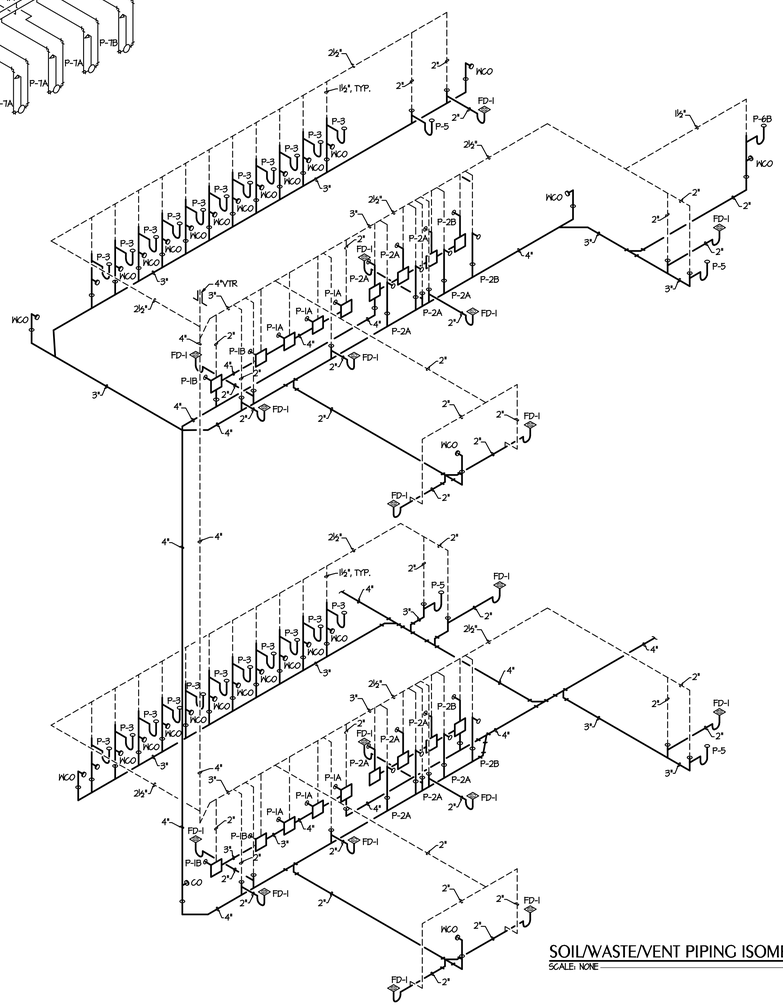
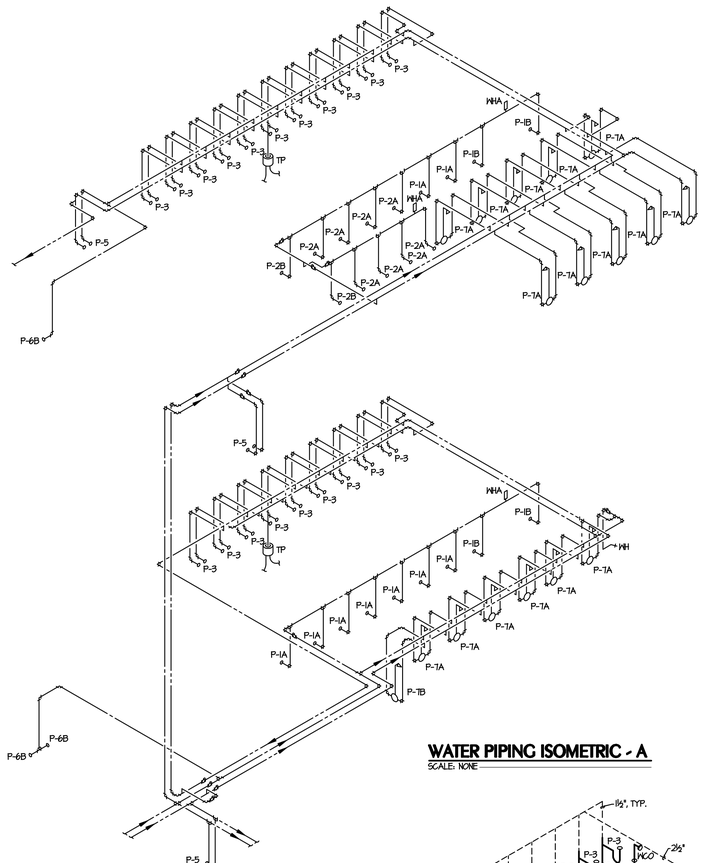
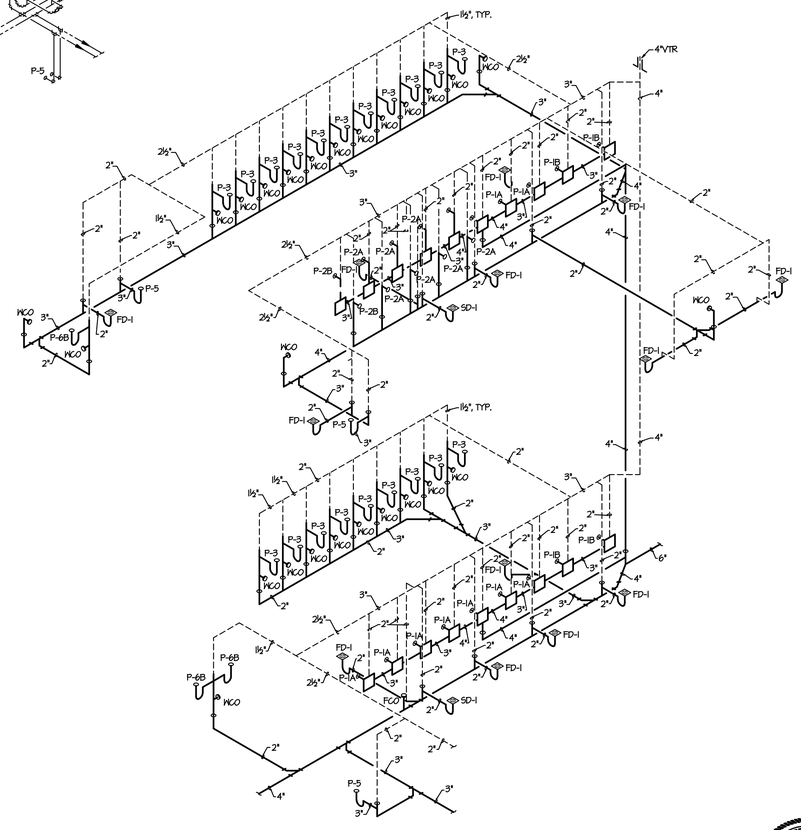


SOIL/WASTE/VENT PIPING ISOMETRIC - B
SCALE: NONE



WATER PIPING ISOMETRIC - A
SCALE: NONE



SOIL/WASTE/VENT PIPING ISOMETRIC - A
SCALE: NONE

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SHEET TITLE
BAY BILLETING
BUILDING PLUMBING
ISOMETRICS

LICENSED PROFESSIONAL ENGINEER
No. 270896
ROBERT JACK KESLER
STATE OF UTAH

SHEET NUMBER
PE-9B1

DRAWING NOTES

1. 50"x28" SUPPLY AIR DUCT DOWN FROM SECOND FLOOR ABOVE. SEE SHEET ME-1A2 FOR CONTINUATION.
2. RISE 42"x22" RETURN AIR DUCT UP TO SECOND FLOOR ABOVE. SEE SHEET ME-1A2 FOR CONTINUATION.
3. RISE 14"x14 EXHAUST AIR DUCT UP TO SECOND FLOOR ABOVE. SEE SHEET ME-1A2 FOR CONTINUATION.
4. LOW VOLTAGE TRANSFORMER PANEL LOCATED ABOVE THE CEILING.
5. 24"x22"ø SUPPLY AIR DUCT DOWN FROM SECOND FLOOR ABOVE. SEE SHEET ME-1A2 FOR CONTINUATION.

FIRST FLOOR MECHANICAL PLAN

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

10 5 0 10 20

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No. 154099
B. BRYCE GARDNER
STATE OF UTAH

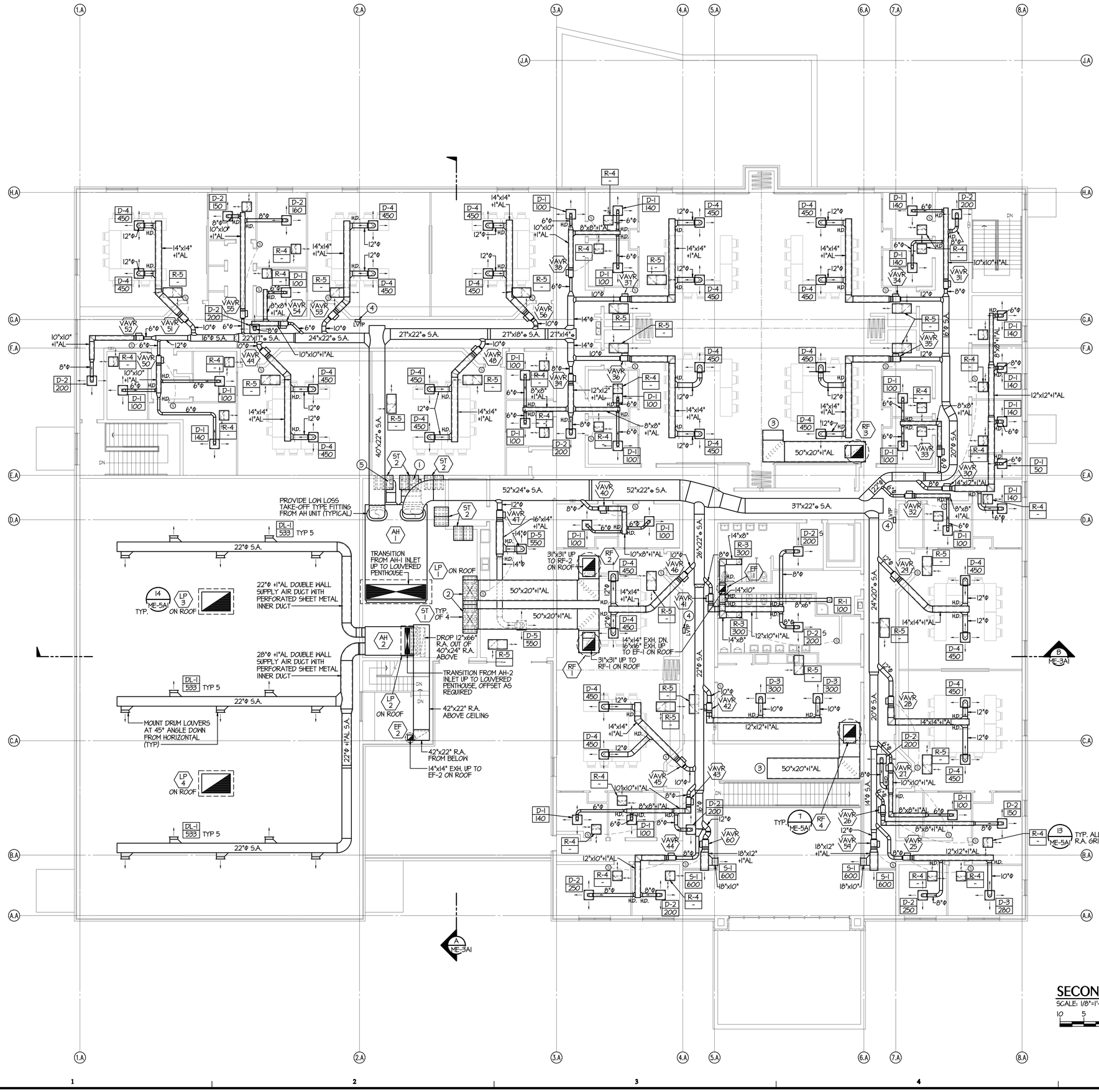
SHEET TITLE

ADMINISTRATION AND EDUCATION BUILDING
FIRST FLOOR
MECHANICAL PLAN

SHEET NUMBER

ME-1A1

93 OF 146



DRAWING NOTES

1. DROP 50"x28" SUPPLY AIR DUCT DOWN TO FIRST FLOOR. SEE SHEET ME-1A1 FOR CONTINUATION.
2. EXTEND RELIEF AIR DUCT INTO MECHANICAL ROOM AND DOWN TO SOUND TRAPS. TRANSITION TO SOUND TRAPS AS REQUIRED.
3. OPEN ENDED DUCT.
4. LOW VOLTAGE TRANSFORMER PANEL LOCATED ABOVE THE CEILING.
5. DROP 24"x22"Φ SUPPLY AIR DUCT DOWN TO FIRST FLOOR. SEE SHEET ME-1A1 FOR CONTINUATION.

SECOND FLOOR MECHANICAL PLAN

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

10 5 0 10 20

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Division of Facilities Construction & Management

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Internet: http://www.dfcm.state.ut.us

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Draper, Utah 84020-1726

WPA

475 North Freedom Blvd.
Provo, Utah, 84601

Tel: (801) 374-0800
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BUILDING NAME:

ADMINISTRATION

PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

UTAH NATIONAL GUARD

MARK	DATE	DESCRIPTION

ISSUE TYPE: Final Bid Documents

ISSUE DATE: April 16, 2007

DFCM PROJECT NO: 95059480

CAD PROJECT NO:

CAD DWG FILE:

DRAWN BY:

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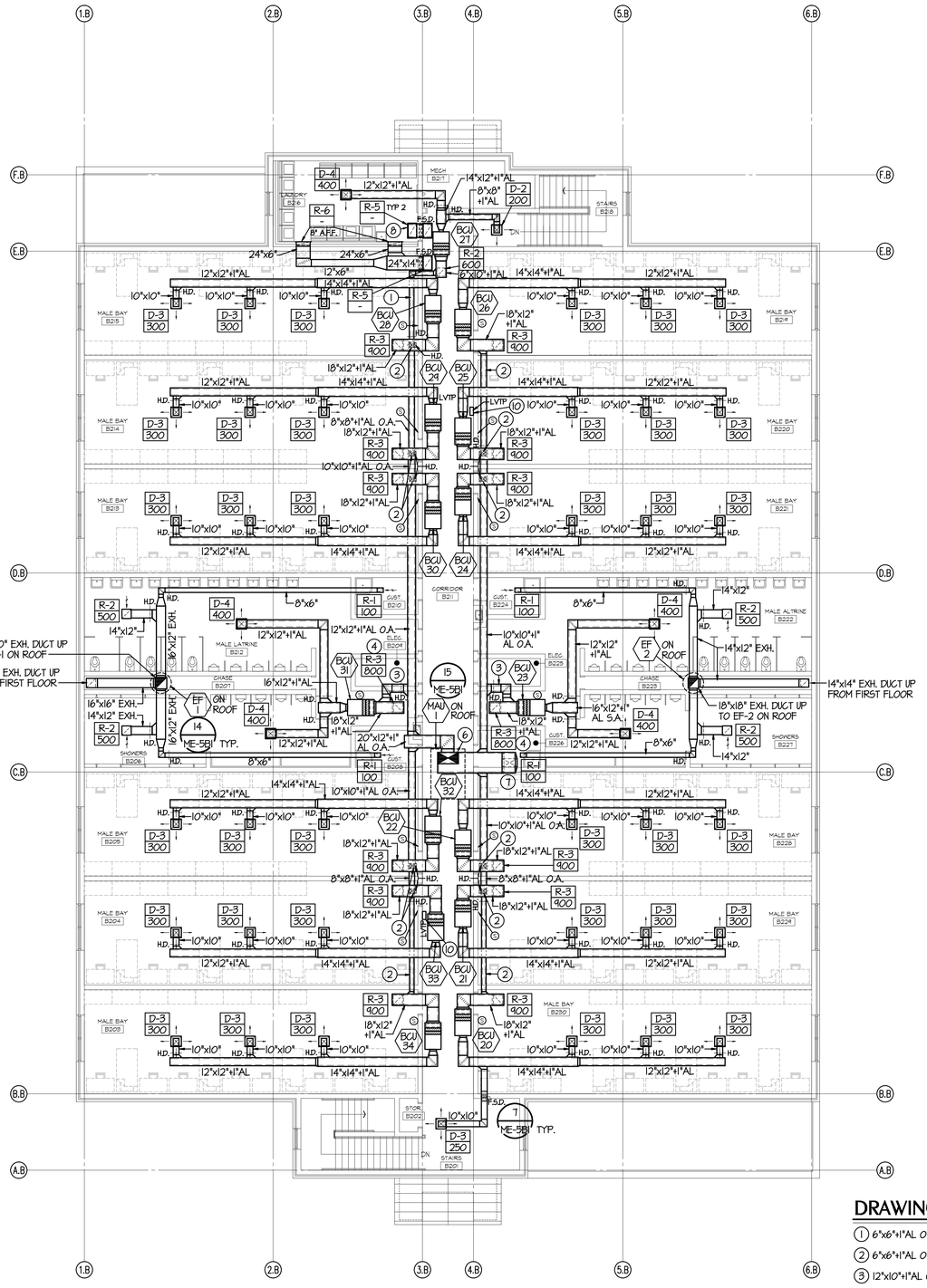
LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET TITLE

ADMINISTRATION AND EDUCATION BUILDING
SECOND FLOOR MECHANICAL PLAN

SHEET NUMBER

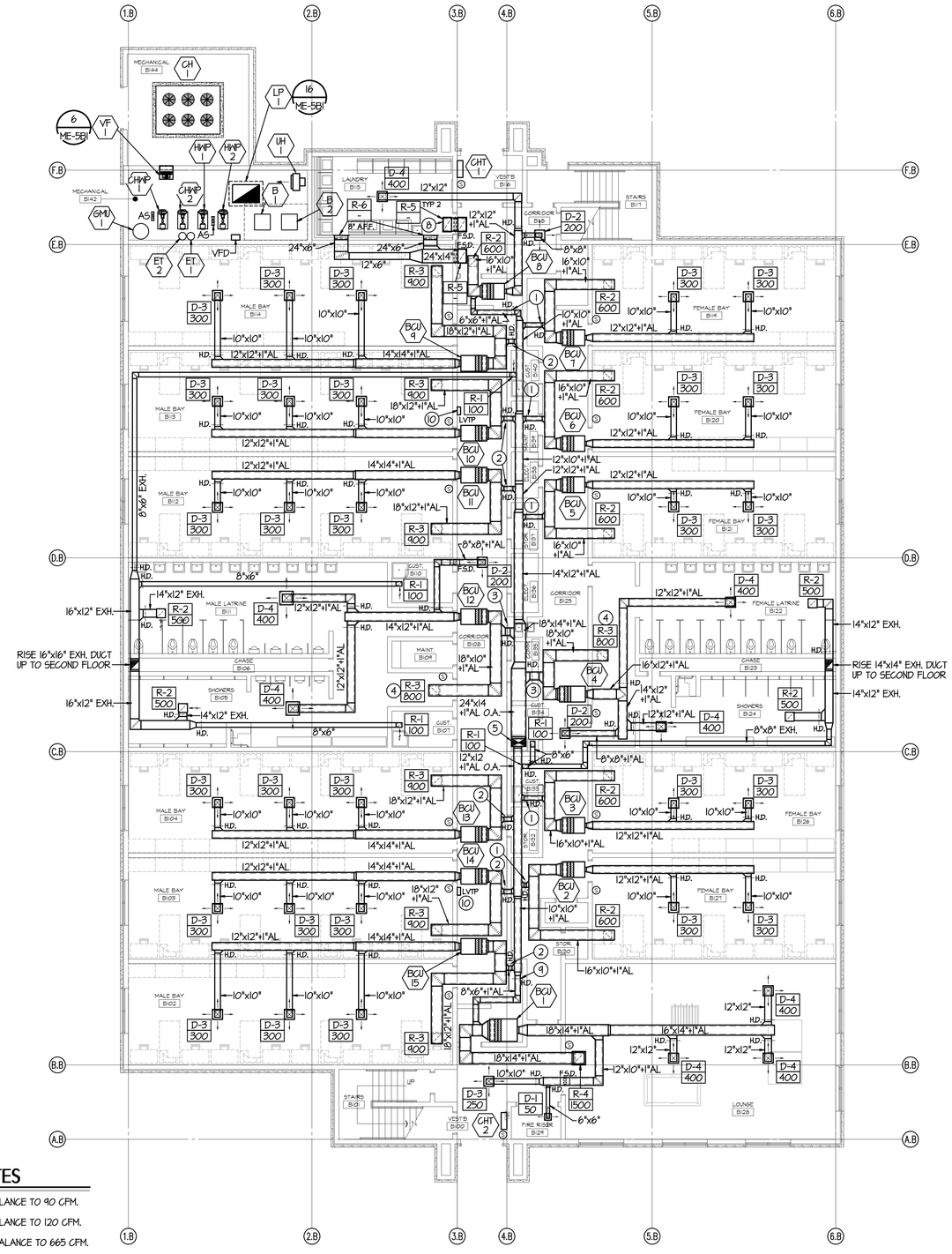
ME-1A2



SECOND FLOOR MECHANICAL PLAN

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

10 5 0 10 20



FIRST FLOOR MECHANICAL PLAN

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

10 5 0 10 20

DRAWING NOTES

1. 6"x6"+I"AL O.A. DUCT, BALANCE TO 90 CFM.
2. 6"x6"+I"AL O.A. DUCT, BALANCE TO 120 CFM.
3. 12"x10"+I"AL O.A. DUCT, BALANCE TO 665 CFM.
4. IF EXHAUST FAN IS TURNED OFF.
5. 26"x14"+I"AL O.A. DUCT DOWN FROM SECOND FLOOR.
6. 34"x18"+I"AL O.A. DUCT DOWN FROM MAU-1 ON ROOF.
7. TRANSITION FROM A 34"x18"+I"AL O.A. DUCT TO A 26"x14"+I"AL O.A. DUCT AND DROP DOWN TO FIRST FLOOR.
8. 24"x14" TRANSFER AIR DUCT. MOUNT ONE R-5 AT CORRIDOR CEILING AND ONE IN LAUNDRY CEILING.
9. 8"x6"+I"AL O.A. DUCT, BALANCE TO 150 CFM.
10. LOW VOLTAGE TRANSFORMER PANEL ABOVE THE CEILING.

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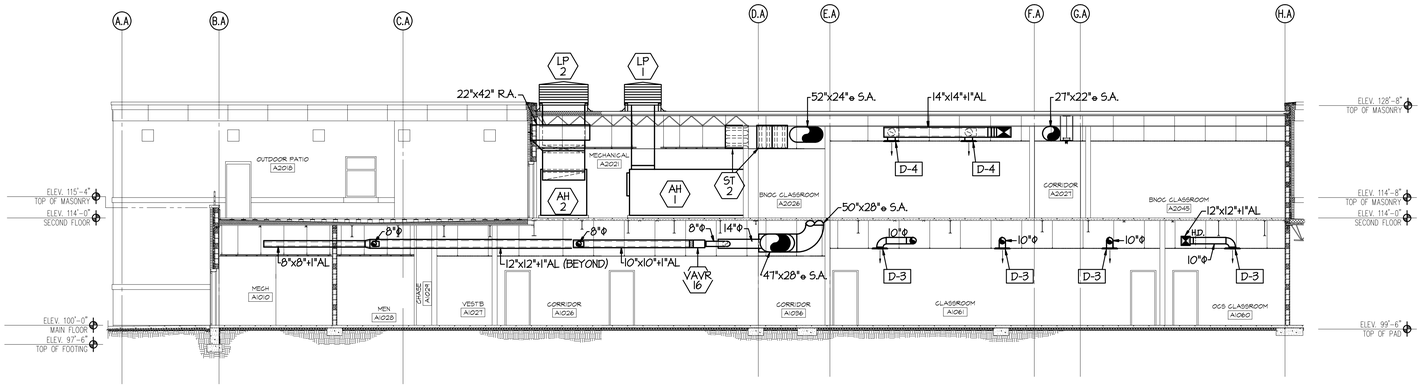
BAY BILLETING BUILDING MECHANICAL PLANS

LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET NUMBER

ME-1B1

95 OF 146



MECHANICAL SECTION

A
ME-3A1

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

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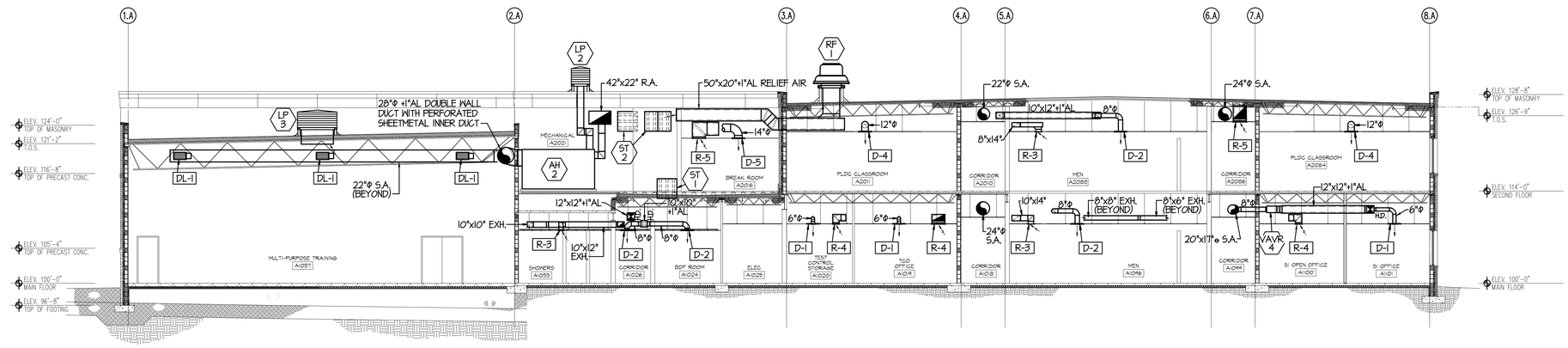

MECHANICAL SECTION

B
ME-3A1

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

10 5 0 10 20

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SHEET TITLE

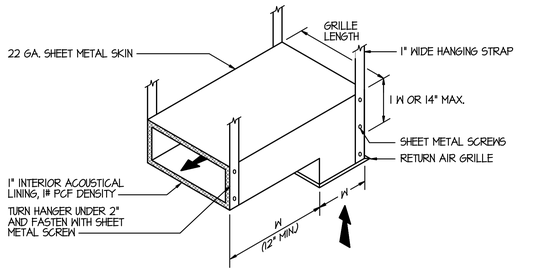
ADMINISTRATION AND EDUCATION BUILDING MECHANICAL SECTIONS

LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

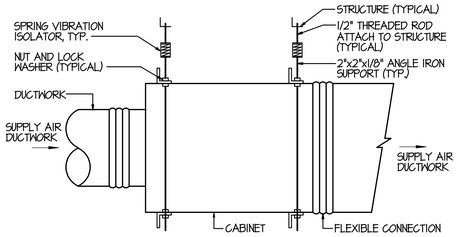
SHEET NUMBER

ME-3A1

96 OF 146

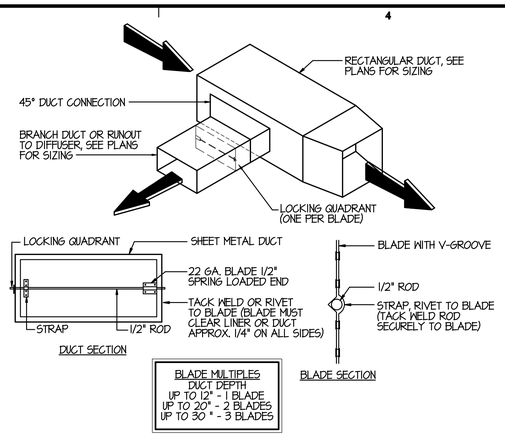


SOUND TRAP DETAIL
SCALE: NONE — 13 / ME-5A1



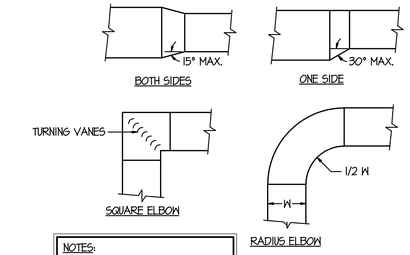
NOTE:
USE FACTORY POINTS OF CONNECTION IF PROVIDED.

BLOWER COIL UNIT MOUNTING DETAIL
SCALE: NONE — 9 / ME-5A1



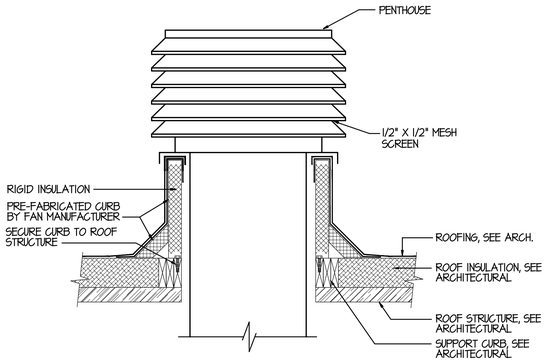
BLADE MULTIPLES
DUCT DEPTH
UP TO 12" - 1 BLADE
UP TO 20" - 2 BLADES
UP TO 30 " - 3 BLADES

BRANCH DUCT AND DAMPER DETAIL
SCALE: NONE — 5 / ME-5A1

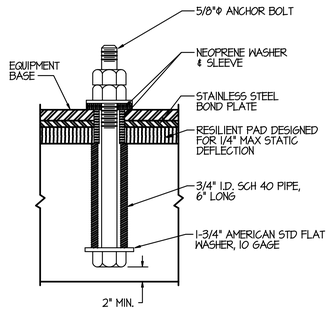


NOTES:
1. ALL DUCTS (SUPPLY, RETURN AND EXHAUST) TO HAVE TURNING VANES IN SQUARE ELBOW.
2. INSIDE SQUARE, OUTSIDE RADIUS ELBOWS NOT ALLOWED.

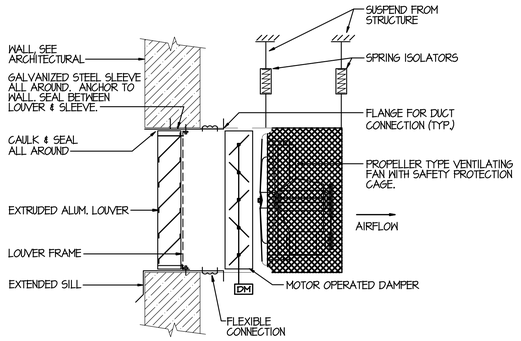
RECTANGULAR DUCT FITTINGS DETAIL
SCALE: NONE — 1 / ME-5A1



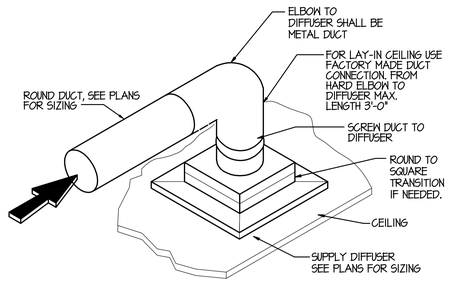
LOUVERED PENTHOUSE DETAIL
SCALE: NONE — 14 / ME-5A1



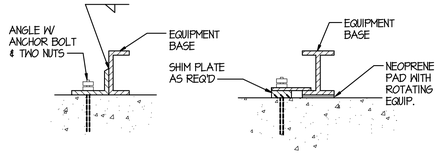
EQUIPMENT CONNECTION DETAIL
SCALE: NONE — 10 / ME-5A1



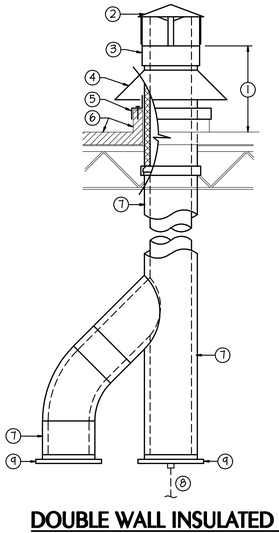
VENT FAN IN WALL DETAIL
SCALE: NONE — 6 / ME-5A1



DUCT CONNECTION TO DIFFUSER DETAIL
SCALE: NONE — 2 / ME-5A1



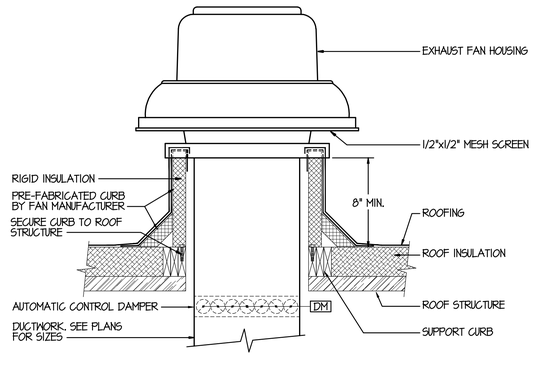
RESTRAINTS OF RIGIDLY MOUNTED MECHANICAL EQUIPMENT
SCALE: NONE — 11 / ME-5A1



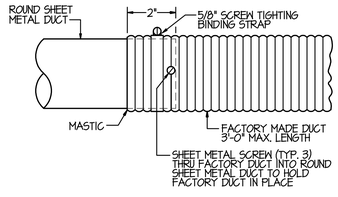
DETAIL NOTES:
1. OUTLET 36"(MIN) ABOVE ROOF
2. RAIN CAP
3. TOP SECTION
4. RAIN COLLAR
5. 16 GA. GALV. STEEL CURB FLASHING AND STACK GUIDE. ANCHOR TO CURB, SEAL WEATHERTIGHT.
6. FOR CURB AND ROOF DETAILS SEE ARCHITECTURAL DRAWINGS.
7. INSULATED DOUBLE WALL BOILER STACK, SEE SPECS.
8. DRAIN SECTON WITH FULL SIZE DRAIN TO FLOOR DRAIN
9. CLAMPING FLANGE AND COMPANION FLANGE, CONNECT TO BOILER OUTLET

NOTE:
DOUBLE WALL INSULATED STACK ASSEMBLY SHALL BE U.L. LISTED

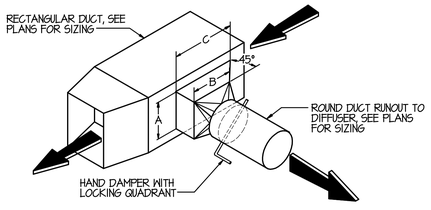
DOUBLE WALL INSULATED BOILER STACK
SCALE: NONE — 12 / ME-5A1



EXHAUST FAN AND CURB DETAIL
SCALE: NONE — 7 / ME-5A1

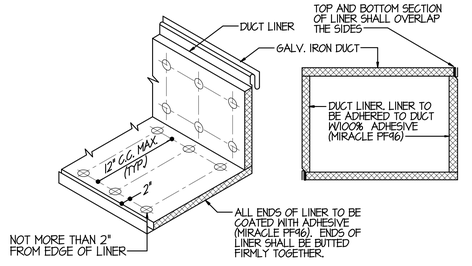


FACTORY MADE DUCT DETAIL
SCALE: NONE — 8 / ME-5A1



NOTE: MIN. AREA OF AxB SHALL EQUAL CROSS SECTION AREA OF BRANCH DUCT.
AREA OF AxC SHALL BE EQUAL TO 1.5xAREA OF AxB.

DUCT CONNECTION DETAIL
SCALE: NONE — 3 / ME-5A1



METAL FASTENERS:
OMARK INSUL-PINS, DURA DYNE FASTENERS OR GRIP NAILS. GRIP NAILS SHALL BE INSTALLED BY "GRIP NAIL AIR HAMMER" OR BY "AUTOMATIC FASTENER EQUIPMENT".

DUCT LINER DETAIL
SCALE: NONE — 4 / ME-5A1

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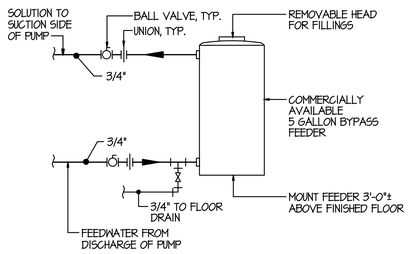
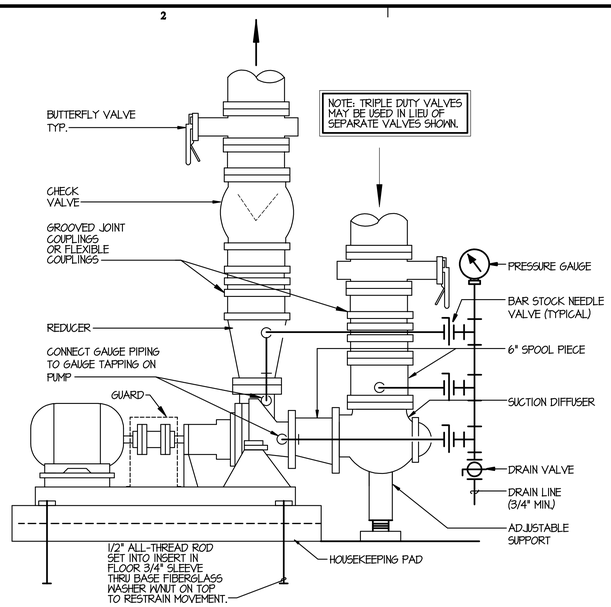
SHEET TITLE
MECHANICAL DETAILS

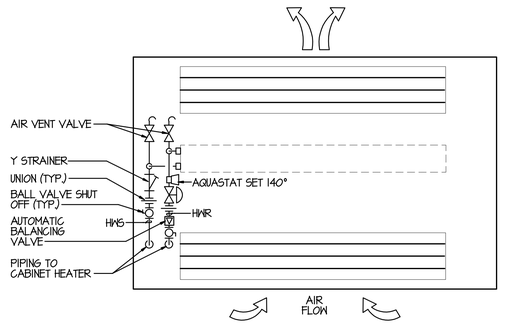
SHEET NUMBER
ME-5A1



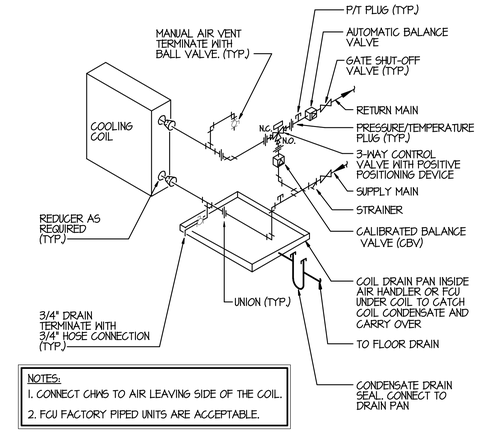
CHEMICAL FEEDER DETAIL
SCALE: NONE — POT TYPE — 10 / ME-5A2



PUMP AND BASE DETAIL
SCALE: NONE — 7 / ME-5A2

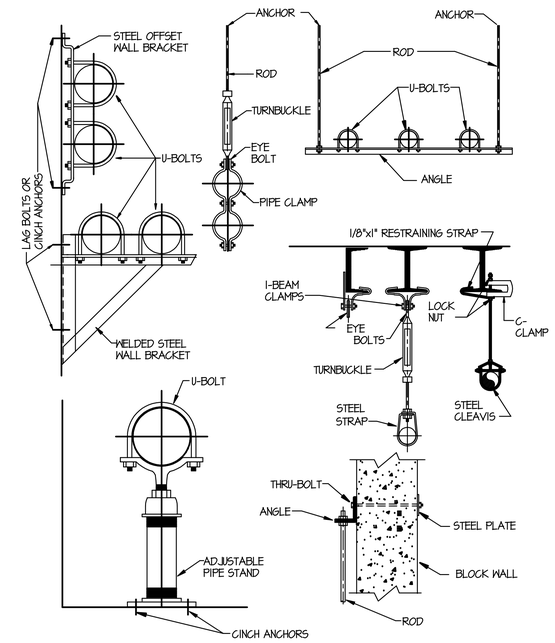


CABINET HEATER PIPING DETAIL
SCALE: NONE — 4 / ME-5A2

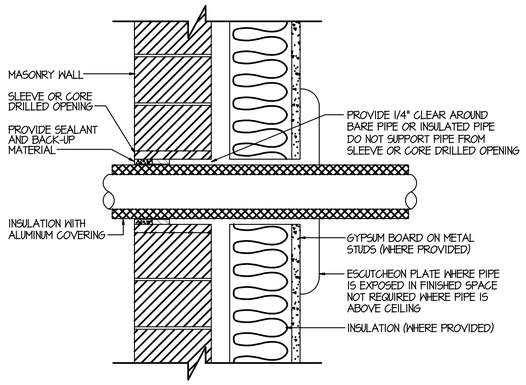


NOTES:
1. CONNECT CHWS TO AIR LEAVING SIDE OF THE COIL.
2. FCU FACTORY PIPED UNITS ARE ACCEPTABLE.

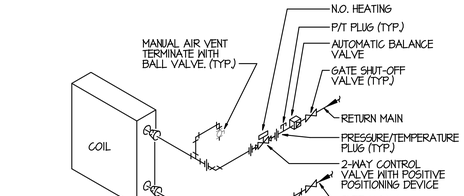
COOLING COIL PIPING 3-WAY CONNECTION DETAIL
SCALE: NONE — 1 / ME-5A2



TYPICAL PIPE SUPPORTS DETAIL
SCALE: NONE — 8 / ME-5A2

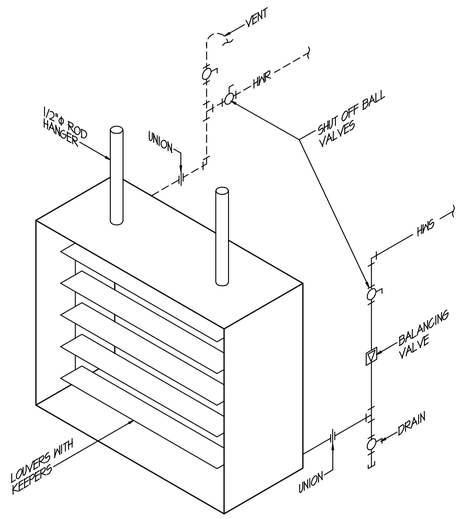


PIPING THRU WALL ABOVE GRADE
SCALE: NONE — 5 / ME-5A2



NOTES:
1. CONNECT CHWS TO AIR LEAVING SIDE OF THE COIL.
2. FCU FACTORY PIPED UNITS ARE ACCEPTABLE.

HEATING COIL PIPING 3-WAY CONNECTION DETAIL
SCALE: NONE — 2 / ME-5A2

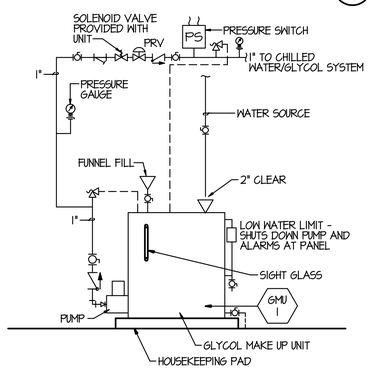


NOTE: PIPING FOR VERTICAL UNIT HEATERS IS SIMILAR

HORIZONTAL UNIT HEATER DETAIL
SCALE: NONE — 6 / ME-5A2

NOTE:
1. CONNECT SUPPLY TO AIR LEAVING SIDE OF THE COIL.

HEATING COIL PIPING 2-WAY CONNECTION DETAIL
SCALE: NONE — 3 / ME-5A2



GLYCOL MAKE-UP UNIT DETAIL
SCALE: NONE — 9 / ME-5A2

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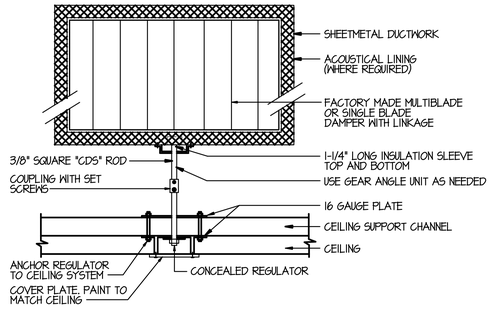
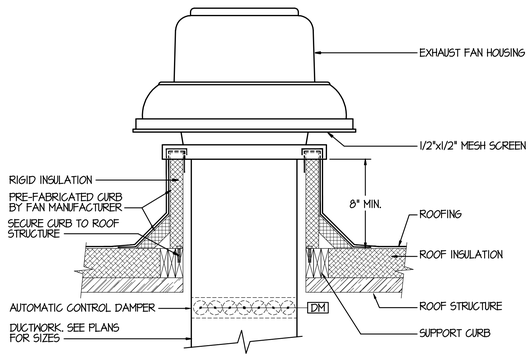
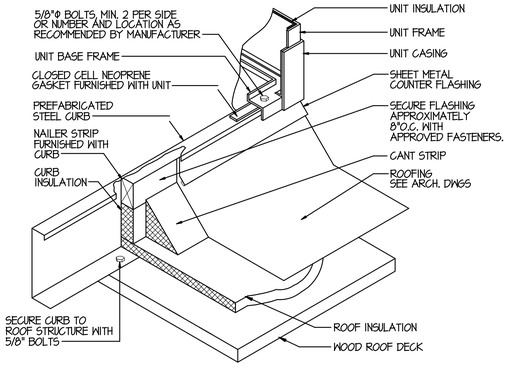


NOTES:
1. MAXIMUM SINGLE DAMPER 12" SQUARE. FOR MULTIBLADE DAMPER, SEE DETAIL
2. FOR DAMPERS ABOVE LAY-IN CEILING, DELETE REGULATOR AND USE LOCKING QUADRANT.
3. ROUND DUCT DAMPER REMOTE REGULATOR INSTALLATION SIMILAR.
4. REGULATOR HARDWARE BASED ON YOUNG OR VENTFABRICS HARDWARE MANUFACTURERS.

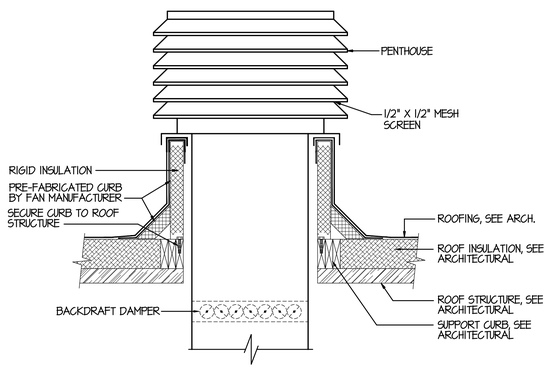
REMOTE DAMPER REGULATOR DETAIL
SCALE: NONE — 13 / ME-5B1



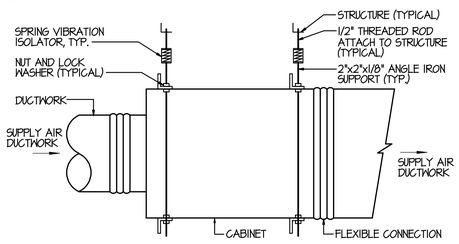
EXHAUST FAN AND CURB DETAIL
SCALE: NONE — 14 / ME-5B1



ROOFTOP EQUIPMENT FLASHING DETAIL
SCALE: NONE — 15 / ME-5B1

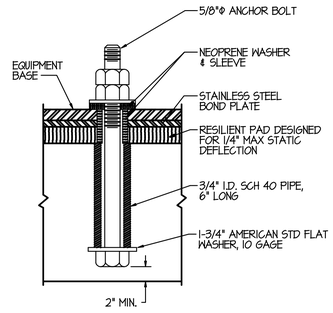


LOUVERED PENTHOUSE DETAIL
SCALE: NONE — 16 / ME-5B1

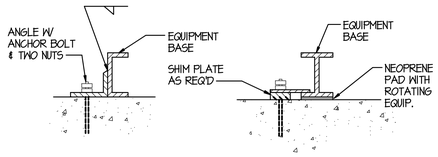


NOTE:
USE FACTORY POINTS OF CONNECTION IF PROVIDED.

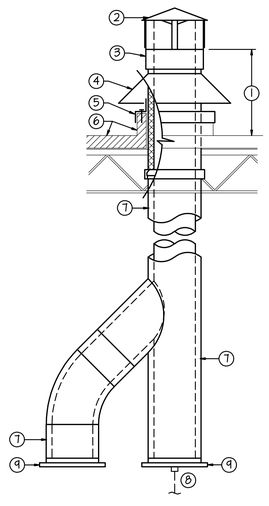
BLOWER COIL UNIT MOUNTING DETAIL
SCALE: NONE — 9 / ME-5B1



EQUIPMENT CONNECTION DETAIL
SCALE: NONE — 10 / ME-5B1



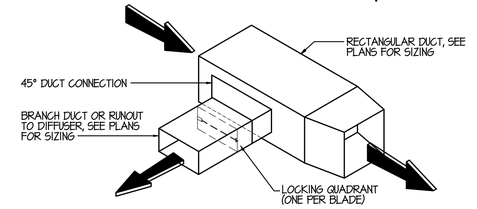
RESTRAINTS OF RIGIDLY MOUNTED MECHANICAL EQUIPMENT
SCALE: NONE — 11 / ME-5B1

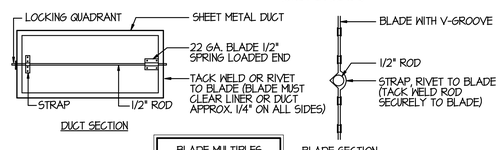


DETAIL NOTES:
1. OUTLET 36"(MIN) ABOVE ROOF
2. RAIN CAP
3. TOP SECTION
4. RAIN COLLAR
5. 16 GA. GALV. STEEL CURB FLASHING AND STACK GUIDE. ANCHOR TO CURB, SEAL WEATHERTIGHT.
6. FOR CURB AND ROOF DETAILS SEE ARCHITECTURAL DRAWINGS.
7. INSULATED DOUBLE WALL BOILER STACK, SEE SPECS.
8. DRAIN SECTON WITH FULL SIZE DRAIN TO FLOOR DRAIN
9. CLAMPING FLANGE AND COMPANION FLANGE, CONNECT TO BOILER OUTLET

NOTE:
DOUBLE WALL INSULATED STACK ASSEMBLY SHALL BE U.L. LISTED

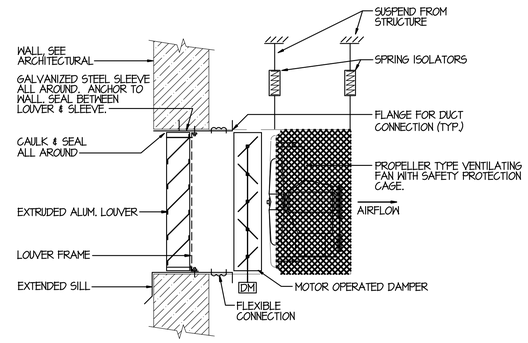
DOUBLE WALL INSULATED BOILER STACK
SCALE: NONE — 12 / ME-5B1



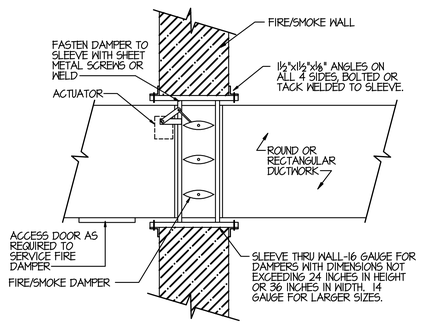


BLADE MULTIPLES
DUCT DEPTH
UP TO 12" - 1 BLADE
UP TO 20" - 2 BLADES
UP TO 30 " - 3 BLADES

BRANCH DUCT AND DAMPER DETAIL
SCALE: NONE — 5 / ME-5B1

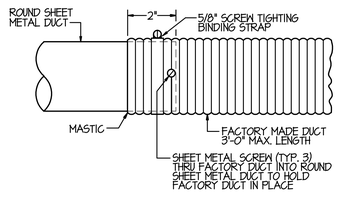


VENT FAN IN WALL DETAIL
SCALE: NONE — 6 / ME-5B1

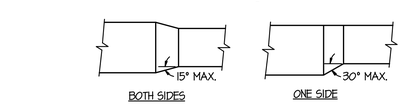


NOTES:
1. THIS DETAIL IS INTENDED TO SHOW ONLY GENERAL REQUIREMENTS FOR FIRE/SMOKE DAMPER INSTALLATION. THE ACTUAL DAMPER SHALL BE INSTALLED IN ACCORDANCE WITH ITS U.L. LISTING. THE CONTRACTOR SHALL SUBMIT INSTALLATION INSTRUCTIONS.
2. THE DAMPER OPERATOR IS SPECIFIED WITH THE FIRE DAMPER IN SECTION 15845. WIRING OF ELECTRICAL/FIRE ALARM CONNECTION IS SPECIFIED UNDER DIVISION 16000.

FIRE/SMOKE DAMPER DETAIL
SCALE: NONE — 7 / ME-5B1

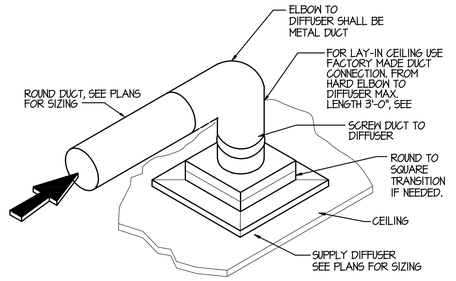


FACTORY MADE DUCT DETAIL
SCALE: NONE — 8 / ME-5B1

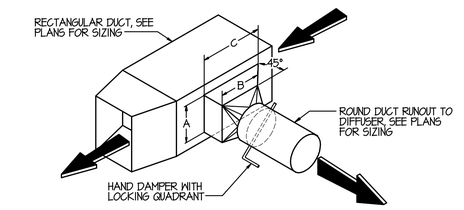


NOTES:
1. ALL DUCTS (SUPPLY, RETURN AND EXHAUST) TO HAVE TURNING VANES IN SQUARE ELBOW.
2. INSIDE SQUARE, OUTSIDE RADIUS ELBOWS NOT ALLOWED.

RECTANGULAR DUCT FITTINGS DETAIL
SCALE: NONE — 1 / ME-5B1



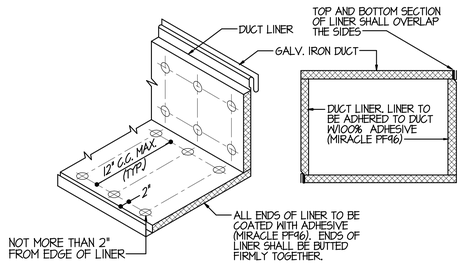
DUCT CONNECTION TO DIFFUSER DETAIL
SCALE: NONE — 2 / ME-5B1



NOTE: MIN. AREA OF AxB SHALL EQUAL CROSS SECTION AREA OF BRANCH DUCT.

AREA OF AxG SHALL BE EQUAL TO 1.5xAREA OF AxB.

DUCT CONNECTION DETAIL
SCALE: NONE — 3 / ME-5B1



METAL FASTENERS:
OMARK INSUL-PINS, DURA DYNE FASTENERS OR GRIP NAILS. GRIP NAILS SHALL BE INSTALLED BY "GRIP NAIL AIR HAMMER" OR BY "AUTOMATIC FASTENER EQUIPMENT".

DUCT LINER DETAIL
SCALE: NONE — 4 / ME-5B1

State of Utah
Department of Administrative Services

DFCM

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BUILDING NAME:

BILLETING

PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

UTAH NATIONAL GUARD

MARK	DATE	DESCRIPTION

ISSUE TYPE:
Final Bid Documents

ISSUE DATE:
April 16, 2007

DFCM PROJECT NO: 95059480

CAD PROJECT NO:

CAD DWG FILE:

DRAWN BY:

CHK'D BY:

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SHEET TITLE

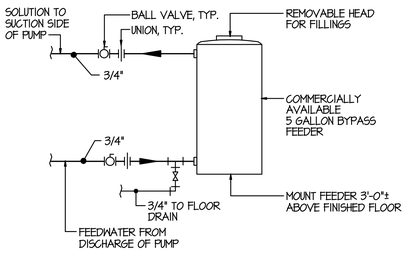
MECHANICAL DETAILS

LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET NUMBER

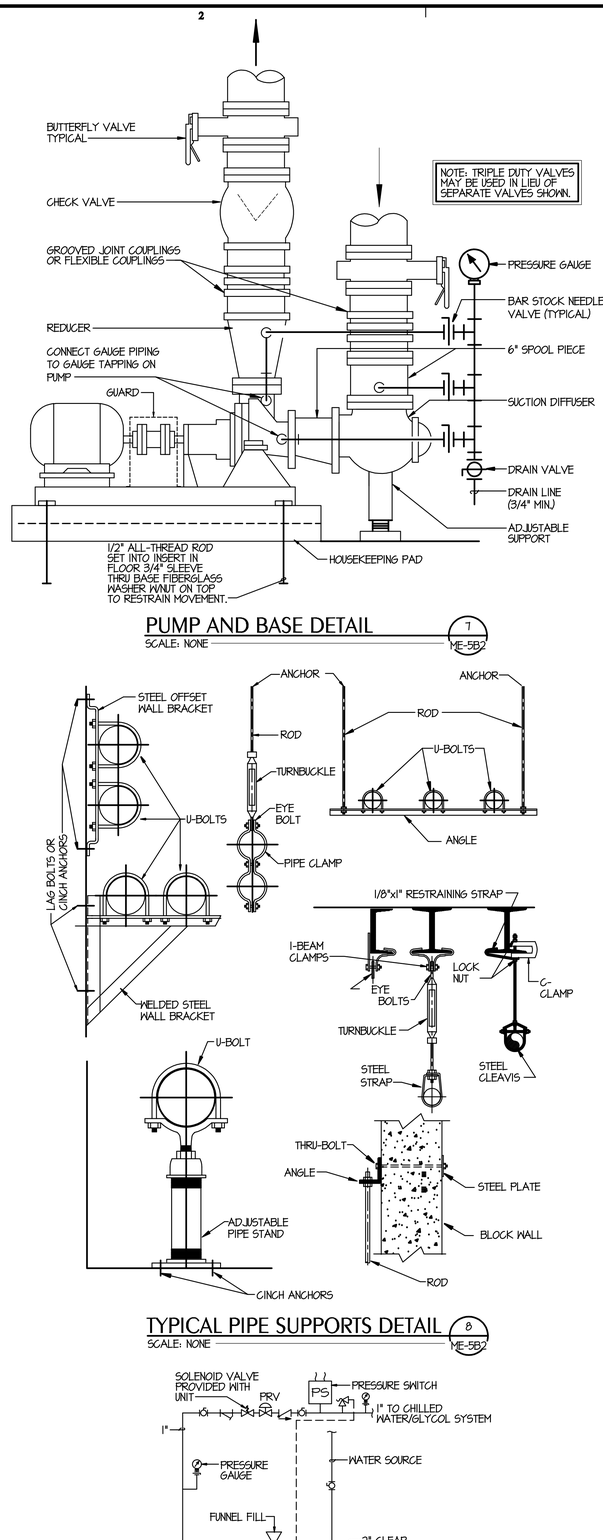
ME-5B1

99 OF 146



CHEMICAL FEEDER DETAIL 10 ME-5B2

SCALE: NONE — POT TYPE

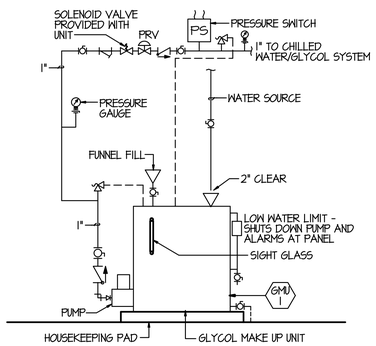


PUMP AND BASE DETAIL 7 ME-5B2

SCALE: NONE

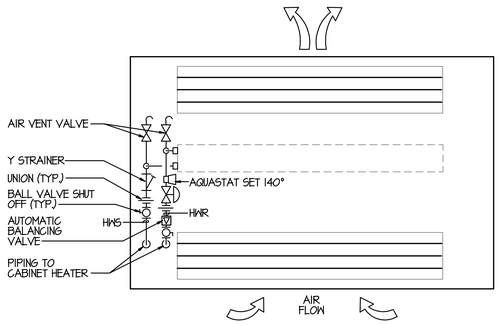
TYPICAL PIPE SUPPORTS DETAIL 8 ME-5B2

SCALE: NONE



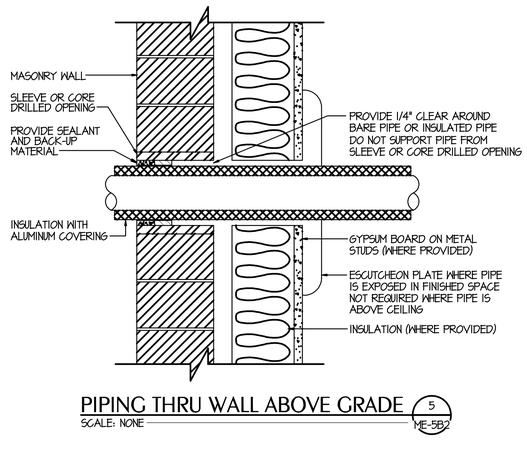
GLYCOL MAKE-UP UNIT DETAIL 9 ME-5B2

SCALE: NONE



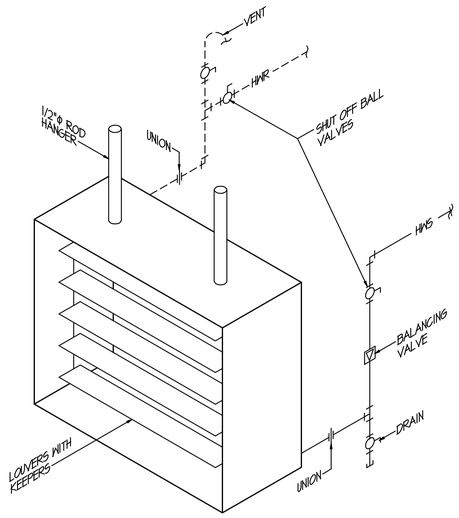
CABINET HEATER PIPING DETAIL 4 ME-5B2

SCALE: NONE



PIPING THRU WALL ABOVE GRADE 5 ME-5B2

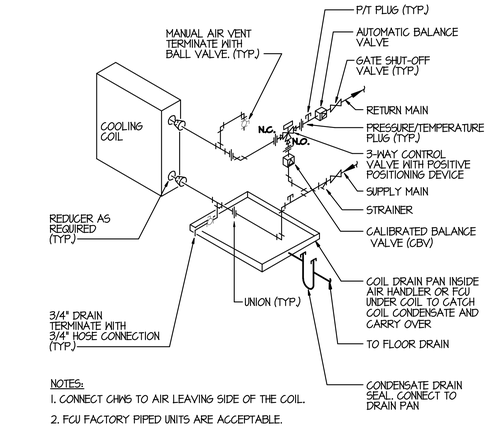
SCALE: NONE



NOTE: PIPING FOR VERTICAL UNIT HEATERS IS SIMILAR

HORIZONTAL UNIT HEATER DETAIL 6 ME-5B2

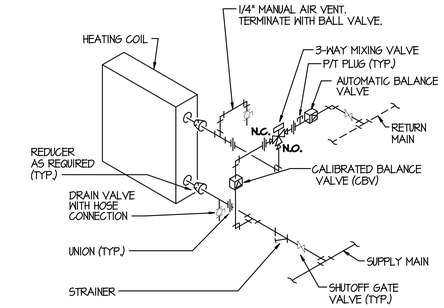
SCALE: NONE



NOTES:
1. CONNECT CHWS TO AIR LEAVING SIDE OF THE COIL.
2. FCU FACTORY PIPED UNITS ARE ACCEPTABLE.

COOLING COIL PIPING 3-WAY CONNECTIONS 1 ME-5B2

SCALE: NONE



NOTES:
1. CONNECT CHWS TO AIR LEAVING SIDE OF THE COIL.
2. FCU FACTORY PIPED UNITS ARE ACCEPTABLE.

HEATING COIL PIPING 3-WAY CONNECTION 2 ME-5B2

SCALE: NONE

NOT USED 3 ME-5B2

SCALE: NONE

State of Utah
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LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET NUMBER
ME-5B2
100 OF 146

MECHANICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	NEW CONNECTION		DROP IN PIPE
	SUPPLY DUCT (CROSS SECTION)		RISE IN PIPE
	RETURN AIR OR EXHAUST DUCT (CROSS SECTION)		VALVE IN RISE
	ROUND DUCT (CROSS SECTION)		UNION
	FLAT OVAL (CROSS SECTION)		GATE VALVE
	RISE OR DROP IN ROUND OVAL DUCT		BALL VALVE
24" X 12"	DUCT SIZE, INSIDE CLEAR DIMENSION IN INCHES		2 WAY CONTROL VALVE
RISE	DUCT RISE		3 WAY CONTROL VALVE
	DROP OR RISE IN SUPPLY DUCT		CONTROL VALVE (PLAN VIEW)
	ACOUSTICAL LINING IN DUCT		CHECK VALVE
	TURNING VANES IN DUCT		BUTTERFLY VALVE
H.D.	HAND DAMPER		PLUG VALVE
F.D.	FIRE DAMPER		CAP
	FLANGED DUCT		CONCENTRIC REDUCER
	FACTORY MADE DUCT CONNECTION		ECCENTRIC REDUCER
	FACTORY MADE DUCT		GAUGE COCK
	SUPPLY AIR DIRECTION		GAUGE WITH GAUGE COCK
	RETURN AIR OR EXHAUST DIRECTION		FLOW CONTROLLER OR BALANCE VALVE
	SUPPLY DIFFUSER		STRAINER
	RETURN AIR GRILLE		THERMOMETER OR GAUGE WELL
	EXHAUST GRILLE		THERMOMETER
	SPIN-IN FITTING		PRESSURE/TEMPERATURE TEST PLUG (PETE'S PLUG)
	BRANCH DUCT TAKE-OFF		GLOBE VALVE
	PARALLEL BLADE DAMPER		PRESSURE REDUCING VALVE - (PRV)
	OPPOSED BLADE DAMPER		SAFETY OR RELIEF VALVE
T	THERMOSTAT		PIPE ANCHOR
SD	IONIZATION TYPE SMOKE DETECTOR		PIPE GUIDE
MD	MOTORIZED DAMPER OR DAMPER ACTUATOR		GROOVED JOINT COUPLING
FZ	FREEZESTAT		BLIND FLANGE
T	DUCT PIPE THERMOSTAT, REMOTE BULB	FD FS	FLOOR DRAIN, FLOOR SINK
S	TEMPERATURE SENSOR	VTR	VENT THROUGH ROOF
R	RELAY	— - - —	COLD WATER
C	HOLDING COILING-MOTOR STARTER OR AUX. RELAY	--------	VENT
M	MAIN AIR	— HWS —	HEATING WATER SUPPLY
M	ELECTRIC MOTOR	— HWR —	HEATING WATER RETURN
	PILOT LIGHT	— CHWS —	CHILLED WATER SUPPLY
	MANUAL SWITCH	— CHWR —	CHILLED WATER RETURN
	HAND-OFF-AUTOMATIC (HOA) SWITCH	— —D— —	DRAIN
OR	NORMALLY OPEN CONTACT	—A—	AIR
OR	NORMALLY CLOSED CONTACT	—soft cw—	SOFT COLD WATER
O.L.	OVERLOAD CONTACT		TRANSFORMER
OR	FUSE, FUSETRON, FUSESTAT, OR O.L.	H H	HUMIDITY SENSOR
N.O.	NORMALLY OPEN	SP SP	STATIC PRESSURE SENSOR
N.C.	NORMALLY CLOSED	LVTP	LOW VOLTAGE TRANSFORMER PANEL

LOUVERS (LVR)

SYMBOL	APPROX. SIZE	DUTY	SUGGESTED MANUFACTURER RUSKIN (1)	AIR FLOW CFM	MAX. A.P.D. IN. W.C.	REMARKS
LVR-1	48"W x 48"H	GEN. DISCH. AIR	ELF-375X	5,300	.08	WITH BACKDRAFT DAMPER BEHIND LOUVER
LVR-2	48"W x 60"H	INLET AIR	ELF-375DX	5,300	.06	WITH MOTORIZED DAMPER BEHIND LOUVER TO OPEN ON GEN. RUN.

(1) OR EQUAL FROM AIROLITE, ARROW, LOUVERS AND DAMPERS OR GREENHECK.

PROPELLER VENTILATION AIR FANS (VF)

SYMBOL	AIR FLOW CFM	TOTAL STATIC PRESSURE IN WG	(1) FAN RPM	FAN MOTOR NOM. HP	FAN MOTOR VOLTS	FAN MOTOR Hz	FAN MOTOR PH	APPROX. PANEL SIZE INCHES	DRIVE	COOK (2) MODEL	DUTY	REMARKS
VF-1	2,000	.10	756	1/4	115	60	1	24x24	BELT	20XLW	BOILER ROOM VENTILATION	2 SPEED MOTOR. START LOW SPEED AT 62°F AND HIGH SPEED AT 82°F

(1) MAX. TIP SPEED NOT TO EXCEED 5000 FPM

(2) OR EQUAL FROM GREENHECK, PENN, ACME

CABINET HEATERS (CHT)

SYMBOL	NOMINAL AIR FLOW CFM	FAN TYPE	HP	HEATING COIL MIN. CAPACITY BTUH	HEATING COIL ENT. WATER TEMP	HEATING COIL ENT. AIR TEMP.	HEATING COIL GPM	HEATING COIL WATER PRESS. DROP	DUNHAM BUSH MODEL (1)	VOLTS	REMARKS
CHT-1	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-175	115	3 SPEED FAN (2)
CHT-2	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-175	115	3 SPEED FAN (2)
CHT-3	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-175	115	3 SPEED FAN (2)
CHT-4	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-175	115	3 SPEED FAN (2)

(1) OR EQUAL FROM TRANE, MODINE OR STERLING

(2) SUBMIT CABINET COLOR FOR APPROVAL.

AIR HANDLING UNITS (AH)

SYMBOL	DESIGN AIR FLOW (CFM)	TOTAL STATIC PRESSURE (IN. WG)	FAN TYPE **	FAN RPM	No. & MIN. SIZE OF WHEELS (INCHES)	COIL SYMBOL	SUPPLY FAN MOTOR MAX SPL *	MAX BHP	MINIMUM MOTOR HP	VOLTS	PHASE	HERTZ	TYPE OF DRIVE	FILTER SYMBOL	MINIMUM OUTSIDE AIR FLOW (CFM)	MFR TEMPTROL	REMARKS
AH-1	40,000	3.5	PF	723	1-54	CC-1, HC-1	84	38	40	460	3	60	BELT VFD-1	F-1	11,000	WF-DH86	* SOUND POWER LEVEL - 3RD OCTAVE BAND ** ALL AIR HANDLING UNIT SHALL HAVE FANS WITH INTERNAL SPRING ISOLATORS AND SIESMIC SNUBBERS. EFFICIENCY SHALL BE AT LEAST 75%.
AH-2	8,000	2.5	FC	990	1-18	CC-2, HC-2	79	5.1	7.5	460	3	60	BELT	F-2	2,800	WF-DH14	

CHILLED WATER COOLING COILS (CC)

SYMBOL	CFM	MIN. CAP. TOTAL (MBH)	MIN. CAP. SENSIBLE (MBH)	ENTERING AIR DRY BULB (°F)	ENTERING AIR WET BULB (°F)	LEAVING AIR DRY BULB (°F)	LEAVING AIR WET BULB (°F)	GPM	ENTERING WATER TEMP (°F)	GLYCOL %	MAX. AIR PRESS. DROP (IN. WG)	MAX. WATER PRESS. DROP (FT. WG)	MAX. FACE VELOCITY (FPM)	MIN. NO. OF ROWS	CONTROL VALVE CV	CONTROL VALVE SYMBOL	REMARKS
CC-1	40,000	1,079	1,047	80	62	51	50	180	45	30	0.60	11	470	8	100	CCCV-1	-
CC-2	8,000	197	197	80	62	52.7	51	34	45	30	0.60	11	475	8	25	CCCV-2	-

HOT WATER HEATING COILS (HC)

SYMBOL	CFM	MIN. CAP. TOTAL (MBH)	GPM	ENTERING WATER °F	ENTERING AIR °F	MAX. AIR PRESS. DROP (IN. WG) (1)	MAX. WATER PRESS. DROP (FT. WG)	MAX. FACE VELOCITY (FPM)	TYPE	CONTROL VALVE CV	CONTROL VALVE SYMBOL	REMARKS
HC-1	40,000	2,534	173	180	35	0.2	6	470	HEATING	100	HCCV-1	-
HC-2	8,000	427	29	180	53	0.2	6	475	HEATING	16	HCCV-2	-

(1) AT COOLING AIRFLOW.

AIR FILTER - SECTIONAL DISPOSABLE (F)

SYMBOL	TOTAL FILTER BANK (CFM)	MAXIMUM FACE VELOCITY (FPM)	THICKNESS (INCHES)	MAX. INITIAL RESISTANCE (IN. WG)	FINAL RESISTANCE (IN. WG)	SYSTEM NO.	MINIMUM AVERAGE EFFICIENCY % PER ASHRAE 52-90	REMARKS
F-1	40,000	350	2	.20	.50	1	25-30	-
F-2	8,000	350	2	.20	.50	1	25-30	-

RELIEF FAN (RF)

SYMBOL	AIR FLOW CFM	TOTAL STATIC PRESSURE IN WG	UNIT TYPE	DRIVE	FAN MOTOR MIN. HP	FAN MOTOR VOLTS	FAN MOTOR PHASE	FAN MOTOR HERTZ	MAX. SPL IN/OUT dB (1)	MFR COOK	REMARKS
RF-1	10,000	.6	ROOF MOUNTED	BELT	1.5	460	3	60	84	300ACRUB	CONTROLLED BY VARIABLE FREQUENCY DRIVE
RF-2	10,000	.6	ROOF MOUNTED	BELT	1.5	460	3	60	84	300ACRUB	CONTROLLED BY VARIABLE FREQUENCY DRIVE
RF-3	10,000	.6	ROOF MOUNTED	BELT	1.5	460	3	60	84	300ACRUB	CONTROLLED BY VARIABLE FREQUENCY DRIVE
RF-4	10,000	.6	ROOF MOUNTED	BELT	1.5	460	3	60	84	300ACRUB	CONTROLLED BY VARIABLE FREQUENCY DRIVE

(1) 3rd OCTAVE BAND

EXHAUST FAN (EF)

SYMBOL	MINIMUM AIR FLOW CFM	TOTAL STATIC PRESSURE IN WG	UNIT TYPE	DRIVE	FAN MOTOR MIN. HP	FAN MOTOR VOLTS	FAN MOTOR PHASE	FAN MOTOR HERTZ	MFR COOK	REMARKS
EF-1	1500	.75	ROOF MOUNTED	BELT	1/2	115	1	60	135 ACEB	-
EF-2	1000	.75	ROOF MOUNTED	BELT	1/3	115	1	60	120 ACEB	-

LIQUID CHILLING PACKAGE - AIR COOLED (CH)

SYMBOL	TYPE	MIN. CAPACITY AT SITE (TONS)	GPM	LIQUID USED	TEMPERATURE IN (°F)	TEMPERATURE OUT (°F)	MAX. LIQUID PD (FT. WG)	FOULING FACTOR (hr/Btu)	AMBIENT TEMPERATURE (°F)	MIN. AT SITE CONDITIONS EER	ELECTRICAL VOLT	ELECTRICAL PHASE	ELECTRICAL HERTZ	MIN. STAGES	MFR TRANE	REMARKS
CH-1	SCREW	109	214	30% GLYCOL	57	44	16	0.0001	100	8.6	460	3	60	3	RTAA3-1	LOW AMBIENT CONTROL

CHILLED AND HEATING WATER PUMPS (HWP AND CHWP)

SYMBOL	SERVICE	MINIMUM CAPACITY (GPM)	TOTAL DYNAMIC HEAD (FT. WG)	TYPE CENTRIFUGAL	MAXIMUM RPM	PUMP MINIMUM EFFICIENCY %	MOTOR MINIMUM HP	MOTOR VOLTS	MOTOR PHASE	MOTOR HERTZ	LIQUID USED	MFR BALL & GOSSETT	REMARKS
HWP-1	HEATING WATER	254	60	BASE MOUNTED	1750	76	7.5	460	3	60	WATER	2-1/2 BC	-
HWP-2	HEATING WATER	254	60	BASE MOUNTED	1750	76	7.5	460	3	60	WATER	2-1/2 BC	-
CHWP-1	CHILLED WATER	214	55	BASE MOUNTED	1750	65	7.5	460	3	60	30% PROPYLENE GLYCOL	2 BC	-
CHWP-2	CHILLED WATER	214	55	BASE MOUNTED	1750	65	7.5	460	3	60	30% PROPYLENE GLYCOL	2 BC	-
BP-1	BOILER WATER	50	25	IN-LINE	1750	58	7.5	460	3	60	WATER	2A	-
BP-2	BOILER WATER	50	25	IN-LINE	1750	58	7.5	460	3	60	WATER	2A	-

VARIABLE FREQUENCY DRIVES (VFD)

SYMBOL	DUTY	FAN MOTOR NOMINAL HP	FAN MOTOR VOLTS	FAN MOTOR HERTZ	FAN MOTOR PHASE	REMARKS
VFD-1	AH-1	40	460	60	3	THE DRIVES SHALL MATCH THE MOTORS PROVIDED WITH THE FAN. THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR THE DRIVES INCLUDING INSTALLATION AND COORDINATION.
VFD-2	RF-1,2	3	460	60	3	
VFD-3	RF-3,4	3	460	60	3	
VFD-4	HWP-1	7.5	460	60	3	
VFD-5	HWP-2	7.5	460	60	3	

LOUVERED PENTHOUSE (LP)

SYMBOL	THROAT SIZE	TIERS HEIGH	MIN. LOUVER FREE AREA (SQ. FT.)	MIN. THROAT AREA (SQ. FT.)	SERVICE	COOK MODEL (1)	REMARKS
LP-1	60"x180"	12	78.9	75	OUTSIDE AIR AH-1	TRE	-
LP-2	32"x72"	6	23.5	16	OUTSIDE AIR AH-2	TRE	-
LP-3	48"x72"	7	26.6	24	RELIEF AIR AH-2	TRE	FURNISHED WITH MOTORIZED DAMPER
LP-4	48"x72"	7	26.6	24	RELIEF AIR AH-2	TRE	FURNISHED WITH MOTORIZED DAMPER
LP-5	32"x48"	4	10.7	10.8	RELIEF AIR VF-1	TRE	FURNISHED WITH BACKDRAFT DAMPER

(1) EQUAL BY GREENHECK OR RUSKIN

UNIT HEATERS (UH)

SYMBOL	NOMINAL AIR FLOW CFM	DISCHARGE:	HEATING MINIMUM CAPACITY BTUH	HEATING ENTERING WATER TEMP °F	HEATING ENTERING AIR TEMP °F	HEATING GPM	HEATING WATER PRESS DROP MAX FT WG	ELECTRICAL HP	ELECTRICAL V	ELECTRICAL PH	ELECTRICAL HZ	DUNHAM BUSH MODEL (1)	REMARKS
UH-1	900	HORIZONTAL	31,600	180	60	2	1.0	1/20	115	1	60	H250C	-

(1) OR EQUAL FROM TRANE, MODINE OR STERLING

NOTE:
ALL CAPACITIES SHOWN ARE FOR A 4500 FT ELEVATION.

SOUND TRAPS (ST)

SYMBOL	CFM	SIZE	IAC MODEL	REMARKS
ST-1	4450	36"x36"x3'-0"	TYPE S	-
ST-2	1780	24"x24"x3'-0"	TYPE S	-

SELECTION BASED ON IAC

LICENSED PROFESSIONAL ENGINEER — No. 154099 — B. BRYCE GARDNER — STATE OF UTAH

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Department of Administrative Services

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BUILDING NAME:

ADMINISTRATION

PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

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ISSUE TYPE:
Final Bid Documents

ISSUE DATE:
April 16, 2007

DFCM PROJECT NO: 95059480

CAD PROJECT NO:

CAD DWG FILE:

DRAWN BY:

CHK'D BY:

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SHEET TITLE

ADMINISTRATION AND EDUCATION BUILDING MECHANICAL SCHEDULES AND SYMBOL LEGEND

SHEET NUMBER

ME-6A1

101 OF 146

GAS FIRED FORCED DRAFT HEATING WATER BOILER

SYMBOL	GPM	ENTERING WATER TEMP	LEAVING WATER TEMP	INPUT BTU/HR	OUTPUT BTU/HR (1)	ELECTRICAL				EFFICIENCY (MIN)	MFR THERMAL SOLUTIONS	REMARKS
						HP	VOLTS	HZ	PHASE			
B-1	125	160°F	180°F	750,000	660,000	1-1/2	460	60	3	88%	EV-750	-
B-2	125	160°F	180°F	750,000	660,000	1-1/2	460	60	3	88%	EV-750	-

(1) AT 4,500 FT. ELEVATION

AIR SEPARATOR (AS)

SYMBOL	GPM	WORKING PRESSURE (PSIG)	REMARKS
AS-1	254	125	ASME STAMPED
AS-2	214	125	

DIAPHRAGM EXPANSION TANK (ET)

SYMBOL	MINIMUM TOTAL WATER VOLUME (GALLONS)	MINIMUM ACCEPTANCE VOLUME (GALLONS)	NOMINAL OPERATING PRESSURE (PSIG)	MINIMUM DESIGN PRESSURE (PSIG)	% GLYCOL	REMARKS
ET-1	67	31	15	125	0	ASME 125 PSIG RATED
ET-2	34	19	15	125	35	ASME 125 PSIG RATED

GLYCOL MAKE-UP UNIT (GMU)

SYMBOL	TANK CAPACITY	PUMP							REMARKS
		GPM	HD PSI	HP APPROX.	MAX. RPM	VOLTS	PHASE	HERTZ	
GMU-1	30	10	30	1/2	1750	120	1	60	GLYCOL BY CONTRACTOR

DIFFUSER, REGISTER AND GRILLE SCHEDULE

SYMBOL	TYPE	SERVICE	RANGE (CFM)	NECK SIZE (INCHES) (3)	FACE SIZE (INCHES)	AIR (1) PATTERN	MFR TITUS	REMARKS (2)
D-1	SQUARE CEILING, LOUVERED FACE	SUPPLY AIR	50-140	6"Φ	24" x 24"	4 WAY	TMS	LAY-IN
D-2	SQUARE CEILING, LOUVERED FACE	SUPPLY AIR	150-250	8"Φ	24" x 24"	4 WAY	TMS	LAY-IN
D-3	SQUARE CEILING, LOUVERED FACE	SUPPLY AIR	260-340	10"Φ	24" x 24"	4 WAY	TMS	LAY-IN
D-4	SQUARE CEILING, LOUVERED FACE	SUPPLY AIR	400-500	12"Φ	24" x 24"	4 WAY	TMS	LAY-IN
D-5	SQUARE CEILING, LOUVERED FACE	SUPPLY AIR	510-750	14"Φ	24" x 24"	4 WAY	TMS	LAY-IN
S-1	DOUBLE DEFLECTION	SUPPLY AIR	600	18" x 8"	19-3/4" x 11-3/4"	2 WAY	350 RS	SURFACE
DL-1	DRUM LOUVER	SUPPLY AIR	500-600	20" x 10"	22-11/16" x 12"	ADJ.	DL	SURFACE
R-1	SINGLE DEFLECTION	EXHAUST AIR	50-150	8" x 6"	9-3/4" x 7-3/4"	-	350 RL	SURFACE (4)
R-2	SINGLE DEFLECTION	EXHAUST AIR	200-250	12" x 10"	13-3/4" x 11-3/4"	-	350 RL	SURFACE (4)
R-3	SINGLE DEFLECTION	EXHAUST AIR	300-400	14" x 14"	15-3/4" x 5-3/4"	-	350 RL	SURFACE (4)
R-4	PERFORATED FACE	RETURN AIR	401-500	10" x 22"	12" x 24"	-	PAR	LAY-IN
R-5	PERFORATED FACE	RETURN AIR	600-1600	22" x 22"	24" x 24"	-	PAR	LAY-IN
R-6	SINGLE DEFLECTION	RETURN AIR	8000	48"W x 72"H	49-3/4" x 73-3/4"	-	33RS	SURFACE (5)

(1) UNLESS OTHERWISE NOTED
(2) "S" SUFFIX DENOTES SURFACE FRAME
(3) PROVIDE TRANSITIONS AS REQUIRED TO EXISTING DUCTWORK.
(4) ALL ALUMINUM CONSTRUCTION.
(5) HEAVY DUTY

VARIABLE VOLUME AIR BOXES WITH REHEAT (VAV) (SELECTION CHART)

SYMBOL	TITUS SIZE	CFM RANGE	TITUS MODEL	MINIMUM OPERATING STATIC (IN. W.G.)	AIR PRESSURE DROP WITH 1 ROW COIL (IN. W.G.)	COIL DIMENSION (INCHES)	REMARKS
VAV_	6	0-400	DESV	1.0	0.30	12"x8"	-
VAV_	8	401-600	DESV	1.0	0.30	12"x10"	-
VAV_	9	601-850	DESV	1.0	0.30	14"x12"-1/2"	-
VAV_	10	851-1000	DESV	1.0	0.30	14"x12"-1/2"	-
VAV_	12	1001-1350	DESV	1.0	0.30	16"x15"	-
VAV_	14	1351-2000	DESV	1.0	0.30	20"x17"-1/2"	-
VAV_	16	2001-2400	DESV	1.0	0.30	24"x18"	-
VAV_	24x16	2401-4800	DESV	1.0	0.30	24"x18"	-

VARIABLE VOLUME WITH REHEAT (VAVR)

SYMBOL	ROOM SERVED	BALANCE AIRFLOW CLG. CFM	MAX. AIRFLOW HTG. CFM	MINIMUM AIRFLOW CFM	HEATING COIL				TITUS SIZE	MIN. INLET SIZE IN.	REMARKS
					HTG. CAPACITY BTU/HR	GPM	ENT DEG F.	MAX. PRESSURE DROP, FT. W.G.			
VAVR-1	Lobby & Vestibule	1200	530	235	19,462	1.3	180	0.70	12	12	
VAVR-2	Lobby & Vestibule	1200	530	235	19,462	1.3	180	0.70	12	12	
VAVR-3	Office	540	445	105	16,226	1.1	180	0.70	8	8	
VAVR-4	Office	430	360	105	13,130	0.9	180	0.70	8	8	
VAVR-5	Office	670	135	135	3,716	0.5	180	0.70	9	9	
VAVR-6	Break Room	450	155	155	4,685	0.5	180	0.70	8	8	
VAVR-7	Medical Room	540	300	105	11,210	0.7	180	0.70	8	8	
VAVR-8	Corridor	530	345	105	12,546	0.8	180	0.70	8	8	
VAVR-9	Storage & Receiving	1350	355	320	12,846	0.9	180	0.70	14	14	
VAVR-10	Office	960	210	210	6,064	0.5	180	0.70	10	10	
VAVR-11	Office	590	175	175	5,146	0.5	180	0.70	8	8	
VAVR-12	Conference	900	520	520	18,291	1.2	180	0.70	10	10	
VAVR-13	Office	250	185	60	6,762	0.5	180	0.70	6	6	
VAVR-14	Office	790	140	140	5,047	0.5	180	0.70	9	9	
VAVR-15	Office	630	140	140	3,955	0.5	180	0.70	9	9	
VAVR-16	Corridor	400	105	105	2,238	0.5	180	0.70	8	8	
VAVR-17	Restroom	500	260	105	9,534	0.6	180	0.70	8	8	
VAVR-18	Classroom	1800	330	330	8,941	0.6	180	0.70	14	14	
VAVR-19	Classroom	600	335	330	12,273	0.8	180	0.70	9	9	
VAVR-20	Office	800	430	135	15,694	1.0	180	0.70	9	9	
VAVR-21	Office	520	405	105	14,736	1.0	180	0.70	8	8	
VAVR-22	Office	400	270	105	9,800	0.7	180	0.70	8	8	
VAVR-23	Classroom	550	235	200	8,668	0.6	180	0.70	8	8	
VAVR-24	Office	390	140	105	5,156	0.5	180	0.70	6	6	
VAVR-25	Office	530	300	105	11,154	0.7	180	0.70	8	8	
VAVR-26	Office	150	100	60	3,580	0.5	180	0.70	6	6	
VAVR-27	Office	300	190	60	6,902	0.5	180	0.70	6	6	
VAVR-28	Classroom	900	415	415	13,083	0.9	180	0.70	10	10	
VAVR-29	Classroom	900	415	415	13,083	0.9	180	0.70	10	10	
VAVR-30	Office	610	360	140	13,116	0.9	180	0.70	9	9	
VAVR-31	Office	480	185	105	6,758	0.5	180	0.70	8	8	
VAVR-32	Office	100	100	60	1,769	0.5	180	0.70	6	6	
VAVR-33	Office	200	100	70	2,337	0.5	180	0.70	6	6	
VAVR-34	Classroom	900	510	510	15,776	1.1	180	0.70	10	10	
VAVR-35	Classroom	900	510	510	15,776	1.1	180	0.70	10	10	
VAVR-36	Classroom	900	525	525	14,432	1.0	180	0.70	10	10	
VAVR-37	Classroom	900	525	525	16,121	1.1	180	0.70	10	10	
VAVR-38	Office	340	100	70	3,282	0.5	180	0.70	6	6	
VAVR-39	Office	600	185	140	6,806	0.5	180	0.70	9	9	
VAVR-40	Office	200	120	70	4,470	0.5	180	0.70	6	6	
VAVR-41	Restroom	400	110	105	4,004	0.5	180	0.70	8	8	
VAVR-42	Break Room	600	315	315	9,361	0.6	180	0.70	9	9	
VAVR-43	Office	440	220	105	8,114	0.5	180	0.70	8	8	
VAVR-44	Office	450	280	105	10,210	0.7	180	0.70	8	8	
VAVR-45	Classroom	900	425	425	13,542	0.9	180	0.70	10	10	
VAVR-46	Classroom	900	425	425	11,740	0.8	180	0.70	10	10	
VAVR-47	Break Room	1100	455	350	16,706	1.1	180	0.70	12	12	
VAVR-48	Classroom	900	475	475	13,085	0.9	180	0.70	10	10	
VAVR-49	Classroom	900	485	485	13,941	0.9	180	0.70	10	10	
VAVR-50	Office	340	135	105	4,866	0.5	180	0.70	6	6	
VAVR-51	Classroom	900	455	455	14,681	1.0	180	0.70	10	10	
VAVR-52	Corridor	200	350	60	12,724	0.8	180	0.70	6	6	
VAVR-53	Classroom	900	455	455	14,681	1.0	180	0.70	10	10	
VAVR-54	Office	300	145	60	5,384	0.5	180	0.70	6	6	
VAVR-55	Office	310	200	70	7,384	0.5	180	0.70	6	6	
VAVR-56	Classroom	900	475	475	17,061	1.1	180	0.70	10	10	
VAVR-57	Alcove	200	100	60	1,617	0.5	180	0.70	6	6	
VAVR-58	Restroom	400	105	105	2,440	0.5	180	0.70	8	8	
VAVR-59	Lobby	1200	530	235	19,462	1.3	180	0.70	12	12	
VAVR-60	Lobby	1200	530	235	19,462	1.3	180	0.70	12	12	

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ISSUE TYPE:
Final Bid Documents

ISSUE DATE:
April 16, 2007

DFCM PROJECT NO: 95059480
CAD PROJECT NO:
CAD DWG FILE:
DRAWN BY:
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SHEET TITLE
ADMININISTRATION AND EDUCATION BUILDING MECHANICAL SCHEDULES

SHEET NUMBER
ME-6A2
102 OF 146

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No. 154099
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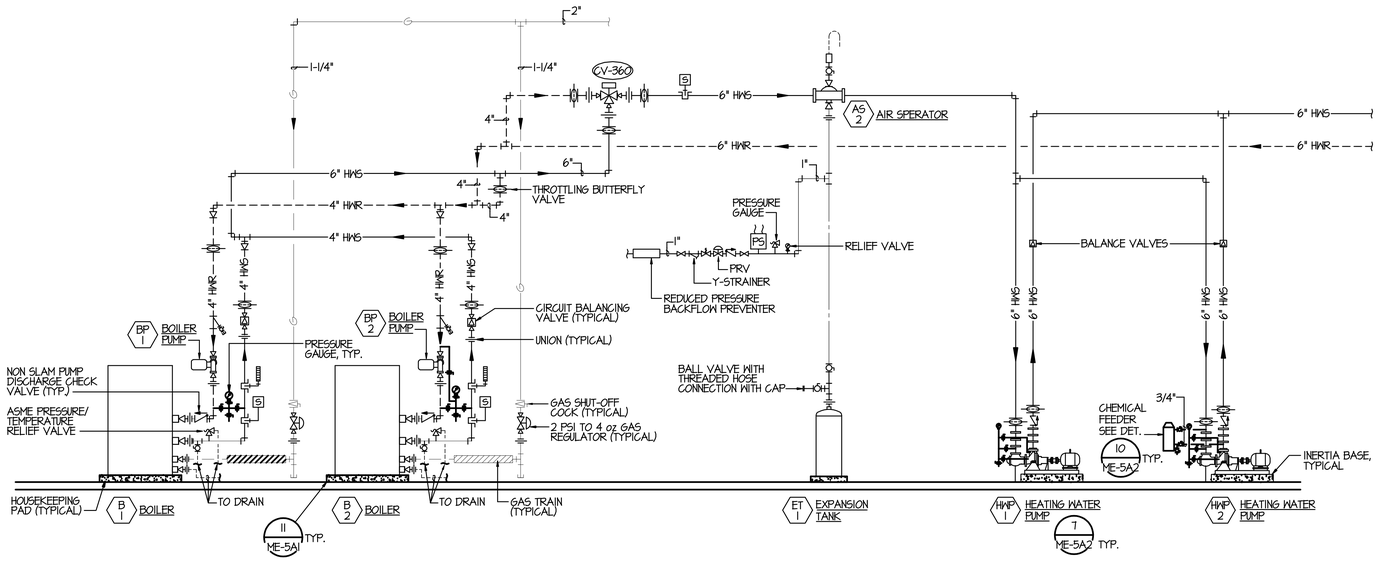
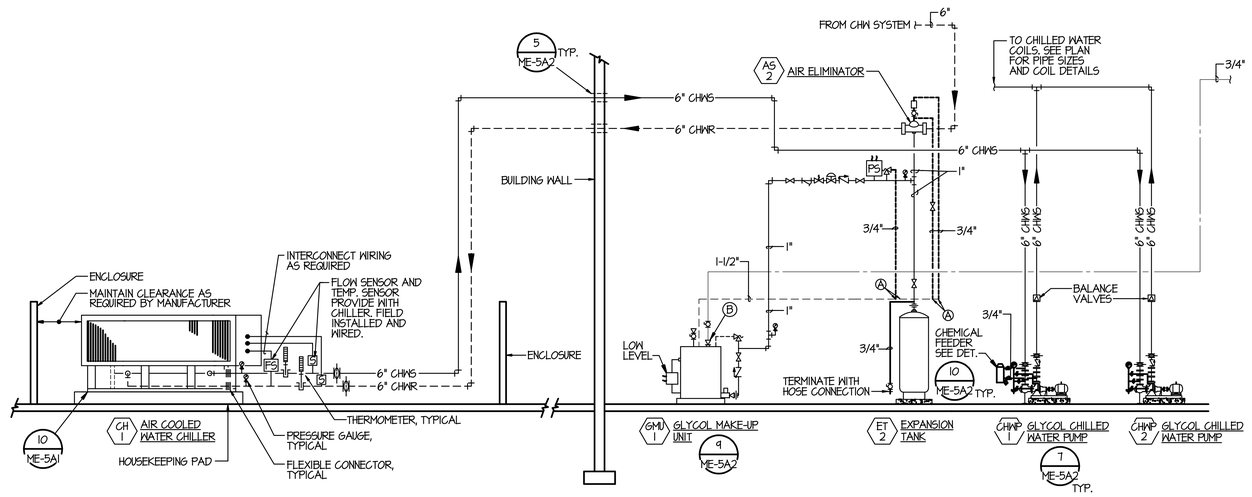


HEATING WATER FLOW DIAGRAM

SCALE: NONE — 1 / ME-6A3



NOTE:
PIPING SHOWN IS DIAGRAMATIC. ADJUST CONFIGURATION TO FIT AVAILABLE SPACE.

CHILLED WATER FLOW DIAGRAM

SCALE: NONE — 2 / ME-6A3

KEY NOTES

(A) CONNECT 3/4" DRAIN TO 1-1/2" COMMON DRAIN LINE. SLOPE 1-1/2" COMMON DRAIN LINE TO GLYCOL MAKE-UP UNIT. TERMINATE AT GLYCOL MAKE-UP UNIT.

(B) PROVIDE 2" AIR GAP

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ISSUE DATE: April 16, 2007

DFCM PROJECT NO: 95059480
CAD PROJECT NO:
CAD DWG FILE:
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MECHANICAL
FLOW DIAGRAMS

LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET NUMBER
ME-6A3
103 OF 146

MECHANICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	NEW CONNECTION		DROP IN PIPE
	SUPPLY DUCT (CROSS SECTION)		RISE IN PIPE
	RETURN AIR OR EXHAUST DUCT (CROSS SECTION)		VALVE IN RISE
	ROUND DUCT (CROSS SECTION)		UNION
	FLAT OVAL (CROSS SECTION)		GATE VALVE
	RISE OR DROP IN ROUND OVAL DUCT		BALL VALVE
24" X 12"	DUCT SIZE, INSIDE CLEAR DIMENSION IN INCHES		2 WAY CONTROL VALVE
RISE	DUCT RISE		3 WAY CONTROL VALVE
	DROP OR RISE IN SUPPLY DUCT		CONTROL VALVE (PLAN VIEW)
	ACOUSTICAL LINING IN DUCT		CHECK VALVE
	TURNING VANES IN DUCT		BUTTERFLY VALVE
H.D.	HAND DAMPER		PLUG VALVE
F.D.	FIRE DAMPER		CAP
	FLANGED DUCT		CONCENTRIC REDUCER
	FACTORY MADE DUCT CONNECTION		ECCENTRIC REDUCER
	FACTORY MADE DUCT		GAUGE COCK
	SUPPLY AIR DIRECTION		GAUGE WITH GAUGE COCK
	RETURN AIR OR EXHAUST DIRECTION		FLOW CONTROLLER OR BALANCE VALVE
	SUPPLY DIFFUSER		STRAINER
	RETURN AIR GRILLE		THERMOMETER OR GAUGE WELL
	EXHAUST GRILLE		THERMOMETER
	SPIN-IN FITTING		PRESSURE/TEMPERATURE TEST PLUG (PETE'S PLUG)
	BRANCH DUCT TAKE-OFF		GLOBE VALVE
	PARALLEL BLADE DAMPER		PRESSURE REDUCING VALVE - (PRV)
	OPPOSED BLADE DAMPER		SAFETY OR RELIEF VALVE
T	THERMOSTAT		PIPE ANCHOR
SD	IONIZATION TYPE SMOKE DETECTOR		PIPE GUIDE
MD	MOTORIZED DAMPER OR DAMPER ACTUATOR		GROOVED JOINT COUPLING
FZ	FREEZESTAT		BLIND FLANGE
T	DUCT PIPE THERMOSTAT, REMOTE BULB	FD FPD	FLOOR DRAIN, FLOOR SINK
S	TEMPERATURE SENSOR	VTR	VENT THROUGH ROOF
R	RELAY	— — —	COLD WATER
C	HOLDING COILING-MOTOR STARTER OR AUX. RELAY	--------	VENT
M	MAIN AIR	— HWS —	HEATING WATER SUPPLY
M	ELECTRIC MOTOR	— HWR —	HEATING WATER RETURN
	PILOT LIGHT	— CHWS —	CHILLED WATER SUPPLY
	MANUAL SWITCH	— CHWR —	CHILLED WATER RETURN
	HAND-OFF-AUTOMATIC (HOA) SWITCH	— —D— —	DRAIN
OR	NORMALLY OPEN CONTACT	—A—	AIR
OR	NORMALLY CLOSED CONTACT	-SOFT CW-	SOFT COLD WATER
O.L.	OVERLOAD CONTACT		TRANSFORMER
OR	FUSE, FUSETRON, FUSESTAT, OR O.L.	H H	HUMIDITY SENSOR
N.O.	NORMALLY OPEN	SP SP	STATIC PRESSURE SENSOR
N.C.	NORMALLY CLOSED	LVTP	LOW VOLTAGE TRANSFORMER PANEL

LOUVERED PENTHOUSE (LP)

SYMBOL	THROAT SIZE	TIERS HEIGH	MIN. LOUVER FREE AREA (SQ. FT.)	MIN. THROAT AREA (SQ. FT.)	SERVICE	COOK MODEL (1)	REMARKS
LP-1	32"x48"	4	10.7	10.8	RELIEF AIR VF-1	TRE	FURNISHED WITH BACKDRAFT DAMPER

(1) EQUAL BY GREENHECK OR RUSKIN

CABINET HEATERS

SYMBOL	NOMINAL AIR FLOW CFM	FAN TYPE	HP	HEATING COIL					DUNHAM BUSH MODEL (1)	VOLTS	REMARKS
				MIN. CAPACITY BTUH	ENT WATER TEMP	ENT. AIR TEMP.	GPM	WATER PRESS. DROP			
CHT-1	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-1T5	115	3 SPEED FAN (2)
CHT-2	1050	CENTRIF.	.035	41,200	180	60	4.0	4.4	CUH-1T5	115	3 SPEED FAN (2)

(1) OR EQUAL FROM TRANE, MODINE OR STERLING

(2) SUBMIT CABINET COLOR FOR APPROVAL.

PROPELLER VENTILATION AIR FANS (VF)

SYMBOL	AIR FLOW CFM	TOTAL STATIC PRESSURE IN WG	FAN RPM (1)	FAN MOTOR				APPROX. PANEL SIZE INCHES	DRIVE	COOK MODEL (2)	DUTY	REMARKS
				NOM. HP	VOLTS	Hz	PH					
VF-1	2,000	.10	756	1/4	115	60	1	24x24	BELT	20XLW	BOILER ROOM VENTIL.	2 SPEED MOTOR. START LOW SPEED AT 62°F AND HIGH SPEED AT 82°F

(1) MAX. TIP SPEED NOT TO EXCEED 5000 FPM

(2) OR EQUAL FROM GREENHECK, PENN, ACME

PUMPS

SYMBOL	SERVICE	MINIMUM CAPACITY GPM	TOTAL DYNAMIC HEAD FT WG	TYPE CENTRIFUGAL	MAXIMUM RPM	PUMP MINIMUM EFFICIENCY %	MOTOR				LIQUID USED	MFR BELL & GOSSET	REMARKS
							MIMIMUM HP	VOLTAGE	PHASE	HERTZ			
HWP-1	HTG. WATER	70	40	BASE MOUNTED	1750	55	2	208	3	60	WATER	1-1/4 AC	
HWP-2	HTG. WATER	70	40	BASE MOUNTED	1750	55	2	208	3	60	WATER	1-1/4 AC	
CHWP-1	CHILLED WATER	117	80	BASE MOUNTED	1750	62	5	208	3	60	35% PROP. GLYCOL	1-1/2 BC	
CHWP-2	CHILLED WATER	117	80	BASE MOUNTED	1750	62	5	208	3	60	35% PROP. GLYCOL	1-1/2 BC	
BP-1	BOILER WATER	50	25	IN-LINE	1750	58	1	460	3	60	WATER	2A	
BP-2	BOILER WATER	50	25	IN-LINE	1750	58	1	460	3	60	WATER	2A	

LIQUID CHILLING PACKAGE - AIR COOLED

SYMBOL	TYPE	MINIMUM CAPACITY (TONS) (1)	EVAPORATOR (COOLER)						AMBIENT TEMP °F	MIN. EER AT ARI CONDITIONS	ELECTRICAL			MCA	MOCP	MFR TRANE	REMARKS
			GPM	LIQUID USED	TEMP. IN °F	TEMP. OUT °F	MAX. LIQUID PRESS. DROP FT WG	FOULING FACTOR			VOLTAGE	PHASE	HERTZ				
CH-1	SCROLL	51.7	117	35% GLYCOL	55	44	18	.0001	100	9.7	208	3	60	270	300	CGAFC504	MIN. 3 STEPS OF UNLOADING AND DISCONNECT SWITCH

(1) AT 4,500 FT. ELEVATION

GAS FIRED FORCED DRAFT HEATING WATER BOILER

SYMBOL	GPM	ENTERING WATER TEMP	LEAVING WATER TEMP	INPUT BTU/HR	OUTPUT BTU/HR (1)	ELECTRICAL				EFFICIENCY (MIN)	MFR. THERMAL SOLUTIONS	REMARKS
						HP	VOLTS	HZ	PHASE			
B-1	35	150°F	180°F	750,000	660,000	1-1/2	208	60	3	88%	EV-750	-
B-2	35	150°F	180°F	750,000	660,000	1-1/2	208	60	3	88%	EV-750	-

(1) AT 4,500 FT. ELEVATION

MAKE-UP AIR UNIT, GAS FIRED

SYMBOL	AIR FLOW CFM	STATIC PRESSURE DROP MAX IN WG	SERVICE	MIN. OUTPUT CAPACITY BTUH (1)	MINIMUM THERMAL EFF. @ S.L.	ENTERING AIR TEMP °F	TYPE OF GAS	TYPE OF VENTING	FAN MOTOR HP	ELECTRICAL			MFR. (4)	REMARKS
										VOLTS	PHASE	HZ		
MAU-1	5200	1.4	INDOOR	262,400	80%	0 TO 55	NAT.	POWER	5	208	3	60	REZNOR RPB400	(2) (3)

(1) AT 4500 FT. USE .82 MULTIPLIER TO DERATE SEA LEVEL OUTPUTS.

(2) SPARK IGNITED INTERMITTENT SAFETY PILOT.

(3) ELECTRONIC GAS CONTROLS TO MODULATE DOWN TO 20% OF RATED CAPACITY.

(4) OR EQUAL FROM STERLING, MODINE, OR HASTINGS.

GLYCOL MAKE-UP UNIT

SYMBOL	TANK CAPACITY	PUMP							REMARKS
		GPM	HD PSI	HP APPROX	MAX. RPM	VOLT	PH	HZ	
GMU-1	30	10	30	1/2	1750	120	1	60	GLYCOL BY CONTRACTOR

DIAPHRAGM EXPANSION TANK

SYMBOL	MINIMUM TOTAL WATER VOLUME GALLONS	MINIMUM ACCEPTANCE VOLUME GALLONS	NOMINAL OPERATING PRESSURE PSIG	MINIMUM DESIGN PRESSURE PSIG	% GLYCOL	REMARKS
ET-1	8	5	15	125	0	ASME 125 PSIG RATED
ET-2	8	5	15	125	35	ASME 125 PSIG RATED

AIR SEPARATOR

SYMBOL	GPM	WORKING PRESSURE PSIG	REMARKS
AS-1	60	125	ASME STAMPED
AS-2	117	125	ASME STAMPED

EXHAUST FANS

SYMBOL	MINIMUM AIR FLOW CFM	TOTAL STATIC PRESSURE IN WG	UNIT TYPE	DRIVE	No. & MIN. DIAMETER OF WHEELS INCH	FAN MOTOR				MFR COOK	REMARKS
						MIN. HP	VOLTAGE	PHASE	HERTZ		
EF-1	2500	.75	ROOF UPBLAST	BELT	1-18"	3/4	208	3	60	165 ACRUB	-
EF-2	2400	.75	ROOF UPBLAST	BELT	1-18"	3/4	208	3	60	165 ACRUB	-

UNIT HEATERS

SYMBOL	NOMINAL AIR FLOW CFM	DISCHARGE:	HEATING					ELECTRICAL				DUNHAM BUSH MODEL (1)	REMARKS
			MINIMUM CAPACITY BTUH	ENTERING WATER TEMP °F	ENTERING AIR TEMP °F	GPM	WATER PRESS DROP MAX FT WG	HP	V	PH	HZ		
UH-1	900	HORIZONTAL	31,600	180	60	2	1.0	1/20	115	1	60	H250C	-

(1) OR EQUAL FROM TRANE, MODINE OR STERLING

NOTE:
ALL CAPACITIES SHOWN ARE FOR A 4500 FT ELEVATION.

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PROJECT TITLE:

TASS COMPLEX
CAMP WILLIAMS

UTAH NATIONAL GUARD

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DFCM PROJECT NO: 95059480

CAD PROJECT NO:

CAD DWG FILE:

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BAY BILLETING BUILDING MECHANICAL SCHEDULES AND SYMBOL LEGEND

LICENSED PROFESSIONAL ENGINEER
No. 154099
B. BRYCE GARDNER
STATE OF UTAH

SHEET NUMBER

ME-6B1

104 OF 146

DIFFUSER - REGISTER AND GRILLE SCHEDULE

SYMBOL	TYPE	SERVICE	CFM RANGE	(1) NECK SIZE	FACE SIZE	AIR PATTERN	MOUNTING	MFR TITUS	REMARKS
D-1	SQUARE CEILING LOUVERED FACE	SA	80-140	6"Φ OR 6"x6"	11-9/16"x11-9/16"	4-WAY	SURFACE	MCD	-
D-2	SQUARE CEILING LOUVERED FACE	SA	141-240	8"Φ OR 9"x9"	14-9/16"x14-9/16"	4-WAY	SURFACE	MCD	-
D-3	SQUARE CEILING LOUVERED FACE	SA	241-380	10"Φ OR 10"x10"	15-9/16"x15-9/16"	4-WAY	SURFACE	MCD	-
D-4	SQUARE CEILING LOUVERED FACE	SA	381-500	12"Φ OR 12"x12"	17-9/16"x17-9/16"	4-WAY	SURFACE	MCD	-
D-5	SQUARE CEILING LOUVERED FACE	SA	501-700	14"Φ OR 14"x14"	19-9/16"x19-9/16"	4-WAY	SURFACE	MCD	-
R-1	SINGLE DEFLECTION	EA	50-150	8"x6"	7-3/4"x7-3/4"	-	SURFACE	350 RL	ALUMINUM
R-2	PERF. FACE	RA	150-600	14"x14"	16"x16"	-	SURFACE	PAR	ALUMINUM
R-3	PERF. FACE	RA	610-900	18"x18"	20"x20"	-	SURFACE	PAR	ALUMINUM
R-4	PERF. FACE	RA	1000-1600	22"x22"	24"x24"	-	SURFACE	PAR	ALUMINUM
R-5	SINGLE DEFLECTION	TA	-	24"x14"	25-3/4"x15-3/4"	-	SURFACE	350 RL	-
R-6	SINGLE DEFLECTION	TA	-	24"x10"	25-3/4"x11-3/4"	-	SURFACE	350 RL	-

(1) PROVIDE DUCT TRANSITION FROM DIFFUSER, REGISTER OR GRILLE TO CONNECTING DUCT AS REQUIRED.

(2) OR EQUAL FROM PRICE, J & J, KRUEGER, ANEMOSTAT, CRANES, NAILER.

BLOWER COIL UNIT (BCU)

SYMBOL	NOMINAL AIR FLOW CFM	FAN			COOLING COIL					HEATING COIL					TRANE UNIT SIZE BCXB	OUTSIDE AIR SETTING CFM
		TYPE	ELECTRICAL V / Φ / HZ	MOTOR HP	MINIMUM CAPACITY KBTUH	ENTERING GLYCOL TEMP °F	ENTERING AIR TEMP °F DB / WB	GPM	WATER PRESS DROP MAX FT WG	MINIMUM CAPACITY BTUH	ENTERING WATER TEMP °F	ENTERING AIR TEMP °F	GPM	WATER PRESS DROP MAX FT WG		
BCU-1	1500	FC	115 / 1 / 60	1/2	33.8	45	80 / 62	7.3	5	64	180	55	4.3	1	BCXC-054	60
BCU-2	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-3	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-4	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-5	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-6	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-7	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-8	600	FC	115 / 1 / 60	1/3	12.2	45	80 / 62	2.2	4	17.5	180	55	1.2	1	BCXC-018	90
BCU-9	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-10	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-11	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-12	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-13	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-14	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-15	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU 16-19	NOT USED															
BCU-20	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-21	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-22	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-23	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-24	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-25	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-26	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-27	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-28	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-29	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-30	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-31	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-32	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-33	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120
BCU-34	900	FC	115 / 1 / 60	1/2	19.4	45	80 / 62	3.5	4	28	180	55	2	1	BCXC-024	120

SELECTION BASED ON TRANE BLOWER COIL
MINIMUM OPERATING INLET STATIC 1.0" WG.

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B. BRYCE GARDNER
STATE OF UTAH

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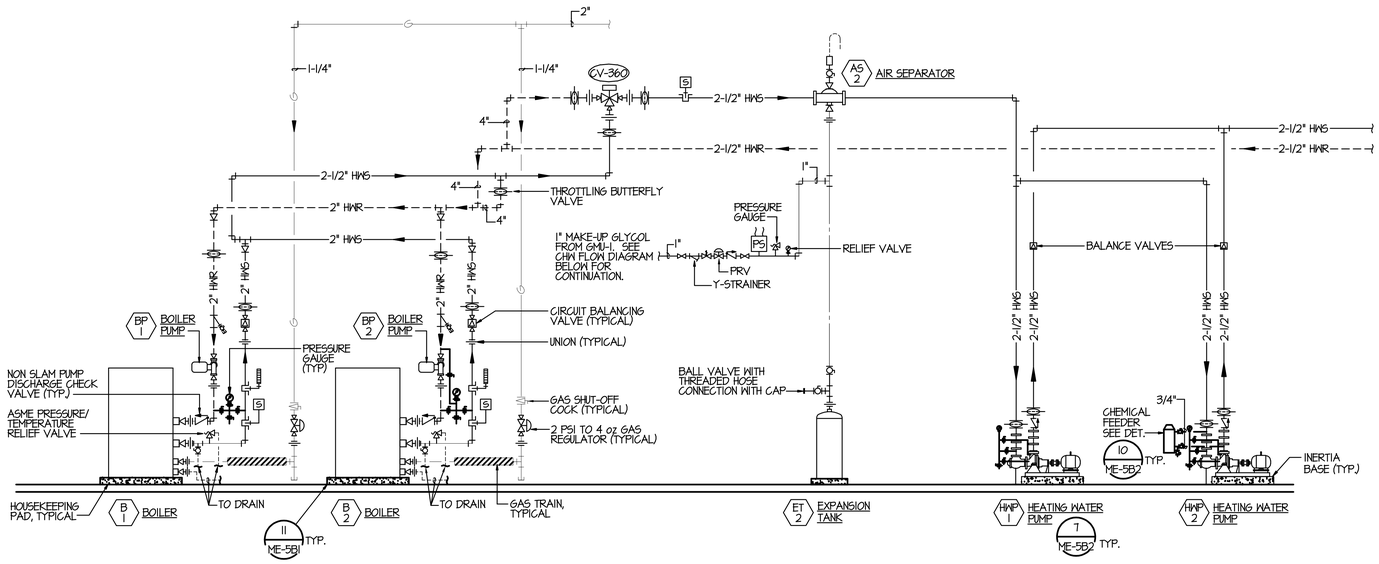
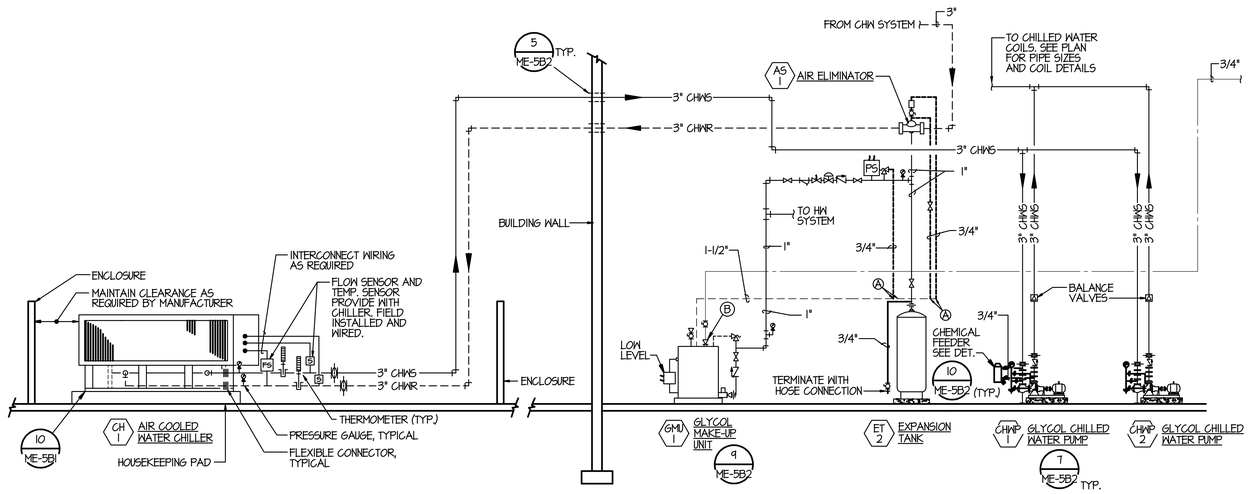


HEATING WATER FLOW DIAGRAM

SCALE: NONE — 1 ME-6B3



NOTE:
PIPING SHOWN IS DIAGRAMATIC. ADJUST CONFIGURATION TO FIT AVAILABLE SPACE.

CHILLED WATER FLOW DIAGRAM

SCALE: NONE — 2 ME-6B3

KEY NOTES

(A) CONNECT 3/4" DRAIN TO 1-1/2" COMMON DRAIN LINE. SLOPE 1-1/2" COMMON DRAIN LINE TO GLYCOL MAKE-UP UNIT. TERMINATE AT GLYCOL MAKE-UP UNIT.

(B) PROVIDE 2" AIR GAP

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MECHANICAL
FLOW DIAGRAMS

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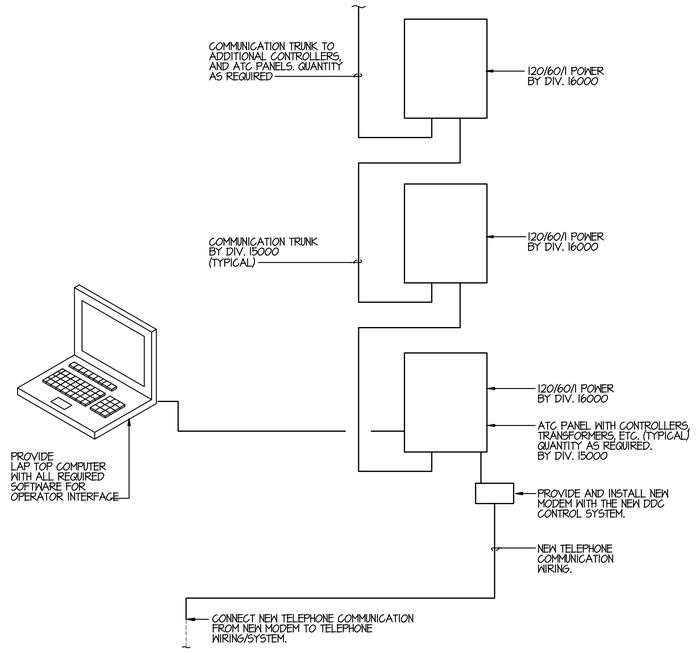
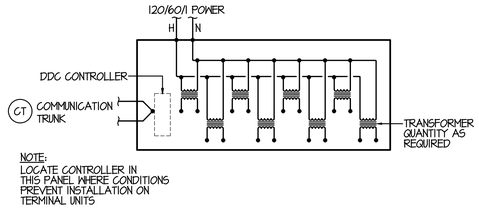
CONTROLS SYMBOL LEGEND

SYMBOL	DESCRIPTION
(T)	THERMOSTAT
SD	IONIZATION TYPE SMOKE DETECTOR
MD	MOTORIZED DAMPER OR DAMPER ACTUATOR
FZ	FREEZESTAT
T	DUCT PIPE THERMOSTAT, REMOTE BULB
(S)	TEMPERATURE SENSOR
(R)	RELAY
(C)	HOLDING COILING-MOTOR STARTER OR AUX. RELAY
(M)	MAIN AIR
(M)	ELECTRIC MOTOR
(P)	PILOT LIGHT
	MANUAL SWITCH
H O A	HAND-OFF-AUTOMATIC (HOA) SWITCH
OR	NORMALLY OPEN CONTACT
OR	NORMALLY CLOSED CONTACT
O.L.	OVERLOAD CONTACT
OR	FUSE, FUSETRON, FUSESTAT, OR O.L.
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
	TRANSFORMER
(SP) SP	STATIC PRESSURE SENSOR
LVTP	LOW VOLTAGE TRANSFORMER PANEL
XO	DIGITAL INPUT
XO	DIGITAL OUTPUT
AI	ANALOG INPUT
DI	DIGITAL INPUT
AO	ANALOG OUTPUT
DO	DIGITAL OUTPUT
AO	MOTOR ELEC. FEED
CV-O	CONTROL VALVE GALLOUT

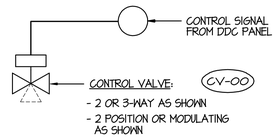


DDC CONTROL SYSTEM ONE-LINE DIAGRAM

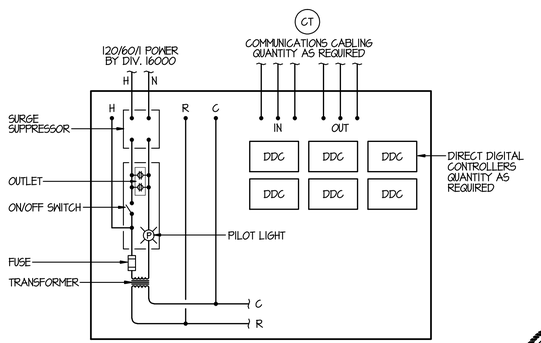


LOW VOLTAGE TRANSFORMER PANEL LVTP

QUANTITY AS REQUIRED



CONTROL VALVE DETAIL TYPICAL



ATC PANEL - TYPICAL

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ADMININISTRATION AND EDUCATION BUILDING MECHANICAL CONTROLS

SHEET NUMBER

MI-6A1

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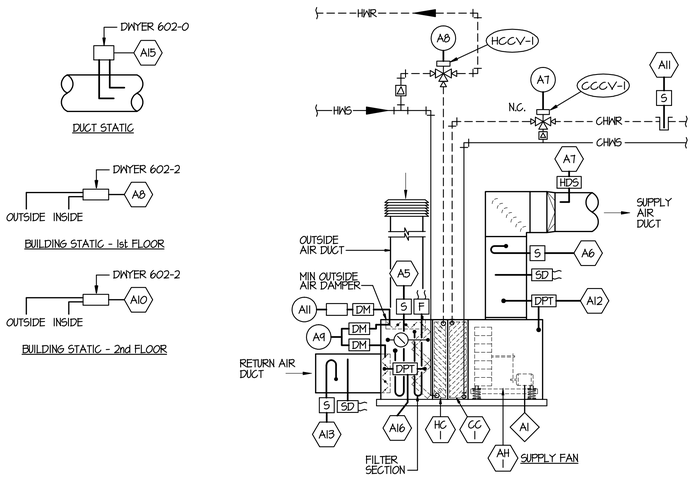
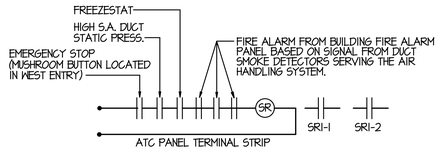
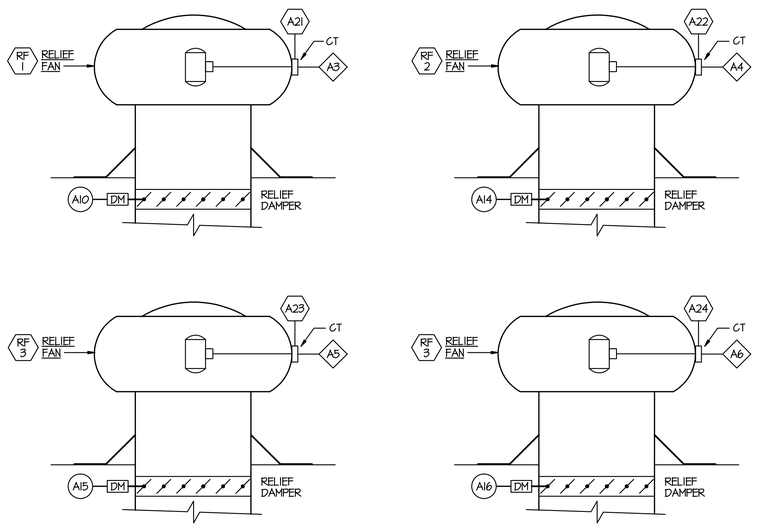


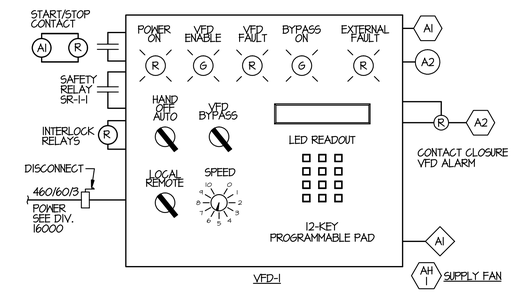
AIR HANDLING UNIT AH-1 CONTROL DIAGRAM



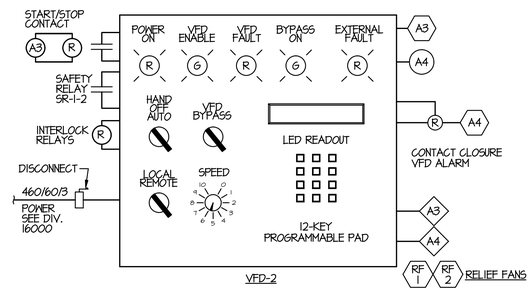
SAFETIES CIRCUIT AH-1



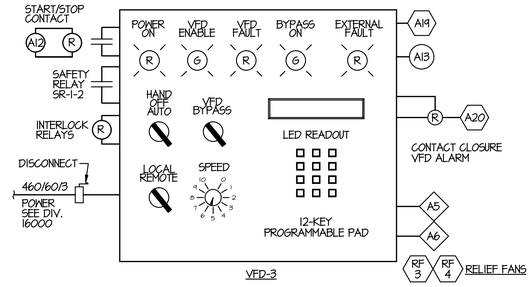
RELIEF FAN CONTROL DIAGRAMS



VFD-1



VFD-2



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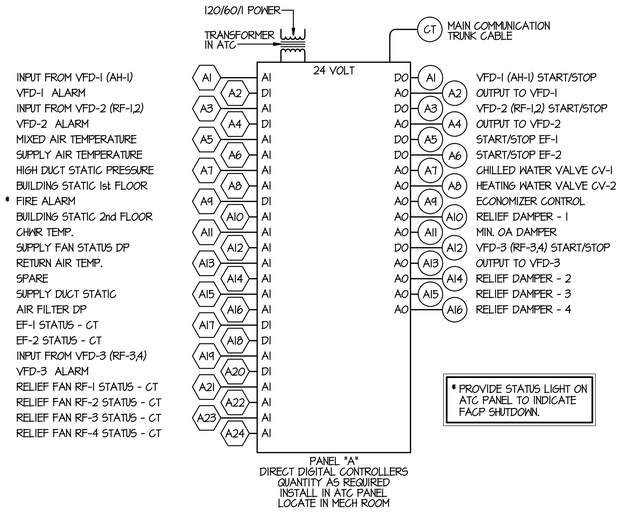
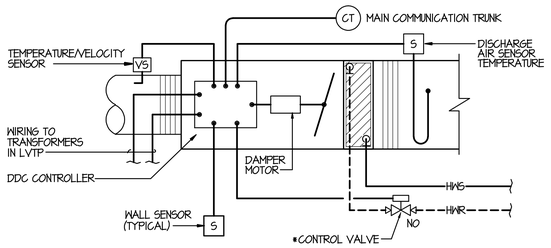
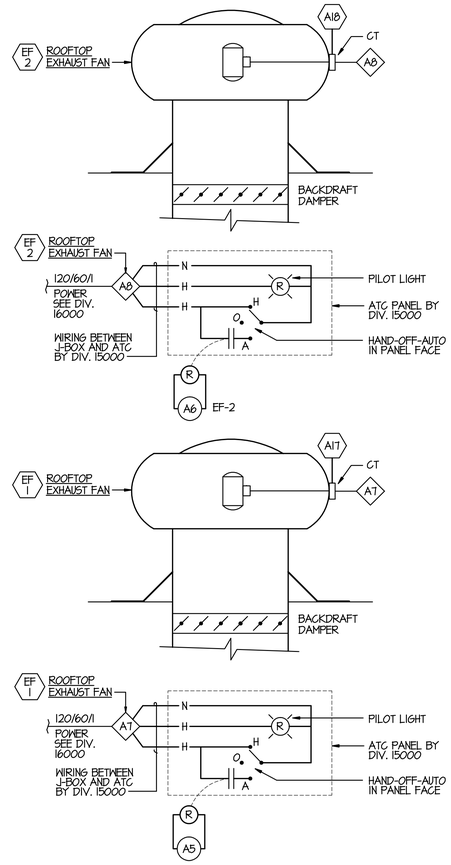


AIR HANDLING SYSTEM CONTROL DIAGRAM



VAV COOLING W/ TERMINAL REHEAT

* SEE PLAN FOR 3-WAY VALVES REQUIRED



EXHAUST FAN CONTROL DIAGRAMS

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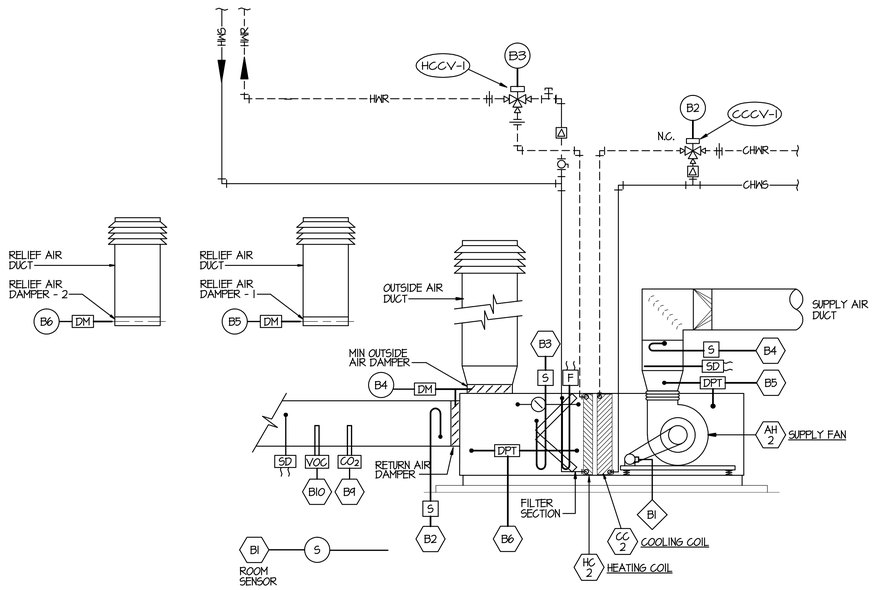
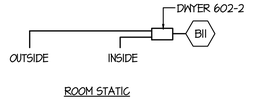
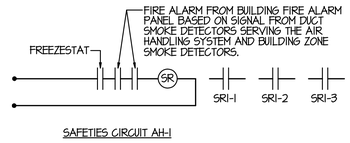


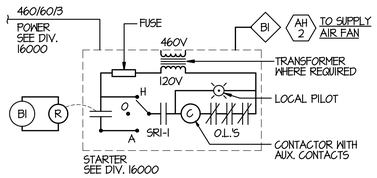
AIR HANDLER AH-2

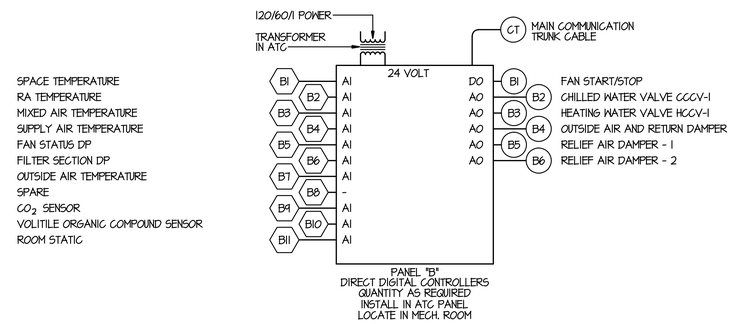


ROOM STATIC



SAFETIES CIRCUIT AH-1





AIR HANDLING SYSTEM AH-2 CONTROL DIAGRAM

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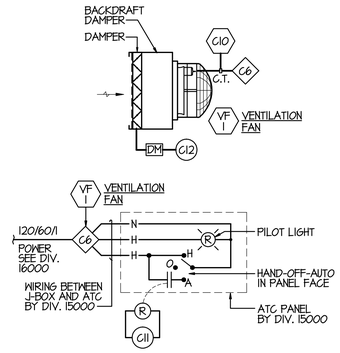
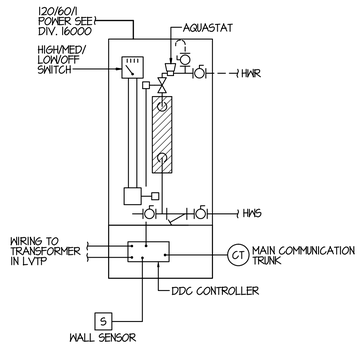
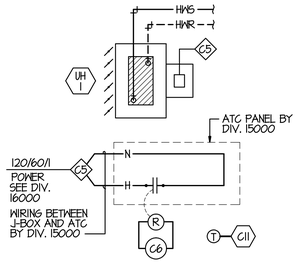


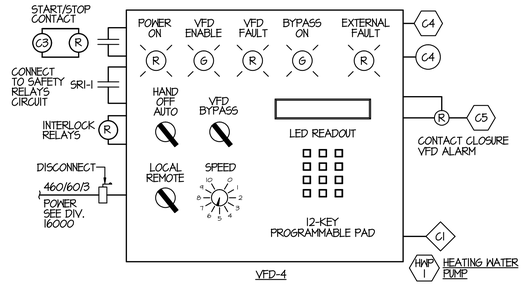
VENTILATION FAN CONTROL DIAGRAMS

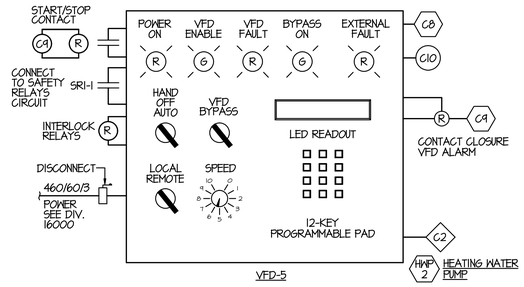


CABINET HEATER CHT-1 CONTROL DIAGRAM

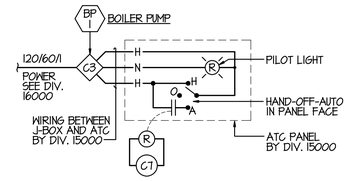


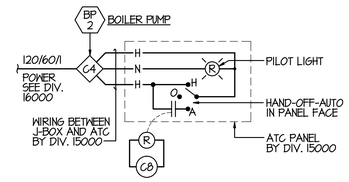
UNIT HEATER CONTROL DIAGRAMS



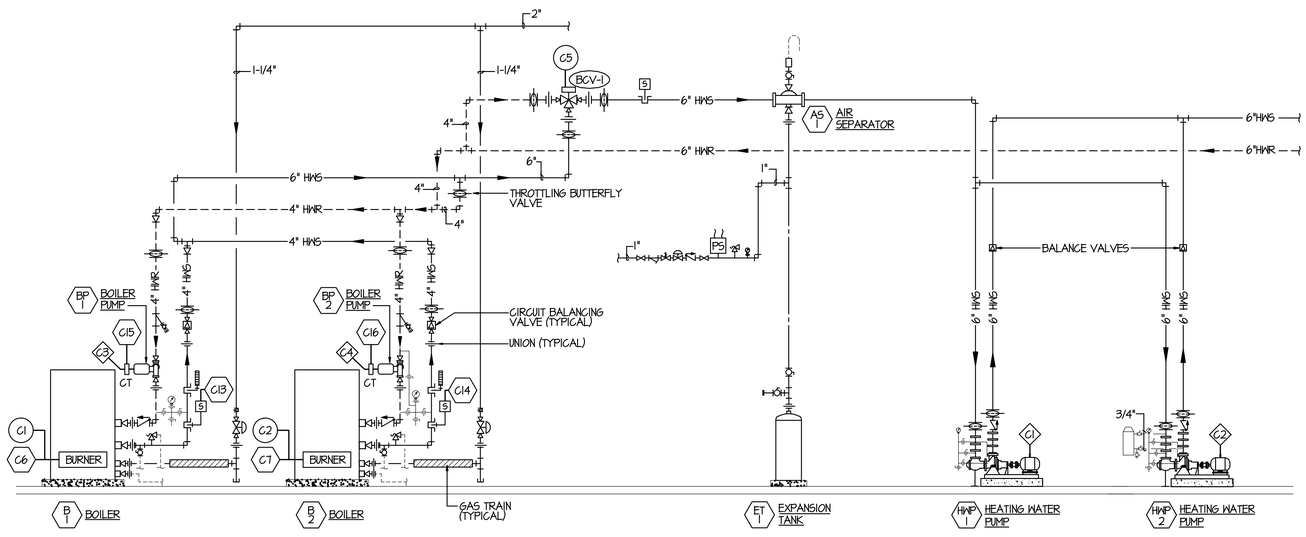


HEATING WATER PUMP CONTROL DIAGRAMS



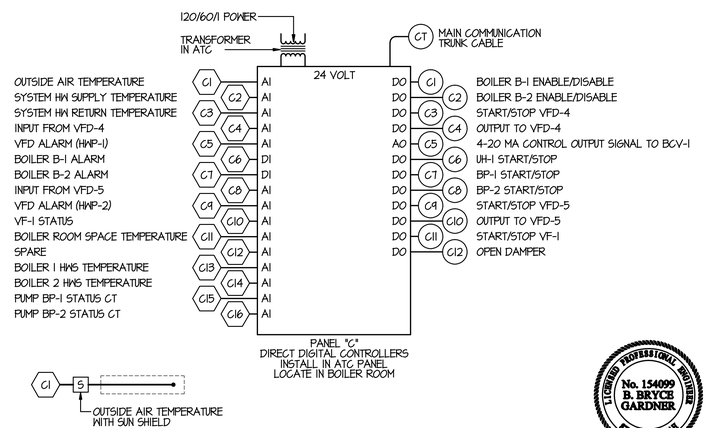


BOILER PUMP CONTROL DIAGRAMS



HEATING WATER CONTROL DIAGRAM

SCALE: NONE



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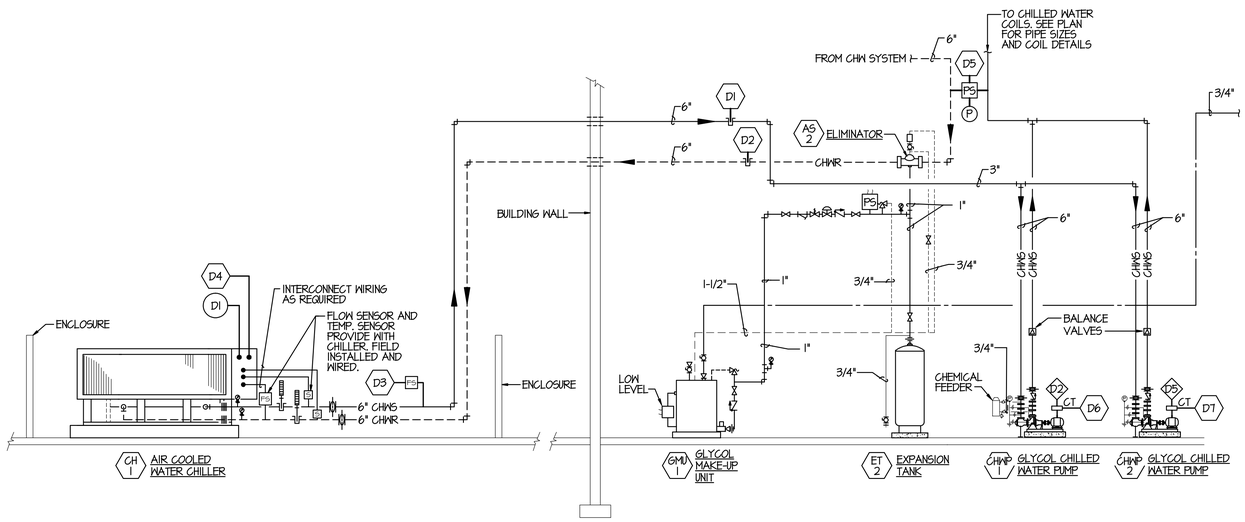

CHILLED WATER CONTROL DIAGRAM

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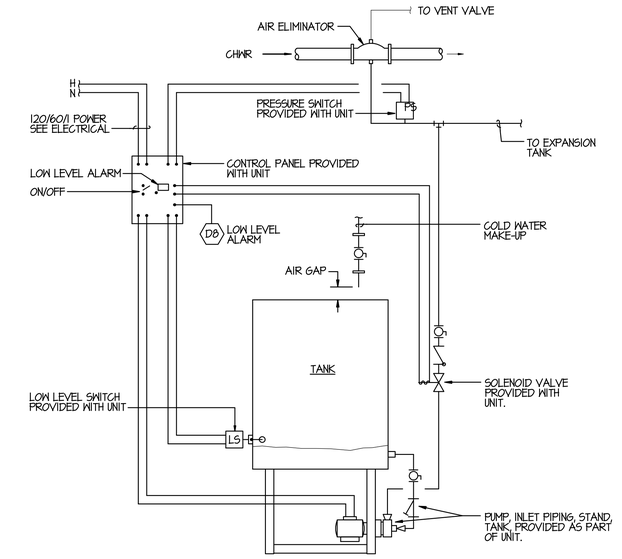
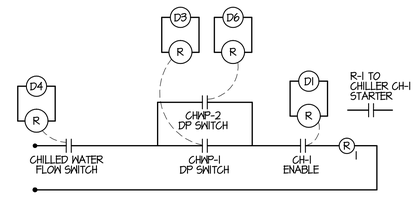


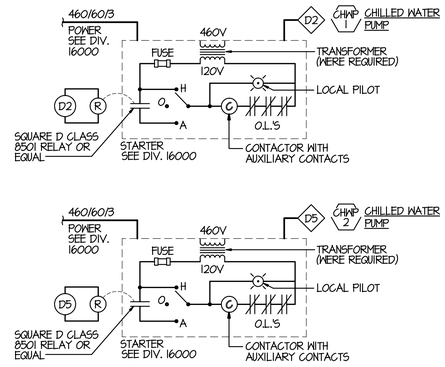
NOTE:
ALL COMPONENTS SHALL BE PROVIDED, INSTALLED, WIRED BY DIV 15000 UNLESS SPECIFICALLY NOTED OTHERWISE. REFER TO ELECTRICAL FOR WIRING AND CONDUIT COVERED THERE.

GLYCOL UNIT AND CONTROL DIAGRAM

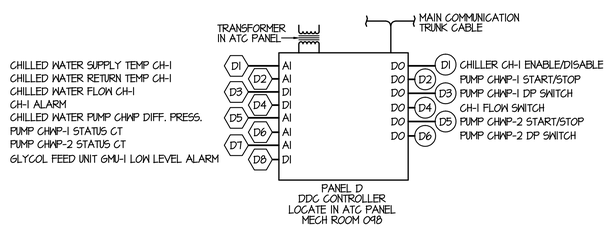
SCALE: NONE



CHILLER CH-1 INTERLOCK CONTROL DIAGRAM



CHILLED WATER PUMPS CONTROL DIAGRAMS



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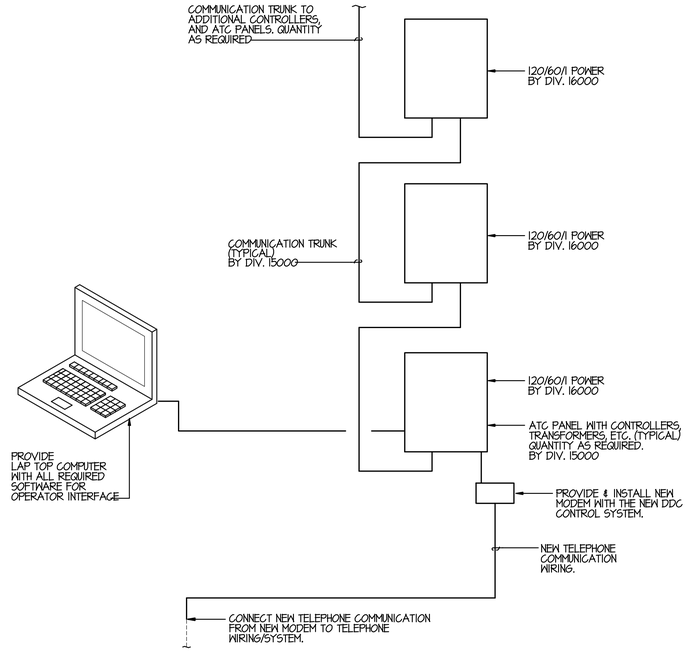
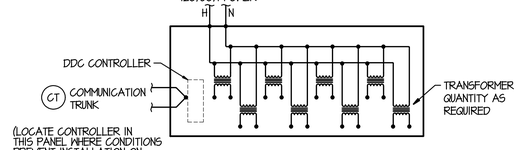
CONTROLS SYMBOL LEGEND

SYMBOL	DESCRIPTION
(T)	THERMOSTAT
SD	IONIZATION TYPE SMOKE DETECTOR
MD	MOTORIZED DAMPER OR DAMPER ACTUATOR
FZ	FREEZESTAT
T	DUCT PIPE THERMOSTAT, REMOTE BULB
(S)	TEMPERATURE SENSOR
(R)	RELAY
(C)	HOLDING COILING-MOTOR STARTER OR AUX. RELAY
(M)	MAIN AIR
—(M)—	ELECTRIC MOTOR
—(P)—	PILOT LIGHT
	MANUAL SWITCH
A M O	HAND-OFF-AUTOMATIC (HOA) SWITCH
OR	NORMALLY OPEN CONTACT
OR	NORMALLY CLOSED CONTACT
O.L.	OVERLOAD CONTACT
OR	FUSE, FUSETRON, FUSESTAT, OR O.L.
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
	TRANSFORMER
(SP) SP	STATIC PRESSURE SENSOR
LVTP	LOW VOLTAGE TRANSFORMER PANEL
XO	DIGITAL INPUT
XO	DIGITAL OUTPUT
AI	ANALOG INPUT
DI	DIGITAL INPUT
AO	ANALOG OUTPUT
DO	DIGITAL OUTPUT
AO	MOTOR ELEC. FEED
CV-0	CONTROL VALVE CALLOUT

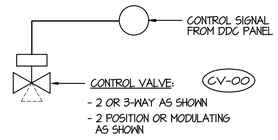


DDC CONTROL SYSTEM ONE-LINE DIAGRAM

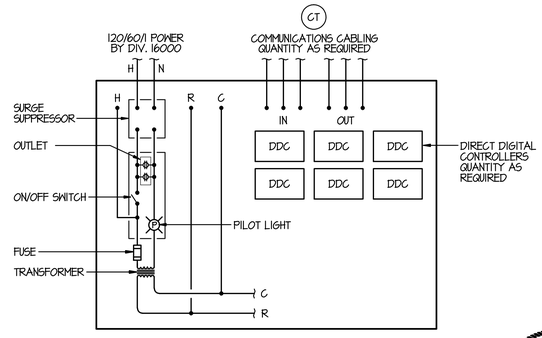


LOW VOLTAGE TRANSFORMER PANEL LVTP

QUANTITY AS REQUIRED



CONTROL VALVE DETAIL TYPICAL



ATC PANEL - TYPICAL

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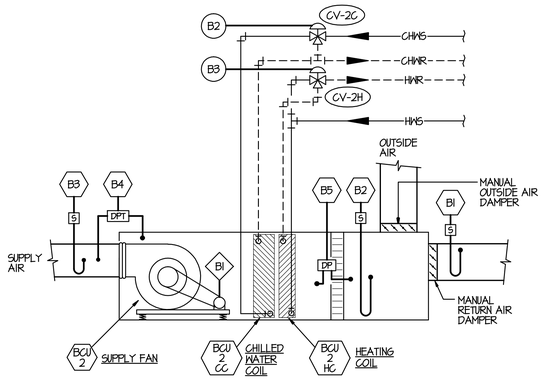
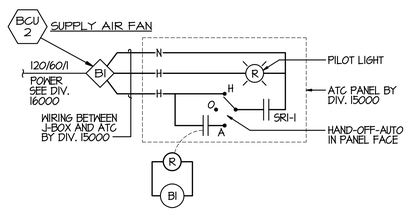
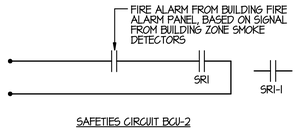


B6 — 5 — ROOM SENSOR

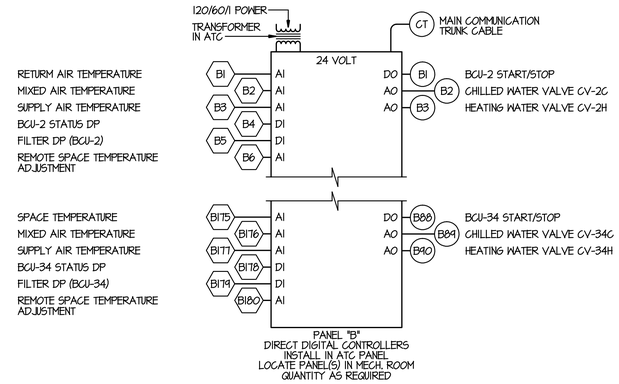
BCU-2

SIMILAR FOR 30 OTHER UNITS



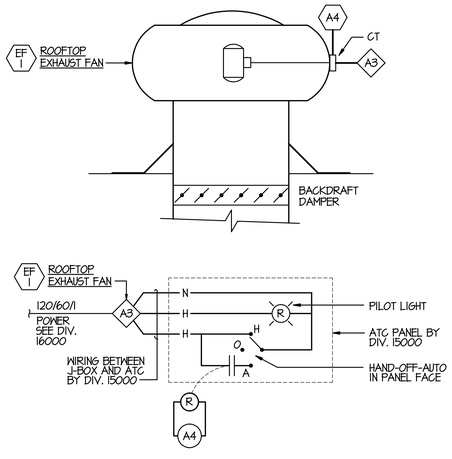


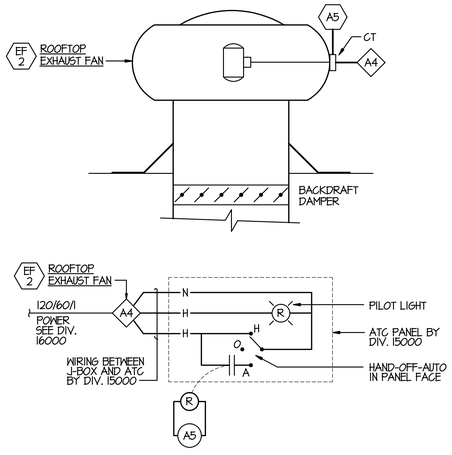
SAFETIES CIRCUIT BCU-2



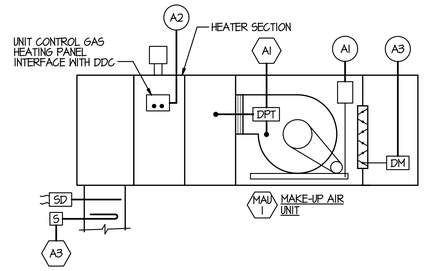
BLOWER COIL UNIT BCU-2

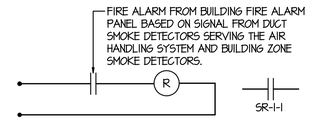
SIMILAR FOR OTHER UNITS



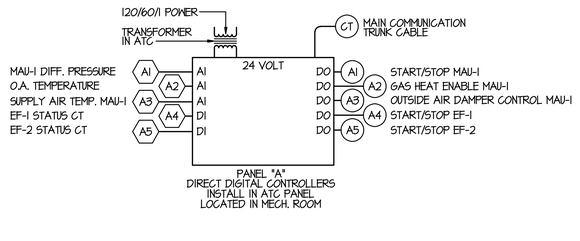


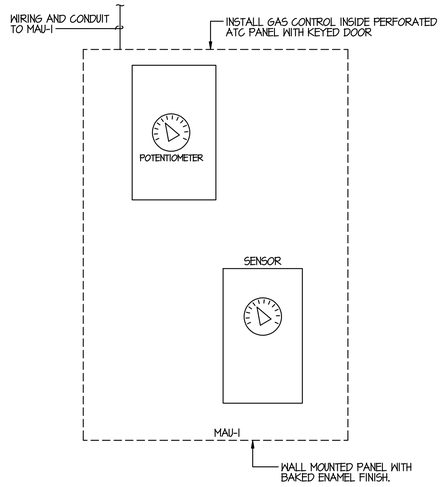
EXHAUST FAN CONTROL DIAGRAMS

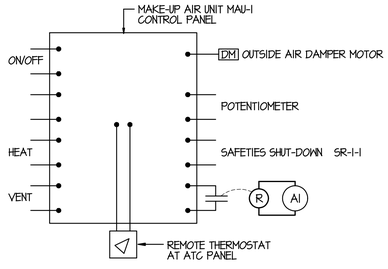




SAFETIES CIRCUIT MAU-1







MAU-1 AND EXHAUST FAN CONTROL DIAGRAMS

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