NOTES:

1. PROVIDE ONE WET-PIPE SPRINKLER SYSTEM FOR EACH HANGAR BAY PAINT SPRAY BOOTH. SPRINKLER SYSTEMS FOR THE HANGAR BAY SHALL PROVIDE 8.15 LPM/M^2 (0.2 GPM/FT^2) OVER A 465 M^2 (5,000 FT^2) DESIGN AREA, WITH 1,893 LPM (500 GPM) HOSE STREAM ALLOWANCE.
2. PROVIDE ONE WET-PIPE SPRINKLER SYSTEM FOR EACH EQUIPMENT AREA ABOVE THE HANGAR BAY. SPRINKLER SYSTEM FOR EQUIPMENT AREA SHALL PROVIDE 8.15 LPM/M^2 (0.2 GPM/FT^2) OVER A 280 M^2 (3,000 FT^2) DESIGN AREA, WITH 1,893 LPM (500 GPM) HOSE STREAM ALLOWANCE.
3. SPRINKLER ACTIVATION IN HANGAR PAINT BOOTH SHALL ACTIVATE THE HIGH EXPANSION FOAM SYSTEMS PROTECTING THE PAINT SPRAY BOOTH. HAZARD CLASSIFICATION, DENSITIES, AREAS OF COVERAGE AND HOSE STREAM ALLOWANCES SHALL BE IN ACCORDANCE WITH UFC 3-600-01.
4. ALL PIPING SHALL BE SCHEDULE 40 STEEL, EXCEPT IN SIZES 8-INCH AND LARGER, WHICH SHALL BE SCHEDULE 30. ALL FOAM CONCENTRATE PIPING SHALL BE SCHEDULE 40 STAINLESS STEEL.
5. ALL PIPING AND EQUIPMENT SHALL BE SEISMICALLY PROTECTED IN ACCORDANCE WITH SPECIFICATION 01 88 15 "SEISMIC ANCHORAGE AND LATERAL BRACING".
6. FOAM SYSTEM CONTROL PANEL SHALL BE AN ADDRESSABLE FIRE ALARM PANEL, UL LISTED FOR RELEASING SERVICE. FIRE ALARM CONTROL PANEL SHALL BE AN ADDRESSABLE FIRE ALARM PANEL.
7. ALL FIRE ALARM SYSTEM INITIATING DEVICE CIRCUITS SHALL BE CLASS A STYLE 6, EXCEPT SOLENOID CIRCUITS WHICH SHALL BE CLASS B. NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS A, STYLE D.
8. FIRE ALARM DEVICES WHICH ARE NOT SHOWN, BUT SHALL BE PROVIDED INCLUDE: VALVE TAMPER SWITCHES, SOLENOIDS, PRESSURE SWITCHES, FLOW SWITCHES, DUCT SMOKE DETECTORS, MAGNETIC DOOR HOLDERS AND AUXILIARY FUNCTIONS.
9. FIRE ALARM SYSTEM COMPONENTS, WIRING AND CONDUIT SYSTEM IN THE HANGAR BAYS SHALL COMPLY WITH NFPA 70 FOR CLASSIFIED (HAZARDOUS) LOCATIONS. CLASS 1, DIVISION 1. NOTE: DEVICES IN HANGAR ARE EXPLOSION PROOF.
10. FIRE ALARM SYSTEM SHALL BE CAPABLE OF SENDING AND RECEIVING DATA TO/FROM THE BASE MASS NOTIFICATION SYSTEM.
11. PROVIDE ONE LOW LEVEL HIGH EXPANSION FOAM SYSTEM RISER FOR EACH HANGAR AREA. TOTAL 2 AREAS.
12. FIRE ALARM DEVICES INSTALLED WITHIN HANGAR AND FILTER BANKS SHALL BE RATED FOR HAZARDOUS LOCATIONS (CLASS I, DIVISION I) AS DEFINED BY NFPA 70. MATERIALS INSTALLED IN THESE AREAS, AS WELL AS INSTALLATION METHODS SHALL MEET REQUIREMENTS OF NEC ARTICLE 500, 501, 513 AND AF ETL 02-15.
13. ALL INTERIOR INSTALLATIONS SHALL UTILIZE NEMA 1 ENCLOSURES AND ALL EXTERIOR INSTALLATIONS SHALL UTILIZE NEMA 4X STAINLESS STEEL ON NEMA 3R (WHEN NEMA 4X ARE NOT AVAILABLE.
14. HEAT DETECTORS AND SPRINKLERS IN HANGAR AREAS SHALL BE PROTECTED ACCORDING TO NFPA 13, NFPA 72, AND NFPA 30.
15. CIRCUITS CONNECTED TO THE FOAM SYSTEM CONTROL PANEL (FSCP) WHICH MONITOR INITIATING DEVICES (HEAT DETECTORS, FOAM MANUAL RELEASE STATIONS, WATERFLOW SWITCHES AND PRESSURE SWITCHES) SHALL BE SEPARATE FROM ALL OTHER CIRCUITS, AND SHALL NOT BE LOCATED IN CONDUIT(S) WHICH CONTAINS ANY OTHER TYPE OF FIRE ALARM CIRCUIT. ADDITIONALLY THESE AFORE MENTIONED FSCP INITIATING DEVICES SHALL BE ON THEIR OWN ADDRESSABLE LOOP, WHICH DOES NOT MONITOR ANY OTHER DEVICES. FOR ADDITIONAL CIRCUIT AND CONDUIT SEGREGATION REQUIREMENTS SEE PROJECT SPECIFICATION 28 31 00 - FIRE DETECTION AND ALARM.
16. PROVIDE DOUBLE POLE, DOUBLE THROW RELAYS FOR ALL HVAC SHUTDOWN FUNCTIONS INCLUDING DUCT SMOKE DETECTION AND AT/FP.
17. FOR AT/FP BRACING REQUIREMENTS SEE GENERAL STRUCTURAL NOTES

OCCUPANCY CLASSIFICATION LEGEND

	OCCUPANCY CLASSIFICATION	SPRINKLER SYSTEM DESIGN DENSITY LPM/M^2 (GPM/FT^2)	SPRINKLER SYSTEM DESIGN AREA M^2(FT^2)	HOSE STREAM ALLOWANCE LPM (GPM)	DURATION OF SUPPLY MINUTES
1	LIGHT HAZARD	4.1 (0.10)	280 (3000)	950 (250)	60
2	ORDINARY HAZARD GROUP1	6.1 (0.15)	280 (3000)	1900 (500)	60
3	ORDINARY HAZARD GROUP2	8.2 (0.20)	280 (3000)	1900 (500)	90
4	EXTRA HAZARD GROUP1	12.2 (0.30)	280 (3000)	2840 (750)	120
5	EXTRA HAZARD GROUP2	16.3 (0.40)	280 (3000)	2840 (750)	120
6	HANGAR WET-PIPE	8.2 (0.20)	465 (5000)	1900 (500)	90

FIRE SPRINKLER SYSTEM SYMBOLS

- HEF PIPING
- HANGAR SYSTEMS
- HIGH EXPANSION FOAM GENERATOR
- 25 — PIPE DIAMETER APPROXIMATE METRIC EQUIVALENT (IN INCHES)
- X / X — HVAC EQUIPMENT TAG

ABBREVIATIONS USED

O.H.	OVERHEAD
LPM	LITERS PER MINUTE
GPM	GALLONS PER MINUTE

FIRE ALARM DEVICE SYMBOLS

- M — ADDRESSABLE MONITOR MODULE
- C — ADDRESSABLE CONTROL MODULE
- AUX — AUXILIARY POWER SUPPLY
- EYE — EYEWASH STATION SUPERVISORY MONITOR
- FAA — FIRE ALARM ANNUNICATOR
- FACP — FIRE ALARM CONTROL PANEL
- FTR — FIRE ALARM RADIO TRANSCEIVER
- FSCP$_{FO}$ — FOAM SYSTEM CONTROL PANEL
- FPC — FIRE PUMP REMOTE START
- H$_{N/C}$ — HEAT DETECTOR (RATE COMPENSATED TYPE-160°F)
- KNOX — KNOX BOX
- LOC — LOCAL OPERATING CONSOLE
- MANUAL FIRE ALARM PULL STATION
- MANUAL FOAM RELEASE STATION
- MNS — MASS NOTIFICATION ACU
- AT/FP — AT/FP HVAC SHUTDOWN BUTTON - DUAL CONTACT
- HVAC — HVAC SHUTDOWN INTERFACE - DUAL CONTACT
- PBC — PAINT BOOTH SHUTDOWN - DUAL CONTACT
- REM — REMOTE DUCT-DETECTION LED / TEST STATION
- DOOR — ROLL-DOWN DOOR RELEASE CONTROLLER
- S — SMOKE DETECTOR - DUCT
- S$_P$ — SMOKE DETECTOR - PHOTOELECTRIC
- SOLENOID VALVE
- SPEAKER
- VISUAL MNS ALERT DEVICE (AMBER LENS STROBE)
- VISUAL FIRE ALARM DEVICE (BLUE LENS STROBE)
- VISUAL FIRE ALARM DEVICE (CLEAR LENS STROBE)
- EMERGENCY EYEWASH / SHOWER BEACON (ORANGE)
- VALVE SUPERVISORY SWITCH
- WATERFLOW SWITCH

SUBSCRIPTS

A	AMBER (STROBE)
B	BLUE (STROBE)
C	CEILING MOUNT
CD	CANDELA RATING
EYE	EYEWASH / SHOWER
MAU	MAKE UP AIR UNIT
WP	WEATHERPROOF
XP	EXPLOSION-PROOF

REGISTERED PROFESSIONAL ENGINEER — JOHN ROBERT STAUDER — No. 16668 — Exp. 6/30/10 — PROFESSIONAL ENGINEER — STATE OF HAWAII

154TH WING

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
REVISION		J. STAUDER	T. NASH	R. MAHLMAN		W. GOEAS	

CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
LEGEND

F22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD0693208

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

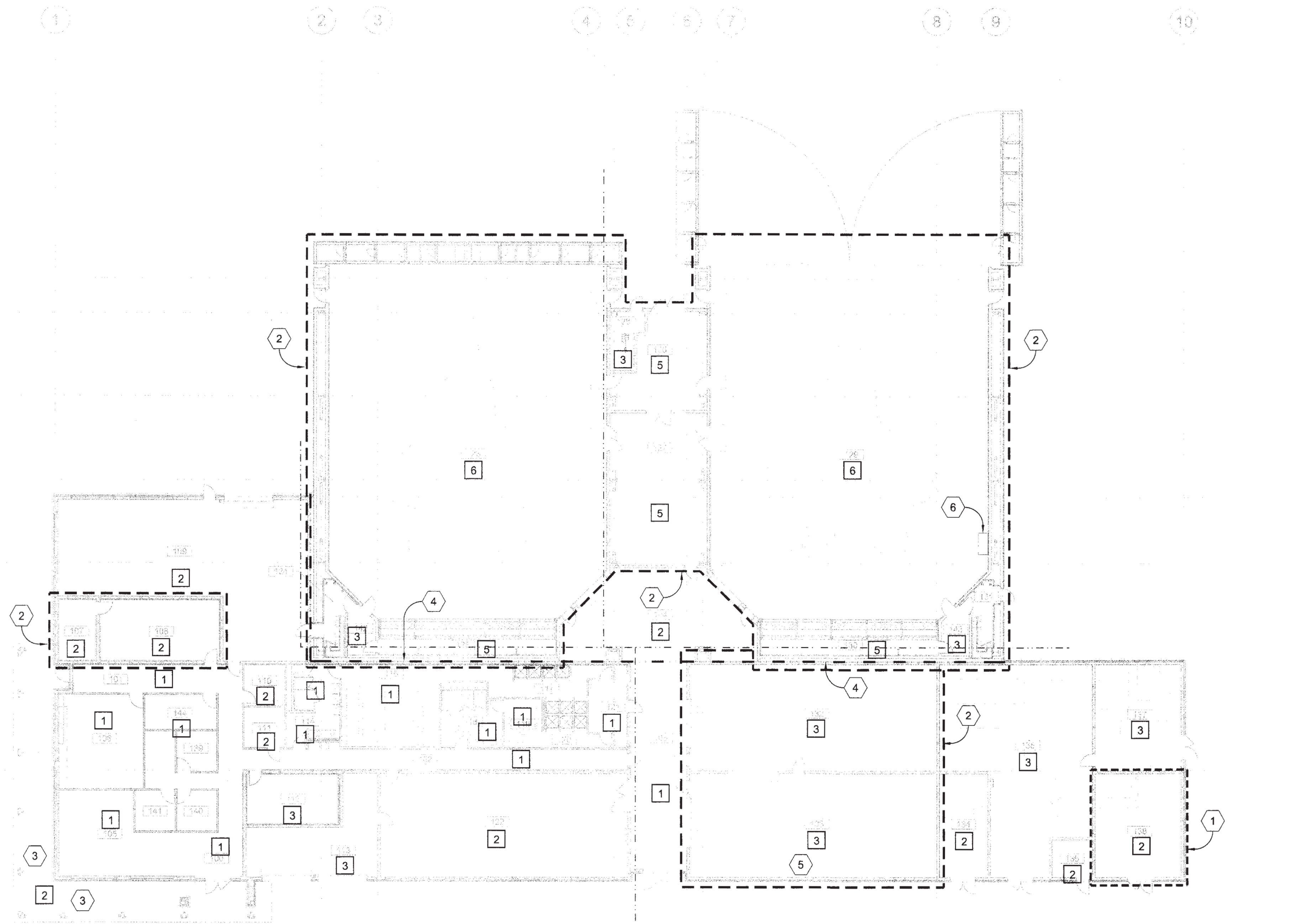
DATE	DECEMBER 2009
PROJ	363764
DWG	FP001
SHEET	140

GENERAL SHEET NOTES

A. SEE FP401 FOR WATER SUPPLY DATA

KEYED NOTES

1. SEE SHEETS FP401 & FP402 FOR ENLARGEMENT
2. DASHED LINE INDICATES PERIMETER OF SECURED AREA. LINE SHOWN FOR REFERENCE ONLY. REFER TO SHEET G-007 FOR LOCATIONS OF SECURED ROOM AND ACOUSTICAL PARTITIONS. PIPING PENETRATING ACOUSTICAL PARTITIONS REQUIRES GROUNDING OUTSIDE EACH ACOUSTICAL PARTITION PENETRATED. PIPING SHALL BE BONDED ON SECURE SIDE OF WALL OF SECURE AREA WITH #12 INSULATED COPPER TO NEAREST ELECTRICAL GROUND. COMPLY WITH SECTION 26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.
3. PROVIDE COMPLETE SPRINKLER COVERAGE FOR EXTERIOR CANOPY. UTILIZE INTERMEDIATE TEMPERATURE SPRINKLERS FOR EXTERIOR CANOPY.
4. BUILDING SEPARATION JOINT SHOWN FOR REFERENCE ONLY, REFER TO STRUCTURAL SHEETS FOR LOCATIONS OF BUILDING SEPARATION JOINTS. PROTECT PIPING CROSSING BUILDING SEPARATION JOINTS AS REQUIRED BY PROJECT SPECIFICATIONS AND NFPA 13.
5. PROVIDE 2-INCH WET-PIPE SPRINKLER CONNECTION FROM CEILING SPRINKLERS TO SERVE DUSTRON EQUIPMENT. PROVIDE SHUT OFF VALVE, WATER FLOW SWITCH AND DRAIN AT 6'-0" AFF.
6. LINEAR TEST HEADER LOCATION. SEE DETAILS 4 AND 5, SHEET FP403

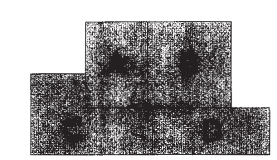


FIRST FLOOR SPRINKLER PLAN - OVERALL

1/16"=1'-0"

OCCUPANCY CLASSIFICATION LEGEND

	OCCUPANCY CLASSIFICATION	SPRINKLER SYSTEM: DESIGN DENSITY LPM/M² (GPM/FT²)	SPRINKLER SYSTEM: DESIGN AREA M²(FT²)	HOSE STREAM ALLOWANCE LPM (GPM)	DURATION OF SUPPLY MINUTES
1	LIGHT HAZARD	4.1 (0.10)	280 (3000)	950 (250)	60
2	ORDINARY HAZARD GROUP1	6.1 (0.15)	280 (3000)	1900 (500)	60
3	ORDINARY HAZARD GROUP2	8.2 (0.20)	280 (3000)	1900 (500)	90
4	EXTRA HAZARD GROUP1	12.2 (0.30)	280 (3000)	2840 (750)	120
5	EXTRA HAZARD GROUP2	16.3 (0.40)	280 (3000)	2840 (750)	120
6	HANGAR WET-PIPE	8.2 (0.20)	465 (5000)	1900 (500)	90



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 1668
Exp. 6/30/10
FIRE PROTECTION

154TH WING

NO	DATE	DESCRIPTION	APVR	N
NO.	DATE	REVISION	BY	APVD
DSGN	J. STAUDER	DR	T. NASH	CHK	R. MAHLMAN	APVD	W. GOEAS

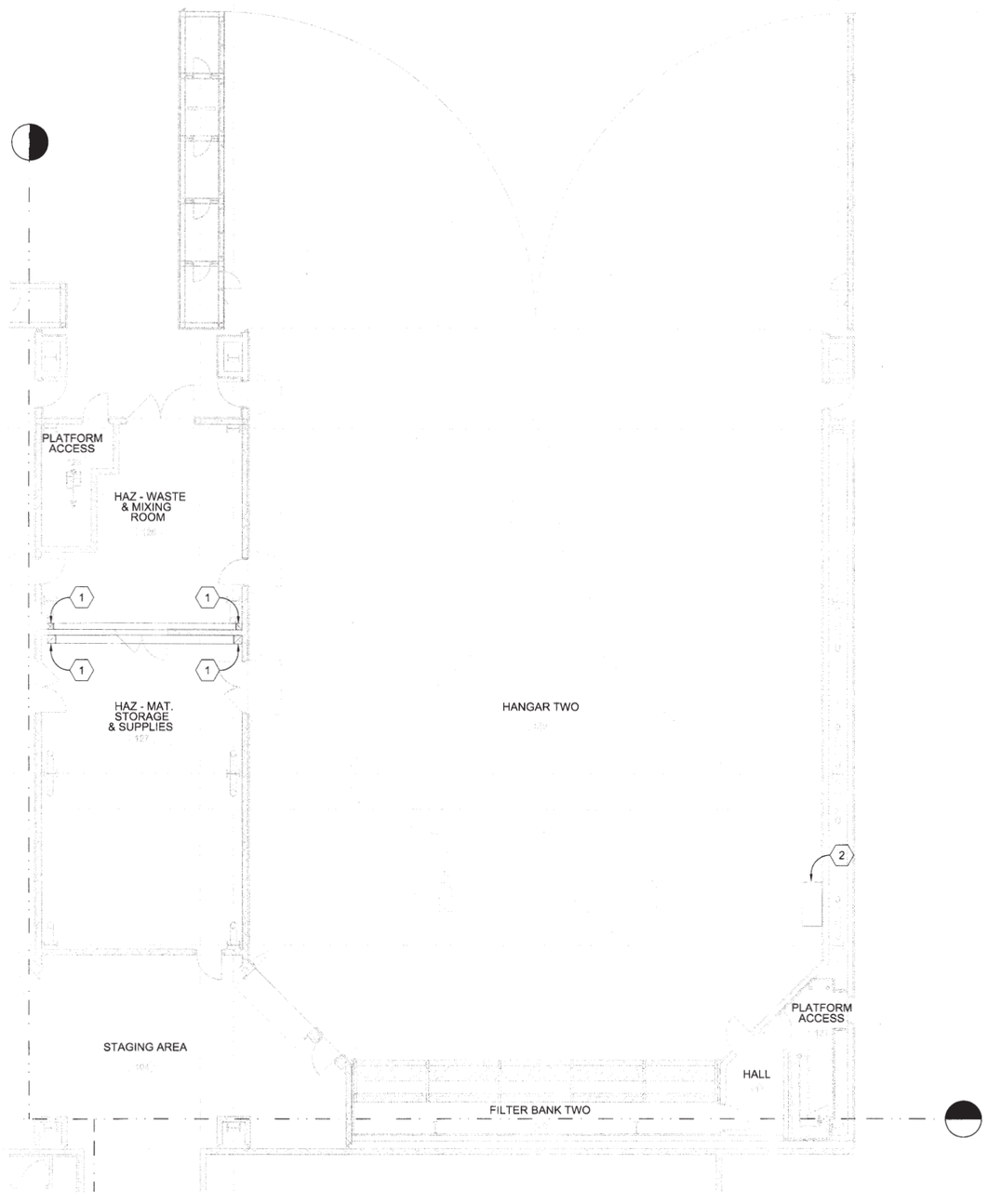
F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
FIRST FLOOR SPRINKLER PLAN
OVERALL

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP140
SHEET	141



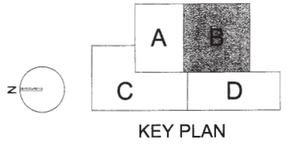
FIRST FLOOR SPRINKLER PLAN - AREA B

1/8"=1'-0"

GENERAL SHEET NOTES

KEYED NOTES

1. PROTECT HAZARDOUS EXHAUST DUCTS AS REQUIRED BY NFPA 13 SECTION 8.15.12
2. LINEAR TEST HEADER LOCATION. SEE DETAILS 4 AND 5, SHEET FP403



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 16681
Exp. 6/30/10
FIRE PROTECTION
HAWAII

NO	DATE	DESCRIPTION	APVR

DSGN J. STAUDER | DR T. NASH | CHK R. MAHLMAN | APVD W. GOEAS

CH2MHILL

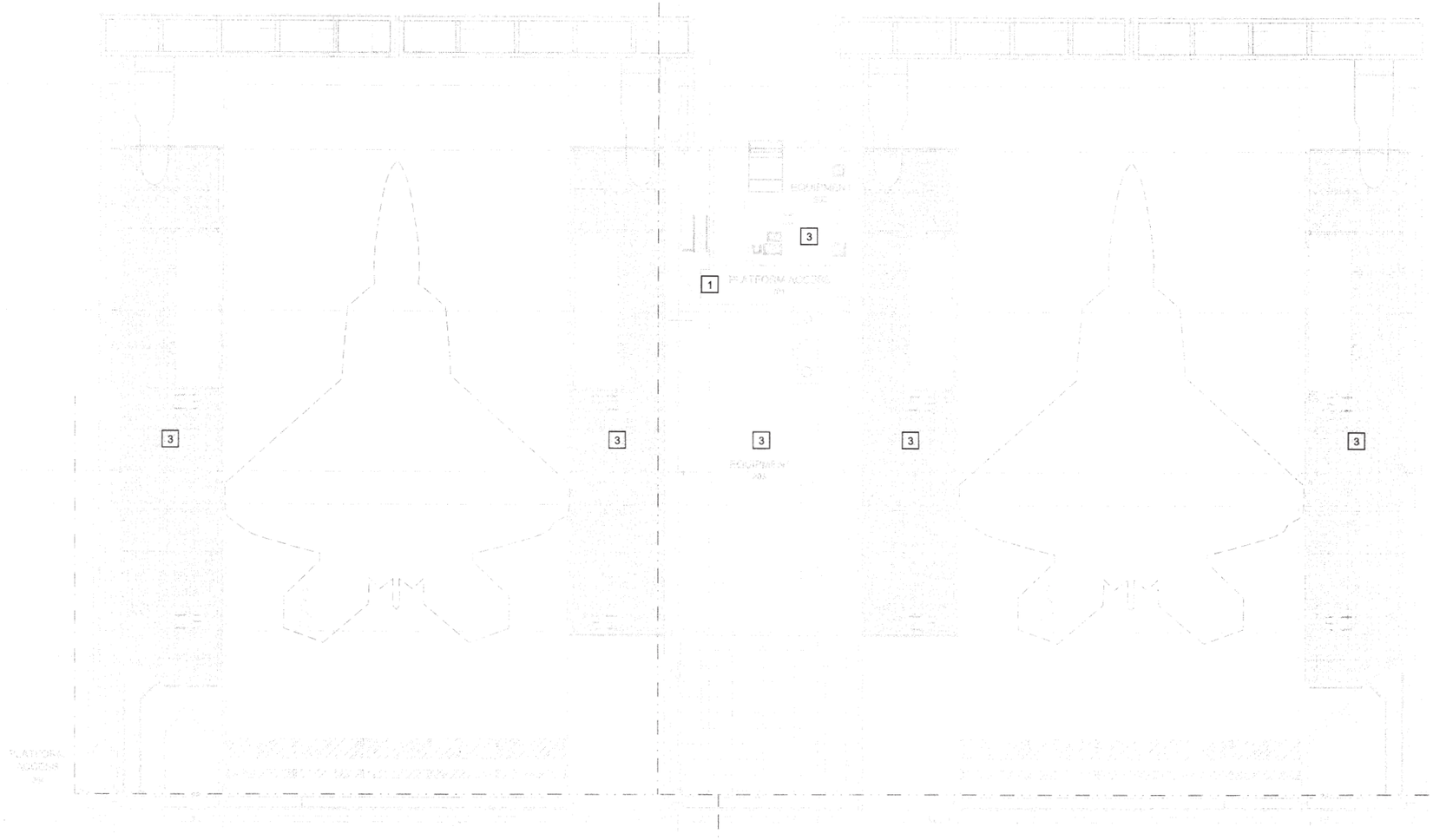
F-22 LO/ COMPOSITE REPAIR FACILITY

FIRE ALARM
FIRST FLOOR SPRINKLER PLAN
AREA B

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP141
SHEET	142



EQUIPMENT LEVEL SPRINKLER PLAN - AREAS A & B
1/8"=1'-0"

GENERAL SHEET NOTES

A. PROVIDE COMPLETE SPRINKLER PROTECTION FOR THIS LEVEL / AREA IN ACCORDANCE WITH NFPA 13 AND OCCUPANCY CLASSIFICATION LEGEND, ORDINARY HAZARD GROUP 2 (0.20 GPM/SF / 3000 SF)

B. FOLLOW NFPA 13 FOR SPRINKLER OBSTRUCTION FOR EQUIPMENT AND DUCTWORK

KEYED NOTES

OCCUPANCY CLASSIFICATION LEGEND

	OCCUPANCY CLASSIFICATION	SPRINKLER SYSTEM DESIGN DENSITY LPM/M² (GPM/FT²)	SPRINKLER SYSTEM DESIGN AREA M²(FT²)	HOSE STREAM ALLOWANCE LPM (GPM)	DURATION OF SUPPLY MINUTES
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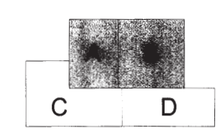
4	EXTRA HAZARD GROUP1	12.2 (0.30)	280 (3000)	2840 (750)	120
5	EXTRA HAZARD GROUP2	16.3 (0.40)	280 (3000)	2840 (750)	120
6	HANGAR WET-PIPE	8.2 (0.20)	465 (5000)	1900 (500)	90



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 16681
Exp. 6/30/10
STATE OF HAWAII

154th WING

NO.	DATE	DESCRIPTION	DR	CHK	APVD
		REVISION	J. STAUDER	T. NASH	R. MAHLMAN
			DSGN	BY	APVD
				APVR	W. GOEAS

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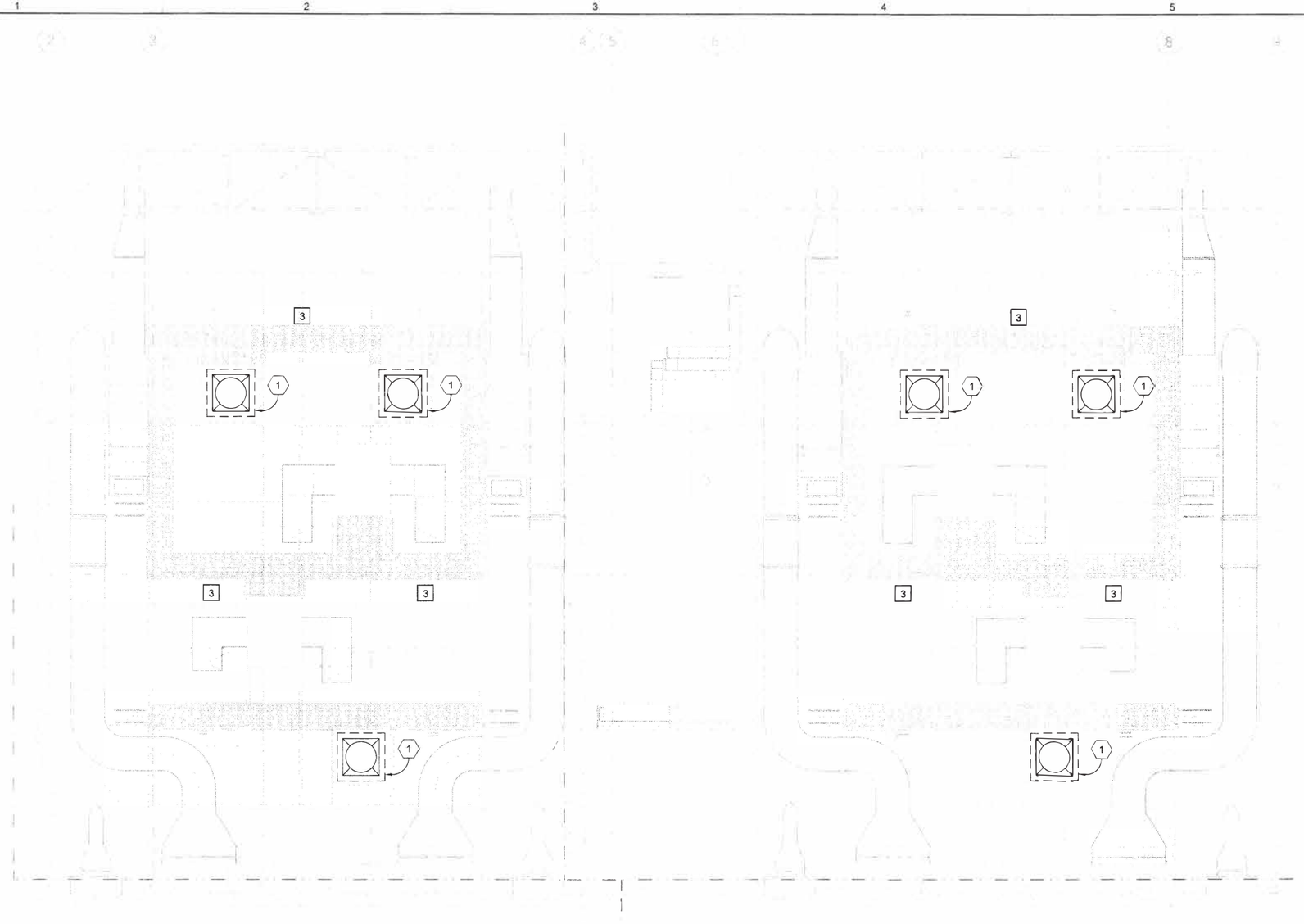
F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
EQUIPMENT LEVEL SPRINKLER PLAN
AREAS A & B

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP240
SHEET	143



CATWALK LEVEL SPRINKLER PLAN - AREAS A & B
1/8"=1'-0"

GENERAL SHEET NOTES

A. PROVIDE COMPLETE SPRINKLER PROTECTION FOR THIS LEVEL / AREA IN ACCORDANCE WITH NFPA 13 AND OCCUPANCY CLASSIFICATION LEGEND, ORDINARY HAZARD GROUP 2 (0.20 GPM/SF / 3000 SF)

B. FOLLOW NFPA 13 FOR SPRINKLER OBSTRUCTION FOR EQUIPMENT AND DUCTWORK

KEYED NOTES

1. HEF GENERATOR ALCOVE. SEE DETAILS 1 AND 2, SHEET FP404 AND ARCHITECTURAL SHEET A507, DETAIL 4 AND STRUCTURAL SHEET S522, DETAIL 1.

OCCUPANCY CLASSIFICATION LEGEND

	OCCUPANCY CLASSIFICATION	SPRINKLER SYSTEM DESIGN DENSITY LPM/M² (GPM/FT²)	SPRINKLER SYSTEM DESIGN AREA M²(FT²)	HOSE STREAM ALLOWANCE LPM (GPM)	DURATION OF SUPPLY MINUTES
1	LIGHT HAZARD	4.1 (0.10)	280 (3000)	950 (250)	60
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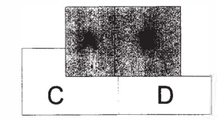
6	HANGAR WET-PIPE	8.2 (0.20)	465 (5000)	1900 (500)	90



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 16668
Exp. 6/30/10
CIVIL
STATE OF CALIFORNIA

154th WING

NO	DATE	DESCRIPTION	DR	CHK	APVD
NO.	DATE	REVISION	J. STAUDER	T. NASH	R. MAHLMAN

APVD BY W. GOEAS
APVD N

CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
CATWALK LEVEL SPRINKLER PLAN
AREAS A & B

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD69208

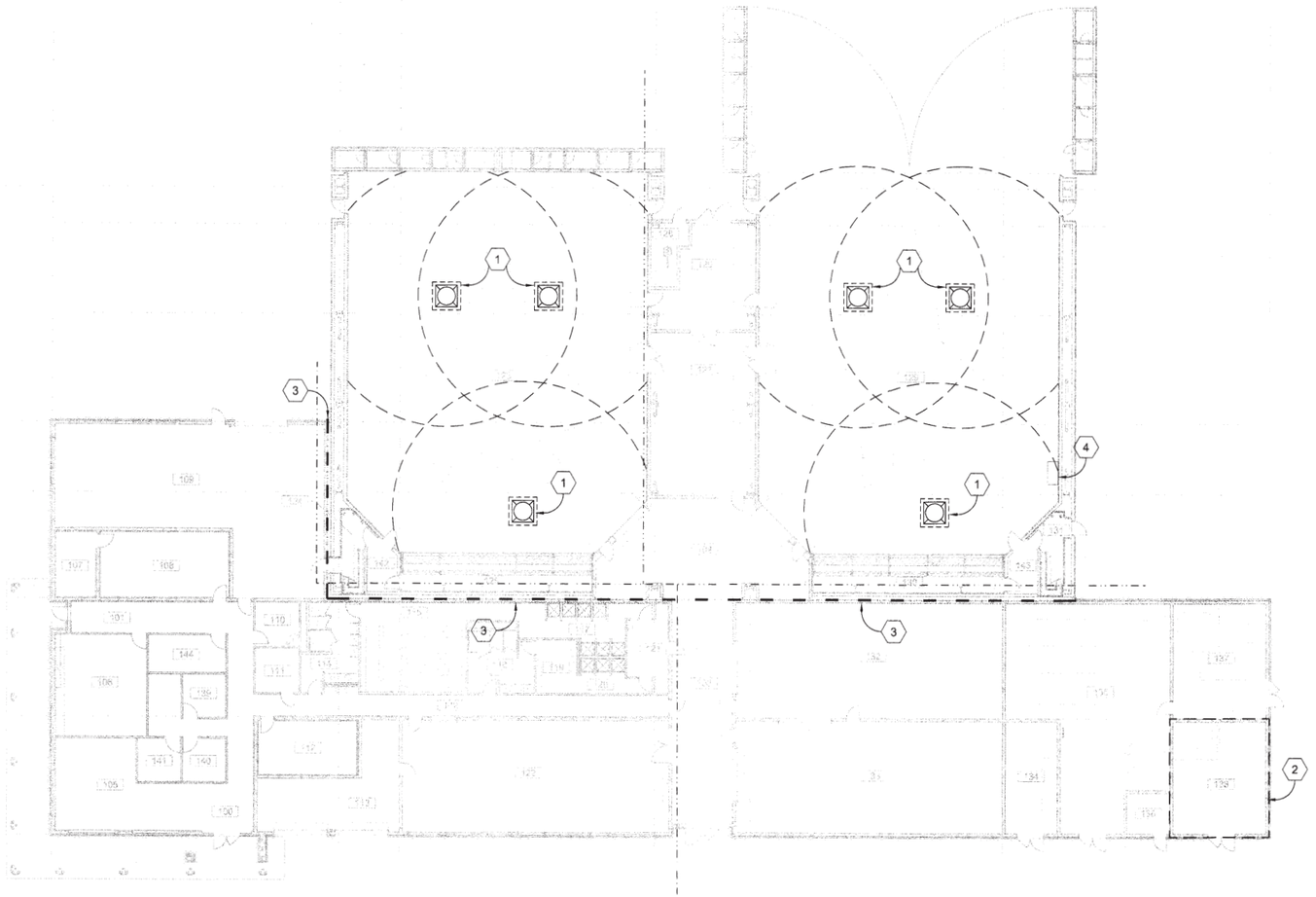
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP241
SHEET	144

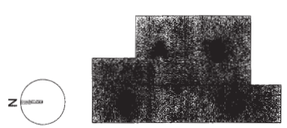
GENERAL SHEET NOTES

KEYED NOTES

1. HEF GENERATOR ALCOVE, TYPICAL; REFER TO SHEET FP404, DETAILS 1 AND 2, ARCHITECTURAL SHEET A-507, DETAIL 4 AND STRUCTURAL SHEET S-522, DETAIL 1.
2. REFER TO FP401 AND FP402 FOR ENLARGED PLAN
3. BUILDING SEPARATION JOINT SHOWN FOR REFERENCE ONLY. REFER TO STRUCTURAL SHEETS FOR LOCATIONS OF BUILDING SEPARATION JOINTS. PROTECT PIPING CROSSING BUILDING SEPARATION JOINTS AS REQUIRED BY PROJECT SPECIFICATIONS AND NFPA 13.
4. LINEAR TEST HEADER. SEE FP403, DETAILS 4 AND 5.



HEF PLAN - OVERALL
1/16"=1'-0"



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 16681
Exp. 6/30/10
FOR OFFICIAL USE ONLY

154TH WING

NO	DATE	DESCRIPTION	BY	APVD
			APVR	N
				W. GOEAS
DSGN	J. STAUDER	DR	T. NASH	CHK	R. MAHLMAN	APVD

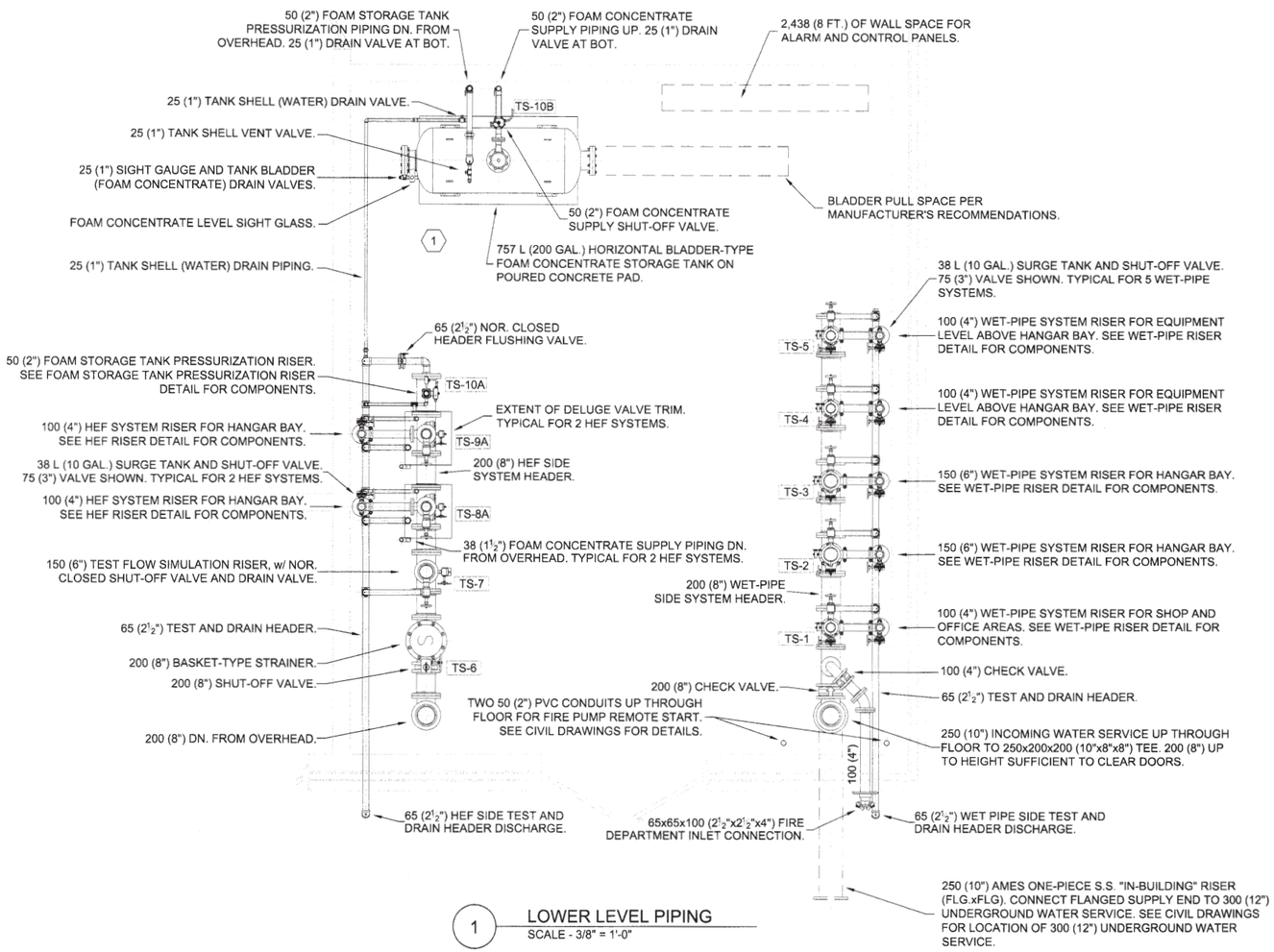
CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
HEF PLAN
OVERALL

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP340
SHEET	145



1 LOWER LEVEL PIPING
SCALE - 3/8" = 1'-0"

GENERAL SHEET NOTES

A. ALL WATER SUPPLY CONTROL VALVES, INCLUDING STORAGE TANK PRESSURIZED WATER SHUT-OFF VALVE, SHALL BE ELECTRICALLY SUPERVISED TO THE OPEN POSITION (EXCEPTION - SURGE TANK SHUT OFF VALVES).

B. ALL FOAM CONCENTRATE AND FOAM SOLUTION CONTROL VALVES SHALL BE ELECTRICALLY SUPERVISED TO THE OPEN POSITION.

C. ALL SYSTEM TEST AND FLOW SIMULATION VALVES SHALL BE ELECTRICALLY SUPERVISED TO THE CLOSED POSITION.

D. SEE SHEET FP403, DETAILS 1-3 FOR RISER ELEVATIONS.

E. SEE SHEET FP501 FOR TAMPER SWITCH SCHEDULE.

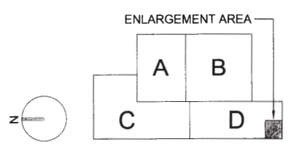
F. WATER SUPPLY INFO
STATIC 122 PSI
RESIDUAL 114 PSI
FLOW 1,700 GPM

THIS FLOW DATA SHALL BE ASSUMED TO EXIST AT THE PIV, BASED ON CALCULATION AND ASSUMPTIONS, NOT TESTING. PROJECT FIRE PUMPS AND PORTION OF UNDERGROUND FIRE PUMP MAIN BY OTHERS. REFER TO CIVIL CU102.

KEYED NOTES

1. SEE ARCHITECTURAL AND STRUCTURAL SHEET S-503, DETAIL 4 FOR FOAM CONTAINMENT CURB.

ENLARGEMENT AREA



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No 16668
Exp. 6/30/10
FIRE PROTECTION
STATE OF HAWAII

154th WING

NO	DATE	DESCRIPTION	DR	CHK	APVD
NO.	DATE	REVISION	J. STAUDER	T. NASH	R. MAHLMAN
				APVR	W. GOEAS
				BY	APVD
				N	

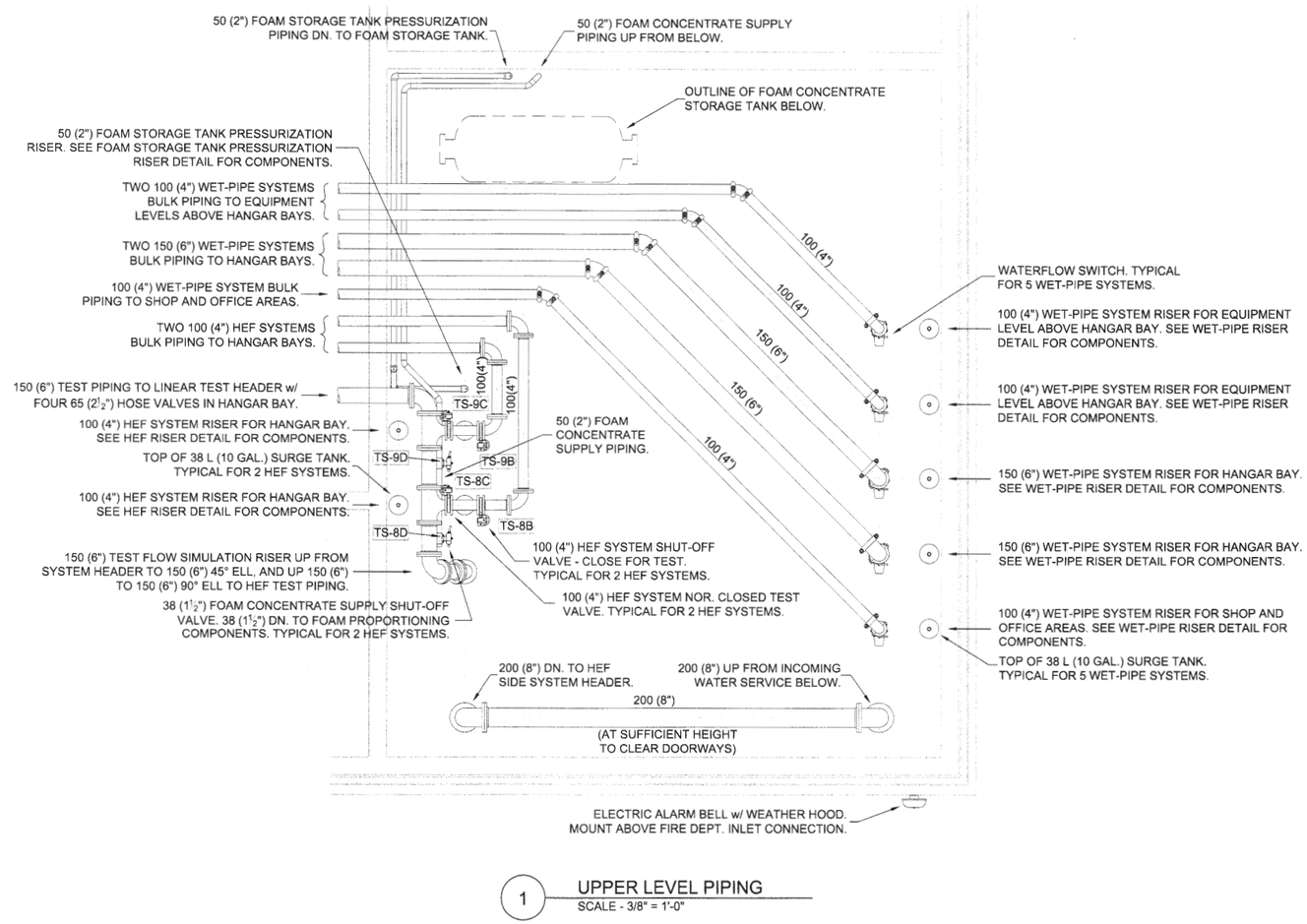
CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
ENLARGED FIRE PROTECTION ROOM
LOWER PIPING

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP401
SHEET	146



1 UPPER LEVEL PIPING
SCALE - 3/8" = 1'-0"

GENERAL SHEET NOTES

A. ALL WATER SUPPLY CONTROL VALVES, INCLUDING STORAGE TANK PRESSURIZED WATER SHUT-OFF VALVE, SHALL BE ELECTRICALLY SUPERVISED TO THE OPEN POSITION (EXCEPTION - SURGE TANK SHUT OFF VALVES).

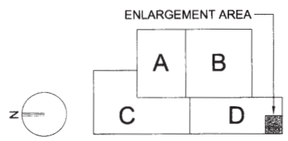
B. ALL FOAM CONCENTRATE AND FOAM SOLUTION CONTROL VALVES SHALL BE ELECTRICALLY SUPERVISED TO THE OPEN POSITION.

C. ALL SYSTEM TEST AND FLOW SIMULATION VALVES SHALL BE ELECTRICALLY SUPERVISED TO THE CLOSED POSITION.

D. SEE SHEET FP403, DETAILS 1-3 FOR RISER ELEVATIONS.

E. SEE SHEET FP501 FOR TAMPER SWITCH SCHEDULE.

KEYED NOTES



KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 16681
Exp. 6/30/10
CIVIL
STATE OF HAWAII

NO	DATE	DESCRIPTION	APVR
		REVISION	BY
DSGN	DR	CHK	APVD
J. STAUDER	T. NASH	R. MAHLMAN	W. GOEAS

154TH WING

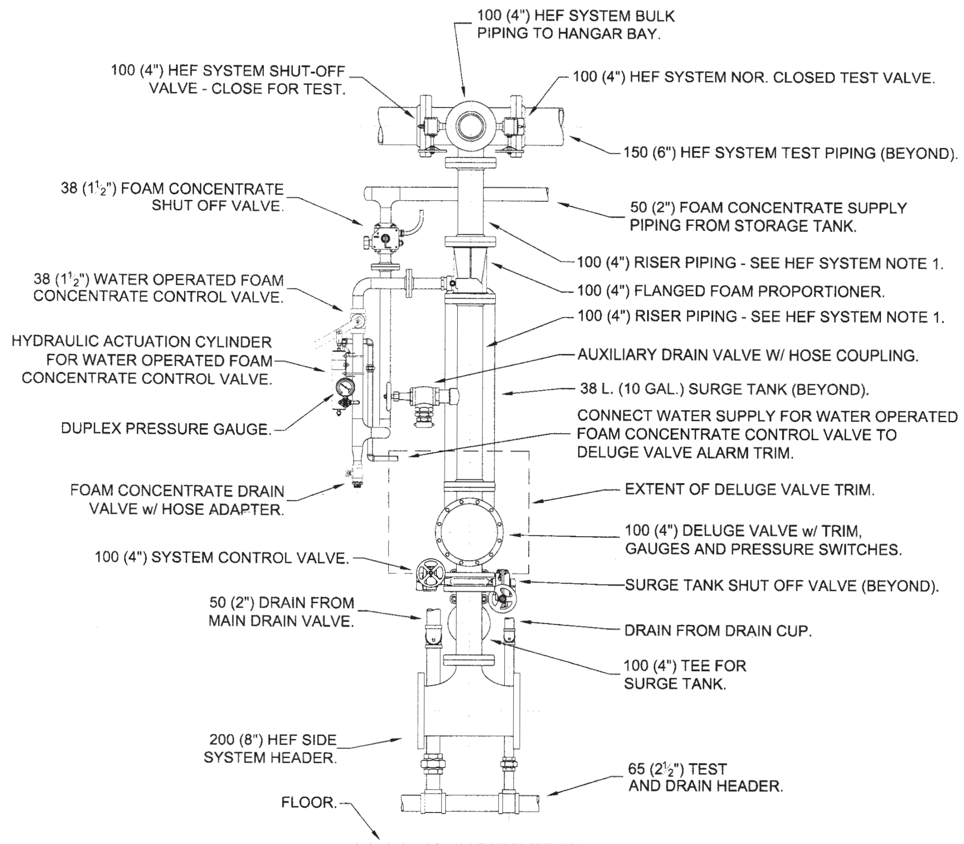
CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
ENLARGED FIRE PROTECTION ROOM
UPPER PIPING

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
AIR NATIONAL GUARD
PROJECT NUMBER KNMD069208

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2009
PROJ	363764
DWG	FP402
SHEET	147



1 HEF SYSTEM RISER ELEVATION

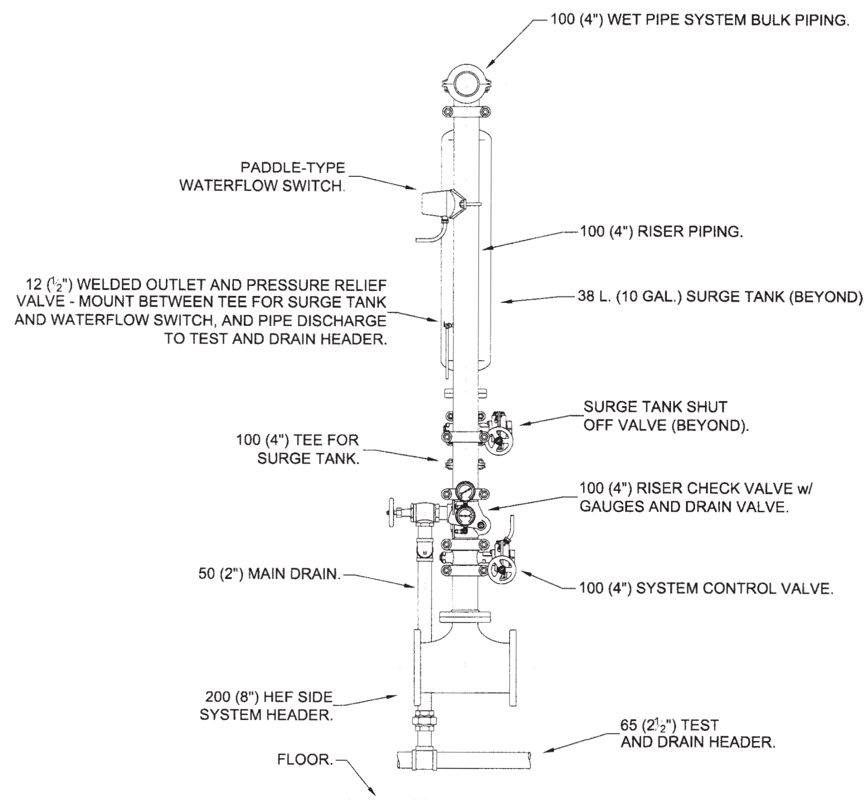
SCALE - 3/8" = 1'-0"

HEF SYSTEM RISER NOTES -

1. PIPE ON SUPPLY SIDE OF FOAM PROPORTIONER SHALL BE STRAIGHT FOR A MINIMUM OF 5 PIPE DIAMETERS FLANGE-TO-FLANGE. PIPE ON SYSTEM SIDE OF FOAM PROPORTIONER SHALL BE STRAIGHT FOR A MINIMUM OF 2 PIPE DIAMETERS FLANGE-TO-FLANGE. IN ALL CASES, MANUFACTURER'S INSTRUCTIONS SHALL BE ADHERED TO.

2. IN FOAM CONCENTRATE SUPPLY PIPING, PROVIDE FLANGES OR COUPLINGS ON SYSTEM SIDE OF FOAM CONCENTRATE SHUT OFF VALVE AND AT FOAM PROPORTIONER SO FOAM CONCENTRATE CONTROL DEVICES MAY BE REMOVED FOR SERVICE OR REPLACEMENT.

3. ALL FOAM CONCENTRATE AND FOAM SOLUTION DRAIN VALVES, INCLUDING AUXILIARY DRAIN VALVES ON HEF RISERS, SHALL BE PROVIDED WITH A HOSE ADAPTER OR COUPLING, SO FOAM CONCENTRATE OR SOLUTION MAY BE RECOVERED FOR RE-USE OR DISPOSAL USING OWNER-SUPPLIED HOSE. FOAM DRAIN VALVES SHALL NOT BE CONNECTED TO TEST AND DRAIN HEADER, OR TO STORM OR SANITARY DRAINS.

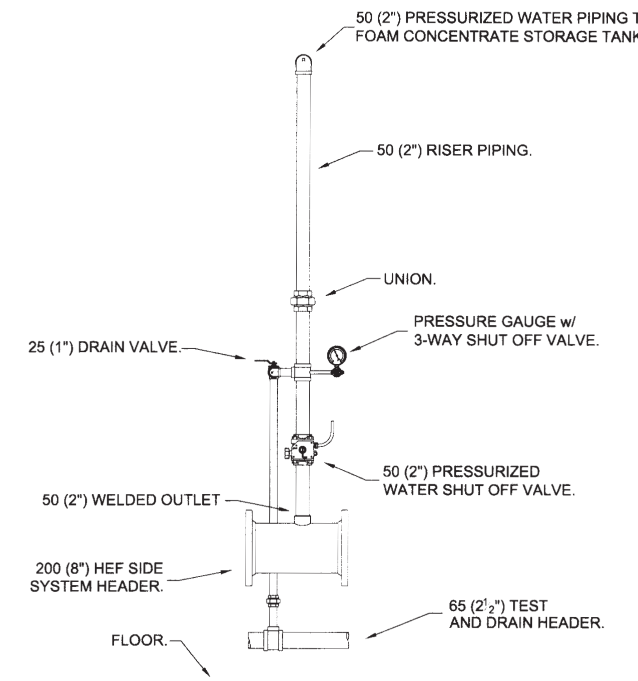


2 WET PIPE SYSTEM RISER ELEVATION

SCALE - 3/8" = 1'-0"

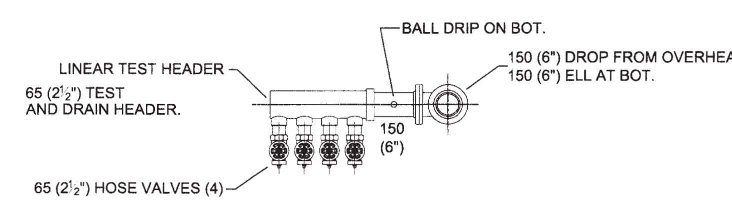
WET PIPE SYSTEM RISER NOTES -

1. 100 (4") RISER SHOWN. 150 (6") RISER IS SIMILAR, WITH RESPECT TO SYSTEM COMPONENTS AND ARRANGEMENT



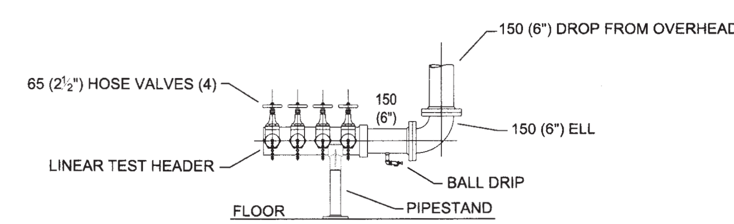
3 STORAGE TANK PRESSURIZATION RISER ELEVATION

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



4 LINEAR TEST VALVE HEADER PLAN

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



5 LINEAR TEST VALVE HEADER ELEVATION

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

REGISTERED PROFESSIONAL ENGINEER
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154th WING

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DSGN J. STAUDER	DR T. NASH	CHK R. MAHLMAN	APVD W. GOEAS	

F-22 LO/COMPOSITE REPAIR FACILITY
HICKAM AIR FORCE BASE, HAWAII
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CH2MHILL

F-22 LO/COMPOSITE REPAIR FACILITY
FIRE PROTECTION
ENLARGED FIRE PROTECTION ROOM
RISER DETAILS

VERIFY SCALE
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0 1"

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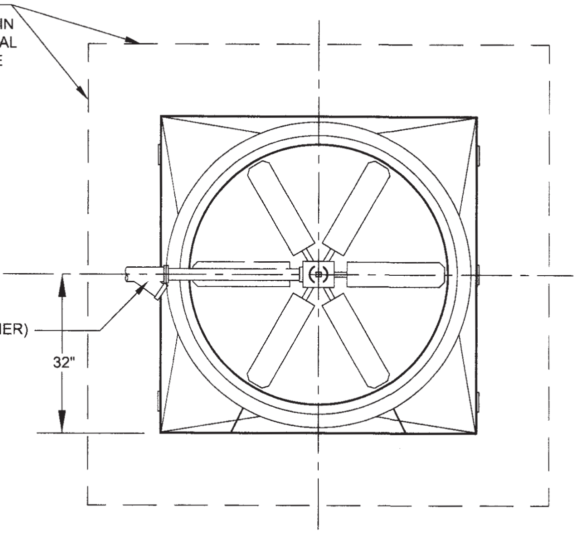
SHEET	148

GENERAL SHEET NOTES

A. SEE STRUCTURAL SHEET S-522, DETAIL 1 FOR MOUNTING DETAIL
B. SEE ARCHITECTURAL SHEET A507, DETAIL 4 FOR HEF GENERATOR ALCOVE

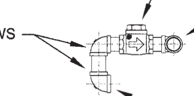
KEYED NOTES

1. INSTALL CHECK VALVE "REVERSED" FROM NORMAL DIRECTION OF FLOW, TO EXHAUST AIR IN GENERATOR SUPPLY PIPING AND ALLOW MORE RAPID FILLING OF GENERATOR SUPPLY PIPING WITH FOAM SOLUTION. TYPICAL FOR ALL HEF GENERATORS.

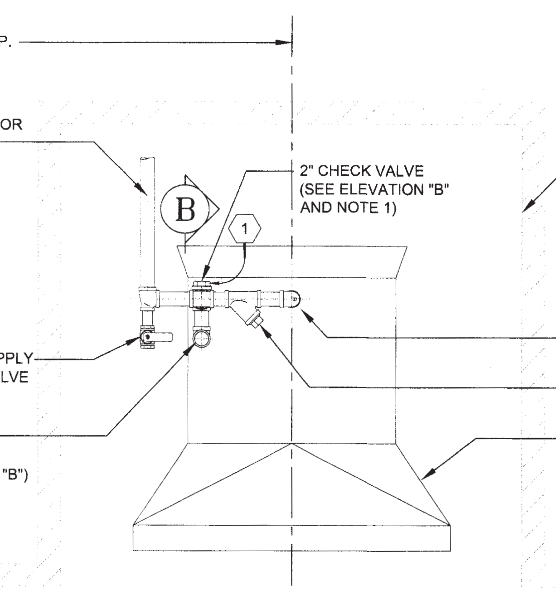


BOTTOM VIEW

(1) HEF GENERATOR & ALCOVE ARRANGEMENT DETAIL
NOT TO SCALE



ELEVATION 'B'
SHOWING ORIENTATION OF 2" CHECK VALVE



SIDE VIEW

(2) HEF GENERATOR CONNECTION DETAIL
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER JOHN ROBERT STAUDER No. 1668 Exp. 6/30/10 FIRE PROTECTION HAWAII

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F-22 LO/COMPOSITE REPAIR FACILITY
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CH2MHILL

F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
HEF GENERATOR ALCOVE
DETAILS

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TAMPER SWITCH SCHEDULE

SUPERVISORY ZONE NUMBER	TAMPER SWITCH DESIGNATION	SUPERVISORY ZONE NAME	DESCRIPTION OF VALVE TAMPER SWITCH	NORMAL POSITION
1	TS-1	WET PIPE SYSTEM NO. 1 (SHOPS AND OFFICES)	WET PIPE SYSTEM NO. 1 CONTROL VALVE	OPEN
2	TS-2	WET PIPE SYSTEM NO. 2 (WEST HANGAR BAY)	WET PIPE SYSTEM NO. 2 CONTROL VALVE	OPEN
3	TS-3	WET PIPE SYSTEM NO. 3 (EAST HANGAR BAY)	WET PIPE SYSTEM NO. 3 CONTROL VALVE	OPEN
4	TS-4	WET PIPE SYSTEM NO. 4 (WEST EQUIPMENT LEVEL)	WET PIPE SYSTEM NO. 4 CONTROL VALVE	OPEN
5	TS-5	WET PIPE SYSTEM NO. 5 (EAST EQUIPMENT LEVEL)	WET PIPE SYSTEM NO. 5 CONTROL VALVE	OPEN
6	TS-6	HEF SIDE SYSTEM HEADER SECTIONAL	CONTROL VALVE ON SUPPLY SIDE OF BASKET STRAINER (ON HEF SIDE SYSTEM HEADER)	OPEN
7	TS-7	FLOW SIMULATION RISER	FLOW SIMULATION RISER CONTROL VALVE (ON HEF SIDE SYSTEM HEADER)	CLOSED
8	TS-8A	HEF SYSTEM NO. 1 (EAST HANGAR BAY)	HEF SYSTEM #1 CONTROL VALVE	OPEN
	TS-8B	HEF SYSTEM NO. 1 (EAST HANGAR BAY)	HEF SYSTEM #1 RISER SHUT-OFF VALVE (CLOSE FOR TEST)	OPEN
	TS-8C	HEF SYSTEM NO. 1 (EAST HANGAR BAY)	HEF SYSTEM #1 TEST VALVE (OPEN FOR TEST - WATER ONLY)	CLOSED
	TS-8D	HEF SYSTEM NO. 1 (EAST HANGAR BAY)	HEF SYSTEM #1 FOAM CONCENTRATE SHUT OFF VALVE (SS SPECIALTY VALVE)	OPEN
9	TS-9A	HEF SYSTEM NO. 2 (WEST HANGAR BAY)	HEF SYSTEM #2 CONTROL VALVE	OPEN
	TS-9B	HEF SYSTEM NO. 2 (WEST HANGAR BAY)	HEF SYSTEM #2 RISER SHUT-OFF VALVE (CLOSE FOR TEST)	OPEN
	TS-9C	HEF SYSTEM NO. 2 (WEST HANGAR BAY)	HEF SYSTEM #2 TEST VALVE (OPEN FOR TEST - WATER ONLY)	CLOSED
	TS-9D	HEF SYSTEM NO. 2 (WEST HANGAR BAY)	HEF SYSTEM #2 FOAM CONCENTRATE SHUT OFF VALVE (SS SPECIALTY VALVE)	OPEN
10	TS-10A	FOAM CONCENTRATE STORAGE TANK	STORAGE TANK PRESSURIZED WATER RISER CONTROL VALVE (ON HEF SIDE SYSTEM HEADER)	OPEN
	TS-10B	FOAM CONCENTRATE STORAGE TANK	STORAGE TANK FOAM CONCENTRATE SUPPLY SHUT OFF VALVE (SS SPECIALTY VALVE)	OPEN

154TH WING

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F-22 LO/ COMPOSITE REPAIR FACILITY
FIRE PROTECTION
VALVE TAMPER SCHEDULE

REGISTERED PROFESSIONAL ENGINEER
JOHN ROBERT STAUDER
No. 1668
Exp. 6/30/10
FIRE PROTECTION

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0 1"

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PROJ	363764
DWG	FP501
SHEET	150