MECHANICAL LEGEND

BOLS	ABBR.	DESCRIPTION
——		EXISTING TO REMAIN
——		NEW MECHANICAL WORK
	(E)	EXISTING
	(N)	NEW
////—		EXISTING TO BE REMOVED
— —	S OR W	SOIL OR WASTE, BELOW FLOOR
——	S OR W	SOIL OR WASTE ABOVE FLOOR
------	V	VENT
——	CW	COLD WATER
——	HW	HOT WATER
——	CO	CLEAN-OUT, WCO-WALL, FCO-FLOOR, COTG-GRADE
2		DUCTWORK - 1ST FIGURE SIDE SHOWN 2ND FIGURE - SIDE NOT SHOWN
	SA	DUCT SECTION - SUPPLY AIR
	RA	DUCT SECTION - RETURN OR EXHAUST AIR
	SAD	SUPPLY AIR DIFFUSER
	SAR RAR	SUPPLY AIR REGISTER RETURN AIR REGISTER
		TURNING VANE
	CRR ER	CEILING RETURN REGISTER EXHAUST REGISTER
	VD	MANUAL VOLUME DAMPER
		FLEXIBLE DUCT
——	RS	REFRIGERANT SUCTION
——	RL	REFRIGERANT LIQUID
——	D	CONDENSATE DRAIN
		THERMOSTAT - MOUNT 4'-0" ABOVE FINISH FLOOR
		HUMIDISTAT - MOUNT 4'-0" ABOVE FINISH FLOOR
	FE	FIRE EXTINGUISHER
——	SD	SMOKE DETECTOR
		SMOKE DAMPER
	SA	SUPPLY AIR - DIRECTION OF FLOW
	RA OR EA	RETURN OR EXHAUST AIR - DIRECTION OF FLOW
	FD	FIRE DAMPER
——		GATE VALVE
——		CHECK VALVE
——		FLEX CONNECTION
——		THERMOMETER
——		PRESSURE GAGE
——		STRAINER
——		3-WAY CONTROL VALVE
——		PRESSURE RELIEF VALVE
——		BALANCING VALVE
——		UNION

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS RELATING TO THE PROJECT BEFORE COMMENCING WITH THE REQUIRED WORK.
2. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE CONTRACTING OFFICER OF ANY DISCREPANCIES AND/OR CONDITIONS WHICH PREVENT THE CONTRACTOR FROM FULFILLING THE TERMS OF THE CONTRACT.
3. THE CONTRACTOR SHALL PATCH ALL SURFACES EXPOSED FROM CUTTING AND/OR REMOVAL WORK. PATCHING SHALL MATCH THE FINISH OF THE ADJACENT SURFACES.
4. THE WORD "REPLACE" MEANS THE CONTRACTOR SHALL REMOVE EXISTING WORK AND PROVIDE NEW WORK AS DETAILED OR NOTED ON THE DRAWINGS.
5. ALL WORK INDICATED SHALL BE NEW WORK UNLESS OTHERWISE INDICATED "EXISTING".
6. ALL ITEMS AND MATERIALS TO BE REMOVED SHALL BE DONE IN SUCH A MANNER AS TO PREVENT DAMAGE TO ITEMS AND MATERIALS TO REMAIN. ALL SUCH DAMAGES SHALL BE SATISFACTORILY REPAIRED AT NO ADDITIONAL COST TO THE GOVERNMENT.
7. ALL WASTE MATERIALS SHALL BE PROMPTLY REMOVED AND DISPOSED OFFSITE THE LIMITS OF STATE PROPERTY.

AIR CONDITIONING AND VENTILATION NOTES

1. FURNISH AND INSTALL ALL EQUIPMENT, ACCESSORIES, CONNECTIONS, MATERIALS, AND INCIDENTAL ITEMS NECESSARY TO FULLY COMPLETE THE INSTALLATION OF THE AIR CONDITIONING SYSTEM SHOWN ON THESE DRAWINGS.
2. DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL FIELD CONDITIONS PERMIT. REASONABLE MODIFICATIONS TO SUIT JOB CONDITIONS SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL COMPENSATION. ALL INDICATED DUCT DIMENSIONS ARE NET DIMENSIONS.
3. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH APPLICABLE CODES, SPECIFICATIONS, STATE REGULATIONS, COUNTRY ORDINANCES, INDUSTRY STANDARDS AND UTILITY COMPANY STANDARDS.
4. APPLICABLE CODES: COUNTY BUILDING CODE; COUNTRY PLUMBING CODE; NATIONAL ELECTRIC CODE; AND STATE OF HAWAII PUBLIC HEALTH REGULATIONS.
5. WORK SHALL CONFORM TO NFPA 90-A, SAFETY CODE FOR MECHANICAL REFRIGERATION ANSI B9.1 AND APPLICABLE ARI EQUIPMENT STANDARDS.
6. DUCT CONSTRUCTION, BRACING AND SUPPORT SHALL BE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS.
7. ALL NEW DUCTWORK SHOWN SHALL BE INSULATED UNLESS OTHERWISE INDICATED.
8. INSULATE ALL PIPING SUBJECT TO CONDENSATION.
9. PROVIDE EQUIPMENT WITH STARTERS, DISCONNECT AND CONTROL TRANSFORMERS AS REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE APPROPRIATE EQUIPMENT VIBRATION ISOLATORS WITH 95% EFFICIENCY. ISOLATE ALL PIPING AND DUCTWORK CONNECTED TO EQUIPMENT.
10. CONTROLS: PROVIDE THERMOSTATS, SMOKE DETECTORS AND ALL OTHER CONTROLS NECESSARY FOR A COMPLETE OPERATING SYSTEM.
11. LOCATION OF OUTSIDE AIR INTAKE GRILLES SHALL BE IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS.
12. ALL REQUIRED CONTRACTOR FEES, PERMITS AND INSPECTIONS SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.
13. MATERIAL SHALL BE ALL NEW AND CONFORMING TO RECOGNIZED COMMERCIAL STANDARDS.
14. WORKMANSHIP SHALL BE COMPETENT AND TO SATISFACTION OF THE ENGINEER. UNACCEPTABLE WORK SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNERS.
15. CALL ENGINEER'S ATTENTION TO INTERFERENCE'S AND COOPERATE IN AVOIDING CONSTRUCTION DELAYS.
16. TESTING AND BALANCING SHALL BE IN ACCORDANCE WITH SMACNA HVAC SYSTEM-TESTING, ADJUSTING AND BALANCING MANUAL. SUBMIT TESTING AND BALANCING REPORT TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
17. GUARANTEE COMPLETE INSTALLATION AGAINST MATERIAL OR WORKMANSHIP DEFECTS OR

PLUMBING NOTES:

1. WORK SHALL CONFORM TO THE HAWAII COUNTY PLUMBING CODE AND STATE OF HAWAII DEPARTMENT OF HEALTH REGULATIONS.
2. DRAWINGS ARE APPROXIMATE ONLY, INDICATING THE GENERAL LAYOUT AND LOCATION. THEY ARE NOT INTENDED TO BE DETAILED CONSTRUCTION DRAWINGS. REASONABLE ALTERATIONS MADE TO SUIT JOB CONDITIONS SHALL NOT CONSTITUTE A CHANGE.
3. CONTRACTOR SHALL VERIFY LOCATIONS, SIZES AND INVERT ELEVATIONS OF ALL EXISTING WATER AND SEWER LINES PRIOR TO COMMENCEMENT OF ANY NEW PLUMBING WORK UNDER THIS CONTRACT.
4. ALL PIPING TO BE ABANDONED IN PLACE SHALL BE CAPPED. PIPING CAPPED IN WALL, AND WALL PATCHED TO HIDE PIPE.
5. VERIFY LOCATION OF EXISTING PIPING AND CESSPOOL. INFORMATION FROM BEST AVAILABLE DATA.
6. PATCH ALL EXISTING CONCRETE WALKWAYS AND FLOORS, A/C PAVEMENT, CURBS, ETC. REQUIRED FOR EXCAVATION AND BACKFILL OF NEW UNDERGROUND PIPING, AND EXISTING PIPING TO BE REMOVED.
7. ALL WORK SHOWN NEW UNLESS OTHERWISE INDICATED.
8. HOT WATER LINES SHALL BE INSULATED.
9. PROVIDE ESCUTCHEONS AROUND ALL EXPOSED PIPE PASSING THRU A FINISHED FLOOR, WALL OR CEILING.
10. COPPER LINES SHALL BE PROTECTED AGAINST ELECTROLYTIC ACTION WITH DIELECTRIC UNIONS AT CONNECTIONS TO DISSIMILAR METAL OR WRAPPED WITH TWO LAYERS OF PLASTIC TAPE WHERE LINES CONTACTS FERROUS METALS.
11. FLASH AROUND ROOF PENETRATION FOR VENT PIPES WITH 4 POUND SHEET LEAD.
12. PIPING SHALL BE INSPECTED INSIDE AND OUT FOR INTERIOR OBSTRUCTIONS AND BURRS BEFORE INSTALLATION. PIPING SHALL BE SLOPED AS REQUIRED BY THE CODE.
13. ANCHOR ALL PIPING IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. PROVIDE ALL REQUIRED STRUCTURAL SUPPORTS FOR ANCHORING VENT PIPING IN ATTIC SPACE.
14. WATER AND WASTE PIPING SHALL BE TESTED IN ACCORDANCE TO SECTION 712 OF THE 1997 UNIFORM PLUMBING CODE.
15. WATER LINES SHALL BE FLUSHED OUT AND DISINFECTED WITH 50 PPM AVAILABLE CHLORINE SOLUTION FOR 6 HOUR CONTACT TIME OR 100 PPM CHLORINE SOLUTION FOR TWO HOURS.
16. CLEAN-UP, ADJUST AND PREPARE FOR OCCUPANCY.
17. GUARANTEE PLUMBING WORK AGAINST DEFECTS FOR ONE YEAR AFTER ACCEPTANCE.

REVISION NO.	DESCRIPTION	DATE	BY	CHK
1	AS BUILTS	05-20-05	GYS	GYS

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

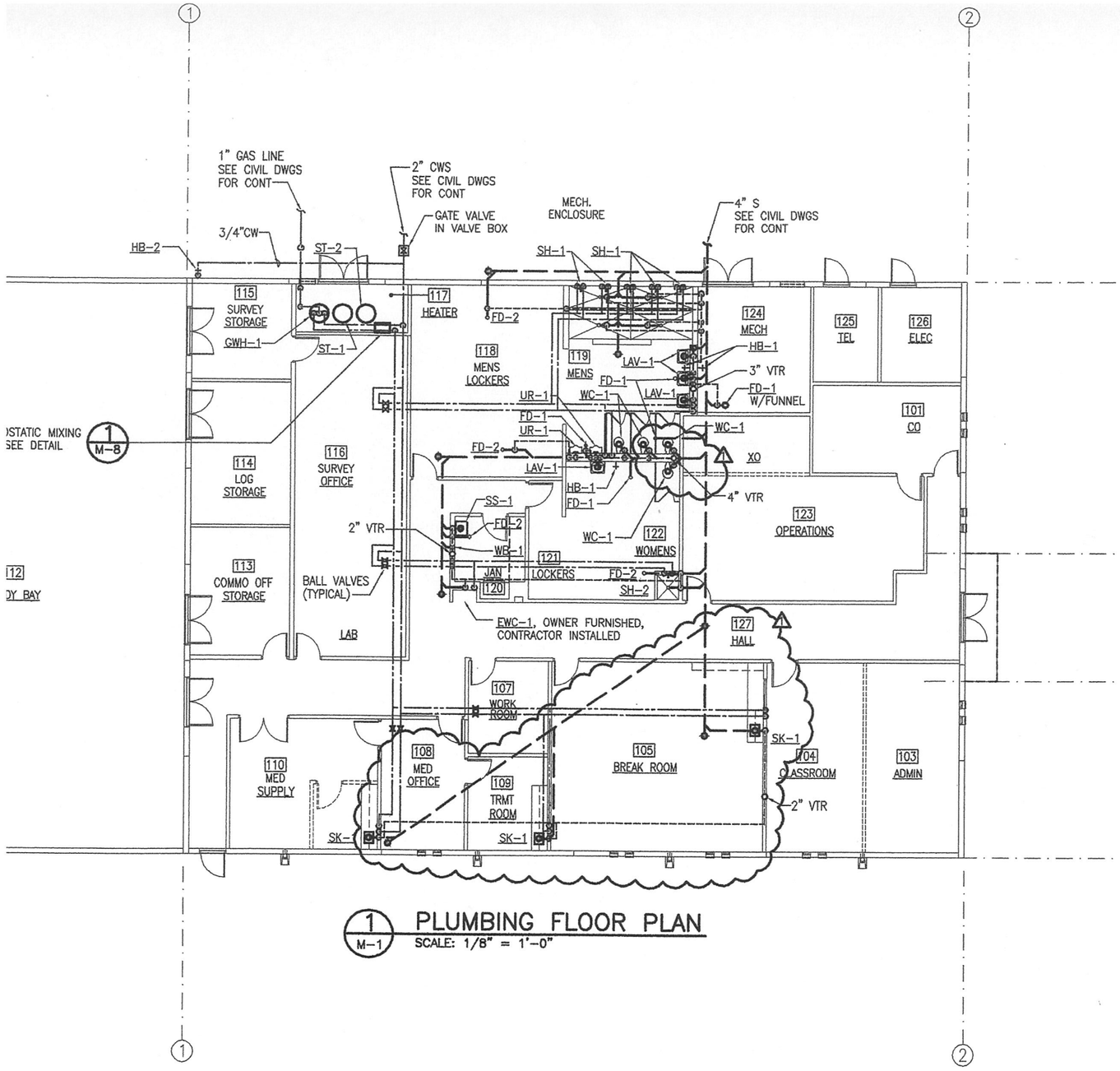
IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT- SCALE REDUCED ACCORDINGLY

The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

GLENN Y. SUZUKI
LICENSED PROFESSIONAL ENGINEER
5684-M
HAWAII, U.S.A.

SATISFACTORY TO _____ DATE _____
TITLE

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD 93D CIVIL SUPPORT TEAM FACILITY Kalaeloa, Oahu, Hawaii
DRAWN: JI	
CHECKED: GYS	
ENGINEER: GYS	MECHANICAL LEGEND AND NOTES
APPROVED: HIARNG FAC. MGT. OFFICER	APPROVED: NGB USPFO FOR HAWAII — DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG - HAWAII	SCALE: AS NOTED
APPROVED: _____ DATE: _____ HIARNG COMMANDER	DRAWING NO. M-1 — SHEET: 33 OF 5



1 M-1 PLUMBING FLOOR PLAN
SCALE: 1/8" = 1'-0"

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	TYPE	PIPE SIZE W	PIPE SIZE V	PIPE SIZE CW	PIPE SIZE HW	GAL/ FLUSH	GPM	REMARKS
WC-1	WATER CLOSET	FLOOR MOUNTED, FLUSH VALVE	4"	2"	1-1/4"	–	1.6	–	
UR-1	URINAL	WALL HUNG, FLUSH VALVE, INTEGRAL TRAP	2"	1-1/2"	3/4"	–	1	–	
LAV-1	LAVATORY	WALL HUNG, CAST IRON	2"	1-1/2"	1/2"	1/2"	–	2.0	
SK-1	COUNTERTOP SINK	STAINLESS STEEL	2"	1-1/2"	1/2"	1/2"	–	2.5	
SS-1	SERVICE SINK	WALL HUNG, TRAP STANDARD, ENAMEL, CAST IRON	2"	2"	1/2"	1/2"	–	2.5	W/INTEGRAL VACUUM BREAKER
WB-1	WASHER BOX		2"	1-1/2"	1/2"	1/2"	–	2.5	
SH-1	SHOWER	SURFACE MOUNTED	2"	2"	1/2"	1/2"	–	2.5	
EWC-1	ELECTRIC WATER COOLER,		1-1/2"	1-1/2"	1/2"	–	–	–	PROVIDE NEW ANGLE VALVE, TRAP, TRAP ARM, ESCUTCHEONS AND WATER FILTER
FD-1	FLOOR DRAIN	CAST IRON, BRONZE FACE PLATE	2"	2"	–	–	–	–	PROVIDE FUNNEL AT MECH ROOM
FD-2	FLOOR DRAIN	CAST IRON, BRONZE FACE PLATE W/TRAP PRIMER	2"	2"	–	–	–	–	PROVIDE TAIL PIECE W/TRAP PRIMER CONNECTION
HB-1	HOSE BIBB, INTERIOR	NON-REMOVABLE VACUUM BREAKER, CHROME PLATED	–	–	3/4"	–	–	–	
HB-2	HOSE BIBB, EXTERIOR	NON-REMOVABLE VACUUM BREAKER	–	–	3/4"	–	–	–	

REVISION NO.	DESCRIPTION	DATE	BY	CH
1	AS BUILTS	05-20-05	GYS	GY

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

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GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5684-M HAWAII, U.S.A.

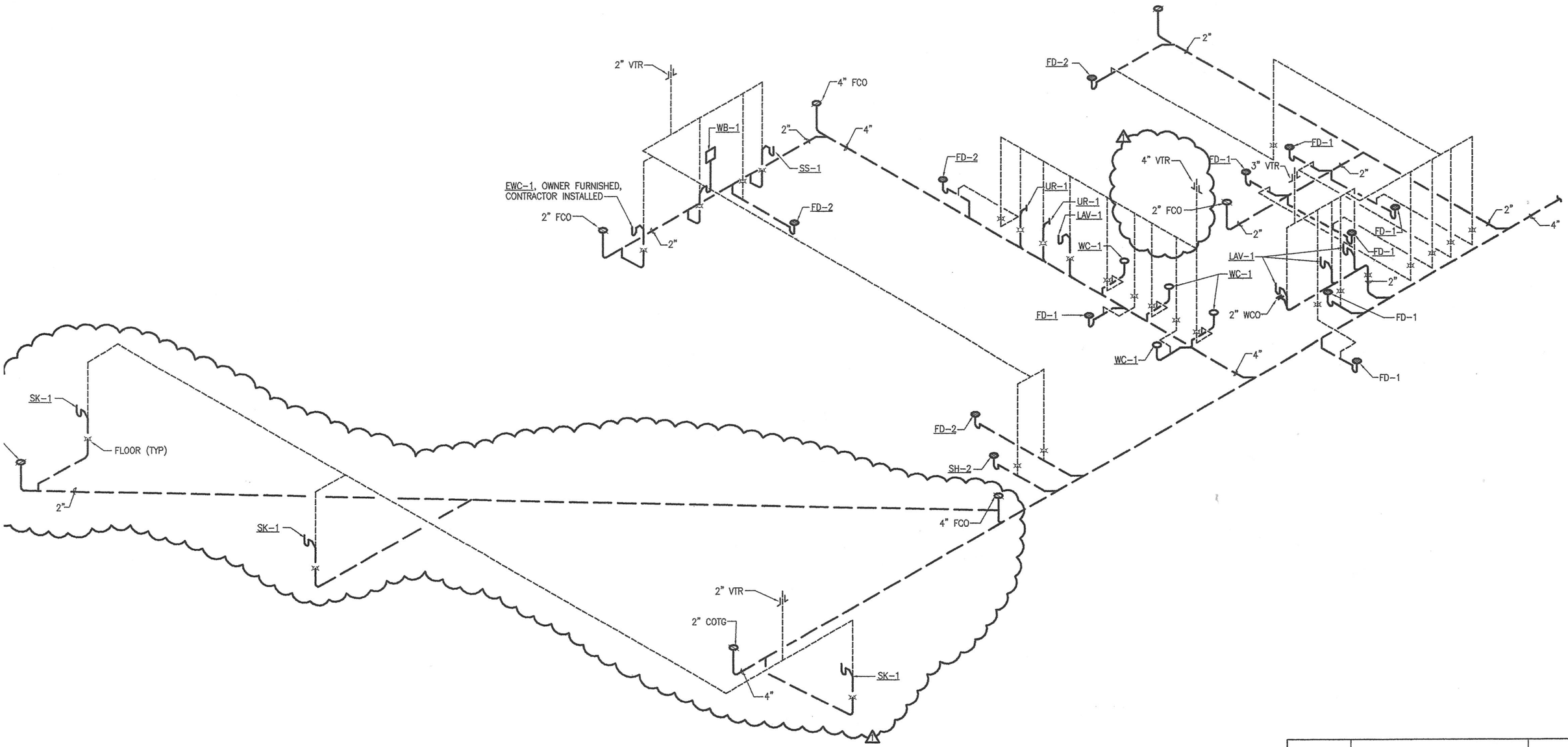
SATISFACTORY TO _____ DATE _____
TITLE

DESIGNED: GYS
DRAWN: JI
CHECKED: GYS
ENGINEER: GYS

HAWAII ARMY NATIONAL GUARD
93D CIVIL SUPPORT TEAM FACILITY
Kalaeloa, Oahu, Hawaii

PLUMBING FLOOR PLAN AND PLUMBING FIXTURE SCHEDULE

APPROVED: HIARNG FAC. MGT. OFFICER
APPROVED: NGB USPFO FOR HAWAII
DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG – HAWAII
APPROVED: _____ DATE: _____ HIARNG COMMANDER
SCALE: AS NOTED
DRAWING NO. M-2
SHEET: 34 OF 5



1 M-3 SANITARY PIPING DIAGRAM
NOT TO SCALE

REVISION NO.	DESCRIPTION	DATE	BY	CHI
1	AS BUILTS	05-20-05	GYS	GY:

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

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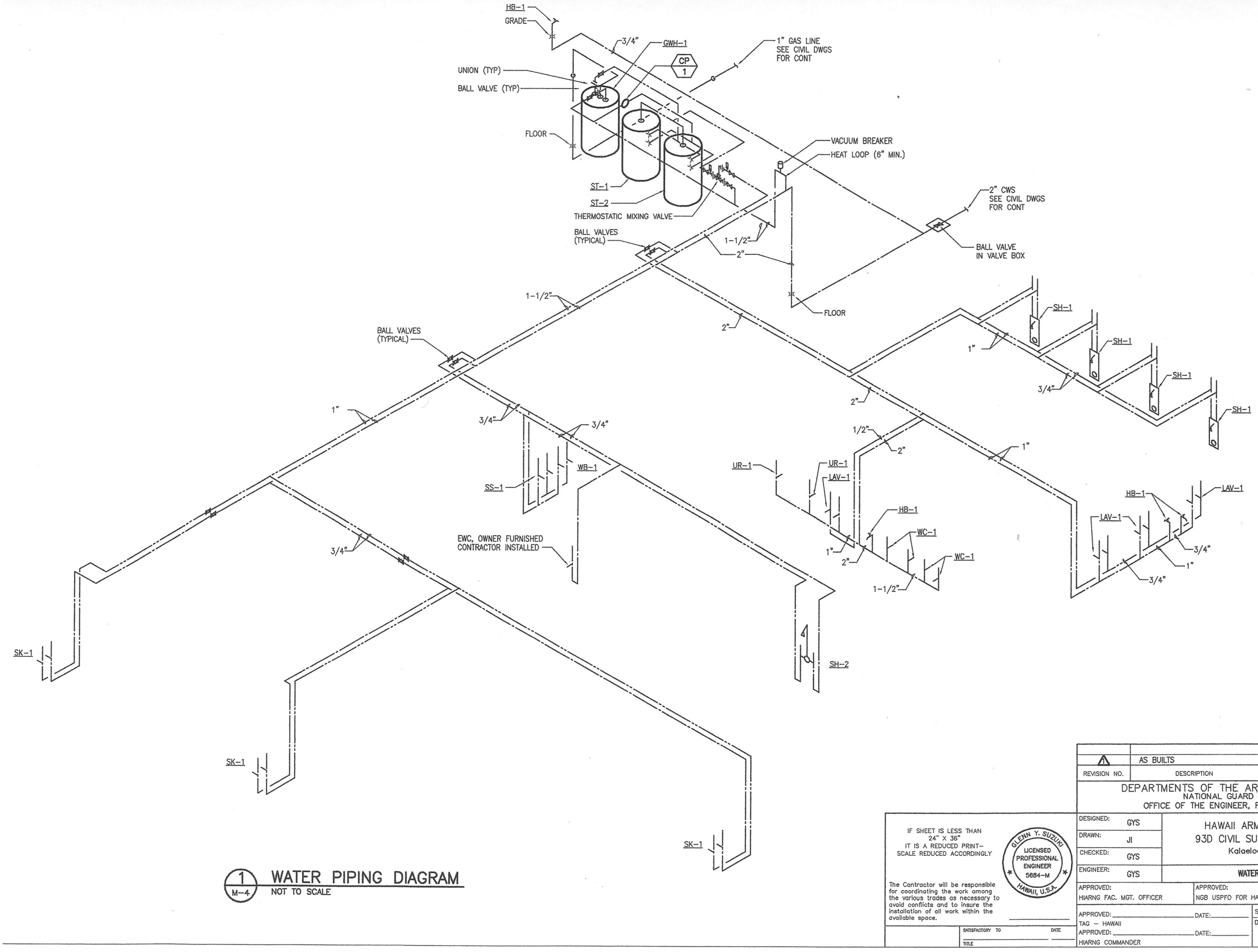
SATISFACTORY TO _____ DATE _____
TITLE

GLENN Y. SUZUKI
LICENSED PROFESSIONAL ENGINEER
5684-M
HAWAII, U.S.A.

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD
DRAWN: JI	93D CIVIL SUPPORT TEAM FACILITY
CHECKED: GYS	Kalaeloa, Oahu, Hawaii
ENGINEER: GYS	SANITARY PIPING DIAGRAM

APPROVED: HIARNG FAC. MGT. OFFICER
APPROVED: NGB USPFO FOR HAWAII
DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG - HAWAII
APPROVED: _____ DATE: _____ HIARNG COMMANDER
SCALE: AS NOTED
DRAWING NO. M-3
SHEET: 35 OF 5



1 M-4 WATER PIPING DIAGRAM
NOT TO SCALE

REVISION NO.	DESCRIPTION	DATE	BY	CHI
1	AS BUILTS	05-20-05	GYS	GY

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

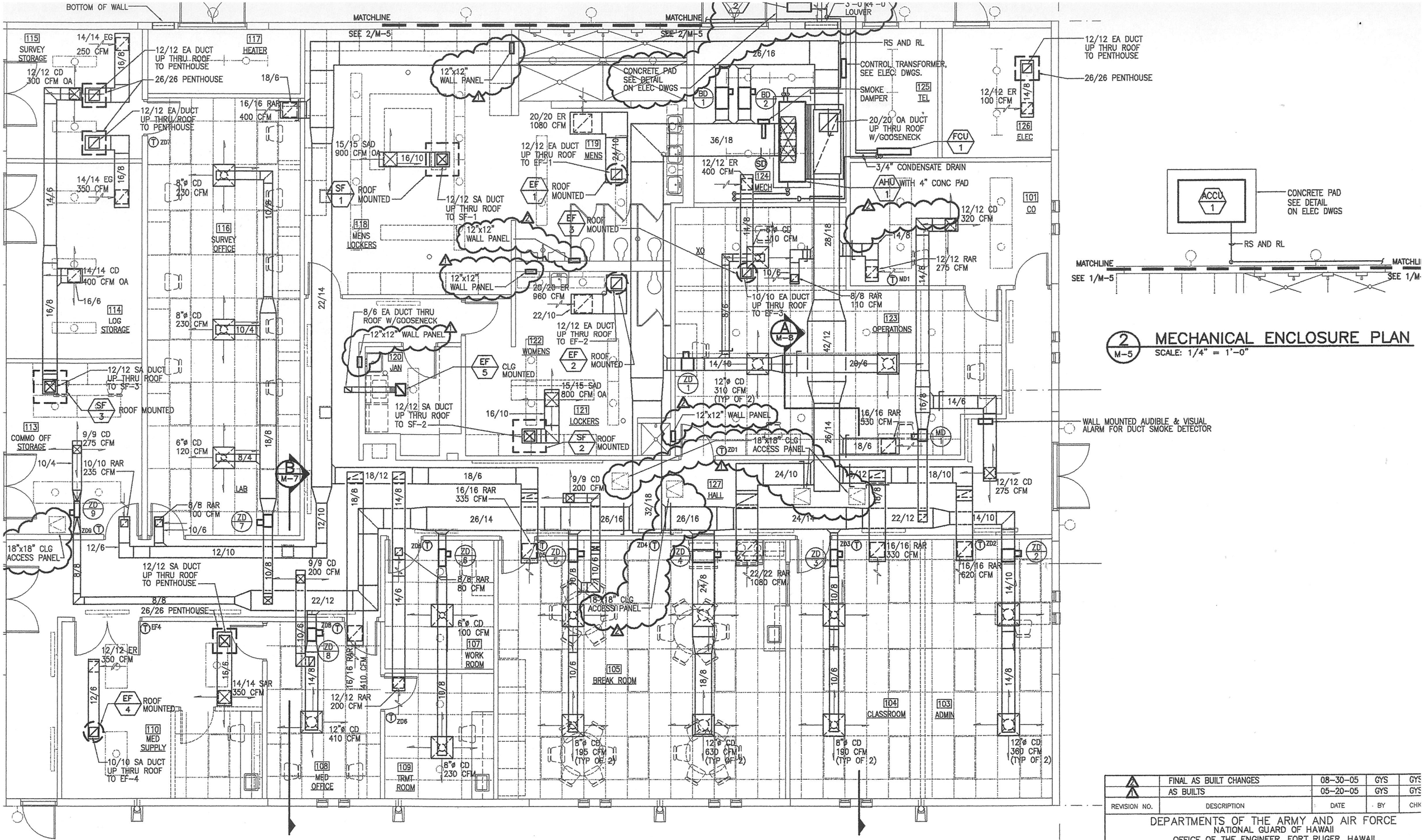
The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

SATISFACTORY TO _____ DATE _____
TITLE

GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5684-M HAWAII, U.S.A.

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD
DRAWN: JI	93D CIVIL SUPPORT TEAM FACILITY
CHECKED: GYS	Kalaeloa, Oahu, Hawaii
ENGINEER: GYS	WATER PIPING DIAGRAM

APPROVED: HIARNG FAC. MGT. OFFICER	APPROVED: NGB USPFO FOR HAWAII	DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG – HAWAII	SCALE: AS NOTED	
APPROVED: _____ DATE: _____ HIARNG COMMANDER	DRAWING NO. M-4	SHEET: 36 OF 5



1 / M-5 MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

2 / M-5 MECHANICAL ENCLOSURE PLAN
SCALE: 1/4" = 1'-0"

REVISION NO.	DESCRIPTION	DATE	BY	CHK
2	FINAL AS BUILT CHANGES	08-30-05	GYS	GYS
1	AS BUILTS	05-20-05	GYS	GYS

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

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GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5884-M HAWAII, U.S.A.

SATISFACTORY TO _____ DATE _____
TITLE

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD
DRAWN: JI	93D CIVIL SUPPORT TEAM FACILITY
CHECKED: GYS	Kalaeloa, Oahu, Hawaii
ENGINEER: GYS	MECHANICAL FLOOR PLANS

APPROVED: HIARNG FAC. MGT. OFFICER
APPROVED: NGB USPFO FOR HAWAII
DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG – HAWAII
APPROVED: _____ DATE: _____ HIARNG COMMANDER
SCALE: AS NOTED
DRAWING NO. M-5
SHEET: 37 OF 5

FAN COIL UNIT SCHEDULE

SYMBOL	QTY	TYPE	SERVICE AREA	TOTAL CFM	OUTSIDE AIR CFM	EXT STATIC	COIL ROWS	ENTERING AIR DB	ENTERING AIR WB	TOTAL HEAT BTUH	SENSIBLE HEAT BTUH	REFRIGERANT	FILTER TYPE	FILTER THICKNESS	FILTER EFFICIENCY	ELECTRICAL HP	ELECTRICAL VOLTAGE	SEER	DRIVE	UNIT WEIGHT(LBS)	REMARKS
FCU 1	1-EA	DUCTLESS, WALL MOUNTED, CONSTANT VOLUME	TEL	280	0	0	–	77.9	64.0	8,000	8,000	R-22	–	–	–	87 WATTS	208/1/60	–	DIRECT	25	CARRIER 40QNB012 (POWER FROM ACCU)

AIR HANDLING UNIT SCHEDULE

SYMBOL	TYPE	SERVICE AREA	TOTAL CFM	OUTSIDE AIR CFM	EXTERNAL STATIC	COIL ROWS	ENTERING AIR DB	ENTERING AIR WB	TOTAL HEAT BTUH	SENSIBLE HEAT BTUH	REFRIGERANT	REFRIGERANT PIPE SIZE LIQUID	REFRIGERANT PIPE SIZE SUCTION	FILTER TYPE	FILTER THICKNESS	FILTER EFFICIENCY	ELECTRICAL HP	ELECTRICAL VOLTAGE	DRIVE	UNIT WEIGHT(LBS)	REMARKS
AHU 1	VERTICAL, DRAW-THRU, CONSTANT VOLUME	OFFICE/ADMIN	5550	780	2.0	3	77.9	64.0	165,480	137,050	R-22	–	–	PLEATED THROW AWAY	2"	30%	5	208/3/60	BELT	825	CARRIER 40RM016

AIR COOLED CONDENSING UNIT SCHEDULE

SYMBOL	QTY	TYPE	FAN COIL UNIT SERVED	TOTAL CAPACITY BTUH	CAPACITY STEPS	SAT. SUCTION TEMP (°F)	ENT. AIR TEMP (°F)	ELECTRICAL VOLTS	ELECTRICAL ø	ELECTRICAL HZ	MCA	MOCP	OPER. WT. LBS	REMARKS
ACCU 1	1-EA	VERTICAL DISCHARGE OUTDOOR UNIT	AHU 1	165,480	3	45	105	208	3	60	87.5	125	780	CARRIER 38AKS016
ACCU 2	1-EA	HORIZONTAL DISCHARGE OUTDOOR UNIT	FCU 1	10,000	1	45	105	208	1	60	17	30	65	CARRIER 38AN012

EXHAUST FAN SCHEDULE

SYMBOL	QTY	TYPE	SERVICE AREA	CFM	S.P.	RPM	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL ø	ELECTRICAL HZ	OPER. WT. LBS	REMARKS
EF 1	1-EA	ROOF TOP EXHAUST FAN	MENS RESTROOM	1,080	0.25	1,052	0.25	115	1	60	70	GREENHECK MDL GB-121, W/BACKDRAFT DAMPER AND INTERLOCK W/LIGHT SWITCH
EF 2	1-EA	ROOF TOP EXHAUST FAN	WOMENS RESTROOM	960	0.25	980	0.25	115	1	60	70	GREENHECK MDL GB-121, W/BACKDRAFT DAMPER AND INTERLOCK W/LIGHT SWITCH
EF 3	1-EA	ROOF TOP EXHAUST FAN	MECHANICAL	400	0.25	1,093	0.25	115	1	60	50	GREENHECK MDL GB-080, W/BACKDRAFT DAMPER
EF 4	1-EA	ROOF TOP EXHAUST FAN	MED SUPPLY	350	0.25	950	0.25	115	1	60	50	GREENHECK MDL GB-080, W/BACKDRAFT DAMPER AND WALL MOUNTED SWITCH
EF 5	1-EA	CEILING EXHAUST FAN	JANITOR'S ROOM	100	0.25	1,100	53 WATTS	115	1	60	17	GREENHECK MDL SP-A125, W/BACKDRAFT DAMPER AND WALL MOUNTED SWITCH

SUPPLY FAN SCHEDULE

SYMBOL	QTY	TYPE	SERVICE AREA	CFM	S.P.	RPM	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL ø	ELECTRICAL HZ	OPER. WT. LBS	REMARKS
SF 1	1-EA	ROOF TOP SUPPLY FAN	MENS LOCKER	900	0.375	700	0.25	115	1	60	145	GREENHECK MDL RSF-90, INTERLOCK W/LIGHT SWITCH
SF 2	1-EA	ROOF TOP SUPPLY FAN	WOMENS LOCKERS	800	0.375	710	0.25	115	1	60	145	GREENHECK MDL RSF-90, INTERLOCK W/LIGHT SWITCH
SF 3	1-EA	ROOF TOP SUPPLY FAN	SURVEY & LOG STORAGE	700	0.375	650	0.25	115	1	60	145	GREENHECK MDL RSF-90

VVT SYSTEM SCHEDULE

CONTROLLER	AREA SERVED	ZONE DAMPER	SIZE	CFM	MIN CFM
MASTER	CO	MD 1	10/8	595	120
ZONE 1	OPERATIONS	ZD 1	14/8	730	145
ZONE 2	ADMIN	ZD 2	14/8	720	145
ZONE 3	CLASSROOM	ZD 3	8"ø	380	75
ZONE 4	BREAK ROOM	ZD 4	24/8	1260	250
ZONE 5	LIBRARY	ZD 5	10/8	590	120

VVT SYSTEM SCHEDULE

CONTROLLER	AREA SERVED	ZONE DAMPER	SIZE	CFM	MIN CFM
ZONE 6	WORK ROOM/ TREATMENT	ZD 6	8"ø	330	65
ZONE 7	SURVEY OFFICE LAB	ZD 7	10/8	580	115
ZONE 8	MED OFFICE	ZD 8	10/8	610	120
ZONE 9	COMMO OFFICE /STORAGE	ZD 9	6"ø	275	55
BYPASS		BD 1	14"ø	–	–
BYPASS		BD 2	14"ø	–	–

REVISION NO.	DESCRIPTION	DATE	BY	CH
1	AS BUILTS	05-20-05	GYS	GY

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT- SCALE REDUCED ACCORDINGLY

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GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5684-M HAWAII, U.S.A.

SATISFACTORY TO _____ DATE _____
TITLE

DESIGNED:	GYS
DRAWN:	JI
CHECKED:	GYS
ENGINEER:	GYS

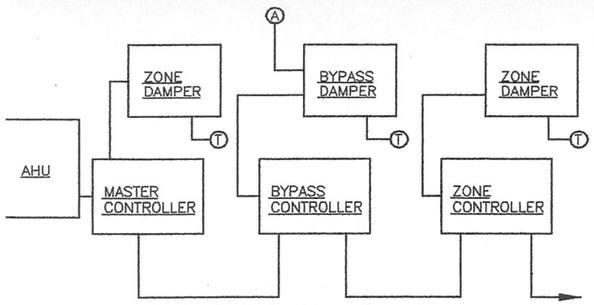
HAWAII ARMY NATIONAL GUARD
93D CIVIL SUPPORT TEAM FACILITY
Kalaeloa, Oahu, Hawaii

MECHANICAL EQUIPMENT SCHEDULES

APPROVED: HIARNG FAC. MGT. OFFICER
APPROVED: NGB USPFO FOR HAWAII
DATE: 7/30/04

APPROVED: _____ DATE: _____
TAG - HAWAII
APPROVED: _____ DATE: _____
HIARNG COMMANDER

SCALE: AS NOTED
DRAWING NO. M-6
SHEET: 38 OF



CONTROL LEGEND

SYMBOL	DESCRIPTION
Ⓐ	AIR FLOW SENSOR
Ⓣ	TRANSFORMER

1 M-7 VARIABLE VOLUME SYSTEM CONTROL WIRING DIAGRAM

NOT TO SCALE

RIABLE VOLUME CONTROLS:

ACTIVATION OF ANY ZONE CONTROLLER SHALL ACTIVATE ALL ZONE CONTROLLERS AND SHALL START THE AIR HANDLING UNIT, AIR COOLED CONDENSING UNIT AND ALL ACCESSORY EQUIPMENT NECESSARY FOR OPERATION OF THE A/C SYSTEM.

UPON STARTUP, THE MASTER CONTROLLER SHALL DETERMINE THE DEMAND FOR COOLING OF EACH ZONE. THE MASTER CONTROLLER WILL ESTABLISH THE ZONE WITH THE GREATEST DEMAND AS THE REFERENCE ZONE.

THE MASTER CONTROLLER SHALL COMMUNICATE WITH ITS ZONE CONTROLLERS AND BYPASS CONTROLLER ON A COMMUNICATION BUS NETWORK.

THE MASTER CONTROLLER SHALL ACCESS ZONE DEMAND FOR COOLING FROM EACH ZONE CONTROLLER AND USE THIS INFORMATION TO CONTROL THE HVAC UNIT BASED ON ZONE DEMAND.

WHEN ANY CONTROLLER SENSES A TEMPERATURE DEVIATION OF 1.5° F OR MORE FROM ITS CURRENT SETPOINT, IT BECOMES A ZONE COOLING CALLER. WHEN A ZONE BECOMES A CALLER, THE MASTER CONTROLLER REGISTERS ITS DEMAND AND ITS COOLING CALLER STATUS. WHEN THE MASTER CONTROLLER REGISTERS THE MINIMUM REQUIRED NUMBER OF ZONE CALLERS, THE MASTER CONTROLLER SHALL ENERGIZE THE COOLING MODE.

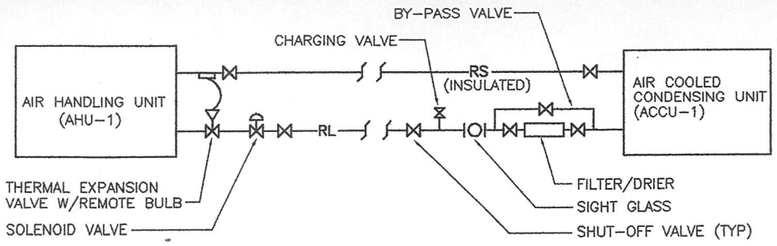
THE MASTER CONTROLLER SHALL HOLD THE SYSTEM MODE UNTIL THE REFERENCE ZONE IS WITHIN 0.5° F OF ITS SETPOINT.

THE BYPASS CONTROLLER SHALL PREPOSITION ITS DAMPER TO THE MAXIMUM OPEN POSITION PRIOR TO SYSTEM STARTUP. THE BYPASS CONTROLLER SHALL REGULATE PRESSURE FROM MINIMUM SYSTEM PRESSURE DURING STARTUP TO MAXIMUM SYSTEM PRESSURE DURING NORMAL OPERATING CONDITIONS. THE BYPASS CONTROLLER SHALL MONITOR SUPPLY AIR TEMPERATURE.

THE ZONE CONTROLLER SHALL BE PROGRAMMABLE FOR A DAILY SCHEDULE WITH HOURLY INCREMENTS AND TWO ON–OFF TIME PERIODS PER DAY. THE CONTROLLER SHALL HAVE A BUILT–IN OVERRIDE TIMER, ADJUSTABLE TO A MINIMUM OF 4 HOURS.

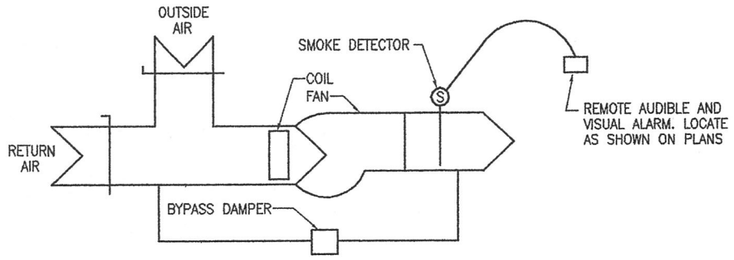
THE INDIVIDUAL ZONE CONTROLLERS SHALL BE CAPABLE OF OPERATING IN THE VENTILATION MODE UNTIL THE ZONE BECOMES 1.5° F OUT OF SET POINT. AT THIS POINT THE ZONE CONTROLLER SHALL REQUEST FOR COOLING FROM THE MASTER CONTROLLER.

UPON FAILURE OF ANY CONTROL SEQUENCE, THE VAV/VT CONTROLS WILL SHUTDOWN THE SYSTEM AND DISPLAY AN ALARM CONDITION ON THE DISPLAY.



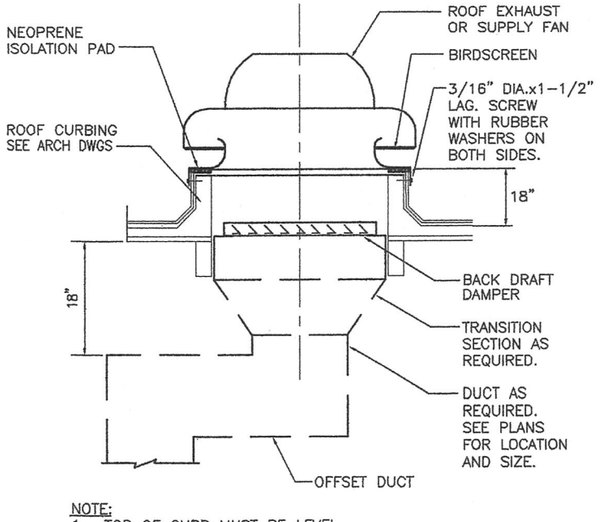
2 M-7 AHU/ACCU REFRIGERANT PIPING SCHEMATIC

NOT TO SCALE



4 M-7 AIR HANDLING UNIT DIAGRAM

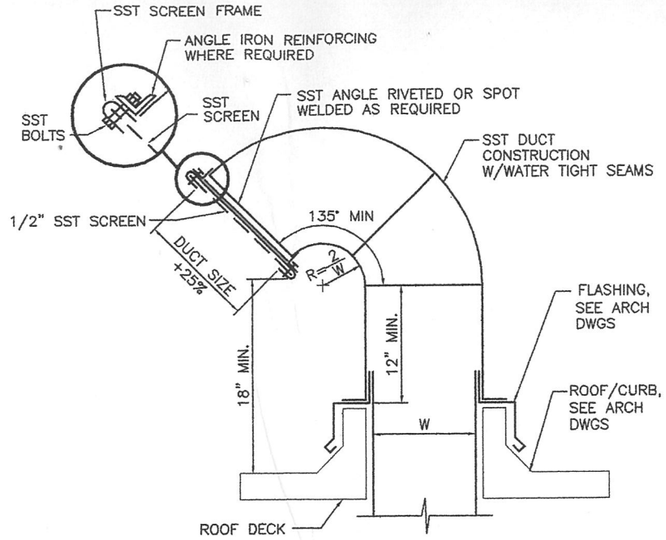
NOT TO SCALE



NOTE:
1. TOP OF CURB MUST BE LEVEL.

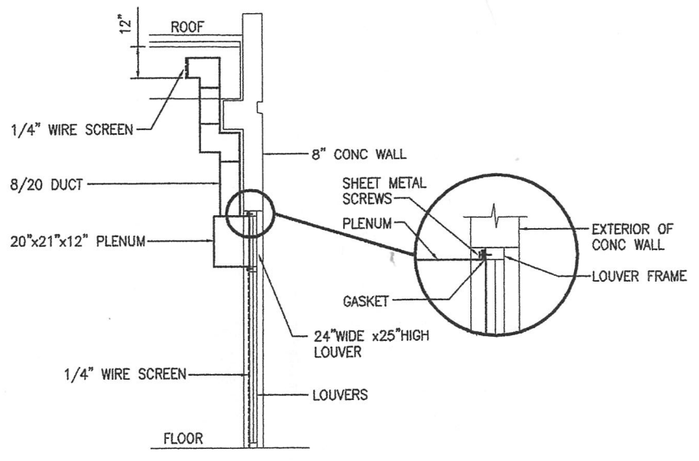
6 M-7 FAN CURB DETAIL

NOT TO SCALE



3 M-7 GOOSENECK DETAIL

NOT TO SCALE



7 M-7 PLENUM DETAIL

SCALE: 3/8" = 1'–0"

REVISION NO.	DESCRIPTION	DATE	BY
1	AS BUILTS	05–20–05	GYS

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

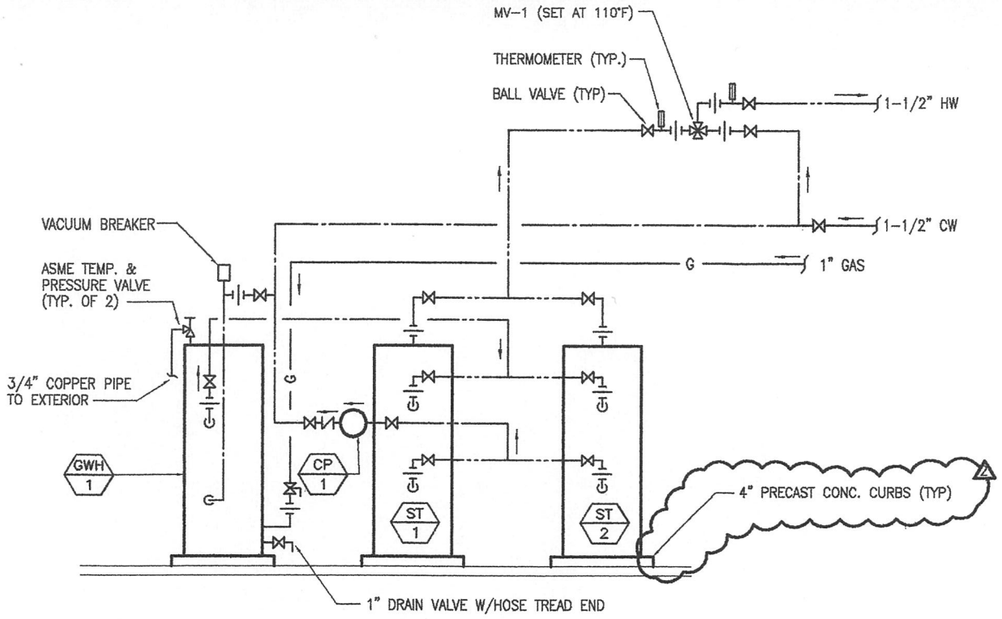
The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5684–M HAWAII, U.S.A.

SATISFACTORY TO _____ DATE _____
TITLE

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD
DRAWN: JI	93D CIVIL SUPPORT TEAM FACILITY
CHECKED: GYS	Kalaeloa, Oahu, Hawaii
ENGINEER: GYS	MECHANICAL CONTROLS AND DETAILS

APPROVED: HIARNG FAC. MGT. OFFICER	APPROVED: NGB USPFO FOR HAWAII	DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG – HAWAII	SCALE: AS NOTED	
APPROVED: _____ DATE: _____ HIARNG COMMANDER	DRAWING NO. M-7	SHEET: 39 OF

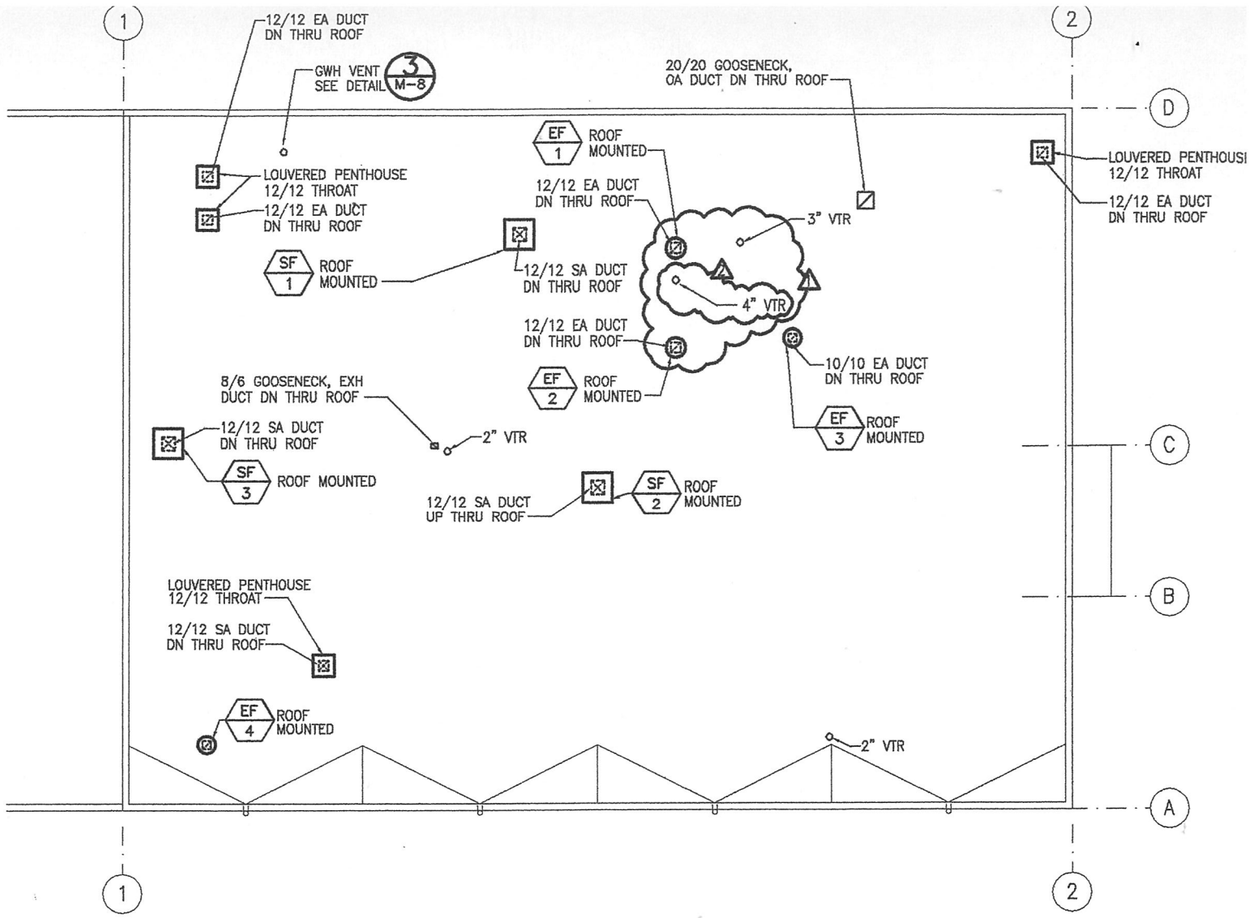


NOTE:

1. ADJUST THERMOMETER TO BE READABLE FROM FLOOR.
2. PROVIDE LOW WATER CUT-OFF AT GAS WATER HEATER (NOT SHOWN).
3. VERIFY ALL POINTS OF CONNECTION WITH MIXING VALVE MANUFACTURER.

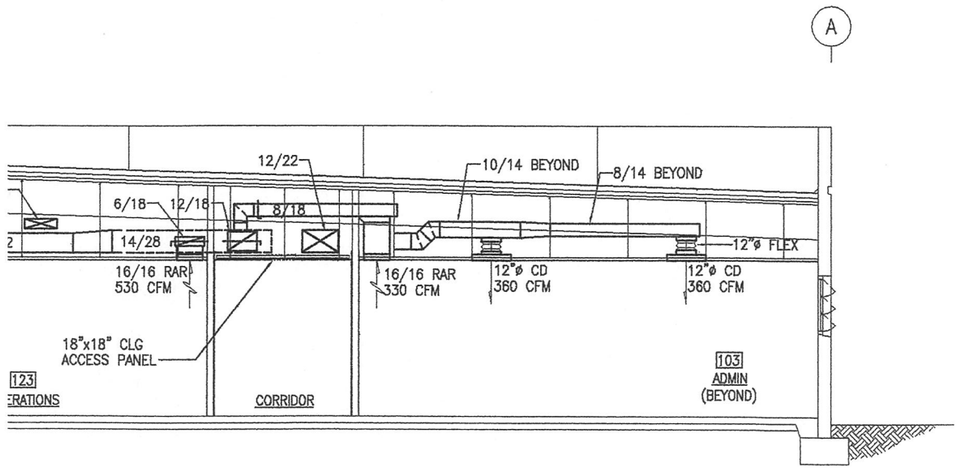
1 M-8 GAS WATER HEATER PIPING SCHEMATIC

NOT TO SCALE



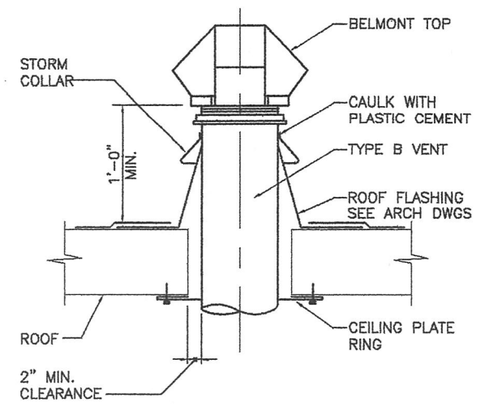
2 M-8 MECHANICAL ROOF PLAN

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



A M-8 MECHANICAL SECTION

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



3 M-8 GWH VENT THRU ROOF DETAIL

NOT TO SCALE

REVISION NO.	DESCRIPTION	DATE	BY
2	FINAL AS BUILT CHANGES	08-30-05	GYS
1	AS BUILTS	05-20-05	GYS

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

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SATISFACTORY TO _____ DATE _____
TITLE

GLENN Y. SUZUKI LICENSED PROFESSIONAL ENGINEER 5684-M HAWAII, U.S.A.

DESIGNED: GYS	HAWAII ARMY NATIONAL GUARD
DRAWN: JI	93D CIVIL SUPPORT TEAM FACILITY
CHECKED: GYS	Kalaeloa, Oahu, Hawaii
ENGINEER: GYS	MECHANICAL DETAILS

APPROVED: HIARNG FAC. MGT. OFFICER
APPROVED: NGB USPFO FOR HAWAII
DATE: 7/30/04
APPROVED: _____ DATE: _____ TAG - HAWAII
APPROVED: _____ DATE: _____ HIARNG COMMANDER
SCALE: AS NOTED
DRAWING NO. M-8
SHEET: 40 OF