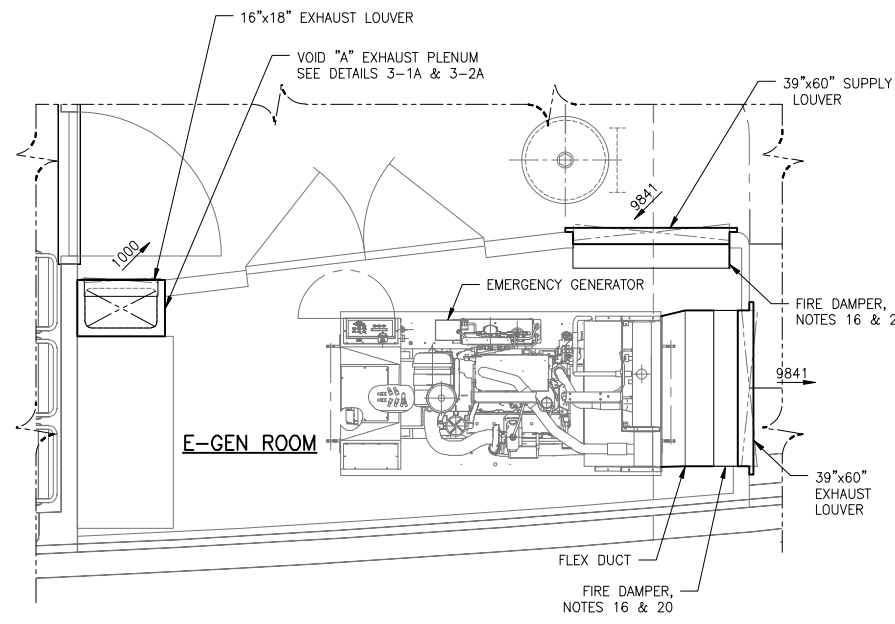


ELEVATION 1-6B
E-GEN ROOM VENTILATION
 SCALE: 1/2"=1'-0"



PLAN 1-6A
E-GEN ROOM VENTILATION
 SCALE: 1/2"=1'-0"

EQUIPMENT LIST						
QTY.	SERVICE	TYPE	SIZE/MODEL	CAPACITY	DRIVE	REMARKS
4	ENGINE ROOM SUPPLY FAN	AXIAL FAN	ø15"	4500 CFM @ 1.7 IN H2O	208V/3ø/60Hz 3 HP TEAO MOTOR 3450 RPM	-
4	ENGINE ROOM SUPPLY FIRE DAMPER	A-60 SQUARE	18"x18"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
8	ENGINE ROOM SUPPLY LOUVER	INDUSTRIAL SINGLE DEFLECTION	12"x18"	-	MANUAL	3" AIRFOIL BLADES ON 3" CENTERS STEEL FRAME
1	ENGINE ROOM EXHAUST FIRE DAMPER	A-60 SQUARE	60"x78"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
4	ENGINE ROOM MIST ELIMINATOR	IMPINGEMENT TYPE	15"x36" OPEN AREA	4500 CFM	-	FACE DRAIN
2	E-GEN ROOM FIRE DAMPER	A-60 SQUARE	39"x60"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
2	VOID SUPPLY FAN	AXIAL FAN	ø12"	1000 CFM @ 1.3 IN H2O	120V/1ø/60Hz 0.5 HP TEAO MOTOR 3450 RPM	-
2	VOID MIST ELIMINATOR	IMPINGEMENT TYPE	12"x12" OPEN AREA	1000 CFM	-	FACE DRAIN
2	THRUSTER ROOM SUPPLY FAN	AXIAL FAN	ø15"	2000 CFM @ 1.4 IN H2O	208V/3ø/60Hz 1 HP TEAO MOTOR 3450 RPM	-
2	THRUSTER ROOM MIST ELIMINATOR	IMPINGEMENT TYPE	15"x20" OPEN AREA	2000 CFM	-	FACE DRAIN
1	SWITCHBOARD ROOM SUPPLY FAN	INLINE CENTRIFUGAL	ø4"	50 CFM 0.5 IN H2O	120V/1ø/60Hz 20.4W MOTOR 2886 RPM	-
1	SWITCHBOARD ROOM OUTDOOR AIR FILTER	-	-	MERV 8	-	-
2	SWITCHBOARD ROOM FAN COIL	CHILLED WATER FAN COIL	-	48,000 BTUH	208V/1ø/60Hz 1HP MOTOR	SEE NOTE 37
2	SWITCHBOARD ROOM RETURN AIR FILTER	-	-	MERV 8	-	-
1	EOS FAN COIL	CHILLED WATER FAN COIL	-	36,000 BTUH 2KW HEAT	208V/1ø/60Hz MOTOR, 4.1 FLA 2KW HEATER	ELECTRIC HEATING ELEMENT
1	EOS RETURN AIR FILTER	-	-	MERV 8	-	-
1	EOS SUPPLY FAN	INLINE CENTRIFUGAL	ø4"	50 CFM 0.5 IN H2O	120V/1ø/60Hz 20.4W MOTOR 2886 RPM	-
4	MACHINERY SPACE HVAC CHILLER	SEAWATER COOLED MARINE CHILLER	-	36,000 BTUH	208V/3ø/60Hz 9.1A	316SS CHASSIS CU-NI CONDENSER SCROLL COMPRESSOR SEE NOTE 37
2	CHILLED WATER PUMP	CENTRIFUGAL	-	30 GPM @ 90 FT TDH	2 HP 208V/3ø/60Hz 3500 RPM	316SS BODY AND IMPELLER SEE NOTES 29, 34
3	MACHY SPACE UNIT HEATER	ELECTRIC UNIT HEATER	-	30 GPM @ 11 FT TDH	208V/3ø/60Hz 5KW HEATER 1/4 HP FAN MOTOR	SS CONSTRUCTION, BUILT IN THERMOSTAT

GENERAL NOTES CONT.

- FANS SHALL BE LABELED WITH NAMEPLATES IDENTIFYING THE UNIT, LISTING THE SYSTEM SERVED BY THE FAN, THE FAN VOLUME IN CUBIC FEET PER MINUTE (CFM), STATIC PRESSURE RATING AT SPECIFIED VOLUME, MOTOR FULL LOAD AMPERAGE, FAN SPEED, AND MOTOR SPEED FOR BELT DRIVEN UNITS, AND MOTOR HORSEPOWER. AIRFLOW DIRECTION SHALL BE IDENTIFIED ON THE FAN EXTERIOR BODY.
- FIRE DAMPERS SHALL BE PROVIDED WHERE REQUIRED BY REGULATION AND WHERE SHOWN IN THIS DIAGRAM.
- FIRE DAMPERS SHALL BE ELECTRICALLY ACTUATED, POWER TO OPEN, SPRING CLOSED ON LOSS OF POWER. IN ADDITION, THEY SHALL HAVE ELECTRICAL THERMAL RELEASE, CLOSE AUTOMATICALLY AT A TEMPERATURE OF 162°F, AND BE CAPABLE OF MANUAL OPERATION.
- CLOSURE STATUS OF FIRE DAMPERS SHALL BE VISIBLE OUTSIDE THE DUCT. ACCESS COVERS SHALL BE INSTALLED TO ALLOW SERVICE OF DAMPERS AND ACTUATORS IF REQUIRED.
- ENGINE ROOM AND EOS VENTILATION FANS SHALL SHUT DOWN AND FIRE DAMPERS SHALL CLOSE AUTOMATICALLY UPON RELEASE OF THE FIRE SUPPRESSION SYSTEM INTO THE SPACE. SEE REFERENCE 1.
- DUCTS SHALL BE ROUTED AS HIGH IN THE OVERHEAD AS PRACTICABLE.
- EMERGENCY GENERATOR FIRE DAMPERS SHALL BE CONFIGURED TO OPEN ON GENERATOR START AND CLOSE ON GENERATOR STOP.
- SLIDING CLOSURE PLATES SHALL BE STORED IN STAINLESS STEEL BRACKETS ADJACENT TO WEATHER LOUVERS AND MIST ELIMINATORS. CLOSURE PLATES SHALL BE STOWED IN A SECURE MANNER WHICH ALSO ALLOWS FOR QUICK INSTALLATION.
- DAMPERS USED AS WEATHER CLOSURES SHALL BE TESTED FOR WEATHER TIGHTNESS IN THE PRESENCE OF A USCG INSPECTOR.
- ADJUST TERMINAL SIZES AND PROVIDE BALANCING DAMPERS AS REQUIRED TO BALANCE SYSTEM WITHIN 10% OF NOTED AIR FLOWS.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE COPPER TUBING.
- AVOID POCKETS IN THE PIPE LINES. LOW POINT DRAINS AND HIGH POINT VENTS SHALL BE FITTED TO ENABLE DRAINING AND VENTING OF PIPES WHERE POCKETS DO OCCUR. PROVIDE A 1" VALVED DRAIN WITH PLUG AT THE LOWEST POINT OF EACH COOLING CIRCUIT. PROVIDE 1/2" BOSSES WITH PLUGS AT ALL HIGH POINTS.
- CHILLED WATER PIPING SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708 WITH J-BAND HANGARS OR SIMILAR.
- TOTAL DYNAMIC HEAD OF PUMPS FOR REQUIRED FLOW ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEM. PUMP MOTORS SHALL BE SELECTED TO PREVENT MOTOR OVERLOAD OVER THE ENTIRE PUMP OPERATING RANGE.
- WHERE PIPING PENETRATES BULKHEADS OR DECKS, WELDED SLEEVES OR PENETRATION SLEEVES WITH SLIPSIL SEALING PLUGS OR RISE/NOFIRNO SEALING MAY BE USED. INSTALL PIPING TRANSITS IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND MANUFACTURER'S APPROVED INSTALLATION DETAILS.
- INSTALL PIPING INSULATION IN ACCORDANCE WITH ASTM F683 AND REF 1.
- EXPANSION TANK SHALL BE SIZED TO SUIT INTALLED CHILLED WATER PIPING SYSTEM.
- TEMPERATURE TRANSDUCERS AND THERMOMETERS SHALL BE INSTALLED IN THERMOWELLS.
- CHILLED WATER PUMPS SHALL BE CONFIGURED FOR RUNNING/STANDBY OPERATION. STANDBY PUMP SHALL AUTOMATICALLY START IF RUNNING PUMP FAILS. PUMP RUNNING INDICATION AND FAILOVER FROM RUNNING TO STANDBY PUMP SHALL BE INDICATED IN THE SHIPS ALARM AND MONITORING SYSTEM. SEE REF 1.
- CONNECT TO SHIPS ALARM AND MONITORING SYSTEM TO PROVIDE REMOTE PRESSURE INDICATION AND LOW PRESSURE ALARM.
- AUTOMATIC BALANCING VALVES SHALL HAVE BRASS OR BRONZE BODIES, AND REPLACEABLE ORIFICE CARTRIDGES.
- MACHINERY SPACE HVAC CAPACITY IS BASED ON PRELIMINARY VENDOR DATA AND SUBJECT TO CHANGE. THE CONTRACTOR SHALL SELECT HVAC EQUIPMENT TO SUIT THE INSTALLED EQUIPMENT AND ADJUST THE HVAC SYSTEM DESIGN TO SUIT.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- THIS DRAWING IS DIAGRAMMATIC ONLY AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT AND IS SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.
- DUCT VELOCITIES SHALL GENERALLY BE LIMITED TO 3000 FPM.
- ALL INSTALLED DUCTWORK SHALL BE AIRTIGHT. DUCTWORK SHALL BE MADE OF HOT-DIPPED GALVANIZED STEEL SHEET METAL, WITH THE MINIMUM THICKNESS AND REINFORCEMENT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND APPLICABLE USCG REGULATIONS, WHICHEVER IS GREATER. BURNED OFF GALVANIZING SHALL BE REPLACED WITH A SPRAY-ON TYPE GALVANIZING COATING. DUCTS SHALL BE SUITABLY SUPPORTED AND STIFFENED ON THE OUTSIDE TO PREVENT PANTING. ALL FASTENING SHALL BE STAINLESS STEEL. SEE REFERENCE 1.
- DUCTING SHALL BE RUN AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS.
- TAKEDOWN JOINTS SHALL BE PROVIDED AT MAXIMUM 8 FT INTERVALS WHICH ALLOW DISASSEMBLY AND REMOVAL OF DUCTING WITHOUT REMOVAL OR MODIFICATION OF PERMANENT STRUCTURE.
- DUCTS SHALL BE FITTED WITH REMOVABLE ACCESS PANELS FOR CLEANING OF INTERNAL DUCT SURFACES. SUCH PANELS SHALL BE PROVIDED AT INTERVALS OF NOT MORE THAN 30 FEET, AND IMMEDIATELY UPSTREAM OF SPLITTERS OR TURNING VANES.
- DUCTING SHALL BE ADEQUATELY SUPPORTED BY HANGERS SPACED AT REGULAR INTERVALS AND RIGIDLY ATTACHED TO VESSEL STRUCTURE.
- ELBOWS WITH A BEND RADIUS LESS THAN 1 TIMES THE DIAMETER SHALL HAVE SPLITTERS OR TURNING VANES.
- WEATHER LOUVERS SHALL BE ALUMINUM WITH A STAINLESS STEEL BUG SCREEN. WEATHER LOUVERS SHALL BE REMOVABLE AND FASTENED TO SUPERSTRUCTURE WITH STAINLESS STEEL FASTENINGS.
- DRAINS SHALL BE PROVIDED AT LOW POINTS OF ALL VENTILATION DUCTING TO ALLOW COMPLETE DRAINAGE OF ANY WATER TRAPPED IN THE DUCTING SYSTEM.
- VENTILATION FANS SHALL BE MOUNTED USING NOISE/ISOLATION KITS.
- TO THE EXTENT PRACTICABLE, FANS OF THE SAME SIZE SHALL BE INTERCHANGEABLE.

REFERENCES

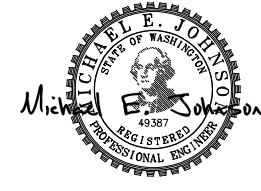
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- 18026-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 18026-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
- 18026-200-201-1 MACHINERY ARRANGEMENT
- 18026-200-150-3 MAIN DECK BULKHEADS
- 18026-200-120-3 HULL TRANSVERSE BULKHEADS
- 18026-200-259-1 EXHAUST ARRANGEMENT
- 18026-200-256-1 COOLING SYSTEM SCHEMATIC



Elliott Bay Design Group
 North Carolina, PLLC

CLIENT: NORTH CAROLINA D.O.T.
 RALEIGH, NORTH CAROLINA
 PROJECT: DOUBLE-ENDED AZIMUTH DRIVE FERRY

MACHINERY VENTILATION ARRANGEMENT

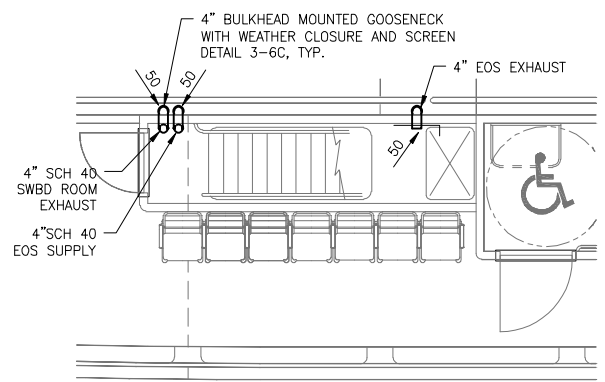


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SCALE	AS NOTED	FILE NAME	18026-200-513-1-	SHEET	1 OF 4
DWN	JEH	MOD		APVD DATE	8/2/18

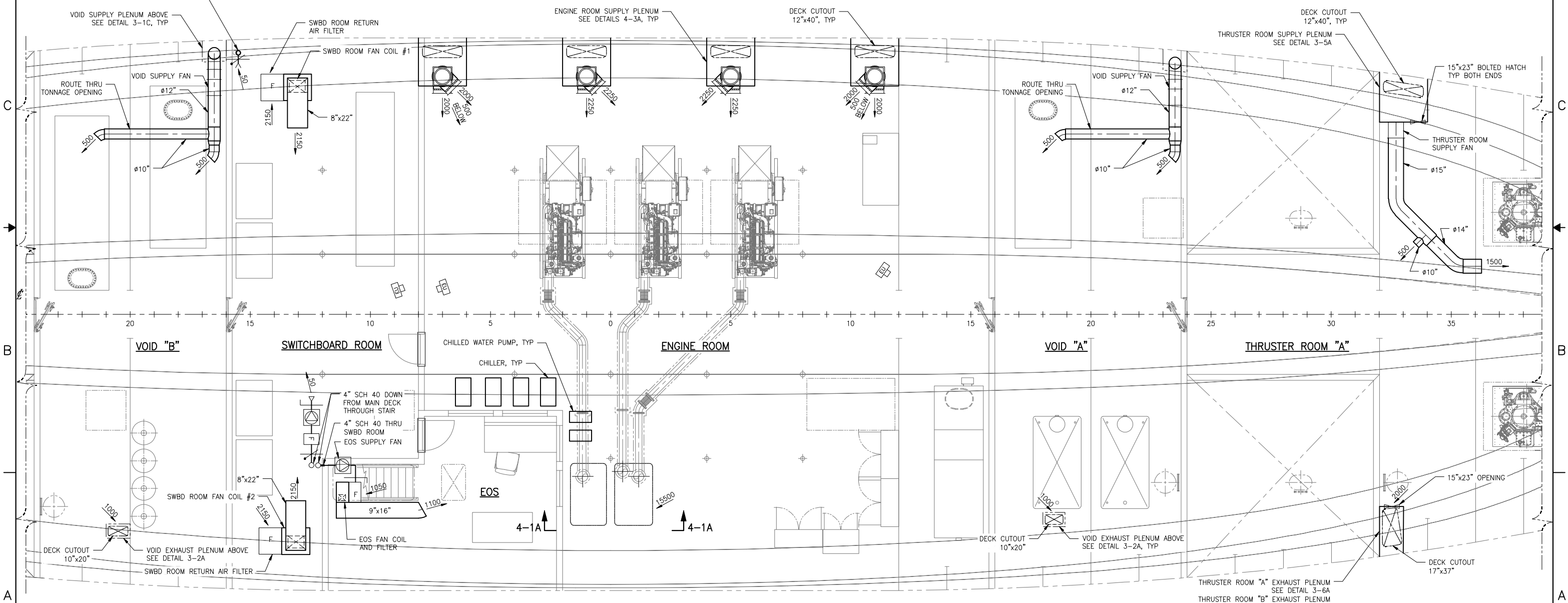
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HVAC SYMBOLS LIST

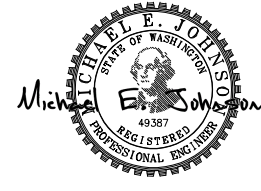
	SUPPLY AIR DUCT		CFM TO OR FROM TERMINAL
	DUCT UP		FIRE DAMPER (BHD)
	FAN		BALANCING DAMPER (MANUAL)
	FILTER		ELECTRIC UNIT HEATER
	SUPPLY TERMINAL WITH SCREEN		BALL VALVE W/ SCREWED PLUG
	EXHAUST TERMINAL		



PLAN 2-5D
 HOLD VENTILATION
 EOS STAIRS
 SCALE: 1/4"=1'-0"

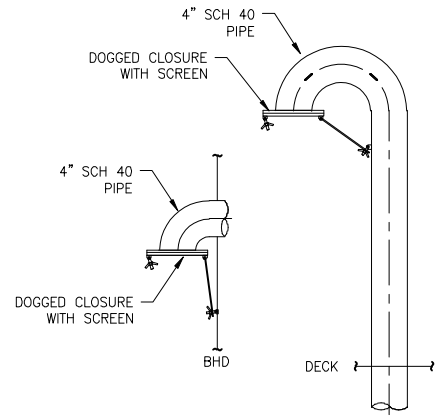


PLAN 2-3A
 HOLD VENTILATION
 A-END THRUSTER ROOM SHOWN, B-END THRUSTER RM OPP/SIM
 SCALE: 1/4"=1'-0"

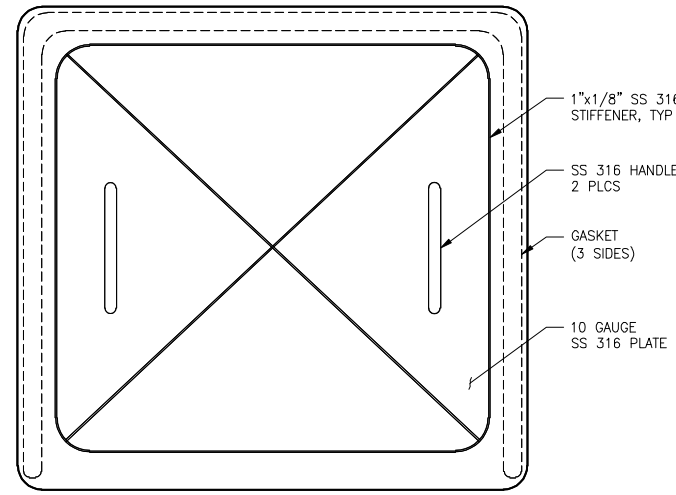


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SCALE	AS NOTED	FILE NAME	18026-200-513-1-	SHEET	2 OF 4

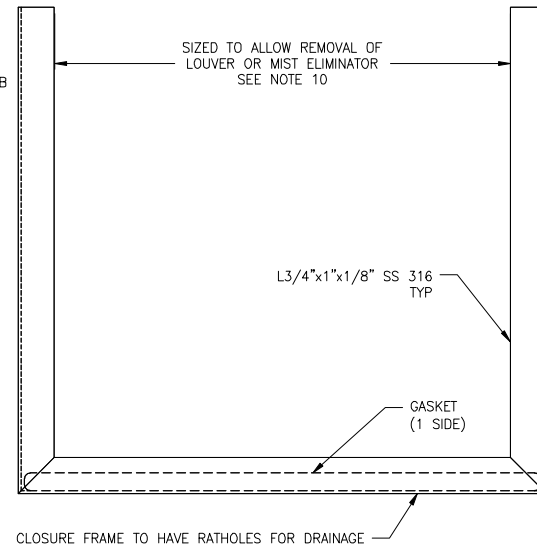
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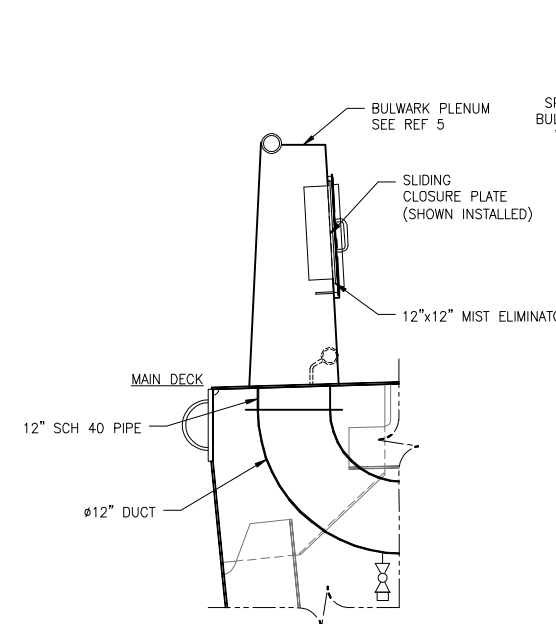
DETAIL 3-6C
 SWBD ROOM AND EOS VENT TERMINALS
 NTS



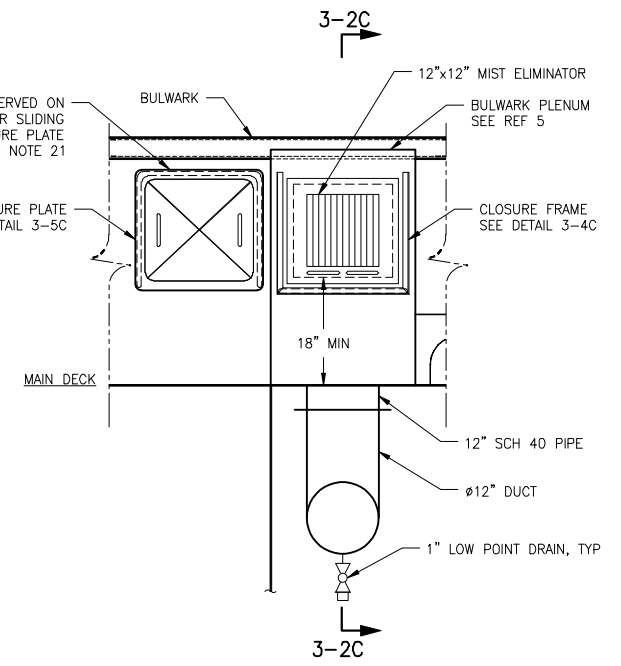
DETAIL 3-5C
 TYPICAL SLIDING CLOSURE PLATE
 3"=1'-0"



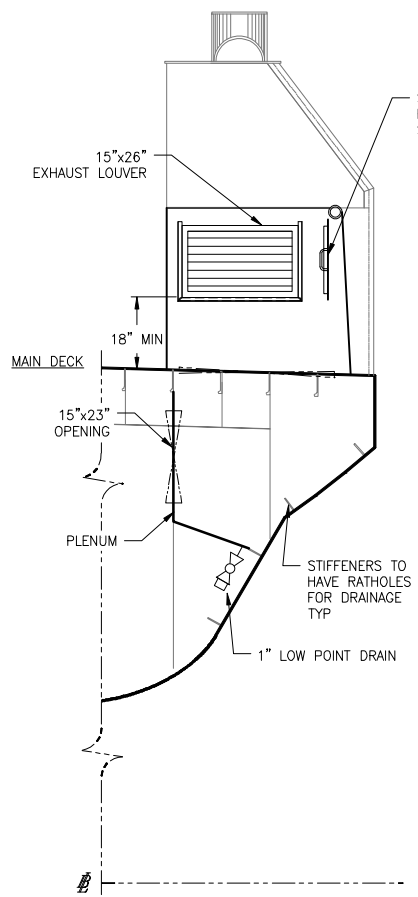
DETAIL 3-4C
 TYPICAL SLIDING CLOSURE FRAME
 3"=1'-0"



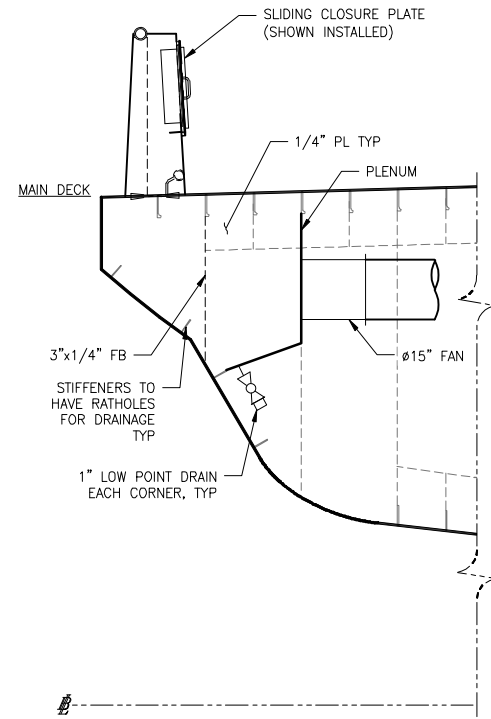
SECTION 3-2C
 VOID SUPPLY PLENUM
 SCALE: 3/4"=1'-0"



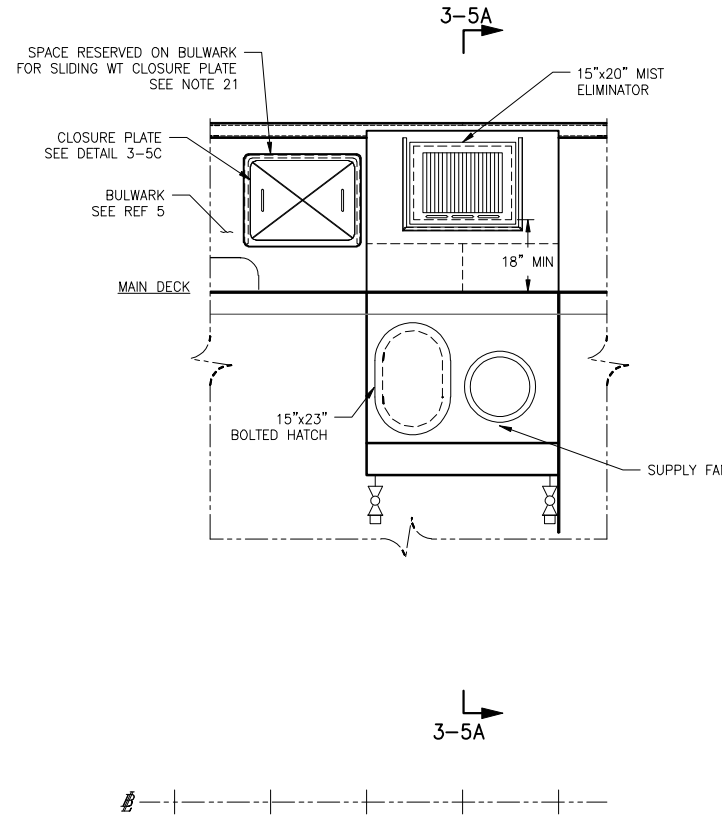
ELEVATION 3-1C
 VOID SUPPLY PLENUM
 SCALE: 3/4"=1'-0"



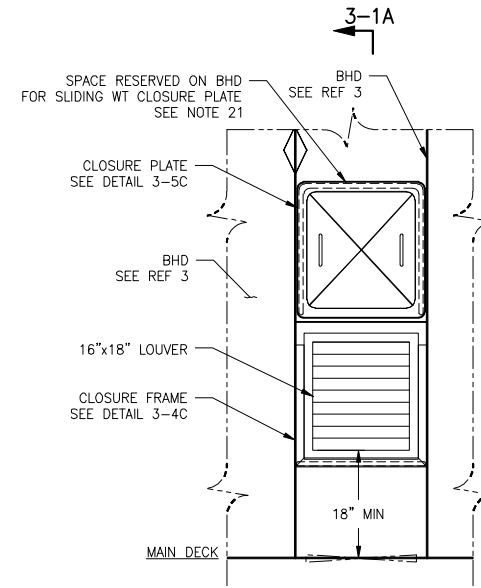
SECTION 3-6A
 THRUSTER ROOM "A" EXHAUST
 FR 32A - LOOKING AFT
 SCALE: 1/2"=1'-0"



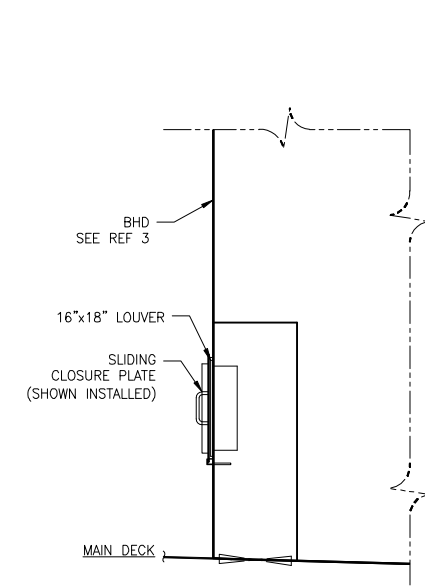
SECTION 3-5A
 THRUSTER ROOM "B" SUPPLY
 LOOKING FWD TO FR 32B
 THRUSTER ROOM "A" SUPPLY SIM/OPP
 THRUSTER ROOM "B" EXHAUST SIM
 SCALE: 1/2"=1'-0"



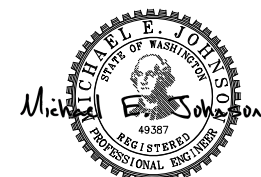
ELEVATION 3-4A
 THRUSTER ROOM "B" SUPPLY
 LOOKING PORT
 THRUSTER ROOM "A" SUPPLY SIM/OPP
 THRUSTER ROOM "B" EXHAUST SIM
 SCALE: 1/2"=1'-0"



ELEVATION 3-2A
 VOID EXHAUST PLENUM
 "A" END SHOWN - "B" END SIM/OPP
 SCALE: 3/4"=1'-0"



SECTION 3-1A
 VOID EXHAUST PLENUM
 SCALE: 3/4"=1'-0"



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SCALE	AS NOTED	FILE NAME	18026-200-513-1-	SHEET	3 OF 4

MATERIAL SCHEDULE

SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	TRIM			
CHILLED WATER MAWP: 50 PSIG MAX TEMP: 110°F	ALL	COPPER, SEAMLESS HARD DRAWN, ASTM B88, TYPE K	UNION ANSI B16.22, MSS-SP104	ARAMID FIBERS WITH A NEOPRENE BINDER	BOLTS: STAINLESS STEEL ASTM A193 GRADE 8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BALL: BRONZE 150# THREADED OR SOLDER ENDS, ASTM B62 MSS-SP-72	CHROME PLATED BALL, PTFE SEATS	WROT COPPER, ANSI B16.22, ASTM B75	

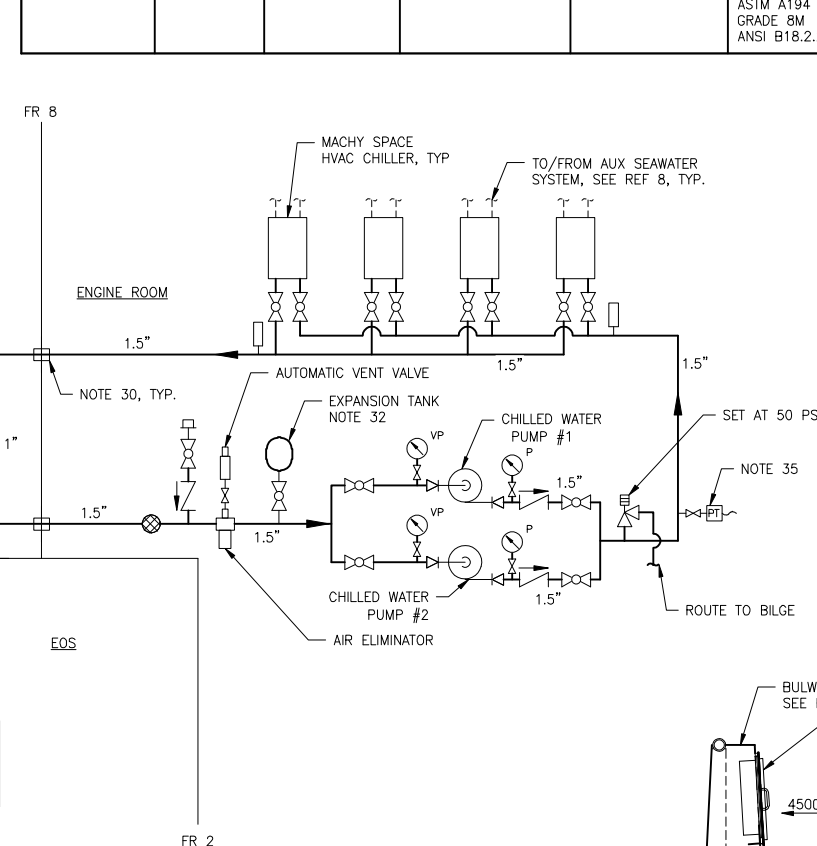
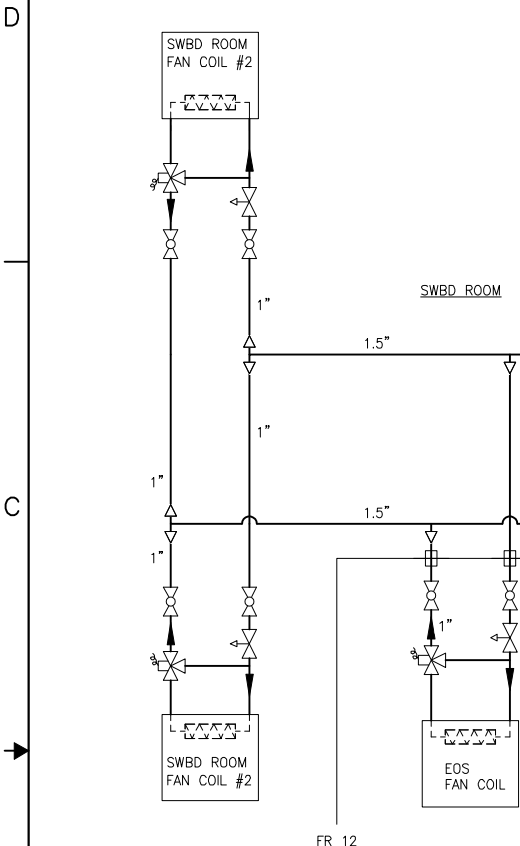
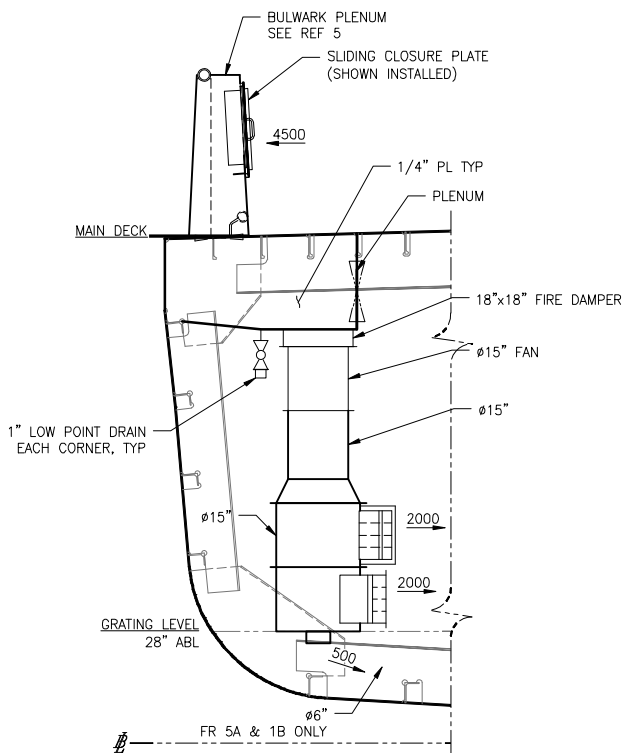


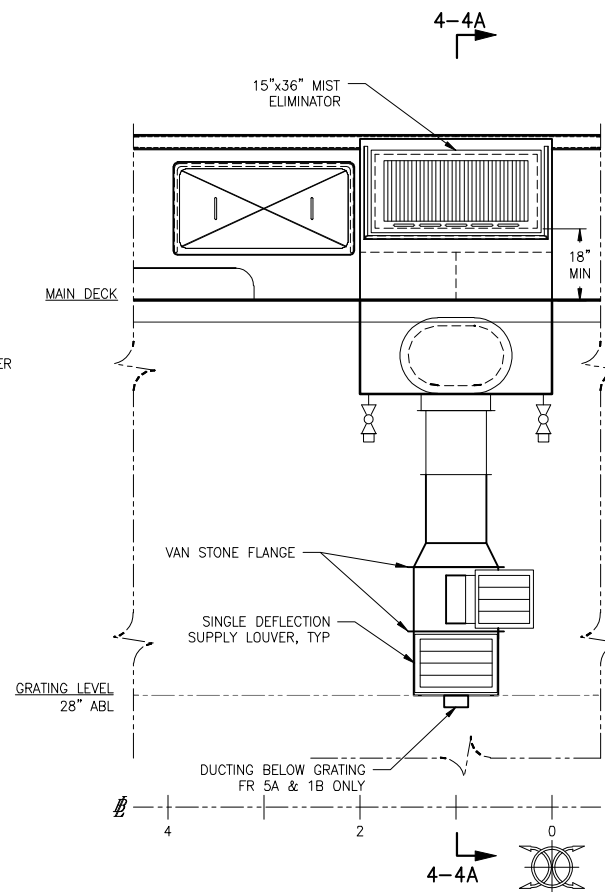
DIAGRAM 4-5B
CHILLED WATER SYSTEM
SCALE: NONE

PIPE SYMBOLS LIST

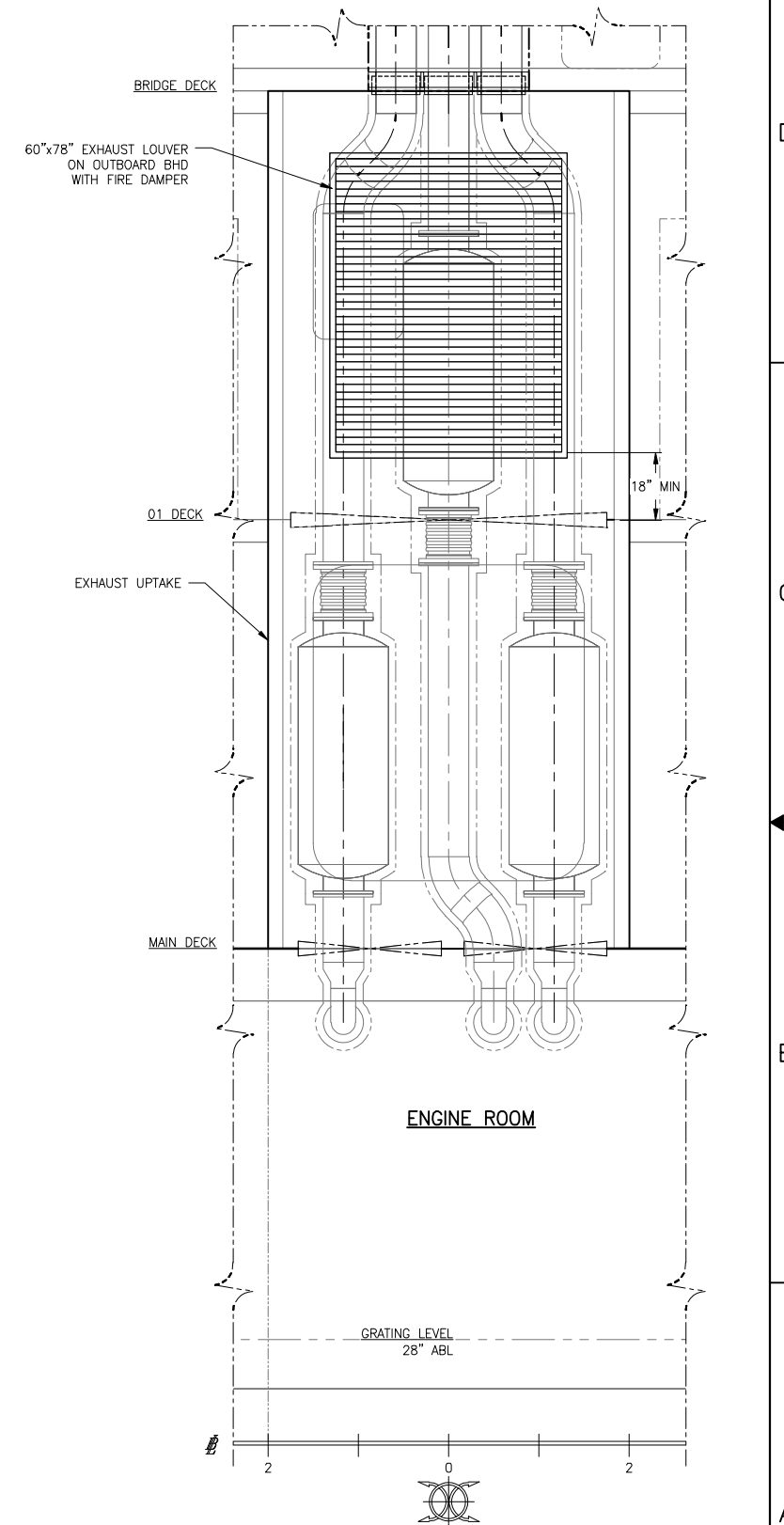
	PIPE
	REDUCER
	BALL VALVE
	SWING CHECK VALVE
	3-WAY MODULATING THERMOSTATIC VALVE
	AUTOMATIC BALANCING VALVE
	PRESSURE RELIEF VALVE
	CENTRIFUGAL PUMP
	STRAINER, SIMPLEX
	PRESSURE GAUGE
	VACUUM/PRESSURE GAUGE
	PIPE PLUG
	PRESSURE TRANSDUCER
	PIPE PENETRATION, DECK/BHD
	THERMOMETER



SECTION 4-4A
ENGINE ROOM SUPPLY
LOOKING FWD TO FR 0
SUPPLY AT FR 4A SIM/OPP
SCALE: 1/2"=1'-0"



ELEVATION 4-3A
ENGINE ROOM SUPPLY PLENUM
LOOKING TO PORT
FR 1B SHOWN, OTHERS SIM.



ELEVATION 4-1A
ENGINE ROOM VENTILATION EXHAUST
LOOKING PORT
SCALE: 1/2"=1'-0"



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