

MECHANICAL, PLUMBING AND FIRE PROTECTION SPECIFICATIONS

MECHANICAL WORK SHALL COMPLY WITH STATE CODES, MAINE UNIFORM BUILDING AND ENERGY CODE (CURRENT EDITION), MUBC CURRENT VERSION, AND LOCAL CODES.

OIL MINDER ELEVATOR SUMP PUMP SYSTEM

PROVIDE BASIS OF DESIGN OIL MINDER ELEVATOR SUMP PUMP SYSTEM AS SCHEDULED ON DRAWINGS OR AN APPROVED EQUAL. PROVIDE 1-YEAR PARTS, LABOR AND EQUIPMENT WARRANTY FROM THE DATE OF SUBSTANTIAL COMPLETION.

OIL MINDER ELEVATOR SUMP PUMP SYSTEM START-UP, TESTING AND TRAINING

PERFORM START-UP AND TESTING OF SYSTEM IN ACCORDANCE WITH SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS. TRAIN OWNERS MAINTENANCE PERSONNEL TO ADJUST, OPERATE AND MAINTAIN ENTIRE SYSTEM.

SUMP PUMP SYSTEM PIPING

GALVANIZED STEEL PIPE AND FITTINGS

- A. GALVANIZED-STEEL PIPE: ASTM A 53/A 53M, TYPE E, SCHEDULE 40 WEIGHT CLASS. INCLUDE THREADED ENDS MATCHING JOINING METHOD.
- B. GALVANIZED-STEEL PIPE PRESSURE FITTINGS:
 - 1. GALVANIZED-STEEL PIPE NIPPLES: ASTM A 733, MADE OF ASTM A 53/A 53M OR ASTM A 106A 106M, SCHEDULE 40, SEAMLESS STEEL PIPE. INCLUDE ENDS MATCHING JOINING METHOD.
 - 2. MALLEABLE-IRON UNIONS: ASME B16.39; CLASS 150; HEXAGONAL-STOCK BODY WITH BALL-AND-SOCKET, METAL-TO-METAL, BRONZE SEATING SURFACE; AND FEMALE THREADED ENDS.
 - 3. GALVANIZED-GRAY-IRON, THREADED FITTINGS: ASME B16.4, CLASS 125, STANDARD PATTERN.

SANITARY WASTE AND VENT PIPING

PVC PIPE AND FITTINGS

- A. COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SSEWER" FOR PLASTIC SEWER PIPING.
- B. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, WASTE, AND VENT.
- C. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE.
- D. ADHESIVE PRIMER: ASTM F 656.
- E. SOLVENT CEMENT: ASTM D 2564.

SPECIALTY PIPE FITTINGS

A. TRANSITION COUPLINGS:

- 1. FITTING-TYPE TRANSITION COUPLINGS: MANUFACTURED PIPING COUPLING OR SPECIFIED PIPING SYSTEM FITTING.
- 2. SHIELDED, NONPRESSURE TRANSITION COUPLINGS:
 - a. STANDARD: ASTM C 1460
 - b. DESCRIPTION: ELASTOMERIC OR RUBBER SLEEVE WITH FULL-LENGTH, CORROSION-RESISTANT OUTER SHIELD AND CORROSION-RESISTANT METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.
 - c. END CONNECTIONS: SAME SIZE AS AND COMPATIBLE WITH PIPES TO BE JOINED.

FLOOR DRAINS (FD-1)

PROVIDE BASIS OF DESIGN ZURN MODEL Z415 DURA-COATED CAST IRON FLOOR DRAIN WITH 6" ROUND NICKEL-BRONZE STRAINER, MEDIUM DUTY, 4" NOMINAL PIPE SIZE OUTLET. FLOOR DRAIN TRAP ASSEMBLY SHALL BE EQUIPPED WITH A TRAP PRIMER PORT.

DOMESTIC WATER PIPING

COPPER TUBES AND FITTINGS (LEAD FREE COMPLIANT)

- A. HARD COPPER TUBE: ASTM B 88, TYPE L (ASTM B 88M, TYPE B) WATER TUBE, DRAWN TEMPER.
- B. WROUGHT-COPPER, SOLDER-JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS.

FOR PIPING FROM TRAP PRIMER ETP-1 TO TRAP PRIMER PORTS: PEX PLASTIC ACCORDING TO ASTM F 876; FITTINGS: ASTM F 1807, METAL INSERT AND COPPER CRIMP RINGS.

DOMESTIC WATER PIPING INSULATION

1/2" MINERAL-FIBER, PREFORMED PIPE INSULATION

- A. TYPE I, 850 F (454 C) MATERIALS: MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE I, GRADE A, FACTORY-APPLIED WITH ASJ.

NON-FREEZE WALL HYDRANT (NFWH)

PROVIDE BASIS OF DESIGN WATTS DRAINAGE NON-FREEZE WALL HYDRANT, MODEL HY420 OR AN APPROVED EQUAL. PROVIDE 1-YEAR PARTS, LABOR AND EQUIPMENT WARRANTY FROM THE DATE OF SUBSTANTIAL COMPLETION. DELIVER OPERATING KEY TO OWNER.

BALL VALVES

TWO-PIECE COPPER-ALLOY BALL VALVES. BRONZE BODY WITH WITH FULL-PORT, CHROME-PLATED BRONZE BALL.

CHECK VALVES

CLASS 125, BRONZE LIFT CHECK VALVES WITH NON-METALLIC DISC.

DESCRIPTION:

- A. STANDARD: MSS SP-80, TYPE 2
- B. CWP RATING: 200 PSIG
- C. BODY DESIGN: VERTICAL FLOW
- D. BODY MATERIAL: ASTM B62, BRONZE
- E. ENDS THREADED
- F. DISC: PTFE

FIRE PROTECTION SYSTEM PIPES AND FITTINGS

- A. PIPING, VALVES, AND DISCHARGE NOZZLES: COMPLY WITH TYPES AND STANDARDS LISTED IN NFPA 12A, SECTION "DISTRIBUTION," FOR CHARGING PRESSURE OF SYSTEM.
- B. STEEL PIPE: ASTM A 53/A 53M, GRADE B, SCHEDULE 40, FINISH, SEAMLESS-STEEL PIPE.
 - 1. THREADED FITTINGS:
 - a. MALLEABLE-IRON FITTINGS: ASME B16.3, CLASS 300.

DUCTWORK

CONSTRUCTION, METAL GAGE, HANGERS AND SUPPORTS AND REINFORCEMENTS SHALL CONFORM WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCTWORK SHALL BE AIRTIGHT AND SHALL NOT VIBRATE OR PULSATE WHEN SYSTEM IS IN OPERATION. AIR LEAKAGE SHALL BE LESS THEN 5 PERCENT OF THE SYSTEM CAPACITY. CONSTRUCT DUCTWORK OF GALVANIZED STEEL. SEAL TRANSVERSE JOINTS WITH MASTIC OR SEALANT.

PIPE HANGERS AND SUPPORTS

PIPE HANGERS AND SUPPORTS SHALL CONFORM TO MSS SP-58 AND MSS SP-69.

SUPPLY/RETURN DUCT INSULATION

DUCT INSULATION SHALL BE 2" THICK MINERAL FIBER BLANKET TYPE WITH FACTORY APPLIED FSK JACKET. INSULATION SHALL COMPLY WITH ASTM C 533, TYPE II.

ELECTRIC CONVECTOR HEATER

PROVIDE BASIS OF DESIGN ELECTRIC CONVECTOR HEATER AS SCHEDULED ON DRAWINGS OR AN APPROVED EQUAL. PROVIDE 1-YEAR PARTS, LABOR AND EQUIPMENT WARRANTY FROM THE DATE OF SUBSTANTIAL COMPLETION.

SLEEVES AND SLEEVE SEALS

SLEEVES

- A. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED, WITH PLAIN ENDS AND INTEGRAL WELDED WATERSTOP COLLAR.

SLEEVE INSTALLATION

- A. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, AND WALLS.
- B. INSTALL SLEEVES IN CONCRETE FLOORS, AS NEW SLABS ARE CONSTRUCTED.
 - 1. EXTEND SLEEVES INSTALLED IN FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS 2 INCHES (50mm) ABOVE FINISHED FLOOR LEVEL.
 - 2. USING GROUT OR SILICONE SEALANT, SEAL THE SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS.
- C. INSTALL SLEEVES FOR PIPES PASSING THROUGH INTERIOR PARTITIONS.
 - 1. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES.
 - 2. INSTALL SLEEVES THAT ARE LARGE ENOUGH TO PROVIDE 1/4-INCH (6.4mm) ANNULAR CLEAR SPACE BETWEEN SLEEVE AND PIPE OR PIPE INSULATION.
 - 3. SEAL ANNULAR SPACE BETWEEN SLEEVE AND PIPING OR PIPING INSULATION; USE JOINT SEALANTS APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT.
- D. FIRE-RESISTANCE-RATED PENETRATIONS, HORIZONTAL ASSEMBLY PENETRATIONS, AND SMOKE BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE OR SMOKE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRE- AND SMOKE-STOP MATERIALS.

GENERAL MECHANICAL NOTES

- 1. PROTECT EXISTING AREAS NOT IN CONTRACT FROM DAMAGE DURING CONSTRUCTION ACTIVITIES INCLUDING DUST FROM PENETRATIONS.
- 2. COORDINATE AND OBTAIN INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.
- 3. MAINTAIN VENTILATION, HEATING AND COOLING TO AREAS SERVED BY EXISTING AHUS DURING REMOVALS AND CONSTRUCTION, TO PROVIDE TENABLE CONDITIONS IN SPACES.

GENERAL PLUMBING SYSTEM NOTES

- 1. COMPLY WITH THE MAINE STATE INTERNAL PLUMBING CODE - CURRENT EDITION.
- 2. INSTALL SANITARY DRAINAGE WITH A PITCH OF 1/4 INCH PER FOOT FOR BUILDING SANITARY PIPING 3 INCHES AND SMALLER AND A PITCH OF 1/8 INCH PER FOOT FOR BUILDING SANITARY PIPING 4 INCHES AND LARGER.
- 3. PIPING IS SHOWN DIAGRAMMATICALLY, EXACT LOCATION SHALL BE DETERMINED IN THE FIELD.
- 4. SUPPORT PIPING FROM BUILDING STRUCTURE AND, WHERE APPLICABLE, TOP CHORD OF JOISTS. NO STRUCTURAL MEMBERS SHALL BE CUT.
- 5. INSTALL WATER PIPE ON THE WARM SIDE OF BUILDING INSULATION IN EXTERIOR WALLS. REFER TO ARCHITECTURAL WALL SECTIONS.
- 6. PIPING DROPS TO FIXTURES SHALL BE ANCHORED SOLID TO WALL WITH STEEL SUPPORT BRACKET WITH ADJUSTABLE CLIP.
- 7. PROVIDE STEEL PIPE SLEEVES AT SLAB PENETRATIONS BOTH ON GRADE AND ABOVE GRADE, AND AT MASONRY WALL AND PARTITION PENETRATIONS. OPENINGS SHALL BE SEALED SMOKE AND WATER TIGHT.
- 8. HOSE END VALVES SHALL BE PROVIDED WITH HOSE END VACUUM BREAKERS.
- 9. COORDINATE LOCATION OF PIPING WITH WORK OF OTHER TRADES. PERFORM CUTTING WORK ASSOCIATED WITH PLUMBING SYSTEMS.

AD APPROX ASJ ASS'Y BLDG CAP CFM CLG CO CONN CONC CU CW D DB DEG DISCH DN DOM Ø, DIA DWG E EA EC EF EFF EL ELEC ELEV EQUIP

AT ACCESS DOOR ABOVE FINISHED FLOOR APPROXIMATELY ALL SERVICE JACKET ASSEMBLY BUILDING CAPACITY CUBIC FEET/MINUTE CEILING CENTERLINE CLEANOUT CONNECTION CONCRETE CONDENSING UNIT COLD WATER DEPTH, DAMPER DRY BULB DEGREES DISCHARGE DOWN DOMESTIC DIAMETER DRAWING EXISTING, EXHAUST EXHAUST AIR, EACH ELECTRIC CONVECTOR HEATER EXHAUST FAN EFFICIENCY ELEVATION ELECTRIC ELEVATION, ELEVATOR EQUIPMENT

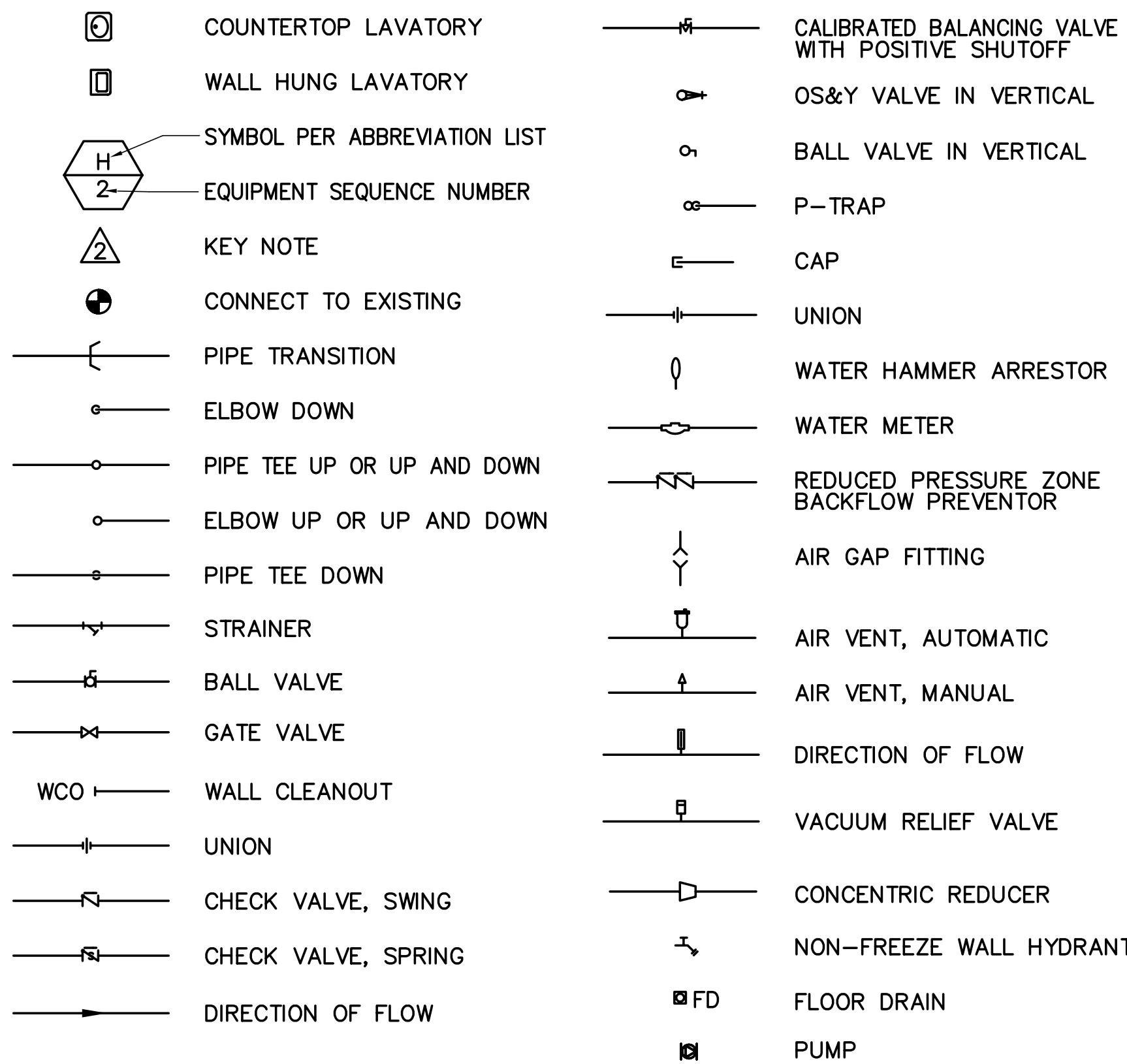
EXIST EXISTING DEGREES FAHRENHEIT FIRE ALARM CONTROL PANEL FLOOR CLEANOUT FLOOR DRAIN FINISH FLOOR FIXTURE FULL LOAD AMPS FLOOR FEET PER MINUTE FOOT/FEET GAUGE GALLONS GALLONS PER HOUR GPM GYPSUM WALLBOARD HUMIDIFIER/HUMIDISTAT, HEIGHT HOSEBIBB HEAD HEATING HEIGHT HORIZONTAL HORSEPOWER HOUR HEATING, VENTING & AIR CONDITIONING (UNIT) HOT WATER HERTZ INSIDE DIAMETER INDIRECT WASTE INCHES

MECHANICAL & PLUMBING ABBREVIATIONS

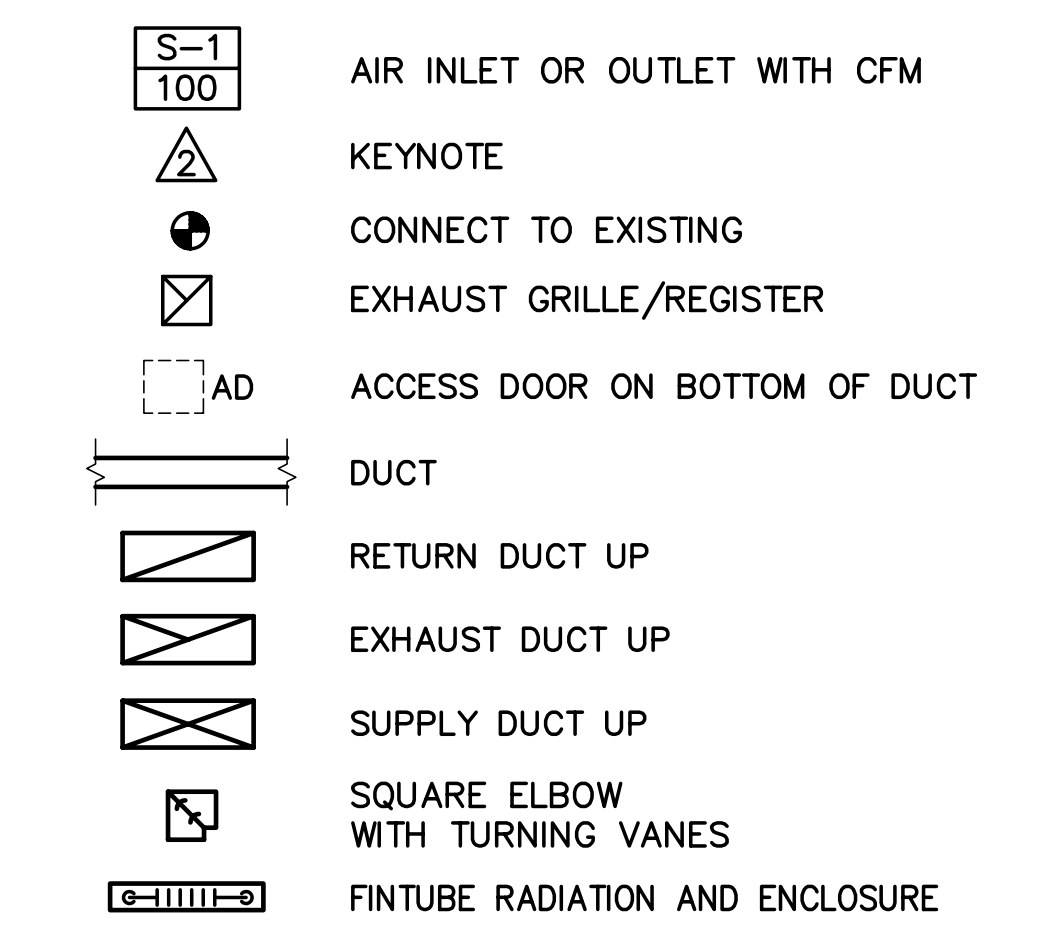
INV INVERT LOUVER, LENGTH LAV LAVATORY LF LINEAR FEET LOC LOCATION/LOCATED MAX PD MAXIMUM PRESSURE DROP MECH MECHANICAL MFR,MFG MANUFACTURER MIN MINIMUM MOTOR MOUNTING N/A NOT APPLICABLE N/C NOT IN CONTRACT NFWH NON-FREEZE WALL HYDRANT NTS NOT TO SCALE NFPA NATIONAL FIRE PROTECTION ASSOCIATION OA OUTSIDE AIR OAT OUTSIDE AIR TEMPERATURE OC ON CENTER P PUMP, PITCH OR PRESSURE PUMPED DISCHARGE PH PHASE PRESS PRESSURE REDUCING VALVE PSI POUNDS PER SQUARE INCH PSIG POUNDS PER SQUARE INCH GAGE QTY QUANTITY R RADIUS, RETURN RA RETURN AIR RAT RETURN AIR TEMPERATURE RF RETURN FAN REQ'D REQUIRED RM ROOM

RPM REVOLUTIONS PER MINUTE RPZ REDUCED PRESSURE ZONE S SINK, SANITARY, SUPPLY SAN SANITARY SAT SUPPLY AIR TEMPERATURE, SUSPENDED ACOUSTICAL TILE SF SQUARE FOOT SIM SIMILAR SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION SP STATIC PRESSURE, SUMP PUMP SQ SQUARE T THERMOSTAT, TRANSFER TC TOTAL COOLING TOP TEMPERATURE CONTROL PANEL TRAP TRAP, TEMPERATURE, TEMPORARILY TG TRANSFER GRILLE TP TRAP PRIMER ASSEMBLY TS TEMPERATURE SENSOR TSP TOTAL STATIC PRESSURE TYP TYPICAL UL UNDERWRITERS LABORATORY V VENT, VALVE, VOLTS VEL VELOCITY VERT VERTICAL VTR VENT TO ROOF W WASTE, WIDTH, WATTS W&T WASTE AND TRAP WITH WC WATER COLUMN, WATER CLOSET WCO WALL CLEANOUT WC WATER GUAGE WHA WATER HAMMER ARRESTOR WPD WATER PRESSURE DROP

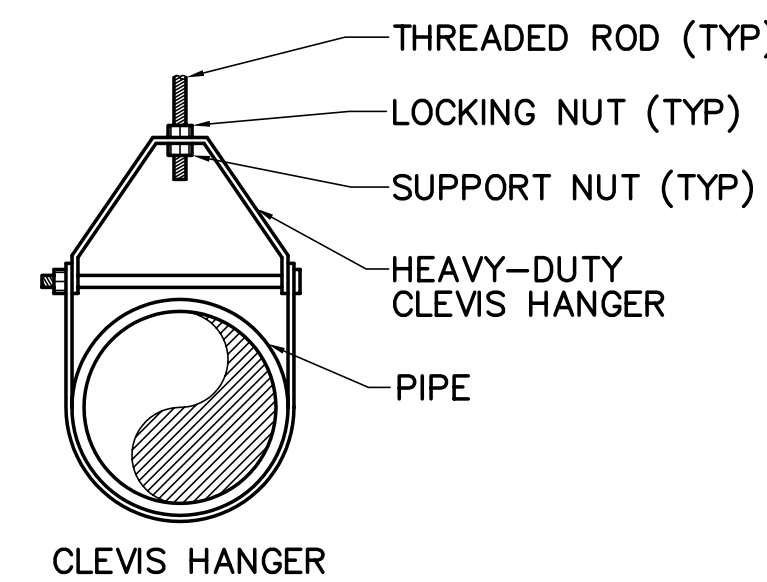
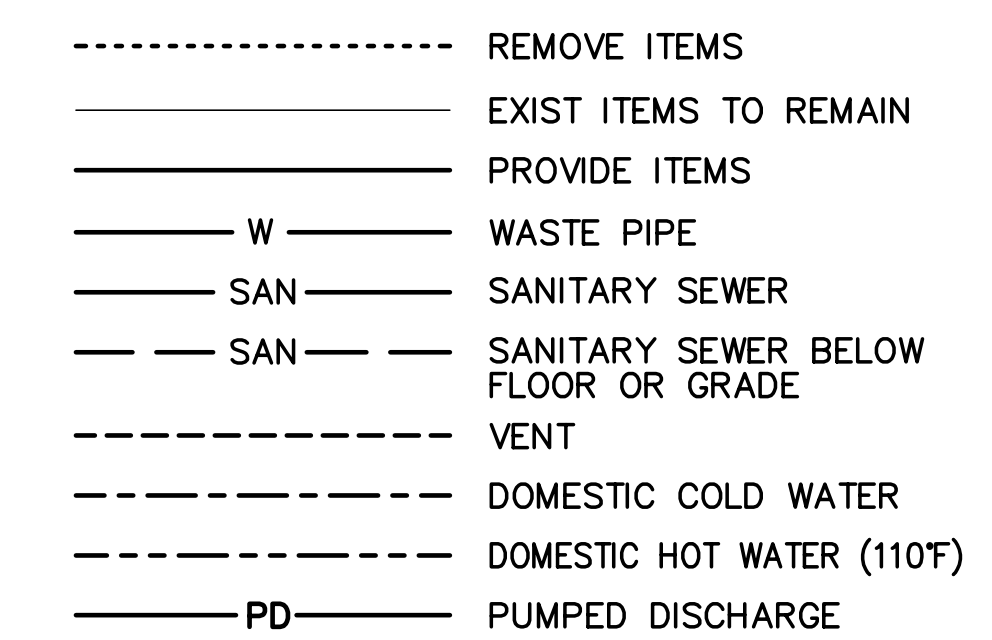
PLUMBING SYMBOLS LEGEND



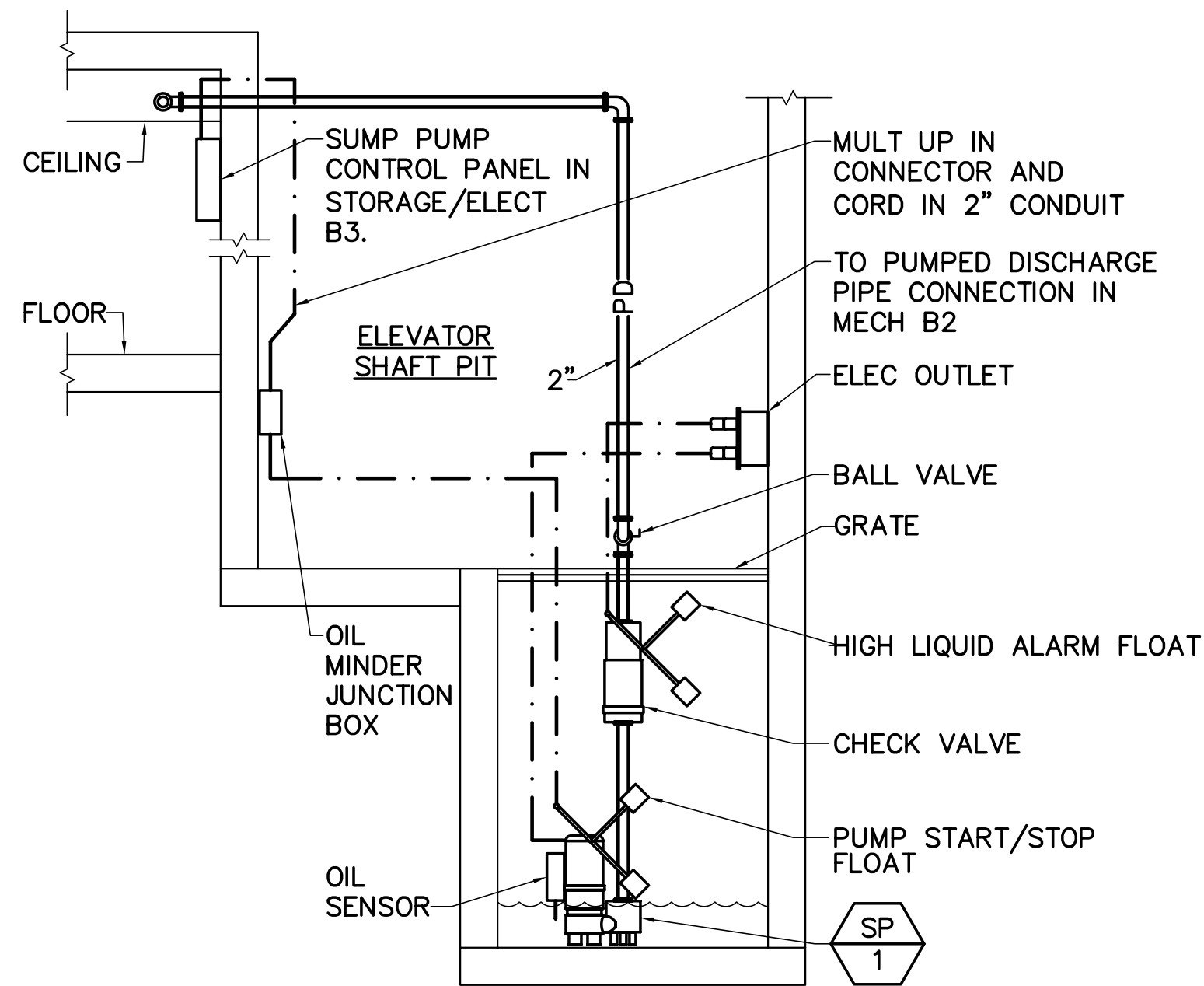
MECHANICAL SYMBOLS LEGEND



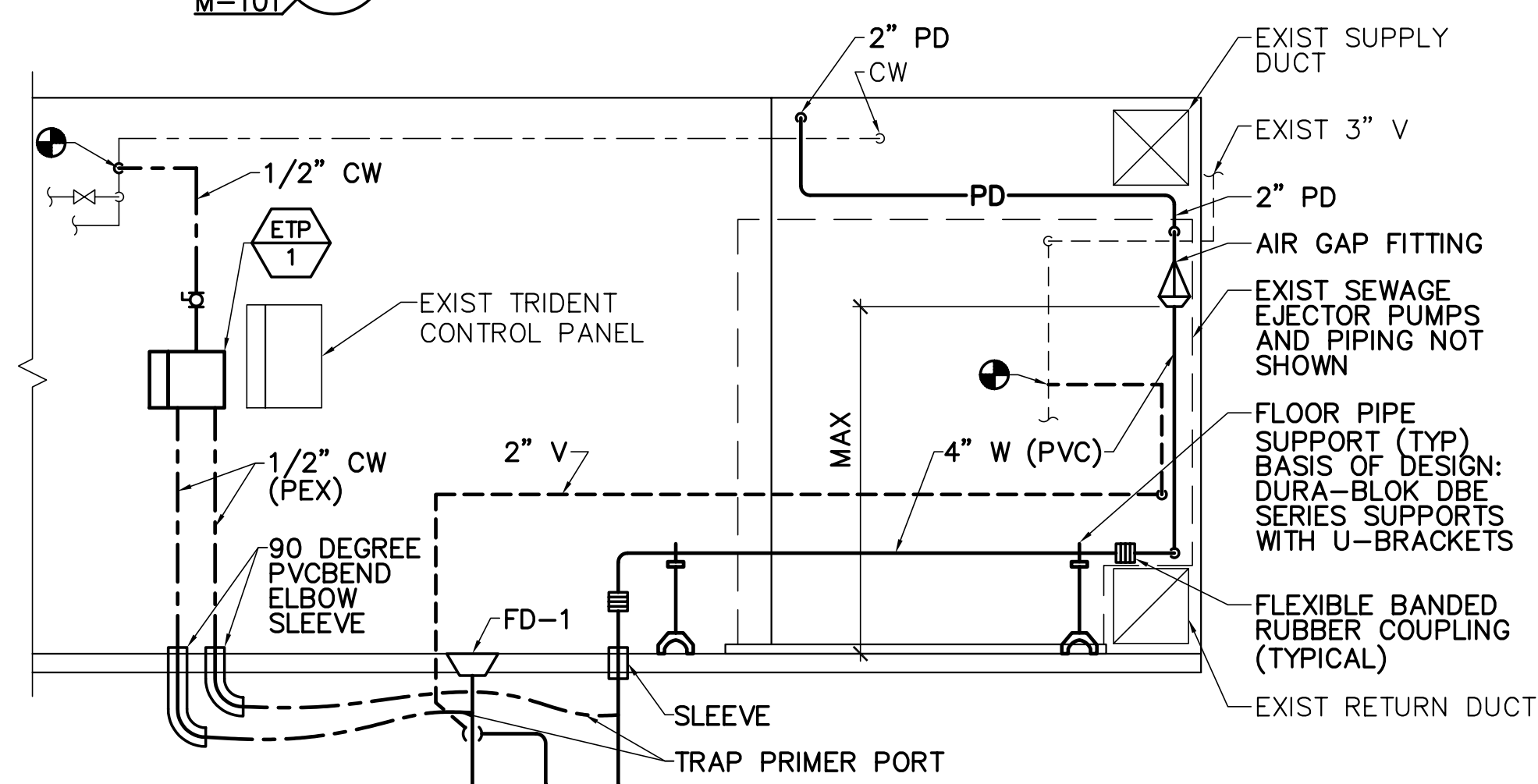
LINE TYPE LEGEND



1 PIPE HANGER ATTACHMENT DETAIL M-001 NOT TO SCALE



2 ELEVATOR SUMP PUMP DETAIL M-101 M-001 NOT TO SCALE



3 ELEVATOR PUMPED DISCHARGE AND INDIRECT WASTE PIPING DETAIL M-001 NOT TO SCALE

| ELECTRONIC TRAP PRIMER ASSEMBLY SCHEDULE | | | | | | | | |
|--|----------|----------|-------------------------|--------------------------|-----------|----------|--------------------------------------|-------|
| UNIT NO | LOCATION | MOUNTING | NO OF MANIFOLD OPENINGS | NO OF DESIGN CONNECTIONS | CONN SIZE | ELEC | BASIS OF DESIGN | NOTES |
| ETP-1 | MECH B2 | WALL | 1 | 1 | 1/2" | 120V/1PH | PRECISION PLUMBING PRODUCTS, MPB-500 | 1,2 |

NOTES: 1. PROVIDE WITH NEMA TYPE 1, UL 50 WALL MOUNTED ENCLOSURE.
2. PROVIDE 1/2" PEX TUBE AND FIXTURES FROM ELECTRONIC TRAP PRIMER ASSEMBLY TO PRIMER PORT ON TRAP.

| ELECTRIC CONVECTOR HEATER SCHEDULE | | | | | | |
|------------------------------------|-------------------|-------------|----------|-------------|--|-------|
| UNIT NO | LOCATION | HEATING MBH | INPUT KW | VOLTS/PHASE | BASIS OF DESIGN | NOTES |
| EC-1 | ELEVATOR HOISTWAY | 3.4 | 1.0 | 120/1 | BERKO COMMERCIAL SLOPE-TOP CONVECTOR ICST 04 | 1,2 |

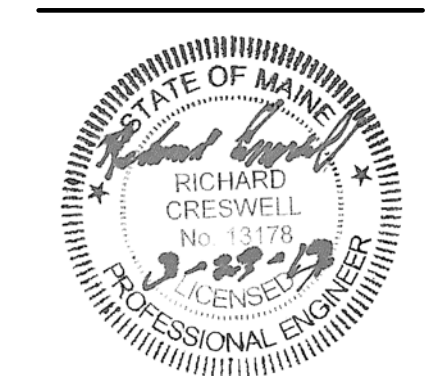
NOTES: 1. PROVIDE FACTORY INSTALLED DOUBLE POLE DISCONNECT SWITCH.
2. PROVIDE 24 HOUR/7 DAY PROGRAMMABLE THERMOSTAT WITH DIGITAL DISPLAY AND NECESSARY CONTROL WIRING AND CONDUIT ASSEMBLY TO CONNECT TO HEATER. INITIAL SETPOINT: OCCUPIED: 65°F, UNOCCUPIED: 60°F. TRAIN OWNER'S PERSONNEL ON THERMOSTAT PROGRAMMING FUNCTION.

| DIFFUSER / REGISTER SCHEDULE | | | | | | | | |
|------------------------------|--------------|--------------|-------------------------|--------------------|-----------|--------------------------|-----------------|-------|
| UNIT NO | FACE SIZE IN | NECK SIZE IN | MAX PRESSURE DROP IN WC | MAX NOISE CRITERIA | CFM RANGE | TYPE | BASIS OF DESIGN | NOTES |
| E-1 | - | 8x8 | 0.05 | < 20 | 0-120 | LOUVERED RETURN REGISTER | PRICE 535D | 1,2,3 |

NOTES: 1. STEEL CONSTRUCTION, WHITE POWDER COAT FINISH.
2. SURFACE MOUNT, STANDARD BORDER.
3. FIXED LOUVERS, 45°DEFLECTION, 1/2" BLADE SPACING.

| OIL DETECTION CONTROL AND PUMP SYSTEM SCHEDULE | | | | | | | | | |
|--|---------------|------|-----|------------|------------|-------|------|------------------------------------|-------|
| UNIT NO | SERVES | TYPE | GPM | TOTAL HEAD | ELECTRICAL | | | BASIS OF DESIGN | NOTES |
| | | | | | HP | VOLTS | RPM | | |
| SP-1 | ELEVATOR SUMP | SUMP | 50 | 19 FT | 1/2 | 115 | 3450 | STANCOR OIL MINDER WITH SE-50 PUMP | 1,2 |

NOTES: 1. PROVIDE STANCOR SIMPLEX MULTI-OPTION OIL MINDER SYSTEM AND NECESSARY CABLE CORD, CONDUIT AND WIRE ASSEMBLIES (VISIBLE AND INVISIBLE).
2. PROVIDE REMOTE MONITORING CIRCUIT AND REMOTE ALARMS FOR OIL AND HIGH LIQUID CONDITIONS. REFER TO DWG M-101 FOR REMOTE ALARMS LOCATION.



DESIGNED BY: RNC
DRAWN BY: RDA
CHECKED BY: MSA
PROJECT: 21602.16

UNIVERSITY OF NEW ENGLAND
PORTLAND CAMPUS
Fine Arts Gallery
716 Stevens Avenue
Portland, ME 04103-2683

FINE ARTS GALLERY
ELEVATOR ADDITION
FOR PERMITTING ONLY - NOT FOR CONSTRUCTION

MECHANICAL, PLUMBING AND FIRE PROTECTION LEGENDS, SYMBOLS, ABBREVIATIONS, DETAILS AND SCHEDULES

SCALE: AS NOTED
DATE: 3-29-17

DWG. M-001