

# AIR DISTRIBUTION SYMBOLS

|  |  |  |  |
|--|--|--|--|
|  | RECTANGULAR DUCT. (FIRST NUMBER IS SIDE SHOWN)<br>DIMENSIONS IN INCHES |  | DIFFUSER, REGISTER OR GRILLE TAG<br>CFM AIR FLOW<br>QUANTITY |
|  | 12 INCH ROUND DUCT   |  | FINNED TUBE TAG<br>LENGTH OF FINNED ELEMENT                  |
|  | MOTORIZED DAMPER   |  | DETAIL NO.<br>SHEET NO. WHERE DETAIL IS LOCATED              |
|  | FLEXIBLE DUCT  |  | EQUIPMENT TAG<br>EQUIPMENT NO.                               |
|  | DUCT FLEXIBLE CONNECTOR (FC)   |  |  |
|  | DUCT DROPS AND RISES IN DIRECTION OF AIR FLOW                          |  |  |
|  | RETURN DUCT TURNED UP OR DOWN (DASHED)                                 |  |  |
|  | SUPPLY DUCT TURNED UP OR DOWN (DASHED)                                 |  |  |
|  | EXHAUST DUCT TURNED UP OR DOWN (DASHED)                                |  |  |
|  | ACOUSTICAL LINING (DUCT DIM. FOR NET FREE AREA)                        |  |  |
|  | ROUND DUCT ELBOW DOWN  |  |  |
|  | ROUND DUCT ELBOW UP  |  |  |
|  | SQUARE TO ROUND TRANSITION   |  |  |
|  | CAP (DUCT AND/OR PIPE)   |  |  |
|  | INDICATES DUCT, PIPING, EQUIPMENT TO BE REMOVED.                       |  |  |
|  | EA EXHAUST AIR   |  |  |
|  | RA RETURN AIR  |  |  |
|  | SA SUPPLY AIR  |  |  |
|  | VOLUME DAMPER  |  |  |
|  | FIRE DAMPER  |  |  |
|  | SMOKE DAMPER   |  |  |
|  | TAG NO.  |  |  |
|  | COMBINATION SMOKE/FIRE DAMPER  |  |  |
|  | TAG NO.  |  |  |
|  | RECTANGULAR ELBOW W/TURNING VANES                                      |  |  |
|  | DIRECTION OF AIR FLOW (IN)   |  |  |
|  | DIRECTION OF AIR FLOW (OUT)  |  |  |
|  | HUMIDISTAT OR HUMIDITY SENSOR  |  |  |
|  | THERMOSTAT (T*STAT) OR TEMP. SENSOR                                    |  |  |
|  | CARBON DIOXIDE SENSOR  |  |  |
|  | SMOKE DETECTOR   |  |  |

# PIPING SYMBOLS

|  |  |  |  |
|--|--|--|--|
|  | UNION                                      |  | PRESSURE SWITCH  |
|  | FLANGE                                     |  | FLOW SWITCH  |
|  | PIPE ANCHOR                                |  | PRESSURE GAUGE AND COCK  |
|  | PIPE GUIDE OR SLEEVES                      |  | THERMOMETER AND WELL   |
|  | PIPE ELBOW TURNED DOWN                     |  | TEMPERATURE & PRESSURE TAP (PETE'S PLUG)   |
|  | PIPE ELBOW TURNED UP                       |  | STEAM TRAP (FLOAT AND THERMOSTATIC INDICATED T.T. THERMOSTAT, B.T. BUCKET TRAP, T.D. THERMODYNAMIC TRAP) |
|  | PIPING TEE-DOWN                            |  | CONCENTRIC REDUCER/INCREASER   |
|  | PIPING TEE-UP                              |  | ECCENTRIC REDUCER/INCREASER  |
|  | PIPE RISER                                 |  | GATE VALVE   |
|  | FLOOR CLEAN OUT                            |  | BALL VALVE   |
|  | CLEAN OUT                                  |  | BUTTERFLY VALVE (MANUAL)   |
|  | WALL CLEAN OUT                             |  | 2-WAY CONTROL VALVE  |
|  | PIPE PITCHES DOWN                          |  | 3-WAY CONTROL VALVE  |
|  | GENERIC VALVE, SEE SPECIFICATIONS FOR TYPE |  | BALANCING VALVE (CIRCUIT SETTER)   |
|  | CHECK VALVE                                |  | CHECK VALVE  |
|  | PLUG VALVE                                 |  | FIRE DEPARTMENT CONNECTION   |
|  | GLOBE VALVE                                |  | PUMP   |
|  | NEEDLE VALVE                               |  | WATER HAMMER SUPPRESSER  |
|  | BACK FLOW PREVENTER                        |  | FINNED TUBE BASEBOARD  |
|  | SOLENOID VALVE                             |  | HUMIDIFIER   |
|  | PRESSURE REDUCING OR REGULATING VALVE      |  | DIFFERENTIAL PRESSURE TRANSMITTER  |
|  | PRESSURE RELIEF VALVE                      |  | SPRINKLER HEAD   |
|  | STRAINER                                   |  | GAS TURRET   |
|  | STRAINER W/BLOWDOWN                        |  | MEDICAL OXYGEN OUTLET  |
|  | MANUAL AIR VENT                            |  | MEDICAL VACUUM INLET   |
|  | AUTOMATIC AIR VENT                         |  | MEDICAL AIR OUTLET   |
|  |  |  | NITROUS OXIDE OUTLET   |

# ABBREVIATIONS

|       |                               |        |   |        |                                 |
|-------|-------------------------------|--------|---|--------|---------------------------------|
| AAV   | AUTOMATIC AIR VENT            | DC     | DOUBLE CONTAINED                        | OA     | OUTSIDE AIR                     |
| ACC   | AIR COOLED CONDENSER          | DDC    | DIRECT DIGITAL CONTROL                  | OBD    | OPPOSED BLADE DAMPER            |
| ACU   | AIR CONDITIONING UNIT         | DIA    | DIAMETER                                | OED    | OPEN ENDED DUCT                 |
| ACV   | AREA CONTROL VALVE            | DIC    | DOWN IN CHASE                           | P-#    | PLUMBING FIXTURE TAG            |
| AD    | ACCESS DOOR                   | DIW    | DOWN IN WALL                            | PAE    | PROCESS ACID EXHAUST            |
| AE    | ACID EXHAUST                  | DN     | DOWN                                    | PHE    | PROCESS HEAT EXHAUST            |
| AFF   | ABOVE FINISHED FLOOR          | DS     | DOWNSPOUT                               | PSE    | PROCESS SOLVENT EXHAUST         |
| AFMS  | AIR FLOW MEASURING STATION    | DT     | DROP & TRANSITION                       | PP     | POLY-PROPYLENE                  |
| AHU   | AIR HANDLING UNIT             | DWG    | DRAWING                                 | PPE    | PRE PURCHASED EQUIPMENT         |
| AP    | ACCESS PANEL                  | DWH    | DOMESTIC WATER HEATER                   | PRS    | PRESSURE REDUCING STATION       |
| ATC   | AUTOMATIC TEMPERATURE CONTROL | EA     | EXHAUST AIR                             | PRV    | PRESSURE REDUCING VALVE         |
| AV    | AIR VENT                      | EF     | EXHAUST FAN                             | PVD    | PNEUMATIC VOLUME DAMPER         |
| BA    | BREATHING COMPRESSED AIR      | ENC    | ENCLOSURE                               | (R)    | REMOVE                          |
| BB    | BASEBOARD                     | ER     | EXHAUST REGISTER                        | RA     | RETURN AIR                      |
| BDD   | BACKDRAFT DAMPER              | (E)    | EXISTING                                | RD     | ROOF DRAIN                      |
| BG    | BLAST GATE                    | EXIST. | EXISTING                                | (REL.) | RELOCATED                       |
| BFP   | BACKFLOW PREVENTER            | FBO    | FURNISHED BY OWNER                      | RF     | RETURN FAN                      |
| BLDG  | BUILDING                      | FBP    | FACE & BYPASS                           | RFM    | RADIANT FLOOR MANIFOLD          |
| BOD   | BOTTOM OF DUCT                | FC     | FLEXIBLE CONNECTION                     | RG     | RETURN GRILLE                   |
| BOP   | BOTTOM OF PIPE                | FCO    | FLOOR CLEANOUT                          | RHC    | REHEAT COIL                     |
| BTU   | BRITISH THERMAL UNIT          | FD-#   | FLOOR DRAIN TAG                         | RM     | ROOM                            |
| CBD   | COUNTER BALANCED DAMPER       | FD     | FIRE DAMPER                             | RPZ    | REDUCED PRESSURE ZONE BFP       |
| CD    | CEILING DIFFUSER              | FG     | FIBERGLASS                              | RR     | RETURN REGISTER                 |
| CFF   | CAPPED FOR FUTURE             | F & T  | FLOAT & THERMOSTATIC                    | RV     | RELIEF VALVE                    |
| CFM   | CUBIC FEET PER MINUTE         | FO     | FLAT OVAL                               | SA     | SUPPLY AIR                      |
| CLG   | CEILING                       | FRHB   | FREEZE RESISTANT HOSE BIBB              | SCV    | SELF CONTAINED VALVE            |
| CO    | CLEANOUT                      | FTR    | FINNED TUBE RADIATION                   | SD     | SMOKE DETECTOR                  |
| CONT  | CONTINUATION                  | FS     | FAN STATUS                              | SF     | SUPPLY FAN                      |
| COORD | COORDINATE                    | FSW    | FLOW SWITCH                             | SG     | SUPPLY GRILLE                   |
| CP    | CONDENSATE PUMP & RECEIVER    | GC     | GENERAL CONTRACTOR                      | SGR    | SOIL GAS REMEDIATION            |
| CT    | COOLING TOWER                 | GPM    | GALLONS PER MINUTE                      | SMM    | SNOW MELT MANIFOLD              |
| CTE   | CONNECT TO EXISTING           | H      | HUMIDIFIER                              | SR     | SUPPLY REGISTER                 |
| CU    | COPPER                        | HB     | HOSE BIB                                | SS     | STAINLESS STEEL                 |
| CUH   | CABINET UNIT HEATER           | HRU    | HEAT RECOVERY UNIT                      | TE     | TEMPERATURIZED ELEMENT (SENSOR) |
| CV    | CONTROL VALVE                 | HTR    | HEATER                                  | TG     | TRANSFER GRILLE                 |
| CW    | COLD WATER                    | H & V  | HEATING & VENTILATION                   | TOD    | TOP OF DUCT                     |
| CW-P  | CITY WATER-PROCESS            | HVAC   | HEATING, VENTILATING & AIR CONDITIONING | TOP    | TOP OF PIPE                     |
|       |                               | HW     | HOT WATER                               | TTS    | TIGHT TO STEEL                  |
|       |                               | HX     | HEAT EXCHANGER                          | TV     | TURNING VANE(S)                 |
|       |                               | IN WG  | INCHES WATER GAUGE                      | TW     | TEMPERED WATER                  |
|       |                               | LD     | LINED DUCT                              | TYP    | TYPICAL                         |
|       |                               | MAU    | MAKE UP AIR UNIT                        | UH     | UNIT HEATER                     |
|       |                               | MAX    | MAXIMUM                                 | UIC    | UP IN CHASE                     |
|       |                               | MBH    | 1000 BTU/HR.                            | UIW    | UP IN WALL                      |
|       |                               | ME     | MECHANICAL ENGINEER                     | UV     | UNIT VENTILATOR                 |
|       |                               | MFR    | MANUFACTURER                            | VAV    | VARIABLE AIR VOLUME BOX         |
|       |                               | MIN    | MINIMUM                                 | VB     | VACUUM BREAKER                  |
|       |                               | MD     | MOTOR OPERATED DAMPER                   | VTR    | VENT THRU ROOF                  |
|       |                               | MPV    | MULTI-PURPOSE VALVE                     | VD     | MANUAL VOLUME DAMPER            |
|       |                               | MTD    | MOUNTED                                 | VCF    | VALVED & CAPPED FOR FUTURE      |
|       |                               | MUA    | MAKE UP AIR                             | VOC    | VOLATILE ORGANIC COMPOUNDS      |
|       |                               | NPW    | NON-POTABLE WATER                       | VFD    | VARIABLE FREQUENCY DRIVE        |
|       |                               | NTS    | NOT TO SCALE                            | W/     | WITH                            |
|       |                               | P-#    | PLUMBING FIXTURE TAG                    | WCO    | WALL CLEANOUT                   |
|       |                               | PEA    | ALKALI EXHAUST                          | WH     | WALL HYDRANT                    |
|       |                               | PEH    | HEAT EXHAUST                            |        |                                 |

# PIPING SYSTEMS

|         |                                 |      |                                  |            |                              |            |  |
|---------|---------------------------------|------|----------------------------------|------------|------------------------------|------------|--|
| 10:1 HF | 10:1 HF                         | GLY  | GLYCOL                           | MV         | MEDICAL VACUUM               | TWS        | TEMPERED CHILLED WATER SUPPLY                              |
| AV      | ACID VENT                       | GV   | GAS VENT                         | N2NP       | NON-PROCESS NITROGEN         | TWR        | TEMPERED CHILLED WATER RETURN                              |
| AD      | ACID DRAIN                      | H    | HYDROGEN                         | N2         | PROCESS NITROGEN             | VAC        | PLANT VACUUM   |
| AD      | ACID DRAIN (BELOW SLAB)         | H2O2 | HYDROGEN PEROXIDE                | NG         | NATURAL GAS                  | ZB         | ZONE VALVE BOX   |
| BA      | BREATHING AIR                   | HCR  | HOT/ CHILLED WATER RETURN        | HNG        | HIGH PRESSURE NATURAL GAS    | TEMP       | DOMESTIC HOT WATER (TEMP °F)                               |
| CD      | CONDENSATE DRAIN                | HCS  | HOT/ CHILLED WATER SUPPLY        | NO2        | NITROUS OXIDE                | TEMP       | RECIRC. DOMESTIC HOT WATER (TEMP °F)                       |
| CDA     | COMPRESSED DRY AIR              | HCV  | HOUSE CLEAN VACUUM               | NEG. SOLV. | NEGATIVE SOLVENT DRAIN       |            | DOMESTIC COLD WATER  |
| CHWS    | CHILLED WATER SUPPLY            | HG   | HOT GAS                          | NPW        | NON POTABLE COLD WATER       |            | DOMESTIC HOT WATER   |
| CHWR    | CHILLED WATER RETURN            | HPS  | HIGH PRESSURE STEAM              | O2         | OXYGEN                       | RCW        | RECIRCULATED DOMESTIC HOT WATER                            |
| CWS     | CONDENSER WATER SUPPLY          | HPR  | HIGH PRESSURE CONDENSATE RETURN  | OFA        | OIL FREE COMPRESSED AIR      | S, W or KW | S SANITARY, W WASTE & KW KITCHEN WASTE                     |
| CWR     | CONDENSER WATER RETURN          | HWS  | HOT WATER SUPPLY                 | PCWR       | PROCESS COOLING WATER RETURN | S, W or KW | S SANITARY, W WASTE & KW KITCHEN WASTE (EXIST.)            |
| DB      | DISTRIBUTION VALVE BOX          | IAD  | ISOPROPYL ALCOHOL DRAIN          | PC         | PUMPED STEAM CONDENSATE      | S, W or KW | S SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB)        |
| DIS     | DEIONIZED WATER SUPPLY          | LP   | LIQUID PROPANE GAS               | PD         | PUMPED DISCHARGE             | S, W or KW | S SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB-EXIST.) |
| DIR     | DEIONIZED WATER RETURN          | HLP  | HIGH PRESSURE LIQUID PROPANE GAS | POS. SOLV. | POSITIVE SOLVENT DRAIN       | SD         | SD STORM DRAIN   |
| EKCD    | EKC DRAIN                       | LPS  | LOW PRESSURE STEAM               | PW         | POTABLE WATER                | SD         | SD STORM DRAIN (EXIST.)                                    |
| ESEW    | EYEWASH                         | LPR  | LOW PRESSURE RETURN              | R          | RELIEF LINE                  | SD         | SD STORM DRAIN (BELOW SLAB)                                |
| FCS     | FREE COOLING SUPPLY             | LTWR | LOW TEMPERATURE WATER RETURN     | RL         | REFRIGERANT LIQUID           | SD         | SD STORM DRAIN (BELOW SLAB-EXIST.)                         |
| FCR     | FREE COOLING RETURN             | LTWS | LOW TEMPERATURE WATER SUPPLY     | RS         | REFRIGERANT SUCTION          | V          | V SANITARY VENT  |
| FOS     | FUEL OIL SUPPLY                 | MA   | MEDICAL AIR                      | SLD        | MIXED SOLVENT DRAIN          | V          | V SANITARY VENT (EXIST.)                                   |
| FOR     | FUEL OIL RETURN                 | MPS  | MEDIUM PRESSURE STEAM            | SV         | SOLVENT                      | V          | V SANITARY VENT (BELOW SLAB)                               |
| FOV     | FUEL OIL VENT                   | MPR  | MEDIUM PRESSURE RETURN           | SP         | SPRINKLER                    | V          | V SANITARY VENT (BELOW SLAB-EXIST.)                        |
| GCR     | GRAVITY STEAM CONDENSATE RETURN |      |                                  |            |                              |            |  |

**GENERAL NOTE**  
 1. ALL GENERAL NOTES, SYMBOL LISTS, AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL HVAC AND PLUMBING DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION INTO THE DESIGN.

ARCHITECTURE ENGINEERING PLANNING  
 144 Fore Street/P.O. Box 618  
 Portland, Maine 04104  
 tel. (207) 772-3846  
 fax. (207) 772-1070

---

PROJECT TITLE: MAINE TURNPIKE AUTHORITY ADMINISTRATION BUILDING  
 PORTLAND, MAINE

CURRENT ISSUE STATUS: ISSUED FOR BIDDING/CONSTRUCTION  
 7-9-07

| REV | DESCRIPTION          | DATE   |
|-----|----------------------|--------|
| 0   | BIDDING/CONSTRUCTION | 7-9-07 |

GRAPHIC SCALE: 1" = 10'

|                  |              |
|------------------|--------------|
| SCALE:           | NOT TO SCALE |
| PROJECT MANAGER: | SLB          |
| JC/DRAWN BY:     | TCM/BGG      |
| A/E OF RECORD:   | RWM          |
| CAD FILE:        | M-001-06016  |
| PROJECT NO:      | 06016        |
| DATE:            | 7-9-07       |

SHEET TITLE: LEGEND AND ABBREVIATIONS

SHEET No. M-001