## HVAC GENERAL NOTES

1. ALL HVAC GENERAL NOTES, SYMBOLS LISTS & DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL HVAC DRAWINGS FOR THIS PROJECT.
2. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND EXACT LOCATIONS AND ARRANGEMENTS OF EXIST./NEW EQUIPMENT, DUCTWORK, PIPING AND OTHER COMPONENTS SHALL BE DETERMINED IN THE FIELD WITH DUE CONSIDERATION OF STRUCTURAL, ELECTRICAL AND ARCHITECTURAL SYSTEMS. EXISTING STRUCTURAL SYSTEMS SHALL NOT BE MODIFIED WITHOUT THE EXPRESS PERMISSION OF THE ENGINEER.
3. THE PROJECT SHALL BE PHASED IN ACCORDANCE WITH THE APPROVED PHASING PLAN. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ARCHITECT FOR THE SEQUENCING AND TIMING OF OPERATIONS PRIOR TO COMMENCING WORK. SEE SPECIFICATIONS.
4. MOST PARTITIONS ARE FULL HEIGHT AND REQUIRE UTILITIES PENETRATIONS TO BE SEALED. SEE ARCHITECTURAL DWGS FOR PARTITION HEIGHTS. UTILITIES SHOWN FOR CLARITY THAT MAY RUN PARALLEL TO WALL PARTITIONS WILL REQUIRE LOCATING IN THE FIELD TO MINIMIZE CONFLICT WITH PARTITIONS.
5. COORDINATE THE LOCATIONS OF ALL WALL MOUNTED TEMPERATURE SENSORS WITH FINAL EQUIPMENT/FURNITURE LAYOUT.
6. MANUFACTURERS NAME & MODEL NUMBER ARE USED FOR DESCRIPTIVE PURPOSES ONLY & ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED.
7. INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND GOOD PRACTICE NORMAL TO THE TRADE. INSTALLATION SHALL INCLUDE PROVISIONS FOR ACCESS TO NORMAL MAINTENANCE ITEMS SUCH AS BELTS, BEARINGS, FILTERS AND MOTORS. PROVIDE ADEQUATE STRUCTURAL SUPPORTS AND SECURE MOUNTING METHODS WITH PROVISIONS FOR VIBRATION ISOLATION AND EXPANSION WHERE REQUIRED.
8. PROVIDE VOLUME DAMPERS DOWN STREAM OF VAV BOXES AT EACH BRANCH FROM MAIN DUCTWORK AND DUCT RUNNOUTS. PROVIDE OPPOSED BLADE DAMPERS AT EACH NECK TO AN INDIVIDUAL REGISTER OR DIFFUSER IN SUPPLY, RETURN AND EXHAUST DUCTS IRRESPECTIVE OF WHETHER OR NOT A DAMPER IS INDICATED ON THE PLANS.
9. DIFFUSER SIZES INDICATED ARE NECK SIZES. REGISTERS & GRILLES ARE INDICATED AS NOMINAL SIZES.
10. PERFORM ALL TESTS BEFORE INSULATING.
11. PIPING AND DUCTWORK SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
12. INSTALLATION SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT OF EQUIPMENT PROVIDED. PROVIDE ACCESS PANELS TO GAIN ACCESS TO SYSTEMS COMPONENTS THAT REQUIRE MAINTENANCE ACCORDING TO MANUFACTURER'S LITERATURE.
13. PROVIDE DUCTWORK WITH OFFSETS AND TRANSITIONS AS REQUIRED TO FIT UNDER STRUCTURAL STEEL OR OTHER OBSTRUCTIONS. FLAT OVAL OR ROUND SIZES MAY BE USED INTERCHANGEABLY BY THE CONTRACTOR, MAINTAIN DUCT CROSS SECTIONAL AREA. CHANGES SHALL BE ONLY IN ACCORDANCE WITH APPROVED SHOP DRAWINGS OR WRITTEN PERMISSION OF THE PROJECT ENGINEER.
14. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS & GUIDES AS NECESSARY TO PREVENT UNDUE STRAIN ON PIPING.
15. SEE DETAILS & PIPING DIAGRAMS FOR ADDITIONAL VALVES & FITTINGS NECESSARY FOR COMPLETE PIPING SYSTEM.
16. MECHANICAL CONTRACTOR TO COORDINATE ALL WORK WITH OTHER BUILDING TRADES. SOME RELOCATION OF EXISTING UTILITIES MAY BE NECESSARY TO ACCOMMODATE INSTALLATION OF NEW EQUIPMENT OR DUCTWORK.
17. PROVIDE FIRE OR FIRE/SMOKE DAMPERS WHERE INDICATED ON PLANS & WHERE REQUIRED BY APPLICABLE CODES FOR DUCTS & OPENINGS THROUGH FLOORS, FIRE WALLS & FIRE PARTITIONS. DAMPERS SHALL BE ENCLOSED IN #14 GAUGE STEEL SLEEVE. PROVIDE ACCESS DOORS LOCATED SO THAT FUSIBLE LINK & OTHER DAMPER COMPONENTS MAY BE INSPECTED REPLACED AND/OR SERVICED.
18. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
19. AT THE END OF EACH WORKING DAY, THE CONSTRUCTION SITE SHALL BE LEFT IN A CLEAN AND NEAT CONDITION.
20. INFILL ALL NEW OR EXISTING ABANDONED FLOOR SLAB PENETRATIONS WITH GROUT, FULL THICKNESS OF SLAB. MAINTAIN 2 HR FIRE RATING. ALL EXISTING CONCRETE FLOORS AND CHASES ARE 2 HOUR FIRE RATED.
21. FILL AND PATCH ALL OPENINGS IN WALLS WHERE CONDUITS, PIPES, DUCTS ETC. ARE OR HAVE BEEN REMOVED WITH UL LISTED FIRE ASSEMBLY APPROVED BY THE ARCHITECT. MAINTAIN 2 HR FIRE RATING WHERE APPLICABLE.
22. TIE-IN POINT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD BASED ON EXISTING CONDITIONS.
23. EQUIPMENT ARRANGEMENT, DUCTWORK SIZES, PENETRATIONS AND DETAILS ARE BASED ON EQUIPMENT SCHEDULED. CONTRACTOR SHALL ADJUST SIZES AND ROUTING AS REQUIRED TO ACCOMMODATE ACTUAL EQUIPMENT INSTALLED.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORING NEEDS FOR PASSAGE OF PIPING THROUGH SOLID CONCRETE WALLS, FLOORS AND ROOFS.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING, STORAGE AND SETTING OF ALL EQUIPMENT AND MATERIAL. CRANES, LIFTS, HOISTS, AND SCAFFOLDING OF ALL EQUIPMENT SHALL BE EMPLOYED AS REQUIRED TO COMPLETE THE INSTALLATION.

## GENERAL ABBREVIATIONS

| ABBREVIATIONS | DESCRIPTIONS |
|---|---|
| AD | DUCT ACCESS DOOR |
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISH GRADE |
| AP | ACCESS PANEL |
| AS | AIR SEPARATOR |
| ATC | AUTOMATIC TEMPERATURE CONTROL |
| BFP | BACK FLOW PREVENTER |
| BOD | BOTTOM OF DUCT |
| BTU | BRITISH THERMAL UNIT |
| BTUH | BRITISH THERMAL UNIT PER HOUR |
| C | CONVECTOR |
| C&HW | COLD & HOT WATER |
| CAP | CAPACITY |
| CC | COOLING COIL |
| CD | CEILING DIFFUSER |
| CFM | CUBIC FEET PER MINUTE |
| COL | COLUMN |
| CONN | CONNECT |
| CV | CONTROL VALVE |
| DB | DRY BULB TEMPERATURE |
| DDC | DIRECT DIGITAL CONTROL |
| DIA | DIAMETER |
| DN | DOWN |
| DO | DIGITAL OUTPUT |
| DWG OR DWGS | DRAWINGS |
| E, EX OR (E) | EXISTING |
| EA | EXHAUST AIR |
| EAT | ENTERING AIR TEMPERATURE |
| EC | ELECTRICAL CONTRACTOR |
| ECU | EVAPORATIVE CONDENSING UNIT |
| EF | EXHAUST FAN |
| EG | EXHAUST AIR GRILLE |
| EL | EXPANSION LOOP |
| EMS | ENERGY MANAGEMENT SYSTEM |
| ER | EXHAUST AIR REGISTER |
| ERV | EXHAUST ON ROOF |
| ESP | EXTERNAL STATIC PRESSURE |
| ET | EXPANSION TANK |
| ETR | EXISTING TO REMAIN |
| EWT | ENTERING WATER TEMPERATURE |
| EXH | EXHAUST |
| FA | FREE AREA |
| FC | FLEXIBLE CONNECTION |
| FD | FIRE DAMPER |
| FLA | FULL LOAD AMPS |
| FLR | FLOOR |
| FPI | FINS PER INCH |
| FPM | FEET PER MINUTE |
| FSD | COMBINATION FIRE AND SMOKE DAMPER |
| FT | FEET |
| FTR | FIN TUBE RADIATION |
| GAL | GALLONS |
| GC | GENERAL CONTRACTOR |
| GE | GENERAL EXHAUST |
| GPM | GALLONS PER MINUTE |
| GV | GATE VALVE |
| HC | HEATING COIL |
| HP | HORSE POWER |
| HVAC | HEATING, VENTILATION AND AIR COND. |
| HW | HOT WATER |
| ID | INSIDE DIAMETER |
| IH | INTAKE HOOD |
| IN | INCHES |
| KW | KILOWATTS |
| L | LOUVER |
| LAT | LEAVING AIR TEMPERATURE |
| LWT | LEAVING WATER TEMPERATURE |
| MBH | THOUSANDS OF B.T.U.'S PER HOUR |
| MD | MOTORIZED DAMPER |
| MECH | MECHANICAL |
| MTD | MOUNTED |
| N.C. OR NC | NORMALLY CLOSED |
| N.O. OR NO | NORMALLY OPEN |
| NIC | NOT IN CONTRACT |
| NOM | NOMINAL |
| NTS | NOT TO SCALE |
| O.A. OR OA | OUTSIDE AIR |
| OAT | OUTSIDE AIR TEMPERATURE |
| OBD | OPPOSED BLADE DAMPER |
| OD | OUTSIDE DIAMETER |
| OED | OPEN ENDED DUCT |
| PC | PLUMBING CONTRACTOR |
| PD | PRESSURE DROP |
| PSI | POUNDS PER SQUARE INCH |
| PRV | PRESSURE REDUCING VALVE |
| (R) | RELOCATE(D) |
| RA | RETURN AIR |
| REF | RETURN EXHAUST FAN |
| RF | RETURN FAN |
| RG | RETURN AIR GRILLE |
| RHWR | REHEAT WATER RETURN |
| RHWS | REHEAT WATER SUPPLY |
| RM | ROOM |
| RR | RETURN AIR REGISTER |
| RV | RELIEF VALVE |
| SA | SUPPLY AIR |
| SAT | SUPPLY AIR TEMPERATURE |
| SF | SQUARE FEET |
| SP | STATIC PRESSURE |
| SPD | SPEED |
| SPEC | SPECIFICATION |
| SR | SUPPLY AIR REGISTER |
| SS | STAINLESS STEEL |
| TG | TRANSFER AIR GRILLE |
| TOD | TOP OF DUCT |
| TSTAT | THERMOSTAT |
| TYP | TYPICAL |
| U.G. | UNDER GRADE |
| U.S. | UNDER SLAB |
| UC | UNDERCUT DOOR |
| V | VENT |
| VAV | VARIABLE AIR VOLUME |
| VB | VACUUM BREAKER |
| VFD | VARIABLE FREQUENCY DRIVE |
| VTR | VENT THROUGH ROOF |
| W | WASTE |
| W/ | WITH |
| WB | WET BULB TEMPERATURE (°F) |
| WMS | WIRE MESH SCREEN |

## PIPING SYMBOLS

| SYMBOLS | ABBREVIATIONS | DESCRIPTIONS |
|---|---|---|
| G | G | GAS PIPING |
| GS | GS | GLYCOL SUPPLY |
| GR | GR | GLYCOL RETURN |
| RS | RS | REFRIGERANT SUCTION |
| RL | RL | REFRIGERANT LIQUID |
| RHG | RHG | REFRIGERANT HOT GAS |
| D | D | A.C. CONDENSATE DRAIN |
| MUW | MUW | MAKE UP WATER |
| PC | PC | PUMPED CONDENSATE |
| HPC | HPC | HIGH-PRESSURE CONDENSATE |
| BBD | BBD | BOILER BLOWDOWN |
| FOD | FOD | FUEL OIL DISCHARGE |
| FOG | FOG | FUEL OIL GAGE |
| FOS | FOS | FUEL OIL SUCTION |
| FOR | FOR | FUEL OIL RETURN |
| FOV | FOV | FUEL OIL TANK VENT |
| MTWS | MTWS | MEDIUM-TEMPERATURE HOT WATER SUPPLY |
| HTWS | HTWS | HIGH-TEMPERATURE HOT WATER SUPPLY |
| MTWR | MTWR | MEDIUM-TEMPERATURE HOT WATER RETURN |
| HTWR | HTWR | HIGH-TEMPERATURE HOT WATER RETURN |
| SAN | SAN | SANITARY DRAIN ABOVE FLOOR OR GRADE |
| CHEM | CHEM | CHEMICAL SUPPLY PIPES |
| CHWS | CHWS | CHILLED WATER SUPPLY PIPING |
| CHWR | CHWR | CHILLED WATER RETURN PIPING |
| CWS | CWS | CONDENSER WATER SUPPLY |
| CWR | CWR | CONDENSER WATER RETURN |
| HPS | HPS | HIGH PRESSURE STEAM |
| HWS | HWS | HOT WATER SUPPLY PIPING |
| HWR | HWR | HOT WATER RETURN PIPING |
| RHWS | RHWS | REHEAT HOT WATER SUPPLY PIPING |
| RHWR | RHWR | REHEAT HOT WATER RETURN PIPING |
| LPC | LPC | LOW PRESSURE CONDENSATE RETURN |
| LPS | LPS | LOW PRESSURE STEAM |
| MPC | MPC | MEDIUM PRESSURE CONDENSATE RETURN |
| MPS | MPS | MEDIUM PRESSURE STEAM |
| | CW | COLD WATER PIPING |
| | HW | HOT WATER PIPING |
| | HWR | HOT WATER RETURN PIPING |
| | V | VENT PIPING |
| | | PIPE DROP |
| | | PIPE RISER |
| | | PIPE TEE - DOWN |
| | | PIPE TEE - UP |
| | | PIPE CONNECTION |
| | | PIPE BREAK - TO CONTINUE |
| | | DIRECTION OF FLOW |
| | ANCHOR | PIPE ANCHOR |
| | | PIPE CAP |
| | GUIDE | PIPE GUIDE |
| | | EXPANSION JOINT |
| | U | UNION |
| | BLV | BALL VALVE |
| | BFV | BUTTERFLY VALVE |
| | SCV | SWING CHECK VALVE |
| | CBV | CIRCUIT BALANCE VALVE |
| | ACV | 2-WAY AUTOMATIC CONTROL VALVE |
| | ACV | 3-WAY AUTOMATIC CONTROL VALVE (MIXING PATTERN) |
| | GV | GATE VALVE |
| | GLV | GLOBE VALVE |
| MPV | MPV | MULTIPURPOSE VALVE |
| | PRV | PRESSURE REGULATING VALVE |
| | T | THERMOMETER |
| | FLG | FLANGE |
| | | STRAINER W/DRAIN VALVE AND CAP |
| | RSV | RELIEF OR SAFETY VALVE |
| | PGV | PLUG VALVE |
| | RPBP | REDUCED PRESSURE BACKFLOW PREVENTER |
| | | PIPE SLOPE |

## GENERAL SYMBOLS

| SYMBOLS | DESCRIPTIONS |
|---|---|
| | POINT OF CONNECTION TO EXISTING |
| | LIMIT OF DEMOLITION |
| VAV 3 | EQUIPMENT TAG |
| S-1 250 | DIFFUSER, REGISTER OR GRILLE TAG, WITH CFM AIRFLOW |
| 1 | REVISION TAG |
| | REVISION CLOUD |
| 1 | NOTE CALL OUT |
| P | PRESSURE GAUGE W/PETCOCK |
| P | DUCT STATIC PRESSURE SENSOR |
| P C | ISOLATION ROOM PRESSURIZATION CONTROLLER |
| S | DUCT MOUNTED SMOKE DETECTOR, MTD BY HVAC CONTR. SUPPLIED AND WIRED BY ELECTRICAL CONTR. |
| F | FLOW SWITCH |
| PS | PRESSURE SWITCH |
| T | THERMOSTAT |
| V | AUTOMATIC AIR VENT |
| V | MANUAL AIR VENT |
| PP | PRESSURE PORT ("PETE'S PLUG") |
| F&T | FLOAT & THERMOSTATIC TRAP |
| | HUMIDIFIER |
| | VARIABLE AIR VOLUME BOX |
| 12:, 12x12 | DUCT SIZE |
| 12" | PIPE SIZE |
| 12"S UP 14"DN 1-1/2" | PIPE SIZE, GANG |
| | ROOF EXHAUST - EXISTING |
| | ROOF EXHAUST - REMOVED |
| | ROOF EXHAUST - NEW |
| V | MANUAL VOLUME DAMPER |
| F | FIRE DAMPER |
| FS | COMBINATION FIRE SMOKE DAMPER |
| S | SMOKE DAMPER |

## DIFFUSER SYMBOLS

| SYMBOLS | ABBREVIATIONS | DESCRIPTIONS |
|---|---|---|
| | RG, RR | RETURN AIR GRILLE, REGISTER |
| | EG, ER | EXHAUST AIR GRILLE, REGISTER |
| | SD, SR, SG | SUPPLY AIR 4 WAY DIFFUSER, REGISTER, GRILLE |
| | SD, SR, SG | SUPPLY AIR 3 WAY DIFFUSER, REGISTER, GRILLE |
| | SD, SR, SG | SUPPLY AIR 2 WAY DIFFUSER, REGISTER, GRILLE |
| | SD, SR, SG | SUPPLY AIR 2 WAY DIFFUSER, REGISTER, GRILLE |
| | SD, SR, SG | SUPPLY AIR 1 WAY DIFFUSER, REGISTER, GRILLE |

## DUCTWORK SYMBOLS

| SYMBOLS | DESCRIPTIONS |
|---|---|
| | EXISTING RECTANGULAR DUCT RUN W/ SIZE DESIGNATION |
| | EXISTING CIRCULAR DUCT RUN W/ SIZE DESIGNATION |
| | EXISTING FLEX DUCT RUN W/ SIZE DESIGNATION |
| | DEMOLITION RECTANGULAR DUCT RUN W/ SIZE DESIGNATION |
| | DEMOLITION CIRCULAR DUCT RUN W/ SIZE DESIGNATION |
| | DEMOLITION FLEX DUCT RUN W/ SIZE DESIGNATION |
| | NEW RECTANGULAR DUCT RUN W/ SIZE DESIGNATION |
| | NEW CIRCULAR DUCT RUN W/ SIZE DESIGNATION |
| 10x16 | SHADED DUCTWORK SHALL BE 16 GAUGE SHEETMETAL |
| | NEW FLEX DUCT RUN W/ SIZE DESIGNATION |
| | NEW RECTANGULAR DUCT - UP |
| | NEW CIRCULAR DUCT RUN - UP |
| | NEW RECTANGULAR DUCT - DOWN |
| | NEW CIRCULAR DUCT RUN - DOWN |
| | ACOUSTICALLY LINED DUCT RUN |
| | RECTANGULAR TO RECTANGULAR DUCTWORK TRANSITION |
| | RECTANGULAR TO RECTANGULAR DUCTWORK TRANSITION |
| | RECTANGULAR TO CIRCULAR DUCTWORK TRANSITION |
| | ELEVATION CHANGE IN DUCTWORK - UP |
| | ELEVATION CHANGE IN DUCTWORK - DOWN |
| | DUCTWORK BREAK - TO CONTINUE |

## MECHANICAL ALTERNATE LIST

| NUMBER | TITLE |
|---|---|

NOTE:
REFER TO ARCHITECTURAL DOCUMENTS FOR DEDUCT ALTERNATE ITEMS.


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# MAINE EYE - RETINA & SURGERY CENTER

161 Marginal Way - Portland, Maine 04101

| No. | Date | Description |
|---|---|---|

Revision Schedule

STATE OF MAINE
KEARY C. WILLETTE
No. 10696
LICENSED
PROFESSIONAL ENGINEER

JOB NO.
195210863

DRWN: ERD
CHK: KCW

SCALE:

ISSUE:
PERMIT SET - 95% CONSTRUCTION DOCUMENTS
04.12.16

TITLE:
HVAC LEGEND AND GENERAL NOTES

SHEET
M001