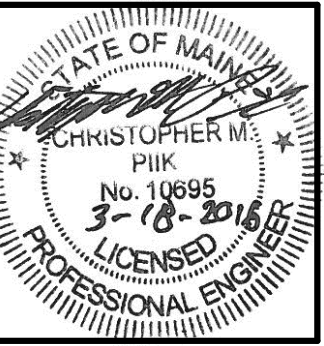


HVAC GENERAL NOTES	GENERAL ABBREVIATIONS	PIPING SYMBOLS	GENERAL SYMBOLS	DUCTWORK SYMBOLS																					
<p>DESCRIPTIONS</p> <ol style="list-style-type: none"> <li>ALL HVAC GENERAL NOTES, SYMBOLS LISTS &amp; DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL HVAC DRAWINGS FOR THIS PROJECT. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND EXACT LOCATIONS AND ARRANGEMENTS OF EXISTING 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.</li> <li>THE PROJECT SHALL BE PHASED IN ACCORDANCE WITH THE APPROVED PHASING PLAN. THE CONTRACTOR SHALL OBTAIN APPROVAL FOR THE SEQUENCING AND TIMING OF OPERATIONS PRIOR TO COMMENCING WORK. SEE SPECIFICATIONS.</li> <li>CONTRACTOR IS TO MAINTAIN SERVICE TO ROOMS OUTSIDE THE PROJECT SCOPE OF WORK AND PHASING SCHEDULE. IF INTERRUPTION OF SERVICE IS REQUIRED COORDINATE SHUTDOWN.</li> <li>CARE SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SYSTEMS AND SURFACES TO REMAIN. RESTORE DAMAGED AREAS THAT ARE BEYOND THE SCOPE OF THIS CONTRACT TO THEIR ORIGINAL CONDITION.</li> <li>WHERE INDICATED ON THE DRAWINGS, REMOVE OR RELOCATE EXISTING COMPONENTS AS REQUIRED TO ACCOMMODATE THE NEW WORK. REMOVALS SHALL INCLUDE ALL ASSOCIATED OFF-SITE DISPOSAL COSTS.</li> <li>COORDINATE REMOVALS AND RELOCATIONS INCLUDING SELECTIVE CUTTING AND PENETRATIONS WITH ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL CONTRACTORS.</li> <li>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.</li> <li>COORDINATE THE LOCATIONS OF ALL WALL MOUNTED TEMPERATURE SENSORS WITH FINAL EQUIPMENT/FURNITURE LAYOUT.</li> <li>MANUFACTURERS NAME &amp; MODEL NUMBER ARE USED FOR DESCRIPTIVE PURPOSES ONLY &amp; ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED.</li> <li>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.</li> <li>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.</li> <li>DIFFUSER SIZES INDICATED ARE NECK SIZES. REGISTERS &amp; GRILLES ARE INDICATED AS NOMINAL SIZES.</li> <li>PERFORM ALL TESTS BEFORE INSULATING.</li> <li>PIPING AND DUCTWORK SHALL BE CONCEALED UNLESS OTHERWISE NOTED.</li> <li>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.</li> <li>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.</li> <li>PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS &amp; GUIDES AS NECESSARY TO PREVENT UNDESIRED STRAIN ON PIPING.</li> <li>SEE DETAILS &amp; PIPING DIAGRAMS FOR ADDITIONAL VALVES &amp; FITTINGS NECESSARY FOR COMPLETE PIPING SYSTEM.</li> <li>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.</li> <li>PROVIDE FIRE OR FIRE/SMOKE DAMPERS WHERE INDICATED ON PLANS &amp; WHERE REQUIRED BY APPLICABLE CODES FOR DUCTS &amp; OPENINGS THROUGH FLOORS, FIRE WALLS &amp; FIRE PARTITIONS. DAMPERS SHALL BE ENCLOSED IN 1/4 GAUGE STEEL SLEEVE. PROVIDE ACCESS DOORS LOCATED SO THAT FUSIBLE LINK &amp; OTHER DAMPER COMPONENTS MAY BE INSPECTED, REPLACED AND/OR SERVICED.</li> <li>SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.</li> <li>AT THE END OF EACH WORKING DAY, THE CONSTRUCTION SITE SHALL BE LEFT IN A CLEAN AND NEAT CONDITION.</li> <li>FIELD VERIFY EXISTING EQUIPMENT, DUCTWORK AND PIPING PRIOR TO REMOVAL OR REUSE. CONFIRM WITH OWNER THAT ALL EQUIPMENT, DUCTWORK AND PIPING DESIGNATED TO BE REMOVED IS NO LONGER IN SERVICE PRIOR TO ITS REMOVAL.</li> <li>EXISTING EQUIPMENT, DUCTWORK AND PIPING TO REMAIN IN SERVICE SHALL BE INSPECTED. ANY EQUIPMENT FOUND TO BE INOPERABLE SHALL BE REPORTED TO THE PROJECT ENGINEER.</li> <li>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.</li> <li>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.</li> <li>ALL UNUSED (ABANDONED) DUCTWORK, PIPING AND EQUIPMENT INDICATED TO BE REMOVED SHALL BE REMOVED AND CAPPED.</li> <li>TIE-IN POINT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD BASED ON EXISTING CONDITIONS.</li> </ol>	<p>ABBREVIATIONS</p> <p>AD 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&amp;HW COLD &amp; 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) EXHAUST    EA 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    ETO EXISTING TO BE REMOVED    ETR EXTERNAL STATIC PRESSURE    EWT ENTERING WATER TEMPERATURE    EXH EXHAUST    FA FREE AREA    FC FLEXIBLE CONNECTION    FD FIRE DAMPER    FLA FULL LOAD AMPS    FLR FLOOR    FFR FEET 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    GY GYPSUM    HC HEATING COIL    HP HORSE POWER    HVAC HEATING, VENTILATION AND AIR COND.    HW HOT WATER    ID INSIDE DIAMETER    IH INSIDE HOOD    IN INCHES    KLOVAITS KILOWATTS    L LOWER    LAT LEAVING AIR TEMPERATURE    LWT LEAVING WATER TEMPERATURE    MBR MOTORIZED DAMPER    MD MECHANICAL    MTD MOUNTED    N.C. OR NC NORMALLY CLOSED    N.O. OR NO NORMALLY OPEN    NC NOT IN CONTRACT    NOM NOMINAL    NTS NOT TO SCALE    O.A. OR OA OUTSIDE AIR    OAT OUTSIDE AIR TEMPERATURE    OED OPPOSED BLADE DAMPER    PC PLUMBING CONTRACTOR    PD PRESSURE DROP    PSI POUNDS PER SQUARE INCH    PRV PRESSURE REDUCING VALVE    RA RETURN AIR    REF RETURN EXHAUST FAN    RF RETURN FAN    RG RETURN AIR GRILLE    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 MULTIPURPOSE VALVE    PRV PRESSURE REGULATING VALVE    T THERMOSTAT    U 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    WI WITH    WB WET BULB TEMPERATURE (°F)    WMS WIRE MESH SCREEN</p>	<p>SYMBOLS</p> <p>— 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    — MLW — MLW 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    — MTHW — MTHW MEDIUM-TEMPERATURE HOT WATER RETURN    — HTWR — HTWR HIGH-TEMPERATURE HOT WATER RETURN    — SAN — SAN SANITARY DRAIN ABOVE FLOOR OR GRADE    — CEM — CEM 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    — DCW — DCW DOMESTIC COLD WATER PIPING    — DHW — DHW DOMESTIC HOT WATER PIPING    — DHWR — DHWR DOMESTIC HOT WATER RECIRCULATION PIPING    — V — V VENT PIPING</p> <p>— ○ — PIPE DROP    — ○ — PIPE RISER    — ○ — PIPE TEE - DOWN    — ○ — PIPE TEE - UP    — ○ — PIPE CONNECTION    — ○ — PIPE BREAK - TO CONTINUE    — ○ — DIRECTION OF FLOW</p> <p>— X — ANCHOR</p> <p>— — GUIDE</p> <p>— — EXPANSION JOINT</p> <p>— U — UNION</p> <p>— 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 — MULTIPURPOSE VALVE    — PRV — PRESSURE REGULATING VALVE    — T — THERMOSTAT    — FLG — FLANGE    — — STRAINER W/ DRAIN VALVE AND CAP    — RSV — RELIEF OR SAFETY VALVE    — PSV — PLUG VALVE    — RBP — REDUCED PRESSURE BACKFLOW PREVENTOR    — — PIPE SLOPE</p>	<p>SYMBOLS</p> <p>● POINT OF CONNECTION TO EXISTING    □ LIMIT OF DEMOLITION    □ VAV 3 EQUIPMENT, GRILLE, REGISTER OR DIFFUSER TAG    □ S-1 250 DIFFUSER, REGISTER OR GRILLE TAG, WITH CFM AIRFLOW    △ REVISION TAG    ○ REVISION CLOUD    ○ NOTE CALL OUT    ○ PRESSURE GAUGE W/ PETCOCK    ○ DUCT STATIC PRESSURE SENSOR    ○ ISOLATION ROOM PRESSURIZATION CONTROLLER    ○ DUCT MOUNTED SMOKE DETECTOR, MTD BY HVAC CONTR. SUPPLIED AND WIRED BY ELECTRICAL CONTR.    ○ FLOW SWITCH    ○ PRESSURE SWITCH    ○ THERMOSTAT    ○ AUTOMATIC AIR VENT    ○ MANUAL AIR VENT    ○ PRESSURE PORT (PETE'S PLUG)    ○ FLOAT &amp; THERMOSTATIC TRAP    ○ HUMIDIFIER    ○ VARIABLE AIR VOLUME BOX    12, 12x12 DUCT SIZE    12" PIPE SIZE    14"DN 1-1/2" PIPE SIZE, GANG    ○ ROOF EXHAUST - EXISTING    ○ ROOF EXHAUST - REMOVED    ○ ROOF EXHAUST - NEW    — — MANUAL VOLUME DAMPER    — — FIRE DAMPER    — — COMBINATION FIRE SMOKE DAMPER    — — SMOKE DAMPER</p>	<p>SYMBOLS</p> <p>— — 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    — — 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    — — ACCUSTICALLY 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</p>																					
			<p>MECHANICAL ALTERNATE LIST</p> <table border="1"> <thead> <tr> <th>NUMBER</th> <th>TITLE</th> </tr> </thead> <tbody> <tr> <td>FD</td> <td>FIRE DAMPER</td> </tr> <tr> <td>FSD</td> <td>COMBINATION FIRE SMOKE DAMPER</td> </tr> <tr> <td>SD</td> <td>SMOKE DAMPER</td> </tr> </tbody> </table> <p>NOTE: REFER TO ARCHITECTURAL DOCUMENTS FOR DEDUCT ALTERNATE ITEMS.</p>	NUMBER	TITLE	FD	FIRE DAMPER	FSD	COMBINATION FIRE SMOKE DAMPER	SD	SMOKE DAMPER														
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No.	Date	Description
		Revision Schedule



JOB NO.  
195210852

DRWN. CHK  
ERD CMP

SCALE:

ISSUE  
PERMIT SET  
3/18/2016

TITLE  
HVAC LEGEND AND GENERAL NOTES

SHEET  
M001



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