ABBREVIATIONS

@	AT
AC	AIR–CONDITIONING
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AMB	AMBIENT
APPROX	APPROXIMATELY
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AUTOMATIC VENT
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTUH	BTU PER HOUR
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	CEILING
CO	CLEAN OUT/CARBON MONOXIDE
COND	CONDENSATE
CONN	CONNECTION
CP	CONTROL PANEL, CONDENSATE PUMP
CR	CONDENSATE RETURN
CSEA	CONFINED SPACE EXHAUST AIR
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWR	COLD WATER RETURN
CWS	COLD WATER SUPPLY
CV	CONTROL VALVE
D	DRAIN
dB	DECIBELS
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
ø, DIA	DIAMETER
DIFF	DIFFERENTIAL
DHWH	DOMESTIC HW HEATER
DISCH	DISCHARGE
DN	DOWN
DOM	DOMESTIC
DP,DPS	DIFFERENTIAL–PRESSURE SENSOR
DWG	DRAWING
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDR	EQUIVALENT DIRECT RADIATION
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EQUIP	EQUIPMENT
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
EVAP	EVAPORATOR
EWT	ENTERING WATER TEMPERATURE
EXH, E	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
F	FAN, DEGREES FAHRENHEIT
FAI	FRESH AIR INTAKE
FC	FLEX CONNECTOR, FORWARD CURVED
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER, FLOOR DRAIN
FF	FINISH FLOOR
FIX	FIXTURE
FLA	FULL LOAD AMPS
FLR	FLOOR
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
HC	HEATING COIL
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSM	GALVANIZED SHEET METAL
HV	HEATING AND VENTILATING UNIT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING (UNIT)
HW	HOT WATER
HWC	HOT WATER COIL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IBR	HYDRONICS INSTITUTE
IN	INCHES
INDIR	INDIRECT WASTE
IU	INDOOR UNIT
KW	KILOWATT
L	LENGTH, LOUVER
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LD	LINEAR DIFFUSER
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LG	LONG
LOC	LOCATION/ LOCATED
LRA	LOCKED ROTOR AMPS
L/S	LITERS PER SECOND
LVG	LEAVING
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MANUF	MANUFACTURER
MAX	MAXIMUM
MAX PD	MAXIMUM PRESSURE DROP
MBH	1000 BTU PER HOUR
MBU	1000 BTU
MC	MECHANICAL CONTRACTOR
MCA	MAXIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFG	MANUFACTURER
MIN	MINIMUM, MINUTES
m	METER
m^2	METER SQUARED
mm	MILLIMETER
MNTD	MOUNTED
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO2	NITROGEN DIOXIDE
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OAT	OUTSIDE AIR TEMPERATURE
OUT	OUTSIDE AIR TEMPERATURE
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PLMB	PLUMBING
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PTS	COMBINATION PRECIPITATION OA TEMPERATURE SENSOR
QTY	QUANTITY
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
REQ'D	REQUIRED
RET, R	RETURN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY DIFFUSER
SA	SUPPLY AIR
SCR	SCREEN
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
SQ	SQUARE
SRV	SAFETY RELIEF VALVE
SS	STAINLESS STEEL
STL	STEEL
STM	STEAM
SUP, S	SUPPLY
T	TEMPERATURE SENSOR
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
V	VENT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET–BULB
WC	WATER COLUMN
WG	WATER GAUGE

MECHANICAL AND PLUMBING SYMBOLS

- SECTION NUMBER / DRAWING WHERE SECTION IS REFERENCED / DRAWING WHERE SECTION IS DRAWN
- DETAIL NUMBER / DRAWING WHERE DETAIL IS REFERENCED / DRAWING WHERE DETAIL IS DRAWN
- SYMBOL PER ABBREVIATION LIST (H) / EQUIPMENT SEQUENCE NUMBER (2)
- DIFFUSER, REGISTER OR GRILLE (S–1) / SEQUENCE NUMBER / CFM (100)
- DEMOLITION KEYED NOTE (NUMBER) (1)
- KEYED NOTE (NUMBER) (1)
- REVISION (LETTER OR NUMBER) (A)
- RETURN OR EXHAUST GRILLE, REGISTER
- SUPPLY DIFFUSER, REGISTER, GRILLE
- ROOFTOP EXHAUST FAN
- DIRECTION OF AIR FLOW
- DIRECTION OF AIR FLOW EXHAUST
- DOOR LOUVER
- VOLUME DAMPER
- THERMOSTAT (T)
- HUMIDITY SENSOR (H)
- STARTER/DISCONNECT (S)
- TEMPERATURE SENSOR (T)
- CEILING SUPPLY DIFFUSER W/ DIRECTION SHOWN BY ARROWS
- CONNECT TO EXISTING
- BALANCING VALVE
- COMBINATION FLOW MEASURING/ BALANCING VALVE (CIRCUIT SETTER)
- BUTTERFLY VALVE
- BALL VALVE
- PLUG VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- STRAINER W/BALL DRAIN VALVE, HOSE BIB AND CAP
- UNION OR FLANGE AS DICTATED BY PIPE SIZE
- PIPE TEE FROM TOP
- PIPE TEE FROM BOTTOM
- PIPE RISE
- PIPE DROP
- END CAP
- THERMOMETER / TEMPERATURE/PRESSURE WELL
- AUTOMATIC AIR VENT WITH ISOLATION VALVE
- MANUAL AIR VENT
- REDUCER (CONCENTRIC)

GENERAL NOTES

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO DRAWINGS MARKED M–#.
2. PERFORM ALL WORK IN ACCORDANCE WITH LATEST VERSIONS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, REGULATIONS, AND ORDINANCES AS WELL AS BUILDING OWNER REQUIREMENTS AND MANUFACTURER RECOMMENDATIONS. CODES AND STANDARDS INCLUDE, INTERNATIONAL MECHANICAL CODE, MAINE UNIFORM ENERGY & BUILDING CODE, MAINE STATE PLUMBING CODE, SMACNA AND NFPA.
3. CONTRACTOR SHALL MAKE ARRANGEMENTS TO VISIT THE SITE PRIOR TO BIDDING TO DETERMINE PRE–EXISTING CONDITIONS AND ALL WORK NECESSARY FOR THE PROJECT.
4. DRAWINGS ARE DIAGRAMMATIC; OFFSETS, OBSTRUCTIONS, AND EXISTING CONFIGURATIONS AND CONSTRAINTS MUST BE FIELD VERIFIED.
5. IT IS THE INTENT OF THESE CONTRACT DOCUMENTS TO PROVIDE SYSTEMS THAT ARE FULLY TESTED AND OPERATIONAL. ANY COMPONENTS OR LABOR NOT MENTIONED IN THE CONTRACT DOCUMENTS BUT REQUIRED FOR FUNCTIONING SYSTEMS SHALL BE PROVIDED. THE CONTRACTOR SHALL REFER TO THE ENGINEER FOR RESOLUTION BEFORE START OF ANY WORK THAT APPEARS TO HAVE DISCREPANCIES OR IF THERE IS ANY QUESTION OF INTENT.
6. THE CONTRACTOR SHALL HOLD A LICENSE TO PERFORM THE WORK AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. APPLY FOR AND OBTAIN ALL REQUIRED PERMITS AND INSPECTIONS AND PAY FEES AND CHARGES, INCLUDING SERVICE CHARGES.
7. THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION AREAS CLEAN AND FREE OF ACCUMULATION OF WASTE MATERIAL OR DEBRIS RELATED TO THIS PROJECT. OCCUPIED AREAS MUST MAINTAIN A CLEAN ENVIRONMENT AND THE CONTRACTOR MUST ADHERE TO THE OWNER'S REGULATIONS REGARDING PROCEDURES ON THE PREMISES.
8. ITEMS AND MATERIALS INDICATED FOR REMOVAL OR DEMOLITION SHALL BE DISPOSED OF OFF–SITE IN A LEGAL MANNER.
9. WORK SHALL BE COORDINATED WITH TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST.
10. VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
11. INSTALL WORK SO THAT ALL NEW ITEMS ARE OPERABLE AND SERVICEABLE. DO NOT OBSTRUCT EXISTING EQUIPMENT OR COMPONENTS THAT REQUIRE SERVICE.
12. INSTALL EQUIPMENT, PIPING AND DUCTWORK AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION AND TO FACILITATE EQUIPMENT ACCESS AS REQUIRED BY EQUIPMENT MANUFACTURER.
13. CONTRACTOR SHALL PROVIDE ACCESS PANELS, WHERE REQUIRED, TO SERVICE DAMPERS, HEATERS, VALVES AND ALL CONCEALED MECHANICAL EQUIPMENT.
14. COORDINATE ELECTRICAL POWER REQUIREMENTS FOR ALL MOTORS.
15. PROVIDE REQUIRED SUPPORTS, ANGLES, HANGERS, RODS, BASES, BRACES, AND ALL OTHER ITEMS AS NEEDED TO PROPERLY SUPPORT THE CONTRACT WORK.
16. ALL WORK SHALL BE PERFORMED IN A MANNER THAT IS EQUAL TO INDUSTRY STANDARDS. PROVIDE INDUSTRY STANDARD LABELING FOR ALL EQUIPMENT AND PIPING.
17. INSTRUCT DESIGNATED MAINTENANCE PERSONNEL ON PROPER OPERATION AND CARE OF THE NEW SYSTEMS AND EQUIPMENT.
18. CONTRACTOR SHALL WARRANTY WORKMANSHIP AND MATERIALS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM THE DATE OF PROJECT COMPLETION.
19. PROVIDE FLEXIBLE DUCT CONNECTIONS ON DUCTS CONNECTING TO FANS, AND TO AIR HANDLING UNITS WHICH ARE NOT INTERNALLY ISOLATED. ALL DUCTS TO BE GROUNDED ACROSS FLEXIBLE CONNECTION WITH FLEXIBLE COPPER GROUNDING STRAPS.

GENERAL NOTES

20. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
21. ALL INTAKES AND EXHAUSTS TO HAVE STAINLESS STEEL INSECT AND BIRD SCREENS.
22. INSTALL THERMOSTATS 4 FEET 6 INCHES ABOVE FINISHED FLOOR.
23. ALL PENETRATIONS THROUGH FLOORS, WALLS AND PARTITIONS SHALL BE SEALED TO MAINTAIN WEATHERPROOFING. COORDINATE WITH ARCHITECTURAL.
24. PROVIDE MANUAL VOLUME DAMPERS FOR ALL SUPPLY, RETURN, AND EXHAUST BRANCH DUCTS.
25. REMOVE ALL EXISTING MECHANICAL EQUIPMENT. COORDINATE DEMOLITION WITH OTHER TRADES.
26. PROVIDE PIPE SLEEVES FOR ALL CMU PENETRATIONS.

DUCTWORK SYMBOLS

- BULLHEAD TEE (VD, VD)
- TAKE–OFF SUPPLY (VD)
- EXHAUST/RETURN (VD)
- RETURN/EXHAUST DUCT UP
- RETURN/EXHAUST DUCT DOWN
- ROUND DUCT RISER
- SUPPLY DUCT UP
- SUPPLY DUCT DOWN
- SPLIT TAKE–OFF W/ BRANCH DAMPERS SUPPLY (VD)
- CEILING DIFFUSER OR GRILLE W/ FLEXIBLE DUCT (VD)
- BULLHEAD SPLIT (VD, VD)
- RADIUS ELBOW
- OFFSET
- SQUARE ELBOW W/TURNING VANES

MECHANICAL LINETYPE LEGEND

- EXISTING ITEMS TO REMAIN
- ITEMS TO BE PROVIDED
- ITEMS TO BE REMOVED
- HIDDEN ITEMS
- CONTROL WIRING
- FUTURE TO BE INSTALLED UNDER SEPARATE CONTRACT

ISSUED FOR BID
NOT FOR CONSTRUCTION
JANUARY 5, 2017

NOTE:
GENERAL NOTES, ABBREVIATIONS AND SYMBOLS APPLY TO MECHANICAL DRAWINGS MARKED M#. HOWEVER, ALL ABBREVIATIONS AND SYMBOLS MAY NOT BE APPLICABLE TO THIS PARTICULAR PROJECT. THEY ARE PROVIDED FOR GENERAL REFERENCE ONLY.

STATE OF MAINE
EMILY PINYARD
No. 12126
REGISTERED
PROFESSIONAL ENGINEER
01/05/17

REV	DESCRIPTION	DWN	APP	DATE
C	RE-ISSUED FOR BID	MBD	ERP	01/05/17
B	RE-ISSUED FOR BID	MBD	ERP	10/28/16
A	ISSUED FOR BID	MBD	ERP	9/02/16

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SCALE HOUSE WITH INSULATED BLOCK CONSTRUCTION

MECHANICAL LEGEND, ABBREVIATIONS, GENERAL NOTES, AND SPECS

SIZE: ANSI D
DATE: 09/02/2016
DES BY: MIF
DWN BY: MBD
CKD BY: ERP

PROJECT NO. 162.002.002
SHEET 26 OF 40
DRAWING NO. M-001

X:\162 EcoMaine\162.002.002 - Scale House with CMU\Drawings\Sheets\M-001.dwg - 1/5/2017 2:30 PM - ZACH JONES