ABBREVIATIONS

GENERAL

ADD'L	ADDITIONAL
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
ALT	ALTITUDE OR ALTERNATE
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT
AS	AIR STREAM
ATC	AUTOMATIC TEMPERATURE CONTROL
ATM	ATMOSPHERE
AVG	AVERAGE
BHP	BRAKE HORSEPOWER
BI	BACKWARDS INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
C TO C	CENTER TO CENTER
CENT	CENTRIFUGAL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG	CEILING OR COOLING
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONTR	CONTRACTOR
D	DRAIN OR DEPTH
DB	DRY BULB TEMPERATURE
DEG	DEGREE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DP	DIFFERENTIAL PRESSURE
EA	EACH OR EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ELEC	ELECTRICAL
ELEV	ELEVATION
EMER	EMERGENCY
ENT	ENTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST.	EXISTING
EXT	EXTERNAL
EXP	EXPANSION
F	FAHRENHEIT
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR/DR	FLOOR DRAIN
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOW SWITCH
FT	FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRD	GRADE
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB CONN.
HD	HEAD
HGT	HEIGHT
HP	HORSEPOWER OR HIGH POINT
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY, CYCLES PER SECOND)
ID	INSIDE DIAMETER
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LP	LOW POINT
LRA	LOCKED ROTOR AMPS
LUVR	LOUVER
LVDR	LOUVERED DOOR
LWG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PCF	POUNDS PER CUBIC FOOT
PD	PRESSURE DROP
PH	PHASE
PBG	PLUMBING
POS	PROVIDED BY OTHER SECTION
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS
RA	RETURN AIR
RET	RETURN
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
REL	RELIEF
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SCR	SCREEN
SD	SMOKE DETECTOR
SEN	SENSIBLE
SHC	SENSIBLE HEAT CAPACITY
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SF	SQUARE FEET
SS	STAINLESS STEEL
STL	STEEL
SUP	SUPPLY
T	TEMPERATURE
TA	THERMAMAX
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TON	12,000 BTUH COOLING CAPACITY
TOT	TOTAL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS (ELECTRICAL)
VEL	VELOCITY
W	WIDTH OR WATT
W/	WITH
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WG	WATER GAUGE
W/O	WITHOUT
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DIFFERENCE

EQUIPMENT

AC	AIR CONDITIONING OR AIR CONDITIONING UNIT
ACC	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AF	AIR FILTER OR AIR FOIL
CUH	CABINET UNIT HEATER
DDC	DIRECT DIGITAL CONTROL
DX	DIRECT EXPANSION
ECH	ELECTRIC CABINET HEATER
EF	EXHAUST FAN
EHC	ELECTRICAL HEATING COIL
EUH	ELECTRIC UNIT HEATER
F	FAN
FCU	FAN COIL UNIT
FTR	FINNED TUBE RADIATION
GRV	GRAVITY RELIEF VENT
HCC	HEATING CONTROL CENTER
REG	REGISTER
SF	SUPPLY FAN
TD	TRANSFER DUCT
UH	UNIT HEATER

PIPING

ATV	ATMOSPHERIC VENT
BOP	BOTTOM OF PIPE
CO	CLEAN-OUT
MAV	MANUAL AIR VENT
TOP	TOP OF PIPE
V	VENT

REFRIGERATION

DX	DIRECT EXPANSION
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID

DUCTWORK

SINGLE LINE / DOUBLE LINE

RECTANGULAR SUPPLY DUCT (W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED)

ROUND SUPPLY DUCT (DIA=INSIDE DIAMETER)

ROUND SUPPLY DUCT UP

STANDARD RADIUS ELBOW (R = W) SUPPLY/RETURN/EXHAUST

FULL LENGTH SPLITTER VANES (R < W) SUPPLY/RETURN/EXHAUST

SPLIT TAKE-OFF

RECTANGULAR WYE SUPPLY

RECTANGULAR DUCT TO ROUND SUPPLY/RETURN/EXHAUST

CEILING DUCT MOUNTED DIFFUSER/GRILLE

TAKE-OFF TO DIFFUSER/GRILLE

CEILING DUCT MOUNTED DIFFUSER/GRILLE

FLEXIBLE DUCT

RECTANGULAR RETURN/EXHAUST DUCT W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED

ROUND RETURN/EXHAUST DUCT (DIA=INSIDE DIAMETER)

ROUND RETURN/EXHAUST DUCT UP

HORIZONTAL OFFSET SUPPLY/RETURN/EXHAUST

CHANGE OF ELEVATION (R)RISE OR (D)DROP SUPPLY/RETURN/EXHAUST

45° TAP TAKE-OFF

45° TAKEOFF / 45° TAKE-OFF TRANSITION TO ROUND

90° TAP TAKE-OFF

SQUARE TO ROUND CONNECTION

BELLMOUTH CONNECTION

CONVERGE RETURN/EXHAUST W/45° TAKE-OFFS

SIDEWALL DUCT MOUNTED REGISTER/GRILLE

OPEN END DUCT W/ 1/2"x1/2" WMS

ACD — AUTOMATIC CONTROL DAMPER W/ ACCESS DOOR

VD — MANUAL VOLUME DAMPER

FD — SELF-CLOSING FIRE DAMPER W/ ACCESS DOOR

SD — AUTOMATIC SMOKE DAMPER W/ ACCESS DOOR

SFD — COMBINATION SMOKE/FIRE DAMPER W/ ACCESS DOOR

SD — DUCT MOUNTED SMOKE DETECTOR

BDD — BACKDRAFT DAMPER

STANDARD 4-WAY BLOW SUPPLY DIFFUSER

3-WAY BLOW SUPPLY DIFFUSER

OR — 2-WAY BLOW SUPPLY DIFFUSER

ONE-WAY BLOW SUPPLY DIFFUSER

RETURN/EXHAUST GRILLE OR REGISTER

UC 1/2" — UNDERCUT DOOR

LVDR 1.5 SF — LOUVERED DOOR (FREE AREA)

RETURN OR EXHAUST AIR FLOW

SUPPLY AIR FLOW

DIAGRAM EQUIPMENT SYMBOLS

FILTER BANK

HEATING COIL

COOLING COIL

CABINET HEATER

UNIT HEATER

FINNED TUBE RADIATION

INLINE CENTRIFUGAL FAN

OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR

OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR

PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR

PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR

BACKDRAFT DAMPER

CALLOUT SYMBOLS

A / H2.0 — SECTION DESIGNATION / SHEET NUMBER

REVISION NUMBER

TEMPERATURE SENSOR OR THERMOSTAT

HUMIDITY SENSOR OR HUMIDISTAT

SA(100) — S = SUPPLY A = SCHEDULED DIFFUSER. (100) = CFM TO BALANCE TO

RA(100) — R = RETURN A = SCHEDULED GRILLE. (100) = CFM TO BALANCED TO

EA(100) — E = EXHAUST A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO

TA(100) — T = TRANSFER A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO

EQUIPMENT REQUIRING ELECTRICAL SERVICE, SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 (XXX, XXX, XXX)

SCHEDULED EQUIPMENT UNIT NUMBER

FIRST DIGIT(S) = LEVEL WHERE UNIT IS LOCATED:
SB = SUB-BASEMENT
G = GROUND FLOOR
1 = FIRST FLOOR
2 = SECOND FLOOR
R = ROOF

SECOND DIGIT(S):
1 = FIRST UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
2 = SECOND UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
3 = THIRD UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL, ETC.
(DUE TO EDITING NOT ALL NUMBERS MAY BE USED)

UNIT CAPACITY INFORMATION (IF APPLICABLE--DATA VARIES DEPENDING ON TYPE OF EQUIPMENT)
i.e. FOR FAN POWERED VAV BOXES:
FIRST NUMBER = MAX. CFM
SECOND NUMBER = MIN. CFM OR PERCENT OF MAX. CFM
THIRD NUMBER = COIL GPM OR KW

EQUIPMENT NOT REQUIRING ELECTRICAL SERVICE, SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 (XXX, XXX, XXX) — REFER TO EQUIPMENT REQUIRING ELECTRICAL SERVICE SYMBOL ABOVE FOR TAG AND DATA INFORMATION.

PIPING ABBREVIATIONS

D — DRAIN
RG — REFRIGERANT GAS
RL — REFRIGERANT LIQUID
V — VENT

CONTROL POINT DESCRIPTOR LEGEND

TAG — ATC CONTRACTOR INTERFACE TO EQUIPMENT MANUFACTURER'S HARDWARE

(TAG) — ATC CONTRACTOR PROVIDED LOCAL CONTROL POINT

CONTROL ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
ALM	ALARM
ATC	AUTOMATIC TEMPERATURE CONTROL
BDD	BACKDRAFT DAMPER (ADJUSTABLE COUNTERWEIGHT)
BIBO	BAG-IN BAG-OUT
BV	BYPASS VALVE
CCLT	COOLING COIL LEAVING AIR TEMPERATURE SENSOR
CO	CARBON MONOXIDE SENSOR
CT	CURRENT TRANSFORMER (STATUS FEEDBACK)
CV	COOLING COIL CONTROL VALVE
DAT	DISCHARGE AIR TEMPERATURE SENSOR
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
DPV	DIFFERENTIAL PRESSURE BYPASS VALVE
DSP	DISCHARGE STATIC PRESSURE SENSOR
EAD	EXHAUST AIR DAMPER
ES	END SWITCH
FA	FAULT ALARM
FD	FAN ISOLATION DAMPER
FMT	FLOW METER/TRANSMITTER
FS	FLOW SWITCH
FZ	FREEZESTAT
H	HUMIDITY SENSOR
HCLT	HEATING COIL LEAVING AIR TEMPERATURE SENSOR
HHL	HIGH HUMIDITY LIMIT SENSOR
HIV	HUMIDIFIER ISOLATION VALVE
HLH	HIGH/LOW HUMIDITY LIMIT SENSOR
HOA	HAND-OFF-AUTOMATIC SWITCH
HS	HUMIDITY SENSOR (ROOM)
HT	HAND SWITCH
HSPS	HIGH STATIC PRESSURE SWITCH
HSS	HOOD SASH SWITCH
HUV	HUMIDIFIER CONTROL VALVE
HV	HEATING COIL CONTROL VALVE
LAT	LEAVING AIR TEMPERATURE SENSOR
LSPS	LOW STATIC PRESSURE SWITCH
LS	LEVEL SENSOR OR LIGHT SWITCH INTERFACE
LSHA	LEVEL SENSOR HIGH ALARM
LSHS	LEVEL SENSOR HIGH SWITCH
LSLA	LEVEL SENSOR LOW ALARM
LSLS	LEVEL SENSOR LOW SWITCH
MAT	MIXED AIR TEMPERATURE SENSOR
MO	MOTION DETECTOR
NC	NORMALLY CLOSED (ON LOSS OF POWER)
NO	NORMALLY OPEN (ON LOSS OF POWER)
OAD	OUTSIDE AIR DAMPER
OAH	OUTSIDE AIR HUMIDITY SENSOR (FOR WET BULB READING)
OAT	OUTSIDE AIR TEMPERATURE SENSOR (DRY BULB)
PAD	PRIMARY AIR DAMPER
PR	PRESSURE SENSOR (ROOM)
RAD	RETURN AIR DAMPER
RAH	RETURN AIR HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
RH	RELIEF CONTROL VALVE
RV	RELIEF VALVE (HUMIDITY
RI	FLOW INDICATOR
RSID	RETURN SMOKE ISOLATION DAMPER
S	SWITCH
SAD	SUPPLY AIR DAMPER
SD	SMOKE DAMPER
SDET	SMOKE DETECTOR
SFD	SMOKE/FIRE DETECTOR
SP	STATIC PRESSURE SENSOR
SPD	SPEED CONTROL
S/S	START/STOP
S/S$_H$	START/STOP HIGH SPEED/CAPACITY
S/S$_L$	START/STOP LOW SPEED/CAPACITY
SSD	SUPPLY SMOKE ISOLATION DAMPER
SSP	SUCTION STATIC PRESSURE SENSOR
T	TEMPERATURE SENSOR/THERMOSTAT
TR	TEMPERATURE SENSOR/THERMOSTAT (ROOM)
WC	WATER COLUMN

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN THE FIELD.
3. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
5. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR TERMINAL DEVICES.
6. ALL MATERIALS AND EQUIPMENT INDICATED AS NEW, SHALL BE NEW.
7. DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.
8. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
9. THE INSIDE OF ALL DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.
10. INSTALL THERMOSTATS 4.5 FEET AFF OR AS DIRECTED OTHERWISE BY ARCHITECT.
11. WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
12. CONTRACTOR SHALL REPORT ANY EQUIPMENT DEFICIENCIES FOUND TO THE ARCHITECT AND/OR ENGINEER.
13. THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, PIPING, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.

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CLIENT

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PROJECT

OCEAN GATEWAY PARKING GARAGE
MIDDLE STREET
PORTLAND, MAINE

REVISIONS

NO.	DATE	DESCRIPTION
1	08/10/07	BULLETIN 1

DATE FEB 22, 2007
SCALE
PROJECT NO. 05-032

STATE OF MAINE · GREGORY I. TITTERINGTON · 6472 · REGISTERED PROFESSIONAL ENGINEER · MECHANICAL

DRAWING TITLE
HVAC LEGEND, NOTES & ABBREVIATIONS

SHEET NUMBER
H0.00