ABBREVIATIONS

AC	AIR CONDITIONING UNIT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACRCU	AIR COOLED RECIPROCATING CHILLER UNIT
ACU	ABSORPTION CHILLER UNIT
AD	ACCESS DOOR
AF	AFTER FILTER
AFCE	AIR FLOW CONTROL VALVE
AFM	AIR FLOW MEASURING DEVICE
AFW	AIR FOIL WHEEL
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
ATC	AIR TEMPERTURE CONTROL
BC	BRANCH CONTROLLER
BIW	BACKWARD INCLINED WHEEL
BG	BOTTOM GRILLE (WALL TYPE)
BR	BOTTOM REGISTER (WALL TYPE)
C	CONVERTOR
CC	COOLING COIL
CCF	CENTRIFUGAL CEILING FAN
CCU	CENTRIFUGAL OR HELICAL ROTARY SCREW CHILLER UNIT
CD	CEILING DIFFUSER
CF	CENTRIFUGAL FAN
CG	CEILING GRILLE
CO	CLEAN OUT
COMP.	COMPRESSOR
CONV.	CONVECTOR
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
D	AUTOMATIC DAMPER
Db	DRY BULB TEMPERATURE
dB	DECIBELS
DD	DISCHARGE DAMPERS
Dp	DEWPOINT TEMPERATURE
DX	DIRECT EXPANSION
E/A	EXHAUST AIR
EC	EVAPORATIVE CONDENSER
ECC	ENGINEERING CONTROL CENTER
EDH	ELECTRIC COIL DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EGW	ETHYLENE GLYCOL–WATER SOLUTION (% GLYCOL BY VOLUME)
EMD	END OF MAIN DRIP (STEAM)
ERC	ENERGY RECOVERY COIL
ERP	ELECTRIC RADIANT CEILING PANEL
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EX.	EXISTING
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FCW	FORWARD CURVED FAN
FLR.	FLOOR
F.DPR.	FIRE DAMPER
FS	FACTORY FABRICATED FAN SECTION
FTR	FIN TUBE RADIATION
GH	GRAVITY HOOD
HC	HEATING COIL
HD	HOOD
HE	AIR TO AIR HEAT EXCHANGER
HF	HEPA FILTER
HP	HORSEPOWER
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM
HWP	HOT WATER PUMP
HV	HEATING AND VENTILATING UNIT
HX	HEAT EXCHANGER
ICF	IN–LINE CENTRIFUGAL FAN
IEF	INDUSTRIAL EXHAUST FAN
IFB	INTEGRAL FACE AND BYPASS
IU	INDUCTION UNIT
IV	INLET VANES
LCD	LINEAR CEILING DIFFUSER
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LBS/HR	POUNDS PER HOUR
MAU	MAKE–UP AIR UNIT
MB	MIXING BOX
MER	MECHANICAL ROOM
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM
MAX.	MAXIMUM
MIN.	MINIMUM
NOM.	NOMINAL
O/A	OUTDOOR AIR
P	PUMP
PC	PUMPED CONDENSATE
PD	PRESSURE DROP
PEF	PROPELLER TYPE EXHAUST FAN
PF	PRE–FILTER
PFW	PUMPED FEED WATER
PGW	PROPYLENE GLYCOL–WATER SOLUTION
PH	PREHEAT
POD	POWER OPERATED, OPPOSED BLADE DAMPER
PPD	POWER OPERATED, PARALLEL BLADE DAMPER
PRV	PRESSURE REDUCING VALVE
R/A	RETURN AIR
RCP	RADIANT CEILING PANEL
RCU	RECIPROCATING CHILLER UNIT
REL	RELIEF AIR
RF	RETURN FAN
RH	REHEAT COIL
Rh	RELATIVE HUMIDITY
RV	POWER TYPE ROOF VENTILATOR
S/A	SUPPLY AIR
SA	SOUND ATTENUATING UNIT
SCD	SMOKE CONTROL DAMPER
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DAMPER
SF	SUPPLY FAN
Sp. Gr.	SPECIFIC GRAVITY
SH	STEAM HUMIDIFIER
SP	STATIC PRESSURE
SPS	STATIC PRESSURE SENSOR
SSAC	SPLIT SYSTEM AIR CONDITIONER
TG	TOP GRILLE (WALL TYPE)
TR	TOP REGISTER (WALL TYPE)
TU	TERMINAL UNIT
TWU	THRU WALL UNIT
UC	UNIT COOLER
UH	UNIT HEATER
URV	UPBLAST POWER TYPE ROOF VENTILATOR
UV	UNIT VENTILATOR
V	VALVE
VAF	VANE AXIAL FAN
VCC	VOLUMETRIC CONTROL CENTER
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VE	VOLUME EXTRACTOR
VFD	VARIABLE FREQUENCY DRIVE
V1	VIBRATION ISOLATOR
VIV	VARIABLE INLET VANES
VP	VACUUM PUMP
VR	VACUUM STEAM CONDENSATE RETURN
VSMC	VARIABLE SPEED MOTOR CONTROLLER
Wb	WET BULB TEMPERATURE
WEF	WALL TYPE EXHAUST FAN
WF	WATER FILTER
WFMD	WATER FLOW MEASURING DEVICE
VP	VACUUM PUMP
VR	VACUUM STEAM CONDENSATE RETURN
VSMC	VARIABLE SPEED MOTOR CONTROLLER
Wb	WET BULB TEMPERATURE
WEF	WALL TYPE EXHAUST FAN
WF	WATER FILTER
WFMD	WATER FLOW MEASURING DEVICE

GENERAL NOTES

1. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR ABOVE SUSPENDED CEILINGS.
2. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
3. ACCESS PANELS IN SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
4. TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
5. FOR TYPICAL STEAM, WATER AND REFRIGERANT PIPING CONNECTIONS TO EQUIPMENT SEE STANDARD EQUIPMENT DETAILS.
6. DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
7. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
8. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
9. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RE/COTR FOR RESOLUTION.

PIPING SYMBOLS

HEATING

- HPS — HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
- HPR — HIGH PRESSURE STEAM CONDENSATE RETURN
- LPS — LOW PRESSURE STEAM (15 PSIG AND BELOW)
- LPR — LOW PRESSURE STEAM CONDENSATE RETURN
- PC — CONDENSATE PUMP DISCHARGE
- HWS — HOT WATER HEATING SUPPLY
- HWR — HOT WATER HEATING RETURN
- V — VENT LINE

AIR CONDITIONING

- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- — MAKE–UP WATER
- D — DRAIN LINE

VALVE SYMBOLS

- SHUT–OFF VALVE
- GLOBE VALVE
- BALL VALVE WITH 3/4 " HOSE ADAPTER
- CHECK VALVE
- ANGLE GLOBE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- BALANCING VALVE
- CIRCUIT SETTER
- STRAIGHT–THRU MODULATING CONTROL VALVE
- STRAIGHT–THRU TWO POSITION CONTROL VALVE
- THREE–WAY MODULATING CONTROL VALVE
- AUTOMATIC FLOW CONTROL VALVE
- SAFETY OR PRESSURE RELIEF VALVE
- PRESSURE REDUCING VALVE
- MANUAL AIR VENT
- TEST PLUG (PRESSURE/TEMPERATURE)

GENERAL SYMBOLS

- DIRECTION OF PIPE PITCH (DOWN)
- DIRECTION OF FLOW
- PIPE ANCHOR
- ALIGNMENT GUIDES
- REDUCER OR INCREASER
- ECCENTRIC REDUCER
- TOP CONNECTION, 45° OR 90°
- BOTTOM CONNECTION, 45° OR 90°
- SIDE CONNECTION
- CAPPED OUTLET
- RISE OR DROP IN PIPE
- UNION
- ORIFICE UNION
- POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
- LIMIT OF DEMOLITION
- BLAST THERMOSTATIC TRAP
- INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES
- FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES
- THERMOSTATIC TRAP
- STRAINER
- THERMOMETER
- PRESSURE GAGE
- WATER FLOW MEASURING DEVICE
- EXISTING PIPE TO BE REMOVED

TERMINAL UNIT SYMBOLS

- UNIT HEATER (HORIZONTAL)
- BUILDING NO. WHERE EQUIPMENT IS LOCATED.
- EQUIPMENT ABBREVIATION (SUPPLY FAN)
- 26–SF–3 — SUPPLY FAN NO.3 IN BUILDING NO.26
- TYPICAL UNIT NO.
- ITEM (TERMINAL UNIT SHOWN)
- TU–G01 — ITEM NUMBER (TERMINAL UNIT NO.1)
- FLOOR LOCATION (GROUND FLOOR)
- VARIABLE VOLUME \ CONSTANT VOLUME TERMINAL UNIT WITH HEATING COIL. REFER TO SINGLE DUCT AIR TERMIINAL UNIT SCHEDULE.
- RADIANT CEILING PANEL

DRAWING SYMBOLS

- 2 / H4 — DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
- A / H7 — SECTION LETTER / DRAWING NUMBER WHERE SHOWN
- D–1 / 100 / 12ø — DIFFUSER, REGISTER OR GRILLE TYPE / CFM / NECK SIZE OR REGISTER/GRILLE SIZE
- G–2 / 20x8 — REGISTER OR GRILLE TYPE / SIZE
- RCP–A / 10 FT — RADIANT CEILING PANEL TYPE / CFM

CONTROLS SYMBOLS

- T H — ROOM CONTROL: THERMOSTAT. HUMIDISTAT
- T — REMOTE BULB THERMOSTAT
- T — DUCT OR PIPE THERMOSTAT WITH AVERAGING ELEMENT. PROVIDE 12" [300mm] MIN. LENGTH IN DUCT WHEN SPACE PERMITS.
- T — DUCT THERMOSTAT WITH AVERAGING ELEMENT
- T H CO2 — ROOM SENSOR: TEMPERATURE, HUMIDITY, CARBON DIOXIDE
- T — DUCT TEMPERATURE SENSOR
- T WM — WALL MOUNTED TEMPERATURE SENSOR
- H — DUCT HUMIDITY SENSOR
- DP — DUCT DEW POINT SENSOR
- SP — DUCT STATIC PRESSURE SENSOR
- BSP — BUILDING STATIC PRESSURE SENSOR
- T — DUCT TEMPERATURE SENSOR WITH AVERAGING ELEMENT
- F S — SMOKE DETECTOR (SEE ELECTRICAL SPECIFICATIONS)
- TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO INDICATOR ON LTCP. (PROVIDE 12 INCHES [205mm] MINIMUM LENGTH IN DUCT WHEN SPACE PERMITS.)
- A — SENSOR WITH AVERAGING ELEMENT TO TRANSMIT TEMPERATURE TO LTCP
- M — CONTROL AIR MAIN
- EP — ELECTRO–PNEUMATIC (EP) SWITCH
- C — HOLDING COIL IN MOTOR STARTER
- R2 — RELAY COIL
- R2–A — CONTACT, NORMALLY OPEN (N.O.)
- R2–B — CONTACT, NORMALLY CLOSED (N.C.)
- SWITCH
- R — PILOT LIGHT (RED)
- H1 N — CONTROL CIRCUIT CONNECTION
- JB — 15 AMP, 115V JUNCTION BOX IN CEILING FOR ATC USE

DUCTWORK SYMBOLS

- DUCT WITH SOUND LINING
- MANUAL VOLUME DAMPER
- FIRE DAMPER
- BDD — BACK DRAFT DAMPER
- S — SMOKE DAMPER
- I — ISOLATION DAMPER
- M.O.D. — MOTOR OPERATED DAMPER
- S. DPR — N — SMOKE DAMPER
- MANUAL SPLITTER DAMPER
- A — AIR MEASURING STATION

DUCTWORK SYMBOLS (cont)

- STAINLESS STEEL DUCT
- OR — DOUBLE WALL CASING PANEL
- 45° SUPPLY — STANDARD BRANCH SUPPLY OR RETURN, NO SPLITTER (45° TAP)
- 45° RETURN
- DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
- DUCT MOUNTED COIL (ELECTRIC)
- UP DN — SUPPLY DUCT
- UP DN — RETURN DUCT
- UP DN — EXHAUST DUCT
- CEILING DIFFUSERS
- SUPPLY TOP REGISTER OR GRILLE (WALL TYPE)
- RETURN CEILING REGISTER OR GRILLE
- EXHAUST CEILING REGISTER OR GRILLE
- EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE (WALL TYPE)
- EXHAUST OR RETURN REGISTER OR TOP GRILLE (WALL TYPE)
- VANED ELBOW & AIR SPLIT TYPE DUCT TAKE–OFF
- CONNECT NEW DUCT TO EXISTING DUCT
- R — INCLINED RISE, IN DIRECTION OF AIR FLOW
- D — INCLINED DROP, IN DIRECTION OF AIR FLOW
- LIMIT OF DEMOLITION
- FC — FLEXIBLE CONNECTION
- VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
- STANDARD RADIUS ELBOW
- 10x8 — NEW DUCT (WIDTH x DEPTH)
- EXISTING DUCT TO REMAIN
- EXISTING DUCT TO BE REMOVED
- LOUVER (LOUVER SPECIFIED IN ARCHITECTURAL SECTION.)
- FLEXIBLE DUCTWORK

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