

1 ABBREVIATIONS
NO SCALE

ACS	AUTOMATIC CONTROL SYSTEM
AF	ABOVE FINISHED FLOOR
AFMS	AIRFLOW MEASURING STATION
AG	AIR GAP FITTING
AIU	AIR HANDLING UNIT
ALT	ALTERNATE
AP	ACCESS PANEL(S)
APD	AIR PRESSURE DROP
ARCH	ARCHITECTURAL
ATU	AIR TERMINAL UNIT
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BSMT	BASEMENT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACK WATER VALVE
CFM	CUBIC FOOT PER HOUR
CFM	CUBIC FOOT PER MINUTE
CFP	CAST IRON PIPE
CLC	CLEAN OUT
CO	CLEAN OUT
COMB	COMBINATION
CONC	CONCRETE
COND	CONDENSATE (ER)
CONN	CONNECTION
CONT	CONTINUE (OUS) (ATION)
CONTR	CONTRACTOR
CORR	CORRIDOR
DA	DIALYSIS ACID
DDC	DIRECT DIGITAL CONTROL (PANEL)
DEG	DEGREE(S)
DET	DETAL
D	DISTILLED WATER
DIFF	DIFFUSER
DMFR	DAMPEN
DN	DOWN
DW	DIALYSIS WATER
DWG(S)	DRAWING(S)
EA	EACH
EA	EXHAUST AIR
ELEC	ELECTRICAL
EMER	EMERGENCY
EXG	EXISTING
EXH	EXHAUST
EJ	EXPANSION JOINT
EXT	EXTERIOR
F	FIRE DEPARTMENT VALVE
FDV	FUNNEL FLOOR DRAIN
FTE	FINISHED FLOOR ELEVATION
FLEX	FLEXIBLE
FLR	FLOOR
FPM	FEET PER MINUTE
FAT	FLOW AND THERMOSTATIC (TRAP)
FT	FOOT, FEET
FTC	FOOTING
FTR	FINNED TUBE RADIATION
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERATOR
GENL	GENERAL
GPM	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRL	GRILLE
HB	HOSE BIB
HP	HIGH PRESSURE
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
HV	HOSE VALVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
ID	INSIDE DIAMETER/DIMENSION
IN	INCH(ES)
INSUL	INSULATION
INV	INVERT
LEST/HR	LEAKS PER HOUR
LF	LINEAL FOOT, FEET
LVR	LOUVER
MAX	MAXIMUM
MBM	1000 BTUH
MCC	MOTOR CONTROL CENTER
MCH	MECHANICAL(LT)
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MIN	MINUTE
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER/DIMENSION
PD	PRESSURE DROP
PLBG	PLUMBING
PRES	PRESSURE
PSI	POUNDS PER SQUARE INCH
PKC	POLYVINYL CHLORIDE
R	RADIUS
RA	RETURN AIR
REG	REGISTER
REQD	REQUIRED
RH	RELATIVE HUMIDITY
RM	ROOM
RO	REVERSE OSMOSIS
REV	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SHT	SHEET
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
STRUC	STRUCTURE(L) (AL)
T	THERMOSTAT
TEMP	TEMPERATURE
TMV	THERMOSTATIC MIXING VALVE
TPV	TYPICAL
VAV	VARIABLE AIR VOLUME
VENT	VENTILATION OR VENTILATOR
VB	VERTICAL
VIB	VIBRATION
VOL	VOLUME
VOL	VOLUME ISOLATION
VS	VENT STACK
VSD	VARIABLE SPEED DRIVE (MOTOR CONTROLLER)
VR	VENT THROUGH ROOF
W	WASTE
W	WITH
W/O	WITHOUT
WH	WALL HYDRANT
WS	WASTE STACK
WTR	WATER

2 DUCTWORK DESIGNATIONS AND SYMBOLS
NO SCALE

24x12	RECTANGULAR SIZE FIRST DIMENSION SIDE SHOWN
24x12@	FLAT OVAL SIZE FIRST DIMENSION SIDE SHOWN
12@	ROUND SIZE
CONCENTRIC TRANSITION RECTANGULAR, ROUND OR OVAL	
ECCENTRIC TRANSITION RECTANGULAR, ROUND OR OVAL	
INCLINED RISE WITH RESPECT TO AIRFLOW RECTANGULAR, ROUND OR OVAL	
INCLINED DROP WITH RESPECT TO AIRFLOW RECTANGULAR, ROUND OR OVAL	
ELBOW UP, RECTANGULAR SUPPLY OR OUTSIDE AIR	
ELBOW DOWN, RECTANGULAR SUPPLY OR OUTSIDE AIR	
ELBOW UP, RECTANGULAR RETURN, RELIEF OR EXHAUST	
ELBOW DOWN, RECTANGULAR RETURN, RELIEF OR EXHAUST	
ELBOW UP, ROUND (FLAT OVAL SIMILAR)	
ELBOW DOWN, ROUND (FLAT OVAL SIMILAR)	
SQUARE ELBOW W/ TURNING VANES, RECTANGULAR	
SMOOTH RADIUS ELBOW RECTANGULAR, ROUND OR FLAT OVAL	
DIVIDED FLOW FITTING, RECTANGULAR BRANCH AIRFLOW AT LEAST 25% OF MAIN	
TAP-IN BRANCH W/ VOLUME DAMPER RECTANGULAR MAIN AND BRANCH	
SPIN-IN STRAIGHT TAP W/ VOLUME DAMPER RECTANGULAR MAIN, ROUND OR FLAT OVAL BRANCH	
SPIN-IN CONICAL TAP W/ VOLUME DAMPER RECTANGULAR MAIN, ROUND OR FLAT OVAL BRANCH	
BRANCH, CONICAL LATERAL FITTING W/ VOLUME DAMPER ROUND OR FLAT OVAL MAIN AND BRANCH	
BRANCH, CONICAL TEE FITTING WITH VOLUME DAMPER ROUND OR FLAT OVAL MAIN AND BRANCH	
FLEXIBLE CONNECTION TO EQUIPMENT	
ROUND FLEXIBLE DUCT	
DUCT WITH LINER	
DUCT WITH FIRE WRAP	
VOLUME DAMPER	
BACKDRAFT DAMPER	
MOTORIZED DAMPER	
SMOKE DAMPER	
FIRE DAMPER	
SMOKE/FIRE DAMPER	

3 DOUBLELINE DUCTWORK SYMBOLS
NO SCALE

24x12	RECTANGULAR SIZE FIRST DIMENSION SIDE SHOWN
24x12@	FLAT OVAL SIZE FIRST DIMENSION SIDE SHOWN
12@	ROUND SIZE
CONCENTRIC TRANSITION RECTANGULAR, ROUND OR OVAL	
ECCENTRIC TRANSITION RECTANGULAR, ROUND OR OVAL	
TRANSITION, RECTANGULAR TO ROUND OR OVAL	
INCLINED RISE WITH RESPECT TO AIRFLOW RECTANGULAR, ROUND OR OVAL	
INCLINED DROP WITH RESPECT TO AIRFLOW RECTANGULAR, ROUND OR OVAL	
ELBOW UP, RECTANGULAR SUPPLY OR OUTSIDE AIR	
ELBOW DOWN, RECTANGULAR SUPPLY OR OUTSIDE AIR	
ELBOW UP, RECTANGULAR RETURN, RELIEF OR EXHAUST	
ELBOW DOWN, RECTANGULAR RETURN, RELIEF OR EXHAUST	
ELBOW UP, ROUND (FLAT OVAL SIMILAR)	
ELBOW DOWN, ROUND (FLAT OVAL SIMILAR)	
SQUARE ELBOW W/ TURNING VANES, RECTANGULAR	
SMOOTH RADIUS ELBOW WITH SPLITTER VANES RECTANGULAR	
SMOOTH RADIUS ELBOW, RECTANGULAR	
ELBOW, ROUND OR FLAT OVAL	
DIVIDED FLOW FITTING, RECTANGULAR BRANCH AIRFLOW AT LEAST 25% OF MAIN	
TAP-IN BRANCH W/ VOLUME DAMPER RECTANGULAR MAIN AND BRANCH	
SPIN-IN STRAIGHT TAP W/ VOLUME DAMPER RECTANGULAR MAIN, ROUND OR FLAT OVAL BRANCH	
SPIN-IN CONICAL TAP W/ VOLUME DAMPER RECTANGULAR MAIN, ROUND OR FLAT OVAL BRANCH	
BRANCH, CONICAL LATERAL FITTING W/ VOLUME DAMPER ROUND OR FLAT OVAL MAIN AND BRANCH	
BRANCH, CONICAL TEE FITTING WITH VOLUME DAMPER ROUND OR FLAT OVAL MAIN AND BRANCH	
FLEXIBLE CONNECTION TO EQUIPMENT	
DUCT WITH LINER	
DUCT WITH FIRE WRAP	
VOLUME DAMPER	
BACKDRAFT DAMPER	
MOTORIZED DAMPER	
SMOKE DAMPER	
FIRE DAMPER	
SMOKE/FIRE DAMPER	

4 GENERAL SYMBOLS
NO SCALE

CONNECT TO EXISTING	
KEY NOTE	
REVISION TRIANGLE	
DATUM	
BREAK SYMBOL	
DOMESTIC WATER RISER	
WASTE RISER	
VARIABLE AIR VOLUME TERMINAL UNIT SHOWN WITH REQUIRED 3 DIAMETERS OF INLET DUCT	
VARIABLE AIR VOLUME TERMINAL UNIT WITH HEATING COIL SHOWN WITH REQUIRED 3 DIAMETERS OF INLET DUCT	
FAN-POWERED VARIABLE AIR VOLUME TERMINAL UNIT SHOWN WITH REQUIRED 3 DIAMETERS OF INLET DUCT AND LINED PLENUM RETURN DUCT	
FAN-POWERED VARIABLE AIR VOLUME TERMINAL UNIT WITH HEATING COIL SHOWN WITH REQUIRED 3 DIAMETERS OF INLET DUCT AND LINED PLENUM RETURN DUCT	
DUCT-MOUNTED COIL	
CEILING SUPPLY AIR DIFFUSER WITH BLANK OFF	
ROUND SUPPLY AIR DIFFUSER WITH ROUND NECK	
CEILING RETURN OR EXHAUST AIR GRILLE/REGISTER	
LINEAR SLOT SUPPLY AIR DIFFUSER OR RETURN AIR GRILLE/REGISTER	
SIDEWALL SUPPLY AIR OR RETURN AIR GRILLE/REGISTER	
SUPPLY OR OUTSIDE AIRFLOW DIRECTION ARROW	
RETURN, RELIEF OR TRANSFER AIRFLOW DIRECTION ARROW	
DEMOLISH EXISTING DUCT, PIPE OR EQUIPMENT INCLUDING SUPPORTS, ACCESSORIES AND RELATED CONTROLS AND COMPONENTS	
EXHAUST AIR DUCT UP TO EXHAUST FAN ON ROOF	
RELIEF AIR OR EXHAUST AIR DUCT UP TO ROOF VENT	
OUTSIDE AIR OR SUPPLY AIR DUCT UP TO ROOF VENT	
THERMOSTAT	
TEMPERATURE SENSOR	
HUMIDISTAT / HUMIDITY SENSOR	
UNIT HEATER (VERTICAL)	
UNIT HEATER (HORIZONTAL)	
UNIT HEATER (CABINET)	
FAN COIL UNIT (HORIZONTAL)	
FAN COIL UNIT (VERTICAL)	
FINNED TUBE RADIATION OR CONVECTOR	
TYPE OF RADIATION AS SHOWN ON THE SCHEDULE CAPACITY OF ACTIVE LENGTH OF RADIATION	
PUMP	
FAN	
QUANTITY (OF MORE THAN ONE)	
TYPE	
NECK OR CONNECTION SIZE	
AIR VOLUME (EACH)	
FLOOR/AREA	
AIR TERMINAL UNIT	
UNIT NUMBER	
SECTION NUMBER	
SHEET LOCATION	

5 PIPING DESIGNATIONS
NO SCALE

F	FIRE PROTECTION PIPING
D	DRAIN PIPING
UP	UPRIGHT SPRINKLERS
PD	PENDANT SPRINKLERS
RS	RECESSED SPRINKLERS
SD	FLUSH CONCEALED SPRINKLERS
SS	SIDEWALL SPRINKLERS
FDV	FIRE DEPARTMENT VALVE
FS	FLOW SWITCH
ST	STANDPIPE
ISV	INSPECTOR'S VALVE
SV	SUPERVISOR VALVE
DCV	DOUBLE DETECTOR CHECK VALVE
CV	CHECK VALVE W/ BALL DRIP
FDV	FIRE DEPARTMENT CONNECTION
FPV	FIRE PUMP TEST CONNECTION
DPV	DRY PIPE VALVE
PV	PREACTION VALVE
FS	FLOW SWITCH

6 PIPING SYMBOLS
NO SCALE

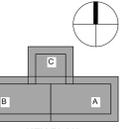
MV	MEDICAL VACUUM
MA	MEDICAL COMPRESSED AIR
O2	OXYGEN
N2	NITROGEN
N2O	NITROUS OXIDE
WAGD	WASTE ANESTHETIC GAS DISPOSAL
CO2	CARBON DIOXIDE
+	MEDICAL VACUUM OUTLET
-	MEDICAL COMPRESSED AIR OUTLET
+	OXYGEN OUTLET
-	NITROGEN
+	NITROUS OXIDE
-	WASTE GAS
+	CARBON DIOXIDE
ZVB	ZONE VALVE BOX
AAP	AREA ALARM PANEL
MAP	MASTER ALARM PANEL

7 FIRE PROTECTION DESIGNATIONS AND SYMBOLS
NO SCALE

F	FIRE PROTECTION PIPING
D	DRAIN PIPING
UP	UPRIGHT SPRINKLERS
PD	PENDANT SPRINKLERS
RS	RECESSED SPRINKLERS
SD	FLUSH CONCEALED SPRINKLERS
SS	SIDEWALL SPRINKLERS
FDV	FIRE DEPARTMENT VALVE
FS	FLOW SWITCH
ST	STANDPIPE
ISV	INSPECTOR'S VALVE
SV	SUPERVISOR VALVE
DCV	DOUBLE DETECTOR CHECK VALVE
CV	CHECK VALVE W/ BALL DRIP
FDV	FIRE DEPARTMENT CONNECTION
FPV	FIRE PUMP TEST CONNECTION
DPV	DRY PIPE VALVE
PV	PREACTION VALVE
FS	FLOW SWITCH

8 MEDICAL GAS DESIGNATIONS AND SYMBOLS
NO SCALE

MV	MEDICAL VACUUM
MA	MEDICAL COMPRESSED AIR
O2	OXYGEN
N2	NITROGEN
N2O	NITROUS OXIDE
WAGD	WASTE ANESTHETIC GAS DISPOSAL
CO2	CARBON DIOXIDE
+	MEDICAL VACUUM OUTLET
-	MEDICAL COMPRESSED AIR OUTLET
+	OXYGEN OUTLET
-	NITROGEN
+	NITROUS OXIDE
-	WASTE GAS
+	CARBON DIOXIDE
ZVB	ZONE VALVE BOX
AAP	AREA ALARM PANEL
MAP	MASTER ALARM PANEL



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