

# SYMBOLS

PIPING	
	DIRECTION OF FLOW
	UNION
	FLANGE CONNECTION
	CAP
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	PIPE REDUCER
	PIPE GUIDE
	PIPE ANCHOR
	EXPANSION JOINT
	SHUT-OFF VALVE
	CHECK VALVE
	BALANCING VALVE WITH PRESSURE PORTS
	TRIPLE DUTY VALVE
	STRAINER
	STRAINER WITH BLOWOFF
	RELIEF/SAFETY VALVE
	MANUAL AIR VENT
	SOLENOID VALVE
	THREE-WAY CONTROL VALVE
	TWO-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	PRESSURE GAUGE
	THERMOMETER
	BACKFLOW PREVENTER
	AIR OUTLET
	OXYGEN OUTLET
	VACUUM OUTLET
	NITROGEN OUTLET
	NITROUS OXIDE OUTLET
	FLOOR SINK
	FLOOR DRAIN
	ROOF DRAIN
	HOSE BIBB
	FLOOR/GRADE CLEANOUT
	WALL CLEANOUT
	END OF LINE CLEANOUT

PLUMBING	
	WASTE LINE-ABOVE GRADE
	GREASE WASTE LINE-ABOVE GRADE
	WASTE LINE-BELOW GRADE
	VENT LINE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC TEMPERED HOT WATER
	DOMESTIC HOT WATER RECIRC.
	140 DEGREE DOMESTIC HOT WATER
	VENT THROUGH ROOF NOTE

FIRE PROTECTION	
	SPRINKLER HEAT (PENDANT)
	SPRINKLER HEAD (SIDEWALL)
	SPRINKLER HEAD (UPRIGHT)
	FIRE PROTECTION PIPING
	SIAMESE CONNECTION

DUCTWORK	
	EQUIPMENT TYPE AND NUMBER
	PUMP
	LINEAR SLOT DIFFUSER
	FLEXIBLE DUCT
	NEGATIVE PRESSURE AIR DUCT UP
	NEGATIVE PRESSURE AIR DUCT DOWN
	POSITIVE PRESSURE AIR DUCT UP
	POSITIVE PRESSURE AIR DUCT DOWN
	DUCT RISE OR DROP IN THE DIRECTION OF AIRFLOW
	SQUARE TO ROUND TRANSITION
	ROUND DUCT UP, DOWN
	ELBOW WITH TURNING VANES
	FLEXIBLE CONNECTION
	MANUAL BALANCE DAMPER
	MOTORIZED CONTROL DAMPER
	FIRE DAMPER
	SMOKE DAMPER
	FIRE/SMOKE DAMPER
	SPIN-IN BRANCH DUCT CONNECTOR WITH DAMPER IF SHOWN
	HIGH EFFICIENCY BRANCH DUCT CONNECTOR WITH DAMPER IF SHOWN
	SUPPLY AIR DIFFUSER
	DUCT MOUNTED GRILLE/WALL GRILLE
	RETURN GRILLE
	NOISE REDUCING RETURN AIR TRANSFER
	SUPPLY DIFFUSER - THREE-WAY THROW
	DIFFUSER, GRILLE, OR REGISTER TYPE
	CFM
	CONNECTION SIZE

TEMPERATURE CONTROLS	
	TEMPERATURE SENSOR/THERMOSTAT
	HUMIDITY SENSOR/HUMIDISTAT
	REMOTE TEMPERATURE SENSOR
	REMOTE HUMIDITY SENSOR
	CARBON DIOXIDE SENSOR
	OCCUPANCY SENSOR
	CARBON MONOXIDE SENSOR
	STATIC PRESSURE SENSOR
	DIFFERENTIAL PRESSURE TRANSMITTER
	FLOW METER

LIGHTING	
	LIGHT TRACK WITH LIGHT TYPES AS INDICATED
	WALL WASHER LIGHTING FIXTURE, ARROW INDICATES DIRECTION
	FLUORESCENT FIXTURE AND TYPE
	EMERGENCY LIGHT FIXTURE
	NIGHT LIGHT FIXTURE
	LIGHT FIXTURE AND TYPE
	WALL MOUNTED FIXTURE
	WALL SCONCE
	WALL MOUNTED FIXTURE
	POLE MOUNTED LIGHT (NUMBER OF HEADS AS SHOWN)
	TENON MOUNTED POLE LIGHT
	IN-GROUND LIGHT FIXTURE
	BOLLARD LIGHT FIXTURE
	EXIT LIGHT CLG. MNTD. (SGL. FACE)
	EXIT LIGHT CLG. MNTD. (DBL. FACE)
	EXIT/EMERGENCY LIGHT
	EMERGENCY LIGHT
	CEILING FAN
	LIGHT POLE WITH 1000 WATT FLOODS AND 250 WATT SECURITY FLOODS (QUANTITY TO MATCH PLANS AND SCHEDULE)

POWER EQUIPMENT	
	ELECTRICAL DISTRIBUTION PANEL, SWITCHBOARD, OR MOTOR CONTROL
	PANEL BOARD
	LOAD CENTER
	METER
	J-BOX
	MOTOR
	VARIABLE FREQUENCY DRIVE WITH DISCONNECT
	DISCONNECT SWITCH
	COMBINATION DISCONNECT SWITCH AND MOTOR STARTER
	MAGNETIC MOTOR STARTER OR DECK RECEPTACLE AS NOTED ON PLANS
	VARIABLE FREQUENCY DRIVE
	BELL
	HOME RUN
	SHARED CIRCUIT
	CONCEALED CONDUIT
	CONDUIT BELOW SLAB
	LOW VOLTAGE CABLE
	ONE HOT, ONE NEUTRAL, AND ONE GROUND IN CONCEALED CONDUIT (#12 IN 1/2" C. U.N.O.)
#14's (wire number indicated) symbol"/>	#14'S (WIRE NUMBER INDICATED)
#16's (wire number indicated) symbol"/>	#16'S (WIRE NUMBER INDICATED)
	EXPOSED CONDUIT
	CONDUIT TURNING DOWN
	CONDUIT TURNING UP
	BARE COPPER BONDING LOOP

WIRING DEVICES & OUTLETS	
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	GROUND FAULT INTERRUPTER
	WEATHERPROOF DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
	QUAD RECEPTACLE
	HEAVY DUTY RECEPTACLE-NEMA TYPE AS NOTED
	FLOOR MOUNTED DEVICE
	CEILING MOUNTED DEVICE
	ISOLATED GROUND DUPLEX RECEPTACLE
	ISOLATED GROUND QUAD RECEPTACLE
	WALL MOUNTED PHONE
	CENTER OF DEVICE AT 48" A.F.F.
	DATA OUTLET
	TELEPHONE/DATA OUTLET
	CABLE T.V. OUTLET
	CABLE TRAY
	SURFACE RACEWAY
	SWITCH, SPST U.N.O.
	SWITCH, DPST
	FUSESTAT
	3-WAY SWITCH
	4-WAY SWITCH
	DIMMER SWITCH
	JAMB SWITCH
	MOTOR RATED SWITCH
	SWITCH WITH WEATHERPROOF COVER
	KEYED SWITCH
	TIME SWITCH
	PUSH BUTTON
	PHOTOCELL SWITCH
	MOTION SENSOR
	OCCUPANCY SENSOR & TAG
	POWER PACK

FIRE ALARM	
	FIRE ALARM CONTROL PANEL
	ANNUNCIATOR PANEL
	FIRE ALARM POWER EXTENDER
	PULL STATION
	KNOX BOX
	CONTROL RELAY
	SIGNAL ZONE ADDRESSABLE MODULE
	CONTROL ZONE ADDRESSABLE MODULE
	MONITOR ZONE ADDRESSABLE MODULE
	SINGLE STATION SMOKE DETECTOR
	SMOKE DETECTOR (SUP. RELAY BASE)
	SYSTEM SMOKE DETECTOR
	BEAM DETECTOR
	HEAT/THERMAL DETECTOR
	DUCT SMOKE DETECTOR
	INDIVIDUAL ADDRESSABLE MONITOR
	MAGNETIC DOOR HOLD
	HORN/STROBE
	STROBE
	SPEAKER/STROBE
	SPEAKER
	HORN
	VALVE TAMPER SWITCH
	FLOW SWITCH
	END OF LINE RESISTOR
	POST INDICATING VALVE
	FIRE ALARM BELL
	FIREMAN'S PHONE JACK
	SECURITY GUARD FOR DEVICE SHOWN

COMMUNICATIONS	
	SPEAKER HORN-PROJECTION TYPE
	SPEAKER
	VOLUME CONTROL (TOP 48" AFF)
	MICROPHONE JACK (TOP 18" AFF)
	COMBINATION SPEAKER/CLOCK
	SYSTEM CLOCK
	ELAPSED TIME CLOCK
	INTERCOM
	POWER SUPPLY
	AMPLIFIER

SECURITY	
	CLOSED CIRCUIT TELEVISION CAMERA
	ELECTRIC DOOR LOCK
	DOOR MONITOR
	CARD READER
	GLASS BREAK
	REQUEST TO EXIT BUTTON
	SECURITY MONITOR
	PANIC BUTTON (D=DESK, H=WALL, F=FLOOR)
	KEY PAD

# ABBREVIATIONS

A	AMPS: AIR (COMPRESSED)
A/C	AIR CONDITIONING
AF	AMPERE FUSE
AFC	ABOVE FINISHED CEILING
AFEA	AREA FOR EVACUATION ASSISTANCE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CURRENT
AL	ALUMINUM
APD	AIR PRESSURE DROP
ATS	AUTOMATIC TRANSFER SWITCH
AV	ACID VENT
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
BCU	BLOWER COIL UNIT
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BFF	BELOW FINISHED FLOOR
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTUH	BRITISH THERMAL UNITS PER HOUR
C	CONDUIT
CT	CURRENT TRANSFORMER
CAV	CABLE TELEVISION SYSTEM
CAY	CONSTANT AIR VOLUME
CCTV	CLOSED CIRCUIT TELEVISION
CD	CONDENSATE DRAIN
CF	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFM	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CO	CLEANOUT, CARBON MONOXIDE
CO2	CARBON DIOXIDE
CT	COOLING TOWER
CTR	COOLING TOWER RETURN
CS	COOLING TOWER SUPPLY
CU	COPPER CONDENSING UNIT
CU	CABINET UNIT HEATER
CW	COLD WATER
CNR	CHILLED WATER RETURN
CNS	CHILLED WATER SUPPLY
D	DRAIN
DDC	DIRECT DIGITAL CONTROL
DFU	DRAINAGE FIXTURE UNITS
DN	DOWN
DOT	DOUBLE-POLE DOUBLE-THROW
DPST	DOUBLE-POLE, SINGLE-THROW
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
E/C	ELECTRICAL CONTRACTOR
EB	ENTERING DRY BULB
EF	EXHAUST FAN
EJ	EXPANSION JOINT
ESP	EARLY SUPPRESSION FAST RESPONSE
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EW	ELECTRIC WATER COOLER
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FCD	FLOOR CLEANOUT
FCU	FAN COOL UNIT
FF	FIRE DAMPER FLOOR DRAIN
FF	FINISHED FLOOR
FfCO	FINISHED GRADE CLEANOUT
FL	FLOW LINE
FLA	FILL LOAD AMPS
F/C	FIRE PROTECTION CONTRACTOR
FU	FAN TERMINAL UNIT
FVNR	FULL VOLTAGE, NON-REVERSING
G	NATURAL GAS
G/C	GENERAL CONTRACTOR
GND	GROUND FAULT INTERRUPTER
GND	GROUND
GPM	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GN	GREASE WASTE
HB	HOSE BIBB
HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HD	HEAD, HUB DRAIN
HOA	HAND-OFF-AUTOMATIC
HP	HEAT PUMP
HPC	HIGH PRESSURE CONDENSATE
HPR	HEAT PUMP RETURN
HPS	HEAT PUMP SUPPLY, HIGH PRESSURE STEAM, HIGH PRESSURE SODIUM
HSTAT	HUMIDISTAT
HTG	HEATING
HTR	HEATER
HNR	HOT WATER RETURN
HNS	HOT WATER SUPPLY
ID	INSIDE DIAMETER
IE	INFEET ELEVATION
IG	ISOLATED GROUND
IN, INC	INCHES OF WATER COLUMN INCANDESCENT
kcmil	1000 CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPS
KVAR	KILOVOLT-AMPS REACTIVE
KWH	KILOWATT
KWH	KILOWATT-HOUR
L	LAVATORY
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LP	LOW PRESSURE
LPC	LOW PRESSURE STEAM CONDENSATE
LPG	LIQUIFIED PETROLEUM GAS (PROPANE)
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MBH	1000 BTU PER HOUR
M/C	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCM	1000 CIRCULAR MILS
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MAIN LINES ONLY
MLO	MANHOLES/METAL HALIDE
MPC	MEDIUM PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
MS	MOTOR STARTER
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MAU	MAKE-UP AIR UNIT
N	NITROGEN
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NFPH	NON-FREEZE WALL HYDRANT
NG	NOT IN CONTRACT
NO	NITROUS OXIDE
NO	NORMALLY OPEN, NORMALLY CLOSED
NO NC	

O	OXYGEN
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OCFI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFD	OVERFLOW ROOF DRAIN
PA	PIPE ANCHOR
PCNR	PRIMARY CHILLED WATER RETURN
PCNS	PRIMARY CHILLED WATER SUPPLY
PCR	PUMPED CONDENSATE RETURN
PD	PRESSURE DROP (FEET OF WATER)
PH	PHASE
PHNR	PRIMARY HEATING WATER RETURN
PHNS	PRIMARY HEATING WATER SUPPLY
PNL	PANEL
PRV	PRESSURE REDUCING VALVE
PS	PULSE START
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH-ABSOLUTE
PSIG	POUNDS PER SQUARE INCH-GAUGE
PT	POTENTIAL TRANSFORMER
QTY	QUANTITY
R	REFRIGERANT
RA	RETURN AIR
RC	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REV	REVISION
RFAN	RETURN FAN
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
S	SINK, STEAM
SA	SUPPLY AIR
SAN	SANITARY SEWER
SCNR	SECONDARY CHILLED WATER RETURN
SCNS	SECONDARY CHILLED WATER SUPPLY
SD	SMOKE DAMPER, STORM DRAIN
SD	SUPPLY FAN
SHNR	SECONDARY HEATING WATER RETURN
SHNS	SECONDARY HEATING WATER SUPPLY
SPST	SINGLE-POLE SINGLE-THROW
SP	STATIC PRESSURE
SQFT	SQUARE FEET/SQUARE FEET
START/STOP	START/STOP
SS	SERVICE SINK, STAINLESS STEEL
ST	STORM DRAIN, SOUND TRAP, STEAM TRAP
STC	SOUND TRANSMISSION CLASS
STM	STEAM
SW	SOFT WATER
SWBD	SWITCHBOARD
T	TEMPERED WATER
TG	TEMPERATURE GAUGE
TDH	TOTAL DYNAMIC HEAD
TSP	TOTAL STATIC PRESSURE
TH	THERMOSTAT
TSTAT	TRISTAT
TU	TERMINAL UNIT
TR	TEMPERED WATER RETURN
UF	UNDER FLOOR
UG	UNDER GROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VACUUM
VAC	VOLTS ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VCP	VITRIFIED CLAY PIPE
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WATER SERVICE, MATTS
WB	WET BULB
NCO	WALL CLEANOUT
WC	WATER COLUMN, WATER CLOSET
WH	WALL HYDRANT
WPD	WATER PRESSURE DROP
WP	WEATHERPROOF
WT	WATERTIGHT, WEIGHT
XPNR	TRANSFORMER
XP	EXPLOSION-FROOF

GENERAL	
	HEAVY LINEWEIGHT INDICATES NEW WORK
	CONNECT NEXT TO EXISTING LIGHT AND SCREENED LINEWEIGHT INDICATES EXISTING-TO-REMAIN
	DARK AND DASHED LINEWEIGHT INDICATES DEMOLITION WHEN SHOWN ON DEMOLITION PLAN OR NOTED
	CONSTRUCTION NUMBER
	REVISION NUMBER
	SECTION CUT THROUGH DRAWING