

# ELECTRICAL SYMBOLS AND ABBREVIATIONS

(SOME SYMBOLS MAY NOT BE APPLICABLE TO THIS PROJECT)

## GENERAL

	MOTOR
	CONTROLLER TO BE FURNISHED UNDER DIVISION 15 AND INSTALLED UNDER DIVISION 16
	COMBINATION CONTROLLER, DISCONNECT FURNISHED UNDER DIVISION 15, INSTALLED BY DIVISION 16.
	DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
	COMBINATION MOTOR STARTER/DISCONNECT SWITCH
	GROUNDING REFERENCE POINT (GROUNDING STRAP OR BRAID).
	JUNCTION BOX, CEILING MOUNTED
	JUNCTION BOX, WALL MOUNTED
	PHOTO CELL
	RELAY
	TIME CLOCK
	CONTACTOR
	BELL
	BUZZER
	CEILING MOUNTED CLOCK
	WALL MOUNTED CLOCK
	WALL MOUNTED DOUBLE FACE CLOCK—HEIGHT AS DESIGNATED BY ARCHITECT
	HORN
	TRANSFORMER AS INDICATED
	AUTOMATIC TRANSFER SWITCH
	EQUIPMENT CONNECTION
	KEYED NOTE NO. 2
	MECHANICAL EQUIPMENT DESIGNATION. REFER TO MECHANICAL EQUIPMENT SCHEDULES.

## LUMINAIRES

	FLUORESCENT FIXTURE, CEILING OR WALL MOUNTED. SUBSCRIPT INDICATES ASSOCIATED SWITCHING. CAPITAL LETTER INDICATES FIXTURE TYPE.
	"S" INDICATES SLAVE FIXTURE WITH NO BALLAST ASSEMBLY.
	INCANDESCENT OR H.I.D. FIXTURE CEILING MOUNTED
	INCANDESCENT OR H.I.D. FIXTURE WALL MOUNTED
	INCANDESCENT OR H.I.D. WALLWASH FIXTURE CEILING MOUNTED. ARROW INDICATES DIRECTION OF WASH
	EXIT LIGHT, CEILING MOUNTED WITH ARROWS AS INDICATED ON DRAWINGS
	EXIT LIGHT, WALL MOUNTED WITH ARROWS AS INDICATED ON DRAWINGS
	FIXTURE CONNECTED WITH ONE BALLAST CONNECTED TO BATTERY BACK UP. DUAL-LITE #UFO-2EI, SELF-DIAGNOSTIC, 900 LUMENS. BATTERY UNIT IS CONNECTED WITH UNSWITCHED PHASE CONDUCTOR
	EMERGENCY LIGHT, BATTERY TYPE WITH CHARGER
	REMOTE MOUNTED EMERGENCY LIGHT, CONNECTED TO BATTERY WITH CHARGER
	SYMBOL IDENTIFYING FIXTURE TYPE. ALL FIXTURES THIS ROOM ARE FIXTURE TYPE INDICATED INSIDE UNLESS INDIVIDUALLY MARKED
	POLE MOUNTED LUMINAIRE (AREA CUT OFF TYPE)
	FLOOD LIGHT. ARROW INDICATES AIMING DIRECTION.
	TRACK LIGHT WITH HEADS AS INDICATED

## RACEWAYS

	CONDUIT CONCEALED IN WALL OR CEILING WITH ONE PHASE, NEUTRAL AND GROUND CONDUCTOR UNLESS OTHERWISE NOTED
	CONDUIT UNDER FLOOR OR CAST IN STRUCTURE WITH ONE PHASE, NEUTRAL AND GROUND CONDUCTOR UNLESS OTHERWISE NOTED.
	SWITCH LEG
	BRANCH CIRCUIT HOMERUN SUBSCRIPT "P1A" INDICATES PANEL AND 2,4,6 INDICATES BREAKER POSITION. 3/4"C, 2#12 AND 1#12 GND. MIN.
	MULTI-OUTLET ASSEMBLY AS SPECIFIED.
	TELEPHONE/DATA/TELEVISION, AS REQUIRED.
	BUS DUCT WITH OVERCURRENT FEEDER DEVICE AS SPECIFIED.

## SYMBOLS PANEL AND RELATED ITEMS

	PANELBOARD (SEE SCHEDULE), SURFACE MOUNTED.
	PANELBOARD (SEE SCHEDULE), FLUSH MOUNTED.
	SWITCHBOARD OR DISTRIBUTION BOARD
	MOTOR CONTROL CENTER
	TRANSIENT VOLTAGE SURGE SUPPRESSOR.
	PLYWOOD TELEPHONE BACKBOARD

## OUTLETS

	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE GFI=GROUND FAULT INTERRUPTING WP=WEATHERPROOF
	DOUBLE DUPLEX (QUADRUPLEX) RECEPTACLE
	RED DUPLEX RECEPTACLE WITH RED COVERPLATE, FACTORY LABELED "EMERGENCY" AND CIRCUIT NUMBER.
	FLUSH FLOOR OUTLET, UNLESS OTHERWISE NOTED, WITH DUPLEX POWER, SINGLE DATA AND SINGLE TELEPHONE.
	SPECIAL PURPOSE OUTLET AS DESIGNATED
	CLOCK OUTLET MOUNTED AT 7"-6" AFF UNLESS NOTED
	TELEPHONE OUTLET IN WALL 18" AFF; 3/4"C. TO ABOVE ACCESSIBLE CEILING.
	FLOOR TELEPHONE OUTLET
	TELEVISION OUTLET
	PAYPHONE OUTLET IN WALL 30" AFF; 3/4"C. W/ PULL CORD TO TELEPHONE BOARD.
	DATA OUTLET IN WALL 18" AFF; 3/4"C. TO ABOVE ACCESSIBLE CEILING.

## SWITCHES

	SINGLE POLE SWITCH, LOWERCASE SUBSCRIPT INDICATES ASSOCIATED CIRCUITRY
	DOUBLE POLE SWITCH
	THREE-WAY SWITCH
	FOUR-WAY SWITCH
	KEY OPERATED SWITCH
	SWITCH WITH PILOT LIGHT IN HANDLE (ON LIGHTED UNLESS OTHERWISE NOTED)
	WEATHERPROOF SWITCH
	MANUAL MOTOR STARTER SWITCH (T=THERMAL OVERLOAD SIZED FOR MOTOR)
	INCANDESCENT DIMMER SWITCH WATTAGE RATING AS NOTED.
	DIMMER SWITCH FOR MR16 INCANDESCENT LIGHTS
	FLUORESCENT DIMMER SWITCH, NUMBER OF LAMPS AS NOTED.
	EXPLOSION PROOF SWITCH
	TIMER SWITCH
	MULTIPLE SWITCHES, GANGED.
	WALL SWITCH INFRARED (WATT STOPPER #WS277 OR EQUAL)
	PUSHBUTTON
	CEILING MOUNTED ULTRASONIC MOTION SENSOR.

## P.A./INTERCOM

	REMOTE INTERCOM STATION
	INTERCOM MASTER STATION
	SPEAKER, CEILING MOUNTED WITH BACKBOX AND GRILLE. SEE SPECIFICATIONS.
	SPEAKER, WALL MOUNTED.
	AMPLIFIER AND ASSOCIATED TUNERS, MIXERS, ETC., AS REQUIRED. REFER TO DETAILS AND SPECIFICATIONS.
	MICROPHONE JACK

## FIRE ALARM

	FIRE ALARM CONTROL PANEL
	REMOTE FIRE ALARM ANNUNCIATOR
	MANUAL PULL STATION 48" AFF
	SMOKE DETECTOR; DASHED INDICATES BELOW RAISED FLOOR
	SMOKE DETECTOR, DUCT MOUNTED
	TEST SWITCH/REMOTE STATUS INDICATOR
	HEAT DETECTOR
	FLOW SWITCH, FURNISHED UNDER DIV. 15 INSTALLED BY DIV. 16.
	TAMPER SWITCH, FURNISHED UNDER DIV. 15, INSTALLED BY DIV. 16.
	PRESSURE SWITCH, FURNISHED UNDER DIV. 15, INSTALLED BY DIV. 16.
	FIRE ALARM AUDIO-VISUAL ANNUNCIATOR, SUBSCRIPT INDICATES INTENSITY OF STROBE. 1=15 CANDELA, 3=30 CANDELA
	VISUAL ANNUNCIATOR, SUBSCRIPT INDICATES INTENSITY OF STROBE. 1=15 CANDELA, 3=30 CANDELA.
	MAGNETIC DOOR HOLDER
	FIRE FIGHTERS PHONE JACK

## SITE UTILITY

	MANHOLE NUMBER 1; CMH-INDICATES COMMUNICATIONS MANHOLE.
	PULLBOX OR HANDHOLE AS SPECIFIED ON DRAWINGS AND SPECIFICATIONS.
	POWER POLE WITH DOWN GUY
	POLE MOUNTED TRANSFORMERS
	TELEPHONE TERMINAL BOX
	AERIAL PRIMARY
	AERIAL SECONDARY
	AERIAL TELEPHONE; CATV = CABLE TELEVISION.
	UNDERGROUND PRIMARY
	UNDERGROUND SECONDARY
	UNDERGROUND TELEPHONE/COMMUNICATIONS

## SECURITY

	SECURITY PANEL
	DOOR CONTACT
	CCTV CAMERA WITH FIXED WIDE ANGLE LENS WALL MOUNTED TO SET CAMERA 6" BELOW CEILING.
	CCTV CAMERA; PT=PAN AND TILT; Z=ZOOM LENS
	EXTERIOR CAMERA IN WEATHERPROOF ENCLOSURE WITH ANTI-FOG HEATERS.
	DOOR LOCK
	CARD READER ACCESS
	DURESS PUSHBUTTON
	KEYPAD

## DISTRIBUTION

	MOLDED CASE CIRCUIT BREAKER
	DRAWOUT POWER CIRCUIT BREAKER AIR, VACUUM OR SF <sub>6</sub> AS SPECIFIED.
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	TRANSFORMER
	SHIELDED ISOLATION TRANSFORMER
	VOLTMETER
	AMMETER
	VOLTMETER SELECTOR SWITCH
	AMMETER SELECTOR SWITCH
	SHUNT TRIP
	CT AND METER

A	AMPERE(S)
AC	ABOVE COUNTER
A/C	AIR CONDITIONING
AIC	AMPERE INTERRUPTING CAPACITY
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
COND	CONDUCTOR
CPU	CENTRAL PROCESSING UNIT
CT	CURRENT TRANSFORMER
DCP	DATA COLLECTION PANEL
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DN	DOWN
DWGS	DRAWINGS
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
EQMT	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXP	EXPLOSION PROOF
EXTG	EXISTING
F/A	FIRE ALARM
FLUOR	FLUORESCENT
FN	FULL NEUTRAL
FT	FEET, FOOT
GALV	GALVANIZED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRD	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HOA	HAND OFF AUTOMATIC
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HZ	HERTZ
ID	INSIDE DIAMETER
IMC	INTERMEDIATE STEEL CONDUIT
IN	INCHES
INCD	INCANDESCENT
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAC	KILOVOLT AMPERE CAPACITIVE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LPS	LOW PRESSURE SODIUM
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER

## ABBREVIATIONS

MDP	MAIN DISTRIBUTION PANEL	TELE	TELEPHONE
MECH	MECHANICAL	TSTAT	THERMOSTAT
MFG	MANUFACTURER	TV	TELEVISION
MH	METAL HALIDE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
MIN	MINIMUM	UON	UNLESS OTHERWISE NOTED
MLO	MAIN LUGS ONLY	UPS	UNINTERRUPTABLE POWER SUPPLY
MSB	MAIN SWITCHBOARD	V	VOLT(S)
MTD	MOUNTED	VEND	VENDING
MTG	MOUNTING	VP	VAPOR PROOF
MV	MERCURY VAPOR	W	WIRE, WATT(S)
MW	MICROWAVE	WP	WEATHERPROOF
NA	NOT APPLICABLE	XFMR	TRANSFORMER
NC	NORMALLY CLOSED	XPD	TRANSPONDER
NF	NONFUSIBLE	Y	WYE
NL	NIGHT LIGHT	Z	IMPEDANCE
NO	NORMALLY OPEN	Δ	DELTA
OC	ON CENTER	1P	ONE POLE
OCF	OWNER FURNISHED CONTRACTOR INSTALLED	2P	TWO POLE
OH	OVERHEAD	3P	THREE POLE
P	POLE		
PA	PUBLIC ADDRESS		
PB	PUSHBUTTON		
PBX	PRIVATE BUILDING EXCHANGE		
PC	PULL CHAIN		
P/C	PHOTO CELL		
PDP	POWER DISTRIBUTION PANEL		
PH	PHASE		
PNL	PANELBOARD		
PVC	POLYVINYL CHLORIDE		
QTZ	QUARTZ		
PSI	POUNDS PER SQUARE INCH		
PWR	POWER		
REFR	REFRIGERATOR		
RGS	RIGID GALVANIZED STEEL		
RMC	RIGID METAL CONDUIT		
S	SECURITY		
SC	SPLIT CIRCUIT		
SCC	STATUS COMMAND CENTER		
SN	SOLID NEUTRAL		
SOFT	SQUARE FOOT		
SW	SWITCH		
SWBD	SWITCHBOARD		
TC	TIME CLOCK		

SYMBOL	DESCRIPTION	DATE	APPROVAL
REVISIONS			
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