ELECTRICAL SYMBOLS - DIAGRAM

- DELTA CONNECTION
- MOTOR, SINGLE–PHASE
- MOTOR, THREE–PHASE
- TRANSFORMER
- WYE CONNECTION
- EARTH GROUND
- JUNCTION BOX
- PULL BOX
- NORMALLY CLOSED RELAY CONTACT
- NORMALLY OPEN RELAY CONTACT
- FUSE WITH RATING
- MOLDED CASE CIRCUIT BREAKER
- LOW–VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
- SWITCH AND FUSE UNIT
- FUSED DRAWOUT POTENTIAL TRANSFORMER
- RELAY
  50 = INSTANTANEOUS OVERCURRENT OR RATE–OF–RISE
  51 = AC–TIME OVERCURRENT
  67 = AC–DIRECTIONAL OVERCURRENT
  86 LOCKING OUT
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, UNFUSED
- FUSIBLE LINK
- STARTER, COMBINATION WITH DISCONNECT SWITCH
- STARTER OR MOTOR CONTROLLER
- TIME CLOCK
- GENERATOR, POWER
- BATTERY
- CAPACITOR
- POTHEAD
- STRESS CONE
- LIGHTNING ARRESTOR
- RECTIFIER, CATHODIC PROTECTION SANITARY
- METER
- AMMETER
- VOLTMETER
- WATTMETER
- WATT–HOUR METER
- PANELBOARD
- CABLE AND CONDUIT TAG
  SEE SCHEDULE
- EQUIPMENT TAG
  SEE EQUIPMENT SCHEDULE

ELECTRICAL SYMBOLS - POWER PLAN

- MOTOR, SINGLE–PHASE
- MOTOR, THREE–PHASE
- TRANSFORMER, PLAN
- WYE CONNECTION
- EARTH GROUND
- POWER JUNCTION BOX
- DOUBLE GANG DEEP AUDIO/VISUAL JUNCTION BOX
- LADDER CABLE TRAY
- BRANCH CIRCUIT HOMERUN. LINES INDICATE NUMBER OF CIRCUITS, NEUTRAL, AND SWITCH LEG CONDUCTORS. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN
- PULL BOX
- WIREWAY
- RIGID CONDUIT LINE = RC
- DIRECT BURIAL CABLE = DB
- POWER DUCT = P
- SUBSTATION
- FLOOR OUTLET, DATA COMMUNICATION
- OUTLET, DATA COMMUNICATION
- PUSH BUTTON
- DISTRIBUTION PANEL
- LIGHTING PANEL
- PANELBOARD CABINET, FLUSH MOUNTED
- PANELBOARD CABINET, SURFACE MOUNTED
- RECEPTACLE, DUPLEX
- RECEPTACLE, DUPLEX ON EMERGENCY POWER
- RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER
- RECEPTACLE, QUADRAPLEX
- RECEPTACLE, SINGLE
- RECEPTACLE, SINGLE WITH SWITCH
- RECEPTACLE, SPECIAL PURPOSE
  A = 120V, 20A, 1 PHASE, 2–POLE, 3W, NEMA 5–20R.
  B = 208V, 20A, 1 PHASE, 2–POLE, 3W, NEMA 6–20R.
  C = 120V, 30A, 1 PHASE, 2–POLE, 3W, NEMA 5–30R.
  D = 208V, 30A, 1 PHASE, 2–POLE, 3W, NEMA 6–30R.
  E = 208V, 60A, 1 PHASE, 3–POLE, 4W, NEMA 14–60R.
  F = 208V, 30A, 3 PHASE, 3–POLE 4W, NEMA 15–30R.
  G = 208V, 50A, 3 PHASE, 3 POLE, 4W, NEMA 15–30R.
  H = 208V, 60A, 3 PHASE, 3 POLE, 4W, NEMA 15–60R.
- RECEPTACLE, SWITCHED DUPLEX
- DROP CORD, SINGLE CONVENIENCE OUTLET, 3–WIRE, GROUNDING TYPE, 20A, W/#12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'–6" [1981mm] AFF. MINIMUM).
- ELECTRICAL STRIP MOLD (OUTLETS ON 2'–0" [610mm] CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'–6" [1067mm] AFF OR AS INDICATED.
- 3–GANG COMPARTMENT BOX IN FLOOR FOR TELEPHONE, DATA & RECEPTACLE.
- RELAY; LETTER INDICATES RELAY TYPE
  50 = INSTANTANEOUS OVERCURRENT OR RATE–OF–RISE
  51 = AC–TIME OVERCURRENT
  67 = AC–DIRECTIONAL OVERCURRENT
  86 = LOCK OUT
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, UNFUSED
- STARTER, COMBINATION WITH DISCONNECT SWITCH
- STARTER OR MOTOR CONTROLLER
- VARIABLE FREQUENCY DRIVE
- TIME CLOCK
- CONDUIT TERMINATED 6" [152mm] AFF IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED.
- CONDUIT TERMINATED W/COUPLING (FLUSH W/FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTED.
- SWITCH
  F = FUSED SWITCH — K = KEY OPERATED
  L = LOCK — LM= LOW VOLTAGE MASTER
  M = MANUAL MOTOR STARTING — MC= MOMENTARY CONTACT
  MP= MOTOR SNAP WITH PILOT LIGHT — P = WITH PILOT LIGHT
  (THERMAL TYPE)
  PB= PUSH BUTTON STATION — RC= REMOTE CONTROL
  WP= WEATHER PROOF — X = EXPLOSION PROOF

ELECTRICAL SYMBOLS - LIGHTING PLAN

- SWITCH
  BLANK = SINGLE POLE — 2 = DOUBLE POLE
  3 = THREE–WAY — 4 = FOUR–WAY
  D = DOOR SWITCH
  DM= DIMMER — K = KEY OPERATED
  LV= LOW VOLTAGE — L = LOCK
  LM= LOW VOLTAGE MASTER — P = WITH PILOT LIGHT
  PB= PUSH BUTTON STATION — RC= REMOTE CONTROL
  T = TIMER OPERATED — WP= WEATHER PROOF
  X = EXPLOSION PROOF — Mo= OCCUPANCY SENSOR
- SWITCH, OCCUPANCY SENSOR REFER TO FIXTURE SCHEDULE FOR TYPE
- SWITCH, EXTERIOR PHOTO CELL FOR CONTROL OF EXTERIOR LIGHTING
- SWITCH, LAMP HOLDER POLE
- LIGHT FIXTURE RECESSED ROUND CEILING MOUNTED DOWNLIGHT
- LIGHT FIXTURE RECESSED SQUARE CEILING MOUNTED DOWNLIGHT
- LIGHT FIXTURE, RECESSED FLUORESCENT, 2'x4' [610x1220mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED FLUORESCENT, 1'x4' [305x1220mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED FLUORESCENT, 1'x8' [305x2439mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED FLUORESCENT, 2'x4' [610x1220mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED FLUORESCENT, 1'x4' [305x1220mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED FLUORESCENT, 1'x8' [305x2439mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, FLUORESCENT EMERGENCY; LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED FLUORESCENT, 2'x2' [610x610mm]; LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED FLUORESCENT, 2'x2' [610x610mm]; LETTER INDICATES TYPE.
- LIGHT TRACK WITH HEADS AS SHOWN
- LIGHT FIXTURE, STRIP/INDUSTRIAL FLUORESCENT; LETTER INDICATES TYPE.
- LIGHT FIXTURE, WALL MOUNTED
- LIGHTING, UNDERCABINET LIGHT/COVE LIGHT
- LIGHTING, STEP LIGHT
- LIGHTING, ONE HEAD EMERGENCY BATTERY POWER
- LIGHTING, TWO HEAD EMERGENCY BATTERY POWER
- LIGHTING, THREE HEAD EMERGENCY BATTERY POWER
- STREET LIGHT WITH BRACKET
- LIGHT POLE, ONE MAST ARM, ONE LUMINAIRE
- LIGHT POLE, TWO MAST ARMS, TWO LUMINAIRES
- LIGHT POLE, POST TOP MOUNT LUMINAIRE
- LIGHT POLE, ONE LUMINAIRE
- LIGHT POLE, TWO LUMINAIRES
- LIGHTING, EXTERIOR BUILDING
- EXTERIOR FLOOD LIGHT
- EXIT SIGN, WALL MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
- EXIT SIGN, CEILING MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
- LIGHT FIXTURE, BOLLARD
- LIGHT FIXTURE, DIRECTIONAL
- LIGHT FIXTURE, HANDRAIL

ELECTRONIC SAFETY AND SECURITY SYMBOLS

- CONTROL PANEL; LETTER INDICATES AS FOLLOWS:
  M=MOUNT
  C–CEILING D–DESK F–FLUSH H–HIDDEN M–MULLION
  P–PEDESTAL R–RACK S–SURFACE W–WALL
  T=TECHNOLOGY/TYPE
  B–BURGLAR D–DOOR F–FIRE P–PERIMETER
- KEYPAD DEVICE; LETTER INDICATES AS FOLLOWS:
  M=MOUNT
  C–CEILING D–DESK F–FLUSH H–HIDDEN
  M–MULLION
  P–PEDESTAL R–RACK S–SURFACE W–WALL
- SECURITY ACCESS, SWITCH, BALANCED MAGNETIC CONTROL
- SACP = SECURITY ALARM CONTROL PANEL BY ADT
- ALARM, FIRE, PANEL; LETTERS INDICATE AS FOLLOWS:
  FACC = CENTRAL CONSOLE FACP = CONTROL PANEL
  MFACP= MASTER CONTROL PANEL
  FAAP = ANNUNCIATOR PANEL
- ALARM, FIRE; LETTERS INDICATE AS FOLLOWS:
  BATT = BATTERIES CHR = CHARGER
  FAR = RECORDER
- ALARM, FIRE, POST INDICATOR VALVE.
- ALARM, TRANSPONDER OR TRANSMITTER
- ALARM, FIRE, MANUAL PULL STATION
- ALARM, HORN/LIGHT, ONE ASSEMBLY
- ALARM, SPEAKER/LIGHT, ONE ASSEMBLY
- ALARM, HORN/LIGHT, SEPARATE ASSEMBLY
- ALARM, LAMP LIGHT, SIGNAL LIGHT, STROBE
- ELECTROMAGNETIC TYPE DOOR HOLDER OUTLET
- ALARM, TAMPER SWITCH
- DETECTOR, FLOW SWITCH
  DETECTOR, HEAT; LETTER INDICATES AS FOLLOWS:
  R/T = COMBINATION F = FIXED TEMPERATURE RISE
  R/C = RATE COMPENSATION R = RATE OF RISE
- DETECTOR; LETTER INDICATES AS FOLLOWS:
  BLANK = SMOKE DETECTOR
  H = HEAT SMOKE
  I = IONIZATION SMOKE
  P = PHOTOELECTRIC SMOKE
  IH = IONIZATION AND HEAT SMOKE
  IP = IONIZATION AND PHOTOELECTRIC SMOKE
  PH = PHOTOELECTRIC AND HEAT SMOKE
  IPH = IONIZATION, PHOTOELECTRIC, AND HEAT
- DETECTOR, SMOKE, FOR DUCT
- FIRE ALARM LINE = FA

ELECTRICAL ABBREVIATIONS

1PH	SINGLE–PHASE
1P	SINGLE POLE
2/C	TWO–CONDUCTOR
3/C	THREE–CONDUCTOR
3PH	THREE–PHASE
4/C	FOUR–CONDUCTOR
4W	FOUR–WIRE
A/C UNIT	AIR CONDITIONING UNIT
A/E	ARCHITECT/ENGINEER
AAP	ALARM ANNUNCIATOR PANEL
AC	ALTERNATING CURRENT OR ARMORED CABLE
ACC	ACCESSIBLE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJOINING
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME OR AMP FUSE
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AMPERE HOUR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
AMB OR A	AMBIENT
AMP	AMPERE
ARCH	ARCHITECT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BAT	BATTERY
BC	BARE COPPER
BD	BOARD
BFF	BELOW FINISH FLOOR
BIL	BASIC INSULATION LEVEL
BLDG	BUILDING
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRKR	BREAKER
BYP	BY PASS
C	CONDUIT
CAB	CABINET
CALC	CALCULATE
CAP	CAPACITY
CAT	CATALOG
CATV	COMMUNITY ANTENNA TELEVISION
CCR	CONTROL CONTACTOR
CCTV	CLOSED CIRCUIT TELEVISION
cd	CANDELA
CD	CONSTRUCTION DOCUMENTS
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COAX	COAX CABLE
COMM	COMMUNICATION
COMPT	COMPARTMENT
CONC	CONCRETE
CONT	CONTINUE
CONTR	CONTRACTOR
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
CU FT	CUBIC FEET
CUR	CURRENT
DB	DECIBEL OR DIRECT BURIAL
DC	DIRECT CURRENT
DCP	DIMMER CONTROL PANEL
DEG C	DEGREES CELSIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DISTR PNL	DISTRIBUTION PANEL
DMR SW	DIMMER SWITCH
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMCP	EMERGENCY MONITORING CONTROL PANEL
EMER	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
EPRF	EXPLOSION PROOF
ESMT	EASEMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING

FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FABL	FIRE ALARM BELL
FABX	FIRE ALARM BOX
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FI	FILM ILLUMINATOR
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FLT	FLOODLIGHT
FLUOR	FLUORESCENT
FLUOR FIX	FLUORESCENT FIXTURE
FOUTT	TELEPHONE FLOOR OUTLET
FP	FIRE PROTECTION
FT	FEET OR FOOT
FU SW	FUSED SWITCH
FVNR	FULL VOLTAGE NON–REVERSING
FVR	FULL VOLTAGE REVERSING
G OR GND	GROUND OR GENERATOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GTB	GROUND TERMINAL BOX
HID	HIGH INTENSITY DISCHARGE
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HZ	HERTZ
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
IWH	INSTANTANEOUS WATER HEATER
J–BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAH	KILOVOLT AMPERE PER HOUR
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWH	KILOWATT HOUR
kWHM	KILOWATT HOUR METER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET (FOOT)
LM	LUMEN
LP	LIGHT POLE
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LT	LIGHT
LTG	LIGHTING
LTG PNL	LIGHTING PANEL
LTNG	LIGHTNING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL–CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLO	MAIN LUGS ONLY
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT–AMPERE
MW	MEGAWATT MICROWAVE
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT OR N	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NS	NO SCALE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLOAD
P	POLE
PA	PUBLIC ADDRESS
PB	PANELBOARD, PULL BOX, OR PUSHBUTTON
PBPU	PREFABRICATED BEDSIDE PATIENT UNIT
PCB	POLYCHLORINATED BIPHENYL
PEC	PHOTOELECTRIC CELL
PED	PEDESTAL
PEND	PENDANT
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
POD	POWER OPERATED DAMPER
PT	POTENTIAL TRANSFORMER
PTRV	POWER TYPE ROOF VENTILATION
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER
RCP	REFLECTED CEILING PLAN
REC	RECESSED
RECPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMS	ROOT MEAN SQUARE
REQD	REQUIRED
SCC	SHORT CIRCUIT CAPACITY
SES	SERVICE ENTRANCE SECTION
SD	SMOKE DETECTOR
SF	SQUARE FOOT (FEET)
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SURF	SURFACE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME CLOCK
TEL	TELEPHONE
TP	TWISTED PAIR
TPS	TWISTED PAIR SHIELDED
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
UFD	UNDERFLOOR DUCT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
W	WATT
WH	WATER HEATER
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER

ELECTRICAL SYMBOLS AND ABBREVIATIONS

FULLY SPRINKLERED

Scale: NONE

ISSUED FOR CONSTRUCTION DOCUMENTS (FINAL BID)	07/25/12
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CONSULTANTS:

ARCHITECT/ENGINEERS:

EPSTEIN
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Drawing Title: ELECTRICAL SYMBOLS AND ABBREVIATIONS

Approved: Project Director

Project Title: REPLACEMENT OF AHU S-10B IN BUILDING 30

Location: 820 S. DAMEN AVE. CHICAGO, IL 60612

Date	Checked	Drawn
07/25/2012	RP	JF

Project Number: 537-07-138

Building Number: BUILDING 30

Drawing Number: 30-E-001

Dwg. 08 of 09

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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