ELECTRICAL ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMP FRAME
AFC	ABOVE FINISH CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AM	AMMETER
AMP	AMPERE
ARCH	ARCHITECT
ARCS	AREA OF REFUGE COMMUNICATION SYSTEM
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BAS	BUILDING AUTOMATION SYSTEM
BC	BRANCH CIRCUIT
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFL	COMPACT FLUORESCENT LAMP
CIR	CIRCUIT
CL	CENTERLINE
CLF	CURRENT LIMITING FUSE
CLG	CEILING
COMM	COMMUNICATIONS
CONN	CONNECTION
CPT	CONTROL POWER TRANSFORMER
Cu	COPPER
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DN	DOWN
DISC	DISCONNECT
DIST	DISTRIBUTION
DS	DISCONNECT SWITCH
DWG	DRAWING
E	EMERGENCY
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EO	ELECTRICALLY-OPERATED
EQPT	EQUIPMENT
EWC	ELECTRIC WATER COOLER
F	FUSE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCB	FUSED CIRCUIT BREAKER
FDR	FEEDER
FLA	FULL LOAD AMPS
FRAP	FIRE ALARM REMOTE ANNUNCIATOR PANEL
FS	FUSED DISCONNECT SWITCH
FTL	FEED-THROUGH LUGS
FVNR	FULL-VOLTAGE NON-REVERSING
G	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFEP	GROUND FAULT EQUIPMENT PROTECTION
HACR	HEATING, AIR CONDITIONING, REFRIGERATION
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
IC	INTERRUPTING CAPACITY
ICCB	INSULATED-CASE CIRCUIT BREAKER
IG	ISOLATED GROUND
JB	JUNCTION BOX
kA	KILOAMPERE
kAIC	KILOAMPERE INTERRUPTING CAPACITY
kcmil	THOUSAND CIRCULAR MILS
kV	KILOVOLT
kVA	KILOVOLT-AMPERE
kW	KILOWATT
LA	LIGHTNING ARRESTOR
LPS	LIGHTNING PROTECTION SYSTEM
LTG	LIGHTING
MAX	MAXIMUM
MBJ	MAIN BONDING JUMPER
MCB	MAIN CIRCUIT BREAKER
MCCB	MOLDED-CASE CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NC	NORMALLY-CLOSED
NL	NIGHT LIGHT
NO	NORMALLY-OPEN
NTS	NOT TO SCALE
OC	ON-CENTER
OCPD	OVERCURRENT PROTECTION DEVICE
P	POLE
PA	PUBLIC ADDRESS
PB	PUSHBUTTON
PNL	PANEL OR PANELBOARD
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PWR	POWER
RMC	RIGID METAL CONDUIT
RVS	REDUCED-VOLTAGE STARTER
SBJ	SYSTEM BONDING JUMPER
SCCR	SHORT CIRCUIT CURRENT RATING
SCWR	SHORT CIRCUIT WITHSTAND RATING
SEC	SECONDARY
SMR	SURFACE-MOUNTED RACEWAY
SPD	SURGE PROTECTION DEVICE
SPDT	SINGLE-POLE DOUBLE-THROW
SPST	SINGLE-POLE SINGLE-THROW
ST	SHUNT-TRIP
STBY	STANDBY
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEM
T/D	TELEPHONE/DATA
TEL	TELEPHONE
TL	TWIST-LOCK
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UC	UNDERCOUNTER
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VCB	VACUUM CIRCUIT BREAKER
VFC	VARIABLE FREQUENCY CONTROLLER
W	WATT OR WIRE
Wh	WATTHOUR
WhM	WATTHOUR METER
WM	WATTMETER
WP	WEATHER-PROOF
WT	WATER-TIGHT
XFER	TRANSFER
XFMR	TRANSFORMER
XP	EXPLOSION-PROOF

ENCLOSED DISCONNECT SWITCH LEGEND

SYMBOL	DESCRIPTION
DSx	ENCLOSED NON-FUSED DISCONNECT SWITCH. 'DSx' INDICATES SWITCH NUMBER; REFER TO ENCLOSED DISCONNECT SWITCH SCHEDULE BELOW FOR RATINGS. SWITCHES SHOWN ON PLANS WITHOUT SWITCH NUMBER INDICATED ARE TYPE DS2.
FSx	ENCLOSED FUSED DISCONNECT SWITCH. 'FSx' INDICATES SWITCH NUMBER; REFER TO ENCLOSED DISCONNECT SWITCH SCHEDULE BELOW FOR RATINGS. SWITCHES SHOWN ON PLANS WITHOUT SWITCH NUMBER INDICATED ARE TYPE FS2.
TDS	'TDS' INDICATES ENCLOSED FUSED DISCONNECT SWITCH SIZED AND FUSED IN ACCORDANCE WITH PRIMARY OVERCURRENT PROTECTIVE DEVICE INDICATED IN TRANSFORMER SCHEDULE.

ENCLOSED DISCONNECT SWITCH SCHEDULE

NON-FUSED SWITCHES				FUSED SWITCHES			
SWITCH NUMBER	RATINGS			SWITCH NUMBER	RATINGS		
	VOLTAGE	AMPERAGE	POLES		VOLTAGE	AMPERAGE	POLES
DS1	600	30	2	FS1	600	30	2
DS2	600	30	3	FS2	600	30	3
DS3	600	30	6	FS3	600	30	6
DS4	600	60	3	FS4	600	60	3
DS5	600	60	6	FS5	600	60	6
DS6	600	100	3	FS6	600	100	3
DS7	600	100	6	FS7	600	100	6
DS8	600	200	3	FS8	600	200	3
DS9	600	200	6	FS9	600	200	6
DS10	600	400	3	FS10	600	400	3
DS11	600	600	3	FS11	600	600	3
DS12	600	800	3	FS12	600	800	3

NOTES:
1. SWITCH NUMBERS ARE GENERAL DESIGNATIONS TO INDICATE SWITCH TYPE AND DO NOT INDICATE A UNIQUE IDENTIFIER. REFER TO PLAN DRAWINGS FOR QUANTITIES OF EACH SWITCH TYPE REQUIRED.
2. LOCATE DISCONNECT SWITCHES AS CLOSE AS PRACTICABLE TO EQUIPMENT SERVED, AND IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. PROVIDE FINAL CONNECTIONS TO ASSOCIATED EQUIPMENT.
3. DISCONNECT SWITCHES SHALL BE RATED FOR THE MAXIMUM AVAILABLE FAULT CURRENT, AND SHALL BE RATED IN HORSEPOWER TO MEET THE REQUIREMENTS OF THE EQUIPMENT SERVED.
4. DISCONNECT SWITCHES SHALL BE SERVICE-ENTRANCE RATED.
5. COORDINATE EXACT FUSE SIZE FOR FUSED DISCONNECT SWITCHES WITH THE REQUIREMENTS OF EQUIPMENT SERVED.
6. PROVIDE BUILT-IN FUSE PULLERS FOR FUSED DISCONNECT SWITCHES RATED 200A AND SMALLER.
7. PROVIDE FULLY-RATED EQUIPMENT GROUND LUGS FOR EACH DISCONNECT SWITCH.
8. PROVIDE 100%-RATED NEUTRAL LUGS IN DISCONNECT SWITCHES FOR CIRCUITS THAT CONTAIN NEUTRAL CONDUCTORS. PROVIDE 200%-RATED NEUTRAL LUGS IN DISCONNECT SWITCHES FOR CIRCUITS THAT CONTAIN 200%-RATED NEUTRAL CONDUCTORS.
9. FOR DISCONNECT SWITCHES CONNECTED TO THE LOAD SIDE OF VARIABLE FREQUENCY CONTROLLERS, PROVIDE AUXILIARY SWITCH CONTACTS AND INTERCONNECT WIRING IN CONDUIT BACK TO CONTROLLER TO PROHIBIT VFD OPERATION WHEN ASSOCIATED DISCONNECT SWITCH IS OPEN.
10. FOR DISCONNECT SWITCHES CONNECTED TO THE LINE SIDE OF ELEVATOR CONTROLLERS, PROVIDE AUXILIARY SWITCH CONTACTS AND INTERCONNECT WIRING IN CONDUIT BACK TO CONTROLLER TO PROHIBIT TRANSFER TO BATTERY WHEN ASSOCIATED DISCONNECT SWITCH IS OPENED FOR MAINTENANCE.
11. PROVIDE NAMEPLATE FOR EACH DISCONNECT SWITCH MOUNTED ON FRONT OF SWITCH ENCLOSURE. NAMEPLATE SHALL INDICATE SWITCH TYPE (NON-FUSED OR FUSED), EQUIPMENT SERVED, AND SWITCH RATINGS (VOLTAGE, CURRENT, AND POLES.)
12. PROVIDE THE FOLLOWING DISCONNECT SWITCH ACCESSORIES WHERE INDICATED:
    - A1 - AUXILIARY CONTACTS (1NO AND 1NC)
    - A2 - AUXILIARY CONTACTS (2NO AND 2 NC)
    - N1 - 100%-RATED NEUTRAL LUGS
    - N2 - 200%-RATED NEUTRAL LUGS

BRANCH CIRCUIT SCHEDULE (600-VOLT COPPER CONDUCTORS)

2w20	3/4"C, 2#12 & 1#12G	3/4"C, 2#10 & 1#10G	1"C, 2#8 & 1#8G	1"C, 2#6 & 1#6G	1-1/4"C, 2#4 & 1#4G
3w20	3/4"C, 3#12 & 1#12G	3/4"C, 3#10 & 1#10G	1"C, 3#8 & 1#8G	1"C, 3#6 & 1#6G	1-1/4"C, 3#4 & 1#4G
4w20	3/4"C, 4#12 & 1#12G	3/4"C, 4#10 & 1#10G	1"C, 4#8 & 1#8G	1-1/4"C, 4#6 & 1#6G	1-1/2"C, 4#4 & 1#4G
120V/1ϕ	CL ≤ 80ft	80ft < CL ≤ 130ft	130ft < CL ≤ 200ft	200ft < CL ≤ 320ft	320ft < CL ≤ 500ft
208V/1ϕ	CL ≤ 140ft	140ft < CL ≤ 220ft	220ft < CL ≤ 350ft	350ft < CL ≤ 560ft	560ft < CL ≤ 900ft
208V/3ϕ	CL ≤ 280ft	280ft < CL ≤ 450ft	450ft < CL ≤ 700ft	700ft < CL ≤ 1150ft	-
277V/1ϕ	CL ≤ 180ft	180ft < CL ≤ 300ft	300ft < CL ≤ 470ft	470ft < CL ≤ 750ft	750ft < CL ≤ 1200ft
480V/1ϕ	CL ≤ 320ft	320ft < CL ≤ 520ft	520ft < CL ≤ 820ft	820ft < CL ≤ 1300ft	-
480V/3ϕ	CL ≤ 650ft	650ft < CL ≤ 1030ft	-	-	-
2w25 2w30	3/4"C, 2#10 & 1#10G	1"C, 2#8 & 1#8G	1"C, 2#6 & 1#6G	1-1/4"C, 2#4 & 1#4G	1-1/4"C, 2#2 & 1#2G
3w25 3w30	3/4"C, 3#10 & 1#10G	1"C, 3#8 & 1#8G	1-1/4"C, 3#6 & 1#6G	1-1/4"C, 3#4 & 1#4G	1-1/2"C, 3#2 & 1#2G
4w25 4w30	3/4"C, 4#10 & 1#10G	1"C, 4#8 & 1#8G	1-1/4"C, 4#6 & 1#6G	1-1/2"C, 4#4 & 1#4G	2"C, 4#2 & 1#2G
120V/1ϕ	CL ≤ 80ft	80ft < CL ≤ 130ft	130ft < CL ≤ 210ft	210ft < CL ≤ 350ft	350ft < CL ≤ 550ft
208V/1ϕ	CL ≤ 150ft	150ft < CL ≤ 240ft	240ft < CL ≤ 380ft	380ft < CL ≤ 600ft	600ft < CL ≤ 960ft
208V/3ϕ	CL ≤ 300ft	300ft < CL ≤ 480ft	480ft < CL ≤ 750ft	750ft < CL ≤ 1200ft	-
277V/1ϕ	CL ≤ 200ft	200ft < CL ≤ 320ft	320ft < CL ≤ 500ft	500ft < CL ≤ 800ft	800ft < CL ≤ 1260ft
480V/1ϕ	CL ≤ 340ft	340ft < CL ≤ 550ft	550ft < CL ≤ 860ft	860ft < CL ≤ 1350ft	-
480V/3ϕ	CL ≤ 680ft	680ft < CL ≤ 1100ft	-	-	-
2w35 2w40	1"C, 2#8 & 1#10G	1"C, 2#6 & 1#8G	1-1/4"C, 2#4 & 1#6G	1-1/4"C, 2#2 & 1#4G	1-1/2"C, 2#1 & 1#2G
3w35 3w40	1"C, 3#8 & 1#10G	1-1/4"C, 3#6 & 1#8G	1-1/4"C, 3#4 & 1#6G	1-1/2"C, 3#2 & 1#4G	2"C, 3#1 & 1#2G
4w35 4w40	1"C, 4#8 & 1#10G	1-1/4"C, 4#6 & 1#8G	1-1/2"C, 4#4 & 1#6G	2"C, 4#2 & 1#4G	2"C, 4#1 & 1#2G
120V/1ϕ	CL ≤ 100ft	100ft < CL ≤ 160ft	160ft < CL ≤ 260ft	260ft < CL ≤ 410ft	410ft < CL ≤ 520ft
208V/1ϕ	CL ≤ 180ft	180ft < CL ≤ 280ft	280ft < CL ≤ 450ft	450ft < CL ≤ 710ft	710ft < CL ≤ 890ft
208V/3ϕ	CL ≤ 360ft	360ft < CL ≤ 570ft	570ft < CL ≤ 900ft	-	-
277V/1ϕ	CL ≤ 240ft	240ft < CL ≤ 380ft	380ft < CL ≤ 600ft	600ft < CL ≤ 950ft	-
480V/1ϕ	CL ≤ 420ft	420ft < CL ≤ 660ft	660ft < CL ≤ 1050ft	-	-
480V/3ϕ	CL ≤ 820ft	820ft < CL ≤ 1300ft	-	-	-
2w45 2w50	1-1/4"C, 2#6 & 1#8G	1-1/4"C, 2#4 & 1#6G	1-1/2"C, 2#2 & 1#4G	1-1/2"C, 2#1 & 1#2G	2"C, 2#1/0 & 1#1G
3w45 3w50	1-1/4"C, 3#6 & 1#8G	1-1/4"C, 3#4 & 1#6G	1-1/2"C, 3#2 & 1#4G	2"C, 3#1 & 1#2G	2"C, 3#1/0 & 1#1G
4w45 4w50	1-1/4"C, 4#6 & 1#8G	1-1/4"C, 4#4 & 1#6G	1-1/2"C, 4#2 & 1#4G	2"C, 2#1 & 1#2G	2"C, 4#1/0 & 1#1G
120V/1ϕ	CL ≤ 130ft	130ft < CL ≤ 210ft	210ft < CL ≤ 330ft	330ft < CL ≤ 420ft	420ft < CL ≤ 520ft
208V/1ϕ	CL ≤ 230ft	230ft < CL ≤ 360ft	360ft < CL ≤ 570ft	570ft < CL ≤ 720ft	720ft < CL ≤ 910ft
208V/3ϕ	CL ≤ 450ft	450ft < CL ≤ 720ft	720ft < CL ≤ 1150ft	-	-
277V/1ϕ	CL ≤ 300ft	300ft < CL ≤ 480ft	480ft < CL ≤ 760ft	760ft < CL ≤ 960ft	-
480V/1ϕ	CL ≤ 520ft	520ft < CL ≤ 840ft	840ft < CL ≤ 1300ft	-	-
480V/3ϕ	CL ≤ 1050ft	-	-	-	-
2w60 2w70	1-1/4"C, 2#4 & 1#8G	1-1/4"C, 2#2 & 1#6G	1-1/2"C, 2#1 & 1#4G	1-1/2"C, 2#1/0 & 1#2G	2"C, 2#2/0 & 1#1G
3w60 3w70	1-1/4"C, 3#4 & 1#8G	1-1/2"C, 3#2 & 1#6G	2"C, 3#1 & 1#4G	2"C, 3#1/0 & 1#2G	2"C, 3#2/0 & 1#1G
4w60 4w70	1-1/4"C, 4#4 & 1#8G	1-1/2"C, 4#2 & 1#6G	2"C, 4#1 & 1#4G	2"C, 4#1/0 & 1#2G	2-1/2"C, 4#2/0 & 1#1G
120V/1ϕ	CL ≤ 150ft	150ft < CL ≤ 240ft	240ft < CL ≤ 300ft	300ft < CL ≤ 370ft	370ft < CL ≤ 470ft
208V/1ϕ	CL ≤ 260ft	260ft < CL ≤ 410ft	410ft < CL ≤ 520ft	520ft < CL ≤ 650ft	650ft < CL ≤ 810ft
208V/3ϕ	CL ≤ 510ft	510ft < CL ≤ 810ft	810ft < CL ≤ 1020ft	-	-
277V/1ϕ	CL ≤ 340ft	340ft < CL ≤ 540ft	540ft < CL ≤ 680ft	680ft < CL ≤ 860ft	860ft < CL ≤ 1080ft
480V/1ϕ	CL ≤ 600ft	600ft < CL ≤ 940ft	-	-	-
480V/3ϕ	CL ≤ 1150ft	-	-	-	-

NOTES:
1. THIS SCHEDULE DEFINES MINIMUM WIRE AND CONDUIT SIZES FOR EACH CIRCUIT TAG INDICATED. WHEREVER CIRCUIT TAGS ARE INDICATED ON DRAWINGS, DETERMINE MINIMUM WIRE AND CONDUIT SIZE REQUIRED BY SELECTING THE APPROPRIATE ROW FOR ACTUAL CIRCUIT VOLTAGE/PHASE AND THEN SELECTING THE APPROPRIATE COLUMN FOR ACTUAL CABLE LENGTH OF CIRCUIT (CL) BASED ON PROPOSED FIELD ROUTING. ONCE THE APPROPRIATE COLUMN IS SELECTED, THE REQUIRED MINIMUM WIRE AND CONDUIT SIZES ARE IDENTIFIED BY THE INTERSECTION OF THAT COLUMN AND THE ROW FOR THE ASSOCIATED CIRCUIT TAG.
2. WIRE AND CONDUIT TAGS REPRESENT BASE AMPACITY AND NUMBER OF WIRES (NOT INCLUDING GROUNDS.) BASE AMPACITIES INDICATED ARE VALID FOR 90°C RATED COPPER CONDUCTORS (APPLIED AT THEIR 60°C RATING) IN 30°C AMBIENT TEMPERATURE. INCREASE WIRE AND CONDUIT SIZES TO COMPENSATE FOR LOWER TEMPERATURE RATED WIRES AND HIGHER AMBIENT TEMPERATURES.
3. WHERE OVERSIZED CONDUCTORS ARE TOO LARGE TO DIRECTLY CONNECT TO SOURCE OR DEVICE TERMINALS, TRANSITION TO SMALLER CONDUCTORS (NO LESS THAN MINIMUM SIZE SHOWN FOR THAT CIRCUIT TAG IN SCHEDULE ABOVE) TO ACCOMMODATE REQUIRED TERMINATIONS. PROVIDE SPLICES, WIRE REDUCERS OR POWER BLOCKS IN APPROPRIATELY SIZED JUNCTION BOXES TO TRANSITION BETWEEN DIFFERENT SIZE CONDUCTORS. LENGTHS OF CONDUCTOR BETWEEN TRANSITION TO SMALLER CABLE AND FINAL TERMINATION SHOULD BE LIMITED TO NO MORE THAN 10 FEET WHEREVER POSSIBLE.
4. 240V/1Ø CIRCUITS SHALL USE WIRE AND CONDUIT SIZES INDICATED ABOVE FOR 208V/1Ø CIRCUITS, EXCEPT MAXIMUM ALLOWABLE DISTANCES INDICATED MAY BE INCREASED BY 15%.
5. FOR CIRCUIT LENGTHS EXCEEDING MAXIMUM LENGTHS SHOWN IN SCHEDULE ABOVE, UPSIZE WIRE AND CONDUIT SIZES AS REQUIRED TO LIMIT VOLTAGE DROP TO NO MORE THAN 3% (FOR BRANCH CIRCUITS) AT 70% CIRCUIT LOADING. (FOR EXAMPLE, 20-AMP CIRCUIT CONDUCTORS ARE ASSUMED TO BE CARRYING 14 AMPS.) VOLTAGE DROP SHALL BE LIMITED TO 2% WHEN CIRCUITS ARE TO BE USED AS FEEDERS.
6. WHERE CIRCUITS ARE TO BE USED FOR FEEDERS, RATHER THAN BRANCH CIRCUITS, VOLTAGE DROP SHALL BE LIMITED TO NO MORE THAN 2%. ALLOWABLE MAXIMUM DISTANCES INDICATED IN SCHEDULE ABOVE SHALL BE REDUCED BY 33%.
7. CONDUIT SIZES INDICATED ARE VALID FOR THHN/THWN AND XHHW CONDUCTOR TYPES INSTALLED IN EMT, ENT, FMC, IMC, LFMC, RMC AND RIGID PVC (SCHEDULE 80, SCHEDULE 40, TYPE A, AND TYPE EB) CONDUIT TYPES. INCREASE CONDUIT SIZES AS REQUIRED TO COMPENSATE FOR CONDUCTOR TYPES WITH LARGER OVERALL DIAMETERS AND FOR CONDUIT TYPES WITH SMALLER INTERNAL DIAMETERS.
8. CONDUIT SIZES INDICATED ARE REQUIRED MINIMUM SIZES AND MAY BE INCREASED FOR LONG RUNS OR WHERE MULTIPLE BENDS ARE NECESSARY.
9. CONDUITS SMALLER THAN 3 INCHES SHALL BE UPGRADED TO THE NEXT LARGER TRADE SIZE WHEN USED FOR DIRECT-BURIED AND IN-SLAB INSTALLATIONS.
10. UPGRADE CONDUIT SIZES FOR CIRCUITS RUN IN CONCRETE-ENCASED UNDERGROUND DUCTBANKS TO THE SIZES INDICATED FOR THE DUCTBANK CONDUITS.
11. TAGS WITH ISOLATED GROUND (+IG) INDICATED SHALL INCLUDE A SEPARATE IG CONDUCTOR, SAME SIZE AS ASSOCIATED CIRCUIT GROUND CONDUCTOR, TIED TO THE IG BUS. CONDUIT SIZES INDICATED IN SCHEDULE ABOVE ARE LARGE ENOUGH TO ACCOMMODATE AN IG CONDUCTOR IN ADDITION TO CONDUCTORS SHOWN.

GENERAL ELECTRIC SYMBOLS

SYMBOL	DESCRIPTION
	PANELBOARD, SURFACE-MOUNTED, 208Y/120 VOLT
	PANELBOARD, RECESSED-MOUNTED, 208Y/120 VOLT
	PANELBOARD, SURFACE-MOUNTED, 480Y/277V VOLT
	PANELBOARD, RECESSED-MOUNTED, 480Y/277V VOLT
	120V, 20A CIRCUIT HOMERUN, UNLESS OTHERWISE NOTED.
NP1-2	HOMERUN TO PANEL "NP1" CIRCUIT 2.
NP1-1,3,5	HOMERUN TO PANEL "NP1" CIRCUITS 1, 3, AND 5. THIS INDICATES THREE INDIVIDUAL CIRCUITS.
NP1	DENOTES ELECTRICAL PANEL THAT SERVICES THE AREA DESIGNATED OR THE GIVEN ROOM, UNLESS INDICATED OTHERWISE.
NP1-1	DENOTES ELECTRICAL PANEL AND CIRCUIT NUMBER THAT SERVICES THE AREA DESIGNATED OR THE GIVEN ROOM, UNLESS INDICATED OTHERWISE.
2w20 OR 2w20	WIRE AND CONDUIT TAG. "2" INDICATES NUMBER OF CONDUCTORS (NOT INCLUDING GROUNDS) AND "20" INDICATES BASE AMPACITY OF CIRCUIT. REFER TO BRANCH CIRCUIT SCHEDULE AND FEEDER SCHEDULE FOR COMPLETE LIST OF WIRE AND CONDUIT TAGS.
*	NEMA 5-20R SIMPLEX RECEPTACLE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
2 *	NEMA 5-20R DUPLEX RECEPTACLE. "2" INDICATES CIRCUIT NUMBER, (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
*	NEMA 5-20R DOUBLE-DUPLEX (QUAD) RECEPTACLE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
*	NEMA 5-20R DUPLEX RECEPTACLE, IN SURFACE-MOUNTED RACEWAY. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
*	FLUSH FLOOR MOUNTED NEMA 5-20R DUPLEX RECEPTACLE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
*	FLUSH FLOOR MOUNTED NEMA 5-20R DOUBLE-DUPLEX (QUAD) RECEPTACLE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
J *	CEILING-MOUNTED JUNCTION BOX. PROVIDE FINAL CONNECTIONS TO ASSOCIATED EQUIPMENT. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
J *	WALL-MOUNTED JUNCTION BOX. PROVIDE FINAL CONNECTIONS TO ASSOCIATED EQUIPMENT. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
*	CEILING MOUNTED 5-20R DUPLEX RECEPTACLE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
* X H	SPECIAL PURPOSE RECEPTACLE. "X" INDICATES TYPE, REFER TO SPECIAL PURPOSE RECEPTACLE SCHEDULE ON THIS SHEET. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
X *	CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE. "X" INDICATES TYPE, REFER TO SPECIAL PURPOSE RECEPTACLE SCHEDULE. (*) INDICATES ONE OF THE CONNECTION TYPES LISTED BELOW.
	MECHANICAL EQUIPMENT TAG. REFER TO SCHEDULES ON MECHANICAL DRAWINGS FOR EQUIPMENT RATINGS AND REQUIREMENTS.
S M	FRACTIONAL HORSEPOWER MANUAL MOTOR CONTROLLER
	MOTOR. REFER TO ASSOCIATED EQUIPMENT SCHEDULE FOR HORSEPOWER RATING

DEVICE SUBSCRIPT/SUPERSCRIPT DESIGNATIONS:

E	EMERGENCY CIRCUIT.
S	STANDBY CIRCUIT.
G	GROUND FAULT CIRCUIT INTERRUPTER.
WP	GFCI OUTLET WITH WEATHERPROOF, LOCKABLE DIE-CAST ALUMINUM COVER.
WD	WEATHERPROOF ENCLOSURE/COVER (SPRING LOADED LIFT COVER TYPE) FOR WASH DOWN AREAS
MD	120V POWER CONNECTION FOR MOTORIZED DOOR CONTROLLER. COORDINATE MOTORIZED DOOR CONTROLLER LOCATION AND FINAL CONNECTIONS IN FIELD. PROVIDE BACKBOX(ES) FOR PUSH-BUTTON OPERATORS AND (1) 1" CONDUIT BETWEEN BACKBOX(ES) AND MOTORIZED DOOR CONTROLLER. FOR PEDESTAL/BOLLARD MOUNTED PUSH-BUTTON OPERATORS, CONDUIT SHALL BE RUN IN-SLAB. COORDINATE FINAL LOCATION AND QUANTITY OF PUSH BUTTON OPERATORS WITH ARCHITECT.
FL	120V FEED FOR POWERED FAUCET / FLUSH VALVE. PROVIDE FINAL CONNECTIONS TO FAUCET/FLUSH VALVE TRANSFORMERS. COORDINATE AND PROVIDE QUANTITY OF BACKBOXES REQUIRED WITH QUANTITY OF TRANSFORMERS REQUIRED.
DH	FEED FOR DOOR HOLD-OPENS.
HD	FEED FOR AUTOMATIC HAND DRYERS.
FA	120V FEED FOR FIRE ALARM PANELS (AND ACCESSORIES). COORDINATE EXACT LOCATION AND QUANTITY OF REQUIRED CONNECTION POINTS WITH FIRE ALARM DRAWINGS AND VENDOR.
SD	120V FEED FOR SMOKE DAMPER CIRCUITS. COORDINATE EXACT LOCATION AND QUANTITY OF REQUIRED CONNECTION POINTS WITH DAMPER AND DAMPER CIRCUITS PROVIDED. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION AND QUANTITY OF CONNECTIONS.
BAS	120V FEED FOR BUILDING AUTOMATION SYSTEM. PROVIDE BRANCH CIRCUITS FOR BAS CONTROLLERS AS REQUIRED PER FINAL APPROVED BAS SYSTEM LAYOUT. COORDINATE EXACT LOCATION OF CONTROLLERS PRIOR TO ROUGH-IN.
MP	FEED FOR MOTORIZED PROJECTION SCREEN.
P	FEED FOR PROJECTOR. COORDINATE FINAL MOUNTING LOCATION WITH ARCHITECTURAL DRAWINGS.
LAB	FEED FOR PRE-WIRED LAB BENCH CASEWORK. PROVIDE QUANTITY OF BRANCH CIRCUITS AS NOTED ON FLOORPLANS. COORDINATE FINAL CONNECTIONS WITH ARCHITECT AND CASEWORK PROVIDED.
HW	FEED FOR PRE-WIRED PATIENT HEADWALLS. PROVIDE QUANTITY OF BRANCH CIRCUITS AS NOTED ON FLOORPLANS. COORDINATE FINAL CONNECTIONS WITH HEADWALL VENDOR & ARCHITECT PRIOR TO INSTALLATION.
FH	FEED FOR LAB FUME HOODS. COORDINATE REQUIREMENTS AND FINAL MOUNTING LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
ES	FEED FOR ELECTRIC STRIKE. COORDINATE REQUIREMENTS WITH ARCHITECTURAL DRAWINGS.
VAV	120V FEED FOR VAV TRANSFORMERS. PROVIDE BRANCH CIRCUITS (AND ASSOCIATED INFRASTRUCTURE) AS REQUIRED TO SUPPLY ALL VAVS. COORDINATE FINAL REQUIREMENTS, CONNECTION TYPE AND LOCATION WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
TV	FEED FOR TELEVISION / VIDEO DISPLAY BOARD. PROVIDE 4"X4" BACKBOX AND (1) 1-1/4" EMPTY CONDUIT WITH PULL STRING TO ABOVE ACCESSIBLE CEILING. REFER TO AV/IT DRAWINGS FOR ADDITIONAL INFORMATION.
TP	FEED FOR TRAP PRIMER. COORDINATE REQUIREMENTS WITH PLUMBING DRAWINGS.
EWC	FEEDER FOR ELECTRIC WATER COOLER. COORDINATE MOUNTING AND INSTALLATION REQUIREMENTS WITH ARCHITECT AND VENDOR PRIOR TO ROUGH-IN.
MS	FEED FOR MOTORIZED SHADE SYSTEM. COORDINATE EXACT REQUIREMENTS, LOCATION AND QUANTITY WITH ARCHITECTURAL DRAWINGS.
U	120V FEED FOR USB TYPE RECEPTACLES. PROVIDE COMBINATION NEMA 5-20R (LEVITON T5832) SINGLE RECEPTACLE WITH TWO STANDARD TYPE A USB PORTS. WHEN LOCATED ABOVE COUNTERTOPS, WIRE RECEPTACLE DOWNSTREAM FROM GFCI RECEPTACLE TO PROVIDE GFCI PROTECTION.
PAR	MOVABLE PARTITION CONTROL SWITCH. CONNECT TO LOCAL PARTITION CONTROL PANEL AND ASSOCIATED ROOM SWITCH. PROVIDE SINGLE-GANG METAL BACKBOX AND CONDUIT/CABLE TO ABOVE ACCESSIBLE CEILING FOR FINAL TERMINATIONS. COORDINATE FINAL MOUNTING LOCATION AND INSTALLATION REQUIREMENTS WITH ARCHITECT AND VENDOR PRIOR TO ROUGH-IN.

ELECTRICAL DRAWING LIST

DWG	SCALE	DRAWING TITLE
E-001.CF	NO SCALE	ELECTRICAL LEGEND SHEET
E-002.CF	NO SCALE	LIGHTING FIXTURE SCHEDULE & CONTROL NOTES
E-201.CF	1/4" = 1' - 0"	ELECTRICAL POWER & LIGHTING - LEVEL 1 - CAFE FITOUT

GENERAL ELECTRICAL NOTES

1. WORK SHOWN ON THESE PLANS IS NEW UNLESS NOTED OTHERWISE.
2. COMPONENTS SHOWN ON THE RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
3. PROVIDE ELECTRICAL CONNECTIONS FOR EQUIPMENT SHOWN ON CONTRACT DOCUMENTS OF OTHER TRADES. REFER TO THOSE DOCUMENTS TO DETERMINE ELECTRICAL CONNECTION REQUIREMENTS AND MOUNTING LOCATIONS FOR EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.
4. REFER TO ARCHITECTURAL CONTRACT DOCUMENTS FOR PROJECT PHASING, AND FOR MOUNTING HEIGHTS AND LOCATIONS OF ELECTRICAL EQUIPMENT AND DEVICES.
5. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
6. COMPLY WITH NFPA 70 AND ALL OTHER APPLICABLE CODES AND STANDARDS.
7. DRAWINGS INDICATE MAXIMUM DIMENSIONS FOR ELECTRICAL COMPONENTS AND EQUIPMENT, INCLUDING CLEARANCES BETWEEN ENCLOSURES, ADJACENT SURFACES AND OTHER ITEMS. COMPLY WITH INDICATED MAXIMUM DIMENSIONS.
8. COORDINATE LAYOUT AND INSTALLATION OF ELECTRICAL EQUIPMENT AND COMPONENTS WITH OTHER CONSTRUCTION, INCLUDING CONDUIT, PIPING, EQUIPMENT, AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.
9. BRANCH CIRCUITING HOMERUNS SHOWN ON THE DRAWINGS WITH MORE THAN 3 CURRENT-CARRYING CONDUCTORS ARE SHOWN DIAGRAMATICALLY. DO NOT INSTALL MORE THAN 3 CURRENT-CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY BY THE NATIONAL ELECTRIC CODE. IN ADDITION, ALL CIRCUITS SHALL BE PROVIDED PER THE PANELBOARD SCHEDULES AND SINGLE-LINE DIAGRAMS. DO NOT USE SHARED NEUTRALS UNLESS SPECIFICALLY INDICATED.
10. OBTAIN APPROVALS FROM STRUCTURAL ENGINEER PRIOR TO EMBEDDING ELECTRICAL CONDUITS IN FLOOR SLABS AND IN OTHER STRUCTURAL ELEMENTS. CONDUITS EMBEDDED IN FLOOR SLABS SHALL BE RUN IN MIDDLE THIRD OF SLAB THICKNESS.
11. CONDUITS AND RACEWAYS SHALL BE RUN CONCEALED; EXCEPT EXPOSED RACEWAYS AND CONDUITS ARE ACCEPTABLE WITHIN ELECTRICAL AND MECHANICAL ROOMS. RECESS-MOUNT WIRING DEVICES (RECEPTACLES, SNAP SWITCHES, DIMMING SWITCHES, ETC), AND BACKBOXES UNLESS OTHERWISE NOTED.
12. PROVIDE RECESSED PANELBOARDS WITH (4) 1-1/2" SPARE CONDUITS STUBBED UP TO 6 INCHES ABOVE FINISHED CEILING. PROVIDE PULLSTRINGS AND CAP CONDUITS.
13. RACEWAYS RUNNING THROUGH BUILDING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS.
14. EMPTY (SPARE) CONDUIT SHALL BE DEBURRED, CLEANED, CAPPED, TAGGED, AND FURNISHED WITH PULL WIRES.
15. SUBMIT VENDOR DESIGNED AND APPROVED LAYOUT DRAWINGS OF OCCUPANCY AND DAYLIGHT SENSORS AS PART OF OCCUPANCY AND DAYLIGHT SENSOR PRODUCT DATA SUBMITTAL PACKAGE. LOCATIONS OF SENSORS SHOWN ON THESE DRAWINGS IS GENERIC AND MAY REQUIRE MODIFICATION TO MEET VENDOR-SPECIFIC REQUIREMENTS OR LIMITATIONS. SENSOR QUANTITIES SHOWN ON DRAWINGS ARE MINIMUM QUANTITIES; PROVIDE ADDITIONAL SENSORS AS REQUIRED TO ENSURE ADEQUATE COVERAGE.
16. PROVIDE AND COORDINATE WITH STRUCTURAL ENGINEER ALL CORE DRILLS, CONDUIT SLEEVES, RISER SLEEVES AND OTHER PENETRATIONS REQUIRED TO ACCOMMODATE ROUTING OF ELECTRICAL CONDUITS, CONDUCTORS AND OTHER PATHWAY ELEMENTS .PATCH AND SEAL ALL PENETRATIONS, AND PROVIDE FIRESTOPPING AS REQUIRED. SEAL PENETRATIONS THROUGH INSULATED PARTITION WALLS WITH APPROPRIATE CAULK OR HIGH-DENSITY PUTTY, FIRE-RATED AS REQUIRED.
17. IN INSULATED PARTITION WALLS, LOCATE ELECTRICAL OUTLETS AND DEVICE BACKBOXES IN ADJACENT SPACES NO CLOSER THAN 24 INCHES APART AND IN SEPARATE STUD SPACES. UTILIZE ACOUSTICAL CAULKING TO SEAL GAPS BETWEEN OUTLET AND OTHER DEVICE BACKBOXES AND DRYWALL.
18. PROVIDE BRACING AND SUPPORTS FOR ELECTRICAL EQUIPMENT AND DEVICES. BOND AND GROUND METALLIC BRACES AND SUPPORTS.
19. PROVIDE CONCRETE HOUSEKEEPING PADS FOR FREESTANDING EQUIPMENT. MINIMUM DIMENSIONS: 4 INCHES LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT AND AT LEAST 4 INCHES HIGH.
20. COORDINATE LAYOUT AND INSTALLATION OF ALL ELECTRICAL WORK WITH OTHER TRADES. ASSIST IN THE PREPARATION OF COORDINATION DRAWINGS THAT ARE TO INCLUDE THE WORK OF ALL TRADES. MAINTAIN A SET OF UP-TO-DATE COORDINATION DRAWINGS AS CONSTRUCTION PROGRESSES.
21. MAINTAIN A CURRENT SET OF "AS-BUILT" DRAWINGS ON-SITE AS THE WORK PROGRESSES. THE OWNER OR ENGINEER MAY REQUEST TO SEE THESE "AS-BUILT" DRAWINGS AT ANY TIME. PROVIDE A SET OF FINAL "AS-BUILT" DRAWINGS TO THE OWNER IN AUTOCAD FORMAT AT THE END OF THE PROJECT.
22. RETAIN THE SERVICES OF A LICENSED ROOFING CONTRACTOR, WHO IS CERTIFIED BY THE MANUFACTURER OF THE ROOF BEING PENETRATED, TO PERFORM REQUIRED ROOF PENETRATIONS.
23. PROVIDE VIBRATION ISOLATION FOR ELECTRICAL EQUIPMENT IN ACCORDANCE WITH VIBRATION ISOLATION SCHEDULE ON MECHANICAL DRAWINGS.
24. COORDINATE CONDUCTOR SIZES AND QUANTITIES INDICATED WITH ASSOCIATED EQUIPMENT TERMINAL LUGS TO ENSURE COMPATIBILITY. PROVIDE LUGS TO ACCEPT CONDUCTORS INDICATED, OR UTILIZE ALTERNATE CONDUCTOR CONFIGURATION THAT IS APPROPRIATE FOR LUGS PROVIDED. ALTERNATE CONDUCTOR CONFIGURATION USED SHALL PROVIDE AN EQUAL OR GREATER CURRENT-CARRYING CAPACITY TO THAT INDICATED. REVISE ASSOCIATED CONDUIT SIZES AND QUANTITIES AS REQUIRED.

SPECIAL PURPOSE RECEPTACLE SCHEDULE

SYMBOL	NEMA DESIGNATION	SYMBOL	NEMA DESIGNATION
H1	5-15R	H17	15-50R
H2	5-20R	H18	15-60R
H3	5-30R	H19	L5-15R
H4	5-50R	H20	L5-20R
H5	6-15R	H21	L5-30R
H6	6-20R	H22	L6-15R
H7	6-30R	H23	L6-20R
H8	6-50R	H24	L6-30R
H9	14-15R	H25	L14-20R
H10	14-20R	H26	L14-30R
H11	14-30R	H27	L15-20R
H12	14-50R	H28	L15-30R
H13	14-60R	H29	L16-20R
H14	15-15R	H30	L16-30R
H15	15-20R	H31	7-20R
H16	15-30R	H32	L7-20R

ROWAN UNIVERSITY RUTGERS - CAMDEN BOARD OF GOVERNORS

Project:
JOINT HEALTH SCIENCES CENTER - CAFE FITOUT

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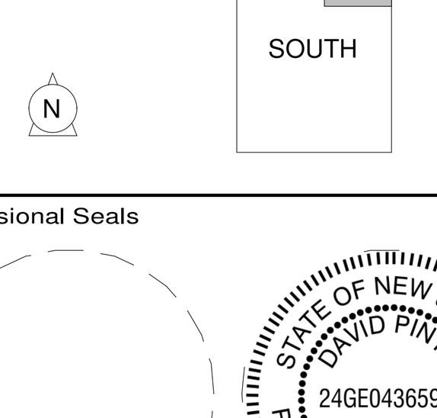
Key Plan



Professional Seals

STATE OF NEW JERSEY DAVID PINTO 24GE04365900 LICENSED PROFESSIONAL ENGINEER
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No.	Description	Date
1	ISSUED FOR CONSTRUCTION	01/17/2020

Drawn by: LWB Reviewed by: RGV
Project No: 16.07011.12

ISSUED FOR CONSTRUCTION - 01.17.20

Sheet Title
ELECTRICAL LEGEND SHEET

Original drawing is 42 x 30. Do not scale contents of this drawing.

Sheet Number
E-001.CF

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