ABBREVIATIONS

4S/DP	4" SQUARE BY 2-1/8" DEEP BOX
ADA	AMERICAN WITH DISABILITIES ACT
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AWG	AMERICAN WIRE GAUGE
AMP, A	AMPERE
A.I.C. or AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
A.F.C. or AFC	AVAILABLE FAULT CURRENT
AF/AT	AMP FRAME, AMP TRIP
AHJ	AUTHORITY HAVING JURISDICTION
AS/AF	AMP SWITCH, AMP FUSE
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
BJ	BONDING JUMPER
BDF	BUILDING DISTRIBUTION FRAME
BR	BRANCH
BLDG	BUILDING
CBC	CALIFORNIA BUILDING CODE
CEC	CALIFORNIA ELECTRICAL CODE
CIRC., CKT.	CIRCUIT
CB	CIRCUIT BREAKER
CSFD	COMBINATION SMOKE FIRE DAMPER
C	CONDUIT
C.O.	CONDUIT ONLY, COMPLETE WITH PULLSTRING
CONN	CONNECTED
CPT	CONTROL POWER TRANSFORMER
CLCB	CURRENT LIMITING CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CT	CURRENT TRANSFORMER
(D)	EXISTING DEVICE TO BE DEMOLISHED
DAS	DISTRIBUTED ANTENNA SYSTEM
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
D.P.C.S.	DIMMING PANEL CONTROL STATION
E.C.	ELECTRICAL CONTRACTOR
EMS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NON-METALLIC TUBING
EWC	ELECTRIC WATER COOLER
E.P.O.	EMERGENCY POWER OFF
E-O-L	END-OF-LINE CIRCUIT TERMINATOR
EF	EXHAUST FAN
EGC or EG or E/G	EQUIPMENT GROUND (GREEN)
(E)	EXISTING DEVICE TO REMAIN
EP	EXPLOSION PROOF
(ER)	EXISTING DEVICE TO BE RELOCATED
FT or '	FEET
FA or F.A.	FIRE ALARM
FLA	FULL LOAD AMPS
GRD	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GE or GEC	GROUNDING ELECTRODE CONDUCTOR
HACR	HEATING AIR CONDITIONING REFRIGERATION
HOA	HAND-OFF-AUTO
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
H.,W.,D.,L.	HEIGHT, WIDTH, DEPTH, LENGTH
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
IN. or "	INCHES
I/G	ISOLATED GROUND
IBC	INTERNATIONAL BUILDING CODE
I.D.C.S.	INTEGRATED DIMMING CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
JBOX	JUNCTION BOX
K	DEGREE KELVIN
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LCL	LONG CONTINUOUS LOAD
LF, L.F.	LINEAR FEET
LTG, LTS	LIGHTING
LPS	LOW PRESSURE SODIUM
MAX.	MAXIMUM
MBJ	MAIN BONDING JUMPER
MDF	MAIN DISTRIBUTION FRAME
MOCP	MAXIMUM OVERCURRENT PROTECTION
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
M.C.	MECHANICAL CONTRACTOR
M	METER
M/M	METER MAIN
MV	MERCURY VAPOR
MH	METAL HALIDE
MIN.	MINIMUM
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MFR.	MANUFACTURER
MTD	MOUNTED
MW	MICROWAVE
NATS	NON AUTOMATIC DISCONNECT
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NF	NON-FUSED
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NL	NIGHT LIGHT
NO. or #	NUMBER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
%Z	PERCENT IMPEDANCE
PH. or ø	PHASE
PC	PHOTOCELL
P.C.	PLUMBING CONTRACTOR
P	POLE
PVC	POLY VINYL CHLORIDE
PDU	POWER DISTRIBUTION UNIT
PRIMARY OVER 600 VOLTS	
PROVIDE	FURNISH, INSTALL AND CONNECT
PT	POTENTIAL TRANSFORMER
PA	PUBLIC ADDRESS
(R)	DENOTES RELOCATED DEVICE LOCATION.
REC, RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
SCC	SHORT CIRCUIT CURRENT
SCCR	SHORT CIRCUIT CURRENT RATING
SCS	STRUCTURED CABLING SYSTEM
SFD	SMOKE FIRE DAMPER
SECONDARY 600 VOLTS AND LESS	
SMACNA	SHEET METAL AND AIR COND. CONTRACTOR'S NAT'L ASSOC.
SQ.	SQUARE
SSBJ	SUPPLY SIDE BONDING JUMPER
SBJ	SYSTEM BONDING JUMPER
TC	TIMECLOCK
TEL/DATA	TELEPHONE AND DATA
TV	TELEVISION
T.V.S.S.	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP.	TYPICAL
U.G.P.S.	UNDERGROUND PULL SECTION
U.O.N.	UNLESS OTHERWISE NOTED
U.P.S. or UPS	UNINTERRUPTABLE POWER SYSTEM
VAV	VARIABLE AIR VOLUME
V	VOLTS
VA	VOLT AMPERES
VD	VOLTAGE DROP
WP	WEATHERPROOF
W	WIRE
XFMR	TRANSFORMER

FIRE ALARM SYSTEM SYMBOLS

SEE FIRE ALARM OR CENTRAL MONITORING SYSTEM DRAWINGS FOR FIRE ALARM SYMBOLS.

SIGNAL SYSTEM SYMBOLS

B — WALL MOUNTED CLOCK. FIELD VERIFY MOUNTING HEIGHT PRIOR TO INSTALLATION. "B" INDICATES BATTERY OPERATED CLOCK. "D" INDICATES DIGITAL CLOCK, "NO LETTER" INDICATES ANALOG CLOCK. REFER TO SPECIFICATIONS.

—C— CONCEALED CLOCK CONDUIT RUN 1/2" CONDUIT, OR AS NOTED, WITH CONDUCTORS PER SPECIFICATIONS.

HTV TV OUTLET, WALL MOUNTED. STUB A 3/4" C.O. UP 6" ABOVE THE ACCESSIBLE CEILING AND PROVIDE BUSHING.

TV TV OUTLET FLUSH CEILING MOUNTED.

—TV— CONCEALED TELEVISION CONDUIT RUN, 3/4" CONDUIT, OR AS NOTED, WITH CONDUCTORS – REFER TO SPECIFICATIONS.

HM MICROPHONE OUTLET, WALL MOUNTED. PROVIDE 3/4" C.O. (WITH PULL ROPE) UP TO 6" ABOVE ACCESSIBLE CEILING SPACE. PROVIDE BUSHING AT EACH END.

M MICROPHONE OUTLET, FLUSH CEILING MOUNTED.

—M— CONCEALED MICROPHONE CONDUIT RUN, 3/4" CONDUIT, OR AS NOTED, WITH CONDUCTORS – REFER TO SPECIFICATIONS.

HS V SURFACE WALL MOUNTED SPEAKER, "V" INDICATES VOLUME CONTROL.

S V SURFACE MOUNTED SPEAKER , "V" INDICATES VOLUME CONTROL.

HSV SURFACE WALL MOUNTED SPEAKER , "V" INDICATES VOLUME CONTROL.

SV CEILING FLUSH MOUNTED SPEAKER , "V" INDICATES VOLUME CONTROL.

SV ABOVE CEILING MOUNTED SPEAKER , "V" INDICATES VOLUME CONTROL.

V VOLUME CONTROL, WALL MOUNTED.

—S— CONCEALED SPEAKER CONDUIT RUN 3/4" CONDUIT, OR AS NOTED, WITH CONDUCTORS – REFER TO SPECIFICATIONS.

SECURITY ALARM SYSTEM SYMBOLS

SACP SECURITY ALARM CONTROL PANEL – SEE SPECIFICATIONS.

SPS SECURITY SYSTEM POWER SUPPLY – SEE SPECIFICATIONS.

D SECURITY ALARM PASSIVE INFRARED MOTION SENSOR – SEE SPECIFICATIONS.

DT SECURITY ALARM DUAL TECHNOLOGY MOTION SENSOR – SEE SPECIFICATIONS.

US SECURITY ALARM ULTRASONIC MOTION SENSOR – SEE SPECIFICATIONS.

DC SECURITY ALARM DOOR CONTACT – SEE SPECIFICATIONS.

PB SECURITY ALARM PANIC BUTTON – SEE SPECIFICATIONS.

KP SECURITY ALARM KEY PAD – SEE SPECIFICATIONS.

GB SECURITY ALARM GLASS BREAK INDICATOR – SEE SPECIFICATIONS.

—SA— SECURITY ALARM SYSTEM BRANCH CIRCUIT PER SECURITY ALARM RISER DIAGRAM AND/OR SPECIFICATIONS.

ACCESS CONTROL SYSTEM SYMBOLS

ACCP ACCESS CONTROL PANEL – SEE SPECIFICATIONS.

APS ACCESS CONTROL SYSTEM POWER SUPPLY – SEE SPECIFICATIONS.

LPS ACCESS CONTROL SYSTEM LOCK POWER SUPPLY – SEE SPECIFICATIONS.

KS ACCESS CONTROL KEY SWITCH – SEE SPECIFICATIONS.

LA ACCESS CONTROL LOCAL ALARM SOUNDER – SEE SPECIFICATIONS.

PR ACCESS CONTROL PROXIMITY READER – SEE SPECIFICATIONS.

CR ACCESS CONTROL CARD READER – SEE SPECIFICATIONS.

KP ACCESS CONTROL KEY PAD – SEE SPECIFICATIONS.

ES ACCESS CONTROL REQUEST TO EXIT SENSOR – SEE SPECIFICATIONS.

—AC— ACCESS CONTROL SYSTEM BRANCH CIRCUIT PER ACCESS CONTROL RISER DIAGRAM AND/OR SPECIFICATIONS.

PROJECT SPECIFIC SYMBOLS

REQUIRED SPECIFICATION DEVIATIONS

THE FOLLOWING ITEM(S) ARE REQUIRED DEVIATIONS FROM THE DRAWINGS AND SPECIFICATIONS AND SHOULD BE INCLUDED AS PART OF THE BASE BID. THESE DEVIATIONS ARE AT THE DIRECTION OF THE OWNER:

NONE

ALLOWED SPECIFICATION DEVIATIONS

THE FOLLOWING ITEM(S) ARE ALLOWED DEVIATIONS FROM THE DRAWINGS AND SPECIFICATIONS. THESE DEVIATIONS ARE AT THE DIRECTION OF THE OWNER:

NONE

DEDUCTIVE/ADDITIVE ALTERNATE PRICING

IN ADDITION TO ANY DEDUCTIVE OR ADDITIVE LINE ITEM PRICING CALLED FOR ON THE DRAWING OR IN THE SPECIFICATIONS, CONTRACTOR SHALL PROVIDE SEPARATE LINE ITEM DEDUCTIVE/ADDITIVE ALTERNATE PRICING FOR EACH OF THE FOLLOWING ITEM(S):

NONE

ANNOTATIONS

A PANEL CALLOUT, "A" INDICATES PANELBOARD OR EQUIPMENT DESIGNATION.

AC 2 MECHANICAL EQUIPMENT CALLOUT, "AC" INDICATES UNIT TYPE AND "2" INDICATES UNIT NUMBER. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS.

3 E-1 DETAIL CALLOUT, "3" INDICATES DETAIL NUMBER "E-1" INDICATES SHEET NUMBER.

2 PLAN NOTE REFERENCE, REFER TO NOTES ON SHEET, OR AS DIRECTED.

4 REVISION REFERENCE.

WYE CONFIGURATION DELTA CONFIGURATION GROUND

CCTV SYSTEM SYMBOLS

CCVMS VIDEO MANAGEMENT SYSTEM – CCTV HEADEND – SEE SPECIFICATIONS.

CCWS CCTV WORKSTATION AND MONITOR – SEE SPECIFICATIONS.

CCTV FIXED POSITION CAMERA – SEE SPECIFICATIONS.

CCTV PAN/TILT CAMERA – SEE SPECIFICATIONS.

—CC— CCTV SYSTEM BRANCH CIRCUIT PER CCTV SYSTEM RISER DIAGRAM AND/OR SPECIFICATIONS.

TELEPHONE/DATA SYMBOLS

TELEPHONE OUTLET BOX, WALL MOUNTED. STUB A 1" C.O. UP 6" ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.
"W" = WALL MOUNTED PHONE
"P" = PUBLIC (PAY) PHONE. VERIFY ALL REQUIREMENTS WITH THE TELEPHONE UTILITY COMPANY. PROVIDE 1" C.O. (MIN) TO THE MAIN TELEPHONE BACKBOARD. MOUNTING HEIGHT AS REQUIRED.

DATA OUTLET BOX, WALL MOUNTED. STUB A 1" C.O. UP 6-INCHES ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.

COMBINATION TELEPHONE AND DATA OUTLET BOX, WALL MOUNTED. STUB A 1" C.O. UP 6-INCHES ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.

TELEPHONE OUTLET BOX, FLUSH MOUNTED IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

DATA OUTLET BOX FLUSH MOUNTED IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

COMBINATION TELEPHONE AND DATA OUTLET BOX FLUSH MOUNTED IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

TELEPHONE OUTLET BOX, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH. STUB A 1" C.O. UP 6-INCHES ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.

DATA OUTLET BOX, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH. STUB A 1" C.O. UP 6-INCHES ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.

COMBINATION TELEPHONE AND DATA OUTLET BOX, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH. STUB A 1" C.O. UP 6-INCHES ABOVE THE ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING.

COMBINATION TELEPHONE AND DATA OUTLET BOX MOUNTED IN ACCESSIBLE CEILING SPACE OR IN FLOOR BOX PER PLAN FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM. VERIFY CONNECTION REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

COMBINATION TELEPHONE AND DATA OUTLET, WALL MOUNTED AT +18-INCHES A.F.F. FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM. PROVIDE THE FOLLOWING:

- IN A NON-RATED INSULATED WALL, OR NON-RATED UNINSULATED WALL, PROVIDE A 2-GANG MUD RING OR CADDY #RBS SERIES BOX MOUNTING BRACKET (EQUAL BY B-LINE OR RAYCO) WITH (2) 1-1/2"C.O. WITH PULL STRING TO ACCESSIBLE CEILING. PROVIDE 1-1/2" BUSHINGS AT CONDUIT ENDS. REFER TO ARCHITECTURAL PLANS FOR WALL CONSTRUCTION/TYPE AND CEILING CONDITIONS.
- IN A RATED WALL, PROVIDE (1) 4S/DP BOX WITH (2) 1-1/4" C.O. AND (1) 4S/DP BOX WITH (1) 1-1/4" C.O. WITH PULL STRINGS IN EACH CONDUIT TO ACCESSIBLE CEILING. PROVIDE 1-1/4" BUSHINGS AT CONDUIT ENDS. UTILIZE CADDY #RBS SERIES BOX MOUNTING BRACKET TO MAINTAIN BOX ALIGNMENT (EQUAL BY B-LINE OR RAYCO). UTILIZE FIRESTOPPING SYSTEM PADS RATED FOR USE ON THE INSIDE OR OUTSIDE OF THE BOX (STI OR EQUAL) AS REQUIRED TO MAINTAIN RATING OF WALL OR MEMBRANE. REFER TO ARCHITECTURAL PLANS FOR WALL CONSTRUCTION/TYPE AND CEILING CONDITIONS.

—T1— CONCEALED TELEPHONE/DATA CONDUIT RUN, 1-INCH CONDUIT ONLY (MIN). SEE TABLE FOR CONDUIT SIZE VARIATIONS.
T2 = 1-1/4" C.O. T3 = 1-1/2" C.O. T4 = 2" C.O.

FLUSH MOUNTED, LOCKABLE TERMINAL CABINET WITH TERMINAL STRIPS AS REQUIRED.

SURFACE MOUNTED, LOCKABLE TERMINAL CABINET WITH TERMINAL STRIPS AS REQUIRED.

TELEPHONE TERMINAL BACKBOARD SIZED AS NOTED, REFER TO SYSTEM GROUND DETAIL.

LIGHTING SYMBOLS

SITE LIGHTING FIXTURE SYMBOLS DEPICTED WITH CAPITAL LETTER(S) ADJACENT TO RESPECTIVE SYMBOL(S) INDICATE(S) LIGHT FIXTURE MOUNTING BASE DETAIL(S). SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE SYMBOL INFORMATION.

1a LIGHTING FIXTURE CALL OUT, NUMBER(S) AND/OR UPPER CASE LETTER(S) (i.e. "1") INDICATES FIXTURE TYPE (REFER TO LIGHTING FIXTURE SCHEDULE). LOWER CASE LETTER (i.e. "a") ADJACENT TO FIXTURE TYPE INDICATES BALLAST OPTION (SEE GENERAL LIGHTING FIXTURE SCHEDULE NOTES).

3 INDICATES FINAL CONNECTION TO A LIGHTING FIXTURE, NUMBER OF CONDUCTORS AS REQUIRED.

LIGHTING CONTROL SYMBOLS

SEE THE DISTRIBUTED LIGHTING CONTROL (DLCS) SPECIFICATIONS AND SEQUENCE OF OPERATIONS (SOO) FOR MORE INFORMATION.

LOW VOLTAGE WIRING INTERCONNECTING DLCS COMPONENTS AS REQUIRED. SEE DLCS SPECIFICATIONS FOR MORE INFORMATION.

K WALL MOUNTED DIMMER. SEE SINGE POLE SWITCH SYMBOL FOR RELATED SUBSCRIPTS. QUANTITY OF ADJACENT LOWER CASE LETTERS INDICATES QUANTITY OF DIMMERS REQUIRED. PROVIDE DIMMER TYPE TO MATCH INDICATED BALLAST TYPE AND CONTROL REQUIREMENTS.

K_y WALL MOUNTED STAND ALONE OCCUPANCY SENSOR.

K^H_y WALL MOUNTED SYSTEM-BASED OCCUPANCY SENSOR.

$S^{H,AV,DM,P}_y$ 1-WAY DIRECTIONAL CEILING MOUNTED, SYSTEM-BASED OCCUPANCY SENSOR.

$S^{H,AV,DM,P}_y$ 2-WAY DIRECTIONAL CEILING MOUNTED, SYSTEM-BASED OCCUPANCY SENSOR.

$K^{K,V}_y$ LOW VOLTAGE MOMENTARY SWITCHES, WALL MOUNTED, FOR MANUAL ON/OFF SWITCHING, DIMMING, AND OVERRIDE CONTROL OF LIGHTING.

S_{y+} AUTOMATIC SWITCHING/STEP-DIMMING DAYLIGHTING CONTROLLER USED TO SWITCH OFF LIGHTS WHEN SUFFICIENT NATURAL LIGHT IS PRESENT. REFER TO THE DLCS SOO FOR TARGET ILLUMINATION VALUE.

D_{y+} AUTOMATIC CONTINUOUS DIMMING DAYLIGHTING CONTROLLER USED TO DIM LIGHTS WHEN SUFFICIENT NATURAL LIGHT IS PRESENT. REFER TO THE DLCS SOO FOR TARGET ILLUMINATION VALUE.

LIGHTING CONTROL SYMBOL SUPERSCRIPT & SUBSCRIPT KEY:

1. "y" INDICATES THAT SWITCH LEG "y" TO BE CONFIGURED PER THE SOO. ADJACENT LOWER CASE LETTERS INDICATES QUANTITY OF SWITCHLEGS TO BE CONTROLLED. EXACT CONTROL FUNCTION IS DETERMINED BY THE BALLAST/DRIVER/FIXTURE TYPE.
2. ADJACENT UPPER CASE LETTER(S) INDICATE THE FOLLOWING:
   AV INDICATES CONNECTION TO A/V CONTROL SYSTEM.
   DM INDICATES DUAL MODE CONTROL AT CORRIDORS, STAIRWELLS AND WAREHOUSE AISLEWAYS
   H INDICATES CONNECTION TO HVAC SYSTEM CONTROLS VIA CONTROLLED DRY-CONTACT CLOSURE.
   K INDICATES LOCKING SWITCH FOR THE SUBSEQUENT LOWER CASE LETTER.
   P INDICATES CONNECTION TO MOVEABLE PARTITION INTERFACE, SENSOR AND STATUS INDICATOR.
   V INDICATES VANDAL RESISTANT SWITCH.
3. ADJACENT LOWER CASE LETTER(S) INDICATE SWITCH LEG(S) CONTROLLED EXCEPT WHERE "DM" INDICATES DUAL MODE CONTROL SWITCH.
4. ADJACENT "+, ++ AND *" INDICATES PORTION OF SWITCHLEG CONTROLLED BY SENSOR WHERE "+" INDICATES PRIMARY SIDELIT DAYLIT ZONE, "++" INDICATES SECONDARY SIDELIT DAYLIT ZONE, AND "*" INDICATES SKYLIT DAYLIT ZONE.

MISCELLANEOUS SYSTEM SYMBOLS

ICP INVERTER CONTROL PANEL – SEE INVERTER SPECIFICATIONS.

IAP INVERTER ANNUNCIATOR PANEL – SEE INVERTER SPECIFICATIONS.

GAP GENERATOR ANNUNCIATOR PANEL – SEE GENERATOR SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

IDCS INTEGRATED DIMMING CONTROL STATION (IDCS) PANEL – WALL MOUNTED. SEE IDCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

DPCS DIMMING PANEL CONTROL STATION (DPCS) PANEL – WALL MOUNTED. SEE DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

HL LIGHTING CONTROL SYSTEM LOCAL SWITCH – WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

HO LIGHTING CONTROL SYSTEM OVERRIDE SWITCH – WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

HM LIGHTING CONTROL SYSTEM MASTER SWITCH – WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

HR IDCS/DPCS SYSTEM REMOTE STATION SWITCH – WALL MOUNTED. SEE IDCS SYSTEM AND/OR DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

HP IDCS/DPCS SYSTEM PARTITION STATION SWITCH – WALL MOUNTED. SEE IDCS SYSTEM AND/OR DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

BRANCH CIRCUIT SYMBOLS

A-1,3,5 HOME RUN TO PANEL. LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS. HASH MARKS INDICATE NUMBER OF CONDUCTORS IN CONDUIT RUN, #12 AWG MINIMUM UNLESS OTHERWISE NOTED.

A-1&3&5 HOME RUN TO PANEL. LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS WITH SEPARATE NEUTRALS. "&" INDICATES SEPARATE NEUTRALS.

A-1+3+5 HOME RUN TO PANEL. LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS. "+" INDICATES SEPARATE #10 NEUTRAL THROUGHOUT BRANCH CIRCUIT. HASH MARK " / " INDICATES AN ISOLATED GROUND CONDUCTOR.

CONCEALED CONDUIT OR BRANCH CIRCUIT UNLESS OTHERWISE NOTED. 1/2" CONDUIT MINIMUM, (2) #12 AWG CONDUCTORS MINIMUM.

CONDUIT OR BRANCH CIRCUIT CONCEALED BELOW GRADE, 3/4" CONDUIT MINIMUM WITH (2) 12 AWG CONDUCTORS MINIMUM AND A CODE SIZED EQUIPMENT GROUND.

SURFACE-MOUNTED CONDUIT OR BRANCH CIRCUIT UNLESS OTHERWISE NOTED. 1/2" CONDUIT MINIMUM, (2) #12 AWG CONDUCTORS MINIMUM.

TANDEM WIRING CONNECTION.

CONDUIT STUB OUT, CAP, MARK AND RECORD ON AS-BUILT DRAWINGS

CONDUIT CONTINUATION.

FLEXIBLE CONNECTION AS REQUIRED. NUMBER OF CONDUCTORS AS REQUIRED. VERIFY CONNECTION REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN.

CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION DOWN WALL TO FLOOR BELOW

CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION UP WALL TO FLOOR ABOVE

FLOOR BOX / SPECIALTY WALL BOX / PEDESTAL BOX SYMBOLS

SINGLE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

TWO SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

THREE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

FOUR SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

SIX SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

AV 7-GANG AV FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

RECESSED, ADJUSTABLE DEPTH, FLAT PANEL TV/DISPLAY WALL BOX WITH FLUSH GROMMETED COVER PANEL (CHIEF #PAC525F) AND MINIMUM OF (1) 1-1/4"C.O. FROM TOP-MOUNTED L.V. CONDUIT ENTRY BOX TO ACCESSIBLE CEILING. SEE PLANS FOR ANY ADDITIONAL CONDUIT REQUIREMENTS. PROVIDE ADDITIONAL L.V. AND LINE VOLTAGE CONDUIT ENTRY BOXES AS REQUIRED TO ACCOMPLISH WALL BOX CONFIGURATION DEPICTED ON PLANS. FLUSH GROMMETED COVER SHALL BE WHITE, BLACK OR CUSTOM COLOR PER ARCHITECT. WHEN FIELD CONDITIONS PROHIBIT INSTALLATION OF THIS DEVICE (SUCH AS WALL STUD/CAVITY DEPTH OF LESS THAN 2.5" ETC), CONFIRM VIA WRITTEN RFI THE INSTALLATION OF A TRADITIONAL POWER AND DATA RECEPTACLE INSTALLATION ALONG SIDE CCTV/AV JUNCTION BOX CONSISTING OF 2-GANG DEEP JUNCTION BOX/2-GANG RING WITH 1-1/4"C.O. TO ACCESSIBLE CEILING IN ADDITION TO ANY OTHER CONDUIT REQUIREMENTS DEPICTED ON PLANS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR MOUNTING HEIGHT.

SINGLE OR DUAL SERVICE RECESSED EXTERIOR WALL BOX – TYPE "WP-A". PROVIDE DEVICES PER PLAN. EACH LV OR UNUSED COMPARTMENT SHALL BE EQUIPPED WITH A 1"C.O. TO THE NEAREST ACCESSIBLE CEILING SPACE U.O.N. SEE EXTERIOR DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

SINGLE OR DUAL SERVICE EXTERIOR PEDESTAL – TYPE "WP-C". PROVIDE DEVICES PER PLAN. SEE EXTERIOR DETAILS AND SPECIFICATIONS FOR MORE INFORMATION. ARROW DENOTES DEVICE DOOR LOCATION.

POWER SYMBOLS

ALL RECEPTACLE OUTLETS SHOWN WITH A DIAGONAL SLASH SHALL BE CONTROLLED BY OCCUPANCY SENSOR OR LIGHTING CONTROL PANEL. SEE DISTRIBUTED LIGHTING CONTROLS FOR ADDITIONAL REQUIREMENTS. WHERE DOUBLE DUPLEX RECEPTACLE OUTLETS ARE INDICATED AS CONTROLLED, ONLY A SINGLE DUPLEX RECEPTACLE OUTLET (NON-IG, NON-GCFI TYPE) SHALL BE CONTROLLED. WITHIN ANY CONTROLLED DUPLEX RECEPTACLE OUTLET, ONLY ONE RECEPTACLE SHALL BE CONTROLLED. NOTE THAT FOR FLOOR BOXES OR POKE-THRU DEVICES, THE ASSOCIATED CONTROL RELAY MAY NEED TO BE LOCATED WITHIN THE ELECTRICAL ROOM WHERE THE CONTROLLED CIRCUIT ORIGINATES.

OS_a OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROLLED RECEPTACLE RELAY. WHERE LETTER DESIGNATION "a" REPRESENTS OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROL ZONE. SEE THE DISTRIBUTED LIGHTING CONTROL SPECIFICATION FOR MORE INFORMATION.

DUPLEX RECEPTACLE, WALL MOUNTED.

DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED.

DUPLEX, GFCI RECEPTACLE, WALL MOUNTED. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.

DOUBLE DUPLEX, WALL MOUNTED, WITH (1) GFCI RECEPTACLE AND (1) DUPLEX RECEPTACLE CONNECTED ON LOAD SIDE OF GFCI. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.

DUPLEX RECEPTACLE, ONE HALF SWITCHED, WALL MOUNTED.

DUPLEX, ISOLATED GROUND RECEPTACLE, WALL MOUNTED.

1,3 1,3a COMBINATION DOUBLE DUPLEX: ONE ISOLATED GROUND DUPLEX RECEPTACLE AND ONE DUPLEX RECEPTACLE, WALL MOUNTED.

COMBINATION DOUBLE DUPLEX: TWO ISOLATED GROUND RECEPTACLES, WALL MOUNTED.

SIMPLEX RECEPTACLE, WALL MOUNTED.

SPECIAL RECEPTACLE, WALL MOUNTED. REFER TO PLAN NOTES.

DUPLEX RECEPTACLE FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

DOUBLE DUPLEX RECEPTACLE FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

DUPLEX RECEPTACLE, ONE HALF SWITCHED, FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

DUPLEX, ISOLATED GROUND RECEPTACLE, FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

1,3 1,3a COMBINATION DOUBLE DUPLEX: ONE ISOLATED GROUND DUPLEX RECEPTACLE AND ONE DUPLEX RECEPTACLE, MOUNTED FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN FLOOR BOX SYMBOL.

COMBINATION DOUBLE DUPLEX FLUSH IN CEILING: TWO ISOLATED GROUND RECEPTACLES – MOUNT FLUSH IN FLOOR WHEN INDICATED IN FLOOR BOX SYMBOL.

SIMPLEX RECEPTACLE FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

SPECIAL RECEPTACLE FLUSH IN CEILING – MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.

DUPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.

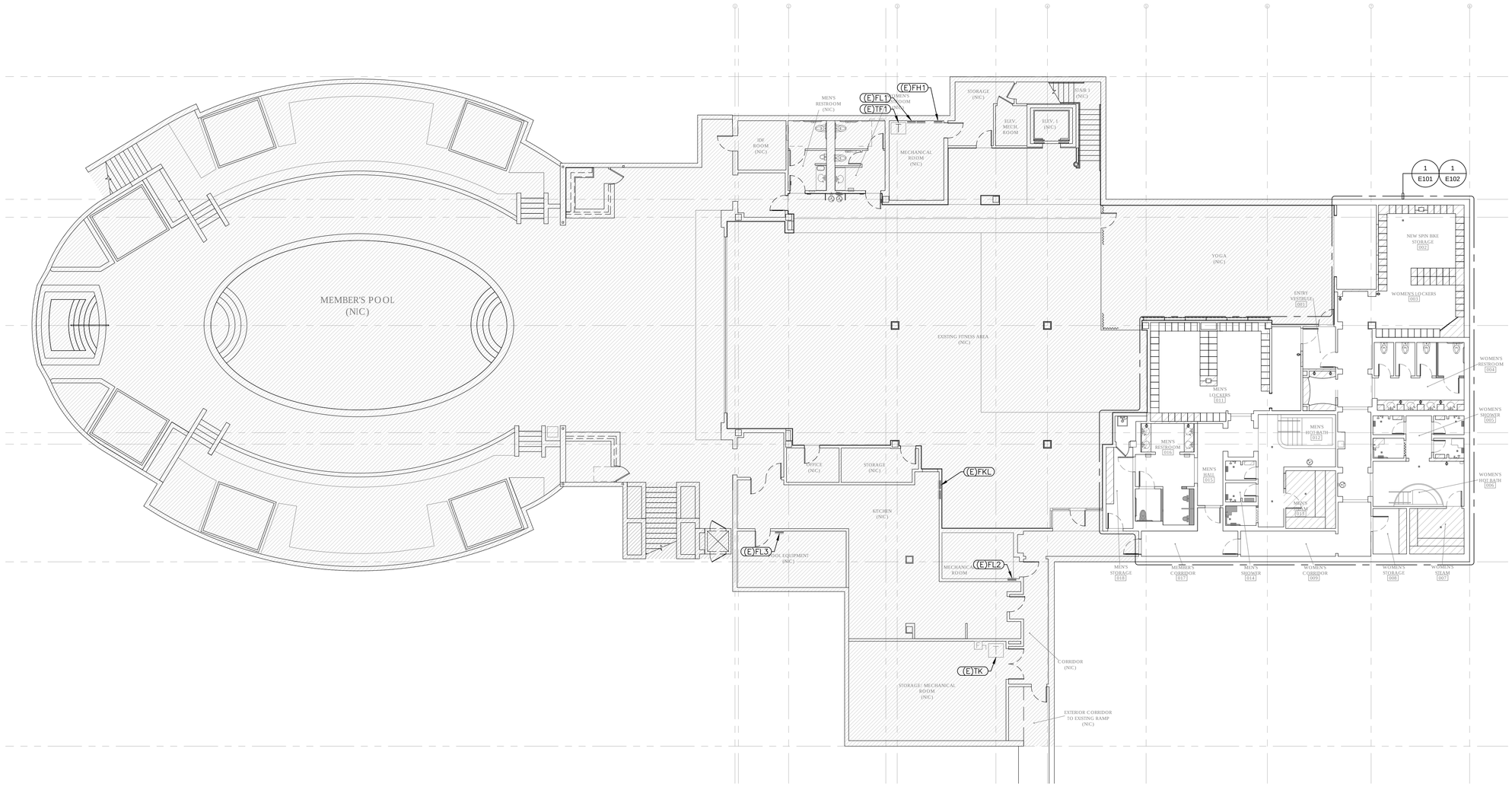
DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.

DUPLEX, GFCI RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.

DOUBLE DUPLEX, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH, WITH (1) GFCI RECEPTACLE AND (1) DUPLEX RECEPTACLE CONNECTED ON LOAD SIDE OF GFCI. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.

DUPLEX RECEPTACLE, BOTTOM HALF SWITCHED, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.

DUPLEX, ISOLATED GROUND RECEP



1 ELECTRICAL DEMOLITION OVERALL PLAN

Scale: 3/32" = 1' - 0"

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No.	Date	Description
	09-17-21	Permit Set

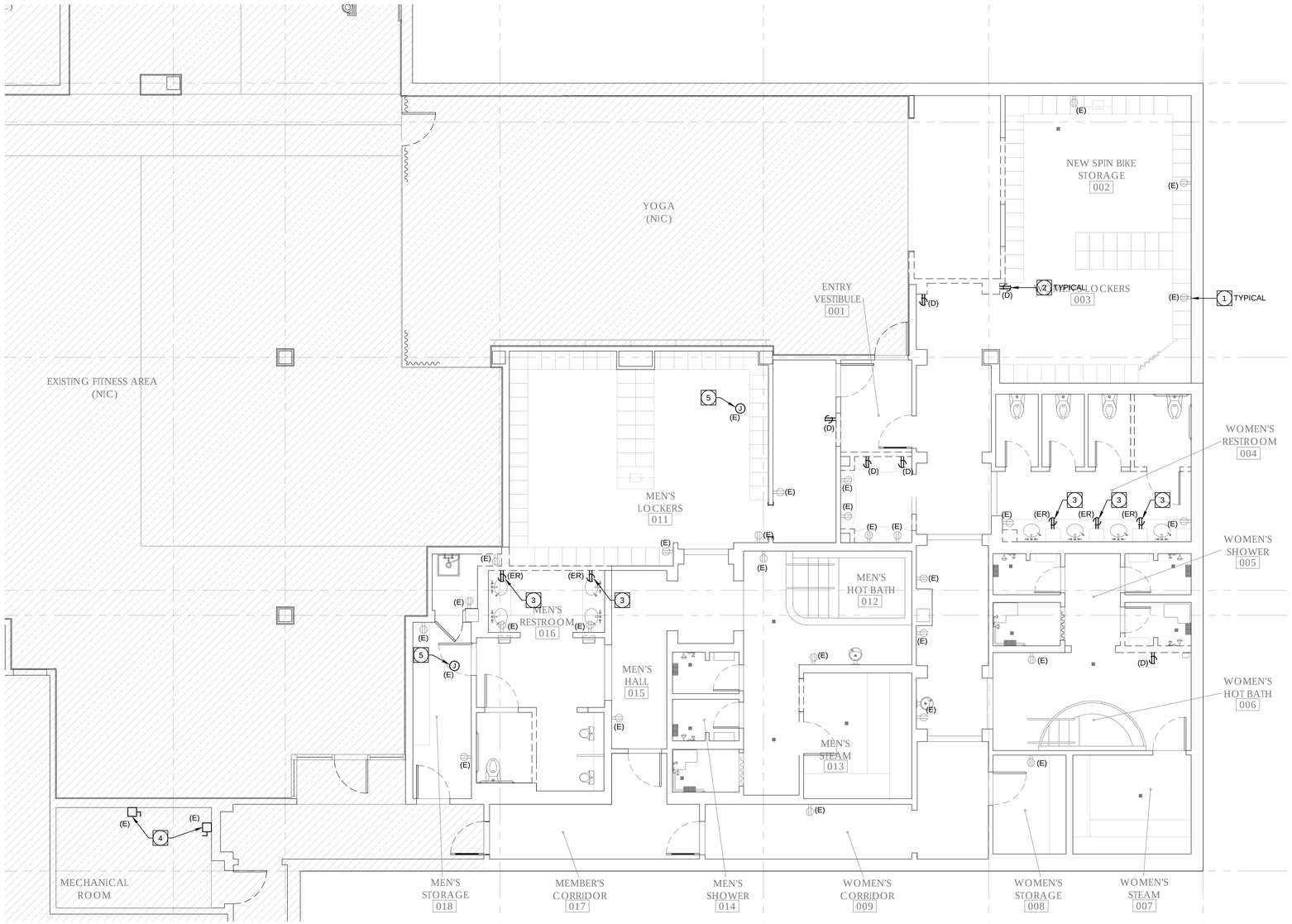
Drawing Title

ELECTRICAL DEMOLITION OVERALL PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E1.00

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E1-00.dwg, 9/17/2021 10:12:59 AM, DWG To PDF.pc3



1 ENLARGED DEMOLITION POWER PLAN
Scale: 3/32" = 1' - 0"

DEMO PLAN NOTES:

1. EXISTING RECEPTACLES AND ASSOCIATED BRANCH CIRCUITING TO REMAIN, PROTECT IN PLACE. VERIFY EXACT LOCATION IN FIELD. EXISTING DEVICE AND ASSOCIATED FACEPLATE THAT DO NOT MATCH NEW DEVICE STANDARD SHALL BE REPLACED WITH NEW DEVICES TO MATCH NEW, REFER TO ARCHITECTS PLANS FOR FINISH REQUIREMENTS.
2. EXISTING RECEPTACLES TO BE DEMOLISHED, VERIFY EXACT LOCATION IN FIELD. SAFE-OFF BRANCH CIRCUIT AT PANEL. RE-WORK EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO MAINTAIN CIRCUITRY TO EXISTING REMAINING RECEPTACLES ON CIRCUIT(S). VERIFY EXACT REQUIREMENTS IN FIELD PRIOR TO WORK.
3. EXISTING RECEPTACLES TO BE RELOCATED, VERIFY EXACT LOCATION IN FIELD. SAFE-OFF BRANCH CIRCUIT AT PANEL. RE-WORK EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO MAINTAIN CIRCUITRY TO EXISTING REMAINING RECEPTACLES ON CIRCUIT(S). CONTRACTOR SHALL MAKE EXISTING BRANCH CIRCUIT(S) AVAILABLE FOR RE-USE WITH NEW RECEPTACLE LOCATIONS, SEE SHEET E2.01.
4. CONTRACTOR SHALL DISCONNECT EXISTING STEAM GENERATOR FROM EXISTING BRANCH CIRCUITING AS REQUIRED. EXISTING STEAM GENERATOR DISCONNECT, ALL CONDUCTORS AND CONDUIT SHALL REMAIN, PROTECT IN PLACE. VERIFY EXACT LOCATIONS IN FIELD.
5. EXISTING VAV BOX TO BE DEMOLISHED AND REPLACED, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. EXISTING BRANCH CIRCUITING SHALL BE RE-USED, CONTRACTOR SHALL VERIFY CIRCUITING IN FIELD PRIOR TO WORK.

GENERAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT SITE PRIOR TO SUBMITTING BID. ALL DEMOLITION, ALTERATION, EXTENSION, RELOCATION, REHABILITATION WORK SHALL BE INCLUDED IN CONTRACT. NO ADDITIONAL ALLOWANCE OR CHANGE ORDERS WILL BE ACCEPTED.
3. CONTRACTOR IS RESPONSIBLE FOR RELOCATING OR REMOVING FROM WALLS, CEILINGS, FLOOR SPACES, ETC., ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQUIRED FOR ALL EXISTING OUTLETS, FIXTURES, EQUIPMENT, ETC. SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC. REQUIRED TO DEMOLISH ELECTRICAL WORK AS INDICATED OR PROVIDE BLANK COVER PLATE ON ALL OUTLETS EXPOSED BY REMOVAL OF FIXTURE OR DEVICES.
9. RESEAL ALL PENETRATIONS OR OPENING THROUGH WALLS, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
11. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT/WIRING RUNS, REUSE AS REQUIRED, AND REMOVE ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) MAY BE ABANDONED IN PLACE. REMOVE UNUSED WIRING INCLUDING ABANDONED TELEPHONE, DATA AND OTHER LOW VOLTAGE SYSTEMS CABLING AFTER CONFIRMING WITH THE OWNER'S PROJECT MANAGER THAT CABLING IS ABANDONED AND WILL NOT BE RE-USED.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER AND LOADS FOR ALL EXISTING EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS AND LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DRAWINGS AND TYPEWRITTEN DIRECTORIES FOR PANELS.
13. WHERE NECESSARY TO SHUT OFF UTILITY SERVICES OR CAUSE INTERRUPTION TO POWER OR SIGNAL SYSTEMS WHILE A BUILDING IS OCCUPIED, OR THAT AFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

Drawing Title

ENLARGED DEMOLITION POWER PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E1.01

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E1-01.dwg, 9/17/2021 10:13:02 AM, DWG To PDF.pc3

1 ENLARGED DEMOLITION LIGHTING PLAN
Scale: 3/32" = 1' - 0"

DEMO PLAN NOTES:

1. EXISTING LIGHT FIXTURE TO BE DEMOLISHED AND REPLACED ONE FOR ONE REPLACEMENT, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. EXISTING BRANCH CIRCUITING SHALL BE RE–USED AND IS SHOWN BASED ON LIMITED AS–BUILT INFORMATION. CONTRACTOR SHALL VERIFY CIRCUITING IN FIELD PRIOR TO WORK.
2. EXISTING LIGHT FIXTURE TO BE DEMOLISHED, EXISTING LIGHTING BRANCH CIRCUITING TO BE MADE AVAILABLE FOR USE WITH NEW LIGHT FIXTURE, SEE SHEET E2.02 FOR ADDITIONAL INFORMATION. VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. EXISTING BRANCH CIRCUITING SHALL BE RE–USED AND IS SHOWN BASED ON LIMITED AS–BUILT INFORMATION. CONTRACTOR SHALL VERIFY CIRCUITING IN FIELD PRIOR TO WORK.
3. EXISTING LIGHT FIXTURE TO BE DEMOLISHED, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. RE–WORK EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO MAINTAIN CIRCUITRY TO EXISTING REMAINING LIGHTING FIXTURES ON CIRCUIT(S).
4. EXISTING EXIT SIGN TO BE DEMOLISHED, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. RE–WORK EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO MAINTAIN CIRCUITRY TO EXISTING REMAINING LIGHTING FIXTURES ON CIRCUIT(S).

GENERAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT SITE PRIOR TO SUBMITTING BID. ALL DEMOLITION, ALTERATION, EXTENSION, RELOCATION, REHABILITATION WORK SHALL BE INCLUDED IN CONTRACT. NO ADDITIONAL ALLOWANCE OR CHANGE ORDERS WILL BE ACCEPTED.
3. CONTRACTOR IS RESPONSIBLE FOR RELOCATING OR REMOVING FROM WALLS, CEILINGS, FLOOR SPACES, ETC., ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQUIRED FOR ALL EXISTING OUTLETS, FIXTURES, EQUIPMENT, ETC. SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS–BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC. REQUIRED TO DEMOLISH ELECTRICAL WORK AS INDICATED OR PROVIDE BLANK COVER PLATE ON ALL OUTLETS EXPOSED BY REMOVAL OF FIXTURE OR DEVICES.
9. RESEAL ALL PENETRATIONS OR OPENING THROUGH WALLS, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
11. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT/WIRING RUNS, REUSE AS REQUIRED, AND REMOVE ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) MAY BE ABANDONED IN PLACE. REMOVE UNUSED WIRING INCLUDING ABANDONED TELEPHONE, DATA AND OTHER LOW VOLTAGE SYSTEMS CABLING AFTER CONFIRMING WITH THE OWNER'S PROJECT MANAGER THAT CABLING IS ABANDONED AND WILL NOT BE RE–USED.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER AND LOADS FOR ALL EXISTING EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS AND LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DRAWINGS AND TYPEWRITTEN DIRECTORIES FOR PANELS.
13. WHERE NECESSARY TO SHUT OFF UTILITY SERVICES OR CAUSE INTERRUPTION TO POWER OR SIGNAL SYSTEMS WHILE A BUILDING IS OCCUPIED, OR THAT AFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

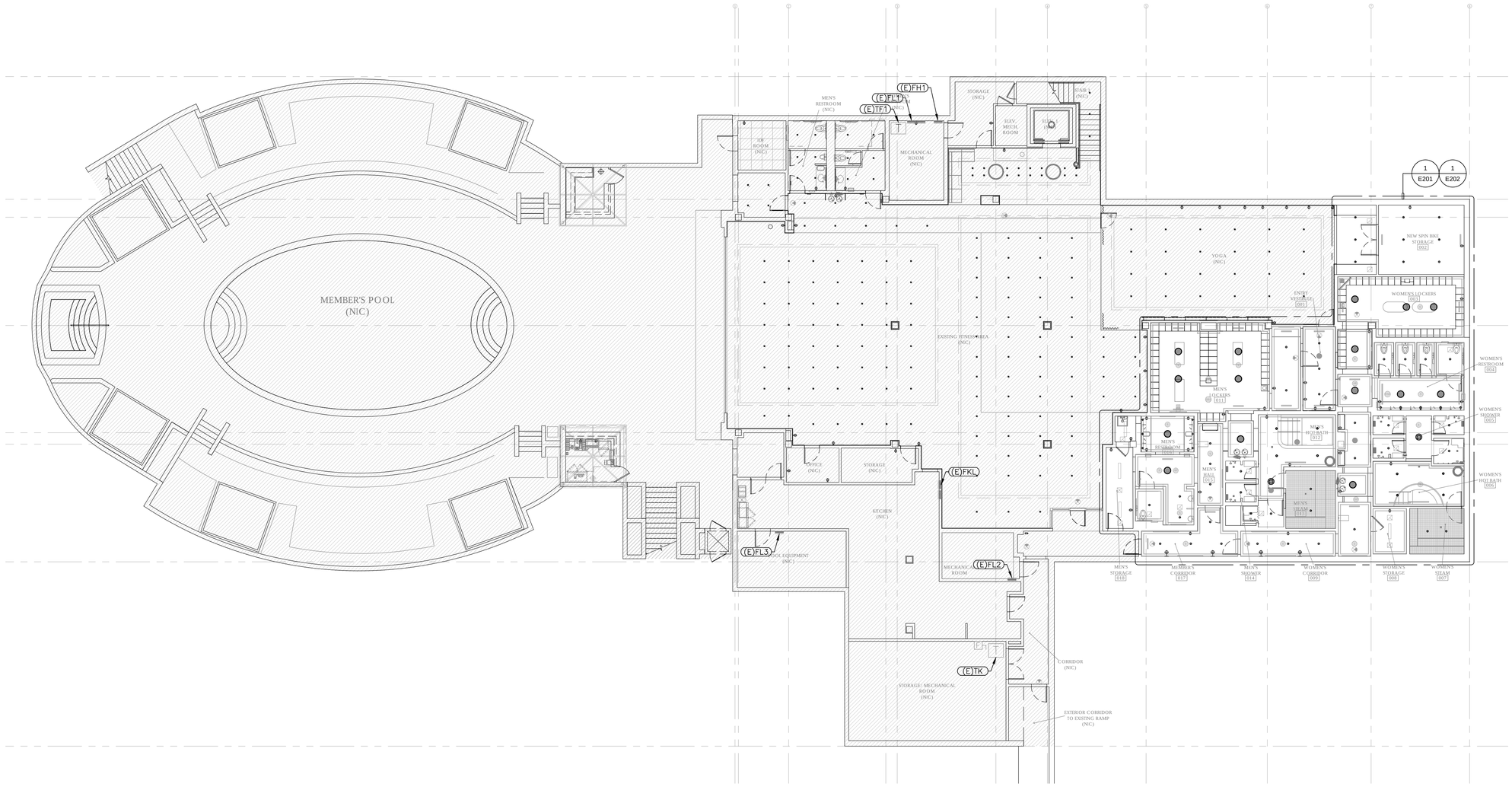
Drawing Title

ENLARGED DEMOLITION LIGHTING PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E1.02

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E1-02.dwg, 9/17/2021 10:13:08 AM, DWG To PDF.pc3



1 ELECTRICAL OVERALL PLAN
Scale: 3/32" = 1' - 0"

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E2-00.dwg, 9/17/2021 10:13:16 AM, DWG To PDF.pc3

HOTEL DEL CORONADO

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

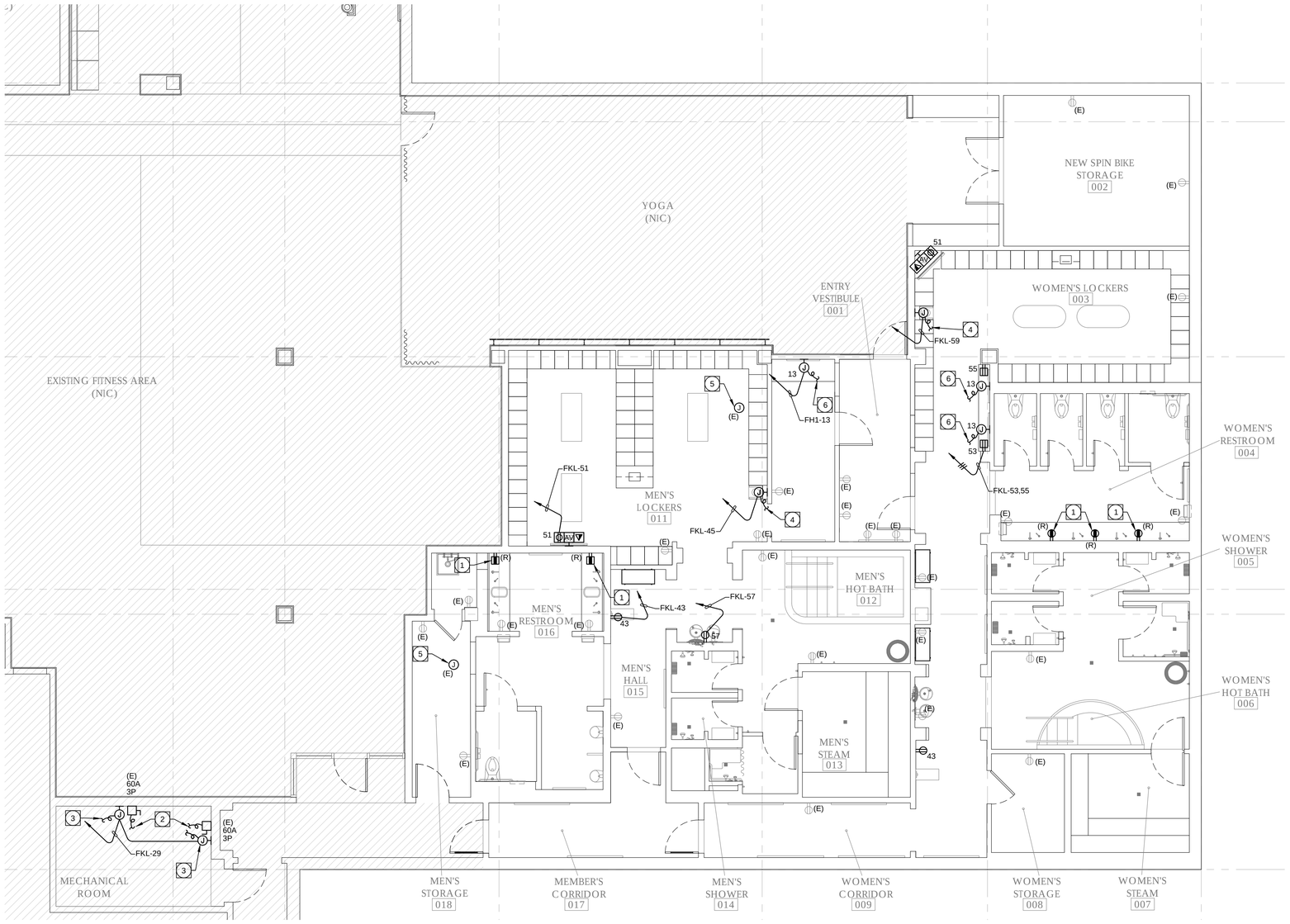
No.	Date	Description
	09-17-21	Permit Set

Drawing Title

ELECTRICAL OVERALL PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E2.00



1 ENLARGED POWER & COMMUNICATIONS PLAN
Scale: 3/32" = 1' - 0"

PLAN NOTES:

1. INTERCEPT AND EXTEND EXISTING RECEPTACLE BRANCH CIRCUITING MADE AVAILABLE FROM DEMOLITION WORK, SEE SHEET E1.01 FOR ADDITIONAL INFORMATION. NEW CONDUIT AND CONDUCTORS SHALL MATCH EXISTING. CONTRACTOR SHALL PROVIDE ALL CONDUIT, COUPLERS, CONDUCTORS, CONNECTORS, JUNCTION BOXES, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
2. PROVIDE 3/4"C., 3#8 & #10 E/G. COORDINATE WITH PLUMBING CONTRACTOR AND MAKE FINAL CONNECTION TO STEAM GENERATOR.
3. PROVIDE 120V CONTROL CIRCUIT FOR STEAM GENERATOR. COORDINATE EXACT LOCATION WITH PLUMBING PRIOR TO ROUGH IN.
4. CONNECT COMPLETE TO BATHING SUIT DRYER AS REQUIRED, VERIFY EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.
5. INTERCEPT AND EXTEND EXISTING VAV BRANCH CIRCUIT MADE AVAILABLE FROM DEMOLITION WORK, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. CONNECT AS REQUIRED TO NEW VAV UNIT. SEE MECHANICAL PLANS FOR LOCATIONS AND ADDITIONAL REQUIREMENTS.
6. CONNECT COMPLETE TO INTERNALLY ILLUMINATED MIRROR AS REQUIRED. COORDINATE REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN. VERIFY EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.

2 MAKE FINAL CONNECTION TO STEAM GENERATOR, REUSE EXISTING FEEDERS AND DISCONNECT SWITCH AS REQUIRED. COORDINATE EXACT REQUIREMENTS WITH PLUMBING CONTRACTOR.

COMMUNICATIONS PATHWAYS GENERAL NOTES:

1. CONDUITS SHALL (a) CONTAIN NO CONTINUOUS SECTIONS LONGER THAN 30M (98 FT.), AND (b) CONTAIN NO MORE THAN (2) 90° BENDS OR (1) REVERSE BEND WITHOUT INSTALLING A PULL BOX. SPLIT CONDUITS IN PLACE OF PULL BOXES ARE UNACCEPTABLE.
2. CONDUITS SHALL CONTAIN PLASTIC OR NYLON PULL TAPE RATED AT 200 LBS. WITH A MINIMUM OF 5 FEET OF EXTRA PULL TAPE COILED AT EACH END.
3. CONDUIT BEND RADIUS SHALL BE (a) A MINIMUM OF 6 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS 2-INCHES IN DIAMETER OR LESS, AND (b) 10 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS MORE THAN 2-INCHES IN DIAMETER.
4. TERMINATE CONDUIT STUBS AND SLEEVES THAT PROTRUDE THROUGH STRUCTURAL FLOORS 2-INCHEST TO 3-INCHES ABOVE THE FLOOR SURFACE.
5. INSTALL BUSHINGS OR BELL ENDS AS REQUIRED ON ALL CONDUITS.
6. FLEX CONDUIT IS UNACCEPTABLE FOR USE AS A COMMUNICATIONS CONDUIT EXCEPT AT SEISMIC JOINTS AND/OR IF APPROVED IN WRITING BY THE ENGINEER.
7. ALL UNDER SLAB OR IN-SLAB CONDUITS SHALL BE INSTALLED IN A MANNER THAT PREVENTS WATER INFILTRATION OF THE CONDUIT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROUND WATER, RAIN WATER OR CONSTRUCTION WATER IS PREVENTED FROM ENTERING AND/OR REMOVED FROM THE CONDUITS PRIOR TO PLACEMENT OF COMMUNICATIONS CABLES. SEE ELECTRICAL SPECIFICATIONS, DETAILS AND PLANS FOR ADDITIONAL CONDUIT SEALING REQUIREMENTS.
8. ALL PULL BOXES SHALL BE SIZED AND INSTALLED PER ANSI-TIA-569-C. PULL BOXES FOR IN/UNDER SLAB CONDUIT RUNS ARE NOT PERMITTED UNLESS OTHERWISE NOTED. PULL BOXES FOR OVERHEAD CONDUIT RUNS SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS WITHIN THE ACCESSIBLE CEILING SPACE AND SUPPORTED INDEPENDENTLY FROM THE STRUCTURE AND CONDUIT SUPPORTS. PULL BOXES FOR ROOF MOUNTED OR EXTERIOR ABOVE GRADE APPLICATIONS SHALL BE NEMA 3R RATED. PULL BOXES SHALL BE SIZED ACCORDING TO THE FOLLOWING:

CONDUIT SIZE	WIDTH	LENGTH	DEPTH	WIDTH INCREASE PER ADDITIONAL CONDUIT
1"	4"	16"	3"	2"
2"	8"	36"	4"	5"
3"	12"	48"	5"	6"
4"	15"	60"	8"	8"

FOR OTHER CONDUIT SIZES REFER TO ANSI/TIA-569-C TABLE 12. - LATEST PUBLISHED EDITION.

9. CONDUIT(S) SHALL EXIT A PULL BOX ON THE WALL OPPOSITE THE WALL ENTERED.
10. PROVIDE LABELING OF EACH CONDUIT PER GENERAL ELECTRICAL SPECIFICATIONS.
11. PROVIDE INTERNAL/EXTERNAL GAS AND WATER TIGHT MECHANICAL SEALING/PLUGGING OF EACH BUILDING ENTRY CONDUIT AS SPECIFIED ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS.

POWER PLAN GENERAL NOTES:

1. ALL RECEPTACLES ON COMMON WALLS SHALL BE SEPARATE BOXES AND OFFSET 24-INCHES MINIMUM.
2. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.
3. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
4. ALL FURNITURE FEED LOCATIONS TO BE VERIFIED WITH ARCHITECT AND FURNITURE VENDOR PRIOR TO ROUGH-IN.
5. ALL FURNITURE WHIPS SHALL BE TRIMMED TO REDUCE EXCESS WHIP LENGTH.
6. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
7. EXPOSED CABLE/CONDUCTORS INSTALLED IN A PLENUM SPACE SHALL CONFORM TO NEC, OR CEC WHERE ADOPTED, ARTICLE 300.22(C).
8. PROVIDE G.F.C.I. TYPE RECEPTACLE(S) OR RECEPTACLE(S) PROTECTED BY A GFCI CIRCUIT BREAKER(S) WHEN RECEPTACLES ARE 50A OR LESS, 150V TO GROUND OR LESS AND ARE LOCATED WITHIN 6-FEET OF ANY SINK OR THERAPEUTIC TUB, LAUNDRY AREA, SERVING ANY DRINKING FOUNTAIN OR VENDING MACHINE, WITHIN ANY KITCHEN SPACE, LOCKER ROOM AREA, GARAGE AND BATHROOM SPACE AND/OR LOCATED OUTDOORS. WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE, PROVIDE GFCI CIRCUIT BREAKER(S) TO PROTECT THE RESPECTIVE BRANCH CIRCUIT AND PROVIDE ADDITIONAL NEUTRAL CONDUCTORS IN THE BRANCH CIRCUITING AS REQUIRED TO ENSURE PROPER GFCI FUNCTION.
9. PROVIDE OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROLLED RECEPTACLE RELAY(S) AS REQUIRED TO SWITCH CONTROLLED RECEPTACLES. CONNECT BRANCH CIRCUITRY AND CONTROL WIRING AS REQUIRED TO ALLOW OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM RELAY TO SWITCH STANDALONE AND/OR SYSTEMS FURNITURE CONTROLLED RECEPTACLES AS INDICATED ON PLANS. PROVIDE ADDITIONAL CONDUIT, WIRING AND PATHWAYS NECESSARY TO CONNECT BRANCH CIRCUITRY AND CONTROL WIRING TO REMOTE RELAYS TO INCLUDE RELAY(S) LOCATED ON ALTERNATE FLOORS, IN ELECTRICAL ROOMS, ETC.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D). EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

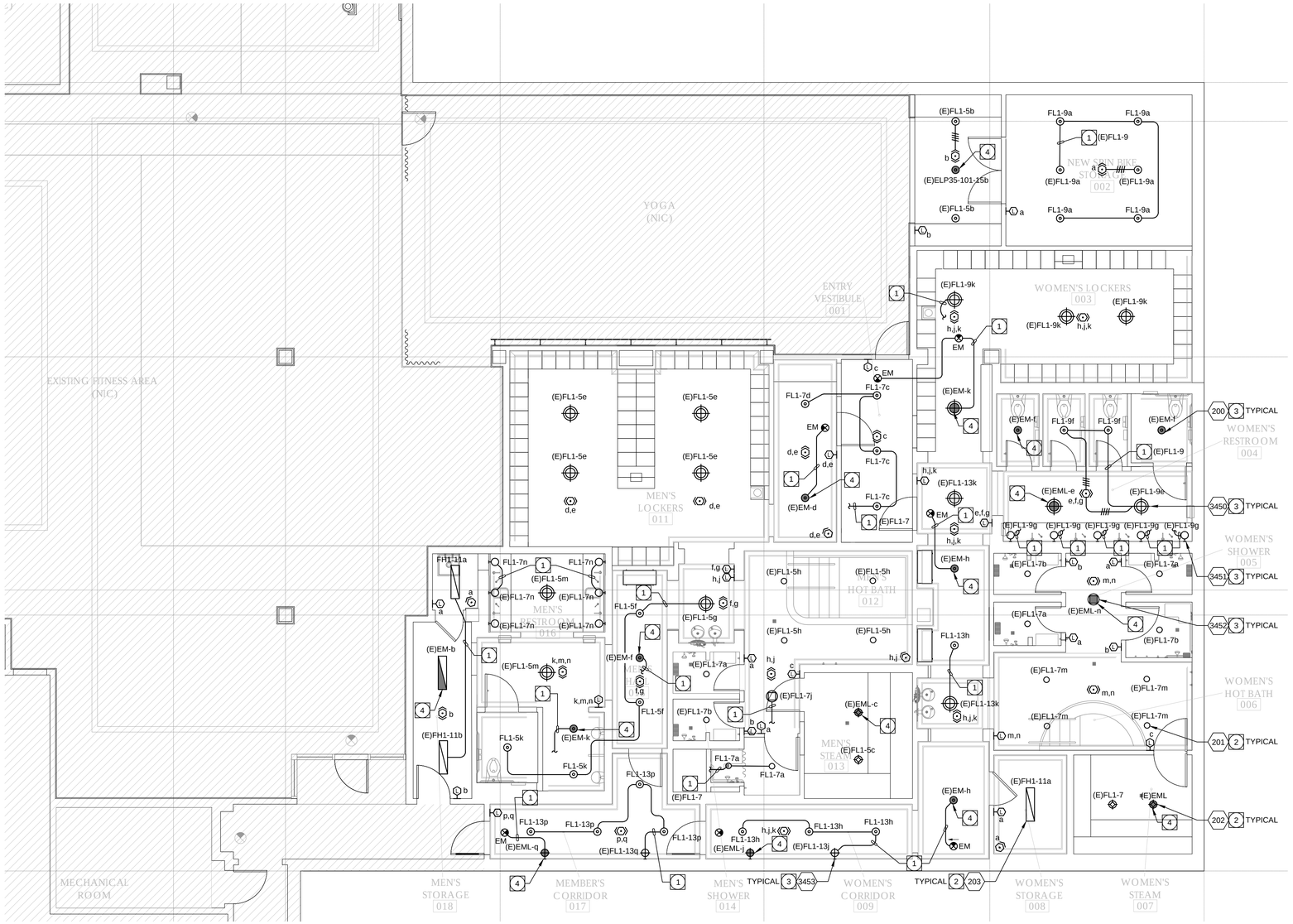
No.	Date	Description
	09-17-21	Permit Set

Drawing Title
ENLARGED POWER & COMMUNICATIONS PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E2.01

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E2-01.dwg, 9/17/2021 10:13:25 AM, DWG To PDF.pc3



1 ENLARGED LIGHTING PLAN
Scale: 3/16" = 1' - 0"

PLAN NOTES:

1. INTERCEPT AND EXTEND EXISTING LIGHTING BRANCH CIRCUIT MADE AVAILABLE FROM DEMOLITION WORK, VERIFY EXACT LOCATION IN FIELD PRIOR TO WORK. ROUTE BRANCH CIRCUITING THROUGH NEW DISTRIBUTED LIGHTING CONTROLS AS REQUIRED, REFER TO SWITCHLEGS AS SHOWN. PROVIDE ALL CONDUIT, COUPLERS, CONDUCTORS, CONNECTORS, JUNCTION BOXES, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM AND ALL NEW COMPONENTS SHALL MATCH EXISTING.
2. FIXTURE SPECIFIED WITH 0–10V LED DIMMING DRIVER(S). CONTRACTOR SHALL VERIFY EXACT 0–10V DIMMING REQUIREMENTS WITH FIXTURE MANUFACTURER.
3. VERIFY EXACT DIMMING REQUIREMENTS WITH MANUFACTURER. PROVIDE ALL LIGHTING CONTROL COMPONENTS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL DIMMING SYSTEM.
4. CONTRACTOR SHALL VERIFY EMERGENCY LIGHTING BRANCH CIRCUIT IN FIELD PRIOR TO WORK. IF CIRCUIT IS 277V, CONTRACTOR SHALL MAKE A SEPARATE BID LINE ITEM TO REMOVE 277V BRANCH CIRCUIT AND ROUTE 120V CIRCUIT THROUGH EMERGENCY LIGHTING INVERTER FOR NEW LIGHT FIXTURES. CONTRACTOR SHALL FIELD VERIFY THE EMERGENCY LIGHTING BRANCH CIRCUIT IS CONNECTED TO THE EXISTING STANDBY GENERATOR. IF THERE IS NOT EMERGENCY POWER, PROVIDE BID ALTERNATE AND ROUTE CIRCUIT THROUGH EMERGENCY LIGHTING INVERTER AS REQUIRED.
EMERGENCY LIGHTING INVERTER MOUNTED IN ACCESSIBLE CEILING SPACE AS REQUIRED, VERIFY EXACT MOUNTING LOCATION IN FIELD.
MAKE/MODEL OR EQUAL

LIGHTING PLAN GENERAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ALL DEVICES. ALL WALL–MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH–IN.
2. VERIFY EXACT CEILING CONSTRUCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN AND SPECS. PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
3. ALL RECESSED FIXTURES SHALL BE PROVIDED WITH ALL STRUCTURAL SUPPORTS AS REQUIRED BY THE IBC, OR CBC WHERE ADOPTED, IN ADDITION TO ANY LOCAL CODES.
4. ALL PERIMETER AND COVE LIGHTING SHALL EXTEND THE FULL LENGTH OF THE WALLS OR COVE. CONTRACTOR TO FIELD MEASURE COVE LENGTH AND ORDER QUANTITY OF FIXTURES AS REQUIRED.
5. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
6. RECESSED FIXTURES LOCATED IN A FIRE–RATED CEILING OR WALL SHALL BE PROVIDED WITH A 5–SIDED, RATED ENCLOSURE SO CONSTRUCTED AS TO ALLOW CODE AND MANUFACTURER–REQUIRED CLEARANCES BETWEEN THE FIXTURE AND THE ENCLOSURE.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXIT SIGN CHEVRONS AND NUMBER OF FACES PER EXIT SIGN. ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
8. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER RAYMOND W. SWARTZ No. E15610 Ex. 12/31/2021 ELECTRICAL STATE OF CALIFORNIA

North

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

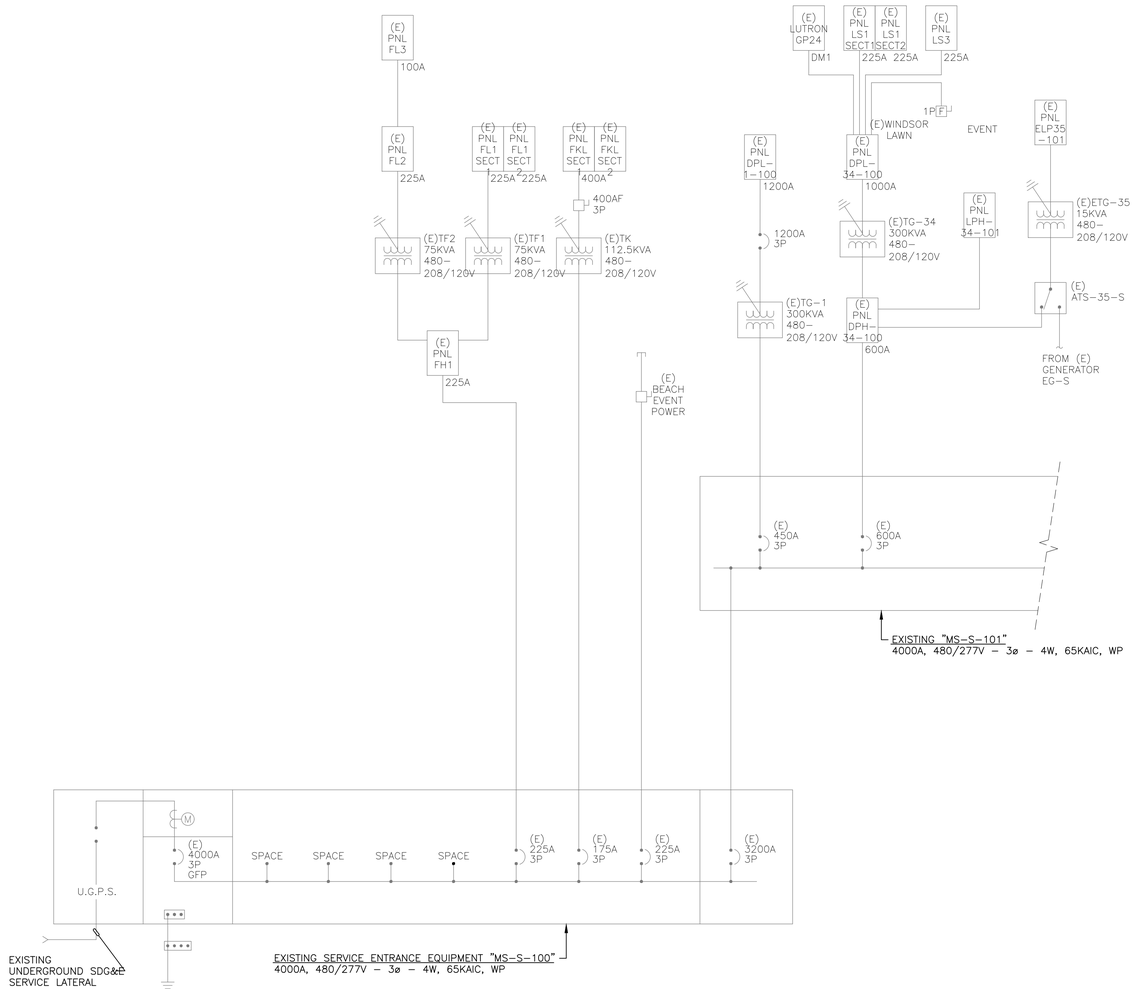
Drawing Title

ENLARGED LIGHTING PLAN

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E2.02

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E2-02.dwg, 9/17/2021 10:13:34 AM, DWG To PDF.pc3



EXISTING SINGLE LINE DISTRIBUTION DIAGRAM (FOR REFERENCE ONLY) 1

SCALE: N.T.S.

GENERAL SINGLE LINE DIAGRAM NOTES:

1. ALL SWITCHGEAR SHALL BE SQUARE D OR EQUAL BY CUTLER–HAMMER, RSE–SIERRA, G.E., SIEMENS, OR Z–POWER AND DISTRIBUTION.
2. ALL ITEMS DEPICTED ON THE SINGLE LINE DRAWINGS SHALL BE ASSUMED AS NEW U.O.N.
3. ALL OVERCURRENT DEVICES IN AN INDIVIDUAL PIECE OF EQUIPMENT SHALL HAVE AN AIC RATING EQUAL TO THE OVERALL RATING OF THE EQUIPMENT–SERIES RATING OF DEVICES WITHIN A PIECE OF EQUIPMENT IS NOT ALLOWED. SEE SPECIFICATIONS FOR MORE INFORMATION.
4. SERIES RATED DEVICES SHALL HAVE BEEN INVESTIGATED BY U.L. IN COMBINATION WITH THE END USE EQUIPMENT AND IN THE EQUIPMENT IN WHICH THESE DEVICES ARE USED AND SHALL BE MARKED WITH A SERIES RATING. ALL EQUIPMENT SHALL BE MARKED IN ACCORDANCE WITH NEC (OR CEC–WHERE ADOPTED) REQUIREMENTS. SEE SPECIFICATIONS FOR MORE INFORMATION. WHERE SERIES RATINGS ARE ALLOWED, THE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE A SERIES COMBINATION RATING WHICH SHALL BE READILY VISIBLE AND STATE THE FOLLOWING:

   CAUTION – SERIES COMBINATION SYSTEM RATED AT ??,???
   AMPERES. USE ONLY IDENTIFIED REPLACEMENT COMPONENTS
   IN THIS SYSTEM.

   WHERE ??,??? REPRESENTS AVAILABLE FAULT CURRENT. SEE SPECIFICATIONS FOR PLACARD REQUIREMENTS.
5. ALL TERMINATIONS AND ENCLOSURES SHALL BE RATED FOR USE WITH 75 DEGREE CELSIUS CONDUCTORS.
6. ALL SERVICE ENTRANCE EQUIPMENT RATED AT 400A OR GREATER SHALL BE PROVIDED WITH A BACKFEED–RATED, SOLID STATE MAIN OVERCURRENT DEVICE AND BUSSING RATED AT 100% OPERATION (1000A/sq.in. FOR CU, 750A/sq.in. FOR AL). NO HEAT RISE RATED BUSSING ALLOWED. NON–SERVICE ENTRANCE SWITCHBOARDS AND DISTRIBUTION BOARDS LARGER THAN 600A SHALL BE PROVIDED WITH BUSSING RATED FOR 100% OPERATION – SEE SPECIFICATION FOR CIRCUIT BREAKER REQUIREMENTS. ALL NON–SERVICE ENTRANCE SWITCHBOARDS AND DISTRIBUTION BOARD MAIN OVERCURRENT DEVICES SHALL BE BACKFEED–RATED. BACKFEED RATINGS SHALL COMPLY WITH NEC, OR CEC WHERE ADOPTED, **710.15 (E) AND 705.12(B)(4).** SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING CIRCUIT BREAKERS.
7. PROVIDE CIRCUIT BREAKER ARC ENERGY REDUCTION MAINTENANCE SWITCHING PER NEC, OR CEC WHERE ADPOPTED, **240.87(B)(3)** FOR ANY CIRCUIT BREAKER, 1200A FRAME AND LARGER. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL HAVE:
   a. **TIN–PLATED ALUMINUM** BUSSING WITH RECTANGULAR CROSS SECTION. HORIZONTAL AND VERTICAL BUSSING SHALL BE FULL LENGTH AND SHALL HAVE PROVISIONS FOR FUTURE EXTENSIONS. ALL BUSSING SHALL HAVE MINIMUM WITHSTAND RATING EQUAL TO THE AVAILABLE FAULT CURRENT INDICATED. ALL VERTICAL AND HORIZONTAL BUSSING SHALL BE RATED AT FULL CAPACITY IN ALL SWITCHBOARD AND DISTRIBUTION BOARD SECTIONS. PROVIDE 100% NEUTRAL BUSSING MINIMUM UNLESS OTHERWISE NOTED. PROVIDE FULL LENGTH GROUND BUS AND, WHERE INDICATED ON PLANS, ISOLATED GROUND BUSSING. PROVIDE REAR WIRE WAY IN ALL SWITCHBOARD SECTIONS.
   b. LUGS SUITABLE FOR USE WITH COPPER OR ALUMINUM CONDUCTORS LISTED FOR USE WITH 75 DEGREE CELSIUS AMPACITY CONDUCTORS.
   c. PERMANENT PLACARD(S) MARKED PER THE SPECIFICATIONS AND PER NEC (OR CEC–WHERE ADOPTED) SECTIONS **225.37, 230.2(E), 690.56, 692.56, 700.7, 701.7, 702.7,** AND **705.10** AND IFC (OR CFC – WHERE ADOPTED) SECTION **608.2.6.1.** DENOTING THE PRESENCE OF ADDITIONAL SERVICES, PHOTOVOLTAIC SYSTEMS, FUEL CELLS, EMERGENCY, STATIONARY BATTERY STORAGE SYSTEMS, OR STAND–BY POWER SOURCES AS APPLICABLE.
9. CONTRACTOR SHALL SUBMIT SWITCHBOARD SHOP DRAWINGS TO THE SERVING UTILITY FOR APPROVAL PRIOR TO FABRICATION. CONTRACTOR SHALL SECURE CONFIRMATION THAT THE PROPOSED SWITCHBOARD COMPLIES WITH ELECTRIC UTILITY COMPANY REGULATIONS.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PER THE SPECIFICATIONS FOR SWITCHBOARDS, DISTRIBUTION BOARDS, TRANSFORMERS, PANEL BOARDS, AND ALL OTHER DEVICES SHOWN ON THE SINGLE LINE, PRIOR TO FABRICATION.
11. ALLOWABLE DIMENSIONS IN MAIN ELECTRICAL ROOM ARE A CRITICAL COORDINATION ITEM. CONTRACTOR SHALL PROVIDE 1/4"= 1'–0" SCALE DRAWINGS WITH SWITCHGEAR SUBMITTALS SHOWING THAT ALL PROPOSED EQUIPMENT WILL FIT IN THE SPACE PROVIDED. SUBMITTALS WITHOUT THIS DRAWING SHALL BE REJECTED AS INCOMPLETE.
12. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON–BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.
13. WHERE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION OR WHERE A NEW GROUND FAULT PROTECTIVE DEVICE IS BEING INSTALLED, A GROUND FAULT SYSTEM TEST SHALL BE CONDUCTED BY AN INDEPENDENT TESTING AGENCY PER NEC (OR CEC–WHERE ADOPTED) **230.95(C).** THE GROUND FAULT SYSTEM TEST SHALL BE PERFORMED IN THE PRESENCE OF THE LOCAL AUTHORITY HAVING JURISDICTION. VERIFICATION OF DEVICE SETTINGS PER THE POWER SYSTEMS STUDY SPECIFICATION SHALL BE PERFORMED BY THE SAME INDEPENDENT TESTING AGENCY. THE GROUND FAULT TEST RESULTS SHALL BE DELIVERED TO THE ENGINEER OF RECORD. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ALL NEW GROUND FAULT RELAYS SHALL BE SET AT THE LOWEST AVAILABLE TIME DELAY AND PICK–UP SETTINGS.

FOR REFERENCE ONLY.
ALL EQUIPMENT IS EXISTING.

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E4-01.dwg, 9/17/2021 10:13:40 AM, DWG To PDF.pc3

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTWOUT
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

Drawing Title

SINGLE LINE DIAGRAM

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E4.01

(E)PANEL FKL SECT. 1

MOUNTING	SURFACE	DOUBLE LUG	NO	VOLTS	120/208
NEMA 3R	NO	200% NEUTRAL	NO	PHASE	3
FEED THRU	YES	I/G BUS	NO	WIRE	4

MAIN	M.L.O.
BUS	400A
A.I.C.	10,000

NOTES	LOCATION	A	B	C	LTG	CONV	KIT	RECP	MISC	BKR	CIRC	CIRC	BKR	MISC	RECP	KIT	CONV	LTG	A	B	C	LOCATION	NOTES
	(E) FREEZER	1500								20/1	1	2	50/2						3020			(E) PIZZA OVEN	
	(E) FRIDGE		1370							20/1	3	4	-							3020		-	
	(E) FRIDGE			1370						20/1	5	6	50/2								3020	(E) PIZZA OVEN	
	(E) OVEN HOOD	1800								20/1	7	8	-						3020			-	
	(E) REF EQUIP STAND		960							20/1	9	10	30/2							2500		(E) CONV OVEN	
	(E) PIZZA PREP UNIT			1440						20/1	11	12	-								2500	-	
	(E) HEATER PLATE	1920								20/1	13	14	30/2						2040			(E) HEAT STRIP	
	(E) MICROWAVE		1680							20/1	15	16	-							2040		-	
	(E) UC REF			600						20/1	17	18	20/2								1240	(E) HOT FOOD WELL	
	(E) POS STATION	1440								20/1	19	20	-						1240			-	
	(E) POS STATION		1440							20/1	21	22	20/2							800		(E) GARBAGE DISP	
	(E) POS POOL BAR			1440						20/1	23	24	-								800	-	
	(E) POS POOL BAR	1440								20/1	25	26	70/3						6720			(E) DISHWASHER	
	(E) SODA GUN		1200							20/1	27	28	-							6720		-	
G	STEAM GENERATOR CNTRLS			1000					2	20/1	29	30	-								6720	-	
	SPARE									20/1	31	32	20/3						1500			(E) ICE MAKER	
	(E) LOAD		1920							20/1	33	34	-							1500		-	
G	MEMBERS LIGHTING			1017	39					20/1	35	36	-								1500	-	
	(E) LOAD	540								20/1	37	38	175/3						16800			(E) HOOD	
	(E) COFFEE MAKER		3000							50/2	39	40	-							16800		-	
	-			3000						-	41	42	-								16800	-	

A= 42980 VA	B= 44950 VA	C= 42447 VA
PHASE A LCL= 0 VA	PHASE B LCL= 0 VA	PHASE C LCL= 254 VA
PHASE A W/LCL= 42980 VA	PHASE B W/LCL= 44950 VA	PHASE C W/LCL= 42701 VA
TOTAL VA= 130377	TOTAL LCL= 254	TOTAL VA W/LCL= 130631
	AMPS= **363**	HIGH PHASE AMPS= **375**

(E)PANEL FH1

MOUNTING	SURFACE	DOUBLE LUG	NO	VOLTS	277/480
NEMA 3R	NO	200% NEUTRAL	NO	PHASE	3
FEED THRU	NO	I/G BUS	NO	WIRE	4

MAIN	M.L.O.
BUS	225A
A.I.C.	14,000

NOTES	LOCATION	A	B	C	LTG	CONV	KIT	RECP	MISC	BKR	CIRC	CIRC	BKR	MISC	RECP	KIT	CONV	LTG	A	B	C	LOCATION	NOTES
	(E)AHU-1	5820								40/3	1	2	20/3	1					2100			(E)EF-1	
	-		5820							-	3	4	--	-						2100		-	
	-			5820						-	5	6	--	-							2100	-	
	(E)LTG. KITCHEN	1420								20/1	7	8	20/3	1					830			(E)EF-4	
	(E)LTG. FITNESS		1849							20/1	9	10	--	-						830		-	
	(E)LTG. CORRIDOR/LOCKER			2144						20/1	11	12	--	-							830	-	
F	STEAM GEN SG-1	8000							3	40/3	13	14	60/3	1					7480			(E)ELEVATOR	
F	-----		8000							--	15	16	--	-						7480		-	
F	-----			8000						--	17	18	--	-							7480	-	
	(E)HWP-3	830								20/3	19	20	--	-								(E) SHUNT TRIP	
	-		830							--	21	22	20/1					3		126		RESTROOM MIRROR LTG	G
	-			830						--	23	24	20/1									SPARE	
	(E)HWP-4	830								20/3	25	26	40/3	1					8000			SG-2	G
	-		830							--	27	28	--	-						8000		-	G
	-			830						--	29	30	--	-							8000	-	G
	(E)PRCP-1	830								20/3	31	32	125/3	1					2728			(E)XFMR TF1	
	-		830							--	33	34	--	-						2725		-	
	-			830						--	35	36	--	-							2256	-	
	(E) SCISSOR LIFT	1000								15/3	37	38	125/3	1					2634			(E)XFMR TF2	
	-		1000							--	39	40	--	-						2172		-	
	-			1000						--	41	42	--	-							2303	-	

A= 42502 VA	B= 42592 VA	C= 42423 VA
PHASE A LCL= 2000 VA	PHASE B LCL= 32 VA	PHASE C LCL= 0 VA
PHASE A W/LCL= 44502 VA	PHASE B W/LCL= 42624 VA	PHASE C W/LCL= 42423 VA
TOTAL VA= 127517	TOTAL LCL= 2032	TOTAL VA W/LCL= 129549
	AMPS= **156**	HIGH PHASE AMPS= **161**

(E)PANEL FKL SECT. 2

MOUNTING	SURFACE	DOUBLE LUG	NO	VOLTS	120/208
NEMA 3R	NO	200% NEUTRAL	NO	PHASE	3
FEED THRU	NO	I/G BUS	NO	WIRE	4

MAIN	M.L.O.
BUS	400A
A.I.C.	10,000

NOTES	LOCATION	A	B	C	LTG	CONV	KIT	RECP	MISC	BKR	CIRC	CIRC	BKR	MISC	RECP	KIT	CONV	LTG	A	B	C	LOCATION	NOTES
G	RM 015,009 SCALE RECEPTS	360				2			1	20/1	43	44	20/1						180			(E) KITCHEN RECEPT	
G	RM 012 BATHING SUIT DRY ER		1000						1	20/1	45	46	20/1							180		(E) KITCHEN RECEPT	
	(E) L RECEPTION			60						20/1	47	48	20/1					52			1134	MEMBERS LIGHTING	G
	SPARE									20/1	49	50	20/1									SPARE	
G	RMS 003,011 TV RECS		360			2				20/1	51	52	20/1									SPARE	
G	RM 0004 RESTROOM RECEPT			180		1				20/1	53	54	20/1									SPARE	
G	RM 0004 RESTROOM RECEPT	180				1				20/1	55	56	20/1									SPARE	
G	RM 012 DF/BOTTLE FILLER		500						1	20/1	57	58	20/1									SPARE	
G	RM 006 BATHING SUIT DRY ER			1000						20/1	59	60	20/1									SPARE	
	SPARE									20/1	61	62	20/1									SPARE	
	SPARE									20/1	63	64	20/1									SPARE	
	SPARE									20/1	65	66	20/1									SPARE	
	SPACE										67	68										SPACE	
	SPACE										69	70										SPACE	
	SPACE										71	72										SPACE	
	SPACE										73	74										SPACE	
	SPACE										75	76										SPACE	
	SPACE										77	78										SPACE	
	SPACE										79	80										SPACE	
	SPACE										81	82										SPACE	
	SPACE										83	84										SPACE	

A= 720 VA	B= 2040 VA	C= 2374 VA
PHASE A LCL= 0 VA	PHASE B LCL= 0 VA	PHASE C LCL= 284 VA
PHASE A W/LCL= 720 VA	PHASE B W/LCL= 2040 VA	PHASE C W/LCL= 2658 VA
TOTAL VA= 5134	TOTAL LCL= 284	TOTAL VA W/LCL= 5418
	AMPS= **15**	HIGH PHASE AMPS= **22**

GENERAL PANEL SCHEDULE NOTES:

1. WHERE PANEL IS INDICATED TO INCLUDE FEED THRU LUGS, PROVIDE FEED THROUGH LUGS AT THE OPPOSITE END OF THE PANELBOARD FROM THE PANELBOARD MAIN LUGS.
2. WHERE PANEL IS INDICATED TO INCLUDE DOUBLE LUGS, PROVIDE A DOUBLE LUG KIT AT THE SAME END OF THE PANELBOARD AS THE PANELBOARD MAIN LUGS.
3. WHERE PANEL IS INDICATED TO INCLUDE 200% NEUTRAL, PROVIDE PANELBOARDS UL LISTED AS HAVING NEUTRAL BUSSES RATED TO CARRY 200 PERCENT OF THE CURRENT CARRYING CAPACITY OF THE PHASE BUSSING. OTHERWISE, NEUTRAL BUSSING TO BE FULL SIZE AND RECTANGULAR.
4. WHERE PANEL IS INDICATED TO INCLUDE AN I/G BUS, PROVIDE PANELBOARDS WITH AN ISOLATED GROUND BUS, DRILLED AND TAPPED FOR NUMBER OF ISOLATED GROUND CONDUCTORS SHOWN, AS WELL AS FOR ALL SPARES AND SPACES SHOWN ON THE PANELBOARD.
5. WHERE PANEL CIRCUIT BREAKER RATING IS SHOWN AS SERIES RATED, PROVIDE CIRCUIT BREAKERS IN PANELBOARD WHICH ARE SERIES RATED WITH THE UPSTREAM SYSTEM FOR THE AVAILABLE FAULT CURRENT. THE PANELBOARD SHALL BE MARKED WITH THE SERIES CONNECTED RATINGS, AS WELL AS ALL MARKING AS REQUIRED BY THE NEC, OR CEC WHERE ADOPTED, **240.86(B).**
6. WHERE PANEL IS INDICATED AS RECESSED OR FLUSH MOUNTED, PROVIDE SPARE CONDUITS STUBBED UP INTO THE ACCESSIBLE CEILING SPACE. PROVIDE ONE (1) 3/4" CONDUIT ONLY FOR EACH THREE (3) SPARES OR SPACES, MINIMUM OF TWO (2). EACH CONDUIT SHALL BE TAGGED, CAPPED AND MARKED FOR FUTURE USE.
7. ALL BUSSING SHALL BE **TIN PLATED ALUMINUM.**
8. ALL CIRCUIT BREAKERS USED AS SWITCHES SHALL BE UL LISTED AND LABELED "SWD" FOR SWITCHING DUTY.
9. PROVIDE BREAKER INTERLOCK WITH ADJACENT BREAKER(S) FOR ANY MULTI-WIRE BRANCH CIRCUIT. BREAKER INTERLOCK GROUPING SHALL BE BY BRANCH CIRCUIT GROUP (i.e. MULTIPLE CIRCUITS SHARING A COMMON NEUTRAL (NEC, OR CEC WHERE ADOPTED, **210.4(B).**) COMMON YOKE (NEC, OR CEC WHERE ADOPTED, **210.7**), OR FURNITURE SYSTEM NEC OR CEC WHERE ADOPTED, **605.5** AND **605.7**). WHERE AN EXISTING PANEL IS BEING ALTERED OR MODIFIED IN ANY WAY, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO ADD BREAKER INTERLOCKS TO EXISTING MULTI-WIRE BRANCH CIRCUITS BASED ON CONTRACTOR'S INVESTIGATION OF EXISTING CONDITIONS.
10. PROVIDE BREAKER LOCK OFF DEVICE ON ANY CIRCUIT BREAKER FEEDING A TRANSFORMER AS REQUIRED, PER NEC, OR CEC WHERE ADOPTED, **450.14**. WHERE AN EXISTING PANEL IS BEING ALTERED OR MODIFIED IN ANY WAY, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO ADD BREAKER LOCK-OFF DEVICES TO EXISTING TRANSFORMER CIRCUIT BREAKERS BASED ON CONTRACTOR'S INVESTIGATION OF EXISTING CONDITIONS.
11. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND SHALL BE SUITABLE FOR 75 DEGREE AMPACITY CONDUCTORS.
12. PANELS SHALL BE OF THE DEAD FRONT SAFETY TYPE. PANELS SHALL BE MINIMUM 20" WIDE AND 5-3/4" DEEP UNLESS OTHERWISE NOTED ON PLAN.
13. COORDINATE WITH APPLICABLE TRADE TO INSURE RECESSED MOUNTED PANELBOARDS WILL SEAT FLUSH IN THE WALLS PROVIDED. PANEL TRIMS SHALL HAVE CONCEALED DOORS AND FASTENERS WITH FLUSH TYPE COMBINATION LOCK AND CATCH, TWO MILLED TYPE KEYS SUPPLIED WITH EACH PANEL. ALL LOCKS SHALL BE KEYED ALIKE AND EACH DOOR SHALL HAVE A PLASTIC COVERED DIRECTORY FRAME WITH A TYPED IDENTIFICATION CARD OF ALL CIRCUIT AND PANEL NUMBERS FOR BRANCH CIRCUIT PANELBOARDS.
14. UPON PROJECT COMPLETION, CONTRACTOR SHALL INSTALL TYPED AS-BUILT PANEL DIRECTORIES IN EACH PANEL WITHIN THE MFGR-PROVIDED DIRECTORY HOLDER. THE DIRECTORY SHALL CLEARLY IDENTIFY EACH CIRCUIT TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE. EACH CIRCUIT IDENTITY SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS PER NEC, OR CEC WHERE ADOPTED, ART **408.1** AND **408.4**. HANDWRITTEN DIRECTORIES ARE UNACCEPTABLE. COPIES OF AS-BUILT PANEL SCHEDULES SHALL BE PLACED IN PANEL DIRECTORIES. E.C. TO INCLUDE ALL COSTS REQUIRED FOR LARGER-THAN-STANDARD CUSTOM PANEL DIRECTORY HOLDERS TO ACCOMMODATE COPIES OF AS-BUILT PANEL SCHEDULES.
15. PANELBOARDS SHALL BE MANUFACTURED BY G.E., CUTLER-HAMMER, SIEMENS, OR SQUARE "D". FUSED PANEL BOARDS SHALL BE BY COOPER BUSSMANN.
16. PROVIDE SHOP DRAWING SUBMITTAL PER THE ELECTRICAL SPECIFICATION SUBMITTAL REQUIREMENTS FOR EACH PANEL DEPICTING CONFORMANCE WITH THE ABOVE NOTES AND SCHEDULES.

SPECIFIC PANEL SCHEDULE NOTES:

"A" PROVIDE LOCK-ON DEVICE.

"B" PROVIDE PERMANENT LOCK-OFF DEVICE THAT SHALL REMAIN IN PLACE WITH OR WITHOUT THE LOCK INSTALLED, PER NEC, OR CEC WHERE ADOPTED, SECTION **110.25.**

"C" PROVIDE SHUNT TRIP DEVICE.

"D" PROVIDE GFCI TYPE DEVICE.

"E" PROVIDE A RED CIRCUIT BREAKER.

"F" PROVIDE A NEW BREAKER TO MATCH THE EXISTING IN PANEL.

"G" EXISTING BREAKER WITH NEW LOAD.

"H" PROVIDE AFCI TYPE DEVICE COMPLYING WITH NEC, OR CEC WHERE ADOPTED, **210.12(A),(B),(C).**

PANEL SCHEDULE INDEX		
-	FKL-1	FH1
-	FKL-2	-
-	-	

AS-BUILT PANEL DIRECTORY NOTE:

BRANCH CIRCUIT LOCATIONS NOTED WITH "(E)" INDICATE EXISTING CIRCUIT(S). THE IDENTITIES OF THESE CIRCUITS ARE BASED ON EXISTING PANEL DIRECTORIES AND/OR LIMITED AS-BUILT INFORMATION. CONTRACTOR SHALL FIELD VERIFY EACH BRANCH CIRCUIT AND PROVIDE COMPLETE, TYPED AS-BUILT PANEL DIRECTORIES AS REQUIRED THAT DISTINGUISH EACH CIRCUIT PER NEC, OR CEC WHERE ADOPTED, ART **408.1** AND **408.4.** COMPLETED DIRECTORIES SHALL BE SUBMITTED TO THE ELECTRICAL INSPECTOR PRIOR TO FINAL ELECTRICAL INSPECTION. INCLUDE ALL COSTS IN BID.

EXISTING CIRCUIT BREAKER NOTE:

PROVIDE BREAKER INTERLOCK WITH ADJACENT BREAKER(S) FOR ANY MULTI-WIRE BRANCH CIRCUIT. BREAKER INTERLOCK GROUPING SHALL BE BY BRANCH CIRCUIT GROUP (i.e. MULTIPLE CIRCUITS SHARING A COMMON NEUTRAL (NEC, OR CEC WHERE ADOPTED, **210.4(B).**) COMMON YOKE (NEC, OR CEC WHERE ADOPTED, **210.7**) OR FURNITURE SYSTEM NEC OR CEC WHERE ADOPTED, **605.5** AND **605.7**). WHERE AN EXISTING PANEL IS BEING ALTERED OR MODIFIED IN ANY WAY, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO ADD BREAKER INTERLOCKS TO EXISTING MULTI-WIRE BRANCH CIRCUITS BASED ON CONTRACTOR'S INVESTIGATION OF EXISTING CONDITIONS.

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E4-02.dwg, 9/17/2021 10:13:50 AM, DWG To PDF.pc3

HOTEL DEL CORONADO.

Fitness
Members Area
Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWINFFER
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No.	Date	Description
	09-17-21	Permit Set

Drawing Title

PANEL SCHEDULES

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E4.02

LIGHTING FIXTURE SCHEDULE NOTES:

A. GENERAL NOTES:

1. THE LIGHTING FIXTURES, LAMPS, BALLASTS, POWER SUPPLIES, DRIVERS AND TRANSFORMERS FOR THIS PROJECT HAVE BEEN SPECIFIED TO ENSURE THAT SPECIFIC AESTHETIC AND PERFORMANCE REQUIREMENTS WILL BE SATISFIED. THESE PRODUCTS HAVE BEEN CAREFULLY RESEARCHED AND EACH SPECIFIED ITEM HAS UNIQUE QUALITIES WHICH WERE DETERMINED TO BE ESSENTIAL IN SATISFYING THE OWNER'S, ARCHITECT'S, ENGINEER'S AND LIGHTING CONSULTANT'S DESIGN CRITERIA.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS AS DETAILED ON DRAWINGS AND/OR SCHEDULES, AND LABOR AS REQUIRED TO ACHIEVE A COMPLETE AND OPERATING LIGHTING SYSTEM.
3. CONTRACTOR SHALL NOTIFY THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT OF ANY PROVISIONS OF THE SPECIFICATION THAT IS IN CONFLICT WITH LOCALLY ENFORCED CODES.
4. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY REQUIRED MODIFICATIONS THAT ARE NOT SHOWN ON THE DRAWINGS.
5. ALL ELECTRICAL MATERIAL SHALL BE IN NEW & UNDAMAGED CONDITION WHEN INSTALLED. ALL EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
6. ALL DIMENSIONS & MEASUREMENTS FOUND ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL VALIDATE ALL DIMENSIONS PRIOR TO ORDERING MATERIAL TO INCLUDE MAKING FIELD MEASUREMENTS BASED ON ACTUAL SITE CONDITIONS TO DEVELOP COMPLETE ORDERS AND INSTALL SYSTEMS PER DRAWINGS AND SPECIFICATIONS.
7. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ASSOCIATED DEVICES AND EQUIPMENT.
8. PRIOR TO AIMING/ADJUSTING ACTIVITIES, COMMISSIONING OR PUNCHWALK COMMENCEMENT, CONTRACTOR SHALL PROPERLY TEST AND VERIFY ALL CIRCUITRY AND CONTROL WIRING AND IMPLEMENT ALL CONTROLS PROGRAMMING.

B. INSTALLATION:

1. LOCATIONS OF THE FIXTURES SHALL BE PER THE ARCHITECTURAL REFLECTED CEILING PLAN(S) AND SHALL BE COORDINATED AT TIME OF ROUGH IN. CONFLICTS BETWEEN THE ARCHITECTURAL REFLECTED CEILING PLAN(S) AND THE ELECTRICAL/LIGHTING DESIGN PLAN(S) SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING PRIOR TO ORDERING FIXTURES.
2. LIGHTING DRAWINGS REPRESENT THE DESIGN INTENT OF THE EQUIPMENT, DEVICES, ETC. TO BE CONNECTED AND THE CIRCUITS TO WHICH THEY ARE TO BE CONNECTED. CONTRACTOR SHALL INSTALL ALL CONDUIT, J-BOXES AND ADDITIONAL HARDWARE AND DEVICES AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
3. ALL LIGHTING FIXTURES SHALL BE MOUNTED AND INDIVIDUALLY SUPPORTED IN ACCORDANCE WITH APPLICABLE CODES. FIXTURES SHALL BE FURNISHED AND INSTALLED WITH ALL REQUIRED MOUNTING DEVICES, HARDWARE AND ACCESSORIES.
4. CONTRACTOR TO VERIFY LIGHTING FIXTURE MOUNTING HARDWARE IS COMPATIBLE WITH APPROVED MOUNTING CONDITIONS. MOUNTING CONDITIONS MUST ALLOW FOR AIMING AND ADJUSTING OF LIGHTING FIXTURES ON SITE.
5. CONTRACTOR TO INCLUDE AIMING/ADJUSTING LABOR AFTER DARK AS REQUIRED FOR ANY ADJUSTABLE LIGHTING FIXTURE AND FOR EACH INDIVIDUAL LIGHTING FIXTURE HEAD OR LAMP HOLDER IN A MULTI-FIXTURE/MULTI-LAMP ASSEMBLY. LIGHTING FIXTURES TO BE AIMED/ADJUSTED PER THE DIRECTION OF OWNER, ARCHITECT AND/OR LIGHTING CONSULTANT.
6. CONTRACTOR TO SUPPLY ADEQUATE SUPPORT INCLUDING LADDERS, LIFTS OR OTHER EQUIPMENT REQUIRED TO ACCESS LIGHTING FIXTURES AT THE TIME OF FOCUS, INCLUDING EVENING OR NIGHT WORK AS MAY BE REQUIRED DUE TO SCHEDULE CONFLICT OR DAYLIGHT IMPACT. AIMING/ADJUSTING LABOR SHALL BE PREPARED FOR WORK WITH COMMON HAND TOOLS TO MAKE ADJUSTMENTS AND MINOR REPAIRS DURING AIMING.
7. ALL COVE MOUNTED LIGHTING FIXTURES SHALL EXTEND THE FULL LENGTH OF THE COVE. CONTRACTOR TO FIELD MEASURE COVE LENGTH AND ORDER QUANTITY OF LIGHTING FIXTURES AS REQUIRED. PROVIDE COMPLETE MANUFACTURER SHOP DRAWINGS OF BUILT-IN COVE OR LINEAR LIGHTING SYSTEMS.
8. CONTRACTOR TO REPLACE ALL INOPERATIVE LAMPS, LED ARRAYS OR SYSTEMS AT THE END OF THE CONSTRUCTION PHASE PRIOR TO THE FOCUS AND PROGRAMMING PHASE AND AGAIN PRIOR TO OWNER OCCUPANCY OR PROJECT OPENING.
9. ALL POLE MOUNTED FIXTURES, POST MOUNTED FIXTURES AND BOLLARDS SHALL BE PROVIDED WITH A STRUCTURAL FOOTING AS DETAILED ELSEWHERE IN THE DRAWINGS. FOOTING SIZE TO BE PROVIDED BY STRUCTURAL ENGINEER. REFERENCE FIXTURE SCHEDULE AND DETAILS FOR MORE INFORMATION.
10. ALL EXIT SIGNS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE LOCAL FIRE PREVENTION CODE AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY HARDWARE SUCH THAT ALL EXIT SIGNS ARE INSTALLED IN AN APPROVED VISIBLE LOCATION. THE CONTRACTOR SHALL VERIFY CHEVRONS AND NUMBER OF FACES PER EXIT SIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN(S). ANY DISCREPANCIES BETWEEN EXIT SIGNS DEPICTED ON ARCHITECTURAL AND ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.

C. SUBMITTALS AND SUBSTITUTIONS:

1. CONTRACTOR TO SUBMIT FOR APPROVAL ON THE PRODUCTS THEY INTEND TO FURNISH WITHIN TEN (10) DAYS OF AWARD OF CONTRACT. FAILURE TO SUBMIT WITHIN DEADLINE CONSTITUTES A GUARANTEE THAT ONLY THE BASE SPECIFIED PRODUCTS WILL BE SUPPLIED AND THAT NO OTHER PRODUCTS, WHETHER LISTED AS ALTERNATES OR NOT, WILL BE CONSIDERED.
2. CONTRACTOR TO PROVIDE A SUBMITTAL/SHOP DRAWING SUBMITTAL FOR EACH LIGHTING FIXTURE TYPE INCLUDING ACCESSORIES, BALLAST(S), POWER SUPPLIES, DRIVER(S) TRANSFORMER(S), AND INTEGRAL EMERGENCY BATTERIES AND TEST SWITCHES. ANY LIGHTING FIXTURE SUBMITTAL PROVIDED WITHOUT SPECIFIC LIGHTING FIXTURE'S ACCESSORIES, BALLAST, POWER SUPPLY, DRIVER, TRANSFORMER OR BATTERY INFORMATION SHALL BE REJECTED AS INCOMPLETE.
3. SUBSTITUTIONS OF THE SPECIFIED PRODUCTS ARE STRICTLY PROHIBITED – UNLESS APPROVED AS STATED HEREIN. LIGHTING FIXTURE SUBSTITUTIONS SHALL BE FORMALLY PRESENTED TO THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT, BY APPOINTMENT ONLY, AT LEAST TEN (10) WORKING DAYS PRIOR TO BID TIME. THE SUBMITTAL MATERIAL SHALL INCLUDE THE FOLLOWING ITEMS.
   a. A COMPLETE AND OPERATING SAMPLE, WIRED FOR 120V OPERATION, WITH LAMP, CORD AND PLUG.
   b. A COMPLETE PHOTOMETRIC REPORT, FOR THE PROPOSED SUBSTITUTE PRODUCT, USING THE SPECIFIED LAMP OR LED TYPE AND WATTAGE, INCLUDING TABULATED CANDLEPOWER VALUES, COEFFICIENT OF UTILIZATION, AND AN ISO-FOOT-CANDLE DIAGRAM. PRORATED DATA WILL NOT BE ACCEPTABLE. THE PHOTOMETRIC REPORT MUST BE DONE IN ACCORDANCE WITH PUBLISHED I.E.S. TESTING PROCEDURES AND CERTIFIED BY A REGISTERED ELECTRICAL ENGINEER.
   c. A CURRENT ORIGINAL CATALOG DATA SHEET WITH LIGHTING FIXTURE CATALOG NUMBERS. MODIFIED DATA SHEETS WILL NOT BE ACCEPTABLE.
   d. A SIGNED COPY OF THE "SUBSTITUTION COMPLIANCE FORM", LOCATED IN THE DIVISION 1 SPECIFICATION, STATING THAT IF THE PROPOSED SUBSTITUTION IS ACCEPTED, THE PROJECT SCHEDULE WILL NOT BE NEGATIVELY AFFECTED. IF THE COMPLETION OF THE PROJECT IS DELAYED BECAUSE OF THE APPROVED SUBSTITUTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR PAYMENT OF ANY ESTABLISHED LIQUIDATED DAMAGES.
   e. FOR SPECIFIC INTERIOR FIXTURE SUBSTITUTIONS, WHEN DIRECTED BY THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT, A POINT-BY-POINT SCALED COMPUTER PRINTOUT SHALL BE PROVIDED VERIFYING THE ILLUMINATION LEVELS FOR THE SPECIFIC INTERIOR AREA. IF THE SUBSTITUTED FIXTURE IS AN EMERGENCY FIXTURE, THE REPORT SHALL BE RUN IN BOTH NORMAL AND EMERGENCY MODES. THIS REPORT SHALL BE CONFIGURED WITH SPECIFIC CONSTRAINTS, AS DIRECTED BY THE ENGINEER OF RECORD. THE REPORT MUST SHOW THAT THE SUBSTITUTED FIXTURE PROVIDES PERFORMANCE EQUAL TO OR BETTER THAN THE LIGHTING LEVELS OF THE SPECIFIED PRODUCT.
   f. FOR ALL EXTERIOR FIXTURE SUBSTITUTIONS, A POINT-BY-POINT SCALED COMPUTER PRINTOUT SHALL BE PROVIDED VERIFYING THE ILLUMINATION LEVELS FOR THE ENTIRE SITE PLAN BASED ON USING THE PROPOSED ALTERNATIVE FIXTURES. THE REPORT MUST SHOW THAT THE SUBSTITUTED FIXTURE PROVIDES PERFORMANCE EQUAL TO, OR BETTER THAN THE LIGHTING LEVELS AND UNIFORMITY RATIOS (MAX:MIN AND AVG:MIN) OF THE SPECIFIED PRODUCT. THIS REPORT SHALL BE CONFIGURED WITH THE FOLLOWING CONSTRAINTS.
      i. THE SPACING INCREMENT OR POINTS ON THE VERIFICATION REPORT SHALL NOT EXCEED TEN (10) FEET IN EITHER DIRECTION.
      ii. THE PHOTOMETRIC CALCULATION SHALL BE BASED ON PROVIDING MAINTAINED FOOT-CANDLE LEVELS USING MEAN LAMP LUMENS AND A LIGHT LOSS FACTOR, AS DIRECTED BY THE ENGINEER OF RECORD.
      iii. THE PHOTOMETRIC CALCULATION SHALL SHOW ANY ADDITIONAL ENERGY AND/OR ENERGY COSTS, FOR A TEN YEAR PERIOD, AS COMPARED TO THE ORIGINALLY SPECIFIED ITEM. THE TOTAL COSTS FOR THESE EXPENSES WILL BE DEDUCTED FROM THE CONTRACT COST.
4. DURING THE BIDDING PROCESS, THE CONTRACTOR SHALL REFER TO THE LIGHTING FIXTURE SCHEDULES ON THE ARCHITECTURAL PLANS (IF PROVIDED ON PROJECT), LIGHTING DESIGN PLANS/SPECIFICATIONS (IF PROVIDED ON PROJECT), AND THE ELECTRICAL PLANS. ANY DISCREPANCIES BETWEEN THEM INCLUDING, BUT NOT LIMITED TO, PART NUMBERS AND FIXTURE DESCRIPTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ELECTRICAL ENGINEER, AND LIGHTING DESIGNER WITH PRE-BID RFI(S). WHERE DISCREPANCIES ARE DISCOVERED WHEN THERE IS INSUFFICIENT TIME TO ISSUE PRE-BID RFI(S), THE BASE BID SHALL INCORPORATE THE MOST COSTLY VERSION OF THE DISCREPANCY AND SHALL BE MEMORIALIZED IN AN RFI OR AS A BID CLARIFICATION. PROVIDING A VOLUNTARY DEDUCTIVE ALTERNATE BID CLARIFYING FIXTURE SCHEDULE DISCREPANCIES IS ALSO AN ACCEPTABLE FORM OF DISCREPANCY DOCUMENTATION.
5. FIXTURE FINISHES:
   a. ALL FIXTURE FINISHES AND COLORS, UNLESS NOTED AS PREMIUM OR CUSTOM, SHALL BE SELECTED FROM THE MANUFACTURERS STANDARD COLOR OPTIONS AS LISTED ON THE FIXTURE SPECIFICATION SHEET. STANDARD FINISH SHALL BE SELECTED BY THE ARCHITECT, INTERIOR DESIGNER OR OWNER. THIS DIRECTION WILL BE PROVIDED IN THE SHOP DRAWING REVIEW PROCESS.
   b. ALL FIXTURES INDICATED WITH A PREMIUM OR CUSTOM COLOR SHALL BE ASSIGNED A CUSTOM COLOR REFERENCE NUMBER (SUCH AS RAL#) OR PROVIDE FIVE (5) PAINT CHIPS FOR MANUFACTURER TO USE TO MATCH COLOR. PREMIUM OR CUSTOM FINISH SHALL BE SELECTED BY THE ARCHITECT, INTERIOR DESIGNER OR OWNER. THIS DIRECTION WILL BE PROVIDED IN THE SHOP DRAWING REVIEW PROCESS.
6. THE LIGHTING FIXTURE MODEL NUMBER MAY INDICATE A FIXTURE OPTION THAT THE CONTRACTOR MUST IDENTIFY PRIOR TO ORDERING/PROVIDING SUBMITTALS, INCLUDING, BUT NOT LIMITED TO: VOLTAGE, MOUNTING CONDITION/HARDWARE, FINISH, DIMMING REQUIREMENTS/BALLAST INFORMATION. GENERALLY, CONTRACTOR-SELECTED OPTIONS ARE DENOTED IN THE PART NUMBER WITH BRACKETS EX: [VOLTS?]
   a. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND PROVIDING ALL HANGERS, CLIPS AND NECESSARY HARDWARE TO INSTALL THE FIXTURE IN THE ENVIRONMENT AS SHOWN ON THE ARCHITECTURAL PLANS. ALL FIXTURES SHALL BE PROVIDED WITH ALL REQUIRED STRUCTURAL SUPPORTS AS REQUIRED BY THE CURRENTLY ADOPTED CODES.
   b. VOLTAGES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING – SEE ELECTRICAL DRAWINGS FOR BRANCH CIRCUIT INFORMATION. IT IS POSSIBLE THAT FIXTURES WILL BE REQUIRED IN VARIOUS VOLTAGES.
7. "NO KNOWN EQUAL" LIGHTING FIXTURE PRICING/BIDDING NOTES:
   a. EACH FIXTURE IDENTIFIED AS "NO KNOWN EQUAL" ON THIS PROJECT SHALL BE BID IN A "LINE ITEM" FORMAT. A PER UNIT MATERIAL COST SHALL BE PROVIDED FOR EACH "NO KNOWN EQUAL" FIXTURE. THIS PRICE SHALL INCLUDE LAMPS AS WELL AS ALL OTHER REQUIRED MATERIALS REQUIRED FOR INSTALLATION. THE FIXTURE PRICE QUOTED WILL BE UTILIZED, PRIOR TO SHOP DRAWING APPROVAL, FOR "ADDING" AND/OR "DELETING" ANY QUANTITY OF THE FIXTURE.
   b. A UNIT COST SHALL BE SUBMITTED FOR EACH "NO KNOWN EQUAL" FIXTURE. SUBMIT THE PRICING AS PART OF THE BID FORM ON A SEPARATE 8 1/2" X 11" SHEET.
   c. FAILURE TO SUBMIT A LINE ITEM FOR EACH "NO KNOWN EQUAL" FIXTURE MAY RESULT IN THE REJECTION, REFUSAL, OR NON-ACCEPTANCE OF THE CONTRACTOR'S BID.
8. FIXTURES IDENTIFIED AS "NO KNOWN EQUAL – OWNER STANDARD" OR "CAMPUS STANDARD" ARE TO BE PROVIDED AS SPECIFIED, WITH SUBSTITUTIONS STRICTLY PROHIBITED. SEE ADDITIONAL NOTES FOR "NO KNOW EQUAL" BIDDING REQUIREMENTS.

D. LIGHTING FIXTURE SPECIFICATIONS:

1. ALL EXTERIOR LIGHTING EQUIPMENT SHALL BE RATED FOR WET LOCATION AND THE IP RATING OF ALL EQUIPMENT, INCLUDING BALLAST, POWER SUPPLY AND TRANSFORMER ENCLOSURES SHALL CONFORM TO THE CONDITIONS IN WHICH THE LIGHTING FIXTURE IS MOUNTED.
2. ALL BALLASTS, POWER SUPPLIES, DRIVERS AND/OR TRANSFORMERS THAT ARE REMOTELY LOCATED SHALL BE INSTALLED AS NEAR TO THE LIGHTING FIXTURE(S) AS POSSIBLE, HIDDEN FROM PUBLIC VIEW IN AN ACCESSIBLE COMPARTMENT THAT IS WELL VENTILATED. CONTRACTOR TO COORDINATE LOCATION(S) WITH ARCHITECT PRIOR TO ROUGH-IN.
3. ALL TRANSFORMERS SHALL BE FUSED ON THE SECONDARY SIDE.
4. COLOR FILTERS SHALL BE GLASS OR DICHROIC UNLESS OTHERWISE INDICATED ON DRAWINGS.
5. CONTRACTOR TO PROVIDE 20% ADDITIONAL COLOR FILTERS FOR EACH COLOR AND SIZE.
6. CONTRACTOR TO VERIFY THAT ALL LIGHTING FIXTURES SPECIFIED WITH A COLOR FILTER ARE SUPPLIED WITH ANY AND ALL ATTACHMENT DEVICES FOR THE FILTER.
7. ALL TRACK LIGHTING FIXTURES SHALL BE PROVIDED WITH THE APPROPRIATE TRACK SYSTEM WHICH SHALL INCLUDE ALL MISCELLANEOUS COMPONENTS REQUIRED, AS WELL A ANY REQUIRED CIRCUIT LIMITERS FOR A COMPLETE INSTALLATION. TRACK LENGTH(S) SHALL BE PER DRAWINGS.

E. DRIVERS / TRANSFORMERS:

1. [OPTION?] IN FIXTURE MODEL NUMBER INDICATE THAT THE FIXTURE DRIVER TYPE AND QUANTITY MUST BE VERIFIED BY THE CONTRACTOR USING FIXTURE CALLOUT INFORMATION AND FIXTURE SWITCHING CONFIGURATION INFORMATION.
2. CONTINUOUS DIMMING AND CONTROLLABLE LED:
   a. PROVIDE CONTROLLABLE LED DIMMING DRIVERS (INTEGRAL OR REMOTE) WITH POWER FACTOR GREATER THAN 0.85 AND MAXIMUM THD OF 20% AT FULL LOAD.
   b. PRIOR TO BID CONTRACTOR TO VERIFY DRIVER COMPATIBILITY WITH DIMMERS, DIMMING CONTROL SYSTEM(S) AND DISTRIBUTED LIGHTING CONTROL SYSTEM(S) WITH RESPECTIVE LIGHTING MANUFACTURER(S) AND LIGHTING/DIMMING CONTROL SYSTEM MANUFACTURERS. IF COMPATIBILITY DOCUMENTATION IS UNAVAILABLE FOR A GIVEN LED FIXTURE/LIGHTING CONTROL SYSTEM COMBINATION, CONTRACTOR SHALL INCLUDE COSTS IN THE BASE BID FOR RESPECTIVE LIGHTING MANUFACTURER AND LIGHTING CONTROLS MANUFACTURER TO TEST/WARRANT COMPATIBILITY OF SAID COMBINATIONS.
   c. CONTINUOUS LED DIMMING DRIVERS SHALL BE AT MINIMUM 4-WIRE 0-10V 10% DIMMING (HOT, NEUTRAL, DIM+, DIM-).

F. EMERGENCY FIXTURES / BATTERY PACKS:

1. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE IDENTIFIED / PROVIDED AS FOLLOWS:
   a. INTEGRAL BATTERY PACK (EB):
      3a/3EB – FIXTURE CONNECTED TO CIRCUIT "3", CONTROL SWITCHLEG "a" – WITH THE BATTERY CHARGING LEAD CONNECTED TO A CONSTANT HOT CIRCUIT "3".
      3NL/3EB – FIXTURE CONNECTED TO A CONSTANT HOT CIRCUIT "#3". BATTERY CHARGING LEAD CONNECTED TO A CONSTANT HOT CIRCUIT "3".
   b. REMOTE BACK-UP SOURCE (EM):
      3a/3EM – ROUTED THROUGH A U.L. LISTED TRANSFER RELAY (LC & D #GR-2001E/S) FOR SWITCHED CONTROLS OR A U.L. LISTED TRANSFER SWITCH (BODINE #GTD SERIES DEVICE) FOR DIMMING CONTROLS. CONNECTED TO A CONSTANT HOT EMERGENCY CIRCUIT "3". SEE DISTRIBUTED LIGHTING CONTROL SPECIFICATIONS FOR DEVICE REQUIREMENTS WHEN CONTROLLED BY OCCUPANCY SENSORS.
      3NL/3EM – FIXTURE CONNECTED TO A CONSTANT HOT EMERGENCY CIRCUIT "3".
   c. REMOTE BACK-UP SOURCE (EM) NOTES:
      – ALL REMOTE BACK UP SOURCE (EM) FIXTURES SHALL BE PROVIDED WITH AN IN LINE FUSE. PROVIDE ADDITIONAL LABELING TO INDICATE FIXTURE IS PROTECTED BY A FUSE.
2. EMERGENCY BATTERY PACK NOTES:
   a. PROVIDE INTEGRAL TEST SWITCH / CHARGE LIGHT OPTION FOR ALL EMERGENCY BATTERY PACKS INSTALLED IN LIGHT FIXTURES.
   b. ALL RECESSED DOWNLIGHTS SUPPLIED WITH A BATTERY PACK SHALL BE PROVIDED WITH AN INTEGRAL COMBINATION TEST SWITCH / CHARGING INDICATOR LIGHT- MOUNTED INSIDE THE REFLECTOR. REMOTE TEST SWITCH / CHARGING LIGHTS ARE NOT ALLOWED. THE TEST SWITCH / CHARGING INDICATOR LIGHT SHALL BE SECURELY ATTACHED TO THE REFLECTOR WITH 18" OF SLACK LEADS, FOR EASY REMOVAL OF THE REFLECTOR ASSEMBLY.
   c. ALL BATTERY PACKS AND ALL COMBINATION LED BATTERY PACK/EMERGENCY DRIVERS SHALL BE UL924 LISTED.
   d. PRIOR TO BID, CONTRACTOR SHALL VERIFY WITH FIXTURE MANUFACTURER(S) THAT EMERGENCY BATTERY PACKS ARE MANUFACTURED TO BE INTEGRAL TO FIXTURE HOUSINGS.
   e. SHOULD THE SPECIFIED LED EMERGENCY BATTERY PACK(S) NOT FIT WITHIN A GIVEN FIXTURE(S) OR SHOULD THE FIXTURE NOT BE MANUFACTURED TO ACCOMMODATE A BATTERY PACK, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO LOCATE/CONNECT SELF-TESTING MINI INVERTER(S) (IOTA #ILS SERIES OF BODINE#ELI-S-[WATT?]) REMOTELY FROM THE FIXTURE(S) IN THE NEAREST ELECTRICAL ROOM OR TO LOCATE EMERGENCY BATTERY PACK(S) REMOTELY FROM THE FIXTURE ABOVE THE NEAREST ACCESSIBLE CEILING.
   f. LED BATTERY PACKS SHALL PROVIDE A MINIMUM OF 90 MINUTES OF EMERGENCY ILLUMINATION, AND SHALL BE RATED AT A MINIMUM OF 10 WATTS, OR AS SPECIFIED. WHERE A FIXTURE TYPE IS UNAVAILABLE WITH A 10W BATTERY PACK OR WHERE THE WATTAGE IS NOT SPECIFIED ON THE PLANS, INCLUDE ALL COST IN BASE BID TO PROVIDE THE HIGHEST WATTAGE AVAILABLE ON THE FIXTURE CUTSHEET. ANY LISTED EQUAL FIXTURE OR ANY SUBSTITUTION OFFERED BY THE CONTRACTOR MUST ALSO HAVE BATTERY PACKS CAPABLE OF PRODUCING THE SAME OR MORE LUMENS WHEN ON BATTERY AS OUTLINED ABOVE. ACCEPTABLE MANUFACTURES: BODINE OR IOTA.
   g. TO MAINTAIN UL LISTING OF LED FIXTURE, FIXTURE MANUFACTURER(S) SHALL INSTALL LED EMERGENCY BATTERY PACKS AT THE FACTORY AND OBTAIN A UL LISTING FOR THE FIXTURE WITH EMERGENCY BATTERY PACK. FIELD-INSTALLATION OF LED EMERGENCY BATTERY PACK(S) IS PROHIBITED.
   h. PROVIDE DAMP LOCATION VERSION IN ALL DAMP LABEL INSTALLATIONS.

LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	MANUFACTURER & MODEL NO.	WATTS	LUMEN	CCT	DIMENSION	GENERAL DESCRIPTION	NOTES	LOCATION
	LT-200	Elco Lighting E4LF1 & ERT415CT5W	11	750	3000	–	4" Round downlight for use with 11 watt, 750 lumens LED at 3000K color temperature. Contractor shall verify exact dimming requirements prior to ordering and provide all lighting components required to make a complete and operational dimming system.	–	Members Area
	LT-201	Lithonia Lighting LDN4-30-15-L04-AR-LSS-MVOLT-EZ10	17.5	1500	3000	–	Wet rated 4" round downlight for use with 17.5 watt LED at 3000K color temperature. Contractor shall verify trim and finish with Architect prior to ordering. Provide with 0-10V dimming.	–	Members Area – Showers
	LT-202	Kirlin LRR-06013-750L & REM-0700A	10	750	3000	–	Wet rated LED downlight for use with 10 watt LED at 3000K color temperature. Provide with remote 0-10V dimming driver as required. Verify all options with Architect prior to ordering.	–	Steam Rooms
	LT-203	Lithonia Lighting SBL4-3000LM-80CRI-30K-MIN10-GZT-MVOLT	25.5	3236	3000	–	4' Square-basket wraparound for use with 25.5 watt LED at 3000K color temperature. Provide with 0-10V dimming.	–	Storage Room
	LTG-3450	Circa Lighting Dot 16" Flush Mount	24	1850	2700	–	Decorative round flush mount for use with 24 watt dimmable LED at 2700K color temperature. Contractor shall verify exact dimming requirements prior to ordering and provide all lighting components required to make a complete and operational dimming system. Contractor shall verify finish with Architect prior to ordering.	–	Members Area
	LTG-3451	Mitzi Ariel – H326101-AGB	60	–	3000	–	Decorative wall sconce for use with 60 watt equivalent dimmable LED bulb with E26 medium base. Contractor shall verify exact dimming requirements prior to ordering and provide all lighting components required to make a complete and operational dimming system. Contractor shall verify finish with Architect prior to ordering.	–	Members Area – Men's and Women's Wet Area
	LTG-3452	Troy Lighting Bennington – C1350FBZ	120	–	3000	–	Decorative round flush mount for use with (2) 60 watt equivalent dimmable LED bulbs with E26 medium base. Contractor shall verify exact dimming requirements prior to ordering and provide all lighting components required to make a complete and operational dimming system. Contractor shall verify finish with Architect prior to ordering.	–	Members Area – Men's and Women's Wet Area
	LTG-3453	RBW Chip – CHP-WH-30-120-TR-LINE-1P65	12	550	3000	–	Decorative wall sconce for use with 12 watt dimmable LED at 3000K color temperature. Contractor shall verify exact dimming requirements prior to ordering and provide all lighting components required to make a complete and operational dimming sy	–	Members Area – Corridor
	X	Lithonia EDGR-1/2-GMR-EL	2	–	–	–	Edge-lit exit sign for use with green LED lamps and wired for two circuits. Provide clear background for single face, mirror background for double. Refer to architectural plans for number of faces and chevrons. Verify trim finish with Architect prior to ordering.	–	–

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E4-03.dwg, 9/17/2021 10:13:59 AM, DWG To PDF.pc3

HOTEL DEL CORONADO.

Fitness
Members Area
Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF CALIFORNIA

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

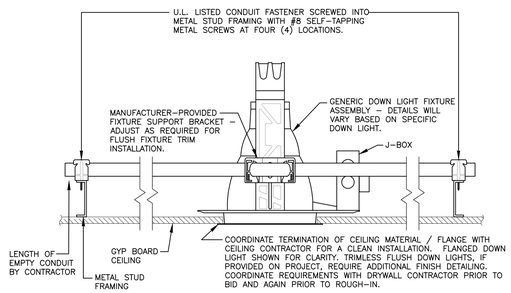
No	Date	Description
	09-17-21	Permit Set

Drawing Title

LIGHTING FIXTURE SCHEDULES

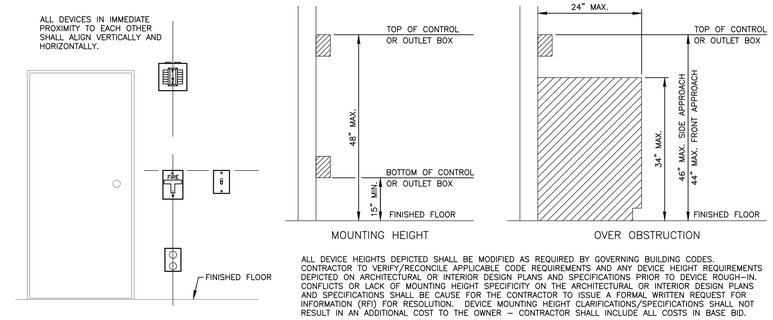
Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E4.03



DOWN LIGHT FIXTURE SUPPORT DETAIL (HARD LID) 2

SCALE: NTS



ALL DEVICE HEIGHTS DEPICTED SHALL BE MODIFIED AS REQUIRED BY GOVERNING BUILDING CODES. CONTRACTOR TO VERIFY/RECONCILE APPLICABLE CODE REQUIREMENTS AND ANY DEVICE HEIGHT REQUIREMENTS DEPICTED ON ARCHITECTURAL OR INTERIOR DESIGN PLANS AND SPECIFICATIONS PRIOR TO DEVICE ROUGH-IN. CONFLICTS OR LACK OF MOUNTING HEIGHT SPECIFICITY ON THE ARCHITECTURAL OR INTERIOR DESIGN PLANS AND SPECIFICATIONS SHALL BE CAUSE FOR THE CONTRACTOR TO ISSUE A FORMAL WRITTEN REQUEST FOR INFORMATION (RFI) FOR RESOLUTION. DEVICE MOUNTING HEIGHT CLARIFICATIONS/SPECIFICATIONS SHALL NOT RESULT IN AN ADDITIONAL COST TO THE OWNER - CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID.

DEVICE ALIGNMENT & MOUNTING HEIGHT DETAILS 1

SCALE: NTS

PERMIT SET: ISSUED FOR CONSTRUCTION

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER
RAYMOND W. SWARTZ
No. E15610
Ex. 12/31/2021
ELECTRICAL
STATE OF FLORIDA

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

Drawing Title

MISCELLANEOUS DETAILS (INTERIOR)

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E5.01

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E5-01.dwg, 9/17/2021 10:14:04 AM, DWG To PDF.pc3

DLCS SCHEDULE

SYSTEM TOPOLOGY	COMMUNICATION TOPOLOGY	FIXTURE INTEGRATED SENSING	BAS INTEGRATION	WIRELESS DLCS COMPONENT BATTERY USAGE	REMARKS
NETWORKED	WIRELESS	NO	YES	SWITCHES & SENSORS	

DISTRIBUTED LIGHTING CONTROL SYSTEM REQUIREMENTS:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING OF ALL MATERIAL, LABOR, EQUIPMENT, AND SERVICES, IN CONNECTION WITH THE INSTALLATION OF A COMPLETE AND FULLY FUNCTIONING AND CODE COMPLIANT INSTALLATION.
2. IT IS THE INTENT OF THE CONTRACT DOCUMENTS, WHICH ARE PRESENTED IN A DIAGRAMMATIC FORMAT, TO PROVIDE CONTRACTOR INFORMATION THAT SUPPLEMENTS AND ENHANCES THE GENERALLY ACCEPTED CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES EMPLOYED IN CONNECTION WITH INSTALLATION OF THIS TYPE OF PRODUCT/SYSTEM.
3. THE CONTRACTOR SHALL ALSO INCORPORATE THE REQUIREMENTS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS/WARRANTY REQUIREMENTS AS PART OF THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN THE CONTRACT DOCUMENT REQUIREMENTS AND THE MANUFACTURER'S INSTALLATION REQUIREMENTS, THE MORE STRINGENT REQUIREMENTS SHALL APPLY – UNLESS THE MORE STRINGENT REQUIREMENT VOIDS APPLICABLE WARRANTIES OR VIOLATES THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION. ANY SUCH CONFLICT SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING THROUGH THE FORMAL RFI PROCESS.
4. REFER TO THE ASSOCIATED SCHEDULES, SCHEMATICS, DRAWINGS, AND SPECIFICATIONS FOR DETAILED INFORMATION/REQUIREMENTS ON THIS PRODUCT/SYSTEM.
5. CONTRACTOR IS RESPONSIBLE TO VERIFY LIGHT FIXTURE DIMMING PROTOCOLS ARE COMPATIBLE WITH THE DLCS.
6. SECURITY STANDARD CERTIFICATIONS, SHOP DRAWINGS AND COMPONENT SUBMITTALS SHALL BE SUBMITTED PER THE GENERAL SPECIFICATION REQUIREMENTS SHOWING ALL COMPONENTS, WIRING CONFIGURATIONS AND PROGRAMMING SCHEDULES. SCALED SHOP DRAWINGS DEPICTING/IDENTIFYING ALL SYSTEM COMPONENT LOCATIONS SHALL BE PROVIDED. SUBMITTALS SHALL BE MADE SPECIFIC TO THE PROJECT – GENERIC SUBMITTALS AND SUBMITTALS WITHOUT SCALED SHOP DRAWINGS SHALL BE REJECTED.

AREA TYPE	OCC SENSOR					INTERIOR DAYLIGHT SENSOR			EXTERIOR PHOTOCELL		ASTRONOMICAL TIME CLOCK CONTROLS			LOCAL CONTROL			SYSTEM		NOTES	REMARKS
	AUTO ON (PERCENTAGE OF NOMINAL FC)	MANUAL ON (WHEN SWITCH / BUTTON IS PRESSED)	REDUCED OUTPUT OR OFF	REDUCED OUTPUT OR OFF DURING NORMAL HOURS	REDUCED OUTPUT OR OFF AFTER NORMAL HOURS	AUTO OFF AT TARGET FC FIXTURES DIM TO OFF	AUTO DIM AT TARGET FC FIXTURES REMAIN ON AT LOWEST LEVEL	TARGET ILLUMINATION LEVEL NOMINAL FOOTCANDLE & METER HEIGHT	EXTERIOR PHOTOCELL ON	EXTERIOR PHOTOCELL OFF	BEGIN NORMAL OPERATING HOURS (ASTRONOMICAL TIME CLOCK TURN ON)	END NORMAL OPERATING HOURS (ASTRONOMICAL TIME CLOCK TURN OFF)	AFTER NORMAL HOURS OVERRIDE CANNOT EXCEED 2 HOURS PER §130.1(g)3.B	ON / OFF	ON / OFF / RAISE / LOWER DIMMING	SCENE SELECTOR	PLUG LOAD CONTROL	DEMAND RESPONSE LIGHTING REDUCTION MIN. 15% COMMERCIAL BLDG >10,000 SQ FT	PROGRAMMING NOTES PLEASE SEE BELOW	
ALL VALUES ARE BASED ON CALIFORNIA TITLE 24 2019																				PLEASE REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. O = INDICATES OPTIONAL COMPLIANCE. MAY NOT BE USED. PLEASE REFER TO PLANS. ● = INDICATES REQUIRED COMPLIANCE ALL LIGHTING WITHIN DAYLIGHTING ZONES SHALL BE COMMISSIONED AT NIGHT, WITH NO DAYLIGHT CONTRIBUTION, IN ORDER TO ESTABLISH BASELINE ILLUMINATION LEVELS. "NORMAL HOURS" REFERS TO OWNER-DETERMINED OPERATING HOURS. "AFTER HOURS" REFERS TO ANY TIME PERIOD BEFORE OR AFTER OWNER-DETERMINED OPERATING HOURS. WHERE EXTERIOR PHOTOCELL CONTROL IS INDICATED, PLEASE PROVIDE EXTERIOR NORTH FACING DAYLIGHT SENSOR.
CLOSET / STORAGE	ON AT 100%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-	-	§130.1(b) EXCEPTION 1 - AN AREA ENCLOSED BY CEILING HEIGHT PARTITIONS THAT HAS ONLY ONE LUMINAIRE WITH NO MORE THAN TWO LAMP DOES NOT REQUIRE MULTI-LEVEL CONTROLS.
CORRIDOR RESIDENTIAL OR HOTEL	ON AT 100%	-	DIM 50% AFTER 10 MIN.	-	-	-	●	5-10 FC +0" AFF	-	-	-	-	-	-	●	-	-	-	-	§130.1(a)1 EXCEPTION 1 - MANUAL CONTROL MAY BE LOCATED IN A SEPARATE, SECURED LOCATION. PROVIDE DUAL MODE CONTROL PER DLCS SPECIFICATIONS.
RESTROOMS / LOCKER ROOMS	ON AT 100%	-	5 MIN. TO OFF	-	-	-	-	20-30 FC	-	-	-	-	-	●	-	-	-	-	-	§130.1(b) EXCEPTION 2 - DIMMABLE LUMINAIRES NOT REQUIRED. §130.1(c)5 - [DUAL MODE] OCCUPANCY SENSORS REQUIRED. §130.1(a)1 EXCEPTION 1 - MANUAL CONTROL MAY BE LOCATED IN A SEPARATE, SECURED LOCATION.
PARKING GARAGE																				

PROGRAMMING NOTES

NOTES: A. PROVIDE DAYLIGHTING CONTROL FOR PRIMARY AND SECONDARY DAYLIT OR SKYLIT ZONES WERE REQUIRED. DAYLIGHTING IS NOT NECESSARY WHEN AREAS DO NOT INCLUDE SKYLIGHTS OR GLAZING < 24 SQ FT OR SKYLIT+PRIMARY SIDELIT ZONE IS LESS THAN 120W. LUMINAIRES IN OR AT LEAST 50% WITHIN DAYLIGHTING ZONES MUST BE CONTROLLED.

B. CONTROLLED BY OCCUPANCY SENSOR: AUTO AND / OR MANUAL ON UNLESS OVERRIDDEN BY DAYLIGHTING SENSORS.

C. MANUAL CONTROL WALL STATIONS FOR THESE AREAS SHALL BE LOCATED IN THE NEAREST BACK OF HOUSE CLOSET, CONTROL BOOTH, ELECTRICAL ROOM, ETC. TO PREVENT UNAUTHORIZED USERS FROM ADJUSTING LIGHTING LEVELS.

D. CONFIGURE LIGHTING CONTROL TO PROVIDE PROPORTIONATE RAISE / LOWER OF ALL ROOM LIGHTING TOGETHER, REGARDLESS OF LOCATION IN DAYLIGHTING AND NON-DAYLIGHTING ZONES WHERE THEY OCCUR.

E. PROVIDE RS-232 OR ETHERNET CONNECTION TO AV SYSTEM TO ALLOW RECALL OF LIGHTING PRESETS BY AV SYSTEM WITHIN THIS ROOM, IF REQUESTED BY OWNER.

F. PROVIDE CONTROLLED RECEPTACLES IN THIS ROOM AS REQUIRED. CONTROLLED RECEPTACLE MUST BE WITHIN 6'-0" OF UNCONTROLLED RECEPTACLE.

G. PROVIDE MOMENTARY CONTACT CLOSURE FROM FACP TO FORCE ALL LIGHTING IN THIS AREA TO 100% DURING AN ALARM EVENT. AUTOMATICALLY RESTORE LIGHTING TO NORMAL WHEN EVENT HAS CLEARED.

H. LIGHTING IN THIS SPACE MAY BE CONTROLLED FROM A STAGE LIGHTING SYSTEM. THE STAGE LIGHTING SYSTEM SHALL BE PROVIDED WITH A TITLE 24 COMPLIANT LIGHTING CONTROL PROCESSOR AND COMPATIBLE OCCUPANCY AND DAYLIGHT SENSORS AS REQUIRED FOR COMPLIANCE.

I. NOT USED

J. CONFIRM OPERATING HOURS WITH OWNER PRIOR TO FINAL PROGRAMMING.

K. REQUIRES CONNECTION TO BUILDING AUTOMATION SYSTEM (BAS) WHEN SUCH SYSTEM IS PRESENT.

L. FIXTURES WITHOUT OCCUPANCY SENSORS SHALL HAVE LOW END TRIM ADJUSTED TO MAINTAIN MINIMUM ILLUMINATION LEVELS.

M. LIGHTING CONTROL SYSTEM SHALL HAVE ASTRONOMICAL TIME CLOCK AND DUAL MODE CAPABILITY FOR "AFTER HOURS" CONTROL OF LIGHTING.

N. PERFORMANCE SPACE, NO DAYLIGHTING REQUIRED. TARGET ILLUMINATION LISTED ONLY FOR REFERENCE IN THIS COLUMN.

CRESTRON DISTRIBUTED LIGHTING CONTROLS (ZUM WIRED/WIRELESS):

WALL BOX SENSORS:

	DUAL TECH	PIR ONLY	ULTRASONIC ONLY
STANDALONE SINGLE RELAY =	#GLA-DT-WLS-1	#GLA-IR-WLS-1	#GLA-US-WLS-1
STANDALONE DUAL RELAY =	#GLA-DT-WLS-2	#GLA-IR-WLS-2	#GLA-US-WLS-2
STANDALONE SINGLE RELAY WITH 0-10VDC =	#GLA-DT-WLS-DIM	#GLA-IR-WLS-DIM	#GLA-US-WLS-DIM
SYSTEM-BASED WALLBOX =	NOT AVAILABLE		

CEILING SENSORS:

ONE-WAY DIRECTIONAL = (ANALOG) #GLA-US-HALLWAY SERIES
#GLA-US-ONEWAY SERIES
(ZUM WIRED) #ZUMLINK-US-HALLWAY-DLS SERIES
#ZUMLINK-US-ONEWAY-DLS SERIES

360 DEG COVERAGE = (ANALOG) #GLA-DT-QUATTRO SERIES
#GLA-IR-QUATTRO SERIES
#GLA-IR-QUATTRO-HD SERIES
#GLA-US-QUATTRO SERIES
(ZUM WIRED) #ZUMLINK-DT-QUATTRO-DLS SERIES
#ZUMLINK-IR-QUATTRO-DLS SERIES
#ZUMLINK-IR-QUATTRO-HD-DLS SERIES
#ZUMLINK-US-QUATTRO-DLS SERIES
(ZUM WIRELESS, BATTERY) #ZUMMESH-PIR-OCCUPANCY-BATT
#ZUMMESH-PIR-VACANCY-BATT

DAYLIGHT SENSORS:

OPEN LOOP SENSOR = (ANALOG) #GLA-LDL-PC-0-10
(ZUM WIRELESS, BATTERY) #ZUMMESH-OL-PHOTOCELL-BATT

CLOSED LOOP SENSOR = (ANALOG) #GLA-LDL-PC-0-10

CONTROL UNITS: (ZUM WIRED)

SWITCH/CONTINUOUS DIMMING (0-10V) = #ZUMNET-JBOX-16A-LV
#ZUMLINK-JBOX-16A-LV
SWITCHING ONLY = #ZUMLINK-JBOX-20A-SW
CONTINUOUS DIMMING (UNIVERSAL) = #ZUMLINK-EXP-16A-DIMU
RECEPTACLE CONTROL = #ZUMLINK-JBOX-20A-PLUG
DALI CONTROL = #ZUMNET-JBOX-DALI

HVAC CONTROL = BACNET/IP
(OPTIONAL) -RLY OPTION ON ZUM WIRED OCCUPANCY SENSOR
(OPTIONAL) -COM2 OPTION ON ANALOG OCCUPANCY SENSOR

AV SYSTEM INTERFACE = #ZUMLINK-IO OR TCP/IP
MOVEABLE PARTITION INTERFACE & SENSOR = #GLS-PART-CN

*NETWORKED SYSTEMS REQUIRE A MINIMUM OF ONE ZUMNET DEVICE PER ROOM

CONTROL UNITS: (ZUM WIRELESS)

SWITCH/CONTINUOUS DIMMING (0-10V) = #ZUMMESH-JBOX-16A-LV
#ZUMMESH-JBOX-5A-LV
SWITCHING ONLY = #ZUMMESH-JBOX-20A-SW
CONTINUOUS DIMMING (UNIVERSAL) = #ZUMMESH-EXP-16A-DIMU
RECEPTACLE CONTROL = #ZUMMESH-JBOX-20A-PLUG
DALI CONTROL = #ZUMMESH-JBOX-DALI

POWER SUPPLY/RANGE EXTENDER = #ZUMMESH-JBOX-PSU
WIRED SENSOR INTEGRATION MODULE = #ZUMMESH-JBOX-SIM (USE WITH ANY ANALOG SENSOR)
NETWORK ADAPTER = #ZUMMESH-NETBRIDGE REQUIRES ZUMMESH-JBOX OF ANY KIND

HVAC CONTROL = BACNET/IP
#ZUMMESH-CCO REQUIRES ZUMMESH-JBOX OF ANY KIND
(OPTIONAL) -COM2 OPTION ON ANALOG OCCUPANCY SENSOR

AV SYSTEM INTERFACE = #ZUMMESH-AVBRIDGE OR TCP/IP
MOVEABLE PARTITION INTERFACE & SENSOR = #ZUMMESH-PART REQUIRES ZUMMESH-JBOX-SIM

*NETWORKED SYSTEMS REQUIRE ONE ZUMMESH-NETBRIDGE DEVICE PER ROOM

WALL CONTROLS:

WALL BOX DIMMING = (ZUM WIRELESS) #ZUMMESH-DIM (2-WIRE FWD PHASE)
#ZUMMESH-DELV (2-WIRE REV PHASE)
#ZUMMESH-5A-LV (0-10V DIMMING)
#ZUMMESH-5A-SW (SWITCHING)

WALL BOX KEYPAD = (ZUM WIRED) #ZUMLINK-KP-R
(ZUM WIRELESS BATTERY) #ZUMMESH-KP10A/B/C/D-BATT
(ZUM WIRELESS LINE POWERED) #ZUMMESH-KP10A/B

TOUCH SCREEN = #TSW-570, TSW-770, TSW-1070

KEYED SWITCH = #GLA-KEYSW-MAINTAIN
(REQUIRES ZUMMESH-JBOX-SIM OR ZUMLINK-IO)

NETWORK COMM COMPONENTS:

PROCESSORS = (ANALOG/ZUM WIRED/WIRELESS): GLNET SERIES
ZUM WIRELESS GATEWAY = #ZUMNET-GATEWAY
ZUM WIRED WIRELESS ACCESS POINT = #ZUMLINK-ZAP

EMERGENCY POWER INTERFACE:

EMERGENCY POWER CONTROL UNITS:

SWITCH/CONTINUOUS DIMMING (0-10V) = (ZUM WIRED) #ZUMLINK-JBOX-16A-LV-EM
SWITCH/CONTINUOUS DIMMING (0-10V) = (ZUM WIRELESS) ZUMMESH-JBOX-16A-LV-EM

POWER FAILURE OR FIRE ALARM ACTIVATION:

SWITCH/CONTINUOUS DIMMING (0-10V) = #GLA-EPC-FLV
REVERSE/FORWARD PHASE DIMMING = #GLA-EPC-D-F-ATS
SWITCHING / STEP DIMMING = #GLA-EPC-P SERIES

TK1SC PM CRESTRON KEY NOTES:
1. WIRED,HYBRID, AND WIRELESS AVAILABLE
2. WIRELESS SYSTEMS CAN HAVE BATTERY-POWERED SWITCHES AND SENSORS OR LINE VOLTAGE OPTIONS.
3. BATTERY HEALTH REPORTING FEATURE IS INCLUDED WITH NETWORK VERSION AND ALSO PHONE-BASED APP CONNECTION FOR NON-NETWORKED.

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER RAYMOND W. SWARTZ No. E15610 Ex. 12/31/2021 STATE OF FLORIDA

Registration Seal
C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

Drawing Title
DISTRIBUTED LIGHTING CONTROLS SCHEDULES & PRODUCT SPECIFICATIONS

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E5.02

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E5-02.dwg, 9/17/2021 10:14:11 AM, DWG To PDF.pc3

DISTRIBUTED LIGHTING CONTROLS SYSTEM SPECIFICATIONS (OCCUPANCY / VACANCY SENSORS AND DAYLIGHTING CONTROLS):

1. SEE LIGHTING PLAN DRAWINGS FOR DISTRIBUTED LIGHTING CONTROL SYSTEM (DLCS) SPECIFICS, SPACE SPECIFIC CONFIGURATIONS/REQUIREMENTS, AS WELL AS FIXTURE BALLAST/DRIVER CONFIGURATIONS.
2. ALL PRODUCTS SHALL BE BACKED BY A FIVE YEAR MANUFACTURER'S WARRANTY.
3. ALL PRODUCTS LISTED IN THIS SPECIFICATION ARE BASED UPON PRODUCTS LISTED ON THIS SHEET. THE FEATURES AND CHARACTERISTICS OF THE PRODUCT LITERATURE AND SPECIFICATION SHEETS AVAILABLE ON THE VARIOUS MANUFACTURER'S WEB-SITES ARE INCLUDED IN THE REQUIREMENT OF THESE SPECIFICATIONS. ALL DLCS NETWORKED/NON-NETWORKED SYSTEM-BASED AND STANDALONE COMPONENTS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
4. DLCS COMPONENTS SHALL BE COMPLIANT WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL ENERGY CODES.
5. ALL NETWORKED AND NON-NETWORKED SYSTEM-BASED DLCS SYSTEMS SHALL BE COMPLIANT WITH AND CERTIFIED TO THE FOLLOWING SECURITY STANDARDS SET FORTH IN THE LATEST PUBLISHED VERSION OF THE DESIGNLIGHTS CONSORTIUM'S "NETWORKED LIGHTING CONTROL SYSTEM TECHNICAL REQUIREMENTS" DOCUMENT (VERSION 4.0 OR LATEST PUBLISHED VERSION):
   - DLC COMPONENTS: UL2900-1 UL STANDARD FOR SOFTWARE CYBER SECURITY FOR NETWORK-CONNECTABLE PRODUCTS.
   - DLCS DESIGN PROCESS: UL 2900-1 UL STANDARD FOR SOFTWARE CYBER SECURITY FOR NETWORK-CONNECTABLE PRODUCTS AND/OR ISO/IEC 27001 STANDARD FOR INFORMATION SECURITY MANAGEMENT SYSTEMS.
   - DLCS CLOUD SERVICES: ANY ASSOCIATED DLCS CLOUD SERVICES SHALL MEET THE REQUIREMENTS OF ISO/IEC 27017 (WITH 27001) STANDARD FOR CODE OF PRACTICE FOR INFORMATION SECURITY CONTROLS FOR CLOUD SERVICES.

   WHERE THE MANUFACTURER CANNOT DEMONSTRATE COMPLIANCE WITH THE ABOVE REQUIREMENTS, THE DLCS MANUFACTURER SHALL PROVIDE A COMPREHENSIVE PRODUCT-SPECIFIC IT SECURITY STATEMENT FOR REVIEW BY THE OWNER. THE DLCS SHALL NOT BE CONNECTED TO AN OWNER-FURNISHED NETWORK WITHOUT PRIOR WRITTEN PERMISSION BY THE OWNER,

   ADDITIONALLY, WHERE INSTALLED IN THE STATE OF CALIFORNIA, SYSTEM-BASED DLCS SYSTEMS SHALL BE COMPLIANT WITH CA STATE ASSEMBLY BILL NO. 375 CALIFORNIA PRIVACY ACT OF 2018 AND CA STATE SENATE BILL NO 327 INFORMATION PRIVACY FOR CONNECTED DEVICES.
6. WHERE THE DLCS SCHEDULE INDICATES A SPECIFIC "SYSTEM TOPOLOGY" OPTION, PROVIDE ONE OF THE FOLLOWING:

   "NETWORKED" – PROVIDE A SYSTEM-BASED DLCS THAT COMMUNICATES USING A MANUFACTURER-SPECIFIC DLCS NETWORK ALLOWING BI-DIRECTIONAL FLOW OF INFORMATION BETWEEN DEVICES SUCH AS ROOM CONTROLLERS, SENSORS, RELAY PANELS AND NETWORK CONTROLLERS. PROVIDE A DLCS GUI AND RELATED SOFTWARE TO FACILITATE REMOTE DLCS DEVICE PARAMETERS CHANGES, REMOTE CONTROL ANY DLCS ELEMENT OR DEVICE, REMOTE SCHEDULE CHANGES/IMPLEMENTATIONS, AND REMOTE DLCS COMMISSIONING AND TROUBLESHOOTING. A NETWORKED SYSTEM TOPOLOGY SHALL BE CONFIGURED TO RESPOND TO LOCAL UTILITY DEMAND RESPONSE SIGNALS.

   "NON-NETWORKED" – PROVIDE A SYSTEM-BASED DLCS THAT COULD BE MADE TO COMMUNICATE USING A MANUFACTURER-SPECIFIC DLCS NETWORK, BUT FOR THIS PROJECT IS CONFIGURED WITHOUT ANY NETWORK CONNECTIVITY OR NETWORK COMPONENTS, EXCEPT FOR ANY NETWORK COMPONENTS REQUIRED FOR DUAL MODE CONTROL FOR CORRIDORS, WAREHOUSE AISLES ETC OR WHERE REQUIRED FOR BAS INTEGRATION REQUIRED IN THE DLCS SCHEDULE OR ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS. IN A "NON-NETWORKED" DLCS, DEMAND RESPONSE CAPABILITY IS NOT REQUIRED.

   "STAND ALONE" – PROVIDE INDIVIDUAL WALL SENSORS/CONTROLS – OPERATING AT 120V OR 277V. GENERALLY, STANDALONE COMPONENT INSTALLATIONS ARE TO BE AVOIDED AND ARE LIMITED TO USE IN SMALL ROOMS WHERE ADVANCED CONTROLS, DIMMING CAPABILITY, DEMAND RESPONSE, DUAL MODE CONTROL AND/OR NETWORK CONNECTIVITY ARE NOT REQUIRED BY APPLICABLE ENERGY CODE AND WHERE ACCEPTABLE TO AN END-USER.
7. WHERE THE DLCS SCHEDULE INDICATES A SPECIFIC "COMMUNICATIONS TOPOLOGY" OPTION, PROVIDE ONE OF THE FOLLOWING:

   "WIRED" – PROVIDE WIRING, AS REQUIRED, TO INTERCONNECT DLCS DEVICES. WIRING MAY BE A COMBINATION OF LOW AND LINE VOLTAGE CONDUCTORS BASED ON SPECIFIC MANUFACTURER REQUIREMENTS.

   "WIRELESS" – PROVIDE WIRELESS CONNECTIVITY BETWEEN WALL CONTROLS, WALL, CEILING OR FIXTURE-INTEGRATED SENSORS, ROOM CONTROLLERS, WIRELESS ROUTER(S), AND WIRELESS NETWORK BRIDGES. CONTRACTOR SHALL PROVIDE WIRELESS ROUTERS, QTY AS REQUIRED, TO MAINTAIN ROBUST COMMUNICATIONS WITH ALL WIRELESS DEVICES. ROBUST MEANS THAT A CHANGE OF VALUE FROM OR TO ANY DLCS SYSTEM COMPONENT FROM OR TO AN APPLICABLE WIRELESS ROUTER/BRIDGE OCCURS IN LESS THAN 3 SECONDS.

   "HYBRID" – WHERE A SOLELY WIRELESS DLCS TOPOLOGY IS DEEMED INADEQUATE BASED ON OPERATIONAL OR AESTHETIC REASONS, A WIRELESS TOPOLOGY SHALL BE AUGMENTED WITH WIRED SYSTEM TO FORM A HYBRID COMMUNICATIONS TOPOLOGY. AREAS REQUIRING WIRED CONNECTIVITY SHALL BE OUTLINED ON THE LIGHTING PLANS AND UNLESS OTHERWISE INDICATED, ALL RESTROOMS SHALL BE PROVIDED WITH DUAL TECHNOLOGY OCCUPANCY SENSORS WHICH REQUIRE WIRED CONNECTIVITY AND WIRED POWER SUPPLY. A NETWORKED, SYSTEM-BASED DLCS INSTALLED WITH A HYBRID COMMUNICATIONS TOPOLOGY SHALL APPEAR IN THE USER GUI/SOFTWARE AS A SINGLE UNIFIED SYSTEM. SEPARATE GUI SOFTWARE INTERFACES FOR THE WIRED AND WIRELESS PORTIONS OF THE DLCS ARE UNACCEPTABLE.
9. WHERE THE DLCS SCHEDULE REQUIRES FIXTURE-INTEGRATED SENSORS, PROVIDE OCCUPANCY AND/OR DAYLIGHT SENSORS INTEGRATED WITHIN SPECIFIED FIXTURE TYPE THAT ALSO INTEGRATE INTO THE DLCS. SEE THE LIGHTING FIXTURE SCHEDULE FOR AFFECTED FIXTURE TYPE(S). WHERE INTEGRATED SENSORS DO NOT MEET OCCUPANCY/DAYLIGHT SENSOR COVERAGE REQUIREMENTS, CONTRACTOR SHALL AUGMENT COVERAGE WITH ADDITIONAL CEILING MOUNTED SENSORS AS REQUIRED AND AS A PART OF THE BASE BID.
10. WHERE THE DLCS SCHEDULE REQUIRES THE DLCS TO INTEGRATE WITH THE PROJECT'S BUILDING AUTOMATION SYSTEM (BAS) – SEE THE DLCS START-UP, BUILDING AUTOMATION SYSTEM (BAS) INTEGRATION, COMMISSIONING, & TRAINING PORTION OF THIS SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
11. WHERE THE DLCS SCHEDULE INDICATES "WIRELESS" OR "HYBRID" COMMUNICATIONS TOPOLOGIES AND ALSO ALLOWS WIRELESS DLCS COMPONENT BATTERY USAGE, PROVIDE BATTERIES WITHIN THE WIRELESS DLCS COMPONENTS INDICATED IN LIEU OF LINE OR LOW VOLTAGE POWER SOURCES.
12. DLCS COMPONENTS SHALL BE BE PROVIDED AS FOLLOWS:
    a. STANDALONE: WALL MOUNTED OCCUPANCY SENSORS SHALL BE UL LISTED AND HAVE A MINIMUM LOAD CAPACITY OF 800 WATTS AT 120 VOLTS AND 1200 WATTS AT 277 VOLTS. WALL SENSORS SHALL ALSO BE DECORA STYLE, WITH A LOW-PROFILE APPEARANCE AND A HARD LENS FOR DURABILITY. SENSOR SHALL UTILIZE PASSIVE INFRARED TECHNOLOGY (PIR) AND ULTRASONIC/MICROPHONIC TECHNOLOGY. UNIT SHALL BE RATED FOR 120/277 VOLT WITH NO MINIMUM LOAD, COMPATIBLE WITH ALL THE SPECIFIED BALLASTS, PROVIDED WITH A NEUTRAL CONNECTION (NO LEAKAGE TO GROUND) AND NO LEAKAGE TO LOAD IN THE "OFF" MODE. SENSOR SHALL BE UTILIZED IN SPACES NOT EXCEEDING 150 SQ.FT. SINGLE RELAY SENSORS SHALL BE CONFIGURED WITH THE RELAY IN A "MANUAL ON/ AUTO OFF" SETTING. DUAL RELAY SENSORS SHALL BE CONFIGURED WITH THE FIRST RELAY IN A "AUTOMATIC ON/ AUTOMATIC OFF" SETTING AND THE SECOND RELAY IN A "MANUAL ON/ AUTOMATIC OFF" SETTING. FACTORY STANDARD COLOR TO BE APPROVED BY ARCHITECT.
    b. SYSTEM-BASED (NETWORK OR NON-NETWORK): THE OCCUPANCY SENSOR SYMBOL SHALL REPRESENT A LOW VOLTAGE, WALL MOUNTED OCCUPANCY SENSOR CONNECTED TO A CONTROL UNIT(S) AS REQUIRED. SENSOR SHALL BE DECORA STYLE WITH A LOW-PROFILE APPEARANCE, HAVE ON/OFF/RAISE/LOWER BUTTONS, AND A HARD LENS FOR DURABILITY. FACTORY STANDARD COLOR TO BE APPROVED BY ARCHITECT.

       SYSTEM-BASED (NETWORK OR NON-NETWORK) OR STANDALONE CEILING MOUNTED OCCUPANCY SENSORS SHALL SHALL REPRESENT A LOW VOLTAGE, CEILING-MOUNTED OCCUPANCY SENSOR WITH A LOW-PROFILE APPEARANCE AND SHALL BE CONFIGURED IN ONE OF THE FOLLOWING WAYS AS INDICATED ON THE DRAWINGS:
       - AUTO ON: a/b
       - SWITCHED: AUTO ON a / MANUAL ON b
       - CONTINUOUS DIMMED: AUTO ON 50% a / MANUAL ON 100% a
    c. SENSOR(S) SHALL UTILIZE DUAL TECHNOLOGY (PIR AND ULTRASONIC/MICROPHONIC TECHNOLOGY) WITH 360 DEGREE COVERAGE. IN SPACES WITH DESKTOP ACTIVITIES, THE COVERAGE SHALL BE "HAND MOTION" AND SHALL NOT EXCEED 500 SQ. FT. AT A MAXIMUM CEILING HEIGHT OF 10 FT. IN CORRIDORS, STORAGE ROOMS AND OTHER SPACES WITH NON-DESKTOP ACTIVITIES, COVERAGE SHALL BE "HALF-STEP, WALKING MOTION" AND SHALL NOT EXCEED 1200 SQ. FT. AT A MAXIMUM CEILING HEIGHT OF 10 FT. PIR-ONLY WIRELESS OCCUPANCY SENSORS SHALL NOT BE UTILIZED IN RESTROOMS OR LOCKER ROOMS.
    d. "H" AT THE OCCUPANCY SENSOR INDICATES CONNECTION TO AUXILIARY OUTPUT CONTROL DEVICE FOR CONTROL OF A THIRD PARTY DEVICE VIA LOW-VOLTAGE CONTACT CLOSURES – 1 AMP @ 24V AC/DC. NC/NO RELAYS SHALL BE CONNECTED TO A CONTROLLER TO PERFORM THE AUXILIARY CONTROL REQUIREMENTS INDICATED BY THE DRAWINGS.
    e. OCCUPANCY SENSORS LOCATED WITHIN CORRIDORS, HALLWAYS, STAIRWAYS/WELLS, AISLEWAYS WITHIN WAREHOUSE SPACES, AND IN OTHER AREAS PER PLANS AND/OR SOO SHALL BE CONFIGURED TO CREATE DUAL MODE CONTROL FUNCTIONALITY PER THE SOO/ZONE SCHEDULE. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING REQUIRED FOR DUAL MODE OPERATIONS AND ANY PROGRAMMING/CONFIGURATION OF TIME-BASED OPERATING PARAMETERS. COORDINATE WITH OWNER TO DETERMINE BUSINESS HOUR/AFTER BUSINESS HOUR MODES. IF THE PLANS IDENTIFY A NEW OR EXISTING LIGHTING CONTROL PANEL AS THE SOURCE OF DUAL MODE TIMING, E.C. SHALL INCLUDE ALL COSTS TO INSTALL ANY NECESSARY I/O TERMINALS, CARDS, ETC. TO MAKE THE SYSTEM FULLY FUNCTIONAL.
    f. NETWORK SYSTEM-BASED DLCS SYSTEMS SHALL PROVIDE/RESULT IN "LADDERLESS COMMISSIONING" OF DAYLIGHT CONTROLS. AT A MINIMUM, NETWORK ACQUIRED DATA SHALL PROVIDE CT-BASED LIGHTING POWER (WATTS) MEASUREMENTS PER THE COMMISSIONING PORTION OF THESE REQUIREMENTS. PROVIDE NETWORKED CONTROL UNITS/POWER PACKS/INTERFACES AND MISCELLANEOUS EQUIPMENT AS FOLLOWS:
       1) NETWORK SEGMENT MANAGER OR BORDER ROUTER WITH NATIVE BACnet IP – QUANTITY AS REQUIRED BASED UPON A MAXIMUM OF 100 LOCAL ROOM NETWORKS PER SEGMENT AND A MINIMUM OF ONE SEGMENT MANAGER PER FLOOR. THIS EQUIPMENT SHALL BE LOCATED IN THE TYPICAL FLOOR ELECTRICAL ROOM.
       2) NETWORK BRIDGE CONNECTING THE SEGMENT MANAGER TO THE CONTROLLER SUB/LOCAL NETWORK.
       3) ALL CORRIDORS, WAREHOUSE AISLE WAYS, AND STAIRWELLS SHALL BE PROVIDED WITH DUAL MODE CORRIDOR/STAIRWAY CONTROLS TO INCLUDE CEC-LISTED TIME CLOCK(S), ROUTERS, OR SYSTEM GATEWAYS, INTERPOSING RELAYS (WHEN INTERFACING WITH EXISTING CEC-LISTED RELAY PANELS), WIRING, 120V POWER, PROGRAMMING, ETC. NECESSARY FOR A COMPLETE AND FUNCTIONING CONTROL SYSTEM.
       4) INCLUDE ALL COSTS IN BASE BID TO PROVIDE 120V CIRCUIT(S) AND RECEPTACLE(S) NECESSARY TO POWER ALL DEMAND RESPONSE EQUIPMENT.
       5) PROVIDE DATA OUTLET/PATHWAY, DATA CABLING (IF REQUIRED ELSEWHERE BY PROJECT DOCUMENTS), AND CONNECTION TO THE PROJECT'S LOCAL AREA NETWORK.
       6) INCLUDE ALL COSTS IN BASE BID TO PROVIDE 120V CIRCUIT(S) AND RECEPTACLE(S) NECESSARY TO POWER ALL NETWORK SEGMENT MANAGERS, SWITCHES AND ROUTERS.
       7) DEMONSTRATE DLCS RESPONSE TO A SIMULATED DEMAND RESPONSE REQUEST AS PART OF THE LIGHTING COMMISSIONING PROCESS. WHERE MORE THAN ONE WIRING TOPOLOGY AND/OR ZONE IS REQUIRED TO ACCOMPLISH DEMAND RESPONSE – ALL WIRING TOPOLOGIES AND ZONES SHALL BE TESTED ACCORDINGLY. SEE DLCS SOO FOR POWER REDUCTION PERCENTAGES BY ROOM TYPE THAT SHALL BE UTILIZED IN THE SIMULATED DEMAND RESPONSE TESTING.
    g. WHERE INDICATED ON DRAWINGS, PROVIDE DLCS DAYLIGHTING CONTROLS AS FOLLOWS:
       1) AUTOMATIC SWITCHING DAYLIGHTING CONTROLS SHALL BE PROVIDED TO SWITCH SELECTED FIXTURES AND/OR LAMPS OFF AND ON BASED UPON LIGHTING LEVELS PRESENT IN THE CONTROLLED SPACE. THE DAYLIGHTING CONTROLS SHALL BE CONNECTED TO THE CONTROL UNIT. THE SENSOR SHALL UTILIZE AN INTEGRAL PHOTO DIODE TO MEASURE AMBIENT LIGHT LEVELS. CONTROLS SHALL BE FULLY ADJUSTABLE FROM 1 TO 6,500 FOOTCANDLES AND SHALL BE PROVIDED WITH AN ADJUSTABLE TIME DELAY AND ADJUSTABLE DEAD BAND SETTINGS.
       2) AUTOMATIC DIMMING DAYLIGHTING CONTROLS SHALL BE PROVIDED TO CONTINUOUSLY DIM SELECTED FIXTURES/LAMPS UP AND DOWN BASED UPON LIGHTING LEVELS PRESENT IN THE CONTROLLED SPACE. THE SENSOR SHALL UTILIZE AN INTERNAL PHOTO DIODE TO MEASURE AMBIENT LIGHT LEVELS. 0-10 VOLT DIMMING CONTROLS SHALL RANGE FROM 0.2 VOLTS TO 10 VOLTS, WITH AMBIENT LIGHTING SET POINTS FROM 1-6,500 FOOTCANDLES.
       3) AUTOMATIC DAYLIGHTING CONTROLS SHALL BE CONNECTED TO CONTROL UNITS TO PERFORM THE FIXTURE SWITCHING/DIMMING REQUIREMENTS INDICATED BY THE DRAWINGS – CONNECTIONS DIRECTLY TO A BALLAST ARE NOT ALLOWED.
       4) DAYLIGHT SENSOR SHALL PROVIDE CONTROLS FOR UP TO THREE DISTINCT LIGHTING ZONES TO ALLOW SEPARATE CONTROL OF PRIMARY DAYLIT, SECONDARY DAYLIT, AND SKYLIT ZONES.
    h. PROVIDE CONTROL UNITS AND SYSTEM FUNCTIONALITY AS FOLLOWS:
       1) CONTINUOUS DIMMING CONTROLS: SYSTEM-BASED WALL OR CEILING MOUNTED OCCUPANCY SENSORS (CONTINUOUS DIMMED – AUTO ON 50%/MANUAL ON 100%) SHALL BE PROVIDED WITH CONTROL UNITS TO PERFORM FUTURE DIMMING REQUIREMENTS INDICATED BY THE DRAWINGS. FIXTURE TYPE WITH SWITCH LEG INDICATED OUTSIDE THE PARENTHESIS TO BE CONFIGURED AS "AUTO ON 50%/MANUAL ON 100%" FOR CONTINUOUS DIMMED. SWITCH LEGS INSIDE PARENTHESIS INDICATES A MANUAL ACTION REQUIRED TO INCREASE LIGHTING LEVELS ABOVE 50%. CONTROL UNITS WITH INTEGRAL TRANSFORMERS SHALL BE UTILIZED TO PROVIDE POWER TO OCCUPANCY SENSORS AND OTHER CONTROL DEVICES. CONTROL UNITS SHALL BE LOCATED WITHIN JUNCTION BOXES AND NOT EXPOSED IN THE CEILING SPACE. CONTROL UNIT SHALL BE 120/277 VOLT RATED WITH NO MINIMUM LOAD, COMPATIBLE WITH ALL THE SPECIFIED BALLASTS PROVIDED WITH A NEUTRAL CONNECTION (NO LEAKAGE TO GROUND) AND NO LEAKAGE TO LOAD IN THE "OFF" MODE. ADDITIONAL RELAY ZONES MAY BE REQUIRED FOR THE ADDITION OF PRIMARY DAYLIT, SECONDARY DAYLIT, AND PRIMARY SKYLIT UTILIZING THE SAME CONTROL CHANNEL (E.G. EVEN THOUGH A SINGLE LETTER "a" IS INDICATED AT THE PRIMARY SENSOR), ADDITIONAL RELAYS WOULD BE REQUIRED FOR THE "a+" (PRIMARY SIDELIT DAYLIT ZONE), "a++" (SECONDARY SIDELIT DAYLIT ZONE), AND "a*" (SKYLIT DAYLIT ZONE). WHERE MORE THAN ONE CIRCUIT/THREE SWITCH LEGS/THREE RELAY ZONES ARE REQUIRED, PROVIDE ADDITIONAL FULL FEATURE CONTROL UNITS AS REQUIRED.
       2) WHERE ADDITIONAL 120/ 277 VOLT DEVICES, RECEPTACLES, OR BRANCH CIRCUITS ARE BEING CONTROLLED BY THE ROOM CONTROLLER, AN ADDITIONAL CONTROL UNIT SHALL BE PROVIDED AS REQUIRED.
       3) THE OCCUPANCY SENSOR CONTROLLED RECEPTACLE BRANCH CIRCUIT RELAY, CONNECTED TO THE SPACE'S DISTRIBUTED LIGHTING CONTROL OCCUPANCY SENSOR RELAY, SHALL TURN ON WHEN THE ROOM IS OCCUPIED, REGARDLESS OF THE CONFIGURATION OF THE LIGHTING CONTROL STATE – I.E. AUTO ON/MANUAL ON. SEE THE DISTRIBUTED LIGHTING CONTROL SPECIFICATION FOR MORE INFORMATION. EVEN THOUGH A SINGLE RELAY IS INDICATED, MULTIPLE RELAYS MAY BE REQUIRED TO CONTROL THE REQUIRED NUMBER OF SWITCHLEGS/CIRCUITS.
       4) LOW VOLTAGE WALL CONTROLS SHALL BE DECORA STYLE, LOW-VOLTAGE, MOMENTARY SWITCHES WITH COLOR TO MATCH OTHER WALL DEVICES/SWITCHES. LOWER CASE LETTERS INDICATE SWITCHING CONFIGURATION. PROVIDE SWITCHING OR DIMMING CONTROL DEVICES AS REQUIRED BY DRAWINGS.

       DIMMING – NUMBER OF SWITCHES AS REQUIRED – 4 ZONES/YOKE MAX. EACH CONTROL ZONE TO HAVE A DEDICATED RAISE AND LOWER BUTTONS. FACTORY STANDARD COLOR BY ARCHITECT. EACH MULTI-ZONE DIMMING CONTROL STATION SHALL BE PROVIDED WITH MASTER ON AND MASTER OFF BUTTON IN ADDITION TO THE INDIVIDUAL CONTROL ZONE BUTTONS.

       WHERE INDICATED, PROVIDE VANDAL RESISTANT, HIGH ABUSE SWITCH CONNECTED TO THE DLCS INPUT/OUTPUT INTERFACE DEVICE FOR ON/ OFF AND DIMMING CONTROLS. SWITCHES LOCATED IN HIGH ABUSE AREAS (EXTERIOR AREAS OR AREAS SUBJECT TO WASH-DOWN ETC.) OR IDENTIFIED ON PLANS AS HIGH-ABUSE SWITCHES SHALL BE VANDAL RESISTANT, STAINLESS STEEL, TOUCH SENSITIVE AND AVAILABLE WITH UP TO TWO BUTTONS IN A SINGLE GANG. EACH HIGH ABUSE SWITCH SHALL BE ABLE TO BE PROGRAMMED FOR ON, OFF, TOGGLE OR MAINTAIN OPERATION. SWITCHES MUST BE CAPABLE OF HANDLING ELECTROSTATIC DISCHARGES OF AT LEAST 30,000 VOLTS (1CMSPARK) WITHOUT ANY INTERRUPTION OR FAILURE IN OPERATION.

       WHERE INDICATED, PROVIDE A LOCKING SINGLE POLE SWITCH CONNECTED TO THE ROOM CONTROLLER VIA A INPUT/OUTPUT INTERFACE DEVICE FOR ON/OFF CONTROLS. DIRECT CONNECTION OF THE KEYED SWITCH ON THE LOAD SIDE OF THE CONTROLLER IS PROHIBITED. PROVIDE AT LEAST THREE (3) KEYS TO OWNER AT CONCLUSION OF PROJECT. ADJACENT SWITCH SHALL ONLY BRING LIGHTS FULL ON. KEYED SWITCH ALLOWS MANUAL OFF FUNCTIONALITY. DIMMER SWITCH ALLOWS AUTO-ON 50% OVERRIDE TO 100% ALL-ON AND SHALL NOT ALLOW LIGHTING LEVELS TO DECREASE IN ANY WAY.
    i. WHEN LIGHTING SYSTEM IS INDICATED WITH A CONNECTION TO A REMOTE EMERGENCY POWER SOURCE (I.E. AN INVERTER OR GENERATOR) PROVIDE UL924 LISTED INTERFACE EQUIPMENT TO ALLOW THE OVERRIDE OF THE LOCAL SWITCHING AND/OR DIMMING CONTROLS DURING A POWER OUTAGE.
    j. WHEN LIGHTING FIXTURES/CONTROLS ARE PROVIDED WITH LUTRON 3-WIRE DIMMING BALLASTS, AN INTERFACE DEVICE SHALL BE PROVIDED TO ALLOW 0-10V CONTROL OF LUTRON 3-WIRE DIMMING BALLASTS. MOUNT INTERFACE IN A NEMA1 ENCLOSURE IN ACCESSIBLE CEILING SPACE ADJACENT TO ITS ASSOCIATED CONTROL UNIT.
    k. WHEN LIGHTING FIXTURES/CONTROLS ARE LINE VOLTAGE DIMMED OR PROVIDED ELECTRONIC LOW-VOLTAGE, MAGNETIC LOW-VOLTAGE, NEON/COLD CATHODE, LUTRON "TU-WIRE" DIMMING BALLASTS, AN INTERFACE DEVICE SHALL BE PROVIDED TO ALLOW LINE VOLTAGE CONTROL. MOUNT INTERFACE IN A NEMA1 ENCLOSURE IN ACCESSIBLE CEILING SPACE ADJACENT TO ITS ASSOCIATED CONTROL UNIT.
    l. WHEN AV SYSTEM INTERFACE IS INDICATED, PROVIDE TWO-WAY CAPABLE RS-232 COMMUNICATIONS INTERFACE TO ALLOW AV CONTROL SYSTEM TO CALL ADDRESSABLE LIGHTING/ROOM SCENES. COMMUNICATIONS INTERFACE SHALL PROVIDE FEEDBACK TO THE AV CONTROL SYSTEM FOR LIGHT LEVEL STATUS.
    m. WHEN MOVEABLE PARTITION INTERFACE IS INDICATED, PROVIDE ALL COMPONENTS, SENSORS, WIRING, POWER SUPPLIES AND PROGRAMMING NECESSARY TO MONITOR AND REPORT MOVEABLE PARTITION(S) OPEN/CLOSED STATUS. DLCS SYSTEM SHALL AUTOMATICALLY ADOPT SINGLE ROOM OR MULTI-ROOM CONTROL PROFILES AS REQUIRED BY PARTITION STATUS.
    n. WHEN NETWORKED LIGHTING CONTROL RELAY PANEL(S) ARE INDICATED, PROVIDE ALL COMPONENTS, WIRING, AND PROGRAMMING NECESSARY TO INTEGRATE RELAY PANELS WITHIN THE DLCS SYSTEM.
13. GENERAL SYSTEM REQUIREMENTS:
    a. ALL EQUIPMENT SHALL FEATURE A PRE-SET DEFAULT OPERATION. UPON INITIAL POWER UP, THE SYSTEM SHALL AUTOMATICALLY IDENTIFY THE DEVICES ON THE LOCAL NETWORK, THEN ENTERS THE PRE-SET CONFIGURATION TO ALLOW BASIC OPERATION OF ALL DEVICES. IN MOST APPLICATIONS THE RELATIONSHIP BETWEEN QUANTITY OF LOADS, SWITCHES AND OCCUPANCY SENSORS WILL NOT REQUIRE ANY ADJUSTMENTS – ALTHOUGH AN ADJUSTMENT TO THE AUTOMATIC SETTINGS SHALL BE INCLUDED IN THE BASE BID.
    b. ALL EQUIPMENT SHALL FEATURE A CONFIGURATION (CONFIG) BUTTON ON MOST DEVICES THAT ALLOWS EASY ACCESS TO THE INTEGRATED AUTO-CONFIGURATION TECHNOLOGY TO MODIFY SYSTEM OPERATION. FUNCTIONALITY OF THE CONFIG BUTTON SHALL BE STANDARDIZED THROUGHOUT THE PRODUCT LINE, AS IS THE OPERATION OF THE CONFIG LED INDICATORS.
    c. NETWORK DLCS SYSTEM CONTROL/CONFIGURATION SOFTWARE SHALL BE PRE-CONFIGURED TO THE MAXIMUM EXTENT POSSIBLE OFF-SITE AT THE DLCS FACTORY OR ENGINEERING FACILITY. THE CONTRACTOR SHALL DOCUMENT EVERY NETWORK COMPONENT'S LOCATION (ROOM AND FLOOR NUMBER) AND ITS' RESPECTIVE SERIAL NUMBER OR OTHER DEVICE IDENTIFIER ON A FULL SIZE FLOOR PLAN IN .PDF FORMAT. HANDWRITTEN DOCUMENTATION IS UNACCEPTABLE. THE PREFERRED ACCEPTABLE METHOD OF NETWORK COMPONENT DOCUMENTATION IS COLLECTING OF FACTORY-PROVIDED, SELF-ADHESIVE, BAR-CODE IDENTIFIERS DESIGNED TO BE REMOVED FROM NETWORK COMPONENTS AS THEY ARE INSTALLED IN THE FIELD. BAR CODES IDENTIFIERS SHALL BE APPLIED TO A PAPER COPY OF A FLOOR PLAN WHICH SHALL BE PROVIDED TO THE FACTORY FOR USE IN OFF-SITE DLCS NETWORK PROGRAMMING AND CONFIGURATION. THE RESULTS OF EITHER METHOD SHALL BE SCANNED AND SUBMITTED AS A PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
    d. NETWORK SYSTEMS SHALL BE INSTALLED BY VENDOR-CERTIFIED CONTRACTOR FIELD PERSONNEL TO PERFORM NETWORK INSTALLATIONS INCLUDING ACCURATE, REPEATABLE COMMUNICATIONS CABLING TERMINATIONS (BOTH LAN AND MS/TP TYPE). INCLUDE CERTIFICATES FOR EACH CERTIFIED INSTALLER TO BE UTILIZED ON THE PROJECT AS A PART OF THE PROJECT SUBMITTALS. A CERTIFIED FIELD INSTALLER SHALL BE ON-SITE SUPERVISING COMMUNICATIONS CABLING AND CABLING TERMINATIONS AT ALL TIMES WHEN THIS WORK IS OCCURRING ON THE PROJECT.
    e. ANY BATTERY-POWERED DLCS COMPONENTS SHALL BE PROVIDED WITH A 10 YEAR EXPECTED BATTERY LIFE. EACH COMPONENT SHALL BE PROVIDED WITH BOTH A LOCAL LOW BATTERY INDICATION ON EACH DEVICE AND A SOFTWARE-BASED LOW BATTERY ALARM. WHERE A WIRELESS DLCS SYSTEM COMPONENT IS AVAILABLE EITHER AS A BATTERY POWERED DEVICE OR A LINE/LOW VOLTAGE POWERED DEVICE, PROVIDE THE LINE/LOW VOLTAGE VERSION ALONG WITH ANY LINE OR LOW VOLTAGE WIRING, CONDUIT AND BACK BOXES TO LIMIT THE NUMBER OF BATTERIES WITHIN THE DLCS INSTALLATION TO A MINIMUM.
14. INSTALLATION OF CONTROL UNITS, OCCUPANCY/VACANCY SENSORS AND DAYLIGHTING CONTROLS:
    a. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND AIM SENSORS IN THE CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE PER THE MANUFACTURER'S RECOMMENDATIONS. ROOMS SHALL HAVE NINETY (90) TO ONE HUNDRED (100) PERCENT COVERAGE AND SHALL ACCOMMODATE ALL RANGE OF SINGLE OR MULTIPLE OCCUPANTS AT ANY LOCATION WITHIN THE ROOM. THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS THAT ARE TO BE PROVIDED WITH SENSORS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE ROOM. WHERE PIR-ONLY WIRELESS CEILING OR FIXTURE-INTEGRAL OCCUPANCY SENSORS ARE UTILIZED, PROVIDE QUANTITY AS REQUIRED TO MAINTAIN THE SAME COVERAGE AND SENSITIVITY AS PROVIDED BY WIRED DUAL TECHNOLOGY SENSORS. ADDITIONALLY, IT MAY BE NECESSARY FOR THE CONTRACTOR TO MAKE ADJUSTMENTS, CHANGE THE LOCATION OR TYPE OF SENSOR TO OBTAIN PROPER OPERATIONS IN A SPECIFIC ROOM. THE USE OF FACTORY-PROVIDED MASKING FOR PASSIVE INFRARED (PIR) SHALL BE PROVIDED/INSTALLED AS REQUIRED TO LIMIT DETECTION TO WITHIN THE CONTROLLED SPACE ONLY. WHERE MASKING IS NOT AVAILABLE AS A FACTORY-SUPPLIED ITEM, AN ALTERNATE FACTORY-SUPPLIED MEANS OF COMPLIANCE OR METHODS MAY BE ACCEPTABLE. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR PROPER OPERATION OF THE SYSTEM IN EACH ROOM AND SHOULD THEREFORE MAKE LABOR ALLOWANCES FOR CHANGES AND ADJUSTMENTS.
    b. CEILING MOUNTED SENSORS SHOULD BE LOCATED IN THE SPACE TO BE COVERED, A MINIMUM OF 4', PREFERABLY 5', AWAY FROM THE LATCH SIDE OF THE DOOR, 2" TO 3" AWAY FROM THE WALL AND 3' TO 4' FROM AN AIR SUPPLY REGISTER. DO NOT MOUNT SENSORS OVER A DOORWAY OR BEHIND A FULL HEIGHT DOOR. SENSORS SHALL BE AIMED IN THE DIRECTION OF THE SPACE TO BE COVERED. DO NOT AIM SENSORS TOWARD A DOORWAY. THE USE OF FACTORY SUPPLIED INTERNAL MASKING (PIR) SHALL BE PROVIDED/INSTALLED AS REQUIRED TO LIMIT DETECTION TO WITHIN THE CONTROLLED SPACE ONLY.
    c. ALL SENSORS SHALL BE ADJUSTED PER THE DLCS SOO/ZONE SCHEDULE. WHERE A ROOM TYPE IS NOT INDICATED ON THE DLCS SOO, ADJUST FOR FOR A TIME DELAY OF TWENTY (20) MINUTES.
    d. EACH DAYLIGHTING CONTROL SYSTEM/ZONE SHALL BE INSTALLED/ADJUSTED AS FOLLOWS:
       1) AUTOMATIC SWITCHING/DIMMING CONTROL PLACEMENT: IT IS IMPORTANT TO SELECT A LOCATION IN THE DAYLIGHTING ZONE WHERE THE DAYLIGHT C

SECTION 16010

PART 1 – GENERAL ELECTRICAL SPECIFICATIONS

1.1 WORK INCLUDED:

A. This specification shall apply to all phases of work hereinafter specified, shown on drawings, or as required to provide a complete installation of electrical systems for this project. Work required under this specification is not limited to just the Electrical drawings. Refer to Architectural, Structural, Landscape, and Mechanical/Plumbing drawings as well as all other drawings applicable to this project, which designate the scope of work to be accomplished. The intent of the Drawings and Specifications is to provide a complete and operable electrical system that includes all documents that are a part of the Contract.

1. Work Included: Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all circuits and electrical equipment specified herein, or shown or noted on Drawings, and its delivery to the Owner complete in all respects ready for use.
2. The electrical Work includes installation or connection of certain materials and equipment furnished by others. Verify installation details, installation and rough–in locations from the actual equipment or from the equipment shop drawings.

B. Electrical Drawings: Electrical Drawings are diagrammatic, and are intended to convey the scope of work, indicating intended general arrangement of equipment, conduit and outlets. Follow Drawings in laying out Work and verify spaces for installation of materials and equipment based on actual dimensions of equipment furnished.

1.2 QUALITY ASSURANCE

A. Design, manufacture, testing and method of installation of all apparatus and materials furnished under requirements of these specifications shall conform to latest publications or standard rules of the following:

1. Institute of Electrical and Electronic Engineers – IEEE
2. National Electrical Manufacturers' Association – NEMA
3. Underwriter's Laboratories, Inc. – UL
4. National Fire Protection Association – NFPA
5. Federal Specifications – Fed. Spec.
6. American Society for Testing and Materials – ASTM
7. American National Standards Institute – ANSI
8. National Electrical Code – NEC
9. National Electrical Safety Code – NESC
10. Insulated Cable Engineers Association – ICEA
11. American Institute of Steel Construction – AISC
12. State and Municipal Codes In Force In The Specific Project Area
13. Occupational Safety and Health Administration (OSHA)
14. Electronics Industries Association/Telecommunications Industry Association (EIA/TIA)
15. California Electrical Code (where adopted)
16. Local Authority Having Jurisdiction (AHJ) Published Electrical Standards and Codes (as applicable).

B. Perform Work in accordance with the National Electrical Code, applicable building ordinances, and other applicable codes, hereinafter referred to as the "Code. The Contractor shall comply with the Code including local amendments and interpretations without added cost to the Owner. Where Contract Documents exceed minimum requirements, the Contract Documents take precedence. Where code conflicts occur, the most stringent shall apply unless variance is approved.

1. Comply with all requirements for permits, licenses, fees and codes. The Contractor, at Contractor's expense, shall obtain all permits, licenses, fees, special service costs, inspections and arrangements required for Work under this contract, unless otherwise specified.
2. Comply with requirements of the applicable utility companies serving this Project. Make all arrangements with utility companies for proper coordination of Work.

1.3 GENERAL REQUIREMENTS

A. Guarantee: Furnish a written guarantee for a period of one–year from date of acceptance.

B. Wherever a discrepancy in quantity or size of conduit, wire, equipment, devices, circuit breakers, etc., (all materials), arises on the Drawings and/or in the Specifications, the Contractor shall be responsible for providing and installing all material and services required by the strictest condition noted on Drawings and/or in Specifications to ensure complete and operable systems as required by the Owner and Engineer.

C. All Core Cutting, Drilling, and Patching:

1. For the installation of work under this Section, the aforementioned shall be performed under this Section of the Specifications and the Concrete section of the Specifications.
2. No holes will be allowed in any structural members without the written approval of the Project's Structural Engineer.
3. For penetrations of concrete slabs or concrete footings, the work shall be as directed in the Concrete Section of Specifications.
4. The Contractor shall be responsible for patching and repairing surfaces where he is required to penetrate for work under this contract.
5. Penetrations shall be sealed to meet the rated integrity of the surface required to be patched and repaired. The patched surface shall be painted or finished to match the existing surface.

D. Verifying Drawings and Job Conditions:

1. The Contractor shall examine all Drawings and Specifications in a manner to be fully cognizant of all work required under this Section.
2. The Contractor shall visit the site and verify existing conditions. Where existing conditions differ from Drawings, adjustment(s) shall be made and allowances included for all necessary equipment to complete all parts of the Drawings and Specifications.

1.4 WORK IN COOPERATION WITH OTHER TRADES

A. Examine the Drawings and Specifications and determine the work to be performed by the electrical, mechanical and other trades. Provide the type and amount of electrical materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use. This shall include all conduit, wire, disconnects, relays, and other devices for the required operation sequence of all electrical, mechanical and other systems or equipment.

B. Provide a conduit–only system for low voltage wiring required for control of mechanical and plumbing equipment described in this or other parts of the Contract Documents. Install all control housings, conduits, and backboxes required for installing conduit to the controls.

C. Install separate conduits between each heating, ventilating and air conditioning sensing device and its control panel and/or control motor. Before installing any conduit for heating, ventilating and air conditioning control wiring, verify the exact requirements from the control diagrams provided with the equipment manufacturer's shop drawings.

1.5 TESTING AND ADJUSTMENT

A. Upon completion of all electrical work, the Contractor shall test all circuits, switches, light fixtures, lighting control and dimming systems including distributed systems, UPSs, generators, SPDs, lighting inverters, transfer switches, motors, circuit breakers, motor starter(s) and their auxiliary circuits and any other electrical items to ensure perfect operation of all electrical equipment.

B. Equipment and parts in need of correction, and discovered during such testing, shall be immediately repaired or replaced with all new equipment and that part of the system shall then be retested. All such replacement or repair shall be done at no additional cost to the Owner.

C. All circuit(s) shall be tested for continuity and circuit integrity. Adjustments shall be made for circuits not complying with testing criteria.

D. All test reports, including copies of any required Energy Code Acceptance Forms (e.g. CA Title 24 Acceptance For Code Compliance Forms) should be submitted to the Engineer at completion of project.

1.6 IDENTIFICATION

A. Nameplates shall be provided for unit substations, switchgear, switchboards, distribution boards, distribution panels, panel boards, motor control centers, transformers, transfer switches, contactors, starters, disconnect switches, enclosed circuit breakers/switches, inverters, UPSs, PDUs, RDCs, SPDs, lighting control panels, dimming panels, door releasing system panels, fire alarm/central monitoring terminal cabinets/power supplies/control panels, and all low voltage system terminal and control cabinets.

1. Nameplate inscriptions shall be identical to the equipment designations indicated in plans and specifications. Nameplates shall be engraved with the device designation/identification on the top line, source identification for the device on the 2nd line per NEC, or CEC where adopted, Art **408.4** and load designation for the device on the bottom line. Where load designation consists of a branch circuit, omit bottom line. Where device designation is not indicated on plans/specifications, Contractor shall submit a written clarification request to the Engineer.

   Example: Transformer 17A
   Source (Disconnecting Location: Switchboard MSA located in RM 110
   Load: Panels 1LA & 1LB

2. All circuit breakers/fuses in switchgear, switchboards, distribution boards, distribution panels, UPS output circuit breakers, PDU sub–feed circuit breakers and motor control centers shall have individual nameplates located immediately adjacent to the respective device. Nameplate inscription shall identify the downstream equipment or device served by the circuit breaker or fuse.

B. Identification nameplates, unless otherwise noted (UON), shall be laminated/extruded modified acrylic that is 3/32" thick, UV–stabilized, matte finish, suitable for use in 180 deg F ambient, with beveled edges and engraved white letters 3/8" high, minimum, on 1–1/2" high black background (utility/normal and optional standby power systems) for single line of text. Where two lines of text are required, provide min. 2" high nameplate. Where three lines of text are required, provide min. 2.5" high nameplate. Provide white letters on red background for all NEC, or CEC where adopted, **Article 517** essential power systems, **Article 700** Emergency Systems, **Article 701** Legally required standby systems and **Article 708** COPS.

C. Identification nameplates for new switchgear, switchboards, distribution boards, distribution panels, panelboards and motor control centers shall be attached with switchgear manufacturer–provided screws via switchgear manufacturer factory pre–drilled holes. A factory option to rivet identification nameplates to the equipment is only acceptable if screw–fastened nameplates are not an available option from the switchgear manufacturer. Field drilling or other mechanical attachment methods that change/void the NEMA or NTRL rating of the enclosure are strictly forbidden.

D. Identification nameplates for transformers, transfer switches, disconnect switches, enclosed circuit breakers/switches, inverters, UPSs, PDUs, RDCs, SPDs, lighting control panels, dimming panels, door–releasing system panels, terminal cabinets and all circuit breakers/fuses in switchgear, switchboards, distribution boards, distribution panels, UPS output circuit breakers, PDUs, PDU sub–feed circuit breakers, and motor control centers shall be attached to the equipment by self–adhesive backing integral to the nameplates. When equipment is located outdoors, provide nameplates without self–adhesive backing and attach to equipment using weather–rated, UV–resistant epoxy. In all cases, clean surfaces before applying identification nameplates parallel to equipment lines.

E. Warning Placards, as required by General Single Line Diagram Notes for multiple power sources, or instruction placards, as required for all kirk–key interlock schemes, all UPS bypass procedures or as required elsewhere in the plans/specifications shall be engraved 1/2" high with white lettering on a red background using the same material specified for identification nameplates with a self–adhesive backing. Warning/instruction placards shall be attached to the face of the equipment directly related to the placards. Provide a formal placard submittal for review by the Engineer prior to ordering any warning/instruction placards. In all cases, clean surfaces before applying warning/instruction placards parallel to equipment lines.

F. Receptacles that are part of a UL–listed under floor computer room whip assembly, ceiling and/or cable/ladder tray–mounted receptacles used in lab, manufacturing, commercial kitchen environments or that are serving telcom/data/AV racks and cabinets shall have identification nameplates located on the wiring device plate cover. Nameplates shall be self–adhesive, 3/32" thick Micarta with beveled edges, engraved 1/4" high white lettering on black background with serving power source, circuit identification and NEMA/IEC receptacle type. Use of two (2) separate nameplates per device plate cover is acceptable. Affix nameplates to be visible when plugs are occupying receptacles.

G. See wiring device section of this specification for additional wiring device plate cover labeling requirements.

H. See drawings for panel board schedule directory installation requirements.

I. See conduit installation section of this specification for conduit labeling requirements.

1.7 FINAL INSPECTION AND ACCEPTANCE

A. After all requirements of the Specifications and/or the Drawings have been fully completed, representatives of the Owner will inspect the work. Contractor shall provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

B. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from each representative.

1.8 RECORD DRAWINGS

A. Drawings of Record: The Contractor shall provide and keep up–to–date, a complete record set of drawings. These shall be corrected daily and show every change from the original Drawings. This set of prints shall be kept on the job site and shall be used only as a record set. This shall not be construed as authorization for the Contractor to make changes in the layout without definite instruction in each case. Upon completion of the work, a set of reproducible Contract Drawings shall be obtained from the General Contractor and all changes as noted on the record set of prints shall be incorporated therein with black ink in a neat, legible, understandable and professional manner. Refer to the Supplementary General Conditions for complete requirements.

1.9 APPROVALS, EQUALS, SUBSTITUTIONS, ALTERNATIVES, NO KNOWN EQUAL

A. Approvals: Where the words (or similar terms) "approved", "approval", "acceptable", and "acceptance" are used, it shall be understood that acceptance by the Owner, Architect and Engineer are required.

B. Equal: Where the words (or similar terms) "equal", "approved equal", "equal to", "or equal by", "or equal" and "equivalent" are used, it shall be understood that these words are followed by the expression "in the opinion of the Owner, Architect, and Engineer". For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

C. Substitution: For the purposes of specifying products, "substitution" shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

1. Substitutions of specified equipment shall be submitted and received by the Engineer ten (10) days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letter form and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal. ONLY PRE–BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.
2. In the event that written authorization is given for a substitution after award of contract, the Contractor shall submit to the Engineer quotations from suppliers/distributors of both the specified and proposed equal material for price comparison, as well as a verification of delivery dates that conform to the project schedule.
3. In the event of cost reduction, the Owner will be credited with 100 percent of the reduction, arranged by change order.
4. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

D. Alternates/Alternatives: For the purposes of specifying products, "alternatives/alternates" may be established to enable the Owner/Architect/Engineer to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

E. No Known Equal: For the purposes of specifying products, "No Known Equal" shall mean that the Owner/Architect/Engineer is not aware of an equivalent product. The Contractor will need to submit a "Substitution" item, per the requirements listed above, if a different product is proposed to be utilized.

1.10 SHOP DRAWINGS/SUBMITTALS

A. Shop Drawings/Submittals, unless required otherwise by general project specifications or instructions to bidders, shall be submitted in electronic format (PDF) to include a Letter of Transmittal (PDF), which shall give a list of the drawings submitted with dates and/or system(s) components contained within the submittal. Drawings and material cut sheets shall be complete in every respect and edited/marked to indicate specific items being provided. Printed/Hard copies are not acceptable.

B. The shop drawings/submittals shall be marked with the name of the project, numbered consecutively, and bear the approval of the Contractor as evidence that the Contractor has checked the drawings. Any drawings submitted without this approval will be returned to the Contractor for resubmittal.

C. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in the Contractor's letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Samples shall be submitted when requested.

D. Only products listed as "Equal" within the contract documents, along with formally approved "Substitutions" will be reviewed. Products not conforming to these items will not be reviewed and will be returned to the Contractor for re–submittal.

E. Review comments used in response to shop drawings/submittals are:

1. "No Exception Taken"	Product approved as submitted.
2. "Furnish as Corrected"	Re–submittal not required, although the Contractor shall provide the submitted product with corrections as noted.
3. "Revise and Resubmit"	Re–submittal required with corrections as noted.
4. "Rejected"	Re–submittal required based upon the originally specified product.

F. Shop drawings shall be submitted on the following, but not limited to:

1. Lighting fixtures, lamps and ballasts.
2. Switchgear, switchboards, distribution boards, motor control centers, panelboards, and bus ducts, complete with overcurrent device information.
3. Transformers.
4. Fire Alarm System/Central Monitoring System.
5. Wiring Devices.
6. Lighting control products/dimming system products.
7. Pull boxes and underground vaults.
8. Terminal cabinets.
9. Lighting inverters, UPSs, RDCs, PDUs, generators, transfer switches, SPD systems.
10. Cable tray, flexible cable tray and cable runway.
11. Power poles and floor boxes.
12. Arc flash, short–circuit, and coordination studies.
13. All other products called out on drawings that call for shop drawing submittal.

1.11 MAINTENANCE, SERVICING, INSTRUCTION MANUALS AND WIRING DIAGRAMS

A. Prior to final acceptance of the job, the Electrical Contractor shall furnish to the Owner at least four (4) copies of operating and maintenance and servicing instructions, as well as four (4) complete wiring diagrams for the following items or equipment:

1. Lighting control systems/dimming systems.
2. Fire Alarm System.
3. Transformers.
4. Switchgear, switchboards, distribution boards, motor control centers, panel boards, and bus ducts; complete with overcurrent device information.
5. Lighting inverters, UPSs, PDUs, generators, transfer switches, SPD systems.

B. All wiring diagrams shall specifically cover the system supplied. Typical drawings will not be accepted. Four (4) copies shall be presented to the Owner.

1.12 INTERRUPTION OF SERVICES/SERVICE SHUTDOWN

A. Any interruption of electrical services, electrical circuits, electrical feeders, signal systems, communication systems, fire alarm systems, etc., required to perform work shall meet the specific prior–approval requirements of the Owner. Such work shall be scheduled with the Owner to be performed at the Owner's convenience.

B. Interruptions/outages of any of the Owner's systems and services mentioned above shall be scheduled to occur during other than the Owner's normal business hours. Any overtime costs shall be borne by the Contractor.

C. See drawings for any additional requirements regarding outages, interruption and any temporary services required.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials and Equipment: All electrical materials and equipment, including custom–made equipment, shall be new and shall be listed by Underwriter's Laboratories (UL) and bear their label or be listed and certified by a Nationally Recognized Testing Lab (NRTL) that is also recognized by the local Authority–Having–Jurisdiction (AHJ).

B. Switchgear/Switchboards/Distribution Boards/Motor Control Centers:

1. See general single line diagram notes on drawings for more information.

C. Panelboards – Branch Circuit:

1. See drawings for panel board schedules and specifications.

D. Transformers:

1. See drawings for transformer schedules and specifications.

E. Lighting Fixtures:

1. See drawings for lighting fixture and lamp schedules and additional specifications. Furnish, install, and connect a lighting fixture at each outlet where a lighting fixture type symbol (designated on plans) is shown as being installed. Each fixture shall be complete with all required accessories including sockets, glassware, boxes, spacers, mounting devices, fire rating enclosure and lamps.
2. Ballasts: See lighting fixture schedule notes. All noisy ballasts shall be replaced at no cost to the Owner.
3. Lamps: See lamp/fixture schedule and lamp/lighting fixture schedule notes.

F. Wiring Devices:

1. Provide wiring devices indicated per plan. Devices shall be specification grade. Acceptable manufacturers are Leviton, Pass & Seymour and Hubbell. Provide all similar devices of same manufacturer, unless indicated otherwise. All device colors shall be selected from the full range of manufacturer standard color options as selected by the Architect. This direction will be provided in the shop drawing review process.
   a. Wiring Devices (Decora)

1) Convenience Receptacle	#16252–COLOR
2) Dedicated Receptacle	#16352–COLOR
3) Convenience I.G. Receptacle	#16262–IG–COLOR
4) Dedicated Dr Receptacle	#16362–IG–COLOR
5) Convenience G.F.C.I. Receptacle	#GFNT1–COLOR
6) Dedicated G.F.C.I. Receptacle	#GFNT2–COLOR
7) Convenience Hospital Grade Receptacle	#16252–HG?–COLOR
8) Dedicated Hospital Grade Receptacle	#16352–HG?–COLOR
9) Convenience G.F.C.I. Hospital Grade Receptacle	#GFNT1–HG?
10) Dedicated G.F.C.I. Hospital Grade Receptacle	#GFNT2–HG?
11) Tamper Resistant Convenience Receptacle	#TDR15–COLOR
12) Tamper Resistant Dedicated Receptacle	#TDR20–COLOR
13) Tamper Resistant GFCI Receptacle	#GFTR2–COLOR
14) Tamper Res. Conv. G.F.C.I. Hospital Grade Receptacle	#GFTR1–HG COLOR
15) Tamper Res. Ded. G.F.C.I. Hospital Grade Receptacle	#GFTR2–HG COLOR
16) Weather/Tamper Resistant GFCI Receptacle	#GFWT2–COLOR
17) Convenience Simplex Receptacle	#16251–COLOR
18) Dedicated Simplex Receptacle	#16351–COLOR
19) Recessed Clock Receptacle	#5361–CH–COLOR
20) Single Pole Switch	(Non–Decora)
21) Double Pole Switch	#5621–2–COLOR
22) Three Way Switch	#5622–2–COLOR
23) Four Way Switch	#5623–2–COLOR
24) Pilot Light Switch "On"	#5624–2–COLOR
25) Pilot Light Switch "Off"	#5628–2–COLOR
26) Projection Screen Switch	#5631–2–COLOR
27) Low Voltage Momentary Switch	#5657–2–COLOR
28) Keyed Switch	#5657–2–COLOR
	#1221–2L–COLOR
	(Non–Decora)
29) Door Jam Switch	#1865–COLOR

   b. Use of dedicated receptacles is required where plans depict a branch circuit supplying only a single simplex or duplex receptacle. Use of controlled receptacles is required where depicted on plans – See controlled receptacle specifications for additional information.

2. I.G. (isolated ground) receptacle bodies shall be of a basic color specified above with an orange triangle to emphasize isolated ground.
3. H.G. (hospital grade) receptacle bodies shall be of a basic color specified above with a green circle to symbolize hospital grade.
4. When shown circuited with an I.G. conductor, all receptacles shall be of the I.G. type. As an example, a NEMA L6–30R denoted on the plans and shown circuited with an I.G. conductor shall be an I.G. version of the receptacle.
5. Wiring devices located in wood finished areas shall generally be black unless otherwise indicated by the Architect.
6. Wiring devices located in mirrors shall generally be white with stainless steel cover plates unless otherwise indicated by the architect.
7. In addition to other device requirements listed elsewhere in this specification and NEC, or CEC where adopted, **Articles 406.12 & 517.18,** all 125V & 250V, 15A and 20A, non–locking receptacles shall be Tamper–Resistant when located in the following locations:
   a. In dwelling units per NEC, or CEC where adopted, **Article 210.52**
   b. In guest rooms and guest suites of hotels and motels
   c. In child care or daycare facilities.
   d. In preschool and elementary education facilities
   e. In business offices, corridors, waiting rooms and the like in clinics, medical and dental offices and outpatient facilities.
   f. In a subset of Assembly Areas outlined in NEC, or CEC where adopted, **Article 518.2** including transportation waiting areas, gymnasiums, skating rinks, and auditoriums.
   g. In dormitories.
   h. In pediatric care areas per NEC, or CEC where adopted, **Article 517.18 (C)**.
8. Wiring devices shall be listed 'hospital grade', and so identified, in the following locations:
   a. Patient bed locations within general care areas per NEC, or CEC where adopted, **Article 517.18(B).**
   b. Patient bed locations within critical care areas per NEC, or CEC where adopted, **Article 517.19(B).**
   c. In "other–than–hazardous" anesthetizing locations per NEC, or CEC where adopted, **Article 517.61(C)(2).**
9. Wiring device cover plates located on recessed boxes shall be commercial grade nylon. Plate color shall match wiring device color UON on plans. Cover plates utilized on surface mounted boxes shall be metal. Plastic cover plates are unacceptable.
10. Except as otherwise noted, all wiring device plates on the project shall be labeled with panel and circuit number(s) utilizing a Brother P–Touch labeling system with 1/2" tape (yellow on black) or equal by Herman–Tellerman or Panduit. Locate label on the concealed side of the wiring device plate. Handwritten labels are unacceptable.
11. The Contractor shall provide duplex receptacle outlets in the appropriate configurations necessary to comply with applicable energy code requirements for controlled receptacles and as shown on plans. All wiring devices indicated to be controlled receptacles shall be NEMA–approved, electrical code–compliant with factory markings on the face of the receptacle(s) with the word "Controlled" or utilize further markings and symbols to indicate which receptacles on each outlet is/are controlled. Stickers, field–applied markings or other non–permanent markings are not acceptable. Where a GFCI receptacle outlet is required to be controlled, provide an adjacent controlled duplex receptacle outlet connected on the load side of the GFCI outlet. Generally, one receptacle in a duplex receptacle outlet is required to be controlled. It may be the lower receptacle or upper receptacle based on manufacturer offering. However, the controlled receptacle location within a controlled receptacle outlet shall remain consistent throughout the project. Where an existing duplex receptacle outlet is required to be controlled, provide a new wiring device with the appropriate control configuration necessary to comply with plans. All controlled receptacles shall be connected to a branch circuit controlled by an occupancy sensor–based or relay panel lighting control system. Acceptable manufacturers are Leviton, Pass and Seymour & Hubbell.
12. The following wiring device plates shall have custom engraving:
   a. Key operated switches, switches with pilot lights, and switches for the control of motors, heaters and ventilators. Engraving shall be black and occur on the exposed side of the plate indicating the motor, heater, or ventilator controlled.
   b. Receptacles on optional standby generator and/or UPS power shall have custom engraved plates with the words "Generator" or "UPS" in block letters. In addition, where located in telecommunications closets, IDFs, server rooms, data centers, labs (wet, dry or electronic) indicating panel board and circuit number.
   c. For Health Care Facilities, provide custom engraved device cover plates, for all devices, indicating panel board and circuit number. Devices served by normal/utility power circuits shall have black lettering; devices served by essential electrical system power circuits shall have red lettering.
   d. All stainless steel and nylon device plates shall be engraved using a rotary engraving process except for black lettering on stainless steel device plates which may be accomplished via laser etching process. All lettering shall be 3/16" high. Provide a dimensioned submittal drawing detailing a typical device faceplate with engraving.

G. Weatherproof Outlet Covers/Assemblies: All Receptacles identified as weatherproof on the drawings shall be weather–resistant, tamper–resistant, GFCI type and equipped as follows:

1. Type WP–A: Recessed wall box with a hinged, lockable, cast aluminum, self–closing, gasket–equipped door that is wet location–listed raintight while "in use". Unit shall comply with NEC, or CEC where adopted, **Article 406.9(A) and (B)**. UON on drawings, provide a minimum of 2 separate compartments suitable for installation of power receptacles, AV or communications outlets. Additionally, unless otherwise noted on drawings, provide the following:
   a. A 20A Weather–resistant, tamper–resistant, GFCI duplex receptacle in the first compartment. Provide branch circuiting per plans.
   b. A blank metal plate suitable for field installation of power, AV or communications devices in the second compartment.
   c. Where indicated on plans as requiring data, AV or other LV outlet, provide min. 3/4" C.O. with pull string routed from the second compartment to nearest low voltage pull box. Where shown mounted in a building wall, any blank/unused compartment shall be equipped minimum 3/4" C.O. with pull string routed to the nearest accessible ceiling space.
   d. See wiring device section of this specification for additional wiring device plate cover labeling requirements.
   e. (1) key minimum per device (minimum of (2) per project) to the Owner's project manager upon completion of project.
   f. Custom color powder coat finish as selected by Architect – Include all costs in base bid for same.
   g. In locations with sufficient wall depth, provide 6" wide x 6" tall x 5–1/2" deep recessed wall box (C.W. Cole #TL310–WCS–K1–CUSTOM COLOR).
   h. In locations utilizing shallow stud walls construction or other walls of insufficient depth, provide 10–3/4" wide x 7–3/8" tall x 3–7/8" deep recessed wall box (C.W. Cole #TL310–WCS–SH–K1–CUSTOM COLOR).
   i. See drawings for additional details.
2. Type/Subscript WP–B: Wet location–listed raintight while "in use" cast copper–free aluminum, extra–duty, lockable cover with baked aluminum lacquer finish and one–gang, weather–resistant, tamper–resistant GFCI receptacle. Hubbell WP26E series. Polycarbonate covers are unacceptable. Unit shall comply with NEC, or CEC where adopted, **Article 406.9(A) and (B)**. Contractor shall powder coat cover assembly to a custom color where receptacle locations are deemed by the Architect to be in aesthetically sensitive or public spaces. Custom color as selected by Architect.
3. Type WP–C: (C.W. Cole #TL310–WCS–PED–ADA–K1–CUSTOM COLOR or #TL310–WCS –PED–K1–CUSTOM COLOR) pedestal device box with a hinged, lockable, cast aluminum, self–closing, gasket–equipped door that is wet location – listed raintight while "in use". Unit shall comply with NEC, or CEC where adopted, **Article 406.9(A) and (B)**. UON on drawings, provide a minimum of 2 separate compartments suitable for installation power receptacles, AV or communications outlets. Additionally, unless otherwise noted on drawings, provide the following:
   a. A 20A weather–resistant, tamper–resistant, GFCI duplex receptacle in the first compartment. Provide branch circuiting per plans.
   b. A blank metal plate suitable for field installation of power, AV or communications devices in the second compartment.
   c. Where indicated on plans as requiring data, AV or other LV outlet, provide min. 3/4" C.O. with pull string routed from the second compartment to nearest low voltage pull box.
   d. See wiring device section of this specification for additional wiring device plate cover labeling requirements.
   e. 1 key minimum per device (minimum of 2 per project) to the Owner's project manager upon completion of project.
   f. Include all costs in base bid for ADA version (22.5" tall) of pedestal box. Prior to ordering material, contractor shall coordinate with architect and/or AHJ to determine which pedestal box locations do not require ADA compliance and may be changed to the standard (11.5" tall) version of the pedestal box.
   g. Custom color powder coat finish as selected by Architect. Include all costs in base bid for same.
   h. See drawings for additional details.
4. Type/Subscript WP–D: Damp location–listed (not–raintight–in–use) cast copper–free, pad lockable, die–cast aluminum cover with baked aluminum lacquer finish and one gang GFCI receptacle. Hubbell/rayco 5027/5037 Series. Polycarbonate covers are unacceptable. Unit shall comply with NEC, or CEC where adopted, **article 406.9(A) and (B)**. Custom color powder coat finish as selected by Architect. Include all costs in base bid for same.

H. Motor Controllers/Starters: See drawings for motorized equipment schedules and specifications.

I. Circuit Breakers.

1. Service entrance circuit breakers smaller than 400A frame shall be thermal–magnetic trip with inverse time current characteristics unless otherwise indicated below. Service entrance main circuit breakers and main circuit breakers, 400A frame and larger shall be 100% rated, solid–state type as outlined in this specification. All other service entrance circuit breakers, 400A frame and larger, shall be 100% rated, solid–state type as outlined in this specification.
2. All non–service entrance circuit breakers 225A and larger shall be thermal magnetic type and have continuously adjustable instantaneous pick–ups of approximately 5 to 10 times trip rating. Breakers shall have either tamper–resistant rating dials or easily changed trip rating plugs with trip ratings as indicated on the Drawings. Rating plugs shall be interlocked so they are not interchangeable between frames. Additionally, all non–service entrance circuit breakers, 600A frame and larger, located in 480V 3 phase, 3–wire or 277/480V, 3 phase 4–wire switchgear, distribution boards, panel boards or busway plugs, shall be solid state, 100% rated. Breaker shall have built–in test points for testing long delay, short delay and instantaneous, and ground fault (where shown) functions of the breaker by means of a 120V operated test kit. Contractor shall utilize a test kit capable of testing all breakers 400A and above – at the Engineer's request.
3. All non–service entrance circuit breakers less than 225A shall be molded plastic case, air circuit breakers conforming to UL 489. Provide breakers with thermal magnetic trip units, and a common trip bar for two– or three–pole breakers, connected internally to each pole so tripping of one pole will automatically trip all poles of each breaker. Provide breakers of trip–free trip–indicating bolt–on type, with quick–make, quick–break contacts. Provide single two– or three–pole breaker interchangeability. Provide padlocking device for circuit breakers as shown on the Drawings
4. Where a Current Limiting Circuit Breaker (CLCB) is indicated on drawings or as required elsewhere in this specification, provide a UL listed current limiting thermal magnetic circuit breaker(s) UON. An independently operating limiter section within a molded case is not allowed. Coordinate CLCB ratings as required to protect electrical system components on the load side of the CLCB to include, but not limited to, protecting automatic transfer switches, panel boards and lighting control panels.
5. Where a solid state circuit breaker is indicated on drawings or as required elsewhere in this specification, provide a solid state circuit breaker with minimum five function complete with built–in current transformers. The five functions shall be independently adjustable and consist of Overload/Long Time Amp Rating, Long Time Delay, Short Time Delay, Short Circuit/Instantaneous Pick–up, but may also include Shunt Trip and/or Ground Fault if so indicated on the Drawings. Rating plugs shall be interlocked so they are not interchangeable between frames. Breaker shall have built–in test points for testing long delay and instantaneous, and ground fault (where shown) functions of the breaker by means of a 120V operated test kit. Contractor shall utilize a test kit capable of testing all breakers 400A and above, at the Engineer's request.
6. Circuit breakers, 1200A Frame or larger, or circuit breakers with sensors or adjustable trip settings, 1200A or larger, shall be equipped with an Energy Reducing Maintenance Switch that complies with NEC, or CEC where adopted, 240.87 (B) (3) unless specified elsewhere with an alternate arc energy reduction method allowed by this same code section.
7. Ground Fault Interrupting Breakers: Provide with molded plastic case, air circuit breakers, similar to above with ground fault circuit interrupt capability, conforming to UL Class A, Group 1.
8. Arc Fault Interrupting Breakers: Provide with molded plastic case, air circuit breakers, similar to above with arc fault circuit interrupt capability, conforming to UL 1699. Provide on all dwelling–unit circuits supplying bedrooms, sleeping quarters, etc., as required to comply with NEC, or CEC where adopted, **Article 210.12.**
9. Tandem or half–sized circuit breakers are not permitted.
10. Series–Rated Breakers: UL listed series–rated combinations of breakers can be used to obtain panelboard–interrupting ratings shown on Drawings. If series–rated breakers are used, switchboards, distribution boards and panelboards shall be appropriately labeled to indicate the use of series rated breakers. Shop drawing submittal shall include chart of UL listed devices which coordinate to provide series rating.
11. Circuit breakers shall be standard interrupting construction. Panelboards shall accept standard circuit breakers up to 100A.
12. Circuit breaker handle accessories shall provide provisions for locking handle in the on or off position.
13. Shunt trip equipped circuit breakers shall be provided on all elevator feeders.
14. Temperature compensating circuit breaker(s) shall be provided when located in outdoor enclosure(s) or when located in an enclosure subject to high ambient heat due to nearby industrial processes, etc.
15. Provide 75 degree Celsius–rated conductor lugs/lug kits as required on all circuit breakers to accept conductor quantities and sizes shown on drawings.
16. All circuit breaker terminations shall be suitable for use with 75 degree Celsius ampacity conductors. Listed, dual–rated pin terminals, straight or offset, are acceptable for use to in accommodating oversized or parallel conductor installations.
17. Circuit breakers serving Fire Alarm or Central Monitoring panels and power supplies shall be red in color and lockable in the "ON" position.

J. Disconnect Switches:

1. Non–fusible or fusible, heavy–duty, externally operated horsepower–rated, 600V A.C: Provide NEMA 3R, lockable enclosures for all switches located on roof tops, in wet or damp areas and in any area exposed to the elements.
2. Fusible switches shall be Class "R" when 600A or less, and Class "L" when greater than 600A.
3. Amperage, horsepower, voltage, and number of poles per drawings: All shall be clearly marked on the switch nameplate.
4. Provide the Owner's project manager with one (1) spare set of fuses and two (2) sets of fuse clips/fuses for every set of fuses on the project.

K. Fuses:

1. Provide fuses at all locations shown on the Drawings and as required for supplemental protection:
   a. Fuses shall be manufactured by Bussmann, Shawmut or equal.
   b. All fuses shall be the product of a single manufacturer.
2. Main and Feeder Protection:
   a. Protective devices rated greater than 600A: Provide Bussman Hi–Cap fuses, Class L, current–limiting, having an interrupting rating of 200,000A RMS.
   b. Protective devices rated 600A or less: Provide Bussman Class R fuses, Class RK series current–limiting fuses, having an interrupting rating of 200,000A RMS.
3. Motor Protection:
   a. Where rating of protective device is greater than 600A: Provide Bussman Hi–Cap fuses, Class L, current–limiting, having an interrupting rating of 200,000A RMS.
   b. Where rating of protective device is 600A or less: Provide Bussman Class RK series current–limiting fuses, having an interrupting rating of 200,000A RMS.
   c. Where fuses feeding motors are indicated, but not sized: It shall be the responsibility of the Contractor to coordinate the fuse size with the motor to provide proper motor running protection.
   d. When rejection type fuses are specified (Class RK series) the fuse holder of all switches (specified in other Sections) shall be suitable for the fuses provided.

L. Cable Tray, Flexible Cable Tray and/or Cable Runway:

1. See drawings for Cable Tray, Flexible Cable Tray and/or Cable Runway specifications.

M. Uninterruptible Power Systems (UPS):

1. See drawings for UPS schedules and specifications.

N. Power Distribution Units (PDU):

1. See drawings for PDU schedules and specifications.

O. Generator Systems:

1. See drawings for Generator schedules and specifications.

P. Transfer Switches:

1. See drawings for Transfer Switch schedules and specifications.

Q. Lighting Control/Dimming Systems:

1. See drawings for Lighting Control and/or Dimming Systems schedules and specifications.
2. Wall box dimmers shall be rocker–type as manufactured by Lutron (no known equal except as noted below). Dimmers and dimmer faceplates shall match the color of adjacent switches and faceplates. Dimmers and dimmer faceplates in wood finished areas shall generally be black unless otherwise indicated by the Architect. The Contractor shall obtain written approval of the Architect regarding final dimmer and dimmer faceplate color selection prior to ordering material. Multiple dimmers/switches shall be ganged together with a common cover plate. Provide dimmers as follows:
   a. Incandescent: Lutron DIVA DV–10P or DV–103P (3–way) (1000 Watt max.)
   b. Electronic Low Voltage: Lutron DIVA DVELV–300P or DVELV–303P–(3–way) (300 Watt)
   c. Magnetic Low Voltage: Lutron DIVA DVLV–10P or DVLV–103p (3–way) (800 Watt max.)

U. Fittings:

1. Conduit type fittings shall be smooth inside and out, taper threaded with integral insulating bushing and of the shapes, sizes and types required to facilitate installation or removal of wires and cables from the conduit and tubing system. These fittings shall be of metal, smooth inside and out, thoroughly galvanized, and sherardized cadmium plated.
2. Metallic conduit covers shall have the same finish as the fitting and shall be provided for the opening of each fitting where conductors do not pass through the cover.
3. Connector, coupling, locknut, bushings and caps used with rigid conduit shall be steel, threaded and thoroughly galvanized. Bushings shall be insulated.
4. UON all interior EMT fittings, connectors and couplings installed in concealed locations, areas not considered to be wet or damp locations by the AHJ, or areas not subject to physical damage, shall be steel, zinc or cadmium plated, threadless, compression, steel locking ring type with insulated throat. Where suitable for use, steel set screw fittings are allowed for trade sizes of 2" and smaller. Insulated throat is not required for fittings, connectors and couplings 1" and smaller.
5. All interior and exterior EMT fittings, connectors and couplings, 2" and smaller, installed in exposed or concealed locations that are considered by the AHJ to be wet or damp locations, shall be raintight-steel, steel, zinc or cadmium plated, threadless, compression, steel locking ring type with insulated throat. If raintight-listed, EMT fittings, connectors and couplings are unavoidable for a given trade size or if conduit is installed in an area subject to damage – provide rigid metallic or intermediate metallic conduits, fittings, connectors and couplings as required.
6. Flexible steel conduit connectors shall be a malleable iron clamp or squeeze type or steel twist-in type with insulated throat. The finish shall be zinc or cadmium plating.
7. Conduit unions shall be "Erickson" couplings, or approved equal. The use of running threads will not be permitted.

V. 600V Conductors – Wire and Cable:

1. All conductors shall be copper. Provide stranded conductor for #10 AWG and larger or when making flexible connections to vibrating machinery. Use compression "fork" type connectors or transition to solid conductors when connecting to switches, receptacles, etc.
2. Type THHN/THWN-2 thermoplastic, 600V, UL approved, dry and wet locations rated at 90 degrees Celsius, for conductors of all sizes from #12 AWG up to and including 1000 kcmil. RHH/RHW insulation is allowed only to provide an Electrical Circuit Protective System to comply with NEC, or CEC where adopted, **Articles 695 and 700.**
3. Wire and cable shall be new, manufactured not more than six (6) months prior to installation, shall have size, type of insulation, voltage rating and manufacturer's name permanently marked on outer covering at regular intervals.
4. Wire and cable shall be factory color-coded by integral pigmentation with a separate color for each phase and neutral. Each system shall be color-coded and it shall be maintained throughout.
5. Systems Conductor Color Coding:
   a. Power 208/120V, 3PH, 4W:
      1) Phase A = Black
      2) Phase B = Red
      3) Phase C = Blue
      4) Neutral = White or White with Phase Color Tracer
      5) Switchlegs = Purple (Switchlegs shall also be identified separately by numerical tags)
      6) Travelers = Purple with Black stripe or Pink
   b. Power 480/277V, 3PH, 4W:
      1) Phase A = Brown
      2) Phase B = Orange
      3) Phase C = Yellow
      4) Neutral = Grey or Grey with Phase Color Tracer
      5) Switchlegs = Purple (Switchlegs shall also be identified separately by numerical tags).
      6) Travelers = Purple with Black stripe or Pink.
   c. Ground Conductors: Green
   d. Isolated Ground Conductors: Green with continuous Yellow stripe
   e. Fire Alarm System: As recommended by the manufacturer
6. All color-coding for #12 through #6 AWG conductor shall be as identified above. Conductors #4 AWG and larger shall be identified by utilizing phase tape at each termination.
7. No conductors carrying 120V or more shall be smaller than #12 AWG.
8. Aluminum conductors shall not be used.
9. Wire-pulling compounds used as lubricants in installing conductors in raceways shall only be "Polywater J". No oil, grease, graphite, or similar substances may be used. Pulling of #1/0 or larger conductors shall be done with an approved cable pull machine. Other methods; e.g. using vehicles or block and tackle to install conductors are not acceptable.

W. Medium Voltage Conductors (greater than 600V):

1. See drawings for Medium Voltage Cable Schedule and Specifications.

X. Junction and Pullboxes:

1. For interior dry locations, boxes shall be NEMA 1 galvanized one-piece drawn steel, knockout type, with removable, machine screw secured covers.
2. For outside, damp or surface locations, boxes shall be NEMA 3R heavy cast aluminum or cast iron with removable, gasketed, non-ferrous machine screw secured covers.
3. For in-grade applications, junction and pull boxes shall be pre-cast concrete or molded fiberglass manufactured by Christy, Brooks-Jensen, or Utility Vault Co. Fiberglass boxes shall:
   a. Be used only in landscape planter areas that are not subject to damage from lawnmowers, tractors and other machinery.
   b. Not be used in lawn or turf areas.
   c. Not exceed 11" W x 17" L in size unless required to be larger to meet code requirements.
4. All boxes shall be sized for the number and sizes of conductors and conduits entering the box and equipped with plaster rings where required.
5. All boxes located in traffic areas shall be traffic rated.

Y. Outlet Boxes:

1. For fixtures, boxes shall be galvanized, one-piece drawn steel, knockout type equipped with 3/8" fixture studs and plaster rings where required.
2. For convenience outlets, wall switches, or other devices, outlet boxes shall be galvanized one-piece drawn steel, knockout type 4" x 4" x 2-1/8" minimum size with plaster rings as required.
3. For locations where standard boxes are not suitable due to number and size of conduit to be terminated, special boxes shall be designed to fit space or meet other requirements and submitted for approval.
4. For exposure to weather, damp locations, or surface mounting, outlet boxes shall be heavy cast aluminum or cast iron with threaded hubs; covers shall be watertight with gaskets and non-ferrous screws.
5. Outlet boxes used for support of ceiling fans shall be galvanized, one-piece drawn steel, knockout type equipped with bracing bars and plaster rings where required and listed for ceiling fan support use. Such boxes shall be labeled and capable of supporting ceiling fan weights up to 70 pounds.
6. See drawings for floor box installation notes and specifications.

Z. Plywood Backboards: Where indicated for telephone or communications system terminals or other equipment assemblies, provide backboards of size indicated. Use 3/4" thick x 8' tall (length per plans), Douglas Fir, void-free, kiln-dried, fire-rated plywood finished on one side and prime coat painted on all surfaces with finish coat of enamel paint, color by architect. Leave one (1) fire-rating stamp/sheet exposed for inspection.

AA. Terminal Cabinets:

1. Terminal cabinets shall be fabricated of hot dipped galvanized code gauge sheet metal for flush or surface mounting, complete with barriered sections, a door for each vertically barriered section, and sizes as indicated on plan. Doors shall be hinged and lockable. Locks shall be keyed to match the branch circuit panelboards. Terminal cabinet trims shall match the branch circuit panels.
2. Provide each terminal cabinet with a full size mounting backplate.
3. Terminal cabinets shall be installed complete with full-length skirts of the same construction and finish as the terminal cabinet.
4. Where mounted outdoors, terminal cabinets shall be NEMA 3R, weatherproof complete with gaskets and required sealant to prevent moisture from entering the terminal cabinet.
5. All terminal cabinets and terminal cabinet barriered sections shall be labeled by the cabinet or cabinet section use (i.e. CATV, Security, etc.). Labels shall be Micarta type as specified elsewhere in these specifications. Unless otherwise noted, all termination blocks and cables shall be labeled per ANSI/EIA 606 standard.

BB. Painting: Terminal cabinets, panels, junction boxes, pull boxes, etc., and conduit installed in public view shall be painted with colors selected by the Architect to match the subject surface. Refer to painting section of the specifications for additional requirements.

CC. Seismic Design, Certification, and Anchoring of Electrical Equipment:

1. Contractor shall include all costs in the base bid for labor, materials, all special inspections and structural engineering design necessary to meet the Seismic Design Requirements for Non-structural Components (**Chapter 13, ACE SEI 7–05 Minimum Design loads for Buildings and Other Structures) as required by IBC, or CBC where adopted, Section 1708** and as related to the installation of all electrical equipment furnished under this contract. See Specific Project Site Seismic Criteria on architectural and/or structural plans which include Building Occupancy Category, Seismic Design Category, Design Spectral Response Acceleration (S_{DS}), Height factor ratio (z/h) and Site Class. Non-structural Component Importance Factor (I_p) for a particular component shall be determined based on the following criteria:
   a. I_p=1.0: Non-life safety, Non-structural Components in an Occupancy Category IV Facility not required for continued operations of the facility or in any other Occupancy Category Facility where component failure will not impair continued operation of the facility.
   b. I_p=1.5: Designated Seismic Systems are those non-structural components in any Occupancy Category IV facility (except as noted above) or that are a part of any code-defined Critical, Life Safety, Emergency and Legally Required Standby Electrical System. Additionally, those non-structural components containing hazardous materials shall be classified as Designated Seismic Systems. While Designated Seismic Systems are generally identified on the plans, they may include items such as Generators, Automatic Transfer Switches, UPS units and all associated electrical distribution equipment and components necessary for the designated seismic system to form a complete and operable system. The Contractor shall ultimately be responsible for identifying Designated Seismic Systems. For any electrical component either identified on the plans or determined by the contractor to be a Designated Seismic System, all line and load side electrical distribution systems supporting that Designated Seismic System (including, but not limited to, feeders, panel boards switchboards, transformers, all related component supports and attachments, etc.) shall be considered a part of the designated seismic system for the purposes of code-compliance and seismic certification.
   c. z/h – Height factor ratio: See plans for respective equipment locations.
2. Provide a delegated-design submittal for each of the following seismic-restraint systems to be used as required:
   a. Restraint Channel Bracings consisting of MFMA-4, shop-or field-fabricated bracing assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end, with other matching components, and with corrosion-resistant coating; rated in tension, compression, and torsion forces.
   b. Restraint Cables consisting of ASTM A 603 galvanized-steel cables. End connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service, with a minimum of two clamping bolts for cable engagement.
   c. Seismic-Restraint Accessories consisting of hanger rod/hanger rod stiffener assemblies, multifunctional steel connectors for attaching hangers to rigid channel bracings and/or restraint cables, bushings for floor and wall-mounted equipment, anchor bolts, and resilient isolation washers and bushings.
   d. Mechanical Anchor Bolts consisting of drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.
   e. Adhesive Anchor Bolts consisting of drilled-in and capsule anchor system containing resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide specific LEED-compatible, environmentally-friendly resins and adhesives as indicated on plans. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.
3. Submittal shall include design calculations and details for selecting seismic restraints complying with performance requirements, design criteria, and analysis data signed and sealed by the contractor's structural engineer responsible for their preparation. Calculations shall include, but not limited to, static and dynamic loading caused by equipment weight, operation, and seismic and, if applicable, wind forces required to select seismic and, if applicable, wind restraints and for designing vibration isolation bases. Provide seismic and wind-restraint detailing to support system selection, arrangement of restraints, attachment locations, methods, and spacings with all components identified to include their strengths, directions and values of forces transmitted to the structure during seismic events and association with vibration isolation devices. Sizes of components shall be selected so strength will be adequate to carry present static and seismic loads to accommodate 25% spare future capacity within specified loading limits.
4. Any pre-approval and evaluation documentation shall have a California Office of Statewide Health Planning and Development (OSHPD) Special Seismic Certification Preapproval (OSP) demonstrating horizontal and vertical load testing and analysis showing maximum seismic-restraint ratings, by ICC-ES or another agency acceptable to authorities having jurisdiction. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) that support seismic-restraint designs must be signed and sealed by a qualified professional engineer.
5. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified elsewhere in the project specifications.
6. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural members, and where conduit is terminated to equipment that is anchored to a different structural element from the one supporting them as they approach equipment. Flexible connection limitations of the NEC, or CEC where adopted, shall apply.
7. Install seismic-restraint devices using methods approved by OSHPD or an agency acceptable to authorities having jurisdiction providing required submittals for component.
8. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by OSHPD or an agency acceptable to authorities having jurisdiction.
9. The contractor shall engage a qualified testing agency to perform tests and inspections as listed in other Project Specifications, but as a minimum shall include at least four of each type and size of installed anchors and fasteners selected by Architect. Schedule tests with Owner, through Architect, before connecting anchorage device to restrained component (unless post connection testing has been approved), and with at least seven days' advance notice. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members as required. Test to 90 percent of rated proof load of device. Prepare and submit test and inspection reports.

DD. Trenching and Backfilling: Contractor shall be responsible for trenching and backfilling. Refer to applicable trenching and backfilling specifications for complete requirements.

PART 3 – EXECUTION

3.1 PREPARATION AND INSTALLATION

A. Installation of Conduit and Outlet Boxes:

1. All conduit installed in the dry walls or ceilings of a building shall be steel tube (EMT), aluminum tube (EMT), or intermediate Metal Conduit (IMC). Flexible conduit shall not be used in lieu of EMT, IMC or rigid conduit except as noted herein.
2. Galvanized rigid conduit (GRC) or intermediate metal conduit (IMC) shall be used as follows:
   a. When noted on the drawings.
   b. When considered exposed to damage by the local AHJ.
   c. When installed in wet or damp locations and of a trade size where listed-raintight fittings, connectors, couplings, etc. are unavoidable.
   d. When required by NEC or CEC **Article 517.13**
   e. When installed in concrete and masonry. The use of ENT in CMU walls and parking structures may be allowed only as directed in writing by the Engineer. Request for ENT substitution must be made prior to bid and in accordance with pre-bid substitution request requirements of these specifications.
3. Intermediate metal conduit (IMC), is approved for use in all locations as approved for GRC or EMT and in accordance with NEC, or CEC where adopted, **Article 342.**
4. Flexible steel conduit shall only be permitted to be used at light fixture outlets and connections to vibrating electrical equipment. All flexible steel conduit runs shall be less than 6'-0". Except when concealed in walls or other structural elements, all outdoor installation shall be made using liquid-tight flex with approved fittings. Include a separate insulated green ground conductor sized per NEC in each conduit. Other uses of flexible conduit shall be allowed only as approved in writing by the Engineer.
5. Flexible liquid-tight conduit shall be installed in lieu of the flexible steel where required by NEC, or CEC where adopted, in damp and wet locations, where exposed to weather, in refrigerated areas (65 Deg. F or less), and/or between seismic joints. All rotating electrical equipment shall be supplied with flexible, liquid-tight conduit with appropriate slack and shall not exceed thirty-six (36) inches. Include a separate insulated green ground conductor sized per NEC in each conduit. Other uses of liquid-tight flexible conduit shall be allowed as approved in writing by the Engineer on a case by case basis.
6. Rigid metallic conduit installed underground or embedded in concrete shall be 1" trade size minimum and shall be wrapped with 20 mil polyvinyl chloride plastic tape. PVC conduit installed underground or imbedded in concrete shall be 3/4" minimum trade size.
7. Where required for providing an Electrical Circuit Protective System to comply with NEC, or CEC where adopted, **Articles 695 and 700**, utilize UL Listed 2-hour fire-rated, MC cable or UL Listed 2-hour fire-rated RHH/RHW conductors in conduit.
8. Conduit shall be run so as not to interfere with other piping, fixtures or equipment.
9. The ends of all conduits shall be cut square, carefully reamed out to full size and shall be shouldered in fitting.
10. No running threads will be permitted in locations exposed to the weather, in concrete or underground. Special union fittings shall be used in these locations.
11. Where conduit is underground, under slabs or grade, exposed to the weather, or in wet locations, make joints liquid tight and gas tight.
12. All metal conduit in masonry and concrete and where concealed under floor slabs shall have joints painted with thread compound prior to makeup.
13. PVC conduit shall not be run in walls except where approved by the Engineer prior to bid in limited instances that may include concrete or CMU walls used in site retaining, parking structures, or exterior equipment yard or enclosure walls, etc.
14. Where conductors enter a raceway or a raceway in a cabinet, pull box, junction box, or auxiliary gutter, the conductors shall be protected by a plastic bushing type fitting providing a smoothly rounded insulating surface.
15. Where conduit extends through roof to equipment on roof area, the Contractor shall provide flashing material compatible with the roofing system as required by the roofing specifications or as required by the Owner's roof warranty. This flashing shall be delivered to the roofing Contractor for installation. The actual location of all such roof penetrations and outlets shall be verified by the Architect/Owner. Contractor to verify type of flashing prior to bid and include all costs.
16. All conduit shall be supported at intervals not less than 6'-0" and within 12" from any outlet and at each side of bends and elbows. Conduit supports shall be galvanized, heavy stamped, two-hole conduit clamp properly secured.
17. Where conduit racks are used, the rack shall consist of two piece conduit clamps attached to galvanized steel slotted channels, properly secured via threaded rods attached directly to the building structure.
18. Nail-in conduit supports, one-piece set screw type conduit clamps or perforated iron for supporting conduit shall not be used.
19. Seismic Conduit Support:
   a. All conduit shall be supported in such a manner that it is securely attached to the structure of the building. Attachment is to be capable of supporting the tributary weight of conduit and contents in any direction. Maximum spacing of support and braces are to be as follows:

CONDUIT SIZE	MAXIMUM SPACING
1/2" to 3"	6'-0"
3-1/2" to 4"	8'-0"

20. All conduit runs shall be installed parallel or perpendicular to walls, structural members, or intersection of vertical planes and ceilings. Field made bends and offset shall be avoided where possible. Crushed or deformed raceway shall not be installed.
21. Open knockouts in outlet boxes only where required for inserting conduit.
22. Locate wall outlet of the same type at same level in all rooms, except where otherwise noted.
23. Outlet boxes on metal studs shall be attached to metal hangers, tack welded or screwed to studs; On wood studs attachment shall be with wood screws, nails are not acceptable.
24. Recessed boxes shall not be mounted back-to-back in any wall; minimum offset shall be 24 inches.
25. Junction Boxes that do not contain any device(s) shall be located in storage rooms, electrical closets or above accessible ceilings, not in hard lid ceilings or other forms of inaccessible ceilings. Place boxes which must be exposed to public view in a location approved by the Owner's Project Manager. Provide covers or plates to match adjacent surfaces as approved by the Owner's Project Manager.
26. Surface mounted pull boxes, terminal cabinets, junction boxes, panel boards etc., shall be attached to walls using appropriate screws, fasteners, backing plates, stud blocking, etc., as detailed on architectural and/or structural drawings. If architectural and/or structural drawings are not provided on the project, Contractor shall provide all necessary mounting hardware and backing support to comply with local building code requirements and any additional requirements imposed by the local Authority-Having-Jurisdiction.
27. Except where below grade, sleeves shall be installed where conduit passes through masonry or concrete walls and shall be 24 gauge galvanized steel no more than 1/2" greater in diameter than the outside diameter of the conduit. When located in non-rated structures, caulk conduit sleeve with stone wool. When located in fire rated structures, provide UL listed fire stopping system. See fire stopping section of this specification for additional requirements.
28. All boxes shall be covered with outlet box protector, Appleton SB-CK, or similar device/method to keep dirt/debris from entering box, conduit or panels. If dirt/debris does get in, it shall be removed prior to pulling wires.
29. All boxes installed outdoors shall be suitable for outdoor installations, gasketed, screw covers, and painted as directed by the Architect with weatherproof paint to match building.
30. All conduit entries to outdoor mounted panels, cabinets, boxes, etc., shall be made using Myers "SCRU-TITE" hubs Series ST.
31. Provide nylon or a 1/8-inch O.D. polyethylene rope, rated at 250 pounds tensile strength, in all conduits more than 5 feet in length left empty for future use. Not less than 5 feet of rope shall be left at each end of the conduit. Tag all lines with a plastic tag at each end indicating the termination/stub location of the opposite end of the conduit.
32. All multiple conduit runs within suspended ceilings shall be suspended from building structure by means of unistrut hangers/racks. Conduit shall not be allowed to lay on ceiling or be supported from ceiling suspension wires or other suspension system. Support conduit to structure above suspended ceilings 8" minimum above ceiling to allow removal of ceiling tile. Maintain two inch clearance above recessed light fixtures.
33. All exposed conduits and support hardware shall be painted to match the finish of the wall or ceiling to which it is supported.
34. Where conduits or wireways cross seismic joints, provide approved flexible conduit connection or approved expansion/deflection fitting to allow for displacement of conduit in all three axes. Connection shall allow for movement in accordance with design of seismic joint. Non-flexible raceways crossing expansion joints or other areas of possible structural movement shall make provision for 3-way movement at such points by means of expansion/deflection fittings. Fittings shall be installed in the center of their axes of movement and shall not be deflected to make part of a conduit bend, or compressed or extended to compensate for incorrect conduit length. Install flexible conduit connection(s) or approved expansion/deflection fitting(s) complete with ground jumpers. Where necessary, provide approved expansion joints to allow for thermal expansion and contraction of conduit(s). Install expansion joints complete with ground jumpers.
35. Seal all conduits where termination is subject to moisture or where conduit penetrates exterior wall, floor or roof, in refrigerated areas, classified (hazardous areas) and as indicated on the drawings.
36. Except as otherwise indicated on the drawings or elsewhere in these specifications, bends in feeder and branch circuit conduit 2 inches or larger shall have a radius or curvature of the inner edge, equal to not less than ten (10) times the internal diameter of the conduit. Except where sweeping vertically into a building where sweep radius equals ten (10) times conduit diameter, underground communications and building interconnect conduits 3 inches or larger shall have a minimum 12'-6" radius or curvature of the inner edge. For the serving utilities, radius bends shall be made per their respective specifications.
37. Tag all empty conduits at each accessible end with a permanent tag identifying the purpose of the conduit, footage end-to-end, and the location of the other end. In wet, corrosive outdoor or underground locations, use brass, bronze, or copper 16 gauge tags secured to conduit ends with #16 or larger galvanized wire. Inscribe on the tags, with steel punch dies, clear and complete identifying information.
38. The following additional requirements shall apply to underground conduits:
   a. Underground conduit shall be Schedule 40 PVC (polyvinyl chloride) unless otherwise indicated elsewhere in these specifications or as required per NEC, or CEC where adopted, **Article 517.13**.
   b. For all communications conduits 2" and larger, and feeders 100A or greater, provide with a minimum 3", (2,000 LB) concrete envelope, 2" minimum separation between conduits, installed at depth of not less than 24" below grade. (Provide concrete encasement and/or greater minimum conduit depth as required by the Utility Companies.) Conduit separation within a duct bank shall be maintained using plastic spacers located at 5'-0" intervals. Where power and communication conduits are run in a common trench, a 12" minimum separation shall be maintained between power and communication conduits or as required by Utility Companies. Where concrete encasement is not required by serving utilities for a utility-only duct bank, provide free draining sand bedding suitable to acheive 95% relative compaction based on ASTM D1557 using 6" lifts or directed by Utility Company Standards.
   c. In all cases, where any conduit(s) pass under a building slab or footing, the electrical contractor will provide a Bentonite clay or concrete barrier that conforms to the height and width of the trench excavation extending a minimum of 24" on either side of the foundation. In all cases, where conduit(s) pass through a sleeve in a footing or other foundation element, the electrical contractor will provide a Bentonite clay or concrete barrier between the sleeve and the conduit(s) surrounding the conduit(s) for the entire depth of the sleeve. The barrier is provided to prevent passage of moisture under or through the slab or footing via the trench or sleeve.
   d. Where underground conduit passes under a building slab, concrete encasement may not be required, except as required above, contact the Engineer for written direction prior to omitting any encasement.
   e. Underground conduits, which terminate inside building(s) below grade, such as in a basement level, or which slope so that water might flow into interior building spaces, shall be sealed at the point of penetration with a modular conduit seal (Link-Seal or equal by Rox Systems). Conduit/conduit sealing system penetrations of waterproofing membranes/systems on existing structures shall be completely restored as required to maintain membrane/system manufacturer and installer warranties for the installation. All conduits shall be provided with a 4% slope away from buildings. All conduits shall be installed such that the water cannot accumulate in the conduit and such that water drains into the nearest manhole, pull box or vault and not into the facility. In instances where grade changes or elevation differences prevent sloping of conduit away from a building into the nearest manhole, pull box or vault or where accumulation of water in a manhole, pull box or vault may result in water traveling into the facility, conduits shall be sealed at each end of each conduit using conduit sealing bushing, sized as required for the conductors contained within the conduit (O-Z Gedney #CSBG 100psig withstand or equal). In all cases, install plugs or caps in spare (empty) conduits at both ends of each conduit (Jackmoon or equal) preventing both water and gas from entering the facility via the conduits.
   f. Include a separate insulated green ground conductor sized per NEC, or CEC where adopted, in each underground electrical feeder/branch circuit.
   g. All underground conduits with circuits rated at 40A or greater and all underground communications conduits shall be provided with a metallic marker tape located 12" below the finished grade.
   h. Where underground conduits sweep into/through slabs, utilize PVC 90 degree sweeps that transition, via female PVC adapter to GRC coupling mounted flush in slab. GRC couplings shall be 1/2 lap taped with 20 mil tape. If the distance of the conduit run between a sweep and the next connecting sweep, pullbox, vault or manhole exceeds 150 ft then the sweep shall be concrete encased. Exceptions:
      1) Communications conduits shown terminating at a finished floor shall have an additional 4" high GRC nipple equipped with a bushing, removable conduit plug, labeling tag and pull rope. Tie off pull rope to conduit plug.
      2) Utility conduit sweeps shall be installed per the requirements of the respective utility company.
   i. All PVC conduit shall be glued for a water and gas tight installation. The Contractor shall use appropriate solvent on all joints prior to gluing conduit and fittings together.
   j. All underground conduit work shall conform to the Federal, State and Local Safety Orders or Rules regarding excavations, trenches and related earthwork. For projects in California, refer to the **California Code of Regulations, Title 8, Construction Code Sections 1540 and 1541** for additional requirements.
39. Installation of Metal Clad (MC) Cable (when use is permitted in the Allowed Specification Deviations Section or Deductive/Additive Alternate Pricing Section generally located on the symbols list drawing):
   a. Provide J-box above accessible ceiling prior to running MC cable within partitions or walls. J-box shall be permanently labeled with panel identification and circuit numbers contained within.
   b. Overhead MC cable runs shall generally follow building lines to provide a neat and workmanlike installation.
   c. Provide code-sized J-boxes to accommodate MC cable splicing in general. For systems furniture poke-through feeds utilizing MC cable, transition from MC cables to conduit and wire near the penetration in the TI accessible ceiling space on the floor below the panel board via code-sized gutter(s). Utilize UL listed, insulated barrier strips with recessed screw heads (Ideal #89-677 series or equal) fastened within the gutter(s), terminate MC conductors on one side of the strip(s) and individual conductors in conduit from the panel board(s) on the other side of the strip(s). Label each terminal strip(s) with panel designation. Label each phase conductor with circuit number using wire markers (Ideal or equal). Wire nuts are not an acceptable alternative to the terminal strips in these underfloor transition locations. Provide (1) spare 3/4" conduit from each gutter to its respective panelboard.
   d. MC cable shall not run directly into panelboards, distribution boards or electrical rooms.
   e. MC cabling shall be provided with its own code-approved ceiling support wires, cable hangers, individual spring steel support clips, steel trapeze hangers, threaded rods or dedicated #10 AWG drop wire. Cable supports shall be fastened to concrete slabs, beams, joists or other structural members of the building. In no case shall MC cable rest on ceilings, suspended ceilings or structures. Do not support MC cable using ceiling support wires. The use of nylon cable ties to support MC cable is not allowed.
   f. Use lock or spring nut MC cable fittings.
   g. Cable runs shall be continuous from wiring device to wiring device – no intermediate splicing is allowed.
   h. When terminating or splicing at a junction, outlet, or switch box, cut the cable with an armored cable rotary cutter such that 6" of free conductors remain for connections or splices. Use screw-in or spring lock connector and ensure a proper bonding by firmly tightening the box and connector to ensure a good bond. Provide anti-short bushing at cable ends to protect conductors from abrasion and use insulated connectors.
   i. MC Cable bend radius shall not be less than seven (7) times the external diameter of the cable.
   j. MC cables passing through fire-rated walls or floors shall be firestopped as required with a UL listed system. See firestopping requirements outlined elsewhere in this specification for additional requirements.
   k. Installation shall not exceed code requirements for total current carrying conductors in multiple MC cable runs bundled together into a single MC cable hanger or strap, unless support device is specifically listed for such purpose. Neutrals shall be counted as current carrying conductors.
   l. Maintain MC cable clearance of at least 6" from hot water and any other high temperature pipes. Maintain at least 12" clearance between MC cable(s) and telecommunication conduits and cables. MC cable shall cross telecommunication cables and conduits at right angles.
   m. MC cabling shall not be run through exposed ceilings, where open grid conditions exist, exposed on walls, or exposed to view. See Power Plan and Lighting Plan General Notes for additional requirements.
   n. Use of MC-AP, "MC All Purpose" or MC cabling where the interlocked armor sheath forms all or a portion of the equipment grounding conductor is expressly prohibited.
40. Installation of Electrical Nonmetallic Tubing (ENT) Cable (when use is permitted in the Allowed Specification Deviations Section or Deductive/Additive Alternate Pricing Section generally located on the symbols list drawing):
   a. When approved for use in the Allowed Specification Deviations Section or Deductive/Additive Alternate Pricing Section, generally located on the symbols list drawing, 1/2" and 3/4" trade size ENT shall be allowed for concealed lighting branch circuits, receptacle branch circuits and miscellaneous signal system circuits within concrete floors, walls and columns within parking structures.
   b. ENT conduit shall meet the requirements of Underwriters Laboratories **Standards 1479 and 1653, NEMA TC-13,** and be UL-listed.
   c. All ENT conduit, ENT fittings, ENT boxes and ENT accessories shall be UL listed and manufactured by the same manufacturer so as to form a complete ENT system. ENT systems shall only be used if they are listed for use in fire resistance rated concrete floors and ceilings with resistance ratings as indicated elsewhere in the project plans. ENT System shall comply with NEC, or CEC where adopted, **Article 362**.
   d. All ENT fittings and ENT boxes shall be concrete-tight listed without the use of tape. Additionally, ENT fittings shall be constructed of high-impact PVC and able to resist ENT conduit pull out forces of a minimum of 175 lbs. ENT fittings with fewer than 6 locking tabs for ENT connection shall utilize manufacturer-approved glue as additional protection from fitting/conduit separation. ENT conduit to rigid conduit transition fittings shall be equipped with set screw fittings on the rigid conduit side of the transition. ENT to metal box fittings shall be equipped with a threaded end and lock washer.
   e. Where tubing enters a box, fitting or other enclosure provide a bushing or adapter to protect conductors from abrasion unless the box, fitting, or enclosure design provides equivalent protection.
   f. ENT junction boxes shall have brass screw inserts and shall be rated to support lighting fixtures weighing less than 50 lbs.
   g. Concrete tight metal boxes shall be used to support pendant hung fixtures or fixtures over 50 lbs.
   h. ENT shall be provided in continuous lengths between junction boxes without use of in-line splices or connectors and shall be clearly marked/labeled at least every 10-feet.
   i. All ENT conduit containing electrical branch circuits shall contain a code-sized equipment ground conductor.
   j. ENT shall transition to EMT, IMC, RMC, or rigid PVC, as appropriate or as called out elsewhere in this specification, for all exposed conduits within/on/under a parking structure.
   k. ENT shall transition to appropriately sized PVC expansion joint(s) at all structure expansion or seismic joints.
   l. ENT shall be securely fastened and supported every 2 – 3 ft. and within 1 ft. of every junction box and fitting to prevent movement and sag.
   m. ENT shall be routed straight without sags, or excessive bending. Where bends are required, comply with **Table 362.24** of the NEC for minimum radius of bends. Number of bends shall not exceed quantity allowed by code where used for power and lighting branch circuit and/or feeder conductors. Where utilized for communications system conductors (phone, data cable, etc.) number of bends shall not exceed the equivalent of (2) 90 degree bends with conduit length no more than 100 feet without installation of a TIA 569-compliant pull box.
   n. Separation of ENT from fitting(s), excessive sags or deflections in ENT runs that prevent pulling of wire, and other ENT system product or system installation failures/errors, shall be corrected by saw cutting and patching as necessary at no additional cost to the Owner. Use of surface mounted conduits and junction boxes as a repair method is unacceptable.
   o. Empty ENT runs shall be provided with a nylon pull string.
   p. Coordinate installation of raceway with structural steel and other structural members. Do not cut, notch or otherwise alter structural members without obtaining approval in writing from the Structural Engineer of Record.
   q. No more than (2) 3/4" ENT conduits may cross each other within a horizontal concrete slab without obtaining approval in writing from the Structural Engineer of Record.

B. Installation of 600V Conductors:

1. All electrical wire, including signal circuits, shall be installed in conduit.
2. All circuits and feeder wires for all systems shall be continuous from overcurrent protective device or switch to terminal or farthest outlet. No joints shall be made except in pull, junction or outlet boxes, or in panel or switchboard gutters.
   a. Utilize pre-insulated "winged" spring type connectors, 3M Company "Performance Plus" #Y, or #R/Y or equal and as required for splices and taps in conductors #6 AWG and smaller. When a spring connector is used in an underground environment or when subject to moisture, utilize a 3M Company Scotchcast 3507G epoxy resin connector sealing pack to seal the spring connector. THE USE OF PUSH-WIRE CONNECTORS (e.g. "WAGO" OR EQUIVALENT) IS STRICTLY PROHIBITED.
   b. Wires #4 AWG and larger AWG shall be joined together as follows:
      1) When located in an underground environment or when subject to moisture, the splice shall be made with compression connector and sealed by a 3M, or equal, PST cold shrink connector insulator.
      2) When located in an interior environment, the splice shall be made with an ILSCO or equal dual rated, insulated splicer-reducer connector or multi-tap connector listed for use with 75/90 degree Celsius rated conductors.
   c. Connections to busbar shall be made with dual-rated copper/aluminum one-piece compression lugs. Paralleled conductor connections shall be by mechanical lugs.
3. Thoroughly clean all conduit and wire-ways and see that all parts are perfectly dry before pulling any wires.
4. Install UL approved fixture wire from all lighting fixture lamp sockets into fixture outlet or junction box.
5. For 20A branch circuit wiring, increase #12 conductors to #10 for 120V circuits longer than 100 feet and for 277V circuits longer than 150 feet.
6. Conductor Support: Provide conductor supports as required by codes and recommended by cable manufacturer. Where required, provide cable supports in vertical conduits and provide lower end of conduit with a ventilator.

C. Grounding/Bonding:

1. Provide grounding and bonding for entire electric installation as shown on plans, as listed herein, and as required by applicable codes. Included, but not limited to, are items that require grounding/bonding:
   a. Conduit, raceways and cable trays.
   b. Neutral or identified conductors of interior wiring system.
   c. Panel boards, Distribution boards, Switchgear and Switchboards.
   d. Non-current carrying metal parts of fixed equipment.
   e. Telephone distribution equipment.
   f. Transformers, Inverters, UPS, PDU, RDC, Transfer Switch and Generator Systems.
   g. Raised Flooring.
   h. Exposed metal in maintenance holes, hand holes.
   i. Lightning Protection Systems and antennas.
   j. Metal piping installed in or attached to a building/structure.
   k. Metallically isolated structural steel.
   l. Metallically isolated underground metal water piping.
   m. Elevator hydraulic piston/lift case.
2. In multi-occupancy buildings, Contractor shall bond metal water piping systems installed in, under or attached to a building and/or structure serving individual occupancies where the piping system(s) are metallically isolated from each other. Per NEC, or CEC where adopted, **ART. 250.104(A)(2) and (3)**, the bonding conductor shall be sized per **Table 250.122** and connected to the switchboard/panelboard serving that suite/occupancy.
3. Use of Ground Rods: Furnish and install required number of 3/4" x 10' copper clad ground rods to meet specified resistance, all required grounding wires, conduit and clamps. The size of the grounding conductors shall be not less than that set forth in the latest edition of the California Code of Regulations, Title 24, State of California and NEC (or CEC where adopted), unless otherwise indicated. Rods shall be installed such that at least 10 feet of length is in contact with the soil. Where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45 degrees from vertical or shall be buried in a trench that is at least 30 inches deep. The upper end of the electrode shall be flush with or below ground level unless the above ground end and the grounding electrode conductor attachments are protected against physical damage. Unless otherwise noted, connection to the grounding electrode conductor may be by compression type or exothermic process connector. Mechanical connectors shall not be used.
4. Grounding System Connection:
   a. Compression connectors shall be unplated copper, manufactured by Burndy, or approved equal, designed specifically for the intended connection.
   b. Exothermic weld-type connectors shall be "Cadweld" manufactured by Erico Products, or approved equal, designed specifically for the intended connection.
   c. Mechanical connectors shall not be used.
5. Isolated Ground Receptacles shall have an insulated ground wire connected between the receptacle and the panelboard isolated ground bus. Unless otherwise noted, this ground wire shall not be grounded at any other point, and shall be distinguished from other ground wires by a continuous yellow stripe.
6. Provide separate green equipment ground conductor in all electrical raceways to effectively ground all fixtures, panels, controls, motors, disconnect switches, exterior lighting standards, and non current-carrying metallic enclosures. Use bonding jumpers, grounding bushings, lugs, busses, etc., for this purpose. Connect the equipment ground to the building system ground. Use the same size equipment ground conductors as phase conductors, up through #10 AWG. Use NEC (or CEC where adopted

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 6 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS
This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE
This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))
This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS
This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS
This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)
This section does not apply to this project.

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 3 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

F. INDOOR LIGHTING FIXTURE SCHEDULE

LT-201	LT-201 - 4" Wet Rated Downlight LED	No	No	17.5	Mfr. Spec	16	No	280	☐	☐
LT-202	LT-202 - Wet Rated Downlight Steam LED	No	No	10	Mfr. Spec	4	No	40	☐	☐
LT-203	LT-203 - 4' Wraparound LED	No	No	25.5	Mfr. Spec	4	No	102	☐	☐
LTG-3450	LTG-3450 - 16" Flushmount LED	No	No	24	Mfr. Spec	15	No	360	☐	☐
LTG-3451	LTG-3451 - Decorative Wall Sconce LED	No	No	60	Mfr. Spec	11	No	660	☐	☐
LTG-3452	LTG-3452 - Decorative Round Flushmount LED	No	No	120	Mfr. Spec	2	No	240	☐	☐
LTG-3453	LTG-3453 - Decorative Wall Sconce LED	No	No	12	Mfr. Spec	4	No	48	☐	☐
							Total Designed Watts: CONDITIONED SPACES	2,104		

[1]FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.

[2]Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c) Wattage used must be the maximum rated for the luminaire, not the lamp.

G. MODULAR LIGHTING SYSTEMS
This section does not apply to this project.

H. INDOOR LIGHTING CONTROLS (Not including PAFs)
*This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
		Field Inspector	
		Pass	Fail
Mandatory Demand Response §110.12(c)	Shut-off controls §130.1(c)	☐	☐
Required > 10,000 SF	Whole Building Auto Time Switch		

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 1 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

This document is used to demonstrate compliance with requirements in §110.0, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.

A. GENERAL INFORMATION

01 Project Location (city)	Coronado	04 Total Conditioned Floor Area (ft^2)	3,690
02 Climate Zone	7	05 Total Unconditioned Floor Area (ft^2)	0
03 Occupancy Types Within Project (select all that apply):		06 # of Stories (Habitable Above Grade)	1

☐ Office ☐ Retail ☐ Warehouse ☐ Hotel/Motel ☐ School ☒ Support Areas
☐ Parking Garage ☐ High-Rise Residential ☐ Relocatable ☐ Healthcare ☒ Other (Write in) See Table I

B. PROJECT SCOPE
This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft^2)	Calculation Method	Area (ft^2)
☐ New Lighting System				
☐ New Lighting System - Parking Garage				
☒ Altered Lighting System	Area Category Method	3690	Area Category Method	0
Total Area of Work (ft^2)	3690		0	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 7 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRC/

Yes	No	Form/Title	Field Inspector Pass	Fail
●	○	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐
○	●	NRCI-LTI-02-E- Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room or a theater to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-05-E- Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-06-E- Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Yes	No	Form/Title	Field Inspector Pass	Fail
●	○	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
○	●	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
●	○	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
○	●	NRCA-LTI-05-A. - Must be submitted for institutional tuning power adjustment factor (PAF)	☐	☐

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 4 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Skylit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector	
								Pass	Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2							13 Plan Sheet Showing Daylit Zones:		

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS
Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used .

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft^2)	Area (ft^2)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Corridor	Corridor Area	0.6	723	433.8	No	No
Locker Rooms	Locker Dressing Room	0.45	912	410.4	No	No
Restrooms	Restrooms	0.65	586	380.9	Yes	No
Shower/Hot Bath Areas	Restrooms	0.65	669	434.8	No	No
Steam Rooms	Restrooms	0.65	239	155.4	No	No
Storage	All Other Space Types	0.4	561	224.4	No	No
		TOTALS:	3,690	2,039.7	See Tables J, or P for detail	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 2 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

C. COMPLIANCE RESULTS
If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a) (Watts)				Compliance Results
	01	02	03	04		05	06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	Total Designed (Watts)	Adjustments PAF Lighting Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)			(See Table F)	(See Table P)			
Conditioned		2,039.7	88		=	2,128	≥ 2,104	0	=	2104	COMPLIES
Unconditioned					=		≥		=		
Controls Compliance (See Table H for Details)											COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)											

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE
This table includes all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Field Inspector	
									Pass	Fail
LT-200	LT-200 - 4" Downlight LED	No	No	11	Mfr. Spec	34	No	374	☐	☐

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 8 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Ray Swartz	Documentation Author Signature:
Company: tk1sc	Signature Date:
Address: 15231 Laguna Canyon Road, Suite 100	CEA/ HERS Certification Identification (If applicable): E15610
City/State/Zip: Irvine CA 92618	Phone: (949) 751-5800

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Ray Swartz	Responsible Designer Signature:
Company: tk1sc	Date Signed: 2021-08-06
Address: 15231 Laguna Canyon Road	License: E15610
City/State/Zip: Irvine CA 92618	Phone: 949-751-5800

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Hotel Del Coronado Members Area Renovation	Report Page:	(Page 5 of 8)
Project Address:	1500 Orange avenue	Date Prepared:	8/6/2021

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM
All areas indicated in Table I as using an additional allowance using the Area Category Method have been included in this table to calculate the additional allowance per Table 140.6-C

Conditioned Spaces

01	02	03	04	05	06	07	08	09	10
Area Description	Primary Function Area	Applicable Qualifying Lighting System from Table 140.6-C	Allowed Density (W/ft^2 or W/lf or W/unit)	Ltg Area, Length or ATM/Mirror (ft^2, lf or #)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	Number of Luminaires	Total Design Watts
Restrooms	Restrooms	DecorativeLighting	0.15	586	87.9	LTG-3451	60	5	300
						LTG-3451	60	6	360
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
660	87.9	87.9							
11									
Total Additional Allowance (Watts) CONDITIONED SPACES		87.9							

Unconditioned Spaces
This section does not apply to this project.

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE
This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY
This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING
This section does not apply to this project.

TITLE 24 GENERAL NOTE

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ASSOCIATED WITH FINAL INSPECTION AND APPLICABLE ACCEPTANCE REQUIREMENT PROCEDURES. INCLUDE ALL COSTS IN THE BASE BID. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CONSTRUCTION INSPECTION, MEASUREMENTS, MONITORING, FUNCTIONAL TESTING, CALIBRATING, ETC. CONTRACTOR SHALL ASSUME THE ROLE OF "FIELD TECHNICIAN" AND "RESPONSIBLE PERSON" AS DEFINED IN STATE OF CALIFORNIA 2019 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL SECTIONS 13.1.2.2 AND 13.1.2.3.

SEE STATE OF CALIFORNIA 2019 BUILDING ENERGY EFFICIENCY STANDARDS SECTIONS 10-103(a)3A AND 10-103(a)3B AND SECTION 130.4 FOR MORE INFORMATION.

SEE STATE OF CALIFORNIA 2019 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL CHAPTER 13 FOR MORE DETAILED REQUIREMENTS / INFORMATION.

SEE STATE OF CALIFORNIA 2019 BUILDING ENERGY EFFICIENCY STANDARDS RESIDENTIAL COMPLIANCE MANUAL CHAPTER 2 FOR MORE DETAILED REQUIREMENTS / INFORMATION.

PROVIDE COMPLETED INSTALLATION CERTIFICATE(S) AND CERTIFICATE(S) OF ACCEPTANCE AS REQUIRED TO THE SATISFACTION OF THE ENFORCEMENT AGENCY.

TITLE 24 PROCEDURES FOR TESTING AND ADJUSTING

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ASSOCIATED WITH FINAL INSPECTION AND APPLICABLE ACCEPTANCE REQUIREMENT PROCEDURES. INCLUDE ALL COSTS IN THE BASE BID. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CONSTRUCTION INSPECTION, MEASUREMENTS, MONITORING, FUNCTIONAL TESTING, CALIBRATING, ETC. CONTRACTOR SHALL ASSUME THE ROLE OF "FIELD TECHNICIAN" AND "RESPONSIBLE PERSON" AS DEFINED IN STATE OF CALIFORNIA 2019 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL SECTIONS 13.1.2.2 AND 13.1.2.3.

LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES – REFER TO **NRCA-LTI-02-A** DOCUMENTS.

AUTOMATIC DAYLIGHT CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES – REFER TO **NRCA-LTI-03-A** DOCUMENTS.

DEMAND RESPONSE LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES – REFER TO **NRCA-LTI-04-A** DOCUMENTS.

INSTITUTIONAL TUNING PAF ACCEPTANCE TESTING AND ADJUSTING PROCEDURES – REFER TO **NRCA-LTI-05-A** DOCUMENTS.

OUTDOOR LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES – REFER TO **NRCA-LTO-02-A** DOCUMENTS.

ALL LIGHTING CONTROLS TESTING AND ADJUSTING DOCUMENTS NOTED ABOVE ARE AVAILABLE FROM THE CALIFORNIA ENERGY COMMISSION WEB SITE AT: https://ww2.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

PERMIT SET: ISSUED FOR CONSTRUCTION

P:\2019\2019-0727 Hotel Del Fitness and Spa Ctr\Drawings and Models\CAD\Electrical\Members Locker and Lounge\E6-03.dwg, 9/17/2021 10:14:42 AM, DWG To PDF.pc3

HOTEL DEL CORONADO.

Fitness
Members Area Renovation

1500 Orange Avenue
Coronado, CA 92118

González Architects
Hospitality

Mechanical/Electrical/Plumbing Engineer
tk1sc Collaborative
4755 Eastgate Mall, Suite 150
San Diego, CA 92121
858.362.6800

tk1sc COLLABORATIVE
15231 Laguna Canyon Road, Suite 100
Irvine, California 92618
949.751.5800 www.tk1sc.com

Project Leader - Kenneth McClendon
Electrical Lead - Christina Souza
tk1sc Job #: 2019-0727

REGISTERED PROFESSIONAL ENGINEER RAYMOND W. SWARTZ No. E15610 Ex. 12/31/2021 ELECTRICAL

Registration Seal C-32509

Address
14 NE 1st Avenue, Suite 507
Miami, FL 33132
T +1 (305) 455 4216

Issued/Revised

No	Date	Description
	09-17-21	Permit Set

Drawing Title
TITLE 24 - INTERIOR

Scale	As Noted
Date	09-17-2021
Drawn By	CS
Project No.	19022
Drawing No.	CS

E6.03