ELEC	TRICAL LEGEND
 "LP1"	POWER PANELBOARD "LP1" MOUNT TO EQUIPMENT CONTAINED IN PANELBOAF
J	JUNCTION BOX, SIZE AND USE AS REQU IN WALL WITH CONCEALED WIRING.
$\odot$	RECESSED FOUR GANG FLOOR BOX. TV DUPLEX RECEPTACLES IN POWER GANG
<b>Ф</b> 30A	SPECIAL AMPACITY OUTLET, 30A INDICA
φ	SIMPLEX RECEPTACLE - 125V, 20A MOUI FINISHED FLOOR UNLESS OTHERWISE N
ф	DUPLEX RECEPTACLE - 125V, 20A MOUN FINISHED FLOOR UNLESS OTHERWISE
	DUPLEX RECEPTACLE - 125V, 20A MOUN ABOVE FINISHED FLOOR UNLESS OTHEL CIRCUIT BREAKER, "GFI" INDICATES GRO COVER SHALL BE "CLOSED WHILE IN US COMMERCIAL SPECIFICATION GRADE R
<b>\</b>	QUADRUPLEX CONVENIENCE OUTLET - NOTED. PROVIDE COMMERCIAL SPECIF
WH	MISCELLANEOUS MECHANICAL EQUIPM
$\underset{X}{\overset{\leftrightarrow}{\bigotimes}}$	EXIT SIGN, "X" INDICATES FIXTURE TYPE "S" INDICATES SINGLE FACE, "D" INDICA PLANS. UNIT EQUIPPED WITH BATTERY
484	EMERGENCY/EXIT LIGHT COMBO UNIT, E CIRCUITS SHOWN.
$\mathbf{H}$	EMERGENCY LIGHTING UNIT, BATTERY SHOWN. LED DOWNLIGHT. "A" IS THE FIXTURE T
AO <sub>L1A-3</sub>	SWITCH CONTROLS THE FIXTURE; AND
AEO <sup>L1A-3</sup>	LED DOWNLIGHT WITH BUILT IN EMERG AVAILABLE. PROVIDE UNSWITCHED "HO ORDER TO ALLOW NORMAL SWITCHING THAT HAS SHADING INDICATES THAT FIL
A L1A-3	LED LIGHTING FIXTURE. "A" IS THE FIXT THAT THE FIXTURE IS FED FROM.
AE NL L1A-3	LED LIGHTING FIXTURE WITH BUILT IN E AVAILABLE. PROVIDE UNSWITCHED "HO ORDER TO ALLOW NORMAL SWITCHING THAT HAS SHADING INDICATES THAT FIX FIXTURE, CONNECT FIXTURE TO UNSWI
► LP1-1,3,5	HOMERUN - LP1 INDICATES PANELBOAF FOR ADDITIONAL INFORMATION. MARKS INDICATE NO. OF #12 CONDUCTO
<del></del>	INDICATE 2 #12, #12 GROUND. WHEN TW MUST BE CONNECTED TO DIFFERENT P
И	CATV OUTLET MOUNT 18" ABOVE FINISH FROM OUTLET BOX ABOVE CEILING AND CONDUIT. PROVIDE 4" SQUARE BOX WIT
M	TELEPHONE/DATA OUTLET MOUNT 18" A CONDUIT FROM OUTLET BOX TO ABOVE PULL CORD IN EACH CONDUIT. PROVIDE
\$₃ \$⊡ \$∨	LOCAL 120V WALL SWITCH, SINGLE POL DIMMER SWITCH, "V" INDICATES VACAN
\$l3 \$ld \$lv	LOCAL LOW VOLTAGE "L" WALL SWITCH DIMMER SWITCH, "V" INDICATES VACAN SENSORS INDICATED BELOW. SPECIFIC
(VS) PP	DUAL TECHNOLOGY CEILING SENSOR F ON" AND "AUTO-OFF". "VS" INDICATES V DELAY UP TO 15 MINUTES. POWER PACK RELAY MODULE WITH 0-1
30	FUSED DISCONNECT SWITCH. "60" INDIC
-⊠ 30 -⊡ 30A	RATED, PROVIDE NEMA 3R ENCLOSURE NON-FUSED DISCONNECT SWITCH. "30/ ENCLOSURE OUTDOORS.
NEMA 1	COMBINATION MOTOR STARTER/DISCO "NEMA 1" INDICATES NEMA STARTER SI
1 HP	A.C. MOTOR "1 HP" INDICATES MOTOR H
TBB	TELEPHONE BACKBOARD 4' X 4' X 3/4" T ABOVE FINISHED FLOOR. INSTALL #6 SC 20A, DUPLEX RECEPTACLE ON DEDICAT
D	DUCT SMOKE DETECTOR. 1-SUPPLY AIR CONTRACTOR. ELECTRICAL CONTRACT UNIT IN THE EVENT EITHER THE SUPPLY REMOTE TEST STATION IN AN ACCESSI
F	FIRE ALARM PULL STATION MOUNT 48"
∑75cd ↓ ∑75cd	WALL MOUNTED FIRE ALARM COMBINATION INDICATES 75 CANDELAS
L O	INDICATES 75 CANDELAS
(S) (H)	CEILING MOUNTED FIRE ALARM SMOKE
$\overline{\mathbb{V}}$	CEILING MOUNTED FIRE ALARM VISUAL
TS	FIRE ALARM TAMPER SWITCH.
FS	FIRE ALARM FLOW SWITCH.
FACP	FIRE ALARM CONTROL PANEL, MOUNT CONTROL PANEL.
RAP	REMOTE ANNUNCIATOR PANEL - FIRE A

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OP 6'-0" ABOVE FINISHED FLOOR. SEE PANELBOARD SCHEDULE FOR ARD AND PANELBOARD RATINGS.

UIRED; COVERPLATE SHALL OVERLAP THE BOX EDGE BY 1/2" WHERE RECESSED

TWO GANGS FOR POWER AND TWO GANGS FOR DATA. PROVIDE TWO

NGS, FLANGE, AND BRASS COVER PLATE.

CATES AMPACITY RATING.

UNT 3" ABOVE BACKSPLASH AT WORK COUNTERS OR LAVATORIES AND +18" ABOVE E NOTED. COMMERCIAL SPECIFICATION GRADE RECEPTACLES. JNT 3" ABOVE BACKSPLASH AT WORK COUNTERS OR LAVATORIES AND +18" ABOVE

E NOTED. COMMERCIAL SPECIFICATION GRADE RECEPTACLES. JNT 3" ABOVE BACKSPLASH AT WORK COUNTERS AND LAVATORIES AND +18"

ERWISE NOTED. "AF" INDICATES CIRCUIT POWER FROM AN ARC FAULT TYPE ROUND FAULT CIRCUIT INTERRUPTER TYPE, "WPC" INDICATES WEATHERPROOF JSE". "IG" INDICATES ISOLATED GROUND RECEPTACLE, ORANGE IN COLOR. PROVIDE RECEPTACLES.

- 125V, 20A MOUNT +18" ABOVE FINISHED FLOOR UNLESS OTHERWISE IFICATION GRADE RECEPTACLES.

MENT, WH=WATER HEATER, UH=UNIT HEATER

E, "C" INDICATES CEILING MOUNTED, "W" INDICATED WALL MOUNTED, ATES DOUBLE FACE. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON BACK-UP.

, BATTERY BACK-UP POWERED. WIRE UNIT TO UNSWITCHED HOT ON

Y BACK-UP POWERED. WIRE UNIT TO UNSWITCHED HOT ON CIRCUITS

TYPE IN THE FIXTURE SCHEDULE "a" INDICATES WHICH ) "3" INDICATES WHICH PANELBOARD CIRCUIT THE FIXTURE IS FED FROM. GENCY BATTERY PACK TO PROVIDE LIGHTING WHEN NORMAL POWER IS NOT 10T" CONDUCTOR (FROM SAME CIRCUIT FIXTURE IS USING) TO BATTERY PACK, IN IG OF LIGHT FIXTURE WITHOUT DISCHARGING BATTERY PACK. ANY FIXTURE SYMBOL FIXTURE HAS AN EMERGENCY BATTERY BACK-UP.

TURE TYPE IN THE FIXTURE SCHEDULE. "L1A-3" INDICATES PANELBOARD CIRCUIT

EMERGENCY BATTERY PACK TO PROVIDE LIGHTING WHEN NORMAL POWER IS NOT OT" CONDUCTOR (FROM SAME CIRCUIT FIXTURE IS USING) TO BATTERY PACK, IN IG OF LIGHT FIXTURE WITHOUT DISCHARGING BATTERY PACK. ANY FIXTURE SYMBOL FIXTURE HAS AN EMERGENCY BATTERY BACK-UP. "NL" INDICATES A NIGHT LIGHT VITCHED HOT SO THAT FIXTURES STAYS ON AT ALL TIMES. JM, UNLESS NOTED OTHERWISE.

ARD 1,3,5 INDICATE CIRCUIT NUMBERS. SEE PANELBOARD DESIGNATION SCHEDULE

TORS IN 3/4" CONDUIT + =PHASE + =NEUTRAL + =GROUND NO MARKS WO OR MORE CIRCUITS SHARE A COMMON NEUTRAL THE HOT CONDUCTORS PHASES IN THE PANELBOARD.

SHED FLOOR UNLESS NOTED OTHERWISE. EXTEND 1" EMPTY CONDUIT ND TERMINATE WITH BUSHING. PROVIDE NYLON PULL CORD IN EACH /ITH SINGLE GANG DEVICE RING.

" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. EXTEND 1" EMPTY E CEILING OR TO ROOF STEEL AND TERMINATE WITH BUSHING. PROVIDE NYLON DE 4" SQUARE BOX WITH SINGLE GANG DEVICE RING.

DLE, MOUNT +48" ABOVE FINISHED FLOOR. "3" INDICATES 3-WAY, "D" INDICATES NCY SENSOR. SPECIFICATION GRADE.

CH, MOUNT +48" ABOVE FINISHED FLOOR. "3" INDICATES 3-WAY, "D" INDICATES NCY SENSOR. WALL SWITCHES MAY WORK IN CONJUNCTION WITH CEILING ICATION GRADE.

FOR LIGHTING CONTROL. "OS" INDICATES OCCUPANCY SENSOR WITH "AUTO-VACANCY SENSOR WITH "MANUAL-ON" AND "AUTO-OFF" WITH ADJUSTABLE

-10V DIMMING FOR LIGHTING CONTROL.

DICATES SWITCH SIZE, "30" INDICATES FUSE SIZE, HEAVY DUTY "HP" RES OUTDOORS. FUSE PER NAMEPLATE OF EQUIPMENT. 0A" INDICATES SWITCH SIZE. HEAVY DUTY "HP" RATED, PROVIDE NEMA 3R

CONNECT WITH THERMAL OVERLOAD PROTECTION. MOUNT AT +48" A.F.F.

R HORSEPOWER.

THICK FIRE RESISTIVE PLYWOOD. MOUNT TOP OF THE PLYWOOD 6'-0" SOLID COPPER GROUND TO NEAREST BUILDING STEEL. PROVIDE 1-120V, ATED CIRCUIT. PAINT WITH 2 COATS OF FIRE RESISTIVE PAINT.

AIR DUCT, 1-RETURN AIR DUCT, SUPPLIED AND INSTALLED BY FIRE ALARM CTOR TO WIRE THE DUCT SMOKE DETECTORS TO SHUT DOWN THE HVAC LY OR THE RETURN DUCT SMOKE DETECTOR GOES INTO ALARM. PROVIDE SIBLE LOCATION, MOUNTED BELOW UNIT AT 48" A.F.F.

' AFF. ATION AUDIO/VISUAL SPEAKER STROBE DEVICE. MOUNT 80" A.F.F. 75cd

BINATION AUDIO/VISUAL SPEAKER STROBE DEVICE. MOUNT 80" A.F.F. 75cd

E DETECTOR. DETECTOR.

L ONLY STROBE DEVICE. MOUNT 80" A.F.F.

T TOP 6'-0" A.F.F. PROVIDE TWO DEDICATED PHONE LINES FOR FIRE ALARM

ALARM, MOUNT TOP 6'-0" A.F.F., IF APPLICABLE,

## **GENERAL ELECTRICAL NOTES**

- ELECTRICAL DRAWINGS ARE PARTIALLY DIAGRAMMATIC. IN THE EVENT THAT THERE IS A DISCREPANCY OR THERE ARE ITEMS THAT ARE UNCLEAR, IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT THE ENGINEER FOR CLARIFICATION. REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL AND HVAC DRAWINGS FOR GUIDANCE ON DIMENSIONS, CEILING HEIGHTS, DOOR SWINGS, ROOM FINISHES, STRUCTURAL AND ARCHITECTURAL DETAILS, LOCATIONS OF DUCTS, PIPES AND STRUCTURAL STEEL. INSTALL THE ELECTRICAL SYSTEMS WITHOUT INTERFERING WITH DUCTS, PIPES, STRUCTURAL STEEL OR OTHER SYSTEMS. LOCATE LIGHTING SYMMETRICALLY IN PROPER RELATION TO FINISHED AREAS EXCEPT WHERE DIMENSIONED ON THE DRAWINGS OR LOCATED ON REFLECTED CEILING PLANS.
- SCOPE: FURNISH ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO INSTALL ALL ELECTRICAL WORK INDICATED ON DRAWINGS, AS SPECIFIED HEREIN, AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND ALL STATE, AND CITY CODES.
- PROVIDE ADDITIONAL SUPPORTS FOR SWITCHES, PANELBOARDS, RACEWAYS TRANSFORMERS, CABLE TRAYS AND OTHER ELECTRICAL EQUIPMENT WHERE THE BUILDING STRUCTURE IS NOT SUITABLE FOR DIRECT MOUNTING. ALL OTHER SUPPORTS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- 4. A NUMERAL BESIDE A BRANCH CIRCUIT OUTLET ON WIRING PLANS INDICATES PANELBOARD BRANCH CIRCUIT CONNECTION. A LOWER CASE LETTER BESIDE AN OUTLET INDICATES THE SWITCH LEG CONNECTION WHERE OUTLETS ARE LOCALLY SWITCHED.
- 5. SYMBOLS IN THE LEGENDS ARE APPLICABLE GENERALLY. FOR EXACT REQUIREMENTS REFER TO THE SCHEDULES, LAYOUTS, DETAILS AND SPECIFICATIONS SINCE THE APPEARANCE OF A PARTICULAR SYMBOL IN THE LEGEND DOES NOT NECESSARILY IMPLY THAT THE ITEM IS INCLUDED IN THE CONTRACT.
- MOUNT GROUPED DEVICES IN A SINGLE CONTINUOUS GANG BOX. USE PARTITIONS WHERE VOLTAGE BETWEEN EXPOSED LIVE PARTS OF ADJACENT SWITCHES MAY EXCEED 300 VOLTS.
- FEEDERS: CONDUCTORS SHALL BE COPPER FOR FEEDERS SMALLER THAN #4 AWG, COPPER OR ALUMINUM FOR FEEDERS #3 AWG AND LARGER. CONDUCTORS SHALL BE SOLID FOR #10 AWG AND SMALLER AND STRANDED FOR #8 AWG AND LARGER. BRANCH CIRCUIT: CONDUCTORS ARE COPPER THHN/THWN 600 VOLT INSULATION. CONDUCTORS SHALL BE SOLID FOR WIRE SIZES #10 AWG AND SMALLER AND STRANDED FOR WIRE NO. 8 AWG AND LARGER. MINIMUM WIRE SIZE IS #12 AWG. CONDUIT ABOVE GRADE IS RIDGID GALVANIZED STEEL (RGS) WITH RGS ELBOWS TRANSITIONING TO SCHEDULE 40 PVC CONDUIT WHERE BELOW GRADE. CONDUIT BELOW GRADE SHALL HAVE MINIMUM COVER OF 18" WHERE NOT UNDER ROADWAY AND 24" WHEN UNDER ROADWAY.
- MAINTENANCE MANUALS AND INSTRUCTIONS: FURNISH THREE (3) SETS OF OPERATING INSTRUCTIONS
- FOR ANY ELECTRICAL EQUIPMENT INSTALLED. 9. ALL ELECTRICAL EQUIPMENT AND INSTALLATION WORK SHALL HAVE A ONE YEAR (1) WARRANTY. FURNISH WARRANTY SO THE DEFECTIVE MATERIALS AND/OR WORKMANSHIP SHALL BE REPAIRED/REPLACED IMMEDIATELY UPON NOTIFICATION AT NO COST TO THE OWNER FOR THE PERIOD OF THE WARRANTY.
- 10. PERMITS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, FEES INSPECTIONS, AND POWER COMPANY AID TO COMPLETE WORK SHOWN. INCLUDE ALL POWER COMPANY COSTS IN BID.
- 11. CONDUCTOR COLOR CODING: PROVIDE COLOR CODING FOR ALL BRANCH CIRCUIT CONDUCTORS THROUGHOUT THE PROJECT AS FOLLOWS: 120/240 VOLT PHASE

HASE	120/240 VC BLACK
	RED
	BLUE
EUTRAL	WHITE
ROUND	GREEN

- 12. CUTTING AND PATCHING: PROVIDE ALL CUTTING REQUIRED TO DO THE WORK. DO NOT CUT ANY STRUCTURAL ELEMENT WITHOUT APPROVAL. PATCHING SHALL BE OF QUALITY EQUAL TO AND MATCHING APPEARANCE OF EXISTING CONSTRUCTION. DO NOT CUT ANY STRUCTURAL ELEMENT WITHOUT APPROVAL.
- 13. GROUNDING: AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 250. INCLUDING SEPERATE EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS.
- 14. WIRING DEVICES: SEPERATELY MOUNTED RECEPTACLES SHALL BE HUBBELL OR LEVITON 20A, 125VAC COMMERCIAL GRADE IN NEMA 3R ENCLOSURE WITH WEATHER PROOF WHILE-IN-USE COVER.
- 15. SAFETY SWITCHES: USE HEAVY DUTY TYPE FUSIBLE OR NON-FUSIBLE AS REQUIRED. NEMA TYPE 1 INDOORS AND NEMA TYPE 3R FOR OUTDOORS. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL WHERE SHOWN OR REQUIRED BY CODE.
- 16. FUSES: USE DUAL ELEMENT, CURRENT LIMITING, TIME DELAY TYPE OR AS SPECIFIED BY EQUIPMENT SUPPLIER. 17. PANELBOARDS: USE PANELBOARDS WITH BOLT ON TYPE BREAKERS ONLY. PANELBOARDS SHALL HAVE SEPARATE NEUTRAL AND GROUND BUSSES. PANELBOARDS SHALL BE IN NEMA 3R ENCLOSURES. PROVIDE
- TYPED DIRECTORY CARDS FOR EACH PANELBOARD INSTALLED. 18. COORDINATION: COORDINATE ALL ELECTRICAL WORK WITH OTHER TRADES AND LOCAL UTILITY COMPANY. COORDINATE METERING REQUIREMENTS WITH LOCAL ELECTRICAL UTILITY COMPANY.
- 19. EQUIPMENT: USE NEMA 3R DEVICES OUTDOORS. VERIFY LOADS AND LOCATIONS OF EQUIPMENT BEFORE CONNECTION. SIZE BREAKERS, DISCONNECTS, AND FUSES ACCORDING TO THE EQUIPMENT NAMEPLATE. SIZE WIRE ACCORDING TO THE NEC. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE EQUIPMENT SUPPLIED AND SHALL BE RESPONSIBLE FOR MODIFYING THE CONNECTIONS WIRE, DISCONNECTS, BREAKERS, ETC. SHOWN ON THE DRAWINGS IN ORDER TO MAKE A COMPLETE INSTALLATION AND TO SATISFY THE MANUFACTURER'S REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL SUPPLY ALL LABOR AND MATERIALS TO COMPLETE THE INSTALLATION.
- 20. RECORD DRAWINGS: MAINTAIN A RECORD SET OF ALL CHANGES DURING CONSTRUCTION. RECORD CHANGES ON A CLEAN SET OF CONTRACT CONSTRUCTION DOCUMENTS WHICH SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT.
- 21. IDENTIFICATION: IDENTIFY ALL MAJOR PIECES OF ELECTRICAL EQUIPMENT INSTALLED ON THE PROJECT. EXAMPLES INCLUDE PANELBOARDS, MOTOR STARTERS, DISCONNECTS, AND CONTROL PANELS. IDENTIFY WITH PERMANENT PLASTIC NAMEPLATES.
- 22. SUBMITTALS: UNLESS INSTRUCTED OTHERWISE THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ELECTRONICALLY SUBMITTING SHOP DRAWINGS ON MAJOR PIECES OF ELECTRICAL EQUIPMENT. SUCH EQUIPMENT INCLUDES C.T. CABINET, METER BASE, PANELBOARDS, AND RV POWER PEDESTALS. APPROVAL FROM THE ENGINEER OF EQUIPMENT MUST BE OBTAINED BEFORE PURCHASE AND INSTALLATION OF ELECTRICAL EQUIPMENT.

## ELECTRICAL ABBREVIATIONS

А	AMPERES	FWE
AC	ALTERNATING CURRENT	G
AF	ARC FAULT	GFI
A.F.F.	ABOVE FINISHED FLOOR	HP
AWG	AMERICAN WIRE GAUGE	JB
СКТ	CIRCUIT	KCM
DC	DIRECT CURRENT	KV
DISC	DISCONNECT	KVA
DWG.	DRAWING	KW
ELEC.	ELECTRICAL/ELECTRIC	LTG
EWC	ELECTRIC WATER COOLER	Ν

FURNISHED WITH EQUIPMENT
GROUNDING CONDUCTOR
GROUND FAULT INTERRUPTER
HORSEPOWER
JUNCTION BOX
THOUSANDS OF CIRCULAR MILS
KILOVOLTS
KILOVOLT-AMPERES
KILOWATTS
LIGHTING
NEUTRAL CONDUCTOR

NORMALLY CLOSED N.C. N.I.C. NOT IN CONTRACT NORMALLY OPEN NATIONAL ELECTRIC CODE NEC NATIONAL ELECTRICAL NEMA MANUFACTURERS ASSOCIATION PHASE TYP. TYPICAL VOLT WATT WEATHERPROOF WPC "CLOSED WHILE IN USE" TYPE WEATHERPROOF COVER

N.O.

PH

W

WP



