

**ELECTRICAL ABBREVIATIONS**

A	..... AMPERE	MCB	..... MAIN CIRCUIT BREAKER
AC	..... ALTERNATING CURRENT	MH	..... MOUNTING HEIGHT
AF	..... ABOVE FINISHED FLOOR	MLO	..... MAIN LUGS ONLY
ATS	..... AMPERE INTERRUPTING CAPACITY	MT	..... MOUNT
AWG	..... AUTOMATIC TRANSFER SWITCH	MTG	..... MOUNTING
BKR	..... BREAKER	NC	..... NORMALLY CLOSED
CB	..... CIRCUIT BREAKER	NEC	..... NATIONAL ELECTRICAL CODE
CCTV	..... CLOSED CIRCUIT TELEVISION	NFPA	..... NATIONAL FIRE PROTECTION ASSOCIATION
CKT	..... CIRCUIT	NIC	..... NOT IN CONTRACT
CLG	..... CEILING	NL	..... NIGHT LIGHT
CU	..... COPPER	NO	..... NORMALLY OPEN
CT	..... CURRENT TRANSFORMER	NTS	..... NOT TO SCALE
DN	..... DOWN	P	..... POLE
EX	..... EXISTING	PANL	..... PANELBOARD
E	..... EMERGENCY	PVC	..... POLY-VINYL CHLORIDE
FA	..... FIRE ALARM	RC	..... REMOTE CONTROL
FACP	..... FIRE ALARM CONTROL PANEL	RECP	..... RECEPTACLE
F	..... FLOOR	REF	..... REFERENCE
FL	..... FUSE OR FUSED	RMS	..... ROOT MEAN SQUARE
FNVR	..... FULL VOLTAGE NON REVERSING	SW	..... SWITCH
GEN	..... GENERATOR	SYM	..... SYMMETRICAL
GFCI/GFI	..... GROUND FAULT CIRCUIT INTERRUPTER	TB	..... TERMINAL BOX
GRC	..... GALVANIZED RIGID STEEL CONDUIT	TEL	..... TELEPHONE
G OR GND	..... GROUND	TYP	..... TYPICAL
HT	..... HEIGHT	UG	..... UNDERGROUND
HIO	..... HIGH INTENSITY DISCHARGE	UL	..... UNDERWRITERS LABORATORIES
HP	..... HORSE POWER	UNL	..... UNLESS NOTED OTHERWISE
HZ	..... HERTZ	V	..... VOLTS
JB	..... JUNCTION BOX	VA	..... VOLT-AMPERE
K	..... KILO, THOUSAND	W	..... WATTS
KCMIL	..... THOUSAND CIRCULAR MILS	WP	..... WEATHERPROOF
LED	..... LIGHT EMITTING DIODE	XP	..... EXPLOSION PROOF
M	..... MOTOR	Y	..... WYE

**ELECTRICAL GENERAL NOTES**

- ALL EMERGENCY CIRCUITS SERVING NIGHT/EMERGENCY LIGHTING SHALL BE MINIMUM #10 AWG CONDUCTORS FOR THE ENTIRE CIRCUIT FOR 120 VOLT CIRCUITS OVER 100 FEET.
- WHEN CONDUCTOR OR CONDUIT SIZE IS INDICATED FOR BRANCH CIRCUIT HOMERUN, THE CONDUCTOR AND CONDUIT SIZE INDICATED SHALL BE USED FOR THE COMPLETE CIRCUIT.
- REFER TO THE APPROPRIATE DRAWINGS FOR THE EXACT LOCATION OF EQUIPMENT INSTALLED UNDER OTHER DIVISIONS OF THE DOCUMENTS WHICH REQUIRE ELECTRICAL SERVICE.
- CAPITAL LETTER BESIDE LIGHTING SYMBOL INDICATES FIXTURE TYPE. REFER TO LIGHTING FIXTURE SCHEDULE FOR FIXTURE SELECTION.
- EQUIPMENT GROUNDING CONDUCTORS ARE TO BE INCLUDED IN ALL RACEWAYS (WHERE APPLICABLE).
- FIRE ALARM SYSTEM SHALL CONFORM TO NFPA 72 AND LOCAL REQUIREMENTS.
- REFER TO SPRINKLER FIRE PROTECTION SHOP DRAWINGS FOR ALL FLOW AND TAMPER SWITCH LOCATIONS AND CONNECTIONS FOR THE FIRE ALARM SYSTEM.
- PROVIDE ELECTRICAL DEVICES IN ALL APARTMENT UNITS AS SHOWN ON ELECTRICAL FLOOR PLANS. CIRCUIT THESE DEVICES PER THE PANEL SCHEDULE AND THE N.E.C.
- FEEDERS RUN BETWEEN BUILDINGS/STRUCTURES SHALL COMPLY WITH N.E.C. ARTICLE 225.
- COORDINATE LOCATION OF TELEPHONE JUNCTION BOXES AND CATY SPLITTER BOXES WITH THE RESPECTIVE UTILITIES PRIOR TO BID/ROUGH-IN.
- BOND BUILDING ELECTRODE SYSTEM TOGETHER FOR MULTIPLE SERVICES AS PER N.E.C. ARTICLE 250-58.
- IN UNITS WITH MULTIPLE STATION SMOKE DETECTORS, PROVIDE AUXILIARY CONTACTS IN ALL SMOKE DETECTORS, INCLUDING THE GARAGE SMOKE DETECTOR REQUIRED FOR SYNCHRONOUS OPERATION WHEN ANY DETECTOR IS ACTIVATED. SMOKE DETECTORS TO BE (120V) WITH BATTERY BACK-UP. HARDWIRE SMOKE DETECTORS TO NEAREST UNSWITCHED RECEPTACLE CIRCUIT.
- CONTRACTOR SHALL NOT INSTALL ELECTRICAL OUTLET BOXES BACK-TO-BACK (IN SAME STUD SPACE) IN ONE HOUR RATED WALLS. MAINTAIN A MINIMUM OF 24" BETWEEN DEVICES.
- METERING SHALL COMPLY WITH LOCAL UTILITY REQUIREMENTS.
- BRANCH CIRCUITS FOR LIVING UNITS, BUILDING LIGHTS, ETC. SHALL BE COPPER. ALL FEEDERS SHALL BE ALUMINUM.
- PANELBOARD & LOAD CENTER BUSSING SHALL BE ALUMINUM.
- ALL WIRE TERMINATIONS AND EQUIPMENT IS RATED FOR 75°C MINIMUM.
- ALL BRANCH CIRCUITS ARE #12 AWG UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL PROVIDE LIGHTING IN ATTIC SPACE AS REQUIRED IN NEC ARTICLE 210-70(c)(3).
- CONTRACTOR SHALL FURNISH AND INSTALL RECEPTACLES FOR SERVICING MECHANICAL EQUIPMENT AS REQUIRED IN NEC ARTICLE 210-63.
- CONTRACTOR SHALL FURNISH AND INSTALL A JUNCTION BOX NEAR WATER HEATER AND ROUTE A CAT-5 CABLE FROM THIS LOCATION TO THE TELEPHONE BACKBOARD. CABLE IS FOR REMOTE MONITORING OF THE WATER METER.
- FURNISH AND INSTALL AN AUDIBLE/VISUAL FIRE ALARM DEVICE IN EACH HANDICAP LIVING UNIT.
- SMOKE DETECTORS IN ADAPTABLE UNITS SHALL HAVE BOTH AUDIO AND VISUAL ALARM SIGNALS.
- ADAPTABLE UNITS SHALL HAVE VISUAL FIRE ALARM DEVICES IN ALL BEDROOMS. THESE DEVICES SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM.
- ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO ALL DETECTION DEVICES FOR HVAC EQUIPMENT INCLUDING SMOKE DETECTORS, FIRE STATS, MOTORIZED DAMPERS, ETC. AS REQUIRED. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- WHERE CIRCUIT BREAKERS OR FUSES ARE SERIES CONNECTED RATED, THE ENCLOSURE FOR THE OVERCURRENT DEVICES SHALL BE CLEARLY AND LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATING. THE MARKING SHALL BE READILY VISIBLE AND STATE THE FOLLOWING: CAUTION - SERIES COMBINATION SYSTEM RATED \_\_\_\_\_ AMPERES. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED.

**ELECTRICAL SYMBOL LEGEND**

SYMBOL	DESCRIPTION	HEIGHT
D	DIMMER SWITCH (NOTE L-3)	48"
D <sub>3</sub>	THREE WAY DIMMER SWITCH (NOTE L-3)	48"
\$	SINGLE POLE SINGLE THROW TOGGLE SWITCH (NOTE L-3)	48"
\$ <sub>3</sub>	THREE WAY TOGGLE SWITCH (NOTE L-3)	48"
\$ <sub>M</sub>	MOTOR RATED SWITCH	
\$ <sub>K</sub>	KEYED SWITCH	
Ⓢ	WEATHERPROOF DUPLEX RECEPTACLE OUTLET (NOTE L-3)	18"
Ⓢ/Ⓢ <sup>AC</sup>	DOUBLE DUPLEX RECEPTACLE OUTLET WALL/ABOVE COUNTER MOUNTED (NOTE L-3)	18"/43"
Ⓢ <sup>GFCL</sup> /Ⓢ <sup>GFCL</sup>	G.F.C.I. DUPLEX RECEPTACLE OUTLET WALL/ABOVE COUNTER MOUNTED (NOTE L-3)	18"/43"
Ⓢ	ISOLATED GROUND DUPLEX RECEPTACLE OUTLET (NOTE L-3)	18"
Ⓢ	SPECIAL PURPOSE RECEPTACLE OUTLET, NEMA CONFIGURATION TO MATCH PLUG. (NOTE L-3)	18"
Ⓢ	SPLIT WIRED DUPLEX RECEPTACLE. ONE RECEPTACLE SHALL BE SWITCHED AS (NOTE L-3) SHOWN ON PLANS.	18"
Ⓢ/Ⓢ	DUPLEX RECEPTACLE OUTLET, WALL MOUNTED/ABOVE COUNTER (NOTE L-3)	18"/43"
X-1,3,5	ARROWHEAD INDICATES HOMERUN. X-1,3,5 ADJACENT TO HOMERUN	
3,5	ARROWHEADS INDICATES HOMERUN TO PANEL X CIRCUIT NUMBERS 1,3, AND 5.	
3,5	INDICATES CIRCUIT CONTINUATION OF CIRCUITS 3 AND 5 OF PANEL X.	
12	MARKS ACROSS RACEWAY SYMBOLS INDICATE THE NUMBER OF #12 CONDUCTORS, UNLESS OTHERWISE NOTED. NO MARKS INDICATES TWO #12 CONDUCTORS. EQUIPMENT GROUNDING CONDUCTORS ARE NOT INDICATED BY MARKS	
---	RACEWAY INSTALLED CONCEALED IN WALL AND/OR ABOVE CEILING	
---	RACEWAY INSTALLED CONCEALED UNDERSLAB	
---	RACEWAY INSTALLED EXPOSED	
---	GROUND	
---	FLEXIBLE RACEWAY (6'-0" MAX LENGTH)	
Ⓢ/Ⓢ/Ⓢ	JUNCTION BOX, CEILING/WALL/FLOOR MOUNTED	
Ⓢ/Ⓢ	OUTLET AND FLUORESCENT LIGHTING FIXTURE - OVERHEAD MOUNTED	
Ⓢ/Ⓢ	OUTLET AND LIGHTING FIXTURE - OVERHEAD/WALL MOUNTED	
Ⓢ/Ⓢ	OUTLET AND FLUORESCENT STRIP FIXTURE	
Ⓢ	OUTLET AND DIRECTIONAL OR WALL WASH LIGHTING FIXTURE	
---	LIGHT TRACK AND LIGHT TRACK FIXTURES	
Ⓢ/Ⓢ	OUTLET AND EXIT SIGN, CEILING/WALL MOUNTED. PROVIDE ARROWS AS INDICATED ON DRAWINGS	
---	OUTLET AND EGRESS AND/OR EMERGENCY LIGHTING FIXTURE	
---	PANELBOARD - WALL MOUNTED (RECESSED)	
---	PANELBOARD - WALL MOUNTED (SURFACE)	
Ⓢ	MOTOR	
Ⓢ/3/3R	NONFUSIBLE DISCONNECT SWITCH, RATING/POLES/NEMA ENCLOSURE	
Ⓢ/3/3R/40	FUSIBLE DISCONNECT SWITCH, RATING/POLES/NEMA ENCLOSURE/FUSE RATING	
Ⓢ/2/3R	MAGNETIC MOTOR STARTER. NEMA SIZE RATING/ENCLOSURE	
Ⓢ/2/3R	COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT MEANS, NEMA SIZE RATING/ENCLOSURE	
Ⓢ	TELEVISION OUTLET (NOTE L-3)	18"
Ⓢ	FIRE ALARM MANUAL STATION (NOTE L-3)	48"
Ⓢ	COMBINATION FIRE ALARM HORN/SPEAKER (AS REQUIRED) WITH VISUAL DEVICE	L-1
Ⓢ	FIRE ALARM HORN/SPEAKER (AS REQUIRED)	
Ⓢ	FIRE ALARM VISUAL DEVICE	L-1
Ⓢ	SMOKE DETECTOR	
Ⓢ	THERMAL DETECTOR, CEILING MOUNTED	
Ⓢ	FIRE SUPPRESSION SYSTEM FLOW SWITCH	
Ⓢ	FIRE SUPPRESSION SYSTEM TAMPER SWITCH	
Ⓢ	DOOR HOLD OPEN DEVICE	
Ⓢ	DUCT MOUNTED SMOKE DETECTOR	
Ⓢ	FIRE ALARM CONTROL PANEL	
Ⓢ/Ⓢ	TELEPHONE OUTLET, WALL MOUNTED/ABOVE COUNTER (NOTE L-2, L-3)	18"/43"
Ⓢ/Ⓢ	COMBINATION TELEPHONE/DATA OUTLET, WALL MOUNTED/ABOVE COUNTER (NOTE L-2, L-3)	18"/43"
Ⓢ/Ⓢ	DATA OUTLET, WALL MOUNTED/ABOVE COUNTER (NOTE L-2, L-3)	18"/43"
Ⓢ	CARD READER	

**LEGEND NOTES**

- L-1 FIRE ALARM VISUAL DEVICE SHALL BE WALL MOUNTED 80" AFF. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
- L-2 STUB 3/4" CONDUIT 6" ABOVE CEILING AND TERMINATE WITH NYLON GROMMET.
- L-3 MOUNTING HEIGHTS NOTED ARE TO THE CENTER OF DEVICE ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE.

**ELECTRICAL DRAWING INDEX**

DRAWING #	SHEET TITLE
E0.0	ELECTRICAL SYMBOLS LEGEND/GENERAL NOTES, SCHED. & DETAILS
E0.1	ELECTRICAL - CALCULATIONS & SPECIFICATIONS
E0.2	ELECTRICAL - BUILDING RISER DIAGRAMS & SCHEDULES
E1.1	BUILDING 1 - 20, 1ST & 2ND FLOOR ELEC. PLANS
E2.1	UNIT "A1" - Two Bedroom, 2 1/2 Bath-1st & 2nd Floor plan - ELEC.
E2.2	UNIT "A2" - Two Bedroom, 2 1/2 Bath-1st & 2nd Floor plan - ELEC.
E2.3	UNIT "B1" - Three Bedroom, 2 1/2 Bath-1st & 2nd Floor plan - ELEC.
LE-0	AMENITY CENTER - ELECTRICAL SYMBOLS LEGEND/GENERAL NOTES, SCHED. & DETAILS
LE-1	AMENITY CENTER - 1st FLOOR PLAN - ELECTRICAL
LE-2	AMENITY CENTER - 2nd FLOOR PLAN - ELECTRICAL

**MECHANICAL EQUIPMENT CONNECTION SCHEDULE**

DESCRIPTION	CIRCUIT	CONDUCTORS	STARTER/DISCONNECT	NOTES
HP-A1				
Indoor Unit	A1-9,11	2#6,1#10G-3/4"C	60/2/1	
Outdoor Unit	A1-13,15	2#12,1#12G-1/2"C	30/2/3R	
HP-A1 (END)				
Indoor Unit	A1-9,11	2#6,1#10G-3/4"C	60/2/1	
Outdoor Unit	A1-13,15	2#12,1#12G-1/2"C	30/2/3R	
HP-A2				
Indoor Unit	A2-9,11	2#6,1#10G-3/4"C	60/2/1	
Outdoor Unit	A2-13,15	2#12,1#12G-1/2"C	30/2/3R	
HP-B1				
Indoor Unit	B1-9,11	2#6,1#10G-3/4"C	60/2/1	
Outdoor Unit	B1-13,15	2#12,1#12G-1/2"C	30/2/3R	

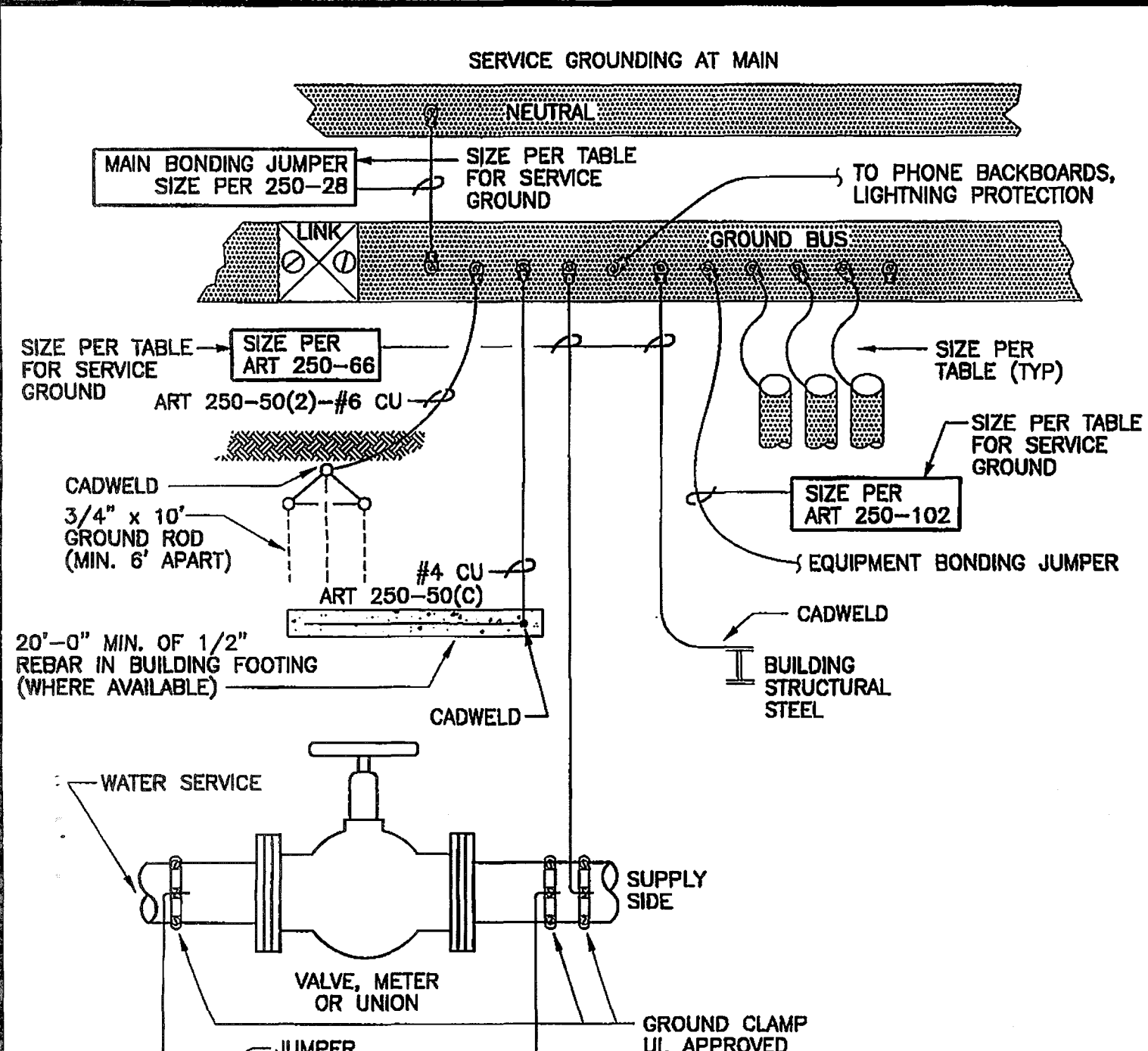
**LIGHTING FIXTURE SCHEDULE**

TYPE	DESCRIPTION
A	FOYER LIGHT: SURFACE MOUNTED DECORATIVE INCANDESCENT LIGHT WITH GLASS COVER, 100W.
B	DINNING LIGHT: 8'-0" LONG WHITE SURFACE-MOUNTED TRACK LIGHT WITH THREE WHITE METAL CYLINDER HEADS, 120W. FLOOD LIGHTS EACH.
C	KITCHEN LIGHT: 4'-0" LONG TWO-LAMP SURFACE-MOUNTED FLUORESCENT WITH ACRYLIC WRAP-AROUND LENS.
D	SINK/LAUNDRY LIGHT: SURFACE-MOUNTED DECORATIVE INCANDESCENT LIGHT WITH GLASS COVER, 75W.
E	TOILET EXHAUST: RECESSED TOILET EXHAUST FAN AT CEILING, DUCTED TO EXTERIOR AS REQUIRED.
EM	EMERGENCY BATTERY PACK (WALL MTD) WITH SELF CONTAINED BATTERY BACK-UP.
F	MASTER BEDROOM FAN/LIGHT (FUTURE): J-BOX AND WALL SWITCH FOR FUTURE CEILING FAN/LIGHT KIT.
G	VANITY LIGHT: SURFACE-MOUNTED METAL VANITY STRIP LIGHT CENTERED OVER MIRROR, 3 LAMP AT POWDER, 4 LAMP AT BATHS, 60W CLEAR GLOBE LAMPS EACH.
H	CLOSET LIGHT: UTILITY SURFACE-MOUNTED LIGHT WITH GLASS COVER AND METAL BASE, 75W.
J	FRONT PORCH CEILING LIGHT: SURFACE-MOUNTED COMPACT FLUORESCENT LIGHT WITH ACRYLIC COVER, MOUNTED ENTERED IN CEILING, WIRE TO TENANT PANEL, CONNECT TO PHOTOCELL.
K	FRONT COLUMN LIGHT: WALL-MOUNTED COMPACT FLUORESCENT LIGHT WITH ACRYLIC COVER, MOUNT AT 5'-6" A.F.F., WIRE TO TENANT PANEL, CONNECT TO PHOTOCELL.
L	REAR PATIO LIGHT: WALL-MOUNTED DECORATIVE INCANDESCENT BRACKET LIGHT, MOUNT AT 5'-6" A.F.F., SWITCHED BY TENANT.
N	RECESSED INCANDESCENT DOWNLIGHT WITH BLACK BAFFLE, 75W.

NOTE: FIXTURES WILL BE SELECTED BY OWNER

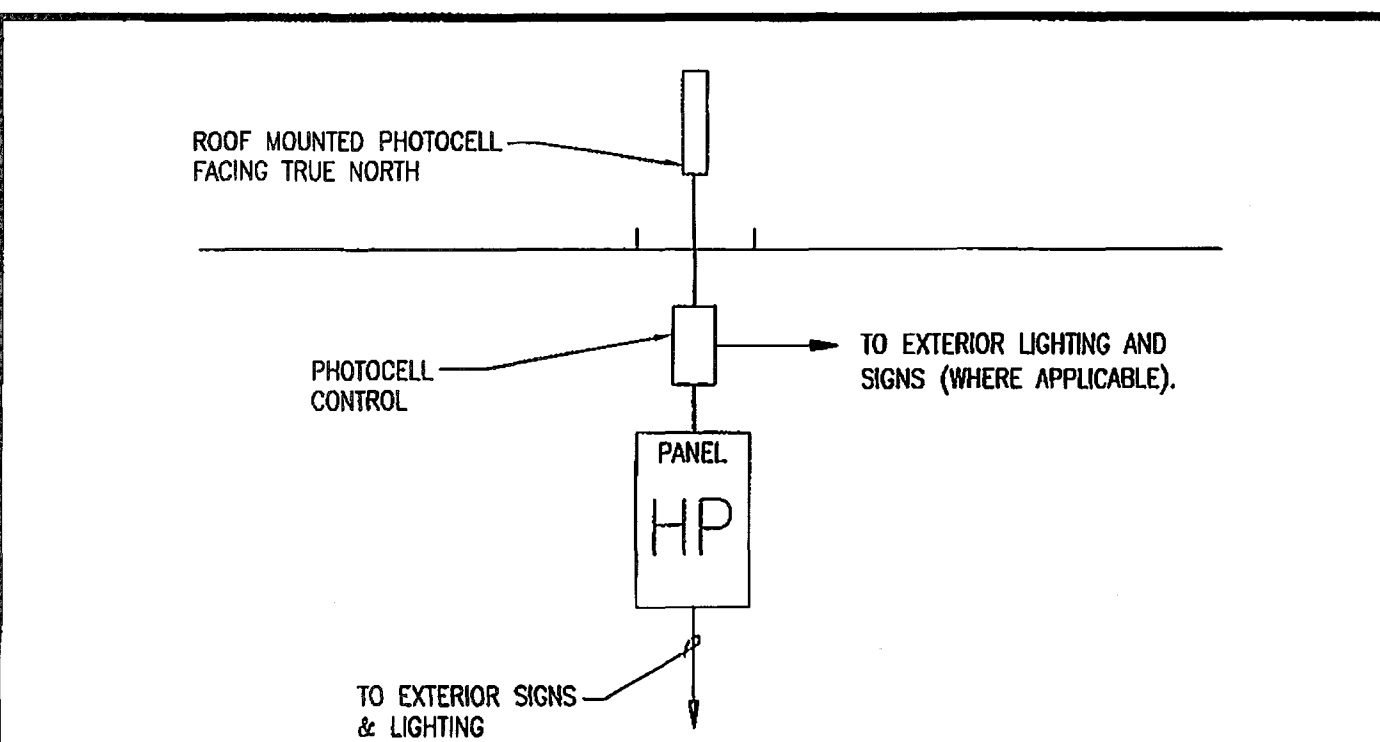
**NEUTRAL/GROUNDING SYSTEM**

SCALE: NONE NOTE: ALL GROUNDS FOR SERVICES SHOULD BE COPPER.



**EXTERIOR LIGHTING CONTROL DETAIL**

SCALE: NONE



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A Townhome Rental Community  
Maricopa County, Arizona  
Job No. 0130

**CLIENT REVIEW**

Date:	11-27-01
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