









ELECTRICAL SYMBOLS LEGEND

POWER & SYSTEMS

-  DUPLEX RECEPTACLE NEMA TYPE 5-20R, CENTERLINE RECESS MOUNTED AT 18" AFF, UNLESS NOTED OTHERWISE.
-  COUNTERTOP HEIGHT DUPLEX RECEPTACLE, NEMA TYPE 5-20R, MOUNTED 6" ABOVE ASSOCIATED COUNTERTOP OR 42" AFF, UNLESS NOTED OTHERWISE. A "9F1" TAG INDICATES A GROUND FAULT RECEPTACLE AND A "18F1" TAG INDICATES THE RECEPTACLE TO BE IN A WEATHERPROOF ENCLOSURE.
-  DOUBLE-DUPLEX RECEPTACLE NEMA TYPE 5-20R, CENTERLINE RECESS MOUNTED AT 18" AFF, UNLESS NOTED OTHERWISE.
-  SPECIAL RECEPTACLE (NEMA TYPE AS INDICATED ON DRAWINGS), CENTERLINE RECESS OR SURFACE MOUNTED AT 18" AFF AS INDICATED ON DRAWINGS, U.N.O.
-  ROOFTOP 6F1 TYPE RECEPTACLE IN WEATHERPROOF BOX FOR ROOFTOP MAINTENANCE PURPOSES; WIRE FROM BELOW CEILING AND SEAL THE PENETRATION TO THE ROOF.
-  4" SQUARE OR ROUND (AS INDICATED) JUNCTION BOX SURFACE OR RECESS MOUNTED AT HEIGHT INDICATED ON FLOOR, OR ABOVE CEILING, OR IN WALL, USED FOR POWER, TELECOMM, SECURITY, ETC. AS NOTED ON DRAWINGS. IF IN FINISHED AREA, INSTALL RECESSED WITH COVER. IF IN UNFINISHED AREA, INSTALL SURFACE MOUNTED WITH COVER. PROVIDE NEMA 3R TYPE, IF IN EXTERIOR OR WET AREA.
-  EQUIPMENT TAG TYPICALLY USED TO TAG MECHANICAL, PLUMBING, OR FIRE PROTECTION EQUIPMENT. THIS TAG ALONG WITH THE EQUIPMENT CONNECTION SCHEDULE DIRECTS THE EC WHAT TO FURNISH, HOW TO AND WHERE TO WIRE FOR POWER, AS WELL AS OTHER PERTINENT INFORMATION FOR THE COMPLETE ELECTRICAL INSTALLATION OF POWER AND CONTROLS (IF APPLICABLE) FOR EACH PIECE OF EQUIPMENT.
-  POWER PANEL WITH VOLTAGE, AMPERE, AIC RATINGS, BREAKERS, AND MOUNTING AS INDICATED ON ONE LINES AND PANELBOARD SCHEDULES.

WIRING RUN CONCEALED IN FINISHED AREAS OR EXPOSED IN UNFINISHED AREAS. CONTINUOUS LINE INDICATES ABOVE FLOOR WIRING; DASHED LINE INDICATES WIRING BELOW GRADE OR BELOW SLAB. HASH MARKS INDICATE NUMBER OF #12 WIRES (SHORT WIRES INDICATE PHASE CONDUCTORS, LONG HASH INDICATES NEUTRAL CONDUCTOR IF REQUIRED; GROUND WIRE IS NOT INDICATED, BUT IS ALWAYS PRESENT BY THE REQUIREMENT THAT ALL CONDUITS CONTAIN A GREEN GROUNDING CONDUCTOR).

EXAMPLES:

-  2 HOTS, 1 NEUT., 1 GND.
-  3 HOTS, 1 NEUT., 1 GND.
-  3 HOTS, 0 NEUT., 1 GND.
-  4 HOTS, 2 NEUT., 1 GND.











LP-13

HOMERUN TO PANEL BOARD (i.e. PANEL BOARD "LP"; CIRCUITS (#3), DEPICTION OF LINE INDICATES SAME AS NOTED ABOVE.

4"x4" VOICE OR DATA OUTLET CENTERLINE RECESS MOUNTED AT 18" AFF WITH 3/4" CONDUIT ROUTED UP WALL, AND STUBBED OUT 6" ABOVE CEILING WITH INSULATED THROAT CONNECTORS. ALL TELEPHONE CABLES FURNISHED AND INSTALLED BY OWNER OR HIS SELECTED VENDOR.

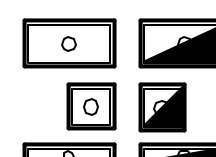
4"x4" CABLE TV BOX TYPE OUTLET CENTERLINE RECESS MOUNTED AT 6" BELOW CEILING PREPARED FOR CABLE TV TYPE CABLES TO BE FISHED DOWN WALL & INTO BOX. ALL CABLE TV CABLES FURNISHED AND INSTALLED BY OWNER OR HIS SELECTED VENDOR. THIS SCOPE OF WORK ONLY COVERS EMPTY BOX INSTALLATION.

FIRE ALARM SYSTEM

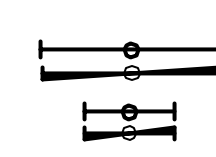
-  MANUAL BREAK GLASS TYPE FULL STATION SURFACE MNTD AT 48" AFF. PROVIDE AND INSTALL WITH ADDRESSABLE TYPE BASE
-  COMBINATION MODULAR HORN/STROBE ANNUNCIATION DEVICE; SINGLE OR DOUBLE HORN AND DIRECTED AS INDICATED ON PLANS; FOR STROBE DEVICE, USE 75 CANDELA POWER STROBE
-  VISUAL ONLY STROBE ANNUNCIATION DEVICE; DIRECT AS INDICATED ON PLANS; FOR STROBE DEVICE, USE 75 CANDELA POWER STROBE
-  FIRE ALARM CONTROL PANEL - RECESS MOUNTED WITH TOP AT 72" AFF.
-  FIRE ALARM ANNUNCIATOR PANEL - RECESS MOUNTED WITH TOP AT 72" AFF.
-  PHOTOELECTRIC TYPE SMOKE DETECTOR - MOUNTED ON CEILING IN FINISHED AREAS OR IN STRUCTURE ON UNFINISHED SPACES; PROVIDE WITH ADDRESSABLE TYPE BASE FOR CONNECTION TO ADDRESSABLE SYSTEM
-  DUCT MOUNTED SMOKE DETECTORS PROVIDED AND INSTALLED BY EC AS PART OF THE FIRE ALARM SYSTEM. INSTALL ONE IN SUPPLY DUCT AND ONE IN RETURN DUCT. PROVIDE INTERLOCK WIRING FOR LOCAL UNIT SHUTDOWN AND PROVIDE MONITORING WIRING TO FIRE ALARM SYSTEM. EC SHALL FIELD COORDINATE THIS WITH MECHANICAL CONTRACTOR.
-  HEAT DETECTOR - MOUNTED ON CEILING IN FINISHED AREAS OR IN STRUCTURE ON UNFINISHED SPACES; PROVIDE WITH ADDRESSABLE TYPE BASE FOR CONNECTION TO ADDRESSABLE SYSTEM
-  FIRE ALARM FLOW SWITCH. MOUNT AS DIRECTED TO SPRINKLER RISER.
-  FIRE ALARM TAMPER SWITCH. MOUNT AS DIRECTED TO SPRINKLER RISER.

LIGHTING

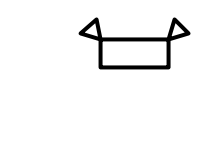
HID, FL. FLUORESCENT, OR INCANDESCENT FIXTURE AS SCHEDULED; CAPITAL LETTER INDICATES THE FIXTURE TYPE, SMALL LETTER INDICATES THE CONTROLLING SWITCH; LETTERS-NUMERAL INDICATES THE PANEL AND BRANCH CIRCUIT NUMBER ACTING AS THE POWER SOURCE PANEL AND CIRCUIT; HALF SHADED FIXTURE INDICATES EMERGENCY/NIGHT LIGHTING FIXTURE CONNECTED AHEAD OF LOCAL SWITCHING, U.N.O.



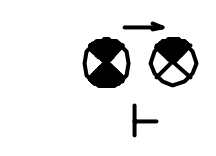
LAY-IN OR SURFACE MOUNTED FIXTURE AS SCHEDULED; ASSOCIATED LETTERING INDICATES THE SAME AS ABOVE. FIXTURE SIZES ARE 2'x2', 1'x4', OR 2'x4' AS INDICATED ON THE FLOOR PLAN DRAWINGS AND AS SCHEDULED. HALF SHADED FIXTURE INDICATES SAME AS OUTLINED ABOVE. ALL EMERGENCY FIXTURES SHALL CONTAIN INTEGRAL 90 MINUTE BATTERY PACK FOR EMERGENCY SOURCE.



SURFACE OR CHAIN-HUNG INDUSTRIAL STRIP FLUORESCENT AS SCHEDULED; ASSOCIATED LETTERING INDICATES THE SAME AS ABOVE. FIXTURE SIZES ARE 4' LONG OR 8' LONG AS INDICATED ON THE FLOOR PLAN DRAWINGS AND AS SCHEDULED. HALF SHADED FIXTURE INDICATES SAME AS OUTLINED ABOVE. ALL EMERGENCY FIXTURES SHALL CONTAIN INTEGRAL 90 MINUTE BATTERY PACK FOR EMERGENCY SOURCE.



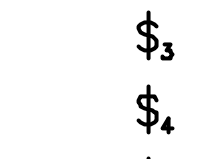
SURFACE OR RECESS MOUNTED EMERGENCY BATTERY PACK WITH TWIN HEAD LAMP EGRESS LIGHTING FIXTURE AS SCHEDULED. ASSOCIATED LETTERING INDICATES THE SAME AS ABOVE. THIS SYMBOL ALWAYS REPRESENTS AN EMERGENCY FIXTURE CONNECTED AHEAD OF LOCAL SWITCHING AND DESIGNED TO OPERATE UPON NORMAL POWER LOSS.



EMERGENCY EXIT SIGNS WALL OR CEILING MOUNTED AS INDICATED ON LIGHTING FLOOR PLAN; DIRECTIONAL ARROWS AS INDICATED ON LIGHTING FLOOR PLAN; FACES AS INDICATED ON LIGHTING FLOOR PLAN BY PORTION OF SIGN SHADED FIXTURE SHALL BE AS SCHEDULED. LED TYPE LAMPS, U.N.O. ALL EXIT SIGNS SHALL CONTAIN INTEGRAL 90 MINUTE BATTERY PACK FOR EMERGENCY SOURCE.



SAME AS ABOVE EXCEPT FIXTURE INCLUDES EMERGENCY EGRESS LIGHTING HEADS TO SERVE AS A COMBINATION UNIT



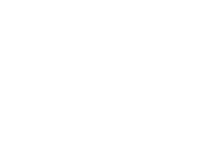
SINGLE POLE, DUAL (277/120V) RATED, 20A LIGHT SWITCH RECESS OR SURFACE MOUNTED AS INDICATED ON PLANS AT A HEIGHT OF 48" AFF.



SAME AS ABOVE, EXCEPT 3-WAY TYPE LIGHT SWITCH



SAME AS ABOVE, EXCEPT 4-WAY TYPE LIGHT SWITCH



INCANDESCENT TYPE, SLIDE TYPE WITH ON-OFF ROCKER SWITCH RECESS OR SURFACE MOUNTED AS INDICATED ON PLANS AT A HEIGHT OF 48" AFF, USE A 120V, 1500M DIMMER UNLESS OTHERWISE NOTED.

ELECTRICAL SCOPE OF WORK NARRATIVE

1. THIS PROJECT CONSISTS OF: EXISTING BUILDING TO BE RENOVATED/EXPANDED OR NEW BUILDING TO BE CONSTRUCTED AS INDICATED ON THE ELECTRICAL PLANS HEREIN. THE ELECTRICAL SCOPE OF WORK SHALL INCLUDE ALL PANELS, GEAR, LIGHTS, WIRING DEVICES, CONDUIT, WIRING, J-BOXES, SUPPORTS, FASTENINGS, BREAKERS, DISCONNECTS, ETC. AS INDICATED ON THESE DRAWINGS. UNLESS OTHERWISE NOTED, ALL THE MATERIALS FOR THE INSTALLATION SHOWN AS PART OF THESE DRAWINGS SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL SUBCONTRACTOR AS DETAILED ON THESE DRAWINGS. WIRINGS OF HVAC AND PLUMBING EQUIPMENT SHALL ALSO BE PROVIDED AND INSTALLED AS DETAILED ON THESE DRAWINGS HEREIN. SOME, BUT NOT ALL, OF THE SPECIFIC ELECTRICAL ITEMS THAT MAY BE INCLUDED IN THIS PROJECT ARE:
 - LIGHTING SYSTEM WITH SWITCHES AS INDICATED
 - EMERGENCY EGRESS AND EXIT LIGHTING
 - TELEPHONE VOICE & DATA CONDUIT/BOX SYSTEM
 - FIRE ALARM SYSTEM DEVICES AND WIRING
 - ANY OTHER MISC. SYSTEMS INDICATED ON PLANS
 - POWER DISTRIBUTION SYSTEM WITH ALL GEAR, FEEDERS, AND PANELS
 - POWER UTILIZATION SYSTEM WITH ALL DEVICES & BRANCH WIRING
 - ELECTRICAL UTILITIES SERVICE ENTRANCE (POWER & TELEPHONE)
 - POWER PROVISIONS & WIRING FOR ALL HVAC EQUIPMENT
2. THE EC SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, AND TOOLS REQUIRED TO COMPLETE THE INSTALLATION OF THE ELECTRICAL SYSTEMS INCLUDING BUT NOT LIMITED TO WIRING, BOXES, LIGHT FIXTURES, PANELS, SWITCHES, RECEPTACLES, STARTERS, FITTINGS, AND ALL OTHER WORK INDICATED ON THE DRAWINGS OR AS SPECIFIED HEREIN.
3. THE EC SHALL OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION AND DELIVER CERTIFICATES OF APPROVAL TO THE GENERAL CONTRACTOR, IF APPLICABLE. ALL ASSOCIATED FEES SHALL BE PAID BY THE ELECTRICAL CONTRACTOR.
4. THE EC SHALL COMPLY WITH ALL CURRENT OSHA REQUIREMENTS AND INDUSTRY PRACTICED SAFETY MEASURES DURING THE INSTALLATION PROCESS. THIS SHALL BE STRICTLY ADHERED TO.
5. THE EC SHALL FURNISH ALL MATERIALS AND EQUIPMENT OF THE ELECTRICAL SYSTEM NECESSARY FOR ITS PROPER OPERATION. ANYTHING REQUIRED, BUT NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED WITHOUT ADDITIONAL CHARGE.
6. THE EC SHALL SUBMIT INFORMATION TO THE ENGINEER OF ALL EQUIPMENT, DEVICES, AND WIRING COMPONENTS INTENDED TO BE PROVIDED FOR THIS PROJECT. THIS INCLUDES PANELS, WIRING, DEVICES, CONDUITS, BOXES, CABLE TRAYS, WIRE AND CABLE, TRANSFORMERS, AND CONTROL DEVICES. ALL SUBSTITUTIONS FOR EQUIPMENT AND MATERIALS OTHER THAN THE EXACT MATERIALS SPECIFIED SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. THE ENGINEER RETAINS THE FINAL JUDGEMENT ON EQUALITY OF SUBSTITUTIONS.

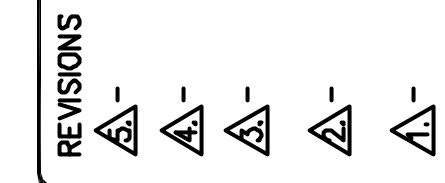
GENERAL ELECTRICAL CONSTRUCTION NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE ELECTRICAL WORK WITH OTHER DIVISIONS WITH PARTICULAR ATTENTION GIVEN TO THE MECHANICAL DISCIPLINE AND EQUIPMENT.
 2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC IN NATURE AND DO NOT DEPICT EXISTING FIELD CONDITIONS WHICH MAY IMPEDE THIS WORK FROM BEING PERFORMED.
 3. ALL ELECTRICAL WORK SHALL CONFORM WITH THE ENFORCED VERSION OF THE NEC AND ANY OTHER LOCALLY ENFORCED REQUIREMENTS WHICH MAY BE MORE STRINGENT THAN THE NEC.
 4. DIRECT ANY AND ALL QUESTIONS AND DISCREPANCIES TO THE ELECTRICAL ENGINEER FOR RESOLUTION. DO NOT INSTALL MATERIALS IN QUESTION WITHOUT RESOLUTION FROM THE ENGINEER.
 5. ALL WIRING IN ALL INTERIOR AREAS SHALL BE ROUTED IN EMT TYPE CONDUIT, UNLESS INDICATED OTHERWISE. ALL WIRES AND CABLES SHALL BE COPPER STRANDED AND COLOR CODED AS NOTED IN SPECIFICATIONS. NO SINGLE CONDUIT SHALL CONTAIN MORE THAN 6 CURRENT CARRYING CONDUCTORS, UNLESS NOTED OTHERWISE AND PROPERLY DERATED. MINIMUM CONDUCTOR SIZE SHALL BE #12 STRANDED COPPER; MINIMUM CONDUIT SIZE SHALL BE 1/2" EMT. IN EXTERIOR AREAS, ANY EXPOSED CONDUIT SHALL BE RGS (RIGID GALVANIZED STEEL) OR SEAL-TIGHT FLEX CONDUIT UTILIZED IN COMPLIANCE WITH THE NEC. SCHEDULE 40 PVC SHALL BE USED UNDERGROUND.
- NOTE: USE OF MC TYPE CABLE IN LIEU OF WIRING IN CONDUIT SHALL BE ACCEPTABLE PROVIDED IT IS USED AS ALLOWED BY THE NEC AND INSTALLED IN A CONCEALED FASHION ABOVE CEILING AND/OR IN WALLS.**
6. FOR CONDUIT, THE ELECTRICAL CONTRACTOR SHALL BE ALLOWED TO USE EMT (ELECTRICAL METALLIC TUBING) TYPE CONDUIT WITH SET SCREW COUPLINGS. EVERY CONDUIT SHALL HAVE A MINIMUM SIZED #12 GROUND WIRE INCLUDED IN IT AND BONDED TO THE GROUND BUSES, LUGS, EQUIPMENT ENCLOSURES, PANEL BOXES, ETC. AT BOTH ENDS TO INSURE ALL EQUIPMENT IS ELECTRICALLY GROUNDING. SINCE SET-SCREW COUPLINGS ARE BEING ALLOWED, USE OF RACEWAY GROUNDING AS THE SOLE GROUNDING MEANS (ELIMINATION OF THE GROUNDING CONDUCTOR DESCRIBED IN THIS NOTE) SHALL NOT BE ALLOWED.
 7. THE EC SHALL DEVELOP AND MAINTAIN A SET OF "RED-LINED AS-BUILT" DRAWINGS. THESE DRAWINGS SHOULD BE MAINTAINED AT THE PROJECT CONSTRUCTION SITE AND AVAILABLE TO THE ENGINEER UPON REQUEST. THEY SHOULD BE CURRENT AND SHOULD REFLECT ALL ACTUAL ASPECTS OF THE ELECTRICAL INSTALLATION WHICH DEVIATED FROM THE ELECTRICAL DESIGN AT THE CONSENT OF THE ENGINEER. THESE DRAWINGS SHOULD BE SUBMITTED TO THE ENGINEER AT THE COMPLETION OF ALL THE WORK AND SHOULD INCLUDE ALL PUNCH LIST ITEMS AND THEIR CORRESPONDING RESOLUTIONS AS IMPLEMENTED AND SHOULD ALSO INCLUDE ALL TEST RESULTS.

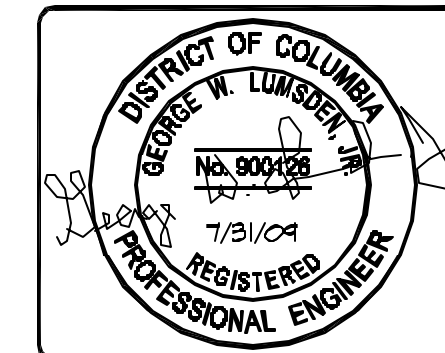
ELECTRICAL DRAWING LIST

DWS #	DRAWING TITLE
E1	ELECTRICAL LEGEND SHEET
E2	ELECTRICAL SPECIFICATIONS
E3	BASEMENT LIGHTING PLAN
E4	MAIN LEVEL LIGHTING PLAN
E5	BASEMENT POWER PLAN
E6	MAIN LEVEL POWER PLAN
E7	ONE LINE DIAGRAM AND SCHEDULES
E8	ELECTRICAL SCHEDULES
E9	ELECTRICAL DETAILS

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