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ELECTRICAL SYMBOL LEGEND

Table of electrical symbols and their descriptions, including circuit conductors, junction boxes, switches, receptacles, and lighting fixtures.

ELECTRICAL ABBREVIATIONS

Table of electrical abbreviations such as AFF, AFG, EC, FPN, GC, MC, PC, HP, UCN, and FACP.

GENERAL ELECTRICAL NOTES

- 1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES.
2. ALL MATERIAL, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS OF THE UNDERWRITER'S LABORATORIES, INC., AND THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION.
3. ALL ELECTRICAL PERMITS AND INSPECTION FEES SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR. DRAWINGS ARE DIAGRAMMATIC ONLY AND INDICATE ONLY THE GENERAL ARRANGEMENT. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
4. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR EFFECTIVE THE DAY THE PROJECT IS ACCEPTED BY THE OWNER.
5. ELECTRICAL CONTRACTOR SHALL MAKE ALL ELECTRICAL POWER CONNECTIONS TO HVAC, PLUMBING AND OTHER EQUIPMENT AS REQUIRED.
6. A COMPLETE GROUNDING SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
7. ALL CUTTING AND PATCHING OF WALLS AND FLOORS FOR ELECTRICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
8. CONDUCTORS SHALL BE STRANDED COPPER RATED AT NOT LESS THAN 600 VOLTS. MINIMUM SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL WIRE #8 AWG AND LARGER SHALL BE STRANDED. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID, UNLESS OTHERWISE NOTED. BRANCH CIRCUIT CONDUCTORS SHALL BE TYPE THHN OR THWN AS REQ'D.
9. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID CONDUIT, INTERMEDIATE METAL CONDUIT, OR EMT. EMT SHALL NOT BE USED IN OR UNDER CONCRETE SLABS, OR IN MASONRY WALLS. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. MINIMUM CONDUIT SIZE TO BE 1/2". TYPE MC AND AC CABLE MAY BE USED WHERE PERMISSIBLE BY NEC.
10. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. MINIMUM CONDUIT SIZE TO BE 1/2". TYPE N1, MC AND AC CABLE MAY BE USED IN RESIDENTIAL BUILDINGS WHERE PERMISSIBLE BY NEC.
11. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
12. PROVIDE A TYPED DIRECTORY IN ALL PANELBOARDS CLEARLY DESCRIBING THE LOCATION OF AND TYPE OF LOAD BEING SERVED FOR ALL CIRCUITS. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES, WHITE LETTERS ON BLACK BACKGROUND.
13. FUSES 0 - 600 AMPS SHALL BE UL CLASS 'RK-1' LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
14. ALL TERMINALS/LUGS SHALL BE 60/75% RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
15. VERIFY ALL REQUIREMENTS AND COORDINATE EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START-UP. NOTIFY ENGINEER OF ANY CHANGES AS MAY BE REQUIRED.
16. E.C. TO VERIFY DEVICE PLATE COLOR AND MATERIAL WITH ARCHITECT PRIOR TO PURCHASE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ELECTRICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.).
17. PENETRATIONS OF REQUIRED SMOKE PARTITIONS SHALL BE SEALED USING METHODS APPROVED UNDER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO INSURE THAT THIS SMOKE STOPPING IS ACCOMPLISHED.
18. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTIVE WALL, FLOOR, OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL, TELEPHONE, TELEVISION, OR LOCAL COMMUNICATION AND/OR SIGNALING CIRCUITS, THE OPENING AROUND THE RACEWAY SHALL BE FIRE STOPPED PER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO INSURE THAT THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED U.L. OR EQUIVALENT ASSEMBLIES.
19. IN REQUIRED FIRE RATED WALLS AND PARTITIONS, OPENINGS FOR INSTALLATION OF BOXES THAT ARE GREATER THAN 16 SQUARE INCHES SHALL BE PROTECTED AS REQUIRED BY U.L. COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR TO INSURE THAT THE INTEGRITY OF THE U.L. RATING IS MAINTAINED.
20. WHERE A HOME RUN IS SHOWN THE CIRCUIT SHALL BE INSTALLED IN A DESIGNATED CONDUIT, DO NOT COMBINE WITH OTHER CIRCUITS. WHERE A CIRCUIT HOME RUN IS NOT SHOWN, THE CONTRACTOR SHALL COMBINE CIRCUITS AS FOLLOWS: A. WITHIN 3 OR 4 BRANCH CIRCUITS MAY BE COMBINED IN A COMMON RACEWAY WITH SEPARATE NEUTRALS FOR A MAXIMUM TOTAL OF SIX CURRENT CARRYING CONDUCTORS. ALL BRANCH CIRCUITS LARGER THAN 20A SHALL BE SEPARATELY HOMERUN TO THE PANEL.
21. COORDINATE WITH THE CABLE AND TELEPHONE UTILITIES AS REQUIRED FOR SERVICE ENTRANCE REQUIREMENTS. INSTALLATION MUST COMPLY WITH THEIR RESPECTIVE REGULATIONS AND REQUIREMENTS.
22. RECEPTACLES SHALL BE SPECIFICATION GRADE EQUAL TO HUBBELL 5300 SERIES, GROUND FAULT RECEPTACLES SHALL BE HUBBELL GF-5362. LIGHTING SWITCHES SHALL BE SPECIFICATION GRADE EQUAL TO HUBBELL 1200 SERIES.
23. SILENCE FIRE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15DBA ABOVE THE AVERAGE AMBIENT SOUND PRESSURE LEVEL AT ALL LOCATIONS WITHIN THE OCCUPIABLE SPACE. TYPICAL AVERAGE AMBIENT SOUND PRESSURE LEVELS ARE GIVEN IN NFPA 72 TABLE A-4-3.2.
24. IF THREE OR MORE FIRE ALARM SYSTEM VISUAL NOTIFICATION APPLIANCES ARE LOCATED WITHIN AN OBSERVERS FIELD OF VIEW (180°) AND WITHIN 55'-0" OF THE OBSERVER, THEN THE DEVICES SHALL BE SYNCHRONIZED.
25. ALL EXTERIOR FIXTURES AND DEVICES SHALL BE RATED FOR OPERATION AT 0' F AND SHALL BE DAMP OR WET LABELED AS REQUIRED.
26. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL ELECTRICAL EQUIPMENT, DEVICES, ETC. IN ACCORDANCE WITH LOCAL SEISMIC CODE REQUIREMENTS. PROVIDE SEISMIC RESTRAINTS, ACCESSORIES AND INSTALLATION DETAIL AS REQUIRED.
27. ELECTRICAL CONTRACTOR TO COORDINATE THE EXACT MCA/MOCP REQUIREMENTS OF ALL EQUIPMENT WITH ALL OTHER TRADES PRIOR TO PRICING, ORDERING, OR INSTALLING ANY ELECTRICAL GEAR. THIS SHALL INCLUDE BUT NOT LIMITED TO ALL HVAC, PLUMBING, KITCHEN, OWNER PROVIDED EQUIPMENT, ETC.

LIGHT FIXTURE SCHEDULE

Table with columns: TYPE, DESCRIPTION, LAMP, # OF LAMPS, TOTAL FIXTURE WATTAGE, BALLAST/DRIVER, VOLTAGE, MANUFACTURER, MODEL, REMARKS, EXAMPLE. Lists various lighting fixtures like car wash, exterior canopy, wall mounted LED, pendant, recessed, etc.

- LIGHTING FIXTURE SCHEDULE NOTES:
1. ALL LAMP TYPES ARE SHOWN/SYMBOLIC UNLESS OTHERWISE NOTED. ALL FLUORESCENT LAMPS SHALL BE 3000K AS SPECIFIED. ALL FLUORESCENT BALLASTS SHALL BE ELECTRONIC AS SPECIFIED. SUBMITTAL SHEETS SHALL BE SUBMITTED WITH FIXTURE SUBMITTALS. FLUORESCENT LAMP AND BALLAST WARRANTY SHALL BE COMPLETED BY CONTRACTOR AND RETURNED TO OWNER AT END OF PROJECT. THIS WARRANTY IS NOT TRANSFERABLE.
2. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
3. ALL EXTERIOR FIXTURES SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
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7. EXTERIOR FIXTURES SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
8. ALL METAL HALIDE LAMPS AND BALLASTS SHALL MEET OR EXCEED THE ENERGY EFFICIENCY AND STABILITY ACT (EEISA) REQUIREMENTS.
9. ALL ELECTRONIC BALLASTS SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
10. PROVIDE 90 MINUTE EMERGENCY BATTERY BACKUP FOR ALL EXTERIOR LOCATIONS OR OTHER AREAS SUBJECT TO COLD WEATHER.
11. SUSPEND ALL FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
12. FLUORESCENT FIXTURES WITH EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH 1000 LUMEN INVERTERS.
13. MODULAR WIRING SYSTEMS ARE AN ACCEPTABLE WIRING METHOD FOR 150-150V CIRCUITS.
14. DIMMING OF FLUORESCENT FIXTURES SHALL BE WITH A SWITCH AS RECOMMENDED BY THE BALLAST MANUFACTURER.
15. FLUORESCENT LAMPS THAT UTILIZE DOUBLE ENDED LAMPS AND CONTAIN BALLASTS THAT CAN BE SERVICED IN A PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LAMP/HOLDER PER NEC 130.13(G).
16. ALL METAL HALIDE LAMPS AND BALLASTS SHALL MEET OR EXCEED THE ENERGY EFFICIENCY AND STABILITY ACT (EEISA) REQUIREMENTS.
17. THE CONTRACTOR SHALL OBTAIN THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PRICING/GUOTE.
18. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
19. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
20. ALL EXTERIOR FIXTURES SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
21. FIXTURES TO BE INSTALLED IN CEILING, INDICATED ON ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
22. BALLAST BY ADVANCE, GE OR UNIVERSAL TRIAD ARE ACCEPTABLE FOR SUBSTITUTION PROVIDED THEY MEET INTENDED CRITERIA AS LISTED IN THIS SCHEDULE.
23. FIXTURES SHALL MEET BUY AMERICA ACT TO QUALIFY FOR THIS PROJECT.
24. PROVIDE 90 MINUTE EMERGENCY BATTERY BACKUP. EMERGENCY BACKUP SHALL BE BASED ON TYPE OF FIXTURE, LED DRIVER, BALLAST, ETC. EMERGENCY BACKUP SHALL BE DUAL WIRE FOR BOTH SWITCHING AND CHARGING. PROVIDE UNSWITCHED "HOT" FROM LOCAL CIRCUIT UNLESS OTHERWISE INDICATED ON PLANS. PROVIDE WITH INDICATOR LIGHT. INSTALL LED INDICATOR ON LIGHT FIXTURE UNLESS DECORATIVE. DECORATIVE FIXTURES MAY HAVE INDICATOR PLACED AT LOCAL CEILING, BODINE, PHILLIPS, POWER SENTRY OR EQUAL.
25. PROVIDE EMERGENCY RELAY BASED ON MINIMUM MOTOR OR FORMAL. INDIVIDUAL FIXTURES MAY UTILIZE GTO (NON 20A). SEE PLANS FOR INTENT. PROVIDE EMERGENCY GENERATOR/INVERTER CIRCUIT AND SWITCH LEG NORMAL CIRCUIT. SEE DETAIL.
26. POLYESTER PROVIDE FOR LED FIXTURES SHALL BE METAL, REGARDLESS OF SPECIFICATION FOR GROUNDING PURPOSES.

LIGHTING SYSTEMS ENERGY CONSERVATION CODE SECTION 404, 505 AND 508

Form for lighting systems compliance, including sections for project classification, power density calculation, designer statement, and section 506 compliance.

ELECTRICAL SHEET INDEX

Table listing sheet titles and numbers: E101 ELECTRICAL NOTES, LEGEND AND SCHEDULES; E102 ELECTRICAL SITE LIGHTING PLAN; E103 ELECTRICAL DETAILS AND SYMBOLS; E201 ELECTRICAL POWER PLAN; E202 ELECTRICAL LIGHTING PLAN; E203 ELECTRICAL MEZZANINE LIGHTING PLAN; E301 ELECTRICAL CAR WASH PLAN; E401 ELECTRICAL RISER DIAGRAMS; E402 PANEL SCHEDULES; E501 ELECTRICAL CAR WASH SCHEDULES.

Project information for Sam's Mart, including address (E. Independence Blvd., Indian Trail, NC 28097), owner (Sam's Mart), and engineering details (Saber Engineering, Inc., 2823 South Tryon Street, Charlotte, NC 28203).



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Order Plans