

# EMRA STANDARDS, PRACTICES, & CONCEPTS

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Revision: 0

## Structure and Scenery Lighting Standard

### This Standard includes Accessory Power

1. All structure and scenery **lighting and accessory circuits must accept 14 volts DC** (with the exception of Item 8.).
  - (A) The electrical department supplies 13.8 volts DC through the accessory power bus that runs around layout.
  - (B) Structure lighting **will include** circuitry "**within**" the structure to drop the 14 vdc input voltage to the voltage required by the lights installed in the structure.
    - (1) Structures may have one or more lights on a circuit.
    - (2) Structures may include more than one circuit.
  - (C) Scenery lighting **will include** circuitry to drop the 14 vdc input voltage to the voltage required by the lights.
    - (1) Scenery lighting may have one or more lights on a circuit.
    - (2) Scenery lighting circuitry will be kept compact with wires kept tidy and organized under the benchwork.
  - (D) Accessories **will include** circuitry to drop the 14 vdc input voltage to their required voltage.
    - (1) One or more accessories may be on a circuit.
    - (2) Accessories circuitry will be kept compact with wires kept tidy and organized under the benchwork.
2. Each lighting or accessory circuit will terminate in an Micro JST 2.5 PH 2 pin style male connector.
  - (A) This is the same connector used by Woodland Scenics for their "Just Plug" lighting system.
  - (B) The matching female connector must be included for each project for the electrical department.

*Example image:*



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3. Wire used will be rated for current draw required.
4. All wire connections will be soldered and insulated with heat shrink tubing.
  - (A) This includes connections in structures or under the benchwork.
  - (B) Electrical tape must not be used.
    - (1) Susceptible to cracking and failing.
  - (C) "Liquid" electrical tape is an acceptable alternative to heat shrink tubing **in structures**.
    - (1) Can also be used to stick wires to walls of structure.
    - (2) Not to be used for under layout connections.
5. Wires will be long enough to extend out of the structure (or fixture), through a hole in the benchwork leaving at least 6 inches before the connector.
6. The Electrical Department will inspect all circuits prior to being connected to the layout electrical systems.
  - (A) **All circuits WILL be tested** for current draw and the results recorded.
  - (B) Circuits drawing excessive current or showing other abnormalities **will not be connected** to the layout without being corrected first.
7. **All circuits WILL be labeled** on both sides of connector.
  - (A) Additional labels may be needed on longer runs.
8. Circuits requiring DCC animation control will be provided power through a "DCC Accessory" decoder provided by the associated project.
  - (A) These circuits must accept the voltage provide by the Accessory decoder.
9. A dummy plug must be used on the supply power side if the structure (or fixture) is removed for any reason.
10. Items not covered in this standard will be addressed in the "Practice" for associated department.