

Electrical Installation Requirements for Private Boat Docks Lake of the Ozarks Area

These guidelines and requirements apply to private (non-commercial) docking facilities occupied for use by the owner or resident of an associated single-family dwelling.

Contact your local fire department for an inspection within 7 days of supplying power to the dock (see attached fee schedule).

Expanded Electrical Installation:

All electrical installations shall be in compliance with the 2005 National Electrical Code and as amended by the following guidelines and requirements.

- All conductors shall be insulated copper conductors approved for the conditions of use.
- Each docking facility requiring electricity shall be supplied by only one (1) set of feeder conductors from the residential house panel. One (1) single branch circuit can serve as a feeder conductor if it is connected to a feed through module GFI disconnecting means.
- Overcurrent device(s) or disconnecting means designed to disconnect all electrical power supplying the docking facility shall be located onshore and within six (6) feet of the docking facility ramp it serves.
- The bottom height of the overcurrent device(s) or disconnecting means shall be 42" above the dock walkway at the shore connection or above elevation 665.
- A grounding electrode (in compliance with NEC 250.52, 250.53, 250.56) shall be installed at the onshore overcurrent device(s) or disconnecting means.
- An insulated grounding electrode conductor (sized in compliance with NEC 250.66, but not smaller than #6 AWG) shall be installed connecting the grounding electrode to the equipment grounding terminal at each onshore sub-panel or disconnecting means enclosures.
- An insulated equipment-grounding conductor (sized in compliance with NEC 250.122, but not smaller than #12 AWG) shall be installed inside all conduit systems with the circuit conductors.
- All conductors (Feeder and Branch Circuit) shall be sized for the overcurrent device protecting the conductors and shall be sized to not allow more than a 3% voltage-drop as recommended in NEC 215.4 FPN 2 – 210.19 FPN .
- Conduits, boxes and fittings approved for the condition of use, shall protect all feeder and branch-circuit conductors.
- All underground conduit systems shall be approved for the condition of use and shall comply with NEC 300.5(A), (B), (D)(4), (F). (Minimum covering requirements)
- All conduits shall be sized in compliance with NEC Chapter 9 Tables 1, 4 and 5. Where conductors are all of the same size and type, Annex C shall be permitted for sizing of conduits.
- Liquidtight Flexible Metal Conduit (with grounding bushings) or Liquidtight Flexible Nonmetallic Conduit with approved fittings shall be permitted where flexibility is required in a conduit system such as hinge points of ramps and floating structures subject to elevation changes due to the change in water levels.
- All non-current carrying metal parts of the docking facility such as metal piping, metal equipment enclosures, metal frames of the structure and ramps, metal swim ladders and other

metals in contact with the water or may become electrically energized shall be electrically bonded to the equipment grounding system.

- A bonding jumper (sized in compliance with NEC 250.66 but not smaller than #6 AWG) shall be installed from the grounding electrode on shore to the metal parts of ramps leading to a floating structure.
- A bonding jumper with a loop (sized in compliance with NEC 250.66 but not smaller than # 6 AWG) shall be installed around all hinge points of metal ramps, floating structures, and docks subject to elevation changes due to the changes in the water levels.
- All non-current carrying metallic parts of the electrical system shall be bonded to the equipment grounding system.
- All receptacle outlets shall be GFCI protected for personnel unless the outlet is for a dedicated purpose and installed in an enclosed area of the structure protected from the weather. All receptacle outlets and switches shall be installed at least 36 inches above the finish dock surface or as approved by the AHJ.
- All "Marine Shore power Outlets" shall be GFCI protected for personnel with a disconnecting means within 30 inches.
- All large metallic enclosures, such as panels, cabinets, cutout boxes, etc. installed in wet location areas, shall be installed with a minimum of ¼" air space between the enclosure and the supporting surface they are mounted on.
- All electrical equipment installed within 8 feet vertically from the dock finish surface or exposed to the weather shall be suitable for use in wet locations and shall have weep holes.
- All electrical equipment installed below roofed open areas, protected from the weather and installed above 8 feet vertically from the dock finish surface shall be suitable for use in damp locations.
- All general use receptacle outlets shall be installed in weatherproof enclosures with "In Use Type" weatherproof attachment plug covers.
- All general use switches shall be installed in weatherproof enclosures with weatherproof switch covers.
- All luminaries (lighting fixtures) installed exposed to the weather shall be suitable for use in wet locations. All luminaries (lighting fixtures) installed where protected from the weather shall be suitable for use in damp locations.
- All electrical equipment such as receptacle outlets, switches, junction boxes, lighting fixtures, etc. shall not be installed within 6 feet of any ladders attached to the docking facility.
- All metal ladders permanently attached to the docking facility shall be bonded to the equipment grounding system.
- All metal ladders not permanently attached to the docking facility shall have means for bonding to the equipment grounding system.
- All conductors from the shore to the docking facility shall be protected from physical damage. Conduits shall be approved for the conditions of use. (Weatherproof, Sunlight resistance, etc.)

Dock Wiring Inspection Sheet – Lake of the Ozarks – Fire Districts

Notes: NEC 2005 applies with AHJ additions.

Non-metallic sheathed cable may not be used. (Romex)

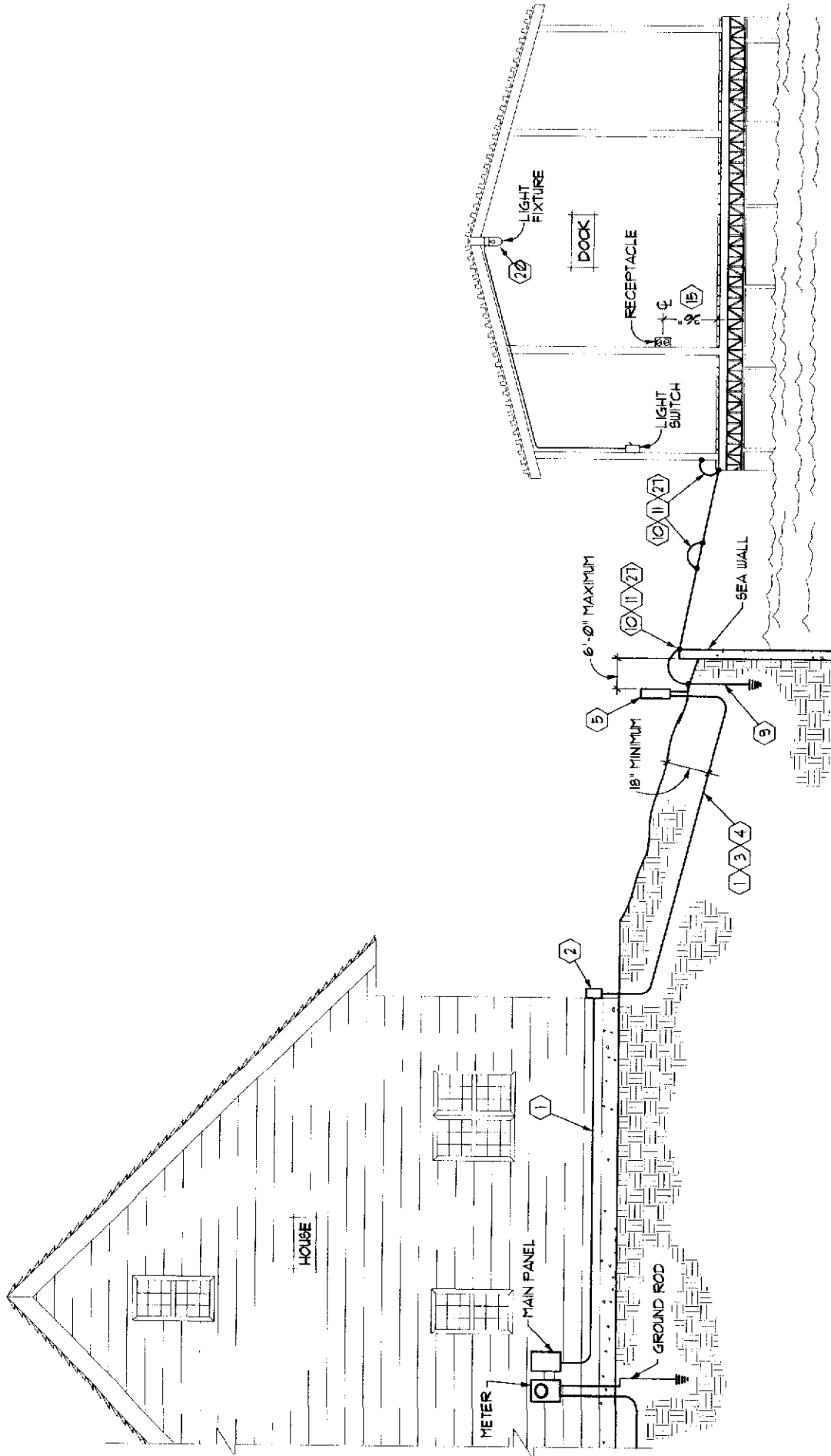
All wiring methods and conductors shall be suitable for wet locations. (Check exceptions)

All wiring shall meet National Electrical Code 2005 Article 553, "Floating Buildings" for private dwelling docks.

All wiring shall meet NEC 2005 Article 555, "Marinas and Boatyards" for all other docks.

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1. Feeder from the main panel to sub panel shall be 4 wire for 240 volt system or 3 wire for 120 volt system and sized for the load.
2. Conduit that is buried from the building to the sub-panel shall be schedule 40 PVC for underground use.
3. Junction box on the outside of the building serving the dock shall be weatherproof.
4. The feeder from the sub-panel to the dock shall be schedule 40 PVC (sunlight resistant) and must be liquid tight flexible conduit at all pivot points.
5. The conduit from the J-box to the dock sub-panel or disconnect shall be sized for the conductors.
6. The sub-panel shall be at the seawall next to the dock ramp and shall have a disconnecting means.
7. All grounding conductors shall have continuous outer finish that is green including all bonding wires.
8. The grounding conductors shall be connected to the grounding bus in the sub-panel and to the ground rod. Grounding Bus and Grounded Bus must be separated.
9. A grounding electrode shall be in place. (At least 8 feet long and trade size of ½ inch).
10. The grounding conductor shall be sized correctly for the circuit (minimum #6) and attached with a separate clamp directly to the grounding electrode.
11. #6 grounding wire from the ground rod to the metal parts of the ramp with approved terminals.
12. #6 grounding wire jumper shall be installed between all pivot points in the ramp, dock stiff arms, breakwaters, etc.
13. All metal enclosure and exposed metal parts of the electrical system shall be bonded to the grounding bus with approved terminals.
14. All metal parts, metal piping and all non-current carrying metal parts must be bonded to the panel board.
15. All outlet receptacles shall be GFCI protected unless the outlet is a dedicated outlet in an enclosed structure.
16. All general use outlet receptacles shall be a minimum 36 inches from the finished dock surface.
17. All outlets dedicated for a piece of equipment shall be of the Marine Twist Lock type and GFCI protected. A disconnecting means must be within 30 inches of outlet or approved pedestal installation.
18. All GFCI outlets receptacles shall work when tested.
19. All cabinets and cutout boxes shall be a minimum of ¼ inch of airspace between the enclosure and supporting surface.
20. All enclosures below 8 feet or exposed to weather shall be in weatherproof enclosures and suitable for wet locations with allowable weep holes.
21. All fixtures above 8 feet and below a roof or overhang shall be suitable for damp location.
22. All general use receptacles shall have an attachment plug cover ("in use" type).
23. All switches shall be in weatherproof enclosures or cabinets.
24. Receptacles, switch boxes and junction boxes shall not be within 6 feet of a ladder for the dock.
25. Any metal ladder on the dock shall have #6 wire jumpers to dock frame from ladder base and to ladder if hinged (Frame can be bolted to dock frame).



ELECTRICAL WIRING FOR RESIDENTIAL DOCK
 NO SCALE