

PRIVATE BOAT DOCKS Lake of the Ozarks Area

Expanded Electrical Installation:

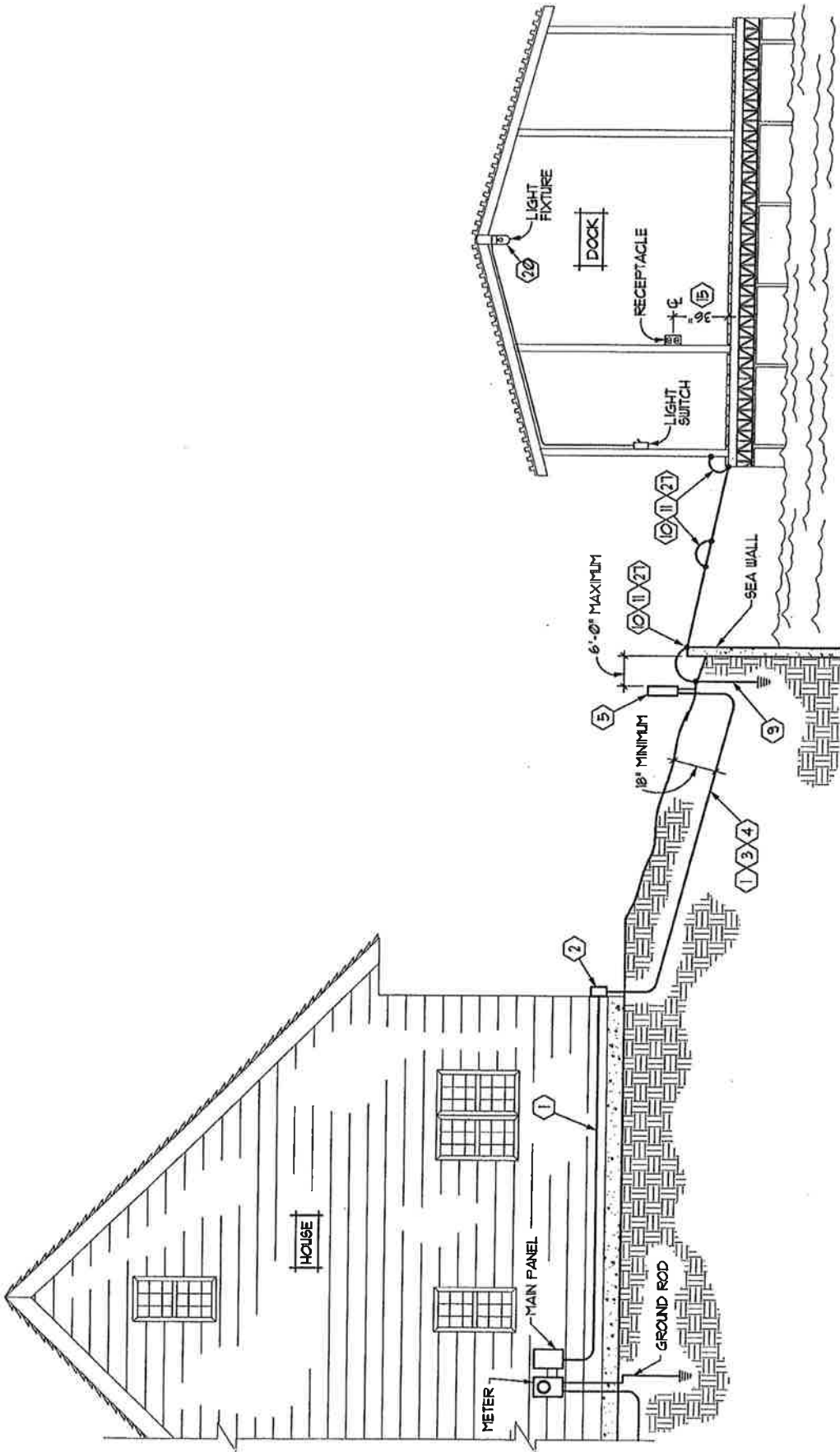
Guidelines and requirements for private (non-commercial) docking facilities occupied for use by the owner or resident of an associated single-family dwelling.

All electrical installations shall be in compliance with the 2011 National Electrical Code as amended by the local jurisdiction. The following is a list of guidelines only:

- 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. **Reference #5**
- A grounding electrode (incompliance with NEC 250.52, 250.53, 250.56) shall be installed at the onshore overcurrent device(s) or disconnecting means. **Reference #7, 8, 9**
- 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. **Reference #7, 8, 9**
- 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. **Reference #1, 6**
- Insulated equipment grounding conductors shall be installed in compliance with NEC 250.24-250.32(A) – 250.32(B)(1). **Reference #1, 6**
- 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 4. **Reference #1**
- Conduits, boxes and fittings approved for the condition of use, shall protect all feeder and branch-circuit conductors. **Reference #1, 2, 3, 4**
- 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*) **Reference #1, 3, 4**

- 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. **Reference #3**
- 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. **Reference #3, 27**
- 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. **Reference #10, 11, 12, 13**
- 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. **Reference #10**
- 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. **Reference #11**
- All non-current carrying metallic parts of the electrical system shall be bonded to the equipment grounding system. **Reference #12**
- All receptacle outlets shall be GFCI protected for personnel. **Reference #14**
- All receptacle outlets and switches shall be installed at least 36 inches above the finish dock surface or as approved by the AHJ. **Reference #15**
- All "Marine Shore Power Outlets" shall be GFCI protected for personnel with a disconnecting means within 30 inches. **Reference #16**
- 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. **Reference #18**

- 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.
Reference #19
- 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. **Reference #20**
- All general use receptacle outlets shall be installed in weatherproof enclosures with “In Use Type” weatherproof attachment plug covers. **Reference #21**
- All general use switches shall be installed in weatherproof enclosures with weather proof switch covers. **Reference #22**
- 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. **Reference #23**
- 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.
Reference #24
- All metal ladders permanently attached to the docking facility shall be bonded to the equipment grounding system. **Reference #25**
- All metal ladders not permanently attached to the docking facility shall have means for bonding to the equipment grounding system. **Reference #26**
- 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.)
Reference #27



ELECTRICAL WIRING FOR RESIDENTIAL DOCK
 NO SCALE