

MARITIME SAFETY STANDARD FOR IDENTIFICATION OF SHORE POWER OUTLETS AND SHORE TELEPHONE CONNECTIONS ON FLOATING EQUIPMENT, LANDINGS, AND OTHERS

1.0 PURPOSE

To standardize the identification of shore power outlets and shore telephone connections on floating equipment, landings, ports, piers, docks, and other similar structures.

2.0 BACKGROUND

At the present time, a formal identification system does not exist and it has been determined that it is necessary to standardize to avoid personal injuries and damages to equipment due to inappropriate connections.

3.0 SCOPE

This standard is of mandatory compliance to all units of the Panama Canal Authority (ACP) and contractors involved in the operation of floating equipment, landings, ports, piers, docks, or locations that are used as temporary (e.g., locks walls) or permanent landings, in areas under the responsibility of the ACP.

4.0 LEGAL FOUNDATIONS

This standard is established pursuant to Agreement No. 12 of the Board of Directors of the ACP, Panama Canal Authority Regulation on Safety and Occupational Health, Chapter 1, Article 3, and on Resolution 361-98, dated October 14, 1998 of the Engineering and Architecture Technical Board, Electrical Installations Regulations of the Republic of Panama, Article 555.

5.0 DEFINITIONS

For the purposes of this standard, the following definitions are established:

5.1 Wires: Electrical conductors, energized or not.

5.2 Shore power outlet: Device located on a floating equipment, landing, pier, dock, or similar structure installed with the purpose of providing electric power to floating equipment.

5.3 Pin and sleeve: Type of electric connector where the plug has pegs that are inserted into the holes of the socket to create a watertight (waterproof) connection. There is one peg for each wire that reaches the plug.

5.4 Twist-lock: Type of electric connector with pins in form of an arc that secures connection with a quarter-turn motion once the plug is inserted in the slots of the socket.

6.0 GENERAL

6.1 SHORE POWER OUTLET CONFIGURATION AND IDENTIFICATION

6.1.1 Every shore power outlet shall be marked indicating the approved voltage and color.

6.1.2 Shore power outlets for portable equipment of 120VAC, 3 wires, up to 20 amperes, shall use devices of the UTILITY OUTLET type with ground-fault protection, and shall be identified with the color **YELLOW**.



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6.1.3 Shore power outlets of 120VAC, 3 wires, up to 60 amperes, shall use devices of the TWIST-LOCK type and shall be identified with the color **YELLOW**.

6.1.4 Shore power outlets of 240VAC, 3 or 4 wires, up to 200 amperes, shall use devices of the PIN AND SLEEVE type and shall be identified with the color **BLUE**.

6.1.5 Shore power outlets of 480VAC, 3 or 4 wires, up to 400 amperes, shall use devices of the PIN AND SLEEVE type and shall be identified with the color **RED**.

6.2 SHORE TELEPHONE CONNECTION CONFIGURATION AND IDENTIFICATION

6.2.1 Shall use materials identified as adequate for use on installations in marine-type environments.

6.2.2 Shall be of the threaded type for telephone use, compatible with the existent system, and approved by the ACP Telecommunications Services Unit (FAIT).

6.2.3 Shall be identified with the word "TELEPHONE" written in black letters with white background.

6.3 SHORE POWER OUTLET INSTALLATION

6.3.1 The area must be adequately lighted. When general lighting in the surroundings does not reach 5 foot-candles in the area of the outlets and/or connections, local lighting shall be installed.

6.3.2 Shore power outlets of the pin and sleeve type must be finished in an elbow of 45 degrees downward where the conditions allow it. The elbow must be of a similar material to the connection box, and both must be designed for marine-type application. When conditions do not allow the installation of an elbow, the area shall be adequately protected against severe weather conditions.

6.3.3 All new installations built at less than 0.90 meters from the border of the pier shall be designed in such a way that they do not interfere with the operations carried out in the pier.

6.3.4 All new installations built over 0.90 meters from the border of the pier shall have a height of 1.20 meters above finished floor level and shall be protected against physical damages.

6.3.5 Shall have a disconnect mechanism and an automatic overcurrent protection, either a thermal magnetic circuit breaker or a fuse according to its capacity, located nearby, and accessible at all moments.

6.3.6 Shall be synchronized in their phases.

6.3.7 Shore power connections already in existence shall be modified to adapt them to what is established in this standard, as they are scheduled for preventive maintenance.

6.4 VOLTAGES HIGHER THAN 600 VOLTS AC

6.4.1 Any wiring connection higher than 600 volts AC arranged through connection boxes (e.g., boots or other mechanism) shall be carried out by qualified personnel. Any connection by direct wiring shall be processed through the Power Division (EAE).



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7.0 RESPONSIBILITIES

7.1 The unit operating the floating equipment, landing, port, pier, dock, or the location that serves as temporary landing is responsible for implementing this standard, and to keep shore power outlets and shore telephone connections according to what is stipulated in this standard.

7.2 All shore power outlet users shall be familiarized with this standard and follow the procedures indicated in Annex 1, "Connection and Disconnection Procedures for Shore Power Outlets".

7.2.1 Units, users of these connections, are responsible for providing training about the application of this standard to all persons affected by it.

8.0 INQUIRIES

Any information or clarification of the content or application of this standard must be requested in writing to the Electrical Subcommittee of the Risk Control and Occupational Health Committee of the ACP through the Maritime Safety Unit.

9.0 EXCEPTIONS

None applicable.

10.0 TERM

This standard shall remain in force until amended or revised.

11.0 REFERENCES

11.1 NATIONAL FIRE PROTECTION ASSOCIATION. Marine Terminals, Piers, and Wharves, NFPA 307. Boston, 1985.

11.2 NATIONAL FIRE PROTECTION ASSOCIATION. National Electric Code, NFPA 70. Boston, 1999.



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ANNEX 1

CONNECTION AND DISCONNECTION PROCEDURES FOR SHORE POWER OUTLETS

For voltages of 240 VAC or more: Personnel doing the connection or disconnection shall use electrical protection gloves with leather gloves placed on top of rubber gloves. Before use, gloves shall be inspected and shall have the proper test certification from the Power Division.

FOR CONNECTION

1. Identify the connection point to the shore power outlet. Verify that the colors, voltages, and phases of the power outlet at the shore side and the side of the vessel are the same.
2. Verify that the electric disconnect mechanism of the shore power outlet is in the open (disconnected) position.
3. Connect the cable to the shore power outlet.
4. Activate the switch of the shore power outlet.
5. Turn the transfer switch onboard the floating equipment to change from onboard generator power to shore power.
6. Follow established procedures for shutting down onboard generators.

FOR DISCONNECTION

1. Follow established procedures to turn on the generators of the floating equipment.
2. Turn the transfer switch onboard floating equipment to change from shore power to onboard generator power.
3. Identify the connection point of the shore power outlet.
4. Move the switch of the shore power outlet to the disconnected position.
5. Disconnect the cable from the shore power outlet on the shore side.