

The emergency equipment and systems listed in §112.15 of this chapter.

Propulsion systems, including those provided to meet §58.01-35.

Steering systems.

### Subpart 62.15—Equivalents

#### § 62.15-1 Conditions under which equivalents may be used.

(a) The Coast Guard accepts a substitute or alternate for the requirements of this part if it provides an equivalent level of safety and reliability. Demonstration of functional equivalence must include comparison of a qualitative failure analysis based on the requirements of this part with a comparable analysis of the proposed substitute or alternate.

### Subpart 62.20—Plan Submittal

#### § 62.20-1 Plans for approval.

(a) The following plans must be submitted to the Coast Guard for approval in accordance with §50.20-5 and §50.20-10 of this chapter:

(1) A general arrangement plan of control and monitoring equipment, control locations, and the systems served.

(2) Control and monitoring console, panel, and enclosure layouts.

(3) Schematic or logic diagrams including functional relationships, a written description of operation, and sequences of events for all modes of operation.

(4) A description of control or monitoring system connections to non-vital systems.

(5) A description of programable features.

(6) A description of built-in test features and diagnostics.

(7) Design Verification and Periodic Safety test procedures described in subpart 61.40 of this chapter.

(8) Control system normal and emergency operating instructions.

#### § 62.20-3 Plans for information.

(a) One copy of the following plans must be submitted to the Officer in Charge, Marine Inspection, for use in the evaluation of automated systems provided to replace specific personnel or to reduce overall crew requirements:

(1) Proposed manning, crew organization and utilization, including routine maintenance, all operational evolutions, and emergencies.

(2) A planned maintenance program for all vital systems.

(b) One copy of a qualitative failure analysis must be submitted in accordance with §50.20-5 of this chapter for the following:

(1) Propulsion controls.

(2) Microprocessor-based system hardware.

(3) Safety controls.

(4) Automated electric power management.

(5) Automation required to be independent that is not physically separate.

(6) Any other automation that, in the judgement of the Commandant, potentially constitutes a safety hazard to the vessel or personnel in case of failure.

NOTE: The qualitative failure analysis is intended to assist in evaluating the safety and reliability of the design. It should be conducted to a level of detail necessary to demonstrate compliance with applicable requirements and should follow standard qualitative analysis procedures. Assumptions, operating conditions considered, failures considered, cause and effect relationships, how failures are detected by the crew, alternatives available to the crew, and possible design verification tests necessary should be included. Questions regarding failure analysis should be referred to the Marine Safety Center at an early stage of design.

#### § 62.20-5 Self-certification.

(a) The designer or manufacturer of an automated system shall certify to the Coast Guard, in writing, that the automation is designed to meet the environmental design standards of §62.25-30. Plan review, shipboard testing, or independent testing to these standards is not required.

(b) [Reserved]

NOTE: Self-certification should normally accompany plan submittal.