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(13) Steering system drawings and specifications;
(14) Release mechanism installation drawings and the mechanism's Coast Guard approval number;
(15) Air and water spray systems drawings and specifications, if installed;
(16) Plans for critical subassemblies;
(17) Hydraulic systems drawings and specifications, if installed;
(18) Electrical system schematics and specifications;
(19) Stability data, including righting arm curves in the light and loaded condition for both intact and flooded stability;
(20) Drawings of all signs and placards, showing actual inscription, format, color, size, and location on the lifeboat;
(21) Complete data pertinent to the installation and use of the proposed lifeboat, including the light load (condition A) and full load (condition B) weights;
(22) Specifications for the required launching ramp length and angle, and the height of free-fall lifeboat installation above the water;
(23) An operation, maintenance, and training manual as described in §§ 160.135–19 and 160.135–21 of this subpart;
(24) A description of the quality control procedures and record keeping that will apply to the production of the lifeboat, which must include but is not limited to—
(i) The system for checking material certifications received from suppliers;
(ii) The method for controlling the inventory of materials;
(iii) The method for checking quality of fabrication, seams, and joints, including welding inspection procedures; and
(iv) The inspection checklists used during various stages of fabrication to assure that the approved lifeboat complies with the approved plans and the requirements of this subpart;
(25) Full details of any other unique capability;
(26) Any other drawing(s) necessary to show that the lifeboat complies with the requirements of this subpart;
(27) The location or address of all manufacturing sites, including the name and address of any subcontractors, where the lifeboat will be constructed; and
(28) The name of the independent laboratory that will perform the duties prescribed in §§ 160.135–11 and 160.135–15 of this subpart.

(c) At the request of the manufacturer and discretion of the Commandant, an independent laboratory may conduct preapproval review required by this section so long as the preapproval review is conducted in accordance with the procedures agreed upon between the independent laboratory and Commandant under 46 CFR part 159, subpart 159.010.

(d) *Plan quality*. The plans and specifications submitted to the Commandant under this section must—
(1) Be provided in English, including all notes, inscriptions, and designations for configuration control;
(2) Address each of the applicable items in paragraph (b) of this section in sufficient detail to show that the lifeboat meets the construction requirements of this subpart;
(3) Accurately depict the proposed lifeboat;
(4) Be internally consistent;
(5) Be legible; and
(6) If reviewed by an independent laboratory under paragraph (c) of this section, include the independent laboratory's attestation that the plans meet the quality requirements of this section.

(e) *Alternatives*. Alternatives in materials, parts, or construction, and each item replaced by an alternative, must be clearly indicated as such in the plans and specifications submitted to the Commandant under this section.

(f) *Coast Guard review*. If the plans or specifications do not comply with the requirements of this section, Coast Guard review may be suspended, and the applicant notified accordingly.

§ 160.135–11 Fabrication of prototype lifeboats for approval.

(a) If the manufacturer is notified that the information submitted in accordance with § 160.135–9 of this subpart is satisfactory to the Commandant, the manufacturer may proceed with fabrication of the prototype lifeboat as set forth in this section.

(b) Unless the Commandant directs otherwise, an independent laboratory must perform or witness, as appropriate, inspections, tests, and oversight required by this section. Prototype inspections and tests of a lifeboat must be carried out in accordance with the procedures for independent laboratory inspection in 46 CFR part 159, subpart 159.007 and in this section, unless the Commandant authorizes alternative tests and inspections. The Commandant may prescribe additional prototype tests and inspections necessary to maintain quality control and to monitor compliance with the requirements of this subpart.

(c) Fabrication of a lifeboat must proceed in the following sequence:

(1) The manufacturer must arrange for an independent laboratory (or Coast Guard inspector if required under paragraph (b) of this section) to inspect, test, and oversee the lifeboat during its fabrication and prepare an inspection and test report meeting the requirements of 46 CFR 159.005–11.

(2) The independent laboratory must make such inspections as are necessary to determine that the prototype is constructed by the methods and with the materials specified in the plans reviewed under §160.135–9 of this subpart. By conducting at least one inspection during its construction, the independent laboratory must determine the prototype lifeboat conforms with those plans by inspecting—

(i) *Fiber Reinforced Plastic (FRP) Construction.*

(A) FRP components of each prototype lifeboat outer hull and any FRP inner hull or liner components that are bonded or bolted to the outer hull must have a layup made of unpigmented clear resins so that details of construction are visible for inspection. Test panels representative of each prototype layup must be tested in accordance with MIL–P–17549D(SH) (incorporated by reference, see §160.135–5 of this subpart). If an accepted MIL–R–21607E(SH) (incorporated by reference, see §160.135–5 of this subpart) Grade B resin is used for the prototype lifeboat, additives for fire retardancy must not be used so that the laminate is translucent for inspection purposes. Any prototype test lifeboat with Grade B resins will not be marked in accordance with §160.135–17 of this subpart for use as a production lifeboat regardless of the outcome of the performance tests. Whichever accepted resin the manufacturer decides to use for the prototype lifeboat, the same resin must be used in the production lifeboats.

(B) The hull, canopy, and major structural laminates of each prototype FRP lifeboat must be tested for resin content, ultimate flexural strength, and tensile strength. The test samples must be cut out from the prototype lifeboat, or be laid up at the same time, using the same procedures and by the same operators as the laminate used in the lifeboat. The number of samples used for each test, and the conditions and test methods used, must be as per the applicable test specified in this paragraph. The resin content must be determined as per ASTM D 2584 or ISO 1172 (incorporated by reference, see §160.135–5 of this subpart). The flexural ultimate strength must be determined by ASTM D 790 method I (test condition ''A'', flatwise, dry) or the corresponding ISO 14125 test method (incorporated by reference, see §160.135–5 of this subpart). The tensile strength, lengthwise, must be determined as per ASTM D 638 or ISO 527 (incorporated by reference, see §160.135–5 of this subpart).

(C) Each major FRP component, such as the hull, canopy, and inner liner(s), of each prototype FRP lifeboat must be examined and weighed after it is completed but before it is assembled. If the lifeboat is constructed by the spray lay-up technique, the hull and canopy thicknesses must be measured using ultrasonic or equivalent techniques;

(ii) *Steel construction.* Steel sheet and plate used for the hull, floors, and other structural components of a prototype steel lifeboat must meet the bend tests requirement specified under ASTM A 653 (incorporated by reference, see §160.135–5 of this subpart) after galvanizing or other anti-corrosion treatment has been applied. This may be demonstrated through a supplier's certification papers or through witnessing actual tests;

(iii) *Coated cloth for partially enclosed lifeboats.* Cloth material used in the construction of each prototype lifeboat

must be confirmed to have met the requirements specified under §160.135–7(b)(28) of this subpart. This may be demonstrated through a supplier's certification papers or through witnessing actual tests;

(iv) *Welding.* Structural components of each prototype lifeboat joined by welding must be welded by the welding procedures and materials as per the plans reviewed under §160.135–9 of this subpart and by welders appropriately qualified;

(v) *Buoyancy foam.* Each major subassembly of a prototype lifeboat, such as the hull with liner and canopy with liner, must be weighed after the buoyancy foam is installed and before it is further assembled;

(vi) Installation of the propulsion system;

(vii) Installation of the steering system; and

(viii) Installation of the water spray fire-protection and air support system(s), if fitted.

(3) The independent laboratory must submit the inspection report to the Commandant.

§160.135–13 Approval inspections and tests for prototype lifeboats.

(a) After the Commandant notifies the manufacturer that the prototype lifeboat is in compliance with the requirements of §160.135–11 of this subpart, the manufacturer may proceed with the prototype approval inspections and tests required under this section. The prototype lifeboat, the construction of which was witnessed under §160.135–11 of this subpart, must be used for the tests in this section.

(b) Except as provided in paragraph (f) of this section, the Coast Guard must conduct the approval inspections and witness the approval tests required under this section.

(c) *Manufacturer requirements.* To proceed with approval inspections and tests required by this section, the manufacturer must—

(1) Notify the Commandant and cognizant Officer in Charge, Marine Inspection (OCMI) of where the approval inspections and tests required under this section will take place, and such notification must be in sufficient time to allow making travel arrangements;

(2) Arrange a testing schedule that allows for a Coast Guard inspector to travel to the site where the testing is to be performed;

(3) Admit the Coast Guard inspector to any place where work or testing is performed on lifeboats or their component parts and materials for the purpose of—

(i) Conducting inspections as necessary to determine that the prototype is constructed by the methods and with the materials specified in the plans reviewed under §160.135–9 of this subpart and the inspection report under §160.135–11 of this subpart;

(ii) Assuring that the quality assurance program of the manufacturer is satisfactory;

(iii) Witnessing tests; and

(iv) Taking samples of parts or materials for additional inspections or test; and

(4) Make available to the Coast Guard inspector the affidavits or invoices from the suppliers of all essential materials used in the production of lifeboats, together with records identifying the lot or serial numbers of the lifeboats in which such materials were used.

(d) *Tests.* (1) *Prototype lifeboat readiness.* All tests must be conducted on a completely outfitted lifeboat, including fixed equipment such as compass, searchlight, and navigating lights. Loose equipment may be substituted by weights.

(2) *Fiber Reinforced Plastic (FRP) prototype lifeboat lay-up.* For the prototype of each design of an FRP lifeboat, the lay-up must be made of unpigmented resins and clear gel coat.

(3) *Fuel tank.* Each non-portable fuel tank must be tested by a static head above the tank top of 3 m (10 ft) of water without showing any leaks or signs of permanent distortion.

(4) *IMO Revised recommendation on testing.* Each prototype lifeboat of each design must pass each of the tests for davit-launched or free-fall lifeboats, as applicable, described in the IMO Revised recommendation on testing, part 1, paragraphs 6.1 through 6.17 (incorporated by reference, see §160.135–5 of this subpart). Tests must be conducted in accordance with these paragraphs of