

(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 rescue boat;

(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.

§ 160.156-11 Fabrication of prototype rescue boats and fast rescue boats for approval.

(a) If the manufacturer is notified that the information submitted in accordance with § 160.156-9 of this subpart is satisfactory to the Commandant, the manufacturer may proceed with fabrication of the prototype rescue boat 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 rescue boat

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 rescue boat 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 rescue boat 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 § 160.156-9 of this subpart. By conducting at least one inspection during its construction, the independent laboratory must determine the prototype rescue boat conforms with those plans by inspecting—

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

(A) FRP components of each prototype rescue boat 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 § 160.156-5 of this subpart). If an accepted MIL-R-21607E(SH) Grade B resin is used for the prototype rescue boat, additives for fire retardancy must not be used so that the laminate is translucent for inspection purposes. A prototype test rescue boat with Grade B resins will not be marked in accordance with § 160.156-17 of this subpart for use as a production rescue boat regardless of the outcome of the performance tests. Whichever accepted resin the manufacturer decides to use for the prototype

rescue boat, the same resin must be used in the production rescue boats.

(B) The hull, canopy, and major structural laminates of each prototype FRP rescue boat must be tested for resin content, ultimate flexural strength, and tensile strength. The test samples must be cut out from the prototype rescue boat, or be laid up at the same time, using the same procedures and by the same operators as the laminate used in the rescue boat. 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 §160.156-5 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 §160.156-5 of this subpart). The tensile strength, lengthwise, must be determined as per ASTM D 638 or ISO 527 (incorporated by reference, see §160.156-5 of this subpart).

(C) Each major FRP component, such as the hull, canopy, and inner liner(s) of each prototype FRP rescue boat, must be examined and weighed after it is completed but before it is assembled. If the rescue boat 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 rescue boat must meet the bend tests requirement specified under ASTM A 653 (incorporated by reference, see §160.156-5 of this subpart) after galvanizing or other anti-corrosion treatment has been applied. This may be demonstrated through supplier's certification papers or through witnessing actual tests;

(iii) *Welding.* Structural components of each prototype rescue boat joined by welding must be joined by the welding procedures and materials per the plans reviewed under §160.156-9 of this subpart and by welders appropriately qualified;

(iv) *Buoyancy material.* If block foam buoyancy material is used, each piece must be weighed after it is cut and shaped to make sure that the correct amount of foam is installed. If foamed-in-place buoyancy material is used, a separate sample of the foam must be poured, and used to make a density determination after it has set. The density must be $32 \pm 8 \text{ kg/m}^3$ ($2 \pm 0.5 \text{ lb/ft}^3$). Each major subassembly 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;

(v) *Coated fabric.* Coated fabric for inflatable collars used in the construction of each rescue boat must meet the requirements specified under §160.156-7(b)(3) of this subpart. This may be demonstrated through a supplier's certification papers or through witnessing actual tests;

(vi) Installation of the propulsion system; and

(vii) Installation of the steering system.

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

§ 160.156-13 Approval inspections and tests for prototype rescue boats and fast rescue boats.

(a) After the Commandant notifies the manufacturer that the prototype rescue boat is in compliance with the requirements of §160.156-11 of this subpart, the manufacturer may proceed with the prototype approval inspections and tests required under this section. The prototype rescue boat, the construction of which was witnessed under §160.135-11 of this part, 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