LIFEBOAT - COAST GUARD CG-5214 REVIEW (DATE)
(MANUFACTURER) (MODEL)

REQUIREMENTS	MANUFACTURER COMMENTS	CG-5214 REVIEW COMMENTS
REQUIRED DRAWINGS AND DOCUMENTS		
General required documents for all lifeboats: 1) A list of drawings, specifications, manuals, and any other documentation submitted, with each document identified by number, title, revision issue, and date; 2) MASTER DRAWING LIST 3) General arrangement and assembly drawings, including principal dimensions: a) Hull and canopy construction drawings, including particulars of joints, welds, seams, and other fabricating details; b) Plans for critical subassemblies; c) Control and steering station: layout of helmsman's console d) Seating arrangement plan, including a dimensioned seat form to scale; e) Hull, canopy, and critical parts lay-up schedule for a Fiber Reinforced Plastic (FRP) lifeboat including buoyancy installation & calculations; f) Fabrication details for each major		

structural component, including details of each welded joint; g) Steering system drawings and specifications; h) Release mechanism installation drawings especially hull connection details and the mechanism's Coast Guard approval number; i) Propulsion and fuel system specifications and arrangement and installation drawings; j) Electrical system schematics and specifications; k) Hydraulic systems drawings and specifications, if installed 4) A complete material list, with each material referenced to a U.S. national standard or, if a copy is provided in English, an equivalent international standard; 5) Plans for carriage and, in detail, stowage of equipment; 6) Weights and thickness of each major FRP structural component, including the hull, canopy, and inner liners, before outfitting; 7) Specification and identification of materials such as steel, aluminum, resin, foam, fiberglass, cloth, and plastic used in the lifeboat's manufacture; 8) Lines Plans and Stability data, including righting arm curves in the		

light and loaded condition for both intact and flooded stability; 9) Drawings of all signs and placards, showing actual inscription, format, color, size, and location on the lifeboat; 10) Complete data pertinent to the installation and use of the proposed lifeboat, including the light load (condition A) and full load (condition B) weights; 11) An Operation, Maintenance, and Training manual		
Totally Enclosed: Seatbelt details per LSA Code 4.6.3.1. **Seating, General.** • Each seating position not on a bench or chair clearly intended for one person, must be indicated by a semicircle of a color that contrasts with the color of the seat. • Each set of safety belts for a seat must be of a color which contrasts with the belts for seats immediately adjacent. The method of securing the seat belt must be self-evident to an untrained person.		
Partially Enclosed: Permanently attached foldable canopy details (see No. 28 below requirements)		
Tanker lifeboats with spray and air systems: a. Spray system, including spray heads and coverage pattern		

b. Window materials and installation details c. Air system, including regulators and air bottles		
Freefall lifeboat: a. Specifications for the required launching ramp length and angle, and the height of free-fall lifeboat installation above the water; b. Release mechanism details c. Safety harness details per LSA Code 4.6.3.1		
GENERAL SPECIFICATIONS		
Principle dimensions: Length x Height x Breadth		
Persons capacity - per seating arrangement including crew (≤ 150)		
Condition A weight (estimated prototype) the complete lifeboat **empty** and **does not include** fuel, required equipment, or the equivalent weight of persons **Condition B** weight of the complete lifeboat: includes all required equipment, provisions, fuel, and the weight of the number of persons for which it is designed		
Seeking approval as a SOLAS rescue boat? Refer to SOLAS rescue boat checklist		
Freefall lifeboats: • Projected free-fall certification height • Required launching ramp angle and		

length		
DESIGN REQUIREMENTS		
Meets applicable requirements of IMO LSA Code, Chapter IV with the following USCG requirements:		
Partially enclosed lifeboats must be designed to be operable by persons wearing immersion suits. The dimensions for a person wearing an immersion suit correspond to the arctic clothed dimensions of ASTM F 1166.		
Are skates or fenders required to meet impact test? (LSA Code 4.4.1.7)	Y/N	
Each lifeboat should be designed following standard human engineering practices described in ASTM F 1166 with design limits based on a range from the fifth percentile female to the ninety-fifth percentile male values for critical body dimensions and functional capabilities.		
Non self-righting lifeboats required to meet LSA Code 4.4.7.4: Handrails must extend for half the length of the boat on both sides of the hull, and the clearance between the rail and hull must also be at least 38 mm (1.5 in). The rails must be attached to the hull below the chine or turn of the bilge, must be faired to prevent any fouling, and not project beyond the widest part of the boat.		
VISIBILITY 1. The operator's station must be		

designed such that the operator, when seated at the control station, has visibility 360 degrees around the lifeboat, with any areas obstructed by the lifeboat structure or its fittings visible by moving the operator's head and torso. 2. The operator, while still being able to steer and control the speed of the lifeboat, must be able to see the water-- a. Over a 90 degree arc within 3 m (9 ft, 10 in) of each side of the lifeboat; b. Over a 30 degree arc within 1 m (3 ft, 3 in) of each side of the lifeboat; and c. Within 0.5 m (1 ft, 8 in) of the entrances designated for recovering persons from the water. 3. A hatch must be provided so that the operator can stand with his or her head outside the lifeboat and still steer and control the speed of the lifeboat.		
Stability, general. Righting arm curves - light/intact - light/flooded - loaded/intact - loaded/flooded Each lifeboat without doors on the side of the enclosure must not exceed an angle of heel of 20º and must have a righting arm (GZ) of at least 0.2 m (7.87 in.) at 45º of heel in the intact and the fully loaded		

<table>
<tr><td>condition.</td><td></td><td></td></tr>
<tr><td colspan="3">Construction, general.
Each major rigid structural component of each lifeboat must be constructed of steel, aluminum, Fiber Reinforced Plastic (FRP), or materials accepted by CG-5214 as equivalent or superior.
Metals in contact with each other must be either galvanically compatible or insulated with suitable non-porous materials. Provisions must also be made to prevent loosening or tightening resulting from differences of thermal expansion, freezing, buckling of parts, galvanic corrosion, or other incompatibilities.</td></tr>
<tr><td colspan="3">Metals requirements</td></tr>
<tr><td>Sheet steel and plate: low carbon, commercial quality, either corrosion resistant or galvanized per ASTM A 653, at least coating designation G90.
Structural steel plates and shapes: carbon steel per ASTM A 36, or an equivalent or superior steel accepted by CG-5214.
All steel products, except corrosion resistant steel, must be galvanized to provide high quality zinc coatings suitable for the intended service life in a marine environment.
Corrosion resistant steel: 302 stainless steel or have equal or superior corrosion resistant characteristics.</td><td>Manufacturer: Provide copy of standard if not U.S. national standard or international standard.</td><td>For the purposes of comparison, A 36 is a low carbon, structural quality steel with a low brittle transition temperature, however, for boats to be used in arctic service, steel with a lower transition temperature should be used.
A 36 Composition
C Mn P S Si
0.29 0.8-1.2 0.04 0.05 0.15-0.30
A 36 Properties
Tensile 400-550 MPa (58-80 ksi)
Yield 220-250 MPa (32-36 ksi)
Elongation 20% in 200 mm (8 in)
23% in 50 mm (2 in)
Manufacturers of lifeboats are required to test and/or calculate strength of load-bearing parts for approval, and have an acceptable safety factor. So, even “low-strength” materials could be used, if enough is used. Main consideration in selection of alternative steels should be brittle fracture, especially at lower temperatures. Therefore
Published elongation at failure data</td></tr>
</table>

		should be around 20% • Carbon content should not exceed the 0.29% of A 36, since increasing C content generally increases transition temperature and decreases toughness. • Manganese can reduce transition temperature of low-carbon steels, so Mn content should generally not be less than the 0.80% limit for A36. • High Sulfur content can decrease toughness, so S content should not exceed the 0.05% permitted for A36. • Increasing Phosphorus increases transition temperature, so P content should not exceed the 0.04% permitted for A36. Silicon is used in amounts of 0.15-0.30% to deoxidize (kill) steel, and lowers transition temperature. Si should be roughly in this range.
Aluminum and aluminum alloys must conform to ASTM B 209 and be high purity for good marine corrosion resistance, free of iron, and containing not more than 0.6 percent copper.	Manufacturer: Provide copy of standard if not U.S. national standard or international standard.	Generally – Alloys in the ASTM 5xxx and 6xxx series are suitable Alloys in the ASTM 2xxx and 7xxx series are **NOT** suitable
Welding must be performed by welders certified by the national body where the boat is constructed, or that national body's designated recognized organization, accepted by the cognizant OCMI or the independent laboratory performing the tests or inspections.	Y/N	
Fiber Reinforced Plastic		

Specify - Resin content and allowable range - Flexural ultimate strength - Tensile strength, lengthwise		
Glass cloth must be a finished fabric woven from "E" electrical glass fiber yarns meeting ASTM D 4029-09 commercial style designation 1564.		Other glass materials equivalent or superior in strength, design, wet out, and efficiency will be given consideration on specific request to CG-5214.
Woven roving must conform to MIL-C-19663D.		
Resin. Any resin used for the hull, canopy, hatches, rigid covers, and enclosures for the engine, transmission, and engine accessories, must be fire retardant and accepted by CG-5214 in accordance with 46 CFR subpart 164.020.	Manufacturer: See latest accepted fire retardant resin list from CG-5214.	
Laminate mechanical properties must meet the requirements for a Grade 3 laminate of Table I of MIL-P-17549D(SH).		Other grades will be given consideration on specific request to CG-5214.
OTHER MAJOR COMPONENTS		
Lifeboat buoyancy foam. • Material must be on CG-5214 accepted list. • Density of 32 ± 8 kg/m3 (2 ± 0.5 lb/ft3). • All voids in the hull and canopy required to provide buoyancy for positive stability and self righting must be completely filled with CG-5214 accepted buoyancy material.		
	ENGINE/TRANSMISSION	
Engines must be on CG-5214 accepted list		

having met US EPA and IMO LSA Code requirements.		
Air-cooled engines shall have a duct system to take in cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from, and exhausted to, the interior of the lifeboat.		
The design of all engine exhaust pipes, air ducts and other openings shall be such that water is excluded from the engine when the lifeboat capsizes and re-rights.		
Identify stuffing box or other shaft seal/bearing arrangement.		
Identify propeller: diameter, pitch, blades, material, etc.		
Hydraulic system (if applicable): Engine starting- meets 46 CFR 58.30, with hose and fittings per 46 CFR 56.60, except that-- (A) Push-on type fittings such as Aeroquip 1525-X, 25156-X, and FC332-X are not permitted; and (B) The length of nonmetallic flexible hose is limited to 760 mm (30 in). If a hand pump is provided, or if the engine has a manual starting system, adequate space must be provided for the hand pump or hand start operation.		Longer, nonmetallic flexible hoses may be allowed in emergency steering systems at the discretion of CG-5214.
FUEL SYSTEM		
Meets 46 CFR 56.50-75(b) and, except as		

specified below, the fuel tank must meet 46 CFR 58.50-10.		
Acceptable tanks materials: -- Aluminum: ≥ 5 mm (0.20 in) thick of ASTM B 209 or 5086 alloy; Nickel-copper: ≥ 0.9 mm (0.0375 in) thick of ASTM B 127 hot-rolled sheet or plate; Steel or iron: ≥ 1.9 mm (0.0747 in) thick. Diesel tanks of steel or iron must not have interior galvanizing; FRP: ≥ 5 mm (0.187 in) thick, and: • sealed against porosity by at least one ply of chopped strand mat; • be reinforced in the way of tank openings; • be fitted with corrosion-resistant fittings; • have each joint at the top of the tank; • and have each joint bonded and through-bolted; Roto-molded plastic: ≥t 5 mm thick; and: • meet 33 CFR 183.510 (a), (b), and (e) regardless of tank capacity; • must be able to pass all static pressure tests as required in 33 CFR 183.510 at a minimum pressure of 5 psi; and • be fitted with corrosion-resistant fittings. Tank, general requirements:		

• Each fuel tank over 0.75 m (30 in) long must be baffled at intervals not exceeding 0.45 m (18 in). • A fuel level indicator must be provided for each fuel tank. • Any fuel tank vent piping must be at least 6 mm (0.25 in) outside diameter tubing.		
Fuel shut-off valve: provided at the fuel tank and **not** at the fuel pump. The valve must be clearly labelled and the position of the valve must be clearly indicated by a permanent marking inside the lifeboat legible to a person within the vicinity of the engine.. must be an arrow pointing in the direction of the valve, and the words "FUEL SHUT-OFF VALVE" in a color contrasts with their background.		
Starting system batteries. Any battery fitted in a totally enclosed lifeboat must be stored in a sealed compartment with exterior venting. If the lifeboat has more than one engine, then only one starting battery is required per engine.		
(9) Exhaust. Engine exhaust must be routed away from bilge and potential oil drips. Any paint used on engines, manifolds, or exhaust must not give off fumes when heated. All exhaust lagging must be non-absorbent.		

(10) Propeller guard. Each propeller on a lifeboat must be fitted with a propeller guard with a maximum opening of 76 mm (3 in) on all sides on which a person is likely to be exposed.		
(11) Control and steering station. The operator's control and steering station must have complete lifeboat lowering and launching, hook release, engine throttle, steering controls, and if applicable, an air system and water spray system. (i) The throttle must be a continuous manual control and must be able to be set and locked at any position. (ii) The control and steering station must be designed and laid out in accordance with ASTM F 1166 sections 9 and 10, so that controls and displays are unambiguous, accessible, and easy to reach and use from the operator's normal seated position, while wearing an immersion suit or a lifejacket. (iii) Each control, gauge, or display must be identified by a marking posted on, above, or adjacent to the respective item. Each control must operate in a logical manner and be marked with an arrow to show direction of movement of control which will cause an increased response. Each gauge must be marked with the normal operating range and indicate danger or abnormal conditions.		

Each marking must be permanent and weatherproof. (iv) Gauges, and audio and visual alarms must be provided to monitor at least the following parameters-- (A) Coolant temperature, for a liquid cooled engine; (B) Oil pressure, for an engine with an oil pump; (C) Tachometer, for an engine not provided with over-speed protection; and (D) State of charge, or rate of charge, for each rechargeable engine starting power source.		
(12) Drain plug. The position of each drain plug must be clearly indicated by a permanent marking inside the lifeboat. The marking must be an arrow pointing in the direction of the plug, and the words "DRAIN PLUG" must be 76 mm (3 in) high and have letters of a color that contrast with their background. The marking must be clearly visible to a person within the vicinity of the drain plug.		
(13) Remote steering. The procedure to change over from remote to local steering must be simple, not require the use of tools, and be clearly posted. There must be sufficient clear space to install, operate, remove, and stow the removable tiller arm. The tiller arm and its connection to the rudder stock must be of sufficient strength so that there is no slippage or bending of		

the tiller arm. Rudder stops or other means must be provided to prevent the rudder from turning too far on either side.		
(14) Lifelines. Buoyant lifelines must be of ultraviolet resistant material.		
(15) Rails provided as handholds. Rails provided as handholds to cling when the lifeboat is overturned must extend for half the length of the lifeboat on both sides of the hull, and the clearance between the rail and hull must also be at least 38 mm (1.5 in). The rails must be attached to the hull below the chine or turn of the bilge, must be faired to prevent any fouling, and not project beyond the widest part of the lifeboat.		
(16) Storage compartments and collection and storage of rainwater. (i) Each storage compartment must be supported and secured against movement. It must have adequate hand access for removing and storing the required equipment, provisions, or water, and for cleaning the inside of the compartment. (ii) The rain water collecting device may be incorporated into the design of the canopy or may be a separate unit to be mounted outside the lifeboat. The device must have a projected horizontal area of at least 1 m2 (10.7 ft2) collection area and be designed to function unattended. (iii) Provision must be made to		

continue to collect water in the storage compartment while drawing water to fill a cup. The compartment must have a means of drainage and adequate access to allow filling the graduated drinking cup required to be carried as part of the lifeboat equipment.		
(17) Release mechanism. must be approved under series 160.133. release lever or control must be red in color, and the area immediately surrounding the control must be a sharply contrasting light color.		
(18) Painter release. Any painter release must be located such that the lifeboat operator can readily release the painter from the operator's control and steering station.		
(19) Canopy lamp. Any exterior lifeboat position-indicating light must be approved by the Commandant under approval series 161.101.		
(20) Manually-controlled interior light. Any interior light must be approved by the Commandant under approval series 161.101.		
(21) Lifeboat equipment. Each lifeboat must be designed to accommodate and carry the equipment as specified in 46 CFR 199.175, **see list at the end of this document**.		
(22) Oars. Oars are not required on a		

lifeboat with more than one engine, provided one engine can be operated while the other is disabled		
(23) Bilge pump. Each lifeboat that is not automatically self-bailing, must be fitted with a manual bilge pump approved under 46 CFR part 160, subpart 160.044. Each such lifeboat with a capacity of 100 persons or more must carry an additional approved manual bilge pump or an engine-powered bilge pump.		
(24) Exterior color. The primary color of the exterior of the canopy and interior of partially enclosed lifeboats visible from the air must be a highly visible color equivalent to vivid reddish orange color number 12197 of FED-STD-595C, or a durable fluorescent color of a similar hue.		
(25) Self-contained air supply system and fire protection system operating instructions. • Each compressed gas air cylinder must meet the requirements in 46 CFR 147.60, see also UN marked cylinders per US DOT regs, http://www.hazmat.dot.gov. • The cylinders must be accessible for removal and charging in place.		
(26) Navigating lights. Each lifeboat must have navigation lights that are in compliance with the applicable sections of the International and Inland Navigation Rules and meet 46 CFR 111.75-17.		

REQUIREMENTS	MANUFACTURER COMMENTS	CG-5214 REVIEW COMMENTS
(27) Retroreflective material. The exterior of each lifeboat and its canopy must be marked with Type II retroreflective material approved under 46 CFR 164.018. The arrangement of the retroreflective material must comply with IMO Res. A.658(16).		
(28) Permanently attached foldable canopy. For a partially enclosed lifeboat, the foldable canopy cloth material must meet the specifications for Type II, Class 1 requirements of A-A-55308, or be accepted by the Commandant as equivalent or superior.		
LABELS/PLACARDS/INSTRUCTIONS		
Labels and notices. Any labels, caution and danger notices, and operating, maintenance, or general instructions, must be in accordance with ASTM F 1166, Section 15, in terms of format, content, lettering size and spacing, color, and posted location. They must be illustrated with symbols in accordance with IMO Res. A.760(18) ,as applicable. Information and instruction plates, not specifically mentioned in this section, must not be posted in the vicinity of the control and steering station without prior approval from CG-5214. Identification label plates, if required, must be posted on or above the component or equipment to be identified.		
Release mechanism instruction. An illustrated operating instruction plate or		

placard showing the correct off-load and emergency on-load release procedure and recovery procedure must be posted so that it is visible and legible from the helmsman's normal operating position. The plate or placard must be corrosion resistant and weatherproof and must be marked with the word “DANGER”.		
fuel shut-off valve must be clearly labeled. - The position of the valve must be clearly indicated by a permanent marking inside the lifeboat. - Suitable marking must be an arrow pointing in the direction of the valve, and words such as "FUEL VALVE" in a color that contrasts with its background. (Rev 031208) - The marking must be legible to a person within the vicinity of the engine.		
water spray and air supply, if fitted. Water-resistant instructions for starting the water spray and air supply, if fitted, must be provided and mounted in a conspicuous place near the system controls.		
Weatherproof equipment list must be permanently mounted in a conspicuous and prominent location on a stowage locker or compartment, or on inside of canopy. The list must include a stowage plan, oriented such that the stowage location of each item of loose equipment is readily apparent.		

REQUIREMENTS	MANUFACTURER COMMENTS	CG-5214 REVIEW COMMENTS
The position of each drain plug must be clearly indicated by a permanent marking inside the lifeboat. The marking must be an arrow pointing in the direction of the plug, and the words "DRAIN PLUG" in 75 mm (3 in) high letters of a color that contrasts with their background. The marking must be clearly visible to a person within the vicinity of the drain plug.		
Procedure to change over from remote to local steering must be clearly posted.		
The painter quick-release control must be clearly identified by a label.		
Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.		
Sufficient number of notices, showing graphical or pictorial instructions for wearing and securing seat belts, must be posted in free-fall lifeboats so that they are clearly visible from every seat position within the boat.		
Instructions and controls to operate the compressed air system, and gauges to indicate cylinder and air discharge pressures must be clear, and visually and physically accessible.		
	MANAUALS	

REQUIREMENTS	MANUFACTURER COMMENTS	CG-5214 REVIEW COMMENTS
Operation and maintenance instructions. (1) Follows the general format and content specified in MSC.1 Circ. 1205; and (2) Includes a checklist for use in monthly, external visual inspections of the lifeboat. (3) In English (4) may be combined with similar material for survival craft and rescue boats, and their launching systems.		
Training Manaul (1) Uses the symbols from IMO Res. A.760(18) to describe the location and operation of the lifeboat. (2) may be combined with similar material for survival craft and rescue boats, and their launching systems. (3) In English (4) In the form of an instruction placard providing simple procedures and illustrations for operation of the lifeboat. The placard must be not greater than 36 cm (14 in) by 51 cm (20 in), and must be made of durable material and suitable for display near installations of lifeboats on vessels.		
QUALITY CONTROL PROGRAM		
Institute a quality control procedure to ensure that all production lifeboats are produced to the same standard, and in the same manner as the prototype boat approved. The manufacturer's quality control personnel shall not work directly		

under the department or person responsible for either production or sales.		
Ensures that all required tests are performed.		
Quality control procedures: (1) inspections / quality teams (2) inventory control (3) welding inspection/control (4) Record keeping including material certifications		
Weight. The weight of each component, i.e., hull, canopy, and inner liner must be within 10% of similar sections of the prototype boat. These weights must be the bare laminate weights. Backing plates that are molded into the laminate may be included. (2) Post Assembly Inspections and Tests. The finished lifeboat shall be visually inspected inside and out. The manufacturer shall develop and maintain current, a visual inspection checklist designed to ensure that all applicable requirements have been met and the lifeboat is equipped in accordance with approved plans. A sample checklist may be obtained from the Commandant (G-MSE). (d) Recordkeeping. As part of the records required under 159.007-13 of Subchapter		

Q, the manufacturer shall keep records of all items listed in this section. All records shall be maintained for at least 5 years from the date of termination of approval of each lifeboat. The following records shall be kept: (1) Affidavits or invoices from the suppliers identifying all essential materials and components used in the production of approved lifeboats, together with an identification of the serial numbers of the lifeboats constructed with those materials; (2) Certification from suppliers of each essential material and component that it meets applicable requirements; (3) Start and finish date and time of the lay-up of each major FRP component such as the hull, canopy, and inner liner and the names of the operator(s); (4) Start and finish date and time of pouring of foam-in-place rigid buoyancy foam, and name of operator(s); (5) Records of all structural welding and name of operator(s); (6) Records of each required production inspection and test; (7) A copy of this guideline, other CFR sections referenced in this guideline, and each applicable document listed in 35-1; (8) A copy of approved plans and certifications; (9) The approval certificate for the lifeboat;		

(10) Records of welder certificates, training and qualifications; (11) Date and results of calibration of test equipment and the name and address of the company or agency that performed the calibration; (12) The serial number of each production lifeboat, along with records of its inspections and test carried out under this section; and (13) The original purchaser of each lifeboat and the vessel on which it was installed, if known.		
Thickness. The average thickness of each component of sprayed-up laminate must be within 20% of the corresponding sections of the prototype.		
Resin Content. Laminate samples from the hull, canopy, and inner liners shall be tested as described in 35-13(d)(1)(i). The resin content must be within 8 percentage points of the prototype results. If the resin content does not comply, flexural ultimate strength and tensile tests shall be conducted.		
Flexural Ultimate Strength and Tensile Tests. Laminate samples from each component i.e. hull, liner, and canopy, that does not comply with the resin content requirement, and from each component of		

every fifth production boat, shall be subjected to the flexural ultimate strength and tensile strength tests as described in 35-13(d)(1)(ii) and (iii), respectively. The values must be at least 90% of the prototype results. If the values do not comply, the component shall be rejected.		
Buoyancy Material. If block foam buoyancy material is used, each piece shall 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 shall be poured, and used to make a density determination after it has set. The density must be within 32 8 kg/m3 (2 0.5 lb/ft3).		
Steel Sheet and Plate. Steel sheet and plate for the hull, floors, and other structural components meeting ASTM A 525 shall be confirmed to have met the coating mass and bend tests requirement specified under ASTM A 525 after galvanizing or other anti-corrosion treatment has been applied. This compliance can be ascertained through supplier's certification papers or through conducting actual tests.		
Cloth. The cloth material used for a foldable canopy on a partially enclosed boat shall be confirmed to meet the		

material specification approved by the Commandant (G-MSE). This compliance can be ascertained through supplier's certification papers or through witnessing actual tests.		
Fuel Tank. Each fuel tank shall be tested by a static head above the tank top of 3m (10 ft) of water without showing any leaks or signs of permanent distortion.		
EXTERIOR CORROSION RESISTANT PLATE		
The plate or label must contain the-- (1) Name and address of the manufacturer; (2) Manufacturer's model identification; (3) Name of the independent laboratory that witnessed the prototype or production test and inspections; (4) Serial number of the lifeboat; (5) U.S. Coast Guard approval number; (6) Month and year of manufacture; (7) Material of hull construction; (8) Number of persons for which the lifeboat is approved; (9) Light load and full load (condition A and condition B weight); and (10) Word "SOLAS."		

REFERENCES:

(1) ASTM A 36/A 36M-08 Standard Specification for Carbon Structural Steel

(2) ASTM A276-08a Standard Specification for Stainless Steel Bars and Shapes

(3) ASTM A313 / A313M-08 Standard Specification for Stainless Steel Spring Wire

(4) ASTM A314-08 Standard Specification for Stainless Steel Billets and Bars for Forging

(5) ASTM A 653/A 653M-08 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

(6) ASTM B 127-05(2009) Standard Specification for Nickel-Copper Alloy (UNS N04400) Plate, Sheet, and Strip

(7) ASTM B 209-07 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

(8) ASTM D 638-08 Standard Test Method for Tensile Properties of Plastics,

(9) ASTM D 790-07e1 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

(10) ASTM D 2584-08 Standard Test Method of Ignition Loss for Cured Reinforced Resins

(11) ASTM D 4029-09 Standard Specification for Finished Woven Glass Fabrics

(12) ASTM F 1166-07 Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

(13) GSA Federal Standard 595C - Colors Used in Government Procurement

(14) IMO Resolution A.658(16), Use and Fitting of Retro-reflective Materials on Life-saving Appliances

(15) IMO Resolution A.760(18), Symbols Related to Life-Saving Appliances and Arrangements

(16) IMO Resolution MSC.81(70), IMO Revised recommendation on testing of life-saving appliances, as amended by IMO Resolutions MSC.226(82), and MSC.274(85)

(17) IMO Resolution MSC.48(66), International Life-Saving Appliance Code, as amended by IMO Resolutions MSC.207(81), MSC.218(82), and MSC.272(85)

(18) MSC Circular 980, Standardized life-saving appliance evaluation and test report forms

(19) MSC.1 Circular 1205, Guidelines for Developing Operation and Maintenance Manuals for Lifeboat Systems

(20) ISO 14125:1998 Fibre-reinforced plastic composites - - Determination of flexural properties

(21) ISO 527-1:1993 Plastics - - Determination of tensile properties

(22) ISO 1172:1996 Textile-glass-reinforced plastics -- Prepregs, moulding compounds and laminates -- Determination of the textile-glass and mineral-filler content -- Calcination methods

(23) MILSPEC A-A-55308 Cloth And Strip, Laminated Or Coated, Vinyl Nylon Or Polyester, High Strength, Flexible

(24) MILSPEC MIL-C-19663D: Cloth, Woven Roving, For Plastic Laminate, 4 AUG 1998

(25) MILSPEC MIL-P-17549D(SH): Plastic Laminates, Fibrous Glass Reinforced, Marine, 31 AUG 1981

		Lifeboat			
		QUANTITY	USCG APPROVAL?	US/EU MRA?	
1	Bailer	1	N		
2	Bilge pump	1	160.044	N	
3	Boathook	2	N		
4	Bucket	2	N		
5	Can opener	3	N		may be w/ 160.043 jackknife
6	Compass	1	160.014	Y*	
7	Dipper	1	N		
8	Drinking cup	1	N		
9	Fire extinguisher	1	162.028	N	
10	First aid kit	1	160.041	N	
11	Fishing kit	1	160.061	N	
12	Flashlight	1	N		
13	Hatchet	2	160.013	N	
14	Heaving line	2	N		
15	Instruction card	0	N		
16	Jackknife	1	160.043	N	
17	Knife	0	N		
18	Ladder	1	N		
19	Signal Mirror	1	160.020	N	
20	Oars, units	1	N		
21	Paddles	0	N		

22	Painter (float free link only)	2	160.073	N
23	Provisions(rations) per person	1	N	
24	Pump	0	N	
25	Radar reflector	1	N	
	(optional AIS-SART)		N	
26	Rainwater collection device	1	N	
	(optional RO desalinator)		160.058	N
27	Repair kit (inflated rescue boats)	0	N	
28	Sea anchor	1	160.019	N
29	Searchlight	1	N	
30	Seasickness kit per person	1	N	
31	Smoke signal	2	160.122	Y*
32	Hand flare signal	6	160.121	Y*
33	Parachute flare signal	4	160.136	Y*
34	Skates and fenders	1	N	
35	Sponge	0	N	
36	Survival instructions	1	N	
37	Table of lifesaving signals	1	N	
38	Thermal protective aids	10%	160.174	N
39	Tool kit	1	N	

40	Towline	1	N	
41	Water (liters per person)	3	160.026	N
42	Whistle	1	N	
	Other lifeboat/rescue boat items			
	Canopy position indicating light/ interior light	1	161.101	N
	release mechanism	1	160.133	N
	Retroreflective tape	see A.658(16)	164.018	N
	automatic release mechansism	N/A	160.170	Y*
	Navigation (side) lights	per COLREGS	N	
	engine	1	CG-5214 engine list	N
	fire retardent resin	1	CG-5214 resin list	N
	Buoyancy foam	1	CG-5214 buoyancy foam list	N
	Air bottles	10 minutes; tanker version only	DOT AAA or UN	N/A
	Personal LSA			
	lifejacket (SOLAS only)		160.155	N
	Immersion suit		160.171	N

*Items acceptable under the US/EU MRA must still have a CG approval number on the item, issued by the notified body