



Addendum to Annex 2

To the AGREEMENT GOVERNING THE DELEGATION OF CERTAIN SURVEY

AND CERTIFICATION SERVICES

FOR UNITED STATES OF AMERICA FLAGGED VESSELS

between the

UNITED STATES COAST GUARD

and

LLOYD'S REGISTER OF SHIPPING

SUPPLEMENTAL REQUIREMENTS

REV. 1 (19 September 1998)

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1. **INTRODUCTION**

The supplemental requirements given in this document are those of the United States Coast Guard (USCG) which are contained in Title 46 of the Code of Federal Regulations but not covered by Lloyd's Register's Rules and Regulations for the Classification of Ships.

The document also contains interpretations of the 1974 Convention for Safety of Life at Sea, as amended, where the USCG has amplifying or additional requirements.

Compliance with these requirements, as applicable to ship type and size, is to be verified during plan review and survey of LR classed ships registered or intended to be registered in the United States of America.

The requirements and procedures specified in this document are additional to those contained in the Marine Division Survey Procedures Manual which must also be complied with for U.S. flag ships.

2. SUPPLEMENTAL REQUIREMENTS

2.1 Tonnage Measurement

There are no supplemental requirements. Tonnage measurement is to be in accordance with the extant "Instructions for use by delegated measurement organisations in preparing U.S. Tonnage Certificates" as issued by the Commanding Officer, U.S. Coast Guard Marine Safety Center.

All instructions for measurement, marking and certification will be issued from Headquarters (CSD/SCS/TON) upon request.

2.2 Load Line

There are no supplemental requirements. Plan approval, stability investigation and survey is to be in accordance with the Classification Rules and Marine Division Survey Procedures Manual Parts D and E concerning Statutory Surveys, Certification and Reporting.

2.3 SOLAS

The following supplemental requirements relevant to the issue of a Cargo Ship safety Construction Certificate by LR or the issue of a Passenger Ship Safety Certificate by the U.S. Coast Guard are given using the appropriate Code of Federal Regulations (CFR) cite.

Cite: 46 CFR 32.20-5

Pressure-vacuum relief valves are to be of a type approved by the Coast Guard under 46 CFR 162.017.

Pressure-vacuum relief valves, determined by LR to be equivalent to a valve designed to meet the requirements of 46 CFR 162.017, may be submitted to the Coast Guard for acceptance on a case by case basis.

Cite: 46 CFR 32.50-30

If a cargo hose is carried on oil tankers it must be suitable for oil service and designed to withstand the pressure of the shutoff head of cargo pump or pump relief valve setting less static head, but in no case less than 150 psi.

Cite: 46 CFR 32.52-5(c)

Means are to be provided for controlling the cargo or pump room bilge pumps and their suctions or discharges in order that a flooded pumproom may be pumped out. Suitable portable or manually operated pumps may be accepted as complying with this provision, or alternatively, the pump controls shall be arranged so that they are operable from inside the pump room and either from an accessible position outside the pump room, or from the pump room casing above the freeboard deck.

Cite: 46 CFR 39

A vapour control system complying with the requirements of these regulations is required to be fitted. Full details of the regulations, plan appraisal and survey procedures are given in the Marine Division Survey Procedures Manual Part D, Chapter 8, Section 14.8.

Cite: 46 CFR 52.01 -10(a)

Oil fired main boilers in attended or unattended machinery spaces are to have the following equipment:

- Each burner is to be provided with at least one flame detector.
- The burner valve is to close automatically when loss of burner flame occurs and when activated by the boiler trip system.
- Each boiler is to be provided with a safety trip control system that automatically closes the master and all burner oil fuel valves upon:
 - Inadequate air flow to support complete combustion;
 - Loss of control power;
 - Operation of the manual safety trip; or
 - Loss of flame at all burners

Cite: 46 CFR 52.01 -50

All boilers, except watertube boilers, with a maximum allowable working pressure in excess of 2.06 bar, if fired with solid fuel not in suspension, or if not equipped with unattended operation, are to be fitted with fusible plugs in accordance with this regulation.

Cite: 46 CFR 52.01 -105(c)

Steam stop valves over 152mm diameter are to be fitted with bypass arrangements for heating the line and equalising the pressure before the valve is opened.

Cite: 46 CFR 52.01 -105(e)

All firetube and drum type boilers are to be fitted with a scum (surface blowoff) valve in addition to a blow-down valve.

Cite: 46 CFR 52.01-110(h)

All watertube boilers used for propulsion purposes are to be provided with an audible and visual high water level alarm.

Cite: 46 CFR 52.01-120

The requirements of ASME Section 1, paragraph PG 68.2 are to be complied with, in agreement with the boiler manufacturer, to ensure that the superheater is protected against damage in all service conditions.

Cite: 46 CFR 53.01-3

Heating boilers for applications below 120°C and steam boilers with pressures less than 3.4 bar and which are not covered by LR Rules, are to be designed, constructed, inspected and tested under 46 CFR 53.01-3.

Cite: 46 CFR 53.05

Pressurised hot water boilers above 120°C and which are not covered by LR Rules, are to be provided with pressure relieving devices under 46 CFR 53.05-2.

Cite: 46 CFR 56.20-15

Valves in which the closure is accomplished by resilient non-metallic materials instead of metal to metal seating are to comply with the performance criteria and category of positive shut-off valves specified in this regulation.

Cite: 46 CFR 56.50-60(d)

Positive shut-off valves which utilise resilient non-metallic materials for closure are to comply with the applicable requirements of regulation 46 CFR 56.20-15.

Cite: 46 CFR 61.05-10

Hydrostatic testing of boilers in service is to be carried out in accordance with the periodical and test pressure requirements prescribed in this regulation.

Cite: 46 CFR 61.15-5

Steam piping subject to pressure from the main boiler should be subjected to a hydrostatic test in accordance with the requirements of this regulation after every five years of service.

Cite: 46 CFR 61.15-10

Where liquefied petroleum gas is used for heating and cooking the requirements of this regulation are to be complied with.

Cite: 46 CFR 92.15

Sec. 92.15-5 Vessels using fuel having a flashpoint of 110 degrees or lower.

(a) Where liquid fuel having a flashpoint of 110 degrees F. or lower is used for main or auxiliary machinery or for starting purposes, the spaces containing such machinery or fuel tanks shall have ventilation as required by this section.

(1) At least 2 ventilators fitted with cowls or their equivalent for the purpose of properly and effectively ventilating the bilges of every engine and fuel-tank compartment in order to remove any flammable or explosive gases.

(2) Vessels constructed so that the greater portions of the bilges under the engine and fuel tanks are open or exposed to the natural atmosphere at all times are not required to be fitted with ventilators.

Sec. 92.15-10 Ventilation for closed spaces.

(a) Except as noted in paragraph (c) of this section, all enclosed spaces within the vessel shall be properly vented or ventilated. Means shall be provided to close off all vents and ventilators.

(b) Means shall be provided for stopping all fans in ventilation systems serving machinery and cargo spaces and for closing all doorways, ventilators and annular spaces around funnels and other openings to such spaces, from outside these spaces, in case of fire.

(c) On unmanned cargo barges not fitted with a fixed bilge system, vents and ventilators may be omitted from void spaces.

(d) The ventilation of spaces which are "specially suitable for vehicles" shall be in accordance with the provisions of this paragraph. In addition, if vehicles are operated inside of enclosed spaces, the ventilation shall be in accordance with subpart 97.80 of this subchapter.

(1) Areas below the weather deck shall be provided with continuous pressure-positive ventilation at each level on which vehicles are transported.

(2) The quantity of ventilating air shall be not less than 1 cubic foot per minute per square foot of deck area.

(3) The ventilation system shall be such as to prevent air stratification as well as to prevent the accumulation of air pockets.

(4) An alarm system shall be provided which will indicate the loss of required ventilation. The alarm location shall be in a normally manned space acceptable to the Commandant.

(e) For requirements regarding controls of electrically powered ventilation systems, see subchapter J (Electrical Engineering) of this chapter.

Sec. 92.15-15 Ventilation for crew quarters and, where provided, passenger spaces.

(a) All living spaces shall be adequately ventilated in a manner suitable to the purpose of the space.

(b) On vessels of 100 gross tons and over, except for such spaces as are so located that under all ordinary conditions of weather, windows, ports, skylights, etc., and doors to passageways can be kept open, all crew spaces shall be ventilated by a mechanical system, unless it can be shown that a natural system will provide adequate ventilation. However, vessels which trade regularly in the tropics shall, in general, be fitted with a mechanical ventilation system.

Cite: 46 CFR 111.12-1

(b) Each generator prime mover must have an overspeed device that is independent of the normal operating governor and adjusted so that the speed cannot exceed the maximum rated speed by more than 15 percent.

(c) Each prime mover must shut down automatically upon loss of lubricating pressure to the generator bearings unless otherwise accepted by the Commandant.

Cite: 46 CFR 111.25-15

Each motor must be rated for continuous duty, except a motor for an application listed in Table 111.25-15 or a similar duty must meet the minimum short-time rating stated in the table.

Table 111.25-15

Application of motor	Minimum short-time rating of motor, in hours
Deck winch and direct acting capstan	Half
Deck winch with hydraulic transmission	Continuous at no load followed by 1/2 hr. at full load
Direct acting windlass	One fourth
Windlass with hydraulic transmission	Half hour idle pump operation, followed by 1/4 hr. full load operation
Steering gear, direct acting	One
Steering gear, indirect drive	Continuous operation at 15 pct. load followed by 1 hr. at full load
Watertight door operators	1/12
Boat winches	1/12

Cite: 46 CFR 111.70-5

(a) If an enclosure for a motor, master switch, or other equipment has an electric heater inside the enclosure that is energized from a separate circuit, the heater circuit must be disconnected from its source of potential by a disconnect device independent of the enclosure containing the heater. The heater disconnecting device must be adjacent to the equipment disconnecting device. A fixed sign, warning the operator to open both devices, must be on the enclosure of the equipment disconnect device, except as in paragraph (b) of this section.

(b) If the location of the enclosure for a motor, master switch, or other equipment for deck machinery is remote from the motor and controller disconnect device, a sign must be fixed to the enclosure if the disconnect arrangement required by paragraph (a) of this section is not used. The sign must warn the operator of the presence of two sources of potential within the enclosure and show the location of the heater circuit disconnect device.

(c) Electric heaters installed within motor controllers and energized from a separate circuit must be disconnected in the same manner as required by paragraph (a) of this section or by Sec. 111.70-7(d).

Cite: 46 CFR 111.95-7

(a) If the motor controller of a boat winch power unit is next to the winch, the main line emergency switch must disconnect all parts of the boat winch power unit, including the motor controller and limit switches, from all sources of potential. Other power circuit switches must be connected in series with the main line emergency switch and must be ahead of the motor controller. The main line emergency switch must be the motor and controller disconnect required by Subpart 111.70 and must have a horsepower rating of at least that of the winch motor.

(b) If the motor controller of a boat winch power unit is remote from the winch, there must be a switch at the controller that can disconnect the entire winch electric installation from all sources of potential. The switch must be in series with and on the supply side of the main line emergency switch.

(c) Each davit arm limit switch, whether connected in the power circuit or in the control circuit, must disconnect all ungrounded conductors of the circuit controlled.

(d) If one motor is used with two winches, there must be a main line emergency switch, a clutch interlock switch, and a master switch for each winch, except that a single main line emergency switch located as required by paragraph (e) of this section may be used for both winches. The main line emergency switches must be connected, in series, ahead of the motor controller. The master switches must be connected in parallel and each, in series, with the corresponding clutch interlock switch for that winch. Each clutch interlock switch must open the circuit to its master switch, except when the power unit is clutched to the associated winch. There must

be a means to prevent the power unit from being clutched to both winches simultaneously.

(e) The main line emergency disconnect switch must be adjacent to the master switch, within reach of the winch operator, accessible to the person in charge of the boat stowage, and for gravity davit installations, in a position from which the movement of boat davit arms can be observed as they approach the final stowed position.

Cite: 46 CFR 112.05-5

(a) The emergency power source must meet table 112.05-5(a) and have the capacity to supply all loads that are simultaneously connected to it, except a load on a bus-tie to the main switchboard or non-required loads that are connected in accordance with Sec. 112.05-1(c).

Table 112.05-5(a)

Size of vessel and service	Type of emergency power source or lighting	Period of operation and minimum capacity of emergency power
Passenger vessels:		
Ocean, Great Lakes, or coastwise; or on an international voyage	Temporary emergency power source; and final emergency power source (automatically connected storage battery or an automatically started generator).	36 hours.\1\ \2\
Other than Ocean, Great Lakes, or coastwise and not on an international voyage	Final emergency power source (automatically connected storage battery or an automatically started generator).	8 hours or twice the time of run, whichever is less.\2\

Cargo vessels;
 miscellaneous self-
 propelled vessels;
 tankships; barges with
 sleeping
 accommodations for
 more than 6 persons;
 mobile offshore drilling
 units; and oceanographic
 vessels:

Ocean, Great Lakes, or coastwise and 500 GT or more; on an international voyage and 500 GT or more; or all waters and 1600 GT or more.	Final emergency power source (automatically connected storage battery or an automatically started generator).	18 hours.
Ocean, Great Lakes, or coastwise and less than 500GT; or other than ocean, Great Lakes, or coastwise, 300 GT or more but less than 1600 GT, and not on an international voyage	Emergency lighting provided by an automatically connected or manually controlled storage battery; automatically or manually started generator; or relay-controlled, battery operated lanterns.	6 hours or twice the time of run, whichever is less.
<p>\1\ A 12-hour power supply may be especially considered for vessels engaged regularly in voyages of short duration.</p>		
<p>\2\ The capacity for the operation of the steering gear, as required by Sec. 111.93, is for a period of 30 minutes continuous operation.</p>		
<p>\3\ The emergency lighting requirements of Sec. 112.15-1 (b), (c), (f), and (g) must be met.</p>		
<p>\4\ Requirements of Subpart 112.39 must be met by the relay-controlled, battery-operated lanterns.</p>		

Cite: 46 CFR 112.15-1

On vessels required by 112.05-5(a) to have a temporary emergency power source, the following emergency lighting and power loads must be arranged so that they can be energized from the temporary power source:

(d) Illuminated signs with the word "EXIT" in red letters throughout a passenger vessel so the direction of escape to the open deck is obvious from any portion of the vessel usually accessible to the passengers or crew, except machinery spaces, and except stores and similar spaces where the crew are not normally employed. There must be sufficient signs so that the direction of escape is obvious, with all fire doors in stairway enclosures and main vertical zone bulkheads closed and all watertight doors closed. For the purpose of this paragraph, an individual stateroom or other similar small room is not required to have a sign, but the direction of escape must be obvious to a person emerging from the room.

(e) Illumination to allow safe operation of each power operated watertight door.

Cite: 46 CFR 112.43-7

(a) Except as allowed in paragraph (b) of this section, the following emergency lights must be supplied from a distribution panel on the navigating bridge:

(1) Navigation lights not supplied by the navigation light indicator panel.

(2) Lights for survival craft launching operations under Sec. 111.75-16, except as allowed in Sec. 112.43-5.

(3) Signalling lights.

(4) Emergency lights:

(i) On open decks;

(ii) On the navigating bridge;

(iii) In the chartroom;

(iv) In the fire control room; and

(v) For navigation equipment.

(b) On a mobile offshore drilling unit, the distribution panel required in paragraph (a) of this section must be in the control room.

(c) Each distribution panel required in paragraphs (a) and (b) of this section must have a fused switch or circuit breaker for each branch circuit.

United States Interpretations Related to the SOLAS Cargo Ship Safety Construction Certificate

Chapter II-1 Construction - Subdivision and stability, machinery and electrical installations

Part B - Subdivision and Stability

Regulation 11.2

Obtain USCG approval for collision bulkheads located at a distance of less than 5% or more than 8% of the length of the ship from the forward perpendicular.

Regulations 22.4 and 22.5

An inclining test for sister ships may be waived if a responsible officer from the shipbuilding company certifies that the subject vessel does not differ from its inclined sister ship in any way that would result in a lessening of stability characteristics.

The inclining test may be waived if a responsible officer from the shipbuilding company certifies the conditions of this paragraph are met."

Regulations 23-1.2, 23-1.3.1 and 23-1.3.2

A recommended list of shell doors and other watertight openings, which could lead to major flooding if left open or not properly secured, should be forwarded to the Commanding Officer, Marine Safety Centre, for approval.

A recommended list of equipment, conditions and operational procedures considered necessary to maintain watertight integrity shall be forwarded to the Commanding Officer, Marine Safety Centre, for approval.

A recommended list of elements (i.e. closures, security of cargo, sounding of alarms, etc.) considered vital to the survival of the ship and its crew shall be forwarded to the Commanding Officer, Marine Safety Centre, for approval.

Part D - Electrical Installations

Regulation 45.5.2

Regulations 46 CFR 111.60-2 through 111.60-9 are to be used as guidance for any exemptions to the requirements of flame retardant cables when used in speciality applications.

Regulation 45.6.1

If the allowance of a circuit to not be protected against short-circuit is desired, approval must be obtained from the Commanding Officer, Marine Safety Centre (MSC).

Chapter II-2 Fire Protection, Fire Detection and Fire Extinction

Part A - General

Regulations 3.1, 3.8, 3.23.3, 3.23.4, 3.23.5, 18.1.1 and 18.1.2

Reference should be made to parts 1, 5, 7, 6, 8 or 3 respectively, of the International Code for Application of Fire Test Procedures (FTP Code) when assessing the acceptability of materials. Additionally, the following guidance is given with respect to the approval of structural fire protection items :

Equipment Approvals

The 1974 SOLAS Convention mandates that structural fire protection materials be approved by the flag Administration.

In the United States this function is performed by the USCG, generally through independent laboratory testing and inspection. Provisions within the 1996 USCG Authorisation Act also allow the use of equipment approved by or on behalf of other governments, under certain circumstances.

For structural fire protection items the USCG recognises that, with the implementation of the IMO FTP Code, there exist acceptable IMO Standards for approval of this equipment and these standards are used by the USCG to approve "SOLAS" equipment and materials. Materials and equipment from both U.S. and foreign sources approved in accordance with the procedures contained in 46 CFR 159 will continue to be acceptable and those items manufactured in a country with which the United States has a Mutual Recognition Agreement in force, or the USCG has found to have an equivalent approval program, will also be acceptable.

Because reciprocity is not required for structural fire protection materials, the USCG will accept structural fire protection materials that are approved by a foreign Administration once the USCG has determined that a country's approval process is acceptable. After this acceptance of a country's approval process, structural fire protection materials manufactured in that country and approved in accordance with the provisions of the IMO Fire Test Procedures Code will be accepted for use on United States ships.

Regulation 3.10

"A pantry containing no cooking appliances" is one which contains only low heat warming equipment, has steel furnishings and is not used as a storeroom for cleaning gear, linen supplies or any other combustible material. A dining room containing such appliances shall not be regarded as a pantry.

Part C - Fire Safety Measures for Cargo Ships

Regulation 45

The doors giving access to either of the two required means of escape shall not be lockable, except that crash doors or locking devices, capable of being easily forced in an emergency, may be employed provided that a permanent and conspicuous notice giving instructions on how to open the door or lock is attached to both sides of the door. This paragraph shall not apply to outside doors to the deckhouses where such doors are locked by key only and such key is under control of one of the vessel's officers.

Regulation 45.1.3

All public spaces having a deck area of over 28m² shall have at least two exits. Where applicable, the exits shall give egress to different corridors, spaces or rooms to minimise the possibility of one incident blocking both means of escape.

Regulation 45.1.5

All interior stairways, other than those within the Machinery Spaces or Cargo Holds, shall have a minimum width of 0.71 metre. The angle of inclination with the horizontal of such stairways shall not exceed 0.87 radians.

3. ISSUE OF CERTIFICATES

Details of the procedural arrangements are given in the extant copy of the Marine Division Survey Procedures Manual, Part D Chapter 8 and Part E Chapter 7.

4. MAINTENANCE OF RECORDS

Copies of all approved plans and documents, survey reports and associated records, together with copies of certificates issued in relation to the tonnage, load line and safety construction aspects of United States registered ships are to be forwarded to the United States Regional Office, Houston, for records purposes.

Details of the procedural arrangements are given in the extant copy of the Marine Division Survey Procedures Manual, Part D Chapter 8 and Part E Chapter 7.