



GUIDE FOR BUILDING AND CLASSING

SUBCHAPTER M TOWING VESSELS

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**American Bureau of Shipping
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the State of New York 1862**

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Foreword

This *Guide for Building and Classing Subchapter M Towing Vessels* has been developed to clarify the requirements for classing existing and new towing vessels in service on major rivers and connecting intracoastal waterways, which are required to comply with *46 CFR Subchapter M, Inspection of Towing Vessels, Final Rule (Sub M)*, which was published in the U.S. Federal Register on June 20, 2016.

The Guide provides supplemental and alternative requirements to the *ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (ABS River Rules)* based on a comparison to *Sub M*. Requirements for equipment and arrangements regarding lifesaving, fire protection, machinery, piping, electrical, structure and stability are addressed.

A vessel complying with the requirements contained in the *River Rules* and this Guide will comply with the design, construction, and outfitting requirements of *Sub M* and be eligible for Classification with ABS.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



GUIDE FOR BUILDING AND CLASSING
SUBCHAPTER M TOWING VESSELS

CONTENTS

SECTION 1	General	1
1	Classification Notations.....	1
3	Scope.....	1
5	Application.....	1
7	Definitions.....	2
7.1	Towing Vessel.....	2
7.3	Existing Towing Vessel.....	2
7.5	New Towing Vessel.....	2
7.7	Excepted Vessel.....	2
7.9	Length.....	3
7.11	Other Definitions.....	3
9	Plans and/or Data.....	3
SECTION 2	Requirements	5
1	Supplemental Requirements.....	5
3	Alternative Requirements.....	21
TABLE 1	46 CFR Part 141 – Lifesaving – Supplemental Requirements.....	6
TABLE 2	46 CFR Part 142 – Fire Protection – Supplemental Requirements.....	8
TABLE 3	46 CFR Part 143 – Machinery and Electrical Systems and Equipment – Supplemental Requirements.....	11
TABLE 4	46 CFR Part 144 – Construction and Arrangement – Supplemental Requirements.....	18
TABLE 5	Alternative Requirements.....	21
SECTION 3	Survey Requirements for Additional Systems and Services	22
1	Towing Vessel (Sub M, River Service) Notation.....	22

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SECTION 1 General

1 Classification Notations

Vessels which have been built to the satisfaction of the ABS Surveyors to the requirements contained in the *ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (ABS River Rules)* and this Guide, where approved by the Committee, are to be classed and distinguished in the *Record* by the symbols **✕ A1** for vessels built under ABS attendance, or **A1** for existing vessels entering class, followed by the notation **Towing Vessel (Sub M, River Service)**.

3 Scope

The following table describes the scope of this document by providing a cross-reference between the Parts of *Sub M* and Sections of this Guide.

<i>Sub M Part No.</i>	<i>Sub M Part Title</i>	<i>Guide Section</i>
Part 136	Certification	See Note
Part 137	Vessel Compliance	3/1
Part 138	Towing Safety Management System (TSMS)	See Note
Part 139	Third-Party Organizations	See Note
Part 140	Operations	3/1
Part 141	Lifesaving	2/1, Table 1; 3/1
Part 142	Fire Protection	2/1, Table 2; 3/1
Part 143	Machinery and Electrical Systems and Equipment	2/1, Table 3; 2/3, Table 5; 3/1
Part 144	Construction and Arrangement	2/1, Table 4; 3/1

Note: Refer directly to applicable Parts of Sub M.

5 Application

This Guide is applicable to towing vessels, as defined in 1/7.1, in service on major rivers and connecting intracoastal waterways. The listed routes permitted by *Sub M* are as indicated in 46 CFR 136.230. The requirements laid forth in this Guide are clarifications to the *ABS River Rules* for vessels intended for service in bodies of comparatively smooth water.

Classification of any vessel subject to *Sub M* that is not exclusively in service on rivers and intracoastal waterways is subject to the *ABS Rules for Building and Classing Steel Vessels Under 90 Meters (295 feet) in Length (ABS Under 90 Meter Rules)*. This Guide is not intended to apply to vessels in service on the Great Lakes of North America, coastwise operation, or on any ocean regardless of US Gross Tonnage.

7 Definitions

7.1 Towing Vessel

For the purposes of this document, a *Towing Vessel* is defined by 46 CFR 136.110, with applicability per 46 CFR 136.105.

Per 46 CFR 136.110, a *Towing Vessel* means a commercial vessel engaged in or intending to engage in the service of pulling, pushing, or hauling alongside, or any combination of pulling, pushing, or hauling alongside. Per 46 CFR 136.105, *Sub M* is applicable to all U.S.-flag towing vessels as defined in 46 CFR 136.110 engaged in pushing, pulling, or hauling alongside, except:

- i) A vessel less than 7.92 meters (26 feet) in length measured from end to end over deck (excluding the sheer), unless that vessel is pushing, pulling, or hauling a barge that is carrying oil or hazardous material in bulk;
- ii) A vessel engaged in one or more of the following:
 - a) Assistance towing as defined in 46 CFR 136.110;
 - b) Towing recreational vehicles for salvage; or
 - c) Transporting or assisting the navigation of recreational vessels within and between marinas and marina facilities, within a limited geographic area, as determined by the local Captain of the Port (COTP);
- iii) A workboat operating exclusively within a worksite and performing intermittent towing within the worksite;
- iv) A seagoing towing vessel of 300 gross tons or more subject to the provisions of 46 CFR Subchapter I;
- v) A vessel inspected under other subchapters of 46 CFR that may perform occasional towing;
- vi) A public vessel as defined in 46 U.S.C. 2101;
- vii) A vessel which has surrendered its Certificate of Inspection (COI) and is laid up, dismantled, or otherwise out of service; and
- viii) A propulsion unit used for the purpose of propelling or controlling the direction of a barge where the unit is controlled from the barge, is not normally manned, and is not utilized as an independent vessel.

7.3 Existing Towing Vessel

Per 46 CFR 136.110, an *Existing Towing Vessel* means a towing vessel, subject to inspection under *Sub M*, which is not a new towing vessel, as defined in this section.

7.5 New Towing Vessel

Per 46 CFR 136.110, a *New Towing Vessel* means a towing vessel, subject to inspection under *Sub M*, that:

- i) Had its keel laid or was at a similar stage of construction on or after July 20, 2017; or
- ii) Underwent a major conversion that was initiated on or after July 20, 2017.

7.7 Excepted Vessel

Per 46 CFR 136.110, an *Excepted Vessel* means a towing vessel that is subject to *Sub M* but is excepted from certain provisions contained within this subchapter. An excepted vessel is:

- i) Used solely:
 - a) Within a limited geographic area, as defined in 46 CFR 136.110;
 - b) For harbor-assist, as defined in 46 CFR 136.110;
 - c) For response to an emergency or a pollution event; or

- ii) Excepted by the cognizant OCMI for purposes of some or all of the requirements in 46 CFR 142.315 through 142.330, 143.235, 143.265, and subpart C of part 143 of *Sub M*, based on consideration of those requirements and on reasons submitted by the vessel owner or managing operator as to why the vessel does not need to meet these requirements for the safe operation of the vessel.

7.9 Length

Per 46 CFR 136.110, *Length* means the horizontal distance measured from end to end over the deck, excluding the sheer. Fittings and attachments are not included in the length measurement.

7.11 Other Definitions

A full list of definitions specific to *Sub M* can be found in 46 CFR 136.110. Definitions specific to the ABS Rules related to this Guide can be found in the beginning of each part within the *ABS River Rules*.

9 Plans and/or Data

The following plans and/or data are to be submitted:

- General arrangement (including tank arrangement, handrails, and bulwarks)
- Midship section and scantling plans
- Bottom, deck, and side shell plating
- Transverse and longitudinal bulkheads
- Deckhouses
- Water-tight/weather-tight closure devices (including manholes, hatches, doors, etc.)
- Stability (lines and offsets, curves of form, cross curves of stability, etc.) (as applicable)
- Rudder and rudder stock (including vessel speed)
- Main engines, propulsion gears, and clutch systems (manufacturer make, model, and rating information, reduction ratio, etc.)
- Propulsion shafting and control system
- Propellers over 60 inches diameter
- Pressure vessels and heat exchangers
- Machinery arrangement and equipment list (including electrical)
- Shell penetrations (if not otherwise covered, including seachests, scuppers, sanitary overboards, external cooler installations, etc.)
- Steering gear piping, arrangements, and control system
- Bilge/ballast piping
- Fuel/lube oil piping
- Flammable/combustible liquid piping (if not otherwise covered)
- Fire main piping (including calculations)
- Cooling water
- Compressed air
- Vents, sounds, and overflows
- Ventilation
- Engine exhaust

- Group I (high pressure) piping (if not otherwise covered) such as hydraulics
- Fire and safety plan (fire protection equipment and lifesaving appliances)
- Fixed fire-extinguishing (including calculations) (as applicable)
- Fire and smoke detection
- Towing arrangements
- AC/DC electrical one line and load analysis
- Remote shutdowns
- Alarms and monitoring
- Main switchboard wiring and details
- Shipboard lighting and power
- Internal communications (including general alarms or public address, pilothouse alerter system, as applicable)
- Navigation lighting

Additional plans and/or data may be required for additional Class Notations.



SECTION 2 Requirements

1 Supplemental Requirements

In general, vessels are to comply with the requirements contained in the *ABS River Rules* and this Guide to receive the notations listed in Subsection 1/1.

Various requirements from *Sub M* are considered to be outside the scope of, and therefore supplemental to, the *ABS River Rules*. These supplemental requirements are summarized in Section 2, Table 1 through Section 2, Table 4 for Lifesaving, Fire Protection, Machinery and Electrical Systems and Equipment, and Construction and Arrangement, respectively.

The “Existing Vessel” and “New Vessel” columns indicate whether such vessels, as defined by 1/7.3 and 1/7.5, respectively, are to comply with specific provisions.

The provisions listed in the “Supplemental Requirements” column are not exhaustive; each original rule and regulation is applicable as written in its original form, with conditions, summaries and clarifications listed herein for guidance.

Certain sections of *Sub M* that are considered administrative, operational, or less stringent than corresponding *ABS River Rules* have not been listed.

TABLE 1
46 CFR Part 141 – Lifesaving
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Survival Craft	Yes	Yes	141.305; 141.310; 141.315; 141.320; 141.325; 141.330; Table 141.305	N/A	<p><i>a)</i> Each towing vessel operating in warm water is to carry sufficient rigid buoyant apparatus (approval series 160.010) to accommodate the total number of individuals onboard.</p> <p><i>b)</i> Each towing vessel operating in cold water is to carry sufficient inflatable buoyant apparatus (approval series 160.010) to accommodate the total number of individuals on board.</p> <p><i>c)</i> Survival craft are to meet the requirements of 141.305(b)(1) and (5) for accessibility and marking, respectively.</p> <p><i>d)</i> The following approved survival craft may be substituted for survival craft required by Table 141.305:</p> <ol style="list-style-type: none"> 1) An inflatable liferaft approved under approval series 160.051 or 160.151, may be substituted for an inflatable buoyant apparatus or rigid buoyant apparatus. 2) An inflatable buoyant apparatus approved under approval series 160.010 may be substituted for a rigid buoyant apparatus. 3) A life float approved under approval series 160.027 may be substituted for a rigid buoyant apparatus.
Lifejackets	Yes	Yes	141.340	N/A	<p><i>a)</i> Each towing vessel is to carry at least one appropriately-sized lifejacket, approved under approval series 160.002, 160.005, 160.055, 160.155, or 160.176, for each person on board.</p> <p><i>b)</i> For towing vessels with berthing aboard, a sufficient number of additional lifejackets are to be carried so that a lifejacket is immediately available for persons at each normally manned watch station.</p> <p><i>c)</i> Where alternative means are used to meet the requirements of this section, as permitted by 141.225, there is to be at least one lifejacket for each person onboard.</p> <p><i>d)</i> Lifejackets are to be readily accessible.</p> <p><i>e)</i> If the towing vessel carries inflatable lifejackets, they are to be of similar design to each other and have the same mode of operation.</p> <p><i>f)</i> Each lifejacket is to be marked according to 141.340(f).</p> <p><i>g)</i> Lifejackets are to meet the requirements of 141.340(g) for attachments and fittings.</p> <p><i>h)</i> Stowage positions for lifejackets stowed in a berthing space or stateroom and all lifejacket containers are to be marked in block capital letters and numbers with the minimum quantity, identity, and, if sizes other than adult or universal sizes are used on the vessel, the size of the lifejackets stowed inside the container. The equipment may be identified in words or with the appropriate symbol from IMO Resolution A.760(18).</p>

**TABLE 1 (continued)
46 CFR Part 141 – Lifesaving
Supplemental Requirements**

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Lifebuoys	Yes	Yes	141.360	N/A	<p><i>a)</i> A towing vessel is to carry lifebuoys as follows:</p> <ol style="list-style-type: none"> 1) A towing vessel less than 7.92 m (26 ft) in length is to carry a minimum of one lifebuoy of not less than 510 mm (20 in.) in diameter. 2) A towing vessel of at least 7.92 m (26 ft), but less than 24.08 m (79 ft), in length is to carry a minimum of two lifebuoys located on opposite sides of the vessel where personnel are normally present. Lifebuoys are to be at least 610 mm (24 in.) in diameter. 3) A towing vessel 24.08 m (79 ft) or more in length is to carry four lifebuoys, with one lifebuoy located on each side of the operating station. Lifebuoys are to be at least 610 mm (24 in.) in diameter. <p><i>b)</i> Each lifebuoy on a towing vessel is to meet the approval, securing and marking requirements of 141.360(b)(1)-(4).</p> <p><i>c)</i> Lifebuoys are to meet the requirements of 141.360(c) for attachments and fittings.</p>
Visual Distress Signals	Yes	Yes	141.370; 141.375; Table 141.370	N/A	<p><i>a)</i> A towing vessel is to carry a combination of day and night visual distress signals indicated in Table 141.370 for specified areas where the vessel operates.</p> <p><i>b)</i> Hand-held red flare distress signals, approved under approval series 160.021 or 160.121, and hand-held rocket-propelled parachute red flares, approved under approval series 160.036 or 160.136, are acceptable as both day and night signals.</p> <p><i>c)</i> Floating orange smoke signals, approved under approval series 160.022, 160.122, or 160.157, and hand-held orange smoke distress signals, approved under approval series 160.037, are only acceptable as day signals.</p> <p><i>d)</i> A vessel operating in a limited geographic area on a short run limited to approximately 30 minutes away from the dock is not required to carry visual distress signals under this section.</p> <p><i>e)</i> Each pyrotechnic distress signal carried to meet this section is to be stowed according to 141.375(e).</p>

TABLE 2
46 CFR Part 142 – Fire Protection
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Approved Equipment	Yes	Yes	142.215	4-4-1/19; 4-4-1/ Table 1	<p><i>a)</i> All hand-portable fire extinguishers, semi-portable fire-extinguishing systems, and fixed fire-extinguishing systems required by this part are to be USCG approved.</p> <p><i>b)</i> New installations of fire-extinguishing and fire-detection equipment of a type not required, or in excess of that required by this part, may be permitted if USCG approved, or if accepted by the local OCMI or ABS.</p> <p><i>c)</i> Existing equipment and installations not meeting the applicable requirements of this part may be continued in service so long as they are in good condition and accepted by the local OCMI or ABS.</p>
Storage of Flammable or Combustible Products	Yes	Yes	142.225	4-4-1/19.1; 4-4-1/ Table 2; 4-5-3/ 11.5	<p><i>a)</i> If a dedicated storage cabinet is provided it is to be secured to the vessel so that it does not move and is to be either:</p> <ol style="list-style-type: none"> 1) A flammable liquid storage cabinet that satisfies UL 1275; or 2) A flammable liquid storage cabinet that satisfies FM Approvals Standard 6050; or 3) Another suitable steel container that provides an equivalent level of protection. <p><i>b)</i> A B-II portable fire extinguisher is to be located near the storage room or cabinet. This is in addition to the portable fire extinguishers required by Tables 142.230(d)(1) and 142.230(d)(2).</p>
Fire Axe	Yes	Yes	142.227	N/A	Each towing vessel is to be equipped with at least one fire axe that is readily accessible for use from the exterior of the vessel.
Hand-Portable Fire-Extinguishing Equipment	Yes	Yes	142.230; Table 142.230(c); Table 142.230(d)(1); Table 142.230(d)(2); (Ref 142.215; 142.225(d))	4-4-1/15; 4-4-1/ Tables 1 & 2	Depending on the length, tonnage, and existence of a fixed fire-extinguishing system in the machinery space, a higher quantity of approved hand-portable extinguishers may be required per 142.230 than per the <i>ABS River Rules</i> .
Semi-Portable Fire-Extinguishing Equipment	Yes	Yes	142.230; Table 142.230(c); 142.315(a)(1)(i); (Ref 142.215)	4-4-1/15; 4-4-1/Tables 1 & 2	<p><i>a)</i> The requirement for a semi-portable extinguisher to protect the engine room does not apply to an excepted vessel.</p> <p><i>b)</i> In the absence of a fixed fire-extinguishing system, an approved B-V semi-portable extinguisher is required to protect the engine room.</p> <p><i>c)</i> The frame or support of any size III, IV, or V semi-portable extinguisher fitted with wheels is to be welded or otherwise permanently attached to a steel bulkhead or deck to prevent it from rolling under heavy sea conditions.</p>

TABLE 2 (continued)
46 CFR Part 142 – Fire Protection
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Fixed Fire-Extinguishing for Engine Room	Yes	Yes	142.315(a)(1)(ii); (Ref 142.215)	4-4-1/19	<p>a) This section does not apply to an excepted vessel.</p> <p>b) In the absence of an approved B-V semi-portable extinguisher, an approved fixed fire-extinguishing system is required to protect the engine room, regardless of power and tonnage.</p>
Fire Pumps	Yes	Yes	142.325(a) & (e)	4-4-1/9.1.1; 4-4-1/9.3	<p>a) This section does not apply to an excepted vessel.</p> <p>b) A fixed fire pump is to be capable of delivering water simultaneously from the two highest hydrants, or from both branches of the fitting if the highest hydrant has a Siamese fitting, at a pitot-tube pressure of at least 344 kilopascals (kPa) (50 pounds per square inch (psi)), and a flow rate of at least 300 liters per minute (LPM) (80 gallons per minute (gpm)). (Flow and pressure requirements per 142.325(a) may be more stringent than the throw requirement in the <i>ABS River Rules</i>.)</p> <p>c) A fixed fire pump is to be capable of being energized remotely from a safe place outside the engine room and from the pump.</p> <p>d) For vessels 19.81 m (65 ft) or less in length, a portable fire pump is acceptable. It is to be self-priming and power-driven, with a minimum capacity of at least 300 LPM (80 gpm) at a discharge gauge pressure of not less than 414 kPa (60 psi), measured at the pump discharge; it also is to be stowed with its hoses and nozzle outside of the machinery space and immediately available so that a stream of water will reach any part of the vessel.</p>
Fire Main Suction	Yes	Yes	142.325(b)	4-4-1/11	<p>a) This section does not apply to an excepted vessel.</p> <p>b) All suction valves necessary for the operation of the fire main are to be kept in the open position or capable of operation from the same place where the remote fire pump control is located.</p>
Fire Hydrants	Yes	Yes	142.325(a)(1) & (c)	4-4-1/13.1.1	<p>a) This section does not apply to an excepted vessel.</p> <p>b) See Note “b” in “Fire Pumps” section.</p>
Fire Hoses	Yes	Yes	142.325(c) & (d)	4-4-1/13.3	<p>a) This section does not apply to an excepted vessel.</p> <p>b) The hose is to be lined commercial fire hose, at least 15 m (50 ft) in length.</p> <p>c) Regardless of vessel length, hoses smaller than 40 mm (1.5 in.) in diameter are not acceptable.</p>
Fire Nozzles	Yes	Yes	142.325(d)	4-4-1/13.5.1 & 13.5.2	<p>a) This section does not apply to an excepted vessel.</p> <p>b) Regardless of vessel tonnage and hydrant location, nozzles of corrosion resistant material, capable of a solid stream and a spray pattern, are required.</p>

TABLE 2 (continued)
46 CFR Part 142 – Fire Protection
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Fire Detection in Engine Room	Yes	Yes	142.330(a)	4-5-5/3.9v)	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Fire detection systems are to comply with the requirements of 142.330(a) for detectors, panels, alarms, sources of power, etc.</p> <p><i>c)</i> The design of the system and its installation on the towing vessel is to be certified and inspected by ABS.</p> <p><i>d)</i> A towing vessel whose construction was contracted for prior to January 18, 2000, may use an existing engine room monitoring system (with fire-detection capability) instead of a fire detection system, if the monitoring system is operable and complies with paragraphs 142.330(a)(2) through (7), and uses detectors listed by an NRTL.</p>
Smoke Detection in Berthing Spaces	Yes	Yes	142.330(b)	N/A	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Each towing vessel is to be equipped with a means to detect smoke in the berthing spaces and lounges that alerts individuals in those spaces. This may be accomplished by an installed detection system, or by using individual battery-operated detectors meeting UL 217.</p>
Heat Detection System in Galley	No	Yes	142.330(c)	N/A	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Each new towing vessel equipped with a galley is to have a heat-detection system with one or more restorable heat-sensing detectors to detect fires in the galley. The system is to be arranged to sound an audible alarm at each operating station. This may be a separate zone in the detection system required by paragraph 142.330(a), or a separate detection system complying with paragraphs 142.330(a)(1) & (2).</p>

TABLE 3
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Machinery Space Fire Prevention	Yes	Yes	143.220(b)	4-3-5/3	In addition to exhaust components, piping and machinery components that exceed 220°C (428°F), including fittings, flanges and valves are to be insulated.
Control and Monitoring	Yes	Yes	143.225	4-5-5/3	Means to monitor and control amount of thrust, rudder angle, and (if applicable) direction of thrust, are required at each operating station.
Alarms and Monitoring	Yes	Yes	143.230	4-5-2/ 11.3.1(d) & (e); 4-5-5/3.9	Several additional alarms and gauges are required at each operating station per 143.230.
General Alarms or Public Address	Yes	Yes	143.235	N/A	<ul style="list-style-type: none"> a) This section does not apply to an excepted vessel. b) Either a general alarm system activated at each operating station, or a public address system, that is capable of notifying persons in any accommodation, work space, and engine room is required. c) In the engine room and any other area where background noise makes a general alarm hard to hear, a supplemental flashing red light that is identified with a sign that reads: “Attention General Alarm—When Alarm Sounds or Flashes Go to Your Station” is required.
Internal Communications	Yes	Yes	143.240	4-5-2/13.5	<ul style="list-style-type: none"> a) This section does not apply to an excepted vessel. b) An internal communication system is to comply with the requirements of 143.240(b) with the following exceptions: <ul style="list-style-type: none"> 1) Towing vessels with more than one propulsion unit and independent pilothouse control for all engines are not required to have internal communication systems. 2) When the pilothouse engine controls and the access to the engine room are within 3 m (10 ft) of each other and allow unobstructed visible contact between them, direct voice communication is acceptable instead of a communication system.
System Isolation and Markings	Yes	Yes	143.250	4-5-2/9.1; 4-5-4/7.13.3	<ul style="list-style-type: none"> a) Electrical panels or other enclosures containing more than one source of power are to be fitted with a sign warning persons of this condition and identifying where to secure all sources of power. b) Piping for flammable or combustible liquid, seawater cooling, firefighting systems and shell penetrations are to be fitted with isolation valves that are clearly marked by labeling or color coding that enables the crew to identify its function.
Fuel Filters	Yes	Yes	143.255(c)	4-3-4/1.13	Where filters are used, a supply of spare fuel filters are to be provided onboard.

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Fuel Valves	Yes	Yes	143.260	4-3-4/1.5 & 1.7	<p>a) This section does not apply to an excepted vessel.</p> <p>b) To stop the flow of fuel in the event of a fire or break in the fuel line, a remote fuel shutoff valve is to be fitted on any fuel line that supplies fuel directly to a propulsion engine or generator prime mover (note the valve is required regardless of suction pressure, and remote operation is required regardless of tank size).</p> <p>c) The valve is to be installed in the fuel piping directly outside of the fuel oil supply tank (note the valve is not to be installed inside the tank).</p> <p>d) Each remote valve control is to be marked in clearly legible letters, at least 25.4 mm (1 in.) high, indicating the purpose of the valve and the way to operate it.</p>
Portable Fuel Systems	Yes	Yes	143.265(b)	N/A	<p>a) This section does not apply to an excepted vessel.</p> <p>b) This section applies to vessels built after January 18, 2000.</p> <p>c) The vessel may only incorporate or carry portable fuel systems, including portable tanks and related fuel lines and accessories, when used for outboard engines or portable bilge or fire pumps.</p> <p>d) The design, construction, and stowage of portable tanks and related fuel lines and accessories are to comply with the ABYC H-25.</p>
Fuel Piping	Yes	Yes	143.265(d)	4-3-4/1.3	<p>a) This section does not apply to an excepted vessel.</p> <p>b) This section applies to vessels built after January 18, 2000.</p> <p>c) Each fuel line is to be seamless and made of steel, annealed copper, nickel-copper, or copper-nickel.</p> <p>d) Aluminum piping is acceptable on an aluminum-hull vessel if it is installed outside the engine room and is at least Schedule 80 in thickness.</p>
Fuel Hose	Yes	Yes	143.265(d)(2)	4-3-1/7.21	<p>a) This section does not apply to an excepted vessel.</p> <p>b) This section applies to vessels built after January 18, 2000.</p> <p>c) Nonmetallic flexible hose is acceptable if it is used in lengths of not more than 0.76 m (30 in.).</p>
External Piping and Tanks	Yes	Yes	143.270	4-3-2/5 & 7	Vessel piping and tanks that are exposed to the outside of the hull are to be made of metal.
Pressure Vessels	Yes	Yes	143.300	4-1-1/11	<p>a) Pressure vessels over 0.14 m³ (5 ft³) in volume and over 103.4 kPa (15 psi) maximum allowable working pressure are to be equipped with an indicating pressure gage (in a readily visible location).</p> <p>b) All pressure vessels are to have the MAWP indicated by a stamp, nameplate, or other means visible to the crew.</p>

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Pressure Vessels (Continued)	No	Yes	143.545	4-1-1/11	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> For new towing vessels, pressure vessels over 0.14 m³ (5 ft³) in volume and over 103.4 kPa (15 psi) maximum allowable working pressure are to comply with Section 4-1-1 of the <i>ABS Under 90 Meter Rules</i> (note air receivers of this volume and MAWP are to comply, regardless of design temperature).</p>
Electrical Systems, General	Yes	Yes	143.400	4-5-2/7.1; 4-5-2/3; 4-5-4/7.13.3; 4-5-3/ 3.13.2(d); 4-5-3/5; 4-5-3/5.13; 4-5-3/11.1.3; 4-5-4/13; 4-5-2/7.7	The connections of flexible cable plugs and socket outlets are to be designed to prevent unintended separation.
Shipboard Lighting	Yes	Yes	143.410	4-5-2/5.1; 4-5-2/13;	Each towing vessel is to be equipped with at least two portable, battery-powered lights. One is to be located in the pilothouse and the other at the access to the engine room.
	No	Yes	143.555(b)(8)(ii), (iv) & (v)	4-5-3/3.17	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> For new vessels, emergency egress lighting is to be energized from two independent sources of electricity, unless the requirements of 143.410(b)(1) or (2) are met.</p> <p><i>c)</i> For new vessels, pilothouse and engine room lighting are to be energized from two independent sources of electricity.</p>
Navigation Lights	Yes	Yes	143.415	4-5-2/13.3	<p><i>a)</i> Towing vessels more than 19.81 m (65 ft) in length are to use navigation lights that meet Underwriters Laboratories (UL) 1104 or other standards specified by the Coast Guard.</p> <p><i>b)</i> Towing vessels 19.81 m (65 ft) or less in length may meet the requirements listed in 33 CFR 183.810 or 143.415(a).</p>
	No	Yes	143.555(b)(8)(iii)		<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> For new vessels, navigation lights are to be energized from two independent sources of electricity.</p>

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Pilothouse Alerter System	Yes	Yes	143.450	N/A	<p><i>a)</i> A towing vessel with overnight accommodations and alternating watches (shift work), when pulling, pushing or hauling alongside one or more barges, is to have a system to detect when its master or mate (pilot) becomes incapacitated. The system is to meet the specifications listed in 143.450.</p> <p><i>b)</i> Existing vessels are to comply no later than 5 years after the issuance of the first COI for the vessel per 143.200(c).</p> <p><i>c)</i> A towing vessel need not comply with this section if a second person is provided in the pilothouse.</p> <p><i>d)</i> Towing vessels 19.81 m (65 ft) or less in length are not required to have a pilothouse alerter system.</p>
Towing Machinery	Yes	Yes	143.460	N/A	<p><i>a)</i> Towing machinery such as capstans, winches, and other mechanical devices used to connect the towing vessel to the tow are to be designed and installed to maximize control of the tow. The system is to meet the specifications listed in 143.460.</p> <p><i>b)</i> Existing vessels are to comply no later than 5 years after the issuance of the first COI for the vessel per 143.200(c).</p>
Electrical Power Sources, Load Analysis	No	Yes	143.555(a)(1); 143.555(b)(1)	4-5-2/3; 4-5-2/1.7	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> A record of the load analysis is to be retained by the owner or managing operator.</p>
Generators	No	Yes	143.555(a)(2); 143.555(b)(2), (3), (5), (6) & (7)	4-5-3/3.1 & 3.3; 4-5-3/Table 1; 4-5-2/9.3; 4-5-4/3	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Generators installed in machinery spaces are to be certified to operate in an ambient temperature of 50°C (122°F) or be derated, unless it can be shown that 40°C (104°F) ambient temperature will not be exceeded in these spaces.</p> <p><i>c)</i> Each generator is to be mounted above the bilges.</p> <p><i>d)</i> A generator driven by a main propulsion unit (such as a shaft generator) may be considered one of the power sources required by 143.555(a).</p>
Motors	No	Yes	143.555(a)(2); 143.555(b)(2), (4), (5) & (6)	4-5-3/3.1 & 3.5; 4-5-3/Table 1; 4-5-2/9.13; 4-5-4/3	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Motors are to be provided with overcurrent protection per Parts I through VII, Article 430 of NFPA's National Electrical Code (NEC).</p> <p><i>c)</i> Motors installed in machinery spaces are to be certified to operate in an ambient temperature of 50°C (122°F) or be derated, unless it can be shown that 40°C (104°F) ambient temperature will not be exceeded in these spaces.</p> <p><i>d)</i> Each motor, except a submersible-pump motor, is to be mounted above the bilges.</p>

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Loads to be Energized from Two Independent Sources of Electricity (Emergency Source)	ZNo	Yes	143.555(a)(3); 143.555(b)(8)	4-5-2/5; 4-5-2/13	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> The following essential loads are to be energized from two independent sources of electricity:</p> <ol style="list-style-type: none"> 1) High bilge level alarm required by 143.230; 2) Emergency egress lighting, unless the requirements of 143.410(b)(1) or (2) are met; 3) Navigation lights; 4) Pilothouse lighting; 5) Engine room lighting; 6) Any installed radios and navigation equipment as required by 140.715 and 140.725; 7) All distress alerting communications equipment listed in 140.715 and 140.725; 8) Any installed fire detection system; and 9) Any essential system identified by the cognizant OCMI or ABS, if applicable. <p><i>c)</i> If a battery is used as the second source of electricity required above (143.555(b)(8)), it is to be capable of supplying the loads for at least three hours. There is to be a means to monitor the condition of the battery backup power source.</p>
Electrical Overcurrent Protection other than Generators and Motors	No	Yes	143.565	4-5-2/13.1.4; 4-5-2/9; 4-5-4/11	<p><i>a)</i> This section does not apply to an excepted vessel.</p> <p><i>b)</i> Cable and wiring used in power and lighting circuits is to have overcurrent protection that opens the circuit at the standard setting closest to 80 percent of the manufacturer’s listed ampacity. Overcurrent protection setting exceptions allowed by NFPA NEC, Article 240 may be employed.</p> <p><i>c)</i> If the manufacturer’s listed ampacity is not known, tables referenced in Article 310.15(B) of the NEC are to be used, assuming a temperature rating of 75°C (167°F) and an assumed temperature of 50°C (122°F) for machinery spaces and 40°C (104°F) for other spaces.</p> <p><i>d)</i> Essential systems and non-essential systems are to not be on the same circuit or share the same overcurrent protective device.</p>

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Electrical Grounding and Ground Detection	No	Yes	143.570	4-5-2/7.3 & 7.5; 4-5-3/7; 4-5-2/9.1.1; 4-5-4/5.5; 4-5-4/Table 7, Line 4	<p>a) This section does not apply to an excepted vessel.</p> <p>b) A dual voltage or grounded electrical distribution system is to have the neutral suitably grounded at the main switchboard or distribution panel. There is to be only one connection to ground, regardless of the number of power sources.</p> <p>c) On a metallic towing vessel, a grounded distribution system is to be grounded to the hull and connected to a common, non-aluminum ground plate, which is to have only one connection to the main switchboard or distribution panel, and the connection is to be readily accessible for examination.</p> <p>d) Each grounding conductor of a cable is to be identified by either green braid or green insulation, or stripping the insulation from the entire exposed length of the grounding conductor.</p> <p>e) Cable armor may not be used to ground electrical equipment or systems.</p>
Electrical Conductors, Connections, and Equipment	No	Yes	143.575	4-5-3/5; 4-5-4/13	<p>a) This section does not apply to an excepted vessel.</p> <p>b) Wire and cable runs are not to be installed across a normal walking path, or less than 61 cm (24 in.) from the path of movable machinery unless adequately protected.</p> <p>c) Each cable and wire is to be installed so as to avoid or reduce interference with radio reception and compass indication.</p> <p>d) Each cable and wire is to be suitable for low temperature and high humidity, if installed in refrigerated compartments.</p> <p>e) Extension cords are not to be used as a permanent connection to a source of electrical power.</p> <p>f) Multi-outlet adapters (power strips) may not be connected to other adapters (“daisy-chained”), or otherwise used in a manner that could overload the capacity of a receptacle.</p>
General Requirements for Propulsion, Steering, and Related Controls on Vessels that Move Tank Barges Carrying Oil or Hazardous Material in Bulk	No	Yes	143.585	4-2-1; 4-2-2; 4-2-3; 4-5-5/3	<p>a) This section does not apply to an excepted vessel.</p> <p>b) For vessels that move tank barges carrying oil or hazardous material in bulk:</p> <ol style="list-style-type: none"> 1) An alternate propulsion and steering control near propulsion and steering equipment to be provided per 143.585(a). 2) Requirements for means of communication between operating stations and alternate controls; means to stop each propulsion engine and steering motor from each operating station; and means to monitor amount of thrust, rudder angle, and if applicable, direction of thrust; are to be met per 143.585(b), (c) & (d).

TABLE 3 (continued)
46 CFR Part 143 – Machinery and Electrical Systems and Equipment
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
General Requirements for Propulsion, Steering, and Related Controls on Vessels that Move Tank Barges Carrying Oil or Hazardous Material in Bulk (Continued)	No	Yes	143.585	4-2-1; 4-2-2; 4-2-3; 4-5-5/3	<p>3) For propulsion control systems, including control systems for integrated steering and propulsion, such as z-drive, in the event of a single failure of any component of the system, propeller speed and direction of thrust are to be maintained or reduced to zero per 143.585(e) & (f).</p> <p>4) Audible and visual alarm independent of the control system is to be provided at each operating station, and means of communication between each operating station and any crewmember(s) required to respond to alarms is to be provided per 143.585(g), (h) & (i).</p> <p>5) Two sources of electricity, capable of powering electrical loads necessary to maintain propulsion, steering, and related controls for not less than 3 hours are to be provided per 143.585(j) & (k).</p> <p>6) Propulsion, steering, or related controls that are directly reliant on stored energy are to have two independent stored energy systems per 143.585(l).</p> <p>7) After a power failure, electrical motors used to maintain propulsion and steering are to automatically restart when power is restored, unless remote control starting is provided at the operating station per 143.585(m).</p>
Propulsor Redundancy on Vessels that Move Tank Barges Carrying Oil or Hazardous Material in Bulk	No	Yes	143.590	N/A	<p>a) This section does not apply to an excepted vessel.</p> <p>b) The towing vessel is to be provided with at least two independent propulsors unless the requirements of 143.595 are met. Note the requirements for controls and power.</p>
Vessels with One Propulsor that Move Tank Barges Carrying Oil or Hazardous Material in Bulk	No	Yes	143.595	N/A	<p>a) This section does not apply to an excepted vessel.</p> <p>b) A towing vessel with one propulsor is to have independent, duplicate vital auxiliaries (equipment necessary to operate the propulsion engine, and include fuel pumps, lubricating oil pumps, and cooling water pumps). Note the requirements in the event of failure.</p>
Alternative Standards for Vessels that Move Tank Barges Carrying Oil or Hazardous Material in Bulk	No	Yes	143.600	N/A	<p>a) This section does not apply to an excepted vessel.</p> <p>b) In lieu of meeting 143.585 through 143.595, towing vessel may comply with ABS <i>Under 90 Meter Rules</i> Section 4-7-5 (class ABCU) and Section 4-3-5 (class R2) with the following exception: A vessel subject to this Guide does not need to comply with 4-7-4/3.9 and the automatic day tank fill pump requirement of 4-7-4/25.3 of the ABS <i>Under 90 Meter Rules</i>.</p>

TABLE 4
46 CFR Part 144 – Construction and Arrangement
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Hull Marking	Yes	Yes	144.160(a)-(d)	N/A	<p>a) The hull of each vessel is to be marked with its official number, name, and hailing port, as required by 46 CFR Part 67.</p> <p>b) Draft Markings & Load Line Markings, as required by 46 CFR Part 97.40-10, are to be provided for all vessels with a Load Line or operating under a Stability Document.</p>
Escape and Watertight Access Marking	Yes	Yes	144.160(e) & (f)	N/A	Emergency escape, watertight doors and hatches are to be marked per 144.160 (e) and (f).
Stability	Yes	No	144.300	N/A	Existing vessels are to operate under a stability document (available onboard) or provide a satisfactory service history or perform successful operational tests or satisfactory stability assessment.
	No	Yes	144.305; Table 144.305		New vessels are to meet the applicable requirements of 46 CFR Parts 170 and 173, in addition to the requirements of Table 144.305.
	No	Yes	144.310		Each new vessel equipped for lifting is to meet the requirements from 46 CFR part 173, subpart B.
Weight and Moment History Requirements for a Vessel with Approved Lightweight Characteristics	Yes	Yes	144.315; Table 144.315	N/A	<p>a) A history of changes in weights and moments since the approval of the initially approved lightship characteristics is to be maintained.</p> <p>b) When aggregate weight change is more than 2% of vessel's initially approved lightweight displacement, or LCG change is more than 1% of the LBP, deadweight surveys are to be conducted, following Table 144.315 as applicable.</p>
Watertight or Weathertight Integrity	Yes	Yes	144.320	N/A	<p>a) Freeing ports and/or scuppers are to be provided for vessels fitted with bulwarks.</p> <p>b) Closure devices are to be provided for deckhouse or hull penetrations, which open to the exterior of the vessel and which may allow water to enter the vessel. These devices are to be suitable for the expected route. Closure devices are to meet the same watertight/weathertight integrity of the boundary penetrated.</p>
General Fire Protection	No	Yes	144.405; 144.410; 144.425; 144.430	4-3-5/3	<p>a) For new vessels, fire hazards are to be minimized insofar as reasonable and practicable.</p> <p>b) For new vessels, machinery and fuel tank spaces are to be separated from accommodation spaces by bulkheads. Only self-closing type doors are allowed between these separations.</p> <p>c) For new vessels, waste receptacles are to be constructed of noncombustible materials with no openings in the sides or bottom, unless the means are provided to limit the fire within the receptacle.</p> <p>d) For new vessels, mattresses are to comply with either:</p> <ol style="list-style-type: none"> 1) The Consumer Product Safety Commission Standard for Mattress Flammability (FF 4-72, as amended), 16 CFR part 1632, subpart A, and not contain polyurethane foam; or 2) IMO Resolution A.688(17).

TABLE 4 (continued)
46 CFR Part 144 – Construction and Arrangement
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
General Fire Protection (Continued)	Yes	Yes	144.415	4-3-5/3	Galley exhaust ducts and similar ignition sources are to be insulated with noncombustible insulation if less than 450 mm (18 in.) away from combustible material. Installations in accordance with ABYC P-1 or NFPA 302 are considered to meet this requirement.
Emergency Escape	Yes	No	144.500	N/A	Arrangements on an existing vessel may be retained if it is impracticable or unreasonable to provide two means of escape.
	Yes	Yes	144.500; 144.505; 144.510; 144.515		<ul style="list-style-type: none"> a) Two widely separated means of escape from each accommodation space or workspace are to be provided. b) For vessels 19.81 m (65 ft) or less in length, a window or windshield of sufficient size and proper accessibility maybe used as a mean of escape, provided it does not lead directly overboard, is marked, and has a means to break the glass. c) Only one means of escape is required from a space where: <ul style="list-style-type: none"> 1) The space has a deck area less than 30 m² (323 ft²); 2) There is no stove, heater, or other source of fire in the space; 3) The means of escape is located as far as possible from a machinery space or fuel tank; and 4) If an accommodation space, the single means of escape does not include a deck scuttle or a ladder.
Ventilation for Accommodations	Yes	Yes	144.600; 144.610	N/A	<ul style="list-style-type: none"> a) Each accommodation space on a vessel is to be ventilated in a manner suitable for the purpose of that space. b) A vessel of more than 19.81 m (65 ft) in length with overnight accommodations is to have a mechanical ventilation system unless a natural system, such as opening windows, portholes, or doors, will provide adequate ventilation in ordinary weather.
Means to Stop Fans and Close Openings	Yes	Yes	144.605	N/A	Means are to be provided for stopping each fan in a ventilation system serving machinery spaces and for closing, in case of fire, each doorway, ventilator, and annular space around funnels and other openings into such spaces.
Crew Spaces	Yes	Yes	144.700; 144.710; 144.720	N/A	<ul style="list-style-type: none"> a) Crew accommodation and work spaces are to be of adequate size and construction, with suitable equipment, to provide for the safe operation of vessel and safety of the crew. b) The deck above a crew accommodation space is to be located above the deepest load waterline. c) Overnight accommodations are to be provided for crews on vessels operated for more than 12 hours in a 24-hour period, unless the crew is put ashore and the vessel is provided with a new crew. d) The condition of the accommodations is to consider the vibrations, ambient light, noise levels, and general comfort of the crew. Every effort is to be made to confirm that quarters help provide a suitable environment for sleep and off-duty rest.

TABLE 4 (continued)
46 CFR Part 144 – Construction and Arrangement
Supplemental Requirements

<i>Subject</i>	<i>Existing Vessel</i>	<i>New Vessel</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>	<i>Supplemental Requirements</i>
Handrails and Bulwarks	Yes	Yes	144.800	N/A	<p><i>a)</i> Rails or equivalent protection are to be installed near the periphery of all decks accessible to crew. Equivalent protection may include lifelines, wire rope, chains, and bulwarks that provide strength and support equivalent to fixed rails.</p> <p><i>b)</i> In areas where space limitations make deck rails impractical, such as at narrow catwalks in way of deckhouse sides, hand grabs may be substituted.</p>
Guards in Dangerous Places	Yes	Yes	144.820	4-3-1/7.1	An exposed hazard, such as gears and rotating machinery, is to be protected by a cover, guard or rail.
Protection Against Hot Piping	No	Yes	144.830	4-3-5/3	For new vessels, each pipe carrying vapor, gas or liquid of more than 65.5°C (150°F) and within the reach of personnel is to be insulated or otherwise guarded to prevent burns.
Visibility from Pilothouse	Yes	Yes	144.905(a) & (b)	N/A	<p><i>a)</i> Windows and other openings at the operating station are to be of sufficient size and properly located to provide a clear field of vision for safe operation in any condition.</p> <p><i>b)</i> Means are to be provided to confirm that windows immediately forward of the operating station in the pilothouse allow for adequate visibility to confirm safe navigation regardless of weather conditions. This may include mechanical means such as windshield wipers, defoggers, clear-view screens, or other such means, taking into consideration the intended route of the vessel.</p>
	No	Yes	144.905(c)-(e)		<p><i>a)</i> The field of vision from the operating station on a new vessel is to extend over an arc from dead ahead to at least 60 degrees on either side of the vessel.</p> <p><i>b)</i> If a new vessel is towing astern, the operating station is to be provided with a view aft.</p> <p><i>c)</i> In a new vessel, glass or other glazing material used in windows at the operating station is to have a light transmission of not less than 70%, per Test 2 of ANSI/SAE Z 26.1-1996.</p>
Windows and Portlight Strength	No	Yes	144.920	N/A	<p><i>a)</i> Each window or portlight, and its means of attachment to the hull or deckhouse, is to be capable of withstanding the maximum expected load due to its location on the vessel and the vessel's authorized route.</p> <p><i>b)</i> Any covering or protection placed over a window or porthole that could be used as an escape is to be able to be readily removed or opened from within the space.</p> <p><i>c)</i> Glass and other glazing materials used in windows and portlights are to be materials that will not break into dangerous fragments if fractured.</p>

3 Alternative Requirements

ABS may consider special arrangements or details of hull, equipment, or machinery, which can be shown to comply with *Sub M*, as an alternative to the *ABS River Rules*, provided they are not less effective. Examples of acceptable alternative requirements are provided in Section 2, Table 5. This list is not exhaustive.

TABLE 5
Alternative Requirements

<i>Subject</i>	<i>Sub M CFR</i>	<i>ABS River Rules</i>
Vent Pipes for Integral Fuel Tanks	143.265(c)	4-3-3/7
Bilge Pumps or Other Dewatering Capability	143.275	4-3-3/1.3
More than One Final Sub-Circuit for Lighting in Machinery and Accommodation Spaces	143.410(a)	4-5-2/13.1.3
Emergency Lighting: Duration of Emergency Lighting	143.410(b)(1)	4-5-2/5.1
Emergency Lighting: Use of Non-Electric Phosphorescent Adhesive Lighting Strips	143.410(b)(2)	4-5-2/5.1
Cable Supports	143.575(a)(2)	4-5-3/5.9.1(b)
Main Bus Bar Subdivision	143.585	4-5-4/7.15.2



SECTION 3 Survey Requirements for Additional Systems and Services

1 Towing Vessel (Sub M, River Service) Notation

In addition to surveys of hull, machinery, and equipment otherwise required by the *ABS Rules for Survey After Construction (Part 7)*, the survey is also to include the following:

- *Annual and Special Vessel Surveys:* Refer to 46 CFR Subchapter M Parts 140, 141, 142, 143 and 144 as applicable for additional requirements.
- *Drydock Hull Examination:* Refer to 46 CFR Subchapter M Part 137 as applicable for additional requirements.
- *Internal Structure Examination:* Refer to 46 CFR Subchapter M Part 137 as applicable for additional requirements.