

SMALL PASSENGER VESSEL OPERATOR GUIDE

Last updated 3/1/07

USE OF THIS GUIDE

This guide is intended as a summary of the regulations affecting passenger vessels of less than 100 gross tons. It is intended to interpret and explain the regulations, not duplicate them. Owners and operators should rely on the regulations themselves, not this guide, to ensure that their vessels meet all requirements.

REVISION TO SMALL PASSENGER REGULATIONS

A complete revision of the small passenger vessel regulations was published in the Federal Register on January 10, 1996. Although changes were made to every section of these regulations, in some cases existing vessels may continue to comply with the old regulations. Owners and operators should review this guide and the new regulations carefully to determine what regulations apply to their vessel.

At the beginning of each section of this guide, any new regulations which do affect existing vessels are identified. The remaining information in each section applies to both new and existing vessels, unless otherwise specified. Be advised that new installations on existing vessels must generally meet the new regulations.

NEW REGULATIONS

Citations for new regulations are printed in **bold type**. For example:

Steering system regulations are found in 46 CFR 182.30/**182.610**

This indicates that steering gear requirements are found in the old Subchapter T regulations at 46 CFR 182.30, and in the new Subchapter T regulations at **46 CFR 182.610**.

SUBCHAPTER T

Each vessel of less than 100 gross tons that carries 150 or less passengers or has overnight accommodations for 49 or less passengers and that (1) carries more than 6 passengers, including at least one for hire; (2) is chartered with a crew provided or specified by the owner or the owner is carrying more than six passengers; (3) is chartered with no crew provided or the owner's representative and is carrying more than 12 passengers; or (4) if a submersible vessel, carries at least one passenger for hire.

SUBCHAPTER K

New vessels, less than 100 gross tons and less than or equal to 200' in length, which are certificated for over 150 passengers or which have overnight accommodations for 50 or more passengers must comply with the requirements of **Subchapter K (46 CFR 114-122)**, which was newly created by the recent rulemaking. Existing vessels may continue to comply with the old

"T" regulations except where otherwise specified in the overview of Subchapter K at the end of this guide.

LARGE SUBCHAPTER K VESSELS

New vessels, less than 100 gross tons, certificated for over 600 passengers or which have overnight accommodations for more than 150 passengers, or which are over 200 feet in length and carry more than 6 passengers, must comply with the requirements of Parts 72 and 76 of subchapter H, Parts 114, 115, 117, and 121 of Subchapter K, and the applicable parts of Subchapter F, Marine Engineering, and Subchapter J, Electrical Engineering.

NEW VESSEL DEFINITION

For both subchapter T and K, the definition of a NEW VESSEL is a vessel,

1. the initial construction of which began on or after March 11, 1996,
2. which was issued an initial COI on or after September 11, 1996,
3. which underwent a major conversion that was initiated on or after March 11, 1996, or
4. which underwent a major conversion that was completed and for which an amended COI was issued on or after September 11, 1996.

An EXISTING VESSEL is a vessel which is not a new vessel.

LAWS AND REGULATIONS

UNDERSTANDING LAWS AND REGULATIONS

Although "plain language" is the best way to describe vessel standards, our explanation of requirements or standards will often include law or regulation cites as references. Using legal references is not meant as a bureaucratic response but only to properly identify the source of the requirement. It is important to be familiar with legal references. The following explanation of "USC's" and "CFR's" is offered to help understand these references.

LAWS AND STATUTES

All laws enacted by Congress during the course of a year are published in chronological order in a volume known as the United States Statutes at Large. The United States Code (USC) is a consolidation and compilation of these laws organized by subject (title) in 50 volumes. Statutes pertaining to vessels are grouped in Title 46 entitled "Shipping" which is further divided into chapters by vessel type or subject. For example, Chapter 35 in Title 46, United States Code, is titled "Carriage of Passengers" and is abbreviated 46 USC Chapter 35. The specific statute that requires small passenger vessels to be inspected is found in Title 46 United States Code 3301 or simply 46 USC 3301.

REGULATIONS

Laws often give only general requirements of the intent of Congress. Specific standards or requirements are generally implemented and enforced by prescribing regulations. Regulations like the Statutes are grouped by subject in Titles and are published in the Code of Federal Regulations which is revised annually. Commercial Vessel Safety regulations are published in Titles 33 (Navigation) and 46 (Shipping) which provide detailed guidance for the design and operation of inspected vessels and establish minimum requirements for uninspected vessels. These titles are divided by Chapters (Chapter I is U.S. Coast Guard) and further divided into Subchapters by vessel type or operation. Most regulations covering small passenger vessels (passenger vessels under 100 gross tons) are in 46 CFR 175-185, Subchapter T.

ADDITIONAL REGULATIONS

Subchapter A, (46 CFR Parts 1-9) Procedures Applicable to the Public: Contains requirements for casualty investigations and license suspension and revocation procedures, appeal rights, boundary lines, etc.

Subchapter B, (46 CFR Parts 10-15) Merchant Marine Officers and Seaman: Contains personnel licensing and certification procedures; Part 16, Chemical Testing: Contains drug program requirements for vessel operators.

Subchapter C, (46 CFR Parts 24-28) Uninspected Vessels: Applies to motor propelled recreational vessels, non-recreational vessels carrying six or less passengers and vessels less than 15 GT carrying freight for hire. Also contains commercial fishing vessel regulations.

Subchapter D, (46 CFR Parts 30-40) Tank Vessel standards: Applies to all vessels carrying combustible or flammable liquid cargo in bulk.

Subchapter E, (CFR Parts 41-46) Loadline: Applies to vessels over 79 feet in length engaged in international voyages which were built after July 21, 1968.

Subchapter F, (46 CFR Parts 50-64) Marine Engineering: Contains standards and requirements for boilers, pressure vessels, (such as air whistle tank), piping, and welding, etc.

Subchapter G, (46 CFR Parts 66-69) Documentation and Admeasurement: Contains procedures for marking, documentation and measurement of all vessel types.

Subchapter H, (46 CFR Parts 70-89) Passenger Vessels: Contains structural fire protection requirements in 46 CFR Part 72.05. Also applies to existing small passenger vessels carrying more than 150 passengers.

Subchapter I, (46 CFR Parts 90-106) Freight Vessels: Applies in part to small passenger vessels carrying freight for hire.

Subchapter J, (46 CFR Parts 110-139) Electrical Regulations: May be referenced for larger T-boats.

Subchapter K, (46 CFR Parts 114-122), Small passenger vessels carrying more than 150 passengers or with overnight accommodations for more than 49 passengers.

Subchapter Q, (46 CFR Parts 159-165) Equipment Specifications and Approvals: Contains standards for lifesaving and other equipment.

Subchapter S, (46 CFR Parts 170-174) Stability and Subdivision: Contains requirements for T-Boats.

Subchapter T, (46 CFR Parts 175-185) Passenger vessels less than 100 gross tons, carrying not more than 150 passengers or with overnight accommodations for not more than 49 passengers.

Title 33 CFR, Navigation and Navigable Waters: Contains pollution prevention requirements

Title 47 CFR, Telecommunication: FCC requirements for small passenger vessels operating beyond 1000' from shore.

Title 49 CFR, Dangerous Cargo Regulations: Applies to vessels carrying dangerous cargo, such as dynamite; Procedures for Transportation Workplace Drug Testing Programs: Guidance on specific testing procedures.

ORDERING INFORMATION FOR REGULATIONS

Regulations may be ordered by writing or calling the Government Printing Office at:

Mailing Address

U.S. Government Printing Office
Mail Stop: IDCC
732 N. Capitol Street, NW
Washington, DC 20401

Please contact us from 7:00 a.m. to 8:00 p.m. EST, Monday through Friday (except Federal holidays) at:

(202) 512-1800

(866) 512-1800

www.bookstore.gpo.gov

PASSENGER DEFINITION

46 USC 2101(21) defines "passenger" as an individual carried on the vessel except:

1. The owner or an individual representative of the owner or in case of a vessel under charter, an individual charterer or individual representative of the charter;
2. The master; or
3. A member of the crew who is engaged in the business of the vessel who has not contributed consideration for carriage and who is paid for onboard services.

46 USC 2101(21a) defines "passenger for hire" as: "A passenger for whom consideration is contributed as a condition of carriage on the vessel, whether directly or indirectly flowing to the owner, charterer, operator, agent, or any other person having an interest in the vessel."

The act further defines "consideration" as: "An economic benefit, inducement, right, or profit including pecuniary payment accruing to an individual, person, or entity, but not including a voluntary sharing of the actual expenses of the voyage, by monetary contribution or donation of fuel, food, beverage, or other supplies."

NAVIGATION AND VESSEL INSPECTION CIRCULARS (NVICs)

Navigation and Vessel Inspection Circulars (NVICs) are a means of publishing Coast Guard policy, instructions, and guidance on specific commercial vessel issues. They are used to clarify and augment commercial vessel safety laws and regulations. NVICs relevant to small passenger vessels are listed below (Condensed titles). A more complete listing is available on the internet (see next page for the internet address):

Aluminum Small Passenger Vessels; Structural Plan Review	11-80
Appeals, Procedures for Making	16-82
Atriums; Special Fire Protection Systems for	16-91
Ballast, Fixed; Use of Special Materials	5-82
Captain of the Port Zone Boundaries	13-92
Charts and Publications, Requirements of	9-83
Charts, Nautical, Adequacy and Currency of	7-86
EPIRBs & Other Radio Lifesaving Equipment	9-92
Fire Extinguishers; Marine Type Portables	7-70
Fire Extinguishers; Use of UL Listed Extinguishers	13-86
Fire Extinguishing Systems; Determining Weight of CO ₂	8-73
Fire Extinguishing Systems; Fixed Systems	6-72, CH-1
Information Required to be Posted	10-60
Insulation; Approved Combustible Materials	4-67
International Load Line – Limited Coastwise Route	1-88, CH-1
Licensing and Certification Procedures	14-82
Lifesaving Equipment; Float Free Arrangement	4-86
Lifesaving Equipment; Inspection and Repair	2-63
Lifesaving Equipment; Retroreflective Material	1-87
Lifesaving Equipment; Life Float Painters	1-83
Lifesaving Equipment; Recalls/Corrective Measures	4-85, CH-2
Lifesaving Equipment; Extended Size/Adult PFD's Suitability for Some Children	14-92
Lifesaving Equipment; Topstitching on Type I PFDs	1-84
Load Lines; Partially Protected Routes	1-88, CH-1
Means of Egress – Protected or Partially Protected Areas	14-91
Merchant Mariner's Documents and Licenses, Physical Eval; Guidelines For	6-89
MSD Certification	9-82, CH-1
Noise; Control of Excessive Noise	12-82
Notes on Design, Construction, Inspection and Repair of FRP Vessels	8-87
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Self-Propelled Vessels, Classification of	8-68
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Stability; Guidelines for Conducting	17-91
Stability; Z Nomograph Method for Computing GM	3-69

Steel Hull Inspection and Repair	7-68
Structural Fire Protection Guide	9-97
Structural Review of Aluminum T-Boats	11-80
Watertight Bulkheads, Integrity of	2-62
Wooden Hulls, Inspection and Repair of	7-95

SUBSCRIPTION INFORMATION AND ORDERING BACK ISSUES OF NVICs

Current calendar year NVICs are available through annual subscription at the U.S. Government Printing Office. Make all checks or money orders payable to "Superintendent of Documents, Government Printing Office".

Orders should be mailed to: Superintendent of Documents
U.S. Government Printing Office
Washington DC 20402

The National Technical Information Service Sales Desk (1-800-553-6847 or (703) 605-6000, 8 a.m. - 6 p.m.; EST, Mon-Fri)

Orders can be mailed to: National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

The NTIS Web site is: <http://www.ntis.gov>

NVICs may also be directly found on the Coast Guard's Web site at:
<http://www.uscg.mil/hq/g-m/nvic/index.htm>

Some other helpful Web sites to visit are:

CG: <http://www.uscg.mil>

NTSB: <http://www.nts.gov>

CFRs: <http://www4.law.cornell.edu/cfr>

Federal Registers: <http://www.gpoaccess.gov/fr/index.html>

Notice to Mariners: <http://www.navcen.uscg.gov/lnm/default.htm>

Marine Safety Manual: <http://www.uscg.mil/hq/g-m/nmc/pubs/msm/>

USCG Locations & Units: <http://www.uscg.mil/top/units/>

Homeport DHS: <http://homeport.uscg.mil/mycg/portal/ep/home.do>

Maritime Information Exchange (CGMIX): <http://psix.uscg.mil/>

COMMERCIAL INSPECTION USER FEES

Under the Omnibus Budget Reconciliation Act of 1990, the Coast Guard is required to establish and collect user fees for its services relating to the inspection and examination of U.S. and foreign commercial vessels, to include small passenger vessels. The effective date for collecting user fees was 01 May 1995.

The Coast Guard has established a vessel user fee anniversary date and fee amount for each existing vessel. The annual inspection fees are payable each year on or before the vessel's Certificate of Inspection date. If the vessel has a valid COI, inspection services will continue to include reinspections, hull examinations, damage surveys and deficiency follow-up inspections regardless of the vessel's payment status. When service is requested, we will verify the vessel's payment status and advise you of any outstanding fees. If services are provided before payment is received, civil penalty action will be initiated. However, we will accept as evidence of payment a copy of a check, money order, etc. and receipt for express mail or other proof of mailing as acceptable evidence of payment. For more information regarding the user fee payment process visit the CG Finance Center website <http://www.fincen.uscg.mil/VIF.htm> or call:

Contact Information	
Customer Service for Vessel Inspection User Fees (VIF)	
Phone:	757-523-6958
Toll Free:	1-800-941-3337
Fax:	757-523-6734
Email:	FIN-DG-COIUSERFEES@uscg.mil

CERTIFICATE OF DOCUMENTATION AND VESSEL ADMEASUREMENT

The rules regulating the documentation and measurement of vessels are found in 46 CFR Subchapter G. In brief, these regulations require that any vessel of at least 5 net tons which engages in the fisheries, Great Lakes, or coastwise trade, unless specifically exempted, must be documented. A Certificate of Documentation (COD) serves as evidence of vessel nationality and permits a vessel to be subject to preferred mortgages.

A tonnage determination is required before a vessel may be documented as a vessel of the United States. Tonnages are determined by the physical measurement of a vessel (Convention, Standard, and Dual Measurement Systems) or by application of a formula based on the vessel's dimensions provided by the owner (Simplified Measurement System). Simplified measurement under 46 CFR 69.205 presently applies to domestically - operated commercial vessels less than 79 feet in length overall, to barges of any length, and to pleasure vessels of any length whether or not engaged in international voyages.

Applications for simplified measurement may be submitted as part of the vessel documentation application process at the vessel's intended port of documentation.

Any vessel of at least five net tons which engages in **fisheries** on the navigable waters of the United States or in the Exclusive Economic Zone (EEZ) or **coastwise trade** must have a COD bearing a valid endorsement appropriate for the activity in which engaged.

The person in command of a documented vessel must have on board that vessel the ORIGINAL COD currently in effect for that vessel and must produce it upon demand of any person acting in an official public capacity.

There are severe penalties, including in some cases forfeiture of the vessel, for fraudulent application, fraudulent use of a document, alteration of a document, and other violations of Subchapter G.

FOR FURTHER INFORMATION: U. S. Coast Guard Documentation Offices throughout the country have been consolidated into one facility located in Falling Waters, West Virginia. This office can be reached at the following address and telephone number:

National Vessel Documentation Center
792 T J Jackson Drive
Falling Waters, WV 25419

<http://www.uscg.mil/hq/g-m/vdoc/nvdc.htm>

Toll Free: (800) 799-8362
Main: (304) 271-2400
Hours: 7:30 a.m. to 5:00 p.m.
(Eastern Standard Time)

CERTIFICATE OF INSPECTION

A Certificate of Inspection (COI) is required for all commercial vessels that carry more than six passengers for hire and for all chartered vessels less than 100 gross tons, even when a crew is not provided by the owner if they carry thirteen (13) or more passengers.

APPLICATION FOR INSPECTION

An Application for Inspection must be made before new construction or conversion, and to obtain or renew a Certificate of Inspection. At the start of the inspection, the old COI is removed from the vessel until the inspection is completed and a new certificate issued. An application for inspection, form CG-3752 must be completely filled out by the vessel's owner or agent. Owners or agents are encouraged to request an inspection for certification a minimum of 30 days before the expiration of the vessel's COI. The application is not required for drydock or reinspection, however ample notice for each of these inspections (30 days for drydock, 60 days either side of the expiration date for reinspection) is recommended. If a drydock inspection is not completed by the date required, the COI is invalidated and the vessel must undergo both a drydock exam and a COI exam prior to carrying passengers for hire. An Application for Inspection can be found at http://cgweb2.comdt.uscg.mil/CGFORMS/FORMS/CG_3752.pdf.

PERIOD OF VALIDITY

All Certificates of Inspection for small passenger vessels are now issued for a period of five years per **46 CFR 176.107**. Annual reinspections will continue to be conducted on all passenger vessels in accordance with 46 CFR 176.500. These reinspections will be conducted within the 3 months before or after each anniversary date. An annual endorsement is required on the COI.

INFORMATION ON THE CERTIFICATE OF INSPECTION

It is important that all information on your COI be accurate and up-to-date. You should thoroughly review your COI and completely understand the conditions of operation and any limitations. If any modifications to the vessel or any change in the conditions or route of operation are planned, the OCMI must be notified to evaluate the effect these changes may have on the vessel's certificability and/or suitability for route and service.

POSTING OF CERTIFICATES OF INSPECTION

Each page of the Certificate of Inspection must be framed under glass or other transparent material and posted in a conspicuous place so as to be available for passengers to view (46 CFR 176.01-40/**176.302**). In instances where this is impractical, the Certificate may simply be kept onboard. The vessel's stability letter must also be posted.

INSPECTION STICKER

Owners and operators are reminded of the requirements of 46 CFR 176.01-45/**46 CFR 176.310**, which prohibit the operation of the vessel without a "Certificate Expiration Date" sticker. If for some reason you do not have one of these stickers, please contact Sector Long Island Sound to obtain one. The purpose of the sticker is to increase public awareness of vessel inspection requirements and to encourage the public to favor vessels that meet these

requirements. The sticker is a glossy orange, blue and white decal with the expiration date of the Certificate of Inspection punched out. The inspection sticker shall be readily visible to each passenger prior to boarding and patrolling law enforcement personnel.

CERTIFICATED SMALL PASSENGER VESSELS OPERATING WITH 6 OR LESS PASSENGERS

As specified by **46 CFR 176.114**, an inspected small passenger vessel may operate as an uninspected passenger or freight vessel only if authorized by an endorsement on the COI, or with the specific authorization by the cognizant OCMI.

PURPOSE AND SCOPE OF INSPECTION

The purpose of the Inspection for Certification is to verify compliance with all applicable regulations and to evaluate the safety of the vessel's hull structure and equipment for the duration of the certificate. The inspection encompasses not only hull integrity but also equipment inspection and operational testing of the engines, steering, and other vital systems.

REQUIREMENTS ISSUED AFTER INSPECTION ("835'S")

At the completion of an Inspection for Certification, reinspection, or drydock examination, a Marine Inspector may issue requirements for vessel repairs, equipment replacement, or testing, etc., to the vessel owner or operator. These requirements are generally issued on a self carbon pad, form CG-835, which are commonly referred to as "835's". An 835 requirement is an outstanding deficiency to the vessel's Certificate of Inspection and will allow the vessel to operate until the items are corrected. If practicable, an 835 will be issued restricting the vessel's route and/or conditions of operation until completed to avoid issuing a "no-sail" 835. "No-sail" 835's will generally be issued for lifesaving, fire protection, or other serious safety deficiencies. These deficiencies will result in the withholding of the COI.

The owner/operator must ensure that these requirements are completed by the date indicated at the inspection. Before the expiration, it is the *owner's* responsibility to contact Sector Long Island Sound either by telephone or letter to report that the requirements have been completed. Requests for extensions must be in writing, be made well ahead of the "due date", and will only be granted for reasons outside the operator's control.

Although most owner/operator's are conscientious enough to promptly comply with 835's, there have been cases where an owner/operator's license was suspended by an Administrative Law Judge for not completing repairs issued by a Marine Inspector. Other possible results of non-compliance are civil penalties or revocation of a Certificate of Inspection.

STABILITY

NEW REQUIREMENTS All passenger vessels are required to perform a stability test to determine the safe passenger load. The only exception to this policy is for vessels certificated for less than 50 passengers, limited to operating 1 mile from land, on a Lakes, Bays, and Sounds route, daylight hours only.

Stability requirements are found in 46 CFR 170-171/**46 CFR 178**. Although the procedures for determining stability have not changed, additional types of vessels are now required by regulation to conduct stability tests. Existing vessels may continue to comply with the old regulations.

HOW DETERMINED

Stability can be determined in one of two ways. A "simplified stability test" can generally be performed by the operator. This test must be conducted in the presence of a Coast Guard Marine Inspector. The test is designed to conservatively estimate the stability of the vessel by attempting to heel the boat beyond a certain point. This is done by shifting weights approximating that of a full load of passengers. The following vessels, if not more than 65 feet in length, may use a simplified stability test to determine stability:

Vessels carrying not more than 150 passengers on a domestic voyage.

Vessels carrying not more than 12 passengers on an international voyage.

Vessels with not more than one deck above the bulkhead deck.

Vessels which do not meet the above criteria must conduct a "full incline stability test", which must be performed by a naval architect. This test is also done in the presence of a Coast Guard Marine Inspector. Full incline stability is also required on most sailing vessels (see **46 CFR 178.325**), and vessels of unusual design.

STABILITY AND VESSEL ROUTES

Stability requirements are dependent on the degree to which a vessel's route exposes it to rolling seas, high winds, and other weather conditions. The following terms apply within the OCMI, Long Island Sound's area of responsibility:

Protected Waters: Vessels on a Rivers route, or a Lakes, Bays, and Sounds less than 1 mile route are considered to be operating on "protected waters".

Partially Protected Waters: Vessels on an unlimited Lakes, Bays, and Sounds or limited Coastwise routes are considered to be operating on "partially protected waters".

Exposed Waters: Vessels on a coastwise route or an oceans route are considered to be operating on "exposed waters".

SIMPLIFIED STABILITY TEST: CONSERVATIVE?

A simplified stability test may not be as conservative as is commonly assumed. The simplified test is done on a pass/fail basis moving weight and comparing the angle of heel with a reference mark. The required weight shift is based on passengers remaining in one general area and may not adequately account for large passenger movements.

As an example, consider the possibility where 150 passengers line the rail on one side of a vessel with an 18 foot beam to observe a whale. If the whale suddenly surfaces on the opposite side of the vessel and passengers shift 10 feet, a 240,000 ft-lbs heeling moment is generated (150 passengers x 160 lbs. x 10 ft.). The required stability test heeling moment is only 64,000 ft-lbs (16 ft. beam accessible to passengers x 150 passengers x 160 lbs. divided by 6). In this example actual passenger weight shift exceeded the stability test requirements by almost 400%!

Note* using the expected increase in passenger weight of 185 lbs. would make the outcome even more drastic.

PASSENGER MOVEMENT AND STABILITY

Weight shift by passengers on the upper deck may have a significant effect on vessel stability and all operators are reminded to review their Certificate of Inspection and Stability Letter for upper deck passenger limitations.

Vessel operators should implement stringent control procedures to strictly enforce upper deck passenger limits. Passengers naturally tend to go up and in many circumstances may actually crowd the rails to view a special occurrence such as a whale sighting. Adding extra passengers on the upper deck shifts the vessel's center of gravity up which adversely affects stability. Passenger movement from side to side on the vessel also presents a significant heeling moment, and may affect the vessel's stability.

Generally speaking, weight added low and centered on a vessel may actually improve stability. If a vessel doesn't have much freeboard, adding weight to it may adversely affect its stability, causing it to sit lower in the water. A detailed discussion of intact stability, damage stability and subdivision is beyond the scope of this guide. For reference purposes, the following cites in the CFR explain the stability requirements in greater detail:

Subchapter T: 46 CFR Part 171 Subpart B/**46 CFR Part 171 Subpart D, 46 CFR Part 179**

Subchapter K: **46 CFR Part 171 Subpart C, Subpart D**

LICENSING

LICENSING REGULATIONS

Licensing regulations can be found in Title 46, Code of Federal Regulations, Part 10. Any questions about licensing should be directed to the staff of a U. S. Coast Guard Regional Examination Center (Boston, at (617)223-3040; New York, at (212)668-4970).

NEW SECURITY REQUIREMENTS FOR MERCHANT MARINIER DOCUMENTS

When applying for **any** MMD (originals, renewals, upgrades, endorsements, or duplicates), mariners will be required to be fingerprinted at the regional exam center. Mariners must produce 2 forms of identification, one of which must be a picture ID.

REGIONAL EXAMINATION CENTER (REC) BOSTON

The REC is located in Boston's historic North End. Street parking is limited, and parking regulations are strictly enforced. Pay lots in the area are a good option if driving, and the REC is conveniently located between the Aquarium "T" stop and the North Station "T" stop. The office is open Monday - Friday (excluding federal holidays) between 0700 and 1600. Please arrive no later than 1400 if you wish to process a transaction on the same day. Many transactions can be completed through the mail, usually within 3 working days. Please call first if you have any questions.

REGIONAL EXAMINATION CENTER (REC) NEW YORK

The REC is located in Battery Park, at the Southern tip of Manhattan next to the Staten Island Ferry Terminal. Street parking is very rare and parking regulations are strictly enforced. Pay lots in the area are a good option if driving, as there are several convenient to the Statue of Liberty/Ellis Island ferry next door. The REC is a short walk from the SOUTH FERRY station on the subway's 1 & 9 (Red) line, the BOWLING GREEN station on the subway's 4 & 5 (Green) line, or the WHITEHALL/SOUTH FERRY stop on the subway's N & R (Yellow) line. The office is open Monday-Friday (except federal holidays) between 0730 and 1500. Although subject to change, testing begins at 0800 and individuals may not enter the exam room after 0900.

LICENSING DEFINITIONS

Inland water: The navigable waters of the United States shoreward of the Boundary Lines as described in 46 CFR Part 7, excluding the Great Lakes.

Near coastal: Ocean waters not more than 200 miles offshore.

Oceans: The waters seaward of the Boundary lines per 46 CFR Part 7.

Master: The officer having command of a vessel.

Mate: A qualified officer in the deck department, other than the master.

Day: Eight hours of watchstanding or day working not to include overtime. On vessels where a 12 hour working day is authorized and practiced, such as on a six-on, six-off watch schedule, each work day may be creditable as one and one half days of service. On vessels of less than 100 gross tons, a day is considered eight hours, unless the Officer in Charge Marine Inspection determines that the vessel's operating schedule makes the criteria inappropriate. In no case will this period be less than four hours.

Month: 30 days.

Original license: The first deck, engineer or radio officer license issued to a person by the Coast Guard.

Endorsement: A provision added to a license which alters its scope or application. For example, a tonnage limitation increase within a general tonnage category, a pilot license route addition or a radar observer qualification.

Raise of grade: An increase in the level of authority and responsibility associated with a license.

Original Licenses

For inspected vessels original licenses are issued for vessels of 25 gross tons, 50 gross tons, or 100 gross tons, depending on the applicant's experience. An application package for an original license requires:

- ___ Application
- ___ Birth certificate or passport
- ___ Social security card or two forms of ID listing the number
- ___ First aid certification within 1 year of application
- ___ Current CPR certification
- ___ Physical form
- ___ Drug free certification
- ___ Documentation of sea time: An Inland route requires 360 days of service, a Near Coastal route requires 720 days of service, 360 days of which on waters beyond the Boundary Line.
- ___ User fees: apply for evaluation, examination and issue. Contact the REC for current rates.

The examination for an original license consists of Chart Navigation, Navigation - General, Deck - General, Deck - Safety and Rules of the Road. The applicant has 3 chances at each section, and all sections must be successfully completed within 90 days of the start of testing. If the applicant fails to complete the examination, he must wait 60 days from the last test, submit another examination fee, and test on all modules.

License Renewal

Licenses are valid for 5 years from the date issued. A license can be renewed 1 year before the expiration, and up to 1 year after the license is expired. The latter "grace period" is for renewal purposes only; the license is not valid for employment after the 5th year. Formal disciplinary

action has been taken against mariners and their employers for operating on expired licenses; the responsibility for renewal is with the license holder. A renewal package requires:

- ___ Application
- ___ Physical
- ___ Drug free certification
- ___ Copy of license being renewed
- ___ Evidence of 360 days of underway service in the previous 5 years; or, a request for an open book renewal exercise.
- ___ User fees: apply for evaluation, examination & issue. Contact the REC for current rates.

All licensing **user fees** can be paid by personal check, money order, or, in person, cash in the exact amount. Personal checks or money orders are preferred and should be made out to U.S. Coast Guard. The applicant's name and Social Security Number must appear on the face of the check or money order.

Evidence of being **drug free** is required for all licensing transactions. This can be in the form of a periodic drug test or pre-employment drug test done within 6 months of the application. A letter from a marine employer indicating that the applicant has been subject to a random drug test program for 60 of the last 185 days and has not failed or refused to test also serves as drug free certification for license transactions. Drug test information and forms are included in the original license application package and the license renewal package.

BAD DRIVER?

In a recent revision to the regulations, the Coast Guard has clarified the law concerning the review of the National Driver Register (NDR) when conducting character evaluations for merchant mariner credentials.

The law implies that an applicant's motor vehicle driving record should be reviewed before any merchant mariner's credential is issued.

The NDR indicates only that the applicant has or does not have a record. No other details are provided. If the applicant has a record, they **MUST** provide the details of the offense to the evaluator if they wish to continue the application process.

Having a record in the NDR does not necessarily preclude an applicant from receiving a license. The evaluator will consider the nature and date of the offense, and will weigh these factors with the applicants other references.

Again, any questions about licensing should be directed to (although fax numbers are provided, Mariners are cautioned that the REC's must receive original documents) or visit the USCG Licensing homepage at <http://www.uscg.mil/stcw/index.htm>.

U.S. Coast Guard Regional Examination Center
455 Commercial Street
Boston, MA 02109-1045
(617) 223-3040
(617) 223-3034 (Fax)

U.S. Coast Guard Regional Examination Center
Battery Park Bldg.
New York, NY 10004
(212) 668-4970
(212) 668-6394 (Fax)

VESSEL MANNING

The minimum required complement of licensed officers and deckhands is listed on each vessel's Certificate of Inspection. Factors such as type of operation, waters of operation, configuration of sails and rigging, as well as specific statutory and regulatory requirements, are considered in determining manning levels. Standard manning requirements for small passenger vessels are as follows:

MORE THAN 12 HOURS OF OPERATION

One Licensed Master

One Licensed Mate

Two Deckhands for each deck accessible by passengers

When a vessel ordinarily operates more than 12 hours in any 24 hour period, and overnight accommodations are available on board for the off duty crew to rest, the manning on the certificate will reflect the two crews and the following statement will appear in the text of the COI:

WHEN THE VESSEL IS AWAY FROM A SHORE SIDE DOCK OR HAS PASSENGERS ABOARD FOR NOT MORE THAN TWELVE (12) HOURS IN ANY TWENTY-FOUR (24) HOUR PERIOD, THE CREW/PASSENGERS MAY BE ADJUSTED AS FOLLOWS: 1 MASTER, X DECKHANDS, AND XX PASSENGERS.

NOT MORE THAN 12 HOURS OF OPERATION IN A 24-HOUR PERIOD

One Licensed Master

One Deckhand for each deck accessible by passengers

If the vessel ordinarily operates 12 or less hours in any 24 hour period, the manning on the certificate will be reflected as above and the following statement will appear in the text of the COI:

WHEN THE VESSEL IS AWAY FROM A SHORE SIDE DOCK OR HAS PASSENGERS ABOARD FOR MORE THAN TWELVE (12) HOURS IN ANY TWENTY-FOUR (24) HOUR PERIOD, AN ALTERNATE CREW SHALL BE PROVIDED.

Deckhands are unlicensed, undocumented persons employed to assist with the safe operation of the vessel. In general, one deckhand is required for each deck accessible to passengers.

RECOMMENDED ADDITIONAL MANNING FOR VESSELS WITH A HIGH NUMBER OF PASSENGERS

# of passengers	12 hours or less	greater than 12 hours
0-149	0	0
150-299*	1	2
300-399*	2	4
400-499	2 + 1 mate	4
500-799	3 + 1 mate	6
800-999	4 + 1 mate	8
1000 +	Manning requirements based on individual review	

* OCMI Long Island Sound recommends that vessels carrying between 150-399 passengers have a designated Senior Deckhand or carry a Licensed Mate. The Coast Guard does not prescribe deckhand qualification by regulation. The proper training and qualification of deckhands is the responsibility of the marine employer and ultimately the vessel's Master. The Coast Guard has issued, by means of NVIC 1-91 dated 20 February 1991, recommended criteria for assessing the qualifications of individual deckhands. NVIC 1-91 can be found at http://www.uscg.mil/hq/g-m/nvic/1_91/n1-91.htm.

It is the owner's responsibility to have the vessel sufficiently manned to ensure the safety of the vessel and passengers. The operator may use more deckhands than required, but may not exceed the total number of persons allowed onboard by the COI.

LICENSED MATE

The requirement for licensed mates on small passenger vessels is found in 46 CFR 15.810(b)(5). The requirement for a licensed mate may be eliminated on vessels operating less than 12 hours in a 24 hour period when the passengers on board do not exceed 399. However, when the licensed mate is eliminated on vessels carrying between 150-399 passengers, a designated senior deckhand is recommended.

*Note: Vessels with overnight accommodations for more than 49 passengers, regardless of the number of day passengers, are required to carry a licensed Mate.

SAIL VESSELS

Sail and Auxiliary Sail Vessels will be evaluated on an individual basis for approval under similar standards as motor vessels. Particular attention must be paid to the ease of sail handling. In general, an extra deckhand or more is required above that of a similar motor vessel. Pure sail vessels will normally require an additional deckhand to handle the yawl boat if one is used to moor, anchor, or maneuver in restricted areas or light wind.

LAUNCHES AND WATER TAXIS

Launches and water-taxi vessels typically carry one deckhand, regardless of the number of passengers embarked or hours of operation. However, the elimination of a deckhand on small launch tenders which can be easily maneuvered and moored by the operator alone may be granted to service vessels at moorings in close proximity to the marina. This deckhand exclusion is in recognition that the marina service is handling passengers already familiar with vessels and to encourage small launches to remain in certification. This deckhand reduction allowance is narrowly interpreted and does not apply to excursion vessels or to any service taking regular passengers "off the street". Manning for Launch Tender/Excursion Vessel combinations will be based on the excursion vessel status. However, when carrying less than six (6) passengers in marina/launch service only, small launch tender/excursion vessels meeting the above criteria may be granted the deckhand exemption. Any reduced manning allowances will be noted on the Certificate of Inspection.

LICENSED ENGINEER

Licensed Engineers are generally not required aboard small passenger vessels. However, these vessels should not be operated unless at least one member of the crew has a certain level of engineering training and experience. This individual should have a good working knowledge of the operation and use of the main and auxiliary machinery, steering systems, alarms, fueling techniques and emergency procedures. Marine Inspectors will ensure that a member of the crew has this familiarization.

CREW DRILLS AND DOCUMENTATION OF DRILLS

Title 46, U.S. Code of Federal Regulations, Section 185.25-10/**185.420** and 122.520 requires commercial small passenger vessel operators to conduct drills and provide instructions as necessary to ensure that all crew members are familiar with their duties. These drills shall be conducted at least once every three months and logged in the vessel's log. Vessels which operate only during part of the year must conduct these drills before the start of the season.

VESSEL ROUTES

The area of operation permitted for each vessel is designated by the Officer in Charge, Marine Inspection. These areas are authorized on the Certificate of Inspection under the major headings "OCEANS" "COASTWISE" "GREAT LAKES" "LAKES, BAYS AND SOUNDS" or "RIVERS". Route definitions are found in 46 CFR 175.10/**46 CFR 175.400**.

Further route limitations are described by reference to bodies of waters, geographical points, distance from geographical points, distances from land, depths of channel, seasonal limitations, etc. in the Conditions of Operation section on the Certificate of Inspection.

The routes a vessel may operate on are determined by a combination of factors, including vessel construction, stability, hatch coaming heights, freeboard, lifesaving equipment and other special hazards, such as cold water, lack of rescue facilities, or safe harbors.

Operation of vessels on less restrictive routes than the route specifically described on the Certificate of Inspection is always permitted. The general precedence, based on restrictions, is considered to be Oceans; Coastwise; Limited Coastwise; Lakes, Bays, and Sounds; and Rivers. Differences in local conditions of operation may need to be taken into account. The following route definitions apply to the OCMI Long Island Sound zone.

1. Oceans - any ocean, the Gulf of Mexico, the Gulf of Alaska, the Caribbean Sea, and other similar waters more than twenty (20) nautical miles offshore.
2. Coastwise - not more than 20 nautical miles offshore on any ocean, the Gulf of Mexico, the Caribbean Sea, the Gulf of Alaska, or other similar waters specifically designated by the CG District Commander. A limited coastwise route may be issued restricting vessel operation to within 20 nautical miles of a harbor of safe refuge, allowing a reduction in certain lifesaving equipment.
3. Limited Coastwise - A route that is not more than 20 nautical miles from a harbor of safe refuge. A harbor of safe refuge means a port, inlet, or other body of water normally sheltered from heavy seas by land and in which a vessel can navigate and safely moor.
4. Lakes, Bays, & Sounds - any lake (other than Great Lakes), bay or sound or other body of water specifically designated by the CG District Commander. In this zone, all waters out to the boundary line (defined below), are considered Lakes, Bays, & Sounds.
5. Rivers - any river, canal, or other similar waterway specifically designated by the CG District Commander.

BOUNDARY LINE

The boundary line is a position defined in 46 CFR Part 7 which delineates the application of various manning, inspection and FCC requirements.

In general, INLAND of this boundary line is considered LAKES, BAYS & SOUNDS and a small passenger vessel may be operated with a MASTER, INLAND license. Seaward of this line out to 200 nautical miles offshore requires a MASTER, NEAR COASTAL license. (See Licensing definitions)

The boundary lines which apply to Sector Long Island Sound's zone are defined in 46 CFR 7.25 as follows:

1. A line drawn from Shinnecock East Breakwater Light to Shinnecock West Breakwater Light.
2. A line drawn from Moriches Inlet East Breakwater Light to Moriches Inlet West Breakwater Light.
3. A line drawn from Fire Island Inlet Breakwater Light 348 degrees True to the southernmost extremity of the spit of land at the western end of Oak Beach.
4. A line drawn from Jones Inlet Light 322 degrees True across the southwest tangent of the Island on the north side of Jones Inlet to the shoreline.

The Boundary Line is used as the dividing line between coastwise and lakes, bays, and sounds. This line will be followed in determining appropriate routes for T-Boats.

The Exclusive Economic Zone (EEZ) of the United States is a zone contiguous to the territorial sea. This zone extends to a distance 200 nautical miles from the baseline from the maritime boundary with a neighboring State.

Sector Long Island Sound's area of responsibility (AOR) is defined in 33 CFR 3.05-35. The AOR starts at 40-35.4' N. latitude, 73-46.6 W. longitude; thence proceeds along a line northwesterly to 40-40' N. latitude, 73-40' W. longitude; thence to 40-52.5 N. latitude, 73-37.2 W. longitude; thence northwest to the south shore of Manursing Island at 40-58' N. latitude, 73-40' W. longitude; thence northerly to the Connecticut-New York boundary at 41-01.5 N. latitude, 73-40' W. longitude; thence north along the western boundary of Connecticut to the Massachusetts-Connecticut boundary; thence east along the southern boundary of Massachusetts, including the waters of the Congamond Lakes, to the Rhode Island boundary; thence south along the Connecticut-Rhode Island boundary, excluding the waters of Beach Pond, to 41-24' N. latitude, 71-48' W. longitude; thence southerly to 41-21' N. latitude, 71-48.5 W. longitude at Westerly, Rhode Island; thence southwesterly to Watch Hill Light, Rhode Island. The northern offshore boundary is a line bearing 132 degrees True from Watch Hill Light to the outermost extent of the EEZ. The southern offshore boundary extends along a line bearing 127.5 degrees True from the south shore of Long Island at 40-35.4' N. latitude, 73-46.6 W. longitude to 38-28' N. latitude, 70-11 W. longitude; thence easterly to the outermost extent of the EEZ; thence northerly along the outermost extent of the EEZ to the intersection of the northern boundary.

CONSTRUCTION CONSIDERATIONS

PLAN SUBMITTAL 46 CFR 177.202

Before construction begins, at least 2 copies of the outboard profile, inboard profile, and arrangement of decks must be submitted to the cognizant Officer in Charge, Marine Inspection (OCMI).

Two copies of the following additional plans must be submitted for approval before a newly constructed vessel can be certificated:

Outboard profile	Inboard Profile
Arrangement of decks	steering system
midship section	survival craft embarkation stations
machinery installation	propulsion, propulsion control and shaft details
engine exhaust diagram	electrical installation (DC and AC inc. generators)
lifesaving equipment	fire protection equipment inc. extinguisher details
fuel tanks	bilge, ballast, and other piping systems
hull penetrations	marine sanitation device installation

Alternatively, all plans, manuals or calculations required to be submitted to the OCMI may be submitted instead to the Coast Guard Marine Safety Center (MSC) for approval. Three copies of plans must be submitted to MSC at the following address:

Commanding Officer
USCG Marine Safety Center
Room JR 10-0525
2100 2nd Street SW
Washington, D.C. 20593

DEFINITIONS

Watertight: Capable of effectively resisting the passage of water when subject to a hose test of 30 psi.

Weathertight: Weathertight means that in any sea condition, water will not penetrate into the vessel in any appreciable amount. Weathertight fittings for small passenger vessels must effectively resist the passage of water under continuous exposure to driving rain or spray.

HATCHES

Hatches in weather decks must be watertight or may be weathertight if on a watertight trunk 12 inches high, in a cabin top, in an enclosed weather tight space, or if the vessel is on a protected route. If for access by crew or passengers, hatches must be operable from both sides and may not be fitted with locks.

HATCH SECURING DEVICES

Professional mariners realize the importance of keeping hatch covers secured to preserve the watertight integrity of the hull. A recent marine casualty revealed that a small passenger vessel flooded and subsequently sank when water entered through an open cockpit. All hatches on weather decks must be fitted with securing devices (dogs, screws, latches, etc.), and captive devices (chains, hinges, etc.).

DOORS

Doors giving access into the hull must either be “Class I” water tight or weathertight if mounted with watertight coaming in accordance with the watertight integrity regulations in 46 CFR 171.124 (six inches high on an exposed or partially protected route, or three inches if on a protected route).

FREEING PORTS

Freeing ports are deck drains which penetrate the cockpit side or the bulwark, but not the deck. Their purpose is to quickly shed water before the next boarding sea. This is particularly important on a “well deck” vessel.

Although it is true that freeing ports make a “wetter” boat, they also contribute to a safer boat. Care should be taken that freeing port areas are not restricted or covered in any way. Flappers are permitted as long as they are not capable of being secured and if operated in freezing conditions are not subject to being iced shut.

T-BOAT DESIGNS

OPEN BOAT

An open boat is a vessel which is not protected from the entry of water by a complete deck, or by a partial weather deck and superstructure, which is seaworthy for the waters upon which the vessel operates. The following conditions define an open boat:

1. The weather deck is open to the bilge.
2. The weather deck can not drain overboard.

No more than one-quarter of the freeboard may be immersed. The maximum heel due to wind or passenger weight movement must not exceed 14 degrees for all vessel types (see 46 CFR 171.030(e)(3)).

Open boats certificated by OCMI Long Island Sound shall not carry more than 49 passengers. Route limitations are determined on a case-by-case basis.

COCKPIT VESSEL

A cockpit vessel is a vessel with an exposed recess in the weather deck extending no more than one half the length of the vessel measured over the weather deck. The following conditions define a cockpit vessel:

1. Length of the cockpit cannot exceed half the vessel's overall length.
2. The deck height above the load water line must be a minimum of 10 inches unless on a protected route.
3. The cockpit deck must be watertight and the bulwarks fitted with scuppers or freeing ports for drainage, (total area for drainage in square inches must be equal to one tenth of the cockpit area in square feet).

FLUSH DECK VESSEL

A flush deck vessel is a vessel with a continuous weather deck located at the upper-most sheer line of the hull. The following conditions define a flush deck vessel:

1. The weather deck must be continuous with no substantial blockage of overboard drainage.
2. No recessed areas in weather deck.
3. The space over the deck may or may not be fully enclosed.

WELL DECK VESSEL

A well deck vessel is a vessel with a weather deck fitted with solid bulwarks that impede the drainage of water over the sides or an exposed recess in the weather deck extending one-half or more of the length of the vessel measured over the weather deck. The following conditions define a well deck vessel:

1. The well deck must be watertight with freeing ports for drainage.
2. The total area for drainage in square inches must be equal to total number of running feet of bulwark in after two-thirds of the vessel, including the transom, times the factor from 46 CFR Table 171.150 (both old and new regulations).
3. If the vessel does not have drainage from the fore deck aft, the total length of all the bulwark in the vessel shall be used. Vessels on partially protected routes may reduce the freeing port area by fifty percent if they can meet all of the requirements of intact stability, damage stability and one compartment subdivision for vessels operating on an exposed route. Vessels on protected routes must have at least the same freeing port area as required for a cockpit vessel of the same length.

RAIL HEIGHTS

46 CFR 177.35-1/46 CFR 177.900 sets forth the requirements for rail heights on small passenger vessels depending on the type of service the vessel engages in. Since fishing from the upper deck is more difficult and due to increased hazards on the upper deck, rail heights and construction shall be in accordance with that required for ferry or excursion type operations. In general, rail heights of at least 36 inches are required. Exceptions to this height requirement are as follows:

1. On passenger decks of existing vessels (see page 2 for guidance on what constitutes an existing vessel) engaged exclusively in ferry or excursion type operations, rails shall be at least 42 inches high. For new vessels or existing vessels which elect to comply with the new regulations, rails shall be at least 39.5 inches high. The space below the top rail shall be fitted with bulwarks, chain link fencing, wire mesh, or equivalent.
2. On vessels engaged exclusively in sport fishing, where it can be shown that higher rails would interfere with the normal operations of the vessel, rails of at least 30 inches in height may be permitted. This shall only apply to the main deck in the area of fishing with fixed seats equipped with seat belts.
3. Where the principal business of the vessel requires the discharge of personnel in a seaway, the OCMI may accept alternatives to the rail heights required (but not less than 30 inches) for those areas of a deck where passengers or cargo are discharged and for which removable rails, lifelines, or chains would hinder discharge operations. When such rails are omitted, center rails or other suitable hand holds shall be substituted. This rail height reduction applies only to the limited access/discharge area.
4. U.S. vessels subject to the 1966 International Convention on Load Lines (vessels greater than 79' that engage in foreign voyages or international voyages, or vessels that engage in domestic voyages by sea (coastwise and intercoastal)) shall have rail heights and bulwarks at the peripheries of the freeboard and superstructure decks of at least 39.5 inches.
5. Sail vessels, small vessels of open launch type and other vessels not specifically covered elsewhere in this section shall have rails or equivalent protection as determined by the OCMI. These rail requirements will be determined on a case-by-case basis for areas where sails or operations preclude 42 inch rails.

RAIL CONSTRUCTION

Rails shall consist of evenly spaced courses. Rail courses or the equivalent must be installed between a top rail and the deck so that no open space shall be greater than 12 inches. On vessels subject to the 1966 International Convention on Load Lines, rail courses must be installed so that there is not an open space higher than 9 inches from the deck to the first rail course. On the passenger decks of a ferry or a vessel on an excursion trip, bulwarks, chain link fencing or wire mesh (openings of not more than four inches in diameter), bars, slats, rail courses, or the equivalent (spaced at intervals of not more than four inches) must be installed. Rails must be able to withstand the cumulative load of all persons who rely on them for support.

SEAT CONSTRUCTION AND ARRANGEMENTS

The following standards apply to fixed and portable seating:

1. A seat must be provided for each passenger permitted in a space for which the fixed seating criterion has been used to determine the number of passengers permitted.
2. A seat must be constructed to minimize the possibility of injury and avoid trapping occupants.
3. Installation of seats must not hamper ready escape.
4. Fixed, temporary, or portable seats, must be installed as follows:
 - a. An aisle of not more than 15 feet in length must be not less than 24 inches in width.
 - b. An aisle of more than 15 feet in length must be not less than 30 inches in width.
 - c. Where seats are in rows, the distance from seat front to seat front must be not less than 30 inches and the seats must be secured to a deck or bulkhead.
 - d. Seats used to determine the number of passengers permitted must be secured to the deck, bulkhead, or bulwark.

PORTABLE SEATS

Portable seats may be allowed provided the general arrangement meets the requirements for fixed seating. The seating arrangement must be submitted to the OCMI for approval. Portable seats can be used to compute the number of passengers allowed provided the intentions of the fixed seating requirements are met. The primary concern is the maintenance of clear escape routes. Portable seats, when used in high density, can too easily block escape access if not secured. Some type of securing method for portable seats which will maintain clear escape routes for an entire row of seats is required. All portable seats must be accepted by the Marine Inspector.

METHODS OF DETERMINING MAXIMUM PASSENGERS PERMITTED

The maximum number of passengers permitted is based on such factors as stability, route, general arrangement, emergency escape access, rail space or clear deck area and seating. Methods for determining passengers based on clear deck area or by seating are explained below.

LENGTH OF RAIL CRITERIA

One passenger for every thirty inches of clear rail space available to the passengers at the vessel's sides and across the transom. Rail space in congested areas unsafe for passengers, such as at the bow near anchor equipment, line handling gear etc., or in way of sail booms and running rigging, will not be considered.

DECK AREA CRITERIA

One passenger for every 10 square feet of deck area available for passenger use. In computing area, the following will not be counted:

- Concession Stands
- Toilet and Washrooms
- Companionways, stairways, etc.
- Spaces occupied by & necessary for handling lifesaving equipment.
- Interior passageways less than thirty inches wide.
- Open deck passageways less than eighteen inches wide.
- Spaces below deck which are unsuitable for passengers and which would not normally be used by passengers.

FIXED SEATING CRITERIA

One passenger for every fixed seat or 18" of width of bench seating actually provided. Each bench or seat will be measured separately. A total length of all seating will not be divided by 18" to determine seating. Bench seating areas which do not provide adequate leg room (such as inside corner of benches at 90 degrees from each other) are not counted.

COMBINATION OF FIXED SEATING/DECK AREA CRITERIA

Where fixed seating is provided in one area and not throughout the vessel, passengers permitted may be determined by using fixed seating criteria in spaces with fixed seating and deck criteria in other spaces. Combining rail space with deck area or fixed seating is not permitted.

DRYDOCK EXAMINATIONS

NEW DRYDOCK INTERVALS

The new regulations revise the required drydocking interval previously set at not more than 18 months for most vessels. The new regulations, set this interval at 2 years. Specifically, new drydock intervals are defined in **46 CFR 176.600** as follows:

Vessels certificated for an international voyage: 12 months

Vessels exposed to salt water more than 3 months in any 12 month period since the last drydock: 2 years

Vessels exposed to salt water not more than 3 months in any 12 month period since the last drydock: 5 years

As in the past, the new regulations allow the OCMI to decrease the drydock interval on any vessel whose material condition warrants a shorter interval.

PURPOSE AND SCOPE

The purpose of the drydock examination is to completely ascertain the structural integrity of the hull, its fasteners, and all through-hull fittings. This inspection encompasses not only the underwater areas such as the hull, water intake/discharge fittings, rudder, shafting, etc. but also all interior spaces, voids, and cofferdams. Fuel, ballast, or fresh water tanks are inspected when necessary to determine hull condition or if already opened for repairs or cleaning during the drydock exam.

In addition to hull repairs and maintenance, drydock periods usually afford the best opportunity for the maintenance and inspection of rigging or equipment and for major repairs or modifications to machinery, electrical and other equipment. To complete an inspection for certification, the vessel must be back in the water for testing of the engines, steering system and other operational equipment as well as conducting drills with the vessel's crew.

PREPARATION FOR EXAM

To help save time during your inspection, we suggest you make the following preparations:

1. Exterior hull should be cleaned but not freshly painted.
2. All internal spaces should be open for inspection, well ventilated and free of loose gear.
3. Bilges should be dry and clean.
4. All through hull valves should be open, clean, with strainers removed.
5. All certificates and documents should be ready for examination.

FALL DRYDOCKING ENCOURAGED

When vessel repairs are contemplated or the hull condition is suspect, early drydocking in the fall will allow ample time to complete any required repairs, alterations, or modifications. As the work is completed, an inspector can periodically visit the vessel during the winter and/or early spring to examine the vessel. This also allows plenty of time for generation of any plans required for modifications and adequate time for Coast Guard review.

WINTER DRYDOCK INSPECTIONS OF WOODEN VESSELS

Freezing temperatures can cause moist, rotten wood to appear hard and sound. For this reason, drydock inspections will not be conducted on wooden vessels during winter months except during long periods of unusually warm temperatures.

WOODEN BOAT FASTENERS

Fasteners are the primary connecting mechanism for structural members of a vessel and as such must be inspected as diligently as the vessel's planking, frames, stringers, etc. Inspectors will typically require the removal of fastenings for inspection under the following circumstances:

1. When structural conditions indicate fastening problems, i.e. plank ends not fair, heavy running rust between planks and framing, spaces between frames and planking.
2. Removal of random fastenings if the vessel is over 10 years of age (and every 5 years thereafter) and no information is available from previous repairs or drydock periods.
3. Whenever, in the marine inspector's judgement, further examination of fastenings is necessary.
4. As prescribed by NVIC 7-95.

WOODEN HULL PASSENGER VESSELS

Wooden hull passenger vessels which have ceilings or other coverings installed preventing the inspection of structural members must be specially examined in drydock to reliably ascertain the condition of the frames, keel, transom, floors and fasteners. A frame survey program will be established for these vessels for which owners/operators can make the appropriate preparations in advance of the scheduled survey. Experience has shown that frames in way of the garboard strake and wind/water areas are the most susceptible to rot and deterioration.

Therefore, unless alternative proposals are approved well in advance of the required drydocking, a sufficient length of either the ceilings or strakes of planking at the wind and water line and near the garboard strake must be removed.

Alternative proposals to determine the condition of hidden structural members, such as borings, may be considered by the OCMI. However, the borings are certainly not as effective as visual inspection and soundings of the frames. Borings will only be considered on vessels with excellent inspection records and when there is no evidence of structural deterioration. Evidence of deterioration found by borings will result in a requirement to pull ceilings or planks for visual inspection.

WOODEN HULL PASSENGER VESSELS OVER FIFTEEN YEARS OF AGE

An underway exam should be conducted prior to the hauling out of the vessel for credit drydock examinations and again after the vessel's refloated and allowed to swell for a sufficient amount of time. Should the inspector determine that an underway inspection would not be sufficiently revealing of the hull condition due to ceilings, linings, or other materials that prohibit access to the interior hull, the inspector may direct certain sections of the ceiling be removed for further inspection.

Wooden hull passenger vessels over 15 years of age which have ceilings or other coverings installed preventing the inspection of structural members must be specially examined in drydock. The owners/operators can make the appropriate preparations in advance of the scheduled survey to remove portions of the ceiling at different intervals. Experience has shown that frames in way of the garboard strake and wind/water areas are the most susceptible to rot and deterioration.

Therefore, unless alternative proposals are approved well in advance of the required drydocking, a sufficient length of either the ceilings or strakes of planking at the wind and water line and near the garboard strake must be removed every upon request of the attending marine inspector.

Alternative proposals to determine the condition of hidden structural members, such as borings, may be considered by the OCMI. However, the borings are certainly not as effective as visual inspection and soundings of the frames. Borings will only be considered on vessels with excellent inspection records, as determined by the OCMI, and when there is no evidence of structural deterioration. Evidence of deterioration found by borings will result in a requirement to pull ceilings or planks for visual inspection.

NO FIBERGLASS SHEATHING REPAIRS

Navigation and Inspection Circular (NVIC) 7-95 prohibits the sheathing of the exterior hull of existing wood vessels with fiberglass, bondo, etc. as a means of restoring strength and watertight integrity. Sheathing of a structurally sound hull to extend service life may be approved on a case-by-case basis. NVIC 7-95 is an excellent reference source for the repair of wooden vessels.

DECAY IN WOODEN BOATS: CAUSE, DETECTION, & PREVENTION

Wooden vessels have proven to be suitable for long service when properly constructed and maintained. The greatest enemy of wood is decay or “rot”. Most wood decay is preventable if care is used in construction, maintenance, and repair.

Decay in wood is caused by fungi which are parasitic plants whose growth depend on suitable temperature (50-90 degrees F.), suitable food (wood) and moisture (20-30 percent wood moisture content). Fresh water from condensation, rainwater, or leaking pipes is necessary to grow fungi. There is no such thing as “dry rot”. Decay will not take place if the moisture content of the wood remains below 20 percent. On the other hand, too much moisture will not support fungi growth either. Fungi are living plants that can and do travel from an infected area to sound wood.

It is easy to detect advance decay. The wood is normally discolored, softened, or brittle and may show cracks or collapsed areas. No known test can be substituted for experience in spotting early decay. Early detection of decay can be found by one or a combination of the below listed methods:

1. Discolored paint or indentations of the wood surface.
2. Sounding with a hammer will produce a dull sound and is especially useful in stanchions that may have decayed centers.
3. A wood awl or screwdriver will easily penetrate soft wood.
4. Splinters of wood turned up by a knife blade will break off abruptly instead of producing a long clean splinter found in good wood.
5. Fasteners will be easy to remove and will strip the wood when tightened.
6. Drilled holes may be used for timbers. The ease of drill entry and the type of chip produced will show the soundness of the timber. Borings should obviously be kept to a minimum. The most effective prevention of decay is done at initial construction in the use of a naturally decay resistant or pressure treated wood. A vessel design that allows full ventilation of all its enclosed spaces will promote water evaporation. This decreases wood moisture content and slows or stops fungi growth.

Ensure that drain pipes and scuppers are free of rain water, can drain over the side and that deck seams are well caulked, especially at the end grain. When in fair weather, open hatches and deck fittings to supplement the air circulation. Remove unnecessary dunnage that traps moisture and blocks air circulation. Remember decay will only grow in wood where fresh water is present. Salt water inhibits fungi growth. Some operators add rock salt to their vessel’s bilges upon hauling the vessel out for prolonged periods to salinate any fresh water accumulation due to condensation and/or rain. Some may routinely add rock salt to the bilges while operating as a method of inhibiting the development of rot. There are three disadvantages to this practice: (1) strong salt solutions are hard on wood and fastenings, and have questionable value (2) salt dissolves rapidly and goes over the side when pumping bilges and (3) high concentrations of salt can hasten the deterioration of screws, bolts, and bilge piping. When the vessel is in the water, normal salt water seepage into the vessel is usually enough to discourage fungal growth. Well maintained wooden vessels built of good material will give many decades of good service.

WOOD PRESERVATIVES OR CHEMICAL TREATMENT

All wood preservatives or chemical treatments should be specifically approved by the OCMI. In general only treatments sold over the counter for normal retail use will be authorized.

REPAIRS AND ALTERATIONS

HOT WORK 46 CFR 176.710

The new regulations require that before welding or other hot work is done on or near fuel tanks, fuel lines, or other sections of a fuel system, a marine chemist certified by the NFPA must inspect the space for flammable vapors. This requirement applies to both new and existing vessels, and was effective March 11, 1996. The marine chemist will normally certify the space “safe for workers” and/or “safe for hotwork”. The certificate may include requirements to maintain the conditions at the time of the inspection through forced ventilation or other methods. The vessel owner is responsible for maintaining the conditions of the permit while the work takes place.

WHEN TO NOTIFY THE COAST GUARD 46 CFR 176.700

Repairs or alterations to the hull, machinery, or equipment which affect the safety of the vessel must only be made with the approval of the Officer in Charge, Marine Inspection (OCMI), except during emergencies. When repairs are made during an emergency, the owner, operator, or master must notify the OCMI as soon as possible. Repairs or alterations which affect the safety of the vessel include but are not limited to the replacement, repair, or refastening of deck or hull planking, plating, and structural members; repair of plate or frame cracks; repair of masts on sailing vessels; repair or replacement of electrical wiring, fuel lines, tanks, boilers, and other pressure vessels; alterations affecting stability; and repair or alteration of lifesaving, fire detecting, or fire extinguishing equipment.

For vessels under the previously described five year frame survey program, credit may be obtained toward meeting these special hull examination requirements if repairs are sufficiently revealing of the vessel’s hull condition and structural integrity. The OCMI must be notified in advance and an examination must be conducted to the satisfaction of the attending marine inspector to obtain credit.

The owner or operator shall submit drawings, sketches, or written specifications describing the details of any proposed alterations to the OCMI. The OCMI must approve a proposed alteration before work is started. Drawings are not normally required to be submitted for repairs or replacements in kind.

For vessels that have undergone significant hull repairs or modifications, regardless of age, an underway examination of the hull must be conducted to prove the structural integrity of the hull. This may be performed as part of or in conjunction with any other inspection or independent of any other inspection if deemed necessary by the attending marine inspector.

Undertaking alterations/repairs without prior Coast Guard approval is a risk the owner should not take. Modifications not meeting U.S. Coast Guard rules and regulations and/or the rules of a recognized classification society may not be approved and may have to be revised.

EQUIPMENT APPROVAL

46 CFR SUBCHAPTER Q

In 1945, the Coast Guard established the regulations in 46 CFR 160-164 (Subchapter Q). Its purpose was to consolidate the specifications for equipment and materials that were required to be approved by the Coast Guard, or to meet certain minimum standards. Also, requirements for the operations and construction of inspected vessels were distinguished from specifications applicable to the manufacturers of approved equipment and materials used aboard vessels.

Each item approved under Subchapter Q is assigned a basic approval number. This includes the number of the CFR subpart under which an item was approved, thus identifying the general requirements for approval. No two specifications have the same number. Subchapter Q has been separated into six parts:

1. Part 159 Approval of Equipment and Materials (general);
2. Part 160 Lifesaving Equipment
3. Part 161 Electrical Equipment
4. Part 162 Engineering Equipment
5. Part 163 Construction
6. Part 164 Materials

EQUIPMENT LISTS, COMDTINST M16714.3D.

This publication (old CG-190) contains listings of various lifesaving, firefighting, pollution abatement, engineering, electrical, and miscellaneous equipment used on vessels. These items are approved or accepted by the Commandant, as required by certain laws and regulations. It contains four sections that deal with:

1. Approved instruments, machines, and equipment;
2. Manufacturers who have submitted affidavits for valves, fittings, and flanges;
3. Acceptable hydraulic components; and
4. Formerly approved instruments, machines, and equipment that are no longer manufactured as approved equipment. Unless otherwise noted, such items may be used as long as they are in good and serviceable condition.

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LIFESAVING EQUIPMENT

NEW REQUIREMENTS

Lifesaving requirements for small passenger vessels (T & K) not on an international voyage are found in Part 180 of both the new and old regulations. Existing vessels must comply with the new regulations (described in this section) as of March 11, 1996 except where otherwise stated.

EMERGENCY POSITION INDICATING RADIOBEACONS (EPIRB) **46 CFR 180.64**

Each vessel that operates on the high seas (beyond the 3 mile territorial sea limit) must have on board a Category 1 406 MHz EPIRB. “Category 1” indicates that the EPIRB is designed to float free and automatically activate in the event the vessel sinks. 406 MHz EPIRBs are vastly superior to the older Class A types because they provide a more accurate fix to search and rescue (SAR) units and, once registered with NOAA, provide data on the name, type, and owner of the vessel in distress. In short, a properly registered 406 EPIRB ensures that SAR units know where to look, and who to look for! All 406 MHz EPIRBs must have their hexadecimal code registered with the NOAA data base. This is required by 47 CFR 80.1061. A 406 MHz EPIRB registration form can be found at <https://beaconregistration.noaa.gov/rgdb/forms/epirb.pdf>. Once it is registered, NOAA will send a confirmation sticker which must be placed on the EPIRB. Be sure the number on the confirmation sticker matches the EPIRB itself.

EPIRBs must be tested monthly; the test must be recorded in a log book or other document.

Existing vessels must comply as follows:

1. Vessels on a limited coastwise route as of March 11, 1997.
2. Vessels which are equipped with a 121.5/243 MHz Class A EPIRB before March 11, 1996 may delay installation of the 406 MHz EPIRB until February 1, 1999, provided it is installed to float free and activate & was manufactured on or after October 1, 1988.

DISTRESS FLARES AND SMOKE SIGNALS **46 CFR 180.68**

Oceans and coastwise vessels are required to carry 6 hand red flares and 6 hand orange smoke distress signals. Lakes, bays, and sounds, and rivers vessels are required to carry 3 hand red flares and 3 hand orange smoke distress signals. Vessels on runs of less than 30 minutes are not required to carry distress signals.

Combination distress signals are no longer permitted by the new regulations, but may continue to be used until the expiration date but no later than March 11, 1999.

Approved rocket parachute flares may now be substituted for any of the distress signals on oceans and coastwise vessels. Rocket parachute flares, red hand flares or floating orange smoke distress signals may be substituted for the orange hand smoke signals required on other vessels. The new regulations also require that flares be stored at the operating station in a brightly colored, portable watertight container marked "DISTRESS SIGNALS". They may also be stored in a pyrotechnic locker, above the freeboard deck, near the operating station and away from any source of heat.

LIFE JACKETS **46 CFR 180.71**

Old and new regulations require an adult Type I personal flotation device (PFD) for each person carried on board a vessel. Child-size life jackets (Type I) equal to at least 10% of the number of persons permitted must also be provided. When the number of persons carried weighing less than ninety pounds exceeds the number of required child-size life jackets on board, additional child-sized life jackets shall be provided so that the vessel has an approved Type I life preserver suitable for each person weighing less than 90 pounds.

The new regulations state that if all “extended size” (those with a lower limit for persons of 47 inches in height or weighing 45 lbs.) life jackets are carried on board, a minimum of only 5% additional child size devices need be carried.

Life jackets shall have Type I retroreflective material arranged IAW IMO Resolution A.658(16).

The new regulations state that cork and balsa wood lifejackets now in service may only be used until March 11, 1999.

LIFE JACKETS FOR INFANTS/SMALL CHILDREN

Special purpose life jackets, such as for infants or small children, may be brought onboard by parents. These life jackets may not substitute for the required number of children’s Type I PFDs. The Operator should specifically address children’s PFD’s in the safety orientation before getting underway.

PFD’S OTHER THAN TYPE I, IN EXCESS OF REQUIRED EQUIPMENT

Special purpose buoyant devices such as ski vests, work vests, and commercial hybrid PFDs may not substitute for the required Type I PFD, but are authorized as excess equipment under the conditions outlined in **46 CFR 180.72**.

Work vests may be worn by crewmembers, and in some cases by passengers performing crewmember type tasks under direct supervision, such as cadets.

Work vests must be stowed separately from the regular stowage of approved life jackets.

STOWAGE OF LIFE JACKETS - **46 CFR 180.78**

All lifejackets must be stored in a container not capable of being locked. Life jackets that are stored overhead must be supported so that they may be quickly released for distribution in an emergency.

Child size life jackets must be stored separately from adult life jackets and marked appropriately. Work vests and other “extra” PFDs must also be separately stored and marked.

INSPECTION OF LIFE JACKETS

A Type I PFD is designed to turn an unconscious person in the water from a face down position to a vertical or slightly backward position. The adult size device provides a minimum buoyancy of 22 pounds and the child size provides a minimum buoyancy of 11 pounds. The Type I PFD provides the greatest protection to its wearer in large open water areas where there is little probability of quick rescue.

The life preserver is checked visually to determine its general condition. The envelope, tie straps, stitching, and lifting attachments should be carefully checked for signs of rot or deterioration. Other conditions that may indicate an unserviceable condition are hardness, stiffness, lumpiness, or being oil soaked. A gentle squeeze will detect most of these conditions.

Kapok inserts should be checked for waterlogging and mildew. The natural buoyant properties of the kapok fiber, not the sealed bag, provide the required buoyancy. Although a sealed vinyl pad covering may provide additional buoyancy, its primary purpose is to prevent exposure to contaminants. Therefore, small leaks in kapok inserts, provided the conditions noted above are not evident, are acceptable. A ruptured kapok insert is suspect if there is evidence of moisture or oil soaking, since oil and mildew will break down the waxy kapok fibers.

If a life preserver is found unfit for service and beyond repair, it must be destroyed and removed from the vessel. Minor repairs and cleaning may be accomplished in accordance with 46 CFR 160.006 and NVIC 2-63.

MILITARY TYPE LIFE JACKETS

Military style life jackets differ markedly from commercial, Coast Guard approved types. Military PFDs have many leg and collar straps, removable pads in zippered compartments, and twice the number of strap adjustments. Also, the envelope, webbing, and tie tapes are not mildew inhibited. Finally, they are not generally available through commercial sources except as government surplus equipment; as such, their true condition will be questionable. Accordingly, military type life jackets are not Coast Guard approved and may not be used in lieu of Coast Guard approved personal flotation devices (PFD's).

RING LIFE BUOYS **46 CFR 180.70**

Ring life buoys are required on vessels as follows:

Vessels 65 feet or less: 1 ring life buoy (24" diameter)

Vessels over 65 feet: 3 ring life buoys (24" diameter)

At least one ring life buoy is required to have a 60' line.

The new regulations allow vessels equal to (or less than) 26' to carry a 20" ring life buoy. Under the old regulations, only vessels less than 26' could do so. Vessels on oceans & coastwise routes must have orange ring life buoys. Vessels on all other routes may have either orange or white ring life buoys. The required lifeline should be buoyant, non-kinking, dark in color if synthetic, or UV light resistant, and at least 5/16" in diameter. Ring life buoys shall be readily accessible, stowed in a way that it can be rapidly cast loose, & not permanently installed in any way.

WATERLIGHTS FOR RING LIFE BUOYS AND BUOYANT APPARATUS

Waterlights are required on ring life buoys and all buoyant apparatus except those vessels operated only during daylight hours. Waterlights must be Coast Guard approved under 46 CFR 161.010. The new regulations require that floating waterlights be secured to the body of the ring life buoy with a lanyard between 3' and 6' in length. Finally, waterlights on vessels with only one ring life buoy must be attached to the lanyard with a clip that allows the waterlight to be disconnected from the ring life buoy.

Waterlights are permanently attached to inflatable buoyant apparatus by the manufacturer during construction. Separate or additional waterlights are not required on these devices.

SURVIVAL CRAFT/PRIMARY LIFESAVING EQUIPMENT **46 CFR 180.200**

The new regulations increase the survival craft requirements for some vessels, but consider the water temperature and the inherent flotation of wooden vessels. The new regulations also allow vessels that meet certain subdivision and damaged stability requirements to carry fewer survival craft. Vessels which meet the standards for collision bulkheads in 46 CFR 171.040/**179.310** or 171.085, and the subdivision standards in 171./043/**179.220** and **179.320**, or 171.070 - 171.073 and 171.080 will generally require fewer survival craft (cites in bold are new regulations only; all other cites apply to both old & new regulations).

Vessels of not more than 65' carrying not more than 49 passengers built before March 11, 2001, may meet the collision bulkhead standards in 46 CFR 179.310 and one compartment subdivision standards in 179.220 and 179.320 at least in way of the engine room and lazarette.

New survival craft requirements must be met by existing vessels by March 11, 2001, or 10 years after the vessel's keel was laid. Survival craft onboard vessels before March 11, 1996 may continue to be used to meet these requirements as long as they are in good and serviceable condition. New and replacement survival craft must meet the new regulations.

WINTER SURVIVAL CRAFT REQUIREMENTS

In order to provide all persons with an added likelihood of survival and timely rescue in the hypothermic conditions found throughout New England during the winter months, additional primary lifesaving equipment shall be carried onboard during the zone's designated cold water period (≤ 59 degrees Fahrenheit). This should facilitate more rapid location by rescue forces while also increasing the likelihood that survivors will be able to limit immersion exposure in the cold water by climbing onto or being pulled into one of these floating devices. In the Long Island Sound zone, the cold water period is as follows (according to NVIC 7-91):

1 Nov – 31 May	All small passenger vessels operating more than one (1) nautical mile from shore north of latitude 40 degrees 27.6 minutes north.
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For vessels which are certificated to operate more than 20 nautical miles from shore (oceans route), additional cold water periods are as follows:

1 Jun – 30 Jun
1 Oct – 31 Oct

So, a vessel operating on its Oceans route must be in compliance with those requirements between 1 October and 30 June.

The equipment requirements are as noted in the Survival Craft Requirements chart on page 58.

SURVIVAL CRAFT STOWAGE AND EQUIPMENT 46 CFR 180.130

All lifesaving equipment must be readily accessible, and capable of being both manually and automatically deployed. See the attached diagrams from NVIC 4-86 at http://www.uscg.mil/hq/g-m/nvic/4_86/n4-86.htm for proper float free arrangements or hydrostatic release.

Survival craft equipment must be of good quality, and attached to the survival craft in a way that will not interfere with its proper use. Specific requirements are as follows:

Inflatable liferafts - SOLAS A pack or SOLAS B pack.

Life floats (LF) - lifeline, pendant, painter, 2 paddles (of at least 4' in length marked with the vessel name), 1 waterlight.

Buoyant apparatus (BA) - lifeline, pendant, painter, 1 light.

Life floats & buoyant apparatuses may be stacked on board the vessel, but not higher than four feet (4') or as a group not exceeding 400lbs. If multiple life floats or buoyant apparatuses are utilizing the same painter, each apparatus' painter must be attached to the main painter individually, vice attached to another life float or buoyant apparatus in series. The size of the weak link is directly related to the number of persons accommodated by the attached life float(s) or buoyant apparatus(es). One end of the weak link must be attached to the opposite end of the painter and the other end of the weak link must be attached to the vessel.

IBA= inflatable buoyant apparatus, LF=life float.

SURVIVAL CRAFT REQUIREMENTS, NEW AND OLD REGULATIONS

Route	New	Type	Old	Type
Oceans				
Cold water, all vessels, w/o subdivision	100%	IBA	100%	LF
Cold water, all vessels, with subdivision	100%	LF	100%	LF
Warm water, all vessels	67%	IBA	100%	LF
Coastwise				
Cold water, wood vessels, w/o subdivision	67%	IBA	100%	LF
Cold water, wood vessels, with subdivision	100%	LF	100%	LF
Nonwood and all vessels operating in warm water	100%	LF	100%	LF
Warm water, within 3 miles of shore, w/o subdivision	100%	LF	100%	LF
Warm water, within 3 miles of shore, with subdivision	50%	LF	100%	LF
Warm water, within 3 miles of shore, with a 406 Mhz EPIRB	50%	LF	100%	LF
Limited Coastwise				
Cold water, wood vessels, w/o subdivision	67%	IBA	50%	LF
Cold water, wood vessels, with subdivision	100%	LF	50%	LF
Cold water, nonwood vessels	100%	LF	50%	LF
Cold water, within 3 miles of shore, w/o subdivision	100%	LF	50%	LF
Cold water, within 3 miles of shore, with subdivision	50%	LF	50%	LF
Cold water, within 3 miles of shore, with a 406 Mhz EPIRB	50%	LF	50%	LF
Warm water, all vessels w/routes beyond 3 miles from shore	50%	LF	50%	LF
Warm water, within 3 miles of shore, w/o subdivision	50%	LF	50%	LF
Warm water, within 3 miles of shore, with subdivision	None	None	50%	LF
Warm water, within 3 miles of shore, with a 406 Mhz EPIRB	None	None	50%	LF
Lakes, Bays & Sounds				
Cold water, wood vessels, w/o subdivision	100%	LF	30%	LF
Cold water, wood vessels, with subdivision	50%	LF	30%	LF
Cold water, nonwood vessels	50%	LF	30%	LF
Warm water, all vessels	None	None	30%	LF
All vessels, within 1 mile of shore	None	None	None	None
Rivers				
Cold water, w/o subdivision	50%	LF	10	LF
Cold water, with subdivision	None	None	10	LF
Cold water, within 1 mile of shore	None	None	10	LF
Warm water	None	None	None	None

Existing Buoyant Apparatuses may substitute for Life Floats until they become unserviceable. New survival craft requirements must be met by existing vessels by March 11, 2001, or 10 years after the vessel's keel was laid, whichever is later.

FIRE FIGHTING AND PROTECTION

NEW REQUIREMENTS

Fire protection requirements are found in 46 CFR 181 in both the new and old regulations. Per **46 CFR 181.115**, existing vessels are not required to meet the new regulations, except in the following cases:

1. New installations of fire protection equipment must meet the new regulations. Replacement of equipment installed before March 11, 1996 need not meet the new regulations.
2. Existing vessels with a hull, machinery space boundary bulkhead, or deck, made of wood, fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic must comply with the fixed fire fighting systems requirement of **46 CFR 181.400** by March 11, 1999. The regulations concerning such a system are described below.

GENERAL CONSTRUCTION AND INTERIOR FURNISHINGS 46 CFR 177.10-5/177.405

The general construction, arrangement and furnishings of a vessel must minimize fire hazards as far as reasonable and practical. The following requirements apply to all vessels:

1. Internal combustion engine exhausts, boiler and galley uptakes must be kept clear of, and be insulated from combustible material.
2. Machinery and fuel tank spaces must be separated from accommodation spaces by boundaries
3. Paint and flammable liquid lockers must be made of, or lined with, steel or equivalent material.
4. Vapor barriers must be provided where insulation is used in machinery spaces & paint lockers where flammable or combustible liquids or vapors are present.
5. All waste containers in passenger lounges below the main deck must have covers, be constructed of noncombustible material, have no openings in the sides or bottom, and be stowed away from heat producing equipment.
6. Mattresses must comply with either (1) U.S. Dept. of Commerce "Standard for Mattress Flammability" 16 CFR Part 1632 Subpart A and not contain polyurethane foam or (2) International Maritime Organization Resolution A.688(17) "Fire Test Procedures for Ignitability of Bedding Components." Mattresses tested to this standard may contain Polyurethane foam
7. Carpeting should be 100% wool or equivalent and may not extend up a bulkhead more than 4 inches.

8. Curtains and Drapes should be kept to a minimum and be fire resistant, and not be within 3 feet of cooking or heating appliances.
9. Resin used in fiber reinforced plastic must be fire retardant, having an ASTM E-84 flame spread of not more than 100 or meet the conditions of **46 CFR 177.140**.
10. Insulation must be noncombustible if required for structural fire protection and meet the standards of 46 CFR 164.009. Limited combustible insulation may be used in a machinery space. Insulation around accommodation or control spaces must be noncombustible for vessels with more than 150 passengers and have very limited flammability/smoke/toxicity for vessels with under 150 passengers. Polyurethane foam is not permitted.

Existing vessels certificated for over 150 passengers must comply with the structural fire protection requirements for passenger vessels in 46 CFR 72.05.

New vessels, and existing vessels which undergo major alterations or conversions must comply with the new regulations of **46 CFR 177.115**.

New vessels certificated for over 150 passengers or which have overnight accommodations for more than 49 passengers must comply with the requirements of **Subchapter K (46 CFR 114-122)**.

New vessels certificated for over 600 passengers or which have overnight accommodations for more than 150 passengers, or which are over 200 feet in length and carry more than 6 passengers must comply with the requirements of Subchapter K, Subchapter F (Marine Engineering), and Subchapter J (Electrical Engineering).

POWER DRIVEN FIRE PUMPS 46 CFR 181.10-1/181.300

Under new and old regulations, a self priming, power driven fire pump must be installed on the following vessels:

1. Ferry vessels.
2. Vessels that carry more than 49 passengers.
3. Vessels more than 65 feet in length.

The power driven pump must have a minimum capacity of 50 gallons per minute and a pressure of 60 psi at the pump outlet. Ferry vessels not more than 65 feet in length, and carrying not more than 49 passengers, are required a power pump with a 10 gpm minimum capacity and capability of projecting an effective stream of water 25 feet from the highest hydrant.

Under the new regulations (**46 CFR 181.300**), the fire pump must be capable of both remote operation from the operating station and local, manual operation at the pump.

The new regulations (**46 CFR 181.610**) require that all vessels not equipped with a power driven fire pump must have three two-gallon buckets on lanyards and stenciled "FIRE BUCKET". The new regulations also delete the requirement for all vessels to have a hand operated portable fire pump. As long as an existing vessel has the previously required hand portable pump, the fire bucket requirement will not be enforced.

The old regulations require vessels over 65' in length to have at least 2 fire hydrants. The new regulations (**46 CFR 181.310**) simply state that all vessels have a sufficient number of fire hydrants to reach any part of the vessel with a single length of fire hose.

FIXED FIRE FIGHTING SYSTEMS 46 CFR 181.20/**181.400**

Under the old regulations, fixed carbon dioxide fire fighting systems are required in machinery and tank spaces using gasoline as fuel, paint lockers and similar spaces for hazardous or flammable materials, and cargo spaces used for combustible cargo which are inaccessible during a voyage.

The new regulations include these spaces, and add a requirement for a fixed system in **any** propulsion machinery space, any space with an internal combustion engine of greater than 50 hp, any space with an oil fired boiler, any space containing gasoline tanks or machinery, and spaces containing liquors of 80 proof or higher stored in containers of 2 gallons or more.

Existing vessels with a hull, deck, or machinery space bulkhead composed of wood or fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic, must comply with the new fixed fire fighting systems requirements on or before March 11, 1999.

DESIGN, INSTALLATION, AND TESTING OF FIXED FIRE FIGHTING SYSTEMS

The new regulations incorporate many of the requirements of Subchapter H (passenger vessels) for details concerning the design, installation, and testing of fixed fire fighting systems. Although the old regulations simply stated that installation be "to the satisfaction of the OCFI", Subchapter H requirements have generally been enforced and accepted as industry standards wherever fixed CO₂ systems are installed.

Complete requirements for new fixed fire fighting systems are found in **46 CFR 181.410**. The following are some of the key provisions of a proper CO₂ or Halon fixed fire fighting system:

1. Halon fixed firefighting systems may be used in lieu of fixed CO₂ systems required in subpart 181.20 or where fixed CO₂ systems are permitted except that halon is not acceptable in cargo spaces used for combustible cargoes. Halon is not effective in extinguishing or controlling deep seated Class "A" fires. As of January 1, 1994, Halon was banned from production in the U.S. The EPA placed significant restrictions on the servicing and maintenance of systems containing Halon.
2. A single system may protect more than one space. The quantity of extinguishing agent must be at least sufficient for the single largest space protected. See 46 CFR 181.410(f)(4) for guidance on determining amount of agent to use based on size of spaces.

3. Only one system approved under this subpart is permitted in each protected space; ie. two smaller systems may not be used in lieu of one larger system.
4. Cylinders and system controls must be located outside the space protected and in an area where they are accessible at all times.
5. In a normally unoccupied space of less than 170 cubic meters (6000 square feet), the storage cylinders may be located within the protected space.
6. Except for a normally unoccupied space of less than 170 cubic meters (6000square feet), the release of extinguishing agent into a space must require two distinct operations.
7. A system must have releasing controls at the storage cylinders. A normally manned space must also have releasing controls at the main exit from the space.
8. Systems protecting manned spaces must have an approved alarm and time delay device which will sound an alarm and delay release of the system for 20 seconds, or the time necessary to evacuate the space, whichever is longer.
9. Valves and controls must be protected from damage or accidental release. Pull cables must be enclosed in conduit.
10. The system must include a device to automatically shut down power ventilation and engines that draw intake air from the protected space prior to release of the extinguishing agent into the space.
11. Piping for the system must be protected inside and outside from corrosion and be securely supported and protected from damage.
12. Drains and dirt traps must be fitted to prevent the accumulation of dirt and moisture in the piping.
13. Piping passing through accommodation spaces must not be fitted with drains or other openings within such spaces.
14. Piping will be subject to an installation test pressurizing the piping to check for leaks or flaws in the system.
15. Systems must be maintained and periodically tested in accordance with the Manufacturer's instructions and existing Coast Guard regulations.

Fixed fire fighting systems must include the instructions and warning placards required by **46 CFR 185.612**.

FIRE DETECTING SYSTEMS - 46 CFR 181.400(c)

The new regulations contain a new requirement for fire detection systems meeting the requirements of 46 CFR 76.27 in the following spaces:

1. A space containing propulsion machinery.
2. A space with an internal combustion engine of more than 50 hp.
3. A space with an oil fired boiler.
4. A space with machinery powered by gasoline.
5. A space with a gasoline fuel tank.

A fire detecting system is made up of heat sensors connected to a central alarm cabinet with visual and audible alarms in the pilothouse or fire control station. Vessels over 150 feet in length must also have an alarm panel in the engine room.

A diagram indicating the location of the various detecting zones, and giving instructions on the use of the system must be posted near the central alarm panel or cabinet. The diagram must also include instructions for the maintenance and testing of the system. A licensed officer of the vessel must witness or conduct periodic tests and log the results.

Detectors, central panels, and alarms must be Coast Guard approved. G-MOC policy letter 4-98, "POLICY ON ALTERNATE FIRE DETECTION SYSTEMS FOR SUBCHAPTER T VESSELS UTILYZING DC POWER" for alternatives to this requirement. This policy letter is no longer available. For current policy letters visit <http://homeport.uscg.mil/mycg/portal/ep/programView.do?channelId=-17679&programId=12861>.

PORTABLE FIRE EXTINGUISHERS 46 CFR 181.500

The new regulations reduce the number of portable fire extinguishers required on small passenger vessels. This reduction is based on the installation of fixed fire fighting systems in accordance with the new regulations. Existing vessels must therefore continue to comply with the old requirements for portable extinguishers until the other new requirements of this part are met.

Each fire extinguisher on board shall be securely bracketed to the vessel. Each extinguisher has an approved bracket for it (described on the extinguisher label) but an alternative may be used as long as the extinguisher is secure but can be easily removed.

ANNUAL INSPECTION/FIVE YEAR HYDRO REQUIREMENTS

Portable CO₂ and stainless steel dry chemical fire extinguishers must be hydrostatically tested every five years. All other dry chemical extinguishers must be hydrostatically tested every twelve years. The year the extinguisher was built or the year last hydroed (not the six year test) is the baseline year used to determine the next hydro due date. The year built can be found on the extinguisher label, stamped on the underside of the extinguisher, or stamped at the base, along the rim.

The approval specification for portable fire extinguishers, 46 CFR 162.028, requires all fire extinguishers to be listed and labeled by a recognized independent laboratory. For CO2 extinguishers, the laboratory is Underwriters Laboratories (UL).

UL tests extinguishers with the assumption that maintenance will be conducted in accordance with a nationally recognized standard, the National Fire Protection Association (NFPA) Standard No. 10, entitled "Portable Fire Extinguishers". This is stated on every extinguisher label (ensure the labels on portable fire extinguishers are NEVER painted over). NFPA Standard No. 10 specifies a hydrostatic test interval of five years, subject to DOT cylinder specifications. DOT specifications for cylinders used for CO2 fire extinguishers (DOT-3A, 3AA) also specify a test interval of five years.

TYPE, NUMBER, AND LOCATION OF PORTABLE FIRE EXTINGUISHERS

OLD REGULATIONS - TABLE 181.30-1(a)

SPACE PROTECTED	NUMBER REQUIRED	CLASS	MEDIUM	SIZE
Operating Station	1	B-I	Foam CO2 Dry Chemical	1 ¼ gal 4.0 lb. 2.0 lb
Propulsion Space, Gasoline Fuel System W/Fixed CO2 System	1	B-I	Foam CO2 Dry Chemical	1 ¼ gal 4.0 lb 2.0 lb
Propulsion Space, Gasoline Fuel System No Fixed CO2 System	2	B-II	Foam CO2 Dry Chemical	2 ½ gal 15 lb 10 lb
Propulsion Space Diesel Fuel System W/Fixed CO2 System	None			
Propulsion Space Diesel Fuel System No Fixed CO2 System	2	B-II	Foam CO2 Dry Chemical	2 ½ gal 15 lb 10 lb
Vehicle Space	1 for every 5 vehicles	B-II	Foam CO2 Dry Chemical	2 ½ gal 15 lb 10 lb
Accommodations and Galley Spaces	1	B-II	Foam CO2 Dry Chemical	2 ½ gal 15 lb 10 lb

NEW REGULATIONS - TABLE 181.500(a)

SPACE PROTECTED	NUMBER REQUIRED	CLASS	MEDIUM	SIZE
Operating Station	1	B-I Or C-I	Halon CO2 Dry Chemical	2 ½ lb 4 lb 2 lb
Machinery Space	1	B-II*	CO2 Dry Chemical	15 lb 10 lb
Open Vehicle Deck	1 for every 10 vehicles	B-II	Halon CO2 Foam	10 lb 15 lb 2 ½ gal
Accommodation Space	1 for every 2,500 sq ft	A-II	Foam Dry Chemical	2 ½ gal 5 lb
Galley, Pantry or Concession Stand	1	A-II Or B-II	Foam Dry Chemical	2 ½ gal 10 lb

* Or a C-II located just outside the exit.

MACHINERY AND EQUIPMENT

NEW REQUIREMENTS

The machinery and equipment requirements are found in 46 CFR 182 in both the new and old regulations. Per **46 CFR 182.115**, existing vessels are not required to meet the new regulations, except in the following cases:

1. New installations of machinery must meet the new regulations. Replacement in kind of equipment installed before March 11, 1996 need not meet the new regulations.
2. An existing vessel equipped with gasoline powered machinery must be equipped with a flammable vapor detection device meeting **46 CFR 182.480** by March 11, 1999. The requirements of such a system include:
 - a. The system must meet UL standard 1110, or be approved by an independent laboratory.
 - b. The system must be operational for 30 seconds before engine start up and continue operating while the engine operates.
 - c. The system must provide a visual and audible alarm at the operating station.
 - d. A sensor must be located in (1) the lowest part of the machinery space, (2) the lowest part of a fuel tank space if separate from the machinery space, and (3) in any other location required by the OCMI.
 - e. Procedures for checking the proper operation of the system must be posted at the primary operating station. The system must be self monitoring and include a ground fault indication alarm.
3. Existing vessels must comply with the bilge high level alarm requirements in **46 CFR 182.530** before March 11, 1999. This regulation requires that, in vessels of at least 26 feet, a visual and audible alarm at the operating station must indicate high water in the following spaces:
 - a. A space with a through hull fitting below the deepest load waterline.
 - b. A machinery space bilge, shaft alley bilge, or other space subject to flooding from sea water piping within the space.
 - c. A space with a non watertight closure, such as a space with a non-watertight hatch on the main deck.
 - d. Wooden vessels must also have high level alarms in all watertight compartments, except small buoyancy chambers.

- e. A visual indicator must be provided at the operating station to indicate when any automatic bilge pump is operating.

ENGINE COOLING

In general, all engines must be water cooled. Auxiliary engines with self contained fuel systems may be air cooled when installed on an open deck. The engine head, block, and exhaust manifold must be water jacketed and cooled by water from a pump which operates whenever the engine operates. Closed, fresh water systems may also be used. Keel and grid coolers must be designed to prevent flooding, with shut off valves located where the cooler piping penetrates the hull. Shut off valves are not required if the keel cooler is "integral to the hull" i.e., the cooler structure is the same thickness to the hull, faired to the hull, secured with full penetration welds, and with any flexible connections located well above the waterline. Non-metallic flexible hose should be in short lengths only (30 inches maximum), approved by the OCMI, and double clamped at each end.

EXHAUST COOLING

Like engine cooling systems, most exhaust pipes must be water cooled. Exceptions are permitted in certain vertical exhausts, and horizontal pipes that do not pass through berthing spaces, terminate above the waterline, and are arranged to prevent the entry of water from rough seas. Exhaust pipes on air cooled engines need not be water cooled.

Exhausts should be installed to provide adequate clearance and protection from combustibles and to properly support exhaust system weight and vibration. Refer to the American Boat and Yacht Council Standards, Project P-1, ABYC P-1-86.

VENTILATION

Engine and fuel tank spaces are required to be ventilated to prevent the buildup of flammable vapors. Spaces with gasoline fuel tanks or gas powered must have both natural and powered ventilation. Blower motors must not be installed in a duct, and must be as high above the bilge as practical. Blower blades must be non sparking. Blower motors for gasoline spaces must be interlocked with the starting switch, so that the blowers are started before the engine starts.

FUEL SHUT OFF VALVES

Fuel shut off valves must be fitted in the fuel supply lines. One valve must be at the tank connection, and one must be at the engine end of the fuel line. The shut off valve at the tank must be manually operable from outside the compartment in which the valve is located, preferably from the weather deck. As an alternative, if suitably protected from flames, the valve handle may be located so that the operator does not have to reach more than 12 inches into the space where the valve is located. Each remote fuel shutoff station must be marked in legible one inch letters indicating the purpose of the valve and the direction of operation.

BILGE PUMPS

All vessels must be capable of draining all watertight compartments. The table below details the number, type, and capacity of required bilge pumps.

NUMBER OF PASSENGERS	LENGTH OF VESSEL	NUMBER AND TYPE REQUIRED	CAPACITY
Any Number	More than 65'	2 Fixed Power Pumps	50 gpm each
More than 49 and All Ferry Vessels	Not more than 65'	1 Fixed Power Pump & 1 Portable Hand Pump	25 gpm 10 gpm
Not More than 49 except Ferry Vessels	26' - 65'	1 Fixed Power Pump & 1 Portable Hand Pump or 1 Fixed Hand Pump & 1 Portable Hand Pump	10 gpm 10 gpm 10 gpm 5 gpm
Not More than 49 except Ferry Vessels	Less than 26'	1 Portable Hand Pump	5 gpm

A second power pump is an alternative to a hand pump only if it is supplied by a separate source of power. Individual power pumps used for separate spaces must be controlled from a central manifold. New vessels must be equipped with a visual indicator for each pump at the operating station to indicate pump operation. Where two fixed power bilge pumps are installed, they must be driven by different sources of power. In a single propulsion plant, if one pump is driven off the engine, the other must be independently driven. In a twin propulsion plant, each pump may be driven off a different propulsion engine.

All vessels of 26 feet or more must be provided with individual bilge lines and bilge suction for each watertight compartment. The space forward of the collision bulkhead need not be so equipped provided normal leakage can be removed with a portable pump or other equipment.

INDIVIDUAL ELECTRIC BILGE PUMPS

Electric bilge pumps may be used in lieu of the required bilge suction piping and manifold system required for vessels over 25 feet in length (46 CFR 182.25-1(a)). The intent of the requirements in 46 CFR 182.25 is to provide each compartment of a vessel with an efficient and effective means of pumping out the bilge. Small electrically operated pumps have been in use throughout the marine industry in smaller vessels for many years and have a history of proven reliability. These pumps use a float switch to automatically activate the pump when the water in a compartment reaches a certain level. This means that the pump will be in operation probably long before anyone on board is aware of a problem. Rule or similar type electric bilge pumps may be allowed as direct substitutes for the required fixed piping system required by 46 CFR 182.25 subject to the following conditions:

1. Where the vessel is required to have two bilge pumps, electric pumps may be substituted for only one of the two required.
2. Overboard discharge through-hull fittings for these pumps shall not be placed lower than 6 inches above the load water line.

3. Where the vessel is required by 46 CFR 181.10 to be fitted with fixed power driven fire pumps, such shall be provided in addition to the electric bilge pumps.
4. There shall be located at the helm station a means of manual operation of automatic bilge pumps.
5. Individual electric pumps shall each have a capacity in accordance with the above table.
6. The size of the discharge piping for such pumps shall be in accordance with 46 CFR 182-25-1(b) and piping material shall be in accordance with 46 CFR 182.40. A suitable marine flexible hose may also be used.

Electric bilge pumps on new vessels must be listed by Underwriters's Laboratories, must be permanently mounted, and must meet the other requirements of **49 CFR 182.520(e)**.

INSPECTION OF LOW PRESSURE WATER HEATING BOILERS

Low pressure water heating boilers of less than 250 degrees F and 100 psig must be listed by Underwriters Laboratories under UL 174 or UL 1453, must be protected by a pressure temperature relief device, and be secured from rolling by straps or other methods. Water heating boilers not meeting the above criteria must meet the requirements of 46 CFR Parts 53 and 63. Low pressure water heaters in the OCMI Long Island Sound zone are inspected as follows:

1. Visual examination for the boiler and associated piping to the satisfaction of the attending marine inspector.
2. Hydrostatically test annually to dock pressure or 125% of MAWP, whichever is less, but in no case less than the operating pressure.
3. Pressure relief valves shall be lifted under pressure at operating temperature.
4. Boiler mountings may be opened and/or removed if deemed necessary by the inspector.
5. Testing of flame failure alarm & shut down.
6. Testing of pre-purge cycle must be at least 15 seconds and allow 4 air changes in the combustion chamber and chimney.

STEERING SYSTEMS

Regulations for existing vessels (46 CFR 182.30) simply state that all vessels be equipped with "suitable steering apparatus". Steering is a vital system, and owners should ensure that their steering system is in excellent material and operational condition. An auxiliary steering system is required for most vessels not equipped with twin props.

Regulations for **new** vessels (**46 CFR 182.610**) are much more detailed. For example, the main steering gear on all new vessels must be capable of moving the rudder from 35 degrees on one side to 30 degrees on the other side in no more than 28 seconds, with the vessel moving ahead at full speed. There are also requirements for rudder stops, rudder angle indicators, and limit switches on new vessels with power driven steering.

Under **46 CFR 185.320**, new and existing vessels must test their steering gear, signaling whistle, propulsion controls, and communications systems once a day or before getting underway for a voyage.

ELECTRICAL SYSTEMS

NEW REQUIREMENTS

Electrical systems requirements are found in 46 CFR 183 in both the new and old regulations. Per **46 CFR 183.115**, existing vessels are not required to meet the new regulations, except in the following cases:

1. New installations of electrical equipment must meet the new regulations. Replacement of equipment installed before March 11, 1996 need not meet the new regulations.
2. Repair or replacement of cable and wire must meet the new regulations. New regulations covering cable and wire are found in **183.340**.
3. Existing vessels must meet the navigation lights requirements of **183.420**. This regulation requires all vessels to have navigation lights in compliance with the International and Inland Navigation Rules. These requirements were previously found only in 33 CFR 81. Vessels over 65 feet in length must have navigation lights that meet UL 1104.
4. Existing vessels must be equipped with at least two portable battery lights. One such light must be at the operating station, the other at the access to the engine room.

The above requirements apply to all vessels after March 11, 1996. The following requirements apply to existing vessels.

PROTECTION FROM WET AND CORROSIVE ENVIRONMENTS

Electrical equipment in machinery spaces, or where exposed to splashing water, such as galleys and washrooms, must be dripproof. Electrical equipment exposed to the weather must be watertight. All electrical equipment exposed to saltwater must be corrosion resistant.

GENERATORS

Generators and motors must be mounted as high above the bilge as possible to avoid splash damage and contact with low lying flammable vapors. Generators must have overcurrent protection of not more than 115% of the full load rating. Generators on systems with potentials of 50 volts or more must be equipped with an ampmeter and voltmeter.

SWITCHBOARDS

Switchboards must be in a dry, ventilated space, preferably outside the engine space. Switchboards must be of the dead front type. On systems with potentials of 50 volts or more, and all new vessels, nonconducting mats are required in front of all switchboards.

BATTERIES

Batteries must be located as high above the bilge as practical, secured to protect against shifting, and free from exposure to water splash or spray. Connections must be made to terminals with permanent connectors. Spring clips and other temporary clamp arrangements are prohibited. Batteries must be well ventilated and mounted in trays lined with, or constructed of a material resistant to damage by the electrolyte.

ACCEPTABLE ELECTRICAL WIRE

All wire must have stranded copper conductors. Conductors in power and lighting circuits must be #14 American Wire Gauge (AWG) size or larger. Conductors in control and indicator systems must be #22 AWG or larger. Stranded wire, as opposed to solid metal, protects wire from potential cracks or breaks due to vibration. Existing vessels must comply with the requirements of 183.420 (Navigation Lights) and 183.430 (Portable Lights). Cable for power and lighting systems must:

1. Meet section 310-13 of the National Electrical Code (NFPA 70), except cable with asbestos insulation or for use in a dry location cannot be used;
2. Be listed as "UL Boat Cable" or "UL Marine Cable"; or
3. Meet Subchapter J (Electrical regulations) section 111.60-1 for cable and 111.60-11 for wire. This includes IEEE-45 and Military Specification shipboard cables.

Wiring must be installed with sufficient metal supports spaced not more than 24 inches apart. Plastic ties may be used to bundle, but not support wires. Wiring must be installed to avoid sharp bends, chafing, and splash hazards.

GROUNDING

On metal vessels, all metallic enclosures and frames of electrical equipment must be permanently grounded to the metal hull of the vessel. On nonmetal vessels, the enclosures and frames of electrical equipment must be bonded together to a common ground by a normally non-current carrying conductor.

ELECTRICAL CONNECTIONS

Each connection to a conductor or terminal part of a conductor must be made within an enclosure and have either: (1) A pressure type connector on each conductor; (2) A solder lug on each conductor; (3) A splice made with a pressure type connector to a flexible lead or conductor or (4) A splice that is soldered, brazed or welded to a flexible lead or conductor.

OVERCURRENT PROTECTION

Overcurrent protection must be provided for each ungrounded conductor. Overcurrent protection is designed to open the electric circuit before the current reaches a value that causes a dangerous temperature in the conductor or its insulation. If the allowable current carrying capacity of a conductor does not correspond to a standard device size, the next larger overcurrent device may be used provided it does not exceed 150% of the conductor carrying capacity. Steering gear systems must be protected against short circuit.

Single pole breakers are acceptable for use in a 110 volt system provided that a polarity indicator is installed. This assures that the current carrying conductor will be properly protected by the single pole breaker. Without the polarity indicator installed a double pole breaker must be used in case the polarity is inadvertently reversed. Good examples for acceptable electrical systems can be found in American Boat and Yacht Council standards and recommended practices for small craft.

VITAL SYSTEMS (NEW VESSELS ONLY, **46 CFR 183.310**)

The following vital systems, if powered by electricity, must have two separate sources of electric power:

1. Interior lighting, except decorative lighting
2. Communications systems, including the PA system
3. Navigation equipment and lights
4. Fuel System
5. Fire main, CO2 and halon systems
6. Bilge system
7. Steering and propulsion systems and controls

Batteries sufficient to power the systems for three hours, along with a ship's service generator or alternator will meet the source requirements noted above.

LIGHT FIXTURES

Each lighting fixture globe, lens, or diffuser must have a guard or be made of high strength material, except in an accommodation space, radio room, galley or similar space where it is not subject to damage. Lighting fixtures may not be used as a connection box for a circuit other than the branch circuit supplying the fixture. Lamps must be secured against being displaced by the roll or pitch of the vessel.

Exterior light fixtures for systems of 50 volts or more must meet the requirements of UL 595, "Marine Type Electric Lighting Fixtures". Each of these fixtures will have an UL 595 marking or approval sticker affixed to it. Lighting in accommodation, radio, galley, and similar interior spaces may comply with UL 1570, 1571, 1572, 1573, or 1574 as long as the general marine requirements of UL 595 are met. Should you wish to install a non UL listed fixture, you must provide the OCMI a line-by-line comparison to the UL standards showing equivalence. Fixtures for systems of less than 50 volts shall be a suitable marine type, acceptable to the attending Coast Guard Marine Inspector.

EMERGENCY LIGHTING

Each vessel must be equipped with at least two portable battery lights, one at the operating station and the other at the access to the engine room.

Each vessel must have adequate emergency lighting installed to illuminate the escape route to the main deck from all passenger and crew accommodations spaces located below the main deck.

The emergency lighting must automatically activate upon failure of the main lighting system. If not equipped with a single source of emergency power, batteries may be used provided the lights activate automatically, are not readily portable, are connected to an automatic battery charger and have capacity for at least two hours of continuous operation.

SHORE POWER

On vessels with an electric system of more than 50 volts, a shore power connection box and connecting cable must be permanently installed. A circuit breaker must be provided at the switchboard for this connection. On new vessels, the shore power circuit breaker must be interlocked with the vessel's power sources so that shore power and vessel power may not be operated simultaneously.

RADIOTELEPHONE INSTALLATION

Each radiotelephone installation must be equipped with a separate circuit with overcurrent protection.

VESSEL CONTROL AND MISCELLANEOUS SYSTEMS

NEW REQUIREMENTS

These requirements are found in Part 184 of both the new and old regulations. Some requirements have been moved to this part from Part 185. Except where otherwise specified, existing vessels were required to comply with the new regulations by March 11, 1996.

COOKING AND HEATING

Cooking and heating equipment must be suitable for marine use. Equipment designed and installed in accordance with the American Boat and Yacht Council (ABYC) A-3 (galley stoves), and A-7, or National Fire Protection Association.

(NFPA) 302 complies with this requirement. Cooking systems using liquefied petroleum gas or compressed natural gas must meet the ABYC and NFPA standards specified in **46 CFR 184.240**.

Cooking equipment must have rails, guards, locks, etc to protect against injury due to vessel movement. Electric heaters must have thermal cutouts. Fireplaces and all other open flames are prohibited.

CONTROL AND INTERNAL COMMUNICATIONS SYSTEMS **46 CFR 184.602/620**

Unless equipped with multiple engines, each with independent pilothouse control, vessels must comply with the following engine control requirements (existing vessels need not comply with this requirement unless required by the OCMI due to route or service of the vessel):

1. Have two independent means of controlling the propulsion engine.
Control for engine speed, direction of shaft rotation, and engine shut down must be provided.
2. Have a means, independent of the engine's speed control, for shutting down a main propulsion engine at the main pilothouse control.
3. The engine control system must be designed so that a loss of power to the control system does not result in an increase in shaft speed or propeller pitch.
4. Unless direct voice communication is adequate, have a fixed means of two way communication between the main pilothouse and both the location of the secondary means of engine control and auxiliary steering.

PUBLIC ADDRESS SYSTEM 46 CFR 184.610

Existing vessels must be equipped with a public address (PA) system by March 11, 2001. New vessels must be so equipped as of March 11, 1996. The details of such a system are as follows:

1. Vessels of more than 65 feet in length must have a fixed PA system which is audible throughout all spaces normally occupied by passengers and/or crew during normal operating conditions.
2. Vessels of not more than 65 feet may use a battery powered bullhorn provided it is audible from the operating station throughout the accommodation spaces.
3. Vessels of not more than 65 feet, certificated for not more than 49 passengers, are not required to have a PA system or bullhorn provided normal voice announcements from the operating station are audible throughout the accommodation spaces.

FIRST AID KIT 46 CFR 184.710

New and existing vessels must be equipped with a first aid kit as of March 11, 1997. The first aid kit must be Coast Guard approved or equivalent. The list of required items may be found in 46 CFR 160.041 and are available at <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=29bc39aa7b87d573d4e826ed6231a4cb&rgn=div5&view=text&node=46:6.0.1.2.2&idno=46#46:6.0.1.2.2.27> for quick access.

NAVIGATION LIGHTS AND SOUND DEVICES

Navigation light requirements are found in the International Regulations for Prevention of Collisions at Sea (COLREGS) and 33 CFR 84. **46 CFR 183.420** also requires that vessels over 65' long have navigation lights that meet UL 1104. This is the only new navigation light regulation.

NAVIGATION LIGHTS

All vessels must be equipped with navigation lights and sound producing devices as prescribed in the Inland or International Navigation Rules. Vessels operating seaward of the demarcation line must comply with the International Regulations for Preventing Collisions at Sea, 1972, which is commonly referred to as the 72 COLREGS. Vessels inland of the demarcation line must comply with the Inland Navigational Rules Act of 1980 (Inland Rules). Compliance with the International Rules is automatic compliance with the Inland Rules.

Rule 22 of the Inland/International rules specifies navigation light visibility requirements. ANNEX I of these rules gives technical requirements in terms of color, arcs and positioning.

SIDELIGHT PLACEMENT

Sidelights must not be "in front" of the forward mast (ANNEX I 2(g), 3(b)). This rule also applies to single masted vessels and requires sidelight repositioning on many vessels in the 20-50 meter range.

SIDELIGHT SCREENS

Sidelight screens must be painted matte (flat) black to comply with the 72 COLREGS/Inland Rules. Under Inland Rules, a vessel less than 20 meters (66 feet) must be fitted with screens only if they are necessary to bring the sidelights into compliance with the horizontal sector requirements of the Inland Rules.

SOUND DEVICES

Requirements for sound devices are contained in ANNEX III of the rules. These requirements are aimed at increasing the mariner's ability to identify targets audibly through the use of different sound characteristics for vessels of different length. The sounds produced by whistles, bells, and gongs should all be distinctive so that they are not confused with each other.

ELECTRONIC SOUND DEVICES

ANNEX III.2.(b) specifies that a bell be made of corrosion resistant material and further specifies bell mouth diameter, etc. However, electronic devices which meet the sound requirements may be substituted for the mechanical equivalent if a manual backup is provided.

VESSELS LESS THAN 12 METERS IN LENGTH

These vessels are not required to carry whistles and bells that meet the technical standards in ANNEX III of the Navigation Rules. However, if no such equipment is carried, the vessel shall be provided with some other means of making an efficient sound signal.

NAVIGATION EQUIPMENT

NEW REQUIREMENTS

These requirements are found in Subpart D of **46 CFR 184**. Existing vessels are required to meet the "new" regulations with several exceptions noted within the applicable sections.

COMPASSES

All vessels are required to have a suitable compass except vessels on a "Rivers" route, non-self propelled vessels, or vessels operating in protected waters with short restricted routes. The compass should be illuminated except on vessels limited to daytime operations. Existing vessels need not comply with this requirement unless required by the OCMI due to route or service of the vessel.

RADAR

Radar is not required on existing small passenger vessels but is highly recommended in southern Connecticut and Long Island, NY waters due to quickly changing weather conditions and fog. Radar is required on **new** small passenger vessels certificated for more than 49 passengers on a Limited Coastwise, Coastwise, or Oceans route.

ELECTRONIC POSITION FIXING DEVICES

Electronic position fixing devices, such as LORAN C or GPS are required on **new** vessels certificated for an Oceans route (**46 CFR 184.410**). Existing vessels need not comply with this requirement unless required by the OCMI due to route or service of the vessel.

FATHOMETERS

Fathometers are not required but are recommended for all vessels due to the rocky nature of coastal waters in Long Island Sound.

CHARTS AND PUBLICATIONS

Navigation rules are required on vessels 12 meters (39.6 feet) or more in length. All vessels must carry adequate, up-to-date charts and nautical publications (**46 CFR 184.420**). As noted in paragraph (b) of this section, extracts from the publications listed for the areas to be transited may be provided instead of the complete publication. Alternatively, electronic versions of charts and/or pubs are acceptable provided there are two sources of power, one being the emergency source of power.

MOORING EQUIPMENT

Ground tackle and hawsers are required by **46 CFR 184.300**. All mooring equipment shall be to the satisfaction of the attending USCG Marine Inspector.

ANCHOR WINDLASSES

Generally, a small anchor (up to about 75-80 pounds), can be raised by hand by one person when fitted with a manila or synthetic line. Heavier anchors will require a mechanical hand or powered windlass. However, available manpower, means to secure the anchor line permitting a rest period while raising by hand, route, etc. may be considered. Wire and chain is not acceptable for raising all but the smallest anchors by hand.

RADIO REQUIREMENTS

REQUIRED EQUIPMENT

All small passenger vessels that operate more than 1000 feet from land must be equipped with a VHF-FM radio (**47 CFR 80**). All vessels operating more than twenty miles offshore (Oceans) must be required to be equipped with a single side band (SSB) radio. A test of the required radios will be witnessed by the attending USCG Marine Inspector at each inspection.

FEDERAL COMMUNICATIONS COMMISSION (FCC) REQUIREMENTS

Any vessel which transports more than six passengers for hire, operating on any tidewater within the jurisdiction of the United States, adjacent or contiguous to the open sea, or on the open sea, is required to have a FCC Safety Radio Telephone Certificate, Radio Operator's License, and a Radio Station License. An exception to this requirement is any vessel less than 50 gross tons which operates within 1000 feet from shore. The FCC has issued an amendment to the rules dealing with the FCC inspection interval for small passenger vessels. The amendment changed the inspection interval from 2 to 5 years and it extended for 3 years any valid Safety Radiotelephone Certificate. The radio station license is obtained by requesting, completing, and returning an application form. To obtain a safety radio telephone certificate, the entire radio installation (including antenna) must be inspected by a certified electronics specialist and the report from the inspection submitted to the FCC as part of the application. The FCC has given the authority for completing this inspection to the commercial entities.

The general phone number for the FCC is: 1-888-CALL FCC

NO RADIO CHECKS ON CHANNEL 16 VHF-FM

The FCC prohibits routine radio checks with the Coast Guard on channel 16. The purpose of this rule is to relieve congestion on the distress channel. Radio checks may still be conducted by qualified radio technicians installing equipment or correcting deficiencies in the station's radiotelephone. An alternative method of testing is to hail the Coast Guard on channel 16 and request to switch to a working channel (22A). Once switched to the working channel, request the radio check.

EMERGENCY BROADCAST PLACARD **46 CFR 184.506**

This is the only **new** radio requirement, and applies to new and existing vessels on March 11, 1996. A durable placard must be posted next to all radios. The placard must describe emergency broadcast instructions specific to the vessel. The following text, modified as needed, will satisfy this requirement:

1. Ensure the radio is on.
2. Select channel 16 (or 2182 kHz for SSB radios).
3. Key microphone, and in a calm, slow voice say:

 "MAYDAY, MAYDAY MAYDAY" - for situations of immediate danger, or
 "PAN PAN, PAN PAN, PAN PAN" - for less urgent emergencies.
4. Say: "This is (vessel name), (vessel name), (vessel name), over."
5. Release the microphone button and listen for a reply. If there is no response, repeat steps 3 and 4.
6. Key microphone, and repeat "MAYDAY", or "PAN PAN" and the vessel name.
7. Describe your position, in latitude/longitude, and distance and bearing from a known position or point of land.
8. State the nature of distress i.e. fire, flooding, etc.
9. State the number of people on board, and the nature of any injuries.
10. Estimate the present seaworthiness of the vessel.
11. Describe the vessel, i.e., length, type, color, etc.
12. Say: "I will be listening on channel 16" (or 2182 kHz).
13. Say: "This is (vessel name and call sign)".
14. If possible, stand by the radio to await further instructions.

REQUIRED MARKINGS

Certain markings are required on the vessels' hull, lifesaving equipment, and on firefighting and other safety related equipment. Although there have been small changes to the marking requirements found in 46 CFR 185, existing vessels may generally continue to comply with old regulations until the existing markings become illegible and require remarking. New hull markings are not required until the vessel's next drydocking which occurs after March 11, 1996.

HULL MARKINGS - 46 CFR 185.602

Vessels more than 65' long, vessels authorized to carry more than 12 passengers on an international voyage, and vessels with more than one deck above the bulkhead deck, exclusive of the pilot house, must be marked as follows:

1. Name, hailing port, and official number of the vessel.
2. Permanent draft marks at each end of the vessel, or permanent loading marks on each side, located (a) forward and aft, to indicate maximum allowable trim and (b) to indicate maximum allowable draft.

Name, hailing port must be in four inch characters. The official number must be permanently marked on the main beam or similar location, in four inch numbers. Draft and loading marks must be in eight inch by one inch horizontal lines.

On any vessel whose stability limits the number of passengers on an upper deck, the maximum number of passengers allowed must be marked in one inch characters at the entrance to each such deck.

LIFEFLOATS AND BUOYANT APPARATUS - 46 CFR 185.602

1. Vessel's name in three inch letters.
2. Number of persons allowed in one inch letters.
3. Paddles and oars shall be marked with the vessel's name.

INFLATABLE LIFERAFTS - Marked by the manufacturer or service facility.

RESCUE BOAT - Number of persons allowed in one inch letters, reflective tape.

RING BUOY - Vessel's name, reflective tape on each quadrant, both sides.

EMERGENCY POSITION INDICATING RADIOBEACON (EPIRB) - Vessel's name.

LIFE JACKETS - Vessel's name, reflective tape.

LIFE JACKET STOWAGE (If PFDs are not readily visible to passengers).

1. Containers shall be marked "LIFE JACKETS".
2. Separate containers for children's life jackets shall be so marked.
3. Containers shall be marked with the number of life jackets contained.
4. All letters and numbers shall be at least one inch high.

REMOTE FUEL SHUTOFF VALVES - Marked in one inch letters indicating the purpose of the valve and the direction of operation.

WATERTIGHT DOORS AND WATERTIGHT HATCHES - Marked on both sides in at least one inch letters.

WATERTIGHT DOOR - CLOSE IN EMERGENCY or WATERTIGHT HATCH - CLOSE IN EMERGENCY

ESCAPE HATCHES/EMERGENCY EXITS - "EMERGENCY EXIT, KEEP CLEAR" in two inch letters.

FIXED FIRE FIGHTING SYSTEMS - Instructions on the use of the system at the operating station, warning signs by fire fighting gas outlets, and other requirements per **46 CFR 185.612**.

PREPARATION FOR EMERGENCIES

Subpart E of 46 CFR 185 contains requirements for preparations for drills, training, and other measures to prevent or mitigate accidents. The purpose of the passenger list, voyage plan, and passenger count requirements are to aid Search and Rescue efforts in the event of an accident. New and existing vessels must comply with these regulations as of March 11, 1996 unless otherwise specified.

CREW AND PASSENGER LISTS 46 CFR 185.502

A correct, written list of the names of all persons that embark on and disembark from the following vessels must be maintained. The list must be communicated to the vessel's representative ashore before departure and available to the Coast Guard upon request.

1. Vessels on a Coastwise or Oceans voyage where passengers embark or disembark to or from another vessel or port other than the port of origin.
2. Vessels carrying overnight passengers.
3. Vessels arriving from a foreign port.

VOYAGE PLAN 46 CFR 185.503

A written voyage plan, consisting of the date, time, and place of departure, planned route, and date, time, and place of arrival is required for the following vessels. The voyage plan must be communicated to the vessel's representative ashore before departure and available to the Coast Guard upon request.

1. Vessels on a Coastwise or Oceans voyage.
2. Vessels carrying overnight passengers.
3. Vessels arriving from a foreign port.

PASSENGER COUNT 46 CFR 185.504

All vessels, except those required to keep a passenger list, shall keep a written count of all passengers that embark on and disembark from the vessel. Before the vessel departs, the count must be communicated to the vessel's representative before departure and available to the Coast Guard upon request. There is no exception to this requirement for yacht launches, even though the passenger count changes on each trip the vessel makes. For this reason, the best effort made by the operator to keep an accurate count will be accepted, as long as there is documentation or evidence that the count is being taken at the time of departure.

PASSENGER SAFETY ORIENTATION **46 CFR 185.506**

Before getting underway, the master of each vessel shall ensure that a public announcement is made informing all passengers of safety information, including the location of emergency exits, survival craft, life jackets, and ring buoys; donning instructions for life jackets, procedures during an emergency, and the location and contents of the required emergency instruction placard.

EMERGENCY INSTRUCTIONS **46 CFR 185.510**

Emergency instructions, including the actions to be taken in the event of fire, heavy weather, or man overboard, must be posted at the operating station.

46 CFR 185.514 requires that a "station bill" be posted at the operating station and in a conspicuous location in each crew accommodation space on vessels more than 65' long. The station bill sets forth the duties and duty station of each crew member in various emergencies.

46 CFR 185.516 requires a placard with instructions for the donning and use of life jackets be posted in conspicuous places that are regularly accessible and visible to the crew and passengers on all vessels. Instruction placards for inflatable survival craft are also required for vessels so equipped. These placards are required to be posted in conspicuous places by each inflatable survival craft.

RECOMMENDED EMERGENCY INSTRUCTIONS **46 CFR 185.512**

ROUGH WEATHER AT SEA, CROSSING HAZARDOUS BARS OR FLOODING

1. Close all watertight and weathertight doors, hatches, and air vents to prevent taking on water or further flooding the vessel.
2. Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump and buckets to dewater.
3. Align fire pumps to use as bilge pump if possible.
4. Check all intake and discharge lines which penetrate the hull for leaks.
5. Keep passengers seated and evenly distributed.
6. Have passengers don life jackets.
7. Never abandon a vessel (particularly a wooden boat) unless actually forced to do so.
8. If assistance is needed use the International Distress call over radio telephone or call the Coast Guard immediately. Follow the procedures on the emergency broadcast placard posted by the radiotelephone.
9. Prepare survival craft (liferafts, lifefloats) for launching.

MAN OVERBOARD

1. Throw a ring buoy overboard as close to the person as possible.
2. Post a lookout to keep the person overboard in sight.
3. Launch the rescue boat or maneuver the vessel to pick up the person.
4. Have a crew member don a lifejacket and safety line and prepare to jump into the water to assist the person overboard if necessary.
5. If the person is not immediately located notify the Coast Guard and other vessels in vicinity by radiotelephone.
6. Continue search until released by Coast Guard.

FIRE AT SEA

1. Cut off air supply to fire - close hatches, ports, doors, and ventilators, etc. and shut off ventilation system.
2. Cut off electrical system supplying affected compartment, if possible.
3. If safe, immediately use portable fire extinguishers at base of flames for flammable liquid or grease fires, or water for fires in ordinary combustible materials. Do not use water on electrical fires.
4. If fire is in machinery spaces shut off fuel supply and ventilation and discharge fixed extinguishing system if installed.
5. Maneuver vessel to minimize effect of wind on fire.
6. If unable to control fire, immediately notify Coast Guard and other boats in the vicinity by radiotelephone, etc.
7. Move passengers away from fire, direct all personnel to don life jackets, and if necessary, prepare to abandon the vessel.

STATION BILL **46 CFR 185.514**

Existing vessels must comply with this section upon completion of the first inspection for certification after March 11, 1996.

A station bill must be posted by the master on a vessel more than 65' long and having a Certificate of Inspection requiring more than four crew members at any time, including the master.

The station bill must set forth the duties of each person in various emergencies. These duties must include, at a minimum, closing watertight doors and hatches, etc., preparing and launching survival craft, extinguishing fires, and mustering and control of passengers.

LIFE JACKET PLACARD 46 CFR 185.516

This requirement must be met by existing vessels upon completion of the first inspection for certification after March 11, 1996.

Placards explaining the donning and use of life jackets must be posted in a conspicuous space on all vessels.

INFLATABLE SURVIVAL CRAFT PLACARDS 46 CFR 185.518

Every vessel equipped with an inflatable survival craft must have manufacture-supplied placards with launching and inflating instructions posted in a conspicuous location.

DRILLS AND TRAINING

Small passenger vessel operators are required by 46 CFR **185.420** to conduct "sufficient drills and give sufficient instructions to make sure that all crew members are familiar with their duties during emergencies that necessitate abandoning ship or recovery of persons who have fallen overboard." Drills and training are also required to ensure that "each crew member is familiar with his or her duties in case of a fire." These drills shall be conducted at least once every three months and shall be logged, including the date and general description of the training.

The regulations further require that each rescue boat be launched in such a drill once a month if possible, and in any case not less than once within a three month period.

At each annual inspection for certification, vessel operators, with the normally required crew, must conduct these drills in the presence of a Marine Inspector.

The importance of frequent, realistic drills and training can hardly be overstated. Recent studies by the Coast Guard and other agencies indicate that at least 80% of all accidents are caused by "human error" rather than equipment failure. Drills and training are the best way to prevent accidents before they happen, and to ensure the vessel and crew can make the best possible response when they do happen.

POLLUTION CONCERNS

Public concern over pollution of coastal waters with trash, sewage, and, in particular, oil has risen sharply over the past few years. The major obstacle to achieving the goal of eliminating floating wastes is to identify the sources. For this reason, timely reporting of observations are critical to successful surveillance and investigation. There are three primary laws that deal with dumping of waste materials into navigable waters:

1. The Federal Water Pollution Control Act (FWPCA) This law was enacted primarily to prevent and prohibit discharges of oil and hazardous substances in quantities that may be harmful. A discharge of oil into or upon the navigable waters of the U.S. which causes a film or sheen upon or discoloration of the surface of the water, or causes a sludge, or emulsion to be deposited beneath the surface of the water or upon the shoreline is prohibited. The FWPCA also requires that marine sanitation devices (MSD's) be installed on vessels with fixed toilets on board.
2. The Act to Prevent Pollution from Ships This law implements the protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships 1973 (MARPOL). The part most significant to small passenger vessel operations is Annex V which became effective on December 31, 1988. Annex V deals with the disposal of vessel garbage.
3. Title I of the Marine Protection, Research, and Sanctuaries Act of 1972 This law implements the International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972, referred to as the London Dumping Convention, to which the United States is a signatory. The Act prohibits, with certain exceptions, the dumping or transportation for dumping of "materials" into ocean waters.

OIL POLLUTION PLACARDS

All vessels 26 feet in length and over must have a placard of at least five inches by eight inches, made of durable material fixed in a conspicuous place in each machinery space, or at the bilge and ballast pump control station. This placard must state the following:

DISCHARGE OF OIL PROHIBITED

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States, or the waters of the contiguous zone, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, if such discharge causes a film or discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water. Violators are subject to substantial civil penalties and/or criminal sanctions including fines and imprisonment.

Existing stocks of placards which describe a specific dollar amount fine may be used for the life of the placard. The placard must be printed in the language or languages understood by the crew.

Report all pollution sightings to the National Response Center telephone number 1-800-424-8802.

MARINE SANITATION DEVICES (MSD's)

The objective of the MSD requirements is to prevent the discharge of untreated or inadequately treated sewage into U. S. waters. If a vessel has a toilet or head installed, it must be equipped with an operable MSD. Under the old regulations, vessels built after 30 January 1980 must install a Type II or III MSD. Type I MSD's were authorized only if installed before 30 January 1980 and were still in good operating condition. A Notice of Proposed Rulemaking permits the use of Type II MSDs on vessels 65 feet in length or less regardless of build or installation dates. Under the old regulations, vessels with routes longer than 30 minutes were required to have toilets and wash basins. The new regulations have removed all requirements to install toilets and wash basins and instead require that if installed, toilets and wash basins must be in compliance with 33 CFR Part 159.

MSD TYPES

TYPE I MSD - These devices treat sewage with disinfectant chemicals, and by other means, before it is discharged into the water. The treated discharge must meet certain health standards for bacteria content and must not show any visible floating solids.

TYPE II MSD - This is also a treatment device like the Type I, but it must meet a higher level of sewage treatment. Because it is larger in size than a Type I, and generally has higher power requirements, it is usually installed only in commercial and larger recreational vessels.

TYPE III MSD - Type III MSDs are certified to a no-discharge standard. Type III devices include recirculating and incinerating MSDs and holding tanks. Sewage is stored in the holding tank until it can be pumped out to a reception facility on shore, or at sea beyond the territorial waters of the U.S. (three miles from shore). Reception facilities (sometimes called pump-out stations) are available at many marinas. Consult local cruising guides and boating almanacs for a list of the available pump-out stations.

CERTIFICATION LABELS

Except as noted in the next paragraph, MSDs must have a certification label affixed. Among other things, the certification label shows the name of the manufacturer, the name and model number of the device, the month and year of manufacture, the MSD type (i.e. Type I, Type II, or Type III), a certification number, and a certification statement. Type III holding tanks are considered automatically certified under a clause in the Coast Guard MSD regulations if they store sewage and flushwater only at ambient (outside) air temperature and pressure. These MSDs will not have a certification label affixed.

DISCHARGE OF SEWAGE

Discharge of raw sewage from a vessel in U.S. territorial waters (within the three mile limit) is illegal. However, a valve may be installed on any MSD to provide for the direct discharge of raw sewage when the vessel is outside U.S. waters more than three miles from shore. The valve must be secured in the closed position while operating in U.S. waters. Use of a padlock, non-releasable wire-tie, or the removal of the valve handle would be considered adequate securing of the device. The method chosen must be one that presents a physical barrier to the use of the valve. The regulations do not permit installation of a spectacle flange or discharge valves, or the blanking off of discharge lines. These are temporary means of preventing overboard discharge that, by their very nature, do not render the system permanently inoperable. They do not change the inherent character of the system, and the reasonable conclusion is that the vessel owner intends to use the uncertified, installed system at a later time.

MSD MALFUNCTIONS

The Coast Guard is interested in all complaints about faulty MSD's. Such complaints should be brought to your local OCMI/COTP. Complaints should be specific in nature, describing in detail the problem encountered, and should also include the name of the device manufacturer and certification number, the type vessel the MSD is installed on, when it was installed, and what the maintenance schedule is for the MSD.

EFFECT ON STABILITY

Stability must be considered in evaluating MSD installations aboard a small passenger vessel. This is especially important for vessels fitted with holding tanks, which can add considerable weight and/or significant free surface effect.

PORTABLE SYSTEMS

Portable systems do not make use of any of the vessel's installed systems (water, electrical, etc.). They are not certified by the Coast Guard because they are not "installable" devices; the regulations apply only to vessels with installed toilet facilities. A portable system, if used, must meet the following criteria:

1. The device must be manufactured of a durable material, such as molded plastic, aluminum, etc., that facilitates its removal for sewage disposal ashore. Collapsible units with disposable bags are not acceptable, due to their susceptibility to tearing and the resultant discharge of sewage into the water.
2. The system must be operated in accordance with the manufacturers instructions for disposal of waste, use of chemical additives, etc.
3. While the vessel is underway, the device must be securely fastened to the vessel with straps, wooden framing, or similar materials.

WASHROOMS AND TOILETS

Under the old regulations, vessels certificated for runs of over 30 minutes had to be provided with toilets and wash basins. The new regulations have removed all requirements for toilets and wash basins. Existing vessels may remove this equipment. Equipment installed in either new or existing vessels must be in a safe, leak-free and sanitary condition.

GARBAGE HANDLING RESTRICTIONS

ANNEX V of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and implemented through the Act to Prevent Pollution From Ships (33 USC 1901) went into effect on December 31, 1988. This annex prohibits the discharge of plastic refuse and restricts the discharge of other ship-generated garbage at sea. Also, ANNEX V requires that adequate facilities for receiving garbage from ships be available at U.S. ports and terminals, including commercial fishing facilities and recreational marinas.

These regulations apply to all vessels, including commercial, recreational and fishing vessels of any size and type and the facilities that serve them. For U.S. vessels these regulations apply world-wide. Foreign flag vessels need to comply once they have entered the 200 mile limit of the U.S. Exclusive Economic Zone. A matrix indicating garbage type and vessel type follows:

GARBAGE TYPE	RESTRICTION
Plastics	Disposal prohibited (DP)
Dunnage, lining and packing materials	DP less than 25 NM from nearest land
Paper rags, glass, metal bottles, crockery and similar refuse	DP less than 12 NM from nearest land
Paper, rags, glass, etc. comminuted or ground **	DP less than 3 NM from nearest land
Food waste NOT comminuted or ground	DP less than 12 NM from nearest land
Food waste ground or comminuted **	DP less than 3 NM from nearest land
Mixed refuse: When mixed with other harmful substances having different disposal requirements the more stringent disposal restrictions apply.	

** Ground-up or pulverized garbage must be able to pass through a screen with a mesh size no larger than 25 mm (1 inch).

PLASTIC - Any garbage that is solid material that contains an essential ingredient of one or more synthetic organic high polymers and is formed or shaped during either manufacture of the polymer or fabrication into a finished product by heat or pressure or both. Plastics are in various forms (plastic products, raw resin products, and composite products) including but not limited to:

1. Packaging: vapor proof barriers, bottles, containers and liners.
2. Ship Construction: fiberglass, laminates, siding, pipe insulation, flooring, carpets, adhesives and electrical components.
3. Disposable eating utensils/cups including foamed products.
4. Floats.
5. Synthetic nets, ropes and lines.

NOTE: So called "BIODEGRADABLE" plastics are included in this definition. These plastics consist of polymers connected by starch molecules which cause the plastic to break down when exposed to sunlight or water. Biodegradable plastics are included in this definition to avoid a transfer from entanglement related environmental damages to ingestion related ones.

GARBAGE PLACARD

33 CFR 151.59 requires that each manned U.S. vessel 26 feet or more in length shall display one or more placards containing specific information concerning the discharge of garbage. These placards shall be displayed in prominent locations and in sufficient numbers so that they can be read by the crew and passengers of the vessel. Suggested sites include embarkation points, food service facilities, garbage handling spaces, and common spaces on deck.

NOTE: Any person who violates the above requirements concerning the discharge of garbage is liable for a civil penalty of up to \$32,500, and a criminal penalty of up to \$50,000 and imprisonment for up to five years per violation.

WASTE MANAGEMENT PLANS

Each manned, **oceangoing*** ship of 40 or more feet in length, either engaged in commerce or equipped with a galley and berthing facilities, must have a waste management plan meeting the requirements specified below.

Each waste management plan must be in writing and:

1. Provide for the discharge of garbage by means that meet the requirements of ANNEX V;
2. Describe procedures for collecting, processing, storing, and discharging garbage; and
3. Designate the person in charge of carrying out the plan.

The plan can be as simple as this:

"All garbage generated aboard this vessel is stored onboard for discharge to an appropriate shore facility. Mr./Mrs./Capt. ___ is in charge of implementing this plan."

* **Oceangoing** means:

1. A U.S. vessel certificated for ocean service;
2. A U.S. vessel operating seaward of the territorial sea (outside of three miles), regardless of certification; and
3. A foreign vessel.

INVESTIGATIONS

PURPOSE

The purpose of a Coast Guard investigation is to determine the cause of an accident, casualty, or alleged misbehavior, to determine what remedial measures, if any, should be taken; and to determine whether any violations of federal laws or regulations have occurred. Investigations promote safety of life and property and help protect the marine environment. The Coast Guard does not investigate to fix civil liability in disputes between private litigants.

An important purpose of marine casualty investigations is to obtain information for the prevention of similar casualties. It is necessary for the causes of casualties to be determined as precisely as possible so that factual information will be available for program review and statistical studies.

MARINE CASUALTY DEFINITION (46 CFR 4.03-1)

Immediately after addressing safety concerns, the owner, agent, master, operator, or person in charge, shall notify the nearest Sector or Marine Inspection Office whenever a vessel is involved in a marine casualty consisting of:

1. All accidental or intentional groundings, or accidental/ intentional strikes of (allisions with) bridges and any intentional groundings or strikes of bridges which also meet any other reporting criteria or which create hazards to navigation, the environment, or the safety of the vessel.
2. Loss of main propulsion or primary steering, or any associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel. Loss means that systems, component parts, sub-systems, or control systems do not perform the specified or required function.
3. Any occurrence that materially and adversely affects the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, or failure or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping system.
4. Loss of life or injury requiring treatment beyond first aid, and, if the person is engaged or employed on board a vessel in commercial service, that renders the individual unfit to perform his or her routine duties.
5. An occurrence not meeting any of the above criteria but resulting in damage to property in excess of \$25,000.00. Damage cost includes the cost of labor and material to restore the property to the service condition which existed before the casualty, but does not include the cost of salvage, cleaning, gas freeing, drydocking, and demurrage.

WRITTEN NOTICE ALSO REQUIRED (46 CFR 4.05-10)

The owner, agent, master, operator, or person in charge shall, within five days, file a written report of any marine casualty. This report is in addition to the immediate notice required by 46 CFR 4.05-1. This written report must be delivered or faxed to a Coast Guard Sector or Marine Safety Detachment on Form CG-2692 (Report of Marine Accident, Injury, or Death). This form can be found at http://cgweb2.comdt.uscg.mil/CGFORMS/FORMS/CG_2692.pdf.

PROCEDURES AGAINST LICENSES AND DOCUMENTS

46 USC Chapter 77 authorizes the Coast Guard to conduct personnel investigations or to initiate suspension and revocation proceedings. This authorization allows action against any mariner for incompetence, misconduct, negligence, or violation of laws or regulations intended to promote marine safety or to protect navigable waters while acting under the authority of seamen's papers, including certain drug offenses. Personnel investigations are conducted to promote safety on the high seas and the navigable waters of the United States, and to prevent or mitigate personnel-related hazards to life, property, and the marine environment.

ZERO TOLERANCE DRUG ENFORCEMENT

Illegal drugs have no place in the marine environment. Those who operate vessels on our nation's waterways must be free from operating under the influence of illegal drugs and controlled substances. Boaters, whether recreational or commercial, have a responsibility to themselves, to others on board, and to other vessels to ensure that nothing interferes with the safe operation of their vessels. The Coast Guard Zero Tolerance approach complements the Secretary of Transportation's desire for a drug free transportation system, and also complements our nation's war against drug abuse.

Passengers should be made aware that drugs are not allowed aboard any vessels.

FEDERAL RULES GOVERNING OPERATION OF A VESSEL WHILE INTOXICATED

In 1988 the Coast Guard issued rules to establish intoxication standards and prescribe restrictions and responsibilities applicable to personnel operating recreational and commercial vessels while intoxicated. * **Intoxicant means any form of alcohol, drug or combination thereof.** These regulations set a federal standard for behavioral signs of intoxication and an independent blood alcohol concentration (BAC) standard. The regulations are incorporated in Part 95 of Title 33, Code of Federal Regulations (33 CFR 95). The following is a brief summary of those regulations:

APPLICABILITY

These regulations apply to all vessels (except a public vessel) operating on U. S. waters and to a U.S. owned vessel operating on the high seas. This includes foreign vessels operating in U. S. waters. The regulations are also applicable at all times to Coast Guard inspected vessels.

OPERATING A VESSEL

An individual is considered to be operating a vessel when: 1) The individual has an essential role in the operation of a recreational vessel underway, including but not limited to navigating or controlling the vessel's propulsion system; or, 2) The individual is a crewmember, pilot, or a watchstander not a regular member of the crew of a vessel other than a recreational vessel.

STANDARD OF INTOXICATION

The federal blood alcohol concentration (BAC) standard for recreational vessels is .08%, or the state standard if the state standard is lower. The state standard in Connecticut and New York is currently .08%.

The standard for all other vessels, including commercial vessels is .04%. Additionally, a person operating any vessel is deemed intoxicated if the effects of the intoxicant(s) consumed by the individual on the person's manner, disposition, speech, muscular movement, general appearance or behavior is apparent by observation.

CHEMICAL DRUG AND ALCOHOL TESTING REGULATIONS

A law enforcement officer or a marine employer may direct an individual operating a vessel to undergo a chemical test when reasonable cause exists. Reasonable cause exists when: a) The individual was directly involved in a marine casualty; b) The individual is suspected of being in violation of the intoxication standards defined in the regulations.

REFUSAL TO SUBMIT TO TESTING

If an individual refuses to submit to a timely chemical test when directed by a **law enforcement officer** based on reasonable cause, evidence of refusal is admissible in any administrative proceeding and the individual **will be presumed to be intoxicated**. This includes administrative proceedings looking toward suspension or revocation of an individual's Coast Guard license or merchant mariner's document.

If an individual refuses to submit to a timely chemical test when directed by a **marine employer** for any reason other than involvement in a Serious Marine Incident, that individual will be charged with Misconduct under 46 USC 7703. If an individual refuses to submit to a chemical test when directed by a marine employer after having been determined to be directly involved in a Serious Marine Incident, that individual will be charged with a Violation of a Regulation under 46 USC 7703.

In a recent decision, an Administrative Law Judge revoked a mariner's credentials for a charge of Misconduct. Specifically, the mariner refused to provide a urine specimen for a random chemical test, in violation of a company regulation. While the suggested range of sanctions allows a 12-24 month suspension for this offense, the judge felt the act was a serious breach of the mariner's responsibility and elected to revoke the license.

In the past, settlement agreements between the mariner and the Coast Guard have allowed the mariner to avoid a hearing in these cases. Sanctions typically ranged from 1-4 months suspension of the mariner's credentials. A refusal to cooperate with a random test is contrary to the intent of the entire chemical testing program. The Coast Guard will no longer offer settlement in these cases, but will charge the mariner to appear at a public hearing before an Administrative Law Judge.

GENERAL OPERATING RULES - CHAPTER 33 OF TITLE 46, UNITED STATES CODE

While on board a vessel subject to inspection, a crewmember (including a licensed individual), pilot or watchstander not a regular member of the crew:

1. Shall not perform or attempt to perform any scheduled duties within four hours of consuming **any** alcohol;
2. Shall not be intoxicated at any time;
3. Shall not consume any intoxicant while on watch or duty; and,
4. May consume a legal non-prescription or prescription drug provided the drug does not cause the individual to be intoxicated.

RESPONSIBILITY FOR COMPLIANCE

The marine employer shall exercise due diligence to assure compliance with the applicable provisions of this part. If the marine employer has reason to believe that an individual is intoxicated, the marine employer shall not allow that individual to stand watch or perform other duties.

PENALTIES

An individual who is intoxicated when operating a vessel shall be:

1. Liable for a civil penalty of not more than \$1000;
2. Fined not more than \$5000, imprisoned for not more than one year, or both.

An individual holding a Coast Guard license or document who is found to be in violation of these regulations may also be subject to suspension and revocation proceedings.

DRUG TESTING PROGRAM REQUIREMENTS

These regulations apply to all individuals acting under the authority of a License, Certificate of Registry or MMD, and to individuals employed on U.S. vessels required to be operated by individuals holding a License or MMD. Persons whose duties do not affect the safety of the vessel's navigation or operations are excluded. The following occasions require drug testing:

PRE-EMPLOYMENT

All new employees must be drug tested before being hired. This test may be waived if the individual provides satisfactory evidence that s/he has passed a chemical test for dangerous drugs within the previous six months with no subsequent positive drug tests during the remainder of the six month period; or, during the previous 185 days has been subject to a random testing program for at least 60 days and did not fail or refuse to participate in a chemical test for dangerous drugs. The employer shall maintain and have readily available all dates of employment.

PERIODIC

Whenever a physical examination for a license or document is required by the U.S. Coast Guard, that examination must include a test for dangerous drugs. This test may be waived under the same circumstances noted above.

RANDOM

Employers are required to implement a random drug testing program. This regulation applies to crewmembers on inspected vessels who occupy a position required by the vessel's COI, act as patrolmen or watchmen, or assist passengers in any way during an emergency. It applies to crewmembers on uninspected vessels who are required to hold a Coast Guard license, perform duties related to the safe operation of the vessel, act as patrolmen or watchmen, or assist passengers in any way during an emergency. At least 50% of required personnel must be randomly tested. Once the 50% has been met, the personnel shall still be subject to random testing for the remainder of the year or operating season (if the program is only in effect for the operating season, a fraction of 50% of the employees would need to be tested, based on the number of total months of operation). Within the required employer's policy, the methodology for random selection must be described.

POST CASUALTY

All persons directly involved in a serious marine incident (**46 CFR 4.03-2**) must be tested for evidence of dangerous drugs and alcohol. The test for alcohol must be done within two hours to ensure accurate results. The drug test must be completed within thirty-two hours.

REASONABLE CAUSE

Crewmembers shall submit to chemical testing when the employer has a reasonable belief that the individual has used a dangerous drug. This belief must be based on the observation of specific physical, behavioral or performance indicators. The fact that the crewmember has been directed to undergo testing should be entered in the vessel's log. If the individual refuses to undergo the required test this should also be logged.

HIRING CREWMEMBERS "ACROSS THE DOCK"

If a crewmember is employed by multiple operators, regardless of how often or for how long, it is not necessary to be in each employer's random program. Instead, each operator needs to generate a letter to the other(s). The operator whose program the crewmember is in needs to send a letter to the other operator(s) stating that the crewmember passed a pre-employment test, and that the other operator(s) will be notified if the crewmember tests positive on any drug test or refuses to take a drug test. This letter shall be signed by the operator generating the letter, the crewmember, and all operators who employ the crewmember. The other operator(s) need to generate a letter stating that if the crewmember is drug tested for reasonable cause, for post casualty, or refuses to take a drug test, the operator whose random program the crewmember is enrolled in will be notified. This letter needs to be signed by the operator generating the letter, the crewmember, and the operator whose random program the crewmember is enrolled in.

RECORDS

Employers must maintain records of chemical tests which are reported by the Medical Review Officer as positive for a period of five years. These records shall be made available to the Coast Guard upon request. Records of negative tests must be maintained for a period of one year. Annual filing of the Management Information System (MIS) report to G-MOA shall be filed by operators not using a consortium, and required to be addressed within the literature provided by a consortium for those operators using one. The MIS report includes information on the total number of individuals chemically tested annually for dangerous drugs in each of the categories of testing required, the number of individuals failing the tests and the number and types of drugs for which individuals tested positive. If the vessel's drug program is not handled by a consortium, there must be a letter on file indicating the Medical Review Officer's (MRO's) qualification for this duty and non-affiliation with the lab used.

STANDARDS FOR CONDUCTING TESTS

Chemical tests for dangerous drugs must be conducted under the guidelines set forth in 46 CFR Part 40. These guidelines are quite extensive and include specific requirements for approval of testing laboratories, collection sites, security of specimens, controlling access to specimens, ensuring the privacy of the person providing the specimen, ensuring that the integrity of the specimen is maintained, and use of collection kits which meet regulations. Once the specimen is collected a chain of custody must be maintained, the laboratory selected to conduct the testing must be one approved by the U.S. Department of Health and Human Services, and any confirmed positive tests must be referred to a MRO. The MRO shall review and interpret positive tests and report his findings to the employer.

EMPLOYEE ASSISTANCE PROGRAM

Each employer shall provide an Employee Assistance Program (EAP) for all crewmembers. The program can be part of the employer's internal personnel services or it can be contracted through an outside source. Each program must contain an education program and a training program. The education program must include at least the following elements:

1. Display and distribution of informational material.
2. Display and distribution of a community service hot-line telephone number
3. Display and distribution of the employer's policy regarding drug and alcohol use in the workplace.
4. Training on the effects and consequences of drug and alcohol use on personal health, safety, and work environment.
5. Training on the manifestations and behavioral cues that may indicate drug and alcohol use and abuse.
6. Documentation of training given to crewmembers and the employer's supervisory personnel; supervisory personnel must receive at least 60 minutes of training.

CHEMICAL TESTING PROGRAM CHECKLIST

The forms used by USCG Marine Inspectors to determine if Marine Employers are in compliance with the chemical testing requirements of 46 CFR Part 16, and 49 CFR Part 40 are available upon request from your local inspector. Please feel free to use the checklist to prepare for your future inspections.

ANNUAL MIS REPORTING: (46 CFR Part 16.500)

SUBCHAPTER K

The Interim Final Rule published in the Federal Register on January 10, 1996 created an entirely new set of regulations to cover larger "small" passenger vessels of less than 100 gross tons. The new regulations are contained in **Subchapter K, 46 CFR 114-122**, and apply to vessels less than 100 gross tons which:

1. Carry more than 150 passengers; or
2. Have overnight accommodations for more than 49 passengers.

Furthermore, vessels of less than 100 gross tons which:

1. Carry more than 600 passengers; or
2. Have overnight accommodations for more than 150 passengers

When directed by subchapter K, shall comply with additional regulations found in the following:

Subchapter H, Construction and Arrangement, 46 CFR Part 72.

Subchapter H, Fire Protection Equipment, 46 CFR Part 76.

Subchapter F, Marine Engineering, 46 CFR Parts 50-64.

Electrical Engineering, Subchapter J, 46 CFR Parts 110-139.

This section of the guide identifies all portions of Subchapter K which apply to existing vessels. Lifesaving and firefighting requirements are covered in detail. Other sections contain only new requirements for existing vessels, major deviations from Subchapter T regulations, and a summary of other new vessel regulations.

LIFESAVING EQUIPMENT

Lifesaving requirements are found in Part 117 of Subchapter K. Existing vessels must comply with the new regulations (described in this section) by March 11, 1996 except as otherwise stated. "Same as Subchapter T" indicates that the noted sections are identical to those found in the new version of Subchapter T, including implementation dates for specific regulations.

EPIRBs Same as Subchapter T.

DISTRESS FLARES AND SMOKE SIGNALS Same as Subchapter T.

RING LIFE BUOYS AND LIFE JACKETS Same as Subchapter T.

SURVIVAL CRAFT New survival craft requirements must be met by existing vessels by March 11, 2001, or 10 years after the vessel's keel was laid. Survival craft onboard vessels before March 11, 1996 may continue to be used to meet these requirements as long as they are in good and serviceable condition. New and replacement survival craft must meet the new regulations. The following summary of the number and type of survival craft required is taken from **46 CFR 117.200**.

ILR = inflatable liferaft, IBA = inflatable buoyant apparatus,
LF = life float

Route	New	Type
Oceans		
Cold water, all vessels	100%	ILR
Warm water, with overnight accommodations	100%	IBA
Warm water, without overnight accommodations	67%	IBA
Coastwise		
With overnight accommodations	100%	IBA
Cold water, no overnight accommodations	67%	IBA
Warm water, no overnight accommodations	100%	LF
Any water, within 3 miles of shore, with a 406 Mhz EPIRB	50%	LF

Limited Coastwise		
With overnight accommodations	100%	IBA
No overnight accommodations	67%	IBA
Cold water	50%	LF
Cold water, within 3 miles of shore, with a 406 Mhz EPIRB	50%	LF
Warm water, within 3 miles of shore, with a 406 Mhz EPIRB	None	None
Lakes, Bays & Sounds		
With overnight accommodations	67%	IBA
Cold water, no overnight accommodations	100%	LF
Warm water, no overnight accommodations	50%	LF
Any waters, within 1 mile of shore	None	None
Rivers		
Cold water	50%	LF
Cold water, within 1 mile of shore	None	None
Warm water	None	None

Substitutions are permitted in some cases per **46 CFR 117.200(c)**.

SURVIVAL CRAFT EQUIPMENT, STOWAGE, ETC. Same as Subchapter T.

FIRE PROTECTION EQUIPMENT

Existing vessels may continue to comply with old fire protection equipment regulations, except in the following cases:

Vessels with a hull, or a machinery space boundary bulkhead or deck, composed of wood or fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic must comply with the fixed gas fire fighting and detecting systems on or before March 11, 1999.

FIRE PUMPS

All Subchapter K boats are required to have a self priming, power driven fire pump. On vessels with overnight accommodations for not more than 49 passengers, the pump must be capable of delivering pressure of 50 psi at the highest hydrant. On vessels with overnight accommodations for more than 49 passengers, the pump must meet the requirements of 46 CFR 76.10-5 (Subchapter H).

HOSES AND NOZZLES

Unlike certain Subchapter T vessels, garden type hoses may not be used on Subchapter K vessels. All hoses must be lined, commercial fire hoses approved by UL 19. Nozzles must be approved under 46 CFR 160.027.

FIXED FIRE EXTINGUISHING AND DETECTING SYSTEMS

The following spaces must be equipped with a fixed gas fire extinguishing system:

1. A space with propulsion machinery.
2. A space with an internal combustion engine of more than 50 hp.
3. A space with an oil fired boiler.
4. A paint locker.
5. A storeroom with flammable liquids.

The following spaces must be equipped with a fixed fire detecting system:

1. A space with propulsion machinery.
2. A space with an internal combustion engine of more than 50 hp.
3. A space with an oil fired boiler.

Details concerning the design and installation of these systems are found in **46 CFR 118.410**.

PORTABLE FIRE EXTINGUISHERS

The portable fire extinguisher requirements are identical to those of the new Subchapter T regulations (46 CFR 181.500).

ADDITIONAL EQUIPMENT

Subchapter K vessels, more than 65 feet long, must have a fire axe in or near the primary operating station. Unlike new Subchapter T vessels, Subchapter K vessels are not required to have fire buckets.

MACHINERY INSTALLATION

New installations of machinery, bilge, and ballast system equipment, steering equipment, and piping systems must meet the new regulations. Replacement of existing systems may continue to meet the old regulations.

Existing vessels must comply with the bilge high level alarm requirements of **46 CFR 119.530** on or before March 11, 1999. Such a system includes a visual and audible alarm at the operating station to indicate high water in each of the following spaces:

1. A space with a through hull fitting below the deepest load waterline.
2. A machinery space bilge, bilge well, shaft alley, or other space subject to flooding from sea water piping from within the space.
3. A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

A visual indicator must be provided at the operating station to indicate when any automatic bilge pump is operating.

WATER HEATERS 46 CFR 119.320

Water heaters rated at more than 100 psig or 250 degrees_Fahrenheit must meet the requirements of Parts 52 and 63 of Subchapter F.

Water heaters rated at not more than 100 psig or 250 degrees_Fahrenheit must meet the requirements of Parts 53 and 63 of Subchapter F.

A water heater rated at not more than 100 psig or 250_degrees Fahrenheit need not meet the requirements of Subchapter F if it:

1. Has a capacity of not more than 120 gallons,
2. Has a heat input of not more than 200,000 Btu per hour,
3. Is listed under UL 174 or UL 1453, and
4. Is protected by a pressure-temperature relief device.

FUEL RESTRICTIONS 46 CFR 119.405

The use of any fuel, other than diesel fuel, for any internal combustion engine (except gasoline outboards) is prohibited on Subchapter K vessels.

ENGINE COOLING

The engine head, block, and exhaust manifold must be water jacketed and cooled by water from a pump that operates whenever the engine is operating. Unless a closed fresh water system is used, a hull strainer must be installed in the raw water intake line.

BILGE PUMPS **46 CFR 119.520**

Subchapter K vessels must be equipped with installed, power bilge pumps in accordance with the table 56.50-55(a), which is duplicated in part below:

Vessel length	International voyages	Ocean and Coastwise voyages	All other voyages
180 or more	3	3	2
over 65', less than 180'	3	2	2
65' or less	3	1	1

Exceptions to this are found in 46 CFR 56.50-55(a)

Vessels 65' or less must also be equipped with a second pump capable of dewatering any watertight compartment. This pump may be either an independently powered power pump, or a hand pump.

Steering systems must comply with the requirements of Subchapters F (marine engineering) and J (electrical engineering).

Other machinery requirements are similar to those of the new Subchapter T regulations.

ELECTRICAL INSTALLATIONS

Electrical systems requirements are found in **46 CFR 120** of Subchapter K. Existing vessels are not required to meet the new regulations, except in the following cases:

1. New installations of electrical equipment must meet the new regulations. Replacement of equipment installed before March 11, 1996 need not meet the new regulations.
2. Repair or replacement of cable and wire must meet the new regulations. New regulations covering cable and wire are found in **46 CFR 120.340**.
3. Existing vessels must meet the navigational light requirements of **46 CFR 120.420**. This regulation requires all vessels to have navigation lights in compliance with the International and Inland Navigation Rules. These requirements were previously found only in 33 CFR 81. Vessels over 65 feet in length must have navigation lights that meet UL 1104.
4. Existing vessels must be equipped with at least two portable battery lights after March 11, 1996. One such light must be at the operating station, the other at the access to the engine room.

The Subchapter K regulations are generally more stringent than those of the new Subchapter T regulations. Subchapter K vessels with an electrical installation operating at less than 50 volts may meet the requirements of the new Subchapter T regulations.

VESSEL CONTROL AND MISCELLANEOUS SYSTEMS

These requirements are found in **46 CFR 121** of Subchapter K. Existing vessels are required to meet the new regulations.

PUBLIC ADDRESS SYSTEM

This section is nearly identical to the corresponding section of the new Subchapter T, **46 CFR 184**, including the requirement for a public address system.

RADAR

Unlike Subchapter T, **46 CFR 121.404** requires all Subchapter K vessels to have radar, except for ferry vessels on rivers routes, within one mile of shore, and other vessels on restricted routes specifically exempted by the OCMI.