

UNITED STATES COAST GUARD
SECTOR UPPER MISSISSIPPI RIVER

SMALL PASSENGER VESSEL
INFORMATION PACKAGE

PREFACE

This document was created to provide assistance to both existing passenger vessel owners and persons seeking to obtain certification for new vessels. In it you will find guidance on topics ranging from construction, the certification process, marine casualty reporting requirements, crew training and required drug testing. Although it is thorough, it should not be used in place of the specific regulations applicable for your vessel. It is highly recommended that you purchase a copy of the applicable Federal Regulations from the government printing office (202) 512-2250.

INDEX

SECTION A ***INTRODUCTION***

Introduction to the Passenger Vessel Inspection Package.....	A-1
About the Coast Guard Sector Upper Mississippi River.....	A-2
Introduction to the Certification of Small Passenger Vessels	A-4
Appeals.	A-5
Certification Process	A-6
Annual Inspection Requirements Once Your Vessel is Certificated.....	A-7
Drydocking Inspection Requirements Once Your Vessel is Certificated.....	A-8
Scheduling an Inspection	A-9
Preparing Your Vessel for Inspection	A-9
Vessel Routes.....	A-10
Required Manning.....	A-11
Determining Maximum Passengers.....	A-13

SECTION B ***PLAN SUBMITTAL***

Submitting Plans and Gaining Approval.....	B-1
General Requirements for Plans.....	B-4
Midship Section Plans.....	B-5
Outboard Profile Plans	B-8
Inboard Profile Plans.....	B-10
Arrangement of Decks Plans.....	B-12
Machinery Installation Plans.....	B-14
Electrical Installation Plans.....	B-16
Fuel tank Plans	B-18
Piping Systems Plans	B-20
Bulkhead & Deck Penetration and Shell Connection Plans	B-22

SECTION C ***LIFE SAVING EQUIPMENT REQUIREMENTS***

Life Preservers	C-1
Survival Craft.....	C-3
Ring Life Buoys	C-6
Pyrotechnic Distress Signals	C-8
First Aid Kits.....	C-9
Rescue Boat.....	C-10

SECTION D
FIRE FIGHTING AND DETECTING EQUIPMENT REQUIREMENTS

Power Driven Fire Pumps	D-1
Fire Main System	D-2
Fixed Gas Fire Extinguishing Systems	D-3
Portable Fire Extinguishers	D-5
Fire Axe	D-6
Fire and Smoke Detection Systems	D-7

SECTION E
VESSEL CONTROL REQUIREMENT

Compass	E-1
Radars ..	E-2
Radios ..	E-3
Sound Signals.....	E-5
Internal Communication Systems	E-7
Propulsion Engine Control Systems.....	E-8

SECTION F
STABILITY & SUBDIVISION REQUIREMENTS

Stability Tests.....	F-1
Collision Bulkheads	F-3
Subdivision Bulkheads.....	F-5
Hatches.	F-6
Watertight Coamings	F-7
Hull Penetrations.....	F-8
Drainage of Weather Decks	F-9

SECTION G
MISCELLANEOUS REQUIREMENTS

Bilge & Bilge Level Alarm Systems	G-1
Diesel Fuel System Requirements.....	G-5
Gasoline Fuel System Requirements.....	G-9
Ventilation System Requirements	G-10
Marine Sanitation Devices Requirements	G-12
Steering System Requirements.....	G-13
Railing Requirements.....	G-14

SECTION H
OPERATIONS

Marine Casualties and Reporting Requirements	H-1
Crew Requirements	H-3
Passenger Safety Requirements	H-5
Required Documents	H-6
Notification of Repairs and Alterations.....	H-7
Pollution Response.....	H-8
Pollution Reporting Requirements.....	H-9
Use of Dispersants.....	H-10
Penalties	H-11

SECTION I
DRUG TESTING PROGRAM REQUIREMENTS

Required Elements of a Drug Testing Program	I-1
Tests Required by the Regulations.....	I-5
Ensuring Your Program is in Compliance.....	I-8

USEFULL WEB SITES

U.S. COAST GUARD SECTOR UPPER MISSISSIPPI RIVER

www.uscg.mil/d8/sector/umr/index.html

U.S. COAST GUARD MARINE SAFETY CENTER

www.uscg.mil/hq/msc/default1.htm

**U.S. COAST GUARD HEADQUARTERS
OFFICE OF**

MARINE SAFETY AND ENVIRONMENTAL PROTECTION

www.uscg.mil/hq/g-m/gmhome.htm

CODE OF FEDERAL REGULATIONS

www.access.gpo.gov/nara/cfr/index.html

FCC FORMS

www.fcc.gov/formpage.html

PASSENGER VESSEL ASSOCIATION

www.passengervessel.com

AMERICAN BOAT AND YACHT COUNCIL

<http://abyc.com/>

AMERICAN BUREAU OF SHIPPING

www.eagle.org

SECTION A

INTRODUCTION

<u>Introduction to the Passenger</u>	
<u>Vessel Inspection Package.....</u>	<u>A-1</u>
<u>About the Coast Guard Marine Safety</u>	
<u>Office.....</u>	<u>A-2</u>
<u>Introduction to the Certification of</u>	
<u>Small Passenger Vessels.....</u>	<u>A-4</u>
<u>Appeals.....</u>	<u>A-5</u>
<u>Certification Process.....</u>	<u>A-6</u>
<u>Annual Inspection Requirements</u>	
<u>Once a Vessel is Certificated.....</u>	<u>A-7</u>
<u>Drydocking Inspection Requirements</u>	
<u>Once a Vessel is Certificated.....</u>	<u>A-8</u>
<u>Scheduling an Inspection.....</u>	<u>A-9</u>
<u>Preparing your Vessel for Inspection</u>	<u>A-9</u>
<u>Vessel Routes.....</u>	<u>A-10</u>
<u>Required Manning.....</u>	<u>A-11</u>
<u>Determining Maximum Passengers.....</u>	<u>A-13</u>

Introduction to this Guide

Introduction

This guide applies to vessels less than 100 gross tons, carrying more than 6 passengers and at least one of which who is a passenger for hire.

Although extensive, this guide is not meant to be all-inclusive or to replace the regulations regarding passenger-carrying vessels. It is designed to provide an introduction to the regulations.

Getting a Copy of the Regulations

If you do decide to have your passenger vessel Coast Guard certificated, we strongly recommend that you obtain a copy of the applicable federal regulations.

Ensure you have a copy dated October 1, 1998 or later. To remain fully up to date with federal regulations, navigate your web browser to the government's internet web site at: www.access.gpo.gov/nara/cfr/cfr-table-search.html

Printed copies can be obtained from the government printing office (202) 512-2250. They accept Visa or MasterCard. Ask for 46 CFR Parts 166 to 199 if your vessel carries 150 or less passengers and Parts 90 to 139 if your vessel carries more than 150 passengers.

Using This Guide

This guide is divided into sections A thru I, which relate to specific topics covered by the regulations.

Throughout this guide you will find regulatory cites used as references. Those cites marked with **(T)** as a suffix apply to those vessels carrying 150 passengers or less, or vessels that have overnight accommodations for 49 or less passengers. Regulatory cites marked with **(K)** as a suffix are applicable to vessels carrying more than 150 passengers, or vessels that have overnight accommodations for more than 49 passengers. These references are general in scope and may lead you to other applicable regulations.

Within each section there are numbered pages that correspond with each subtopic (e.g., A-1, B-1, etc.) we hope this makes your search for topics of interest easier.

Summary

We hope this package will help answer questions you have about passenger carrying vessels. If you have additional questions contact our office.

About the Coast Guard Sector Upper Mississippi River

Introduction

Coast Guard Sector Upper Mississippi River is located in the Robert A. Young Federal building in St. Louis, MO.

Our address is:

USCG Sector Upper Mississippi River
1222 Spruce St., Suite 8.104E
St. Louis, MO 63103-2835

Calling our office:

Vessel Inspections (314) 269-2500
(7:30am to 4:00pm)

After Hours Emergencies (319) 534-7511 (24 hours)

Sending us a fax:

(314) 539-2659

Introduction to the Certification of Small Passenger Vessels

Introduction

The Vessel Inspections Division at Sector UMR has the responsibility for inspecting all passenger vessels that operate in the St. Louis OCMI zone. This zone encompasses the states of Iowa, Illinois, Missouri, and portions of Nebraska, Arkansas, Kansas, Minnesota, North and South Dakota, Wyoming, Wisconsin and Colorado.

Federal Regulations

Title 46 of the Code of Federal Regulations, Subchapter K, Parts 114 to 122 and Subchapter T, Parts 175 to 187, govern the inspection and operation of small passenger vessels. These regulations will be used to inspect your vessel.

Passenger for Hire

Passenger for hire means 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 persons having an interest in the vessel.

Uninspected Passenger Vessel

A passenger vessel less than 100 gross tons, that carries 6 or less passengers is not required to be inspected by the U. S. Coast Guard. These vessels are sometimes referred to as "6-pack vessels", and are required to be operated in accordance with *46 CFR Parts 24-28, commonly referred to as Subchapter "C"*.

The person in charge of an uninspected vessel must hold, as a minimum, a valid U.S. Coast Guard license as operator of an uninspected passenger vessel.

Appeals

Introduction

It is your right as the owner or operator of your vessel to appeal any decision or a requirement issued by a Marine Inspector.

Procedure

Your first step in the appeal process is to write a letter to the OCMI explaining why you disagree with the requirement(s) written by the Marine Inspector. This letter should be submitted to Sector UMR in accordance with 46 CFR Part 1.03-20.

If the OCMI denies your request and you are still not satisfied, you have the right to continue your appeal “up the chain of command” in the order as follows:

You may next appeal to the 8th Coast Guard District, Marine Safety Division, New Orleans, LA, in accordance with 46 CFR 1.03-25.

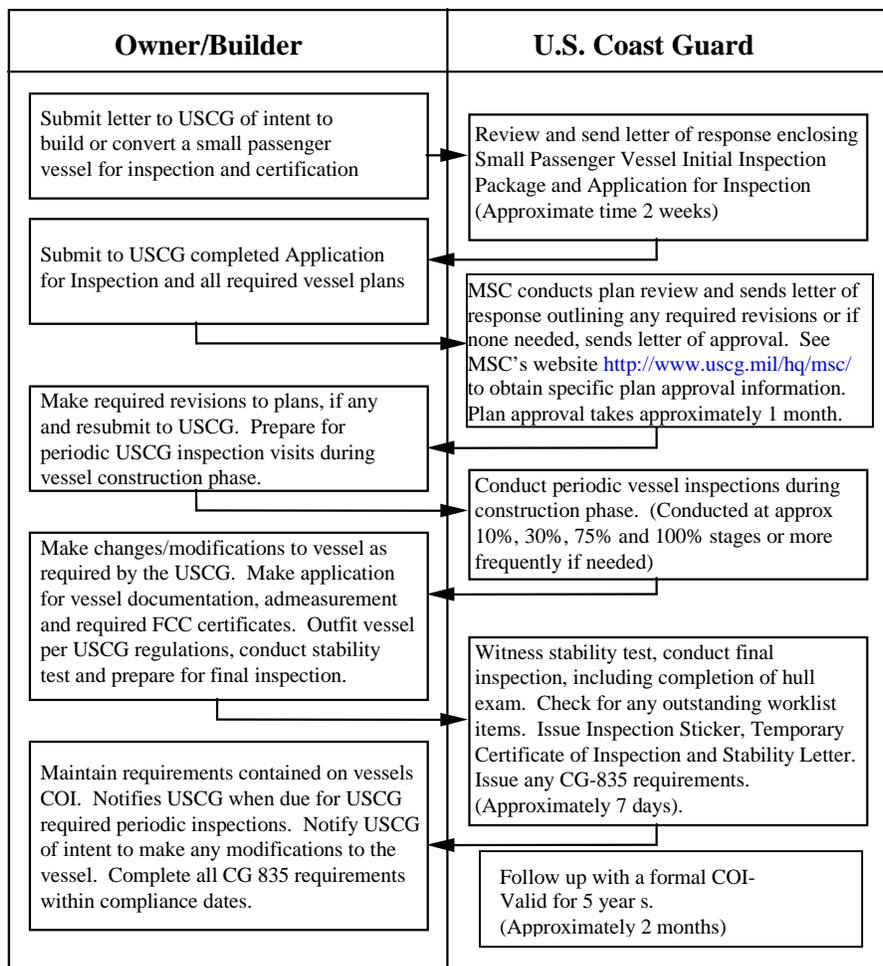
Finally, you have the right to appeal to the Commandant of the Coast Guard, Washington, D.C., in accordance with 46 CFR 1.03-15.

Certification Process

Introduction

The process of certifying a vessel takes approximately 6 months. The time can vary considerably but ultimately depends on the quality and quantity of the information submitted in the plans, whether the vessel is a new construction project or a conversion, and how prepared the vessel is for inspection.

The flow chart illustrated below lists all the steps for new build certification.



Inspection Requirements Once Your Vessel is Certificated

Inspection Intervals

Your vessel is issued a Certificate of Inspection (COI) valid for a period of 5 years. You must receive a triennial inspection prior to the expiration of the COI. No extension of the expiration date is allowed.

On the annual anniversaries of your vessel's COI issuance date, your vessel must be **reinspected**. This is done to ensure your vessel is being maintained in accordance with the regulations. The reinspection must be conducted within 90 days **before or after** the COI anniversary date for the certificate to remain valid.

In general, the reinspection will consist of a visit to your vessel by a Coast Guard marine inspector who will examine the internal and external condition of your vessel's hull and assess the status of your vessel's documentation, lifesaving, firefighting, navigation, and machinery equipment.

Deficiencies (CG-835's)

Any equipment, machinery or structural items found by the inspector to be deficient will be required to be corrected within a defined period of time.

The inspector will provide you with a list of items found deficient and needing correction. These items are listed on a Coast Guard Form CG-835.

The Marine Inspector may allow your vessel to continue to operate provided the deficiencies are corrected prior to the 835's established deadline date. Some items, such as those involving lifesaving or firefighting equipment, may be required to be fixed prior to your vessel carrying passengers.

Drydocking and Internal Structural Exam Inspection Requirements once Your Vessel is Certificated

Dry-docking Intervals

All vessels are required to dry-dock at intervals as follows:

2 Years – Vessels that are exposed to salt water more than 3 months in any 12-month period.

5 Years – Vessels that are exposed to salt water not more than 3 months in any 12-month period. (*most vessels in this zone*)

Note: *The Inspections Division must be notified before your vessel is ever dry-docked (for any reason).*

Dry-docking or Hauling Out

You must accomplish the following steps prior to the arrival of the Coast Guard marine inspector:

(Note: This information and other safety related, and scheduling information is detailed in CID Memo #6)

- Clean the hull (***do not paint the vessel prior to the Inspector's arrival***)
- Remove all sea strainers
- Open all sea valves (within 6" of the waterline and below). The inspector will need to examine valve surfaces and valve seats
- Remove all deck plates needed to gain access to hull plating.
- Open and ventilate all internal spaces
- Clean all water and oily water from the bilges
- Ensure a 32 inch under keel clearance that is free of debris is maintained while the vessel is on dock.

The marine inspector will inspect all items as listed above and inspect the vessel's shaft(s), shaft bearing(s), propeller(s) and rudder(s). If necessary, the inspector may require that the propeller(s) or shaft(s) be pulled for inspection, and based on the condition of the hull, may require gauging to further determine its condition.

Note: Water lubricated shaft bearings and rudder bushings shall be renewed if any water groove is found to be worn down to half or more of its original depth.

Scheduling an Inspection

Application for Inspection

You must schedule an inspection by either filling out and submitting an application for inspection form (CG-3752) or contacting the Inspections Division directly at (314) 269-2500.

Please note that it is your responsibility to schedule a time and date to have a marine inspector visit your vessel. You will need to contact the Inspections Division to schedule inspections for COIs, Reinspections, Drydock Exams, and any required follow-up visits.

We recommend that you contact the Inspections Division several weeks in advance to schedule an inspection. This allows the staff time to make travel arrangements and to block off time in their schedules.

Preparing your Vessel for Inspection

(Note: This information and other safety related, and scheduling information is detailed in CID Memo #6)

Prior to inspection, we encourage you to prepare by using the [pre-inspection checklist](#) that was developed as a supplement to this guide. Although not all-inclusive, it will provide you with an overview of the items the inspectors may check. It will also help expedite the inspection process. Additional copies of the pre-inspection guide may be obtained from Sector UMR's web site (*see page iii*).

If the scope of the inspection requires the marine inspector to enter a confined space aboard your vessel, you must obtain a Marine Chemist's Certificate that certifies the space is safe for workers. If more than 24 hours has lapsed since the chemist's certificate was issued and confined space entry is required, the marine inspector will need to view the daily, competent-person's test results.

If your vessel needs to be inspected while in dry dock, you must ensure a minimum of 32 inches of under keel clearance is provided for the inspector.

To prevent injury due to slips, trips, or falls, you must

ensure the marine inspector has adequate means of accessing your vessel, particularly if the vessel is in dry dock or at a repair facility. A firm walkway equipped with railings, or a ladder extending at least 36 inches above the upper landing surface that is adequately secured against shifting or slipping, are examples of adequate access.

Length of Inspections

The length of time it takes to complete an inspection varies from vessel to vessel. Having the vessel prepared prior to the marine inspector's arrival helps streamline the process. On average, a COI will take 2 to 2 1/2 hours, while a reinspection may only take 1 to 1 1/2 hours. A Drydock inspection should take approximately 2 hours depending on your vessel's age and size.

Vessel Routes

Introduction

The Certificate of Inspection specifies the route the vessel will be allowed to operate on while carrying passengers. Depending on the vessel's route, different construction and equipment requirements may apply.

Oceans

A route that is more than 20 nautical miles from shore.

Coastwise

A route that is not more than 20 miles from shore.

Limited Coastwise

A route that is not more than 20 miles from a harbor of safe refuge.

Lakes, Bays and Sounds

A route that is inshore of the boundary line on any lakes, bays or sounds.

Rivers

A route on the following waters: a river, a canal or such

other similar waters designated by the Coast Guard District Commander.

Note

The regulations often refer to the following descriptions of waters:

Exposed Waters- These normally include vessel on an Oceans and Coastwise Route.

Partially Protected Waters- Includes vessels on operating on Lakes, Bays and Sounds.

Protected Waters- Includes vessels on lakes and rivers.

Required Manning

Introduction

The Inspections Division evaluates each vessel and determines a safe manning level.

The vessel must have the required number of crewmembers on board while carrying passengers.

Master

All vessels are required to have a licensed master qualified for the type and tonnage of the vessel being operated.

Licensed Mate

Licensed Mates are required on all vessels carrying more than 150 passengers and/or having overnight accommodations for more than 49 passengers.

Senior Deckhand

A designated Senior Deckhand may replace the mate provided he or she is qualified under NVIC 1-91 guidelines. Crewmembers qualified as senior deckhand should be designated in writing by the master with a copy of the designation retained on board the vessel. A Senior Deckhand shall be capable of directing the emergency response actions of the vessel's crew. In the event the master becomes incapacitated, a senior deckhand must be capable of maneuvering the vessel and returning it to a position of safety.

You may obtain a copy of NVIC 1-91 from the Marine Safety Center Web site at:

<http://www.uscg.mil/hq/msc/>.

Required Manning *(Continued)*

Crewmembers

The following is provided as a reference.

Most "T" boats are required to have, as a minimum, 1 crewmember in addition to the Master. In addition a crewmember is normally required for each deck that is available to passengers.

The vessel will also be required to increase manning based on the amount of passengers the vessel is carrying. "T-Boats" are usually not required any additional manning.

The below table shows that additional manning is required of vessels regulated by Subchapter K, since they can carry more than 150 passengers.

Passengers on board	Not more than 12 hours operation	More than 12 hours operation
0-149	0	0
150-299	1	2
300-499	2	4
500-799	3	6
800 & Up	4	8

Determining Maximum Passengers – 46 CFR 176.113 & 177.820(T)

46 CFR 115.112 &

115.113(K)

Introduction

The maximum number of passengers permitted is determined by using one of the following criteria.

- Length of rail
- Deck area
- Fixed Seating

The method that provides for the greatest number of passengers may be used.

It is important to note that the maximum number of passengers permitted may be further limited by stability considerations.

Calculating

Different passenger capacity criteria (as described in the federal regulations) may be used on each deck of a vessel and added together to determine the total passenger capacity of the vessel.

Where seats are provided on a part of a deck and not on another, the number of passengers permitted may be the sum of the number permitted by the seating criterion for the space having seats and the number permitted by the deck area criterion for the space having no seats.

The length of rail criterion may not be combined with either the deck area criterion or the fixed seating criterion when determining the maximum passengers permitted on an individual deck.

Length of Rail Criteria

One passenger is allowed for each 30 inches of rail.

Rail space in congested areas, on stairways, or in a location that would block the vision of operator of the vessel cannot

be included.

Determining Maximum Passengers *(Continued)*

Deck Area Criteria

One passenger is allowed for each 10 square feet available for passenger use.

Areas occupied by the following shall be excluded:

- Concession stands
- Toilet and washrooms
- Companionways, stairway, etc.
- Spaces occupied by and necessary for handling Lifesaving equipment
- Spaces below deck not suitable for, or not normally used by passengers
- Interior passage-ways less than 30 inches wide
- Passage-ways on the open deck less than 18 inches wide.

Fixed Seating

One person per 18 inches of seat width.

Each sleeping berth in overnight accommodation spaces shall be counted as only one seat.

Fixed Seating Installations

Seating installations for passengers are required only when the number of passengers was determined by using the fixed seating criteria.

Seating must be arranged to allow for ready escape in case of fire or other casualty.

Aisles not over 15 feet long shall be 24 inches wide. Aisles over 15 feet long shall be 30 inches wide.

If seats are in rows the distance from seat front to seat back shall be not less than 30 inches.

SECTION B

PLAN SUBMITTAL

<u>Submitting Plans and Gaining Approval.....</u>	<u>B-1</u>
<u>General Requirements for Plans.....</u>	<u>B-4</u>
<u>Midship Section Plans.....</u>	<u>B-5</u>
<u>Outboard Profile Plans.....</u>	<u>B-8</u>
<u>Inboard Profile Plans.....</u>	<u>B-10</u>
<u>Arrangement of Decks Plans.....</u>	<u>B-12</u>
<u>Machinery Installation Plans.....</u>	<u>B-14</u>
<u>Electrical Installation Plans.....</u>	<u>B-16</u>
<u>Fuel Tank Plans.....</u>	<u>B-18</u>
<u>Piping Systems Plans.....</u>	<u>B-20</u>
<u>Bulkhead & Deck Penetration and Shell Connection Plans.....</u>	<u>B-22</u>

Submitting Plans - 46 CFR 177.202(T) and 46 CFR 116.202(K)

Vessel Under Construction

As the owner of a vessel requesting initial inspection for certification, you must, prior to the start of construction unless otherwise allowed, submit to the Marine Safety Center 3 copies of each of the following plans:

- Outboard profile
- Inboard profile
- Arrangement of decks

In addition, prior to receiving a Certification of Inspection you must submit the following information as applicable:

- Midship section.
- Survival craft embarkation stations.
- Machinery installation, *including but not limited to:*
 - Propulsion and propulsion control, including shaft details
 - Steering and steering control, including rudder details
 - Ventilation diagrams
 - Engine exhaust diagrams
- Electrical installation, *including but not limited to:*
 - Elementary one line diagram of the power system
 - Cable lists
 - Bill or materials
 - Type and size of generators and prime movers
 - Type and size of generator cables, bus tie cables, feeders, and branch circuit cable
 - Power, lighting, and interior communication panel boards with number of circuits and rating of energy consuming devices
 - Type of capacity of storage batteries
 - Rating of circuit breakers and switches, interrupting capacity of circuit breakers, and rating and setting of over-current devices
 - Electric plant load analysis

- Lifesaving equipment locations and installation
-

Submitting Plans *(Continued)*

Vessel Under Construction *(Continued)*

- Fire protection equipment installation, *including but not limited to:*
 - Fire main system plans and calculations
 - Fixed gas fire extinguishing system plans and calculations
 - Fire detecting systems and smoke detecting system plans
 - Sprinkler system diagram and calculations
 - Portable fire extinguisher types, sizes and locations
- Fuel tanks
- Piping systems including: bilge, ballast, hydraulic, sanitary, compressed air, combustible and flammable liquids, vents, sounding, and overflows
- Hull penetrations
- Marine sanitation device model number, approval number, connecting wiring and piping

For sailing vessels

- Masts, including integration into the ship's structure
- Rigging plan showing sail areas and centers of effort as well as the arrangement, dimensions, and connections of the standing rigging.

Plan Review/Approval

The Inspections Division at Sector UMR no longer conducts plan review. All plan review and approval is now conducted by the Marine Safety Center. Approved plans are returned with one copy retained by MSC, one copy to the vessel owner, and one copy for the cognizant OCMI.

Submit plans to: *U.S. Coast Guard Marine Safety Center
400 Seventh St. S.W.
Washington, D.C. 20590-0001*

Submitting Plans *(Continued)*

Vessels Already Constructed

If your vessel was constructed prior to plan approval or prior to receipt by MSC of the information previously discussed, you may be required to submit additional plans and information, or manufacturers' certifications of construction. Your vessel may also be subjected to testing including reasonable destructive testing. Additional inspections may be required to verify that the vessel complies with minimum construction requirements.

Sister Vessels

Plans are not required for a vessel that is a sister to one that is already certified, provided:

- Plans for the original vessel are on file with the Marine Safety Center or our department vessel files.
 - The owner of the plans authorizes their use.
 - The regulations used for the original plan approval have not changed since the original approval
 - There are no major changes to the systems to be used.
-

General Requirements for Plans

Introduction

All plans submitted for approval should have the following information marked on them

- Vessel name
- Official number
- Route
- Scale: *i.e.* ___ inches = ___ feet
- Plan identification
- Builder/Shipyard
- Hull identification number

Helpful Ideas

- Use of graph paper is recommended
 - Scaled drawings are preferred
 - List dimensions, measurements, & specifications
 - Photos if large enough & show sufficient detail may be submitted in addition to plans
 - Abbreviations may be used if they are defined or explained and clear to the reviewing officer
-

Midship Section Plans

Description

Midship Section and other Sections showing construction details:

- (1) Amidship
- (2) Bow at the collision bulkhead (*see page F-3*)
- (3) Immediately forward of the deckhouse
- (4) Transom

Where a vessel is to carry more than 49 passengers, the section views should also show the construction of the watertight bulkheads. Specify species of wood, grade of steel or aluminum, welding procedure and rod. All the dimensions are to be finished sizes.

Construction Details

Construction details are to show deck and hull plating or planking, and structural members including

- keel
 - planking
 - sheer clamps
 - bilge stringers
 - deck beams
 - columns
 - frames
 - floors
 - chine (if hard chine)
 - engine beds
 - fuel tank supports
 - fuel tank installation
-

Fastenings

The means of fastenings to include

- type
 - size
 - material of fastening
 - weld design
-

Midship Section Plans (*Continued*)

Fiberglass Reinforced Plastic

The layup of your vessel's hull must be shown in detail and include information such as:

- Size, type and manufacturer of **woven roving**
- Size, type and manufacturer of **mat**
- Type and manufacture of **resin**
- Layup schedule
- Joint details
- Burnout test results
- Tensile test results

Fire retardant resins are recommended, if fire retardant resins are not used, additional requirements for fixed fire fighting systems and restrictions from overnight accommodations will be imposed.

Summary

Drawings must clearly illustrate the necessary details of your vessel.

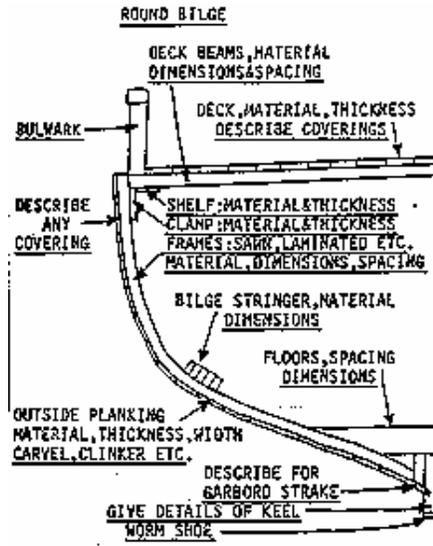
When plans are approved by MSC, one copy will be returned to you, one copy will be sent to the OCMI, and once copy will be retained by MSC.

Plans returned for revision must be corrected in accordance with the comments made in the MSC letter sent with the plans. Make all corrections as listed and ensure to address all comments.

Plans which are too small, indecipherable, incomplete or overly sloppy will not be reviewed.

Midship Section Plans (Continued)

Example

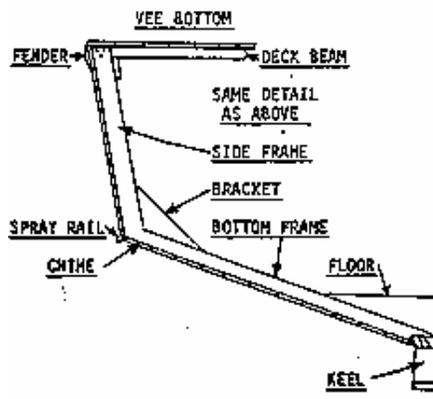


DRAWING SHOULD BE TO SCALE SHOULD INCLUDE THE FOLLOWING:

FASTENINGS: DESCRIBE MATERIAL, SPECIFYING, MONEL, COPPER, ETC. & SIZE.

(WIDTH OF PLANKING)	(NUMBER OF FASTENINGS IN EACH PLANK END)
UNDER-4"	3
BET.-4"-8"	4
BET.-8"-10"	5

GLUES: DESCRIBE MANUFACTURER & SPECIFIC TYPE. ALL GLUES USED IN THE CONSTRUCTION & LAMINATION OF STRUCTURAL MEMBERS ARE TO BE SUITABLE FOR MARINE APPLICATION I.E. RESORCINOL OR PHENOLIC RESORCINOL TYPES.



NOTE: THE MIDSHIP SECTION DRAWING SHOULD SHOW THE CONSTRUCTION DETAILS AT VARIOUS LOCATIONS ON THE VESSEL I.E. IN THE BOW AT THE COLLISION BULKHEAD, IMMEDIATELY FORWARD OF THE DECK HOUSE. IF THE VESSEL IS TO CARRY MORE THAN 49 PASSENGERS, THE SECTION VIEWS SHOULD ALSO SHOW THE CONSTRUCTION OF REQUIRED WATERTIGHT BULKHEADS.

Outboard Profile Plans

Information to be Included

The outboard profile must show the exterior view of the vessel as it appears or will appear when completed.

This view should show in solid outline the:

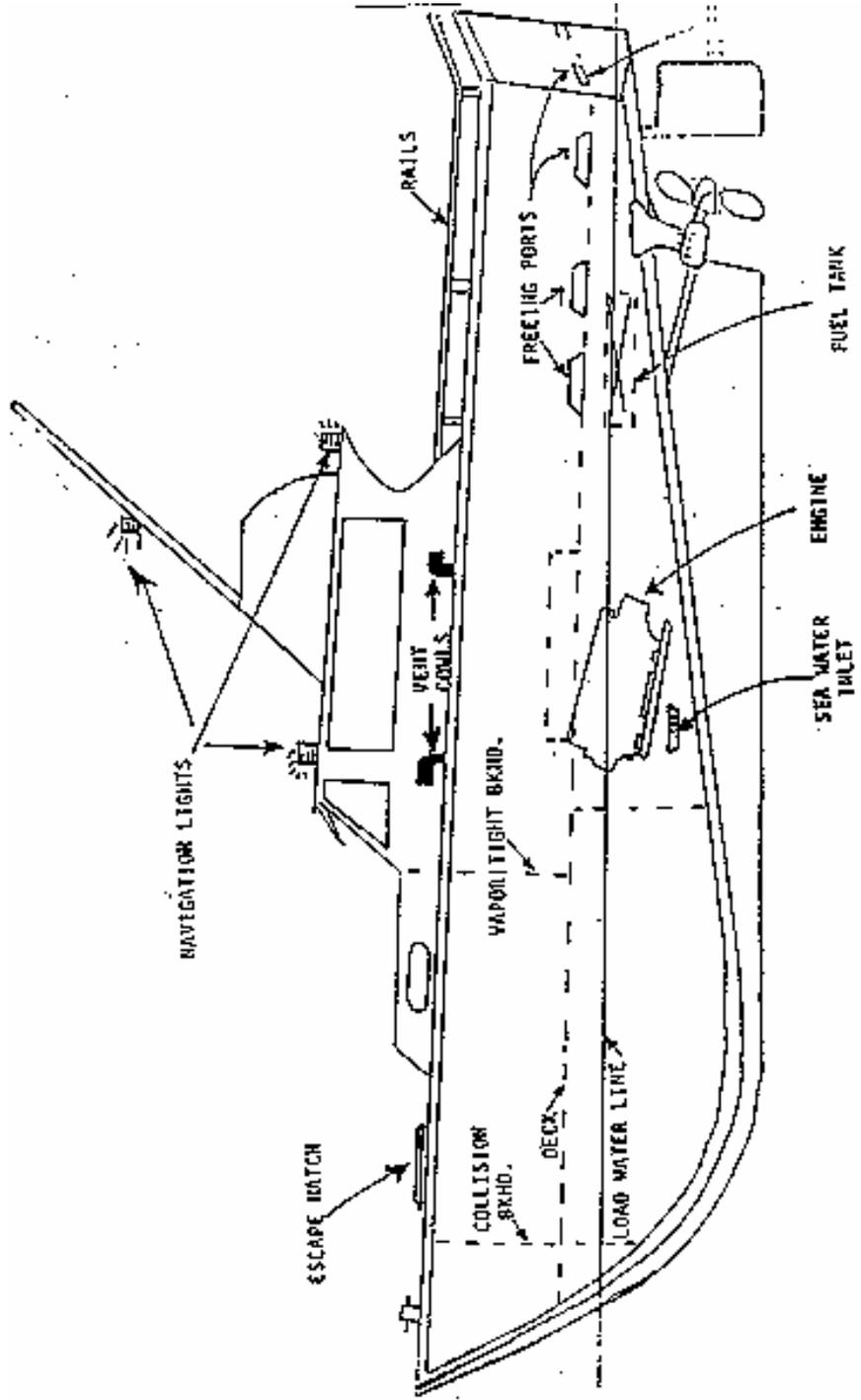
- Deckhouse
- Rudders
- Shafts
- Deck scuppers
- Port lights
- Bulkheads
- Safety rails
- Openings into the hull and deckhouse
- Keel
- Propellers
- Struts
- Freeing Ports
- Ventilation cowls
- Navigation lights
- Estimated load waterline

Dotted lines should show the outline of:

- Decks
 - Engines
 - Watertight hatches
 - Means of escape
 - Bulkheads
 - Fuel tanks
-

Outboard Profile Plans (Continued)

Example



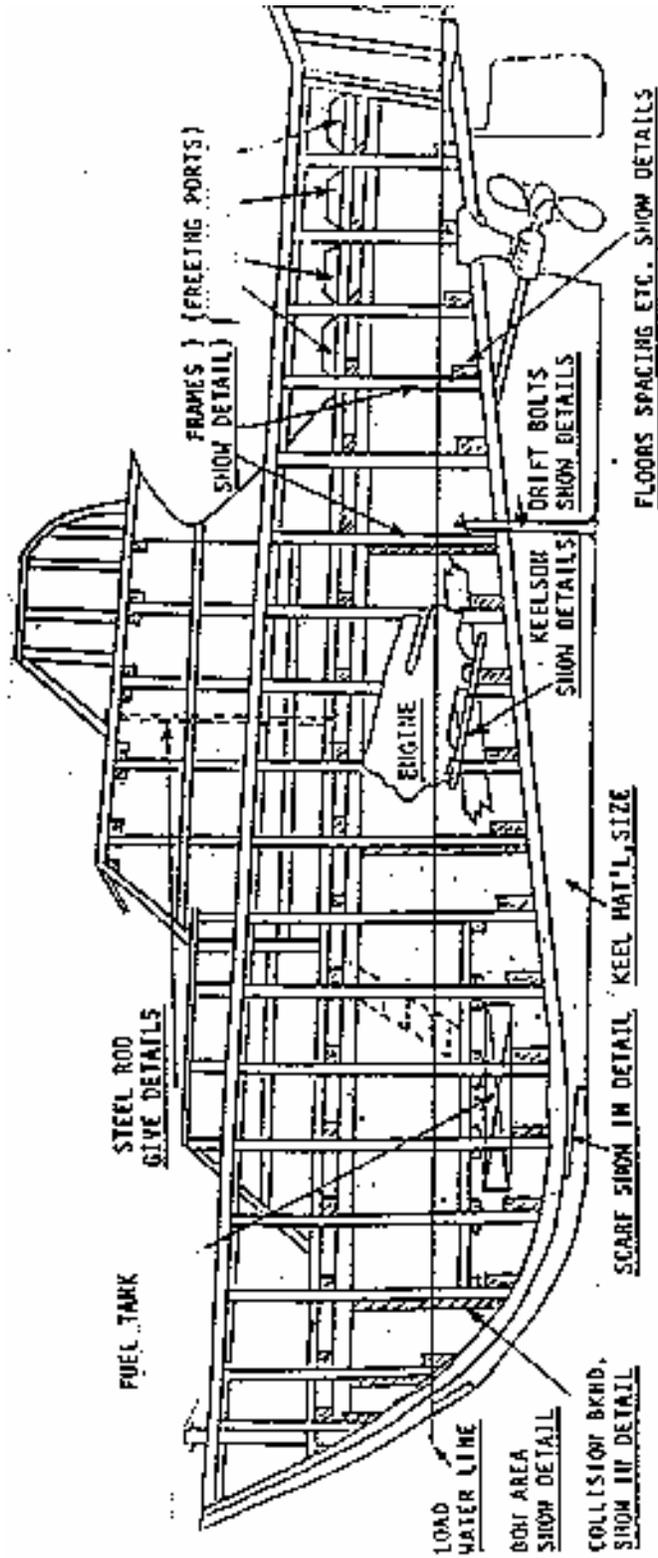
Inboard Profile Plans

**Information to be
Included**

Your inboard profile plan must show those internal structural members as listed under the midship sections and, in addition, the type of material used in construction (*species, in the case of wood*), location of decks, hatches, fuel tank, and engines.

Inboard Profile Plans (Continued)

Example



Arrangement of Decks Plans

Information to be Included Plan view of various decks are to show the locations of :

- All watertight and non-tight bulkheads
- Arrangements of all compartments
- All permanent installed equipment
- All portable installed equipment

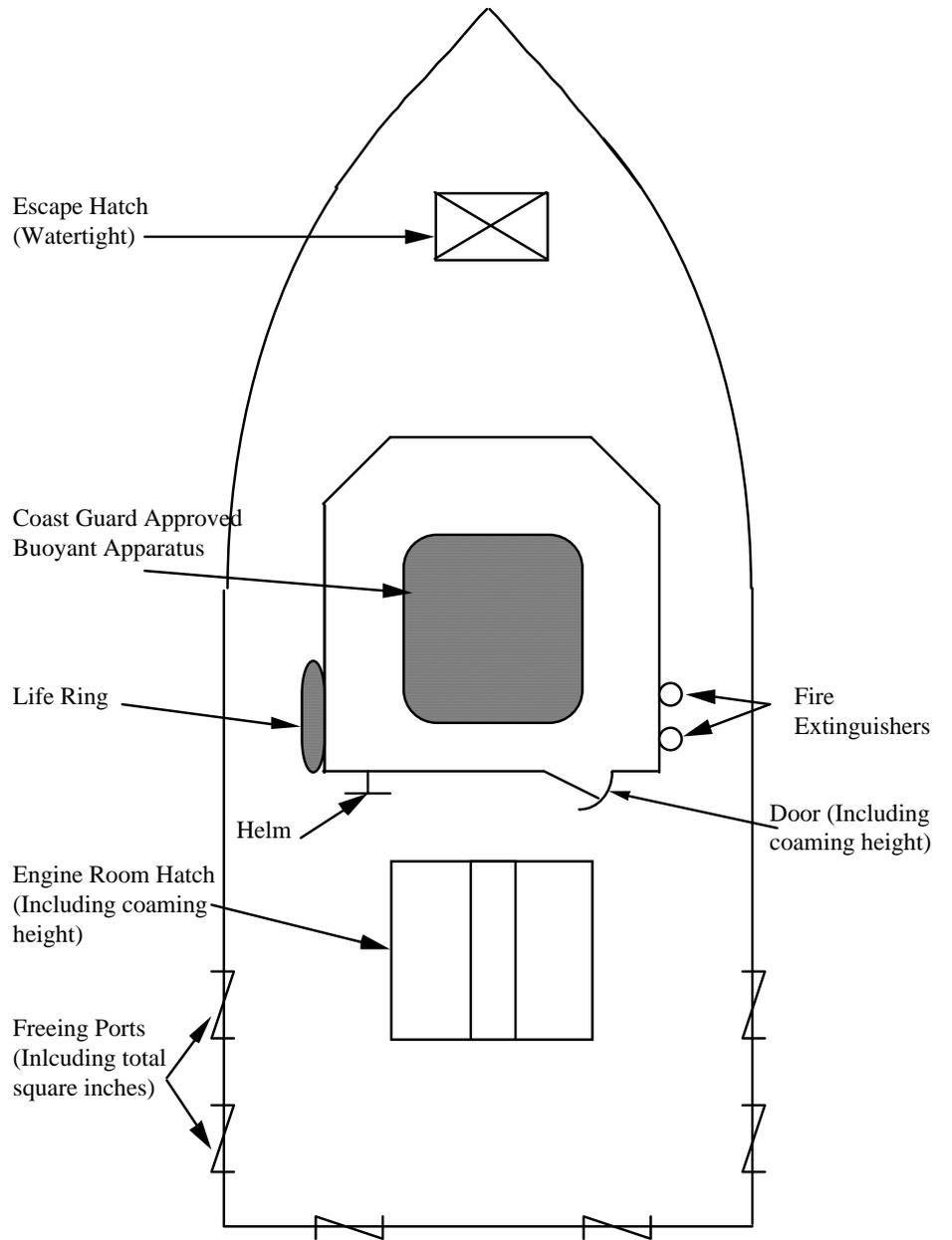
These will include:

- Toilet areas
- Pilothouse
- Hatches
- Doors
- Portable fire extinguishers
- Fixed fire extinguisher systems
- Primary life saving equipment
- Freeing ports
- Galley
- Accommodation spaces
- Ladders
- Windows

Provisions for ventilating all spaces including machinery and fuel tank spaces should also be shown.

Arrangement of Decks Plans (Continued)

Example



Machinery Installation Plans

Information to be Included

Your plans should show in detail the installation of propulsion and auxiliary machinery including

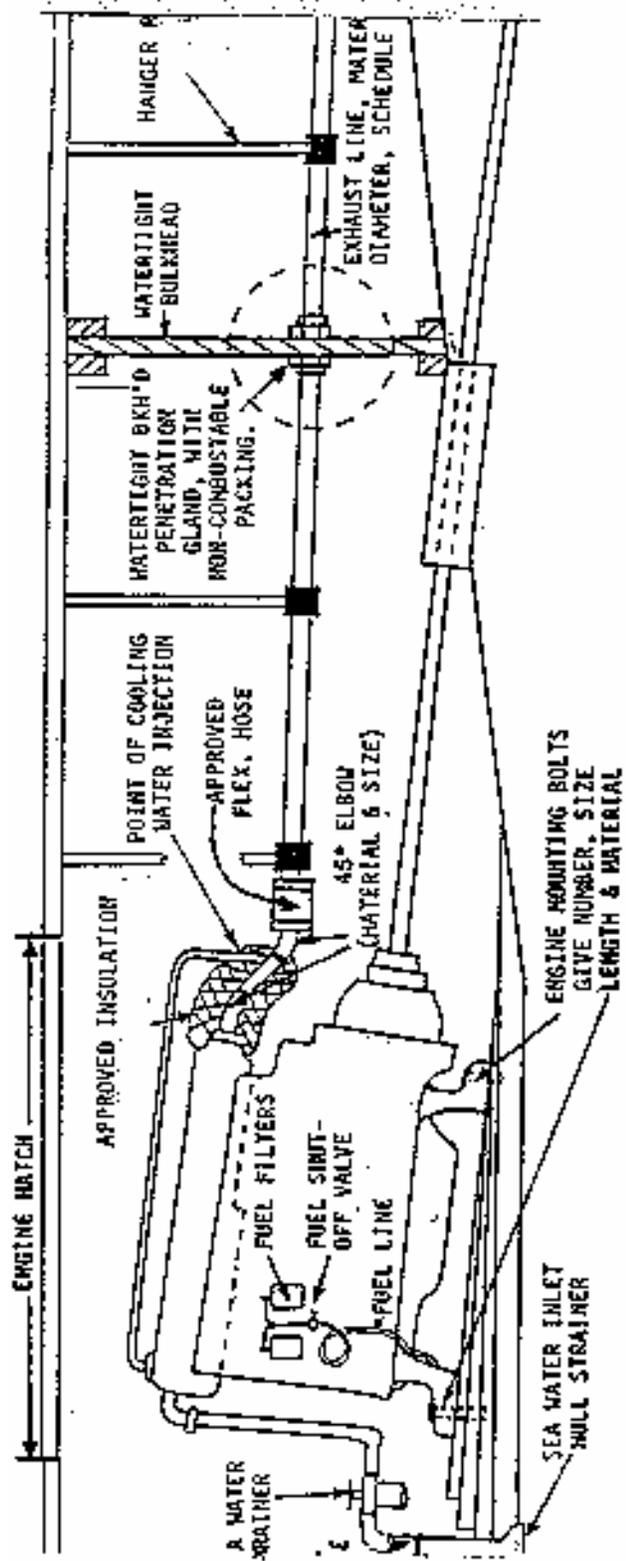
- Descriptions
- Ratings
- Locations

Of particular concern are

- Propulsion machinery
 - Auxiliary generators
 - Steering systems
 - Pressure vessels
 - Boilers
 - Heating equipment
 - Davits on cranes
 - Machinery space ventilation
-

Machinery Installation Plans (Continued)

Example



Electrical Installation Plans 46 CFR 183(T) and 46 CFR 120(K)

Information to be Included

The electrical system plan should be a schematic drawing that shows all the electrical installations.

All cables must be identified by

- Type
- Size
- Number of conductors
- Approximate length of run

The plan must show all system components to include

- Batteries
- Regulators
- Light fixtures
- Gauges
- Ground Systems
- Transformers
- Inverters
- Rectifiers
- Size of all loads
- Generators
- Disconnect switches
- Overload protection
- Distribution panels
- Cooking Equipment
- Emergency lighting
- Heating Equipment
- Shore Connections
- Independent motors

Name-plate data and rating for each component must be included.

A complete electrical load analysis must also be provided.

Equipment installed in machinery spaces must be rated for service at an ambient temperature of 50 degrees C.

Voltage Requirements

Regulations regarding electrical systems are divided into two different sets of requirements as listed below.

Systems operating at potentials:

- less than 50 volts - 46 CFR 183.05
 - 50 volts. or more - 46 CFR 183.10
-

Fuel Tank Plans

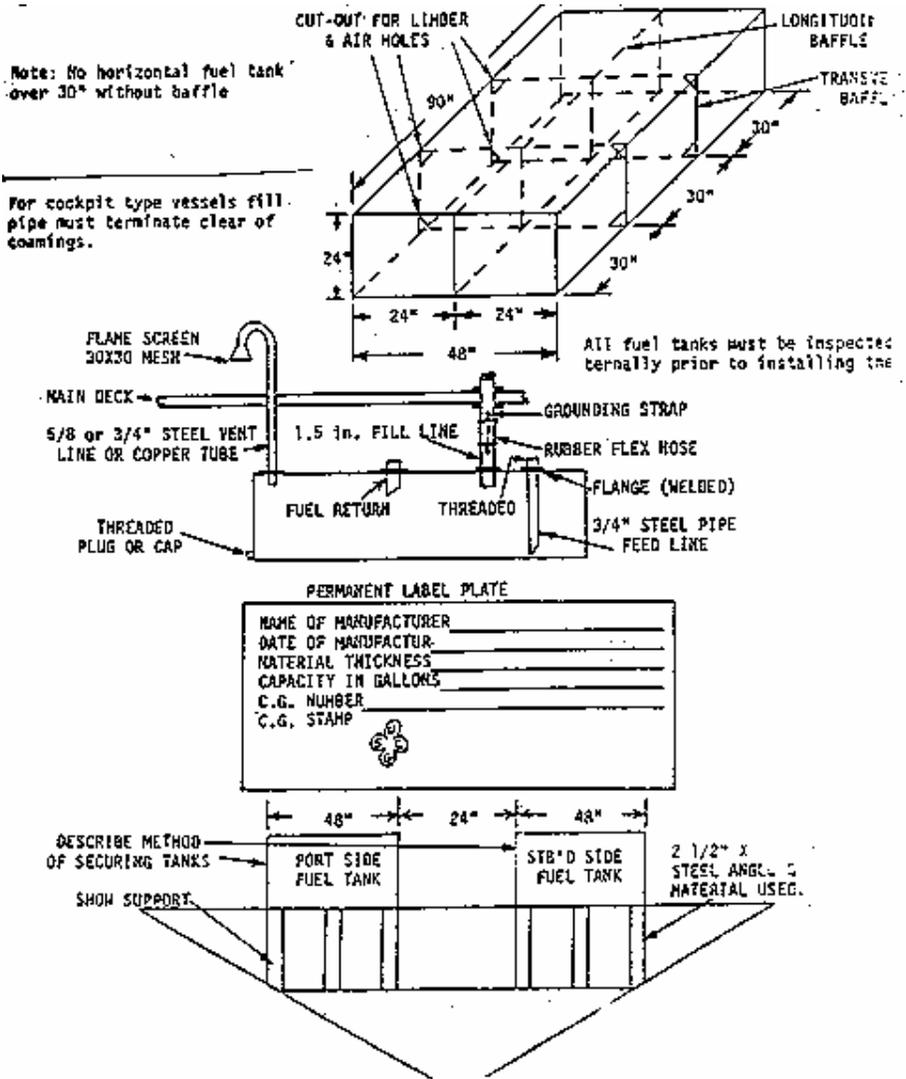
Information to be Included

Your plans must show:

- Dimensions
 - Capacity
 - Thickness of material
 - Type of material
 - Method of assembly
 - Location of baffles
 - Connection of vent, fill, and supply lines and the location of bonding straps and groundings
 - Means of securing tanks to prevent movement
-

Fuel Tank Plans (Continued)

Example



Piping System Plans

Information to be Included

Your plans must show all piping systems including:

- Engine cooling
- Ballast
- Fuel
- Drinking water
- Exhaust cooling
- Bilge
- Hydraulic
- MSD* system

All component parts of each system are to be shown, including:

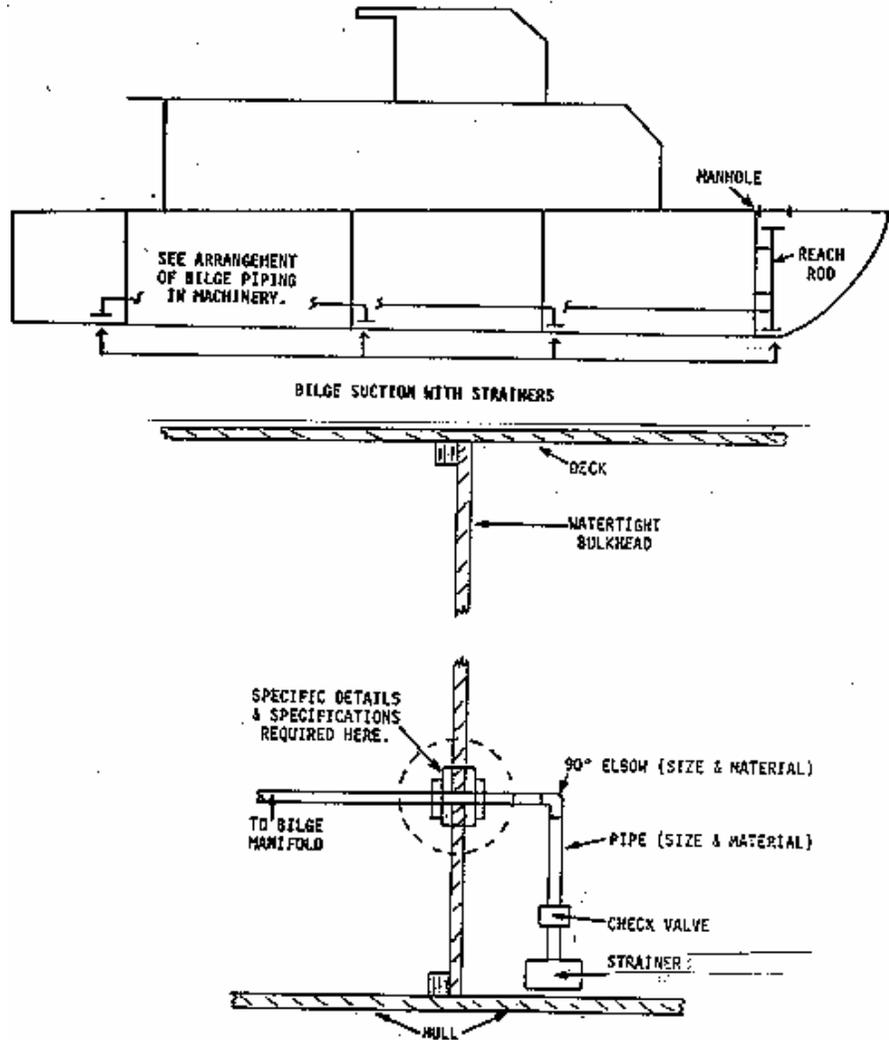
- Piping size
- Valves
- Filters
- Flexible fuel hose
- Piping material
- Pumps
- Strainers

The length of flexible fuel hose, model number and manufacture must be listed and must be Coast Guard approved. Flexible hose may not be longer than 30 inches.

* *Marine Sanitation Device.*

Piping System Plans (Continued)

Example



Bulkhead & Deck Penetrations and Shell Connections Plans

Information to be Included

You must submit complete details of all piping and cable penetrations and all through-hull fittings.

Your drawings must show

- Material specification for fittings
- Method of installation
- Location of valves
- Methods of sealing penetrations

Inclusion of these details on other plans instead of a separate plan is acceptable.

Skin Valves

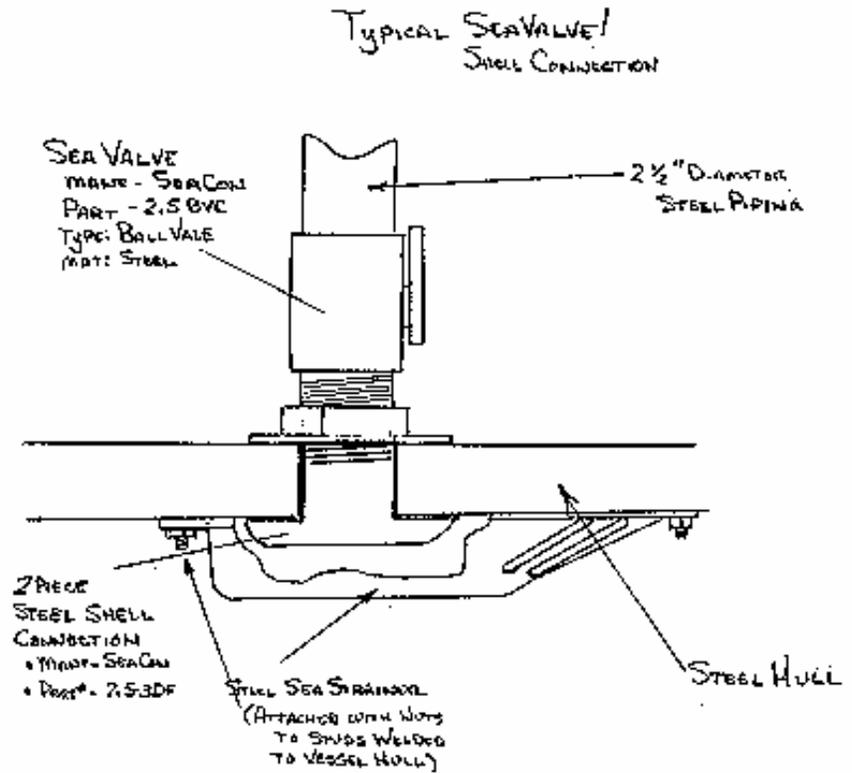
All shell connections within six inches of the waterline and below are required to be fitted with a sea valve.

Sea valves and shell connections must be made of a metallic material.

In the case of a non-metallic hull, materials which can be demonstrated to afford an equal degree of strength and heat resistance as to that of the hull may be considered on a case - by - case basis.

Bulkhead & Deck Penetrations and Shell Connections Plans (Continued)

Example



SECTION C

LIFE SAVING EQUIPMENT REQUIREMENTS

<u>Life Preservers.....</u>	<u>C-1</u>
<u>Survival Craft.....</u>	<u>C-3</u>
<u>Ring Life Buoys.....</u>	<u>C-6</u>
<u>Pyrotechnic Distress Signals.....</u>	<u>C-8</u>
<u>First Aid Kits.....</u>	<u>C-9</u>
<u>Rescue Boat.....</u>	<u>C-10</u>

Life Preservers - 46 CFR 180.71 - 180.78(T) and 46 CFR 117.71-78(K)

Type Required Only Type I life preservers with Coast Guard Approval Numbers 160.002, 160.005 and 160.055 are approved for all passenger-carrying vessels.

Quantity Required One **adult** type life preserver is required for each person aboard the vessel.

In addition, unless the service is such that children are never carried, there shall be provided a number of approved life preservers suitable for children equal to at least *10% of the number of adult life preservers* you are required to carry. If the number of children you carry exceeds the 10% number, then you must provide an additional child size life jacket for each additional child.

Note: A child is any person weighing less than 90 lbs.

Markings You must mark each life preserver with your vessel's name.

Reflective Material Each of your life preserver's must have at least 31 square inches of reflective material attached on its front side, and 31 square inches on its back side, and the same corresponding amount of material on each of its reversible sides.

Life Preservers - (*Continued*)

Stowage

Your life preservers shall be distributed throughout the accommodation spaces in protected places convenient for all persons on board.

Each of your stowage containers must not be capable of being locked. If practicable, the container must be designed to allow the life jackets to float free.

If your life jackets are stowed more than 7 feet above the deck, a means for quick release of the stowage container must be provided.

If your life preservers are not readily visible to the passengers, the containers in which they are stowed shall be marked "Life Preservers" with the number contained therein, in at least *1-inch* letters.

Your children's life jackets must be labeled and stowed separately from your adult life preservers, so that the child life jackets are not mistaken for adult life jackets.

Survival Craft 46 CFR 180.200 - 180.208(T) and 46 CFR 117.130-208

Type Required

You must provide a sufficient number of life floats or inflatable buoyant apparatus in accordance with the chart below.

Your Inflatable Buoyant Apparatus and Life Floats are required to be marked with CG Approval numbers.

NOTE

- (1) Inflatable life rafts of 6 persons or greater can be substituted for either.
- (2) Lakes Bays and Sounds and the Rivers sections do apply to this Zone

Quantity Required

Route	Water Temp	Vessel Constructed of	Subdivision	Floatfree 406 EPIRB	Survival craft required
Oceans Route	cold water	_____	without subdivision	_____	100% Inflatable Bouyant Apparatus
			with subdivision	_____	100% Life Floats
	warm water	_____	_____	_____	67% Inflatable Bouyant Apparatus
Coastwise Route	cold water	wood	without subdivision	_____	67% Inflatable Bouyant Apparatus
			with subdivision	_____	100% Life Floats
	warm water	other than wood	_____	_____	100% Life Floats
		_____	_____	_____	100% Life Floats
Coastwise Route Not more than 3 miles from shore	_____	_____	without subdivision	without EPIRB	100% Life Floats
				with EPIRB	50% Life Floats
			with subdivision		50% Life Floats
Limited Coastwise Route	cold water	wood	without subdivision		67% Inflatable Bouyant Apparatus
			with subdivision		100% Life Floats
	warm water	other than wood	_____		100% Life Floats
		_____	_____		50% Life Floats
Limited Coastwise Route Not more than 3 miles from shore	cold water	_____	without subdivision	without EPIRB	100% Life Floats
				with EPIRB	50% Life Floats
	warm water	_____	with subdivision		50% Life Floats
			without subdivision	without EPIRB	50% Life Floats
				with EPIRB	None
	with subdivision		None		
Lakes, Bays, & Sounds	cold water	wood	without subdivision	_____	100% Life Floats
			with subdivision	_____	50% Life Floats
	warm water	other than wood	_____	_____	50% Life Floats
		_____	_____	_____	None
Not more than 1 mile from shore	_____	_____	_____	_____	None
Rivers	cold water	_____	without subdivision	_____	50% Life Floats
			with subdivision	_____	None
	warm water	_____	_____	_____	None

Survival Craft *(Continued)*

Vessels on International Routes

Vessels on international routes are required to have life rafts or inflatable buoyant apparatus of sufficient total capacity to carry 100% of the persons on board.

Wooden Vessel

Wooden vessels, for the purposes of subdivision and lifesaving equipment requirements in this section, are a traditionally built, plank-on-frame vessel, where mechanical fasteners (screws, nails, trunnels) are used to maintain hull integrity.

Markings

Each of your life floats or inflatable buoyant apparatus must be marked with the vessel's name and number of persons allowed on each.

They shall be conspicuously marked or painted in letters and numbers at least 1-1/2 inches high.

Paddles

Each of your life floats must be provided with two **paddles** not less than 4-feet long. The paddles must be lashed to the life float to which they belong.

Water Light

Each life float must be fitted with a **water light**, CG approval 161.010. It must be attached with a 12 thread manila or equivalent synthetic lanyard, at least 18 feet long.

Survival Craft *(Continued)*

Painter

In general, each life float or inflatable buoyant apparatus must be fitted with a **painter** 100 feet long.

- The painter must have a breaking strength of at least 1,500 lbs, except when the capacity of the life float or inflatable buoyant apparatus is 50 persons or more, then the breaking strength must be at least 3,000 lbs.
- If synthetic, the painter must be of a dark color and certified to be resistant to deterioration from ultraviolet light.
- The painter must be stowed in such a way that it runs out freely when the life float or inflatable buoyant apparatus floats freely away from the sinking vessel.

Note that if the vessel carries more than one life float, they may be grouped together to a single painter provided the combined weight of each group does not exceed 400 lbs. Each life float must be attached to the painter with line of equivalent strength as that required for the painter and of sufficient length so that each can float without contacting another life float.

Weak Link

The painter must be attached to the vessel with a **weak link** of the proper strength for the size of the life float(s) or inflatable buoyant apparatus.

Annual Servicing

Inflatable buoyant apparatus are required to be serviced by an authorized servicing facility annually.

Ring Life Buoys *46 CFR 180.70(T) and 46 CFR 117.70(K)*

Type Required Ring life buoys must meet CG approval 160.050. Those ring life buoys used on an oceans or coastwise route must be orange in color.

All of your ring life buoys must be a minimum of 24 inches in diameter, except if your vessel is less than 26 feet long, in which case you may use one ring life buoy of not less than 20 inches in diameter.

Quantity If your vessel is not more than 65 feet in length you are only required to carry one ring life buoy. Your ring life buoy must have attached a buoyant line. (See note below)

If your vessel is greater than 65 feet in length you are required to carry 3 ring life buoys, one of which shall be fitted with a buoyant line. (See note below)

NOTE Your buoyant line must be at least 60 feet in length, at least 5/16 inch in diameter and have a breaking strength of at least 1,124 pounds. If synthetic, it must be dark in color or of a type certified to be resistant to deterioration from ultraviolet light.

Markings Each of your vessel's ring life buoys must be clearly marked in block capital letters with your vessel's name.

Each of your vessel's ring life buoys must be marked with Coast Guard approved Type II retro-reflective material. (Retro-reflective materials of a sufficient width (approximately 5 cm) should be applied around or on both sides of the body of the lifebuoy at four evenly-spaced points)

Water Lights

Your vessel must carry one water light that meets CG approval 160.010, unless your vessel is restricted to daylight operations as specified on your COI.

Each of your water lights must have a lanyard that attaches around the body of the ring life buoy with at least 3 feet of line available but no longer than 6 feet.

If you carry only one ring life buoy, the water light must be attached to the lanyard with a corrosion resistant clip. The clip must have a strength of at least 50 pounds to allow the waterlight to be quickly disconnected from the ring buoy.

Stowage

Ring life buoys must be stowed so as to:

- Be readily accessible
 - Be stowed in a way that it can be rapidly cast loose
 - Not be permanently secured in any way
-

Pyrotechnic Distress Signals *46 CFR 180.68(T) and 46 CFR 117.68(K)*

General Requirements

Pyrotechnic distress signals are required on all small passenger vessels, except those on short runs of less than 30 minutes.

Pyrotechnic signals are marked with an expiration date and must be replaced prior to the expiration date.

Number Required

Whether your vessel is on a Lakes, Bays and Sounds or Rivers route, you are required 3 hand red flare distress signals and 3 orange smoke distress signals.

If your vessel is on an Oceans or Coastwise route you are required to carry 6 hand red flare distress signals, and 6 orange smoke distress signals.

Stowage Requirements

Your flares are required to be stored in a portable watertight container of bright color, marked "DISTRESS SIGNALS" in legible contrasting color, of at least 1/2" letters. The container shall be stored at the primary Operating Station or, as an alternative, the signals may be stored in a pyrotechnic locker if it is located above the freeboard deck, away from heat, and in the vicinity of the operating station.

First Aid Kits 46 CFR 184.710(T) and 46 CFR 121.710(K)

General Requirements

Vessels must carry either a Coast Guard approved kit approval series 160.041 or a kit with equivalent contents and instructions. For equivalent kits, the contents must be stowed in a suitable, watertight container that is marked "FIRST AID KIT".

Note that certain items within first aid kits have expiration dates. Items with expiration dates must be replaced prior to their expiration.

Stowage Requirements

The FIRST AID KIT must be stowed in a location that is easily visible and readily available to the crew.

Rescue Boat *46 CFR 180.210(T) and 46 CFR 117.210(K)*

General Requirements

Vessels greater than 65 feet in length are required to have a rescue boat unless it is determined that:

- The vessel is sufficiently equipped to allow the crew to recover a helpless person from the water.
- Recovery of a helpless person can be observed from the operating station.
- The vessel does not regularly engage in operations that restrict its maneuverability.

Vessels of not more than 65 feet are not required to carry a rescue boat unless:

- The vessel carries passengers on an open or partially enclosed deck; and
 - The OCMI determines that the vessel is designed, arranged, or involved in operations so that the vessel itself cannot serve as an adequate rescue craft.
-

Acceptable Rescue Boats

In general, a rescue boat must be a small, lightweight boat with built-in buoyancy and capable of being readily launched and easily maneuvered. It must be equipped with navigation lights, a suitable pair of oars (under 160.056) or paddles (under 160.151) and should have a portable fire extinguisher. It must also be of adequate proportion to permit taking an unconscious person on board without capsizing.

On a vessel of more than 65 feet in length operating on *protected waters* a rescue boat approved under approval series **160.056** is acceptable.

On a vessel of more than 65 feet in length operating on *exposed or partially protected waters* a rescue boat approved under approval series **160.151** is acceptable.

On a vessel of not more than 65 feet in length, the rescue boat must be acceptable to the OCMI

SECTION D

FIRE FIGHTING AND DETECTING EQUIPMENT REQUIREMENTS

<u>Power Driven Fire Pumps.....</u>	<u>D-1</u>
<u>Fire Main System.....</u>	<u>D-2</u>
<u>Fixed Gas Fire Extinguishing Systems</u>	<u>D-3</u>
<u>Portable Fire Extinguishers.....</u>	<u>D-5</u>
<u>Fire Axe.....</u>	<u>D-6</u>
<u>Fire and Smoke Detection Systems.....</u>	<u>D-7</u>

Power Driven Fire Pumps - 46 CFR 181.300(T) and 118.300(K)

General Requirements

A self-priming, power-driven fire pump is required on the following mechanically propelled small passenger vessels:

- Vessel \leq 65 feet that is a ferry
- Vessel \leq 65 feet carrying more than 49 passengers
- All vessels $>$ 65 feet

Vessels not required to have a power-driven fire pump must have at least 3 (2 1/2 gallon) buckets. Each bucket must have:

- A lanyard attached
 - "FIRE BUCKET" stenciled in a contrasting color.
-

Fire Pump Requirements

Your vessel's fire pump may be driven off of a propulsion engine or other source of power and must be permanently connected to the fire main. This pump may also be connected to the bilge system so that it can serve as a fire pump and a bilge pump.

If your vessel is:

- (1) Less than 65 feet and is authorized to carry more than 49 passengers; OR
- (2) More than 65 feet;

Then you are required to have a fire pump with:

- A minimum capacity of 50 gallons per minute
- A minimum pressure of 60 psi at the pump outlet

If your vessel is:

- (1) A ferry and is less than 65 feet and carrying not more than 49 passengers;

Then you are required to have a fire pump with:

- A minimum capacity of 10 gallons per minute
- The fire pump must be capable of projecting a stream from the highest hydrant through the nozzle a minimum distance of 25 feet.

If your vessel is authorized to carry more than 150 passengers **then** your vessel's fire pump must be capable of producing 50 psi at the highest hydrant on the vessel.

Fire Main System - 46 CFR 181.310 & 46 CFR 181.320(T) 46 CFR 118.310 & 46 CFR 118.320(K)

General Requirements

All vessels required to have a power driven fire pump are required to have a fire main.

Piping used in the fire main system must be constructed of ferrous materials.

Fire hydrants for all vessels shall be of sufficient number and so located that any part of the vessel may be reached with an effective stream of water from a single length of hose.

A length of fire hose will be attached to each hydrant at all times.

Fire Hoses and Nozzles

If your vessel is:

- 65 feet or less and authorized to carry more than 49 passengers; OR

- Greater than 65 feet

Then your vessel must be equipped with:

- Commercial grade 1-1/2 inch lined fire hose (UL 19 approved) or equivalent:
 - hose must be 50 feet in length
 - hose must have brass or other corrosion resistant fittings
- Coast Guard approved (No. 162.027) nozzle.

If your vessel is 65 feet or less **and** is a ferry carrying not more than 49 passengers, **then** your vessel may be equipped with a fire hose and nozzle as described above, **or**, be equipped with:

- A garden hose that:
 - Is of good commercial grade, constructed with inner rubber tube, plies of braided fabric and outer rubber or equivalent cover,
 - Is of sufficient strength to withstand maximum pressure of the fire pump,
 - Has fittings made of suitable corrosion resistant

Fixed Gas Fire Extinguishing Systems –

46 CFR 181.400, 46 CFR 181.410 & 181.420(T)

46 CFR 118.400, 46 CFR 118.410 & 118.420(K)

General Requirements

A fixed gas fire extinguishing system must be installed in the following locations on all vessels:

- A space containing propulsion machinery.
- A space containing an internal combustion engine of more than 50 hp (37.3 kw).
- A space containing machinery powered by gasoline or other fuels having a flash point of 110°F or lower.
- A space containing fuel tanks for gasoline or any other fuel having a flash point of 110°F or lower.
- Cargo spaces that are inaccessible during a voyage and used for combustible cargo.
(Only CO2 will be allowed).
- A paint locker.
- A storeroom containing flammable liquids
(including liquor of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters [2.5 Gallons] capacity or greater).

Type System Required

Fixed gas fire extinguishing systems shall be approved by the Commandant and installed to the satisfaction of the OCMI.

Depending on the application, acceptable systems include CO₂, Halon, and pre-engineered automatic discharged systems.

Fixed Gas Fire Extinguishing Systems - (Continued)

Amount of CO2 Gas Required

The number of pounds of CO2 required is calculated by determining the gross volume of the space and dividing by the factor as listed in the chart below.

Factor	Gross volume of compartment <i>(cubic feet)</i>	
	Over-	Not over-
15	-----	500
16	500	1,600
18	1,600	4,500
20	4,500	50,000
22	50,000	-----

Additional Requirements

46 CFR 181.410 and 118.410 prescribe specific system requirements.

As previously mentioned, we recommend that you obtain a copy of the regulations if you plan to install a fixed gas fire extinguishing system. Also, you may want to refer to the Marine Safety Center's web site on fixed gas systems at: www.uscg.mil/hq/g-m/mse4/firefixedtboat.htm

Portable Fire Extinguishers - *46 CFR 181.500(T) and 46 CFR 118.500(K)*

General Requirements

The minimum number of portable fire extinguishers required shall be determined by using the table below

Space Protected	Minimum Number Required	Type Extinguisher permitted		
		CG Class	Medium	Minimum Size
Operating Station	1	B-I, C-I	Halon Carbon dioxide Dry chemical	2.5 Pounds 4 Pounds 2 Pounds
Machinery Space	1 for each	B-II, C-II located just outside exit	Carbon dioxide	15 Pounds
Open Vehicle Deck	1 for every 10 vehicles	B-II	Foam Halon Carbon dioxide Dry chemical	2.5 Gallons 10 Pounds 15 Pounds 10 Pounds
Accommodation Space	1 for each 250 square feet or fraction thereof	A-II	Foam Dry chemical	2.5 Gallons 5 Pounds
Galley, Pantry, Concession Stand	1 for each	A-II, B-II	Foam Dry chemical	2.5 Gallons 10 Pounds

Extinguishers must be UL approved for marine use and must be mounted on an approved marine-use mounting bracket.

Location

Extinguishers must be placed near the space protected.

Fire Axe - 46 CFR 181.600(T) and 46 CFR 118.600(K)

**General
Requirement**

Each vessel more than 65 feet in length is required to be equipped with one fire axe.

The fire axe must be located in or adjacent to the pilothouse.

Fire and Smoke Detection Systems - 46 CFR 181.400 & 181.450(T) and 118.400(K)

General Requirement

The following spaces must be fitted with a **fire detecting system**:

- A space containing propulsion machinery.
- A space containing an internal combustion engine of more than 50 hp (37.3 kw).
- A space containing an oil fired boiler.
- A space containing machinery powered by gasoline or other fuels having a flash point of 110°F or lower.
- A space containing fuel tanks for gasoline or any other fuel having a flash point of 110°F or lower.

Exceptions: The above listed spaces are not required to have a fire detecting system when the space is protected by a fire extinguishing system that is capable of automatic discharge upon heat detection, or if the space is manned

Smoke Detecting System

If your vessel has overnight accommodation spaces for passengers, those accommodation spaces must be fitted with an **independent modular smoke detecting and alarm unit**.

The unit must be:

- UL Standard 217 and be listed as a "Single Station Smoke Detector-Also suitable for use in Recreational Vehicles".
 - Contain an independent power source.
 - Alarm on low power.
-

SECTION E

VESSEL CONTROL REQUIREMENTS

<u>Compass.....</u>	<u>E-1</u>
<u>Radars.....</u>	<u>E-1</u>
<u>Radios.....</u>	<u>E-2</u>
<u>Sound Signals.....</u>	<u>E-3</u>
<u>Internal Communication Systems.....</u>	<u>E-5</u>
<u>Propulsion Engine Control Systems</u>	<u>E-6</u>

Compass - 46 CFR 184.402(T) and 46 CFR 121.402(K)

General Requirements

All vessels except for those listed below, are required to operate with a magnetic compass designed for marine use. The compass shall be mounted at the primary operating station.

The following vessels need not be fitted with a compass:

- Vessels in river service
- Non-self propelled vessels
- Vessels operating in protected waters with short restricted routes

Except on a vessel limited to daylight operations, the compass must be illuminated.

If your vessel is equipped with a compass, it is good marine practice to have your compass calibrated and to post a deviation table. You should have your compass calibrated periodically.

Radars - 46 CFR 184.404(T) and 46 CFR 121.404(K)

General Requirements

A vessel must be fitted with an FCC type accepted general marine radar system for surface navigation with a radar screen mounted at the primary operating station when all of the following apply:

For Subchapter T Vessels

- The vessel is self propelled;
- The vessel has an oceans, coastwise, or limited coast wise route and
- The vessel carries more than 49 passengers.

For Subchapter K Vessels

All vessels which fall under the applicability of 46 CFR 114.110(K) are required to have an FCC type approved marine radar with the following exceptions:

- A ferry on a rivers route less than 1 mile from shore

- A vessel operated on a short restricted route, when the cognizant OCMI (Officer In Charge Marine Inspection) has determined a radar is not necessary.

The radar and its installation must be suitable for the intended speed and route of the vessel.

Radios - 46 CFR 184.502(T) and 46 CFR 502(K) and 33 CFR 26.03

General Requirements

Every power driven vessel of 20 meters or over in length, while navigating, must have a Radiotelephone (radio).

Every vessel of 100 gross tons and upward carrying one or more passengers for hire, while navigating, must have a Radiotelephone (radio).

The installed radiotelephone must:

Be carried aboard your vessel and be capable of being operated from the vessel's navigational bridge;

Be capable of transmitting and receiving on the frequency or frequencies within the 156-162 Mega-Hertz band, using the classes of emissions designated by the Federal Communications Commission; and,

Be capable of transmitting and receiving on VHF-FM Channel 22A (157.1 MHz).

The radiotelephone required by these regulations is for the exclusive use of the master or person in charge of the vessel, or the person designated by the master or person in charge to pilot or direct the movement of the vessel, who shall maintain a listening watch on the designated frequency.

Licenses

Your vessel's master must hold an **FCC Restricted Operators License** if the vessel has a radiotelephone.

You must also have an **FCC Station License** on board your vessel if the following equipment is installed on the vessel.

- Radiotelephones
- Radars
- EPIRBs

Your vessel must also have on board a valid **Safety Radio Telephony Certificate** that is issued by the FCC to prove proper installation of the radio transmitting equipment.

Emergency Broadcast Placard

A durable placard must be posted next to all radiotelephone installations with emergency broadcast instructions and information specific to the individual vessel. Specific instructions for the wording of the Emergency Broadcast Placard can be found in 46 CFR 184.510(T) and 46 CFR 510(K).

Sound Signals - Navigation Rules (Comdtinst M16672.2B) - Rules 32 & 33

General Requirements

Vessels 12 meters (39.4 feet) in length and over shall be provided with a whistle and a bell.

Vessels less than 12 meters are not required to have a whistle or bell but if not carried, the vessel shall be provided with some other means of making an efficient sound signal.

Whistle

If applicable, your vessel's whistle must be capable of being operated from the vessel's control station and of producing a sound as listed in the table below.

Length of Vessel		Fundamental Frequency Range (Hz)	Audibility Range in (Nautical Miles)
Meters	Feet		
12m or more but less than 20m	39.4' or more but less than 65.6'	250-525	.5
20m or more but less than 75m	65.6 or more but less than 246.1'	250-525	1.0
75m or more but less than 200m	246.1' or more	130-350	1.5

Bell

If applicable, your vessel's bell must be made of corrosion resistant material and designed to give a clear tone. Use the chart below to determine the minimum size required.

Length of Vessel		Diameter of bell mouth shall be not less than
Meters	Feet	
12m or more but less than 20m	39.4' or more but less than 65.6'	200mm or 7.9"
20m or more	65.6' or more	300mm or 11.8"

Where practicable, a power driven bell striker is recommended to ensure constant force, but manual operation is also acceptable.

The mass of the striker shall be not less than 3 percent of the mass of the bell.

Required Charts and Publications - 46 CFR 184.420(T) and 46 CFR 121.420(K)

General Requirements

Your vessel is required, as appropriate for the vessel's route, to have on board the following items:

- Charts of large enough scale to make safe navigation possible
- U.S Coast pilot or similar publication
- Coast Guard Light List
- Notices to mariners
- Tide tables
- Current tables or a river current publication issued by the U.S. Army Corps of Engineers or river authority.

Extracts from the publications may be provided instead of the complete publication.

Internal Communication Systems - 46 CFR 184.602 - 184.610(T) **46 CFR 121.602 - 121.610(K)**

Pilot House/ Machinery Space

If your vessel is equipped with pilothouse control must also be equipped with a fixed two-way communication system that serves the operating station and the location where the means of controlling the propulsion machinery is located. *(This is to provide communication to manually control the propulsion machinery should the normal control system fail).*

If your vessel is equipped with an auxiliary means of steering, it must also have a fixed two-way communication system.

A fixed two-way communication system is not required when:

- The vessel has two screws
- The locations listed above are sufficiently close enough together that direct voice communications is possible.

The OCMI may accept hand held portable radios.

Public Address System

In general, each of the following vessels are required to have a fixed public-address system operable from the operating station and capable of being heard in all passenger and crew locations:

- A vessel greater than 65 feet in length.
- A vessel with more than one passenger deck.
- A vessel with overnight accommodations.

Vessels ≤ 65 feet may use a bull horn if audible throughout the accommodation spaces during normal operating conditions and meets the satisfaction of the OCMI.

Vessels carry ≤ 49 passengers are not required to have a public address system if the OCMI is satisfied that a public

announcement made from the operating station without amplification can be heard throughout the accommodation spaces.

Propulsion Engine Control Systems - 46 CFR 184.620(T) and 46 CFR 121.620(K)

General Requirements

A vessel must have two independent means of controlling each propulsion engine. Control must be provided for the engine speed, direction of shaft rotation, and engine shutdown.

One means may be the ability to readily disconnect the remote engine control linkage to permit local operation at the engine. Communication must be provided between the engine and the control station as determined by the OCMI.

A multiple engine vessel with independent remote propulsion controls need not have a second means of controlling each engine.

Engine Shutdown

In addition as required above, a vessel must have a reliable means of shutting down a propulsion engine from the operating station, which is independent of the engine's speed control.

Loss of Power to the Control System

Your propulsion engine control system, including pilothouse control, 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.

SECTION F

STABILITY & SUBDIVISION REQUIREMENTS

<u>Stability Tests.....</u>	<u>F-1</u>
<u>Collision Bulkheads.....</u>	<u>F-3</u>
<u>Subdivision Bulkheads.....</u>	<u>F-5</u>
<u>Hatches.....</u>	<u>F-6</u>
<u>Watertight Coamings.....</u>	<u>F-7</u>
<u>Hull Penetrations.....</u>	<u>F-8</u>
<u>Drainage of Weather Decks.....</u>	<u>F-9</u>

Stability Tests - 46 CFR 170-174

Simplified Stability Test

Prior to being certificated, your vessel must have undergone a stability test.

The following vessels are allowed to undergo a *simplified stability test*.

- Vessel \leq 65 feet and
- Carries less than 150 passengers, or
- Carries less than 12 on an international voyage, or
- Has not more than one deck above the bulkhead deck.

Upon satisfactory completion of a simplified stability test, our office will issue a stability letter.

Inclining Experiment

All other vessels are required to undergo a full *inclining experiment*. This will normally require the owner to employ the services of a Naval Architect. This test is not covered in this handout as it is beyond the ability of most owners to conduct themselves. The Coast Guard Marine Inspector is only a witness to the experiment and all results must be submitted to the U.S. Coast Guard Marine Safety Center (MSC) for review. The results will be evaluated and, if satisfactory, the stability letter will be issued by the MSC.

Posting the Stability Letter

All pages of the stability letter are required to be posted aboard the vessel behind glass or clear plastic in the pilothouse.

Stability Tests - (Continued)

Conducting the Simplified Stability Test

A simplified stability test can normally be completed in a day, and is one of the last items to be completed prior to issuing a COI. All modifications to your vessel must have been completed and all required equipment and any fixed ballast must be aboard the vessel prior to starting the test.

This is a pass-fail test. You are encouraged to maximize the number of persons to be carried on the vessel, as well as test for the most stringent and/or flexible routes envisioned for the vessel's operation.

The following chart shows the steps of a simplified stability test. You are responsible for providing all necessary weights as well as the manpower to move the weights.

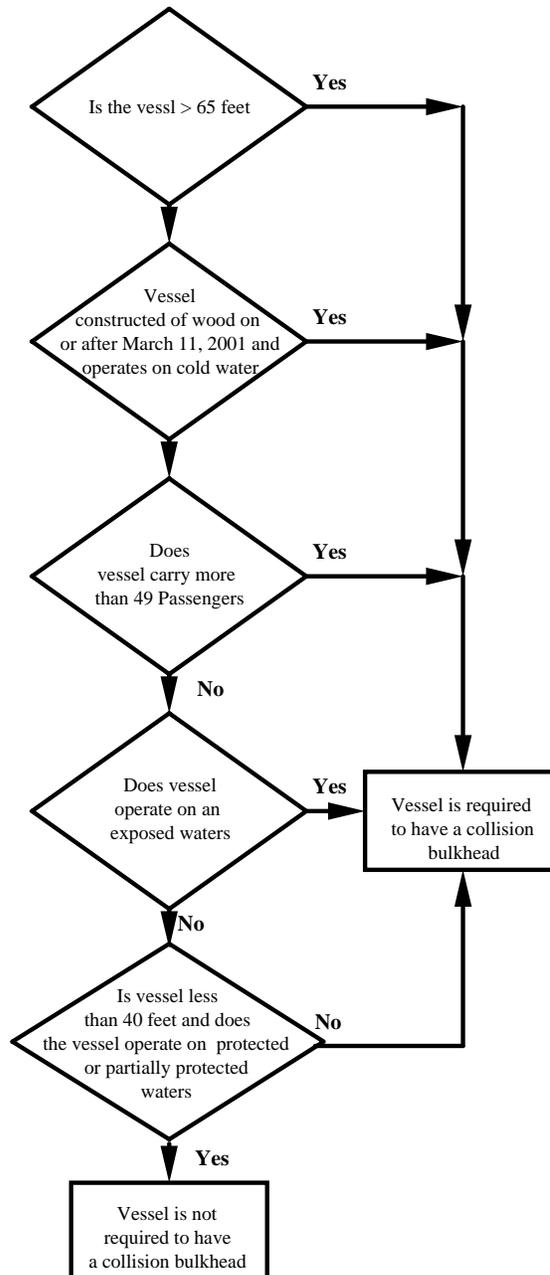
Step	
1	<p>Prior to the Coast Guard Inspector's arrival</p> <ul style="list-style-type: none"> ● All fuel and water tanks must be approximately three quarters full. If tanks have cross connection valves these valves must be open. ● The owner must have all weights used to simulate passengers at the vessel (eg sand bags or water barrels or other weights). A scale to prove weight must also be present. ● Vessel mooring lines must slacked off so that they do not interfere with the vessels listing during the test.
2	<p>On arrival the inspector will determine where the weights shall be distributed aboard the vessel so as to obtain the normal operating trim.</p> <ul style="list-style-type: none"> ● The total weight placed aboard the vessel will be determined by multiplying the number of persons the vessel will carry times 160 pounds, except that on vessels with protected water routes, the number will be 140 pounds per person. ● All weights must be positioned so that the center of gravity of the weight is approximately 2.5 feet above the deck. If necessary the owner will need to provide a means of elevating the weights to the proper height.
3	<p>Once all weights are distributed the Inspector will take several measurements of the vessel and make a temporary mark on the hull. This mark is the maximum allowable immersion line.</p> <ul style="list-style-type: none"> ● The inspector will then calculate the maximum required heeling moment and advise the owner of how much weight must be moved and how far.
4	<p>Once all weights have been moved the Inspector will examine the mark that was made on the hull. If the mark is not submerged the vessel has passed the stability test. If the mark is submerged the Inspector may do additional tests with less weight in an attempt to find where the vessel will pass.</p>
5	<p>Once satisfactory a stability letter will be issued by our office specifying the amount of persons allowed on board for each operational route.</p>

Collision Bulkheads - 46 CFR 179.210 & 179.310

General Requirements

A collision bulkhead is a watertight bulkhead installed at the forward part of the vessel to protect the vessel from flooding in case of damage to the bow.

To determine if your vessel is required to have a collision bulkhead use the chart below.



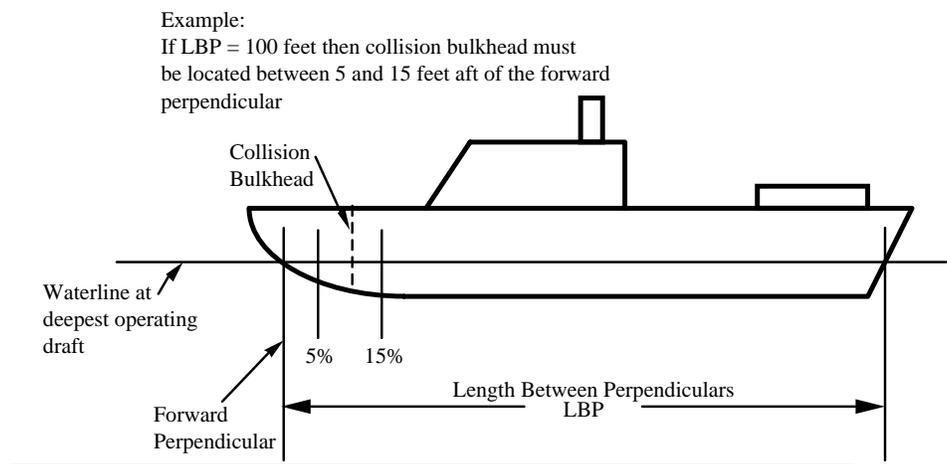
Note: See page A-10 for definitions of vessel routes.

Collision Bulkheads - (*Continued*)

Calculating the Location of the Collision Bulkhead

The location of the collision bulkhead is determined by first determining the Length Between Perpendiculars (LBP). LBP is the horizontal distance measured between perpendiculars taken at the forward most and after most points on the waterline corresponding to the deepest operating draft.

The collision bulkhead must be located between 5% and 15% of LBP as measured aft of the forward perpendicular.



Construction Requirements

The collision bulkhead must:

- be watertight and extend to the weather deck, and
- not have a watertight door in it

If your vessel is not required to comply with one or two compartment standard of flooding, your vessel may have an opening sized such that:

- the lowest edge of the opening cannot be more than 12" down from the bulkhead deck, and
 - there must be at least 36 inches of intact collision bulkhead below the lower edge of the opening.
-

Subdivision Bulkheads - 46 CFR 179.212 - 179.230 & 179.320(T) and 46 CFR 170-174

General Requirements

In addition to a collision bulkhead, if your vessel carries more than 49 passengers you must also have transverse watertight bulkheads that subdivide your vessel.

Transverse watertight bulkheads are placed at strategic locations throughout your vessel so that flooding is minimized should your vessel become damaged below the waterline.

A form called simplified subdivision is available from the Inspections Division. If your vessel requires subdivision bulkheads, you can work through this form with the marine inspector assigned to your project. This form will be very useful in determining the placement of bulkheads below the main deck.

Watertight Doors in Subdivision Bulkheads

The use of watertight doors in subdivision bulkheads is very restricted.

Watertight doors are only allowed in subdivision bulkheads that separate a machinery space from an accommodation space, and only as allowed by the OCMI.

Hatches - 46 CFR 178.360

General Requirements

All hatches exposed to the weather must be watertight, except the following hatches may be weathertight:

- On a watertight trunk that extends a minimum of 12 inches above the weather deck
 - On a cabin top
 - Each hatch on a vessel that operates only on protected waters
-

Securing Devices and Keeper Chains

All hatch covers are required to:

- Have securing devices
 - Be attached to the hatch frame or coaming by hinges, captive chains or other devices.
-

Watertight Definition

The term watertight means to effectively resist the passage of water when subjected to a hose test of 30 psi, with no leakage of water.

Weathertight Definition

Weathertight means that in any sea condition, water will not penetrate into the vessel in any appreciable amount.

The test for weathertight consists of hose testing the hatch for several minutes, with no more than a slight seepage of water allowed.

Watertight Coamings - 46 CFR 179.360(d)

General Requirements

Watertight coamings are required at the base of all weathertight doors located in a deckhouse or a companionway that give access into the hull, if it is located in:

- a cockpit
- a well
- an exposed location on a flush deck vessel.

If the door is a watertight door, the watertight coaming need only be sufficient to accommodate the door.

Height of the Coaming

The coaming height requirement is based on the vessel's route.

Route	Height of Coaming
Exposed or partially protected waters	6 inches
Protected waters	3 inches

Note: See page A-9 for definitions of vessel routes.

Hull Penetrations - 46 CFR 179.350

General Requirements for Sea Valves

Except for engine exhausts, each inlet or discharge pipe that penetrates the hull of your vessel within six inches of the waterline and below your vessel's deepest operating draft, must have a positive action valve or cock that is located as close to the hull as possible.

This is required to prevent water from entering your vessel if the pipe fractures or otherwise fails.

Your sea valves must be constructed of metal or equivalent material. Cast iron is not allowed because of brittleness. "Sea cocks" must be equipped with a positive means of locking the cock into the body; cotter pins may not be used. Valves that use resilient seats must also have a positive means of locking.

Drainage of Weather Decks - 46 CFR 178.410 - 178.450(T) 46 CFR 116.1110(K)

General Requirements

The regulations identify 4 types of vessels:

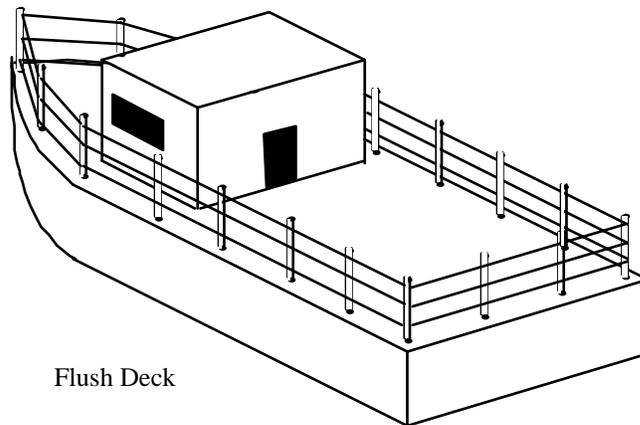
- Flush deck
- Open boat
- Cockpit deck
- Well deck

The regulations require that a vessel be provided with a means for rapidly clearing water from the decks. This is accomplished by the natural design of the vessel or the installation of freeing ports or scuppers.

A collection of even a small quantity of water can drastically affect a vessel's stability.

Drainage of a Flush Deck Boat

"Flush deck" means a continuous weather deck that is watertight and flush with the side shell of the hull.



Flush Deck

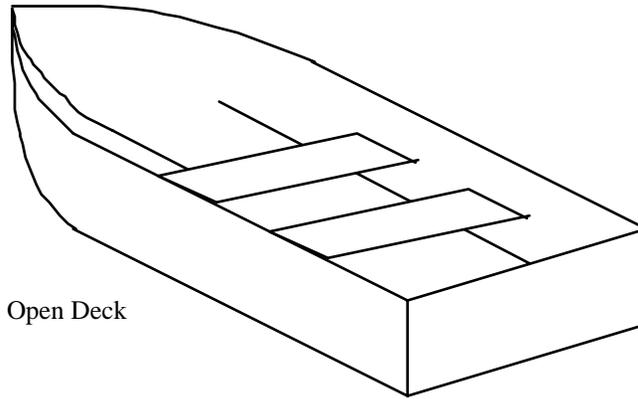
The weather deck must be watertight.

The forward 1/3rd may have solid bulwarks if there is sufficient sheer to ensure drainage of water aft and if bulwarks do not form a well on all sides to trap water.

Drainage of Weather Decks - (Continued)

Drainage of a Open Boat

"Open boat" means a vessel not protected from entry of water by means of a complete deck.



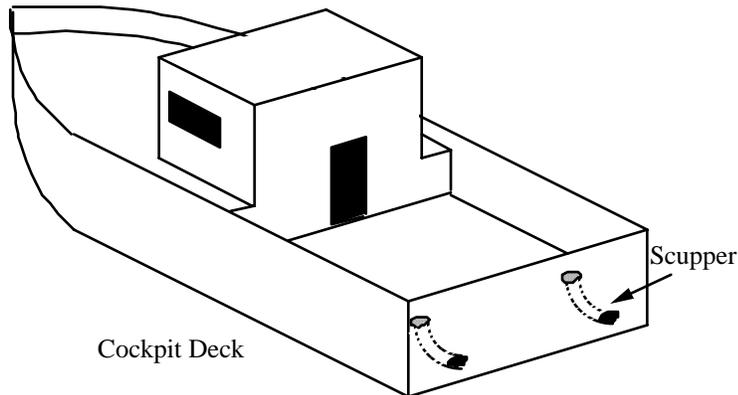
Open Deck

The deck within the hull of an open boat must drain to the bilge. Overboard drainage of the deck is not permitted.

Drainage of Weather Decks - (Continued)

Drainage of a Cockpit

"Cockpit" means an exposed recess in the weather deck extending no more than 1/2 of the length of the vessel measured over the weather deck.



The cockpit must be watertight, except that:

- there may be a watertight door with coaming
- there may be vent openings if:
 - The vessel operates on "*protected*" or "*partially protected*" waters, and
 - The openings are located as high as possible in the side of the cockpit, and
 - The height of the opening does not exceed 2".

The cockpit must be designed to be self-bailing.

Scuppers with a minimum area must be located in a cockpit to allow rapid clearing of water in all probable conditions of list and trim. Scuppers are drains located at the base of a cockpit.

The minimum scupper area is calculated based on the area of the cockpit, and will be done using the formula listed in 46 CFR 178.450.

Drainage of Weather Decks - (Continued)

Height of a Cockpit Deck

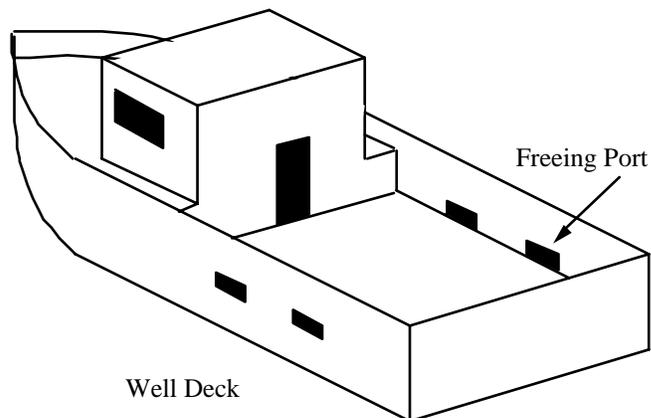
The cockpit deck of a vessel that operates on “*exposed*” or “*partially protected*” waters must be at least 10" above the deepest subdivision loadline, unless the vessel complies with:

- Intact stability requirements (46 CFR 171.050)
- Type II subdivision requirements (46 CFR 171.070, 171.072 & 171.073) and
- Damage stability requirements (46 CFR 171.080)

For vessels that do not operate on “*exposed*” or “*partially protected*” waters, the cockpit deck must be located as high as practicable above the deepest subdivision loadline.

Drainage of a Well Deck

"Well deck" means 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 1/2 or more of the length of the vessel over the weather deck.



Each deck must be watertight.

The bulwarks that form a well must be provided with **freeing ports** and will be determined by using the formula listed in 46 CFR 178.450.

SECTION G

MISCELLANEOUS REQUIREMENTS

<u>Bilge & Bilge Level Alarm Systems.....</u>	<u>G-1</u>
<u>Diesel Fuel System Requirements.....</u>	<u>G-5</u>
<u>Gasoline Fuel System Requirements.....</u>	<u>G-9</u>
<u>Ventilation System Requirements.....</u>	<u>G-9</u>
<u>Marine Sanitation Device Requirements</u>	<u>G-11</u>
<u>Steering System Requirements.....</u>	<u>G-12</u>
<u>Railing Requirements.....</u>	<u>G-13</u>

Bilge & Bilge Level Alarm Systems - 46 CFR 182.500 - 182.540(T) 46 CFR 119.500-540 & 46 CFR 56.50(K)

Introduction

If your vessel is at least 26 feet in length it must be fitted with individual bilge suction lines and suctions for each watertight compartment.

The space forward of the collision bulkhead need not be fitted with a bilge suction line, if a hand operated bilge pump or other equipment can be used to remove water and if the equipment is provided aboard the vessel.

Bilge Piping

Your bilge piping sizes must be as follows:

- Vessel \leq 65 feet
 - not less than 1 inch.
- Vessel $>$ 65 feet
 - not less than 1 1/2 inches.

Except when individual bilge pumps are provided for separate spaces, your individual bilge suction lines must be led to a central control point or manifold and provided with a stop valve at the control point or manifold and a check valve.

Piping material must meet the requirements of 182.710(T) or 119.710(K).

Bilge Suctions

Bilge suctions shall be fitted with suitable strainers having an area of not less than 3 times the bilge pipe diameter.

Bilge & Bilge Level Alarm Systems - (Continued)

Submersible Electric Bilge Pumps

Submersible electric bilge pumps may be used on vessels, other than ferries, that are \leq 65 feet in length and carry less than 49 passengers:

The pump :

- Is UL approved, (or approved by another independent laboratory acceptable to the OCMI);
- Services only one watertight compartment;
- Is permanently mounted; and,
- Is equipped with a strainer that can be readily inspected and cleaned.

Individual power pumps used for separate spaces must be:

- Controlled from a central control point and
- Have a light or other visual means at the control point to indicate operation.

Flexible tube or hose may be used instead of fixed piping for the pump discharge line under the following conditions:

The line must:

- Be suitably supported.
- Not penetrate a watertight bulkhead.
- Be of good quality and suitable for the intended use; and, be highly resistant to salt water, petroleum oil, heat and vibration.

Hull penetrations must be:

- Placed as high above the waterline as possible: and,
 - Fitted with a sea valve at the hull penetration.
-

Bilge & Bilge Level Alarm Systems - (Continued)

Bilge Pumps for Fixed Bilge Systems

Your vessel must be provided with bilge pumps in accordance with the table below.

Number of Passengers	Length of Vessel	Bilge pumps required	Min. Capacity Required (Gal. per minute)
Any number	Over 65'	2 fixed power	50 GPM
More than 49 passengers and all ferry vessels	65' and less	1 fixed power and 1 portable hand	25 GPM 5 GPM
Carrying 49 or less passengers other than ferry vessels	26' up to 65'	1 fixed power and 1 portable hand or:	10 GPM 5 GPM
		1 fixed hand and 1 portable hand	10 GPM 5 GPM
	Less than 26'	1 portable hand	5 GPM

Your fixed power bilge pump(s):

- Must be self-priming;
- May be driven off the main engine or other source of power.
- Must be permanently connected to the bilge manifold and may connect to the fire main. (If of sufficient capacity, a power bilge pump may also serve as a fire pump).

If you have two fixed power bilge pumps installed, they must be driven by different sources of power. If the main engine drives one pump, the other must be driven by another source of power, such as batteries. If you have a twin-engine vessel, each pump may be driven off of a different engine.

Bilge & Bilge Level Alarm Systems - (Continued)

Hand Operated Bilge Pumps

If you have a Hand Operated Bilge Pump it must be:

- Capable of pumping the minimum quantity of water as listed in the chart on page G-3.
- Capable of pumping water from the bilge overboard, but not necessarily from all watertight compartments at the same time.
- Provided with suitable suction and discharge hose capable of reaching the bilges of each watertight compartment and pumping the water over the side.

Note: A second power pump is an acceptable alternative to a hand pump, if it is supplied by a source of power independent of the first power bilge pump.

Bilge High Level Alarms

If your vessel is 26 feet or more in length, you are required to have a Bilge High Level Alarm that indicates a visible and audible alarm at the vessel's operating station, in each of the following unmanned spaces.

- A space with a thru hull fitting below the deepest load waterline,
- A machinery space bilge, bilge well or other spaces subject to flooding from seawater piping within the space; and,
- Spaces with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

Note: The sensor shall be located near the centerline of the vessel as close as possible to the lowest point of the bilge.

If your vessel is constructed of wood it must have bilge high-level alarms in each watertight space in addition to those required above.

Automatic Bilge Pump Indicator

You must provide a visual indicator at the vessel's operating station to indicate when any automatic bilge pump is

operating.

Diesel Fuel System Requirements - 46 CFR 182.435 - 182.480 & 182.720(T) and 46 CFR 119.435-470 and 46 CFR 119.700-730(K)

Integral Fuel Tank Construction

If your vessel's fuel tanks integral to the hull, the vessel's hull material must be either:

- Steel
 - Aluminum; or
 - FRP Note: (Sandwiched construction cannot be used, unless the core material used is closed cell polyvinyl chloride.)
-

Independent Fuel Tank Construction

If your vessel has independent fuel tanks, they must be constructed of either:

- Nickel-copper;
- Copper-nickel;
- Copper;
- Copper-silicon;
- Steel;
- Iron;
- Aluminum; or,
- FRP

Note: Table 182.440(a)(1) and Table 119.440(a)(1) list thickness and construction requirements based on fuel tank capacity.

If your vessel is constructed with metal tanks, they must have baffles at least every 30 inches and the baffles must be either welded or brazed to the side of the tank. Baffles must have air holes at the top and limber holes at the bottom.

Diesel Fuel System Requirements - (Continued)

Fuel Tank Fill Piping

Your fuel tank fill and sounding piping must be a minimum of 1.5 inches in diameter.

You must have a means of determining the amount of fuel either by sounding through a separate sounding tube, fill pipe, or by a marine type fuel gage.

Your piping must run as directly as possible, preferably in a straight line, from the deck connection to the top of the tank. The piping must be so arranged that any overflow of fuel will not run into the vessel.

If you use flexible hose it must:

- Be suitable for the intended service;
- Overlap the metallic pipe ends at the least 1.5 times the pipe diameter and must be secured at each end by double hose clamps; and,
- If a non conductor, be provided with a method to make the fuel tank electrically continuous with the fill pipe.

Fuel Supply Piping

Your fuel supply piping shall be constructed of:

- Copper, nickel copper, or copper nickel, having a minimum wall thickness of 0.035 inches; or,
- A material such as seamless steel pipe or tubing which provides an equivalent level of safety; or,
- Schedule 80 or greater aluminum piping, **if**, you have an aluminum vessel.

Your fuel lines shall be accessible, protected from mechanical damage, and secured against excessive movement and vibration by the use of metal straps with no sharp edges.

Where your fuel lines pass through watertight bulkheads, they shall be protected by close fitting ferrules or stuffing

boxes.

Diesel Fuel System Requirements - (Continued)

Fuel Supply Hose as Supply Line

You may use flexible hose as a supply line provided it is fitted with suitable connection fittings and meets the requirements of 46 CFR 56.60-25

Your flexible hose runs shall be visible, easily accessible, protected from mechanical damage, and shall not penetrate watertight bulkheads.

Note: Flexible non-metallic hose may be used for fuel supply only if the hose meets SAE standard J-1942 "Hose and Hose Assemblies for Marine Applications", or is specifically approved by the Commandant. The hose must either be factory assembled requiring no further adjustment of the hose fittings, or, the hose fittings must meet SAE J-1475 or its equivalent. If special equipment is required such as crimping machines, the machines must be of the type and design specified by the manufacturer.

Flexible Hose at the Engine

You must install flexible hose or a loop of tubing for your fuel supply line at or near the engine to protect the line from vibration.

Flexible hose used for this purpose shall not exceed 30" in length. Your hose must meet the requirements as listed above or be USCG approved type A1, A2, B1 or B2. The line must be attached using double hose clamps on each end, unless you use an approved fitting.

Fuel Shutoff Valves

Your fuel shutoff valves shall be installed on the fuel supply piping at your fuel tank and engine.

Your fuel shut off valve at the tank must be accessible from outside the fuel tank space, preferably on your vessel's weather deck. The location is required to be labeled with 1"-high letters, indicating the purpose of the valve and direction of operation.. If you have reach rods installed in

the weather deck, you must install some form of flame impingement protection for the handle.

Diesel Fuel System Requirements - (*Continued*)

Fuel Strainers

Suitable marine type strainers shall be fitted in your fuel supply line within your vessel's engine compartment.

Fuel Tank Vents

Your fuel tanks shall be fitted with a vent pipe at its highest point under normal operating conditions.

The minimum net cross-sectional area of the vent pipe shall be as follows:

- Not less than 5/8" O.D. tubing (.035" wall thickness-20 gage), **if** the fill pipe terminates at the top of the tank.
- Not less than 3/4" O.D. tubing (.035" wall thickness-20 gage), **if** the fill pipe extends into the tank.

The discharge end of your vent pipe must be fitted with a removable flame screen of corrosion resistant wire of 30 X 30 mesh and be located:

- On the exterior of your vessel's hull, as high as practicable above the waterline and away from any hull opening, **or**
 - Terminate in U-bends as high above the weather deck as practicable and away from any living quarters or below deck spaces; **or**
 - So installed as to prevent water contamination during normal operating conditions.
-

Gasoline Fuel System Requirements - 46 CFR 182.435 - 182.480 & 182.720(e)

Note

Gasoline propelled vessels can be certified for carrying passengers. Although fundamentally similar to diesel fuel system requirements, gasoline systems pose an increased flammability risk and are therefore required to meet more stringent regulations.

Included among these is the requirement to install a fixed fire extinguishing system in the machinery space, a vapor detection system, forced ventilation for the engine space, as well as differences in the fuel system.

If you are attempting to certify a gasoline-propelled vessel, the inspector assigned to you will assist with the additional requirements. Requirements for gasoline-propelled vessels can be found by reading the Code of Federal Regulations.

Ventilation System Requirements - 46 CFR 182.465 & .470(T) and 46 CFR 119.465 & .470(K)

Compartments Containing Machinery

Vessel spaces containing machinery shall be fitted with at least two ducts to furnish natural or mechanical supply and exhaust ventilation.

One duct shall extend to a point near the bottom of the compartment so that the ordinary collection of water in the bilge will not trap the duct.

Where forced ventilation is installed, the duct extending near the bottom shall be the exhaust.

The total inlet and outlet area of each duct shall be not less than one square inch for each foot of beam of your vessel. This minimum shall be increased if the ducts are also used to provide air for your vessel's engine intakes.

Ducting Material

All your duct material shall be of rigid permanent

construction and made of the same material as your hull or of a non-combustible material and must be reasonably gas-tight.

The ducts must lead as directly as possible and be securely fastened and supported.

Ventilation System Requirements – (Continued)

Duct Cowls

All your supply ducts for ventilation shall be provided with cowls or scoops having a free area not less than twice the required duct area.

If the mouth of the duct is screened the area must be increased to compensate for the area of the screen.

Closure Devices

You must provide a means for closing all your supply duct cowls or scoops and exhaust duct discharge openings for spaces protected by a fixed gas extinguishing system. All your closure devices must be readily available and mounted in the vicinity of your vent.

Your vessel's dampers may not be fitted in a supply duct.

Compartments Containing Diesel Fuel Tanks

Your enclosed compartments containing diesel fuel tanks and no machinery shall be provided with a gooseneck vent of not less than 2 1/2-inches in diameter. Your openings shall not be located adjacent to possible sources of vapor ignition.

If your vessel has small compartments, a vent of not less than 1 1/2-inches may be used. Compartments that are adequately ventilated are not required to have gooseneck vents installed.

Marine Sanitation Devices - 46 CFR 184.704 & 33 CFR 159.7

General Requirements

Vessels are not required by regulation to have a toilet or Marine Sanitation Device (MSD). However, if a toilet is installed, a MSD must be installed as follows:

MSD's are classified as a Type I, II, or III. Type I and II treat the sewage so that it can be pumped overboard. Type III MSD's (the most common type) are holding tanks and can only be pumped ashore.

Vessels less than 65 feet are allowed to use a Type I, II or III MSD, all other vessels are required to use a Type II or III.

MSDs must have a Coast Guard certified label and be certified for inspected vessels.

MSD Piping

Type I and II MSD's can be piped for discharge of sewage overboard. Note that state and local laws may have "No Discharge Zones" in which no sewage may be pumped overboard. Operators should check with state and local authorities as to the laws in their area of operation.

Federal Regulations do not allow the pumping of untreated sewage overboard on inland waters.

If your vessel is equipped with a Type II MSD, it must be plumbed to a pump-out connection on the deck.

If your vessel is fitted with a Y-valve in the system, you must lock it in the closed position, preventing discharge over the side.

Steering System Requirements - 46 CFR 182.600 - .620(T) and 46 CFR 119.600, 46 CFR 58.25 and 46 CFR 110-111(K)

Main Steering

A self propelled vessel must be provided with a main steering gear that is:

- Of adequate strength and capable of steering the vessel at all speeds;
 - Designed to operate at maximum astern speed without being damaged or jammed and,
 - Capable of moving the rudder from 35 degrees on one side to 30 degrees on the other side in not more than 28 seconds with the vessel moving ahead at maximum service speed.
-

Auxiliary Steering

Your vessel's steering must be designed so that transfer from the main steering gear or control, to your auxiliary steering, can be rapidly achieved. You are required to have any tools or equipment necessary to make the transfer readily available.

The following vessels **are not** required to have auxiliary steering:

- Vessels having main steering gear and controls provided in duplicate.
 - Multiple screw propulsion vessels with pilothouse control for each screw.
 - Vessels where no regular rudder is fitted and steering action is obtained by a change of setting of the propelling unit.
 - Vessels where the normal means of steering is a hand tiller and rudder.
-

Railing Requirements - 46 CFR 177.900(T) and 46 CFR 116.900(K)

General Requirements

Rails or equivalent protection are required on your vessel near the periphery of all weather decks accessible to passengers or crew. Equivalent protection may include lifelines, wire rope, chains and bulwarks, which provide strength and support equivalent to fixed rails.

Deck rails must withstand a 200-pound load in any direction and a 50-pound per foot load applied to the top rail in any direction.

Ferry or Excursion Type Operations

If your vessel is engaged in ferry or excursion type operations including but not limited to sightseeing trips, dinner and party cruises, and overnight cruises, shall have rails a minimum of 39 1/2 inches high.

On these types of vessels the space below the upper rail is required to be fitted with either:

- Bulwarks, or
- Chain link fencing or wire mesh that has openings of not more than 4 inches in diameter, or
- Bars, slats, rail courses, or and equivalent spaced at intervals of not more than 4 inches.

Sport Fishing Vessels

If you operate a sport fishing vessel and can show that higher rails would interfere with normal operations, the OCMI may authorize your rails to be lowered to not less than 30 inches.

Courses must not be more than 12 inches.

Note: When the vessel is not being used in this capacity, the vessel must comply with the applicable railing requirement.

Railing Requirements - (Continued)

Water Taxies, Pilot Boats, Dive Boats

If the principle business of your vessel requires the discharge of personnel in a seaway, the OCMI may accept alternatives for those areas of a deck where passengers or cargo are discharged and for which removable rails, lifelines, or chains would hinder passenger or cargo discharge operations.

All Other Vessels

All other vessels not mentioned above shall have a minimum rail height of 36 inches.

Courses must not be more than 15 inches.

Sailing vessels, small vessels of the open launch type, and other vessels not specifically covered elsewhere, shall have rails or equivalent protection as considered necessary by the OCMI.

SECTION H

OPERATIONS

<u>Marine Casualties and Reporting Requirements</u>	<u>H-1</u>
<u>Crew Requirements.....</u>	<u>H-4</u>
<u>Passenger Safety Requirements.....</u>	<u>H-5</u>
<u>Required Documents.....</u>	<u>H-6</u>
<u>Notification of Repairs and Alterations.....</u>	<u>H-7</u>
<u>Pollution Response.....</u>	<u>H-8</u>
<u>Pollution Reporting Requirements.....</u>	<u>H-9</u>
<u>Use of Dispersants.....</u>	<u>H-10</u>
<u>Penalties.....</u>	<u>H-11</u>

Marine Casualties and Investigations-46 CFR 4

What is a marine casualty?

Any casualty or accident involving any vessel other than a public vessel. The casualty occurs upon the navigable waters of the United States. This includes any accidental grounding, or occurrence involving a vessel which results in damage by or to the vessel, gear, or injury or loss of life of any person. It includes collisions, strandings, groundings, heavy weather damage, fires, explosions, failure of gear and equipment, and any other damage which might effect or impair seaworthiness of the vessel, and injury or loss of life to any person while diving from a vessel using underwater breathing apparatus

Reporting Procedures

Marine casualties are required to be reported to the local Coast Guard by the owner, agent, master, operator, or person in charge. There are two types of reports required: **IMMEDIATE** and **WRITTEN**.

Immediate Report

An **IMMEDIATE** report to the nearest Coast Guard Marine Safety Office, Marine Inspection Office, or Coast Guard Group Office is required after addressing the resultant safety concerns.

IMMEDIATE reports are required for the following casualties:

- Unintended grounding, or unintended strike of (allision with) a bridge;
- An intended grounding or bridge allision causing a hazard to either navigation, the environment, or the safety of a vessel;
- A loss of main propulsion or steering;
- A loss of life;
- Injuries requiring professional medical treatment (treatment beyond first aid), and for crewmembers aboard commercial vessels, any injury rendering the individual unfit to perform their duties;
- Any occurrence causing damage in excess of \$25,000 (to include the cost of labor and material required to

restore the property to its condition before the occurrence).

Marine Casualties and Investigations - (Continued)

Written Reports

WRITTEN reports are required. In addition to the immediate notification, a **WRITTEN** report is required to be filed by owner, agent, master, operator, or person in charge within five days of the incident. This **WRITTEN** report must be delivered to Coast Guard Marine Safety Office or Marine Inspections Office. It must be provided on a Form CG-2692 (Report of Marine Accident, Injury or Death), supplemented as necessary by appended Forms CG-2692A (Barge Addendum) and CG-2692B (Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident).

Serious Marine Incident

The term **SERIOUS MARINE INCIDENT** includes the following events involving a vessel in commercial service: Any marine casualty or accident required to be reported to the Coast guard which results in any of the following:

- One or more deaths;
 - An injury to a crewmember, passenger, or other person which requires professional medical treatment beyond first aid. In the case of crewmembers aboard vessels in commercial service, any injury which renders the individual unfit to perform their routine duties;
 - Damage to property in excess of \$100,000 (to include the cost of labor and material required to restore the property to its condition before the occurrence);
 - Actual or constructive loss of any vessel subject to inspection (as defined in 46 USC 3301)
-

Marine Casualties and Investigations - (Continued)

Drug and Alcohol Testing

SERIOUS MARINE INCIDENTS require drug and alcohol testing.

For each marine casualty requiring a report, the marine employer shall determine whether there is evidence of alcohol or drug use by individuals directly involved in the casualty. It is the responsibility of the marine employer to file a written report (46 CFR 4.05-12) which:

- Identifies the individuals for whom evidence of drug or alcohol use has been obtained;
- Specifies the method used to obtain such evidence, such as personal observation of the individual, or by chemical testing of the individual.

As discussed earlier, a Form CG-2692B (Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident).

Crew Requirements - 46 CFR 185.402(T) - 122.402(K)

Licenses

Each licensed individual employed upon the vessel shall have his or her original license on board and available for examination at all times when the vessel is underway.

Crew Training

The owner, master, or operator of your vessel shall instruct each crewmember on their responsibilities, upon first being employed and prior to getting underway for the first time. Additional training shall be conducted once a month if practicable, but is mandatory once in every three months on that member's responsibilities as listed on the emergency instruction placard (Firefighting, Man Overboard, and Abandon Ship) or the vessel station bill (vessel greater than 65 feet). Senior Deckhands shall be trained in accordance with Coast Guard NVIC 1-91, which is available on the internet at <http://www.uscg.mil/hq/g-m/nvic/> or from this office.

- Each drill must be conducted as if it were an actual emergency and be as detailed as possible.
- All training and drills must be logged or documented and available for review upon request.
- Training entries shall include the date of training and a general description of the drill and training.
- We recommend that all training log entries be in red ink or highlighted to speed up the review process.
- The above frequency is the minimum required. However, the master shall conduct more drills as necessary to ensure the crew possesses adequate knowledge to respond to and combat any emergency.
- While not specifically required, it is further recommended that flooding drills be conducted to ensure crew is familiar with your vessel's de-watering

system.

Passenger Safety Requirements - 46 CFR 185.502(T) - 122.502(K)

Passenger Count The master of your vessel shall keep a correct, written count of all passengers that embark on your vessel. Prior to departing on a voyage, the exact passenger count (not ticket sales) must also be available ashore at your vessel's normal berthing location.

Passenger Safety Orientation Prior to getting underway, or shortly thereafter, the master of your vessel shall ensure that a suitable public announcement is made informing your passengers of the following:

- Location of all emergency exits;
 - Stowage locations of life jackets and life ring buoys;
 - Proper method of donning the life jackets; and,
 - Location of instruction placards for lifejackets and other life saving devices.
-

Required Documentation

Required Documents

The following is a list of the required documents, instructions, placards, and licenses that are required to be onboard your vessel, conspicuously displayed at all times, and available to passengers and the Coast Guard for inspection:

- Certificate of Inspection.
- Vessel Stability Letter.
- U.S. Coast Guard Small Passenger Vessel Decal.
- Lifejacket Donning Instructions.
- Emergency Procedures.
- Station Bill (if greater than 65' in length or carries 5 or more crewmembers).
- Emergency Broadcast Instructions (located adjacent to the radio).
- Oil Discharge Placard (located by bilge pump controller).
- Garbage Discharge Placard.
- Instructions to activate the installed fire suppression system.

The following items shall be onboard the vessel and made available to the U.S. Coast Guard upon request.

- Certificate of Documentation (if > than 5 net tons).
- Vessel Log.
- FCC Radio Operators License and FCC Station Licenses (if applicable)
- Senior Deck Hand Designation Letter (if applicable).
- Crew Training Documentation (if not in vessel log).

Notification of Repairs & Alterations - 46 CFR 176.700 - 182.480 & 182.700

Repairs and Alterations

Repairs to your vessel's hull, machinery, or equipment that affects the seaworthiness of your vessel, must not be undertaken without the approval of the St. Louis OCMI (The OCMI's representatives are the Marine Inspectors). If emergency repairs are required, the operator must notify the Inspections Division of Sector UMR as soon as practicable. Repairs that effect the seaworthiness of your vessel include, but are not limited to:

- Replacement, repair, or refastening of deck or hull plating, planking or structural members;
- Repair of cracks in deck frames or deck plates;
- Repair or replacement of electrical wiring;
- Repair or replacement of fuel lines or fuel tanks;
- Repair or replacement of boilers or other pressure vessels;
- Repair or replacement of steering system;
- Repair or replacement of propulsion system;
- Repair or replacement of power supply system;
- Repairs that affect vessel stability;
- Repairs or alterations to your vessel's lifesaving equipment;
- Repairs or alterations to the vessel's fire detection or fire suppression systems; and,
- Repairs that affect the vessel's de-watering capability.

If the above repairs are not considered emergency repairs, then plan submittal and review will be required before any repairs or alterations are started. Upon completed of repairs, inspection by this office may be required prior to your vessel being placed back in service.

Pollution Response

Introduction

The primary pollution response laws enforced by the U.S. Coast Guard on the Inland Rivers are the:

- Federal Water Pollution Control Act (FWPCA)
- Clean Water Act (CWA)
- Oil Pollution Act of 1990 (OPA 90)

Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA)

Federal Water Pollution Control Act (FWPCA)

This is the Coast Guard's basic authority for investigating maritime oil pollution discharges into or upon U.S. navigable waters.

Clean Water Act (CWA)

The CWA amended the FWPCA, giving the Coast Guard further pollution authority and was designed to eliminate all water pollution by the 1990's.

Oil Pollution Act of 1990 (OPA)

The Oil Pollution Act of 1990 (OPA) amends the FWPCA/CWA. It provides:

- A \$1 billion oil spill clean up fund
 - Increased authority to direct and control oil spill cleanups
 - Increase Coast Guard responsibilities for developing contingency plans
 - Increased spiller's liabilities
-

Comprehensive Environmental Response Compensation Liability Act (CERCLA)

This act is more comprehensive than the FWPCA and should be used for response to all hazardous substance releases.

Note: CERCLA does not apply to oil spills.

Pollution Reporting Requirements

Introduction

The following is the Who, When, What, Where, How, and Why for reporting a pollution discharge/release.

Who

Anyone may report a discharge/release.

The owner, operator, or person in charge of the facility or vessel must make a report.

Note: The report must be made to the National Response Center (NRC) at **1-800-424-8802**. In addition, the local Coast Guard unit and State/Local agencies should be notified of the discharge/release.

When

The report must be made as soon as there is knowledge of the incident.

What, Where, How, and Why

The report needs to include the following:

- What was discharge/released?
 - Where did the discharge/release take place?
 - How much was discharged/released.
 - Is the source of the discharge/release secured?
 - What action is being done to contain the discharge/release?
 - What was the cause of the discharge/release?
-

Use of Dispersants

Introduction

Often dispersants are improperly used. Members of the marine community often ask, “Why can’t I use a detergent like Dawn or Joy to clean spilled oil from the water?”

Regulation

The proper use of dispersants is covered in Title 33, Code of Federal Regulations, Part 153, Section 305: Methods and Procedures for the Removal of Discharged Oil. The use of detergents is not an approved method of removing discharge oil from the water.

Max penalty for violating 33 CFR 153.305.

- \$27,500 per violation
-

Proper Use of Dispersants

Although dispersants have an important role in pollution response, their use needs to be approved by the Federal On Scene Coordinator (Coast Guard or Federal EPA) in accordance with the National Contingency Plan.

Proper Response Actions

The best response to an oil spill on water is to secure the source of the spill, use containment boom, apply sorbent pads, and notify the local Coast Guard and the National Response Center (1-800-424-8802), as soon as possible.

Penalties

Introduction

Upon completion of a pollution investigation the Coast Guard has several options to pursue Administrative, Civil, or Criminal violations against the Responsible Party.

Administrative Penalty Options

1. Letter of Warning
 2. Notice of Violation (Ticket)
 - \$250 - \$5,000
 3. Report of Violation
 - Class I (\$11,000 per violation)
 - Class II (\$11,000 per day the violation continues)
-

Civil and Criminal Options

1. Report of Violation
 - \$27,500 per day of violation or;
 - \$1,000 per barrel of oil discharged
 2. Establish if the violation was the result of Gross Negligence or Willful Misconduct.
 3. Including but not limited to intentional discharge.
 - Not less than \$100,000 or;
 - Not more than \$3,000 per barrel of oil spilled or;
 - 5 years imprisonment
-

Additional Penalties

1. Failure to provide notification of a discharge.
 - \$27,500 per violation or;
 - 5 years imprisonment or;
 - Both
 2. Failure to properly carry out removal of the discharge.
 - \$27,500 per violation or;An amount up to 3 times the costs incurred by the Coast Guard to conduct the cleanup.
-

SECTION I

DRUG TESTING PROGRAM OVERVIEW

<u>Required Elements of a Drug</u>	
<u>Testing Program.....</u>	<u>I-1</u>
<u>Tests Required by the Regulations.....</u>	<u>I-5</u>
<u>Ensuring Your Program is in</u>	
<u>Compliance.....</u>	<u>I-8</u>

Required Elements of a Drug Testing Program

46 CFR 16, 49 CFR 4, and 33 CFR 95

Introduction

As of December 21st 1990 Federal Regulations require that you have a drug-testing program in force.

This handout is designed to *briefly* explain the major points of the Coast Guard's drug & alcohol testing program. **This handout does not provide all of the information necessary to develop a fully compliant program.** To receive more detailed information for regulatory compliance, please contact the Western Rivers Drug & Alcohol Program Inspector (DAPI) at 504-589-3624.

Background Checks and Release of Information 49 CFR 40.25

As a marine employer, you must, after obtaining an employee's written consent, request the information about the employee from previous DOT regulated employers during any period of the two years before the date of your employee's application or transfer. You must request information regarding:

- Alcohol tests with a result of 0.04 or higher;
- Refusals to be tested (including adulteration or substitution of samples);
- Other violations of DOT agency drug and alcohol testing regulations; and,
- Documentation of an employee's successful completion of the DOT return to duty process for any mariner who violated a DOT drug and alcohol regulation.

We strongly recommend that you and your legal counsel review 49 CFR 40.25, 40.27, and 40.29 to ensure you comply with the regulation and that your

procedures are legally sound.

Required Elements of a Drug Testing Program (Continued)

Elements Required Every drug-testing program must consist of the following elements.

- **Pre-employment, Random, Reasonable Cause, & Post Accident testing**
 - **Use of a Federally Certified Testing Laboratory**
 - **Designated Medical Review Officer**
 - **Employee Assistance Program (EAP) Training & Education**
-

**Certified Lab
49CFR40**

The *Lab* performs the tests on specimen collected for the following drugs:

- **Marijuana**
- **Cocaine**
- **Opiates**
- **Phencyclidine (PCP)**
- **Amphetamines**

The lab you select must be certified by the **Department of Health and Human Services (DHHS)**. The latest list of certified laboratories can be found on the internet at

http://workplace.samhsa.gov/frames/frame_drugtest.htm

**Collection Site
46CFR4.06-20
49CFR40**

The *Collection Site* is the place where the specimen is collected. Note some certified labs have designated which sites and persons they will allow to collect and maintain the required security and chain of custody.

The regulations are very specific in how specimens are collected, how specimen containers are sealed and transported, and how specimens are analyzed. A chain of custody must be maintained from the time of acceptance of the specimen through its testing.

We recommend that you contact several different labs listed to determine which has collection sites nearest your vessel and which provide the service(s) you desire. You must ensure that only DOT 5-panel (also called NIDA 5-panel) tests are conducted. No other type of drug test or custody and control form is acceptable.

Required Elements of a Drug Testing Program (Continued)

Medical Review Officer 49CFR40

A *Medical Review Officer (MRO)* must review drug test results, relay findings to the employer, and is authorized to notify the Coast Guard of positive test results.

The MRO must be a licensed physician who has knowledge of substance abuse disorders and has appropriate medical training to interpret and evaluate an individual's positive test results together with his or her medical history and any other relevant biomedical information.

Before an individual who has failed a required test may return to work, the Medical Review Officer shall determine that the individual is drug free and the risk of subsequent use of dangerous drugs by the person is sufficiently low to justify his or her returning to work. This determination is documented in a "Return to Work" letter signed by the MRO. In addition the individual shall agree to be subjected to increased unannounced testing for a period as determined by the Medical Review Officer for a period of up to 60 months.

Additionally, a mariner who tests positive must be evaluated by a Substance Abuse Professional (49 CFR 40.281) prior to returning to duty (49 CFR 40.305)

It is also important to remember that a Coast Guard licensed or documented mariner, who tests positive for drugs, will also face suspension & revocation action by the Coast Guard against their license or document, which may prohibit their working in positions requiring a license or document.

Required Elements of a Drug Testing Program (Continued)

Education and Training 46CFR16.401

Education

Education is accomplished by the posting and distribution of the following:

- Informational materials concerning substance abuse
- Community service hotline for crewmember assistance
- Employers policy regarding drug and alcohol use in the workplace

Training *(for employers, crewmembers and supervisory personnel)*

- Training must address:
 - The effects and consequences of drug and alcohol use on:
 - personal health
 - personal safety
 - work environment
 - The physical manifestations and behavioral cues that may indicate drug and alcohol use and abuse
 - The training must be documented
 - Supervisors (management and licensed mariners) are required to have a minimum of 60 minutes of EAP training
 - All other crewmembers must receive EAP training, but there is no minimum time requirement
-

Tests Required by the Regulations

Introduction

You must ensure that your drug-testing program provides for the following tests, and you must have proof that the tests were properly accomplished.

- **Pre-employment Testing**
 - **Random Testing**
 - **Periodic Testing**
 - **Post Casualty Testing**
 - **Reasonable Cause Testing**
-

Who Must Be Tested

Any employee who is required aboard the vessel as prescribed by the Certificate of Inspection (COI) is required to be tested.

Example

- Master, Operator
- Navigator
- Lookout
- Deckhand who handles lines

Example of employees not required to be tested.

- Cook *
- Waiter, waitress *
- Dishwasher *
- Fish handler or cleaner *

** If any of the above also fills a position required by the COI or if they perform duties of deckhand, patrolman, watchman, or are specifically assigned the duties of warning, mustering, assembling, assisting or controlling movement of passengers during emergencies, they are required to be tested.*

Records

You must maintain records and have them available for Coast Guard inspection. Your records (in the form of a MRO signed custody & control form or MRO signed lab report) should list the date each of the following were accomplished

- **Pre-employment tests**
- **Periodic tests**
- **Random tests**
- **Post Casualty test**
- **Reasonable Cause tests**

Negative test results must be kept for 1 year. Positive test results must be kept on file for 5 years. Pre-employment test results must be kept for as long as a crewmember is employed with the company.

Tests Required by the Regulations (*Continued*)

Pre-employment Test **46 CFR 16.210**

You must provide proof that employees hired after December 21st 1990 have passed a pre-employment drug test.

You may waive a pre-employment drug test if you can obtain documentation that shows:

- the new employee was subject to random DOT drug testing for 60 of the preceding 185 days, OR
 - the new employee has passed a required DOT drug test w/in the preceding 6 months
-

Random Testing **46 CFR 16.230**

Random testing was required as of **1 October 1991** for all crewmembers. Random means that every crewmember of a given population has an equal chance of selection, each time a random selection is made. This chance of selection shall be such that an employee's chance of selection continues throughout his or her employment.

Random testing must be unannounced and the dates for the tests must be spread reasonably throughout the calendar year or operating season.

You must ensure that crewmembers are tested on a random basis at an annual rate of not less than 50 percent.

Example:

An employer with over ten employees could assign each employee with a number 1 thru 10. Then 5 times during the year all 10 numbers would be placed in a hat and 1 number drawn. The crewmember with that number would take the test.

Periodic Test **46 CFR 16.220**

A periodic test is required when an employee holding a Coast Guard license or document applies for renewal.

This testing requirement does not apply to employees such as deckhands who do not possess a license or document.

Tests Required by the Regulations (*Continued*)

Post Casualty Testing 46 CFR 4.06

You, as a marine employer, must be prepared to drug and alcohol test all crewmembers engaged or employed aboard a vessel involved in a serious marine incident. Alcohol tests (breath or blood only) must be done as soon as possible but within 4 hours of the accident (once emergent concerns have been addressed). Drug testing (DOT 5-panel urine) must be done as soon as practicable, not to exceed 24 hours after the incident.

If the vessel has a route that would keep it from returning to its collection site within 24 hours, required equipment and specimen containers must be kept aboard the vessel.

Reasonable Cause Test 46 CFR 16.250

You, as a marine employer, shall require any crewmember engaged or employed on board your vessel, who is reasonably suspected of using a dangerous drug, to be chemically tested for dangerous drugs.

Your decision must be based on a reasonable and articulable belief that an individual has used a dangerous drug based on direct observation of specific, contemporaneous physical, behavioral, or performance indicators of probable drug use. Where practicable, this belief should be based on the observation of the individual by two persons in supervisory positions.

Serious Marine Incident

A serious marine incident is defined as an incident that results in:

- death.
- injury requiring professional (beyond first aid) medical treatment, or that renders a crewmember incapable of performing their primary duties
- \$100,000 or more in damage.

- loss of an inspected vessel.
 - loss of an uninspected vessel greater than 100 GT
 - discharge of more than 10,000 gallons of oil.
 - release of a reportable quantity of a hazardous material.
-

Ensuring Your Program is in Compliance

Introduction

During your annual inspection a Coast Guard Marine Inspector will ask you about your drug-testing program. The following checklist can be used to ensure that your program meets federal requirements and prepare you to answer the Inspector's questions regarding your program.

Checklist

Drug Testing Program Checklist	
	Do you have records/proof:
	That your testing laboratory is DHHS certified
	Of pre-employment testing for all currently employed crewmembers
	Of periodic testing - <i>required at license renewal</i>
	Of random testing - <i>50% per year</i>
	That crewmembers/supervisors have received EAP training
	That employer and supervisors have had training in substance abuse and Behavioral cues for detection of drug use. (Minimum of 60 minutes)
	Of a medical review physician active in your program
	Are you prepared to conduct:
	Post casualty testing within 24 hours of accident.(4 hours for alcohol)
	Reasonable Cause tests

This checklist is similar to the one carried by Coast Guard Marine Inspectors to check operators for compliance with federal regulations. ***This checklist is not complete and following it alone will not guarantee your program is in complete compliance with the provisions of 46 CFR Part 1 or 49 CFR Part 40.***

Failure to Comply

Failure to comply with the Drug Testing Requirements can be cause for loss of your COI, or a civil penalty action of up to \$5,000 per violation, per continued day of violation, or the issuance of a Captain of the Port Order that would halt the

operation of your vessel.

CHECKLIST FOR T-BOAT INSPECTIONS

This checklist is designed to be used by the owner or operator to pre-inspect the vessel prior to the arrival of the Coast Guard Marine Inspector.

The items listed are the items the Marine Inspector will be examining. Included with each item is a brief description of what the inspector will be looking for. Additional information regarding each item can be found by referring to the applicable Code of Federal Regulation (CFR) listed.

Bear in mind that all the items listed below may not pertain to the vessel you are operating. The vessel's size and route are just a couple of the determining factors in whether a regulation is applicable.

If you pre-inspect your vessel by using this checklist prior to your inspection, you can decrease or alleviate being issued CG-835 items, decrease inspection time and avoid delays in operating.

Have all items ready for inspection, and be prepared with a schedule for completing all items of the inspection. You can organize the order of items to accomplish by using the order as listed on this checklist, or make modifications to the order that would be more efficient for your vessel.

It is our intention to work with you to complete the inspection, as efficiently as possible to ensure the safety of your passengers. You can always contact the Marine Inspector prior to the inspection date with any questions you may have.

Inspection Item

Regulation

DOCUMENTS: Provide for inspection. Ensure all documents and records are current. Ensure posted as necessary.

CERTIFICATE OF DOCUMENTATION or STATE CERTIFICATE OF REGISTRATION:

46 CFR part 67

*Current stamp or valid registration.

33 CFR part 173

CERTIFICATE OF INSPECTION (COI)

46 CFR 176.100

STABILITY LETTER

46 CFR 176.306

46 CFR 178.230

LICENSES
46 CFR 185.402
 FCC STATION/RADIOTELEPHONY CERTIFICATE
46 CFR 184.502
 EMERGENCY BROADCAST PLACARD
46 CFR 184.506
 INFLATABLE SURVIVAL CRAFT PLACARD(S)
46 CFR 185.518
 LIFE JACKET PLACARD(S)
46 CFR 185.516
 OIL POLLUTION PLACARD
33 CFR 155.450
 GARBAGE POLLUTION PLACARD
33 CFR 151.59
 WASTE MANAGEMENT PLAN
33 CFR 151.57
 EMERGENCY CHECKOFF LIST
46 CFR 185.510
 STATION BILL
46 CFR 185.514
 DRILL AND TRAINING RECORD(S)
46 CFR 185.520

46 CFR 185.524
 EPIRB MONTHLY TEST RECORD
46 CFR 185.728
 CURRENT UP-TO-DATE CHARTS OF OPERATING AREA
AND NAUTICAL PUBLICATIONS
46 CFR 184.420
 COMPASS DEVIATION CARD
33 CFR 164.35(c)
 SENIOR DECKHAND DESIGNATION LETTER
NVIC 1-91
 DRUG TESTING PROGRAM 46
CFR 16 SUBPART B
(T-boat.checklist.rev01-97)

Inspection Item

Regulation [] PREPARATIONS FOR EMERGENCIES:

*Crew and Passenger List (185.502)

*Voyage Plan (185.503)

*Passenger Count (185.504)

*Passenger Safety Orientation (185.506) 46

CFR 185 SUBPART E

LIFESAVING EQUIPMENT:

Pre-inspect the following equipment.

[] EPIRB

*Ensure number as listed on COI.

*Check operation.

*Check battery expiration date.

*Ensure periodic servicing of hydrostatic release.

46 CFR 180.64

*Ensure float free.

46 CFR 185.740

[] DISTRESS SIGNALS:

*6 hand red flare and 6 hand orange smoke.

*Check expiration date. Service life is 42 months from date of manufacture and shall be replaced the first inspection for certification or reinspection after the date of expiration.

*Stowed in watertight container at operating station.

46 CFR 180.68

-Container should be bright color.

-Container marked "DISTRESS SIGNALS".

46 CFR 185.614

[] RING BUOY:

*Ensure number as listed on COI.

*Minimum 24" diameter (20" minimum if vessel <26 ft)

*Inspect 60 ft buoyant line and CG approved waterlight.

*Waterlight to be attached to ring buoy closest to pilot house.

*Inspect condition, location and stowage of ring buoy, reflective tape, waterlight, line, and marking.

46 CFR 180.70

[] LIFE JACKETS:

*Ensure number as listed on COI.

*Name of vessel marked on life jackets.

*Reflective tape on both sides of life jackets.

*Check all straps and buckles to ensure good condition.

*Type II life jacket may be used for each child less

then

30 lbs provided that they are worn during the voyage.

*Squeeze floatation bags to inspect material. If water-logged or feels like bag of freeze dried food, jacket

is

unsatisfactory. Plastic bags need not be airtight.

46 CFR 180.71

[] LIFE JACKET LIGHTS:

*Vessel's with an oceans, coastwise or Great Lakes route.
Lights not required for ferries and vessels endorsed only for routes that do not extend more than 20 miles from harbor of safe refuge.
*Batteries must be changed if beyond expiration date, if not dated, change at each inspection.

46 CFR 180.75

SURVIVAL CRAFT:

*Ensure number as listed on COI.

*Inspect survival craft equipment for condition, proper stowage, and operation.

*Ensure periodic servicing of hydrostatic release.

*Inspect condition and installation of survival craft,

46 CFR 185.730

reflective tape, lines, light(s), hydro-static

46 CFR 185.740

release(s), stowage, markings, and servicing. 46

CFR 180 SUBPART D

RESCUE BOAT

46 CFR 180.210

FIRST AID KIT:

46 CFR 184.710

FIRE FIGHTING EQUIPMENT:

Pre-inspect the following equipment.

Inspection Item

Regulation [] PORTABLE FIRE EXTINGUISHERS:

*Ensure number as listed on COI.

*Serviced annually.

*Check hydrostatic test date. 46

CFR 181 SUBPART E

[] FIXED FIRE EXTINGUISHING SYSTEM:

*Serviced annually.

*Check hydrostatic date. 46

CFR 181 SUBPART D

[] FIRE DETECTION SYSTEM

46 CFR 181.400

46 CFR 181.450

[] FIRE MAIN SYSTEM:

*Check operation.

*Inspect hose(s), nozzle(s) and piping. 46

CFR 181 SUBPART C

[] FIRE AXE

46 CFR 181.600

[] FIRE BUCKET

46 CFR 181.610

INTERNAL INSPECTION:

Open and ventilate all interior spaces for inspection.

[] INSPECT ALL INTERNALS:

*All internal spaces clean dry with no oily bilges.

*Inspect frames, deck, hull, through hull fittings, bondings, etc.

*Inspect all wiring.

*Inspect vessel ventilation.

46 CFR 176.802

[] BILGE SYSTEM:

*Conduct operational test of all bilge pumps. Ensure sufficient hose length is available.

*Conduct operational test of bilge alarms.

*Check installation and marking. 46

CFR 182 SUBPART E

[] MARINE SANITATION DEVICE:

*Overboard valve secured in closed position.

*Valve labeled: Valve not to be opened within

33 CFR PART 159

3 miles of mainland shore. (EPA

STANDARDS) 40 CFR 140.3

[] BELOW DECK PASSENGER SPACES

*Test emergency lighting. 46

CFR 177 SUBPART E

*Second means of escape. 46

CFR 177 SUBPART H

*Minimize fire and safety hazards.
46 CFR 183.432

ENGINE ROOM INSPECTION

[] EMERGENCY FUEL SHUTOFF

*Test fuel shutoff valve operation.

46 CFR 176.804

*Ensure shutoff valves are properly marked.

*Inspect for flame impingement bowls at valve

46 CFR 182.455

handle if necessary.

46 CFR 185.608

[] BATTERIES

*Batteries mounted in trays with covers and
protected against shifting.

*Permanent type connectors at terminals.

46 CFR 176.806

*Ammeter connected in charging circuit. 46

CFR 183 SUBPART C

[] ENGINES

*General condition.

*Wiring and cable supports.

46 CFR 176.804

*Fuel filters with flame impingement bowls.

46 CFR 182.455

*Two means of stopping the engine(s). 46

CFR 182 SUBPART B

[] PRESSURE VESSELS

*Test pressure relief valves.

*Open for internal inspection or hydro test to

46 CFR 61.10-5

1.25 of MAWP as required.

46 CFR 176.812

<u>Inspection Item</u>	
<u>Regulation</u> [] GENERAL CONDITION	
*Guards for exposed hazards.	
46 CFR 177.960	
*Protection against electrical hazards.	46
CFR 176 SUBPART H	
*Sufficient ventilation.	46
CFR 177 SUBPART D	
*Protection against fire hazards.	46

CFR 183 SUBPART B
EXTERIOR INSPECTION

[] WATERTIGHT/WEATHERTIGHT DOORS	
46 CFR 176.802	
*Ensure doors are properly marked.	
46 CFR 179.330	

46 CFR 185.610	
[] WATERTIGHT HATCHES	
*Must have sufficient watertight integrity.	
*Ensure all hatches are fitted with securing devices in addition to captive chain or wire.	
46 CFR 179.360	
*Ensure hatches are properly marked.	

46 CFR 185.610	
[] WINDOWS	46

<u>CFR 177 SUBPART J</u>	
[] BULKHEADS, DECKS, HULL	
*Inspect for rot, wastage, holes, cracks and unacceptable repairs.	
46 CFR 176.802	
*Hull markings: Vessel name and home or hailing	46
CFR 179 SUBPART C	
<u>port on stern.</u>	

46 CFR 185.602	
[] FUEL TANK VENTS/FILLS	
*30 X 30 mesh flame screens in good condition.	
*Piping electrically continuous.	46

<u>CFR 182 SUBPART D</u>	
[] WATER TANK VENT SCREENS	
*Bug screen	

<u>PHS Regs</u>	
[] BULWARKS/RAILS/GUARDS	
*Properly secured and sufficient for service of the vessel.	46

<u>CFR 177 SUBPART I</u>	
[] ANCHOR(S) AND ASSOCIATED EQUIPMENT	
*Satisfactory for the size of the vessel.	
46 CFR 184.300	
*Proper amount of line/chain.	

ABYC
UNDERWAY TEST

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- [] ENGINE OPERATION
 - *Operate engines at cruise speed and bring to reverse for emergency stop.
 - *All engine gauges operational.
 - *Operational tests from all control stations.
 - *Inspect engine mounts, engine operation and shafts/packing.
- 46 CFR 176.804
- [] STEERING GEAR TEST
 - *Inspect steering gear from full range of motion at normal cruising speed.
 - *Inspect rudder shafts, cables, quadrants, hydraulic actuators and mounting.
- 46 CFR 176.814
 - *Inspect operation of emergency steering. 46
- CFR 182 SUBPART F
- [] NAVIGATION/RADIOS/INTERNAL COMMUNICATION GEAR
- 46 CFR 176.816
 - *Operational test of all navigational gear, lights,
- 46 CFR 183.420
 - radios and internal communication gear.
- 46 CFR PART 184
 - *Check whistle, bell and day shape.
- & 72 COLREGS
- [] CONDUCT MAN OVERBOARD DRILL
 - *Drill may be conducted with senior deckhand at the helm.
 - *Satisfactory equipment to recover unconscious victim.
 - *Ensure to deploy ring buoy to man overboard.
- NVIC 1-91
 - *Crew first aid knowledge
- 46 CFR 185.520
- [] CONDUCT FIRE DRILL
 - *Test all pumps and hoses.
 - *Crew first aid, vessel layout, use of fire extinguishing equipment and fire fighting knowledge.
- 46 CFR 185.524

Ensure hull exterior is clean, but not freshly painted.

Open all interior spaces and ventilate

Ensure bilges are clean and dry.

All through hull fittings must be opened for examination.

Remove all screens/strainers from exterior of hull.

Further tailshaft examinations may be required.

46 CFR 176.630

Wood vessel be prepared to pull fasteners if requested.

NVIC 7-95

Metal vessel be prepared to gauge hull if requested.

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