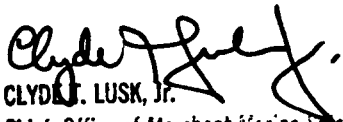


NVIC 11-84
20 DEC 1984

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 11-84
Electronic Version for Distribution Via the World Wide Web

Subj: Guidelines for New Construction or Major Modification of U.S. Flag Vessels in Foreign Shipyards

1. PURPOSE. The purpose of this Circular is to establish guidelines for construction or major modification of U.S. flag vessels in foreign shipyards.
2. DIRECTIVE AFFECTED. This Circular and the enclosed guide supersede the information previously issued in COMDT Information Bulletin 5941/24 dated 5 November 1973, entitled "Information Regarding Foreign Construction of Vessels for United States Registry."
3. APPLICATION. This guidance applies to U.S. flag vessels (excluding passenger vessels) being constructed or undergoing major modification in foreign shipyards. This Circular should be used in conjunction with NVIC 10-81 "Coast Guard Certification and Inspection of Certain Categories of Existing Vessels," when an existing vessel to which that Circular applies is undergoing work overseas, and portions of the vessel are being altered or added.
4. DISCUSSION. In order to ensure that vessels constructed or under-going major modification for U.S. registry in foreign shipyards meet the same standards of safety as vessels in the United States, it is mandatory that they comply with equivalent requirements for design, materials, equipment, plan review and inspection. This Circular supersedes the information of COMDT Information Bulletin 5941/24 dated 5 November 1973, and gives current Coast Guard policies concerning work on U.S. flag vessels.
5. ACTION. Coast Guard marine inspection and technical personnel, persons acting on behalf of the Coast Guard, shipbuilders, ship designers, and operators should consider the information and policies presented in enclosure (1) when involved in the new construction or major modification of U.S. flag vessels in foreign shipyards.


CLYDE J. LUSK, Jr.
Chief, Office of Merchant Marine Safety

End: (1) Guidelines for New Construction or Major Modification of U.S. Flag Vessels in Foreign Shipyards

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 11-84

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ZTC-68

GUIDELINES FOR NEW CONSTRUCTION OR MAJOR MODIFICATION
OF U.S. FLAG VESSELS IN FOREIGN SHIPYARDS

GUIDELINES FOR NEW CONSTRUCTION OR MAJOR MODIFICATION
OF U.S. FLAG VESSELS IN FOREIGN SHIPYARDS

I. APPLICATION.

These guidelines apply to new construction or major modification of U.S. flag vessels (excluding passenger V.88.18) being accomplished in a foreign shipyard. This Circular should be used in conjunction with NVIC 10-81, "Coast Guard Certification and Inspection of Certain Categories of Existing Vessels," for U.S. flag vessels undergoing a major modification overseas, when portions of the vessel must meet regulatory requirements for new vessels.

II. GENERAL.

A. Background.

In order to ensure that Coast Guard certificated vessels being constructed or undergoing major modification in foreign shipyards meet the same standards of safety as vessels constructed in the United States, the completed vessel should comply with requirements for equipment, systems, materials, design standards, plan review, and inspection equivalent to those applied in the United States.

B. Relationship With American Bureau of Shipping (ABS).

- (1) Coast Guard and ABS have signed agreements which formalize the cooperative efforts of the two organizations to improve the efficiency of plan review and inspection of ABS classed vessels and provide for ABS participation in the tonnage measurement of all U.S. vessels. The description of the plan review and inspection procedures for new U.S. flag vessels to be certificated by the Coast Guard and classed by ABS may be found in NVIC 10-82, "Acceptance of Plan Review and Inspection Tasks Performed by the American Bureau of Shipping for New Construction or Major Modification of U.S. Flag Vessels." The tonnage measurement procedures may be found in NVIC 5-84, "Acceptance of Certificates of Admeasurement issued by the American Bureau of Shipping."
- (2) In addition, ABS may perform stability related plan review and inclining tests for certain categories of vessels. The details of this procedure may be found in NVIC 3-84, "Acceptance of Stability Review Performed by the American Bureau of Shipping for New U.S. Flag Vessels."
- (3) While it is not within the scope of this Circular to duplicate information found in NVIC 10-82, NVIC 3-84 and NVIC 5-84, references to them will be found in the sections that follow. When vessels are to be ABS classed, vessel builders and/or owners are urged to become familiar with the contents of NVIC 10-82 and NVIC 3-84.

C. Problem Areas.

- (1) Design. The Coast Guard regulations make reference to U.S. manufacturing codes and standards such as ASNE, ANSI, etc.; foreign codes or standards are not included.

- (2) Materials. The Coast Guard regulations make reference to material specifications such as ASME and ASTM, but do not reference any foreign specifications.
- (3) Equipment. Certain equipment, such as lifesaving equipment and parts of fire protection systems, is required to be type-approved in accordance with 46 CFR Subchapter Q. Certain other equipment does not need specific type-approval, but should comply with applicable regulations.

III. PROCEDURES.

A. Obtaining Coast Guard Plan Review and Inspection Services.

- (1) Applications for Coast Guard plan review and inspection should be submitted to Commandant (G-MVI) in accordance with this NVIC. If Coast Guard plan review and inspection is necessary, travel and other expenses for conducting Coast Guard inspection shall be paid by the owner in accordance with 46 USC 3317. Prior to assigning inspectors or initiating plan review, a signed Memorandum of Agreement between the U.S. owners and the Coast Guard will be executed. This agreement commits the owner to construct the vessel in accordance with these guidelines and the applicable regulations. This agreement will also contain the reimbursement terms and may be executed by contacting Commandant (G-MVI).
- (2) When the foreign inspection agreement is complete, Commandant (G-MTH) will assign the plan review responsibility to the appropriate field technical office. Plan review will not be started for new construction or major conversion in foreign shipyards unless the agreement mentioned above is complete.
- (3) The mailing address for offices of the Commandant is: Commandant (routing symbol) U.S. Coast Guard Headquarters 2100 Second Street, S.W. Washington, DC 20593
- (4) When vessels are classed by ABS, plan review and inspections may be in accordance with the provisions of NVIC 10-82. The procedures in that Circular were intended to reduce duplication of effort between the ABS and the Coast Guard and is the preferred method for plan review and inspection.

B. Plans and Correspondence.

- (1) All correspondence should be in English. All plans, technical data, copies of standards and specifications, etc., should be in English or be accompanied by English translations. English translations of material used as references may be required.
- (2) Dimensions on drawings may be given in either English or metric units. However, only English units are to be utilized for stability information and ship's operational characteristics.
- (3) For ABS classed vessels, plans should be submitted in accordance with the provisions of NVIC 10-82. For vessels not classed by ABS, the construction plans

should be submitted to the assigned field technical office (either New York, New Orleans or San Francisco) for review and comment in accordance with the provisions of NVIC 8-84, "Recommendations for the Submittal of Merchant Vessel Plans and Specifications."

C. Vessel Inspection and Certification.

- (1) Inspection During Construction. Arrangements should be made to permit Coast Guard inspection during the entire period of construction. The ultimate aim is a degree of inspection during construction equivalent to that obtained if the vessel were built in the United States. Assuming this degree of inspection is realized, the Certificate of Inspection may be issued upon completion of construction. However, in the event such inspection is not achieved or Coast Guard requirements are outstanding, final inspection and certification may be necessary when the vessel arrives at the first United States port. (Note the inspection procedures of NVIC 10-82.)
- (2) Admeasurement. A vessel owned by U.S. interests and constructed or rebuilt in a foreign shipyard may, on application of the owner, be measured or remeasured for tonnage at that site (46 CFR Subchapter G.). Certificates of Admeasurement or Readmeasurement, for either U.S. documentation or inter-national purposes, may be issued to a vessel prior to its arrival at a United States port . Many vessels now being constructed or rebuilt will require an International Tonnage Certificate, 1969 (NVIC 6-83, "Admeasurement of Vessels in Accordance with the Rules of the International Convention on Tonnage Measurement of Ships, 1969"). Applications should be submitted sufficiently in advance of the vessel's completion to permit arrangements to be made for assignment of personnel, for submittal of plans and for preliminary review and computations. Application. will be submitted to Commandant (G-MVI-5) or to the American Bureau of Shipping which may also provide these services (NVIC 5-84).
- (3) Documentation. The second proviso of 46 USC 883 will affect the coastwise trading privileges of a vessel if any considerable part of its hull or superstructure is built upon or substantially altered outside of the U.S. Additionally, under 46 USC 3704, installation outside of the U.S. of segregated ballast tanks, crude oil washing systems, or inert gas systems on tankers subject to section 3705 will result in a loss of coastwise trading privileges. The vessel documentation regulations are found in 46 CFR Part 67. Specific requirements to be met and information concerning vessel documentation should be addressed to Commandant (G-MVD). (See III.A.(3) for the address.)

D. Stability.

- (1) Any vessel undergoing construction or major modification in a foreign shipyard will normally be subject to an inclining experiment witnessed by the Coast Guard. However, if the vessel is to be issued a load line by the ABS, the procedures of NVIC 3-84 may be utilized. Preparations for the test should be carried out in accordance with NVIC 15-81, "Guidelines for Conducting Stability Tests". facilitate manpower scheduling, at least four weeks advance notice of the date of the test should be given to the Coast Guard (mmt) office or ABS office responsible

for plan review. Within reason, this should be a firm date and changes are discouraged.

- (2) If more than one vessel of a class is built, the inclining experiment will be conducted on the lead vessel (first of series) Deadweight survey of subsequent vessels of a class may be authorized by the assigned (mmt) office or ABS office, and may be sufficient if the results of these surveys verify the sistership relationship to the lead vessel. If not, an inclining may be necessary.
- (3) Sufficient stability information to permit safe loading, offloading, and operation of the vessel should be prepared by the owner, shipyard, or naval architect, approved by the Coast Guard or ABS, as applicable, and then furnished to the Master of the vessel. This information is usually in the form of a Trim and Stability Booklet for ships or an Operating Manual for mobile offshore drilling units (MODU's). It is recommended that a preliminary booklet or manual, using conservatively estimated lightship values, be prepared and submitted early in the plan development process. If satisfactory, it may be accepted as a preliminary booklet or manual and may permit the issuance of a temporary stability letter upon approval of the results of the inclining experiment. This letter may serve for a period of not more than ninety days. This will provide ample time for preparing and approving final stability information using lightship values determined by the inclining experiment.
- (4) If any changes are made during the life of the vessel that affect stability, a modified booklet approved by the Coast Guard or ABS, as applicable, will be necessary.

E. Automation.

- (1) Automated or centralized control of the machinery plant is often incorporated into the design of the vessel in order to reduce the required level of engineroom manning. The intent to automate the machinery plant should be clearly set forth in the application for Coast Guard plan review and inspection referred to in section III.A.(1). The installation should comply in full with Coast Guard regulations and with NVIC 1-69 "Automated Main and Auxiliary Machinery" NVIC 1-78 "Automation of offshore Supply Vessels of 100 Gross Tons and Over," or NVIC 6-84 "Automated Main and Auxiliary Machinery; Supplemental Guidance On," as applicable. While it is recognized that it rarely occurs in practice, it is strongly recommended that the plans, test procedures, and other data necessary to establish compliance be submitted for approval prior to procurement of the equipment.
- (2) An evaluation of the machinery plant operational safety and reliability will be necessary after completion of the vessel and prior to authorization of any reduction in manning. An operational evaluation period of approximately six months is necessary. At the completion of the evaluation period the vessel's record of performance will be evaluated by the cognizant officer in Charge, Marine Inspection, and then forwarded to the Commandant (G-MVP) for final approval.

IV. EQUIPMENT, SYSTEMS, MATERIALS AND DESIGN STANDARDS.

A. Equipment.

- (1) Certain equipment, such as lifesaving and fire fighting equipment, safety relief valves, etc. are required to be type-approved by the Coast Guard in accordance with the provisions of 46 CFR Subchapter Q. Equipment which requires type-approval must be listed in the "Equipment Lists," COMDTINST M16714.3A. Information on equipment that has been type-approved after publication of the "Equipment Lists" is available from Commandant (G-MTH), Commandant (G-MVI), field merchant marine technical offices, or ABS New York. Type-approved equipment is readily identifiable by the Coast Guard approval number.
- (2) In cases where foreign equipment is to be used, the burden is on the owner to demonstrate that all the requirements of 46 CFR Subchapter Q, or specific Coast Guard requirements, are met or exceeded. Unless otherwise specified, foreign equipment and materials may be used.

B. Piping System Components.

- (1) Piping system components (pipe, tubing, fittings, valves, flanges, and bolting) used in the systems covered by 46 CFR Subchapter F, paragraph 56.01-10(c), may be fabricated outside the United States, provided they meet requirements as noted below.
- (2) The piping system component materials used should meet one of the following:
 - (a) An acceptable ASME or ASTM material specification meeting the requirements of 46 CFR 56.60-1(a)(2). See 46 CFR 56.50-105 for service below 0°F (-18°C).
 - (b) A foreign material specification (DIN, BS, JIS etc.) which has been established to the satisfaction of the Coast Guard as being equivalent to an acceptable ASME or ASTM material specification. See IV.B.(4) regarding establishing equivalence.
 - (c) A foreign material specification (DIN, BS, JIS etc.) specifically approved by the Coast Guard for a particular temperature and service. See IV.B.(4) regarding the parameters which must be defined.
 - (d) Coast Guard approved procedure qualification for piping system welding is required. Welder performance qualifications of other agencies may be accepted as equivalent to Coast Guard requirements.
- (3) The design standards should meet one of the following:
 - (a) An applicable standard listed in 46 CFR Table 56.60-1(b), as modified by 46 CFR Parts 50 and 56 for specific systems.
 - (b) A foreign standard (DIN, BS, JIS etc.) which has been established to the satisfaction of the Coast Guard as being equivalent to an acceptable standard listed in 46 CFR Table 56.60-1(b). See IV.B.(5) regarding establishing equivalence.

- (c) A foreign standard (DIN, ES, JIS etc.) specifically approved by the Coast Guard for a particular pressure, temperature, and service. See IV.B.(5) regarding the parameters which must be defined.
 - (d) If a particular component is not designed to a standard, it may be specifically approved by the Coast Guard for a particular pressure, temperature, and service. Approval will be based upon review of the technical data listed in IV.B.(5) and 46 CFR 50.25-10(c)(2) through (7).
- (4) In all cases where foreign material specifications are submitted, the burden is on the owner to demonstrate that all the requirements of 46 CFR Subchapter F are met or exceeded. An English translation of each foreign standard is to be furnished, along with a comparison sheet demonstrating an item by item equivalence between the foreign specification and the U.S. specification with which it is being compared. When the foreign specification refers to other specifications which are pertinent to the comparison, English translations of these should also be submitted. The following parameters are normally contained in U.S. material specifications (ASTM or ASME) and should be addressed in any foreign specification equivalency determination which is requested:
- Chemistry determined by testing
 - Minimum mechanical properties determined by testing
 - Standardized methods for sampling mechanical and chemical properties
 - Heat treatment
 - Hot or cold work
 - Method of manufacture, e.g. rolling, forging, etc
 - Melting practice, e.g. rimmed, killed, coarse grain, etc
 - Welding performance and procedure qualifications (when applicable, including those for repair welding)
 - Dimensions (including thicknesses and tolerances when applicable)
 - Non-destructive examination (including accept/reject criteria and qualification of personnel performing the examinations when applicable)
 - Repair procedures
 - Marking and mill certification
 - Hydrostatic or other types of tests which may be specified such as flattening, bend, etc.
- (5) Similarly, in all cases where foreign design standards or design plans for particular components are submitted, the burden is on the owner to demonstrate that all requirements of 46 CFR Subchapter F have been met or exceeded. In the case of foreign standards, English translations should be submitted. When the foreign standard refers to other standards or material specifications which may be pertinent to approval, English translations of these shall also be submitted. The following parameters are normally contained in component standards such as ANSI, and should be addressed by any foreign standard submitted for which an equivalency determination is requested:
- Material requirements (See IV.B.(4))
 - Dimensions (including wall thicknesses and tolerances)

- Method of design and stress analysis including factors of safety (design factor) or alternatively, data on proof testing
 - Pressure/temperature ratings
 - Non-destructive examination including accept/reject criteria and qualification of personnel performing the examinations (when applicable)
 - Welding procedure and welder performance qualifications when applicable (including those for repair welding)
 - Hydrostatic testing
 - Heat treatment
 - Hot or cold working
 - Stamping and marking
 - Sample testing for mass-produced products
- (6) Inspection during manufacture of piping system components by Coast Guard inspectors viii normally not be performed. However, the component may be required to be tested in the inspector's presence to ensure compliance with Coast Guard requirements. Materials and components which are accepted: on approved plans in accordance with the procedures set forth in IV.B. should be identifiable to the Coast Guard inspector or ABS surveyor at the construction site by mill or manufacturer's certificate and suitable marking.

C. Hull Steel and Hull Welding Procedures.

- (1) Welding procedures and welder performance qualifications should be approved by the Officer in Charge, Marine Inspection, or the OCMI's designee, for hull structural applications. The Coast Guard also accepts welders qualified by the American Bureau of Shipping or other recognized classification societies.
- (2) Hull steel should be mill marked. Mill certificates should be provided in English, signed by a surveyor of a recognized classification society.
- (3) Where high tensile steel or special steels are to be used in the hull structure, specific Coast Guard approval of these steels, their locations within the hull, and welding procedures is required. Approval should be obtained in the vessel design stage to facilitate incorporation of Coast Guard requirements in this regard.

D. Marine Engineering Equipment and Systems.

- (1) Propulsion boilers should meet the requirements of 46 CFR Part 52 When fabricated in the United States, propulsion boilers should have all pressure containing parts requiring strength welds, including those on down-comers and risers, completed before shipment from the United States. Pipe connection welds to superheaters, air heaters, and economizers, and other welds which are necessary for the "field assembly" of boilers should be listed, described and approved before the boiler leaves the United States fabrication shop. Arrangements should be made with Commandant (G-MVI) for plan approval and shop inspection of propulsion boilers.
- (2) Auxiliary boilers of greater than 30 psig steam pressure, hot water supply and hot water heating boilers of greater than 100 psig or 250 F will be handled as

indicated above for propulsion boilers and should comply with 46 CFR Part 52. All other boilers should meet 46 CFR Part 53. Auxiliary boilers meeting Part 53 and stamped in accordance with Section I or Section IV of the ASME Code are exempt from Coast Guard plan approval and shop inspection. If not stamped with the ASME Code symbol, then Coast Guard plan approval and shop inspection is necessary. Automatic controls on auxiliary boilers should fully comply with 46 CFR Part 63 and NVIC 1-69. (See III.E.)

- (3) Class I, II, and III pressure vessels which do not contain hazardous materials are to be ASME Code symbol stamped in accordance with 46 CIR 54. If this is not possible, the pressure vessel manufacturer should contact Commandant (G-MVI) to arrange for Coast Guard or other acceptable third party inspection and plan approval. Arrangements should be made with Commandant (G-MVI) for plan approval and shop inspection of pressure vessels which contain hazardous materials.
- (4) Welded accumulators are considered pressure vessels and) therefore, should comply with IV.D.(3). Other welded components may require Coast Guard approved welding procedures and welder performance qualifications. ABS handles these approvals if the vessel is being constructed under NVIC 10-82.
- (5) Turbines, internal combustion engines, and auxiliary machinery should meet the standards of the American Bureau of Shipping or other recognized classification society. In the case of fire and bilge pumps, and pumps servicing foam or water spray fire extinguishing systems, pump characteristic curves certified by the manufacturer should be furnished to the field merchant marine technical office conducting the plan review (or to ABS for vessels covered under NVIC 10-82).

E. Electrical Systems and Equipment.

- (1) Shipboard electrical materials and equipment are of special interest to the Coast Guard because of their history of causing fires and personnel injuries. Nearly all electrical components onboard ship require review by the Coast Guard or ABS. As an alternative, certain equipment is acceptable without detailed plan review if it is listed or labeled for the intended service by an independent test laboratory acceptable to the Commandant.
- (2) The following electrical equipment shall be approved by the Coast Guard and fabricated under 46 CFR Subchapter Q, as described in IV.A. (1):
 - Motor Lifeboat Searchlights
 - Lifeboat Winches
 - Electric Hand Flashlights
 - Floating Electric Waterlights
 - Sound powered Telephones
 - Fire Detection and Alarm Systems (where required to be installed, otherwise see IV.H.(3))
- (3) For certain equipment, 46 CFR 110-113 requires construction and testing in accordance with specific ANSI/UL or UL standards. UL listing for this equipment

is not required. equipment not meeting the specific referenced standard may be shown to provide a level of safety equivalent to that provided by equipment meeting the referenced specification. This applies to the following equipment:

- Snap Switches
- Electrical Cabinets and Boxes
- Panelboards (Marine Supplement-MS)
- Motor Operated Appliances
- Enclosed Switches (MS)
- Elevator Door Locking Devices
- Electric Cooking Appliances (MS)
- Refrigerators/Freezers
- High Voltage Industrial Control Equipment
- Knife Switches
- Drinking Water Coolers
- Wire Connectors and soldering Lugs
- Molded Case Circuit Breakers and Enclosures (MS)
- Attachment Plugs and Receptacles
- Industrial Control Equipment (MS)
- Electrical Outlet Boxes and Fittings
- Marine Lighting Fixtures
- Dishwashers
- Electrical Motor Control Centers
- Busways
- Emergency Lighting Equipment
- Electric Air Heaters (MS)
- Electrical Baseboard Heating Equipment
- Electric Central Air Heating Equipment
- Battery Chargers (MS)

The Coast Guard will accept the above equipment without plan review if it bears the appropriate U" label. This equipment may be of U.S. or foreign manufacture. Alternately, the cognizant Coast Guard field technical office (or ABS for vessels covered under NVIC 10-82) may review plans of the above equipment and the required test data to determine compliance with, or equivalence to, the applicable standard. These plans should include a comparison between equipment construction and testing and the applicable UL standard. The burden is on the owner or shipyard to demonstrate this compliance or equivalence.

- (4) Explosionproof equipment and intrinsically safe systems should be labeled for the intended service by UL, Factory Mutual (FM), Canadian Standards Association (CSA), or other independent certification organization recognized by the Commandant.
- (5) Large circuit breakers are required to be manufactured in accordance with the applicable Institute of Electrical and Electronics Engineers (IEEE) Standard. Because experience has indicated that an inordinate amount of time is required to establish compliance with IEEE standards, it is recommended that only large circuit breakers known to meet the IEEE standards be used.

- (6) Fuses must be listed by UL or another independent certification organization recognized by the Commandant.
- (7) Navigation lights must meet the technical details in the applicable navigation regulations and Rules of the Road. Navigation lights on vessels greater than 65 feet in length must be specifically approved by the Commandant (G-MTH). Navigation lights that are UL classified to the International Regulations for Preventing Collisions at Sea, 1972 (72 COULEGS) require no further plan review by the Coast Guard.
- (8) Sound signal appliances must meet the technical details in the applicable navigation regulations and Rules of the Road. Ships' whistles, bells, and gongs are specifically approved by Commandant (G-MTH).
- (9) The following equipment should comply with the referenced regulations and/or standards:

ITEM	<u>STANDARD</u>
Cable Transit Devices	ASTM E119, (USPHS has additional requirements for ratproofing)
Daylight Signaling Lights	46 CFR 111.75
Elevator and Dumbwaiter Equipment	ANSI A17.1
Engine Order Telegraphs	46 CFR 113.35
General Alarm Equipment	46 CFR 113.25
Generators	ABS Rules for Building and Classing Steel Vessels
Lifeboat Winch Auxiliary Equipment	46 CFR 111.95
Navigation Lights	46 CFR 111.75, UL 1104
Navigation Light Panels	46 CFR 111.75
Steering Control Equipment	46 CFR 113.43, 111.93

- (10) Wire and cable should be constructed and tested in accordance with 46 CFR 111.60. If of foreign manufacture and not constructed and labeled as either IEEE Std. 45-1977 or MIL-C-915, specifications and test data should be submitted for review to Commandant (C-MTH), or ABS for vessels covered under NVIC 10-82. Cables bearing the UL Shipboard Cable Listing are acceptable to the Coast Guard without Coast Guard review. Experience has shown that many foreign cables will not pass the required flame propagation test.
- (11) The internal design, circuitry, and material for equipment coming within the purview of the Federal Communications Commission and devices such as gyrocompasses, radar, depth sounders, etc., do not require approval by the Coast Guard. However, the power cable up to the point of entry into the device, and the circuit protection provided, are subject to Coast Guard review and approval.
- (12) In addition to the above, all electrical installation and schematic plans for the vessel as specified in 46 CFR 110.25 (Electrical Engineering Regulations) should

be submitted to the cognizant Coast Guard field technical office for plan approval (or to ABS for vessels covered under NVIC 10-82).

F. Lifesaving Equipment.

- (1) All lifeboats, liferafts, life floats, buoyant apparatus, rescue boats, life preservers davits, and winches shall be manufactured to the requirements of 46 CFR Subchapter Q and approved by Commandant (G-MVI-3).
- (2) All equipment required for lifeboats, etc., that must meet the requirements of 46 CFR Subchapter Q, shall be approved by Commandant (G-MVI). Items such as buckets, heaving lines, etc., for which there are no Subchapter Q requirements, may be of foreign manufacture if they comply with the applicable Coast Guard regulations.

G. Marine Sanitation Devices.

- (1) All marine sanitation devices (MSD's) should be designed and marked in accordance with 33 CFR 159 and approved by Commandant (G-MVI-3). Approved MSD's are identified in COMDTINST M16714.3A, "Equipment Lists".

H. Pollution Prevention Equipment.

- (1) Oily-water separating equipment, bilge monitors, and cargo monitors are required by 33 CFR 155 and 33 CFR 157 to be approved in accordance with CFR 162.050. This equipment is approved by Commandant (G-MVI-3).

I. Fire Extinguishing Systems.

- (1) NVIC 6-72, "Guide to Fixed Fire-Fighting Equipment Aboard Merchant Vessels," contains guidance for designing fire extinguishing systems. All equipment specified by the regulations or NVIC 6-72 to be manufactured in accordance with 46 CFR Subchapter Q, should be approved by the Commandant (G-MVI-3).
- (2) NVIC 6-80, "Guide to Structural Fire Protection Aboard Merchant Vessels," contains guidance for designing structural fire protection in accordance with regulations. All materials specified by the regulations or NVIC 6-80 to be manufactured in accordance with 46 CFR Subchapter Q; should be approved by Commandant (G-MVI-3).
- (3) If a fire detection system is not required by the regulations but is installed, the provisions of NVIC 7-80 should be applied.