

COMSCINST 9330.6D	COG CODE N72	DATE 6 JUN 1991
--------------------------	---------------------	------------------------



DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
901 M STREET SE
WASHINGTON DC 20398-5540

COMSCINST 9330.6D
N74
6 June 1991

COMSC INSTRUCTION 9330.6D

Subj: ACCOMMODATION STANDARDS FOR MILITARY SEALIFT COMMAND SHIPS

Ref: (a) General Specifications for T-Ships, 1991
(b) Code of Federal Regulations, Title 46, Shipping
(c) OPNAVINST 5100.19B
(d) OPNAVINST 9640.1

Encl: (1) Accommodation Standards for Military Sealift Command Ships

1. Purpose. To establish standards for living and working spaces on board MSC ships. This instruction is a complete revision and should be read in its entirety.

2. Cancellation. COMSCINST 9330.6C.

3. Background

a. Goal. MSC's goal is to provide a standard of accommodation equivalent to prevailing commercial American standards in order to attract and retain the best qualified mariners. To help achieve this goal, enclosure (1) is provided as a supplement to the minimum standards set forth in references (a) through (d).

b. Format. The format in enclosure (1) is composed of various sections similar to a shipbuilding specification. This format was selected to present both an orderly separation of contents and to allow the revision of individual sections.

c. Metric. The Omnibus Trade and Competitiveness Act of 1988 requires all federal agencies to convert to the metric system of measurement by the end of FY 1992. To comply with the requirements of this law, metric units will be used in this instruction with the equivalent English unit in parentheses.

6 June 1991

4. Policy. For both new and existing ships, habitability and work space facilities and arrangements shall be developed, modified, and enforced as follows.

a. New Construction. All new ship acquisitions for civilian manning shall meet or exceed those cited in references (a) through (d), enclosure (1), and the latest union agreements. A new ship is defined as a vessel which is receiving construction-related funding from Naval Sea Systems Command (NAVSEA) and is undergoing preliminary design or has been programmed for procurement after the approval of this instruction.

b. Existing MSC Ships. Existing ships not meeting the current standards for new construction shall, where practical and economically feasible, be upgraded to meet the new construction standards to the greatest extent possible. Certain deficiencies such as stateroom occupancy, arrangement, size, and available sanitary and leisure facilities shall for practical reasons remain unchanged as long as the complement and physical arrangement remains the same. Any improvements in ships older than twenty years or ships with projected life expectancies less than 10 years will be specially considered since the adoption of modern standards would incur expenses not commensurate with the remaining life expectancy.

c. Conversions and Material and Readiness Upgrades (MARUPs). Major conversions and MARUPs that extend the projected life expectancy shall, where practical and economically feasible, meet the standards for new construction to the greatest extent possible. Adequacy of existing habitability conditions shall be a consideration when selecting a vessel for conversion and introduction into the MSC fleet.

d. Ex-Navy Ships. Navy ships transferred to MSC for civilian operation shall, where practical and economically feasible, be upgraded to meet the standards for new construction to the greatest extent possible.

e. Charters. New construction intended for long term MSC bareboat charter shall meet or exceed those cited in references (a) through (d), enclosure (1), and the latest union agreements. Vessels chartered under long and short term, spot, and voyage charters shall be exempt from this Instruction, but shall meet minimum Regulatory Body habitability and safety requirements. Adequacy of existing habitability standards shall be a consideration when selecting a vessel for long term charter and introduction into the MSC fleet.

f. All Ships. The following requirements shall apply to all ships.

(1) Improvements of accommodations, within the limitation of funds available, shall be made on a continuing basis on all MSC ships.

6 June 1991

(2) Accommodations will be equal for MSC and sponsor personnel of equal rank or status.

(3) Improvements in either MSC personnel spaces or sponsor spaces will require equivalent improvements in both.

(4) Permanently embarked military detachments (MILDET) shall be provided with living spaces of equivalent standard to those provided MSC civilian personnel of equal rank.

(5) Deficiencies may only be corrected by approved TRANSALTS and BASELINE ITEMS. BASELINE ITEMS shall only be used for new ships which have been delivered and are still within the NAVSEA funding period. Requests for alterations may originate within the command, sponsors, contract operators, NAVSEA, etc.

(6) Ships which are the least habitable shall have deficiencies corrected before ships which are more habitable.

(7) For a given ship, deficiencies shall be corrected in the following order of importance, in stages, as conditions permit:

(a) Meet Regulatory Body health and safety standards

(b) Improve operational efficiency

(c) Improve working conditions and standards

(d) Improve food service and leisure spaces

(e) Improve individual staterooms and sanitary facilities

(8) Ships operating on extended missions in extreme environments where personnel are subjected to undue hardship shall have deficiencies corrected before ships operating on shorter missions in more hospitable environments.

(9) Ships with longer projected life expectancies shall be given priority over ships with shorter life expectancies.

(10) Accommodations on small ships, under 75 m (246 ft) in length, operating on extended missions shall be carefully designed and arranged within the available space constraints and shall, to the greatest extent possible, place a greater emphasis on quality outfitting and decorating to make up for the lack of available space.

COMSCINST 9330.6D

6 June 1991

5. Action

a. Habitability Board. A Habitability Board composed of appropriate staff offices listed in COMSCINST 5420.5G shall be maintained at Headquarters. Habitability Boards shall also be maintained at the Area Commands.

b. Headquarters Habitability Board Responsibilities

(1) Review and approve broad standards for living and working conditions on board MSC ships.

(2) Review and approve relaxations in standards and waiver requests for existing ships, conversions, ex-Navy ships, and charters.

(3) Conduct habitability studies and projects as required.

(4) Review, approve, and prioritize alteration requests only in connection with studies and projects.

(5) Determine where deficiencies exist, as indicated in reports or surveys, and make the necessary recommendations.

(6) Review and approve habitability improvements.

c. Area Command Responsibilities

(1) Recommend specific improvements by ship.

(2) Recommend priority of accomplishment.

(3) Provide justification to support budget submission.

Distribution:

SNDL 41B (MSC Area Commands) (5)

41C (MSC Subarea Commands) (1)

Copy to:

SNDL A3 (CNO)

NAVSEA

6 June 1991

ACCOMMODATION STANDARDS INDEX

SECTION	TITLE
	GENERAL REQUIREMENTS
00	GENERAL ACCOMMODATION REQUIREMENTS
01	CONSUMABLES
	OUTFITTING REQUIREMENTS
10	ACCESS REQUIREMENTS
11	JOINER WORK
12	DECK COVERING
13	ENTERTAINMENT SYSTEMS
	ENVIRONMENTAL AND HEALTH REQUIREMENTS
20	AIRBORNE NOISE AND VIBRATION LIMITS
21	ILLUMINATION
22	LIGHTING SYSTEMS
23	HEATING, VENTILATION, AND AIR CONDITIONING
24	MEDICAL SPACE AND EQUIPMENT REQUIREMENTS
25	SANITATION, HYGIENE, AND RAT PROOFING
	COMMISSARY REQUIREMENTS
30	FOOD SERVICE SPACES
31	MESSING REQUIREMENTS
	SHIPS UNDER 75 METERS (246 FT) IN LENGTH
40	GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS UNDER 75 METERS

6 June 1991

LIST OF TABLES

TABLE	PAGE	TITLE
00-1	00-11	MINIMUM AREAS FOR STATEROOMS, SANITARY SPACES AND PRIVATE OFFICES
00-2	00-13	STATEROOM OUTFITTING AND FURNISHING
00-3	00-15	SANITARY SPACE OUTFITTING
00-4	00-16	OFFICE OUTFITTING AND FURNISHING
00-5	00-18	LOUNGE OUTFITTING AND FURNISHING
00-6	00-19	LAUNDRY OUTFITTING
12-1	12-4	DECK COVERING
30-1	30-6	GALLEY OUTFITTING
30-2	30-8	SCULLERY OUTFITTING
31-1	31-6	MESSROOM OUTFITTING AND FURNISHING
31-2	31-7	CAFETERIA SERVING ANNEX AND BUFFET OUTFITTING
40-1	40-6	MINIMUM AREAS FOR STATEROOMS AND SANITARY SPACES
40-2	40-7	STATEROOM OUTFITTING AND FURNISHING
40-3	40-9	LOUNGE OUTFITTING AND FURNISHING

LIST OF FIGURES

FIGURE	PAGE	TITLE
00-1	00-20	TYPICAL CREW STATEROOM
00-2	00-20	TYPICAL OFFICER STATEROOM
00-3	00-21	TYPICAL MASTER/CHIEF ENGINEER STATEROOM
20-1	20-4	NAVMED 6260/2
24-1	24-5	TYPICAL MEDICAL SPACE ARRANGEMENT (LARGE SHIP)
24-2	24-5	TYPICAL MEDICAL SPACE ARRANGEMENT (SMALL SHIP)
31-1	31-8	TYPICAL NEW CONSTRUCTION CAFETERIA MESSING ARRANGEMENT
31-2	31-9	TYPICAL CONVERTED EXISTING PANTRY CAFETERIA MESSING ARRANGEMENT
31-3	31-9	TYPICAL BUFFET MESSING ARRANGEMENT
40-1	40-10	TYPICAL 2 PERSON CREW STATEROOM
40-2	40-10	TYPICAL OFFICER STATEROOM

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

1. General. This section contains general accommodation and habitability requirements for new ships equal to or greater than 75 m (246 ft) in length. See Section 40 for accommodation requirements applicable to ships less than 75 m (246 ft) in length.
2. Standards. Accommodations and related outfitting shall be to prevailing American merchant ship standards and shall meet or exceed the requirements of the U.S. Maritime Administration (MARAD), International Maritime Organization (IMO), International Standards Organization (ISO), United States Coast Guard, United States Public Health Service, National Sanitation Foundation (NSF), American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), and the latest applicable union agreements.
3. General Outfitting and Arrangement Requirements. Habitability related outfitting and arrangement shall be as described in the subparagraphs that follow. Sections referred to are sections contained in this instruction. More detailed outfitting and equipment requirements are also provided in the General Specifications for T-Ships.
 - a. Outfitting Requirements
 - (1) Persons of equal rank or status shall have accommodations of equal standard, equipment, and outfitting.
 - (2) All living spaces, leisure spaces, sanitary spaces, food service spaces, offices, navigation spaces, medical spaces, applicable mission spaces, communications spaces, passageways, and stairtowers shall be fully sheathed in accordance with Section 11 and have decks covered in accordance with Section 12. Piping, wiring, ducting, and other equipment shall be located behind the sheathing to preserve the habitable appearance. All materials, furniture, and accessories shall be noncombustible, shall not emit hazardous fumes in the instance of fire, and shall require a minimum of maintenance.
 - (3) All living, control, and working spaces shall be free of undesirable noise and vibration per Section 20, lamped in accordance with Sections 21 and 22, and have heating, ventilating, and air conditioning in accordance with Section 23.

GENERAL ACCOMMODATION REQUIREMENTS

(4) All furniture shall be commercially available marine style furniture of steel or aluminum construction and furnished complete in every respect (i.e., finish, hardware, molding, securing hardware, and subbases). Surface finishes shall be baked enamel, fluidized epoxy, or chrome plated for steel and anodized clear satin finish for aluminum. End tables, coffee tables, and game tables shall have plastic laminate decorative tops.

(5) Fixed furniture and decorative lighting fixtures shall be secured as necessary and portable furniture shall be fitted with securing devices and flush deck sockets.

b. Arrangement Requirements. Staterooms and other spaces shall generally be squared or rectangular and be located as follows.

(1) To the maximum extent possible, living, food service, and leisure spaces shall be located above the bulkhead deck (i.e., the deck to which main watertight bulkhead terminate). Less frequently used spaces such as the gymnasium and hobby room may be routinely located below the bulkhead deck provided the deck head of the space is not below the deepest waterline and suitable access is provided per Regulatory Body requirements. No living, food service, or leisure space shall be forward of the collision bulkhead, abaft of the aftpeak bulkhead, or directly above a heated fuel oil tank.

(2) Living, food service, working, and mission spaces shall be separately grouped and conveniently located to each other rather than widely scattered or randomly interspersed within the accommodation spaces.

(3) Crew, mission personnel, and embarked military detachments (MILDET) shall each be separately grouped within the accommodation spaces.

(4) Licensed personnel shall be separated from unlicensed personnel and each grouped by department (i.e., deck, engine, steward, and supply) to the maximum extent practicable.

(5) In multi-decked accommodations, licensed personnel shall be located above unlicensed personnel.

(6) When located on the same deck, the Master, Chief Engineer, and equivalent mission personnel staterooms shall be forward of other officer and scientist staterooms.

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

(7) When deck and engine personnel are mixed on the same deck, deck personnel shall be grouped to starboard and engine personnel to port.

(8) All staterooms shall have at least one door giving direct access to an interior passageway or to an adjacent office or day room that has direct access to an interior passageway.

4. Berthing Requirements. Staterooms and berthing shall be provided as follows:

a. Regular Complement. All ship operating personnel, mission personnel, and MILDET shall be housed in one person staterooms to the greatest extent possible to eliminate male-female berthing conflicts. However, where lack of available space and size of crew complement force an increase in ship size solely to achieve one person rooms, other crew below the rank of chief petty officer (CPO) and equivalent mission and MILDET only shall be housed not more than two persons per room. Staterooms shall have minimum areas in accordance with Table 00-1 and furniture and outfitting in accordance with Table 00-2. See Figures 00-1, 00-2, and 00-3 for typical arrangements.

(1) Berths shall generally be oriented longitudinally with the head forward on monohulls. However, on SWATH ships, catamarans, and small ships under 75 m (246 ft), berths shall be oriented to achieve the most space efficient arrangement.

(2) Where tiered double berths exist, the minimum clearance above the top of each mattress shall be 660 mm (26 in).

(3) Where two person staterooms exist, different watches shall not be mixed between the occupants to the greatest extent possible.

(4) Where two person staterooms exist, male and female crew shall not share the same room.

b. Spare Rooms. Unless otherwise specified, the following minimum spare rooms and berths shall be provided.

(1) Two (2) crew staterooms with double berths and semi-private (shared) T&S (see para. 5a(2) for T&S definition). To be used for optional cadet use, transient rider use, or to avoid male-female berthing or toilet conflicts.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

(2) One (1) officer stateroom with private bath.

(3) One (1) transom berth in pilot house/chartroom or separate pilot/sea cabin in or near pilot house provided visibility is not badly impaired.

5. Private and Public Sanitary Spaces. Sanitary facilities shall be provided as follows. Minimum areas shall be in accordance with Table 00-1 and outfitting in accordance with Table 00-3.

a. Definitions

(1) Bath. A bath shall consist of a toilet, shower, and wash basin within an enclosed space.

(2) Toilet and Shower (T&S). A T&S shall consist of only a toilet and shower within an enclosed space in conjunction with a wash basin fitted in the stateroom.

(3) Private/Semi-Private. A private sanitary space shall be adjacent to and serve only one stateroom. A semi-private sanitary space shall be adjacent to and serve two staterooms.

b. Private Sanitary Spaces. Private sanitary spaces shall be provided as follows.

(1) Officers and CPOs. Each officer, CPO, and equivalent mission and MILDET person shall be provided with a private bath.

(2) Other Crew. Other crew and equivalent mission and MILDET shall be provided with a semi-private T&S or bath shared with an adjacent stateroom of equal standard. When two person staterooms exist, recommend that a private bath or T&S be fitted instead of a semi-private bath or T&S to prevent four persons from having to share the same toilet.

(3) Medical Spaces. Medical spaces shall be provided with sanitary facilities in accordance with Section 24.

(4) Male-Female Segregation. Male and female crew shall not be assigned to staterooms adjoining a semi-private T&S or bath.

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

c. Public Sanitary Spaces. The following public sanitary spaces shall be provided.

(1) Engineers' Change Room. On ships with manned engine rooms, an engineers' change room shall be located within close proximity to the engineers' operating station (EOS). The change room shall be provided with a toilet, wash basin, and a clothes locker for each watchstander.

(2) Pilot House Toilet. An enclosed toilet with wash basin shall be provided in the pilot house.

(3) Deck Toilets. At least two (2) deck toilets with wash basins shall be provided for crew and non crew. One shall be accessible from inside the accommodations (preferably on same deck as messrooms) and one accessible from the weather (preferably same deck as gangway) for stevedores.

(4) Toilet Clearances. The minimum lateral width of stalls or bulkheads in way of toilets shall not be less than 760 mm (30 in).

(5) Wash Basins. In addition to toilet spaces, wash basins shall be provided in all food preparation areas and in the marine sanitation device (MSD) space.

6. Private and Public Office Requirements. The following private and public offices shall be provided.

a. Private Offices. The Master, Chief Engineer, and equivalent ranking mission personnel shall have private office/day rooms adjoining their staterooms. Doors shall be provided between the stateroom and the office and between the office and an interior passageway. On large ships over 200 m (650 ft), recommend that Master and Chief Engineer be provided with separate private day rooms in addition to private offices. The day room shall function both as a private leisure space and a place to conduct official business and reception. Private offices shall have minimum areas in accordance with Table 00-1 and furniture and outfitting in accordance with Table 00-4.

b. Ship Offices. The following ship offices shall be provided. Offices shall have minimum areas in accordance with Table 00-1 and furniture and outfitting in accordance with Table 00-4.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

(1) Ship Office. A Ship Office shall be provided for general ship and deck department clerical needs. When a Ship Office cannot be provided, the Chief Officer shall be provided an office. A Ship Office shall receive a higher installation priority over a Chief Officer's office.

(2) Engineer Office. An Engineer Office shall be provided for general engineering department clerical needs. When an Engineer Office cannot be provided, the First Assistant Engineer shall be provided an office. An Engineer Office shall receive a higher installation priority over a First Assistant Engineer's office.

(3) Chief Steward's Office. A Chief Steward's Office shall be provided for general galley department clerical needs.

(4) Supply Office. A Supply Office shall be provided when a Supply Officer is regularly assigned to the ship.

(5) Disbursing Office. A Disbursing Office shall be provided when a Disbursing Officer is regularly assigned to the ship.

(6) MILDET Office. A MILDET Office shall be provided when a military detachment is regularly assigned to the ship.

(7) Mission Offices. Mission Offices shall be provided as required.

c. Computers. All private and ship offices shall be provided with the necessary tables to house a personal computer and printer in addition to normal desk space. The Chief Engineer's office shall have additional facilities to furnish or house propulsion monitoring displays on ships with automatic and remote-control of the machinery plant.

7. Leisure Space Requirements. The following public leisure spaces shall be provided.

a. Lounges. Separate lounges shall be provided for officers, CPOs, and other crew except as specified herein. Equivalent mission personnel and MILDET shall use the appropriate ship lounges unless separate sponsor or MILDET lounges are specified. When the ship complement is less than 35, the CPO lounge may be omitted and combined into a larger officer and CPO lounge. Lounges shall have minimum areas in accordance with Table 00-1 and furniture and outfitting in accordance with Table 00-5.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

b. Crew Recreation Room. When unlicensed complements exceed 50, a crew recreation room shall be provided in addition to lounges. When fitted, the recreation room shall be used for noisier activities and shall include game tables, etc. Recreation rooms shall have minimum areas in accordance with Table 00-1 and furniture and outfitting in accordance with Table 00-5.

c. Gymnasium. A gymnasium shall be provided for physical fitness of all on board personnel. Gymnasium outfitting shall be in accordance with the General Specification for T-Ships.

d. Ship Library. A small room fitted with transverse shelving only (i.e., no tables, chairs, or study carrels) shall be provided for storing public reading material.

e. Technical Library. On large ships over 200 m (650 ft), recommend that a separate technical library be provided in addition to and adjacent to the Engineer Office for storage of ship technical material.

f. Hobby Room. On large ships over 200 m (650 ft), recommend that a small room equipped with benches, vises, grinders, etc. be provided for hobby activities of all on board personnel.

8. Other Miscellaneous Spaces and Requirements

a. Miscellaneous Service Lockers. The following miscellaneous service lockers shall be provided in the accommodation spaces in sufficient number for the intended complement.

(1) Cleaning Gear Lockers with deep service sink, shelf, and mop and broom rack (every accommodation level)

(2) Luggage Lockers (as required)

(3) Clean and Dirty Linen Lockers (as required)

(4) Foul Weather Gear Locker

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

b. Laundry. Separate laundry rooms shall be provided for approximately every 25 (or portion thereof) officers, CPOs, and crew. Equivalent mission personnel and MILDET shall use the officer, CPO, and crew laundries unless separate facilities are provided. When the complement is 50 or less, one officer/CPO laundry and one crew laundry shall be provided. When the complement exceeds 100, an additional ship laundry shall be provided. Laundry outfitting shall be in accordance with Table 00-6.

c. Linen and Soap Supply. All personnel shall be provided an adequate supply of towels, wash clothes, hand soap, and blankets. Clean bed linen (sheets and pillow slip) shall be provided weekly.

d. Ship Store. A ship store (sometimes called a slop chest or sales exchange) shall be provided for the purchase of miscellaneous items (i.e., toilet articles, tobacco, candy, etc.). A store with a sales window in the passageway shall be provided instead of a walk-in store for complements less than 300.

e. Conference Room. A separate conference room shall generally not be provided unless specified for certain ship types or for certain personnel use (i.e., mission personnel). For ship personnel, the officer lounge shall function as the ship conference room and shall be furnished with a conference table and chairs.

f. Control and Operating Spaces. Although not accommodations, control and operating spaces shall conform to the same general noise, vibration, and environmental requirements as accommodations spaces to provide a safe, habitable, and functional work environment. The following additional requirements shall apply to control and operating spaces to improve the operational effectiveness.

(1) Engineers' Operating Station (EOS). The EOS shall be enclosed, environmentally controlled, and acoustically for the safety and comfort of engineering personnel while operating and monitoring the propulsion plant. Good visibility of and convenient accessibility to the main propulsion machinery shall be provided.

(2) Pilot House. The pilot house shall have good all-around visibility and unobstructed vision from the helmsman's station to the bridge wing conning locations. Pilot house windows shall be canted outward at the top a minimum of 10 degrees, be as large as possible, and be easily accessible for cleaning. An exterior front bulkhead

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

window with overhead weather protection immediately adjacent to the pilot house sides is recommended port and starboard. If necessary, a catwalk shall be fitted on the front bulkhead to access windows. Bridge wings shall extend to the ship sides and the ends provided with pipe stanchions and ridgepoles for spreading awnings. Bridge wings on ships intended for cold weather/polar operations shall be an enclosed continuous extension of the pilot house out to the ship sides. Sanitary facilities shall be provided in accordance with paragraph 5c(2) above.

(3) Cargo Control Center (Tank Vessels Only). The cargo control center on tank vessels shall be located on an upper level of the aft house and providing good visibility of the entire cargo block including FAS and CONSOL stations and gear.

g. Workshops. Although not accommodations, workshops shall be safe, functional, and conveniently located in or adjacent to the areas they serve. At a minimum, the following shops shall be provided.

- (1) Engineers' Workshop (in/adjacent to both Engine Room and Engineers' Stores)
- (2) Deck Maintenance Workshop (in or adjacent to Bos'n/Deck Stores)
- (3) Electrical/Electronics Workshop (near electrical spaces)
- (4) Mission Workshops as required (in/adjacent to mission spaces)

h. Miscellaneous Small Outfitting. The following miscellaneous small habitability related outfitting items shall be provided.

- (1) Soft drink vending machine: locate near ship store
- (2) Drinking fountains: locate in messrooms, pilot house, EOS, passageways, lounges, and mission spaces
- (3) Ice cube makers/dispensers: locate in messrooms
- (4) Coffee messes: locate in messrooms, pilot house, EOS, lounges, and specified mission spaces

COMSCINST 9330.6D

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

(5) Gangway absentee board: portable with sailing time and sliding toggle to indicate on board/ashore personnel

(6) Mail box: locate in passageway near ship store or disbursing office (when latter provided); not to protrude into passageway

(7) Coat hooks: locate in all public spaces equivalent to 25% seating capacity and in staterooms, offices, pilot house, and EOS; minimum four (4)

(8) Port light curtains: habitable spaces only; lined and weighted

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

TABLE 00-1

**MINIMUM AREAS FOR STATEROOMS, SANITARY SPACES,
AND PRIVATE OFFICES
(NEW CONSTRUCTION ONLY)**

<u>SPACE</u>	<u>NOMINAL AREA (SEE NOTE 1) SQ M (SQ FT)</u>
STATEROOMS (NOT INCL. T&S)	
MASTER AND CHIEF ENGINEER (SEE GENL NOTES 2&3)	19 (200)
OFFICER/CHIEF STEWARD/DISBURSING OFFICER (SEE GENL NOTES 2&3)	16 (175)
CHIEF PETTY OFFICER/AB/QMED (SEE GENL NOTE 2)	15 (160)
OTHER CREW, ONE PERSON ROOM (SEE GENL NOTE 2)	12 (130)
OTHER CREW, TWO PERSON ROOM (SEE GENL NOTE 2)	13 (140)
SANITARY SPACES	
BATH (SQUARE)	2.8 (30)
BATH (RECTANGULAR)	2.6 (28)
T&S (RECTANGULAR, WASH BASIN LOCATED IN STATEROOM)	1.7 (18)
MISC. TOILETS (TOILET AND WASH BASIN ONLY)	1.4 (15)
PRIVATE OFFICES, SHIP OFFICES, AND DAY ROOMS	
MASTER/CH ENG COMBINATION OFFICE/DAY ROOM	25 (270)
MASTER/CH ENG SEPARATE OFFICE (SEE GENL NOTE 4)	12 (130)
MASTER/CH ENG SEPARATE DAY ROOM (SEE GENL NOTE 4)	20 (215)
OTHER PRIVATE AND SHIP OFFICES	15 (165)
LEISURE SPACES	
OFFICER LOUNGE (SEE GENL NOTE 5)	1.5 (15)/PERSON, MIN 20 (215)
CPO LOUNGE (SEE GENL NOTE 5)	1.5 (15)/PERSON, MIN 20 (215)
CREW LOUNGE (SEE GENL NOTE 5)	1.5 (15)/PERSON, MIN 20 (215)
RECREATION ROOM (SEE GENL NOTES 5&6)	35 (375)

GENERAL NOTES:

1. AREAS SHALL REPRESENT APPROXIMATE MINIMUM GROSS COMPARTMENT AREAS WITHOUT DEDUCTIONS FOR FURNITURE (VICE NET OR USABLE AREAS LESS FURNITURE).
2. ALL STATEROOMS SHALL BE SIZED TO ACCOMMODATE ALL THE REQUIRED FURNITURE IN AN ACCEPTABLE ARRANGEMENT REGARDLESS OF THE SPECIFIED MINIMUM AREA.
3. WHERE SPACE PERMITS, PROGRESSIVELY LARGER STATEROOMS ACCORDING TO RANK ARE RECOMMENDED. UNDER NO CIRCUMSTANCES SHALL A PERSON OF LESSER RANK BE ASSIGNED A LARGER STATEROOM THAN A PERSON OF HIGHER RANK.
4. A SEPARATE OFFICE AND DAY ROOM ARE RECOMMENDED ON LARGER VESSELS OVER 200 M (650 FT).
5. STATED LOUNGE AREAS ARE MINIMUM. A LARGER AREA MAY BE NECESSARY BASED ON ACTUAL COMPLEMENT AND REQUIRED SEATING.

COMSCINST 9330.6D

6 June 1991

6. A RECREATION ROOM IN ADDITION TO LOUNGES IS RECOMMENDED ON LARGER VESSELS OVER 200 M (650 FT) WHEN THE UNLICENSED COMPLEMENT EXCEEDS 50.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

TABLE 00-2

STATEROOM OUTFITTING AND FURNISHING

CREW	CPO	OFF	CAPT/CHENG	ITEM
		X	X	BERTH, 1370 MM (54") WIDE (SEE GENL NOTE 2)
(1)	X			BERTH, 1065 MM (42") WIDE (SEE GENL NOTES 2&3)
		X	X	WARDROBE, DOUBLE (SEE GENL NOTE 5)
(1)	X			WARDROBE, SINGLE (SEE GENL NOTE 5)
	X	X	X	DRESSER
(1)				SECRETARY/BUREAU
		(2)		TABLE, COFFEE, RECTANGULAR
		(2)	X	TABLE, END OR CORNER W/LIGHT
		(2)		TABLE, PC AND PRINTER
	X	X		DESK, SINGLE PEDESTAL
		(3)		DESK, DOUBLE PEDESTAL
	X	X		DESK LIGHT
		(3)		FILE CABINET, 4 DRAWERS
		(3)		KEY CABINET/LOCKER
		(2)		SOFA/TRANSOM
		X		CHAIR, ARM
X	X	X		CHAIR, SIDE
X	X	X	X	CHAIR, LOUNGE
X	X	X	X	BOOKRACK (SEE GENL NOTE 6)
		(3)		BOOKCASE (SEE GENL NOTE 6)
(1)	X	X	X	SHELF, BERTH
X	X	X	X	SHELF, TV, CONVENIENT TO OUTLETS
	X	X	X	MIRROR
		X	(4)	REFRIGERATOR
			X	SMALL ARMS LOCKER (MASTER ONLY)

- (1) QUANTITY EQUAL TO STATEROOM OCCUPANCY
(2) FIRST OFFICER/FIRST ASST ENG ONLY
(3) FIRST OFFICER/ASST ENG ONLY WHEN SHIP OFFICE OR ENGINEER OFFICE NOT PROVIDED
(4) LOCATE MASTER/CHIEF ENGINEER REFRIGERATOR IN SIDEBOARD PER TABLE 00-4

COMSCINST 9330.6D

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

GENERAL NOTES:

1. ALL STATEROOMS SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, BERTH LIGHTS, DUPLEX RECEPTACLES, RADIO AND TV ANTENNA OUTLETS, TELEPHONE, COAT HOOKS, BERTH CARD HOLDERS, CURTAINS, EXPOSURE SUIT STOWAGE, LIFE PRESERVER STOWAGE, EMERGENCY ESCAPE BREATHING DEVICE (EEBD) HOLDER, WASTEBASKET, AND OSCILLATING ELECTRIC FAN.
2. ALL BERTHS SHALL HAVE DRAWERS UNDERNEATH, A BOX SPRING MATTRESS, AND INNER SPRING MATTRESS, MATTRESS COVER, PILLOW, SHEETS, AND BLANKETS.
3. IN TWO PERSON STATEROOMS BERTHS SHALL BE FITTED WITH PRIVACY CURTAINS.
4. IN TWO PERSON STATEROOMS WHERE SPACE PERMITS, RECOMMEND THAT TWO SINGLE BERTHS BE FITTED INSTEAD OF ONE DOUBLE TIERED BERTH.
5. WARDROBES MAY BE FREE STANDING OR BUILT-IN AND BE EQUIPPED WITH SHELF, ROD WITH ADJUSTABLE CLAMP, SIX HOOKS, SHOE RACK, AND TIE RACK (INSIDE DOOR). SINGLE WARDROBES SHALL BE MINIMUM 600 MM X 600 MM X 1800 MM (24 IN X 24 IN X 72 IN). ALL STATEROOMS ON SHIPS INTENDED FOR COLD WEATHER/POLAR SERVICE SHALL BE PROVIDED WITH DOUBLE WARDROBES.
6. BOOKRACKS AND BOOKCASES SHALL HAVE A 330 MM (13 IN) MINIMUM DEPTH AND 330 MM (13 IN) MINIMUM CLEAR HEIGHT BETWEEN SHELVES.

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

TABLE 00-3

SANITARY SPACE OUTFITTING

BATH	T&S	ITEM
X	X	TOILET
X	X	SHOWER WITH SOAP TRAY AND CURTAIN
X	(1)	WASH BASIN, BHD MOUNTED
X	(1)	MEDICINE CABINET W/MIRROR AND LIGHT
X	(1)	SOAP TRAY, TOOTHBRUSH HOLDER, AND TUMBLER
X	X	TOILET PAPER DISPENSER
X	X	TOWEL BAR
X		TOWEL SHELF
	X	TOILET SHELF
X	X	GRAB BAR
X	X	ROBE HOOK, DOOR MOUNTED
(2)	(2)	OVERHEAD HEAT LIGHT

- (1) LOCATE IN STATEROOM
(2) RECOMMENDED

GENERAL NOTES:

1. ALL BATHS AND T&S TO BE PROVIDED WITH FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, DUPLEX RECEPTACLES, AND EXHAUST VENT.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

TABLE 00-4

OFFICE OUTFITTING AND FURNISHING
MASTER, CHIEF ENGINEER, AND OTHER SHIP OFFICES

CAPT	CHENG	OTHER OFFICES	ITEM
X	X	(2, 3, 5, 7)	DESK, DOUBLE PEDESTAL
		(4, 6)	DESK, SINGLE PEDESTAL
X	X	(2, 3, 4, 7)	TABLE, PERSONAL COMPUTER AND PRINTER
(1)	(1)		TABLE, COFFEE, RECTANGULAR
(1)	(1)		TABLE, END OR CORNER W/LAMP AND DRAWERS
(1)	(1)		TABLE, CONFERENCE
		(2, 3)	TABLE, WORK (SEE GENL NOTE 5)
	X		PROPULSION MONITORING EQUIPMENT (WHERE APPLICABLE)
(1)	(1)		SIDEBOARD, W/LOCKS AND SELF-CONTAINED REFRIGERATOR
X	X		CHAIR, SWIVEL, ARM
X	X		CHAIR, ARM
X	X		CHAIR, SIDE, CONFERENCE TABLE, AS REQUIRED
			CHAIR, SIDE
(1)	(1)		CHAIR, LOUNGE
		(2, 3)	STOOL, WORK TABLE (SEE GENL NOTE 5)
(1)	(1)	(5)	SOFA/TRANSOM
X	X		BOOKCASE (SEE GENL NOTE 2)
		(3)	SHELVES (SEE GENL NOTES 2 AND 5)
X	X	(2,3, 4, 5, 6, 7)	FILE CABINET, LEGAL SIZE, 2/4 DRAWERS AND LOCK
		(3)	SHIP PLAN FILE/CABINET (SEE GENL NOTE 5)
X	X	(3, 4)	SAFE, FILE TYPE, LEGAL SIZE, W/4 DRAWERS
		(4)	SAFE, MONEY (SEE GENL NOTE 3)
X	X	(2, 3, 4)	KEY CABINET/LOCKER
		(5)	SMALL ARMS LOCKER (SEE GENL NOTE 3)
		(4)	COPY MACHINE (SEE GENL NOTE 4)
		(3)	MICROFICHE READER/PRINTER (SEE GENL NOTE 5)
		(3)	MICROFICHE FILE CABINET (SEE GENL NOTE 5)
X	X	(2, 3, 5)	BULLETIN BOARD

- (1) DAY ROOM, IF PROVIDED
- (2) SHIP OFFICE
- (3) ENGINEER OFFICE
- (4) DISBURSING OFFICE, IF PROVIDED
- (5) CHIEF STEWARD OFFICE, IF PROVIDED
- (6) MILDET OFFICE, IF PROVIDED
- (7) SUPPLY OFFICE, IF PROVIDED

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

GENERAL NOTES:

1. ALL OFFICES SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, DESK LIGHTS, DUPLEX RECEPTACLES, TELEPHONE, COAT HOOKS, CLOCK (STRIKING BELLS), BOOKRACK, CURTAINS, WASTEBASKET, AND FAN.
2. BOOKCASES, BOOKRACKS, AND SHELVES SHALL HAVE A MINIMUM 330 MM (13 IN) DEPTH AND A MINIMUM 330 MM (13 IN) CLEAR HEIGHT BETWEEN SHELVES.
3. LOCATE MONEY SAFE AND SMALL ARMS LOCKER IN MASTER'S OFFICE WHEN DISBURSING OFFICE OR MILDET OFFICE RESPECTIVELY NOT PROVIDED.
4. LOCATE COPY MACHINE IN SHIP OFFICE WHEN DISBURSING OFFICE NOT PROVIDED.
5. LOCATE MICROFICHE READER/PRINTER, MICROFICHE FILE CABINET, PLAN FILE, SHELVES, WORK TABLE, AND STOOL IN TECHNICAL LIBRARY IF PROVIDED. OTHERWISE, LOCATE IN ENGINEER OFFICE.

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

TABLE 00-5

**LOUNGE OUTFITTING AND FURNISHING
QUANTITIES AS REQUIRED BASED ON COMPLEMENT**

CREW	CPO	OFF	ITEM
X	X	X	LOUNGE CHAIRS
X	X	X	SOFAS, 2 AND 3 SEAT
X	X	X	END TABLES
X	X	X	CORNER TABLE
(1)	(1)	(1)	COFFEE TABLE
		(1)	CONFERENCE TABLE
X	X	X	CARD TABLES
(2)	(2)		GAME TABLES
		(4)	DRESSER W/SINK, COFFEE MESS, & REFRIGERATOR
X	X	X	CABINET (ABOVE DRESSER)
(3)	(3)	(3)	ENTERTAIN CONSOLE FOR TV & VCR
X	X	X	ENTERTAIN CONSOLE FOR STEREO, CASSETTE, & CD
X	X	X	CHAIRS, ARM
X	X	X	CHAIRS, SIDE
X			BOOKCASE
X			MAGAZINE RACK
X	X	X	DECORATIVE TABLE LAMPS
X	X	X	BULLETIN BOARD
X	X	X	DRINKING FOUNTAIN
	X	X	PLANTER
X	X	X	ASH RECEIVER
	X	X	DECORATIVE PARTITION
(5)	(5)	(5)	FRAMED PICTURES AND MURALS
(5)	(5)	(5)	BUILT-IN CLOSET FOR MISC. STORAGE

- (1) FITTED WITH RETRACTABLE LEE RAILS.
- (2) CHECKER/CHESS BOARDS PERMANENTLY MOLDED INTO TABLE TOP.
- (3) TO BE PERIODICALLY PROVIDED WITH UP-TO-DATE MOVIE VIDEOTAPES.
- (4) PROVIDE THERMOS TABLE DECANTERS FOR CONFERENCE USE.
- (5) RECOMMENDED AMENITY (RECOMMEND THAT FRAMED PICTURES AND MURALS NOT HAVE A NAUTICAL MOTIF).

GENERAL NOTES:

1. ALL LOUNGES SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, DUPLEX RECEPTACLES, TELEPHONE, INTERCOM, COAT HOOKS, CURTAINS, WASTEBASKET, CLOCK, AND FAN (OSCILLATING, BHD MTD).

6 June 1991

Section No. 00

GENERAL ACCOMMODATION REQUIREMENTS

**TABLE 00-6
LAUNDRY OUTFITTING**

QUANTITIES AND EQUIPMENT SIZES AS REQUIRED BASED ON COMPLEMENT

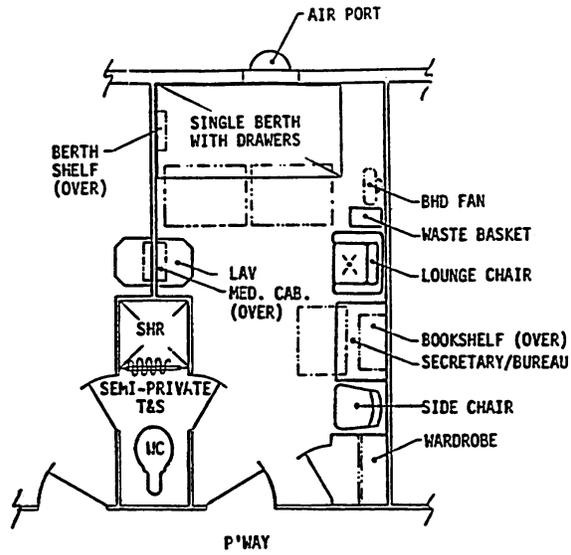
CREW	OFF	SHIP	ITEM
(1)	X		ELECTRIC WASHER, HEAVY DUTY
(1)			ELECTRIC DRYER, HEAVY DUTY
		X	WASHER/EXTRACTORS, HEAVY DUTY
		X	TUMBLER DRYERS, HEAVY DUTY
X	X	X	ELECTRIC STEAM IRON, W/TIMER CUTOUT
X	X		IRONING BOARD
X	X	X	LAUNDRY SINK
X	X	X	DETERGENT BIN
X	X		SUPPLY LOCKER
X	X		JACK ROD (FOR DRIP DRY)
X	X	X	WORK TABLE (FOR FOLDING)
		X	PRESS, GARMENT
		X	PRESS, TOPPER
		X	FLATWORK/LINEN IRONER
		X	DAMP BOX
		X	MARKING MACHINE
		X	LAUNDRY BASKETS, CLOTH
		X	SCALE, DECK MOUNTED
		X	SEWING MACHINE

- (1) RECOMMEND ADDITIONAL MACHINES IN CREW LAUNDRY OR ENGINEERS' CHANGE ROOM FOR SOILED ENGINE DEPARTMENT COVERALLS.

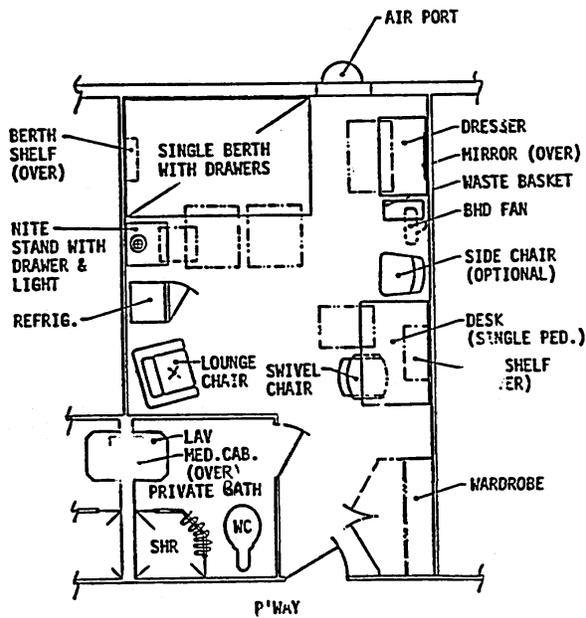
GENERAL NOTES:

- ALL LAUNDRIES SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, DUPLEX RECEPTACLES, GARBAGE CAN, CLOCK, AND FAN (OSCILLATING, BHD MTD).
- A SHIP LAUNDRY IN ADDITION TO CREW LAUNDRIES SHALL BE PROVIDED WHEN COMPLEMENTS EXCEED 100 OR WHEN LONG AT-SEA OPERATING PROFILES ARE INTENDED.
- ROTATING EQUIPMENT SHALL BE LONGITUDINALLY ALIGNED.

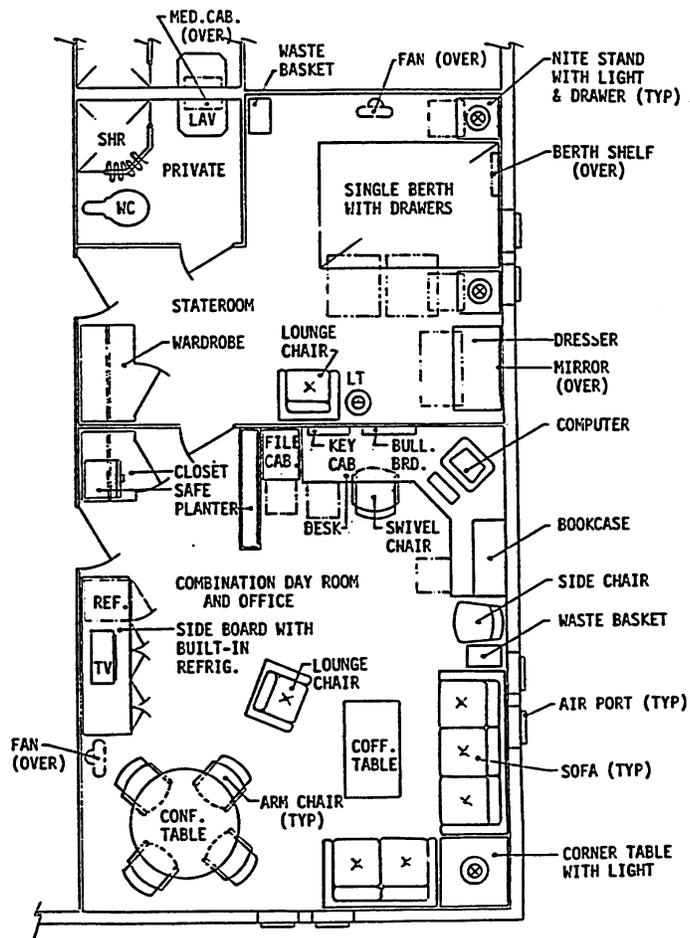
6 June 1991



TYPICAL CREW STATEROOM
FIG. 00-1



TYPICAL OFFICER STATEROOM
FIG. 00-2



TYPICAL HSTR./CH.ENG. STATEROOM

FIG. 00-3

6 June 1991

Section No. 01

CONSUMABLES

1. General. This section contains galley store, general store, ship store, and fresh water consumable design criteria and required stowage. Requirements for fuel, lube, etc. are not addressed.

2. Galley Stores

a. To estimate various approximate provision storeroom gross volumes including margin in m^3 (ft^3) and weights in kg (lb), multiply the following stowage factors times the complement in persons times the endurance in days. Unless specified otherwise, a minimum endurance of 90 days (120 days for AGOS and 180 days for NFAF) shall be assumed for dry and freeze stores and 45 days for chill stores. To estimate storeroom area, the stacked height of stores shall be assumed to be 1980 mm (6'-6") above the deck or grating.

Storeroom	Volume Factor	Weight Factor
Dry	4.8847×10^{-3} (0.1725)	1.4515 (3.2000)
Chill	5.8616×10^{-3} (0.2070)	1.3608 (3.0000)
Freeze	4.5590×10^{-3} (0.1610)	1.0433 (2.3000)

b. Refrigerated stores may be subdivided (e.g., separate fish box within the freeze room, separate dairy box within the chill room, etc.).

c. When a separate thaw room is deleted, the chilled storeroom shall be appropriately increased for thawing.

3. General Stores. To estimate total approximate general stores (i.e., soap products, paper products, brooms, mops, spare glassware, etc.), gross volume including margin in m^3 (ft^3) and weight in kg (lb), multiply the following stowage factors times the complement in persons times the endurance in days. Unless specified otherwise, a minimum endurance of 90 days shall be assumed. To estimate storeroom area, the stacked height of stores shall be assumed to be 1980 mm (6'-6") above the deck or grating.

	Volume Factor	Weight Factor
Genl Store	9.7693×10^{-3} (0.3450)	1.8144 (4.0000)

6 June 1991

Section No. 01

CONSUMABLES

4. Ship Store (Sales Exchange or Slop Chest). To estimate total approximate ship store gross volume (retail items, clothing, etc.) including margin in m^3 (ft^3) and weight in kg (lb), multiply the following stowage factors times the complement in persons times the endurance in days. Unless specified otherwise, a minimum endurance of 90 days shall be assumed. To estimate storeroom area, the stacked height of stores shall be assumed to be 1980 mm (6'-6") above the deck or grating.

	Volume Factor	Weight Factor
Ship Store	2.6901×10^{-3} (0.0950)	0.4536 (1.0000)

5. Fresh Water

a. Evaporators shall have sufficient capacity to provide 225 l (60 gal)/person/day plus other shipboard requirements such as sanitary system water, jacket water, makeup feed, sponsor requirements, etc.

b. Potable water stowage shall be provided for not less than 450 l (120 gallons) per person plus a 3800 l (1000 gallons) margin for other miscellaneous purposes.

c. An emergency potable dressing water tank shall be provided in the medical treatment space in accordance with Section 24.

Section No. 10

ACCESS REQUIREMENTS

1. General. This section contains general personnel access requirements. Additional access requirements pertaining to machinery and equipment removal are also provided to improve operational effectiveness and safety.
2. Interior Access. All interior spaces except inaccessible voids shall be provided with practical and convenient access.
 - a. Headroom. Clear headroom in all living and working spaces from finished deck to overhead sheathing shall not be less than 2130 mm (7'-0"). Clear headroom in other spaces, under local obstructions and on stairs and ladders shall not be less than 1955 mm (6'-5"). Clear headroom under doors and arches shall be a minimum of 1980 mm (6'-6"). Obstructions of lesser height shall be marked for warning and padded for safety. Headroom in way of forklift truck operations shall not be less than 2440 mm (8'-0").
 - b. Means of Escape. Both the means and number of escapes from all levels of living and working spaces shall be provided in accordance with Regulatory Body requirements. Elevators shall not be considered as a means of escape nor shall vertical ladders be considered a means of escape from public spaces. Passageways, stairs, and doors shall give ready and direct access to lifeboat embarkations with clearly marked signs posted. Dead end passageways shall be avoided where possible, but in no case shall the length of dead ends exceed Regulatory Body requirements.
 - c. Passageways. Passageways shall have a minimum clear width of 915 mm (3'-0") and a preferred clear width of 1200 mm (4'-0"). Passageways where lines will form (i.e., galley serving annex, ship store, etc.) shall be increased 460 mm (18 in) giving a minimum width of 1375 mm (4'-6") and a preferred width of 1675 mm (5'-6"). Passageways leading from the medical treatment room to gangways, RAS areas, VERTREP areas, etc. shall be wide enough to turn corners without tilting a level stretcher. Passageways used for forklift operations shall have a minimum clear width of 1800 mm (6'-0"). Vestibules are recommended on the weather ends of passageways to protect air conditioned boundaries and a required item on fleet auxiliaries to support darkened ship requirements. The minimum width in way of lights traps in support of darkened ship functions shall be 1200 mm (4'-0").
 - d. Interior Stairs and Ladders. The geometry, construction, and materials of interior stairs and ladders shall be in accordance with Regulatory Body requirements. In general, longitudinally oriented stairs and ladders are preferred over transversely oriented ones. Stairs shall have solid risers and ladders shall have open risers.

ACCESS REQUIREMENTS

(1) Stairs. Stairs shall be used for daily access within living spaces and shall be located in a centrally located, enclosed, vertically continuous stairtower providing safe escape in each main fire zone from the lowest accommodation level (usually the main deck) to the highest weather deck served. Random, individual flights shall be avoided unless they serve a particular requirement, such as a stair near the galley serving a below deck provision store. Suitable landings in excess of the door swing shall be provided for all stairs ending near bulkheads/doors.

(2) Inclined Ladders. Inclined ladders shall be used in machinery spaces, shops, stores, and other non-living areas requiring vertical access. Ladders in machinery spaces and other locations where personnel may traverse beneath the ladder shall be fitted with protective shields on the undersides.

e. Interior Rails and Guards. Interior rails and guards shall be fitted in accordance Regulatory Body requirements. In particular, safety rails (with a minimum of 2 courses) shall be provided around all openings, platforms, hazardous areas, dangerous moving machinery, etc. Hand (i.e., storm) rails shall be fitted in all passageways (on both sides when the width is 1800 mm (6'-0") or more), the front bulkhead of the pilot house, all operating consoles, and all switchboards. Hand rails on equipment capable of causing electrical shock shall be nonconducting bakelite or wood.

f. Elevator. An elevator suitable for marine use shall be fitted when the accommodations are five or more levels (excluding the wheelhouse level). The elevator shall be centrally located, be adjacent to the main stairtower, service all accommodation levels (excluding the navigating level), and where possible, terminate at the bottom in or adjacent to the EOS.

g. Interior Doors. Interior joiner doors and frames shall be hollow steel in accordance ASTM F831. Watertight doors, where required, shall be steel, quick acting (i.e., simultaneous action of all dogs) except for infrequently used spaces, and conform to Regulatory Body requirements. The clear height above the finished deck for all doors shall not be less than 1980 mm (6'-6"). The clear width in living and working spaces shall not be less than 760 mm (30 in) and that in sanitary spaces and miscellaneous lockers shall be not less than 660 mm (26 in).

Section No. 10

ACCESS REQUIREMENTS

(1) Door Swing. In general, doors shall open into rooms from passageways except for small lockers where outward opening doors conserve interior space. Doors in refrigerated spaces and ordnance lockers shall open outward. Doors between food serving areas and messes shall be double swinging doors fitted with fixed lights. Wardrobe doors swing shall be integrated with general room illumination.

(2) Miscellaneous Door Requirements. Interior doors shall comply with the following additional requirements.

(a) All doors shall be fitted with bumper stops and friction holdbacks with the exception that fire doors shall not be fitted with holdbacks.

(b) Automatic door closers shall be fitted to doors at air conditioned/non-air conditioned boundaries, stairtowers, exterior doors, air locks, public sanitary facilities, ship offices, and the Master's and Chief Engineer's offices and staterooms.

(c) Doors shall not have sills except those serving wet spaces (i.e., sanitary spaces, laundries, etc.), those installed in structural bulkheads, those installed in way of sloping decks, and those required by Regulatory Bodies. Door sills in wet spaces shall be minimum 100 mm (4 in) above finished deck..

(d) Louvered air return vents when fitted in joiner doors shall be kick out types large enough to permit emergency ingress/egress.

(e) Doors in semi-private sanitary spaces shall be provided with locks on both doors operable from both sides.

(f) Doors opening into rooms from passageways shall not be undercut more than 12 mm (0.5 in).

h. Refrigerator Doors. Walk-in reefer doors shall be fire retardant lightweight fiberglass doors thermally equivalent to the insulated bulkhead to which they are attached. Doors shall be capable of being opened from inside and outside and fitted with exterior padlock hasp (with inside emergency release) and self-engaging holdbacks. The clear height of reefer doors shall be at least 1830 mm (6'-0") above the coaming.

ACCESS REQUIREMENTS

3. Exterior Access. All frequently traversed areas shall be provided with practical and convenient access. Normal access between decks shall be by inclined ladders fitted in pairs port and starboard to ensure a safer leeward access. Vertical ladders shall be used to access infrequently used areas such as spars, antennae, lights, hatches, etc. or where an inclined ladder is not practical.

a. Inclined Ladders. The geometry, construction, and materials of exterior inclined ladders shall be in accordance with Regulatory Body requirements. In general, longitudinally oriented ladders are preferred over transversely oriented ladders. Treads shall be nonskid with an open grate style preferred over solid checker plate for better drainage. Top and bottom landings shall have nonskid, adhesive backed deck pads applied.

b. Vertical Ladders. Vertical ladders shall be in accordance with ASTM 840. Where practical, ladders shall be staggered from deck to deck. When the uninterrupted length exceeds 5200 mm (17'-0"), a notch type safety rail shall be installed.

c. Exterior Rails and Guards. Guard rails shall be provided around all hull and accommodation deck edges per Regulatory Body requirements and around other deck openings and penetrations. Deck edge guard rails in close proximity to forklift paths shall be reinforced to prevent trucks from accidentally crashing overboard. Hand (i.e., storm) rails shall be provided around all accessible deck house peripheries. Hot exhaust pipes, hot radio transmitting equipment, and other dangerous items liable to accidental contact shall be provided with expanded metal guards.

d. Exterior Doors. The construction, materials, and sill height of exterior doors shall be in accordance with Regulatory Body requirements. In general, doors shall be constructed of steel and be weathertight. The clear height above the deck shall not be less than 1980 mm (6'-6") and the clear width shall not be less than 760 mm (30 in).

(1) Door Swing. Weather doors in longitudinal bulkheads shall open outward and forward and those in transverse bulkheads shall open outward and outboard.

(2) Miscellaneous Door Requirements. Exterior doors shall also comply with the following additional requirements.

(a) Doors shall be fitted with holdback hooks with the exception that doors between air conditioned/non-air conditioned spaces shall not have holdbacks.

6 June 1991

Section No. 10

ACCESS REQUIREMENTS

(b) Doors giving access to interior passageways and other frequently used spaces shall be fitted with fixed lights at least 250 mm (10 in) in diameter.

(c) Flush doors without overhead deck protection shall be fitted with water brows.

(d) Where a weather door opens to an exterior passageway less than 1500 mm (5'-0") in width, the door shall be recessed into the side of the deck house to give at least 760 mm (30 in) clear access outside of the swing.

e. Windows. All staterooms except hospital ship wards and troop berthing quarters shall be fitted with at least one opening window or air port centered 1600 mm (5'-3") above the finished deck. All windows and air ports shall have securing devices, portable insect screens (living spaces only), and afford the same degree of tightness as the structure to which it is attached. In deck houses where dead lights are not required, rectangular windows shall be used instead of round ports. The minimum dimension of windows and ports in living spaces shall not be less than 405 mm (16 in) wide to provide an additional means of emergency escape. Flush windows, ports, and doors without overhead deck protection shall be fitted with water brows or watersheds.

f. Toeboards and Coamings. All open deck edges, catwalks, open ramps, and deck cutouts shall be fitted with toeboards or small coamings at least 100 mm (4 in) high. Coamings in way of ladders and stairs shall be cropped away to eliminate any tripping hazard. All ship sides without a raised gunwale shall be fitted with a waterway bar at least 100 mm (4 in) high.

Section No. 11

JOINER WORK

1. General. This section contains general requirements for joiner bulkheads, lining, ceilings, sanitary enclosures, and other bulkheads. See General Specifications for T-Ships and COMSCINST 4700.10A, enclosure (4) (MSC General Technical Requirements) for detail requirements.

2. Standards. All materials and construction shall comply with the requirements of 46 CFR Parts 32, 92, 164, and 190, Coast Guard Navigation and Vessel Inspection Circular 6-80, and SOLAS Chapter II-2 (83' Amendment) as applicable for various ship types (Subchapter I, T, U, etc.).

3. General Requirements

a. All accommodation and office spaces, navigating spaces, communication spaces, medical spaces, and laboratories shall be provided with linings and ceilings to conceal ship structure and distributive utilities (i.e., wiring, piping, ducting, etc.).

b. Lighting fixtures, switches, receptacles, vent terminals, fire stations, fire extinguishers, drinking fountains (in passageways) and other protuberances in joined spaces shall be recessed to present a flush surface.

c. There shall be no sharp edges and all outside corners shall have a 19 mm (0.75 in) minimum radius.

d. Exposed metal surfaces shall have a baked enamel finish compatible with adjacent finished surfaces.

e. Panels in way of concealed equipment requiring service shall be fitted with hinged access panels with quick-acting, flush catches. The panels shall not exceed 600 mm (24 in) in either dimension and be fitted with label plates indicating the concealed item.

f. Sheathing shall be capable of being repeatedly removed and reinstalled without special tools or degradation of the panels, trim, hangers, or fasteners.

g. Ceiling panels shall not be loose, rattle, or vibrate. Ceiling hangers and framework shall be adequately supported against racking forces due to ship motions.

h. Heavy items attached to joiner bulkheads or ceilings shall be reinforced by members independent of the bulkhead or ceiling.

JOINER WORK

- i. All panel edges and joints in wet spaces shall be caulked waterproof.
- j. Door frames shall be have color matched jambs for installation into "H" posts

4. Joiner Bulkheads, Lining, and Ceilings

a. Bulkhead Panels. Bulkhead panels shall be constructed of lightweight inorganic cores faced with a decorative high pressure plastic laminate veneer. Panels shall be supported by a system top and bottom "U" channels and vertical "H" posts and corner posts.

b. Ceiling Panels. Common ceiling panels shall be aluminum panels with baked enamel finish and deburred edges or bulkhead type panels with inorganic core and single veneer supported by hangers.

c. Acoustic Treatment. Where minor acoustic treatment is required or recommended in ceilings only (i.e., public spaces, offices, etc.), ceilings shall be perforated aluminum panels with baked enamel finish, deburred edges, and fiberglass core. Where major acoustic treatment is required on both bulkheads and ceilings in dry environments (i.e., engineers' operating station, communications center, etc.) panels shall be perforated face acoustic board. Panels used in areas exposed to oil, steam, or high humidity (i.e., machinery spaces) shall be fibrous glass faced with glass cloth and mylar sheet (cloth side out). All seams and edges shall be sealed with fiberglass tape and adhesive. Acoustic treatments shall not negate any thermal insulation requirements in suspended ceilings.

d. Sanitary Sheathing. All galley, scullery, and serving enclosures shall be sheathed with satin finish CRES sheet on bulkheads and overheads.

e. Protective Sheathing. Insulation in spaces subject to damage (i.e., heat producing areas, laundries, etc.) shall be sheathed with galvanized sheet steel on bulkheads and ceilings. Joints shall be lapped and sealed with an approved sealing compound.

f. Decontamination Station. The decontamination station shall be sheathed with satin finish CRES sheet on bulkheads and ceilings. Trim shall be CRES and all joints, edges, and penetrations shall be sealed watertight.

6 June 1991

Section No. 11

JOINER WORK

g. Refrigerated Spaces. The interiors of reefer spaces shall be sheathed with either satin finish CRES sheet or fiberglass reinforced polyester resin laminate. Joints and corners in CRES sheathed reefers shall be covered with CRES strips and CRES shapes respectively and secured with CRES fasteners. Fire retardant fiberglass liners shall have a marine grade gelcoat finish on bulkheads and ceilings.

5. Toilet and Shower (T&S) Enclosures. T&S enclosures shall be either prefabricated units or built-in. Prefabricated units shall be constructed of fire retardant fiberglass and have a seamless finish of marine grade gelcoat on all interior surfaces except the ceiling, which may be molded separately and provided with concealing trim. Built-in enclosures shall be constructed of joiner bulkheads and ceilings as described in 4a and 4b above with either prefabricated or built-in shower stalls.

6. Interior Design and Color Coordination. The services of a professional marine interior designer shall be engaged to develop color schemes. Patterns and textures for coverings, sheathing, decks, paints, table tops, upholstery, curtains, bed spreads, furniture finish, framed artwork, planters, and other accessories shall be coordinated for each scheme. The colors and number of each color scheme shall be in accordance with COMSCINST 4750.2C, Appendix C. The color schemes shall be assembled into a Color Coordination Manual that includes the specifications of materials and the respective fire and smoke characteristics and applicable Regulatory Body approvals.

Section No. 12

DECK COVERING

1. **General.** This section contains general deck covering requirements. See General Specifications for T-Ships and COMSCINST 4700.10A, enclosure (4) (MSC General Technical Requirements) for detail requirements.
2. **Standards.** All materials and construction shall conform to the requirements of 46 CFR Parts 32, 92, 164, and 190, and Coast Guard Navigation and Vessel Inspection Circular 6-80, as applicable.
3. **General Requirements**
 - a. Deck covering shall be installed in all living and working areas in accordance with Table 12-1 to improve appearance and safety where applicable.
 - b. The helmsman's watch station shall be provided with a cushioned rubber standing mat. When vinyl is selected for the pilot house instead of nonskid rubber tile, a 900 mm (36 in) wide rubber sheet runner shall be installed athwartships across the wheelhouse front bulkhead.
 - c. Before deck covering is installed, all decks shall have weld caps ground to maximum of 1.6 mm (1/16 in), have the surface cleaned of all extraneous matter, and receive a prime coat regardless of final deck covering.
 - d. Deck covering (except paint) shall not be installed under enclosed built-in furniture, equipment, or foundations.
 - e. Resilient deck covering (vinyl and rubber products), quarry tile, and carpeting shall require a smooth underlayment before installation.
 - f. Underlayments shall be sloped to drains in wet spaces (i.e., built-in sanitary spaces, galleys, laundries, etc.).
 - g. All old deck covering shall be removed before installing new deck covering to reduce potential fire hazard (i.e., no carpet over tile).
 - h. Approximately 2 percent of all installed materials shall be provided as spares.
4. **Detail Requirements.** The following additional requirements are provided to improve operational safety and maintenance.

6 June 1991

Section No. 12

DECK COVERING

a. Painted Steel Decks. Slip-resistant deck coatings in accordance with COMSCINST 4750.2C shall be applied to exterior weather locations including all embarkation points, mooring/line handling areas, main fore and aft walkways, ladder platforms, accommodation decks, foc'sl deck/01 level forward, forklift truck paths, and all functional/work areas. Exterior decks shall have a small built-in slope (i.e., straight pitch, camber, or sheer) to shed water. To reduce water puddles on exterior decks and oil/fuel vehicle hazards on interior RO/RO decks, allowable initial weld distortion of plate panels shall be limited by the following expressions.

$$\text{for } t \geq 14 \text{ mm (0.55 in),} \quad = 0.014b - 0.32t$$

$$\text{for } t < 14 \text{ mm (0.55 in),} \quad = 0.018b - 0.55t, \text{ where}$$

t = plate thickness

= initial deformation

b = panel width (i.e., stiffener spacing)

b. Slip-Resistant Deck Pads. Slip-resistant deck pads with mineral coated abrasive surface shall be directly glued to painted decks or other suitable surfaces (except nonskid paint, carpet, or grates) at the tops and bottoms of stairs and inclined ladders (interior and exterior), both sides of doors with sills greater than 100 mm (4 in), both sides of main entrance doors to messrooms, galley, sanitary spaces, and the outside entrances to refrigerated spaces.

c. Electrical Grade Mat and Sheet. In electrical spaces, slip-resistant electrical grade mat and sheet meeting MIL-M-15562 with a minimum width of 915 mm (3'-0") shall be directly glued to the deck in front of (and behind when rear access is provided) equipment and areas susceptible to electric shock. No seams shall be within 915 mm (3'-0") of electrical equipment or work benches unless the seams are heat welded (vulcanized) or chemically sealed to provide a smooth continuous surface. In nonelectrical compartments containing electrical equipment or electrical workbenches, portable slip-resistant electric grade mats shall be installed for personnel safety.

d. Machinery Space Floor Plates and Grating. Lower machinery space floor plates shall be steel (vice aluminum), be readily removable, and have a raised safety pattern. The area of individual plates shall not exceed 0.75 m² (8 ft²) to expedite removal. Machinery space gratings shall be steel (vice aluminum), removable, and, where necessary to protect personnel below, fitted with sheet metal shields.

6 June 1991

Section No. 12

DECK COVERING

e. Other Grating. Deck grating required for bulk storage in storerooms and refrigerated stores shall be aluminum or glass reinforced plastic (GRP), removable, and marked for location and easy removal. Bridge wing grating and other exterior grating shall be GRP (vice wood). All grating shall be installed 25 mm (1 in) above the deck unless other specified and provide good air flow and drainage in all directions. Grating in way of equipment requiring access shall be hinged and provided with flush, quick-acting catches. GRP grating shall constructed of fire retardant resin.

f. Vehicle Ramps. Interior and exterior RO/RO ship vehicle ramps shall have nonskid surfaces constructed of either steel plate with raised steel treads in a herringbone pattern or have large extra heavy sheets of expanded metal tacked to the surface. Expanded metal shall only be used on fixed ramps. The edges of expanded metal sheets shall be capped to eliminate any sources of tire puncture. The nominal slopes of slewing stern and portable side ramps shall be 7 degrees and the nominal slope of fixed internal ramps shall be 8 degrees. Special consideration shall be given to ensure that short wheelbase/low clearance vehicles do not bottom out at the tops of ramps.

6 June 1991

TABLE 12-1
DECK COVERING

SPACE	ACCEPTABLE TYPE(S)
BATH	6 OR 9
BRIDGE WINGS	1 & 14
CARGO CONTROL ROOM	3 (W/11 AS REQD)
COMMUNICATIONS CENTER	3 (W/10 AS REQD)
DAY ROOM, MASTER & CHENG (WHEN FITTED)	2 (W/3 IN CHENG ENTRANCE)
ELEVATOR	3, 4, OR 5
EOS	3 OR 5 (W/10, 11 AS REQD)
GALLEY AND SCULLERY	8 (W/12 AS REQD)
GARBAGE COMPACTOR ROOM	6 OR 7
GYMNASIUM	3 OR 4
LABORATORIES/SCIENTIFIC SPACES	5 (W/11 AS REQD)
LAUNDRY	6 OR 7
LOCKERS, CLEANING GEAR	6 OR 7
LOCKERS, MISC.	1 (W/13 AS REQD)
LOUNGE, CREW	2
LOUNGE, OFFICER	2
MACHINERY SPACES	1
MEDICAL TREATMENT AND HOSPITAL	3 OR 4
MESSROOMS AND SERVING ENCLOSURES	3 OR 4
OFFICES, PRIVATE AND SHIP'S	3
PASSAGEWAYS, STAIR LANDINGS	3
RECREATION ROOM	3 OR 4
ROPE STORE	1 (W/14 AS REQD)
SHOPS	1 (W/11 AS REQD)
STAIRS AND LADDERS	12 AS REQD
STATEROOM, MASTER & CHENG	2
STATEROOM	3
STORE, DRY PROVISION	1 (W/13 AS REQD)
STORE, GENERAL	1 (2/14 AS REQD)
STORE, REFRIGERATED	7 & 13
T&S	6 OR 9
PILOT HOUSE	3, 4, OR 5 (W/11 AS REQD)

LEGEND:

- | | |
|-----------------|---------------------------------|
| 1. PAINT | 8. QUARRY TILE |
| 2. CARPET | 9. CERAMIC TILE |
| 3. VINYL TILE | 10. ELECTRICAL GRADE RUBBER |
| 4. VINYL SHEET | 11. ELECTRICAL GRADE RUBBER MAT |
| 5. RUBBER TILE | 12. SLIP-RESISTANT DECK PADS |
| 6. TERRAZZO | 13. GRATING, ALUMINUM |
| 7. LATEX MASTIC | 14. GRATING, FIBERGLASS |

6 June 1991

Section No. 13

ENTERTAINMENT SYSTEMS

1 General. This section contains general requirements for audio and video entertainment systems.

2. Equipment

a. An antenna-preamplifier distribution system, with combination antenna, ground, and single power outlets shall be provided in all staterooms, private offices, lounges, hobby room and gymnasium for the reception of AM and FM radio and TV on standard broadcast bands. The receptacle shall be a five-way receptacle arranged with color coded terminals.

b. An entertainment console equipped with a minimum 65 cm (26 in) color TV (with international reception capability), VHS format video cassette recorder (VCR), VCR cassette storage, AM/FM stereo receiver, compact disk player (CD), CD storage, stereo cassette player, and stereo speakers shall be provided in the officer, CPO (when fitted) and crew lounges.

c. When Armed Forces Radio becomes fully operational through the INMARSAT system, ship reception equipment shall be modified to receive the signal for retransmission within the ship.

3. Installation

a. Components for the ship entertainment system shall be provided and installed to prevent an electrical shock hazard to personnel.

b. Television outlets shall include impedance matching transformers.

c. Broad band distribution amplifiers shall be provided in an accessible central location within 50 m (164 ft) of the receiving antenna. Output signals from these amplifiers shall be provided to individual room outlets. Signal cables shall be run in continuous lengths without in-line connectors, splices, sharp bends, or physical distortion. Cable routing shall be as direct as practicable and shall not be run adjacent to signal distortion producing equipment or power cables.

d. The ship entertainment system shall be interfaced with the ship announcing system so that all signals on the entertainment system will be muted during transmissions over the announcing system.

COMSCINST 9330.6D

6 June 1991

Section No. 13

ENTERTAINMENT SYSTEMS

e. Entertainment system bulkhead cable penetrations shall be in compliance with Regulatory Body requirements.

6 June 1991

Section No. 20

AIRBORNE NOISE AND VIBRATION LIMITS

1. General. This section contains airborne noise limits and recommended vibration limits for new ship acquisitions approved after January 1, 1991.
2. Standards. Allowable airborne noise limits shall be to limits recommended by IMO as reproduced in Coast Guard Navigation and Vessel Inspection Circular No. 12-82. Allowable vibration limits are those recommended in ISO standard 6954.
3. Definitions
 - a. Noise. Undesirable sound generated by ship components such as machinery, tools, structural vibration, or hydrodynamic excitation.
 - b. Decibel (dB). A sound pressure level defined as twenty times the logarithm (base 10) of the ratio of the root mean square (rms) sound pressure measured to a reference sound pressure. The reference pressure is 20 mPa (0.0002 dynes/sq cm). All values are for air at 20 degrees C and atmospheric pressure.
 - c. A-Weighted Sound Level (dBA). The frequency-weighted sound pressure level in decibels obtained from a sound meter set to A-weighting.
 - d. Noise Hazardous Area. All spaces and compartments where the measured A-weighted sound pressure level is greater than 84 dBA.
4. Airborne Noise Levels (New Ships)

- a. Unless otherwise specified, the following sound pressure levels in A-weighted decibels as recommended by IMO/USCG shall not be exceeded in the following ship spaces:

LOCATION	dBA
Machinery Spaces	
Machinery Spaces (continuously manned)	90
Machinery Spaces (not continuously manned)	110
Engineers' Operating Station (control room)	75
Workshops	84
Other nonspecified work spaces	84

AIRBORNE NOISE AND VIBRATION LIMITS

LOCATION	dBA
Navigation Spaces	
Pilot House and Chat Room (doors closed)	60
Pilot House and Chart Room (doors open)	65
Bridge Wings and other exterior listening posts	70
Radio Room (with equipment operating but not producing audio signals)	60
Accommodation Spaces	
Staterooms and Hospital Room	60
Offices	65
Recreation Rooms and Lounges	65
Passageways	75
Service Spaces	
Messrooms	65
Galley (without appliances operating)	75
Pantries and Serving Annexes	75
Unoccupied Spaces	
Normally unoccupied or nonspecified spaces	84

b. Noise measurements shall be taken with ship machinery operating at maximum continuous ABS horsepower and with normal auxiliaries such as refrigeration, ventilation and air conditioning equipment in operation.

c. Noise hazardous areas, tools, and equipment will be labeled using NAVMED 6260/2, Figure 20-1. Areas will be labeled with 8" x 10 1/2" placards (NSN 0105-LF-004-7200) and tools and equipment will be labeled with 1" x 1" placards (NSN 0105-LF-004-7800). Areas, tools, and equipment with measured noise levels in excess of 84 dBA will be labeled requiring plugs or muffs. Areas, tools, and equipment with measured noise levels in excess of 104 dBA (or intermittent noise levels in excess of 140 dBA) will be labeled requiring plugs and muffs.

d. If hazardous noise cannot be sufficiently reduced to acceptable levels in machinery spaces required to be manned, the source of the hazardous noise shall be suitably insulated, isolated, or a safe refuge provided. Personnel shall also be given the option to rotate in noise hazardous locations.

5. Recommended Vibration Limits. Recognizing that no vibration standards currently exist for commercial ships, it is recommended that the vibration levels in accommodations and control spaces do not exceed a peak velocity of 9 mm/s over a frequency range of 5 to 100 Hz. For a frequency range of 1 to 5 Hz, it is recommended that the peak velocity does not exceed the value determined by the following equation:

6 June 1991

Section No. 20

AIRBORNE NOISE AND VIBRATION LIMITS

$$V_p \text{ (mm/s)} = 45/\text{Hz}$$

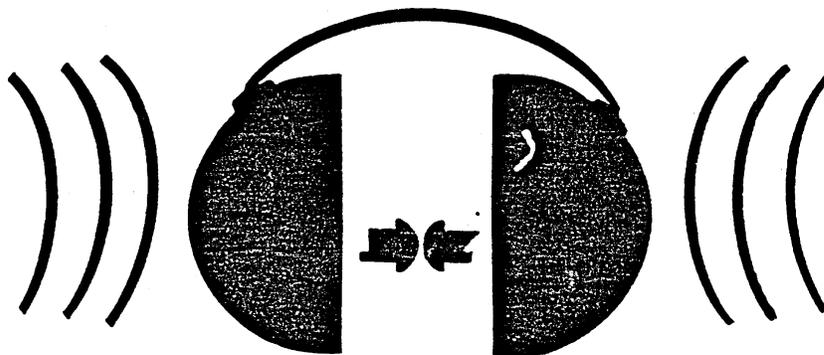
In general, excessive local vibrations shall be avoided or reduced to an acceptable level as required. Vibration is excessive when it results in damage or threatens to endanger ship structure, equipment, or systems, or when it interferes with or threatens to interfere with the proper operation of the ship, its mission systems, or any ship/mission components. Vibration is also excessive when it interferes with or threatens to interfere with personnel safety, comfort, or efficiency.

6 June 1991

HAZARDOUS NOISE WARNING DECAL

COMPLETE APPLICABLE SPACES BELOW

HAZARDOUS NOISE MAY CAUSE HEARING LOSS



HEARING PROTECTION REQUIRED

DURING NORMAL OPERATION

DURING OTHER OPERATION (SPECIFY)

PLUGS OR MUFFS

PLUGS AND MUFFS

NAVVED 6250-2 Rev. 10/88

S-N 0105-LF-004-7200

NAVVED FORM 6250/2

FIG. 20-1

Section No. 21

ILLUMINATION

1. General. This section contains the general requirements for illumination. Requirements for floodlighting and other special lighting are excluded.
2. Standards. Illumination shall be to the requirements of the Illumination Engineering Society (IES) and IES Publication RP-12.
3. Installation
 - a. All areas and spaces throughout the ship shall be completely lamped. Fluorescent fixtures with 15, 20, or 40 watt lamps shall be used for general illumination and fluorescent fixtures with 8 watt lamps shall be used for detail illumination and restricted spaces where larger fixtures cannot fit. Detail illumination shall be provided when general illumination does not provide an adequate illumination level (e.g., desks, medicine cabinets, medical spaces, work benches, etc.).
 - b. Lighting shall provide for a uniform level of illumination throughout an area or space exclusive of any provision for special lighting (i.e., desks, berths, mirrors, etc.). The uniformity ratio shall not be greater than two to one. Care shall be taken to avoid direct and reflected glare, too much brightness, and shadows. All fluorescent fixtures shall be fitted with prismatic diffusers.
 - c. Lighting for instruments in control rooms (i.e., engineers' operating station, pilot house, etc.) shall not result in reflections or glare with operators in their normal positions. If reflections or glare cannot be eliminated by proper positioning of the fixture or instrument, shields, dimmers, or instruments with nonglare glass shall be fitted. Wheelhouse instruments shall have dimmers, and special care shall be given to the location and extent of control consoles, especially in front of windows and conning positions. Interior spaces opening to the wheelhouse (i.e., passages, stairs, water closets, etc.), chart tables, and RAS/FAS stations shall be provided with red lamps for dark adaptation.
4. General Illumination Levels. Unless otherwise specified, fixtures shall be installed in sufficient numbers to maintain the average minimum illumination in lux (footcandles) measured horizontally 760 mm (30 in) above the deck as specified below in accordance with IES RP-12 requirements. Initial values shall allow for deterioration, reflectors, enclosures, and painted surfaces. Other compartments, functional areas, sponsor and mission spaces not listed shall be lamped similar to the spaces listed below unless otherwise specified.

6 June 1991

Section No. 21

ILLUMINATION

Location	Lux (Footcandles)
Living, Messing, and Recreation Spaces	
Master and Chief Engineer Stateroom (1,2)	215 (20)
Chief Scientist/Mission Eng'r. Stateroom (1,2)	215 (20)
MILDET Officer in Charge Room (2)	215 (20)
Other Staterooms (2)	110 (10)
Offices/Day ooms (3)	215 (20)
Hospital Room (2)	325 (30)
Toilets and Showers (T&S) and Baths	110 (10)
Hospital Bath (4)	215 (20)
Lounges and Recreation Rooms (5)	215 (20)
Passageways, Stairs, Elevators, and Entrances	110 (10)
Messrooms	215 (20)
Gymnasium	325 (30)
Working and Control Spaces	
Pilot House	110 (10)
Engineers' Operating Station	215 (20)
Main Propulsion Rooms	215 (20)
Auxiliary Machinery Rooms	215 (20)
Steering Gear Compartment	215 (20)
Fan, Pump, and Bow/Stern Thruster Rooms	110 (10)
Workshops (6)	325 (30)
Galley	325 (3)
Pantries and Cafeteria Serving Lines (6)	215 (20)
Scullery and Thaw Rooms (6)	215 (20)
Communications Center (6)	215 (20)
Medical Examination and Treatment Rooms (6)	540 (50)
Ship and Engineer Office (3)	215 (20)
Conference Room	215 (20)
Library	215 (20)
RAS/FAS Station (red lamp)	5 (.5)
Stores and Other Spaces	
Misc. Stores (Dk, Bos'n, Mach'ry, Galley, etc)	110 (10)
Refrigerated Galley Stores	110 (10)
Misc Lockers	55 (5)
Laundry Room	325 (30)
Ship Store (Sales Exchange)	110 (10)
Sales Counter and Display	215 (20)
General	
General Exterior	110 (10)
General Interior	110 (10)
Cargo Holds	110 (10)
Exterior UNREP (red and yellow)	215 (20)

Notes:

- (1) Provide Reading Light
- (2) Provide Berth Light
- (3) Provide Desk Light
- (4) Provide Mirror Light
- (5) Provide Table Lights
- (6) Provide Supplemental Lighting for Tasks

Section No. 21

ILLUMINATION

5. Detail Illumination Levels. Fixtures shall be installed in sufficient numbers to maintain the average minimum illumination in lux measured at the working surface (i.e., tops of desks, tables, consoles, mirrors, etc.) as specified below.

Item	Lux (Footcandles)
Desks	540 (50)
Mirrors (medicine cabinets and full width)	540 (50)
Writing Tables	325 (30)
Chart Table	540 (50)
Work Benches/Work Pieces	540 (50)
Communication Center Desks	540 (50)
Switchboards, Consoles, and Gauge Boards	325 (30)

6 June 1991

Section No. 22

LIGHTING SYSTEMS

1. General. This section contains the general requirements for interior and exterior ship service lighting systems. Lighting systems related to navigation, signaling, and aviation are excluded.

2. Standards. All areas throughout the ship shall be completely lamped in accordance with the Illumination Engineering Society's "Recommended Practice for Marine Lighting," 46 CFR Parts 111 and 112, and Section 21.

3. Selection, Installation, and Location

a. Fixture Selection. Fluorescent fixtures shall generally be used for both interior and exterior lighting except where incandescent fixtures or specialty fixtures are required or specified. Incandescent fixtures shall be used in refrigerated spaces, over machines in workshops, under engine room floor plates, and where fluorescent fixtures cannot be fitted due to their size. Fluorescent fixtures shall be fitted with a prismatic diffuser and guard and incandescent fixtures with a globe and guard. The guard may be omitted when the diffuser or globe is constructed of a high strength material or when the fixture is located in an interior accommodation or other similar area where it is not subject to damage. Explosion-proof fixtures shall be fitted in hazardous locations in accordance with Regulatory Body requirements.

b. Installation

(1) Interior Fixtures. Interior fluorescent fixtures in joined ceilings shall be mounted flush with the sheathing. Fixtures in unsheathed spaces (excluding machinery, stores, and other high bay areas) shall be installed below interferences such as piping, wireways, and structure. Clearance shall be not less than 1960 mm (6'-5") nor more than 2500 mm (8'-2") above the finished deck. Fixtures in storerooms and food service spaces shall be located in the center of the space or passage and not over bins or equipment. Spacing between ceiling fixtures and a bulkhead shall be one-half or less than the spacing between fixtures.

(2) Exterior Fixtures. Exterior lights shall be installed below interfering structure, and clearance above the deck shall be not less than 2130 mm (7'-0").

(3) Receptacles and Wiring. Receptacles in joined bulkheads shall be flush with the sheathing. Wiring in sheathed spaces shall be concealed behind the sheathing but not embedded in insulation.

6 June 1991

Section No. 22

LIGHTING SYSTEMS

(4) Switching. Control of general interior lighting shall be inside the compartment near the access in a location where door operation will not obstruct access to the switch. Switches for detail and decorative fixtures and floodlighting shall be independent of general lighting fixtures. Switches for general exterior lighting and exterior floodlighting shall, unless otherwise specified, be located in the pilot house.

c. Location

(1) General Interior Lighting. All interior spaces shall be provided with white, overhead, general lighting unless otherwise specified.

(2) Detail Interior Lighting. Detail lighting fixtures shall be provided for:

- Furniture End Tables
- Writing Tables
- Mirrors (i.e., medicine cabinet)
- Berths
- Desks
- Chart Table (white and red)
- Shops (above rotating machinery)
- Bilge Wells (above well)
- Switch Boards, Consoles, and Gauge Boards
- Specific Tasks (operating table, photo developing, etc.)

(3) Interior Floodlighting. Interior floodlighting shall be provided as required in cargo holds, aircraft hangars, mission work areas, etc.

(4) General Exterior Lighting. Exterior fixtures shall not interfere with on board navigation and operation of the ship nor affect the function of the navigation lights. A minimum number of required fixtures shall be carefully selected to provide safe personnel passage at:

- Inclined and Vertical Ladders
- Straight Main Walkways (spacing approx. 20 m (65 ft))
- Corners (visibility from both sides)
- Obstructions/Tripping Hazards
- Gangways/Boarding Areas
- Lifeboat/Liferaft/Workboat Embarkations

Section No. 22

LIGHTING SYSTEMS

(5) Exterior Floodlighting. Exterior floodlighting trainable to multiple locations shall be provided for the illumination of functional areas including:

- Accommodation Ladders/Brows (1,2,3)
- Lifeboat/Liferaft/Workboat Areas From Stowage to Water (1,3,4)
- Waterline Security (1)
- Pilot Ladders (1,2,3)
- Side Ports (1)
- Mooring Equipment and Windlass
- Anchors/Hawse Pipe at Shell • (1,3)
- Cargo Handling Areas and Hatchways
- RAS and FAS Areas (with red and yellow lens)
- Mission Work Areas
- Operating Areas for Cranes, Hoists, and Over the Side Equipment
- Stack Insignia

NOTES:

- (1) Bracketed, trainable over the side, and rigid locking
- (2) Shielded to prevent blinding on approach from below
- (3) May be used to supplement waterline security
- (4) Fed from emergency system and have switch in pilot house

(6) Interior Receptacles. All interior living and food service spaces shall have a sufficient number of grounded receptacles installed for electric razors, business machines, entertainment equipment, appliances, and other similar items. Appliances shall have convenient dedicated receptacles. Large interior spaces such as machinery spaces shall have a sufficient number of grounded receptacles provided to give total coverage with a portable light or maintenance appliance having a flexible cord no longer than 24 m (75 ft).

(7) Exterior Receptacles. A sufficient number of grounded watertight receptacles shall be provided to give total coverage of weatherdecks with a portable light or maintenance appliance having a flexible cord no longer than 24 m (75 ft). Receptacles shall also be fitted in way of the quarter deck office near the gangway/brow area.

4. Design and Safety. The following design and safety features shall be incorporated into the lighting system:

a. Cable penetrations through decks and bulkheads shall be in compliance with 46 CFR 92 and NVIC 6-80 regarding structural fire protection for the respective deck or bulkhead.

LIGHTING SYSTEMS

b. Selected interior fluorescent fixtures connected to the general ship service lighting system shall be equipped with emergency ballast to provide supplemental emergency lighting. The control circuit shall allow the emergency ballast to supply power to the fixture when ship service power is lost and the switch is in the "ON" position. A minimum of two such fixtures shall be installed in all passageways (12 m or 40 ft max. spacing and at ends), the hospital room, messrooms, crew recreation room or lounge, engineers' operating station, main switchboard (if separate from EOS), emergency generator room, pilot house, chart room (if separate from wheelhouse), damage control room, safes, and similarly important mission control, operating, and equipment areas.

c. At least two switches separately protected and supplied from different phases shall be provided in manned spaces pertaining to ship operation and control, mission operation and control, public spaces where six or more persons may be grouped for an extended period, and enclosed hazardous spaces. Switches for enclosed hazardous spaces shall be located outside the hazardous space. For the above compartments, a separate circuit for emergency fixtures shall be accepted as one of the two required circuits.

d. Fixtures installed in the same compartment but on different circuits shall be provided with individual switches.

e. Fixtures in spaces not requiring emergency lighting may be grouped on a circuit that serves an adjacent space provided the spaces do not contain unattended machinery with exposed moving parts, are on the same level and in the same watertight compartment, and an adjacent space on the same circuit need not be traversed for exit to a passageway or to a space having two sources of power to a fixture.

f. Incandescent lighting shall be provided in strategic areas fitted with ballasted vapor type floodlighting to provide immediate backup lighting while the ballast is striking.

g. Exterior weather fixtures and other fixtures exposed to splashing water shall be watertight, and fixtures in damp locations shall be drip-proof.

Section No. 23

HEATING, VENTILATING, AND AIR CONDITIONING

1. General. This section contains general heating, ventilating, and air conditioning (HVAC) requirements. Environmental requirements for special electronics and mission spaces are not addressed.

2. Standards. All installations shall comply with the requirements of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) and the Society of Naval Architects and Marine Engineers (SNAME) Technical and Research Bulletins 4-14 and 4-7. All materials and construction shall comply with the requirements of 46 CFR Parts 32, 92, 164, and 190 and Coast Guard Navigation and Vessel Inspection Circular 6-80.

3. General Requirements

a. All accommodation spaces, food service spaces, leisure spaces, control spaces (pilot house, EOS, etc.), and ship and mission working spaces shall be air conditioned. All other non-air conditioned spaces (excluding inaccessible voids) shall be ventilated either mechanically, naturally, or a combination of both as required.

b. AC and heating systems shall provide for individual temperature control in each space.

4. General Design Requirements

a. Heating and Air Conditioning Systems

(1) Air conditioned spaces shall be maintained at 21°C (70°F) during the heating season and 25.6°C (78°F) during the cooling season. The relative humidity shall be maintained at 55 percent.

(2) The minimum quantity of air (fresh and recirculated) delivered to each space shall be based on a 6-minute rate of change for high occupancy spaces (i.e., messrooms, lounges, etc.) and an 8-minute rate of change for other spaces (i.e., offices, staterooms, etc.) unless otherwise specified.

(3) Air changes shall be based on the gross interior volume of spaces with no deduction for furnishings and equipment.

HEATING, VENTILATING, AND AIR CONDITIONING

(4) Minimum replenishment air shall be the greater of 3 changes/hour or 0.425 m³/min/person (15 CFM/person) for high occupancy spaces and 2 changes/hour or 0.34 m³/min/person (12 CFM/person) for other spaces, but not more than 1.42 m³/min/person (50 CFM/person).

(5) The design terminal temperature differential (i.e., the difference between air dry bulb temperature in the supply duct terminal and the space design dry bulb temperature) shall not exceed 16.7°C (30°F).

(6) Spaces with doors opening directly to the weather, including passageways, shall have a slight positive pressure.

(7) The AC system shall be designed with a 15 percent growth margin.

(8) Passageways within AC spaces may be used as air returns and shall be included in the load estimate only as allowed by Regulatory Body rules.

(9) All air delivered to medical treatment spaces shall not be recirculated. Instead it shall be exhausted to the weather.

c. Ventilating Systems

(1) Weather intakes shall be located to prevent the ingestion of exhausted HVAC system air, stack discharges, or other sources of contamination.

(2) Spaces requiring natural exhaust without direct connection to the weather shall have doors fitted with undercuts or louvers. Door undercuts shall not exceed 13 mm (0.5 in) and the maximum combined net area of undercut and louver shall not exceed 500 cm² (77.5 in²).

(3) Louvers shall be provided when the airflow rate exceeds 2 m³/min (75 CFM).

5. Special Heating and Ventilation Requirements

a. Odor producing spaces such as the galley, serving annexes, and laundries, and other odor producing spaces shall have a slight negative pressure.

Section No. 23

HEATING, VENTILATING, AND AIR CONDITIONING

b. The galley shall be provided with an independent mechanical supply and exhaust system venting directly to the weather. During cooking hours, conditioned air serving the galley shall be diverted to a passage adjacent to the galley and drawn into, through, and out from the galley to the weather.

c. Galley ranges, griddles (including serving annex), kettles, and deep fat fryers shall be fitted with vent hoods with washdown capability and automatic fire damper exhausting directly to the weather.

d. Sanitary spaces shall have natural supply and constant mechanical exhaust direct to the weather.

e. Enclosed spaces containing marine sanitation devices shall be mechanically ventilated with exhaust direct to weather.

f. Enclosed spaces containing hazardous materials shall be provided with an independent ventilating system venting directly to the weather and have a slight negative pressure.

g. Spaces served by mechanical supply or recirculating systems that require heating shall be provided with duct type heaters. Duct heating shall be composed of a system preheater(s) and individual thermostatically controlled reheaters in each space with auto shutoff.

h. Spaces served by a natural ventilating system that require heating shall be provided with surface bulkhead mounted convection heaters with adjustable temperature control, automatic and manual reset, and thermal overheat cutout protection.

6. General Installation Requirements

a. All systems shall be complete in all respects and be fully accessible for maintenance and repair.

b. All ventilating and AC fans shall be resiliently mounted and all ducting shall be flexibly connected.

c. Ducts and equipment shall be isolated from ship structure, hangers, and joiner work.

COMSCINST 9330.6D

6 June 1991

Section No. 23

HEATING, VENTILATING, AND AIR CONDITIONING

- d. All ductwork shall be airtight.
- e. Ductwork shall have a sufficient number of airtight access plates for cleaning of ducts and access to fans.
- f. Cooling coils shall not be located above any electric fixture, equipment, or electronic device, and the routing of ducting should avoid these items where practical.

Section No. 24

MEDICAL SPACE AND EQUIPMENT REQUIREMENTS

1. General. This section contains general medical requirements and medical spaces and related equipment outfitting including first aid boxes, medical lockers, litters, and eye wash stations.

2. Requirement. All ships shall be provided with a medical space or spaces. On ships where the entire complement is accommodated in single person rooms, an examination and treatment room shall be provided. Ships where crews are not accommodated in single person staterooms or ships with complements of more than 99 shall be provided with both an examination and treatment room and a hospital room.

3. Examination and Treatment Room. The examination and treatment room shall be outfitted according to the General Specifications for T-Ships. Typical arrangements are shown in Figures 24-1 and 24-2 for a large and small ship respectively. Additional requirements shall be as follows.

a. Location and Arrangement. The examination and treatment room shall be situated so that the sick may receive attention in all weather. It shall be suitably separated from other spaces and shall only be used for the care of the sick and for no other purpose. The entrance and surrounding passageway to the space must be wide enough to permit entry of a Stokes litter or stretcher without tilting.

b. Operating/Examination Table. Unless otherwise specified, the examination and treatment room shall be provided with an operating table instead of a berth. On vessels less than 75 m (246 ft), an examination table may be substituted for the operating table. Operating tables and examination tables shall be accessible from three sides. Where possible, tables shall be oriented longitudinally.

c. Sanitary Space. The examination and treatment room shall be provided with an adjoining private bath fitted with toilet, sink, and bath tub or oversized shower. On vessels under 75 m (246 ft), a shower may be substituted for the bath tub. When a hospital room is provided, the bath shall adjoin and have direct access to the hospital instead of the examination and treatment room.

4. Hospital Room. The hospital room shall be outfitted according to the General Specifications for T-Ships. A typical arrangement is shown in Figure 24-1. Additional requirements shall be as follows.

MEDICAL SPACE AND EQUIPMENT REQUIREMENTS

a. Location and Arrangement. The hospital room shall be adjacent to and have direct access to the examination and medical treatment room. The usage and door access requirements shall be the same as that required for the examination and medical treatment room.

b. Berthing. One berth shall be provided for every twelve crewmembers or portion thereof not berthed in single person staterooms. The total number of berths need not exceed six. At least one berth shall be a Gatch type hospital berth so arranged that it is accessible from both sides. Additional berths may be double tiered berths provided the upper berth is hinged and arranged to raise and secure when not in use.

c. Sanitary Space. See paragraph 3c above.

5. First Aid Boxes. Bulkhead mounted first aid boxes, NSN 2090-00-368-4792, shall be provided in the following spaces:

- a. Ship control spaces
- b. Engine and machinery spaces
- c. Galleys
- d. Electronic control spaces
- e. Communication spaces
- f. Air control spaces
- g. Laundry spaces
- h. Anchor handling areas

6. Medical Lockers. Two portable medical lockers, NSN-2090-00-368-4795, containing the inventory of Authorized Medical Allowance List 928, shall be provided and mounted at or near damage control (DC) lockers. Where only one DC locker exists, the other medical locker shall be located in a major passageway or other space easily accessible to repair parties. Portable medical lockers shall not be located in or near medical spaces.

Section No. 24

MEDICAL SPACE AND EQUIPMENT REQUIREMENTS

7. Poison Antidote Locker. One poison antidote locker, NSN-2090-00-368-4792, containing the inventory of Authorized Medical Allowance List 925, shall be provided and mounted in the passageway adjacent to the medical treatment room. The locker shall be fitted with a metal label plate with letters at least 13 mm (0.5 in) and inscribed as follows:

**WARNING
POISON ANTIDOTE LOCKER**

8. Litters. The following litters shall be provided:

a. Stokes Litters (NSN 6530-00-181-7767), steel, without leg dividers, with plastic coating, will be mounted in the following locations:

- (1) In an interior passageway near the hospital
- (2) Near each galley/messing area
- (3) Near each shop space
- (4) Near the helicopter platform
- (5) For transfer-at-sea, rigged with flotation gear

b. An Air-Sea Rescue/Medical Evacuation Litter (NSN 6530-01-187-0104) will be mounted near the VERTREP/hover area. This litter may be substituted for the Stokes Rigid Litter required in subparagraph 8a(4) above.

c. One Miller Full Body Splint/Litter (NSN 6530-01-199-1969) will be installed near the top of each vertical trunk rising more than two levels where other means of extrication could not be used. The trunk will also have a steel padeye of sufficient strength to permit vertical lifting of injured personnel. Each ship will have a minimum of one such litter.

9. Eye Wash Stations/Deluge Showers. Eye wash stations shall be provided in the following locations.

- a. Machinery space

6 June 1991

b. Marine sanitation device room or other sewage treatment areas
Section No. 24

MEDICAL SPACE AND EQUIPMENT REQUIREMENTS

- c. Battery lockers
- d. Lockers containing acids and other caustic substances
- e. Weather deck over cargo tanks (tank vessels only)
- f. Flammable liquids storerooms

10. Miscellaneous

a. Clocks. All clocks in medical spaces shall have a sweep second hand for medical examination and CPR purposes.

b. Sinks. All sinks in medical spaces and adjoining baths shall be deep, stainless steel, operating room type with surgical faucet and knee or wrist (preferred) action mixing handles.

c. Paper Towel Dispenser. Paper towel dispensers shall be standard size (NSN 8540-00-262-7178) to match standard stock towels (NSN 8540-01-055-6134).

d. Water Tank. A 190 l (50 gal) dressing water tank constructed from Cu-Ni (90-10) alloy or glass reinforced plastic fitted with a retractable hose shall be installed in the examination and treatment room overhead. The tank shall be connected to the potable water supply system and provided with a sight glass. A means for hand chlorinating the tank shall be provided. The retractable hose shall be long enough to provide water to any part of the treatment room. An instruction label plate shall be installed and inscribed as follows.

**DRESSING STATION GRAVITY TANK IS TO
BE FLUSHED AND REPLENISHED WITH POTABLE
WATER EVERY THREE (3) MONTHS**

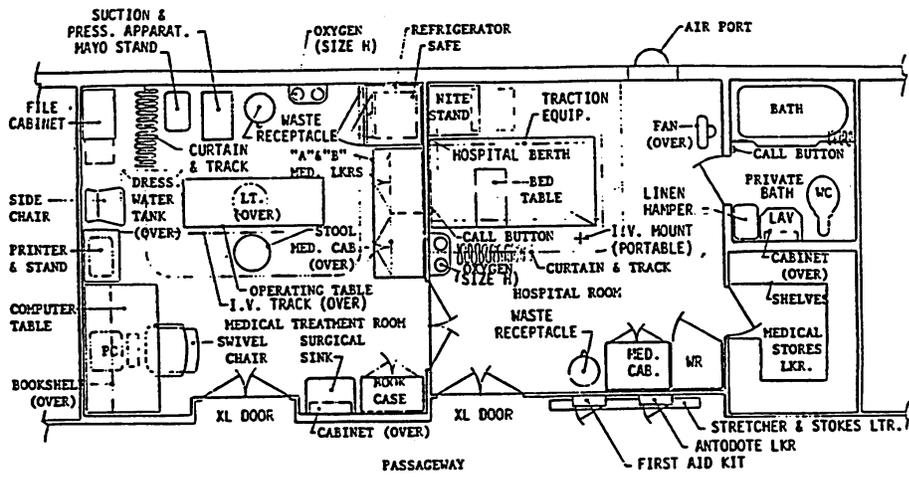
e. Safe. A two drawer security container (safe) shall be installed in the medical treatment space for the purpose of storage of controlled medicinals and other security risk items.

6 June 1991

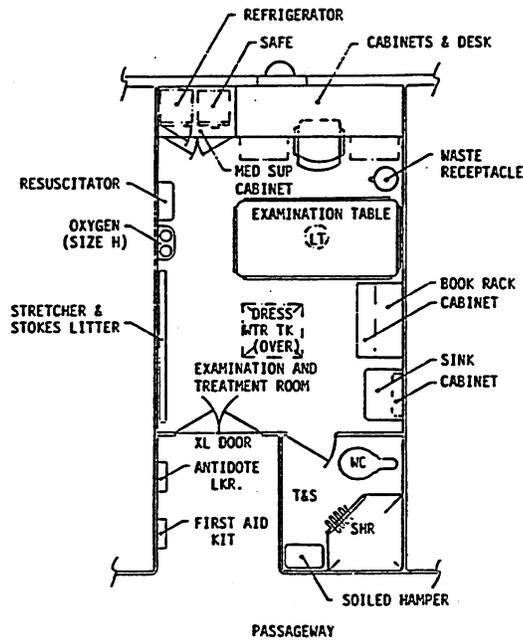
Section No. 24

f. Refrigerator. A refrigerator with a minimum capacity of 0.05 cu m (2 cu ft) shall be installed in the medical treatment space and shall have high and low temperature alarms mounted in the passageway outside the medical treatment space.

6 June 1991



MEDICAL SPACE ARRANGEMENT
(LARGE SHIP)
FIG. 24-1



MEDICAL SPACE ARRANGEMENT
(SMALL SHIP)
FIG 24-2

Section No. 25

SANITATION, HYGIENE, AND RAT PROOFING

1. General. This section describes general sanitation, health, and hygiene requirements. Oil pollution prevention is excluded.

2. Standards. General sanitation, potable water systems, sanitary systems, and rat proofing shall comply with the requirements of the United States Public Health Service (USPHS), OPNAVINST 5100.19B (Naval Occupational Safety and Health), COMSCINST 6240.4C (MSC Environmental Protection and Enhancement Program), and the Naval Manual of Preventive Medicine (NAVMED P-5010); marine sanitation devices (MSD) and sewage treatment shall comply with 33 CFR Part 159; food service sanitation shall comply with the requirements of the National Sanitation Foundation (NSF) and the Naval Manual of Preventive Medicine (NAVMED P-5010).

3. Sanitary System.

a. All sewage related spaces shall be equipped with hand washing facilities (i.e., sink, soap, and drying facilities), washdown facilities, eye wash station, protective clothing, clothing stowage locker, emergency escape breathing apparatus, approved fire extinguishers, telephone, test kits, and monitoring equipment. All sewage related and sanitary piping shall be piped independent of other systems.

b. Private and public sanitary spaces shall be provided as described in Section 00. Water closets shall be deck mounted, white, vacuum types made of vitreous china.

4. Solid Waste Control. All vessels shall be provided with the following solid waste appliances:

a. Trash Compactor. The compactor shall be located in an air conditioned compactor room with adequate deck storage for plastic waste. Compacted slugs shall have negative buoyancy (i.e., able to sink). Trash containers shall be provided with quick-release securing mechanisms at both service and storage locations.

b. Garbage Grinders/Disposals. Labels shall be provided to instruct the operator to drain to the holding tank instead of overboard when in port.

c. Incinerator. An incinerator shall be provided on diesel powered ships generating significant amounts of fuel and lube oil sludge. The incinerator shall be capable of burning both sludge and solid waste under negative pressure with a skin temperature below 60C (140F).

SANITATION, HYGIENE, AND RAT PROOFING

5. Ship and Crew Hygiene

a. Rat Proofing and Insect Control

(1) All construction, construction details, and materials shall be rat proof and comply with the requirements of USPHS Publication No. 393 and joint MARAD publication PB161019.

(2) All structural openings, vents, etc. shall be effectively screened with 1.6 mm (16 USSG) galvanized wire with openings not greater than 13 mm (0.5 in). Insect screens are not satisfactory for rat proofing.

(3) Funnel shaped rat guards 900 mm (36 in) in diameter and constructed of 1.3 mm (18 USSG) galvanized steel shall be provided for each mooring line and shore hookup (shore power cable, fresh water fill hoses, sewage hoses, shore telephone cable, etc.) plus an adequate number of spares.

(4) Each ship will be provided with at least 12 rat traps. In addition, ships with cargo holds shall be provided with 12 traps per hold.

(5) All opening air ports shall be provided with insect screens.

(6) All doors opening to the weather shall be fitted with automatic door closers.

b. Cleaning Gear. Cleaning gear lockers shall be provided for daily sanitary and housekeeping chores as described in Section 00.

c. Laundry Facilities. Laundry facilities shall be provided and outfitted as described in Section 00.

d. Deck Washing. Deck washing shall be accomplished using dedicated wash down hoses (vice fire hoses), the fire main system, and exterior fire spigots located per Regulatory Body requirements. Sufficient spigots shall be provided to allow complete exterior coverage with one hose to all external areas. Additional fore deck spigots shall be located for washing anchors and hawses. The fire main system shall be a dry main type fed from the seawater service system.

Section No. 25

SANITATION, HYGIENE, AND RAT PROOFING

e. Soogee. A pneumatic powered soogee gun capable of discharging a high pressure water/detergent stream is recommended for washing interior (i.e., engine room) and exterior paint work.

f. Dishwashing. Dishwashing sterilization procedures shall comply with the requirements of USPHS, NAVMED P-5010, and NSF and dishwashing equipment shall comply with NSF and NAVMED P-5010 requirements.

Section No. 30

FOOD SERVICE SPACES

1. General. This section contains general requirements for food service spaces including food preparation, food serving, and dishwashing equipment.

2. Standards. All commissary equipment and sanitary operations shall comply with the requirements of the National Sanitation Foundation, the United States Public Health Service, and the Naval Manual of Preventive Medicine (NAVMED P-5010).

3. General Requirements. Galleys shall be outfitted per Table 30-1 and sculleries per Table 30-2. Quantities and sizes shall vary for each installation.

a. Design. All food service equipment shall be commercially available marine equipment complying with the requirements of the National Sanitation Foundation (NSF) or other equivalent standard. Equipment shall be designed to withstand the rigors of a marine environment and be fitted with special features such as latching doors and drawers, drawer stops, dish racks, separators, lee rails, battens, and fiddles. All equipment and appliances shall incorporate the following design, construction, safety, and sanitation features:

(1) Be easy to clean and maintain and have no cracks, crevices, or voids that may harbor vermin, food waste, and other extraneous matter.

(2) Be free of sharp edges, sharp corners, or burrs. Fasteners shall be free of snags. Corners shall have a minimum 13 mm (0.5 in) radius.

(3) Corners formed out of flashings, closure plates, shields, or sheathing shall be rounded.

(4) Contain no expanded or perforated metal. Where air circulation is required and the unit is not leg mounted, louvered metal shall be used.

(5) All appliances including ranges and ovens shall be electric with automatic front mounted controls. Dishwashers shall be electrically heated.

(6) Ovens, kettles, fryers, dressers, counters, and other equipment requiring air circulation and cleaning shall be mounted on 150 mm (6 in) high leg supports.

6 June 1991

Section No. 30

FOOD SERVICE SPACES

(7) All hot cooking appliances (i.e., ovens, fryers, etc.), hot sanitizing equipment (i.e., rinse sinks, dishwashers, etc.) and cold storage equipment (i.e., refrigerators and freezers) shall be provided with thermometers.

b. Materials. All materials used shall resist stain, corrosion, and not affect the taste of food. Counters, dressers, drainboards, cabinetwork, dispensers, reach-in refrigerators-freezers (including interiors), sinks, racks, tray rails, and all other equipment, except mess tables, which come into contact with food and drink shall be constructed of corrosion resistant stainless steel (CRES) to commercial standards and finish. Food paddles, cutting boards, utensils, and thaw racks shall be constructed only from approved materials. Wood and other porous materials shall not be used.

c. Installation. All appliances and equipment shall be securely installed to withstand the motions of a marine environment and be free of vibrations. Small counter mounted appliances shall also be firmly secured, and where possible raised above the counter to allow cleaning under the appliance. Dressers and counters shall incorporate the following additional installation features.

- (1) Be parallel to the ship baseline.
- (2) Have at least 200 mm (8 in) of clearance between bulkheads, decks, and adjacent equipment or be butt fitted and sealed to facilitate sanitation.
- (3) Depending on equipment design or requirements, be mounted on either leg supports or inverted angles with adequate front toe space.
- (4) Where field joints and welds are required in tops, the welds shall be ground smooth to a number 4 finish with no discoloration. No solder or riveted joints allowed.
- (5) Have closed ends and sides unless specified otherwise or butted to form a continuous piece.
- (6) Sinks, drains, and other inserts shall be butt welded to and finished as an integral part of the top.
- (7) Tops on which water can collect (i.e., dishwashing counters and drain boards) shall be fitted with drains piped to deck drains.

Section No. 30

FOOD SERVICE SPACES

d. Dimensions. The nominal height of cook tops, counters, dressers, tray rails and other serving equipment shall be 915 mm (36 in) high including legs or foundation. The nominal width of dressers and counters shall be 760 mm (30 in) wide for single sided access and 1520 mm (60 in) wide for double sided access. Lengths to suit each individual installation. Cabinets shall nominally be 380 mm (15 in) in depth, be mounted at least 760 mm (30 in) above the counter, and be set back 305 mm (12 in) from the working face of the counter. Open shelves shall be at least 460 mm (18 in) above the working surface and be set back 305 mm (12 in) from the working face of the counter.

e. Storage. Storage space shall be provided in the galley, scullery, serving annex, and messrooms as necessary for all portable equipment including cookware, appliances, china, glassware, silverware, utensils, trays, and spare parts.

f. Falling Contaminants. Provision shall be made to prevent condensate and other foreign matter from falling on food preparation, cooking, and serving surfaces. Pipes, wireways, and other overhead interferences from which contaminants could fall shall not be installed over equipment or serving surfaces unless located above the overhead sheathing.

g. Equipment Ventilation. All heat, smoke, and odor producing equipment shall be provided with exhaust hoods. Equipment which use cooking oil, lard, or grease (ranges, griddles, and fryers) shall have CRES hoods fitted with approved fire protection and grease extractors.

h. Miscellaneous

(1) Portable and mobile equipment shall be provided with quick-release securing mechanisms at both service and storage locations.

(2) All potable water lines to food service equipment shall have an air gap greater than or equal to two times the inlet diameter or have a properly installed backflow preventer.

(3) All sinks shall be provided with flush, portable CRES covers. Covers shall also be provided for deep fat fryers and griddles.

(4) All hot pipes shall be lagged.

FOOD SERVICE SPACES

(5) Steam kettles shall be fitted with remote pull cords.

(6) To the maximum extent possible, counters and cabinets shall be arranged so that drawers and doors (hinged and sliding) open longitudinally.

4. Specific Equipment Requirements

a. Dressers, Counters, and Base Cabinets. Minimum thicknesses shall be 1.25 mm (18 gauge) body, 1.50 mm (16 gauge) shelving, and 2.75 mm (12 gauge) top. Fronts and unbuted ends shall have a raised retaining edge. Retaining edges shall be integral with the top surface and be 19 mm (0.75 in) high with a rolled 19 mm (0.75 in) radius top except for drainboards and scullery counter tops which shall have a 50 mm (2 in) high raised edge with a 19 mm (0.75 in) rolled top. The edges of counters and dressers butted to bulkheads and high pieces of equipment shall have splashboards. Splashboards shall be integral with the top surface, have a rounded cove, be sealed at the top, and be 305 mm (12 in) high. Counters with open fronts and sides (i.e., not enclosed with drawers and cabinets underneath) shall have a minimum 75 mm (3 in) apron integral with the raised retaining edge. Counter tops on which water can collect (i.e., dishwasher counters and drain boards) shall be fitted with drains piped to deck drains.

b. Racks and Shelves. The minimum thickness shall be 1.25 mm (18 gauge). Fronts shall have a 13-25 mm (0.5-0.75 in) retaining edge with hem, and backs and ends shall have a 50 mm (2 in) retaining edge with hem. Shelving in open, enclosed and semi-enclosed bases shall be removable and be equipped with portable battens. Plastic coated dishwasher racks may be used for storing cups, glasses, and dishes in appropriately sized hinged door cabinets. Pot and pan hook racks shall be of rigid construction and located over cooking equipment in such a manner as to preclude head injury.

c. Overhead Cabinets. Cabinets shall be constructed of 1.25 mm (18 gauge) body, and 0.95 mm (20 gauge) hinged doors equipped with latches. Interiors shall have 0.95 mm (20 gauge) removable shelving and dish separators where required.

d. Dishwashers. Dishwashers shall accommodate either 405 mm or 510 mm (16 in or 20 in) square racks and be fitted with a detergent dispenser, an automatic rinse injector for liquid rinse additive, and thermometer. Rinse water shall be provided at a minimum temperature of 82°C (180°F). Thermometers shall be installed on the final rinse supply line as close as practical to the point where the supply enters the machine and be visible and accessible from the front.

6 June 1991

Section No. 30

FOOD SERVICE SPACES

e. Sinks. Sinks shall be located at least 1.2 m (4 ft) away from deep fat fryers, griddles, ranges, and other equipment having an external cooking surface. Large sinks shall be 2 mm (14 gauge) thick sheet and small sinks less than 530 mm x 610 mm (21 in x 24 in) shall be 1.6 mm (16 gauge). Different sinks types and sink outfitting (viz. garbage grinder, heater, and hose sprayer) shall be provided in accordance with Tables 30-1 and 30-2.

f. Deep Fat Fryers. Deep fat fryers shall not be installed next to griddles or ranges and shall be oriented so that the operator faces fore or aft when using. To extinguish fires, an aqueous potassium carbonate extinguishing system with fixed piping and nozzles shall be provided. Automatic and manual actuators shall be installed near the appliance and outside the galley near the galley door. The extinguishing system shall also sound an alarm, shut down ventilation, close the vent hood damper, and de-energize the heater elements.

g. Refrigerators. Galley and messroom refrigerators shall be reach-in self-defrosting types with CRES wire welded shelves and partitions and doors provided with hasps and padlocks.

h. Coffee Messes. Coffee makers shall be connected to a cold potable water supply and all coffee messes provided with CRES decanters and adequate storage for ingredients and accessories. Coffee messes shall be located per Section 00.

i. Paper Towel Dispensers. Paper towel dispensers shall be standard size (NSN 8540-00-262-7178) to match standard stock towels (NSN 8540-01-055-6134).

6 June 1991

Section No. 30

FOOD SERVICE SPACES

TABLE 30-1
GALLEY OUTFITTING

	ITEM
(1, 2)	RANGE
(1)	OVEN, 2 SECTION
(1)	CONVECTION OVEN
X	BROILER (RANGE BACK SHELF)
(1, 2)	DEEP FAT FRYING
(1)	GRIDDLE
X	TOASTER
(1)	COMBO STEAM COOKER/KETTLE
X	REFRIGERATORS (REACH-IN)
X	FREEZER (REACH-IN)
X	FOOD MIXER
X	BAKER'S MIXER
X	MEAT SLICER
X	MEAT TENDERIZER
X	MEAT GRINDER
X	VEGETABLE PEELER
X	FOOT DUTTER/PROCESSOR
X	CAN OPENER
X	BREAD SLICER
X	BAKER'S TABLE
X	BAKER'S SCALE
X	DOUGH PROOFER
X	CUTTING BOARDS (AS REQUIRED)
X	UTENSIL RACKS (AS REQUIRED)
X	CUTLER RACKS (AS REQUIRED)
X	PAN RACKS (AS REQUIRED)
X	DRESSERS/COUNTERS (AS REQUIRED)
X	OVERHEAD CABINETS (AS REQUIRED)
X	SHELVING (AS REQUIRED)
(3)	VEGETABLE PREP SINK
(3, 4)	PAN WASHING SINK
(4)	PAN WASHING RINSE SINK
X	HAND WASHING BASIN
X	MIRROR
X	LIQUID SOAP DISPENSER
X	PAPER TOWEL DISPENSER
X	SOILED PAPER TOWEL RECEPTACLE
X	GARBAGE CANS (AS REQUIRED)

(1) TO BE VENTILATED
 (2) FIT FIRE EXTINGUISHER
 (3) FIT GARBAGE GRINDER

(4) FIT SINK HEATER, MIN 82°C (180°F)
 (5) FIT HOSE SPRAYER

Section No. 30

FOOD SERVICE SPACES

GENERAL NOTES:

1. ALL GALLEYS SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING; OVERHEAD LIGHTING, RECEPTACLES, TELEPHONE, AND CLOCK.
2. QUANTITIES AND SIZES SHALL VARY ACCORDING TO EACH INSTALLATION.

FOOD SERVICE SPACES

TABLE 30-2

SCULLERY OUTFITTING

	ITEM
X	DRESSES/COUNTERS (AS REQUIRED)
X	OVERHEAD CABINETS (AS REQUIRED)
X	SHELVING (AS REQUIRED)
X	DISHWASHER (RACKS AS REQUIRED)
(1, 3)	SCRAPPING SINK
X	WASH SINK
X	RINSE SINK
(2)	SANITIZING SINK
(4)	SCULLERY PASS THROUGH
(4)	MOBILE TRAY STACKERS
X	GARBAGE CANS (AS REQUIRED)

- (1) FIT GARBAGE GRINDER
- (2) FIT SINK HEATER
- (3) FIT HOSE SPRAYER
- (4) WHERE REQUIRED

GENERAL NOTES:

1. ALL SCULLERIES SHALL BE PROVIDED WITH OVERHEAD LIGHTING AND RECEPTACLES.
2. QUANTITIES AND SIZES SHALL VARY ACCORDING FOR EACH INSTALLATION.

Section No. 31

MESSING REQUIREMENTS

1. General. This section contains the general messing requirements including cafeteria messing.

2. Definitions.

a. Cafeteria Style Service. In cafeteria style service, ready prepared hot finished food are served by an attendant to patrons moving down a serving line equipped with a tray rail in combination with the self-serve application of salads, pastries, desserts, and beverages. The tray rail may be located in either an enclosed serving annex, in the messroom proper, or in a sufficiently wide ship passageway adjacent to the galley/messroom.

b. Buffet Style Service. In buffet style service, all food and beverage is self-serve from dressers equipped with tray rails located in the messroom. Hot and cold food is replenished by an attendant by carrying it from the galley to the messroom dressers.

c. Window Style Service. In window service, hot food products are served by an attendant through a Dutch style door or other similar opening between galley and messroom in combination with the self-serve application of salads, pastries, desserts, and beverages in the messroom. This type of service is generally restricted to small vessels with small complements. See Section 40 on messing requirements for ships under 75 m (246 ft).

3. General Requirements. Messrooms shall be outfitted according to Table 31-1 and cafeteria and buffet serving lines according to Table 31-2. For typical cafeteria and buffet arrangements, see Figures 31-1 through 31-3. Quantities and appliance sizes shall vary according to people served.

a. Menu. All personnel shall receive the same daily food (i.e., no menu discrimination between officers and other crew).

b. Preferred Service. Cafeteria style service shall be the preferred type of service. Buffet style service shall only be provided when messrooms are remotely located from the galley and there is insufficient space to fit an enclosed serving annex adjacent to the mess. Catered or full service sit-down messing shall not be provided.

6 June 1991

Section No. 31

MESSING REQUIREMENTS

c. Separation. Separate messrooms shall be provided for officers, CPOs, and other crew with equivalent sponsor and military personnel seated accordingly. When the complement is less than 35, the CPO messroom may be deleted and the CPOs seated in the officer messroom.

d. Seating. Messrooms shall be sized to provide the following seating.

(1) Officer Messroom: 100% seating; 4 man tables plus optional 6 or 8 man Master/Chief Engineer table; individual arm chairs. Each officer shall be entitled to occupy his or her regular place setting at a customary table.

(2) CPO Messroom (when fitted): 60% seating; 4 man tables; individual arm chairs.

(3) Crew Messroom: 60% seating; 4 man tables; individual side chairs (with no arms) or stools.

(4) Duty Mess: Recommend an additional duty mess table with stools or a booth with bench seats be provided in the crew messroom reserved for engineering and commissary personnel in soiled attire. Where possible, the duty mess shall be set off to the side or partially secluded from the main messing area.

e. Arrangement. Messrooms shall be located on an exterior bulkhead and have at least two windows or port lights. Serving lines may be oriented either athwartships or longitudinally to achieve the best arrangement. A single serving line serving the same food to all shipboard personnel is preferred. Multiple serving lines, however, shall be provided when complements are very large, when messrooms are widely separated, when messrooms are on different decks, or when a single central serving annex cannot be accommodated. Messrooms shall not be used as work areas.

f. Traffic Flow. Traffic flow through the serving line, access to seating, the return of soiled trays, and exiting must be considered to expedite safety, order, and quickness. Access to and from the serving line shall be designed to allow for easy movement, no opposite flow, and with direct access to seating. At no time shall patrons be required to pass through food preparation, garbage disposal, and dishwashing areas. Equipment shall generally be arranged to allow for the orderly pickup of trays, utensils, cold foods, hot

Section No. 31

MESSING REQUIREMENTS

foods, and beverages. Practical variations in line continuity and order are acceptable and expedient, such as locating self-serve items in the messroom. The following is recommended when the serving line is located in an enclosed serving annex or converted pantry:

(1) Locate the beverage counter in the messroom to avoid reentering the annex to obtain beverage refills.

(2) Locate the chill counter/salad bar in the messroom to avoid reentering the annex to obtain salad or dessert refills.

g. Access. Access doors between enclosed serving lines and messes shall be double swinging metal joiner type fitted with fixed light and holding hooks. Door thresholds shall be flush (i.e., no raised sills, coamings, or arches) with the finished deck to reduce tripping hazards to patrons carrying trays and to allow the use of mobile equipment.

h. Soiled Dinnerware Return. Soiled dinnerware and trays shall be self-bussed by patrons to the scullery via a pass through window. Where a direct pass through from the messroom to the scullery is not possible, a bussing station consisting of an enclosed tray stacking cart or bussing tub shall be provided to temporarily accumulate soiled trays for later transport to the scullery by an attendant. Scullery pass through windows and soiled tray stacking carts shall be located to prevent serving line patrons from viewing or passing by these items.

i. Clearances. The back-to-back clearance between diners seated at adjacent tables and between the backs of seated diners and adjacent bulkheads shall be not less than 600 mm (24 in). Minimum clearance outboard from the tray rail to other equipment, seating, or bulkheads shall be 1200 mm (4'-0" in). When lines are located in passageways, the minimum passageway width shall be 1500 mm (5'-0").

j. Night Lunch/Snacks. All messrooms shall be equipped with the necessary counters, cupboards, and appliances to provide self-service beverage and light food preparation at all times.

4. Specific Equipment Requirements. All equipment shall be CRES unless specified otherwise.

MESSING REQUIREMENTS

a. Silverware Dispenser. The silverware dispenser shall be a one-piece unit or an attachment to either the tray dispenser or the cup/glass dispenser. The dispenser shall have a capacity of eight silverware cylinders.

b. Tray Dispenser. The tray dispenser shall be either a bulkhead mounted, open tubular type or a drop-in dresser type with autolift.

c. Tray Rail. Full length rails shall be provided along all food serving dressers, beverage counters, and buffets. Construction shall be composed of three 1.25 mm (18 gage) thick by 25 mm (1 in) diameter tube rails with closed end returns on standard or collapsible brackets. The nominal height above the deck shall be 90 cm (36 in).

d. Chill Counter/Salad Bar. The chill counter shall be equipped with a minimum of three, nominal 300 mm x 500 mm (12 in x 20 in) pans, two autolift dish dispensers, and sanitary sneeze shield. Construction shall be to the same requirements as marine refrigerators and the unit shall be leg mounted to allow for air circulation to the compressor and for cleaning access. Dressers in buffet style arrangements shall be designed for double sided access similar to restaurant style salad bars.

e. Display Shelves. Display shelves fitted with sanitary shield shall be provided on the serving line for the service of bread and pastry products. If space is not available in the line for a display shelf, bread and pastry products may be served on the cold food or the beverage/light food counters.

f. Hot Food Dresser. The hot food dresser top shall be equipped with a minimum of three, nominal 500 mm x 700 mm (15 in x 21 in) rectangular drop-in electric food warmers, two round drop-in electric soup warmers, two autolift plate and bowl dispensers, a 900 mm (36 in) wide drop-in electric griddle (with serve-over ventilation hood), a warming lamp, and sanitary sneeze shield. Construction shall be to the same requirements as galley dressers, and the space under the dresser shall be fitted with cutlery and utensil drawers, and closed and open storage. On small ships with small complements the griddle may be combined with the oven and range with MSC approval. The combination unit shall be a griddle- oven-range with two-thirds griddle top, two hot plates, and convection oven. Dressers in buffet style arrangements shall be designed for double sided access when messroom space permits without the griddle installed.

6 June 1991

Section No. 31

MESSING REQUIREMENTS

g. Cup/Glass Dispensers. Cup/glass dispensers shall be either mobile with hold downs or bulkhead mounted and sized to accommodate standard dishwasher cup/glass racks. Both models shall be the open tubular type. The cup/glass dispenser shall be located adjacent to the beverage service counter.

h. Beverage Counter/Light Food Counter. The beverage counter shall provide for both self-serve beverages and the preparation of and storage of light foods. The counter shall be leg mounted and constructed to the same requirements as a refrigerated galley counter. A minimum 0.2 cu m (7 cu ft) refrigerator and a 250 mm x 300 mm x 150 mm (10 in x 12 in x 6 in) sink shall be built integral with the counter. The balance of the enclosed space under the counter shall be provided with a silverware drawer and enclosed shelving for condiment, dry food, dishware, appliance, and miscellaneous storage. The length of the counter shall be determined by the specified equipment to be installed on the top plus a minimum of 100 mm (4 in) clearance between each portable piece of equipment. Counter top equipment to include, but not be limited to: toaster, coffee maker, and sink. Recommended options include microwave oven, automatic push type water and ice dispensers, hot water dispenser, bread box, and electric fry pan.

i. Pass Through Serving Window And Roller Curtain. Tray rails in open passageways or ones giving direct unrestricted access to the galley shall be separated from the serving dressers by a bulkhead fitted with a pass through serving window extending the full length of the serving dressers along the tray line. The window shall be fitted with a roller curtain with locking mechanism on the serving side to secure galley department spaces during off hours. The bottom of the roller curtain shall have a shelf fitted with an inverted "U" channel to accept the bottom of the curtain and to act as a sanitary sill. Positive means shall also be provided to prevent inadvertent closing when in the open position. All pass through windows and roller curtains shall comply with Regulatory Body structural fire protection requirements.

j. Soiled Tray Stackers. Soiled tray stacking carts shall be enclosed, be mobile, and have quick-release hold downs.

k. Soiled Tray Pass Through Window. Soiled pass through shall measure 600 mm x 450 mm (24 in x 18 in) and be fitted with a vertical sliding or hinged enclosure panel with locking mechanism actuated from the scullery.

MESSING REQUIREMENTS

1. Mess Tables. Mess tables shall have service-free, nonabsorbent plastic laminate or equivalent tops with rounded corners and adjustable lee rails. Four seat square tables shall be minimum 900 mm x 900 mm (36 in x 36 in) or, if rounded, have equivalent area to a square table. When rectangular tables are fitted, they shall be arranged with the longer dimension oriented fore and aft to the maximum extent possible.

6 June 1991

Section No. 31

MESSING REQUIREMENTS

TABLE 31-1

MESSROOM OUTFITTING AND FURNISHING

CREW	CPO	OFF	ITEM
X	X	X	TABLES AS REQUIRED
	X	X	CHAIRS AS REQUIRED, WITH ARMS
X			CHAIRS AS REQUIRED, WITHOUT ARMS
(1)	(1)	(1)	CHILL COUNTER/SALAD BAR
X	X	X	GLASS/CUP RACKS
(1)	(1)	(1)	BEVERAGE/LIGHT FOOD COUNTER
(2)	(2)	(2)	REFRIGERATOR, 0.15 CU M (5 CU FT)
(2)	(2)	(2)	MESS SINK
(2)	(2)	(2)	COFFEE MAKER
(2)	(2)	(2)	TOASTER, POP-UP TYPE
(2, 3)	(2, 3)	(2, 3)	MICROWAVE OVEN
(2, 3)	(2, 3)	(2, 3)	WATER AND ICE DISPENSER (AUTOMATIC)
(4)	(4)	(4)	ICE CUBE MAKER (REACH-IN)
(2, 3)	(2, 3)	(2, 3)	HOT WATER DISPENSER
(2, 3)	(2, 3)	(2, 3)	BREAD BOX
(2, 3)	(2, 3)	(2, 3)	ELECTRIC FRY PAN
X	X	X	CABINETS (AS REQUIRED)
(5)	(5)	(5)	SOILED TRAY STACKER
X	X	X	DRINKING FOUNTAIN
X	X	X	INTERCOM
X	X	X	BULLETIN BOARD
(6)	(6)	(6)	FRAMED PICTURES/MURALS

- (1) LOCATE IN MESSROOM (PREFERRED) OR IN SERVING ANNEX
(2) ON OR IN BEVERAGE COUNTER
(3) RECOMMENDED ACTION
(4) PROVIDE WHEN AUTOMATIC ICE DISPENSER NOT FITTED
(5) TO BE PROVIDED WHEN MESSROOM REMOTELY LOCATED FROM SCULLERY
(6) RECOMMEND AMENITY (SUGGEST MURALS AND ARTWORK NOT HAVE A NAUTICAL MOTIF)

GENERAL NOTES:

1. ALL MESSROOMS SHALL BE PROVIDED WITH THE FOLLOWING BASIC OUTFITTING: OVERHEAD LIGHTING, RECEPTACLES, COAT HOOKS, CURTAINS, CLOCK, TELEPHONE, RADIO, WASTE BASKETS, AND FANS.

6 June 1991

Section No. 31

MESSING REQUIREMENTS

TABLE 31-2

CAFETERIA SERVING ANNEX AND BUFFET OUTFITTING

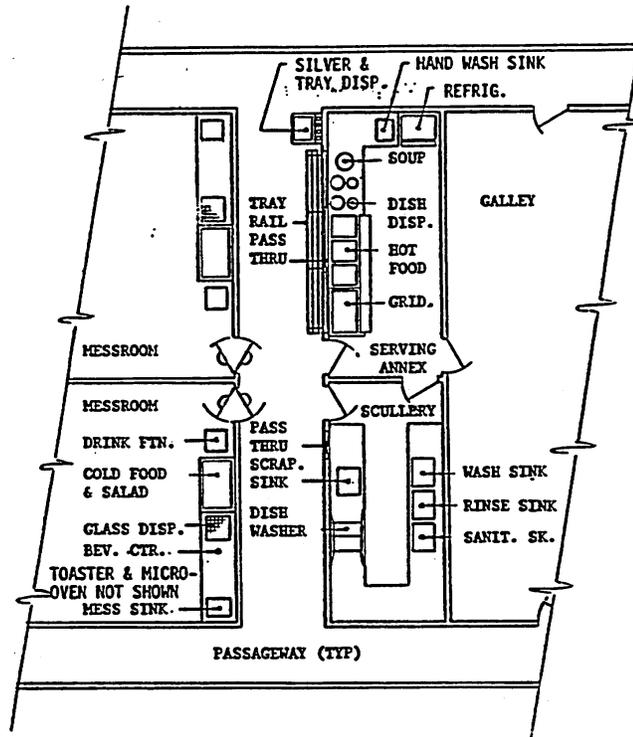
ANNEX	BUFFET	ITEM
X	X	SILVERWARE DISPENSER
X	X	TRAY DISPENSER
X		TRAY RAIL/SLIDE
(1)	(2)	CHILL COUNTER
(3)	(3)	PASTRY DISPLAY SHELF
X	(2)	HOT FOOD DRESSER
(4)		GRIDDLE
X		COUNTERS (AS REQUIRED)
X		CABINETS (AS REQUIRED)
(3)		TOASTER
(3)		MICROWAVE OVEN
(5)		WARMING LAMP
(5)		CUTTING BOARD
(1)	X	BEVERAGE COUNTER
X	X	GLASS/CUP RACKS
(3)		REFRIGERATOR/FREEZER
(3, 6)		PAN WASH SINK
(3, 7)		PAN WASH SINK
X		WASH BASIN
X		ROLLER CURTAIN
	(8)	MOBILE TRAY STACKER
X		GARBAGE CAN
X		PAPER TOWEL DISPENSER
X		SOILED PAPER TOWEL RECEPTACLE

NOTE: ALL BUFFET ITEMS LOCATED IN MESSROOM: SEE TABLE 31-1 FOR ADDITIONAL MESSROOM OUTFITTING

- (1) LOCATE IN MESSROOM (PREFERRED) OR ANNEX
- (2) DOUBLE SIDED WITH TRAY RAIL (PREFERRED)
- (3) RECOMMENDED FOR SERVING ANNEX
- (4) ADJACENT/ON HOT FOOD COUNTER
- (5) OVER HOT FOOD COUNTER FREE SPACE/CUTTING BOARD
- (6) GARBAGE GRINDER
- (7) SINK HEATER
- (8) TO BE PROVIDED WHEN MESSROOM REMOTELY LOCATED FROM SCULLERY

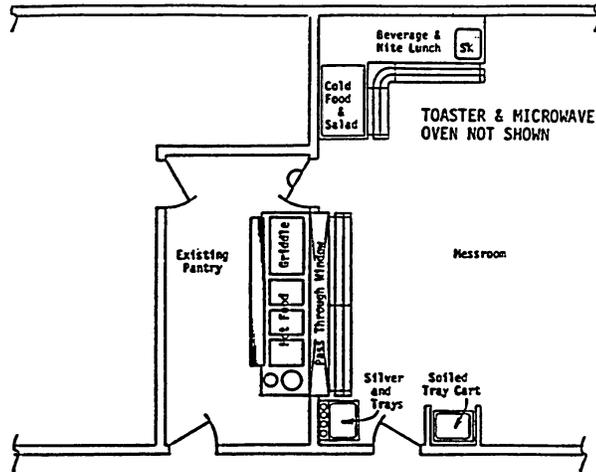
GENERAL NOTES:

1. ALL SERVING ANNEXES TO BE PROVIDED WITH THE FOLLOWING BASIC OUTFITTING: OVERHEAD LIGHTING, RECEPTACLES, ETC.



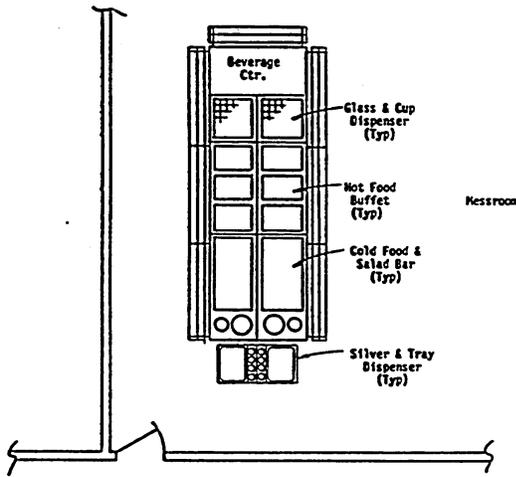
TYPICAL NEW CONSTRUCTION
CAFETERIA MESSING ARRANGEMENT

FIG. 31-1



TYPICAL CONVERTED EXISTING PANTRY
CAFETERIA MESSING ARRANGEMENT

FIG. 31-2



TYPICAL BUFFET MESSING ARRANGEMENT

FIG 31-3

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS

1. General. This section contains living, messing, and leisure space requirements applicable to vessels less than 75 m (246 ft) in length between perpendiculars (LBP).
2. Standards. The same Regulatory Body, habitability, and safety standards as set forth in Section 00 shall apply.
3. Living, Messing, and Leisure Space Requirements
 - a. General Requirements. The same general requirements pertaining to location and segregation as described in Section 00 shall apply.
 - b. Berthing. Berths shall generally be oriented longitudinally. However, a transverse orientation may be used in cases where it results in a more efficient arrangement. See Table 40-1 for minimum area, Table 40-2 for stateroom outfitting, and Figures 40-1 and 40-2 for typical arrangement plans.
 - (1) Officers and Chief Petty Officers (CPOs). Officers, CPOs, and equivalent mission and military personnel shall be berthed in single person staterooms.
 - (2) Other Crew. Other crew and equivalent mission and military personnel shall be berthed not more than two persons per room. However, when complements are small and enough space exists without forcing an increase in ship size, CPOs, other crew, and equivalent personnel shall be berthed in single person rooms.
 - (3) Other Crew on Vessels with LBP<50m. On vessels with a length between perpendiculars less than 50 m (164 ft), other crew and equivalent mission and military personnel shall be berthed not more than four persons per room.
 - (4) Spares. One stateroom with a tiered double (i.e., up and down) berth shall be provided.
 - (5) Medical Treatment Room. A medical treatment room with berth or examination table and adjoining private T&S shall be provided. One berth shall be provided for every twelve crewmembers or portion thereof not berthed in single occupancy rooms. See Section 24 for outfitting details and other required medical equipment (i.e., first aid boxes, etc.).

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS

c. Private Sanitary Spaces. Private sanitary spaces shall be outfitted per Table 00-3 in Section 00. Definitions of "private bath" and "semi-private T&S" are provided in Section 00.

(1) Officers. Officers and equivalent mission and military personnel shall have a private bath.

(2) CPOs and Other Crew. CPOs, other crew, and equivalent mission and military personnel shall have a semi-private T&S shared with an adjoining stateroom of equal standard.

(3) Other Crew on Vessels with LBP<50m. Unless otherwise specified on vessels with a length between perpendiculars less than 50 m (164 ft), CPOs, other crew, and equivalent mission and military personnel shall use a public T&S equipped with one toilet, one wash basin, and one shower for each 4 members or portion thereof.

d. Public Sanitary Spaces

(1) Pilot House Toilet. An enclosed toilet and wash basin shall be provided in the pilot house.

(2) Deck Toilet. An interior deck toilet with wash basin shall be provided with convenient access to the weather and mission spaces.

e. Private Offices. Unless otherwise specified, separate private offices shall not be provided. However, the Master, Chief Engineer, and equivalent mission and military personnel shall have a combined office-stateroom (i.e., a stateroom furnished with an office desk and other office equipment). See Table 40-2 for stateroom outfitting.

f. Messing. Messrooms shall be outfitted according to Table 31-1 in Section 31.

(1) Service. Cafeteria style messing shall be provided as described in Section 31. However, when the total complement is less than 35, window service may be provided with hot foods served by a galley attendant to patrons through a Dutch style door directly between galley and messes. Salads, beverages, desserts, etc. shall be self-serve in the messrooms per regular cafeteria messing procedures. Soiled returns shall be self-bussed by patrons through a pass through window convenient to dishwashing equipment.

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS

(2) Segregation. Separate messrooms shall be provided for officers and crew. CPOs shall be served in the officer messroom. Equivalent mission and military personnel shall be served in the appropriate messroom.

(3) Night Lunch. All messrooms shall be equipped with the necessary counters, cupboards, appliances, etc. to provide self- service beverage and light food preparation at all times. See Table 31-1 in Section 31 for outfitting.

g. Leisure Facilities

(1) Lounges. Separate lounges shall be provided for officers (including CPOs) and crew. A lounge may be combined with the messroom if suitable isolation is provided. When lounges are combined with the messrooms and suitable isolation is not provided, a separate recreation room remote from the food service area shall be provided. Lounge outfitting shall be per Table 40-3.

(2) Gymnasium. A gymnasium shall be provided and outfitted according to the General Specification for T-Ships.

4. Other Miscellaneous Spaces and Requirements

a. Miscellaneous Service Lockers. The following miscellaneous service lockers shall be provided in the accommodation spaces in sufficient number for the intended complement.

(1) Cleaning Gear Lockers with deep service sink, shelf, and mop and broom rack (every accommodation level)

(2) Luggage Lockers (as required)

(3) Clean and Dirty Linen Lockers (as required)

(4) Foul Weather Gear Locker

b. Laundry. A common crew/officer laundry room shall be provided and outfitted according to Table 00-6 in Section 00. When the total complement exceeds 35, an additional laundry shall be provided to allow separate facilities for officers (including CPOs) and other crew.

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS

c. Linen and Soap Supply. All personnel shall be provided an adequate supply of towels, wash cloths, hand soap, and blankets. Clean bed linen (sheets and pillow slip) shall be provided weekly.

d. Ship's Offices (L>50m). The following offices shall be provided on ships greater than 50 m (164 ft) in length between perpendiculars. Unless otherwise specified, ships less than 50 m shall generally not be fitted with offices.

(1) Ship Office. A ship office serving the combined clerical and filing needs of deck, engine, galley and supply departments shall be provided. Outfitting shall be according to Table 00-4 in Section 00.

(2) Mission Offices. Mission offices shall be provided as required.

e. Ship Store. A ship store (sometimes called a slop chest or sales exchange) shall be provided for the purchase of miscellaneous items (i.e., toilet articles, tobacco, candy, etc.).

f. Workshops. Although not accommodations, workshops shall be safe, functional, and conveniently located in or adjacent to the areas they serve. Unless otherwise specified, the following workshops shall be provided.

(1) Engineer Workshop (in/adjacent to both Engine Room and Engineers, Stores)

(2) Deck Maintenance Workshop (in/adjacent to Bos'n/deck stores)

(3) Mission Workshops as required (in/adjacent to mission spaces)

g. Control and Operating Spaces. Although not accommodations, control and operating spaces shall conform to the same general noise, vibration, and environmental requirements as accommodation spaces and the following additional requirements.

(1) Pilot House. The pilot house shall have good all-around visibility. Due to restricted space, recommend an open style combination pilot house and chart room arrangement with isolating curtains around chart table for improved visibility. Windows shall be canted outward at the top a minimum of 10 degrees and be accessible for cleaning. See paragraph 3d(1) above for required sanitary facilities.

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS

(2) Engineers' Operating Station (EOS). The EOS shall be enclosed, environmentally controlled, and acoustically protected for the safety and comfort of the engineering personnel. Good visibility and quick, convenient access to machinery shall be provided. On ships with manned engine rooms, an enclosed change room shall be provided nearby the EOS with clothes lockers for each watchstander. Unless otherwise specified, ships less than 50 m (164 ft) shall not have an enclosed EOS.

h. Miscellaneous Small Outfitting. The following miscellaneous small habitability related outfitting items shall be provided.

- (1) Soft Drink Vending Machine: Locate near ship store
- (2) Drinking Fountains: Locate in messroom, pilot house, EOS and mission spaces
- (3) Ice Cube Maker: Locate in messrooms
- (4) Coffee Messes: Locate in messrooms, pilot house, EOS and mission spaces
- (5) Gangway Absentee Board: Portable with for sailing time and sliding toggle to indicate on board/ashore personnel
- (6) Mail Box: Locate in passageway near ship store; not to protrude into passageway
- (7) Coat Hooks: Locate in all public spaces equivalent to 25% seating capacity and in staterooms, offices, pilot house, and EOS; minimum four (4)
- (8) Port Light Curtains: Habitable spaces only; lined and weighted

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS**GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS****TABLE 40-1****MINIMUM AREAS FOR STATEROOMS, SANITARY SPACES, AND LEISURE SPACES FOR SHIPS LESS THAN 75 METERS IN LENGTH**

SPACE	NOMINAL AREA (SEE NOTE 1) SQ M (SQ FT)
STATEROOMS (NOT INCLUDE. T&S)	
MASTER AND CHIEF ENGINEER (SEE GENL NOTES 2&3)	15 (160)
OFFICERS (SEE GENL NOTES 2&3)	11 (118)
CPO AND OTHER CREW, 2 PERSON ROOM (SEE GENL NOTE 2)	11 (118)
CPO AND OTHER CREW, 1 PERSON ROOM (SEE GENL NOTE 2)	10 (108)
SANITARY SPACES	
PRIVATE T&S	2.5 (25)
SEMI-PRIVATE T&S (WITH BASIN IN T&S ENCLOSURE)	2.5 (25)
SEMI-PRIVATE T&S (WITHOUT BASIN IN STATEROOM)	1.2 (13)
MISC. TOILETS (TOILET AND WASH BASIN ONLY)	1.2 (13)
LEISURE SPACES (SEE GENL NOTE 4)	
RECREATION ROOM (USED BY ALL PERSONNEL)	20 (215)
LOUNGE AREA PORTION WHEN COMBINED WITH MESSROOM	12 (129)
SEPARATE LOUNGE (OFFICER OR CREW)	15 (160)

GENERAL NOTES:

1. AREAS SHALL REPRESENT APPROXIMATE MINIMUM GROSS COMPARTMENT AREAS WITHOUT DEDUCTIONS FOR FURNITURE (VICE NET OR USABLE AREAS LESS FURNITURE).
2. ALL STATEROOMS SHALL BE SIZED TO ACCOMMODATE ALL THE REQUIRED FURNITURE IN AN ACCEPTABLE ARRANGEMENT REGARDLESS OF THE SPECIFIED MINIMUM AREA.
3. WHERE SPACE PERMITS, PROGRESSIVELY LARGER STATEROOMS ACCORDING TO RANK ARE RECOMMENDED. UNDER NO CIRCUMSTANCES SHALL A PERSON OF LESSER RANK BE ASSIGNED A LARGER STATEROOM THAN A PERSON OF HIGHER RANK.
4. STATED LOUNGE AREAS ARE MINIMUM. A LARGER AREA MAY BE NECESSARY BASED ON ACTUAL COMPLEMENT AND REQUIRED SEATING.

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS**GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS****TABLE 40-2****STATEROOM OUTFITTING AND FURNISHING
FOR SHIPS LESS THAN 75 METERS IN LENGTH**

OTHER	OFF	MSTR/CENG	ITEM
		X	BERTH, 1370 MM (54") WIDE (SEE GENL NOTE 2)
(1)	X		BERTH, 1065 MM (42") WIDE (SEE GENL NOTE 2)
(1)	X	X	WARDROBE, SINGLE (SEE GENL NOTES 2&3)
	X	X	DRESSER
(1)			SECRETARY/BUREAU
		(2)	TABLE, COFFEE, RECTANGULAR
		X	TABLE, END OR CORNER W/LIGHT
		(2)	TABLE, PC AND PRINTER
	X		DESK, SINGLE PEDESTAL
		X	DESK, DOUBLE PEDESTAL
	X	X	DESK LIGHT
		X	FILE CABINET, 4 DRAWERS
		X	SOFA/TRANSOM
	X		CHAIR, ARM
X	X	X	CHAIR, LOUNGE
X	X	X	BOOKRACK (SEE GENL NOTE 4)
X	X	X	SHELF, BERTH
	X	X	MIRROR
	X	X	REFRIGERATOR
		(3)	SAFE
		(3)	KEY LOCKER

(1) QUANTITY EQUAL TO TWO FOR TWO PERSON STATEROOM

(2) RECOMMENDED WHEN SPACE PERMITS

(3) MASTER ONLY

GENERAL NOTES:

- ALL STATEROOMS SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, BERTH LIGHTS, DUPLEX RECEPTACLES, RADIO AND TV ANTENNA OUTLETS, TELEPHONE, COAT HOOKS, BERTH CARD HOLDERS, CURTAINS, EXPOSURE SUIT STOWAGE, LIFE PRESERVER STOWAGE, EMERGENCY ESCAPE BREATHING DEVICE (EEBD) HOLDER, WASTEBASKET, AND OSCILLATING ELECTRIC FAN.
- ALL BERTHS SHALL HAVE DRAWERS UNDERNEATH, A BOX SPRING MATTRESS, AND INNER SPRING MATTRESS, MATTRESS COVER, PILLOW, SHEETS, AND BLANKETS.
- IN TWO PERSON STATEROOMS BERTHS SHALL BE FITTED WITH PRIVACY CURTAINS.
- BOOKRACKS AND BOOKCASES SHALL HAVE A 330 MM (13 IN) MINIMUM DEPTH AND 330 MM (13 IN) MINIMUM CLEAR HEIGHT BETWEEN SHELVES.
- WARDROBES MAY BE FREE STANDING OR BUILT-IN AND BE EQUIPPED WITH SHELF, ROD WITH ADJUSTABLE CLAMP, SIX HOOKS, SHOE RACK, AND TIE RACK (INSIDE DOOR). ALL STATEROOMS ON SHIPS INTENDED FOR COLD WEATHER/POLAR SERVICE SHALL BE PROVIDED WITH DOUBLE WARDROBES.

6 June 1991

Section No. 40

GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS**GENERAL ACCOMMODATION REQUIREMENTS FOR SHIPS LESS THAN 75 METERS****TABLE 40-3****LOUNGE OUTFITTING AND FURNISHING
FOR SHIPS LESS THAN 75 METERS IN LENGTH
QUANTITIES AS REQUIRED BASED ON COMPLEMENT**

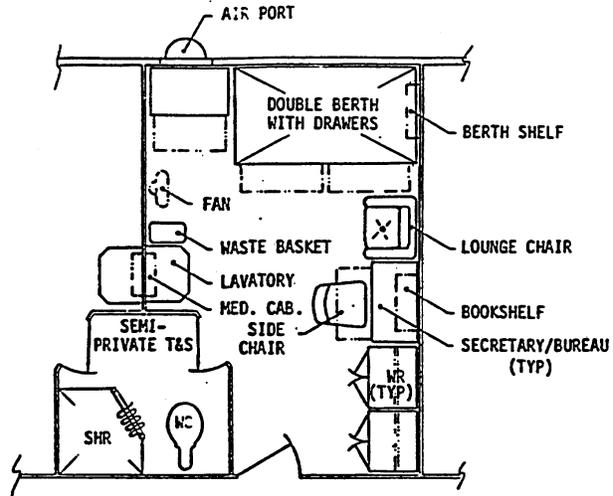
CREW	OFF	ITEM
X	X	LOUNGE CHAIRS
X	X	SOFA
X	X	END TABLE OR CORNER TABLE WITH LAMP
(1)	(1)	COFFEE TABLE
(2)	(2)	CARD TABLE
(3)	(3)	DRESSER W/SINK, COFFEE MESS, & REFRIGERATOR
(3)	(3)	CABINET (ABOVE DRESSER)
(4)	(4)	CONSOLE FOR TV, VCR, STEREO, CASSETTE, & CD
X	X	LOUNGE CHAIRS
X	X	ARM CHAIRS
X	X	BOOKCASE
X	X	MAGAZINE RACK
X	X	DECORATIVE TABLE LAMPS
X	X	ASH RECEIVER
(3)	(3)	BULLETIN BOARD
(3)	(3)	DRINKING FOUNTAIN
(5)	(5)	FRAMED PICTURES AND MURALS

- (1) FITTED WITH RETRACTABLE LEE RAILS.
- (2) CHECKER/CHESS BOARDS PERMANENTLY MOLDED INTO TABLE TOP.
- (3) LOCATE ITEM IN MESSROOM PORTION WHEN LOUNGE COMBINED WITH MESSROOM.
- (4) TO BE PERIODICALLY PROVIDED WITH UP-TO-DATE MOVIE VIDEOTAPES.
- (5) RECOMMENDED AMENITY (RECOMMEND THAT FRAMED PICTURES AND MURALS NOT HAVE A NAUTICAL MOTIF).

GENERAL NOTES:

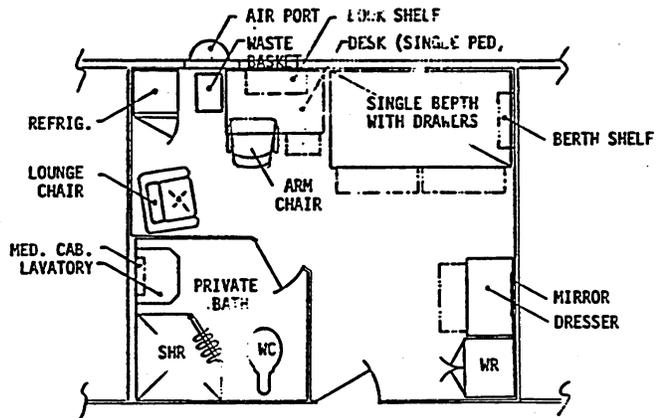
1. ALL LOUNGES SHALL BE PROVIDED WITH THE FOLLOWING ADDITIONAL OUTFITTING: OVERHEAD LIGHTING, DUPLEX RECEPTACLES, TELEPHONE, INTERCOM, COAT HOOKS, CURTAINS, WASTEBASKET, CLOCK, AND OSCILLATING FAN.

6 June 1991



TYPICAL 2 PERSON STATEROOM

FIG. 40



TYPICAL OFFICER STATEROOM

FIG. 40-2