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THE NATIONAL SHIPBUILDING RESEARCH PROGRAM

World Class U.S. Shipbuilding Standards

Task 3:

Catalog of Foreign Standards for Common Systems and Ship Types

U.S. DEPARTMENT OF THE NAVY
CARDEROCK DIVISION,
NAVAL SURFACE WARFARE CENTER

in cooperation with
National Steel and Shipbuilding Company
San Diego, California

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**WORLD CLASS U.S. SHIPBUILDING
STANDARDS**

**NSRP 6-94-1
Task 3**

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NSRP 6-94-1
World Class U.S. Shipbuilding
Standards
Task 3

1. INTRODUCTION.

This report/database was developed under Project NSRP 6-94-1, World Class U.S. Shipbuilding Standards (Task 3). Task 3 (after several changes in guidance due to lack of availability of standards) was to look at four specific areas (Ventilation, Electrical, Piping and Structure) from which a matrix database was to be developed that cross-referenced 4 ship types (RO-RO, LNG, Ferries, Tankers) to standards supporting the desired domain (see below).

The ventilation area was to address hangers and ventilation fittings; the electrical area was to address hangers and tray systems; the piping area was to address hangers, firemain, and fittings (select a few); and the structure area was to address components, ladders, and handrails. For each of these areas, standards were identified from either an existing paper index or digital database.

Once standards were identified an attempt was made to get copies of the standards from MARAD since funding to purchase standards was not included in the tasking. MARAD had indicated in several SP-6 meetings that they had access to a significant number of standards and would make them available for various uses (uses were limited since most standards have COPYRIGHT restrictions). As will be seen, there were a significant number of standards that were identified but were not available from MARAD from a variety of reasons (funding being the most significant; government shutdowns were also a factor).

Standards are costly. The University of Michigan has developed a database of marine standards that approaches 17,000 items. Based on a typical average cost of about \$40-50 per standard the cost to obtain all of these standards would probably exceed \$500,000. Not only are standards costly but determining which ones you actually need is difficult since abstracts of standards are rarely available so selection has to be done from a brief title.

Selecting standards was done from a brief title provided in the standard index (digital and paper bound indexes were used). Since some titles are vague there were standards requested that were not applicable to this particular study. For those standards that were applicable, a brief abstract detailing the contents of the standard was also included as part of the matrix. Since access to standards was difficult, to say the least, in some cases abstracts of standards were included if they were even remotely associated with the task.

Selecting standards to include in this study was accomplished in a variety of ways. The two most significant were use of SWBS and "key words". The following SWBS/keywords were used in the indicated area:

Electrical: 300,304,321,322,330,331,340/hanger, tray

Ventilation	509,511,512,513,514/hanger, fitting, duct
Piping	252,255,256,260,261,262,264,505,508,521,522,523, 524,526,528,529,530,531,532,533,534,535,536,541, 544,545,546,558/hanger, firemain, fire main, fittings
Structure	600,610,611,612,623,690/padeye, ladder, handrail, stanchion Lifeline, chock, cleat, bollard, davit, jackstaff, bit

Once a standard was selected several items of information (digital database fields) were selected to provide enough information about the standard so a user could determine if this particular standard was applicable to their desired application. The selected fields were: SWBS, Organization (responsible for the standard), Standard Number, Title, Abstract, English (language), Date (standard issue date), and Ship Applicability. Under Ship Applicability there were 4 classes of ships addressed: 1 - RO-RO; 2 - LNG; 3 - Ferry; and 4 - Tankers. As can be seen from the report, most standards are applicable to all 4 ship types.

Both a digital database of the matrix and a paper print out are being provided. Each of the four principle areas, Electrical, Piping, Ventilation and Structure have a floppy provided with 4 files. These four files represent: Database file (xxxxx.dbf), Report file (xxxxx.frx), Memo file (abstract) (xxxxx.fpt), and associated Report file (xxxxx.frt). The digital databases are being provided to allow the user to keep the database up to date if desired.

The database and associated reports were developed using FoxPro 2.6. Most good database software packages (like dBASE, etc) should be able to manipulate the provided database. Should you use a database manager software package other than FoxPro you may have to use that particular software package to develop reports. Report files are not always compatible from software package to software package as are the xxxxx.dbf files.

A copy of the abbreviations used in the "Organ" (Organization) Field are also provided to make it easier to determine who some of the players are.

A copy of a MARAD price list for some foreign standards is also provided to give some insight into the cost of standards. The costs shown are for individual standards. Access to standards can also be achieved through various service bureaus that provide digital data on optical discs. Due to the large number of standards typically available on optical discs the costs for such access can approach ten to hundred's of thousands of dollars.

2. SUMMARY.

A lot of insight was gained about standards in general while developing this report. The stated observations were made from a limited view of all possible standards and may not always be true from a larger perspective. It is believed that the following observations can be beneficial when taken within the context provided.

- a. The JIS (Japanese Industrial Standards) are very thorough and cover a multitude of areas. Their one possible short-coming is that most of their standards are largely graphics (drawings, tables, etc) with very little associated text to describe the process (at least this is true in the English versions made available for use in this project). A large number of standards from other countries have been developed utilizing the JIS as a starting point or in some cases a direct copy of the JIS standard is used with the particular country substituting their name for JIS.
- b. The International Standard Organization (ISO) continues to develop more and more standards. Most ISO standards appear to be a compilation of data from numerous sources and are, in general, very detailed. You frequently find that where ISO standards are available a large number of countries adopt them vice having their own standard. In a lot of cases it appears that a given country will abandon their existing standard for the ISO standard. This is so prevalent that a user of international standards might want to look at ISO first to see if they have a standard available vice looking at numerous other country's standards
- c. Det Norske Veritas (DNV) standards are very thorough and detailed. The English translated standards used for this project were easily read and understandable -- this not being the case for all translated foreign standards. The DNV standards would be high on any list where a grouping of standards were being developed for study/utilization.
- d. The BSI (British Standards Institution) standards utilized in this effort were frequently adopted from ISO standards (where ISO standards existed).
- e. The Bundesam (BUND) and Deutsches Institute fur Normung (DIN) (German Standards) were generally not available in English translated versions so little can be said about these standards.

3. STANDARDS COMPENDIUM.

Standards Organizations and Sources in Database

ABS	American Bureau of Shipping Rules for Building and Classing Steel Vessels
ABS01	Nondestructive Inspection of Hull Welds
ABS02	Approved Welding Electrodes Wire-Flux & Wire Gas Combinations
ABS03	Offshore Mobile Drilling Units
ABS04	Steel Barges for Offshore Service
ABS05	Bulk Carriers for Service on the Great Lakes
ABS06	River Rules '71
ABS07	Inert Gas Installations on Vessels Carrying Oil in Bulk
ABS08	Certification of Cargo Containers
ABS09	Manual for Making Bronze Propeller Repairs
ABS10	Repair, Welding, Cladding & Straightening of Tail Boilers
ABS11	Burning Crude Oil & Slops in Main & Auxiliary Boilers
ABS12	Steel Floating Drydocks
ABS13	Underwater Inspection in Lieu of Drydocking Survey
ABS14	Construction of Shipboard Elevators
ABS15	Certification of Construction & Survey of Cargo Gear on Merchant Vessels
ABS16	Certification of Self-Unloading Cargo Gear on Great Lakes Vessels
ABS17	Single Point Moorings
ABS18	Aluminum Vessels
ABS19	Classifications of Nuclear Ships
ABS20	Submersible Vessels
ABYC	American Boat and Yacht Council, Incorporated
AFNOR	Association Francis de Normalization (France)
AMCA	Air Moving and Conditioning Association, Incorporated
ANSI	American National Standards Institute
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
BSI	British Standards Institute
Bundesam	German Standards
CGNVIC	U.S. Coast Guard Navigation and Vessel Inspection Circular
DEF-S	British Defense Standards
DIN	Deutsches Institute fur Normung (Germany)
DOD	Department of Defense
DOL	Department of Labor
EPA	Environmental Protection Agency
FCI	Fluid Controls Institute, Incorporated
FED-SPEC	Federal Specification
GL	Germanisher Lloyd
HEI	Heat Exchange Institute
HI	Hydraulic Institute
IEC	International Electrotechnical Commission

3. STANDARDS COMPENDIUM. (Continued)

IEEE	Institute of Electrical and Electronics Engineers, Incorporated
IES	Illuminating Engineering Society
IMCO	Intergovernmental Maritime Consultive Organization
IPCEA	Insulated Power Cable Engineers Association
ISO	International Organization for Standardization
JIC	Joint Industrial Council
JIS	Japanese Industrial Standards
MARAD	Maritime Administration
MASS	MARAD Standard Specification
MASSD	MARAD Standard Specification - Diesel
MIL	Military Specification
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry
NBS	National Bureau of Standards
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NNI	Netherlands Normalisatie Institute
OCMIF	Oil Companies International Marine Forum
PCC	Panama Canal Company
SAA	Standards Association of Australia
SCA	Suez Canal Authority
SNAME	Society of Naval Architects and Marine Engineers
SOLAS	Safety of Life at Sea
SSPC	Steel Structures Painting Council
TEMA	Tubular Exchanger Manufacturers Association

4. ORGANIZATION ABBREVIATIONS.

Database Maintenance

Air Movement and Control Association	AMCA
American Bureau of Shipping	ABS
American Boat and Yacht Council, Inc.	ABYC
American Gear Manufacturers Association	AGMA
American Iron and Steel Institute	AISI
American Society of Civil Engineers	ASCE
American Society of Heating, Refrigerating and Air Conditioning, Inc.	ASHRAE
American Society of Mechanical Engineers	ASME
American Trucking Association	ATA
American Wood Preservers Association	AWPA
American National Standards Institute	ANSI
American Petroleum Institute	API
American Society for Testing and Materials	ASTM
Audio Engineering Society	AES
British Defense Standards; Def-S	MOD UK
British Standards Institution	BSI
Bundesam	BUND
Canadian General Standards Board	CGSB
Canadian Standards Association	CSA
Chemical Fabrics and Film Association, Inc.	CFFA
Chemical Specialties Manufacturers Association	CSMA
Chinese National Standards	CNS
Civil Aviation Authority	CAA
Civil Engineering Data	CED
Conférence Européenne des Administrations des Postes et des Télécommunications	CEPT
Copper Development Association, Inc.	CDA
Cordage Institute	CI
Corps of the Engineers	COE
Data Interchange Standards Association	DISA
Department of Defense	DOD
Department of Labor	DOL
Det Norske Veritas	DNV
Deutsches Institut für Normung	DIN
Electronic Industries Association	EIA
Environmental Protection Agency	EPA
European Committee for Standardization	CEN
European Committee for Electrotechnical Standardization	CENELEC
European Council/Commission Legislative Documents	EC
European Telecommunications Standards Institute	ETSI
Federal Controls Institute, Inc.	FCI
Federal Specification	FED-SPEC

5. STANDARD PRICING DATA (MARAD)

<u>ORG.</u>	<u>DOCUMENT</u>	<u>COST</u>	<u>ORG.</u>	<u>DOCUMENT</u>	<u>COST</u>
BUNDESAM	VG 88900 TEIL 1	\$46.50	DIN	81710	\$56.50
BUNDESAM	VG 88900 TEIL 2	\$46.50	DIN	83200	\$46.50
JIC	EGP-1 E13	\$	DIN	83202 TEIL 1	\$46.50
JIC	EMP-1 E13	\$	DIN	83202 TEIL 2	\$46.50
ABS	06 4.6	\$	DIN	83202 TEIL 3	\$46.50
AFNOR	NF J83-211	\$	DIN	83203	\$
AFNOR	NF J83-241	\$	DIN	83204	\$46.50
AFNOR	NF J83-242	\$	DIN	83205	\$66.00
AFNOR	NF J83-243	\$	DIN	83206	\$47.50
AFNOR	NF J32-404	\$	DIN	83207	\$46.50
AFNOR	NF J32-410	\$	DIN	83208	\$46.50
AFNOR	NF J32-415	\$	DIN	83209	\$56.50
AFNOR	NF J32-440	\$	DIN	83210	\$47.50
AFNOR	NF J32-441	\$	DIN	83214	\$47.50
AFNOR	NF J32-442	\$	DIN	83215	\$66.00
ANSI	14.3	\$86.50	DIN	83216	\$47.50
BUNDESAM	VG 85194	\$?	DIN	83217	\$47.50
BUNDESAM	VG 85195	\$?	DIN	83218	\$66.00
BUNDESAM	VG 85204	\$47.50	DIN	83224	\$47.50
BUNDESAM	VG 85207	\$56.50	DIN	83225	\$47.50
BUNDESAM	VG 85209	\$46.50	DIN	83226	\$47.50
BUNDESAM	VG 85210	\$66.00	DIN	83505	\$47.50
BUNDESAM	VG 85211 TEIL 1	\$46.50	DIN	83510	\$47.50
BUNDESAM	VG 85211 TEIL 2	\$46.50	JIS	F 2621	\$
BUNDESAM	VG 85212	\$46.50	JIS	F 2622	\$
BUNDESAM	VG 85213	\$46.50	JIS	F 7502	\$
BUNDESAM	VG 85214	\$46.50	SAA	AS 1035	\$
BUNDESAM	VG 85215	\$46.50	SAA	AS 1036	\$
BUNDESAM	VG 85216 TEIL 1	\$46.50	SAA	AS 1037	\$
BUNDESAM	VG 85216 TEIL 2	\$46.50	SAA	AS 1986	\$
BUNDESAM	VG 85217	\$46.50	ANSI/ASME	B16.13	\$
BUNDESAM	VG 85222 TEIL 1	\$47.50	BUNDESAM	VG 85570 TEIL 1	\$
BUNDESAM	VG 85222 TEIL 2	\$47.50	BUNDESAM	VG 85570 TEIL 2	\$
BUNDESAM	VG 85222 TEIL 3	\$?	DIN	86014	\$47.50
BUNDESAM	VG 85223 TEIL 1	\$56.50	DIN	86016	\$47.50
BUNDESAM	VG 85223 TEIL 2	\$46.50	DIN	86061	\$46.50
BUNDESAM	VG 85223 TEIL 3	\$46.50	DIN	86063	\$46.50
BUNDESAM	VG 85224	\$46.50	DIN	86064	\$46.50

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Page	1							
SWBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.	
300	JIC	EGP-1 E13	CONDUIT AND FITTING; WIREWAY	Standard not available from MARAD.	Y			
300	JIC	EMP-1 E13	CONDUIT AND FITTING; WIREWAY	Standard not available from MARAD.	Y			
300	NEMA	VE 1	CABLE TRAY	This standard provides technical requirements concerning the construction, test, and performance of metal cable tray systems. It covers manufacturing standards such as material, finishes, dimensions, tray types and uses, protection of cable insulation, testing, etc. CAUTION: Some portions of this standard may not be directly applicable to marine service.	Y	1991	1,2,3,4	
300	USCG	46C111.59	ELECTRIC SYSTEMS-GENERAL REQUIREMENTS-BUSWAYS	This standard requires that each busway must meet: Article 364 of the NEC; and UL 857 requirement.	Y		1,2,3,4	
300	ANSI/IEE	45	Recommended practice for electrical installations on shipboard	These IEEE marine recommendations are intended to serve as a guide for the selection and installation of equipment on merchant vessels with electric apparatus for lighting, signaling, communications, power and propulsion. Section 20 (Cable Installation) provides general guidance for installation, continuity, grounding, location, radius of bends, pulling force, cable protection etc. Section 20.5 (Cable support and Retention) provides guidance as to how cables installed in groups should be supported (hangers, straps, clips, etc.).	Y	1983	1,2,3,4	
300	BUNDESAM	VG88515 TEIL 1	MOUNTING RAILS; G-PROFILE; NON MAGNETIC, FOR TERMINAL BLOCKS	Standard not available from MARAD.	Y			
300	DNV	04.04.02	ELECTRICAL INSTALLATIONS; DESIGN PRINCIPLES	Part 4, Chapter 4, Section 2 (Design Principles) covers a variety of subjects	Y	7/93	1,2,3,4	

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age	2							
<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig</u> <u>Date</u>	<u>Ship</u> <u>App</u>	
				including: Environmental conditions, vibrations and accelerations, ambient air temperatures, cooling water temperatures, explosion-protected equipment, cable entrances, grounding connections, lightning protection, insulating materials for cables, terminal connections, etc.				
00	DNV	04.05.02	ELECTRICAL INSTALLATIONS; DESIGN PRINCIPLES	Part 4, Chapter 5, Section 2 (System Design) provides design information on a variety of subjects such as: Automatic control systems, alarm systems, safety systems, indicating and recording systems, remote control systems, sequence control systems, programmable electronic systems (fault monitoring, EMI, LAN, system integrity, etc.)	Y	7/93	1,2,3,4	
00	DNV	04.05.05	ELECTRICAL INSTALLATIONS; COMPONENT DESIGN AND INSTALLATION	Standard not available from MARAD.	Y			
00	DNV	04.05.06	ELECTRICAL INSTALLATIONS; USER INTERFACE	Standard not available from MARAD.	Y			
00	DNV	05.03.08	OIL CARRIERS; ELECTRICAL INSTALLATIONS	Part 5, Chapter 3, Section 8 (Electrical Installations) provides specific design criteria for tankers designed to carry oil cargoes in bulk (flash point not over 60.5 degrees). Some specific subjects are: electrical installation in gas-dangerous zones and spaces, basic requirements (grounding, distribution, cables and cable installation), installation in gas-safe spaces in the cargo area and adjacent to this area, etc.	Y	7/93	4	

ELECTRICAL

age 3

<u>WBS Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Data</u>	<u>Ship App</u>
00 DNV	05.04.12	CHEMICAL CARRIERS; ELECTRICAL INSTALLATIONS	Part 5, Chapter 4, Section 12 (Electrical Installations) provides design criteria for chemical tankers. Subjects discussed follow: Installation in gas-dangerous spaces, installation in gas dangerous zones on the open deck, installations in gas safe spaces in the cargo area and adjacent to this area, cable requirements, etc.	Y	7/93	4
00 DNV	05.05.12	LIQUIFIED GAS CARRIERS; ELECTRICAL INSTALLATIONS	Part 5, Chapter 5, Section 12 (Electrical Installations) provides design criteria for Liquefied Gas Tankers. Specific subjects follow: Installations in gas-dangerous spaces, general cable requirement, installation in gas-dangerous zones on the open deck, Installation in gas-safe spaces in the cargo area and adjacent to this area, grounding requirements, etc.	Y	7/93	2
00 DNV	05.09.07	OIL PRODUCTION AND STOWAGE VESSELS; ELECTRICAL INSTALLATIONS	Part 5, Chapter 9, Section 7 (Electrical Installations) provides general design criteria for most merchant vessels. Subjects addressed: Powers supply systems, emergency power supply, cables, equipment and cables in hazardous areas, etc.. Cable criteria discussed separating of main and emergency power cables (i.e. not in the same tray), and intrinsically safe and non-intrinsically safe cables are to be kept separate, etc.	Y	7/93	1,2,3,4
00 IEC	92 PT101	ELECTRICAL INSTALLATIONS IN SHIPS PART 101: DEFINITIONS AND GENERAL REQUIREMENTS. THIRD EDITION; (AMEND. 1-1984) (AMEND 2-1987)	This IEC standard provides definitions and general requirements for electrical installation in ships. Some subjects covered follow: Voltage and frequency	Y	1994	1,2,3,4

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Page	SWBS Organ	Std-No	Title	Abstract	English	Orig Date	Ship App
4				variations, cable entries, environmental conditions, materials, applicability of the standard to AC and DC, maximum loads, insulation, safety requirements, etc.			
300	IEC	92 PT 201	ELECTRICAL INSTALLATIONS IN SHIPS PART 201; SYSTEM DESIGN, GENERAL FOURTH EDITION.	This IEC standard addresses general system design criteria (Electrical installation in ships). Some subjects discussed: D.C. distribution systems, A.C distribution systems, safety, sources of electrical power for auxiliary services, balance of loads, lighting circuits, navigation lights, radio installation, motor circuits, internal communications systems, etc.	Y	8/94	1,2,3,4
300	IEC	IEC92-502*CEI	ELECTRICAL INSTALLATIONS IN SHIPS. PART 502; SPECIAL FEATURES: TANKERS	This IEC standard provides guidance for electrical installations in ships (tankers). Some subjects addressed: definitions, hazardous areas, electrical equipment in hazardous areas, particular conditions applicable to Type A, B, C, & D tankers, cargos detrimental to electrical equipment, chemically unstable or reactive cargoes, etc.	Y	10/94	4
300	IEC	IEC92-504*CEI	ELECTRICAL INSTALLATIONS IN SHIPS. PART 504; SPECIAL FEATURES: CONTROL AND INSTRUMENTATION.	This IEC standard provides guidance for Electrical Installations in ships (Special Features -- Control and Instrumentation). Some topics discussed: definitions, operation, reliability, stability, electromagnetic compatibility, circuit design, testing, voltage and frequency variations, installation and ergonomics, safety systems, machinery control installations, automatic starting	Y	9/94	1,2,3,4

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Page	5						
SWBS	Organ	Std-No	Title	Abstract	English	Orig Date	Ship App
				installation for electrical power supplies, machinery alarm installations, etc.			
300	IEEE	45-43	HAZARDOUS LOCATIONS, ELECTRICAL INSTALLATIONS IN ELECTRICAL EQUIPMENT IN HAZARDOUS LOCATIONS	Standard not available from MARAD.	Y		
300	JIC	EGP-1 E13	CONDUIT AND FITTING; WIREWAY	Standard not available from MARAD.	Y		
300	JIS	F8061	ELECTRICAL INSTALLATIONS IN SHIPS PART 101: DEFINITIONS AND GENERAL REQUIREMENTS.	Standard not available from MARAD.	Y		
300	JIS	F8062	ELECTRICAL INSTALLATIONS IN SHIPS PART 201: SYSTEM DESIGN, GENERAL (IEC 92-201-1980)	Standard not available from MARAD.	Y		
300	MOD UK	NES 503	REQUIRMENTS FOR ELECTRICAL INSTALLATION CABLING DIAGRAMS AND ASSORTED DATA ISSUE 2 (08.88)	Standard not available from MARAD.	Y		
300	NNI	NEN10092-101	ELECTRICAL INSTALLATIONS IN SHIPS PART 101, DEFINITIONS AND GENERAL REQUIRMENTS	Standard not available from MARAD.	Y		
300	NNI	NEN10092-502	ELECTRICAL INSTALLATIONS IN SHIPS; PART 502: TANKERS	Standard not available from MARAD.	Y		
300	NNI	NEN10092-503	ELECTRICAL INSTALLATIONS IN SHIPS; PART 503: AC SUPPLY SYSTEMS WITH VOLTAGES IN THE RANGE ABOVE 1 KV UP TO AND INCLUDING 11 KV.	Standard not available from MARAD.	Y		
300	NNI	NEN10092-504	ELECTRICAL INSTALLATIONS IN SHIPS; PART 504: CONTROL AND INSTRUMENTATION.	Standard not available from MARAD.	Y		
304	ABS06	10.28.4	HARZARDOUS LOCATION, CABLE INSTALLATIONS ELECTRICAL EQUIPMENT,	Standard not available from MARAD.	Y		

ELECTRICAL

Page	WBS Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
6			RIVERS AND IC, CABLE BEHIND SHEATHING, PANELING, FIXTURES, ELECTRICAL EQUIPMENT, RIVERS AND IC				
104	ABS06	10.34.2	CABLE INSTALLATION, BULK OIL CARRIERS, ELECTRICAL EQUIPMENT, RIVERS AND IC	Standard not available from MARAD.	Y		
104	Bundesam	VG 88900 Teil	Punched profiles for cable ways; straight cable ways	Standard not available from MARAD.	N	1979-09	
104	Bundesam	VG 88900 Teil	Punched profiles for cable ways; cable way bends	Standard not available from MARAD.	N	1980-06	
104	DOD	DOD-HDBK-282	FIBER OPTIC CABLE INSTALLATION PROCEDURES	This standard has been cancelled.			
104	MASS	90.06	ELECTRIC CABLE INSTALLATION	This standard provides guidance as to: how to run cables; wireways and support materials, painting, construction, etc; cable penetrations; cableway locations; cables for critical circuits, etc.	Y	Draft'95	1,2,3,4
104	MASSD	90.06	ELECTRIC CABLE INSTALLATION	This standard provides guidance as to: how to run cables; wireways and support materials, painting, construction, etc; cable penetrations; cableway locations; cables for critical circuits, etc. for Diesel merchant ship construction.	Y	Draft'95	1,2,3,4
104	USCG	46C111.60A	CABLE, ELECTRIC, PENETRATIONS, DECK & BULKHEAD, ELECTRIC CABLE INSTALLATIONS	Standard not available from MARAD.	Y		1,2,3,4
104	CNS	C3161	METHOD OF TEST FOR CABLES AND FLEXIBLE CORDS FOR ELECTRICAL EQUIPMENT OF SHIPS (APR) 9125	Standard not available from MARAD.	Y		
104	CNS	F5045	MARINE CABLE GLANDS FOR BULKHEAD AND	Standard not available from MARAD.	Y		

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			DECK (JAN) 9854					
304	CNS	F5047	ELECTRICAL CABLE HANGERS AND SADDLES FOR MARINE USE (JAN) 9856	Standard not available from MARAD.	Y			
304	DNV	04.04.07	ELECTRICAL INSTALLATIONS; CABLES	Part 4, Chapter 4, Section 7 provides general guidance for electrical cables for ship board installations. Subjects discussed: Construction, Testing, insulating materials, wire braid and armour, conductors, protective sheaths, instrumentation and communication cables, control cables, etc.	Y	7/93	1,2,3,4	
304	DNV/HSLC	04.03.07	ELECTRICAL INSTALLATIONS; CABLES	Standard not available from MARAD.	Y			
304	DNV/MOU	04.04.07	ELECTRICAL INSTALLATIONS; CABLES	Standard not available from MARAD.	Y			
304	DOD	DOD-2003-1	ELECTRICAL PLANT INSTALLATION STANDARD METHODS FOR SURFACE SHIPS AND SUBMARINES (CABLE) SECTIUON 1 OF 5.	This DOD standard (Section 1 of 5 sections) provides guidance for Electric Plant Installation Standard Methods for Surface Ships and Submarines (Cable). This standard disseminates up-to-date information for cable preparation, end sealing, entry to equipment and connectors, repair, cable tagging, and splicing for Navy vessels.	Y	24 June	Navy	
304	DOD	DOD-2003-2	ELECTRICAL PLANT INSTALLATION STANDARD METHODS FOR SURFACE SHIPS AND SUBMARINES (EQUIPMENT) SECTION 2 OF 5	This DoD standard (Section 2 of 5 Sections) provides guidance for Electric Plant Installation Standard Methods for Surface Ships and Submarines. Subjects addressed: equipment mounting, switchboard mounting, battery equipment,, casualty power, shore power, general installation requirement, etc.	Y	24 June	Navy	
304	DOD	DOD-2003-3	ELECTRICAL PLANT INSTALLATION STANDARD METHODS FOR SURFACE SHIPS	This DoD standard for Electric Plant Installation Standard Methods for Surface	Y	24 June	Navy	

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			AND SUBMARINES (PENETRATIONS) SECTION 3 OF 5.	Ships and Submarines (Section 3 of 5 Sections) provides guidance in the following areas: stuffing tubes (in great detail), kick pipes, etc.				
304	DOD	DOD-2003-4	ELECTRIC PLANT INSTALLATION STANDARD METHODS FOR SURFACE SHIP AND SUBMARINES (CABLEWAYS)	This DoD standard, Electric Plant Installation Standard Methods for Surface Ships and Submarines (Cableways) (Section 4 of 5) provides in-depth guidance for cableways in military ships and submarines. It covers such subjects as: location of cable ways, vertical cable runs, deadended cables, cable slack requirement, cable bend radius, cables in submerged spaces, excessive heat, excessive moisture, installation of propulsion system cables, cable tags, cable hangers and supports, shock design, spacing, cable racks, double banking of cables, cable protection, etc. e m	Y	24 June	Navy	
304	DOD	DOD-2003-5	ELECTRIC PLANT INSTALLATION STANDARD METHODS FOR SURFACE SHIPS AND SUBMARINES (CONNECTORS) SECTION 5 OF 5.	This DoD standard, Electric Plant Installation Standard Methods for Surface Ships and Submarines (Connectors) (Section 5 of 5) provides in-depth guidance for cable connectors for Navy vessels. Topics discussed are: cable preparation, tinning techniques, lead stripping, connector contact soldering, shield termination procedures, cable transflexing procedure, cable bifurcation procedure, discusses different connector types assembly procedures, etc.	Y	24 June	Navy	
304	DOD	DOD-2003-CHG	ELECTRICAL PLANT INSTALLATION	This is a change to the Dod-STD 2003 (Navy).	Y	24 June	Navy	

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			STANDARD METHODS FOR SURFACE SHIPS AND SUBMARINES.					
304	DOD	MIL-STD-2042-1	FIBER OPTIC TOPOLOGY INSTALLATION, STANDARD METHODS FOR NAVAL SHIPS (CABLES) PART 1 OF 6.	This MIL-STD, Fiber Optic Topology Installation Standard Methods for Naval Ships (Cables) (Part 1 of 6) provides detailed information as to design and install fiber optic cables. Subjects Discussed: definitions, cable selection, spare optical fibers, cable stowage and handling, cable penetrations, cable installation and protection, testing, cable end sealing, cable repair, cable splicing, etc.	Y	9 July	Navy	
304	DOD	MIL-STD-2042-4	FIBER OPTIC TOPOLOGY INSTALLATION STANDARD METHODS FOR NAVAL SHIPS (CABLEWAYS) PART 4 OF 6	This MIL-STD, Fiber Optic Topology Installation Standard Methods for Naval Ships (Cableways) (Part 4 of 6), provides detailed guidance for cableways for fiber optic cables. Topics discussed are: definitions, location of fiber optic cable runs, vertical cable runs, exposure to weather, excessive heat, excessive moisture, cable slack, cable bend radius, cable hangers and supports, double banking of cables, cable tags, dead-ended cables, cableways, spare cable requirement, fiber optic topology test, etc.	Y	7 July	Navy	
304	IEC	92 PT 352	ELECTRICAL INSTALLATIONS IN SHIPS PART 352: CHOICE AND INSTALLATION OF CABLES FOR LOW-VOLTAGE POWER SYSTEMS FIRST EDITION; (AMEND 1-1987) (AMEND 2-1994)	This IEC standard provides guidance for choice and installation of cables for low-voltage power systems in ships. Subjects discussed: choice of insulation, cross-sectional area of conductors, current rating for continuous service, voltage drop,	Y	4/94	1,2,3,4	

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				estimation of lighting loads, parallel connection of cables, short-circuit capacity, cable run installations, grounding of cable shields, radius of bends, installation in battery compartments, electrodynamic forces, tensile strength, etc.				
304	IEC	IEC92-352AMD	ELECTRICAL INSTALLATIONS IN SHIPS. PART 352: CHOICE AND INSTALLATION OF CABLES FOR LOW VOLTAGE POWER SYSTEMS	Standard not available from MARAD.	Y			
304	IEC	IEC92-352-CEI	ELECTRICAL INSTALLATIONS IN SHIPS. PART 352: CHOICE AND INSTALLATION OF CABLES FOR LOW VOLTAGE POWER SYSTEMS.	Standard not available from MARAD.	Y			
304	IEEE	422	CABLE, ELECTRIC	Standard not available from MARAD.	Y			
304	JIS	F8071	ELECTRICAL INSTALLATION IN SHIPS PART 352: CHOICE AND INSTALLATION OF CABLES FOR LOW-VOLTAGE POWER SYSTEMS.	Standard not available from MARAD.	Y			
304	NEMA	FG 1	FIBERGLASS CABLE TRAY SYSTEMS	NEMA standard FG-1 provides guidance for continuous, complete fiberglass systems of ladder ventilated, solid bottom cable tray or channel type trays, intended for the support of power or control cables or both. This standard covers materials, dimensions, testing, working load capacity, effects of temperature, thermal contraction and expansion, etc for fiber glass cable tray systems. CAUTION: applicability to marine systems may be limited.	Y	1993	Industr	
304	NEMA	WC 51	AMPACITIES OF CABLES IN OPEN-TOP	NEMA standard WC 51-86 discusses Ampacities	Y	1986	Industr	

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CABLE TRAYS (CORRECTION JUNE 1987)
, (R 1991)

of Cables in Open-top Cable Trays. Details provided: calculated depth of cables in trays, correction factor for diameters of cables, correction factors for temperatures, correction factor for number of conductors, ampacity tables for both copper and aluminum conductors, etc. CAUTION: applicability to marine systems may be limited.

304 UL 1277

UL STANDARD FOR SAFETY ELECTRICAL POWER AND CONTROL TRAY CABLES WITH OPTIONAL OPTICAL-FIBER MEMBERS SECOND EDITION; NOVEMBER 5, 1993, BULLETINS DATED 9/6/89, 11/12/91, 4/13/93, 6/1

ANSI/UL 1277 1988, Standard for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members (and Revisions) establish standards for electrical power and control cables consisting of two or more current carrying copper, aluminium or copper-clad aluminium circuit conductors with or without fully insulated grounding conductors. Subjects addressed in this lengthy standard: materials and workmanship, assembly, testing, and general construction, performance and markings for these cables. CAUTION: These rules may not be directly applicable to marine vessels.

Y

3/7/89

Industr

321 NEMA BU 1

BUSWAY

This standard covers products for distribution of electric power at 600 volts or less, consisting of enclosed sectionalized prefabricated busbars, rated at 100 amps or more and associated structures and fittings as follows: feeder busbars (indoor or outdoor); plug in busbars (indoor only; accessories required to complete the busway system. This is an excellent reference document for voltage drops, short circuit currents, etc.

Y

1988

1,2,3,4

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						CAUTION: Some portions of this standard may not be directly applicable to marine service.			
121		NEMA		BU 1.1	BUSWAY	This standard is a guide of practical information containing information for the handling, installation, operation and maintenance of busways and associated fittings rated 600 volts or less. It provides guidance in such areas as: handling, storage, installation, steps to be taken prior to energizing, energizing equipment, maintenance, etc. CAUTION: Some portions of this standard may not be directly applicable to marine service.	Y	1991	1,2,3,4
321		UL		857	BUSWAYS; FITTING, ELECTRICAL	This standard covers service-entrance, feeders, and branch-circuit busways and associated fittings rated at 600 volts or less and is intended for use in accordance with the NEC. CAUTION: Some portions of this standard may not be directly applicable to marine service.	Y	28Oct'94	1,2,3,4
403		CNS		F5046	ELECTRICAL CABLE CLIPS FOR MARINE USE (JAN) 9855	Standard not available from MARAD.	Y		

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Page	WBS Organ	Std-No.	Title	Abstract	English	Orig Data	Ship App
1							
02	DNV	4.1.5	MACHINERY PIPING SYSTEMS	This standard is a general guide line for machinery piping systems. Items addressed: piping system redundancy and capacity, cooling systems water supply, inlets for cooling water pumps, filtering of lubricating oil, emergency lube oil to turbine, remote shutoff for lube oil tanks, flash point of fuel oil, fuel oil tank and piping design criteria, arrangement of valves, cocks and fittings, fuel oil preheaters, feedwater and condensate systems, steam systems, hydraulic systems, pneumatic systems, etc. Well written and easy to understand specifications.	YES	JUL93	1,2,3,4
05	ABS06	09.2.6	VALVE AND FITTING PUMP AND PIPING, RIVERS AND IC MATERIAL FOR VALVE AND FITTING, PUMP AND PIPING, RIVERS AND IC	Standard not available from MARAD.			
15	ABS06	09.2.4	PIPE FITTING, PUMP AND PIPING, RIVERS AND IC, TEST HYDROSTATIC, PIPE FITTINGS, PUMP AND PIPING RIVERS AND IC	Standard not available from MARAD.			
15	AFNOR	NF J41-415	SHIPBUILDING. KINGSTON VALVES. ASSEMBLY. GENERAL DIMENSIONS.	Standard not available from MARAD.	N	8/57	
15	AFNOR	NF J41-410	SHIPBUILDING. KINGSTON VALVES. GENERAL SPECIFICATION.	Standard not available from MARAD.	N	8/57	
15	AFNOR	NF J41-410	SHIPBUILDING. KINGSTON VALVES. GENERAL SPECIFICATION.		N	1957-08-	
15	AFNOR	NF J41-415	SHIPBUILDING. KINGSTON VALVES. ASSEMBLY. GENERAL DIMENSIONS.	Standard not available from MARAD.	N	1957-08-	
5	ANSI	B016.34	VALVE	This standard specifies material,	Y	1988	1,2,3,4

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age	2							
WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.	
				pressure-temperature ratings, dimensions, testing, size etc, for valves - flanged, threaded, and welding end.				
05	ANSI	B016.5	PIPE FLANGES, VALVE, FITTING, PIPE	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, size, etc, for pipe flanges and flanged fittings.	Y	1988	1,2,3,4	
05	ANSI	B016.13	PIPE FITTING	This standard was not available from MARAD.				
05	ANSI	B016.14	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, threading, etc, for ferrous pipe plugs, bushings, and locknuts with pipe threads.	Y	1991	1,2,3,4	
05	ANSI	B016.15	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, fitting dimensions and tolerances, threading, etc, for cast bronze threaded fittings.	Y	1985	1,2,3,4	
05	ANSI	B016.18	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, threading, testing, etc, for cast copper alloy solder joint pressure fittings.	Y	1984	1,2,3,4	
05	ANSI	B016.28	PIPE FITTING, METAL	This standard specifies material, design and pressure ratings, dimensions and tolerances, testing etc, for wrought steel buttwelding short radius elbows and returns.	Y	1994	1,2,3,4	
05	ANSI	B016.3	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, threading, etc, for malleable iron threaded pipe fittings.	Y	1992	1,2,3,4	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	ANSI	B016.26	PIPE FITTING, METAL	This standard specifies material, pressure ratings, size, threading, etc, for cast copper alloy fittings for flared copper tubes.	Y	1988	1,2,3,4
05	ANSI	B016.4	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, threading, etc, for gray iron threaded pipe fittings.	Y	1992	1,2,3,4
05	ANSI	B016.9	FITTING, PIPE	This standard specifies material, pressure ratings, fittings dimensions, surface contours, end preparation, testing, and tolerances, for factory-made wrought steel buttwelding piping fittings.	Y	1993	1,2,3,4
05	ANSI	B016.11	FITTING, PIPE	This standard specifies material, pressure ratings, dimensions and tolerances, testing, size etc, for forged piping fittings, socket-welding and threaded.	Y	1991	1,2,3,4
05	ANSI	B016.22	PIPE FITTING, METAL	This standard specifies material, pressure-temperature ratings, alignment, tolerances, threading, testing, etc, for wrought copper and copper alloy solder joint pressure fittings.	Y	1989	1,2,3,4
05	ANSI	B016.24	PIPE FITTING, METAL, PIPE FLANGE	This standard specifies material, pressure-temperature ratings, dimensions and tolerances, tests, etc, for cast copper alloy pipe flanges and flanged fittings.	Y	1991	1,2,3,4
05	ANSI	B016.25	PIPE FITTING, METAL, PIPE WELDING, WELDING, PIPE	This standard specifies transistion contours, welding bevel design, tolerances, and inside diameter preparation, for buttwelding ends.	Y	1992	1,2,3,4
05	ANSI	B016.10	VALVE				

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<u>SWBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>	
505	ANSI	B016.10	VALVE	This standard is not available from MARAD.	Y			
505	ASME	B16.10-92	FACE-TO-FACE AND END-TO-END DIMENSIONS OF VALVES	This standard covers face-to-face and end-to-end dimensions of straightway valves and center-to-face and center-to-end dimensions of angle valves. Its purpose is to assure installation interchangeability for valves of a given material, type, size, rating class, and end connection. Numerous materials, and types of valves are covered.	YES	1/15/93	1,2,3,4	
505	ASTM	D1598-A	PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of the time-to-failure of both thermoplastic and reinforced thermosetting/resin pipe under constant internal pressure. It discusses failures, ballooning, rupture and seepage and weeping.	YES	3/28/86	1,2,3,4	
505	ASTM	D2122	PIPE, FITTING, PLASTIC, PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of diameter, wall thickness, and length dimensions of thermoplastic pipe. Included are procedures for measurement of the inside diameter of pipe intended to be joined by internal fittings, measurement of the average outside diameter for roundable pipe where out of roundness is not of primary concern, out-of-roundness measurements and measurement of the average outside diameter of non-roundable pipe, and for determining length and straightness.	YES	9/28/90	1,2,3,4	
505	ASTM	D2143	PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of the failure characteristics of reinforced plastic pipe when subjected to cyclic internal hydraulic pressure. It is limited	YES	12/15/94	1,2,3,4	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	ASTM	A522	PIPE FITTING, LOW TEMPERATURE	to pipe in which the ratio of outside diameter to wall thickness is 10:1 or more. This specification covers 8 and 9% nickel-alloy steel forged or rolled flanges, fittings, valves, and parts intended for use in welded pressure vessels for low temperature service. It provides specifics on materials, manufacturing techniques, chemical, impact and tensile requirements, heat treatment and testing.	Y	15Mar'95	1,2,3,4
05	ASTM	D1527-A	PIPE, PLASTIC, PLASTIC PIPE	This specification covers acrylonitrile-butadiene-styrene (ABS) plastic pipe produced by single extrusion or simultaneous multiple coextrusion, in schedule 40 and 80 sizes and pressure rated for water. Included are criteria for classifying ABS plastic pipe materials and ABS plastic pipe and requirements and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, and extrusion quality, including methods of manufacture.	YES	2/15/94	1,2,3,4
05	ASTM	D1599	PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of the hydraulic pressure that produces failure of either thermoplastic or reinforced thermosetting resin pipe, tubing, or fitting in a short time period. This standard does not purport to address all safety problems, if any, associated with its use.	YES	3/25/88	1,2,3,4
05	ASTM	D1785-E	PIPE, PLASTIC, PLASTIC PIPE	This specification covers polyvinyl chloride (PVC) pipe made in schedule 40, 80 and 120 sizes and pressure rated for water.	YES	12/15/94	1,2,3,4

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SBS Organ	Std-No	Title	Abstract	English	Orig Date	Ship App		
			Included are criteria for classifying PVC plastic pipe materials and PVC plastic pipe, a system of nomenclature for PVC plastic pipe and requirements and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, flattening, and, extrusion quality.					
5	ASTM A420	PIPE FITTING, LOW TEMPERATURE	This specification covers wrought carbon steel and alloy steel fittings of seamless and welded construction, covered by the latest revision of ANSI B16 series. It describes material requirements, manufacturing techniques, heat treatment, chemical and tensile properties and testing.	Y	15Aug'94	1,2,3,4		
5	ASTM D1503	PIPE, PLASTIC, PLASTIC PIPE						
5	ASTM D2105	PIPE, PLASTIC, PLASTIC PIPE, TUBING	This test method covers the determination of the comparative longitudinal tensile properties of fiberglass pipe when tested under defined conditions of pretreatment, temperature, and testing machine speed. Both glass-fiber-reinforced thermosetting-resin pipe (RTRP) and glass-fiber-reinforced plastic mortar pipe (RPMP) are fiberglass pipes. This test method is generally limited to pipes 6" or under.	YES	3/20/90	1,2,3,4		
3	ASTM F1370	Standard Specification for Pressure-Reducing Valves for Water Systems, Shipboard	This specification covers self-contained, globe style, pressure-reducing valves for use in water systems of shipboard installations. These valves are limited to	YES	2/3/92	1,2,3,4		

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<u>WBS Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
05	ASTM	A350	FITTINGS, LOW TEMPERATURE, MATERIALS FOR FORGINGS, STEEL	discharge pressures of 200 psig and below. Items discussed: design and test pressures, materials, valve types, testing, and valve construction and coding.	YES	15Jan'95	1,2,3,4
05	ASTM	D1598-E	PIPE, PLASTIC, PLASTIC PIPE	This specification covers several grades of carbon and low-alloy steel forged or ring-rolled flanges, forged fittings and valves intended for low-temperature service and requiring notch toughness testing. It describes manufacturing techniques, chemical and mechanical properties and testing.	YES	3/15/93	1,2,3,4
05	ASTM	D2104	PIPE, PLASTIC, PLASTIC PIPE	This specification covers polyethylene (P E) pipe made in schedule 40 size for use with insert fittings (inside diameter controlled) and pressure-rated for water. Included are criteria for classifying PE plastic pipe materials and PE plastic pipe, and requirements and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, and environmental stress cracking.	YES	3/15/95	1,2,3,4
05	ASTM	D2152	PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of the adequacy of fusion of extruded rigid polyvinyl chloride (PVC) pipe and molded fittings as indicated by reaction to immersion in anhydrous acetone.	YES		1,2,3,4
05	ASTM	D2153	PIPE, PLASTIC, PLASTIC PIPE	Standard not available from MARAD.	YES		
05	ASTM	D2235-E	CEMENT, PLASTIC PIPE, PLASTIC PIPE CEMENT	This specification covers solvent cement for joining acrylenitrile-butadiene styrene (ABS) plastic pipe and fittings for pressure	YES	7/15/93	1,2,3,4

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<u>Page</u>	<u>8</u>	<u>NBS Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
					and nonpressure systems. Recommendations for using solvent cement for joining ABS plastic pipe and fittings is provided.			
15	ASTM		D2241	PIPE, PLASTIC, PLASTIC PIPE	This specification covers PVC pipe made in standard thermoplastic pipe dimension ratios and pressure rated for water. Included are criteria for classifying PVC plastic pipe materials and PVC plastic pipe, a system of nomenclature for PVC plastic pipe, and requirement and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, flattening, and extrusion quality.	YES	12/15/94	1,2,3,4
15	ASTM		F0681	Standard Practice for Use of Branch Connections (R 1988)	This practice lists commonly used types of branch connections for carbon steel, chromium-molybdenum steel pipe and copper copper-nickel alloy tubing. Branch to run size are provided. Other types of branch connections may be used provided they comply with the requirements of Title 46 CFR Subparts 56.07-10(f).	Yes	7/30/82	1,2,3,4
15	ASTM		D2239	PIPE, PLASTIC, PLASTIC PIPE	This specification covers polyethylene (PE) pipe made in standard thermoplastic pipe dimension ratios and pressure rated for water. Included are criteria for classifying PE plastic pipe materials and PE plastic pipe, a system of nomenclature for PE plastic pipe and requirements and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, and environmental stress cracking.	YES	12/15/94	1,2,3,4
5	ASTM		D2290	PIPE, PLASTIC, PLASTIC PIPE	This test method covers the determination of	YES	2/15/92	1,2,3,4

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Page	9	IBS Organ	Std-No	Title	Abstract	English	Orig Date	Ship App
					the comparative apparent tensile strength of most tubular plastic products utilizing a split disk test fixture, when tested under defined conditions of pretreatment, temperature, humidity and test machine speed. This procedure is applicable to many types of tubular ring-shaped specimens, either parallel-fiber-reinforced, extruded, or molded.			
15	ASTM	F1173	Standard Specification for Epoxy Resin Fiberglass Pipe and Fittings to Be Used for Marine Applications	This specification covers machine made reinforced thermosetting epoxy resin pipe and fittings nominal pipe size (NPS) 1 through 48 in. in diameter to be used in marine piping systems in which resistance to corrosion, aging, and deterioration from seawater, gas chemicals, and sea environment is required.	Yes	2/15/95	1,2,3,4	
5	ASTM	D2282-A	PIPE, PLASTIC, PLASTIC PIPE	This specification cover ABS pipe produced by single extrusion or simultaneous multiple extrusion, in standard thermoplastic pipe dimension ratios and pressure rated for water. Included are criteria for classifying ABS plastic pipe materials, and ABS plastic pipe, a system of nomenclature for ABS plastic pipe, and requirement and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, and extrusion quality.	YES	3/15/94	1,2,3,4	
5	BSI	BS 3974	1980 Amd 1 Pipe Supports Part 3: Large Bore, High Temperature, Marine and Other Applications	Standard not available from MARAD.	Yes			
5	BSI	BS 3974:Part	Specification for pipe supports.	This standard (Part 3) specifies material,	Y	1980-10-	1,2,3,4	

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<u>VBS Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
		Large bore, high temperature, marine and other applications	design requirements, and dimensions for the manufacture of pipe supports components for larger size pipes (see Part 1 and 2 for smaller pipes). The supports listed are: (1) Carbon steel pipe clips, overstraps, and U-bolts; (2) Alloy steel pipe clips, U-straps and riser straps; (3) Copper alloy overstraps and hookstraps.			
15 Bundesam	VG85570Teil 2	Pipe clamps with elastomer insert for heavy duty; structural rubber	This standard is not available from MARAD.	N	1991-02-	
15 Bundesam	VG85060Teil 1	Flanged slide valves made of G-CuSn 10; DN 40 to 80, PN 40; assembly	Standard not available from MARAD.	N	1990-02-	
15 Bundesam	VG85570Teil 1	Pipe clamps with elastomer insert for heavy duty, for pipes with outer diameter of 20 to 324 mm	This standard is not available from MARAD.	N	1991-02-	
15 Bundesam	VG85033Teil 4	Flanged valves made of G-CuSn 10; straight way valves; shut off and non return valves with plastic-caulking; DN 40 to 150, PN 10, DN 175 to 300, PN 6 (not for new design)	Standard not available from MARAD.	N	1990-09-	
15 Bundesam	VG85034Teil 2	Flanged valves made of G-CuSn 10; angle valves; shut off and non return valves; DN 40 to 150, PN 10, DN 175 to 300, PN 6	Standard not available from MARAD.	N	1990-09-	
15 Bundesam	VG85036Teil 1	Flanged valves made of G-CuSn 10; angle valve bodies, DN 20, 25 and 32, PN 25	Standard not available from MARAD.	N	1990-02-	
15 Bundesam	VG 85380	Hydraulic valves; technical specification	Standard not available from MARAD.	N	1979-05-	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
505	Bundesam	VG 85523	Hull valves; technical specification	Standard not available from MARAD.	N	1986-12-	
505	Bundesam	VG 85053	Butterfly valves made of G-CuSn10 wafer type, DN 50 to 150 - PN 10, DN 175 to 300 - PN 6; assembly	Standard not available from MARAD.	N	1990-04-	
505	Bundesam	VG 85033 Teil	Flanged valves made of G-CuSn 10; straight way valves; shut off and non return valves with plastic-caulking; DN 40 to 150, PN 10, DN 175 to 300, PN 6 (not for new design)	This standard is not available from MARAD.	N	1990-09-	
505	Bundesam	VG 85034 Teil	Flanged valves made of G-CuSn 10; angle valves; shut off and non return valves; DN 40 to 150, PN 10, DN 175 to 300, PN 6	This standard is not available from MARAD.	N	1990-09-	
505	Bundesam	VG 85036 Teil	Flanged valves made of G-CuSn 10; angle valve bodies, DN 20, 25 and 32, PN 25	This standard is not available from MARAD.	N	1990-02-	
505	Bundesam	VG 85053	Butterfly valves made of G-CuSn10 wafer type, DN 50 to 150 - PN 10, DN 175 to 300 - PN 6; assembly	This standard is not available from MARAD.	N	1990-04-	
505	Bundesam	VG 85060 Teil	Flanged slide valves made of G-CuSn 10; DN 40 to 80, PN 40; assembly	This standard is not available from MARAD.	N	1990-02-	
505	Bundesam	VG 85380	Hydraulic valves; technical specification	This standard is not available from MARAD.	N	1979-05-	
505	Bundesam	VG 85523	Hull valves; technical specification	This standard is not available from MARAD.	N	1986-12-	
505	CNS	F3160	Marine Bronze 16 kgf/cm2 Angle Valves (Union Bonnet Type) (Jan) (8275)	Standard not available from MARAD.			
505	CNS	F3166	Marine Bronze 5 kgf/cm2 Lift Check	Standard not available from MARAD.			

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			Valves (Feb) (8496)				
05	CNS	F3112	Marine Cast Steel Globe Valves (20 kgf/cm2) (Dec) (7684)	Standard not available from MARAD.			
05	CNS	F3178	Marine Bronze 5 kgf/cm2 Rising Stem Type Gate Valves (May) (8819)	Standard not available from MARAD.			
05	CNS	F3007	Cast Iron Gate Valves for Marine Use (10kgf/cm2) (Mar) (3812)	Standard not available from MARAD.			
05	CNS	F3133	Marine Malleable Iron Globe Valves (5 kgf/cm2) (Dec) (7900)	Standard not available from MARAD.			
05	CNS	F3144	Marine Bronze Hose Valves (Nov) (8108)	Standard not available from MARAD.			
05	CNS	F3181	Marine Bronze 5 kgf/cm2 Swing Check Valves (May) (8822)	Standard not available from MARAD.			
05	CNS	F3008	Cast Iron Screw-Down Check Angle Valves for Marine Use (10kgf/cm2)	Standard not available from MARAD.			
05	CNS	F3009	Cast Steel Vertical Storm Valve for Marine Use (Mar) (3814)	Standard not available from MARAD.			
05	CNS	F3191	Marine Bronze 20 kgf/cm2 Angle Valves (Aug) (9253)	Standard not available from MARAD.			
05	CNS	F3006	Cast Iron Gate Valves for Marine Use (5kgf/cm2) (Mar) (3811)	Standard not available from MARAD.			
05	CNS	F3100	Marine Cast Iron Globe Valve (Dec) (7243)	Standard not available from MARAD.			
05	CNS	F3006	Cast Iron Gate Valves for Marine Use (5kgf/cm2) (Mar) (3811)	This standard is not available from MARAD.			
05	CNS	F3007	Cast Iron Gate Valves for Marine Use (10kgf/cm2) (Mar) (3812)	This standard is not available from MARAD.			
05	CNS	F3008	Cast Iron Screw-Down Check Angle	This standard is not available from MARAD.			

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Page	SWBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App
				Valves for Marine Use (10kgf/cm ²)				
505	CNS		F3009	Cast Steel Vertical Storm Valve for Marine Use (Mar) (3814)	This standard is not available from MARAD.			
505	CNS		F3100	Marine Cast Iron Globe Valve (Dec) (7243)	This standard is not available from MARAD.			
505	CNS		F3112	Marine Cast Steel Globe Valves (20 kgf/cm ²) (Dec) (7684)	This standard is not available from MARAD.			
505	CNS		F3133	Marine Malleable Iron Globe Valves (5 kgf/cm ²) (Dec) (7900)	This standard is not available from MARAD.			
505	CNS		F3144	Marine Bronze Hose Valves (Nov) (8108)	This standard is not available from MARAD.			
505	CNS		F3160	Marine Bronze 16 kgf/cm ² Angle Valves (Union Bonnet Type) (Jan) (8275)	This standard is not available from MARAD.			
505	CNS		F3166	Marine Bronze 5 kgf/cm ² Lift Check Valves (Feb) (8496)	This standard is not available from MARAD.			
505	CNS		F3178	Marine Bronze 5 kgf/cm ² Rising Stem Type Gate Valves (May) (8819)	This standard is not available from MARAD.			
505	CNS		F3181	Marine Bronze 5 kgf/cm ² Swing Check Valves (May) (8822)	This standard is not available from MARAD.			
505	CNS		F3191	Marine Bronze 20 kgf/cm ² Angle Valves (Aug) (9253)	This standard is not available from MARAD.			
505	DIN		DIN 86016	Pipe brackets of steel for ships pipelines of unplasticized polyvinyl chloride (PVC-U)	This standard is not available from MARAD.	N	1991-03-	
505	DIN		DIN 86063	Connecting sockets with pipe flange, for steel tubes, nominal pressure 16	This standard is not available from MARAD.	N	1976-07-	
505	DIN		DIN 86064	Connecting sockets with pipe flange	This standard is not available from MARAD.	N	1976-07-	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			and fixing collar, for steel tubes, nominal pressure 10				
05	DIN	DIN 86100	Tube fittings and screw plugs; summary of types for shipbuilding	This standard is not available from MARAD.	Y	1973-11-	
05	DIN	DIN 86061	Connecting sockets with pipe flange, for steel tubes, nominal pressure 10	This standard is not available from MARAD.	N	1976-07-	
05	DIN	DIN 86065	Connecting sockets with pipe flange and fixing collar, for steel tubes, nominal pressure 16	This standard is not available from MARAD.	N	1976-07-	
05	DIN	DIN 86088	Fittings for butt welding into wrought copper alloy pipe lines; tees	This standard is not available from MARAD.	N	1984-10-	
05	DIN	DIN 86014	Bulkhead fittings for pipes of unplasticized polyvinyl chloride (PVC-U)	This standard is not available from MARAD.	N	1989-05-	
05	DIN	DIN 86089	Fittings for butt welding into wrought copper alloy pipe lines; concentric reducers	This standard is not available from MARAD.	N	1984-10-	
05	DIN	DIN 86090	Fittings for butt welding into wrought copper alloy pipe lines; bends	This standard is not available from MARAD.	N	1984-10-	
05	DIN	DIN 86013	Pipes of unplasticized polyvinyl chloride (PVC-U) for pipelines on ships	Standard not available from MARAD.	N	1989-05-	
05	DIN	DIN 86087	Fittings for butt welding into wrought copper alloy pipe lines; saddle type connections	This standard is not available from MARAD.	Y	1984-10-	
05	DIN	DIN 86500	Valves and Gate Valves with Screwed Connections; Survey of Types for	This standard contains a survey of the types, shapes, and sizes of standard valves	Y	1968-08-	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			Shipbuilding	and gate valves with screwed connections, selected and to be used preference for the piping systems installed on ships. The use of other fittings of this class should be avoided as far as possible for reasons of deliberate restriction of the number of types used. The type, shapes, and sizes laid down in this survey are intended to contribute to simplifying the storage and procurement of spare parts.			
05	DIN	DIN 86012	Pipelines of unplasticized polyvinyl chloride (PVC-U) on ships, with cold-welded joints; requirements, dimensions for bonding, summary of components	Standard not available from MARAD.	Y	1984-01-	
05	DIN	DIN 86012	Pipelines of unplasticized polyvinyl chloride (PVC-U) on ships, with cold-welded joints; requirements, dimensions for bonding, summary of components	This standard is not available from MARAD.	Y	1984-01-	
05	DIN	DIN 86013	Pipes of unplasticized polyvinyl chloride (PVC-U) for pipelines on ships	This standard is not available from MARAD.	N	1989-05-	
05	DIN	DIN 86500	Valves and Gate Valves with Screwed Connections; Survey of Types for Shipbuilding	This standard is not available from MARAD.	Y	1968-08-	
05	DNV	05.04.06	Chemical Carriers; Piping Systems in Cargo Area	Standard not available from MARAD.			4
05	DNV	05.04.08	Chemical Carriers; Marking of Tanks, Pipes and Valves	Standard not available from MARAD.			4
05	DNV	05.05.06	Liquefied Gas Carriers; Piping	Standard not available from MARAD.			2

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			Systems in Cargo Area				
05	DNV	05.05.08	Liquefied Gas Carriers; Marking of Tanks, Pipes and Valves	Standard not available from MARAD.			2
05	DNV	05.03.04	Oil Carriers; Piping Systems in Cargo Area	Standard not available from MARAD.			4
05	DNV	05.03.04	Oil Carriers; Piping Systems in Cargo Area	This standard discusses the requirement for piping systems in cargo areas of oil carriers. The following general areas are discussed: bilge, ballast and fuel oil systems, including drainage, oil discharge, and sounding; cargo piping systems for barges, and cargo heating.	YES	JUL93	4
05	DNV	05.04.06	Chemical Carriers; Piping Systems in Cargo Area	These DNV rules apply to chemical carrier cargo area piping systems. The following general areas are discussed: pumping and piping systems for bilge, ballast, and fuel oil; chemical cargo piping systems including design and arrangement; stripping of cargo tank and cargo lines.	YES	JUL93	4
05	DNV	05.04.08	Chemical Carriers; Marking of Tanks, Pipes and Valves	This DNV standard provides guidance for marking of tanks, pipes, and valves for chemical carriers.	YES	JUL93	4
05	DNV	05.05.06	Liquefied Gas Carriers; Piping Systems in Cargo Area	This DNV standard discusses the requirements for LNG cargo area piping systems. Items discussed: pumping and piping systems for bilge, ballast, and fuel oil; cargo piping systems including arrangement and design; cargo hoses, bow and stern loading and unloading arrangements, and vapour return connections.	YES	JUL93	2
05	DNV	05.05.08	Liquefied Gas Carriers; Marking of	This DNV standard discusses the requirement	YES	JUL93	2

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			Tanks, Pipes and Valves	for marking of tanks, pipes and valves for LNG carriers.			
05	DOD	MIL-F-20670B	FLANGE, PIPE, CARBON STEEL 150 P.S.I., W.S.P. (FOR NAVAL SHIPYARD USE) REFRIGERATORS; FROZEN FOOD CABINETS; AND COMBINATION REFRIGERATOR-FROZEN FOOD CABINETS, MECHANICALLY REFRIGER	This specification covers carbon steel pipe flanges, 150 PSI W.S.P. Specifications included: material, dimensions, chemical composition, physical properties, tolerances, testing, etc.	Y	26Mar'91	Naval
05	DOD	MIL-F-20670B	FLANGE, PIPE, CARBON STEEL 150 P.S.I., W.S.P. (FOR NAVAL SHIPYARD USE)	This is a Notice for MIL-F-20670B	Y		NAVAL
05	DOD	MIL-F-21467D	FITTINGS, FLARELESS, FLUID CONNECTION (SHIPBOARD USE) (USE MIL-F-18866)	This standard has been cancelled.			
05	DOD	MIL-P-24608A	PIPE, FITTINGS, AND ADHESIVE KITS, GLASS-REINFORCED THERMOSETTING EPOXY RESIN FOR SHIPBOARD PIPING SYSTEMS	This specification covers glass-reinforced thermosetting epoxy resin pipe, glass-reinforced thermosetting epoxy resin fittings, and thermosetting epoxy resin joint adhesive kits for shipboard piping systems. It covers materials, construction techniques, glass composition, dimensions, tolerances, threading, physical properties, testing, etc.	Y	12Nov'81	Naval
05	DOD	MIL-V-1189D	VALVE, GATE, BRONZE	This specification describes gate valves for use in water, oil, gas and steam services on board ship. It discusses materials, service ratings, construction, design parameters, etc.	YES	8/25/58	NAVAL
05	DOD	MIL-P-15877D	PIPE SUPPORT DEVICES (HANGERS AND SWAYBRACES, SHIPBOARD USE)	This specification covers constant support, variable support pipe hangers, and swaybraces for shipboard piping. It also	Y	29 June	Naval

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WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App	
				provides for material, spring, rod, construction and testing requirements for Type I, hangers: coil and Belville spring; Type 2, variable support (coil) hangers and Type III, coil, spring and hydraulic swaybraces.				
05	DOD	QPL-15877-21	HANGERS, PIPE #SPRING HANGERS AND SWAYBRACES, SHIPBOARD USE#	This standard has been cancelled.				
05	DOD	MIL-V-1189D	VALVE, GATE, BRONZE	This standard is not available from MARAD.	YES		NAVAL	
05	JIS	F 3025	Remote Handling Fittings for Valves on Small Ships' Forepeak Bulkhead	This standard provides for material, construction, dimensions, testing, etc. for fittings for manual remote control gears for forepeak bulkhead valve mainly of nominal diameter 100mm or under. It includes: deck stand, yoke, fork, bracing, and check ring.	Y	1975	1,2,3,4	
05	JIS	F 7321	Marine Malleable Iron 5 kgf/cm2 Globe Valves	Standard not available from MARAD.				
05	JIS	F 7302	Marine Bronze 5 kgf/cm2 Angle Valves	Standard not available from MARAD.				
05	JIS	F 7301	Marine Bronze 5 kgf/cm2 Globe Valves	Standard not available from MARAD.				
05	JIS	F 7314	Marine Cast Steel 20 kgf/cm2 Angle Valves	Standard not available from MARAD.				
05	JIS	F 7335	Marine Hose Connections and Fittings	Standard not available from MARAD.				
05	JIS	F 7371	Marine Bronze 5 kgf/cm2 Swing Check Valves	Standard not available from MARAD.				
05	JIS	F 7366	Marine Cast Steel 10 kgf/cm2 Gate Valves	Standard not available from MARAD.				
05	JIS	F 7346	Marine Bronze 5 kgf/cm2 Globe Valves (Union Bonnet Type)	Standard not available from MARAD.				

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	JIS	F 7301	Marine Bronze 5 kgf/cm2 Globe Valves	This standard is not available from MARAD.			
05	JIS	F 7302	Marine Bronze 5 kgf/cm2 Angle Valves	This standard is not available from MARAD.			
05	JIS	F 7314	Marine Cast Steel 20 kgf/cm2 Angle Valves	This standard is not available from MARAD.			
05	JIS	F 7321	Marine Malleable Iron 5 kgf/cm2 Globe Valves	This standard is not available from MARAD.			
05	JIS	F 7346	Marine Bronze 5 kgf/cm2 Globe Valves (Union Bonnet Type)	This standard is not available from MARAD.			
05	JIS	F 7366	Marine Cast Steel 10 kgf/cm2 Gate Valves	This standard is not available from MARAD.			
05	JIS	F 7371	Marine Bronze 5 kgf/cm2 Swing Check Valves	This standard is not available from MARAD.			
05	MASS	74.02	PIPING SYSTEMS, DESIGN	This MARAD specification provides general system design guidance for machinery pressure piping systems,	YES	NOV95	1,2,3,4
05	MASS	74.03	PIPING INSTALLATION	This MARAD specification provides guidance for installation of machinery pressure piping systems.	YES	NOV95	1,2,3,4
05	MASS	74.01	PIPING SYSTEMS, GENERAL REQUIREMENTS	This MARAD specification provides general guidance for machinery pressure piping systems.	YES	NOV95	1,2,3,4
05	MASS	74.01	PIPING SYSTEMS, GENERAL REQUIREMENTS	This standard is not available from MARAD.			
05	MASS	74.02	PIPING SYSTEMS, DESIGN	This standard is not available from MARAD.			
05	MASS	74.03	PIPING INSTALLATION	This standard is not available from MARAD.			
05	MASSD	74.03	PIPING INSTALLATION	This MARAD specification provides general installation guidance for machinery pressure piping systems.	YES	NOV95	1,2,3,4
05	MASSD	74.03	PIPING INSTALLATION	This standard is not available from MARAD.			

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<u>NBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 3	This standard is not available from MARAD.	YES		
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 1	This standard is not available from MARAD.	YES		
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 2	This standard is not available from MARAD.	YES		
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 1	This standard is not available from MARAD.			
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 2	This standard is not available from MARAD.			
05	MOD UK	NES 360	List of Preferred Standard Valves (Metric) Issue 3 (11.91); Amendment 3	This standard is not available from MARAD.			
05	MSS	SP-51	Class 150LW Corrosion Resistant Cast Flanges and Flanged Fittings	This standard is not available from MARAD.			
05	MSS	SP-77	Guidelines for Pipe Support Contractual Relationships Relationships and Responsibilities of the Pipe Hanger Contractor with the Purchaser's Engineer or the Pipe Fabricator and/or	This MSS (Manufacturers Standardization Society) standard establishes practical and recognizable guidelines relative to defining areas of responsibility for pipe hanger contractors, purchaser's engineers, and pipe fabrication and/ or erectors. Pipe hanger design, fabrication, coating, etc is addressed. CAUTION: some portions of this standard may not be applicable to all marine applications.	YES	1995	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	MSS	SP-58	Pipe Hangers and Supports - Materials, Design and Manufacture	This standard is not available from MARAD.			
05	MSS	SP-69	Pipe Hangers and Supports - Selection and Application	This standard is not available from MARAD.			
05	MSS	SP-44	Steel Pipe Line Flanges	This standard is not available from MARAD.			
05	MSS	SP-89	Pipe Hangers and Supports - Fabrication and Installation Practices	This MSS (Manufacturers Standardization Society) standard establishes recommended procedures for the detailing, fabrication, and installation of pipe hangers and supports. Items discussed: dimensional tolerances, fabrication, materials, testing, etc. CAUTION: Some portions of this standard may not be applicable to marine practices.	YES	1991	1,2,3,4
05	MSS	SP-77	Guidelines for Pipe Support Contractual Relationships Relationships and Responsibilities of the Pipe Hanger Contractor with the Purchaser's Engineer or the Pipe Fabricator and/or	This standard is not available from MARAD.			
05	MSS	SP-89	Pipe Hangers and Supports - Fabrication and Installation Practices	This standard is not available from MARAD.			
05	NFPA	FCLCH 30	Piping, Valves, and Fittings (Flammable and Combustible Liquids Code Handbook, 3rd ed., 1987)	This standard provides requirements for storage, handling and use of flammable liquids. It includes tank storage requirements, container and portable storage requirements, operations, etc.	Yes	1993	n/a
05	SAA	AS 2117	Hose and Hose Assemblies for Petroleum Products - Marine Suction and Discharge	This standard is not available from MARAD.	Yes		

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
05	UL	203	UL Standard for Safety Pipe Hanger Equipment for Fire Protection Service Seventh Edition; August 6, 1992	These requirement cover the performance of pipe hanger equipment for use in supporting piping employed in sprinkler systems, water-spray systems, and other piping systems used for fire protection. Items discussed: materials, hanger rod sizes, construction, coatings, etc. CAUTION: all requirement may not be applicable to some marine applications.	YES	8/6/92	1,2,3,4
05	UL	203	UL Standard for Safety Pipe Hanger Equipment for Fire Protection Service Seventh Edition; August 6, 1992	This standard is not available from MARAD.			
05	USCG	46C56.15	PIPE FITTING, TEST, HYDROSTATIC FOR PIPE JOINT FITTINGS, TEST, COLD FLATTENING FOR PIPE JOINT FITTINGS	This standard specifies that threaded, flanged, socket-welding, buttwelding, and socket brazing pipe joining fittings (made IAW Tables 56.60) may be used in piping systems within the material, size, pressure and temperature limitations specified by this section. Fittings must be designed for the maximum pressure to which they will be subjected, but in no case less than 50 PSIG.	Y	20Oct'89	1,2,3,4
08	MOD UK	NES801PART 3	Requirements for Insulation Material Part 3: Glass Fibre Products Glass Webbing for Pipe Hangers Issue 2 (04.89)	This standard is not available from MARAD.	YES		
08	MOD UK	NES 801: PART	Requirements for Insulation Material Part 3: Glass Fibre Products Glass Webbing for Pipe Hangers Issue 2 (04.89)	This standard is not available from MARAD.			
21		10.4.4	FIRE EXTINGUISHING SYSTEM, STEEL	This standard is not available from MARAD.	YES		

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<u>SWBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
			FLOATING DRY DOCKS				
21	ABS06	12.3	FIRE EXTINGUISHING SYSTEM, RIVERS AND IC; HOSE, FIRE, REQUIREMENTS FOR STEEL VESSELS ON RIVERS AND IC	This standard is not available from MARAD.	YES		
21	ISO	3926	Shipbuilding - Inland Navigation - Fire- Fighting Water System - Pressures First Edition	This international standard was developed with the aim of unifying the mating dimensions of filling devices on board ships for lubricating oil and liquid fuels. This standard specifies three size couplings, nominal pipe sizes, and mating dimensions.	Yes	1Aug'80	1,2,3,4
21	MASS	58.06	FIRE MAIN SYSTEM	This standard states that a complete fire main system shall be provided in accordance with the requirements of the Regulatory Bodies. Each pump shall discharge through a separate riser to the fire main. It also describes how fire mains and risers shall be located to reduce damage due to collisions.	Y	Draft'95	1,2,3,4
21	MASSD	58.04	FIRE MAIN SYSTEM	This standard specifies that the fire and foam pump shall be located in the shaft alley. The main fire pump shall be located in the engine room. All fire main and fire stations exposed to freezing shall be on branches of the fire main with shut-off valves, etc.	Y	Draft'95	1,2,3,4
21	SOLAS	11-2-A-SH	SHORE CONNECTION, INTERNATIONAL; FIREHOSE CONNECTION	This standard, printed from Lloyd's Register's Rulefinder, cover SOLAS specifications for fire pumps, fire mains, hydrants, hoses, and international shore connections. It specifies: pump capacities, diameter and pressure of fire mains, number and position of hydrants, fire	Y	1974	1,2,3,4

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SWBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App	
521	USCG	46C76.10	FIRE PROTECTION EQUIPMENT-FIRE MAIN SYSTEM, DETAILS	hose and nozzle requirements, location and arrangement of fire pumps, etc. This standard specifies that: on all vessels on an international voyage, regardless of the date of construction, water pressure from the firemain protecting enclosed spaces shall be immediately available by maintenance of water pressure on the firemain at all times when passengers are aboard the vessel, or by remote control of fire pumps which control shall be easily operable and rapidly accessible.	Y	20Dec'67	1,2,3,4	
528	ANSI	B016.12	DRAIN FITTING	This standard specifies material, dimensions and tolerances, threading, coatings, etc, for cast iron threaded drainage fittings.	Y	1991	1,2,3,4	
528	ANSI	B016.23	DRAIN FITTING	This standard specifies material, size, inspection tolerances, pitch, threading, etc, for cast copper alloy solder joint drainage fittings - DWV.	Y	1992	1,2,3,4	

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Page	1							
SWBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App	
610	Bundesam	VG 85194	Jack-staff	Standard not available from MARAD.	N	1969-05		
610	Bundesam	VG 85195	Jack-staff socket	Standard not available from MARAD.	N	1969-05		
611	ABS04	10.23	FITTINGS, DECK, STEEL BARGE OFFSHORE; CLEAT, STEEL BARGE OFFSHORE; CHOCK, STEEL BARGE OFFSHORE	Standard not available from MARAD.	Y			
611	ABS06	4.6	DECK FITTING, BARGE ON RIVERS AND IC; BITT, CHOCK AND CLEAT, BARGE ON RIVERS AND IC	Standard not available from MARAD.	Y			
611	MASS	5.06	PADEYE	Standard not available from MARAD.	Y			
611	MASS	5.09	MOORING FENDER; FENDER, MOORING	Standard not available from MARAD.	Y			
611	MASS	5.10	DOCKING FENDER; FENDER, DOCKING	Standard not available from MARAD.	Y			
611	MASS	8.05	JACKSTAFF	Standard not available from MARAD.	Y			
611	MASS	8.06	DAVIT	Standard not available from MARAD.	Y			
611	ABS	20.1.1	GUARD RAIL	This standard specifies the height of bulwarks and guard rails on exposed parts of freeboard and superstructure decks. It also specifies the spacing of guard rails. Where specified height would interfere with the normal operation of the vessel, a lesser height may be approved if adequate protection is provided.	Y		1,2,3,4	
612	AFNOR	NF J83-211	INLAND NAVIGATION. GUARDRAILS FOR DECKS.	Standard not available from MARAD.	N	1966-07		
612	ASTM	F1092	Standard Specification for Fiberglass (GRP) Pultruded Open-Weather Storm- and Guard-Square Handrails	This specification provides the material requirements, construction, insulation, and testing requirements for open-weather deck, storm-and-guard, fiberglass square rails. All required safety requirements may not be	Yes	30Oct'87	1,2,3,4	

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<u>SWBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
				addressed.				
612	BSI	BS MA 40-1	1975 Amd 0 Marine Guardrails, Stanchions, Etc Part 1: Guardrails for Merchant Ships (Excluding Passenger Ships)	This standard specifies dimensions, material, quality of manufacture and finish for guardrails and stanchions which are fitted on exposed freeboard and superstructure decks of merchant ships to prevent personnel falling overboard or to lower decks and for handrails at ladder positions.	Yes	Mar'75	1,2,3,4	
612	BSI	BS MA 40-2	1975 Amd 0 Marine Guardrails, Stanchions, Etc Part 2: Gates and Portable Guardrail Sections for Merchant Ships (Excluding Passenger Ships)	This part of this standard specifies dimensions, materials, quality of manufacture and finish for gates and portable guardrail sections which are fitted in the line of guardrails to provide access to lifeboats and accommodation ladders as well as permitting gangways to be laid from the dockside onto the deck.	Yes	Apr'75	1,2,3,4	
612	BSI	BS MA 40-3	1975 Amd 0 Marine Guardrails, Stanchions, Etc Part 3: Stormrails (Exterior)	This part of this standard specifies dimensions, quality of manufacture and finish for storm rails for exterior locations. Interior storm rails, while not covered by this standard, shall conform to the height above deck and hand clearance dimensions.	Yes	Apr'75	1,2,3,4	
612	BSI	BS MA 40:Part	Specification for marine guardrails, stanchions, etc. Guardrails for merchant ships (excluding passenger ships)	Standard not available from MARAD.	Y	4/30/75		
612	BSI	BS MA 40:Part	Specification for marine guardrails, stanchions, etc. Gates and portable guardrail sections for merchant	Standard not available from MARAD.	Y	4/30/75		

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<u>SWBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>	
			ships (excluding passenger ships)					
512	BSI	BS MA 40:Part	Specification for marine guardrails, stanchions, etc. Storm rails (exterior)	Standard not available from MARAD.	Y	4/30/75		
612	BSI	BS MA 52	1974 Amd 0 Ships' Deck Machinery; Accommodation Ladder Winches	This standard specifies requirements for the design, construction, safety, performance and acceptance testing of ship's accommodation ladder winches. This standard does not include requirements for the prime mover used to operate the wench.	Yes	May'94	1,2,3,4	
612	Bundesam	VG 85209	Guard rails	Standard not available from MARAD.	N	3/82		
612	Bundesam	VG 85210	Railings for ships; directions for construction and synopsis for railings	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85211 Teil	Railings for ships; ropes for railings; assembly	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85211 Teil	Railings for ships; ropes for railings; component parts	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85212	Railings for ships; tubes for rail stanchions	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85213	Railing for ships; heels for rail stanchions	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85214	Railings for ships; base plates for rail stanchions	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85215	Railings for ships; heel plates for rail stanchions	Standard not available from MARAD.	N	1/83		
612	Bundesam	VG 85216 Teil	Railings for ships; joints for rail stanchions; assembly	Standard not available from MARAD.	N	1/83		

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WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
12	Bundesam	VG 85216 Teil	Railings for ships; joints for rail stanchions; component parts	Standard not available from MARAD.	N	1/83	
12	Bundesam	VG 85217	Railings for ships; rope clamps and rope ears for rail stanchions	Standard not available from MARAD.	N	1/83	
12	Bundesam	VG 85226	Railings for ships; gurat rails for railing openings	Standard not available from MARAD.	N	7/82	
12	Bundesam	VG 85241 Teil	Railings for ships; stays for rail stanchions; assembly	Standard not available from MARAD.	N	7/83	
12	Bundesam	VG 85241 Teil	Railings for ships; stays for rail stanchions; component parts	Standard not available from MARAD.	N	7/83	
12	Bundesam	VG 85243		Standard not available from MARAD.	N	7/82	
12	Bundesam	VG 85245 Teil	Detachable railings for ship to shore and ship to ship gangways; rail stanchion	Standard not available from MARAD.	N	6/90	
12	Bundesam	VG 85245 Teil	Detachable railings for ship to shore and ship to ship gangways; holder for rail stanchion and detachable rail sections	Standard not available from MARAD.	N	6/90	
12	Bundesam	VG 85245 Teil	Detachable railings for ship to shore and ship to ship gangways; detachable rail sections	Standard not available from MARAD.	N	3/91	
12	DIN	DIN 81701	Inland navigation; detachable deck-rails; stanchion, holder for stanchion	Standard not available from MARAD.	N	9/88	
12	DIN	DIN 81702	Steel guard rails on deck for sea going ships	Standard not available from MARAD.	N	9/91	
12	DIN	DIN 81703	Gates in fixed guard rails on the deck of sea-going vessels	Standard not available from MARAD.	N	4/91	

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Page	WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
5	12	DIN	DIN 81704	Handrails at superstructures and deckhouses on ships	Standard not available from MARAD.	N	1/82	
	12	DIN	DIN 81705	Removable railings for sea-going vessels	Standard not available from MARAD.	N	1/91	
	12	DIN	DIN 81709	Plugs for tubes at guardrails	Standard not available from MARAD.	N	1/82	
	12	DIN	DIN 81710	Inland navigation vessels; railings for decks; requirements, types, design	Standard not available from MARAD.	N	9/88	
	12	DIN	DIN 83205	Railings in ships' engine rooms and boiler rooms	Standard not available from MARAD.	N	12/84	
	12	DIN	DIN 83209	Handrails and footrails at masts, posts and walls on ships	Standard not available from MARAD.	N	2/82	
	12	DIN	DIN 83510	Inland navigation; folding deckrail; stanchion	Standard not available from MARAD.	N	8/88	
	12	ISO	3652	Shipbuilding - Inland Vessels - Deck Rail First Edition	This standard specifies the characteristics of rope reels intended for the storage of mooring and towing ropes in vessels of all types and purposes for use on inland waterways.	Yes	15Dec'75	1,2,3,4
	12	ISO	4868	Shipbuilding - Guardrails for Cargo Ships First Edition	This standard establishes procedures for gathering and presenting data on vibrations of local structure elements or equipment in sea-going merchant vessels.	Yes	15Nov'84	1,2,3,4
	12	ISO	ISO 3674	Shipbuilding; Inland vessels; Deck rail	This standard specifies the types, designs and basic dimensions of ship deck handrails. It discusses tube, network, chain, and rope handrails.	N	1976-05-	1,2,3,4
	12	ISO	ISO 5480	Shipbuilding; Guardrails for cargo ships	This standard specifies requirements for marine guardrails and stanchions for cargo	N	1979-07-	1,2,3,4

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<u>IBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
2	JIS	F 2606	Ships' Wooden Handrails (R 1964)	ships to comply with the regulations of the International Convention on Loadlines 1966. This standard provides for materials, shape and dimensions for ship's wooden handrails.	Yes	1958	1,2,3,4
2	JIS	F 2607	Ships' Handrail Stanchion	This standard provides for material, construction, shape, and dimensions for handrail stanchions for ship use.	Yes	1975	1,2,3,4
2	MASS	5.04	HANDRAILS	Standard not available from MARAD.	Y		
2	MASS	79.05	HANDRAIL; STANCHION	This standard provides specifics on handrails and stanchions, such as materials (steel except around electrical equipment), and dimensions,	Y	1995	1,2,3,4
2	MASSD	79.05	HANDRAIL; STANCHION	This standard provides specifics on handrails and stanchions for Diesel propelled ships, such as materials (steel except around electrical equipment), and dimensions,	Y	1995	1,2,3,4
2	NNI	NEN-ISO 5480	Shipbuilding; Guardrails for cargo ships	See the ISO listing with the same number.	N	1980-05-	
2	SAA	AS 1986	Shipbuilding - Guardrails for Cargo Ships	Standard not available from MARAD.	Yes		
2	USCG	46C177.35	CONSTRUCTION AND ARRANGEMENT- RAILS AND GUARDS	This standard provides specifics on deck rails Details such as spacing, heights, materials, etc are provided.	Y	29Sep'60	1,2,3,4
2	USCG	46C190.25	CONSTRUCTION AND ARRANGEMENT-RAILS AND GUARDS	This standard provides specifics on merchant vessel rails and guards. Details such as height above decks, number of courses, course spacing, etc. are provided. Storm rails, guards in dangerous places, are also covered. Applicable to ships contracted for	Y	29Oct'69	1,2,3,4

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IBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
				on or after July 1, 1969			
2	USCG	46C72.40	CONSTRUCTION AND ARRANGEMENT-RAILS AND GUARDS	This standard provides specifics on passenger vessel rails and guards. Details such as height above decks, number of courses, course spacing, etc. are provided. Storm rails, guards in dangerous places, are also covered. Applicable to ships contracted for prior to July 1, 1969.	Y	30Dec'65	
2	USCG	46C92.25	CONSTRUCTION AND ARRANGEMENT-RAILS AND GUARDS	This standard provides specifics on merchant vessel rails and guards. Details such as height above decks, number of courses, course spacing, etc. are provided. Storm rails, guards in dangerous places, are also covered.	Y	30Dec'65	1,2,3,4
3	AFNOR	NF J32-404	SHIPBUILDING. VERTICAL STEEL LADDERS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J32-410	SHIPBUILDING. LADDERS FOR TANKS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J32-415	SHIPBUILDING. STEEL DOG-STEP LADDERS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J32-440	SHIPBUILDING. PILOT LADDERS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J32-441	SHIPBUILDING. EMBARKATION LADDERS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J32-442	SHIPBUILDING. ACCOMMODATION LADDERS.	Standard not available from MARAD.	N	12/85	
3	AFNOR	NF J83-241	INLAND NAVIGATION. LADDERS FOR HOLDS.	Standard not available from MARAD.	N	7/66	
3	AFNOR	NF J83-242	INLAND NAVIGATION. PORTABLE LADDER.	Standard not available from MARAD.	N	5/67	
3	AFNOR	NF J83-243	SHIPBUILDING. INLAND NAVIGATION. SHIPS LADDERS.	Standard not available from MARAD.	N	7/70	

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<u>Page</u>	<u>8</u>	<u>IBS Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23		ANSI	1116	UL Standard for Safety Marine Chain, Embarkation, and Pilot Ladders First Edition; January 2, 1986, Errata - October 1985	Standard not available from MARAD.	Yes		
23		ANSI	14.3	LADDER	Standard not available from MARAD.	YES		
23		ASTM	F840	Ladders, Fixed, Vertical, Steel, Ship's, Spec. for	This specification covers fabrication details for fixed, vertical, steel ladders for personnel access on ships. Nonferrous ladders and special-purpose ladders are excluded from this specification. Dimensions, materials, tolerances, etc are provided; however, safety and health practices are not addressed.	Yes	26Oct'83	1,2,3,4
23		BSI	BS 7468	1991 Amd 0 Rungs for Dog-Step Ladders (ISO 9519: 1990)	This international standard was adapted from ISO-9519 (1990). This standard specifies the types, dimensions, material, manufacture and designation of rungs for dog-step ladders. It also describes the installation and composition of single rungs forming a dog-step ladder. Dog-step ladders, formed from single rungs, may only be used where fixed vertical ladders with stringers cannot be used.	Yes	1991	1,2,3,4
23		BSI	BS 7468:1991;	Specification for rungs for dog-step ladders	See ISO-95. Standard not available from MARAD.	Y	8/30/91	
23		BSI	BS MA 39-1	1973 Amd 0 Ships' Ladders Part 1: Ladders, Steel Vertical	Part 1 of this standard specifies the dimensions, design and construction, materials and finish for general purpose steel vertical ladders. Part 2 is for "ladders, steel sloping"; Part 3 is for "ladders, steel dog-step"; Part 4 is for "	Yes	Dec'73	1,2,3,4

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<u>IBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
3	BSI	BS MA 39-2	1973 Amd 0 Ships' Ladders Part 2: Ladders, Steel Sloping	ladders, wood sloping:. Part 2 of this standard specifies the materials, design and construction, quality of manufacture, finish, inspection and testing for ship's steel sloping ladders.	Yes	Dec'73	1,2,3,4
3	BSI	BS MA 39-3	1973 Amd 1 Ships' Ladders Part 3: Ladders, Steel Dog-Step	Part 3 of this standard specifies the dimensions, design and construction, materials and quality of finish for steel dog-step ladders.	Yes	Dec'73	1,2,3,4
3	BSI	BS MA 89	(OBSOLESCE) 1980 Amd 0 Accommodation Ladders (Q)	See also ISO 5488-1979. This standard specifies requirement and the method of test for accommodation ladders used on merchant vessels (excluding passenger ships) to enable persons to embark and disembark safely. The requirements are applicable to either single-flight or multi-flight ladders.	Yes	1980	1,2,3,4
3	BSI	BS MA 90	1980 Amd 0 Embarkation Ladders	See also ISO 5489-1979. This international standard specifies requirements for an embarkation ladder which is provided for passengers and crew to gain access to a survival craft in an emergency.	Yes	1980	1,2,3,4
3	BSI	BS MA 90:1980;	Specification for embarkation ladders	Standard not available from MARAD.	Y	7/80	
3	Bundesam	VG 85204	Stairs and ladders; step type ladders; dimensions, installation	This standard not available from MARAD.	N	1/88	
3	Bundesam	VG 85207	Stairs and ladders; ladders; dimensions, installation	This standard not available from MARAD.	N	11/79	
3	Bundesam	VG 85222 Teil	Stairs and ladders; internal stairs; assembly	This standard not available from MARAD.	N	1/88	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23	Bundesam	VG 85222 Teil	Stairs and ladders; internal stairs; strings	This standard not available from MARAD.	N	1/88	
23	Bundesam	VG 85222 Teil	Stairs and ladders; internal stairs; mud guard	This standard not available from MARAD.	N	1/88	
23	Bundesam	VG 85223 Teil	Stairs and ladders; outside stairs; assembly	Standard not available from MARAD.	N	9/85	
23	Bundesam	VG 85223 Teil	Stairs and ladders; outside stairs; strings	Standard not available from MARAD.	N	9/85	
23	Bundesam	VG 85223 Teil	Stairs and ladders; outside stairs; handrails	Standard not available from MARAD.	N	9/85	
23	Bundesam	VG 85224	Stairs and ladders; steps	Standard not available from MARAD.	N	4/92	
23	DEF S	NES 2007	Extending Ladders and Folding Platform Stepladders - Aluminium Alloy Issue 2 (4/89)	Standard not available from MARAD.	Yes		
23	DIN	DIN 83200	Ladders on ships; summary of types, installation	Standard not available from MARAD.	N	2/76	
23	DIN	DIN 83202 Teil	Ladders on ships, light type	Standard not available from MARAD.	N	1/79	
23	DIN	DIN 83202 Teil	Ladders on ships, medium type	Standard not available from MARAD.	N	1979-02-	
23	DIN	DIN 83202 Teil	Ladders on ships, heavy type	Standard not available from MARAD.	N	2/79	
23	DIN	DIN 83203	Rungs of square bar for dog step ladders for walls and masts on ships	Standard not available from MARAD.	N	3/76	
23	DIN	DIN 83204	Sloping ladders and handrails in ships' engine rooms and boiler rooms; main dimensions, fundamental requirements	Standard not available from MARAD.	N	3/76	
23	DIN	DIN 83206	Sloping ladders in ships' engine rooms and boiler rooms	Standard not available from MARAD.	N	5/79	
23	DIN	DIN 83207	Steps for stairs in ships' engine	Standard not available from MARAD.	N	8/73	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			rooms and boiler rooms				
23	DIN	DIN 83208	Protecting plates for sloping ladders in ships' engine rooms and boiler rooms	Standard not available from MARAD.	N	5/79	
23	DIN	DIN 83210	Sloping ladders for the outside area on ships; treads	Standard not available from MARAD.	N	2/82	
23	DIN	DIN 83214	Sloping ladders for the outside area on ships; fundamental requirements	Standard not available from MARAD.	N	2/82	
23	DIN	DIN 83215	Sloping ladders for the outside area on ships; sloping ladders	Standard not available from MARAD.	N	2/82	
23	DIN	DIN 83216	Sloping ladders for the outside area on ships; railings	Standard not available from MARAD.	N	2/82	
23	DIN	DIN 83217	Ladders and handrails in ships' cargo tanks; basic requirements	Standard not available from MARAD.	N	2/84	
23	DIN	DIN 83218	Steel ladders for cargo tanks in vessels	Standard not available from MARAD.	N	2/84	
23	DIN	DIN 83224	Resting pedestals at ladders on ships	Standard not available from MARAD.	N	2/84	
23	DIN	DIN 83225	Retainers at ladders on ships	Standard not available from MARAD.	N	2/92	
23	DIN	DIN 83226	Mounted steps	Standard not available from MARAD.	N	2/92	
23	DIN	DIN 83505	Inland navigation; outboard-ladders	Standard not available from MARAD.	N	9/83	
23	DIN	DIN 83512	Inland navigation vessels; outboard ladders	Standard not available from MARAD.	N	12/85	
23	DIN	DIN ISO 5489	Shipbuilding; embarkation ladders; identical with ISO 5489, edition 1986	See ISO listing with the same number.	N	2/88	
23	DIN	DIN ISO 799	Shipbuilding; pilot ladders; identical with ISO 799, edition 1986	See ISO listing with the same number.	N	1/88	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23	DIN	DIN ISO 9519	Shipbuilding and marine structures; rungs for dog-step ladders; identical with ISO 9519:1990	See ISO listing with the same number.	N	4/92	
23	DOD	MIL-L-17067B	LADDER, BERTH, ADJUSTABLE (ALUMINUM) (MSTS PASSENGER SHIPS)	Standard not available from MARAD.	Y		
23	DOD	MIL-L-17447	LADDER, DEBARKATION; FIBER ROPE (USE NAVSEA 804-51842250002)	This specification has been cancelled.	Y		
23	DOD	MIL-L-221C	LADDERS, JACOB'S	This specification has been cancelled. This specification covers flexible embarkation and debarkation ladders. It specifies materials, construction techniques, workmanship, etc.	Y	21May'57	1,2,3,4
23	DOD	MIL-STD-2151	INCLINED LADDER TREAD TEST METHODS AND EQUIPMENT FOR WEAR, SLIP-RESISTANCE AND IMPACT	This standard describes test methods and equipment for testing compound filled ladder treads intended for use on Navy ships for wear, slip-resistance and impact resistance.	Y	21Mar'91	1,2,3,4
23	DOD	MIL-T-24634	TREADS, COMPOUND-FILLED, FOR INCLINED LADDERS	This specification covers full treads and cap treads which have slip-resistant compound-filled dovetail grooves in extruded aluminum bases.	Y	25Jul'84	1,2,3,4
23	FED-SPEC	RR-L-91D	LADDER	This standard not available from MARAD.	Y		
23	ISO	3796	Shipbuilding - Vertical Steel Ladders First Edition	This standard lays down nominal sizes for clear openings through the frames for all types of external single-leaf doors, on board ships, for which coamings are required.	Yes	30Sep'76	1,2,3,4
23	ISO	5485	Shipbuilding - Steel Dog-Step Ladders First Edition (Replaced by 9519-90)	This standard specifies the technical requirements and main dimensions of fixed steel deck stairs, used in inland vessels.	Yes	1Dec'86	1,2,3,4
23	ISO	5487	Shipbuilding - Accommodation Ladders	This standard specifies the dimensions,	Yes	1Sep'81	1,2,3,4

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WBS	Organ	Std-No	Title	Abstract	English	Orig Date	Ship App	
			First Edition	materials, construction and installation of steel dog-step ladders.				
23	ISO	5488	Shipbuilding - Embarkation Ladders, Second Edition	This standard specifies requirements and the method of test for accommodation ladders used on merchant vessels (excluding passenger ships) to enable persons to embark and disembark safely. The requirements are applicable to either single-flight or multi-flight ladders.	Yes	15Oct'79	1,2,3,4	
23	ISO	657 PT 1	Shipbuilding - Pilot Ladders Second Edition	This part of ISO-657 specifies dimensions of hot-rolled equal-leg angles.	Yes	8/1/89	1,2,3,4	
23	ISO	7255	Shipbuilding and Marine Structures - Deck Machinery - Accommodation Ladder Winches First Edition	This standard title (from the database) is wrong. The correct title is Shipbuilding - Active control of ships - vocabulary. This standard defines terms applying to active control units of ships.	Yes	15Dec'85	1,2,3,4	
23	ISO	9437	Shipbuilding and Marine Structures - Rungs for Dog-Step Ladders First Edition	This standard has the wrong title in the database. The correct title is: Shipbuilding - Inland Vessels - Mastrosov Anchors. This standard species the technical characteristics and dimensions of Mastrosov anchors for inland vessels.	Yes	1Dec'86	1,2,3,4	
23	ISO	ISO 3797	Shipbuilding; Vertical steel ladders	This standard specifies the main dimensions and characteristics for vertical steel ladders to be fitted on board ships in small holds, between deck spaces, on masts, kingposts, trunks, deck-house tops, maintenance platforms and for similar applications.	Y	9/76	1,2,3,4	
23	ISO	ISO 5485	Shipbuilding; Inland vessels; Fixed steel deck stairs	Standard not available from MARAD.	Y	12/86		

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23	ISO	ISO 5488	Shipbuilding; Accommodation ladders	Standard not available from MARAD.	Y	10/79	
23	ISO	ISO 5489	Shipbuilding; Embarkation ladders	This standard specifies requirements for an embarkation ladder which is provided for passengers and crew to gain access to a survival craft in an emergency.	Y	10/86	1,2,3,4
23	ISO	ISO 799	Shipbuilding; Pilot ladders	This international standard specifies requirements for a ship's pilot ladder which is provided for a pilot to embark and disembark safely. It specifies material, construction techniques, dimensions, etc.	Y	10/86	1,2,3,4
23	ISO	ISO 9519	Shipbuilding and marine structures; rungs for dog-step ladders	This standard specifies the types, dimensions, material, manufacture and designation of rungs for dog-step ladders; it also lays down the installation and composition of single rungs forming a dog-step ladder.	Y	11/90	1,2,3,4
23	JIS	F 2601	Ships' Dog Steps	This standard provides for ship's footsteps (similar to dog-step), material, shape and dimensions, classification, etc.	Y	1975	1,2,3,4
23	JIS	F 2601	Ships' Footsteps	This standard provides for ship's footsteps (similar to dog-step), material, shape and dimensions, classification, etc.	Yes	1975	1,2,3,4
23	JIS	F 2602	Ships' Steel Vertical Ladders	This standard provides for steel vertical ladders for ship's deckhouses, mast, etc. It provides classification, shape and dimension, material, etc.	Y	1975	1,2,3,4
23	JIS	F 2603	Steel Deck Ladders	This standard provides for steel deck ladders used mainly on exposed parts of the ship. It provides for materials, construction, shape and dimensions.	Yes	1970	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23	JIS	F 2605	Steel Accommodation Ladders for Small Ships	This standard provides for steel accommodation ladders for small non-passenger ships. It provides classification, composition, construction, shape and dimensions, etc.	Yes	1975	1,2,3,4
23	JIS	F 2605	Small Size Steel Accommodation Ladders	Standard not available from MARAD.			
23	JIS	F 2612	Steel Wharf Ladders	This standard provides for classification, materials, construction, shape, and dimensions for steel wharf ladders for ship use.	Y	1967	1,2,3,4
23	JIS	F 2613	Aluminium Alloy Wharf Ladders	This standard provides for classification, materials, construction, shape and dimensions for aluminum alloy wharf ladders for ship use.	Y	1967	1,2,3,4
23	JIS	F 2613	Aluminium Alloy Wharf Ladders (R 1976)	Standard not available from MARAD.	Yes		
23	JIS	F 2614	Bulwark Ladders	This standard provides details for two (wood and steel) bulwark ladders for ship board use. Details as to materials, construction details, shape and dimensions are provided.	Yes	1967	1,2,3,4
23	JIS	F 2615	Pilot Ladders	This standard provides specifics on rope ladders for a pilot's embarking use. Details on materials, construction techniques, shape and dimensions are provided.	Y	1969	1,2,3,4
23	JIS	F 2617	Embarkation Ladders	This standard provides specifics on rope ladders used for embarking on life boats or life rafts. It provides details as to materials, construction techniques, shape and dimensions.	Y	1974	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
23	JIS	F 2621	Accommodation Ladders	Standard not available from MARAD.			
23	JIS	F 2622	Pilot Accommodation Ladders	Standard not available from MARAD.			
23	JIS	F 3612	Rope Ladders	This standard provides specifics on rope ladders for ship board use. It provides details as to materials, shape and dimensions.	Y	1974	1,2,3,4
23	JIS	F 7502	Marine Steel Ladders and Steel Handrails	Standard not available from MARAD.			
23	MASS	5.03	LADDER; STAIRWAY	This standard provides specifics on ladders and stairways. Details such materials, installation slopes, treads, and dimensions for accommodation ladders, inclined ladders, vertical ladders, cargo hold ladders, and pilot's ladders - Hoist.	Y	1995	1,2,3,4
23	MASS	79.02	LADDER; FLOORPLATE				
23	MASS	81.07	ACCOMMODATION LADDER WINCH; WINCH, ACCOMMODATION LADDER	This standard provides some specifics on accommodation ladder winches such as: motor must be reversible and rated for 15 minute short time, full load duty, must be equipped with an electric brake, etc.	Y	1995	1,2,3,4
23	MASSD	79.01	LADDER; GRATING; FLOORPLATE	This standard provides specifics on ladders, walkways, floors and platforms. It details safety requirements such as what is required in the way of stanchions, handrails, toe plates, and fastenings; all should be easily removable for access as required. It also provides details as to floor plating, gratings, and walkways.	Y	1995	1,2,3,4
23	MASSD	79.02	LADDER	Standard not available from MARAD.			
23	MASSD	81.07	ACCOMMODATION LADDER WINCH; WINCH,	This standard provides some specifics on	Y	1995	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			ACCOMMODATION LADDER	accommodation ladder winches for diesel propelled ships such as: motor must be reversible and rated for 15 minute short time, full load duty, must be equipped with an electric brake, etc.			
23	NNI	NEN-ISO 3797	Shipbuilding; Steel ladders	See the ISO listing with the same number.	N	10/76	
23	NNI	NEN-ISO 5487	Shipbuilding; Steel dog-step ladders	See the ISO listing with the same number.	N	10/83	
23	NNI	NEN-ISO 5488	Shipbuilding; Accommodation ladders	See the ISO listing with the same number.	N	9/80	
23	NNI	NEN-ISO 5489	Shipbuilding; Embarkation ladder	See the ISO listing with the same number.	N	2/87	
23	NNI	NEN-ISO 7364	Shipbuilding and marine structures; Deck machinery; Accommodation ladder winches	See the ISO listing with the same number.	N	4/84	
23	NNI	NEN-ISO 799	Pilot ladders	See the ISO listing with the same number.	N	2/87	
23	NNI	NEN-ISO 9519	Shipbuilding and maritime structures; Rungs for dog-step ladders	See the ISO listing with the same number.	N	11/90	
23	SAA	AS 1035	Steel Ladders for Ships - Vertical Ladders	Standard not available from MARAD.	Yes		
23	SAA	AS 1036	Steel Ladders for Ships - Inclined Ladders for Machinery Spaces	Standard not available from MARAD.	Yes		
23	SAA	AS 1037	Steel Ladders for Ships - Inclined Ladders for Use in Other Than Machinery Spaces	Standard not available from MARAD.	Yes		
23	UL	1116	UL Standard for Safety Marine Chain, Embarkation, and Pilot Ladders First Edition; January 2, 1986, Errata - October 1985	This standard provides specifics on marine chain ladders, marine embarkation ladders, and marine pilot ladders intended for use on merchant vessels along a vertical portion of the hull. Details as to materials, construction, protection from corrosion, etc	Yes	2Jan'86	1,2,3,4

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<u>SBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
				are provided.				
23	USCG	46C160.017	LADDER, EMBARCATION-DEBARKATION, FLEXIBLE	This subpart contains standards and approval and production tests for chain ladders used on merchant vessels to get on or off the vessel in an emergency. Details as to materials, testing marking, etc are provided.	Y	31Dec'81	1,2,3,4	
23	USCG	46C163.002	CONSTRUCTION-PILOT HOIST	This subpart contains standards and approval and production tests for pilot hoists used on merchant vessels. Details as to approval procedures, materials, construction techniques, etc. are provided.	Y	31Dec'81	1,2,3,4	
23	CEN	PREN526	GANGWAYS WITH A LENGTH NOT EXCEEDING 8 m - REQUIREMENTS, TYPES	This standard applies to gangways on inland navigation vessels except those gangways intended for passengers. It specifies types, main dimensions, and test conditions which have to be observed for safety reasons.	Y	JUL 91	INLAND	
23	CEN	PREN711	INLAND NAVIGATION RULES - RAILINGS FOR DECKS - REQUIREMENTS, TYPES	This European standard is applicable to railings for decks on inland navigation vessels. It lays down design, dimensions, strength and test conditions which have to be observed for safety reasons. These railings provide protection for persons against falling over-board and from one deck to the next.	Y	3/92	INLAND	
23	ASTM	F-783	STANDARD SPECIFICATION FOR STAPLE, HANDGRAB, HANDLE, AND STIRRUP RUNG.	This specification provides design, construction for steel staples, handgrabs, handles, and individual stirrup rungs. The staples, handgrabs, and handles depicted in this specification are for use on steel	Y	5/93	1,2,3,4	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
				structures including all parts of ship's structure as necessary. The individual stirrup rungs are for use on bulkheads or structure as deemed necessary.				
23	CEN	PREN790	INLAND NAVIGATION VESSELS - STAIRS WITH INCLINATION ANGLES NOT EXCEEDING 60 DEGREES - REQUIREMENTS, TYPES	This standard applies to stairs with inclination angles not exceeding 60 degrees for use in working areas of inland navigation vessels. Included are: safety requirements, design requirements, safety dimensions, treads, handrails, etc.	Y	6/92	INLAND	
23	ISO	ISO-7364	SHIPBUILDING AND MARINE STRUCTURES - DECK MACHINERY - ACCOMMODATION LADDER WINCHES	This international standard specifies requirements and characteristics of lightly powered ship's accommodation ladder winches provided with electric, hydraulic or pneumatic drive and unpowered ship's accommodation winches. Design, operation, and testing specifications are provided.	Y	5/15/83	1,2,3,4	
23	PCC	35CFR103.18	PILOT LADDER, HOISTS AND SIDE PORTS	A vessel shall, weather permitting, have both an accommodation ladder and pilot ladder rigged and ready for use upon arrival in Canal waters. This specification provides guidance as to these requirements.	Y	9/16/66	1,2,3,4	

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SWBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.	
509	DOD	C-788F(NU)	BRATTICE CLOTH, CLOTH, COTTON BRATTICE, INSULATION, THERMAL	This standard covers the requirements for a type of cotton brattice cloth with a flame retardant finish used in conjunction with an adhesive for repairing and covering fibrous glass insulation board.	Yes	20Aug81	1,2,3,4	
509	MASS	12.12	VENTILATION INSULATION AND LAGGING	Specifies insulation for ventilation, heating and air conditioning systems to prevent sweating and external heat transfer.	Yes	'95	1,2,3,4	
509	MASS	12.13	ACOUSTIC INSULATION, INSULATION, ACOUSTIC	Specifies acoustical insulation to attenuate system-generated noise to levels specified in MASS Section 1, Article 11.	Yes	'95	1,2,3,4	
509	MASD	12.12	VENTILATION INSULATION AND LAGGING	Specifies insulating materials required (as specified by the regulatory bodies) to prevent sweating and external heat transfer.	Yes	'95	1,2,3,4	
509	MASD	12.13	ACOUSTIC INSULATION, INSULATION, ACOUSTIC	Specifies acoustic insulation required to attenuate system generated noise for diesel propelled vessels.	Yes	'95	1,2,3,4	
511	DNV	PT5.4.7	CARGO HEATING AND COOLING ARRANGEMENTS	This standard provides general guidance for cargo heating and cooling arrangements. Some specifics: heating and cooling media are to be compatible with the cargo, heating/cooling systems require isolation valves, heating and cooling lines can only penetrate tanks from the top, cargo heating system must provide a way to monitor temperature, etc. Well written guidance with a lot of details.	YES	JUL93	1,2,3,4	
511	DNV	PT5.5.7	CARGO PRESSURE/TEMPERATURE CONTROL, CARGO HEATING ARRANGEMENTS, INSULATION	This standard provides guidance as to: general cargo pressure/temperature control including cargo refrigeration/reliquefaction	YES	JUL93	1,2,3,4	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
				systems, general guidance as to cargo heating arrangements, insulation for tanks, hold spaces and pipelines including materials, fixing and protection of insulating materials, inspection of insulation and non-cooled cargo tanks exposed to sun radiation. Well written guidance with a lot of details.			
11	DOD	MIL-H-16235-C	HEATERS, VENTILATION, DUCT TYPE SHIPBOARD	This specification covers duct type ventilation heaters for use in heating, ventilating, and air conditioning systems aboard ships. Design, construction and material requirements are provided.	Yes	29	1,2,3,4
11	DOD	QPL-16235-23	HEATERS, VENTILATION, DUCT TYPE, SHIPBOARD	Provides a list of NAVSEA approved, qualified vendors for shipboard heaters/ventilators, duct type.	Yes	15Dec'89	1,2,3,4
11	MASS	12.5	STEAM HEATING AND AIR CONDITIONING WATER SYSTEMS	This section provides guidance for steam heating and air conditioning water systems, including such things as: where steam heating systems are required, and general guidance as to chilled water systems.	YES	NOV95	1,2,3,4
11	UL	1812	DUCTED HEAT RECOVERY VENTILATORS	These requirements cover ducted heat recovery ventilators intended to remove air from buildings, replace it with outside air, and in the process transfer heat from the warmer to the colder air. NOTE: these requirements may not be directly applicable to some marine applications.	YES	JUN23'95	INDUSTR
11	UL	1815	NON-DUCTED HEAT RECOVERY VENTILATORS	These requirements cover non-ducted, stationary or fixed heat recovery ventilators for household, commercial, or	YES	APR11'95	INDUSTR

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
				industrial use and are intended to be employed in accordance with the National Electric Code, NFPA 70. These requirements cover heat recovery ventilators that may employ short ducts intended to bring air to and from equipment. CAUTION: these requirements may not be directly applicable to some marine applications.			
11	UL	1996	DUCT HEATERS	These requirements cover duct heaters and remote control assemblies for such equipment, rated at 600 volts or less to be employed in ordinary locations in accordance with the National Electric Code ANSI/NFPA 70. CAUTION: Some of the requirements may not be directly applicable to marine applications.	YES	12/29/93	INDUSTR
12	ABS	ABS 20.9	CONSTRUCTION OF COAMINGS	Ventilators on exposed freeboard or superstructure decks to spaces below the freeboard deck or decks of enclosed superstructures require coamings of steel or other equivalent material. This standard specifies coaming plate thickness, height, and means for closing openings in ventilators.	YES		1,2,3,4
12	ABS03	7.9.2	VENTILATION DUCT AND FITTINGS, DRILLING UNIT	Standard not available from MARAD.	Yes		
12	AFNOR	NF J46-110	SHIPBUILDING. INLET VENTILATORS. HEMISPHERICAL COWLS.	Standard not available from MARAD.	N	1/51	
12	AFNOR	NF J46-116	SHIPBUILDING. INLET VENTILATORS. FIXED HEAD TYPE.	Standard not available from MARAD.	N	1/51	
12	AFNOR	NF J46-120	SHIPBUILDING. VENTILATORS.	Standard not available from MARAD.	N	10/51	

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
			DETACHABLE BODY.				
12	AFNOR	NF J46-122	SHIPBUILDING. VENTILATORS. BASE.	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J46-124	SHIPBUILDING. VENTILATORS. INNER CAP.	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J46-126	SHIPBUILDING. VENTILATORS. HANDLE AND LOCKING SCREW.	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J46-128	SHIPBUILDING. VENTILATORS. LIFTING BRACKET AND DIRT TRAPS.	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J46-210	SHIPBUILDING. OUTLET VENTILATORS. SWIVEL HEAD.	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J46-212	SHIPBUILDING. OUTLET VENTILATORS. FIXED HEAD (TYPE I).	Standard not available from MARAD.	N	10/51	
12	AFNOR	NF J45-131	SHIPBUILDING. VENTILATORS CLOSED WITH SCREW-OPERATED COVERS, MADE FROM STEEL PLATE OR TUBE.	Standard not available from MARAD.	N	11/87	
12	ANSI	1136	UL Standard for Safety Marine Rigid and Flexible Air Ducting Second Edition	Standard not available from MARAD.	Yes		
12	BSI	BS MA 69	1976 Amd 1 Ventilator Heads	This British standard specifies four types of ventilator heads for general use on board ships. The four types: fixed mushroom ventilator, Type A, adjustable mushroom ventilator, Type B, Adjustable mushroom ventilators, Type C, and Circular head Cowl ventilator, Type D. Specific provided: nominal sizes and dimensions, materials, tolerances, etc.	Yes	1976	1,2,3,4
12	BSI	BS MA 10	1986 Amd 0 Design Conditions and Basis of Calculations for	Standard not available from MARAD.	Yes		

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
			Air-Conditioning and Ventilation of Accomodation Spaces in Ships				
12	BSI	BS MA 103:1986	Specification for design conditions and basis of calculations for air-conditioning and ventilation of accommodation spaces in ships	This standard is technically similar in all respects to ISO-7547-1985 "Air Conditioning and Ventilation of Accomodation Spaces on Board Ships". This standard specifies design conditions and suitable methods of calculation for air-conditioning and ventilation of accomodation spaces and the radio cabin on sea-going vessels.	Y	11/86	1,2,3,4
12	BSI	BS MA 105:Part	Series 3 shipborne barges. Specification for principal mating dimensions for the ventilating system	Standard not available from MARAD.	Y	7/87	
12	BSI	86/72561 DC	Air-conditioning and ventilation of machinery control-rooms on board ships - design conditions and basis of calculations (ISO/DIS 8862)	Standard not available from MARAD.	Y	5/86	
12	BSI	86/72563 DC	Air-conditioning and ventilation of wheelhouse on board ships - design conditions and basis of calculations (ISO/DIS 8864)	Standard not available from MARAD.	Y	5/86	
12	BSI	86/74517 DC	Air-conditioning and ventilation of dry provision rooms on board ships. Design conditions and basis of calculations (ISO/DIS 9099)	Standard not available from MARAD.	Y	7/ 86	
12	BSI	87/76385 DC	Specification for shipbuilding. Engine-room ventilation in diesel-engined ships. Design requirements and basis of calculations (ISO/DIS 8861)	Standard not available from MARAD.	Y	10/87	

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WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
12	BSI	88/78439 DC	Shipbuilding. Ventilation of cargo spaces where internal combustion engines may be driven. Calculation of theoretical total airflow required (ISO/DIS 9785)	Standard not available from MARAD.	Y	1/87	
12	Bundesam	VG 85563 Teil	Fire retardend ventilations; assembly	Standard not available from MARAD.	N	9/89	
12	Bundesam	VG 85563 Teil	Fire retardend ventilations; components	Standard not available from MARAD.	N	9/89	
12	Bundesam	VG 85623	Ventilation plants for ships; concepts	Standard not available from MARAD.	N	9/87	
12	Bundesam	VG 85625	Gas- and watertight ventilation flaps; technical specification	Standard not available from MARAD.	N	2/91	
12	Bundesam	VG 85626	Supply air outlets and exhaust air inlets; technical specification	Standard not available from MARAD.	N	4/85	
12	DIN	DIN 82330	Round flanges DN 250 to DN 1800 for thick wall tubes of ventilation plants in ships and industrial premises	Standard not available from MARAD.	N	9/89	
12	DIN	DIN 82331	Gaskets for round flanges according to DIN 82330	Standard not available from MARAD.	N	9/89	
12	DIN	DIN 82341	Ventilation plants on board ships; mushroom ventilator heads	Standard not available from MARAD.	N	8/89	
12	DIN	DIN 82342	Ventilation plants on board ships; discharge ventilator heads	Standard not available from MARAD.	N	1/89	
12	DIN	DIN 83409	Ventilator flaps, weathertight	Standard not available from MARAD.	N	1/87	
12	DIN	DIN 83410	Inserts for ventilator flaps	Standard not available from MARAD.	N	1/87	
12	DIN	DIN ISO 7547	Air-conditioning and ventilation of	Standard not available from MARAD.	N	3/90	

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Page	WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
7				accommodation spaces on board ships; design conditions and basis of calculations; identical with ISO 7547:1985				
12	DIN		DIN ISO 8861	Shipbuilding; engine-room ventilation in diesel-engined ships; design requirements and basis of calculations; identical with ISO 8861:1988	Standard not available from MARAD.	N	11/90	
12	DIN		DIN ISO 8862	Air-conditioning and ventilation of machinery control-rooms on board ships; design conditions and basis of calculations; identical with ISO 8862:1987	Standard not available from MARAD.	N	3/90	
12	DIN		DIN ISO 8864	Air-conditioning and ventilation of wheelhouse on board ships; design conditions and basis of calculations; identical with ISO 8864:1987	Standard not available from MARAD.	N	3/90	
12	DIN		DIN ISO 9099	Air-conditioning and ventilation of dry provision rooms on board ships; design conditions and basis of calculations; identical with ISO 9099:1987	Standard not available from MARAD.	N	3/90	
12	DNV		PT4.6.10	VENTILATION SYSTEMS, GENERAL REQUIREMENTS	This standard specifies: ventilation ducts (in excess of 2 meters/cross-section less than .02M) shall be of non-combustionable materials, ducts passing through a free cross-sectional area must be lined with a steel sleeve, machinery space ducts are not to pass through accommodation spaces and	YES	JUL93	1,2,3,4

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<u>NBS Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
			vice versa, galley ventilation systems are to be separate from other ventilation systems, etc. Well written guidance with a lot of details.				
12	DNV	PT5.3.5	GAS-FREEING AND VENTING OF CARGO TANKS	This standard provides guidance for gas-freeing of cargo tanks. Numerous general requirements are specified: supply line from the fan is to have a shut-off valve and a non-return valve in series, steam lines ending in cargo spaces or cargo pipe systems are to be provided with non-return valves, the gas-freeing system is to be used exclusively for ventilating and gas-freeing, all cargo tanks are required to have venting system and breathing system (these systems may be independent or combined), etc. This standard also provides guidance for barges. Well written guidance with a lot of details.	YES	JUL93	1,2,3,4
12	DNV	PT5.3.6	VENTILATION SYSTEMS WITHIN THE CARGO AREA OUTSIDE THE CARGO TANKS	This standard provides general guidance for ventilation systems within the cargo area and outside cargo tanks. Guidance provided includes: general safety requirement, fans are to be designed with least possible sparking, materials, clearances between the impeller and duct, ventilation of cargo handling spaces, ventilation of spaces not normally entered, etc. Well written guidance with a lot of details.	YES	JUL93	1,2,3,4
12	DNV	PT5.4.10	MECHANICAL VENTILATION IN THE CARGO AREA	This standard provides general guidance for mechanical ventilation in the cargo area. Some specifics: system requirements such as	YES	JUL93	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
				fans with in the cargo area (electric fans are not to be installed in ventilation ducts for cargo handling spaces), requirements for ventilation of cargo handling spaces, ventilation of spaces not normally entered, safety, etc. Well written guidance with a lot of details.			
12	DNV	PT5.5.10	MECHANICAL VENTILATION IN CARGO AREA	This standard provides guidance for mechanical ventilation in the cargo areas. Guidance provided includes: general system requirements, specifics on fans in the cargo areas, ventilation of cargo handling spaces, and ventilation of spaces not normally entered. Well written guidance with a lot of details.	YES	JUL93	1,2,3,4
12	DNV	PT5.9.4	HAZARDOUS AREAS AND VENTILATION	This standard provides guidance as to ventilation of hazardous and non-hazardous areas. Specifics are provided on: general applications and definitions; specification of hazardous areas, openings, access and ventilation conditions affecting the extent of hazardous areas, and ventilation of spaces in general. Well written guidance with a lot of details.	YES	JUL93	1,2,3,4
12	DOD	QPL-17548-9	FLAME ARRESTER, VENTILATION-EXHAUST (NAVAL SHIPBOARD USE)	Standard not available from MARAD.	Yes		warship
12	DOD	MIL-T-22576	TERMINALS, AIR, DIFFUSING, CIRCULAR FOR SHIPBOARD USE	This specification covers air supply terminals of the diffusing type for use in ventilating and air conditioning systems on Naval ships.	Yes	10Jan'64	warship
12	DOD	QPL-2939-21	COOLING COILS, AIR, DUCT TYPE AND	Provides a list of manufacturers that are	Yes	27Mar'89	warship

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			GRAVITY TYPE; COOLER UNITS, AIR, NAVAL SHIPBOARD ENVIRONMENTAL CONTROL SYSTEMS	qualified to provide cooling coils, air, duct type, and gravity type for use on Naval vessels.				
12	GL	GL 19	Guidelines for air conditioning systems aboard sea-going vessels	Standard not available from MARAD.	N	94		
12	ISO	8304	Shipbuilding - Shipborne Barges, Series 3 - Ventilation System - Principal Mating Dimensions First Edition	The database shows this standard as ISO 8303 vice 8304. This standard provides mating dimensions for the joining of shipborne barges to the ventilation systems of barge-carriers by means of flexible hoses.	Yes	15Dec'84	Barges	
12	ISO	8729	Shipbuilding - Engine- Room Ventilation in Diesel-Engined Ships - Design Requirements and Basis of Calculations First Edition; Reprinted - 1988	This standard is mis-named in the database. The correct title is "Marine Radar Reflectors".	Yes	1Nov'87		
12	ISO	9785	Shipbuilding - Ventilation of Cargo Spaces Where Internal Combustion Engine Vehicles May Be Driven - Calculation of Theoretical Total Airflow Required First Edition; (Corrigendum 1	The database shows this as ISO 9519 vice ISO 9785. This standard specifies methods of calculating the theoretical quantity of outdoor air required in cargo spaces where internal combustion engines are used, in order to dilute air to within the permitted occupational exposure limits.	Yes	15Feb'91	1,2,3,4	
.2	ISO	ISO/R 644	Conventional signs to be used in schemes for the installations of ventilation systems in ships	This standard provides drawing symbols and conventional signs for ducts, duct joints, appliances, fittings, and ventilators.	Yes	12/67	1,2,3,4	
.2	ISO	ISO 3372	Shipbuilding; Inland vessels; Mushroom-type ventilator heads	Defines two types of mushroom ventilators used on vessels for inland waterways and specifies their principal dimensions. There are two types: Type I: Mushroom-type locking ventilator heads with top control; Type II: Mushroom-type locking ventilator	Yes	5/75	Inland	

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WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.
				heads with button control. The JIS F-2407 standard provides significantly more information than this ISO standard.			
12	ISO	ISO 5571	Shipbuilding; Identification colours for schemes for ventilation systems	This international standard specifies colors for plans to be used for ventilation systems on board ships, for those conditions where identification by color is required.	Yes	4/81	1,2,3,4
12	ISO	ISO 7547	Air-conditioning and ventilation of accommodation spaces on board ships; Design conditions and basis of calculations	This standard specifies design conditions and suitable methods of calculation for air-conditioning and ventilation of accommodation spaces and the radio cabin on board seagoing merchant vessels for all conditions except in extremely cold or hot climates.	Yes	11/85	1,2,3,4
12	ISO	ISO 8304	Shipbuilding; Shipborne barges, series 3; Ventilation system; Principal mating dimensions	This standard specifies the principal mating dimensions of the ventilation system of shipborne barges series 3. Provides for the joining up of barges to the ventilation system of the barge-carrier by means of flexible hoses when cargoes requiring ventilation are transported.	Yes	12/84	Barges
12	ISO	ISO 8861	Shipbuilding; engine-room ventilation in diesel-engined ships; design requirements and basis of calculations	This standard specifies design requirements and suitable calculation methods for the ventilation of the engine-room in merchant seagoing diesel-engined ships, for normal conditions in all waters.	Yes	11/88	1,2,3,4
12	ISO	ISO 8862	Air-conditioning and ventilation of machinery control-rooms on board ships; Design conditions and basis of calculations	This standard specifies design conditions and suitable methods of calculation for air-conditioning and ventilation of accommodation spaces and the radio cabin on board seagoing merchant vessels for all	Yes	1Mar'87	1,2,3,4

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					conditions except in extremely cold or hot climates and is based on ISO-7547.			
12	ISO		ISO 8864	Air-conditioning and ventilation of wheelhouse on board ships; Design conditions and basis of calculations	This standard specifies design conditions and suitable methods of calculation for air-conditioning and ventilation of the wheel house on board seagoing merchant vessels for all conditions except in extremely cold or hot climates. Is based on ISO 7547.	Yes	3/87	1,2,3,4
.2	ISO		ISO 9099	Air-conditioning and ventilation of dry provision rooms on board ships; Design conditions and basis of calculations	This standard specifies design conditions and suitable methods of calculation for air-conditioning and ventilation of dry provision store rooms on board seagoing merchant vessels for all conditions except in extremely cold or hot climates. It is based on ISO 7547.	Yes	4/87	1,2,3,4
2	ISO		ISO 9785	Shipbuilding; ventilation of cargo spaces where internal combustion engine vehicles may be driven; calculation of theoretical total airflow required	This standard specifies methods of calculating the theoretical quantity of outdoor air required in cargo spaces where internal combustion engines are used, in order to dilute air to within the permitted occupational exposure limits.	Yes	15Feb'91	1,2,3,4
2	ISO		ISO 9785	Shipbuilding; ventilation of cargo spaces where internal combustion engine vehicles may be driven; calculation of theoretical total airflow required; technical corrigendum 1	A technical correction for ISO-9587, replaces an equation.	Yes	15Feb'91	1,2,3,4
2	ISO		ISO 9943	Shipbuilding; ventilation and air-treatment of galleys and pantries with cooking appliances	This standard specifies the design requirements and general considerations for the ventilation and air-treatment of galleys	Yes	1/91	1,2,3,4

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WBS	Organ	Std-No.	Title	Abstract	English	Orig Date	Ship App.	
				and pantries with cooking appliances on board merchant vessels.				
12	JIS	F 2407	Mushroom Ventilators	Specifies requirements for construction, shape, dimensions and materials for mushroom ventilators	Yes	1970	1,2,3,4	
12	JIS	F 2408	Gooseneck Ventilators	Specifies requirements for construction, shape, dimensions and materials for Gooseneck ventilators	Yes	1974	1,2,3,4	
12	JIS	F 2902	Ships' Pukah-Louvers	Specifies requirements for construction, shape, dimensions and materials for Pukah-Louvers used for ventilation.	Yes	1960	1,2,3,4	
12	JIS	F 2902	Ships' Pukah-Louvers (R 1975)	Specifies requirements for construction, shape, dimensions and materials for Pukah-Louvers used for ventilation.	Yes	1975	1,2,3,4	
12	JIS	F 7113	Marine Ventilation Dampers	Standard not available from MARAD.				
12	MARAD	S 38-1-31	LOUVER	Standard no longer available.				
12	MARAD	S 38-1-32	LOUVER	Standard no longer available.				
12	MASS	12.10	TRUNK, DUCT, ACCESSES TO VENTILATION EQUIPMENT AND DUCT	Standard specifies duct air velocities for air conditioning and ventilation systems. Also specifies duct construction requirements and materials.	Yes	'95	1,2,3,4	
12	MASS	12..3	CARGO HOLD VENTILATION	This section provides guidance as to requirements for ventilation for cargo spaces. Specific guidance for RO-RO type vessels is provided (with regard to CO concentration).	YES	NOV95	1,2,3,4	
12	MASS	12.4	VENTILATION OF REFRIGERATED CARGO SPACES	This section provides guidance for ventilation of refrigerated cargo spaces. Included are such things as: fan speed	YES	NOV95	1,2,3,4	

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						control, insulation thickness, insulation vs sweating, etc.			
12	MASSD	12.10	TRUNK, DUCT, ACCESSES TO VENTILATION EQUIPMENT AND DUCT	Standard specifies duct air velocities for air conditioning and ventilation systems for diesel propulsion ships. Also specifies duct construction requirements and materials.	Yes	'95	1,2,3,4		
12	MASSD	12.11	VENTILATION TERMINAL, DAMPER, GRILLE AND SCREEN	Standard requires that all terminals, grilles, screens and dampers meet USPHS requirements. Also specifies ventilating requirements, installation techniques and material requirements.	Yes	'95	1,2,3,4		
12	NNI	NEN-ISO 7547	Shipbuilding; Air-conditioning and ventilation of accomodation spaces on board ships; Design conditions and basis of calculations	Standard not available from MARAD.	N	2/87			
12	NNI	NEN-ISO 8861	Shipbuilding; Engine-room ventilation in diesel-engined ships; Design requirements and basis of calculations	Standard not available from MARAD.	N	3/89			
12	NNI	NEN-ISO 8862	Air-conditioning and ventilation of machinery control-rooms on board ships; Design conditions and basis of calculations	Standard not available from MARAD.	N	6/87			
12	NNI	NEN-ISO 8864	Air-conditioning and ventilation of wheelhouse on board ships; Design conditions and basis of calculations	Standard not available from MARAD.	N	6/87			
12	NNI	NEN-ISO 9099	Air-conditioning and ventilation of dry provision rooms on board ships; Design conditions and basis of calculations	Standard not available from MARAD.	N	6/87			

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
12	NNI	NEN-ISO 9785	Shipbuilding; Ventilation of cargo spaces where internal combustion engine vehicles may be driven; Calculation of theoretical total airflow required	Standard not available from MARAD.	N	8/91	
12	NNI	NEN-ISO 9943	Shipbuilding; Ventilation and air-treatment of galleys and pantries with cooking appliances	Standard not available from MARAD.	N	2/91	
12	UL	1136	UL Standard for Safety Marine Rigid and Flexible Air Ducting Second Edition	This standard specifies the requirements for rigid and flexible air ducting intended to provide an air flow connection between a ventilating fitting or blower and the bilge spaces or other enclosed spaces of a ship. It includes material, and installation and construction requirements.	Yes	7Oct'92	1,2,3,4
12	UL	441	GAS VENTS	These requirements cover Types B and BW gas vents and Types B and BW gas vent roof jacks intended for venting gas appliances equipped with draft hoods to burn only gas. Type B vents are also intended for use with other Category I appliances that specify they are for use with Type B gas vents. CAUTION: these requirements may not be directly applicable to some marine applications.	YES	10/7/94	INDUSTR
12	UL	555C	STANDARD FOR CEILING DAMPERS AND CEILING AIR DIFFUSERS	These requirements and methods of tests apply to ceiling dampers and ceiling diffusers intended for installation in hourly rated fire resistive floor-ceiling and roof-ceiling assemblies. Ceiling dampers are intended for use in sheet metal air duct outlets which penetrate the ceilings of hourly-rated fire resistant	YES	3/31/95	INDUSTR

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16				assemblies. Construction, performance, and testing are discussed. CAUTION: some of the requirements may not be applicable to marine applications.			
12	UL	586	HIGH-EFFICIENCY, PARTICULATE, AIR FILTER UNITS	These requirements cover high-efficiency particulate, air-filter units intended for the removal of very fine particulate matter (not less than 99.97 percent of 0.3 micron diameter particles) from the air of industrial and laboratory exhaust and ventilating systems. These requirements cover single air filter units only. Construction techniques, sizes and ratings, performance and efficiency test, etc are addressed. CAUTION: These requirements may not apply to some marine applications.	YES	10/18/90	INDUSTR
12	UL	641	TYPE LOW TEMPERATURE VENTING SYSTEMS	THESE REQUIREMENTS COVER FACTORY-BUILT VENT PIPING AND FITTINGS CONSTRUCTED TO PROVIDE VENTING SYSTEMS FOR USE WITH GAS AND LIQUID FUEL-BURNING APPLIANCES THAT EXHAUST LOW-TEMPERATURE FLUE GASES AND THAT ARE APPROVED FOR USE WITH TYPE L VENTING SYSTEMS. CONSTRUCTION TECHNIQUES, MATERIALS, ASSEMBLY, SIZES, TESTING, ETC ARE DISCUSSED. CAUTION: THESE REQUIREMENTS MAY NOT BE DIRECTLY APPLICABLE TO ALL MARINE APPLICATIONS.	YES	12/7/95	INDUSTR
12	UL	680	EMERGENCY VAULT VENTILATORS AND VAULT VENTILATING PORTS	These requirements cover emergency vault ventilators and vault-ventilating ports for installation in a wall. Emergency vault ventilators are intended to provide fresh air to persons locked in vaults by accident.	YES	2/24/94	INDUSTR

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
12	UL	705	POWER VENTILATORS	General construction techniques and testing are discussed. CAUTION: Some of these requirements may not be applicable to marine applications.	YES	11/2/95	INDUSTR
12	UL	710	COMMERICAL ELECTRIC COOKING APPLIANCES WITH RECIRCULATING SYSTEMS	These requirements cover power ventilators of the roof and wall-mounted types and duct fans of the straight-through type intended for commercial or industrial use for connection to permanently installed wiring systems in accordance with the National Electric Code. Assembly, components, testing, etc are discussed. CAUTION: these requirements may not be applicable to some marine applications.	YES	5/25/94	INDUSTR
12	USCG	46C25.40	SUB C-REQUIREMENTS-VENTILATION	Not available from MARAD.	Yes		
12	USCG	46C32.55	SUB D-SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS-VENTILATION AND VENTING	Not available from MARAD.	Yes		
12	USCG	46C72.15	CONSTRUCTION AND ARRANGEMENT-VENTILATION	Specifies ventilation requirements where liquid fuels (flashpoint of 110 deg or	Yes	19Nov'52	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>	
				lower) are used for main or aux machinery starting. Spaces containing such equipment shall have natural and mechanical ventilation as specified. Also specifies duct sizes, blower locations, ventilation for closed spaces and ventilation for crew and passenger spaces.				
12	USCG	46C92.15	CONSTRUCTION AND ARRANGEMENT-VENTILATION	Specifies ventilation requirements where liquid fuels (flashpoint of 110 deg or lower) are used for main or aux machinery. Spaces containing such equipment shall have natural and mechanical ventilation as specified. Also specifies quantity of ventilation for closed spaces and ventilation for crew and passenger spaces.	Yes	19Nov'52	1,2,3,4	
12	USCG	46C177.20	CONSTRUCTION AND ARRANGEMENT-VENTILATION (OTHER THAN MACHINERY SPACES)	This standard specifies ventilation requirements for closed spaces including ventilation requirements for crew quarters and passenger spaces.	Yes		1,2,3,4	
12	USCG	46C190.15	CONSTRUCTION AND ARRANGEMENT-VENTILATION	Spaces containing machinery which uses, or tanks which contain fuel with flashpoint of 110.5 deg. or lower shall have natural supply and mechanical exhaust ventilation as specified in this section. Applicable to all self-propelled vessels of greater than 300 gross tons, contracted for on or after March 1, 1968.	Yes		1,2,3,4	
3	MASS	64.01	MACHINERY SPACE VENTILATION, VENTILATION, MACHINERY SPACE	This standard specifies machinery space ventilation requirements of a motor driven 2 speed supply and single speed exhaust fan which provides a slightly negative air pressure in the machinery space while	Yes	Draft'95	1,2,3,4	

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19				operating at normal steaming conditions while providing ventilation needs and combustion air for the boilers.			
13	MASS	64.02	MACHINERY SPACE VENTILATION, FAN, FAN, MACHINERY SPACE VENTILATION	This standard specifies the supply and exhaust fan quantities and sizes for machinery space ventilation requirements and that the fans shall be fitted with bellmouths.	Yes	Draft'95	1,2,3,4
13	MASS	64.03	AIR SUPPLY, MACHINERY SPACE VENTILATION	This standard specifies fresh air supply requirements for the machinery space, including how air shall be distributed within the space, air around the boilers, and air at the operating consols and watch stations.	Yes	Draft'95	1,2,3,4
13	MASS	64.04	AIR EXHAUST, MACHINERY SPACE VENTILATION	This standard specifies air conditioning be provided for enclosed operating stations when the temperature is expected to exceed 104 deg. for periods in excess of 24 hours.	Yes	Draft'95	1,2,3,4
.3	MASSD	64.01	MACHINERY SPACE VENTILATION, VENTILATION, MACHINERY SPACE	This standard specifies machinery space ventilation requirements for Diesel vessels of a motor driven 2 speed supply and single speed exhaust fan which provides a slightly negative air pressure in the machinery space while operating at normal steaming conditions while providing ventilation needs and combustion air for the boilers.	Yes	Draft'95	1,2,3,4
3	MASSD	64.02	MACHINERY SPACE VENTILATION, FAN, FAN, MACHINERY SPACE VENTILATION	This standard specifies the supply and exhaust fan quantities and sizes for diesel propelled machinery space ventilation requirements and that the fans shall be fitted with bellmouths.	Yes	Draft'95	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App</u>
13	MASSD	64.03	AIR SUPPLY, MACHINERY SPACE VENTILATION	This standard specifies fresh air supply requirements for the diesel propelled machinery space, including how air shall be distributed within the space, air around the boilers, and air at the operating consols and watch stations.	Yes	Draft'95	1,2,3,4
13	MASSD	64.04	AIR EXHAUST, MACHINERY SPACE VENTILATION	This standard specifies air conditioning be provided for enclosed operating stations (diesel propelled) when the temperature is expected to exceed 104 deg. for periods in excess of 24 hours.	Yes	Draft'95	1,2,3,4
14	DEF S	NES 102:	Air Conditioning and Ventilation Design Issue 1 (8/83)	Standard not available from MARAD.	Yes		
14	DEF S	NES 103	Air Conditioning and Ventilation Installation in Ships Not to Full RN Requirements Issue 2 (1/82)	Standard not available from MARAD.	Yes		
14	DOD	MIL-C-2939F	COOLING COILS, AIR, DUCT TYPE AND GRAVITY TYPE, NAVAL SHIPBOARD ENVIRONMENTAL CONTROL SYSTEMS	This specification covers duct type and gravity type air cooling coils for use in Naval shipboard environmental control systems.	Yes	31Dec'90	warship
14	MASS	12.1	AIR CONDITIONING, HEATING, AND VENTILATION, GENERAL	This section provides guidance for all spaces, including machinery spaces, as to air conditioning, heating and ventilation systems, including duct insulation, hangers, protection from weather, system designed to reduce airborne noise, etc.	YES	NOV95	1,2,3,4
.4	MASS	12.2	AIR CONDITIONING, HEATING AND VENTILATION, SYSTEMS	This section provides guidance on heating, ventilation and air conditioning systems. Some specifics: air conditioning design criteria, dual duct systems, terminal reheat systems, unitary air conditioning equipment,	YES	NOV95	1,2,3,4

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<u>WBS</u>	<u>Organ</u>	<u>Std-No.</u>	<u>Title</u>	<u>Abstract</u>	<u>English</u>	<u>Orig Date</u>	<u>Ship App.</u>
14	UL	181A	CLOSURE SYSTEMS FOR USE WITH FLEXIBLE AIR DUCTS AND AIR CONNECTORS	heating and ventilation, ventilation and heating requirements for non-air conditioned spaces, etc. These requirements cover pressure-sensitive tapes and mastic system for use as a part of the closure system of factory-made flexible air ducts or air connectors complying with the Standard for Factory-Made Air Ducts and Air Connectors, UL181. CAUTION: these requirements may not be directly applicable to some marine applications.	YES	3/29/95	INDUSTR

SP-6 PROJECT 6-94-1 SUPPLEMENT

As a supplement to SP-6 Project 6-94-1 (Task 3), a matrix using the IHI report Volume II, Appendix IIB as the vertical column (Standard Description shown under "ITEM") and the various standard sources/organizations (identified in Task 3) as the horizontal fields was developed. This matrix was developed using Lotus 1-2-3 and both a hard copy and floppy is being provided.

The purpose of the matrix is to cross the various standards identified during the development of Task 3 to the standard descriptions identified in the IHI report. Note that the IHI ITEM standards were identified as either Short Term, Mid Term, or Long Term. This terminology is continued in the matrix.

Once the matrix was set up, the various standard numbers were entered in the appropriate blocks as applicable. Since some ITEM (Standard Description) names were applicable to numerous standard identified during development of Task 3, you may find the same standard number being used more than once. Also some ITEM names were so encompassing that numerous standards could be classified as being applicable to that ITEM name (i.e., the ITEM name "Plastic Pipe" could be applicable to all standards addressing plastic pipe).

Since numerous standards identified in Task 3 were not made available for review, in some cases a judgement as to applicability had to be made purely from a standard title. As a result, actual review of the standards may show that some entries may not be applicable to the associated ITEM standard.

ITEM	ABS	ANSI	ASTM	BSI	Bundesam	DIN	DNV	DOD	JIS	MASS	MSS	UL	USCG	ISO	ASME
Ladders/platforms (tanks, holds) (Mid Term)			F840	BSMA39-1		83200									
				BSMA39-2		83202									
						83217									
						83218									
Ladders/platforms (engine room) (Mid Term)			F840	BSMA39-1		83200									
				BSMA39-2		83202									
						83204									
						83206									
Ladders (accommodation) (Mid Term)			F840	BSMA39-1	VG85204	83200			F2605	5.03				5487	
				BSMA39-2	VG85207	83202			F2621					5488	
					VG85222										
					VG85223										
Ship's side ladder for pilot (Mid Term)		1116							F2615 F2622		1116				
Ship's side ladders (Short Term)								F2603							
Pilot Ladders (Short Term)		1116							F2615 F2622		1116			799 657	
Embarkation Ladders (Short Term)				BSMA90					F2617			1116	6C160.017	5489 5488	
Inst. Std. for pilot Ladders (Short Term)		1116							F2615			1116	6C163.002		
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Ventilator heads (Short Term)				BSMA69		82341 82342			F2407 F2408						
Pankah louvers (Short Term)									F2902					3572	
Graphic sym. for vent. system (Short Term)														644	
Vent. grills,louvers,screens,shutters (Short Term)					VG85626							586			

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