



RULES AND REGULATIONS FOR THE CONSTRUCTION AND CLASSIFICATION OF INLAND WATERWAYS VESSELS

RULES CHANGE NOTICE NO. 1

September 2024

General Information

This rules change notice gives the new additions and amendments to the 'Rules and Regulations for the Construction and Classification of Inland Waterways Vessels' along with the effective dates from which these changes are applicable.

These new additions and amendments are to be read in conjunction with the requirements given in the July, 2024 edition of the Rules.

The Part / Chapters where amendments are made and their effective dates are indicated in **TABLE 1**. The actual requirements, arranged in the order of Part / Chapter / Section / Sub-section / Clause, have been given subsequently.

Corrigenda issued with this Rules Change Notice are given in TABLE 2.

For ease of reference, the newly added text has been highlighted by underlining and the deleted text by striking through.

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TABLE 1 – AMENDMENTS INCORPORATED IN THIS NOTICE *These amendments will come into force as indicated in the Table*

Section / Clause Subject/ Amendments				
Part 1 Chapter 1: Gener	al			
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The amendme	nts are applicable to vessels contracted for construction on or after 1 Jan 2025			
2/ 2.9 (new)	New subsection introduced for vessels constructed of thermoplastics.			
Part 3 Chapter 1: Gener	al, Definitions, Documentation			
2/ 2.1.10, 2.1.11 (both	Definitions for bulkhood dock and freeboard dock are added			
new)				
Part 3 Chapter 15: Hull	Inspection, Workmanship and Testing			
The amendme	nts are applicable to vessels contracted for construction on or after 1 Jan 2025			
3/ 3.1 (new)	Introductory clauses are given for better clarity.			
3/ 3.2	Definitions related to tank testing are added/ amended for better clarity.			
3/ Table 3.2.4 (new)	Table is added indicating each test type along with its procedures.			
3/ 3.3 (new)	Detailed procedure for conduct of structural and leak tests are specified.			
3/ Table 3.3.1	Test requirements for tanks and boundaries are added/ amended. Few notes are added in the table for better clarity.			
3/ 3.4 (new)	Details regarding conduct of various types of tests such as hydrostatic test, hydropneumatic test, hose test, tank air test, compressed air fillet weld test, vacuum box test, ultrasonic test, etc. are better clarified.			
3/ 3.5, 3.6 & Table	Amendments provide requirements for application of leak test, coating and			
3.6.1 (all new)	provision of safe access for different types of welded joints.			
3/ 3.7 (new)	Precautions to be taken during hydrostatic or hydropneumatic tests for detecting small leaks effectively are indicated.			
3/ 3.9, Table 3.9.1	Testing requirements for tankers (Type N, C, G) are deleted as they are			
(both deleted)	covered in Part 5, Chapter 2 of the Rules.			
Part 5 Chapter 3: Passe	nger Vessels			
The amendme	nts are applicable to vessels contracted for construction on or after 1 Jan 2025			
2/ 2.3.2 (d)	It is clarified that in areas intended for use by persons with reduced mobility, the alarm system is to have an optical and acoustic signal.			
2/ 2.5.2.1 (a), 2.6.1 5/ 5.3.2.3 (f), 5.3.2.9, 5.3.2.16, 5.3.3.2, 5.4.1.1	Editorial amendments are made for better clarity.			
2/ 2.5.5.1	Requirements for stairs and widths between handrails are added for better clarity.			
2/ 2.5.7.1 (new)	Requirements for embarking and disembarking arrangements are amended for better clarity.			
4/ 4.5.2.2 (c)	Amendments are made to clarify that, in addition to evacuation areas, PA systems are to be available in the areas for embarking and disembarking passengers as well as muster areas.			
4/ 4.6.2.2	Editorial amendments are made to provide better clarity about the location where General Emergency Alarm System is being triggered.			
5/ Table 5.3.2.1 (a) and (b)	Previous tables are replaced with new ones to have better clarity on fire integrity standard to be applied to boundaries between adjacent spaces according to fire risk (major, high, moderate, low) and functional need.			

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Section / Clause	Subject/ Amendments
7/ 7.3.2.1 (a)	Provision of doors with an automatic release by a push button for doors is added as an alternative to providing stipulated clearance between doorframe and adjacent perpendicular wall for persons with reduced mobility.
7/ 7.3.4.1 (a)	The limiting gradient of the stairs is reduced to '33°' from '38°'.

TABLE 2 – CORRIGENDA INCORPORATED IN THIS NOTICE

Section / Clause	Subject/ Corrigenda					
Part 1 Chapter 1: General						
Appendix 1	Editorial correction made in the description of "Strengthened for heavy cargoes".					

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Part 1

Regulations

Chapter 1

General

Section 2

Classification Regulations

2.9 Requirements for vessels with hull structure made of thermoplastics

comply with material and structural design requirements given in IRS *Guidelines on Hull* Structure of Thermoplastic Vessels.

2.9.1 Vessels with hull structure made of thermoplastics of length less than 24 [m] are to

	Appendix 1 – (Contd.)					
Abbreviation	Significance					
Class Notations - Hul	1					
"Strengthened for heavy cargoes"	This will be entered in the Register of Ships where the scantlings and arrangements have been approved for heavier cargo loadings in any hold filled up to the top of the hatch coaming with bulk cargo of density of at least $\frac{\text{upto}}{1.0}$ [t/m ³].					

End of Chapter

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Part 3

General Hull Requirements

Chapter 1

General, Definitions, Documentation

Section 2

Definitions

2.1 Principal particulars

2.1.10 Bulkhead deck: In passenger vessels, the uppermost deck up to which the transverse bulkheads are carried watertight. In the case of cargo vessels, the freeboard deck may be considered as the bulkhead deck. 2.1.11 Freeboard deck: is the uppermost complete deck exposed to weather and waves, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the vessel are fitted with permanent means of watertight closing.

End of Chapter

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Part 3

General Hull Requirements

Chapter 15

Hull Inspection, Workmanship and Testing

Section 3

Testing

3.1 Application

3.1.1 These test procedures are to confirm the watertightness of tanks, watertight boundaries and the structural adequacy of tanks which form part of the watertight subdivisions of ships. These procedures may also be applied to verify the weathertightness of structures and shipboard outfitting. The tightness of all tanks and watertight boundaries of vessels during new construction and those relevant to major conversions or major repairs (a repair affecting structural integrity) is to be confirmed by these test procedures prior to the delivery of the vessel.

3.1.2 Testing procedures are to be carried out in accordance with the requirements 3.3 to 3.7

3.1.3 All gravity tanks and other boundaries required to be watertight or weathertight are to be tested in accordance with these procedures and proven tight and structurally adequate as follows:

• gravity tanks for their tightness and structural adequacy (Gravity tank means a tank that is subject to vapour pressure not greater than 70 kPa)

• watertight boundaries other than tank boundaries for their watertightness

• weathertight boundaries for their weathertightness.

<u>3.1.4 Testing of structures not listed in Table</u> <u>3.3.1 is to be specially considered by IRS.</u>

3.1.5 Tests are to be carried out in the presence of Surveyor at a stage sufficiently close to the completion of work with all hatches, doors, windows, etc. installed and all penetrations including pipe connections fitted, and before any ceiling and cement work is applied over the joints. Specific test requirements are given in 3.4 and Table 3.3.1. For the timing of the application of coating and the provision of safe access to joints, see 3.5, 3.6 and Table 3.6.1.

3.42 Definitions

3.1.1 Shop primer is a thin coating applied after surface preparation and prior to fabrication as a protection against corrosion during fabrication.

Protective coating is a final coating protecting the structure from corrosion.

3.1.2 Structural testing is a hydrostatic test carried out to demonstrate the tightness of the tanks and the structural adequacy of the design. Where practical limitations prevail and hydrostatic testing is not feasible (for example when it is difficult, in practice, to apply the required head at the top of the tank), hydropneumatic testing may be carried out instead. When a hydropneumatic testing is performed, the conditions should simulate, as far as practicable, the actual loading of the tank.

3.1.3 Hydropneumatic testing is a combination of hydrostatic and air testing, consisting of filling the tank with water up to its top and applying an additional air pressure. The value of the additional air pressure is to be at least as given in Sec.3.4.

3.1.4 Leak testing is an air or other medium test carried out to demonstrate the tightness of the structure.

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3.1.5 Hose testing is carried out to demonstrate the tightness of structural items not subjected to hydrostatic or leak testing and to other components which contribute to the watertight or weathertight integrity of the hull.

3.2.1 Structural test : A structural test is a test to verify the structural adequacy of tank construction. This may be a hydrostatic test or, where the situation warrants, a hydropneumatic test.

3.2.2 Leak test : A leak test is a test to verify the tightness of a boundary. Unless a specific test is indicated, this may be a hydrostatic/hydropneumatic test or an air test. A hose test may be considered to be an acceptable form of leak test for certain boundaries, as indicated by Note 3) of Table 3.3.1.

3.2.3	То	o c	of t	he	0	ver	flow:	The	'top	of	the	
overflo	ow'	is	de	fine	d	as	being	the	top	of	any	

overflow system which is used to prevent overfilling of a tank. Such system can be an overflow pipe, airpipe, intermediate tank. For gravity tanks (i.e. sewage, grey water and similar tanks, not filled with pumps) the top of the overflow is to be taken as the highest point of the filling line.

Note: Gauging devices are not considered equivalent to an overflow system with the exception of fuel oil overflow tanks not intended to hold fuel which have been fitted with a level alarm.

Where a tank is fitted with multiple means of preventing overfilling, the decision on which overflow system is to be used to determine the test head is to be based on the highest point to which the liquid may rise in service.

<u>3.2.4 Each type of structural and leak test is</u> defined in Table 3.2.4.

overflow' is defined as being the	top of any
	Table 3.2.4 : Types of test
Test types	<u>Procedure</u>
Hydrostatic Test:	A test wherein a space is filled with a liquid to a specified head.
(Leak and Structural)	
Hydropneumatic Test:	A test combining a hydrostatic test and an air test, wherein a
(Leak and Structural)	space is partially filled with a liquid and pressurized with air.
Hose Test: (Leak)	A test to verify the tightness of a joint by a jet of water with the
	joint visible from the opposite side.
Air Test: (Leak)	A test to verify tightness by means of air pressure differential
	and leak indicating solution. It includes tank air test and joint air
	tests, such as compressed air fillet weld tests and vacuum box
	tests.
Compressed Air Fillet Weld	An air test of fillet welded tee joints wherein leak indicating
Test:	solution is applied on fillet welds.
(Leak)	
Vacuum Box Test: (Leak)	A box over a joint with leak indicating solution applied on the
	welds. A vacuum is created inside the box to detect any leaks.
Ultrasonic Test: (Leak)	A test to verify the tightness of the sealing of closing devices
	such as hatch covers by means of ultrasonic detection
	techniques.
Penetration Test: (Leak)	A test to verify that no visual dye penetrant indications of
	potential continuous leakages exist in the boundaries of a
	compartment by means of low surface tension liquids (i.e. dye
	penetrant test).

3.2 Application

The requirements of this Section apply to:

tanks, including independent tanks

- watertight or weathertight structures.

The purpose of these tests is to check the tightness and/or the strength of structural elements.

Tests are to be carried out in the presence of the Surveyor at a stage sufficiently close to completion so that any subsequent work would not impair the strength and tightness of the structure.

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For the general testing requirements, See Sec.3.8 and Sec.3.9.

3.3 Test Procedures

3.3.1 Structural test procedures Structural testing

3.3.1 Structural testing as required in Table 3.3.1 may be carried out before or after launching.

Shop primer may be applied before carrying out the structural testing.

3.3.2 Structural testing may be carried out after the protective coating has been applied, provided that one of the following two conditions is satisfied:

- a) all the welds are completed and carefully inspected visually to the satisfaction of the Surveyor, prior to the application of the protective coating,
- b) leak testing is carried out prior to the application of the protective coating.

However, when leak testing is not carried out, protective coating in way of the following welds should be applied only after the structural testing has been satisfactorily completed:

- all erection welds, both manual and automatic
- all manual fillet weld connections on tank boundaries and manual penetration welds.

3.3.1.1 Type and Time of test

<u>.1 Where a structural test is specified in Table</u> <u>3.3.1, a hydrostatic test in accordance with</u> <u>3.4.1 will be acceptable. Where practical</u> <u>limitations (strength of building berth, light</u> <u>density of liquid, etc.) prevent the performance</u> <u>of a hydrostatic test, a hydropneumatic test in</u> <u>accordance with 3.4.2 may be accepted</u> <u>instead.</u>

.2 A hydrostatic test or hydropneumatic test for the confirmation of structural adequacy may be carried out while the vessel is afloat, provided the results of a leak test are confirmed to be satisfactory before the vessel is afloat. .3 Alternative equivalent tank testing procedures may be considered for tanks which are constructed from composite materials such as glass reinforced plastic (GRP) and fibre reinforced plastic (FRP) based on the recommendations of the composite manufacturer.

<u>3.3.1.2 Testing schedule for new construction</u> and major structural conversion or repair

<u>.1 Tanks which are intended to hold liquids, and which form part of the watertight subdivision of the vessel, are to be tested for tightness and structural strength as indicated in Table 3.3.1.</u>

.2 Tank boundaries are to be tested from at least one side. The tanks for the structural test are to be selected so that all the representative structural members are tested for the expected tension and compression.

.3 Watertight boundaries of spaces other than tanks may be exempted from the structural test, provided that the boundary watertightness of the exempted spaces is verified by leak tests and inspections. The tank structural test is to be carried out and the requirements .1 and .2 are to be applied for ballast holds, chain lockers and a representative cargo hold if intended for in-port ballasting.

.4 Tanks which do not form part of the watertight subdivision of the vessel, may be exempted from structural testing provided that the boundary watertightness of the exempted spaces is verified by leak tests and inspections.

.5 Structural tests are to be carried out for at least one tank of a group of tanks having structural similarity (i.e. same design conditions, alike structural configurations with only minor localised differences determined to be acceptable by the attending Surveyor) on each vessel provided all other tanks are tested for leaks by an air test. The acceptance of leak testing using an air test instead of a structural test does not apply to cargo space boundaries adjacent to other compartments in tankers and combination carriers or the boundaries of tanks for segregated cargoes or pollutant cargoes in other types of ships.

.6 Additional tanks may require structural testing if found necessary after the structural testing of the first tank.

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.7 For tanks which are less than 2 [m3] in volume, structural testing may be replaced by leak testing.

.8 Where the structural adequacy of the tanks and spaces of a vessel were verified by the structural testing required by .5, subsequent vessels in the series (i.e. sister ships built from the same plans at the same shipyard) may be exempted from structural testing of tanks, provided that:

(a) water-tightness of boundaries of all tanks and spaces are verified by leak tests and thorough inspections are carried out.

(b) structural testing is carried out for at least one tank or space among all tanks/spaces of each sister vessel.

(c) additional tanks and spaces may require structural testing if found necessary after the structural testing of the first tank or if deemed necessary by the attending Surveyor.

For cargo space boundaries adjacent to other compartments in tankers and combination carriers or boundaries of tanks for segregated cargoes or pollutant cargoes in other types of ships, structural tests are to be carried out for at least one tank of a group of tanks having structural similarity (i.e. same design conditions, alike structural configurations with only minor localised differences determined to be acceptable by the attending Surveyor) on each vessel provided all other tanks are tested for leaks by an air test.

.9 Sister ships built (i.e. keel laid) two years or more after the delivery of the last ship of the series, may be tested in accordance with .8 at the discretion of IRS, provided that:

(a) general workmanship has been maintained (i.e. there has been no discontinuity of shipbuilding or significant changes in the construction methodology or technology at the yard, shipyard personnel are appropriately qualified and demonstrate an adequate level of workmanship as determined by IRS); and

(b) an NDT plan is implemented and evaluated by IRS for the tanks not subject to structural tests. Shipbuilding quality standards for the hull structure during new construction are to be reviewed and agreed during the kick-off meeting. The work is to be carried out in accordance with the Rules and under survey of IRS.

3.3.2 4 Leak testing procedures

3.3.2.1 General

3.4.1 Where leak testing is carried out in accordance with Table 3.3.1, an air pressure of 7 [KN/m²] is to be applied during the test.

Prior to inspection, it is recommended that the air pressure in the tank is raised to 10 [KN/m²] and kept at this level for about 1 hour to reach a stabilized state, with a minimum number of personnel in the vicinity of the tank, and then lowered to the test pressure.

3.4.2 Welds are to be coated with an efficient indicating liquid.

3.4.3 A U-tube filled with water up to a height corresponding to the test pressure is to be fitted to avoid overpressure of the compartment tested and to verify the test pressure. The Utube should have a cross section larger than that of the pipe supplying air.

In addition, the test pressure is also to be verified by means of one master pressure gauge. Alternative means which are considered to be equally reliable, may be accepted.

3.4.4 Where leak testing is carried out it should be prior to the application of a protective coating, on all fillet weld connections on tank boundaries, penetrations and erection welds on tank boundaries excepting welds made by automatic processes. Selected locations of automatic erection welds and pre-erection manual or automatic welds may require to be similarly tested at the discretion of the Surveyor, taking account of the quality control procedures operating in the shipyard. For other welds, leak testing may be carried out after the protective coating has been applied, provided that these welds were carefully inspected visually to the satisfaction of the Surveyor.

Any other recognized method may be accepted to the satisfaction of the Surveyor.

.1 For the leak tests specified in Table 3.3.1, tank air tests, compressed air fillet weld tests and vacuum box tests, in accordance respectively with 3.4.3, 3.4.5 and 3.4.6, or their combinations, are acceptable. Hydrostatic or hydropneumatic tests may be also accepted as

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leak tests, provided 3.5, 3.6 and 3.7 are complied with. Hose tests, in accordance with 3.4.3, are also acceptable for items 15, 16, 17, 19 referred to in Table 3.3.1, taking Note 3) into account.

.2 Air tests of joints may be carried out at the block stage, provided that all work on the block that may affect the tightness of a joint is completed before the test. The application of the leak test for each type of welded joint is specified in Table 3.6.1. See also 3.5.1 for the application of final coatings, 3.6 for the safe access to joints, and Table 3.6.1 for the summary.

3.4 Test Methods

3.4.1 Hydrostatic test

Unless another liquid is approved, hydrostatic tests are to consist in filling the space with fresh water or river/sea water, whichever is appropriate for testing, to the level specified in Table 3.3.1. See also 3.7.

In case where a tank is intended for cargoes having a density higher than the density of the liquid used for the test, the testing pressure height is to be adjusted is to simulate the actual loading as far as practicable, but the test pressure is not to exceed the maximum design internal pressure at the top of tank.

All the external surfaces of the tested space are to be examined for structural distortion, bulging and buckling, any other related damage, and leaks.

3.4.2 Hydropneumatic test

Hydropneumatic tests, where approved, are to be such that the test condition, in conjunction with the approved liquid level and supplemental air pressure, simulates the actual loading as far as practicable. The requirements and recommendations in 3.4.4 for tank air tests apply also to hydropneumatic tests. See also 3.7. All the external surfaces of the tested space are to be examined for structural distortion, bulging and buckling, any other related damage, and leaks.

3.53.4.3 Hose testing

When hose testing is required to verify the tightness of the structures, as defined in Table 3.3.1, a minimum pressure in the hose of at

least 200 [KN/m²] is to be applied at a maximum distance of 1.5 [m]. The nozzle diameter is not to be less than 12 [mm].

Hose tests are to be carried out with the pressure in the hose nozzle maintained at least at 2x10⁵ [Pa] during the test. The nozzle is to have a minimum inside diameter of 12 [mm] and be at a perpendicular distance from the joint not exceeding 1.5 [m]. The water jet is to impinge directly upon the weld.

Where a hose test is not practical because of possible damage to machinery, electrical equipment, insulation or outfitting items, it may be replaced by a careful visual examination of welded connections, supported where necessary by means such as a dye penetrant test or ultrasonic leak test or equivalent.

3.6 Hydropneumatic testing

When hydropneumatic testing is performed, the same safety precautions as for leak testing (See Sec.3.4) are to be adopted.

3.4.4 Tank air test

All boundary welds, erection joints and penetrations, including pipe connections, are to be examined in accordance with approved procedure and under a stabilized pressure differential above atmospheric pressure not less than 0.07x10⁵ [Pa], with a leak indicating solution such as soapy water/detergent or a proprietary brand applied.

A U-tube with a height sufficient to hold a head of water corresponding to the required test pressure is to be arranged. The cross-sectional area of the U-tube is not to be less than that of the pipe supplying air to the tank. Arrangements involving the use of two calibrated pressure gauges to verify the required test pressure may be accepted taking into account the following precautions:

<u>a) Where there is no protection by suitable barriers / screens,</u>

- <u>i.</u> verification and confirmation that the test procedure is followed,
- ii. Verification and confirmation that test equipment is in good condition,
- iii. Verification and confirmation that the isolating valves are tight,
- iv. Verification and confirmation that the test pressure gauges (at least 2 pcs) are calibrated and are of suitable range as per test pressure,

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- v. Confirmation that the pressure gauges are not isolated or bypassed, and that releasing mechanisms or safety valves are of adequate size/rating and correctly set.
- vi. Confirmation that the Pipe work, especially flexible piping, is free from damage or leaking joints.
- vii. Confirmation that the Inlet, outlet and release arrangement for the test medium to or from the item being tested are properly fabricated and supported, including their appropriate dimensions (e.g. Smaller diameter for inlets and bigger diameter for outlets, as well as releasing means).

<u>b) If a releasing mechanism is used in lieu of a U-tube,</u>

- i. It is to be evaluated, whether the design of the mechanism is similar to the U-tube principle (i.e. suitable to be lifted by the predetermined excessive pressure, and not subject to any kind of spring or restricting device).
- ii. The safety precautions adopted for the test are to be carefully reviewed and the risks after taking into account necessary precautions are to be evaluated

A double inspection is to be made of tested welds. The first is to be immediately upon applying the leak indication solution; the second is to be after approximately four or five minutes in order to detect those smaller leaks which may take time to appear.

3.4.5 Compressed air fillet weld test

In this air test, compressed air is injected from one end of a fillet welded joint and the pressure verified at the other end of the joint by a pressure gauge. Pressure gauges are to be arranged so that an air pressure of at least 0.15x10⁵ [Pa] can be verified at each end of all passages within the portion being tested.

Note: Where a leak test is required for fabrication involving partial penetration welds, a compressed air test is also to be applied in the same manner as to fillet weld where the root face is large, i.e., 6-8 [mm].

3.4.6 Vacuum box test

A box (vacuum testing box) with air connections, gauges and an inspection window are placed over the joint with a leak indicating solution applied to the weld cap vicinity. The air within the box is removed by an ejector to create a vacuum of $0.20 \times 10^5 - 0.26 \times 10^5$ Pa inside the box.

3.4.7 Ultrasonic test

An ultrasonic echo transmitter is to be arranged inside of a compartment and a receiver is to be arranged on the outside. The watertight/weathertight boundaries of the compartment are scanned with the receiver in order to detect an ultrasonic leak indication. A location where sound is detectable by the receiver indicates a leakage in the sealing of the compartment.

3.4.8 Penetration test

A test of butt welds or other weld joints uses the application of a low surface tension liquid at one side of a compartment boundary or structural arrangement. If no liquid is detected on the opposite sides of the boundaries after the expiration of a defined period of time, this indicates tightness of the boundaries. In certain cases, a developer solution may be painted or sprayed on the other side of the weld to aid leak detection

3.4.93.7 Other testing methods

Other testing methods may be accepted, at the discretion of IRS, based upon equivalency considerations.

3.5 Application of coating

3.5.1 Final coating

For butt joints welded by means of an automatic process, the final coating may be applied at any time before completion of a leak test of the spaces bounded by the joints, provided that the welds have been visually inspected with care, to the satisfaction of the Surveyor. The Surveyors reserve the right to require a leak test prior to the application of a final coating over automatic erection butt welds. For all the other joints, the final coating is to be applied after the completion of the joint leak test. See also Table 3.6.1.

3.5.2 Temporary coating

Any temporary coating which may conceal defects or leaks is to be applied at the same

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time as for a final coating (see 3.5.1). This requirement does not apply to shop primers.

3.6 Safe access to joints

<u>3.6.1 For leak tests, a safe access to all joints</u> <u>under examination is to be provided. See also</u> <u>Table 3.6.1</u>

3.7 Hydrostatic or hydropneumatic tightness test

3.7.1 In cases where the hydrostatic or hydropneumatic tests are applied instead of a specific leak test, the examined boundaries are to be dew-free, otherwise small leaks are not visible.

3.8 General testing requirements requirements for tanks and boundaries General <u>Test</u> requirements for <u>testing tanks and</u> <u>boundaries</u> are given in Table 3.3.1.

3.9 Additional requirements for special type vessels/tanks

In addition to the requirements of Table 3.3.1, particular requirements for testing of certain spaces within the cargo area of following types of vessels are given in Table 3.9.1.

- edible liquid carriers
- chemical carriers

These requirements intend generally to verify the adequacy of the structural design of the tank, based on the loading conditions on which the scantlings of the tank structure were determined.

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ltem number	Structure to be tested <u>Tank or</u> boundary to be tested	Type of testingTest type	Structural test pressure <u>Test</u> head or pressure	Remarks
1	Double bottom tanks	<u>Leak and</u> <u>s</u> Structural testing ^[1a]	 The greater of the following: head of water up to the top of overflow <u>1.0 [m] head of water above top of tank^[2],</u> head of water up to the uppermost continuousto bulkhead deck 	Tank boundaries tested from at least one side
<u>2</u>	Double bottom voids	<u>Leak</u>	<u>See 3.4.4 to 3.4.6, as</u> <u>applicable</u>	Including pump room double bottom
<u>3</u> 2	Double side tanks	<u>Leak and</u> <u>s</u> Structural testing ^[1a]	 The greater of the following: head of water <u>uptoup to</u> the top of overflow 1.0 [m] head of water above highest point<u>top</u> of tank^[2], <u>head of water to bulkhead</u> <u>deck</u> 	Tank boundaries tested from at least one side
<u>4</u>	Double side voids	<u>Leak</u>	See 3.4.4 to 3.4.6, as applicable	
<u>5</u> 3	Tank bulkheads, deep tanksDeep tanks other than those listed elsewhere in this table	<u>Leak and</u> sStructural t esting ^[1a]	 The greater of the following^[b]: head of water up to the top of overflow 1.0 [m] head of water above highest pointtop of tank^[2] setting pressure of the safety relief valves, where relevant 	Tank boundaries
<u>6</u>	Fuel <u>Cargo</u> oil <u>tanks</u>bunkers	<u>Leak and</u> S <u>s</u> tructural ^[1] t esting	The greater of the following: – head of water up to the top of overflow – 1.0 [m] head of water above top of tank ^[2] – head of water up to the top of overflow plus the design vapour pressure	tested from at least one side
<u>7</u>	Ballast hold of bulk carriers	Leak and Structural ^[1]	Top of cargo hatch coaming	
<u>8</u>	Peak tanks	Leak and Structural ^[1]	The greater of – head of water up to the top of overflow, – 1.0 [m] head of water above top of tank ^[2]	

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	Fore peak and aft er peak used as tank<u>voids</u>	Structural-<u>Leak</u> testing	The greater of the following: head of water up to the top of overflow 1.0 [m] head of water above highest point of tank See 3.4.4 to 3.4.6, as applicable	Test of the after peak carried out after the stern tube has been fitted <u>Aft peak to</u> be tested after installation of stern tube
<u>9</u> 4	Fore peak not used as tank<u>spaces with</u> equipment	Structural- <u>Leak</u> testing	head of water upto the uppermost continuous deck for cargo ships and bulkhead deck for passenger ships See 3.4.3 to 3.4.6, as applicable	
	After peak not used as tank <u>spaces with</u> equipment	Leak testing	See 3.4.3 to 3.4.6, as applicable	
<u>10</u>	<u>Cofferdams</u>	<u>Leak</u>	See 3.4.4 to 3.4.6, as applicable	
<u>11</u> 5	Watertight bulkheads	Hose testing ^[e] Leak	<u>See 3.4.3 to 3.4.6, as</u> applicable ^[5]	Thorough inspection of bulkhead to be carried out
<u>12</u> 6	Watertight doors below uppermost continuous deck<u>freeboard</u> or bulkhead deck	Structural testing ^[d] Leak ^{[4][5]}	Water pressure head upto the uppermost continuous deck for cargo ships and bulkhead deck for passenger ships See 3.4.3 to 3.4.6, as applicable	
<u>13</u> 7	Double plate rudders	Leak- testing	See 3.4.4 to 3.4.6, as applicable	
<u>14</u> 8	Shaft tunnel clear of deep tanks	Hose testingLeak ^[3]	See 3.4.3 to 3.4.6, as applicable	
<u>15</u> 9	Shell doors	Hose testingLeak ^[3]	See 3.4.3 to 3.4.6, as applicable	
<u>16</u> 10	Weathertight hatch covers and closing appliances	Hose testingLeak ^{[3][5]}	See 3.4.3 to 3.4.6, as applicable	<u>Hatch covers</u> <u>closed by</u> <u>tarpaulins and</u> <u>battens excluded</u>
<u>17</u>	Dual purpose tanks/dry cargo hatch covers	Leak ^{[3][5]}	<u>See 3.4.3 to 3.4.6, as</u> applicable	In addition to structural test in item 6 or 7
<u>18</u> 11	Chain locker (if aft of collision bulkhead),	Structural <u>and</u> leak testing	Head of water up to the top <u>of</u> chain pipe	
<u>19</u> 12	Independent tanksL.O.sump tanks and other similar tanks/spaces under main engines	Structural testingLeak	See 3.4.3 to 3.4.6, as applicable Head of water upto the top of overflow, but not less than 0.9 [m],	
<u>20</u> 13	Ballast ducts	Leak and Sstructural ^[1] testing	The greater of Ballast pump maximum pressure, or Setting of any pressure relief valve	

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2 <u>1</u> 2 <u>2</u>	<u>Fuel Oil Tanks</u> <u>Fuel oil overflow</u> tanks not intended to hold fuel	Leak and structural testing ^[1] Leak and structural testing ^[1]	The greater of head of water up to the top of overflow, 1.0 [m] head of water above top of tank ^[2] , head of water up to the top of tank plus the design vapour pressure, head of water to bulkhead deck The greater of head of water up to the top of overflow, 1.0 [m] head of water above top of tank ^[2] , head of water up to the top of overflow, head of water up to the top of overflow, head of water up to the top of overflow, head of water up to the top of overflow, head of water above top of tank ^[2] , head of water to bulkhead	
Notes:			deck	
1) F 2) T 3) F 4) V fi 5) A (j	Refer to section 3.3.1.2 The top of a tank is the d dose Test may also be of Vhere water tightness of lling watertight spaces w as an alternative to the h pplicable subject to ade tem 11 a)) alternatives to racticable.	eck forming the top considered as a meet f a watertight door h with water is to be c lose testing, other to quacy of such testing to the hose testing i	o of the tank, excluding any hatchw dium of the test. See 3.4.3. has not been confirmed by prototyp arried out. esting methods listed in 3.4.7 to 3. ng methods being verified. For wat may only be used where a hose te	<u>ays.</u> be test, testing by 4.9 may be certight bulkheads st is not
[a] Leak (at least o boundari(weaknes	or hydropneumatic testir ne tank for each type is os in tankers and tanks s or severe faults not de	ng may be accepted structurally tested. for segregated carg tected by the leak t	I under the conditions specified in This however does not apply to ca joes or pollutants. If the structural t est, all tanks are to be structurally	3.4, provided that i rgo space est reveals tested.
[b] Where [c] When switchbor visual ins leak test	applicable, the highest hose test cannot be per ards, insulation, etc.) alr pection of all the crossir may be required.	point of tank is to t formed without dar eady installed, it manges and welded joir	be measured to the deck and exclu naging possible outfitting (machine ay be replaced, at the discretion of hts; where necessary, dye penetrar	iding hatches. ory, cables, IRS by a careful it test or ultrasonic
[d] The te be carried	est may be made before I out in place after the d	or after the door is oor is fitted.	fitted. In case test is done before,	hose testing is to

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	Table 3.6.1 : Application of Leak Test, Coating and Provision of Safe Access					ess
		<u></u>	Coating ^[1]		Safe Access	[2]
<u>Type of v</u> joints	welded	<u>Leak test</u>	<u>Before</u> leak test	After leak test but before structural test	Leak test	<u>Structural</u> test
<u>Butt</u>	Automatic	Not required	Allowed ^[3]	<u>N/A</u>	<u>Not</u> required	<u>Not</u> <u>required</u>
	<u>Manual or</u> <u>Semi-</u> <u>automatic ^[4]</u>	<u>Required</u>	Not allowed	Allowed	<u>Required</u>	<u>Not</u> required
<u>Fillet</u>	Boundary including penetrations	<u>Required</u>	Not allowed	Allowed	<u>Required</u>	<u>Not</u> required
Notes:						
	 Coating repainting. It Temporanding The conditional the satisfa Flux Core that careful repairs and the satisfa 	fers to internal (tan does not refer to s means of access ion applies provide ction of the Survey Arc Welding (FCA) l visual inspections d the results of ND	k/hold coating), v hop primer. for verification of ed that the welds or. W) semiautomat s show continuou F testing show r	where applied, and f the leak test. have been caref ic butt welds nee us uniform weld p	nd external (she fully inspected w d not be tested profile shape, fre	ell/deck) risually to provided se from

Table 3.9.1 : Additional testing requirements for spaces within the cargo area of certain types of ships						
Item No.	Types of ships	Structure to be tested	Testing requirements	Structural test pressure	Remarks	
4	Edible liquid carriers	Independent tanks	Structural testing	Head of water up to the top of overflow without being less than 0.9 [m]		
2	Chemical carriers	Integral or independent tanks	Structural testing of cargo tanks boundaries from at least one side	The greater of the following: - 1.0 [m] head of water above highest point of tank - setting pressure of the safety relief valves,		

End of Chapter

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Part 5

Special Ship Types

Chapter 3

Passenger Vessels

Section 2

Vessel Arrangement

2.3 Watertight Doors and Doors

2.3.2 Doors in bulkheads referred to in 2.2.4 that are open for long periods are to comply with the following requirements:

- a) they are to be capable of being closed from both sides of the bulkhead and from an easily accessible point above the bulkhead deck;
- after being closed by remote control, the door is to be such that it can be opened again locally and closed safely. Closure is not to be impeded by carpeting, foot rails or other obstructions;
- c) the time taken for the remote-controlled closure process is to be at least 30 [seconds] but not more than 60 [seconds];
- d) during the closure procedure an audible alarm is to sound by the door; <u>at least in</u> <u>areas intended for use by persons with</u> <u>reduced mobility, the alarm system</u> <u>must generate an optical and acoustic</u> <u>signal;</u>
- e) the door drive and alarm are also to be capable of operating independently of the on-board power supply. There is to be a device at the location of the remote control that displays whether the door is open or closed.

2.5 Passenger Spaces

2.5.2 Number and Width of the Exits of Passenger Spaces

2.5.2.1 The number and width of the exits of passenger spaces are to comply with the following requirements:

- a) Rooms or groups of rooms designed or arranged for 30 or more passengers or including <u>sleeping</u> berths for 12 or more passengers, are to have at least two exits <u>which are as far apart from one</u> <u>another as possible</u>. On day trip vessels, one of these two exits can be replaced by two emergency exits. Rooms, with the exception of cabins, and groups of rooms that have only one exit, are to have at least one emergency exit.
- b) If rooms are located below the bulkhead deck, one of the exits can be a watertight bulkhead door, (complying with 2.3.2), leading into an adjacent compartment from which the upper deck can be reached directly. The other exit is to lead directly or, if permitted in accordance with (a), as an emergency exit into the open air, or to the bulkhead deck. This requirement does not apply to individual cabins.
- c) Exits according to (a) and (b) are to be suitably arranged and are to have a clear width of at least 0.8 [m] and a clear height of at least 2 [m]. For doors of passenger cabins and other small rooms, the clear width can be reduced to 0.7 [m].
- d) In the case of rooms or groups of rooms intended for more than 80 passengers the sum of the widths of all exits intended for passengers and which are

to be used by them in an emergency is to be at least 0.01 [m] per passenger.

- e) If the total width of the exits is determined by the number of passengers, the width of each exit is to be at least 0.005 [m] per passenger.
- f) Emergency exits are to have a shortest side at least 0.6 [m] long or a minimum diameter of 0.7 [m]. They are to open in the direction of escape and be marked on both sides.

2.5.5 Stairs and their Landing

2.5.5.1 Stairs and their landings in the passenger spaces are to comply with the following requirements:

- a) They are to be constructed in accordance with a recognized national/international standard.
- b) They are to have a clear width of at least 0.8 [m]. If they lead to connecting corridors or areas used by more than 80 passengers, the <u>sum of the width of all</u> stairs<u>intended for passengers and</u> which will be used by them in an <u>emergency</u> are to have a width of at least 0.01 [m] per passenger.
- c) They are to have a clear width between handrails is to be of at least 1 [m] if the stairs they provide the only means of access to a room intended for passengers. The clear width between handrails is not to exceed 1.80 [m]. If necessary, additional intermediate handrails are to be installed. If additional intermediate handrails are installed, the requirements applicable to stairs are to be met on each side of the handrails.
- e)d) Staircases in the same room are to be provided on each side of the vessel. In case, staircases in the same room are not provided on each side, then the staircases have to be in area, which is externally bounded by a vertical surface running at a distance of B_{WL}/5 parallel to the course of the hull in the line of maximum draught area.

2.5.7 Embarking and Disembarking Arrangement

2.5.7.1 Parts of the deck intended for passengers, and which are not enclosed, are to comply with the following requirements:

- a) Openings and equipment for embarking or disembarking and openings for loading or unloading are to be such that they can be secured and have a clear width of at least 1 [m].
- b) If the openings and equipment for embarking or disembarking cannot be observed from the wheelhouse, appropriate auxiliary means are to be provided.

2.5.7.1 Openings and equipment for embarking and disembarking are to comply with the following requirements:

<u>a) They are to be equipped with devices to prevent falls overboard.</u>

b) Openings are to have a clear width of at least 1 [m].

c) If the openings and equipment for embarking or disembarking cannot be observed from the wheelhouse, appropriate optical or electronic means are to be provided.

d) Gangways are to be constructed in accordance with a recognized standard.

2.6 Escape from Passenger Spaces

2.6.1 <u>Escape routes are to be available.</u> In addition to the provisions of 2.5.4.1, escape routes are to also comply with the following requirements:

- a) Stairways, exits and emergency exits are to be so arranged that, in the event of a fire in any given area, the other areas may be evacuated safely.
- b) The escape routes are to lead by the shortest route to evacuation areas.
- c) Escape routes are not to lead through engine rooms or galleys.
- d) There are to be no rungs, ladders or the like installed at any point along the escape routes.

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- e) Doors to escape routes are to be constructed in such a way as not to reduce the minimum width of the escape route referred to in 2.5.4.1(a) or (d).
- f) Escape routes and emergency exits are to be clearly indicated by signs. The signs are to be lit by the emergency lighting system.

Section 4

Electrical Installations

4.5 Internal Communication Facilities

4.5.2 Public address systems

4.5.2.2 The public address system is to be capable of broadcasting messages from the wheelhouse to:

- a) all passenger spaces;
- b) control stations where there is no other direct communication means from the wheelhouse; and
- c) in the areas for embarking and disembarking passengers as well as accessmuster areas and evacuation areas for passengers.

Loudspeakers may be omitted in passenger spaces where it can be demonstrated that effective direct communication between the wheelhouse and the passenger spaces is possible.

4.6.2 General Emergency Alarm System

4.6.2.2The vessel is to be equipped with an alarm system enabling the vessel's command to alert passengers. This alarm is to be clearly and unmistakably audible in all rooms accessible to passengers. It is to be capable of being triggered from the wheelhouse and from a location that is permanently staffedoccupied by crew or shipboard personnel.

Section 5

Fire Protection, Detection and Extinction

5.3 Fire Prevention

5.3.2 Structural Fire Protection

5.3.2.1 The minimum required fire integrity of all bulkheads and decks is shown in Table 5.3.2.1 (a) or 5.3.2.1(b), as applicable. Requirements given in Table 5.3.2.1 (a) and 5.3.2.1 (b) are not applicable to day trip vessels of length less than 24 [m].

5.3.2.2 In day trip vessels of length less than 24 [m], the machinery space boundaries are to be

constructed of steel (rated A0) or equivalent material. The engine space is to be capable of being closed down in order that the fire extinguishing medium cannot escape. Where it is not practical to have a machinery space, the engine is to be enclosed in a box. The box is to perform the same function as the machinery space boundaries referred earlier. Partitions between galley, store rooms of high risk containing flammable liquids and other areas are also to be of Type A0 or equivalent material.

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Table 5.3.2.1(a) : Partitions between rooms, in which no pressurised sprinkler systems according to Pt.4, Ch.9, 4.2 are installed							
Rooms	Control centres	Stairwells	Muster areas	Accommodati on Spaces	Engine Rooms	Galleys	Store Rooms of high risk
Control Centres	-	A0	A0/B15 ¹⁾	А 30 До	A60 A60	A 60 A0	A0/A60 ⁵⁾
Muster Areas Accommodation Spaces			-	A0/B15 ²⁾ -/A0/B0 ³⁾	A60 A60	A30 A30	A0/A60 ⁵⁾ A0/A30 ⁵⁾
Engine Rooms Galleys					A60/A0 ⁴⁾	A60 A0	A60 A30/A0/B 15 ⁶⁾
Store Rooms of high risk							-

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<u>Table 5.3.2.1(a) : Partitions between rooms, in which no pressurised sprinkler systems</u> according to Pt.4. Ch.9. 4.2 are installed								
according to Filler, on 3, 4.2 are instanted								
Rooms/area	Rooms / areas protected for functional need	Rooms of major fire risk	Rooms of high fire risk	Rooms of moderate fire risk	Rooms of low fire risk			
Rooms / areas included in the category	1.) Control centres, 2)Switchboard rooms, 3)Stairwells 4)Muster areas, 5)Evacuation areas	<u>1)Engine</u> <u>room,</u> <u>2)Accumulator</u> <u>room</u>	<u>1)Galley,</u> <u>2) Store</u> <u>rooms</u> <u>containing</u> <u>flammable</u> <u>liquids</u>	1) Store rooms, 2) Rooms containing Sauna, 3) Laundry, 4) Electrical service rooms, 5) Rooms containing sprinkler pumps, their switches and the valves that are required in order for the system to be operated	1) Accommodation spaces 2)Barber shops and beauty parlours 3) Cabins 4) Corridors 5) Other machinery /technical spaces (e.g. sewage treatment, ventilation, steering gear room)			
Rooms /areas protected for functional need	<u>A0/B0 ^{1), 6)}</u>	<u>A60</u>	<u>A60</u>	<u>A30⁴⁾</u>	<u>A30/B15²⁾</u>			
<u>Rooms of</u> major fire risk		<u>A60/A0³⁾</u>	<u>A60</u>	<u>A60</u>	<u>A60</u>			
<u>Rooms of</u> high fire risk			<u>A30⁶⁾</u>	A30/B15 5)	<u>A30</u>			
<u>Rooms of</u> <u>moderate fire</u> <u>risk</u>				<u>A0⁶⁾</u>	<u>A0</u>			
Rooms of low fire risk					<u>B15</u>			

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Table 5.3.2.1(b): Partitions between rooms, in which pressurised sprinkler systems according to Pt.4, Ch.9, 4.2 are installed							
Rooms	Control centres	Stairwells	Muster areas	Accommod on spaces	lati Engine Rooms	Galleys	Store Rooms of high risk
Control Centre	s -	AO	A0/B15	¹⁾ A0	A60	A30	A0/A30 ⁵⁾
Stairwells		_	AO	AO	A60	A0	A0
Muster Areas			_	A0/B15 ²⁾	A60	A0	A0/A30 ⁵⁾
Accommodatio	n l			-/B15/B0 ³⁾	A60	A0	A0
Spaces							
Engine Rooms					A60/A0 ⁴⁾	A60	A60
Galleys						-	A0/B15 ⁶⁾
Store Rooms	of						-
high risk							
 2) Partitions between accommodation spaces and internal muster areas are to correspond to Type A0, but external muster areas only to Type B15. 3) Partitions between cabins and corridors are to comply with Type B0. Partitions between cabins and saunas are to comply with Type A0, for rooms that are fitted with pressurised sprinkler systems, they are to comply with type B15. 4) Partitions between engine rooms according to 4.2.4.1 are to comply with Type A60; in other cases they are to comply with Type A0. 5) Partitions between store rooms for the storage of flammable liquids and control centres / muster areas are to comply with Type A60, for rooms fitted with pressurised sprinkler systems A30. Partitions between store rooms for the storage of flammable liquids and control centres / muster areas are to comply with Type A60, for rooms fitted with pressurised sprinkler systems A30. Partitions between store rooms for the storage of flammable liquids and control centres / muster areas are to comply with Type A60, for rooms fitted with pressurised sprinkler systems A30. Partitions between store rooms for the storage of flammable liquids and control centres / muster areas are to comply with Type A60, for rooms fitted with pressurised sprinkler systems A30. Partitions between store rooms for the storage of flammable liquids and stairwells/ accommodation spaces are to be of Type A30. 							
and A0 where pressurized sprinklers are fitted. Partitions between other store rooms of high risk and galleys are to be of Type A0. Type B15 is sufficient for partitions between galleys, on one side, and cold-storage rooms and food store rooms of high risk, on the other. 7) Windows below the muster areas/embarkation stations are to have same fire integrity as the structure on							
	F						
Table 5.3.2.1(b): Partitions between rooms, in which pressurised sprinkler systems according to Pt.4, Ch.9, 4.2 are installed (a pressured water sprinkler system is installed in the rooms on both sides of the partition).)							
Rooms/area	Rooms / area	s Rooms of	of	Rooms of	Rooms of	Rooms of	low
	protected for functional need	<u>major fir</u>	<u>e risk</u>	<u>high fire risk</u>	<u>moderate fire</u> <u>risk</u>	<u>fire risk</u>	
	1.) Control	1)Engine	<u>e</u>	<u>1)Galley,</u>	<u>1) Store</u>	<u>1)</u>	
	<u>centres,</u>	<u>room,</u>		2) Store	rooms,	Accommo	dation
	2)Switchboard	<u>d</u> <u>2)Accun</u>	nulator	rooms	2) Rooms	spaces	.
	rooms,	room		containing	containing	2)Barber s	shops
	<u>3)Stairwells</u>			<u>tlammable</u>	<u>Sauna, 3)</u>	and beaut	ĹΥ
	<u>4)Muster</u>			liquids	Laundry,	parlours	
	areas,					3) Cabins	
						4) Corrido	ors

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	<u>5)Evacuation</u> <u>areas</u>			4) Electrical service rooms, 5) Rooms containing sprinkler pumps, their switches and the valves that are required in order for the system to be operated	5) Other machinery /technical spaces (e.g. sewage treatment, ventilation, steering gear room)			
Rooms /areas protected for functional need	<u>A0 / B0 ^{1), 6)}</u>	<u>A60</u>	<u>A30</u>	<u>A0 / A30 ⁴⁾</u>	<u>A0 / A30 / B15</u> 2)			
Rooms of major fire risk		A60 / A0 ³⁾	<u>A60</u>	<u>A60</u>	<u>A60</u>			
Rooms of high fire risk			<u>A30⁶⁾</u>	A30 / B15 5)	<u>A30</u>			
<u>Rooms of</u> <u>moderate fire</u> <u>risk</u>				<u>A0⁶⁾</u>	<u>A0</u>			
Rooms of low					<u>B0</u>			
1) Partitions between control centres and external muster areas are to correspond only to Type B0.								
 2) For rooms which are not protected by a spinkler system; partitions between rooms of low fire risk and external muster areas are to correspond to Type B15. In all other cases they are to comply with Type A30. For rooms which are protected by a pressured water sprinkler system; partitions between rooms of low fire risk and internal muster areas are to correspond to Type A30, but external muster areas only to Type B15. In all other cases they are to comply with Type B15. In all other cases they are to comply with Type B15. In all other cases they are to comply with Type A30. 								
3) Partitions between engine rooms are to comply with Type A0, except for rooms according to 4.2.4.1, which are to comply with A60. In all other cases they are to comply with Type A60.								
 <u>4) Partitions between rooms of moderate fire risk and muster areas are to correspond to Type A30.</u> <u>5) No partition is required between galleys and adjacent food store rooms provided that outer perimeter of galleys including stores fullfills the requirements for galleys.</u> 								
6) Where adjacent rooms have the same purpose, the partitions need not to comply with the requirements of this table (for example; the partition between two stores).								
7) Windows below the muster areas/embarkation stations are to have same fire integrity as the structure on which it is fitted.								

5.3.2.3 For the purpose of determining the appropriate fire integrity standard to be applied to boundaries between adjacent spaces, such spaces are classified according to their fire risk described in the following categories. The title

of each category is intended to be typical rather than restrictive.

a) Control Centres : a wheelhouse, an area which contains an emergency electrical power plant or parts thereof

or an area with a centre permanently occupied by crew , such as for fire alarm equipment, remote controls of doors or fire dampers;

- b) Stairwell: the well of an internal staircase or of a lift;
- Muster Areas: areas of the vessel which are specially protected and in which persons muster in the event of danger;
- Accommodation Spaces: a room of an accommodation or a passenger space.
 On-board passenger vessels, galleys are not regarded as accommodation space.
- e) Engine Room: space where combustion engines are installed;
- f) Galley: a room equipped with an open flame cooking appliance or any electrically heated cooking plate or hot plate with a power of not more than 5 [kW];
- g) Store Room of high risk: a room for the storage of flammable liquids or a room with an area of over 4 [m²] for storing supplies.

5.3.2.9 <u>The exposed surfaces, including</u> <u>Ppaints, lacquers and other materials used on</u> <u>exposed internal surfaces</u> are not to produce excessive amounts of smoke or toxic substances. This is to be proven in accordance with the Code for Fire Test Procedures(<u>Annex</u> <u>1, Part 2</u>).

5.3.2.16 Stairs are to be made of steel or another equivalent non-combustible material in terms of fire-resistance.

5.3.3 Ventilation System

5.3.3.2 Galleys are to be fitted with ventilation systems and stoves with extractors. Stoves and similar cooking appliances are to be fitted with extractors. The air extraction ducts of the extractors are to satisfy the requirements according to 5.3.3.1 and, additionally, be fitted with manually operated fire dampers at the inlet openings. Insulation on galley ducts are to be in accordance with the applicable requirements of 5.3.2.1 for galley.

5.4 Fire Detection

5.4.1 General

5.4.1.1 Accommodation spaces, galleys, engine rooms and other rooms presenting a fire risk are to be connected to a fire alarm system (See Pt.4, Ch.9, Sec.3). The existence of a fire and its exact whereabouts is to be automatically displayed by an indicator device at a location permanently manned by crew members. Provision of fire alarm systems for accommodation spaces constantly supervised by crew may be specially considered.

Section 7

Additional Requirements for PRM Notation

7.3 Passenger Spaces

7.3.2 Doors of Passenger Spaces

7.3.2.1 In addition to 2.5.3.1, doors of passenger spaces are to comply with the following requirements:

a) For doors intended for use by persons with reduced mobility,

from the direction from which the door opens, there is to be a minimum clearance of 0.60 [m] between the inner edge of the doorframe on the lock side and an adjacent perpendicular wall. As an alternative, doors with an automatic release by a push button are also acceptable. The power for this remote control is to be available at all times.

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7.3.4 Stairs and their Landing

7.3.4.1 In addition to 2.5.5.1, stairs intended for use by persons with reduced mobility are to comply with the following requirements:

- a) the gradient of the stairs is not to exceed <u>3833</u>°;
- b) the stairs are to have a clear width of at least 0.9 [m];
- c) spiral staircases are not allowed;
- d) the stairs are not to run in a direction transverse to the vessel;
- e) the handrails of the stairs are to extend approximately 0.3 [m] beyond the top

and bottom of the stairs without restricting traffic routes;

 handrails, front sides of at least the first and the last step as well as the floor coverings at the ends of the stairs are to be colour highlighted.

7.3.6 Embarking and Disembarking Arrangement

7.3.6.1 In addition to 2.5.7.1, parts of the deck intended for passengers, and which are not enclosed, are to comply with the following requirements:

a) Openings, used normally for the embarking or disembarking of persons with reduced mobility, are to have a clear width of at least 1.5 [m].

End of Chapter