RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part P Mobile Offshore Drilling Units, Work-ships and Special Purpose Barges

2011 AMENDMENT NO.1

Rule No.27 30th June 2011
Resolved by Technical Committee on 3rd February 2011
Approved by Board of Directors on 25th February 2011

Rule No.27 30th June 2011
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part P MOBILE OFFSHORE DRILLING UNITS, WORK-SHIPS AND SPECIAL PURPOSE BARGES

Amendment 1-1

Title of Part P has been amended as follows.

Part P MOBILE OFFSHORE DRILLING UNITS~~, WORK-SHIPS~~ AND SPECIAL PURPOSE BARGES

Chapter 1 GENERAL

1.1 General

Paragraph 1.1.1 has been amended as follows.

1.1.1 Application

1 The requirements in this Part apply to the materials, welding, stability, hull construction, equipment, positioning systems, machinery installations, electrical installations, fire protection and detection system, fire extinguishing systems, means of escape and load lines of mobile offshore drilling units~~, work-ships~~ and special purpose barges, etc., notwithstanding the requirements in other Parts. The mobile offshore drilling units~~, work-ships~~ and special purpose barges, etc., (hereinafter referred to as "units" in this Part) are steel-made ships and floating structures, and ~~engaged in specific operation, ship-type units and barge-type units but not primarily intended for the carriage of cargoes or~~ those are generally positioned for a long period of time or semi-permanently at a specific sea area, or fixed at a specific sea area.

2 FPSO, FPO and FSO defined in **1.2.1, Part PS** are to be according to **Part PS** notwithstanding the requirements given in this **Part**.

1.2 Definitions

Paragraph 1.2.3 has been amended as follows.

1.2.3 Purposes of Units

Units are classified into the following eight groups depending upon their purposes :

(1) Mobile offshore drilling unit
Mobile offshore drilling unit is a unit which is provided with drilling equipment for the exploration for and exploitation of resourced beneath the seabed such as crude oil, natural gases, and so on.

~~(2) Work-ship~~

~~Work-ship is a unit, other than mobile offshore drilling units engaged in a designated operation such as the lifting of heavy loads, fire fighting, offshore supply towing, etc. at sea. The following units are so-called work-ships.~~

~~(a) Dredgers~~

~~A dredger is a unit engaged in dredging sand and rocks from the seabed.~~

~~(b) Crane ships~~

~~A crane ship is a unit engaged in lifting heavy loads and moving such load vertically and horizontally.~~

~~(c) Vessels engaged in towing operations~~

~~i) Tugs~~

~~A tug is a unit primary engaged in towing ships when such ships leave or come into a port and leave or come alongside the shore, or towing non self-propelled units, floating units, etc.~~

~~ii) Ocean tugs~~

~~An Ocean tug is a unit engaged in towing non self-propelled units, floating units, etc. in the ocean.~~

~~(d) Pusher tugs~~

~~A pusher tug is a unit that pushes barges forward with its bow.~~

~~(e) Fire fighting vessel~~

~~A fire fighting vessel is a unit engaged in fire fighting operations.~~

~~(f) Offshore supply vessels~~

~~An offshore supply vessel is a vessel primary engaged in the supply of stores such as water and fuel oil, materials and equipment to offshore installations; and, for the purpose of this Part, which is designed with accommodation and bridge erections in the forward part of the unit and an exposed cargo deck in the after part for the handling of cargo at sea.~~

~~(g) Anchor handling vessels~~

~~An anchor handling vessel is a unit engaged in the installation, moving and taking up of the mooring anchors of mobile offshore drilling units, dredgers, etc.~~

~~(h) Vessels engaged in laying objects on the seabed~~

~~i) Cable laying vessels~~

~~A cable laying vessel is a unit engaged in laying cable on the seabed.~~

~~ii) Pipe laying vessels~~

~~A pipe laying vessel is a unit engaged in laying pipes on the seabed.~~

(~~3~~2) Storage units

Storage unit is a unit primarily for storage of inflammable liquids such as crude oil, and stationed for long periods of time or semi-permanent.

(~~4~~3) Moored floating units

Moored floating unit is a unit used for the special purpose in which a number of passengers are on board, whose structure has two and more decks or whose spaces are enclosed of which are used for this purpose.

(~~5~~4) Plant barges

Plant barge is a unit which is installed with equipment for the industrial factory, and fixed or stationed semi-permanent or for long periods of time under floating condition at its service area.

(~~6~~5) Accommodation barges

Accommodation barge is a unit with no propelling machinery which has accommodation for particular personnel or passengers. This unit is to be stationed at smooth water areas or sea areas equivalent thereto. In addition, during moving of this unit, there is not to be anyone

except operator for moving operation on board.

(~~7~~6) Floating piers

Floating pier is a unit which has mooring equipment, loading apparatus, etc. for loading or unloading and has bridges for access from the shore. This unit is to be stationed semi-permanent or for long periods of time under floating condition at its service area.

(~~8~~7) Other types of units

Other types of units are units other than those specified in **(1)** to **(~~7~~6)**.

Paragraph 1.2.24 has been amended as follows.

1.2.24 Units Fixed on the Seabed or Positioned for Long Periods of Time

Units fixed on the seabed or positioned for long periods of time mean that the units are fixed on the seabed or positioned at a specific sea area over 30 days. In general, units specified in **1.2.3(1)** to **(6)** are categorized into the units fixed on the seabed or positioned for long periods of time.

Chapter 5 WATERTIGHT BULKHEADS

5.2 Closing Appliances

Paragraph 5.2.5 has been deleted.

~~**5.2.5 Additional requirements for work ships**~~

~~Access to the machinery spaces of category A of offshore supply vessels is to be arranged within the forecastle as far as possible. Any access to such machinery spaces from exposed cargo decks is to be provided with two weathertight closures.~~

Chapter 7 HULL STRENGTH

7.1 General

7.1.1 Application

Sub-paragraph -2 has been amended as follows.

1 The hull strength of units fixed on the seabed or positioned for long periods of time is to be according to this **Part**. However, in case where service areas or operation seasons are restricted, the hull construction of units may be suitably modified based on certain conditions subject to Society approval.
2 The hull strength of units, except for units not listed in **-1** above, are to be according to ~~**7.7 in addition to**~~ relevant requirements given in **Part C**, **Part CS** or **Part Q**.
3 The hull strength of units, except for units not listed in **-1** and **-2** above, is to be at the discretion of the Society.

Section 7.7 has been deleted.

~~**7.7 Additional Requirements for Work-Ships**~~

~~**7.7.1 Dredgers**~~
~~The surroundings of the ladder wells in dredgers are to be provided with cofferdams or be suitably reinforced.~~

~~**7.7.2 Crane Ships**~~
~~With respect to the longitudinal strength of a barge-type work-ships provided with cranes, in cases where the cross sectional coefficient is calculated when such cranes are in operation, the value of Z_a is to be according to **Chapter 12, Part Q** or calculated according to the following formula:~~

~~$Z_a = 8.36CM_{-\phi}$ (cm^3)~~

~~where:~~

~~All symbols are to be in accordance with the requirements given in **Chapter 12, Part Q**.~~

~~**7.7.3 Tugs and Pusher Tugs**~~
~~**1** The construction of parts, such as the bow parts of work-ships, in cases where work-ships come into contact with other units for navigation or operation of units, is to be such to ensure sufficient strength.~~
~~**2** In cases where pusher tugs are equipped with coupling devices for connection to other units, construction in way of such coupling devices is to be such to ensure sufficient strength.~~

~~**7.7.4 Vessels engaged in Towing Operations**~~
~~**1** In general, Towing equipment are to be located on longitudinals, beams or girders, which are parts of the deck construction.~~
~~**2** In cases where towing equipment cannot be located as specified in **-1** above, towing equipment are to be arranged on reinforced members.~~

3 The supporting structures of towing equipment are to be such to ensure sufficient strength.
4 The design load on fittings is to take into account all acting loads.
5 The design loads for the supporting structures of towing equipment are to be not less than the breaking strength of the towline system.

7.7.5 Fire Fighting Vessels

The supporting structures of monitors for fire fighting are to be such to ensure sufficient strength to handle the reaction forces of water jets.

7.7.6 Offshore Supply Vessels

1 Side construction is to be such to ensure sufficient strength for impact loads arising from contact with other ships.
2 In cases where cargo rails are fitted onto cargo decks, the structures under the stanchions of cargo rails are to be appropriately reinforced.
3 In cases where heavy cargo is carried on deck, effective means such as steel cradles, steel or wooden dunnages, etc. are to be provided so that weight is uniformly distributed onto deck structures.
4 The superstructure end bulkheads and boundary walls of deckhouses are to be such to ensure sufficient strength for operational loads.
5 Liquid cargo tanks are to be according to following **(1)** to **(3)**:
(1) In cases where hazardous and noxious liquid cargo are loaded in tanks, the quantities of liquid cargo are to be limited to 800m^3 or a volume in cubic meters equal to 40% of vessel deadweight calculated at a cargo density of 1.0t/m^3. However, there are no such quantity limitations for drilling fluids (liquid mud, etc.), cargo fuel and non-noxious liquid substances.
(2) In cases where not bounded by bottom shell plating, fuel oil tanks, cargo pump-rooms or pump-rooms, cargo integral tanks are to be separated from other spaces by cofferdams having accessible widths of 600mm.
(3) Independent tanks are to be segregated from machinery spaces, propeller shaft tunnels, if fitted, dry cargo spaces, accommodation and service spaces and from drinking water and stores for human consumption by cofferdams, void spaces, cargo pump-rooms, oil fuel tanks or other similar spaces.
6 Dry cargo tanks are to be according to following **(1)** and **(2)**:
(1) In cases where cargo tanks for dry cement or mud are fitted, these cargo tanks are to be separated from engine rooms and accommodation spaces by steel bulkheads and decks.
(2) Cargo transfer piping systems are, in general, not to be led through machinery spaces. However, in cases where such design is impractical, piping systems may pass through machinery spaces, provided that all pipe connections located within machinery spaces are welded and any detachable connections are arranged outside of such spaces.

7.7.7 Anchor Handling Vessels

1 The supporting structures of anchor handling equipments and in way of parts where anchors are loaded are to be such to ensure sufficient strength.
2 Units are to have completely clear after decks in order to effectively handle anchors.
3 In cases where anchor handling operations are conducted using after deck stern rollers, the aft terminals in way of the stern areas for shipping/unshipping anchors are to be round in shape.

7.7.8 Vessels engaged in Laying Objects on the Seabed

1 The supporting structures of equipment used for laying objects on the seabed are to be such to ensure sufficient strength.
2 The supporting structures of parts used for loading cable and pipes are to be such to ensure

~~sufficient strength.~~
~~**3** In cases where units are equipped with mooring equipment or anchor handling equipment for positioning consist, the supporting structures of such equipment are to be such to ensure sufficient strength.~~

Chapter 9 HULL EQUIPMENT

9.4 Equipment for Special Purpose

Paragraphs 9.4.3 to 9.4.8 have been deleted.

~~**9.4.3 Dredgers**~~
~~Seats for primary dredging machinery are to have sufficient strength.~~

~~**9.4.4 Fire Fighting Vessels**~~
~~Fire Fighting vessels are to be fitted with fire fighting equipments for fire fighting on other ships and fitted with suitable equipments to ensure the safety of their own ship during fire fighting operations.~~

~~**9.4.5 Offshore Supply Vessels**~~
~~**1** Longitudinal fenders are normally to be fitted on side shells in the deck areas where upper decks or forecastles decks are at full breadth.~~
~~**2** Wooden sheathings, etc. are to be provided on cargo decks to appropriately protect steel deck plates from mechanical damage and/or scuffing.~~
~~**3** In cases where cargo rails are fitted onto cargo decks, cargo rail stanchions are to be attached.~~

~~**9.4.6 Anchor Handling Vessels**~~
~~**1** Deck areas for the collection and handling of anchors and associated equipment are to be protected by wooden sheathing, etc.. In cases where deemed appropriate by the Society, there is no need for protection by wooden sheathing.~~
~~**2** Equipment, such as winches, for anchor handling operations are to be provided with suitable safety devices so that towing wires are able to be released or cut in times of emergency.~~

~~**9.4.7 Vessels Engaged in Towing Operations**~~
~~**1** The towing hooks, towing bits or towing bollards fitted onto ocean tugs is to be located as low as practicable, and close to, but abaft of, the center of gravity of the towing vessel in the expected towing condition.~~
~~**2** Equipment, such as winches, for towing operations are to be provided with suitable safety devices so that towing wires are able to be released or cut in times of emergency.~~

~~**9.4.8 Vessels Engaged in Laying Objects on the Seabed**~~
~~Equipment for laying objects on the seabed are to be provided with suitable safety devices so that towing wires are able to be released or cut in times of emergency.~~

Chapter 11 MACHINERY INSTALLATIONS

11.1 General

11.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 For main propulsion machinery, power transmission systems, shafting systems, propellers, prime movers other than main propulsion machinery, boilers, etc., incinerators, pressure vessels, auxiliaries, piping systems, jacking systems and their control systems (hereinafter referred to as "machinery installations" in this Part) for mobile offshore drilling units, storage units, ~~work-ships,~~ plant barges, accommodation barges and ~~units which are engaged in a special work and are stationed for a long period of time and~~ units which have accommodation for particular personnel or passengers, requirements in this **11.1** are to be applied.
2 Machinery installations for units not listed in **-1** are to be deemed appropriate by the Society.

Section 11.4 has been deleted.

~~**11.4 Fire Fighting Vessels**~~

~~**11.4.1 Scope**~~
~~The machinery installations of fire fighting vessels are to comply with the requirements given in this **11.4** as well as the requirements given in **11.1.**~~

~~**11.4.2 Propulsion machinery**~~
~~**1** Propulsion machinery is to have sufficient power to secure stable maneuverability during fire fighting operations.~~
~~**2** Propulsion machinery is to be able to maintain ship position in still water as well as the capacity of water monitors during fire fighting operations at not more than 80% of the propulsion force in any direction.~~
~~**3** Control systems~~
~~Control systems are to be provided with the following functions to prevent complete loss of power due to power overloads:~~
~~(1) Alarm devices which give alarms in cases where propulsion power exceeds 80% during fire fighting operations.~~
~~(2) Means which reduce the speed of propulsion machinery in cases where propulsion power exceeds 100% during fire fighting operations.~~

~~**11.4.3 Auxiliaries and Piping Systems**~~
~~Pumps and piping systems intended for serving water monitors or water spray devices which are used for protection are to comply with the following requirements:~~
~~(1) Pumps and piping systems are not to be used for services other than water monitors and water spray devices.~~
~~(2) In cases where 2 or more pumps are provided, independent sea inlets are to be provided for each pump.~~

~~(3) In cases where 2 or more pumps are provided, they are to have equal or near equal capacity.~~
~~(4) Adequate piping arrangements to prevent overheating at low pump delivery rates are to be provided to each pump.~~
~~(5) Piping systems are to be protected against overpressure.~~
~~(6) Pumps and piping systems used for water spray devices are to be independent from systems serving water monitors, except in cases where such pumps are intended for serving water monitors and water spray devices.~~
~~(7) Piping systems are to be protected against corrosion and freezing.~~

~~**11.4.4 Sea Inlets for Fire Fighting Operations**~~
~~**1** The sea inlets for fire fighting operations are not to be used for services other than fire fighting operations or water spray devices.~~
~~**2** The sea inlets for fire fighting operations and sea chests are to be arranged as low as practical to avoid clogging due to debris or ice and oil intake from the sea surface.~~
~~**3** The location of sea inlets for fire fighting operations and sea chests are to be such that water suction is not impeded by ship motions or the water flow from propellers or thrusters.~~
~~**4** Each sea inlet for fire fighting operations is to be provided with a shut off valve.~~
~~**5** Fire fighting pumps, the shut off valves mentioned above, and overboard discharge valves are to be operable from the same locations.~~
~~**6** The starting of fire fighting pumps in cases where shut off valves are closed is to be prevented by providing either interlock systems or by audible and visual alarms.~~

Chapter 12 ELECTRICAL INSTALLATIONS

12.1 General

12.1.1 Scope

Sub-paragraph -1 has been amended as follows.

1 For electrical equipment, wirings and their control systems (hereinafter referred to as "electrical installations" in this Part), for mobile offshore units, storage units, ~~work ships,~~ plant barges, accommodation barges ~~units which are engaged in a special work and are stationed for a long time~~ and units which have accommodation for particular personnel or passengers requirements in this **12.1** are to be applied.
2 Electrical installations for units not listed in **-1** are to be deemed appropriate by the Society.

Section 12.4 has been deleted.

~~**12.4 Work-Ships**~~

~~**12.4.1 Scope**~~

~~**1** Electrical installations for the work-ship are to comply with the requirements in this **12.4** as well as the requirements in **12.1.**~~

~~**2** For electrical installations for the unit which is engaged in works with danger of a fire or an explosion, the requirements in **12.2** and **12.3** are to be correspondingly applied.~~

~~**3** For electrical installations for the unit which is engaged in a special work and are stationed for a long period of time, the requirements in **12.5** are to be applied notwithstanding the requirements in **-1.**~~

~~**4** For electrical installations for the unit which have a large embarking capacity, the Society requires additional requirements in addition to the requirements in this **12.4.**~~

~~**12.4.2 Main Source of Electrical Power and Lighting Systems**~~

~~Emergency lighting providing sufficient illumination necessary for the safety is to be provided:~~

~~(1) at every muster and embarkation station;~~

~~(2) in all service and accommodation alleyways, stairways and exits, personnel lift cars, and personnel lift trunks;~~

~~(3) in the machinery spaces and main generating stations including their control positions;~~

~~(4) in all control stations, machinery control rooms, and at each main and emergency switchboard;~~

~~(5) at all stowage positions for firemen's outfit;~~

~~(6) at the fire pumps, at the sprinkler pumps and at the emergency bilge pumps, and at the starting positions of their motors; and~~

~~(7) on helicopter landing decks.~~

~~**12.4.3 Emergency Source of Electrical Power**~~

~~The emergency source of electrical power is to be capable of supplying simultaneously the services listed in the following **(1)** to **(7)** for the period specified hereinafter if they depend upon an electrical source.~~

~~(1) For a period of 18 *hours*, emergency lighting specified in **12.4.2.**~~

~~(2) For a period of 18 *hours*, navigation lights, other lights and sound signals required by national regulations or international regulations.~~

~~(3) For a period of 4 *days*, any signalling lights or sound signals which may be required for marking of offshore structures.~~

~~(4) For a period of 18 *hours*, the services listed in the following unless such services have an independent supply for the period of 18 *hours* from an accumulator battery suitably located for use in an emergency.~~

~~(a) All internal communication equipment as required in an emergency.~~

~~(b) *VHF* radio installations, *MF* radio installations, *INMARSAT* ship earth stations and *MF/HF* radio installations as required by Chapter *IV*, the Annex to *SOLAS* Convention and installed in the unit. Where, however, those radio installations are installed in duplicate, it is not necessary to consider duplicated installations are operated simultaneously in determining capacity of the emergency source of electrical power.~~

~~(c) Fire and gas detection and their alarm systems.~~

~~(d) Manual fire alarms and all internal signals that are required in an emergency.~~

~~(5) For a period of 18 *hours*, one of the fire pumps if dependent upon the emergency generator for~~

~~its source of power.~~

~~(6) On column-stabilized units, for a period of 18 *hours*, the services listed in the following.~~

~~(a) Any of the ballast pumps required by **11.1.9-3**. Only one of the connected pumps need be considered to be in operation at any time.~~

~~(b) Ballast control and indicating systems required by **11.1.9-8**.~~

~~(7) For a period of 30 *minutes*, the services listed in the following.~~

~~(a) Devices to operate the watertight doors required by **5.2.2**, but not necessarily all of them simultaneously, unless an independent temporary source of stored energy is provided.~~

~~(b) Control devices and indicators required by **5.2.2**.~~

Section 12.5 has been amended as follows.

12.5~~5~~4 Units which are Engaged in a Special Work and are Stationed for a Long Period of Time

12.5~~5~~4.1 Scope

1 Electrical installations for the unit, such as a plant barge, which is engaged in a special work and is stationed for a long period of time are to comply with the requirements in this **12.5~~5~~4** as well as the requirements in **12.1**.

2 For electrical installations for the unit which is engaged in works with danger of a fire or an explosion, the requirements in **12.2** and **12.3** are to be correspondingly applied.

3 For electrical installations for the unit of which electrical power is intended to be supplied from the shore, the Society may modify the application for the requirements in **12.1** and in this **12.5~~5~~4**.

4 For electrical installations for the unit which has a large embarking capacity, the Society requires additional requirements in addition to the requirements in this **12.5~~5~~4**.

12.5~~5~~4.2 Main Source of Electrical Power and Lighting Systems

(Omitted)

12.5~~5~~4.3 Emergency Source of Electrical Power

The emergency source of electrical power is to be capable of supplying simultaneously the services listed in the following **(1)** to **(7)** for the period specified hereinafter if they depend upon an electrical source for their operation.

(1) For a period of 18 *hours*, emergency lighting specified in **12.5~~5~~4.2-3**.

(2) For a period of 18 *hours*, navigation lights, other lights and sound signals required by national regulations or international regulations.

(Omitted)

Section 12.6 has been amended as follows.

12.6~~6~~5 Units which have Accommodation for Particular Personnel or Passengers

12.6~~6~~5.1 Scope

1 Electrical installations for the unit which has an accommodation for particular personnel or passengers, such as an accommodation barge, are to comply with the requirements in this **12.6~~6~~5** as well as the requirements in **12.1**.

2 For electrical installations for the unit of which electrical power is intended to be supplied from

the shore, the Society may modify the application for the requirements in **12.1** and in this **12.~~6~~5**.
3 For electrical installations for the unit which has a small embarking capacity, the Society may modify the application for the requirements in **12.~~6~~5.2** and **12.~~6~~5.3**.

12.~~6~~5.2 Main Source of Electrical Power and Lighting Systems
(Omitted)

12.~~6~~5.3 Emergency Source of Electrical Power
The emergency source of electrical power is to be capable of supplying simultaneously the services listed in the following **(1)** to **(7)** for the period specified hereinafter if they depend upon an electrical source for their operation.
(1) For a period of 36 *hours*, emergency lighting specified in **12.~~6~~5.2**.
(2) For a period of 36 *hours*, navigation lights, other lights and sound signals required by national regulations or international regulations.
(Omitted)

Chapter 14 FIRE PROTECTION AND MEANS OF ESCAPE

Section 14.7 has been deleted.

~~**14.7 Additional Requirements for Work-ships**~~

~~**14.7.1 Fire Fighting Vessels**~~
~~**1** In general, exposed decks, hulls and all exterior boundaries of forecastles and deck houses above the lightest operating waterline are to be made out of steel.~~
~~**2** Special consideration is to be paid to boundaries which are to be constructed of materials other than steel.~~
~~**3** In cases where water-spray systems are not provided to protect fire fighting vessels from the heat radiated from the fire, steel deadlights or shutters are to be provided on all windows and port lights, except for those in navigation bridges.~~
~~**4** In cases where water-spray systems are provided to protect fire fighting vessels from the heat radiated from the fire, such systems are to be according to the following **(1)** to **(3)**:~~
~~(1) Water-spray systems are to provide suitable protection for all exterior boundaries including the boundaries of hulls, superstructures, and deck houses. In cases where deemed appropriate by the Society, this requirement may be dispensed with.~~
~~(2) Water-spray systems are to be protected from corrosion.~~
~~(3) Deck scuppers and freeing ports are to be appropriately provided to assure efficient drainage of water from deck surfaces in cases where water-spray systems are in operation.~~

~~**14.7.2 Vessels Engaged in Towing Operations**~~
~~Emergency exits from machinery spaces to decks are to be capable of being used at extreme heel angles. In addition, emergency exits are to be positioned as high as possible above waterlines and positioned as near as practicable to ship centrelines.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 December 2011.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to ships for which the application is submitted to the Society before the effective date upon request by the owner.

Amendment 1-2

Chapter 1 GENERAL

1.1 General

Paragraph 1.1.4 has been amended as follows.

1.1.4 National Requirements

1 For the units which apply this Part, attention is to be paid to complying with the National Regulations of flag states and coastal states in addition to the requirements specified in this Part.

2 The Society may make special requirements as instructed by the flag-government of units or the government of sovereign nation in which units navigate.

Paragraph 1.1.7 has been deleted.

~~**1.1.7 Operating Booklets**~~

~~An appropriate operating booklet corresponding to the particular use of the unit is to be on board every unit.~~

1.2 Definitions

Paragraph 1.2.25 has been deleted.

~~**1.2.25 Operating Booklet**~~

~~An Operating Booklet is to include the following information, as applicable to the particular unit, so as to provide suitable guidance to the operating personnel with regard to safe operation of the unit :~~

~~(1) General description of the unit ;~~

~~(2) Pertinent data for each approved mode of operation, including design and variable loading, environmental conditions, draught, etc. ;~~

~~(3) The lowest temperatures of atmosphere and sea water assumed at the design stage ;~~

~~(4) General arrangement showing watertight compartments, closures, vents, allowable deck loadings, etc. ;~~

~~(5) Hydrostatic curves or equivalent data ;~~

~~(6) Capacity plan showing capacities of tanks, centres of gravity, free surface corrections, etc. ;~~

~~(7) Instructions for operation, including precautions to be taken in adverse weather, changing mode of operation, any inherent limitations of operation, etc. ;~~

~~(8) Plans and description of the ballast system and instructions for ballasting. If permanent ballast is to be used, the weight, location and substance used are to be clearly indicated ;~~

~~(9) Piping diagrams of fuel oil transfer systems ;~~

~~(10) Hazardous areas plan ;~~

~~(11) Fire control plan ;~~

~~(12) Arrangement of life-saving appliances together with escape routes ;~~

~~(13) Light ship data based on the results of an inclining experiment, etc. ;~~

~~(14) Stability information~~

~~(15) Representative examples of loading conditions for each approved mode of operation together with means for evaluation of other loading conditions ;~~
~~(16) Diagrams of main and auxiliary wiring systems ;~~
~~(17) Details of emergency shut-down procedures for electrical equipment ;~~
~~(18) Identification of the helicopter assumed in the design of the helicopter deck ;~~
~~(19) Instruction for operation of mooring systems~~
~~(20) Instruction for operation of dynamic positioning system~~
~~(21) Other instructions deemed necessary by the Society~~

Paragraphs 1.2.25 to 1.2.34 have been added as follows.

1.2.25 Gas-tight Door

A gas-tight door is a solid, close-fitting door designed to resist the passage of gas under normal atmospheric conditions.

1.2.26 Normal Operational and Habitable Conditions

Normal operational and habitable conditions are as follows:

(1) Conditions under which the unit as a whole, its machinery, services, means and aids ensuring safe navigation when underway, safety when in the industrial mode, fire and flooding safety, internal and external communications and signals, means of escape and winches for rescue boats, as well as the means of ensuring the minimum comfortable conditions of habitability, are in working order and functioning normally

(2) Conditions under drilling operations

1.2.27 Working Spaces

Working spaces are those open or enclosed spaces containing equipment and processes, associated with drilling operations, which are not included in hazardous areas and machinery spaces.

1.2.28 Helideck

Helideck is a purpose-built helicopter landing platform located on the unit.

1.2.29 *D*-value

D-value (D_H) means the largest dimension of the helicopter when rotor(s) are turning measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor path plane or helicopter structure.

1.2.30 Final Approach and Take-off Area (*FATO*)

Final approach and take-off area *(FATO)* is a defined area over which the final phase of the approach manoeuvre to hover or landing of the helicopter is intended to be completed and from which the take-off manoeuvre is intended to be commenced.

1.2.31 Obstacle-free Sector

Obstacle-free sector is a complex surface originating at, and extending from, a reference point on the edge of the *FATO* of a helideck, comprised of two components, one above and one below the helideck for the purpose of flight safety within which only specified obstacles are permitted.

1.2.32 Limited Obstacle Sector (*LOS*)

Limited obstacle sector *(LOS)* is a sector extending outward which is formed by that portion of the 360° arc, excluding the obstacle-free sector, the centre of which is the reference point from which the obstacle-free sector is determined. Obstacles within the limited obstacle sector are limited to specified heights.

1.2.33 Obstacle

Obstacle is any object, or part thereof, that is located on an area intended for the movement of a helicopter on a helideck or that extends above a defined surface intended to protect a helicopter in flight.

1.2.34 Touchdown and Lift-off Area (*TLOF*)

Touchdown and lift-off area (*TLOF*) is a dynamic load-bearing area on which a helicopter may touch down or lift off. For a helideck it is presumed that the *FATO* and the *TLOF* will be coincidental.

Chapter 2 MATERIALS AND WELDINGS

2.1 General

Paragraph 2.1.1 has been amended as follows.

2.1.1 General

1 Units are to be constructed from steel or other suitable material having properties, taking into consideration the temperature extremes in the areas in which the unit is intended to operate.

2 ~~**1**~~ Materials such as rolled steels, steel castings, steel forgings, etc. used for hull structures, equipment, etc. are to comply with the requirements of **Part K**.

3 ~~**2**~~ Equipment are to comply with the requirement of **Part L**.

4 ~~**3**~~ The requirements for weldings such as welding methods, welding materials, welding operators and their qualifications are to be in accordance with the requirements in **Part M**.

5 ~~**4**~~ Materials, welding method, etc. having characteristics differing from those specified in this Part, **Part K**, **Part L** and **Part M** may be used when the detailed design data of those and their use are approved by the Society. In this case, detailed data relating to the process of manufacture, the way of using, etc. of those are to be submitted for approval to the Society.

6 Consideration is to be given to the minimization of hazardous substances used in the design and construction of the unit, and is to facilitate recycling and removal of hazardous materials.

Chapter 4 STABILITY

4.1 General

4.1.3 Intact Stability

Sub-paragraph -3 has been amended as follows.

1 All units are to have positive stability in calm water equilibrium position.
2 All units are to have sufficient stability to withstand the overturning effect of heeling moment induced to wind and motions induced to the wave.
3 ~~For units provided to change the units' condition in the severe storm condition, the way of changing the units' condition such as rearrangement or storage the pay load and equipment, changing the draught are to be indicated to the Operating Booklet.~~Each unit is to be capable of attaining a severe storm condition in a period of time consistent with the meteorological conditions. The procedures recommended and the approximate length of time required, considering both operating conditions and transit conditions, are to be contained in the operating manual. It is to be possible to achieve the severe storm condition without the removal or relocation of solid consumables or other variable load. However, the Society may permit loading a unit past the point at which solid consumables would have to be removed or relocated to go to severe storm condition under the following conditions, provided the allowable KG is not exceeded:
(1) In a geographic location where weather conditions annually or seasonally do not become sufficiently severe to require a unit to go to severe storm condition; or
(2) Where a unit is required to support extra deck load for a short period of time that falls well within a period for which the weather forecast is favourable.
The geographic locations, weather conditions and loading conditions in which this is permitted should be identified in the operating manual.

4.2 Intact Stability Criteria

Paragraph 4.2.1 has been amended as follows.

4.2.1 General
1 For all units, consideration is to be paid to the cases of loading at the most critical positions applicable for intact stability, and curves of righting moments and of wind heeling moments similar to **Fig. P4.1** are to be prepared.
2 The righting moment curves and wind heeling moment curves are to be calculated in relation to the most critical axes and sufficient numbers of floating condition.
3 The righting moment curve are to be positive over the entire range of angle from upright to θ_3 of the second intercept angle shown in **Fig. P4.1**.
4 Where equipment is of such a nature that it can be lowered and stowed, additional wind heeling moment curves may be necessary and such data is to clearly indicate the position of such equipment.

4.3.3 Column-Stabilized Unit

Sub-paragraph (3) has been amended as follows.

In assessing the damage stability of column-stabilized units, the following extent of damage is to be assumed to occur between effective watertight bulkheads:

(1) Only those columns, underwater hulls and braces on the periphery of the unit are to be assumed to be damaged and the damage will occur in the exposed outer portions of the columns, underwater hulls and braces.
(2) Columns and braces are to be assumed to be flooded by damage having vertical extent of 3.0*m* occurring at any level between 5.0*m* above and 3.0*m* below the draughts. Where a watertight flat is located within this region, the damage is to be assumed to have occurred in both compartments above and below the watertight flat in question.
(3) Lesser distances above or below the draughts may be applied to the satisfaction of the Society, taking into account the actual operating conditions. However, the extent of required damage region is to be at least 1.5*m* above **(2)** and below the draughts specified in the ~~O~~operating ~~Booklet~~manual and where a watertight flat is located within this region, the damage is to be assumed to have occurred in both compartments above and below the watertight flat in question.
(4) No vertical bulkhead is assumed to be damaged except where bulkheads are spaced closer than a distance one-eighth the column perimeter at the draught under consideration, measured at the periphery, in which case one or more of the bulkheads will be disregarded.
(5) Horizontal penetration of damage is to be assumed not to exceed 1.5*m*.
(6) Footings are to be treated as damaged when operating at a light or transit condition in the same manner as indicated in **(1)** through **(5)**.

4.4 Damage Stability Criteria

Paragraph 4.4.1 has been amended as follows.

4.4.1 Self-Elevating Unit

1 All units of this type, considering the extent of damage required in **4.3.1** and **4.3.2**, are to be meet the requirements in **4.1.4** at all floating conditions.

2 For mobile offshore drilling units, in operating or transit condition, the flooding of any single compartment while meeting the following criterion (see **Fig. P4.2**):

$$R_O S \geq 7° + (1.5\theta_s)$$

Where:

$R_O S \geq 10°$

$R_O S$: range of stability, in degrees, is to be given by the following formula

$$R_O S = \theta_m - \theta_S$$

Where:

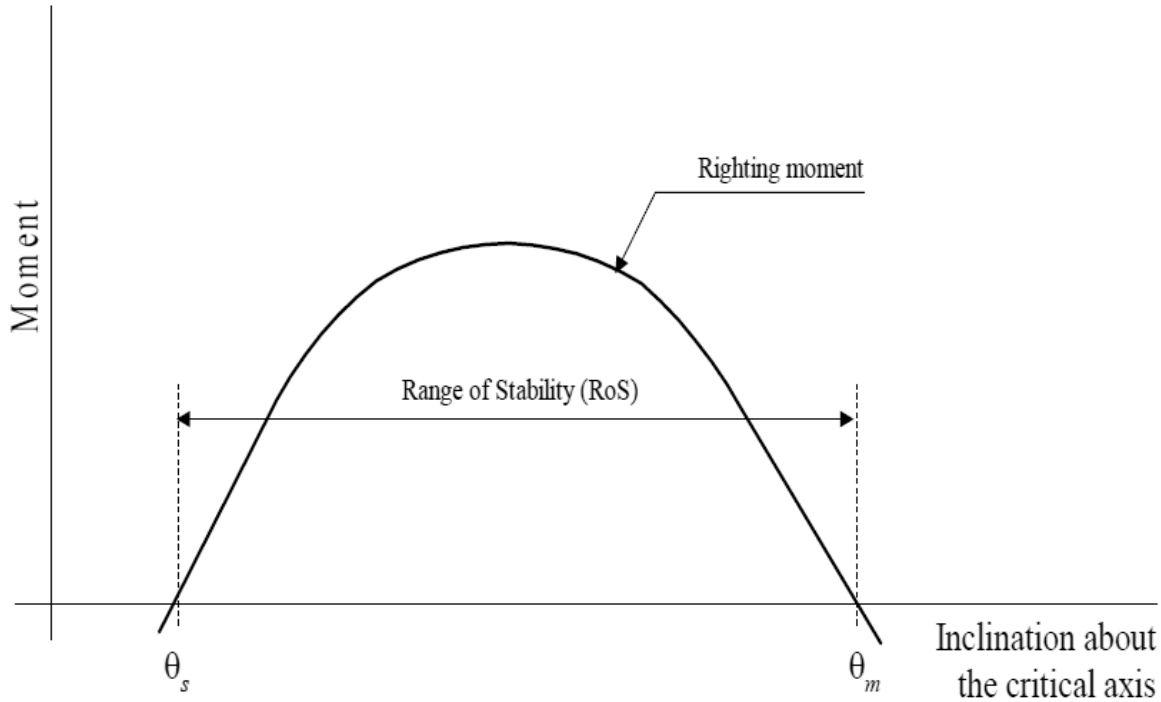
θ_m : Maximum angle of positive stability, in degrees

θ_S : Static angle of inclination after damage, in degrees

The range of stability is determined without reference to the angle of downflooding.

Fig. P4.2 has been renumbered to Fig. P4.3 and Fig. P4.2 has been added as follows.

Fig.P4.2 Residual Stability for Self-elevating Units



4.4.2 Column-Stabilized Unit

Sub-paragraph -1 has been amended as follows.

1 For all units of this type, curves of righting moments and of wind heeling moments in damage condition similar to **Fig. P4.~~2~~3** are to be prepared.
(Omitted)

Chapter 5 WATERTIGHT BULKHEADS

5.1 Watertight Bulkheads

5.1.2 Boundary Penetrations

Sub-paragraph -5 has been added as follows.

1 Where watertight boundaries are required for damage stability, they are to be made watertight, including piping, ventilation, shafting, electrical penetrations, and so on. Piping systems and ventilation ducts within the extent of damage are to be provided with valves which are capable of being remotely operated from the weather deck, pump room, or other normally manned space, and are to be satisfactorily arranged to preclude the possibility of progressive flooding through the system to other spaces, in the event of damage. Valve position indicators are to be provided at the remotely operating positions.
2 Notwithstanding the requirements in **-1**, non-watertight ventilation ducts are to be provided with watertight valves at the subdivision boundaries and the valves are to be capable of being operated from a remote location, with position indicators on the weather deck, or in a normally manned space.
3 In the case of self-elevating units, ventilating systems which are not used during the transit condition may be secured by alternative methods approved by the Society. In this case, necessary ventilation for closed spaces and closing methods are to be arranged at the discretion of the Society.
4 In the case of column-stabilized units, valve operating devices are to be in the central ballast control station. And valve position indicators are to be provided at the remote control station.
5 The number of openings in watertight subdivisions is to be kept to a minimum compatible with the design and safe operation of the unit. Where penetrations of watertight decks and bulkheads are necessary for access, piping, ventilation, electrical cables, etc., arrangements are to be made to maintain the watertight integrity of the enclosed compartments.

5.2 Closing Appliances

5.2.1 General

Sub-paragraph -4 has been added as follows.

1 The construction and closing appliances of openings through which the sea water is likely to flow in are to be in accordance with the requirements in this **Section**, in addition to the requirements given in **Part C** or **Part CS**.
2 Notwithstanding the requirements given in **-1** above, the construction and closing appliances of the openings through of units, except for units fixed on the seabed or positioned for long periods of time, need not apply the requirements given in **5.2.2** to **5.2.4**.
3 Closing appliances provided in column stabilized units, which are not located within areas of calculated immersion and for which special considerations are given, are to be at the discretion of the Society.
4 Watertight doors are to be of ample strength and watertightness for water pressure to a head up to the bulkhead deck or freeboard deck respectively, moreover, door frames are to be effectively

secured to the bulkheads. Where deemed necessary by the Society, watertight doors are to be tested by water pressure as follows before they are fitted.

(1) Prototype pressure test

(a) A prototype pressure test is to be conducted for each type and size of door to be installed on the unit at a test pressure corresponding to at least the head required for the intended location.

(b) The installation method and procedure for fitting the door on board are to correspond to those used for the prototype test.

(c) When fitted on board, each door is to be checked for proper seating between the bulkhead, the frame and the door.

(2) Notwithstanding the requirements of **(1)** above, large doors or hatches of a design and size that would make pressure testing impracticable may be exempted from the prototype pressure test, provided that it is demonstrated by calculations that the doors or hatches maintain watertightness at the design pressure, with a proper margin of resistance. After installation, all such doors, hatches or ramps are to be tested by means of a hose test or equivalent.

Paragraph 5.2.2 has been amended as follows.

5.2.2 Internal Openings used during Operation

Internal openings fitted with appliances to ensure watertight integrity, which are used during operation of the unit while afloat, are to comply with the following **(1)** to **(4)**:

(1) ~~Doors are to be capable of being remotely operated from a control position (ballast control room) which is above the final waterline after flooding as well as being operable locally from both sides of the bulkhead. Indicators are to be provided at the control position to indicate whether the doors are open or closed.~~Doors and hatch covers are to be remotely controlled from the central ballast control station and also to be operable locally from each side. Open/shut indicators are to be provided at the control station.

(2) ~~The requirements regarding remote control in **(1)** may be dispensed with provided an alarm system (e.g. light signals) is arranged showing personnel, both locally and at a control position, whether the doors in question are open or closed. Hatch covers required for watertight integrity are to have similar alarms.~~Doors are to comply with the followings in addition to the requirements in **(1)** above.

(a) Doors are to be sliding watertight doors.

(b) Doors are to be provided with an individual hand-operated mechanism. It is to be possible to open and close the door by hand at the door itself from both sides.

(c) An audible alarm is to be provided at the door closure

(d) The power, control and indicators are to be operable in the event of main power failure. Particular attention is to be paid to minimize the effect of control system failure.

(3) A signboard to the effect that the closing appliance is to be closed while afloat and is only to be used temporarily, is to be fitted locally.

(4) The closing appliances are to have strength, packing and means for securing which are sufficient to maintain watertightness under the design water pressure of the watertight boundary under consideration.

5.2.4 Internal and External Openings kept permanently closed while Afloat

Sub-paragraph (4) has been added as follows.

Internal and external openings fitted with appliances to ensure watertight integrity, which are to be kept permanently closed while afloat, are to comply with the following:

(1) A signboard to the effect that the opening is always to be kept closed while afloat is to be fitted on the closing appliances in question.
(2) Manholes fitted with bolted covers need not e dealt with as under **(1)**.
(3) The closing appliances are to have strength, packing and means for securing which are sufficient to maintain watertightness under the design water pressure of the watertight boundary under consideration.
(4) Doors or hatch covers in self-elevating units, or doors placed above the deepest load line draft in column-stabilized, ship-type and barge-type units may be of the quick acting type and are to be provided with an alarm system (e.g., light signals) showing personnel both locally and at the central ballast control station whether the doors or hatch covers in question are open or closed.

Chapter 7 HULL STRENGTH

7.3 Scantlings of Structural Members

Paragraph 7.3.5 and Table P7.2 have been deleted as follows.

~~**7.3.5 Helicopter Deck**~~

~~**1** Allowable stresses of the structural members of the helicopter deck are not to exceed the values in **Table P7.2** in association with the design loads prescribed in **3.2.4**.~~

~~**2** The minimum thickness of helicopter deck plating is not to be less than 6 *mm*.~~

~~**Table P7.2 Allowable Stresses**~~

	~~Structural members~~		
~~Design loads~~	~~Deck plating~~	~~Deck beams~~	~~Girders, stanchions, truss support, etc.~~
~~Helicopter landing impact load~~	~~*~~	~~σ_Y~~	~~$0.9\times\sigma_{Y'}$~~
~~Stowed helicopter load~~	~~σ_Y~~	~~$0.9\times\sigma_Y$~~	~~$0.8\times\sigma_{Y'}$~~
~~Overall distributed load~~	~~$0.6\times\sigma_Y$~~	~~$0.6\times\sigma_Y$~~	~~$0.6\times\sigma_{Y'}$~~

~~Note:~~

~~*At the discretion of the Society.~~

~~σ_Y :As specified in **7.2.2**~~

~~σ'_Y :For members subjected to axial compression, σ_Y or critical buckling stress, whichever is smaller, is to be considered. (N/mm^2)~~

7.4 Self-Elevating Units

Paragraph 7.4.2 has been amended as follows.

7.4.2 Legs

Legs are to be in accordance with the requirements in the following **(1)** to **(~~7~~8)**, in addition to the requirements in **7.4.1**. However, with regard to the motions of the unit and legs, they may be determined by an analytical method or from a model experiment deemed appropriate by the Society.

(1) Legs are to be either shell type or truss type, and, as a rule, footings or bottom mats are to be fitted. Where footings or bottom mats are not fitted, proper consideration is to be given to the leg penetration of the seabed and the end fixity of the leg. In strength calculation of such a leg, the leg is to be assumed as pin-supported at a position at least 3 *metres* below the seabed.

(2) Legs in the field transit condition are to be in accordance with the following **(a)** and **(b)**. The field transit condition means the condition which does not exceed a 12-hour voyage between two areas in protected locations or locations where the unit may be safely elevated. However, during any portion of the move, the unit is to be capable of arriving at a protected location or a location where the unit may be safely elevated within 6 *hours*.

(a) The legs are to have sufficient strength for the bending moment obtained from the following formula:

$M_1 + 1.2M_2$ (*N-m*)

M_1: Dynamic bending moment caused by a 6-*degree* single amplitude of roll or pitch at the natural period of the unit (*N-m*)

M_2: Static bending moment due to gravity caused by a 6 *degree* legs' angle of inclination (*N-m*)

(b) The legs are to be investigated for any proposed leg arrangement with respect to vertical position, and the approved positions are to be specified in the ~~O~~operating ~~Booklet~~manual. Such investigation is to include strength and stability aspects.

(3) Legs in the ocean transit condition are to be designed in accordance with the following **(a)** to **(d)**:

(a) The legs are to be designed for acceleration and gravity moments resulting from the motions in the severest anticipated environmental transit condition, together with corresponding wind moments.

(b) The legs are to have sufficient strength for the bending moment obtained from the following formula:

$M_3 + 1.2M_4$ (*N-m*)

M_3: Dynamic bending moment caused by a 15-*degree* single amplitude of roll or pitch at a 10-second period (*N-m*)

M_4: Static bending moment due to gravity caused by a 15-*degree* legs' angle of inclination (*N-m*)

(c) For ocean transit condition, it may be necessary to reinforce or support the legs, or to remove sections of them.

(d) The approved condition is to be included in the ~~O~~operating ~~Booklet~~manual.

(4) Legs are to be designed to withstand the dynamic loads which may be encountered by their unsupported length just prior to touching bottom, and also to withstand the shock of touching seabed while the unit is afloat and subject to wave motions.

(5) The maximum design motions, bottom conditions and sea state while lowering legs and the sea state while raising the legs are to be clearly indicated in the ~~O~~operating ~~Booklet~~manual.

(6) When computing leg stresses, while in the elevated position, the maximum overturning load on the unit, using the most adverse combination of applicable variable loadings together with the loadings as specified in **Chapter 3**, is to be considered. Forces and moments due to lateral frame deflections of the legs are to be taken into account.
(7) Leg scantlings are to be determined in accordance with a method of rational analysis, to the satisfaction of the Society.
(8) Except for self-elevating units utilizing a bottom mat, the capability is to be provided to pre-load each leg to the maximum applicable combined load after initial positioning at a site. The pre-loading procedures are to be included in the operating manual.

Chapter 8 LOAD LINES

8.2 Load Lines

8.2.2 Self-Elevating Units

Sub-paragraphs -3 and -4 have been added as follows.

1 Freeboard of this unit is to be assigned in accordance with *ILLC* after confirming that the hull structure has a sufficient strength for the draught corresponding to the freeboard assigned. Freeboard of units which cannot be assigned in accordance with *ILLC* due to special forms of units, however, is to be assigned in accordance with the requirements in **Chapters 4**, **5** and **7** at floating condition.
2 Load lines corresponding to assigned freeboards are to be marked with in accordance with *ILLC*.
3 When a unit may be manned while being towed, the bow height and reserve buoyancy requirements are to be as determined by the Society.
4 For some units utilized a large mat or similar supporting structure which contributes to the buoyancy when the unit is floating, the mat or similar supporting structure is to be ignored in the calculation of freeboard. However, the mat or similar supporting structure is to always be taken into account in the evaluation of the stability of the unit when floating.

8.2.3 Column-Stabilized Units

Sub-paragraph -3 has been amended as follows.

1 The minimum freeboard of this unit are to be determined by the requirements of **Chapters 4**, **5**, **7** and **8.3.2**.
2 The minimum freeboard are to be marked in appropriate location on the structure which is satisfactory to the Society.
3 The enclosed deck structure of this unit is to be ~~appropriate to the Society~~made weathertight.
4 Windows, side scuttles and port lights, including those of the non-opening type, or other similar openings are not to be located below the deck structure of this unit.

Chapter 9 HULL EQUIPMENT

9.4 Equipment for Special Purpose

Paragraph 9.4.2 has been amended as follows.

9.4.2 Mobile Offshore Drilling Units

(Omitted)
2 Drilling derricks
(1) The ~~D~~design and supporting structure~~construction~~ of drilling derricks~~ towers~~ are to be to~~at~~ the satisfaction~~discretion~~ of the Society.
(2) The rated capacity for each reeving is to be included in the operating manual.

Sections 9.5 to 9.7 have been added as follows.

9.5 Towing Arrangements

1 Towing arrangements are to be approved by the Society.
2 Towing arrangements are to have regard to normal and emergency condition.
3 Towing arrangements are to be clearly marked with any restrictions associated with its safe operation, taking into account the strength of its attachment to the unit's structure.

9.6 Means of Access

9.6.1 General

1 Each space within the unit is to be provided with at least one permanent means of access to enable, throughout the life of a unit, overall and close-up inspections and thickness measurements

of the unit's structures to be carried out. Such means of access are to comply with **Chapter 35, Part C**.

2 Where a permanent means of access may be susceptible to damage during normal operations or where it is impracticable to fit permanent means of access, the Society may allow, in lieu thereof, the provision of movable or portable means of access, provided that the means of attaching, rigging, suspending or supporting the portable means of access forms a permanent part of the unit's structure. All portable equipments are to be capable of being readily erected or deployed by the unit's personnel.

3 The construction and materials of all means of access and their attachment to the unit's structure are to be to the satisfaction of the Society.

9.6.2 Safe Access to Holds, Ballast Tanks and Other Spaces

1 Safe access to holds, cofferdams, tanks and other spaces are to be direct from the open deck. Those accesses are to comply with the following requirements.

(1) Tanks, having a length of 35 *m* or more, are to be fitted with at least two access hatchways and ladders, as far apart as practicable.

(2) Tanks less than 35 *m* in length are to be served by at least one access hatchway and ladder.

(3) Each hold is to be provided with at least two means of access as far apart as practicable. In general, these accesses are to be arranged diagonally, e.g., one access near the forward bulkhead on the port side, the other one near the aft bulkhead on the starboard side.

(4) When a tank is subdivided by one or more swash bulkheads or similar obstructions which do not allow ready means of access to the other parts of the tank, at least two hatchways and ladders are to be fitted.

2 Safe access to holds, cofferdams, tanks and other spaces are to be direct from the open deck and such as to ensure their complete inspection. Safe access may be from a machinery space, pump-room, deep cofferdam, pipe tunnel, hold, double hull space or similar compartment not intended for the carriage of oil or hazardous materials where it is impracticable to provide such access from an open deck.

9.6.3 Access Manual

Access manual is to be kept onboard. A unit's means of access to carry out overall and close-up inspections and thickness measurements are to be described in an access manual which may be incorporated in the unit's operating manual. The manual is to be updated as necessary and the updated manual maintained on board. The structure access manual is to include the following for each space:

(1) Plans showing the means of access to the space, with appropriate technical specifications and dimensions

(2) Plans showing the means of access within each space to enable an overall inspection to be carried out, with appropriate technical specifications and dimensions. The plans are to indicate from where each area in the space can be inspected

(3) Plans showing the means of access within the space to enable close-up inspections to be carried out, with appropriate technical specifications and dimensions. The plans are to indicate the positions of critical structural areas, whether the means of access is permanent or portable and from where each area can be inspected

(4) Instructions for inspecting and maintaining the structural strength of all means of access and means of attachment, taking into account any corrosive atmosphere that may be within the space

(5) Instructions for safety guidance when rafting is used for close-up inspections and thickness measurements

(6) Instructions for the rigging and use of any portable means of access in a safe manner

(7) An inventory of all portable means of access
(8) Records of periodical inspections and maintenance of the unit's means of access

9.6.4 Safe Access through Openings, Hatches or Manholes

1 For access through horizontal openings, hatches or manholes, the dimensions are to be sufficient to allow a person wearing a self-contained air-breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also provide a clear opening to facilitate the hoisting of an injured person from the bottom of a confined space. The minimum clear opening is not to be less than 600 *mm* × 600 *mm*. When access to a hold is arranged through a flush manhole in the deck or a hatch, the top of the ladder is to be placed as close as possible to the deck or hatch coaming. Access hatch coamings having a height greater than 900 *mm* are to also have steps on the outside in conjunction with the ladder.

2 For access through vertical openings, or manholes, in swash bulkheads, floors, girders and web frames providing passage through the length and breadth of the space, the minimum opening is to be not less than 600 *mm* × 800 *mm* at a height of not more than 600 *mm* from the bottom shell plating unless gratings or other footholds are provided.

9.7 Protective Coatings of Dedicated Seawater Ballast Tanks

For dedicated seawater ballast tanks, including pre-load tanks on self-elevating units, the requirements of the *"PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR DEDICATED SEAWATER BALLAST TANKS IN ALL TYPE OF SHIPS AND DOUBLE-SIDE SKIN SPACES OF BULK CARRIERS"* (*IMO Performance Standard for Protective Coatings / IMO* resolution *MSC*.215(82)) are to be complied with. However, for mat tanks and spud cans on such units, the requirements need not be complied with.

Chapter 10 POSITIONING SYSTEMS

10.3 Anchor Mooring System

10.3.3 Equipment for Anchor Mooring System

Sub-paragraph -3 has been amended as follows.

3 The means specified in **(1)** through **(4)** below are to be provided for controlling anchor mooring systems:
(1) Each windlass is to be capable of being controlled from a position which provides a good view of the operation.
(2) Means are to be provided at the windlass control position to monitor the mooring line tension and windlass power load and to indicate the amount of mooring line paid out.
(3) Systems which indicate and automatically record ~~M~~mooring line tension ~~indicator~~, wind velocity and wind direction ~~indicators~~ at ~~control station of~~ each windlass are to be provided at

the manned control position.

(4) Means of communication are to be provided between essential place for mooring operations (for example: operating position, wheel house, control room, etc.)

(Omitted)

Chapter 11 MACHINERY INSTALLATIONS

11.1 General

11.1.9 Ballast Piping of Column-Stabilized Units

Sub-paragraph -8 has been amended as follows.

8 A central ballast control station ~~providing~~ equipped with the following **(1)** to **(7)** control systems, indicating systems, indicators and a communication system which activate audible and visual alarms if an abnormal condition is detected,~~specified in **(1)** to **(8)** below~~ is to be provided. It is to be located above the worst damage waterline and in a space not within the assumed extent of damage referred to in **Chapter 4** and adequately protected from weather.

(1) A ballast pump control system (including a ballast pump status-indicating system)

(2) A ballast valve control system for ballasting and deballasting (including a ballast valve position-indicating system)

(3) A ballast tank level indicating system

(4) A draught indicating system

(5) A heel and trim indicator

(6) A power availability indicating system (main and emergency)

(7) A ballast system hydraulic or pneumatic pressure-indicating system

~~(8) A communication system specified in **12.1.7-2**~~

11.1.14 Jacking Systems

Sub-paragraphs -4 to -8 has been added as follows.

1 The driving gear, mechanism, strength and safety device of the jacking system are to be those deemed appropriate by the Society.

2 The jacking system is to be such as to maintain the safety of the unit in the event of failure of part of the system or the control device or loss of source of power for driving gear. A suitable monitoring device is to be provided at a permanently attended control station to indicate such failure.

3 Where hydraulic or pneumatic system is used as a source of power for the jacking system, two

or more sets of sources of power are to be provided so as to be capable of operating the jacking system even when either one set becomes out of action. However, for the unit for restricted areas (except for a unit which has a large embarking capacity), one set may be acceptable.

4 The elevating system is to be designed and constructed for the maximum lowering and lifting loads of the unit as specified in the unit's operation manual in accordance with **17.2.2-1(8)**.

5 The elevating system is to be able to withstand the forces imposed on the unit from the maximum environmental criteria for the unit.

6 The elevating system is to be operable from a central jacking control station.

7 The jacking control station is to be provided the following safety devices:

(1) Audible and visual alarms for jacking system overload and out-of-level.

(2) Indicators for the following:

(a) The inclination of the unit on two horizontal perpendicular axes

(b) Power consumption or other indicators for lifting or lowering the legs, as applicable

(c) Brake release status

8 A communication system is to be provided between the central jacking control and a location at each leg.

Paragraph 11.1.15 has been amended as follows.

11.1.15 Additional Requirements for the Unit which has the Main Propulsion Machinery

(Omitted)

6 Means are to be provided to ensure that machinery installations can be brought into operation from the dead ship condition without external aids. In addition, the starting systems in conjunction with other machinery are to be so arranged as to restore propulsion from dead ship condition within 30 *minutes* after blackout.

~~**6**~~**7** (Omitted)

~~**7**~~**8** (Omitted)

11.2 Mobile Offshore Drilling Units

11.2.2 Auxiliaries and Piping Systems

Sub-paragraph -3 has been added as follows.

1 Piping Systems used for the safe operation of the unit are, as a rule, to be separate from systems used for drilling operations. Where necessarily inter-connected, such piping systems are to be acceptable to the Society.

2 Where air or steam is used to atomize well bore fluids prior to flaring, a non-return valve is to be fitted in the air or steam line. This valve is to be part of the permanently installed piping, readily accessible and as close as possible to the burner boom. Alternative arrangements shown to provide an equivalent level of safety may be accepted by the Society.

3 Non-metallic expansion joints in piping systems, if located in a system which penetrates the unit's side and both the penetration and the non-metallic expansion joint are located below the deepest load waterline, are to be inspected as part of the dry-dock survey in **12.6, Part B** and replaced as necessary, or at an interval recommended by the manufacturer.

11.2.3 Safety Devices

Sub-paragraph -2(1) has been amended as follows.

(Omitted)
2 At least the facilities listed in the following **(1)** to **(5)** are to be operable after an emergency shut-down specified in **-1**. Equipment which is located in spaces other than enclosed spaces is to be suitable for installation in hazardous areas zone 2. Such equipment, when located in enclosed spaces, is to be suitable for its intended application to the satisfaction of the Society.
(1) Emergency lighting required by **12.2.3-3(1)** to **(4)** for 30 *minutes*
(2) Blow-out preventer control system
(3) General alarm system
(4) Public address system
(5) Battery supplied radio communication installations
(Omitted)

Chapter 12 ELECTRICAL INSTALLATIONS

12.1 General

12.1.5 Main Source of Electrical Power and Lighting Systems

Sub-paragraph -9 has been amended as follows.

9 The emergency lighting system required by **12.1.8-3(3)** and **12.2.3-3**, **12.3.3**, **12.4.2**, **12.5.2** or **12.6.2** and the navigation lights, signaling devices, etc. required by **12.2.4(2)** and **(3)**, **12.3.4(2)**, **12.4.3(2)** and **(3)**, **12.5.3(2)** and **(3)** or **12.6.3(2)** and **(3)** are to be so arranged as not to be impaired in the event of a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment, the main switchboard and the main lighting switchboard.

12.1.8 Additional Requirements for the Unit which has the Main Propulsion Machinery

Sub-paragraph -2 has been amended as follows.

2 Electrical installations are to be so designed to operate under static conditions specified in **11.1.4-2** and **-3** and under dynamic conditions specified in **11.1.15-~~6~~7**. The Society may permit deviation from the angles specified taking into consideration the type, size and service conditions of the unit.

12.2 Mobile Offshore Drilling Units

Paragraph 12.2.3 has been amended as follows.

12.2.3 Main Source of Electrical Power and Lighting Systems

1 In cases where main sources of electrical power are necessary for the propulsion and steering of ships, systems are to be arranged so that electrical supplies to equipment necessary for propulsion and steering and to ensure ship safety will be maintained or immediately restored in cases where there is the loss of any one of the generators in service.

2 In cases where electrical sources are necessary to restore propulsion, capacities of emergency sources of power is to be sufficient to restore propulsion to ships from dead ship conditions within a period of 30 *minutes* after a blackout.

3 Emergency lighting providing sufficient illumination necessary for the safety is to be provided:

(1) At every muster and embarkation station, and over sides;
(2) In all service and accommodation alleyways, stairways and exits, personnel lift cars, and personnel lift trunks;
(3) In the machinery spaces and main generating stations including their control positions;
(4) In all control stations, machinery control rooms, and at each main and emergency switchboard;
(5) At all stowage positions for firemen's outfit;
(6) At the fire pumps, at the sprinkler pumps and at the emergency bilge pumps, and at the starting positions of their motors;
(7) In all spaces from which control of the drilling process is performed and where controls of machinery essential for the performance of this process, or devices for emergency switching-off of the power plant are located; and
(8) On helicopter landing decks.

Paragraph 12.2.4 has been amended as follows.

12.2.4 Emergency Source of Electrical Power

The emergency source of electrical power is to be capable of supplying simultaneously the services listed in the following **(1)** to **(~~9~~10)** for the period specified hereinafter if they depend upon an electrical source for their operation.

(Omitted)

(10) In every ship of 10,000 gross tonnage or above for at least 30 minutes and in any other ship for at least 10 minutes, steering gear designed to receive emergency generators according to the requirements in **15.2.6, Part D**.

Chapter 13 MACHINERY INSTALLATIONS, ELECTRICAL INSTALLATIONS, AND SO ON IN HAZARDOUS AREAS

13.1 General

13.1.3 Hazardous Areas

Sub-paragraph -1 has been amended as follows.

1 Mobile offshore drilling units

Hazardous areas for the mobile offshore drilling unit are, at least, to be as listed in the following **(1)** to **(3)**. In addition, hazardous areas not covered in following **(1)** to **(3)**(such as, but not limited to, well test equipment areas, helicopter fuel storage areas, acetylene cylinder storage areas, battery rooms, paint lockers, flammable gas or vapour vents and diverter line outlets) are to be classified in accordance with **1.2.16**.

(1) Hazardous areas zone 0

The internal spaces of closed tanks and pipes ~~of the mud circulating system between the well and the final degassing discharge as well as oil and gas products, e.g. escape gas outlet pipes, or spaces in which an oil-gas-air mixture is continuously present or present for long periods~~ in which active non-degassed drilling mud, oil that has a closed-cup flashpoint below 60°*C* or flammable gas and vapour, as well as produced oil and gas in which an oil/gas/air mixture is continuously present or present for long periods.

(2) Hazardous areas zone 1

(a) Enclosed spaces containing any part of the mud circulating system that has an opening into the spaces and is between the well and the final degassing discharge.

(b) In outdoor or semi-enclosed locations, except as provided for in **(d)**, the area within 1.5 *m* from the boundaries of any openings to equipment which is part of the mud system as specified in **(a)**, any ventilation outlets of hazardous areas zone 1, or any access to hazardous areas zone 1.

(c) Pits, ducts or similar structures in locations which would otherwise be hazardous areas zone 2 but which are so arranged that the dispersion of gas may not occur.

(d) Enclosed spaces or semi-enclosed locations that are below the drill floor and contain a possible source of release such as the top of a drilling nipple.

(e) Enclosed spaces that are on the drill floor and which are not separated by a solid floor from the spaces in **(d)**.

(f) Outdoor locations below the drill floor and within a radius of 1.5 *m* from a possible source of release such as the top of a drilling nipple.

(3) Hazardous areas zone 2

(a) Enclosed spaces which contain open sections of the mud circulating system from the final degassing discharge to the mud pump suction connection at the mud pit.

(b) Outdoor locations within the boundaries of the drilling tower up to a height of 3 *m* above the drill floor.

(c) Semi-enclosed towers to the extent of their enclosures above the drill floor or to a height of 3 *m* above the drill floor, whichever is greater.

(d) Semi-enclosed locations below and contiguous to the drill floor and to the boundaries of the tower or to the extent of any enclosure which is liable to trap gases.

(e) Outdoor locations below the drill floor and within a radius of ~~3 *m* from a possible source~~

~~of release such as the top of a drilling nipple~~ 1.5 *m* beyond the zone 1 area specified in **(2)(f)**.

(f) The areas 1.5 *m* beyond the hazardous areas zone 1 specified in **(2)(b)** and beyond the semi-enclosed locations specified in **(2)(d)**.

(g) Outdoor areas within 1.5 *m* of the boundaries of any ventilation outlet from or access to hazardous areas zone 2.

(h) Air locks between a zone 1 and a non-hazardous area.

(Omitted)

13.1.4 Openings, Access and Ventilation Conditions affecting the Extent of Hazardous Areas for the Mobile Offshore Drilling Units

Sub-paragraph -3 has been added as follows.

3 Hold-back devices are not to be used on self-closing gastight doors forming hazardous area boundaries.

13.2 Ventilation Systems

Paragraph 13.2.1 has been amended as follows.

13.2.1 Mobile Offshore Drilling Units

(Omitted)

4 Where the inlet duct passes through a more hazardous area, the inlet duct is to have overpressure in relation to this area; where the inlet duct passes through a less hazardous area, the inlet duct is to have underpressure in relation to this area.

5 Ventilation for hazardous areas is also to be in accordance with the requirements in the following **(1)** to **(~~6~~7)**.

(1) Ventilation for hazardous areas is to be completely separate from that used for non-hazardous areas.

(2) The enclosed hazardous areas are to be adequately ventilated so that the areas are maintained with underpressure in relation to the less hazardous areas.

(3) The arrangement of ventilation inlet and outlet openings in the space is to be such that the entire space is efficiently ventilated, giving special consideration to location of equipment which may release gases, and to spaces where gases may accumulate.

(4) The outlet air from hazardous areas zone 1 and zone 2 is to be led in separate ducts to the outdoor locations. The internal spaces of such ducts are to be regarded as the spaces of the same hazard as the ventilated spaces.

(5) Air inlet ducts designed for constant relative underpressure are to be rigidly constructed to avoid air leaks.

(6) Fans are to be designed so as to reduce the risk that sparks may occur.

(7) Hazardous enclosed mud processing spaces are to be ventilated at a minimum rate of 12 air changes per hour.

13.4 Electrical Installations in Hazardous Areas

Paragraph 13.4.2 has been amended as follows.

13.4.2 Mobile Offshore Drilling Units

1 Electrical installations permitted in hazardous areas are as follows.

(1) Hazardous areas zone 0
   (a) Category 'ia' ~~i~~intrinsically safe type electrical equipment and associated cables

(2) Hazardous areas zone 1
   (a) Intrinsically safe type electrical equipment and associated cables
   (b) Flame-proof type electrical equipment and associated cables
   (c) Pressurized type electrical equipment and associated cables
   (d) Increased safety type electrical equipment and associated cables. For increased safety type motors, due consideration is to be given to the protection against overcurrent.
   (e) Through run cables
   (f) Encapsulation type electrical equipment and associated cables
   (g) Oil immersion type electrical equipment and associated cables. For transportable apparatus, is not to be use.
   (h) Powder filling type electrical equipment and associated cables

(3) Hazardous areas zone 2
   (a) Intrinsically safe type circuits or equipment and associated cables
   (b) Flame-proof type electrical equipment and associated cables
   (c) Pressurized type electrical equipment and associated cables
   (d) Increased safety type electrical equipment and associated cables. For increased safety type motors, due consideration is to be given to the protection against overcurrent.
   (e) Any electrical equipment of the type which ensures the absence of sparks or arcs and no part of such equipment has an operating temperature which can cause the ignition of gases or vapours liable to exist, and associated cables
   (f) Through run cables
   (g) Encapsulation type electrical equipment and associated cables
   (h) Oil immersion type electrical equipment and associated cables. For transportable apparatus, is not to be use.
   (i) Powder filling type electrical equipment and associated cables
   (j) Equipment specially approved for use in this zone by the Society

2 Electrical apparatus are to be so selected that its maximum surface temperature will not reach ignition temperature of any gas/vapour possibly presenting in the hazardous areas in which the electrical apparatus is located. The relationship among equipment temperature class, equipment maximum surface temperature, gas/vapour ignition temperature is shown in **Table P13.1**.

3 Electrical cables are to meet the following;

(1) Thermoplastic sheathed cables, thermosetting sheathed cables or elastomeric sheathed cables are to be used for fixed wiring in zone 2 areas.

(2) Permanently installed, fixed cable passing through zone 1 hazardous areas are to be fitted with conductive covering, braiding or sheathed for earth detection.

4 Group selection for electrical equipment is to be as follows:

(1) Group *II* in accordance with *IEC* 60079 is to be selected for increased safety type, encapsulation type, type "n" protection, oil immersion type, pressurized type, powder filling type and equipment specially approved for use in this zone by the Society.

(2) Group *IIA*, *IIB* or *IIC* in accordance with *IEC* 60079 is to be selected for intrinsically safe type, flame-proof type, and certain types of "n"protection.

(3) Electrical apparatus located in hazardous drilling well and mud processing areas are to meet at

least Group *IIA* in accordance with *IEC* 60079 and temperature class *T*3.

Table P13.1 and Table P13.2 have been added as follows.

Table P13.1 Relationship among Temperature Class, Maximum Surface Temperature and Ignition Temperature

Electrical apparatus Temperature class	Electrical apparatus maximum surface temperature	Gas/vapour ignition temperature
*T*1	450℃	above 450℃
*T*2	300℃	above 300℃
*T*3	200℃	above 200℃
*T*4	135℃	above 135℃
*T*5	100℃	above 100℃
*T*6	85℃	above 85℃

Table P13.2 Relationship between Gas/Vapour Group and Permitted Equipment Group

Gas/vapour group	Electrical equipment group
ⅡC	*ⅡC*
ⅡB	*ⅡB* or *ⅡC*
ⅡA	*ⅡA*, *ⅡB* or *ⅡC*

Chapter 14 FIRE PROTECTION AND MEANS OF ESCAPE

14.2 Mobile Offshore Drilling Units

Paragraph 14.2.1 has been amended as follows.

14.2.1 General~~Application~~

1 The Construction of fire protection ~~and means of escape~~ for this unit is~~are~~ to be in accordance with the requirements of **14.1.2** and **14.2** of this Chapter and the requirements of **5.3, Part R** and **Chapter 6, Part R**.~~,~~ I~~i~~n addition, it is to be tested and approved in accordance with the Fire Test Procedures Code. The means of escape for this unit is to be in accordance with the requirements of **14.2**, in addition to the requirements of **14.1.2**.

2 Unless otherwise specially specified in this Part, the definitions for fire protection systems are in accordance with **Chapter 3, Part R**.

3 When fire safety design or arrangements deviate from the requirements of this Chapter, engineering analysis, evaluation and approval of the alternative design and arrangements are to be

carried out in accordance with **Chapter 17, Part R**.

4 Fire safety systems are to be in accordance with the requirements specified in **Chapters 22** to **Chapter 35, Part R**, as applicable.

Paragraph 14.2.2 has been amended as follows.

14.2.2 Construction of Fire Protection

(Omitted)

4 In approving structural fire protection details, the risk of heat transmission at intersections and terminal points of required thermal barriers is to be considered. The insulation of a deck or bulkhead is to be carried past the penetration, intersection or terminal point for a distance of at least 450 *mm* in the case of steel and aluminium structures. If a space is divided with a deck or a bulkhead of "*A*" class standard having insulation of different values, the insulation with the higher value is to continue on the deck or bulkhead with the insulation of the lesser value for a distance of at least 450 *mm*.

5~~4~~ Windows and side scuttles, with the exception of navigating bridge windows, are to be of the non-operating type. Navigating bridge windows may be of the opening type provided the design of such windows would permit rapid closure.

6~~5~~ The fire resistance of doors are, as far as practicable, to be equivalent to that the division in which they are fitted. External doors in superstructures and deckhouses are to be constructed to "*A-0*" Class divisions and, where applicable, be self-closing.

7 Self-closing doors in fire rated bulkheads are not to be fitted with hold-back hooks. However, hold-back arrangements incorporating remote release fittings of the fail-safe type may be utilized.

8~~6~~ Protection of accommodation spaces, service spaces and control stations specified in **1.2.15** (except the space where the emergency source of electric power is installed, the same being applied hereinafter in **14.2.**), is to be in accordance with the requirements in the following **(1)** to **(13~~1~~)**:

(1) In general, accommodation spaces, service spaces and control stations are not to be located adjacent to hazardous areas. However, where this is not practicable, an engineering evaluation is to be performed to ensure that the level of fire protection and blast resistance of the bulkheads and decks separating these spaces from the hazardous areas are adequate for the likely hazard.

(2) All bulkheads that are to be "*A*" class divisions are to extend from deck to deck and to the deckhouse side or other boundaries.

(~~1~~3) All bulkheads required to be "*B*" Class divisions are to be extend from deck to deck and to the deckhouse side or other boundaries, unless continuous "*B*" Class ceilings or linings are fitted on both sides of the bulkhead, in which case the bulkhead may terminate at the continuous ceiling or linings.

(~~2~~4) In corridor bulkheads, ventilation openings may be permitted only in and under the doors of cabins, public spaces, offices and sanitary spaces. The openings are to be provided only in the lower half of the door. Where such an opening is in or under a door, the total net area of any such opening or openings are not to exceed 0.05 m^2. When such an opening is cut in a door it is to be fitted with a grille made of non-combustible material. Such openings are not to be provided in a door in a division forming a stairway enclosure.

(~~3~~5) Stairs are to be constructed of steel or other material equivalent thereto.

(~~4~~6) Stairways which penetrate only a single deck are to be protected at least at one level by "*A*" or "*B*" Class divisions and self-closing doors so as to limit the rapid spread of fire from one deck to another. Personnel lift trucks are to be protected by "*A*" Class divisions. Stairways and lift trunks which penetrate more than a single deck are to be surrounded by "*A*" Class divisions and

protected by self-closing doors at all levels. Self-closing doors are not to be fitted with hold-back hooks. ~~However, hold-back arrangements incorporating remote release fittings of the fail-safe type may be utilized.~~

(~~5~~7) Air spaces enclosed behind ceilings, panellings or linings are to be divided by close fitting draught stops spaced not more than 14 *m* apart. In the vertical direction, such enclosed air spaces, including those behind linings of stairways, trunks, etc., are to be closed at each deck.

(~~6~~8) Except for insulation in refrigerated compartments, insulation material, pipe and vent duct lagging, ceiling, lining and bulkheads are to be of non-combustible material. Insulation of pipe fittings for cold service systems and vapour barriers and adhesives used in conjunction with insulation need not be non-combustible but they are to be kept to a minimum and their exposed surfaces are to have low-flame spread characteristics. In spaces where penetration of oil products is possible, the surfaces of the insulation are to be impervious to oil or oil vapours.

(~~7~~9) The framing, including grounds and the joint pieces of bulkheads, linings, ceilings and draught stops are to be of non-combustible material.

(~~8~~10) All exposed surfaces in corridors and stairway enclosures and surfaces in concealed or inaccessible spaces in accommodation and service spaces and control stations are to have low flame-spread characteristics. Exposed surfaces of ceilings in accommodation and service spaces and control stations are to have low-flame-spread characteristics.

(~~9~~11) Bulkheads, linings and ceilings may have combustible veneers provided that the thickness of such veneers are not to exceed 2 *mm* within any space other than corridors, stairway enclosures and control stations where the thickness is not to exceed 1.5 *mm*. ~~Alternatively, veneers which~~Combustible materials used on these surfaces are to have a calorific value not exceeding 45 MJ/m^2 of the area for the thickness used ~~may be accepted by the Society, irrespective of those veneers~~.

(~~10~~12) Primary deck coverings, if applied~~,~~ within accommodation and service spaces and control stations, are to be of ~~materials~~ approved material by the Society or organizations deemed appropriate by the Society, which will not readily ignite, this being determined in accordance with the Fire Test Procedures Code ~~or give rise to toxic or explosive hazards.~~

(~~11~~13) Paints, varnishes and other finishes used on exposed interior surfaces are not to be capable of producing excessive quantities of smoke and toxic products; this being approved by the Society or organizations deemed appropriate by the Society in accordance with the Fire Test Procedures Code. ~~of a nature to offer an undue fire hazard in discretion of the Society and are not to be capable of producing excessive quantities of smoke or toxic fumes.~~

9~~7~~ Ventilation provided with units except those provided in hazardous area are to be in accordance with following **(1)** to **(10~~9~~)**.

(1) The ventilation of the accommodation spaces and control stations are to be arranged in such a way as to prevent the ingress of flammable, toxic or noxious gasses, or smoke from the surrounding area.

(2) Ventilation ducts are to be of non-combustible material. Short ducts, however, not generally exceeding 2 *m* in length and with a cross-sectional area not exceeding 0.02 m^2 need not be non-combustible, subject to the following conditions:
   (a) These ducts are to be of a material which, in the opinion of the Society, has a low fire risk;
   (b) They may only be used at the end of the ventilation devices; and
   (c) They are not to be situated less than 600 *mm*, measured along the duct, from where it penetrates any "*A*" or "*B*" Class division including continuous "*B*" Class division.

(3) Where a thin plated duct with a free cross-sectional area equal to, or less than, 0.02 m^2 passes through "*A*" class bulkhead or decks, the opening is to be lined with a steel sheet sleeve having a thickness of at least 3 *mm* and a length of at least 200 *mm*, divided preferably into 100 *mm* on each side of the bulkhead or, in the case of the deck, wholly laid on the lower side of the deck

pierced. Where ventilation ducts with a cross-sectional area exceeding 0.02 m^2 pass through class "*A*" bulkheads or decks, the opening is to be lined with a steel sheet sleeve unless the ducts passing through the bulkheads or decks are of steel in the vicinity of penetrations through the deck or bulkhead. The ducts and sleeves at such places are to comply with the followings.

(a) The ducts or sleeves are to have a thickness of at least 3 *mm* and a length of at least 900 *mm*. When passing through bulkheads, this length is~~are~~ to be divided preferably into 450 *mm* on each side of the bulkhead. These ducts, or sleeves lining such ducts, are to be provided with fire insulation. The insulation is~~are~~ to have at least the same fire integrity as the bulkhead or deck through which the duct passes. Equivalent penetration protection may be provided to the satisfaction of the Society.

(b) Ducts with a cross-sectional area exceeding 0.075 m^2, except those serving hazardous areas, are to be fitted with fire dampers in addition to meeting the requirement of **(a)**. The fire damper is~~are~~ to operate automatically but is~~are~~ also to be capable of being closed manually from both sides of the bulkhead or deck. The damper is~~are~~ to be provided with an indicator which shows whether the damper is open or closed. Fire dampers are not required, however, where ducts pass through spaces surrounded by "*A*" Class divisions, without serving these spaces, provided those ducts have the same fire integrity as the divisions which they pierce. The Society may, given special considerations, permit operation from one side of a division only.

(4) In general, ventilation systems for machinery spaces of category A, galleys and hazardous areas are to be separated from each other and from the ventilation systems serving other spaces. Ducts serving hazardous areas are not to pass through accommodation spaces, service spaces, or control spaces. Ducts provided for ventilation of machinery spaces of ~~C~~category *A*~~,~~ and galleys~~ and hazardous areas~~ are not to pass through accommodation and service spaces or control stations, except in cases where~~for~~ any of the following requirements of **(a)** or **(b)** are~~may be~~ complied with:

(a)

i) The ducts are constructed of steel having a thickness of at least 3 *mm* for ducts of 300 *mm* in width or less and at least 5 *mm* for ducts of 760 *mm* in width and over. In case of ducts the width or diameter of which is between 300 *mm* and 760 *mm*, the thickness are to be obtained by interpolation;

ii) The ducts are suitably supported and stiffened;

~~ii~~iii) The ducts are to be fitted with automatic fire dampers close to the boundaries penetrated; and

~~ii~~iv) The ducts are to be insulated to "*A-60*" standard from the machinery or galleys to a point at least 5 *m* beyond each fire damper.

(b)

i) The ducts are constructed of steel in accordance with the preceding **(a)i)** and **ii)**;

ii) The ducts are to be insulated to "*A-60*" standard throughout the accommodation spaces, service spaces or control stations.

(5) Ducts provided for ventilation of accommodation and service spaces or control stations are not to pass through machinery spaces of ~~C~~category *A*, galleys or hazardous areas, except for the following requirements ~~of~~ **(a)** or **(b)** may be complied with:

(a)

i) The ducts where they pass through a machinery space of category A or galley are constructed of steel in accordance with the requirement in preceding **(4)(a)i)** and **ii)**;

ii) Automatic fire dampers are fitted close to the boundaries penetrated; and

iii) The integrity of the machinery space or galley boundaries is maintained at the penetrations.

(b)

i) The ducts where they pass through a machinery space of category *A* or a galley are constructed of steel in accordance with the preceding requirements ~~of~~ **(4)(a)i)** and **ii)**;

ii) The ducts are insulated to "*A-60*~~A-60~~" standard within the machinery space or galley.

(6) Ventilation ducts with a cross-sectional area exceeding 0.02 m^2 passing through "*B*" Class bulkheads are to be lined with steel sleeves of 900 *mm* in length divided preferably into 450 *mm* on each side of the bulkhead unless the duct is of steel for this length.

(7) Where they pass through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges are to be of equivalent fire integrity to "*A*" class divisions.

(8~~7~~) ~~Where they pass through accommodation spaces or space containing combustible materials, the exhaust ducts from galley ranges are to be of equivalent fire integrity to "A" Class divisions.~~ Each galley~~such~~ exhaust duct is~~are~~ to be fitted with the following **(a)** to **(d)**:~~.~~

(a) a grease trap readily removable for cleaning

(b) both of the dampers specified in the following **i)** and **ii)**~~a fire damper located in the lower end of the duct~~

i) a fire damper located in the galley end of the duct which is automatically and remotely operated

ii) a remotely operated fire damper located in the exhaust end of the duct

(c) ~~A~~arrangements, operable from within the galley, for shutting off the exhaust fans

(d) fixed means for extinguishing a fire within the duct

(9~~8~~) The main inlets and outlets of all ventilation systems are to be capable of being closed from outside the spaces being ventilated.

(10~~9~~) Power ventilation of accommodation spaces, service spaces, control stations, machinery spaces and hazardous areas are to be capable of being stopped from an easily accessible position outside the space being served. The means provided for stopping the power ventilation serving machinery spaces or hazardous areas are to be entirely separate from the means provided for stopping ventilation of other spaces.

10~~8~~ Windows and side scuttles in boundaries which are required to meet an "*A-60*" standard which face the drill floor areas are to be in accordance with one of the following requirements.

(1) They are to be constructed to an "*A-60*" standard.

(2) They are protected by a water curtain.

(3) They are fitted with shutters of steel or equivalent material.

11 The construction of the helidecks is to be of steel or other equivalent materials. If the helideck forms the deckhead of a deckhouse or superstructure, it is to be insulated to "*A-60*" class standard. For use of aluminium or other low melting point metal construction that is not made equivalent to steel, the following requirements are to be satisfied:

(1) if the helideck is cantilevered over the side of the unit, after each fire on the unit or on the helideck, the helideck is to undergo a structural analysis to determine its suitability for further use; and

(2) if the helideck is located above the unit's deckhouse or similar structure, the following conditions are to be satisfied:

(a) the deckhouse top and bulkheads under the helideck are to have no openings;

(b) windows under the helideck are to be provided with steel shutters; and

(c) after each fire on the helideck or supporting structure, the helideck is to undergo a structural analysis to determine its suitability for further use.

~~**9** Where helicopter facilities are provided with the units, helicopter decks are to be in accordance with following requirements **(1) to (3).**~~

~~(1) Helicopter decks are to be of steel or equivalent materials, at least they are to have a fire integrity of "*A-0*" standard. However, where an air gap between the deckhouse top and the underside of the helicopter deck is at least 1 *m*, an alternative to the "*A-0*" may be accepted.~~

~~(2) Means are to be provided to prevent the collection of liquids on the helicopter deck and to prevent liquids from spreading to or falling on other part of unit.~~

~~(3) Deckhouse top directly below helicopter decks are to have no openings.~~

12~~10~~ Where more than 1 cylinder of oxygen and acetylene are carried simultaneously on the unit, such cylinders are to be arranged in accordance with the requirements of following **(1)** to **(7~~6~~)**.

(1) Permanent piping systems for oxyacetylene systems are to be ~~acceptable~~ to the satisfaction of the Society.

(2) Where two or more cylinders of each gas are intended to be carried in enclosed spaces, separate dedicated storage rooms are to be provided for each gas.

(3) Storage rooms are to be constructed of steel, and be well ventilated and accessible from the open deck.

(4) Provisions are to be made for the expeditious removal of cylinders in the event of fire.

(5) "NO SMOKING" signs are to be displayed at the gas cylinder storage rooms.

(6) Where cylinders are stowed in open locations means are to be provided ~~to the followings **(a)** to **(c)**~~:

(a) to protect cylinders and associated piping from physical damage;

(b) to minimize exposure to hydrocarbons; and

(c) to ensure suitable drainage.

(7) Fire-extinguishing arrangements for the protection of areas or spaces where such cylinders are stored are to be to the satisfaction of the Society.

Table P14.1 and Table P14.2 have been amended as follows.

Table P14.1 Fire Integrity of Bulkheads Separating Adjacent Spaces

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Control Stations	(1)	*A*-0[d]	*A*-0	*A*-60	*A*-0	*A*-15	*A*-60	*A*-15	*A*-60[e]	*A*-60	*	*A*-0
Corridors	(2)		*C*	*B*-0	*B*-0 *A*-0[b]	*B*-0	*A*-60	*A*-0	*A*-0[e]	*A*-0	*	*B*-0
Accommodation spaces	(3)			*C*	*B*-0 *A*-0[b]	*B*-0	*A*-60	*A*-0	*A*-0[e]	*A*-0	*	*C*
Stairways	(4)				*B*-0 *A*-0[b]	*B*-0 *A*-0[b]	*A*-60	*A*-0	*A*-0[e]	*A*-0	* *	*B*-0 *A*-0[b]
Service spaces with low risk of fire	(5)					*C*	*A*-60	*A*-0	*A*-0	*A*-0	*	*B*-0
Machinery spaces of category *A*	(6)						*[a]	*A*-0[a]	*A*-60	*A*-60	*	*A*-0
Other machinery spaces	(7)							*A*-0[a,c]	*A*-0	*A*-0	*	*A*-0
Hazardous area	(8)								-	*A*-0	-	*A*-0
Service spaces with high risk of fire	(9)									*A*-0[c]	*	*A*-0
Open decks	(10)										-	*
Sanitary and similar spaces	(11)											*C*

Notes:

1 *C* in the Table means that divisions are made non-combustible materials.

2 a to ~~d~~e, * and - in the Table means as follows:

a : Where the space contains an emergency power source or components of an emergency power source that adjoins a space containing a unit's service generator or the components of unit's generator, the boundary bulkhead or deck between those spaces is to be an "*A-60*" Class division.

b : Either of the divisions indicated above or below is to be provided in consideration of **14.2.2-2(1)** and **(3)**.

c : Where spaces are of the same numerical category and superscript c appears, a bulkhead or deck of the rating shown in the Table is only required when the adjacent spaces are for a different purpose, e.g. in category(9). A galley next to a galley does not require a bulkhead but a galley next to a paint room requires an "*A-0*" bulkhead.

d : Bulkhead separating the navigating bridge chartroom and radio room from each other may be "*B-0*" rating.

e : An engineering evaluation is to be conducted in accordance with **14.2.2-8(1)**. In any case, the bulkhead or deck rating is not to be less than the value indicated in the tables.

* : Where an asterisk appears in the Table, the division is required to be of steel or equivalent material but is not required to be of "*A*" Class standard. However, where a deck is penetrated for the passage of electric cables, pipes and vent ducts, such penetrations are to be made tight to prevent the passage of flame and smoke.

\- :Where a dash appears in the Table, the division need not be of "*A*", "*B*" nor "*C*" Class standard.

Table P14.2 Fire Integrity of Decks Separating Adjacent Spaces

Space Below ↓ / Space → Above		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Control Stations	(1)	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0	*A*-60	*A*-0	*A*-0	*A*-0	*	*A*-0
Corridors	(2)	*A*-0	*	*	*A*-0	*	*A*-60	*A*-0	*A*-0	*A*-0	*	*
Accommodation spaces	(3)	*A*-60	*A*-0	*	*A*-0	*	*A*-60	*A*-0	*A*-0	*A*-0	*	*
Stairways	(4)	*A*-0	*A*-0	*A*-0	*	*A*-0	*A*-60	*A*-0	*A*-0	*A*-0	*	*A*-0
Service spaces width low risk of fire	(5)	*A*-15	*A*-0	*A*-0	*A*-0	*	*A*-60	*A*-0	*A*-0	*A*-0	*	*A*-0
Machinery spaces of category *A*	(6)	*A*-60	*A*-60	*A*-60	*A*-60	*A*-60	*[a]	*A*-60	*A*-60	*A*-60	*	*A*-0
Other machinery spaces	(7)	*A*-15	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0[a]	*[a]	*A*-0	*A*-0	*	*A*-0
Hazardous area	(8)	*A*-60[e]	*A*-0[e]	*A*-0[e]	*A*-0[e]	*A*-0	*A*-60	*A*-0	-	*A*-0	-	*A*-0
Service spaces with high risk of fire	(9)	*A*-60	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0	*A*-0[c]	*	*A*-0
Open decks	(10)	*	*	*	*	*	*	*	-	*	-	*
Sanitary and similar spaces	(11)	*A*-0	*A*-0	*	*A*-0	*	*A*-0	*A*-0	*A*-0	*A*-0	*	*

Note:

See Notes under **Table P14.1**.

Paragraph 14.2.3 has been amended as follows.

14.2.3 Means of Escape

1 Within the accommodation spaces, service spaces and control stations, the means of escape specified in the following **(1)** to **(~~3~~4)** are to be provided:

(1) In every general area which is likely to be regularly manned or in which personnel are accommodated, at least two separate escape routs are to be provided, situated as far apart as practicable, to allow ready means of escape to the open decks and embarkation stations. Where, however, deemed appropriate by the Society in consideration of the nature, location of spaces and the number of persons who might normally be accommodated or employed there, one of these means of escape may be dispensed with.

(2) Stairways are normally to be used for means of vertical escape. Where, however, the installation of a stairway is shown to be impracticable, a vertical ladder may be used for one of the means of escape.

(3) Every escape route is to be readily accessible and unobstructed. All exit doors along the route are to be readily operable. Dead-end corridors exceeding 7 *m* in length are not to be provided.

(4) The means of escape in accommodation areas, including stairways and exits, are to comply with the following requirements **(a)** to **(d)**:

(a) In addition to the emergency lighting, the means of escape are to be marked in the following locations **i)** and **ii)** by lighting or photoluminescent strip indicators complying with **Chapter 31, Part R**:

i) places not more than 300 *mm* above the deck at all points of the escape route, including angles and intersections; and

ii) escape route signs and fire equipment location markings.

(b) The marking specified in the preceding **(a)** is to enable personnel to identify the routes of escape and readily identify the escape exits.

(c) Electric illumination is to be supplied by the emergency source of power.

(d) The failure of any single light or cut in a lighting strip indicators is not to result in the marking being ineffective.

2 Two means of escape are to be provided from every machinery space of ~~C~~category *A* by either one of the following **(1)** or **(2)**. Ladders are to be of steel or other equivalent material.~~Where, however, deemed appropriate by the Society in consideration of the nature and location of spaces and the number of persons who might normally be employed there, one of these means of escape may be dispensed with.~~

(1) two sets of ladders, as widely separated as possible, leading to doors in the upper part of the machinery space of category *A*, similarly separated and from which access is provided to the open deck. One of these ladders is to comply with the following requirements:

(a) The ladder is to be located within a protected enclosure that satisfies **Tables P14.1** and **P14.2**, category **(4)**, from the lower part of the space it serves to a safe position outside the space. Self-closing fire doors of the same fire integrity standards are to be fitted in the enclosure; and

(b) The ladder is to be fixed in such a way that heat is not transferred into the fire shelter through non-insulated fixing points. The enclosure is to have minimum internal dimensions of at least 800 *mm* x 800 *mm*, and is to have emergency lighting provisions.

~~Two sets of steel ladders as widely separated as possible leading to doors in the upper part of the space similarly separated and from which access is provided to the open deck. In general, one of these ladders is to provide continuous fire shelter from the lower part of the space to a safe position outside the space. This shelter is to be of steel insulated to the satisfaction of the Society and be provided with a self-closing steel door at the lower end. However, in cases~~

~~where a safe escape route from the lower part of this space is provided due to special arrangements or dimension of machinery space, the shelter may be dispensed with at the discretion of the Society.~~

(2) the means of escape specified in the following **(a)** and **(b)**;

(a) one ladder leading to a door in the upper part of the machinery space of category *A* from which accesses to the open deck; and

(b) a steel door capable of being operated from each side, in the lower part of the machinery space of category *A*, in a position well separated from the ladder. The steel door is to be provided with access to a safe escape route from the lower part of the machinery space of category *A* to the open deck.

~~One steel ladder leading to a door in the upper part of the space from which access is provided to the open deck and additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the open deck.~~

3 From machinery spaces other than those of ~~C~~category *A*, escape routes are to be provided to the satisfaction of the Society, having regard to the nature and location of the space and whether persons are normally employed in that space.

4 Lifts are not to be considered as forming one of the required means of escape.

5 Consideration is to be given to the siting of superstructures and deckhouses such that in the event of fire at the drill floor at least one escape route to the embarkation position and survival craft is protected against radiation effects of that fire as far as practicable.

6 Stairways and corridors used as a means of escape are to meet the requirements of **Chapter 33, Part R**.

7 For emergency escape breathing devices (hereinafter, referred to as "*EEBD*s"), the following requirements are to be complied with:

(1) *EEBD*s are to comply with the requirements of **Chapter 23, Part R**. Spare *EEBD*s are to be kept on board;

(2) In machinery spaces of category *A* containing internal combustion machinery used for main propulsion, *EEBD*s are to be positioned as specified in the following **(a)** to **(d)**:

(a) one *EEBD* in the engine control room, if located within the machinery space;

(b) one *EEBD* in workshop areas. If there is, however, a direct access to an escape way from the workshop, an *EEBD* is not required; and

(c) one *EEBD* on each deck or platform level near the escape ladder constituting the second means of escape from the machinery space (the other means being an enclosed escape trunk or watertight door at the lower level of the space).

(d) Alternatively, a different number or location than as specified in **(a)** to **(c)** may be required by the Society taking into consideration the layout and dimensions or the normal manning of the space.

(3) For machinery spaces of category *A* other than those containing internal combustion machinery used for main propulsion, one *EEBD* is, as a minimum, to be provided on each deck or platform level near the escape ladder constituting the second means of escape from the space (the other means being an enclosed escape trunk or watertight door at the lower level of the space).

(4) For other machinery spaces, the number and location of *EEBD*s are to be to the satisfaction of the Society.

8 A helideck is to be provided with both a main and an emergency means of escape and access for fire fighting and rescue personnel. These are to be located as far apart from each other as is practicable and preferably on opposite sides of the helideck.

Paragraph 14.2.4 has been added.

14.2.4 Operational Readiness and Maintenance

Operational readiness and maintenance are to be in accordance with **15.2.16**.

Chapter 15 FIRE EXTINGUISHING SYSTEMS

15.2 Mobile Offshore Drilling Units

Paragraph 15.2.1 has been amended as follows.

15.2.1

1 As for the fire extinguishing systems and fire extinguishers, etc., in addition to the requirements in **15.1.2-1**, the requirements of **15.2** are to be applied.

2 Unless otherwise specially specified in this Part, the definitions for fire protection systems are in accordance with **Chapter 3, Part R**.

3 When fire safety design or arrangements deviate from the prescriptive requirements of this Chapter, engineering analysis, evaluation and approval of the alternative design and arrangements are to be carried out in accordance with **Chapter 17, Part R**.

4 Fire safety systems are to be in accordance with **Chapters 22** to **35, Part R**, as applicable.

Paragraph 15.2.2 has been amended as follows.

15.2.2 Fire Pumps

1 At least two independently driven power pumps are to be provided, each arranged to draw directly from the sea and discharge into a fixed fire main. However, in units with high suction lifts, booster pumps and storage tanks may be installed.

2 At least one of the pumps required in **-1** is to be dedicated from fire-fighting duties and be available for such duties at all times.

3 The arrangements of the pumps, sea suctions and sources of power are to be such as to ensure that a fire in any one space would not put both the pumps required in **-1** out of action.

4 The capacity of the pumps required in **-1** is to be appropriate to the fire-fighting services supplied from the main. Where more pumps than required are installed, their capacity is to be to the satisfaction of the Society. ~~However, the total capacity of the pumps are to be appropriate to the Society. (need not exceed 180m^3/hr .)~~

5 Each pump is to be capable of delivering at least one jet simultaneously from each of any two fire hydrants, hoses and 19*mm* nozzles while maintaining a minimum pressure of 0.35*MPa* at any hydrant. In addition, where a foam system is provided for protection of the helicopter deck, the pump are to be capable of maintaining a pressure of 0.7*MPa* at the foam installation. If the water consumption for any other fire protection or fire-fighting purpose are to exceed the rate of the helicopter deck foam installation, this consumption is to be the determining factor in calculating the

required capacity of the fire pump.
6 Where either of the pumps required in **-1** is located in a space not normally manned and is relatively far removed from working areas, suitable provision is to be made far remote start-up of that pump and remote operation of associated suction and discharge valves.
7 Except as provided in **-2**, sanitary, ballast, bilge or general service pumps may be accepted as fire pumps, provided that they are not normally used for pumping oil.
8 Every centrifugal pump which is connected to the fire main is to be fitted with a non-return valve.
9 Relief valves are to be provided in conjunction with all pumps connected to the fire main if the pumps are capable of developing a pressure exceeding the design pressure of the fire main, hydrants and hoses. Such valves are to be so placed and adjusted as to prevent excessive pressure in the fire main system.

15.2.3 Fire Main, Hydrants and Hoses

Sub-paragraph -1 has been deleted and sub-paragraphs -2 to -11 have been renumbered as -1 to -10.

~~**1** A fixed fire main is to be provided and be so equipped and arranged as to meet the requirements in **15.2.2** and **15.2.3**~~
(Omitted)

Sub-paragraph -11 has been added as follows.

11 Fire hoses are to have a length of at least 10 *m*, but not more than:
(1) 15 *m* in machinery spaces;
(2) 20 *m* in other spaces and open decks; and
(3) 25 *m* for open decks with a maximum breadth in excess of 30 *m*.

Paragraph 15.2.5 has been amended as follows.

15.2.5 Fire Extinguishing Systems in Machinery Spaces and in Spaces containing Fired Processes

1 In spaces where main or auxiliary oil-fired boilers and other fired processes of equivalent thermal rating are situated, or in spaces containing oil fuel units or settling tanks, the unit is to be provided with the following:
(1) One of the following fixed fire extinguishing systems complying with **10.4, Part R**:
  (a) a fixed pressure water-spraying system complying with **Chapter 27, Part R**;
  (b) a fixed gas fire-extinguishing system~~installation~~ complying with **Chapter 25, Part R**;
  (c) a fixed high-expansion foam~~froth~~ installation complying with **Chapter 26, Part R**.
  Where the machinery space and spaces containing fired processes are not entirely separate, or if fuel oil can drain from the latter spaces into the machinery space, the combined machinery space and fired process space are to be considered as one compartment.
(2) At least two approved portable foam extinguishers or equivalent in each space containing a fired process and each space in which a part of the oil fuel installation is situated. In addition, at least one extinguisher of the same description with a capacity of 9*l* for each burner, provided that the total capacity of the additional extinguisher or extinguishers need not exceed 45*l* for

any one space.

(3) A receptacle containing sand, sawdust impregnated with soda, or other approved dry material in such quantity as may be required by the Society. Alternatively, an approved portable extinguisher may be substituted.

2 The following arrangements are to be provided in the spaces containing internal combustion machinery used either for main propulsion or for other purposes when such machinery has a total power output of not less than 750*kW*.

(1) One of the fixed arrangements required in **-1(1)**:

(2) One approved foam-type~~froth~~ extinguisher of not less than 45*l* capacity or equivalent in every engine space and one approved portable foam~~froth~~ extinguisher for each 750*kW* of engine power output or part thereof. The total number of portable extinguishers so supplied is~~are~~ to be not less than two and need not exceed six.

3 Fire extinguishing arrangements provided in spaces not fitted with fixed fire-extinguishing installations are to be to the satisfaction of the Society.

4~~3~~ Where a fire hazard exists in any machinery space for which no specific requirements ~~provisions~~ for fire-~~-~~extinguishing appliances are prescribed in **-1** to~~and~~ **-3~~2~~**, there are to be provided in, or adjacent to, that space a number of approved portable fire extinguishers of other means of fire extinction to the satisfaction of the Society.

Paragraph 15.2.6 has been amended as follows.

15.2.6 Portable Fire Extinguishers in Accommodation, Service and Working Spaces

1 The accommodation spaces, service spaces, control stations, machinery spaces of category *A*, cargo spaces, weather deck and other spaces ~~and working spaces~~ are to be provided with approved portable fire extinguishers accepted by the Society in accordance with **Table P15.1**.

2 In addition to the preceding **-1**, fire extinguishers are to be provided with in accordance with **Table P15.2**. However, other fire extinguishers, differing from those in accordance with **Table P15.2** may be required by the Society taking into account the levels of the fire hazards.

Table P15.1 has been added as follows.

Table P15.1 Minimum Numbers and Distribution of Portable Fire Extinguishers in the Various Types of Spaces Onboard Ships

Type of space[1]		Minimum number of extinguishers	Class(es) of extinguisher(s)[2]
Accommodation spaces	Public spaces[3]	1 per 250 m^2 of deck area or fraction thereof	*A*
	Corridors	Travel distance to extinguishers should not exceed 25 *m* within each deck	*A*
	Stairway	0	
	Lavatories, cabins, offices, pantries, containing no cooking appliances	0	
	Hospital	1	*A*
Service spaces	Laundry drying rooms, pantries containing cooking appliances	1[4]	*A* or *B*
	Lockers and store rooms (having a deck area of 4 m^2 or more), baggage rooms and workshops[3] (not part of machinery spaces, galleys)	1[4]	*B*
	Galleys	1 class *B* and 1 Additional class *F* or *K* for galleys with deep fat fryers	*B*, *F* or *K*
	Lockers and store rooms(deck area is less than 4 m^2)	0	
	Other spaces in which flammable liquids are stowed	In accordance with **10.6.2, Part R**	
Control stations	Control stations (other than wheelhouse)	1[5]	*A* or *C*
	Wheelhouse	2, if the wheelhouse is less than 50m^2 only 1 extinguisher is required	*A* or *C*

Notes:

(1) Unless otherwise specified, one of portable fire extinguishers required is to be located at or near entrance and exits in the space. If a space is locked when unmanned, portable fire extinguishers required for that space may be kept inside or outside the space.

(2) The types of portable fire extinguishers are classified below. However, with respect to the application of the requirements specified in **24.1.2, Part R** such classifications need not apply to extinguishers which have been deemed appropriate for use at certain locations in accordance with standards approved by the relevant Administration or organizations deemed appropriate by the Society.

(3) It is recommended that the portable fire extinguishers except **(1)** above in public spaces and workshop be located at or near the main entrances and exits.

(4) A portable fire extinguisher required for that small space placed outside or near the entrance to that space may also be considered as part of the requirement for the space in which it is located.

(5) If the wheelhouse is adjacent with the chartroom and has a door giving direct access to chartroom, no additional fire extinguisher is required in the chart room.

Fire Classifications

International Organization for Standardization (ISO standard 3941)	National Fire Protection Association (NFPA 10)
Class *A*: Fire involving solid materials, usually of an organic nature, in which combustion normally takes places with the formation of glowing embers.	Class *A*: Fires in ordinary combustible materials such as wood, cloth, paper, rubber and many plastics.
Class *B*: Fires involving liquids or liquefiable solids	Class *B*: Fires in flammable liquids, oils, greases, tars, oil base paints, lacquers and flammable gases.
Class *C*: Fires involving gases.	Class *C*: Fires, which involve energized electrical equipment where the electrical non-conductivity of the extinguishing medium is of importance. (When electrical equipment is de-energized, extinguishers for class *A* or *B* fires may be used safely.)
Class *D*: Fires involving materials.	Class *D*: Fires in combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium.
Class *F*: Fires involving cooking oils.	Class *K*: Fires involving cooking grease, fats and oils.

Table P15.2 has been added as follows.

Table P15.2 An Example of the Number and Distribution as Well as Classes of Additional Portable Extinguishers

Type of Space	Minimum number of extinguishers[a]	Class(es) of extinguisher(s)[c]
Space containing the controls for the main source of electrical power	1; and 1 additional extinguisher suitable for electrical fires when main switchboards are arranged in the space	*A* and/or *C*
Cranes: With electric motors/hydraulics	not required	-
Cranes: With internal combustion engine	2 (1 in cab and 1 at exterior of engine compartment)	*B*
Drill floor	2 (1 at each exit)	*C*
Helidecks	In accordance with **15.2.13**	*B*
Machinery spaces of category *A*	In accordance with **15.2.5**	*B*
Machinery spaces of category *A* which are periodically unattended	At each entrance in accordance with **15.2.5**[b]	*B*
Main switchboards	2 in the vicinity	*C*
Mud pits, Mud processing areas	1 for each enclosed space (Travel distance to an extinguisher not to exceed 10 *m* for open space)	*B*

Notes:

a Minimum sizes are to be in accordance with **24.2.1, Part R**.

b A portable extinguisher provided for that space may be located outside near the entrance to that space.

c The Classes are the same as in **Table P15.1**.

Paragraph 15.2.8 has been amended as follows.

15.2.8 Fire-fighters'~~men's~~ Outfits

1 At least two fire-fighters~~men~~'~~s~~ outfits complying with **23.2.1**, **Part R** are to be provided, each with portable instruments for measuring oxygen and flammable vapour concentrations acceptable to the Society.

2 Two spare charges are to be provided for each required breathing apparatus. However, for units that are equipped with suitably located means for fully recharging the air cylinders free from contamination, only one spare charge for each required apparatus may be acceptable.~~For each fireman's outfit spare charges are to be provided to the satisfaction of the Society.~~ The apparatus for recharging air cylinders are to comply with the following requirements **(1)** to **(6)**.

(1) The apparatus for recharging air cylinders are to be one of the following **(a)** or **(b)**:

(a) an apparatus having its power supplied from the emergency supply or being independently diesel-powered.

(b) other apparatus being so constructed or equipped that the air cylinders may be used immediately after recharging.

(2) The apparatus is to be suitably located in a sheltered space above main deck level on the unit.

(3) Intakes for air compressors are to draw from a source of clean air.

(4) The air is to be filtered after compression to eliminate compressor oil contamination.

(5) The recharging capacity is to meet the requirements of *SOLAS* regulation II-2/10.10.2.6.

(6) The equipment and its installation are to be to the satisfaction of the Society.

3 The fire-fighters'~~men's~~ outfits are to be kept ready for use~~stored so as to be~~ in an easily accessible location that is permanently and clearly marked~~and ready for use, and where applicable one of the outfits is to be located within easy access of any helicopter deck.~~ They are to be stored in two or more widely separated locations.

Paragraph 15.2.10 has been amended as follows.

15.2.10 Fire Detection and Alarm System

1 An automatic fire detection and alarm system complying with the requirements in **Chapter 29, Part R**, are to be provided in all accommodation and service spaces. ~~Sleeping quarters~~ Accommodation spaces are to be fitted with smoke detectors.

2 A ~~S~~sufficient number of manual fire alarm stations is~~are~~ to be installed at suitable locations throughout the unit.

3 A fixed fire detection and fire alarm system is to be installed in:

(1) periodically unattended machinery spaces;

(2) machinery spaces where the installation of automatic and remote control systems and equipment has been approved in lieu of continuous manning of the spaces; and

(3) machinery spaces where the main propulsion and associated machinery, including the main sources of electrical power, are provided with various degrees of automatic or remote control and are under continuous manned supervision from a control room.

Paragraph 15.2.11 has been amended as follows.

15.2.11 Gas Detection and Alarm System

1 Flammable gas detection and alarm system

(1) ~~1.~~ A fixed automatic gas detection and alarm system are to be provided to the satisfaction of the Society so arranged as to monitor continuously all enclosed areas of the units in which an accumulation of flammable gas may be expected to occur and capable of indicating at the main control point by aural and visual means the presence and locations of an accumulation.

(2) ~~2.~~ At least two portable gas monitoring devices are to provided, each capable of accurately measuring a concentration of flammable gas.

2 Hydrogen sulphide detection and alarm system

(1) A fixed automatic hydrogen sulphide gas detection and alarm system is to be provided to the satisfaction of the Society so arranged as to monitor continuously the drilling area, mud processing area and well fluid test area of the unit and capable of giving audible and visual alarms at the main control points. If the alarm at the main control point is unanswered within 2 *minutes*, the toxic gas (hydrogen sulphide) alarm and the helideck status light specified in **Chapter 16, Part P** are to be automatically activated.

(2) At least two portable hydrogen sulphide gas monitoring devices are to be provided on the unit.

Paragraph 15.2.13 has been amended as follows.

15.2.13 Fire Extinguishing System for Helicopter Facilities

1 This paragraph provides additional measures in order to address the fire safety objectives for units fitted with facilities for helicopters and meets the following functional requirements:

(1) helideck structure is to be adequate to protect the unit from the fire hazards associated with helicopter operations;

(2) fire-fighting appliances are to be provided to adequately protect the unit from the fire hazards associated with helicopter operations;

(3) refuelling facilities and operations are to provide the necessary measures to protect the unit from the fire hazards associated with helicopter operations; and

(4) helicopter facility operation manuals and training are to be provided.

2 ~~1~~ In close proximity to the helideck, the following fire-fighting appliances are to be provided and stored near the means of access to that helideck:~~On helicopter decks, following fire extinguishing systems are to be provided at the space which can be readily accessible.~~

(1) ~~A~~at least two dry powder extinguishers ~~with aggregate~~having a total capacity of not less than 45 *kg* but not less than 9 *kg* each;~~.~~

(2~~3~~) carbon dioxide extinguishers of a total capacity of not less than 18 *kg* or equivalent;~~Carbon dioxide (CO2) extinguishers with an aggregate capacity of not less than 18kg or efficient extinguishers equivalent of these. One of these extinguishers is provided that can be reached a machinery part of helicopter.~~

(3~~2~~) a foam application system consisting of monitors or foam-making branch pipes capable of delivering foam to all parts of the helideck in all weather conditions in which the helideck is intended to be available for helicopter operations. The capacity and other specifications of the foam production system are to comply with the following **(a)** to **(c)**:

(a) a minimum application rate of 6 l/m^2 within a circle having a diameter equal to D_H;

(b) a minimum of 5 *minutes* discharge capability is to be provided;

(c) foam delivery at the minimum application specified in the preceding **(a)** is to start within 30 *sec* of system activation;

~~A suitable foam application system (fixed or portable) capable of delivering a foam solution at a rate of not less than 6 ℓ *per minute* for each square metre of a zone with a circle of diameter (*D*), and sufficient foam compound to enable the rate to be maintained for at least 5 *minutes*, where D is more than an overall length of helicopter when a helicopter's rotor rotates.~~

(4) the principal agent is to be suitable for use with salt water and a type deemed as appropriate by the Society;

(5~~4~~) ~~A deck water system capable of delivering at least two jets of water to any part of the helicopter operating area and at least two fire hoses and nozzles which are to be of the dual purpose type.~~at least two nozzles of an approved dual-purpose type (jet/spray) and hoses sufficient to reach any part of the helideck;

(6~~5~~) in addition to the fire-fighter's outfits required in **15.2.8**, ~~A~~at least two fire-fighter's outfits; and ~~sufficient fire proximately suits (including fire resistant blankets and gloves).~~

(7) At least the following equipment is to be stored in a manner that provides for immediate use and protection from the elements:

(a) adjustable wrench;

(b) blanket, fire-resistant;

(c) cutters, bolt, 600 *mm*;

(d) hook, grab or salving;

(e) hacksaw, heavy duty complete with six spare blades;

(f) ladder;

(g) lift line 5 *mm* diameter and 30 *m* in length;

(h) pliers, side-cutting;

(i) set of assorted screwdrivers;

(j) harness knife complete with sheath; and

(k) crowbar.

~~**2** Operational manual (booklet of safety operation, manual including an instruction and check lists, etc.) showing the necessary items to ensure that a helicopter takes off and/or lands on the unit or operates winching is to be provided. And this operation manual is to be submitted for reference to the Society.~~

3 Drainage facilities in way of helidecks are to be constructed of steel or other arrangements providing equivalent fire safety, are to lead directly overboard independent of any other system, and are to be designed so that drainage does not fall onto any part of the unit.

4 Where the unit has helicopter refuelling, the following requirements are to be complied with:

(1) a designated area is to be provided for the storage of fuel tanks which is:

(a) as remote as is practicable from accommodation spaces, escape routes and embarkation stations; and

(b) isolated from areas containing a source of vapour ignition;

(2) the fuel storage area is to be provided with arrangements whereby fuel spillage may be collected and drained to a safe location;

(3) tanks and associated equipment are to be protected against physical damage and from a fire in an adjacent space or area;

(4) where portable fuel storage tanks are used, special attention is to be given to:

(a) design of the tank for its intended purpose;

(b) mounting and securing arrangements;

(c) electric bonding; and

(d) inspection procedures;

(5) storage tank fuel pumps are to be provided with means which permit shutdown from a safe remote location in the event of a fire. Where a gravity-fuelling system is installed, equivalent

closing arrangements are to be provided to isolate the fuel source;

(6) the fuel pumping units are to to be connected to one tank at a time. The piping between the tank and the pumping unit is to be of steel or equivalent material, as short as possible, and protected against damage;

(7) electrical fuel pumping units and associated control equipment are to be of a type suitable for the location and potential hazards;

(8) fuel pumping units are to incorporate a device which will prevent over-pressurization of the delivery or filling hose;

(9) equipment used in refuelling operations is to be electrically bonded; and

(10) "NO SMOKING" signs are to be displayed at appropriate locations.

Paragraph 15.2.15 has been added as follows.

15.2.15 Fire Control Plan

The fire control plan specified in **15.2.2, Part R**, is to be permanently exhibited.

Paragraph 15.2.16 has been added as follows.

15.2.16 Operational Readiness and Maintenance

1 For operational readiness and maintenance, the following functional requirements are to be met:

(1) gas detection systems, fire protection systems and fire-fighting systems and appliances are to be maintained ready for use; and

(2) gas detection systems, fire protection systems and fire-fighting systems and appliances are to be properly tested and inspected.

2 At all times while the unit is in service, the requirements of the preceding **-1** are to be complied with. A unit is not in service when:

(1) it is in for repairs or lay up (either at anchor or in port) or in dry-dock; and

(2) it is declared not in service by the owner or the owner's representative.

3 For operational readiness, the requirements of the following **(1)** and **(2)** are to be complied with:

(1) The following gas detection and fire protection systems specified in **(a)** through **(d)** below are to be kept in good order so as to ensure their intended performance if a fire occurs:

(a) structural fire protection including fire-resisting divisions and protection of openings and penetrations in these divisions;

(b) fire detection and fire alarm systems;

(c) gas detection and alarm systems; and

(d) means of escape systems and appliances.

(2) Fire-fighting systems and appliances and portable gas detection systems are to be kept in good working order and readily available for immediate use. Portable extinguishers which have been discharged are to be immediately recharged or replaced with an equivalent unit.

4 For maintenance, testing and inspections, the following requirements are to be complied with

(1) Maintenance, testing and inspections are to be carried out based on the Guidelines on Maintenance and Inspection of Fire Protection Systems and Appliances (*MSC/Circ*.850) developed by the *IMO* and in a manner having due regard to ensuring the reliability of fire-fighting systems and appliances.

(2) The maintenance plan is to be kept on board the unit.

(3) The maintenance plan is to include at least the following fire protection systems and fire-fighting systems and appliances, where installed:
   (a) fire mains, fire pumps and hydrants including hoses, nozzles and international shore connections;
   (b) fixed fire detection and fire alarm systems;
   (c) fixed fire-extinguishing systems and other fire-extinguishing appliances;
   (d) automatic sprinkler, fire detection and fire alarm systems;
   (e) ventilation systems including fire and smoke dampers, fans and their controls;
   (f) emergency shut down of fuel supply;
   (g) fire doors including their controls;
   (h) general emergency alarm systems;
   (i) emergency escape breathing devices;
   (j) portable fire extinguishers including spare charges or spare extinguishers;
   (k) portable hydrogen sulphide gas detection monitoring devices;
   (l) portable flammable gas and oxygen monitoring devices;
   (m) gas detection and alarm systems; and
   (n) fire-fighter's outfits.
(4) The maintenance programme may be computer-based.

Chapters 16 and 17 have been added as follows.

Chapter 16 HELICOPTER FACILITIES

16.1 General

1 Each helideck is to be of sufficient size and located so as to provide a clear take-off and approach to enable the largest helicopter using the helideck to operate under the most severe conditions anticipated for helicopter operations.

2 The helicopter facilities provided for units are to be according to this Part. In addition, attention is to be paid to complying with the National Regulations of the flag state and the coastal state.

16.2 Exemptions

Administrations are to consider exemptions from or equivalencies to the provisions of this chapter regarding markings and landing aids when:

(1) The Administration is provided with evidence that the coastal State in whose waters the mobile offshore drilling unit is operating has notified the *International Civil Aviation Organization* (*ICAO*) of differences to its requirements for visual aids

(2) The Administration is provided with evidence that the coastal State in whose waters the mobile offshore drilling unit is operating has established requirements for visual aids that differ from the provisions of this chapter.

16.3 Helideck

16.3.1 General

1 The helideck is to be of a design and construction, adequate for the intended service and for the appropriate prevailing climatic conditions, approved to the satisfaction of the Society.

2 The helideck is to have a skid-resistant surface.

3 The helideck is to generate a ground effect. When the deck below helideck level generates the ground effect, the helideck may be constructed in the form of a grating.

4 The design load in determining the scantlings of the members of helicopter deck is to be in accordance with the requirements in **3.2.7**.

5 Allowable stresses of the structural members of the helideck are not to exceed the values in **Table P16.1** in association with the design loads prescribed in **-4** above.

6 The minimum thickness of helideck plating is not to be less than 6 *mm*.

Table P16.1 Allowable Stresses

Design loads	Structural members		
	Deck plating	Deck beams	Girders, stanchions, truss support, etc.
Helicopter landing impact load	*	σ_Y	$0.9\times \sigma_{Y'}$
Stowed helicopter load	σ_Y	$0.9\times \sigma_Y$	$0.8\times \sigma_{Y'}$
Overall distributed load	$0.6\times \sigma_Y$	$0.6\times \sigma_Y$	$0.6\times \sigma_{Y'}$

Note:

*At the discretion of the Society.

σ_Y : As specified in **7.2.2**

σ'_Y : For members subjected to axial compression, σ_Y or critical buckling stress, whichever is smaller, is to be considered. (N/mm^2)

16.3.2 Construction

The helideck is to meet the following provisions, taking into account the type of helicopter used, the conditions of wind, turbulence, sea state, water temperature and icing conditions:

(1) The helideck is to be of sufficient size to contain an area within which can be drawn a circle of diameter not less than D_H for single main rotor helicopters.

(2) A helideck obstacle-free sector is to comprise of two components, one above and one below helideck level (see **Fig. P16.1**):

(a) Above helideck level:

The surface is to be a horizontal plane level with the elevation of the helideck surface that subtends an arc of at least 210° with the apex located on the periphery of the D_H reference circle extending outwards to a distance that will allow for an unobstructed departure path appropriate to the helicopter(s) the helideck is intended to serve.

(b) Below helideck level:

A zone complying with the following **i)** and **ii)** is to allow for safe clearance from the obstacles below the helideck in the event of an engine failure for the type of helicopter(s) the helideck is intended to serve:

i) Below the plane specified in **(a)** above

ii) Within the (maximum) 210° specified **(a)** above, the surface is to additionally extend downward at a 5:1 falling gradient from the edge of the safety net below the elevation of the helideck to water level for an arc of not less than 180° that pass through the centre of the *FATO*

(3) For single main rotor helicopters, the maximum obstacle height is to comply with the folloing requirements (see **Fig. P16.2**):
   (a) Within the 150° *LOS* out to a distance of 0.12 D_H, measured from the point of origin of the *LOS*, objects are not to exceed a height of 0.25 *m* above the helideck.
   (b) Beyond that arc specified in **(a)** above, out to a distance of an additional 0.21 D_H, the maximum obstacle height is limited to a gradient of one unit vertically for each two units horizontally originating at a height of 0.05 D_H above the level of the helideck.

(4) Objects the function of which requires that they be located on the helideck within the *FATO* are to be limited to landing nets (where required) and certain lighting systems and are not to exceed the surface of the landing area by more than 0.025 *m*. Such objects are only to be present provided they do not cause a hazard to helicopter operations.

(5) Operations by tandem main rotor helicopters are to be specially considered by the Society.

16.3.3 Construction for Benign Climates

For benign climates as determined by the coastal State, taking into account the type of helicopter used, the conditions of wind, turbulence, sea state, water temperature and icing conditions, notwithstanding the requirements given in **16.3.2**, the helideck is to meet the following:

(1) The helideck is to be of sufficient size to contain a circle of diameter no less than 0.83 D_H.

(2) A helideck obstacle-free sector shall comprise of two components, one above and one below helideck level (see **Fig. P16.1**):
   (a) Above helideck level:
   The surface is to be a horizontal plane level with the elevation of the helideck surface that subtends an arc of at least 210° with the apex located on the periphery of the D_H reference circle extending outwards to a distance that will allow for an unobstructed departure path appropriate to the helicopter(s) the helideck is intended to serve.
   (b) Below helideck level:
   The zone complied with following **i)** and **ii)** is to have so that this zone will allow for safe clearance from the obstacles below the helideck in the event of an engine failure for the type of helicopter(s) the helideck is intended to serve;
      i) Below the plane specified in **(a)** above
      ii) Within the (maximum) 210° specified **(a)** above, the surface is to additionally extend downward at a 5:1 falling gradient from the edge of the safety net below the elevation of the helideck to water level for an arc of not less than 180° that passes through the centre of the *FATO*

(3) For single main rotor helicopters, the maximum obstacle height is to comply with the following requirements. (see **Fig. P16.3**)
   (a) Within 0.415 D_H to 0.5 D_H objects are not to exceed a height of 0.025 *m*.
   (b) Within the 150° *LOS* out to a distance of 0.12 D_H, measured from the point of origin of the *LOS*, objects are not to exceed a height of 0.05 *m* above the helideck.
   (c) Beyond that arc, out to a distance of an additional 0.21 D_H, the *LOS* rises at a rate of one unit vertically for each two units horizontally originating at a height of 0.05 D_H above the level of the helideck.

(4) Objects the function of which requires that they be located on the helideck within the *FATO* are to be limited to landing nets (where required) and certain lighting systems and are not to exceed the surface of the landing area by more than 0.025 *m*. Such objects are only to be present provided they do not cause a hazard to helicopter operations.

(5) Operations by tandem main rotor helicopters are to be specially considered by the Society.

16.4 Arrangements

1 The helideck is to have recessed tie-down points for securing a helicopter.
2 The periphery of the helideck is to be fitted with a safety net except where structural protection exists. For the net, the following requirements are to be complied with:
(1) The safety net is to be inclined upwards at an angle of 10° and outwards.
(2) The safety net is to be fitted from below the edge of the helideck to a horizontal distance of 1.5 *m*.
(3) The safety net is to be fitted so that it does not rise above the edge of the deck.

16.5 Visual Aids

16.5.1 Wind Direction Indicator

1 A wind direction indicator is to be located on the unit which, in so far as is practicable, indicates the wind conditions over the *TLOF*. The material, shape and colours, etc. of the wind direction indicator are to comply with the following **(1)** to **(3)**.
(1) The wind direction indicator is to be made of lightweight fabric.
(2) The shape of the wind direction indicator is to be a truncated cone. The minimum length of the truncated cone is to be 1.2 *m*, and the minimum diameters at the larger and smaller ends are to be 0.3 *m* and 0.15 *m*, respectively.
(3) The colour of the wind direction indicator is to be a single colour, white or orange, so as to make it clearly visible and understandable from a height of at least 200 m above the heliport, having regard to background. However, where it is required to give adequate conspicuity against changing backgrounds, e.g. due to ageing, the wind direction indicator is to be of two colours. The following requirements **(a)** and **(b)** are to be complied with.
    (a) The combination of two colours is to be either orange and white or red and white.
    (b) The two colours specified in the preceding **(a)** are to be arranged in five alternate bands, the first and last band being the darker colour.

2 The wind direction indicator is to be visible from a helicopter in flight or in a hover over the helideck. The wind direction indicator is to be located in such a way as to be free from the effects of airflow disturbances caused by nearby objects or rotor downwash.
3 Where the *TLOF* may be subject to a disturbed air flow then additional wind direction indicators located close to the area are to be provided to indicate the surface wind on those areas.
4 Units on which night helicopter operations take place are to have provisions to illuminate the wind direction indicators.

16.5.2 *TLOF* Perimeter Marking

The *TLOF* perimeter marking is to be located along the perimeter of the *TLOF* and is to consist of a continuous white line with a width of at least 0.3 *m*. This is to be in accordance with **Fig. P16.2** or **Fig. P16.3**.

16.5.3 Touchdown/positioning Marking

1 A touchdown/positioning marking is to be located so that the following requirements **(1)** and **(2)** are complied with when the pilot's seat is over the marking.
(1) The whole of the undercarriage is within the *TLOF*.
(2) All parts of the helicopter are clear of any obstacle by a safe margin.
2 In principle, the centre of the touchdown/positioning marking is to be concentric to the centre of the *TLOF*.

3 A touchdown/positioning marking is to be a yellow circle and have a line width of 1 *m*. The inner diameter of the circle is to be half the D_H.

16.5.4 Heliport Identification Marking

A heliport identification marking is to be located at the centre of the touchdown/positioning marking specified in **16.5.3**. The heliport identification marking is to consist of a white "*H*" that is 4 *m* high, 3 *m* wide, with a stroke width of 0.75 *m*.

16.5.5 Helideck Obstacle-free Sector Marking

1 Except as provided in the following **-2**, a helideck obstacle-free sector marking is to be located on the *TLOF* perimeter marking and indicated by the use of a black chevron. The helideck obstacle-free sector marking is to comply with the following requirements **(1)** to **(4)**.

(1) Each leg of the chevron is to be 0.8 *m* long and 0.1 *m* wide and is to form the angle in the manner shown in **Fig. 16.4**.

(2) The obstacle-free sector marking is to indicate the origin of the obstacle-free sector.

(3) The obstacle-free sector marking is to indicate the directions of the limits of the sector.

(4) The obstacle-free sector marking is to indicate the verified *D*-value of the helideck.

2 For a helideck less than $1D_H$, a helideck obstacle free sector marking is to be located at a distance from the centre of the *TLOF* equal to the radius of the largest circle which can be drawn in the *TLOF* or $0.5D_H$, whichever is greater.

3 The height of the chevron is to equal the width of the *TLOF* perimeter marking, but is to be not less than 0.3 *m*. The chevron may be painted on top of the *TLOF* perimeter marking specified in **16.5.2**.

16.5.6 *D*-value Marking

1 The *D*-value of the helideck is to be painted on the helideck inboard of the chevron specified in **16.5.5** in alphanumeric symbols of 0.1 *m* in height.

2 The helideck *D*-value is to be marked around the perimeter of the helideck in accordance with **Fig. P16.4** in a colour contrasting with the helideck surface. The *D*-value is to be to the nearest whole number with 0.5 rounded down, e.g., 18.5 marked as 18. In rounding the *D*-value to the whole number, special consideration may be required.

16.5.7 Maximum Allowable Mass Marking

1 A maximum allowable mass marking is to be located within the *TLOF* and so arranged as to be readable from the preferred final approach direction.

2 The maximum allowable mass marking is to consist of a two- or three-digit number followed by a letter " *t* " to indicate the allowable helicopter mass in tonnes (1,000 *kg*). The marking is to be expressed to one decimal place.

3 Notwithstanding the requirements of the preceding **-2**, where States require that a maximum allowable weight is indicated in pounds, the marking is to consist of a two- or three-digit number to indicate the allowable helicopter weight in thousands of pounds. The mass marking is not to consist of " *t* " following the number.

4 The height of the figures is to be 0.9 *m* with a line width of 0.12 *m* and be in a colour which contrasts with the helideck surface. Where possible, the mass marking is to be well separated from the installation identification marking in order to avoid possible confusion on recognition.

16.5.8 Unit Identification Markings

1 The name of the unit is to be clearly displayed on unit identification panels located in such positions that the unit can be readily identified from the air and sea from all normal angles and directions of approach (e.g., high up on the derrick). The height of the figures is to be at least 0.9 *m*

with a line width of 0.12 *m*. The unit identification panels are to be highly visible in all light condition. Suitable illumination is to be provided for use at night and in conditions of poor visibility.

2 In addition to the requirement of the preceding **-1**, the unit's name is to be provided on the helideck and be positioned on the obstacle side of the touchdown/positioning marking with characters not less than 1.2 *m* in height and in a colour contrasting with the background.

16.5.9 Perimeter Lights

1 The perimeter of the *TLOF* is to be delineated by green lights visible omnidirectionally from on or above the landing area. These lights are to be above the level of the deck but are not to exceed 0.25 *m* in height for helidecks sized in accordance with **16.3.2** and 0.05 *m* in height for helidecks sized in accordance with **16.3.3**.

2 The lights are to be equally spaced at intervals of not more than 3 *m* around the perimeter of the *TLOF*, coincident with the white line delineating the perimeter specified in **16.5.2**.

3 In the case of square or rectangular decks there are to be a minimum of four lights along each side including a light at each corner of the *TLOF*.

4 Notwithstanding the requirements of the preceding **-1** to **-3**, flush fitting lights may be used at the inboard (150° limited obstacle sector origin) edge of the *TLOF* where there is a need to move a helicopter or large equipment off the *TLOF*.

5 Perimeter lights are to meet the chromaticity characteristics given in **Table P16.2**, and the vertical beam spread and intensity characteristics given in **Table P16.3**.

Table P16.2 Perimeter Lighting Chromaticity

Boundary	Chromaticity
Yellow boundary	$x = 0.36 - 0.08\,y$
White boundary	$x = 0.65\,y$
Blue boundary	$y = 0.9 - 0.171\,x$

Note:
Both x and y are to be in accordance with the provisions of the *International Commission on Illumination* (*CIE*)

Table P16.3 Green Perimeter Lighting Intensity

Elevation	Intensity (*cd*)
Greater than 0° but not greater than 90°	60 or less[a]
Greater than 20° but not greater than 90°	3 or more
Greater than 10° but not greater than 20°	15 or more
Greater than 0° but not greater than 10°	30 or more
Azimuth (-180° ~ +180°)	

a If higher intensity lighting is provided to assist in conditions of poor visibility during daylight, it is to incorporate a control to reduce the intensity to not more than 60 cd for night use.

16.5.10 Helideck Floodlights

Helideck floodlights are to be located so as to avoid glare to pilots, and provision is to be made for periodically checking their alignment. The arrangements and aiming of floodlights are to be such that helideck markings are illuminated and that shadows are kept to a minimum. Floodlights are to conform to the same height limitations specified in **16.5.9-1** for perimeter lights.

16.5.11 Obstacle Marking and Lighting

1 Fixed obstacles and permanent equipment, such as crane booms or the legs of self-elevating units, which may present a hazard to helicopters, are to be readily visible from the air during daylight. If a paint scheme is necessary to enhance identification by day, alternate black and white, black and yellow, or red and white bands are to be provided, not less than 0.5 *m* nor more than 6 *m* wide.

2 Omnidirectional red lights of at least 10 *cd* intensity are to be fitted at suitable locations to provide the helicopter pilot with visual information on objects which may present a hazard to helicopters. Such lighting is to comply with the following requirements **(1)** to **(3)**. However, when deemed appropriate by the Society, alternative equivalent technologies other than those specified in **(1)** to **(3)** may be utilized.

(1) Objects which are more than 15 *m* higher than the landing area are to be fitted with intermediate red lights of the same intensity spaced at 10 *m* intervals down to the level of the landing area (except where such lights would be obscured by other objects).

(2) Structures such as flare booms and towers may be illuminated by floodlights as an alternative to fitting the intermediate red lights, provided that such lights are arranged such that they will illuminate the whole of the structure and not interfere with the helicopter pilot's night vision.

(3) On self-elevating units the leg(s) nearest the helideck may be illuminated by floodlights as an alternative to fitting the intermediate red lights, provided that such lights are arranged such that they will not interfere with the helicopter pilot's night vision.

3 An omnidirectional red light of intensity 25 to 200 *cd* is to be fitted to the highest point of the unit and. In the case of self-elevating units, an omnidirectional red light of intensity 25 to 200 *cd* is to be fitted as near as practicable to the highest point of each leg.

16.5.12 Status Lights

1 Status lights are to be installed to provide warning that a condition exists on the unit which may be hazardous for the helicopter or its occupants. The status lights are to be a flashing red light (or flashing red lights), visible to the pilot from any direction of approach and on any landing heading. The system is to be automatically initiated when the toxic gas alarm is initiated as well as being capable of manual activation at the helideck. It is to be visible at a range in excess of the distance at which the helicopter may be endangered or may be commencing a visual approach. The status light system is to comply with the following requirements in **(1)** through **(10)**.

(1) The status light system is to be installed either on or adjacent to the helideck. Additional lights may be installed in other locations on the unit where this is necessary to meet the requirement that the signal be visible from all approach directions, i.e. 360° in azimuth.

(2) The status light system is to have an effective intensity of at least 700 *cd* between 2° and 10° above the horizontal and at least 176 *cd* at all other angles of elevation.

(3) The status light system is to be provided with a facility to enable the output of the lights (if and when activated) to be dimmed to an intensity not exceeding 60 *cd* while the helicopter is landed on the helideck.

(4) The status light system is to be visible from all possible approach directions and while the helicopter is landed on the helideck.

(5) The status light system is to use lights that are "red" as defined by the *International Civil*

Aviation Organization (*ICAO*).

(6) The following requirements in **(a)** to **(b)** are to be complied with.

(a) The status light system is to flash at a rate of 120 flashes per minute and, if two or more lights are needed to meet this requirement, they are to be synchronised to ensure an equal time gap (to within 10%) between flashes. Provision is to be made to reduce the flash rate to 60 flashes per minute when a helicopter is on the helideck.

(b) The maximum duty cycle is to be no greater than 50%.

(7) The status light system is to have facilities at the helideck to manually override the automatic activation of the system.

(8) The status light system is to reach full intensity in not more than three seconds at all times.

(9) The status light system is to be designed so that no single failure will prevent the system operating effectively. In the event that more than one light unit is used to meet the flash rate requirement, a reduced flash frequency of at least 60 flashes per minute is acceptable in the failed condition for a limited period.

(10) Where supplementary 'repeater' lights are employed for the purposes of achieving the 'on deck' 360° coverage in azimuth, these are to have a minimum intensity of 16 *cd* and a maximum intensity of 60 *cd* for all angles of azimuth and elevation.

16.6 Motion Sensing System

Surface units are to be equipped with an electronic motion-sensing system capable of measuring or calculating the magnitude and rate of pitch roll and heave at the helideck about the true vertical datum.

Fig. P16.1 Obstacle Free Areas (Below Landing Area Level)

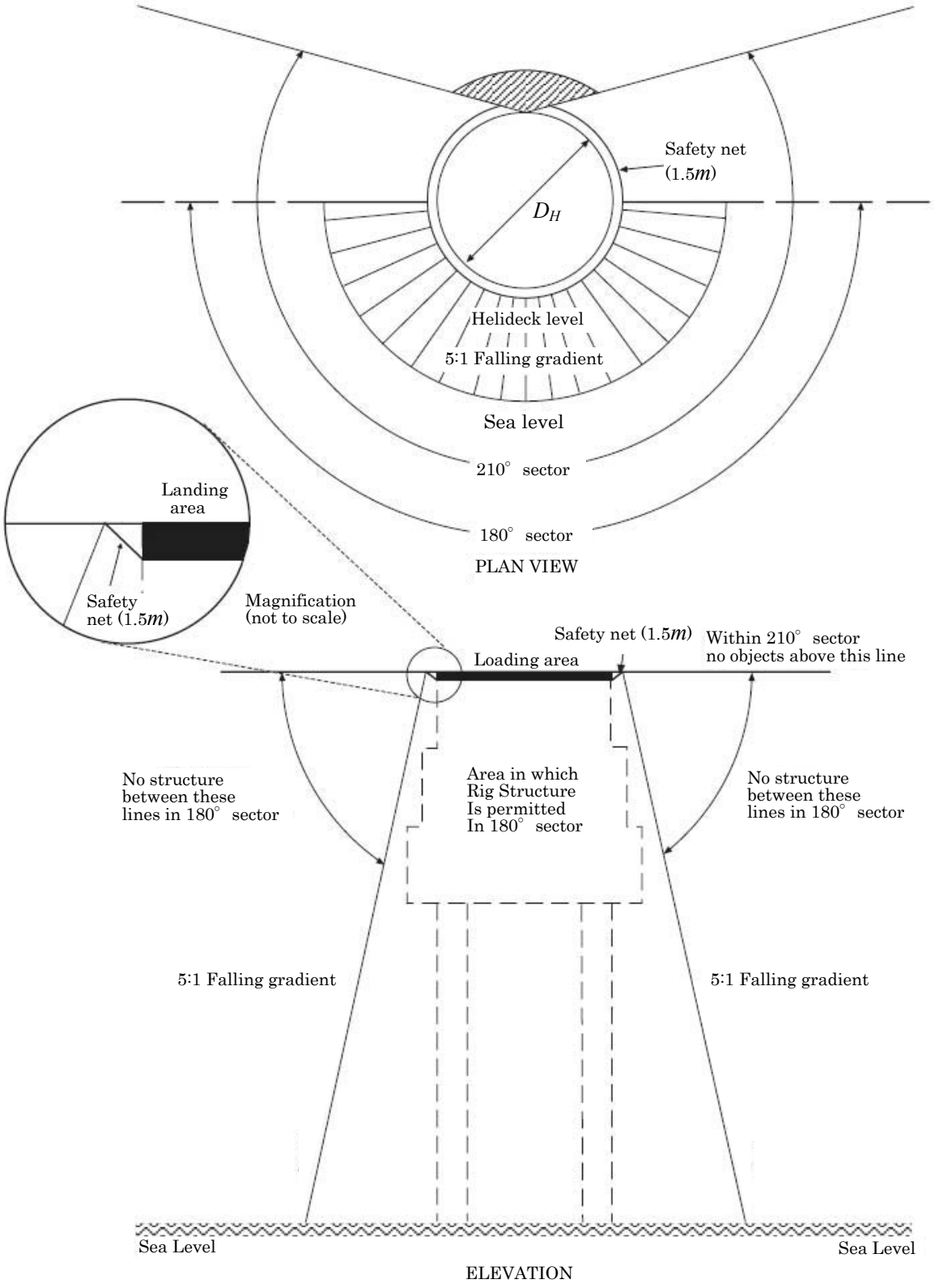
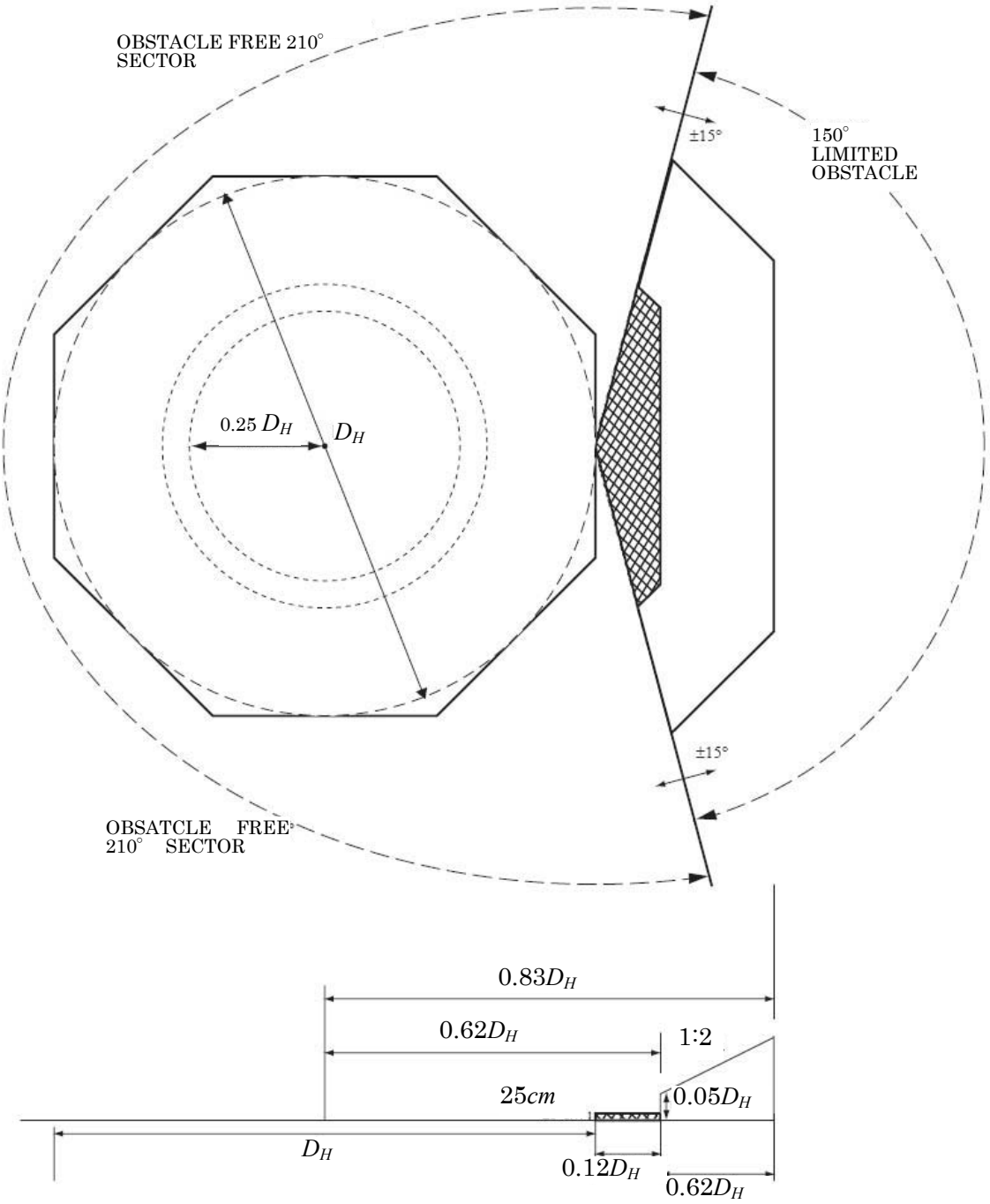


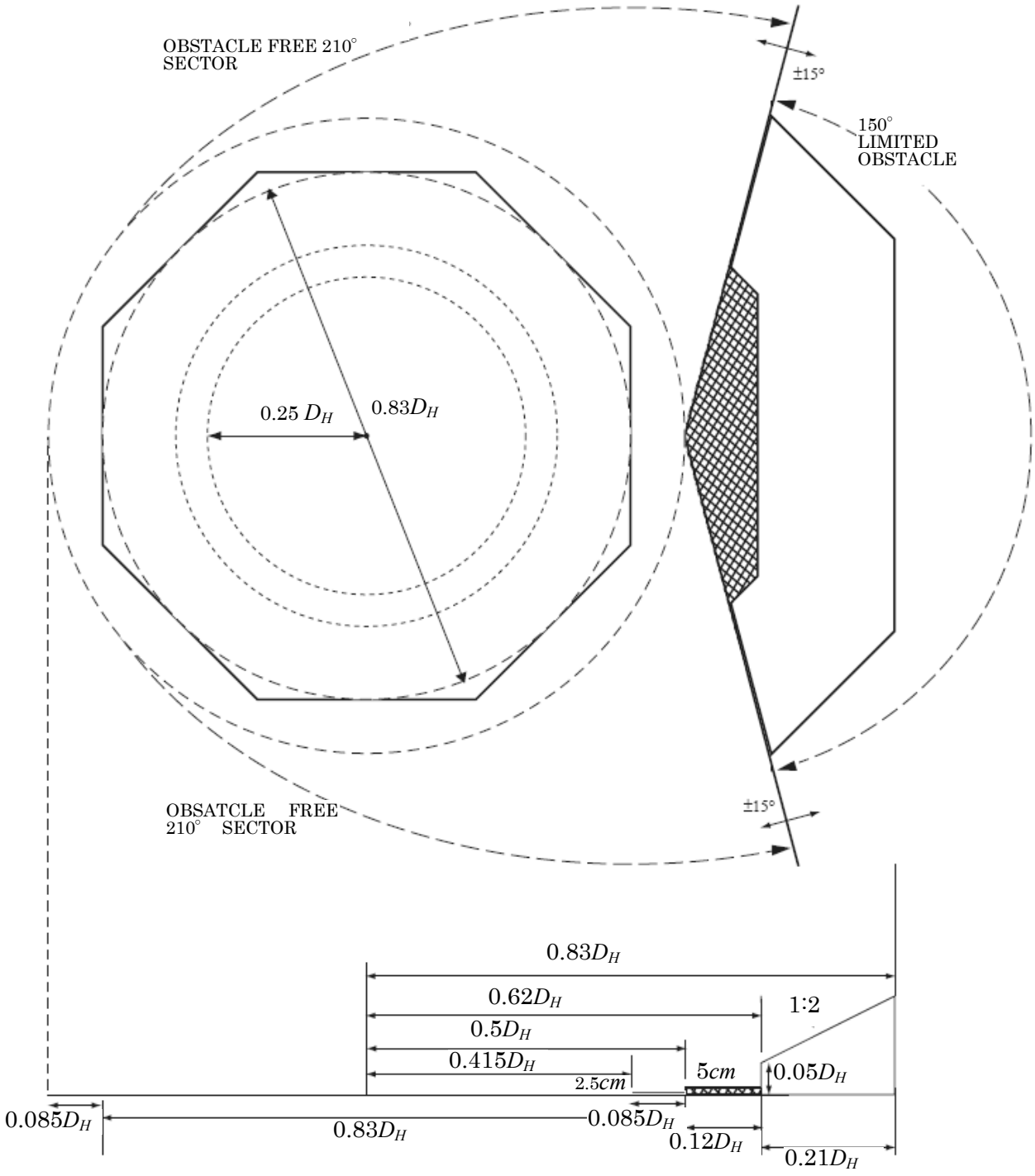
Fig. P16.2 Helideck Obstacle Limitation Sector (Single Main Rotor Helicopters)



Note:

Where the dynamic load bearing area of the helideck enclosed by the *FATO* perimeter marking is a shape other than circular, the extent of the *LOS* segments are represented as lines parallel to the perimeter of the landing area rather than arcs. **Fig.P16.2** has been constructed on the assumption that an octagonal helideck is provided.

Fig. P16.3 Helideck Obstacle Limitation Sector (Single Main Rotor Helicopters for Benign Climate Conditions as Accepted by the Coastal State)

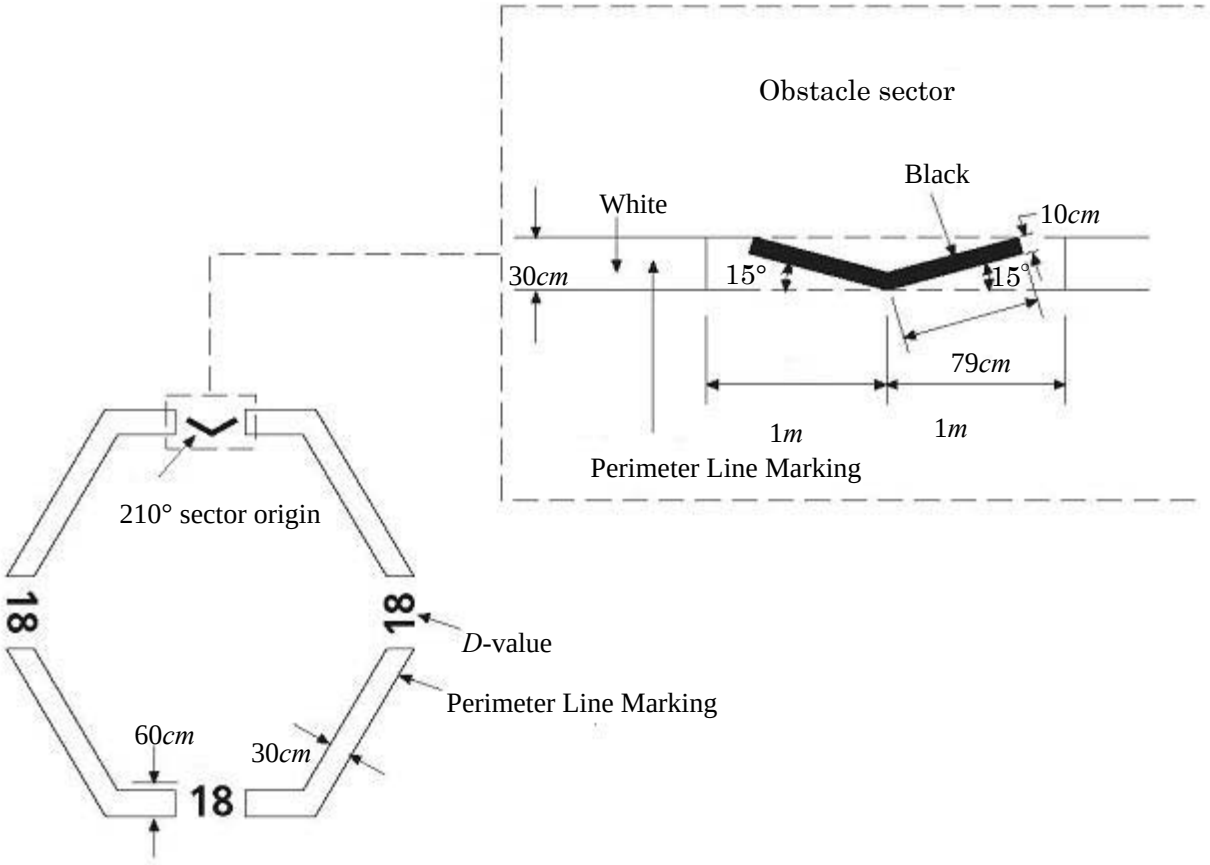


Note: Heights of 2.5cm and 5cm high shaded areas not to scale

Note:

Where the dynamic load bearing area of the helideck enclosed by the *FATO* perimeter marking is a shape other than circular, the extent of the *LOS* segments are represented as lines parallel to the perimeter of the landing area rather than arcs. **Fig. P16.3** has been constructed on the assumption that an octagonal helideck is provided.

Fig. P16.4 An Example of Obstacle-free Sector Marking
(In the Case of a Hexagonal Helideck)



Chapter 17 Operating Requirement

17.1 Operating Manual

17.1.1 General

1 An operating manual approved by the Society is to be provided on board. This operating manual is to include the information for normal operations specified in **17.2.2** and for emergency operations specified in **17.2.3**.

2 The operating manual is to, in addition to providing the necessary general information about the unit, contain guidance on and procedures for operations that are vital to the safety of personnel and the unit.

3 The operating manual is to be concise and be compiled in such a manner that it is easily understood.

4 Each operating manual is to be provided with a Table of Contents, an index and wherever possible be cross-referenced to additional detailed information.

5 The information which is to be readily available on board provided in the operating manual is to, where necessary, be supported by additional material provided in the form of plans, manufacturers' manuals and other data necessary for the efficient operation and maintenance of the unit.

6 When manufacturers' manuals are provided in accordance with **-5** above, detailed information provided in such manufacturers' manuals need not be repeated in the operating manuals.

7 Operating and maintenance instructions and engineering drawings for ship machinery and equipment essential to the safe operation of the ship is to be written in a language understandable by those officers and crew members who are required to understand such information in the performance of their duties.

17.2 Operating Requirements

17.2.1 Application

The provisions in **17.2** are not the conditions for maintenance of classification for which examinations are required but the conditions to be observed by the ship owner, ship master or other persons who may concern with the ship operation.

17.2.2 Information for Normal Operations

1 The operating manual for normal operations is to include the following general descriptive information, where applicable:

(1) A description and particulars of the unit

(2) A chain of command with general responsibilities during normal operation

(3) Limiting design data for each mode of operation, including draughts, air gap, wave height, wave period, wind, current, sea and air temperatures, assumed seabed conditions, and any other applicable environmental factors, such as icing

(4) A description of any inherent operational limitations for each mode of operation and for each change in mode of operation

(5) The location of watertight and weathertight boundaries, the location and type of watertight and weathertight closures and the location of downflooding points

(6) The location, type and quantities of permanent ballast installed on the unit

(7) A description of the general emergency, toxic gas (hydrogen sulphide), combustible gas, fire

alarm and abandon unit signals

(8) For self-elevating units, information regarding the preparation of the unit to avoid structural damage during the setting or retraction of legs on or from the seabed or during extreme weather conditions while in transit.

(9) Light ship data together with a comprehensive listing of the inclusions and exclusions of the equipment that influence light ship data

(10) Stability information setting forth the allowable maximum height of the centre of gravity

(11) A capacity plan showing the capacities and the vertical, longitudinal and transverse centres of gravity of tanks and bulk material stowage spaces

(12) Tank sounding tables or curves showing capacities, the vertical, longitudinal and transverse centres of gravity in graduated intervals and the free surface data of each tank

(13) Acceptable structural deck loadings

(14) Identification of helicopters suited for the design of the helideck and any limiting conditions of operation

(15) Identification and classification of hazardous areas on the unit

(16) Description and limitations of any on-board computer used in operations such as ballasting, anchoring, dynamic positioning and in trim and stability calculations

(17) Description of towing arrangements and limiting conditions of operation

(18) Description of the main power system and limiting conditions of operation

(19) A list of key plans and schematics

2 The operating manual for normal operations is to also include, where applicable:

(1) Guidance for the maintenance of adequate stability and the use of the stability data

(2) Guidance for the routine recording of lightweight alterations

(3) Examples of loading conditions for each mode of operation and instructions for developing other acceptable loading conditions

(4) For column-stabilized units, a description, schematic diagram and guidance for the operation of the ballast system and of the alternative means of ballast system operation, together with a description of its limitations, such as pumping capacities at various angles of heel and trim

(5) A description, schematic diagram, guidance for the operation of the bilge system and of the alternative means of bilge system operation, together with a description of its limitations, such as draining of spaces not directly connected to the bilge system

(6) Fuel oil storage and transfer procedures

(7) Procedures for changing modes of operation

(8) Guidance on severe weather operations and time required to meet severe storm conditions, including provisions regarding lowering or stowage of equipment, and any inherent operational limitations

(9) Description of the anchoring arrangements and anchoring or mooring procedures and any limiting factors

(10) Personnel transfer procedures

(11) Procedures for the arrival, departure and fuelling of helicopters

(12) Limiting conditions of crane operations

(13) Description of the dynamic positioning systems and limiting conditions of operation

(14) Procedures for ensuring that the requirements of applicable international codes for the stowage and handling of dangerous and radioactive materials are met

(15) Guidance for the placement and safe operation of the well testing equipment. The areas around possible sources of gas release are to be classified in accordance with **13.1.3** for the duration of well test operations

(16) Procedures for receiving vessels alongside

(17) Guidance on safe towing operations such as to reduce to a minimum any danger to personnel

during towing operations

17.2.3 Operating Manual for Emergency Operations

The operating manual for emergency operations is to include, where applicable:

(1) Description of fire-extinguishing systems and equipment

(2) Description of the life-saving appliances and means of escape

(3) Description of the emergency power system and limiting conditions of operation

(4) A list of key plans and schematics which may be useful during emergency situations

(5) General procedures for deballasting or counterflooding and the closure of all openings which may lead to progressive flooding in the event of damage

(6) Guidance for the person in charge in determining the cause of unexpected list and trim and assessing the potential affects of corrective measures on unit survivability, i.e. strength, stability, buoyancy, etc.

(7) Special procedures in the event of an uncontrolled escape of hydrocarbons or hydrogen sulphide, including emergency shutdown

(8) Guidance on the restoration of mechanical, electrical and ventilation systems after main power failure or emergency shutdown

(9) Ice alert procedures

17.2.4 Helicopter Facilities

1 The operating manual for normal operations specified in **17.2.2** is to include a description and a checklist of safety precautions, procedures and equipment requirements.

2 If refueling capability is to be provided, the procedures and precautions to be followed during refuelling operations are to be in accordance with recognized safe practices and contained in the operations manual.

3 Fire-fighting personnel, consisting of at least two persons trained for rescue and fire-fighting duties, and fire-fighting equipment are to be immediately available when the helicopter is about to land, landing, refuelling, or during take-off.

4 Fire-fighting personnel is to be present during refuelling operations. However, the fire-fighting personnel is not to be involved with refuelling activities.

17.2.5 Material Safety Data Sheets

Units carrying oil fuel are to be provided with material safety data sheets prior to the bunkering of oil fuel.

17.2.6 Dangerous Goods

1 Dangerous goods are to be stored safely and appropriately according to the nature of the goods. Incompatible goods are to be segregated from one another.

2 Explosives which present a serious risk are to be stored in a suitable magazine which is to be kept securely closed. Such explosives are to be segregated from detonators. Electrical apparatus and cables in any compartment in which it is intended to store explosives are to be designed and used so as to minimize the risk of fire or explosion.

3 Flammable liquids which give off dangerous vapours and flammable gases are to be stored in a well-ventilated space or on deck.

4 Substances which are liable to spontaneous heating or combustion are not to be carried unless adequate precautions have been taken to prevent the outbreak of fire.

5 Radioactive substances are to be stored and handled in a safe manner.

17.2.7 Pollution Prevention

Provision is to be made such that the unit can comply with the requirements of international conventions in force.

17.2.8 Transfer of Material, Equipment or Personnel

1 Transfer operations, including the weights of loads to be handled, any limiting conditions of operation and emergency procedures are to be discussed and agreed between personnel on the unit and on attending vessels prior to commencement of such transfers. Direct communications are to be maintained with the crane operator throughout such operations.

2 Where appropriate to the operation, the unit is to be equipped with at least two independent means for mooring attending vessels. The mooring positions are to be such that sufficient crane capacity in terms of lift and outreach is available to handle loads in a safe manner.

3 The arrangement of mooring attachments on the unit to facilitate transfer operations are to have regard to the risk of damage should the attending vessel come in contact with the unit.

4 The mooring arrangements and procedures are to be such as to reduce to a minimum any danger to personnel during mooring operations.

5 The mooring lines between the unit and the attending vessel are to, as far as practicable, be arranged so that if a line breaks, danger to personnel on both the attending vessel and the unit is minimized.

6 Discharges from the unit, such as those from the sewage system or ventilation from bulk tanks, are to be arranged so that they minimize danger to personnel on the deck of attending vessels.

17.2.9 Diving Systems

1 Diving systems, if provided, are to be installed, protected and maintained so as to minimize, so far as practicable, any danger to personnel or the unit, due regard being paid to fire, explosion or other hazards.

2 Diving systems are to be designed, constructed, maintained and certified in accordance with a national or international standard or code acceptable to the Society, which may be employed for fixed diving systems, if provided.

17.2.10 Safety of Navigation

1 The requirements of the International Regulations for Preventing Collisions at Sea in force are to apply to each unit except when stationary and engaged in drilling operations.

2 Each unit when stationary and engaged in drilling operations is to comply with the requirements for the safety of navigation of the coastal state in whose territorial sea or on whose continental shelf the unit is operating.

3 Each unit when stationary and engaged in drilling operations is to inform the coastal state concerned about its position in latitude and longitude. Details of future movements of units are also to be passed to coastal state before a unit gets underway.

17.2.11 Emergency Procedures

1 Persons in charge

(1) The person on each unit to whom all personnel on board are responsible in an emergency is to be clearly defined. This person is to be designated by title by the owner or operator of the unit or the agent of either of them.

(2) The person in charge is to be well acquainted with the characteristics, capabilities and limitations of the unit. This person is to be fully cognizant of his responsibilities for emergency organization and action, for conducting emergency drills and training, and for keeping records of such drills.

2 Manning of survival craft and supervision

(1) There are to be a sufficient number of trained persons on board for mustering and assisting untrained persons.
(2) There are to be a sufficient number of certificated persons on board for launching and operating the survival craft to which personnel are assigned.
(3) Certificated persons specified **(2)** above are to be placed in command and as second-in-command of each lifeboat.
(4) The person in command of the lifeboat and the second-in-command is to have a list of all persons assigned to the boat and to see that persons under their command are acquainted with their duties.
(5) Every lifeboat is to have a person assigned who is capable of operating the lifeboat radio equipment.
(6) Every lifeboat is to have a person assigned who is capable of operating the engine and carrying out minor adjustments.
(7) The person in charge of the unit is to ensure the equitable distribution of persons referred to thought **(1)** to **(3)** above among the unit's survival craft.

3 Muster list

(1) Muster lists are to be exhibited in conspicuous places throughout the unit including the control rooms and accommodation spaces. Muster lists are to be drawn up in the working language or languages of the crew.
(2) The muster list is to specify details of the general alarm system signals and also the action to be taken in all operating modes by every person when these alarms are sounded, indicating the location to which they are to go and the general duties, if any, they would be expected to perform.
(3) The following duties are to be included in the muster list:
  (a) Closing of the watertight doors, fire doors, valves, vent inlets and outlets, scuppers, side scuttles, skylights, portholes and other similar openings in the unit
  (b) Equipping of the survival craft and other life-saving appliances
  (c) Preparation and launching of survival craft
  (d) General preparation of other life-saving appliances
  (e) Muster of visitors
  (f) Use of communication equipment
  (g) Manning of fire parties assigned to deal with fires
  (h) Special duties assigned in respect to the use of fire-fighting equipment and installations
  (i) Emergency duties on the helicopter deck
  (j) Special duties assigned in the event of an uncontrolled escape of hydrocarbons or hydrogen sulphide, including emergency shutdown.
(4) The muster list is to specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions.
(5) The muster list is to show the duties assigned to regularly assigned personnel in relation to visitors in case of emergency.
(6) Each unit is to have a current muster list revised as necessary to reflect any procedural changes.
(7) In deciding on the level of detail to be included in the muster list, account is to be taken of information available in other documents, e.g., operating manual.

17.2.12 Emergency Instructions

Illustrations and instructions are to be conspicuously displayed at muster stations, control positions, working spaces and accommodation spaces to inform all on board of:

(1) The method of donning lifejackets
(2) The method of donning immersion suits, if applicable

17.2.13 Training Manual and Onboard Training Aids

A training manual and onboard training aids complying with the relevant requirements in *SOLAS* Regulation II-2/15 and *SOLAS* Regulation III /35 are to be provided and relevant information made available to each person on board.

17.2.14 Practice Musters and Drills

1 One abandon unit drill and one fire drill are to be conducted every week. Drills are to be so arranged that all personnel participate in a drill at least once a month. A drill is to take place within 24 *h* after a personnel change if more than 25% of the personnel have not participated in abandon unit and fire drills on board that particular unit in the previous month. The Administration may accept other arrangements that are at least equivalent for those undits for which this is impracticable.

2 Drills and exercises are to be conducted in accordance with the recommendations of the Organization.

3 Different lifeboats are to, as far as practicable, be lowered in compliance with the provisions of **-2** above at successive drills.

4 Drills are, as far as practicable, to be conducted as if there were an actual emergency and to include at least the following:

(1) The functions and use of the life-saving appliances

(2) Except for free-fall lifeboats, starting of engines and lowering of at least one lifeboat and, at least once every three months when conditions permit, launching and manoeuvring with the assigned operating crew on board.

5 As far as is reasonably practicable, rescue boats, including lifeboats which are also rescue boats, are to be launched each month with their assigned crew aboard and manoeuvred in the water. In all cases these provisions are to be complied with at least once every three months.

6 Except for lifeboats that are also rescue-boats, the requirement of lifeboats specified in *SOLAS* Regulation III/19.3.3.3 are to be applied.

7 In the case of a lifeboat arranged for free-fall launching, the requirement in *SOLAS* Regulation III/19.3.3.4 are to be applied.

17.2.15 Onboard Training and Instructions

1 All persons are to be provided with familiarization training in accordance with the recommendations of the *IMO*.

2 All persons are to be provided with training in personal safety and emergency response commensurate with their assigned duties in accordance with the recommendations of the *IMO*.

17.3 Records

17.3.1 Official Log and Tour Record

1 An official log or tour record in a format acceptable to the Administration is to be maintained on board the unit to include a record of:

(1) Inspection of lifesaving equipment

(2) Drills and exercises

17.3.2 Other Records

If not included in the official log or tour record, the following additional information or records are to be maintained for a period acceptable to the Administration:

(1) Survey record for periodical surveys

(2) Inspection and maintenance records related to means of access specified in **9.6.3**

(3) Light ship data alterations log specified in **12.5.2-5(3)(b)ii), Part B**
(4) Testing records and equipment changes for anchors and related equipment specified in **10.3.3**
(5) Maintenance, inspection and testing records relating to fire-fighting equipment specified in **14.2.2, Part R**
(6) Maintenance records related to life-saving equipment specified in **1.1.1-8, Part 1 of the Rules for Safety Equipment**
(7) Inspections of cranes specified in **Rules for Cargo Handling Appliances**
(8) Rated capacities of lifting and hoisting equipment specified in **9.4.2-2**
(9) Muster lists specified in **17.2.11-3**

17.3.3 Copy of the Documentation

A copy of the documentation, as approved by the Society, indicating any alternative design and arrangements are to be carried on board the unit.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 January 2012.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to units the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific unit begins and the assembly of that unit has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part P Mobile Offshore Drilling Units, Work-ships and Special Purpose Barges

2011 AMENDMENT NO.1

Notice No.41 30th June 2011
Resolved by Technical Committee on 3rd February 2011

Notice No.41 30th June 2011
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Amendment 1-1

Title of Part P has been amended as follows.

Part P MOBILE OFFSHORE DRILLING UNITS~~, WORK SHIPS~~ AND SPECIAL PURPOSE BARGES

P1 GENERAL

P1.1 General

Paragraph P1.1.1 has been deleted.

~~**P1.1.1 Application**~~

~~Integrated pusher tugs are to comply with relevant requirements given in **Part P of the Rules** as pusher tugs integrated with barges in addition to complying with relevant requirements given in **Part P of the Rules** as pusher tugs.~~

P1.1.5 Class Notations

Sub-paragraph -1 has been amended as follows.

1 With respect to units complying with relevant requirements given in this **Part**, notations corresponding to the purposes of those units defined in **1.2.3**, **Part P of the Rules** are affixed to the Classification Characters as follows. In addition, for self-elevating units and column stabilized units, notations corresponding to the type of the units defined in **1.2.2**, **Part P of the Rules**, are affixed before notation indicating the purpose of such units.

(1) Mobile offshore drilling units
   (a) Self-elevating mobile offshore drilling units: *Self-Elevating Drilling Unit* (abbreviated to *SEDU*)
   (b) Column-stabilized mobile offshore drilling units: *Column-Stabilized Drilling Unit* (abbreviated to *CSDU*)
   (c) Ship-type mobile offshore drilling units: *Drilling Vessel* (abbreviated to *DV*)
   (d) Barge-type mobile offshore drilling units: *Drilling Barge* (abbreviated to *DB*)

   In addition, for units complying with "*The Code for the Construction and Equipment of Mobile Offshore Drilling Units* (MODU Code)" (*IMO Resolution A*.649(16)), the notation of "*Mobile offshore Drilling Unit*" (abbreviated to *MODU*) is affixed.

~~(2) Work ships~~

~~(a) Dredgers: *Dredger* (abbreviated to *D*)~~

~~(b) Crane ships: *Crane Vessel* (abbreviated to *CV*)~~
~~(c) Vessels engaged in towing operations~~
~~i) Tugs: *Tug*~~
~~ii) Ocean Tugs: *Towing Vessel*(abbreviated to *TV*)~~
~~(d) Pusher tugs: *Pusher*~~
~~(e) Fire fighting vessels~~
~~With respect to fire fighting vessels, the following notations corresponding to the installed fire fighting equipment defined in **P9.4.4-1** are affixed.~~
~~i) FFV1 vessels: *Fire Fighting Vessel-Type 1* (abbreviated to *FFV1*)~~
~~ii) FFV2 vessels: *Fire Fighting Vessel-Type 2* (abbreviated to *FFV2*)~~
~~iii) FFV3 vessels: *Fire Fighting Vessel-Type 3* (abbreviated to *FFV3*)~~
~~In cases where the fire fighting equipment specified in **Table P1.1.5-1** is installed, additional descriptions can be affixed. (For example, *Fire Fighting Vessel-Type 1 equipped with WSS, MFG*)~~
~~In addition, if foam monitor systems for fire fighting complying with the requirements given in **P9.4.4-9** are installed, the following additional descriptions are affixed. (For example, *Fire Fighting Vessel-Type 3 equipped with WSS, FMS3*)~~
~~i) *FMS1*: Have capacities of more than 1,000*l*/ *minute*~~
~~ii) *FMS2*: Have capacities of more than 3,000*l*/ *minute*~~
~~iii) *FMS3*: Have capacities of more than 6,000*l*/*minute*~~
~~iv) *FMS4*: Have capacities of more than 12,000 *l*/*minute*~~
~~v) *FMS5*: Two fixed low expansion foam monitors that have capacities more than 5,000 *l*/*minute*~~

~~Table P1.1.5-1 Fire fighting equipment~~

~~Fire fighting equipment~~	~~Additional descriptions~~
~~Water spray system~~	~~*WSS*~~
~~Mobile high expansion foam generator~~	~~*MFG*~~
~~Foam monitor system~~	~~*FMS*~~

~~(f) Offshore supply vessels: *Offshore Supply Vessel* (abbreviated to *OSV*)~~
~~(g) Anchor handling vessels: *Anchor Handling Vessel* (abbreviated to *AHV*)~~
~~(h) Vessels engaged in laying objects on the seabed~~
~~i) Cable laying vessels: *Cable Layer* (abbreviated to *CL*)~~
~~ii) Pipe laying vessels: *Pipe Layer* (abbreviated to *PL*)~~
~~(i) Notations, except for those mentioned above, corresponding to work purposes of work-ships~~
~~In addition, in cases where the purpose of work-ships fall under more than one within the **(a)** to **(i)** mentioned above, notations corresponding to each purpose are affixed. (For example, Tugs-cum-Fire fighting vessels: *Tug/Fire Fighting Vessel-Type 1*)~~

(~~3~~2) Storage units: *Storage Barge* (abbreviated to *SB*)
In cases where oil is stored, the notation to be affixed is "*Oil Storage Barge*", and additional descriptions regarding flash points of oil are affixed. (For example, *Oil Storage Barge, Flash point below 60℃*)

(~~4~~3) Moored floating units: Notations corresponding to the purpose of such units are affixed.
(For example, Hotel ships: *Floating Hotel* (abbreviated to *FH*))

(~~5~~4) Plant barges: Notations corresponding to the types of installed industrial factories are affixed.
(For example, Plant barges for generating electricity: *Power Plant Barge* (abbreviated to *PPB*))

(~~6~~5) Accommodation barges: *Accommodation Barge* (abbreviated to *AB*)

P1.2 Definition

Paragraph P1.2.3 has been amended as follows.

P1.2.3 Purpose of Units

1 Storage units specified in **1.2.3(~~3~~2), Part P of the Rules** are categorized as follows:

(1) Large sized storage units
Large sized storage units mean the units which are stationed at smooth water area and whose length is exceeding 350 *m*. However, one tank capacity of storage tank is not exceeding 100,000 m^3.

(2) Other storage units
These units mean the units excluding preceding **(1)** and which are included that are also provided with production installation.

~~**2** Pusher tugs defined in **1.2.3(2)(d), Part P of the Rules** are categorized into the following **(1)** or **(2)** according to the way they are connected to barges~~

~~(1) Easy separation type pusher tugs:~~
~~Connected by a pin and can be separated quickly and easily during an emergency.~~

~~(2) Unity type pusher barge:~~
~~Pusher tugs which are tightly connected to barges so that a single structure is formed. More specifically,~~
~~(a) Connection by a bolt and so on~~
~~(b) Has an uneven form structure so that they complement each other in the connecting part, and can be secured by wire ropes and so on after connection is made.~~

P7 STRENGTH OF HULL

Section P7.7 has been deleted.

~~**P7.7 Additional Requirements for Work Ships**~~

~~**P7.7.6 Offshore Supply Vessels**~~

~~**1** The head of water for the calculation of the scantlings of structure end bulkheads and deckhouse boundary walls is not to be less than that obtained from **Table P7.7.6-1.**~~

Table P7.7.6-1 has been deleted.

~~Table P7.7.6-1~~

~~Exposed front bulkhead and wall of the first tier~~	~~8.0(*m*)~~
~~Side walls, and aft bulkheads and walls~~	~~3.3(*m*)~~

Chapter P9 has been deleted.

~~P9 HULL EQUIPMENT~~

~~P9.3 Guardrails and Bulwarks~~

~~P9.3.1 General~~

~~**1** In cases where, offshore supply vessels are fitted with fenders, such offshore supply vessels are to be according to following **(1)** and **(2)**:~~

~~(1) Fender materials are to be not less than steel required for Grade A materials.~~

~~(2) Carling plates are to be arranged between the side frames bearing the fender loads.~~

~~P9.4 Equipment for Special Purpose~~

~~P9.4.4 Fire Fighting Vessels~~

~~**1** Fire fighting vessels are to comply with **P9.4.4** as either types specified in **Table P9.4.4-1**.~~

~~**2** The fuel oil tanks of fire fighting vessels are to be capable of carrying sufficient fuel oil for fire fighting operations with all fixed water monitors in use at maximum and continuous propulsion operation during the operation time specified in **Table P9.4.4-1**.~~

~~**3** Water monitors for fire fighting are to be according to following **(1)** to **(5)**:~~

~~(1) The range and height of trajectory of monitor jets are to be not less than those specified in **Table P 9.4.4-1** with all fixed water monitors in use simultaneously.~~

~~(2) Water monitors are to be capable of adequate adjustment in the vertical and horizontal directions.~~

~~(3) Means are to be provided for preventing monitor jets from impinging on ship structure and equipment.~~

~~(4) Water monitors are to be capable of being operated and maneuvered both locally and at a remote-control station. The water monitor remote-control station is to have adequate overall operational visibility and protection.~~

~~(5) Control systems are to be suitably protected from external damage.~~

~~**4** The pump capacity of water monitors is to be not less than that specified in **Table P9.4.4-1**.~~

~~**5** Hoses and nozzles for fire fighting are to be according to following **(1)** to **(3)**:~~

~~(1) Each nozzle is to produce a jet or spray.~~

~~(2) Hoses are to be not less than 38*mm* or more than 65*mm* in diameter, and generally are to be 15*m* in length.~~

~~(3) A water jet flow of at least 12*m* is to be provided.~~

~~**6** Fire-fighter's outfits are to be according to following **(1)** to **(3)**:~~

~~(1) Fire-fighter's outfits are to be according to **23.2.1, Part R of the Rules**.~~

~~(2) At least one set of fully charged spare air bottles is to be provided for each apparatus.~~

~~(3) Means for fully recharging the air cylinders used in breathing apparatus in a time not exceeding 30 *minutes* free from contamination are to be suitably located.~~

~~**7** Searchlights are to be capable of providing effective horizontal and vertical ranges of coverage.~~

~~**8** In cases where additional mobile high expansion foam monitors are provided according to **P1.1.5-1(2)(c)**, each mobile high expansion foam monitor is to have a minimum capacity of 100m^3/*minute*. In addition, total foam forming liquid carried is to be capable of a least 30 *minutes* foam production.~~

9 In cases where additional foam monitor systems for fire fighting are provided according to **P1.1.5-1(2)(c)**, foam monitor systems are to be according to following **(1)** to **(3)**:

(1) Two fixed low expansion foam monitors are to be installed.

(2) The foam expansion ratio is not to be more than 15 to 1. In addition, the total foam forming liquid carried is to be capable of a least 30 *minutes* foam production.

(3) A foam throw height of at least 50*m* above sea level with foam monitors in simultaneous use at maximum foam generation is to be provided.

Table P9.4.4-1 Minimum requirements for Fire Fighting Vessels

Type of Fire Fighting Vessels	FFV1	FFV2			FFV3	
Total pump capacity (m^3/h)	2,400	7,200			9,600	
Number of pumps[1),2)]	1	2			2	
Number of water monitors	2	2	3	4	3	4
Discharge rate per monitor (m^3/h) [3)]	1,200	3,600	2,400	1,800	3,200	2,400
Monitor range (*m*)	120	150			150	
Height of water jets of monitors (*m*) [4)]	45	70			70	
Number of hose connections on each side of vessel	4	8			8	
Number of fire fighter's outfits	4	8			8	
Fuel oil capacity (*hours*)	24	96			96	
Number of search lights	2	2			2	

Notes :

(1) Pumps used for extinguishing fires onboard a vessel may be used for fire fighting other vessels.

(2) It is recommended that fire pump suction velocity generally not exceed 2*m/sec*, discharge piping to water monitors generally not exceed 4*m/sec* operational velocity to assure adequate system capacity.

(3) Provided that total discharge capacity of water monitors installed on FFV2 or FFV3 fire fighting vessels is equal to total pump capacity, the discharge rate per monitor may be less than that specified in the above Table. However, in all cases, the discharge rate per monitor of each monitor is to be more than 1,800m^3/h.

(4) The range of water jets is to be horizontally more than 70*m* from the nearest part of the fire fighting vessel. The height of water jets from sea level are to be vertically more than that specified in the above table.

P9.4.5 Offshore Supply Vessels

1 The thickness of wooden sheathing is to be at least 50*mm*.

2 The section moduli of cargo rails and stanchions are to be not less than that required by the following equation:

Stanchion: $7.8CbHSh$ cm^3

Cargo rail: $7.8CbHSh^2$ cm^3

C : 1.3 for stanchion, and 0.11 for cargo rail

b : breath of cargo deck, between cargo rails (*m*)

H : mean height of cargo (*m*)

S : spacing of cargo rail stanchion (*m*)

h : height of cargo rail (*m*)

P9.4.6 Anchor Handling Vessels

1 Cases "deemed appropriately by the Society" refer to those where the plate thickness is increased by 2.5*mm*.

P9.4.7 Vessels Engaged in Towing Operations

1 The breaking strength of towlines is to be the maximum design towline force times at least 2.5.

P11 MACHINERY INSTALLATIONS

Section P11.4 has been deleted.

~~**P11.4 Fire Fighting Vessels**~~

~~**P11.4.4 Sea Inlets for Fire Fighting Operations**~~

~~The "shut-off valves" specified in **11.4.4-4** to **-6, Part P of the Rules** may be also used as sea valves.~~

P12 ELECTRICAL INSTALLATIONS

Section P12.4 has been deleted.

~~**P12.4 Work Ships**~~

~~**P12.4.3 Emergency Source of Electrical Power**~~

~~"*VHF* radio installations, *MF* radio installations, *INMARSAT* ship earth stations and *MF /HF* radio installations as required by Chapter IV, the Annex to *SOLAS* Convention" as specified in **12.4.3(4)(b), Part P of the Rules** are the installations which are required by *GMDSS*.~~

Section P12.5 has been amended as follows.

P12.~~5~~4 Units which are Engaged in a Special Work and are Stationed for a Long Period of Time

P12.~~5~~4.3 Emergency Source of Electrical Power

"*VHF* radio installations, *MF* radio installations, *INMARSAT* ship earth stations and *MF /HF* radio installations as required by Chapter IV, the Annex to *SOLAS* Convention" as specified in **12.~~5~~4.3(4)(b), Part P of the Rules** are the installations which are required by *GMDSS*.

Section P12.6 has been amended as follows.

P12.~~6~~5 Units which have Accommodation for Particular Personnel or Passengers

P12.~~6~~5.3 Emergency Source of Electrical Power

"*VHF* radio installations, *MF* radio installations, *INMARSAT* ship earth stations and *MF /HF* radio installations as required by Chapter IV, the Annex to *SOLAS* Convention" as specified in **12.~~6~~5.3(4)(b), Part P of the Rules** are the installations which are required by *GMDSS*.

P13 MACHINERY INSTALLATIONS, ELECTRICAL INSTALLATIONS, AND SO ON IN HAZARDOUS AREAS

Section P13.1 has been deleted.

~~**P13.1 General**~~

~~**P13.1.3 Hazardous Areas**~~

~~Hazardous areas for an oil recovery unit are, at least, to be as listed in the following **(1)** to **(13).**~~

~~(1) Recovered oil tanks (including oily-water separating tanks, hereinafter the same)~~

~~(2) Enclosed spaces and semi-enclosed spaces[(1)] adjacent to recovered oil tanks or having bulkheads above and in line with recovered oil tank bulkheads~~

~~(3) Recovered oil pump rooms and enclosed spaces in which oil recovering apparatus is located~~

~~(4) Enclosed spaces and semi-enclosed spaces[(1)] in which recovered oil pipes are fitted~~

~~(5) Enclosed spaces in which portable oil recovering apparatus or recovered oil hoses are stored~~

~~(6) Areas on exposed deck within 3*m* of any oil recovering apparatus installed on open deck excluding that is stored on exposed deck after oil recovering work~~

~~(7) Areas on exposed deck within 3*m* of any recovered oil tank outlet~~

~~(8) Areas on exposed deck within 3*m* of any entrance or ventilation opening of hazardous areas~~

~~(9) Areas on exposed deck over all recovered oil tanks and to the full breadth of the unit plus 3*m* fore and aft on exposed deck, up to a height of 2.4*m* above the exposed deck (the outer surface of the recovered oil tank in case where the surface is above the exposed deck)~~

~~(10) Enclosed spaces and semi-enclosed spaces[(1)] having direct openings, such as doors or windows, into any hazardous area specified in **(1)** to **(9)**~~

~~(11) All areas on exposed deck up to a height of 3*m* above the load line[(2)]~~

~~(12) Enclosed spaces having direct openings, such as doors or windows, into any hazardous area specified in **(11)**[(2)]~~

~~(13) Notwithstanding **(10)** and **(12)**, enclosed spaces having direct openings into any hazardous area specified in **(6)** to **(9)** and **(11)** may be considered not hazardous provided that the space is separated by a gas-tight steel bulkhead or equivalent thereto and maintained with overpressure in relation to the atmosphere by a supply-type mechanical ventilation system with an air change rate not less than 30 *times per hour*. Inlets of the ventilation system are to be located in non-hazardous areas as high and far away from any inlet of a ventilation system for hazardous areas as practicable. And the arrangement of ducts in the space is to be such that the entire space is efficiently ventilated. In case of failure of the driving motor for a fan, a visual and audible alarm is to be given.~~

~~Notes:~~

~~1. Definition of semi-enclosed spaces is referred to **H4.3.2-1.**~~

~~2. Areas specified in **(11)** and **(12)** may be considered not hazardous where the unit is engaged in the work at areas far away from the oil spillage area.~~

P13.2 Ventilation Systems

P13.2.1 Mobile Offshore Drilling Units

The ventilation fan which is “designed so as to reduce the risk of sparks” specified in **13.2.1-5(6), Part P of the Rules** means a non-sparking type ventilation fan complied with the requirements of **R4.5.4-1**.

Paragraph P13.2.3 has been deleted.

~~P13.2.3 Units Engaged in Works with Danger of a Fire or an Explosion~~

~~Ventilation systems of an oil recovery unit are to comply with the requirements in the following **(1)** and **(2)**.~~

~~(1) Ventilatilation for hazardous areas~~

~~(a) Recovered oil pump rooms and enclosed spaces in which oil recovering apparatus is located are to be provided with an exhaust-type mechanical ventilation system with an air change rate not less than 20 *times per hour*. Inlets of the ventilation system are to be located in non-hazardous area as high as practicable. However, the ventilation system for small recovered oil pump rooms which contain no source of ignition may be dispensed with subject to the approval of the Society.~~

~~(b) Driving motors for a fan of the ventilation system for hazardous area are to be installed outside the ventilation duct. Fans and casings are to be designed so as not to emit sparks due to contact of moving parts or formation of static electricity.~~

~~(2) Ventilation for non-hazardous areas (excluding areas considered not hazardous in the application of **P13.1.3 (13)**)~~

~~(a) Ventilation method for non-hazardous areas is not to be an exhaust mechanical type.~~

~~(b) Inlets and outlets of the ventilation system are to be located in non-hazardous areas as high and far away from any inlet of a ventilation system for hazardous areas as practicable.~~

Section P13.3 has been deleted.

~~P13.3 Machinery Installations in Hazardous Areas~~

~~P13.3.4 Units which are Engaged in Works with Danger of a Fire or an Explosion~~

~~Machinery installations in hazardous areas for an oil recovery unit are to comply with the requirements in the following **(1)** to **(3)**.~~

~~(1) Machinery installations in hazardous areas~~

~~The requirements for a storage unit are to apply correspondingly.~~

~~(2) Oil recovery apparatus~~

~~Oil recovery apparatus is to be constructed so as to ensure the safety to the operator and so as not to ignite the explosive gas.~~

~~(3) Gas detection~~

~~At least one gas detection equipment is to be provided in order to detect gases in enclosed non-hazardous spaces and in other spaces deemed necessary by the Society in case those spaces contain source of ignition. One portable gas detection equipment is to be provided where the fixed gas detection equipment is only provided on board~~

Section P13.4 has been deleted.

~~P13.4 Electrical Installations in Hazardous Areas~~

~~P13.4.4 Units which are Engaged in Works with Danger of a Fire or an Explosion~~

~~Electrical installations in hazardous areas for an oil recovery unit are to comply with the requirements in the following **(1)** to **(7)**.~~

~~(1) Intrinsically safe type electrical equipment and associated cables may be installed in any hazardous area specified in **P13.1.3.**~~

~~(2) In hazardous areas specified in **P13.1.3 (2)** to **(5)**, lighting fittings of flame-proof type and associated cables may be installed.~~

~~(3) In hazardous areas specified in **P13.1.3 (6)**, flameproof type electrical equipment and associated cables may be installed.~~

~~(4) In hazardous areas specified in **P13.1.3 (7)** to **(9)**, flame-proof type electrical equipment, increased safety type electrical equipment and associated cables may be installed.~~

~~(5) For electrical installations installed in hazardous areas specified in **P13.1.3 (10)**, these areas are to be considered as equivalent to the adjacent hazardous area having direct openings, and the electrical installations are to be in compliance with the relevant requirements in **(1)** to **(4)**.~~

~~(6) In hazardous areas specified in **P13.1.3 (11)** and **(12)**, flame-proof type electrical equipment and associated cables may be installed. However, where the unit is engaged in the work at areas far away from the oil spillage area, all types of electrical installations may be installed in case that the electrical installation is provided with a multipole linked switch in non-hazardous area and a precaution against the use of the installation during the oil recovery work is taken.~~

~~(7) Electrical equipment installed on non-hazardous exposed deck is to be provided with a multipole linked switch at a continuously attended location outside the hazardous areas to easily shut off the electrical power supply in case of the increase of the risk of ignition or fire due to the increase of gas concentrations, etc. during the oil recovery work.~~

Chapter P14 has been deleted.

~~P14 FIRE PROTECTION AND MEANS OF ESCAPE~~

~~P14.7 Work Ships~~

~~P14.7.1 Fire Fighting Vessels~~

~~**1** Water spraying systems are to have a capacity of 10*l/minute/m*^{2} for protected areas of uninsulated steel and 5*l/minute/m*^{2} for protected areas which are insulated internally to *A*-60 standards.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 December 2011.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Guidance may apply to ships for which the application is submitted to the Society before the effective date upon request by the owner.

Amendment 1-2

P1 GENERAL

P1.1 General

P1.1.5 Class Notations

Sub-paragraph -1 has been amended as follows.

1 With respect to units complying with relevant requirements given in this **Part**, notations corresponding to the purposes of those units defined in **1.2.3**, **Part P of the Rules** are affixed to the Classification Characters as follows. ~~In addition, for self-elevating units and column-stabilized units, notations corresponding to the type of the units defined in **1.2.2**, **Part P of the Rules**, are affixed before notation indicating the purpose of such units.~~

(1) Mobile offshore drilling units
   (a) Self-elevating mobile offshore drilling units: *Self-Elevating Drilling Unit* (abbreviated to *SEDU*)
   (b) Column-stabilized mobile offshore drilling units: *Column-Stabilized Drilling Unit* (abbreviated to *CSDU*)
   (c) Ship-type mobile offshore drilling units: *Drilling Vessel* (abbreviated to *DV*)
   (d) Barge-type mobile offshore drilling units: *Drilling Barge* (abbreviated to *DB*)

   In addition, for units complying with the following requirements in addition to requirements in this Part ~~"*The Code for the Construction and Equipment of Mobile Offshore Drilling Units* (MODU Code)" (*IMO Resolution A*.649(16))~~, the notation of "Mobile offshore Drilling Unit" (abbreviated to *MODU*) is affixed. (For example, in the case of self-elavating mobile offshore drilling units, *Mobile Offshore Drilling Unit/ Self-Elevating Drilling Unit* (abbreviated to *MODU/SEDU*)

   (a) **1.1.1-2, Part 1 of the Rules for Safety Equipment**
   (b) **1.1.1-3 of the Rules for Cargo Handling Appliances**
   (c) **1.1.1-3 of the Rules for Radio Installations**
   (d) **The Rules for Anti-Fouling Systems on Ships**

Paragraph P1.2.25 has been deleted as follows.

~~**P1.2.25 Operating Booklet**~~

~~**1** Operating booklet for the dynamic positioning system specified in **1.2.25(20), Part P of the Rules** is to include the following items.~~

~~(1) Preparation for operating the dynamic positioning system~~

~~(2) Monitoring the conditions of each installation and system during the dynamic positioning operation~~

~~(3) Operation for emergency condition~~

~~(4) Explanation for failure mode effective analysis or fault tree analysis of the dynamic positioning systems~~

~~**2** In operating booklet for the dynamic positioning systems, check lists on the items specified in **-1(1)** to **(3)** are to be included, and inspection items, inspection procedure and testing measures which are carried out at the Periodical Survey are to be included. And also examples of failure and means for repair for the failed systems are to be included.~~

Chapter P2 has been added as follows.

P2 MATERIALS AND WELDING

P2.1 General

P2.1.1 General

In applying **2.1.1-6, Part P of the Rules,** reference is to be made to *IMO* Resolution. *A.*962(23) "*Guidelines on Ship Recycling*".

P12 ELECTRICAL INSTALLATIONS

P12.2 Mobile Offshore Drilling Units

Paragraph P12.2.3 has been added as follows.

P12.2.3 Main Source of Electrical Power and Lighting Systems

Provisions for maintaining or immediately restoring electrical power to any equipment for propulsion and steering specified in **12.2.3-1, Part P of the Rules** are to comply with following:

(1) In cases where the electrical power can normally be supplied by one generator, the following requirements are to be complied with:
   (a) Adequate provisions are to be made for automatic starting and connecting to main switchboards of standby generators of sufficient capacities to permit propulsion and steering and to ensure ship safety with automatic restarting of important auxiliaries including sequential operations in cases where there has been a loss of electrical power to those generators in operation.
   (b) The amount of time for automatic starting and connecting to main switchboards of those standby generators specified in **(a)** above is to be not more than a period of 45 *seconds* after any loss of power.

(2) If electrical power is normally simultaneously supplied by more than one generator in parallel operations, provisions are to be made to ensure that, in cases where there is a loss of electrical power to any one of these generating sets, all remaining ones are kept in operation without any overloads to permit propulsion and steering, and to ensure ship safety. (See **2.3.6**, **Part H of the Rules**)

(3) Other provisions deemed appropriate by the Society.

P14 FIRE PROTECTION AND MEANS OF ESCAPE

Section P14.2 has been added as follows.

P14.2 Mobile Offshore Drilling Units

P14.2.2 Construction of Fire Protection

"The calorific value" specified in **14.2.2-8(11), Part P of the Rules** is to be measured according to *ISO* 1716 : 2002 "*Determination of calorific potential*".

Chapters P15 to P17 have been added as follows.

P15 FIRE EXTINGUISHING SYSTEMS

P15.2 Mobile Offshore Drilling Units

P15.2.13

In **15.2.13-1(4)**, **Part P of the Rules**, reference is to be made to the *International Civil Aviation Organization Airport Services Manual, Part* 1*, Rescue and Fire Fighting, chapter* 8*, Extinguishing Agent Characteristics, paragraph* 8.1.5*, Foam Specifications table* 8-1*, level 'B'*.

P16 HELICOPTER FACILITIES

P16.3 Helideck

P16.3.1 General

The "ground effect" specified in **16.3.1-3, Part P of the Rules** refers to the effect where, the lift of the main wing and tail or the thrust of rotor blade is increased when a fixed-wing aircraft or rotor blade machine flies in proximity to the ground.

P16.3.2 Construction

With respect to the application of **16.3.2** and **16.3.3, Part P of the Rules**, refer to the the requirement of heliports specified in Volume II, the Annex 14 to *ICAO* Convention are to be applied.

P16.5 Visual Aids

P16.5.6 *D*-value Marking

In **16.5.6-2, Part P of the Rules,** "special consideration may be required" means that Helidecks designed specifically for AS332L2 and EC 225 helicopters, each having a D-value of 19.5 *m*, are to be rounded up to 20 in order to differentiate between helidecks designed specifically for L1 models.

P17 Operating Requirement

P17.2 Operating Requirement

P17.2.2 Information for Normal Operations

1 Operating manual for the dynamic positioning system specified in **17.2.2-2(13), Part P of the Rules** is to include the following items.

(1) Preparation for operating the dynamic positioning system

(2) Monitoring the conditions of each installation and system during the dynamic positioning operation

(3) Operation for emergency condition

(4) Explanation for failure mode effective analysis or fault tree analysis of the dynamic positioning systems

2 In operating manual for the dynamic positioning systems, check lists on the items specified in **-1(1)** to **(3)** are to be included, and inspection items, inspection procedure and testing measures which are carried out at the Periodical Survey are to be included. And also examples of failure and means for repair for the failed systems are to be included.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 January 2012.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to units the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific unit begins and the assembly of that unit has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.