

# **RULES**

## **FOR THE CLASSIFICATION, CONSTRUCTION AND EQUIPMENT OF MOBILE OFFSHORE DRILLING UNITS AND FIXED OFFSHORE PLATFORMS**

### **PART VI FIRE PROTECTION**

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# **RULES FOR THE CLASSIFICATION, CONSTRUCTION AND EQUIPMENT OF MOBILE OFFSHORE DRILLING UNITS AND FIXED OFFSHORE PLATFORMS**

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Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units (MODU) and Fixed Offshore Platforms of (FOP) of Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure and come into force on 1 July 2022.

The present edition of the Rules is based on the 2018 edition taking into account the amendments and additions developed before publication.

The Rules set down specific requirements for MODU and FOP, consider the recommendations of the Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code), as adopted by the IMO Assembly on 2 December 2009 (IMO resolution A.1023(26)).

The procedural requirements, unified requirements, unified interpretations and recommendations of the International Association of Classification Societies (IACS) and the relevant resolutions of the International Maritime Organization (IMO) have been taken into consideration.

The Rules are published in the following parts:

Part I "Classification";

Part II "Hull";

Part III "Equipment, Arrangements and Outfit of MODU/FOP";

Part IV "Stability";

Part V "Subdivision";

Part VI "Fire Protection";

Part VII "Machinery Installations and Machinery";

Part VIII "Systems and Piping";

Part IX "Boilers, Heat Exchangers and Pressure Vessels";

Part X "Electrical Equipment";

Part XI "Refrigerating Plants";

Part XII "Materials";

Part XIII "Welding";

Part XIV "Automation";

Part XV "MODU and FOP Safety Assessment";

Part XVI "Signal Means";

Part XVII "Life-Saving Appliances";

Part XVIII "Radio Equipment";

Part XIX "Navigational Equipment";

Part XX "Equipment for Prevention of Pollution".

These Rules supplement the Rules for the Classification and Construction of Sea-Going Ships and the Rules for the Equipment of Sea-Going Ships.

**REVISION HISTORY**

(purely editorial amendments are not included in the Revision History)

For this version, there are no amendments to be included in the Revision History.

## **1 GENERAL**

### **1.1 APPLICATION**

**1.1.1** The requirements of this Part of the Rules for the Classification, Construction and Equipment of Mobile Offshore Drilling Units (MODU) and Fixed Offshore Platforms (FOP)<sup>1</sup> apply to structural fire protection of MODU/FOP, fire extinguishing systems and fire detection and alarm systems, as well as to fire-fighting equipment and outfit. In addition to the requirements of this Part, the relevant requirements of Part VI "Fire Protection" of the Rules for the Classification and Construction of Sea-Going Ships<sup>2</sup> shall be met.

**1.1.1.1** The fire safety design or arrangements may deviate from prescriptive provisions of this Part, provided that the design and arrangements meet the fire protection objectives and functional requirements. When the fire safety design or arrangements deviate from the prescriptive provisions of this Part, the engineering analysis, evaluation and approval of the alternative design and arrangements shall be carried out in accordance with 1.7, Part VI "Fire Protection" of the Rules for the Classification.

**1.1.2** Fire protection requirements relating to the structural members of MODU/FOP hull, machinery and parts thereof, electrical equipment, pumping and piping, arrangements, fuel and lubricating oil tanks, construction and location of boilers, refrigerating plants, spaces, etc. are set out in the relevant parts of the MODU/FOP Rules.

**1.1.3** Special equipment and outfit (fire extinguishing systems and fire detection and alarm systems, fire extinguishing installations, portable fire fighting outfit items, etc.) intended for fire preventing and fighting in the drilling and process area and not covered by this Part, shall meet their requirements to the extent agreed with the Register in each particular case.

The necessity of installing such equipment and outfit and characteristics thereof shall be determined by the customer having regard to the presence and number of special salvage teams on board the MODU/FOP and the presence of ships assigned the mark **FF** added to their class notation in the MODU/ FOP water area.

The scope of the Register technical supervision of the said equipment and outfit is determined by the customer and agreed with the Register.

**1.1.4** Layout of the drilling and process equipment, as well as technical solutions to ensure safe drilling and well operation, collection, storage, treatment and transportation of the well products shall comply with the requirements of the competent State bodies exercising supervision of the safety in oil and gas industry.

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<sup>1</sup> Hereinafter referred to as "the MODU/FOP Rules".

<sup>2</sup> Hereinafter referred to as "the Rules for the Classification".

## **1.2 DEFINITIONS AND EXPLANATIONS**

**1.2.1** The definitions and explanations relating to the general terminology of the MODU/FOP Rules are given in the General Regulations for the Classification and Other Activity and in Part I "Classification" of the MODU/FOP Rules. Definitions and explanations concerning fire protection are stated in 1.2, Part VI "Fire Protection" of the Rules for the Classification.

**1.2.2** Unless otherwise provided, the following definitions have been adopted in this Part.

A self contained breathing apparatus of PDR type (pressure-demand respirator) is a device where the pressure reducer and exhalation valve maintain gage pressure in the mask except at high frequency of breathing. In case the apparatus of PDR type has any leakage, the pressure reducer provides fresh air supply into the mask, preventing ingress of the outside polluted air.

A self contained breathing apparatus of PPR type (positive-pressure respirator) is a device to support gage pressure in the face mask while breathing (inhalation and exhalation).

Hazardous zones and areas, refer to 2.9, Part X "Electrical Equipment".

Accommodation spaces are those used for public spaces, cabins, offices, hospitals, corridors, lavatories, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces. Public spaces are those portions of the accommodation which are used for halls, dining rooms, lounges and permanently enclosed spaces.

I C A O is the International Civil Aviation Organization.

I M D G Code is the International Maritime Dangerous Goods (IMDG) Code adopted by IMO resolution MSC.122(75), as amended by IMO resolutions MSC.157(78), MSC.205(81), MSC.262(84), MSC.294(87), MSC.328(90), MSC.372(93), MSC.406(96), MSC.442(99).

Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009, is the Code for the Construction and Equipment of Mobile Drilling Units (2009 MODU Code) adopted by IMO resolution A.1023(26).

H class divisions are those divisions, which are formed by bulkheads and decks complying with the following requirements:

they shall be constructed of steel or equivalent material;

they shall be suitably stiffened;

they shall be so constructed as to be capable of precluding the passage of smoke and flame during 120 min of the standard fire test;

they shall be so insulated with non-combustible material or equivalent fire-protective means that the average or maximum (at any point) temperature at the unexposed side will not rise more than 140 °C and 180 °C, respectively, above the original temperature.

Depending on the time, during which the above indicated temperature rise is ensured in the course of the standard fire test, the following symbols are given to divisions: H-120 — during 120 min, H-60 — during 60 min, H-0 — during 0 min.

Fire integrity of divisions is tested according to the method stated in Part 3 of Appendix 1 to the International Code for Application of Fire Test Procedures, 2010 (FTP Code), considering that the furnace heating temperature shall be changed in compliance with time-dependent temperature curve during hydrocarbon burning specified in the national or international standards (such as BS EN 1363-2:1999; ASTM 1529-14; ISO/DIS 20902-1).

Machinery spaces of Category A and other machinery spaces, refer to 1.2, Part VII "Machinery Installations" of the Rules for the Classification.

Lower flammable limit is minimum concentration of oil gases and vapours in the air capable of igniting from a source of ignition and propagating combustion in the mixture.

Attending personnel are persons who, for the purpose of this Part, permanently or temporarily stay on board MODU/FOP in connection with the unit's mission or because of special work being performed on the unit.

Dangerous goods are substances, materials and products covered by the IMDG Code.

Hazardous areas are all those areas of MODU/FOP where, due to possible presence of a flammable atmosphere arising from the drilling operations, the use without proper consideration of machinery or electrical equipment may lead to fire hazard or explosion.

Process equipment spaces are spaces containing equipment intended for collection, storage, treatment and transportation of the well products.

Control stations are those spaces in which the unit's radio or main navigating equipment or the emergency source of power is located or where the fire recording or fire control equipment or the dynamic positioning control system is centralized or where a fire-extinguishing system serving various locations is situated.

In the case of column-stabilized units, a centralized ballast control station is a control station.

Service spaces are galleys, bakeries, pantries containing cooking appliances, storerooms, workshops other than those forming part of machinery spaces and similar spaces.

Process area is a part of FOP which contains equipment intended for well operation and associated processes of collection, storage, treatment and transportation of the FOP well products.

### 1.3 FIRE PLANS

**1.3.1** At the central control station or in conspicuous positions in corridors and lobbies of MODU/FOP, there shall be exhibited general arrangement plans clearly showing the following for each deck:

- .1 location of control stations;
- .2 arrangement of fire-resisting and fire-retarding divisions;
- .3 spaces fitted with the fire detection and alarm system;
- .4 spaces protected by fixed fire extinguishing systems with indication of the location of instruments and fittings for their control and also the disposition of fire hydrants;
- .5 arrangement of fire-fighting outfit;
- .6 means of access to different spaces and to decks with indication of escape routes, corridors and doors;
- .7 ventilation system including disposition of dampers and fan controls and the identification numbers of fans;
- .8 location of documents referred to in [1.3.6](#);
- .9 location of emergency shutdown (engine shutdown, pump shutdown, oil fuel source shutdown, etc.) stations;
- .10 location of blowout preventer control stations;
- .11 arrangement of emergency muster stations and live-saving appliances.

**1.3.2** A stitched set of plans with information specified in [1.3.1](#) shall be supplied to each officer, and one copy shall be available at all times on board in a readily accessible position.

**1.3.3** A set of the plans protected against marine environment shall be permanently stowed outside the superstructure in a weathertight enclosure painted red and marked as indicated in [Fig. 1.3.3-1](#).



Fig 1.3.3-1

The enclosure shall be capable of being easily opened, be readily available to the salvage teams, be located in a conspicuous well-illuminated position, if possible, including illumination from an emergency source.

The enclosure shall not be located in a hazardous zone and on exterior bulkheads of superstructures which face hazardous zone and on side bulkheads abutting thereon.

If the enclosure is not adjacent to place of boarding of the salvage teams, there shall be guide signs as indicated in [Fig. 1.3.3-2](#) showing the way thereto.

The dimensions of the signs shall be not less than 300 × 400 mm.

The signs shall be arranged at the same level and the spacing between them shall not exceed 50 m.

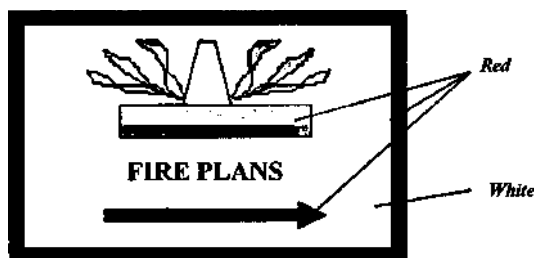


Fig. 1.3.3-2

**1.3.4** Plans and booklets shall be made in the state language and shall contain translation into English. The symbols for items listed in 1.3.1 shall be in agreement with IMO resolution A.952(23) "Graphical Symbols for Shipboard Fire Control Plans" as amended by IMO resolution A.1116(30).

For FOP engaged in operations on the Russian continental shelf, translation into English is not required.

Graphical symbols shall be coloured.

**1.3.5** Plans and booklets shall be continuously updated and any alterations in the fire protection shall be entered therein at the earliest possible date.

**1.3.6** To be kept in a separate file in a readily accessible position are instructions for maintenance, repair, inspections and use of all systems, means to extinguish and confine a fire, fire-fighting outfit in accordance with the requirements of IMO resolution A. 1023(26). The maintenance program may be computer-based. Maintenance and inspections shall be carried out in accordance with the requirements of MSC/Circ.850.



## **2 STRUCTURAL FIRE PROTECTION**

### **2.1 GENERAL**

#### **2.1.1 Requirements for structural fire protection of FOP.**

**2.1.1.1** To provide effective structural fire protection all relevant requirements of 2.1, Part VI "Fire Protection" of the Rules for the Classification shall be applied.

**2.1.1.2** The hull, superstructures, structural bulkheads and decks shall be constructed of steel.

The Register may allow the use of other materials depending on the purpose, size and arrangement of spaces on the FOP.

**2.1.1.2.1** The hull, superstructures, structural bulkheads, decks and deckhouses shall be constructed of steel or equivalent material.

**2.1.1.2.2** Structural fire protection details, materials and products of FOP construction shall be in accordance with the Fire Test Procedures Code, as applicable, evaluated and approved by the Register

**2.1.1.3** Superstructure on FOP, if its length exceeds 50 m and the number of attending personnel exceeds 100 persons, in way of accommodation and service spaces shall be divided into main vertical zones by "A-60" class divisions. Steps and recesses shall be kept to a minimum, but where they are necessary they shall be also of "A-60" class divisions. Where a space of categories (8), (9) indicated in [2.1.1.8.2](#) is on one side of the division the class may be reduced to "A-0".

Bulkheads forming the boundaries of main vertical zones shall extend from deck to deck and to the exterior boundaries of superstructure or other boundaries.

Where the main vertical zone is divided by horizontal "A" class divisions into horizontal zones for the purpose of providing an appropriate barrier between sprinklered and non-sprinklered zones of the FOP, the divisions shall extend between adjacent main vertical zone bulkheads and to exterior boundaries of the FOP and shall be insulated in accordance with the fire insulation and fire integrity values given in [Table 2.1.1.8-2](#).

**2.1.1.4** All bulkheads in accommodation and service spaces which are not required to be of "A" class divisions shall be at least of "B" class and "C" class divisions as specified in [Table 2.1.1.8-1](#).

**2.1.1.5** All corridor bulkheads which are not required to be of "A" class divisions shall be of "B" class divisions which shall extend from deck to deck except:

**.1** when continuous "B" class ceilings or linings are fitted on both sides of the bulkhead, the portion of the bulkhead behind the continuous ceiling or lining shall be of material which, in thickness and composition, is acceptable in the construction of "B" class divisions but which shall be required to meet "B" class fire integrity standards only in so far as is reasonable and practicable;

**.2** in case of a FOP protected by an automatic sprinkler system the corridor bulkheads of "B" class materials may terminate at ceiling in the corridor provided such a ceiling is of material which, in thickness and composition, is acceptable in the construction of "B" class divisions. Such bulkheads and ceilings shall be required to meet "B" class fire integrity standards only in so far as is reasonable and practicable. All doors and frames in such bulkheads shall be of non-combustible materials and shall be fitted in such a way as to provide sufficient fire resistance.

**2.1.1.6** All bulkheads that shall be "A" class divisions shall extend from deck to deck and to deckhouse side or other boundaries.

**2.1.1.7** All bulkheads required to be of "B" class divisions, except corridor bulkheads required by [2.1.1.5](#), shall extend from deck to deck and to the exterior boundaries of superstructure or other boundaries unless the continuous "B" class ceilings or linings, having at least the same fire integrity as the bulkhead, are fitted on both sides of it, in which case the bulkhead may terminate at the continuous ceiling or lining.

**2.1.1.8** On FOP, the minimum fire integrity of bulkheads and decks separating adjacent spaces shall be as prescribed in [Tables 2.1.1.8-1](#) and [2.1.1.8-2](#). The following requirements shall govern application of the tables:

.1 tables apply respectively to the bulkheads and decks separating adjacent spaces;

Table 2.1.1.8-1

**Bulkheads not bounding either main vertical zones or main horizontal zones**

Spaces	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Control stations	(1) A-0 <sup>1</sup>	A-0	A-0	A-0	*	A-60	A-15	A-0	A-0	A-60	A-15	A-60	A-60	A-60/H-60 <sup>2</sup>	A-60
Stairways and lifts	(2)	A-0 <sup>1</sup>	A-0	A-0	*	A-0	A-15	A-0 <sup>3</sup>	A-0	A-60	A-15	A-30	A-15	N.A.	A-60
Corridors	(3)		C <sup>4</sup>	A-60	*	B-0 <sup>4</sup>	B-0 <sup>4</sup>	B-0 <sup>4</sup>	A-0	A-60	A-0	A-15	A-15	N.A.	A-60
Evacuation stations and external escape routes	(4)				*	A-60 <sup>5</sup>	A-60	A-0	A-0	A-60 <sup>5</sup>	A-60 <sup>5</sup>	A-60 <sup>5</sup>	A-60 <sup>5</sup>	A-60/H-60 <sup>2</sup>	A-60
Open decks	(5)				–	*	*	*	*	*	*	*	*	*	*
Accommodation spaces	(6)					C <sup>4</sup>	B-0 <sup>4</sup>	C <sup>4</sup>	A-0	A-60	A-0	A-15	N.A.	A-60/H-60 <sup>2</sup>	N.A.
Service spaces (low fire risk)	(7)						C <sup>4</sup>	A-0	A-0	A-60	A-0	A-0	A-0	A-60	A-60
Sanitary and similar spaces	(8)							C <sup>4</sup>	A-0	A-0	A-0	A-0	A-0	N.A.	A-0
Tanks and voids	(9)								A-0	A-0	A-0	A-0	A-0	A-0	A-0
Machinery spaces of Category A	(10)									A-60	A-0 <sup>1</sup>	A-0	A-60	A-60	A-60
Other machinery spaces	(11)										A-0 <sup>1</sup>	A-0	A-60	A-60	A-60
Service spaces (high fire risk)	(12)											A-0 <sup>1</sup>	A-30	A-60	A-60
Oil storage	(13)												A-0 <sup>1</sup>	A-60	A-0
Process area	(14)													A-0 <sup>1</sup>	A-0
Hazardous areas	(15)														–

<sup>1</sup> Where the space are used for the same purpose, no divisions may be fitted between them.  
<sup>2</sup> Refer to [2.1.4.1](#).  
<sup>3</sup> Where toilets are installed completely within stairway enclosure, fire integrity of the toilet bulkhead within the stairway enclosure may be of "B" class.  
<sup>4</sup> Where the divisions are the main vertical zone divisions required by [2.1.1.3](#) they shall be of "A-60" class standard.  
<sup>5</sup> Fire integrity of FOP side below the waterline, superstructure sides situated below and adjacent to the liferafts and evacuation slides may be reduced to "A-30".

**Notes:** 1. Where the contents and use of a space are such that there is a doubt as to its classification, it shall be considered as space within the relevant category having the most stringent boundary requirements.  
2. Where a dash appears in the table, it means that there are no special requirements for material or fire integrity of boundaries.  
3. Letters N.A. mean that the adjacent space arrangement is not applicable.  
4. Where an asterisk "\*" appears in the table, the division shall be of steel or equivalent material, but need not be of "A" class. However, where the division is penetrated for the passage of electric cables, pipes, etc, such penetrations shall be fitted with sealings of approved type.

Table 2.1.1.8-2

**Decks not forming steps in main vertical zones nor bounding horizontal zones**

Spaces	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
Control stations	(1)	A-0	A-0	A-0	A-0	*	A-15	A-0	A-0	A-0	A-60	A-0	A-60	N.A.	N.A.	N.A.
Stairways and lifts	(2)	A-0	*	A-0	A-0	*	A-0	A-0	A-0	A-0	A-60	A-0	A-30	A-0	N.A.	A-0
Corridors	(3)	A-15	A-0	*	A-60	*	*	*	A-0	A-0	A-60	A-15	A-30	N.A.	N.A.	N.A.
Evacuation stations and external escape routes	(4)	A-0	A-0	A-0	A-0	–	A-0	A-0	A-0	A-0	A-0	A-0	A-0	N.A.	N.A.	N.A.
Open decks	(5)	*	*	*	*	–	*	*	*	*	*	*	*	–	–	–
Accommodation spaces	(6)	A-60	A-15	A-0	A-60	*	*	*	A-0	A-0	A-60	A-0	A-0	N.A.	N.A.	N.A.
Service spaces (low fire risk)	(7)	A-60	A-30	A-15	A-60	*	A-15	*	A-0	A-0	A-60	A-0	A-0	A-0	A-0	A-0
Sanitary and similar spaces	(8)	A-0	A-0	*	A-0	*	*	*	*	A-0	A-0	A-0	A-0	N.A.	N.A.	N.A.
Tanks and voids	(9)	A-0	A-0	A-0	A-0	*	A-0	A-0	A-0	*	A-0	A-0	A-0	A-0	A-0	A-0
Machinery spaces of Category A	(10)	A-60	A-60	A-60	A-60	*	A-60	A-60	A-0	A-0	*	A-30	A-60	A-30	A-60	A-30
Other machinery spaces	(11)	A-60	A-60	A-60	A-60	*	A-0	A-0	A-0	A-0	A-0	*	A-30	A-30	A-60	A-30
Service spaces (high fire risk)	(12)	A-60	A-30	A-15	A-60	*	A-15	A-30	A-0	A-0	A-60	A-0	A-0 <sup>1</sup>	N.A.	A-0	A-0
Oil storage	(13)	A-60	A-60	A-60	A-60	A-0	A-0	A-0	A-0	A-0	A-0	A-0	A-30	*	A-0	N.A.
Process area	(14)	N.A.	A-60	A-60	N.A.	A-0	N.A.	N.A.	A-0	A-0	N.A.	N.A.	A-60	N.A.	A-0	A-0
Hazardous areas	(15)	A-60	A-60	A-60	A-60	–	A-0	A-0	A-0	A-0	A-60	A-0	A-0	N.A.	A-0	–

<sup>1</sup> Refer to [Footnote 1 to Table 2.1.1.8-1](#).

Note. Refer to [notes to Table 2.1.1.8-1](#).

.2 for determining the appropriate fire integrity standards to be applied to divisions between adjacent spaces, such spaces are classified according to their fire risk as shown in 15 categories below. The title of each category is intended to be typical rather than restrictive.

- (1) Control stations:
  - spaces in which the emergency sources of power and lighting are located;
  - spaces containing radio equipment;
  - fire extinction stations, fire control stations and fire alarm stations;
  - main machinery control station provided it is located outside the machinery space containing main machinery;
  - spaces containing centralized fire announcing system;
  - spaces in which emergency loudspeaking communication equipment and central station is situated.
- (2) Stairways and lifts:
  - interior stairways, lifts and escalators and enclosures thereto;
  - a stairway or lift which is enclosed only at one level shall be considered as part of the space from which it is not separated by a fire door.
- (3) Corridors:
  - corridors and lobbies.
- (4) Evacuation stations and external escape routes:
  - survival craft stowage area;
  - open deck spaces and enclosed decks forming lifeboat and liferaft embarkation and lowering stations;
  - internal and external muster stations;
  - external stairs and open decks used for escape routes;
  - the FOP side to the waterline, superstructure sides situated below and adjacent to the liferaft's and evacuation slide's embarkation areas.

- (5) Open decks:  
open deck spaces (spaces outside the superstructures), excluding drilling and process areas, which are not adjacent to these areas.
- (6) Accommodation spaces:  
spaces as defined in [1.2.2](#), excluding corridors.
- (7) Service spaces (low fire risk):  
lockers and store-rooms in which flammable liquids cannot be stored;  
drying rooms;  
workshops other than those forming part of machinery space.
- (8) Sanitary and similar spaces:  
communal sanitary spaces, laundries, shower rooms, water closets, etc.
- (9) Tanks and voids:  
water tanks forming part of the unit's structure;  
voids and cofferdams;  
sea-water pipe tunnels;  
closed passages and trunks serving the spaces listed above.
- (10) Machinery spaces of Category A:  
spaces as defined in [1.2.2](#).
- (11) Other machinery spaces:  
spaces as defined in [1.2.2](#) other than machinery spaces of Category A;  
tanks for fuel oil and other oil products (if installed in a separate space containing no machinery);  
fuel oil and industrial pipe tunnels;  
closed passages and trunks serving the spaces listed above.
- (12) Service spaces (high fire risk):  
galleys, pantries containing cooking appliances;  
storerooms containing flammable liquids (including paints, medicines, etc.);  
laboratories in which flammable liquids are stored.
- (13) Oil storage:  
tanks and other reservoirs intended for storage of oil, including slop tanks.
- (14) Process area:  
area as defined in [1.2.2](#).
- (15) Hazardous areas:  
areas as defined in [1.2.2](#).

### **2.1.2 Requirements for structural fire protection of MODU.**

**2.1.2.1** To provide effective structural fire protection all relevant requirements of 2.1, Part VI "Fire Protection" of the Rules for the Classification shall be applied.

**2.1.2.1.1** Structural fire protection details, materials and methods of construction of the unit shall be tested in accordance with the FTP Code, assessed and approved by the Register;

**2.1.2.2** To provide effective structural protection of the accommodation and service spaces on MODU, method 1C referred to in 2.3, Part VI "Fire Protection" of the Rules for the Classification shall be used.

**2.1.2.3** On MODU, the minimum fire integrity of bulkheads and decks separating adjacent spaces shall be as prescribed in [Tables 2.1.2.3-1](#) and [2.1.2.3-2](#). The following requirements shall govern application of the tables:

**.1** tables shall apply respectively to the bulkheads and decks separating adjacent spaces;

**.2** for determining the appropriate fire integrity standards to be applied to divisions between adjacent spaces, such spaces are classified according to their fire risk, as shown in 11 categories below. The title of each category is intended to be typical rather than restrictive.

Table 2.1.2.3-1

**Fire integrity of bulkheads separating adjacent spaces**

Spaces	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
Control stations	(1)	A-0 <sup>1</sup>	A-0	A-60	A-0	A-15	A-60	A-15	A-60 <sup>2</sup>	A-60	*	A-0
Corridors	(2)		C	B-0	B-0 A-0 <sup>3</sup>	B-0	A-60	A-0	A-0 <sup>2</sup>	A-0	*	B-0
Accommodation spaces	(3)			C	B-0 A-0 <sup>3</sup>	B-0	A-60	A-0	A-0 <sup>2</sup>	A-0	*	C
Stairways	(4)				B-0 A-0 <sup>3</sup>	B-0 A-0 <sup>3</sup>	A-60	A-0	A-0 <sup>2</sup>	A-0	*	B-0 A-0 <sup>3</sup>
Service spaces (low risk)	(5)					C	A-60	A-0	A-0	A-0	*	B-0
Machinery spaces of category A	(6)						* 4	A-0 <sup>4</sup>	A-60	A-60	*	A-0
Other machinery spaces	(7)							A-0 <sup>4,5</sup>	A-0	A-0	*	A-0
Hazardous areas	(8)									A-0	-	A-0
Service spaces (high risk)	(9)									A-0 <sup>5</sup>	*	A-0
Open decks	(10)										-	*
Sanitary and similar spaces	(11)											C

<sup>1</sup> Bulkheads separating spaces containing radio and navigational equipment from each other may be of "B-0" class.

<sup>2</sup> Additional provisions for fire divisions shall be assessed in accordance with 2.1.2.6. In no case shall the bulkhead or deck rating be less than the value indicated in [Tables 2.1.2.3-1](#) and [2.1.2.3-2](#).

<sup>3</sup> For clarification of the type of division, refer to 2.1.2.4, 2.1.2.5 and applicable provisions of 2.1.4.3, Part VI "Fire Protection" of the Rules for the Classification.

<sup>4</sup> Where the space contains an emergency power source or components of an emergency power source adjoining a space containing a MODU/FOP service generator or the components of a MODU/FOP service generator, the boundary bulkhead or deck between these spaces shall be an "A-60" class division.

<sup>5</sup> Where spaces are of the same numerical category and superscript "c" appears, a bulkhead or deck of the rating shown in the tables is only required when the adjacent spaces are used for 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.

**Note.** Where an asterisk (\*) appears in the tables, the division shall be of steel or equivalent material, but need not be of "A" class standard. However, where a deck is penetrated for the passage of electric cables, pipes and vent ducts, such penetration shall be made tight to prevent the passage of flame and smoke.

Table 2.1.2.3-2

**Fire integrity of decks separating adjacent spaces**

Spaces	(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 <sup>2</sup>	A-0	*	A-0
Corridors	(2)	A-0	*	*	A-0	*	A-60	A-0	A-0 <sup>2</sup>	A-0	*	A-0
Accommodation spaces	(3)	A-60	A-0	*	A-0	*	A-60	A-0	A-0 <sup>2</sup>	A-0	*	*
Stairways	(4)	A-0	A-0	A-0	*	A-0	A-60	A-0	A-0 <sup>2</sup>	A-0	*	A-0
Service spaces (low risk)	(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	* <sup>4</sup>	A-60	A-60	A-60	*	A-0
Other machinery spaces	(7)	A-15	A-0	A-0	A-0	A-0	A-0 <sup>4</sup>	* <sup>4</sup>	A-0	A-0	*	A-0
Hazardous areas	(8)	A-60 <sup>2</sup>	A-0 <sup>2</sup>	A-0 <sup>2</sup>	A-0 <sup>2</sup>	A-0	A-60	A-0	-	A-0	*	A-0
Service spaces (high risk)	(9)	A-60	A-0	A-0	A-0	A-0	A-60	A-0	A-0	A-0 <sup>5</sup>	*	A-0
Open decks	(10)	*	*	*	*	*	*	*	-	*	-	*
Sanitary and similar spaces	(11)	A-0	A-0	A-0	A-0	*	A-0	A-0	A-0	A-0	*	*

1, 2, 3, 4, 5 Refer to relevant footnotes in [Table 2.1.2.3-1](#).

Note. Where an asterisk (\*) appears in the tables, the division shall be of steel or equivalent material, but need not be of "A" class standard. However, where a deck is penetrated for the passage of electric cables, pipes and vent ducts, such penetration shall be made tight to prevent the passage of flame and smoke.

- (1) Control stations:  
spaces as defined in [1.2.2](#).
- (2) Corridors:  
corridors and lobbies.
- (3) Accommodation spaces:  
spaces as defined in [1.2.2](#), excluding corridors, lavatories and pantries containing no cooking appliances.
- (4) Stairways:  
interior stairways, lifts and escalators (other than those wholly contained within the machinery spaces) and enclosures thereto. In this connection, a stairway which is enclosed only at one level shall be regarded as part of the space from which it is not separated by a fire door.
- (5) Service spaces (low risk):  
lockers, store-rooms and working spaces in which flammable materials are not stored, drying rooms and laundries.
- (6) Machinery spaces of Category A: spaces as defined in [1.2.2](#).
- (7) Other machinery spaces:  
spaces as defined in [1.2.2](#) other than machinery spaces of Category A.
- (8) Hazardous areas:  
areas, the definition of which is given in [1.2.2](#)
- (9) Service spaces (high fire risk):  
galley, pantries containing cooking appliances;  
lockers and store-rooms in which flammable liquids are stored (including paints, medicines, etc);  
workshops other than those forming part of machinery space.

(10) Open decks:

open deck spaces and enclosed decks containing no fire risk. Open deck spaces (spaces outside the superstructures and deckhouses), excluding drilling area, which are not adjacent to drilling area.

(11) Sanitary and similar spaces:

communal sanitary facilities such as showers, baths, lavatories, etc., and separate pantries containing no cooking appliances. Sanitary facilities which serve a space and with access only from that space shall be considered as portion of the space in which they are located.

**2.1.2.4** All bulkheads forming "B" class divisions shall 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 lining. In corridor bulkheads, ventilation openings may be permitted only in and under the doors of cabins, public spaces, offices and sanitary spaces. The openings shall 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 shall not exceed 0,05 m<sup>2</sup>. If such an opening is cut in a door it shall be fitted with a grille made of non-combustible material. Such openings shall not be provided in a door in a division forming a stairway enclosure.

**2.1.2.5** Stairways which penetrate only a single deck shall 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 trunks shall be protected by "A" class divisions. Stairways and lift trunks which penetrate more than a single deck shall be surrounded by "A" class divisions and protected by self-closing doors at all levels.

**2.1.2.6** In general, accommodation spaces, service spaces, control stations and spaces containing vital machinery and equipment shall not be located adjacent to hazardous areas (vital machinery and equipment are those that are essential to the safety of the MODU and all personnel on board. They include, but are not limited to, fire pumps, emergency sources of power, dynamic positioning systems, remote blowout preventer activation controls, and other operational or safety systems the sudden failure of which may result in hazardous situations. This does not include spaces (e.g. the driller's cabin) located on the drill floor).

However, where this is not practicable, an engineering evaluation shall be performed in accordance with national or international standards (refer to standards such as ISO 13702:2015 or API RP 2 FB) 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. Where it is shown that these spaces may be exposed to a radiant heat flux in excess of 100 kw/m<sup>2</sup>, the bulkhead or deck shall be constructed to at least an "H-60" standard.

**2.1.2.7** Continuous "B" class ceilings or linings in association with the relevant decks or bulkheads may be accepted as contributing wholly or in part to the required insulation and integrity of a division.

**2.1.3 Stairways, lift trunks and escape routes.**

**2.1.3.1** Stairways situated within superstructures shall be protected by divisions with self-closing doors.

**2.1.3.1.1** Stairways shall be constructed of steel or equivalent material.

**2.1.3.2** Stairways which penetrate only a single deck shall 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 trunks shall be protected by "A" class divisions. Stairways and lift trunks which penetrate more than a single deck shall be surrounded by "A" class divisions and protected by self-closing doors at all levels.

**2.1.3.3** Stairway enclosures shall have direct communication with the corridors and be provided with landings as required by 8.5.4.2, Part III "Equipment, Arrangements and Outfit" of the Rules for the Classification. Within the perimeter of such stairway enclosures, only public toilets, lockers for storage of salvage and fire fighting outfit are permitted. Only public spaces, corridors, public toilets, external areas and other stairways required by 8.5, Part III "Equipment, Arrangements and Outfit" of the Rules for the Classification are permitted to have direct access to these stairway enclosures.

**2.1.3.4** Furniture shall not be permitted in corridors forming escape routes in accommodation areas.

**2.1.3.5** Consideration shall 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, this being subject to separate consideration by the Register.

**2.1.4 Fire-resisting and fire-retarding divisions.**

Exterior boundaries of superstructures and deckhouses enclosing accommodation spaces, including any overhanging decks, which support such accommodation spaces as stations, assembly stations and escape routes, as well as machinery and service spaces connected therewith shall be constructed to:

.1 H-60 standard for the whole of the portion, which faces and is within 30 m of the centre of the rotary table. For units that have a movable superstructure, the 30 m shall be measured with the superstructure at its closest drilling position to the specified spaces in all areas faced the drilling or process area liable to heat effect in case of fire in the specified areas;

.2 A-60 standard for all the rest areas.

**2.1.4.2** Issues of loss of carrying capacity by the basic structures during fire are subject to special consideration by the authorized bodies supervising safety of oil and gas industry.

**2.1.5 Closures of openings in fire-resisting and fire-retarding divisions.**

**2.1.5.1** Where the exterior boundaries of superstructures and deckhouses facing the drilling or process area, as well as the adjoining outward sides for a distance of 3 m are required to be fitted with windows and side scuttles, the latter shall be of non-opening type to meet the requirements of 7.2, Part III "Equipment, Arrangements and Outfit" of the Rules for the Classification. Wheelhouse windows on MODUs may be of opening type which would permit their rapid closure.

Windows and side scuttles in A-60 and H-60 class divisions facing the drilling or process area shall be of fire class complying with these structures or protected by water curtain or be fitted with shutters of steel or equivalent material.

Installation of windows and side scuttles of opening type is permitted outside hazardous areas (refer to definition in [1.2](#)).

**2.1.5.2** No doors to accommodation spaces, control stations and service, machinery spaces connected therewith and other spaces directly communicating with such spaces shall be fitted in the exterior boundaries of superstructures and deckhouses facing the drilling or process area and also on adjoining outward sides for a distance of 3 m.

**2.1.5.3** No doors, windows and other openings shall be generally arranged on hull structures with a center situated at a distance of 3 m from the point of the drilling mud diversion.

**2.1.5.4** The fire resistance of doors shall, as far as practicable, be equivalent to that of the division in which they are fitted. External doors in superstructures and deckhouses shall be constructed to at least "A-0" class standard and be self-closing, where practicable.

**2.1.5.5** Self-closing doors in fire rated bulkheads shall not be fitted with hold-back hooks. However, hold-back arrangements incorporating remote release fittings may be utilized.

**2.1.6 Protection of accommodation spaces, service spaces and control stations.**

**2.1.6.1** All bulkheads that shall be "A" class divisions shall extend from deck to deck and to deckhouse side or other boundaries.



**2.1.6.2** All bulkheads forming "B" class divisions shall 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 of lining.

In corridor bulkheads, ventilation openings may be permitted only in and under the doors of cabins, public spaces, offices and sanitary spaces. Except as permitted below, the openings shall 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 shall not exceed 0,05 m<sup>2</sup>. If such an opening is cut in a door it shall be fitted with a grille made of noncombustible material. Such openings shall not be provided in a door in a division forming a stairway enclosure.

**2.1.6.3** Air spaces enclosed behind ceilings, panellings or linings shall 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 finings of stairways, trunks, etc., shall be closed at each deck.

**2.1.6.4** Except for insulation in refrigerated compartments, thermal insulation of pipes and vent ducts, ceilings, finings and bulkheads shall be of noncombustible material. Insulation of pipe fittings for cold service systems, anti-condensate coatings and adhesives used in conjunction with insulation need not be non-combustible, but they shall be kept to a minimum and their exposed surfaces shall have low- flame spread characteristics. In spaces where penetration of oil products is possible, the surface of the insulation shall be impervious to oil or oil vapours.

**2.1.6.5** The framing, including grounds and the joint pieces of bulkheads, linings, ceilings and draught stops, shall be of non-combustible material.

**2.1.6.6** All exposed surfaces in corridors and stairway enclosures and surfaces in concealed or inaccessible spaces in accommodation and service spaces shall have low-flame spread characteristics. Exposed surfaces of ceilings in accommodation and service spaces and control stations shall have low- flame spread characteristics.

**2.1.6.7** Bulkheads, linings, and ceilings may have combustible veneers provided that the thickness of such veneers shall not exceed 2,5 mm in any spaces other than corridors, stairway enclosures and control stations where the thickness shall not exceed 1,5 mm. Combustible materials used on these surfaces shall have a calorific value<sup>3</sup> not exceeding 45 mJ/m<sup>2</sup> of the area for the thickness used.

**2.1.6.8** Primary deck coverings, if applied within accommodation and service spaces and control stations, shall be of approved material which will not readily ignite, this being determined in accordance with the Fire Test Procedures Code.

**2.1.6.9** Paints, vanishes and other finishes used on exposed interior surfaces shall not be capable of producing excessive quantities of smoke and toxic products, this being determined in accordance with the Fire Test Procedures Code.

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<sup>3</sup> Refer to ISO 1716:2002.

## **2.2 LOCATION OF SPACES**

**2.2.1** Spaces containing equipment intended for well drilling, collection, storage, treatment and transportation of well products shall not be adjacent to accommodation spaces and control stations and shall be enclosed by "A-0" class divisions.

**2.2.2** Accommodation spaces, control stations and service and machinery spaces connected therewith, in so far as is reasonable and practicable, shall be located collectively in the superstructure separated from the drilling and process area.

**2.2.3** Superstructures and deckhouses shall be sited 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 radiant heat flux levels in excess of 2,5 kW/m<sup>2</sup> emanating from the drill floor.

**2.2.4** No fuel oil and lubricating oil tanks shall be located adjacent to the accommodation and service spaces, as well as to the escape routes in the superstructure.

## **2.3 HELICOPTER FACILITIES**

**2.3.1** Helicopter facilities (a complex of technical means including a helideck, helicopter refueling facilities and compressed gas or special liquid filling facilities (if any), as well as spaces (if any) where helicopter maintenance facilities are located and hangars) shall be so arranged as to ensure protection of MODU/FOP against fire hazard associated with the use of helicopters:

**.1** the helicopter facilities shall be arranged away from the drilling and process area, as well as from the areas containing sources of ignitions and spaces where large amounts of heat are produced;

**.2** the helicopter facilities shall not be adjacent to accommodation spaces;

**.3** the helicopter facilities shall be so located that in the event of fire in the drilling or process area they are protected by the superstructures against direct effects of the flame.

**2.3.2** The helicopter facility shall meet the requirements of Section 6, Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships" of the Rules for the Classification.

## **2.4 SPACES FOR WELDING OPERATIONS. FIXED OXYGEN AND ACETYLENE SYSTEM**

**2.4.1** Spaces for electric welding operations and store-rooms for storage of oxygen and acetylene cylinders shall comply with the requirements of 2.1.5.4, Part VI "Fire Protection" of the Rules for the Classification.

**2.4.2** Areas for the storage of oxygen and acetylene cylinders shall not be located in the vicinity of the drilling and process area. Provision shall be made for the expeditious removal of oxygen cylinders

and acetylene cylinders from the storage rooms in the event of fire.

**2.4.2.1** Where cylinders are stowed on open deck means shall be provided to:

- .1 protect cylinders and associated piping from likely damages and heating;
- .2 ensure suitable drainage from the deck areas where the cylinders are stowed.

**2.4.3** Fixed piping system for oxygen and acetylene shall comply with the following requirements:

- .1 pipes shall be made of steel or equivalent material and approved joints shall be fitted;
- .2 material containing more than 70 per cent of copper shall not be used in the fittings, except for welding and cutting tips;
- .3 allowance shall be made for expansion of piping;
- .4 pipes shall be as short as possible and protected from physical damage.

**2.4.4** Fire-extinguishing arrangements for the protection of spaces for electric welding operations shall comply with the requirements of item 13 of Table 5.1.2, Part VI "Fire Protection" of the Rules for the Classification. Fire-extinguishing arrangements for the protection of areas or spaces on open deck where such cylinders are stored shall be to the satisfaction of the Register.

### **3 FIRE-FIGHTING EQUIPMENT AND SYSTEMS**

#### **3.1 GENERAL**

**3.1.1** The requirements of this Section are applicable to all fire-fighting equipment and systems fitted on MODU/FOP.

Where provision is made on a FOP for extra firefighting equipment and/or fire extinguishing systems in addition to those prescribed by this Section, such equipment and/or systems shall also comply with the requirements set out below, to the extent approved by the Register in each case.

The fire extinguishing systems shall also comply with the requirements of Sections 2, 4, 5, Part VIII "Systems and Piping" of the Rules for the Classification.

**3.1.2** In addition to the water fire main system and in accordance with the purpose for which they are intended, spaces of MODU/FOP, considering performance of fired work therein, shall be protected by one of the fixed fire extinguishing systems according to [Table 3.1.2](#), unless expressly provided otherwise.

Fixed fire-extinguishing systems shall comply with the applicable requirements of Section 3, Part VI "Fire Protection" of the Rules for the Classification.

**3.1.3** In well-grounded cases, instead of water- screen and drenching systems, fire-resisting and fire-retarding divisions may be used.

**3.1.4** Decks in way of oil storage tanks and the tanks themselves shall be protected by a fixed deck foam fire extinguishing system and fixed inert gas system, except that instead of the above systems, the Register, considering the arrangement and equipment of the MODU/FOP, may accept other combinations of the systems, provided they ensure equivalent protection.

To be reckoned as equivalent, the system proposed instead of the deck foam fire extinguishing system shall:

- extinguish oil spillage fire and prevent ignition of oil spillages which are not on fire yet;
- extinguish fire in all opened oil storage tanks.

To be reckoned as equivalent, the system proposed instead of the fixed inert gas system shall:  
prevent dangerous accumulation of explosive mixtures in the intact storage tanks during normal service and during necessary operations performed in the tanks;

be so designed as to minimize the ignition hazard due to static electricity which can be formed by the system itself.

Table 3.1.2

No.	Description of spaces	Fixed fire extinguishing systems								
		Sprinkler	Pressure water-spraying	Water screen	Drenching	Foam fire extinguishing	Carbon dioxide smothering	Inert gas	Dry powder	Aerosol
1	Accommodation spaces (excluding toilets, lavatories, shower-rooms, operating rooms, etc.)	+ <sup>1</sup>								
2	Service spaces (storerooms for combustible materials)	+ <sup>1</sup>								+
3	Storerooms for flammable liquids, flammable liquefied and compressed gases <sup>3</sup>		+			+ <sup>2</sup>	+		+	+
4	Spaces for process equipment		+			+ <sup>4</sup>	+			+
5	Open decks in way of hazardous zones		+			+ <sup>5</sup>				
6	Machinery spaces of Category A and spaces containing separators. Hangars for helicopters and fuel distribution stations		+ <sup>6</sup>			+ <sup>4,6</sup>	+ <sup>6</sup>			+
7	Silencers of internal combustion engines, exhaust gas boilers, smoke uptakes of incinerators, exhaust ventilation ducts of galleys and bakeries		+				+			
8	Means of escape (refer to 2.1.3.5)			+						
9	Exits from machinery spaces and process equipment spaces enclosed in trunks				+ <sup>7</sup>					
10	Helideck					+				
11	Oil collecting tanks					+ <sup>5</sup>		+ <sup>8</sup>		
12	Special electrical rooms (refer to 1.2.1, Part X "Electrical Equipment")						+			

<sup>1</sup> With attending personnel not over 100 in number — on agreement with the customer; with attending personnel over 100 in number — the system is compulsory.  
<sup>2</sup> A system using medium expansion foam with expansion ratio of about 100:1 shall be used.  
<sup>3</sup> Storerooms for flammable liquids, liquefied and compressed gases, paint lockers need not be fitted with a fixed fire extinguishing system, if the volume of each storage space is not more than 4 m<sup>3</sup>.  
<sup>4</sup> A system using foam with expansion ratio of about 1000:1 shall be used.  
<sup>5</sup> A system using foam with expansion ratio of 10:1, 100:1 (or combination foam) with the use of monitors shall be provided.  
<sup>6</sup> 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 shall be considered as one compartment.  
<sup>7</sup> Required if the trunk is constructed of "A-0" class divisions. To be fitted outside the trunk.  
<sup>8</sup> The need shall be decided by the customer.

**3.1.5** Arrangement of fire-fighting equipment and installation of fire extinguishing system pipes in the areas of zones to be specified shall be carried out, as far as practicable, in such a way as to avoid damage risk in the event of emergency and to retain their operability.

**3.1.6** Automatic release of fire extinguishing medium is not permitted, except the cases indicated in 3.3, 3.6.3 and 3.11.2.7, Part VI "Fire Protection" of the Rules for the Classification.

**3.1.7** FOP, fitted with tanker terminals, shall have in the tanker mooring area at least two monitors capable of delivering foam and water both to the oil loading area at the terminal and to the cargo deck of the tankers.

**3.1.8** Instead of pressure water-spraying systems with the minimum water rate 20,4 l/min per m<sup>2</sup> required to protect the areas: drilling, process equipment, oil and gas collectors, mud circulation and treatment, piping containing oil and gases, compressed gas cylinders (oxygen, acetylene), etc., located on open deck, at least two dual-purpose (jet/spray) fire monitors may be used to cover drilling and process equipment areas, provided they are capable of supplying water in the areas of drilling and production, with the minimum capacity of each fire monitor not less than 100 m<sup>3</sup>/h. The monitors may be operated either remotely or locally. The monitor arranged for local operation shall be sited on an accessible protected position. Foam extinguishing system shall be provided for operation in drilling mud treatment area. The system shall be capable of delivering foam solution at a rate of not less than 6,5 l/min per m<sup>2</sup> (4,1 l/min per m<sup>2</sup> for aqueous film-forming foam concentrate (AFF) or film-forming fluoroprotein foam concentrate (FFFP)) for 15 min. Alternatively, a fixed gas fire extinguishing system may be used for enclosed mud treatment spaces.

**3.1.9** The unit shall be provided with at least one international shore connection complying with the provisions of 5.1.8, Part VI "Fire Protection" of the Rules for the Classification. Facilities shall be available on the main line enabling such a connection to be used on any side of the unit.

### **3.2 WATER FIRE MAIN SYSTEM**

**3.2.1** Two water supply sources (sea chests, valves, strainers and pipes) shall be provided and so arranged that one water supply source failure will not put the other supply source out of action. At least two independently driven fire pumps shall be provided, each arranged to draw water from the its own sea valve and discharge into a fixed fire main. Each of the fire pumps shall have a minimum capacity of 60 m<sup>3</sup>/h.

However, in units with high suction lifts, booster pumps may be installed, provided such arrangements will satisfy the provisions of [3.2.2 – 3.2.9](#).

**3.2.2** At least one of the fire pumps shall be dedicated for fire-fighting duties and be available for immediate starting at all times.

**3.2.3** The arrangements of sea suction, pumps and sources of power shall be such as to ensure that a fire in any one space shall not put both the required pumps out of action.

**3.2.4** The total capacity and head of the required pumps shall be appropriate to ensure operation of two fire hose nozzles and simultaneous operation of other fire extinguishing systems using water and required for fighting a fire in one of the spaces or areas on open deck of the MODU/FOP, for which the maximum quantity of water is required.

**3.2.5** Each pump shall be capable of delivering at least two jets of water simultaneously from any two fire hydrants through 19 mm nozzles while maintaining a minimum pressure of 0,35 MPa at any hydrant. In addition, where a foam system is provided for the protection of the helideck, the pumps shall be capable of maintaining a minimum pressure of 0,7 MPa at the foam installation.

If the water consumption for any other fire protection or fire-fighting purpose exceeds the rate of the helideck foam installation, this consumption shall be the determining factor in calculating the required capacity of the fire pumps.

**3.2.6** Where the fire pumps are located in spaces not normally manned, suitable provision shall be made for remote start-up of those pumps and remote operation of associated suction and discharge valves to be effected either from the central control station or from one of the positions where watch keepers are present when the unit is in operating condition.

**3.2.7** Sea water storage tanks shall comply with the requirements of 3.3.2.2, Part VIII "Systems and Piping".

The capacity of the tanks shall be such that minimum permissible amount of water therein permits the operation of two fire hose nozzles during 15 min, but in any case the capacity shall be not less than 10 m<sup>3</sup>.

**3.2.8** The fire main shall where practicable, be routed clear of hazardous areas and be arranged in such a manner as to make maximum use of physical protection afforded by the structure of the unit.

**3.2.9** The fire main shall be provided with isolating valves located so as to permit optimum utilization of the main in the event of physical damage to any part thereof.

**3.2.10** The fire main shall not have connections other than those necessary for fire-fighting purposes.

**3.2.11** Sanitary, bilge, ballast and other sea water pumps may be accepted as fire pumps, provided their capacity and head correspond to those required and they are not normally used for pumping oil.

**3.2.12** On units with attending personnel over 100 in number, the water fire main system shall be kept under pressure at all times, and the fire main shall be arranged in way of superstructures as a ring one with shut-off valves fitted to keep the system operable when certain sections of the ring main are disconnected.

**3.2.13** Every centrifugal pump which is connected to the fire main shall be provided with a non-return valve fitted on the delivery pipe.



**3.2.14** Relief valves shall 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 shall be so placed and adjusted as to prevent excessive pressure in the fire main system.

**3.2.15** Additionally, a fixed fire main shall meet the provisions of [3.2.15.1 – 3.2.15.6](#).

**3.2.15.1** The diameter of the fire main and water service pipes shall be sufficient for the effective distribution of the maximum required discharge from the required fire pumps operating simultaneously.

**3.2.15.2** With the required fire pumps operating simultaneously, the pressure maintained in the fire mains shall meet the requirements of this Part and be adequate for the efficient operation of all equipment supplied therefrom.

**3.2.15.3** All practical precautions consistent with having water readily available shall be taken to protect the fire main against freezing.

**3.2.15.4** In constructing of fire mains, the requirements of 3.1.4.2, Part VI "Fire Protection" of the Rules for the Classification shall be met.

**3.2.15.5** Hydrants shall meet the requirements of 3.2.6.1 and 3.2.6.8, Part VI "Fire Protection" of the Rules for the Classification.

**3.2.15.6** The number and position of the hydrants shall be such that at least two jets of water, not emanating from the same hydrant, one of which shall be from a single length of fire hose, may reach any part of the unit normally accessible to those on board while the unit is being navigated or engaged in drilling operations. A hose shall be provided for every hydrant.

**3.2.16** For the self-elevating units, the additional water supply measures shall be provided:

**.1** water shall be supplied from water main filled by at least two submersible pumping systems, and one pumping system failure will not put other system out of action;

**.2** water shall be supplied from drill water system while self-elevating unit lifting or lowering. Water is stored in the drill water tanks with capacity of not less than 40 m<sup>3</sup> plus engine cooling water consumptions before unit lifting or lowering.

### **3.3 DRENCHING SYSTEM**

**3.3.1** The drenching system is intended for protection of areas and spaces as specified in [Table 3.1.2](#).

**3.3.2** The system shall be operated from positions outside the areas and spaces to be protected.

**3.3.3** The design capacity of the pumps supplying the system shall be sufficient to provide a rate of water discharge which shall be not less than 12 l/min per 1 m<sup>2</sup> of the deck area concerned.

**3.3.4** Each area shall be protected by a section (sections) forming part of a common drenching system and connected thereto through shut-off valves used to disconnect the section(s) in the event of failure.

### **3.4 WATER-SCREEN SYSTEM**

**3.4.1** The water-screen system is provided to ensure protection of areas and spaces as specified in [Table 3.1.2](#).

**3.4.2** The system shall be operated from positions outside the areas and spaces to be protected.

**3.4.3** The water-screen system shall be generally fed from the water fire main. The design capacity of the pumps supplying the system shall be sufficient to provide at least 70 l/min per linear metre of the screen length.

### **3.5 FIRE-EXTINGUISHING ARRANGEMENTS FOR THE DRILL FLOOR**

**3.5.1** The drill floor shall be protected by a fixed pressure water-spraying system designed to provide a minimum water application rate of 20 l/m<sup>2</sup>/min to the drill floor and related equipment, including emergency shutdown equipment, critical structural components, and enclosure fire barriers. Alternatively, multiple fixed monitors discharging at a minimum flow rate and pressure 1900 l/min at 1 N/mm<sup>2</sup> may be provided and arranged such that all areas and equipment can be reached by at least two monitors which are widely separated.

**3.5.2** The system shall be designed for manual release from release stations located outside the protected area. Any section valves necessary for the operation of the system shall be located outside the protected area. Automatic release may be accepted.

**3.5.3** Nozzles, piping, fittings and related components shall be designed to withstand exposure to temperatures up to 925 °C.

**3.5.4** The main fire pumps may be used to supply the fixed pressure water-spraying system if they have sufficient capacity to simultaneously supply the fire main at the required flow and pressure.

## **4 FIRE DETECTION AND ALARM SYSTEMS**

### **4.1 FIRE DETECTION AND FIRE ALARM SYSTEM**

**4.1.1** Each unit shall be provided with an automatic fire detection and fire alarm system.

**4.1.2** In addition to the spaces referred to in 4.2.1, Part VI "Fire Protection" of the Rules for the Classification, automatic fire detectors shall be fitted in the spaces within hazardous zones and areas 1 and 2 specified in 2.9, Part X "Electrical Equipment" of the MODU/FOP Rules.

**4.1.2.1** An automatic fire detection and fire alarm system shall be provided and arranged in such a way as to ensure smoke detection in accommodation spaces.

**4.1.2.2** The fire detection main indicator board shall be placed at a permanently manned control station to indicate where fire has been detected:

**.1** fire detectors shall be fitted in normally unattended machinery spaces, in this case fire detection systems using only thermal detectors shall not be permitted;

**.2** automatic fire detection and alarm system shall be provided in accommodation and service spaces, and accommodation spaces shall be fitted with smoke detectors. Thermal detectors shall be fitted in galleys;

**.3** smoke detectors shall be provided at control stations and in electrical rooms;

**.4** thermal or flame detectors shall be installed in drilling and mud treatment areas. Smoke detectors may be used in enclosed mud treatment areas.

## **4.2 MANUAL FIRE ALARMS**

**4.2.1** Each unit shall be provided with manual fire alarms.

**4.2.2** In addition to the spaces referred to in 4.2.1, Part VI "Fire Protection" of the Rules for the Classification, manual fire alarms shall be fitted in the spaces within hazardous zones and areas 1 and 2 specified in 2.9, Part X "Electrical Equipment" of the MODU/FOP Rules.

### **4.3 GAS DETECTION AND ALARM SYSTEMS AND EQUIPMENT**

**4.3.1** Fixed combustible gas (oil gases and vapours) and hydrogen sulphide detection and alarm systems shall be provided.

**4.3.1.1** Fixed combustible gas detection and alarm systems shall be provided to protect the following areas:

blowout equipment area;

drilling floor;

mud pit area;

shale shaker area;

enclosed spaces containing the open components of mud circulation system from the bell nipple to the mud pits);

ventilation intakes of enclosed machinery spaces contiguous to hazardous areas and containing internal combustion engines and boilers;

ventilation intakes and other near openings of accommodation spaces.

**4.3.1.2** Fixed hydrogen sulphide detection and alarm system shall be provided to protect the following areas:

drilling floor;

drilling mud treatment area;

well area.

Hydrogen sulphide detectors shall be connected to an audible and visual alarm system with indicators at the central control station. The system shall indicate where gas has been detected. Low level alarm set at 3 mg/m<sup>3</sup> and high level alarm set not higher than 10 mg/m<sup>3</sup> shall be designed. The high level alarm shall activate an evacuation alarm. If the alarm at the central control station is unanswered within 2 min, hydrogen sulfide alarm and evacuation alarm shall be automatically activated.

**4.3.1.2.1** The need for fixed automatic hydrogen sulphide detection and alarm system to be provided on FOP shall be determined on the basis of the results of hydrogen sulphide detection in the well fluid of the first exploration well.

**4.3.2** A gas detection and alarm system shall function continuously and shall ensure:

.1 giving visual and audible signals at the appropriate local control station, drill master's cabin, industrial and at the central control station when the concentration of oil gases and vapours is not more than 25 per cent and 60 per cent of the lower explosive limit;

.2 starting the ventilation system for operation with maximum air changes per hour in the space;

.3 cutting off the sampling devices or oil gas or vapour detectors operating on thermochemical principle when hydrogen sulphide concentration reaches 10 mg/m<sup>3</sup> with a signal being given to the central control station;

.4 giving alarm signal at the central control station to indicate failure in the system itself.

**4.3.3** Visual signals to indicate oil gas and vapour concentration shall be distinct from the signals to indicate hydrogen sulphide concentration.

**4.3.4** The components of the system shall meet the requirements of Part XI "Electrical Equipment" of the Rules for the Classification.

**4.3.5** The design of detectors and instruments fitted in hazardous zones and areas shall meet the requirements of 2.11, Part X "Electrical Equipment".

**4.3.6** Sampling devices shall be made of materials resistant to the attack of oil gases and hydrogen sulphide vapours. The diameter and length of the piping shall be based on the supply time of gas sample to the detector to be not in excess of 60 s.

**4.3.7** Use of change-over devices which provide successive gas monitoring in several points is permitted. The fixed position shall be maintained during the time period sufficient for a gas sample to pass to the detector.

**4.3.8** Positions of the oil gas or vapour concentration sampling devices or detectors (hydrogen sulphide concentration detectors) are dictated by the field facilities construction project with due regard for the density of gases, technical data and location of the equipment used.

**4.3.9** On drilling units, gas sampling devices or detectors of the oil gas/vapour monitoring system shall be fitted:

**.1** in spaces:

in way of delivery side of each drilling mud and cement pump at a height of not more than 0,5 m above the deck or above the continuous plating;

above the drilling mud tanks at a height of 0,2 m above their upper edge and at a height of 0,5 m above the deck where they are fitted;

near the shale shaker at a distance of not more than 1,0 m, horizontally, at a height of not more than 0,5 m above it;

**.2** on open decks — near the drilling mud diverter, at least in four points at a distance of not more than 1 m therefrom. Where the diverter is located in semi- enclosed spaces, not less than in two points.

**4.3.10** On drilling units, gas sampling devices or detectors of hydrogen sulphide monitoring system shall be fitted:

**.1** in spaces containing drilling mud tanks, drilling mud pumps and mud circulating system:

in the working area at a height of not more than 1 m above the deck or above the continuous plating;

near the shale shaker at a distance of not more than 1 m therefrom at a height of 1 m above the deck (floor);

**.2** in open and semi-enclosed areas — near the drilling mud diverter.

**4.3.11** A unit shall be provided with:

**.1** two portable gas monitoring devices capable of measuring a concentration of oil gases and vapours;

**.2** two portable gas monitoring devices capable of measuring a concentration of hydrogen sulphide.



## **5 FIRE-FIGHTING OUTFIT, SPARE PARTS AND TOOLS**

### **5.1 GENERAL**

**5.1.1** As a minimum, the fire-fighting outfit, spare parts and tools shall comply with Section 5, Part VI "Fire Protection" of the Rules for the Classification as applied to oil tankers and as far as the helicopter facilities are concerned they shall comply with 6.4, Part XVII "Distinguishing Marks and Descriptive Notations in the Class Notation Specifying Structural and Operational Particulars of Ships" of the Rules for the Classification.

**5.1.2** Fireman's outfit shall be supplied to the units, as a minimum, in compliance with the requirements of Section 5, Part VI "Fire Protection" of the Rules for the Classification as applied to oil tankers, with due account of the provisions of [5.1.2.1 – 5.1.2.3](#).

**5.1.2.1** Use of a smoke helmet or a smoke mask complete with an air hose and an air pump is not permitted in the fireman's outfit.

**5.1.2.2** Each fireman's outfit shall include a portable instrument for measuring oxygen and flammable vapour concentrations.

**5.1.2.3** For FOP having superstructure divided into main vertical fire zones, provision shall be made for two additional fireman's outfits.

**5.1.3** The number and distribution of portable fire extinguishers in spaces of MODU/FOP, except for the helicopter facilities, shall be adopted in accordance with Section 5, Part VI "Fire Protection" of the Rules for the Classification, as applied to oil tankers. Where the requirements of Section 5, Part VI "Fire Protection" of the Rules for the Classification differ from the requirements of [Table 5.1.3](#) it will be necessary to be guided by the latter, considering the fire hazard characteristic of the space concerned.

**5.1.4** Recharging of air cylinders.

The apparatus for recharging air cylinders, if provided, shall have its power supplied from the emergency supply or be independently diesel-powered, or be so constructed or equipped that the air cylinders may be used immediately after recharging:

**.1** the apparatus shall be suitably located in a sheltered space above main deck level on the unit. Intakes for air compressors shall draw from a source of clean air. The air shall be filtered after compression to eliminate compressor oil contamination;

**.2** the apparatus for recharging shall be: breathing air compressors with a minimum capacity of 60 l/min but not more than 420 l/min, or self-contained air storage systems of suitable pressure to recharge the breathing apparatus used in MODU/FOP, with a capacity of at least 1200 l per required breathing apparatus, but not to exceed 50000 l of free air.

**5.1.5** Breathing equipment to protect the personnel against hydrogen sulphide:

**.1** self-contained breathing apparatuses of PPR/ PDR types with full-face piece rated for a minimum of 30 min, shall be provided for each person in working areas where hydrogen sulphide may be encountered. Each person in other areas shall be provided with self-contained breathing apparatus of PPR/PDR types rated for a minimum of 15 min; or

**.2** breathing air line coupled with a self-contained breathing apparatus of PPR/PDR types equipped with low pressure warning alarm installed and rated for a minimum of 15 min, shall be provided for each person on board the platform.

Breathing air supply line shall be provided at least in the following areas:

- living quarters;
- muster/evacuation areas;
- drilling floor;
- mud treatment area;
- other working areas.

Table 5.1.3

Nos.	Items of outfit	Number of items of outfit to be available in MODU/FOP
1	Portable foam fire extinguishers, dry powder fire extinguishers and carbon dioxide fire extinguishers. The use of dry powder fire extinguishers is permitted in all spaces instead of foam and carbon dioxide fire extinguishers except for the spaces where the energized electrical and radio equipment is installed of over 1000 V	<p><b>1. Machinery spaces:</b> 1 foam fire extinguisher and 1 carbon dioxide fire extinguisher to extinguish fire on electrical equipment and main control panels when the main control panels are installed in space containing the main power sources; 2 carbon dioxide fire extinguishers in the immediate vicinity of the main control panel</p> <p><b>2. Machinery spaces of category A:</b> 1 foam fire extinguisher nearby each furnace front in spaces containing oil-fired boilers provided that the total capacity of additional fire extinguishers for any one space does not exceed 45 l; 2 foam fire extinguishers or equivalent thereto in each space containing fuel-oil units; 1 foam fire extinguisher for each 750 kW, or part thereof, of the machinery power. The total number of portable fire extinguishers so provided shall be not less than two, however, there is no need for more than six portable fire extinguishers</p> <p><b>3. Machinery spaces of category A which are periodically unattended:</b> 1 foam fire extinguisher at each entrance to the space</p> <p><b>4. Cranes driven by internal combustion engines:</b> 1 dry powder fire extinguisher at the crane control location (in cabin) and 1 foam fire extinguisher at exterior to the crane machinery compartment</p> <p><b>5. Drill floor;</b> 1 dry powder fire extinguisher at each exit to drill floor but not less than 2</p> <p><b>6. Mud pits and mud processing area:</b> 1 foam fire extinguisher for each enclosed space. Travel distance to the fire extinguisher shall not to exceed 10 m for open space</p> <p><b>7. Spaces wherein fired work is performed:</b> 2 foam fire extinguishers or equivalent thereto in each such space</p>
2	Foam fire extinguishers of at least 45 l capacity	1 fire extinguisher or equivalent thereto in each machinery space of category A

## **6 DANGEROUS GOODS**

**6.1** Dangerous goods carried on MODU/FOP shall be stored and secured safely according to class/subclass of the goods with due account of the provisions of [6.1–6.5](#) as well as all applicable requirements of the IMDG Code.

**6.2** Incompatible goods shall be segregated from one another.

**6.3.** Explosives shall be stored in a suitable magazine which shall be kept securely closed to prevent unauthorized access. Such explosives shall be segregated from detonators.

**6.4** Flammable liquids which give off dangerous vapours and flammable gases shall be stored in a well-ventilated space or on open deck.

**6.5** Substances which are liable to spontaneous heating or combustion shall not be carried on board the MODU/FOP unless adequate precautions have been taken to prevent the outbreak of fire.

**6.6** Radioactive substances shall be stored and handled in a safe manner.

Russian Maritime Register of Shipping

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**Part VI**

**Fire Protection**

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