



GUIDE FOR BUILDING AND CLASSING

ACCOMMODATION BARGES

JANUARY 2014 (Updated November 2016 – see next page)

**American Bureau of Shipping
Incorporated by Act of Legislature of
the State of New York 1862**

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Updates

November 2016 consolidation includes:

- January 2015 version plus Notice No. 1

January 2015 consolidation includes:

- January 2014 version plus Corrigenda/Editorials

Foreword (1 November 2016)

As the demand for additional accommodations of offshore personnel grows to support the offshore oil and gas industry, it is envisaged that there will be a growth in the use of offshore accommodation barges.

Noting the special design and operational characteristics of accommodation barges, ABS has developed this Guide to establish the classification requirements for this type of barges. The requirements contained within this Guide include either via direct inclusion or a reference to other ABS Rules or Guides as well as IMO Regulations in existence prior to the issuance of this Guide. The requirements in this Guide are applicable to accommodation barges of a conventional barge displacement hull. For column stabilized or self-elevating accommodation units please refer to the *ABS Guide for Building and Classing Mobile Offshore Units*.

This Guide references relevant international Regulations and guidelines that are considered to be applicable. While it is the intent of the Guide to be consistent with these Regulations and guidelines, it is the ultimate responsibility of the users of this Guide to refer to the most recent text of those Regulations and guidelines.

This Guide is to be used in conjunction with other Rules published by ABS and IMO Regulations.

This Guide is for the use of designers, builders, owners and operators of accommodation barges and specifies the ABS requirements for obtaining the classification notation **✕ A1 Accommodation Barge**.

This Guide supersedes the *ABS Preliminary Rules for Building and Classing Accommodation Barges and Hotel Barges* issued in 1989 and becomes effective on the first day of the month of publication.

The November 2016 update includes the following changes:

<i>Section</i>	<i>Description of Change</i>
1/5.5, 1/11(vii), 2/41	Aligns the description of the AMS-NP notation with the <i>ABS Rules for Building and Classing Steel Barges</i> .
3/3.3.1, 3/3.3.1(f)	Aligns with the requirements of SOLAS Chapter II-2 Regulation 9 Passenger ships carrying more than 36 passengers.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



GUIDE FOR BUILDING AND CLASSING ACCOMMODATION BARGES

CONTENTS

SECTION 1	Scope and Conditions of Classification	1
1	Classification	1
3	Application.....	1
5	Classification Symbols and Notations.....	1
5.1	Class Notations.....	1
5.3	Limited Service	2
5.5	Machinery and Systems	2
5.7	Automatic or Remote Control and Monitoring Systems	2
5.9	Special Purpose.....	2
7	Flag State Administration.....	2
9	Submission of Plans	2
9.1	Materials	2
9.3	Hull Plans	3
9.5	Machinery and Systems Plans	3
9.7	Safety Plans	3
9.9	Stability, Loading and Operating Information.....	3
11	Operating Manual	3
13	Trial	4
SECTION 2	Definitions	5
1	General	5
3	Accommodation Barge.....	5
5	Accommodation Spaces	5
7	“A” Class Divisions.....	5
9	“B” Class Divisions.....	5
11	“C” Class Divisions.....	5
13	Control Stations	5
15	Crew	6
17	Displacement Hull	6
19	Flag State Administration.....	6
21	Industrial Personnel	6
23	Machinery Spaces	6
25	Machinery Spaces of Category A	6
27	MODU Code.....	6

29	Noncombustible Material	6
31	Non Self-Propelled	6
33	Public Spaces	7
35	Safe Area	7
37	Safety Center	7
39	Service Spaces	7
41	Short Field Moves	7
43	SOLAS	7
SECTION 3	Fire Safety – Measures and Features	8
1	General	8
1.1	Administration Review	8
1.3	ABS Review	8
1.5	Materials Containing Asbestos	8
1.7	Alternative Design and Arrangements	8
1.9	Plans and Specifications	8
3	Structural Fire Protection	9
3.1	General	9
3.3	Additional Requirements	9
5	Fire Protection Systems and Equipment	11
5.1	Governmental Authority	11
5.3	Fixed Fire Fighting Systems	11
5.5	Portable Fire Fighting Systems	11
5.7	Other Fire Protection Requirements	12
5.9	Arrangement of Fire Water Supply	12
5.11	Fixed Fire Detection and Fire Alarm Systems, and Fixed Automatic Sprinkler, Fire Detection and Fire Alarm Systems	12
5.13	General Alarm	12
7	Outfitting	12
TABLE 1	Structural Fire Protection	9
TABLE 2	Fire Main Systems	11
TABLE 3	Additional Fixed Fire Fighting Systems	11
TABLE 4	Portable Fire Fighting Systems	11
TABLE 5	Fire Detection and Alarms	12
TABLE 6	Outfitting	12
SECTION 4	Lifesaving Appliances and Equipment	13
1	General	13
SECTION 5	Radio Communication Installations	14
1	General	14

SECTION 6	Subdivision, Stability, and Freeboard	15
1	General	15
1.1	Load Line.....	15
1.3	Inclining Experiment	15
3	Stability and Watertight/Weathertight Integrity.....	15
3.1	Intact Stability	16
3.3	Damage Stability.....	16
3.5	Watertight/Weathertight Integrity	16
3.7	Onboard Computers for Stability Calculations	17
TABLE 1	Stability.....	16
TABLE 2	Stability Criteria	16
TABLE 3	Watertight/Weathertight Integrity	16
SECTION 7	Helicopter Facilities.....	18
1	General	18
3	Construction	18
3.1	General.....	18
3.3	Structure.....	18
3.5	Size.....	20
3.7	Drainage.....	20
3.9	Surface	20
3.11	Grating Type Construction.....	20
3.13	Materials	20
5	Arrangements.....	22
5.1	Projections.....	22
5.3	Tie Downs.....	22
5.5	Safety Net.....	22
5.7	Means of Escape and Access	22
7	Visual Aids	22
7.1	General.....	22
7.3	Wind Indicator.....	22
7.5	Markings	22
7.7	Lights.....	23
9	Fire-Fighting for Helicopter Facilities	24
9.1	Hoses and Nozzles.....	24
9.3	Portable Extinguishers.....	24
9.5	Back-up System.....	25
9.7	Fixed-Foam System.....	25
9.9	Fire-fighter's Outfits	25
9.11	Other Equipment.....	25
11	Helicopter Fuel Oil Storage and Transfer Facilities	26
13	Helicopter Fuel Oil Pumping Arrangements	27
15	Electrical Systems.....	27
15.1	Permanent Equipment Grounding Arrangements.....	27
15.3	Emergency Source of Power	27

TABLE 1	Allowable Factors of Safety F_s for Helicopter Decks.....	19
FIGURE 1	Example of Helicopter Deck Arrangement.....	21
FIGURE 2	Example of Helicopter Deck Markings.....	24

SECTION 8 Mechanical Systems 28

1	General	28
3	Pumps and Piping Systems.....	28
3.1	General.....	28
3.3	Plans and Data to be Submitted.....	28
5	Fabrication and Tests of Metallic Piping.....	29
5.1	Welded Fabrication	29
5.3	Hydrostatic Tests.....	29
7	Plastic Piping	29
9	Vent Pipes.....	29
9.1	General.....	29
9.3	Protection from Weather and Sea Water Ingress	29
9.5	Size and Height.....	29
9.7	Fuel Oil Tanks Vent Outlets.....	29
11	Sounding Arrangements	30
13	Leakage Containment and Drain System	30
15	Fuel Oil Systems.....	30
15.1	General.....	30
15.3	Pipes in Fuel Oil Tanks.....	30
15.5	Valves on Fuel Oil Tanks.....	30
15.7	Independent Tanks.....	30
17	Lubricating-oil Systems.....	31
19	Bilge Systems	31
19.1	General.....	31
19.3	Barges 61 Meters (200 Feet) and Over.....	31
19.5	Main Line.....	31
19.7	Branch Lines	31
19.9	Size Limits.....	31
21	Ballast Systems	32
23	Boilers and Pressure Vessels Including Heat Exchangers.....	32
23.1	General.....	32

SECTION 9 Electrical Systems 33

1	General	33
3	Plans and Data to be Submitted	33
5	General Considerations	34
5.1	Watertightness	34
5.3	Corrosion Resistance	34
5.5	Grounding.....	34
5.7	Structure.....	34
7	Rotating Electrical Machinery	34

9	Cables and Wiring.....	34
11	Protection and Coordination	34
13	Power Supply	34
15	Emergency Source of Power	35
15.1	General.....	35
15.3	Power Supply	35
15.5	Emergency Source of Power	35
15.7	Transitional Source of Emergency Power.....	36
15.9	Testing.....	36
SECTION 10	Mooring Equipment.....	37
1	General	37
3	Temporary Mooring Equipment	37
5	Position Mooring Equipment	37
7	Position Mooring System Certification	37
SECTION 11	Surveys	38
1	Testing, Trials and Surveys During Construction	38
3	Surveys After Construction	38
APPENDIX 1	Limited or Restricted Service.....	39
1	General	39
3	Harbor Service	39
3.1	Fire Pumps	39
3.3	Lifesaving Appliances and Equipment.....	39
3.5	Radio Communication Installations.....	39
3.7	Electrical Power	39



SECTION 1 Scope and Conditions of Classification (Supplement to the ABS Rules for Conditions of Classification)

1 Classification

The requirements for conditions of classification are contained in the separate, generic *ABS Rules for Conditions of Classification (Part 1)*. Additional requirements specific to accommodation barges are contained within this Guide.

3 Application

This Guide is applicable to non-self-propelled floating marine structures which operate offshore as accommodation barges as defined in Subsection 2/3. The marine structure referred to herein is a displacement hull.

This Guide is intended for offshore accommodation barges designed and constructed of steels having the properties as specified in *ABS Rules for Materials and Welding (Part 2)*. The use of steels or other materials that have properties different from those specified in Part 2, as well as the corresponding scantlings, are subject to special considerations.

This Guide is intended to cover the requirements specific to accommodation barges. The structural requirements are to comply with the applicable requirements of the *ABS Rules for Building and Classing Steel Barges (Barge Rules)*.

Requirements for accommodation units utilizing self-elevating and column-stabilized hulls are addressed separately in the *ABS Guide for Building and Classing Mobile Offshore Units (MOU Guide)*.

Gangways to other platforms/installations/vessels, and any other aspect of combined operations are beyond scope of this Guide.

5 Classification Symbols and Notations

A listing of Classification Symbols and Notations available to the Owners of vessels, offshore drilling and production units, and other marine structures and systems, "List of ABS Notations and Symbols", is available from the ABS website "www.eagle.org".

The following notations are specific to accommodation barges.

5.1 Class Notations

5.1.1 Barges Built under ABS Survey

Accommodation barges built to the satisfaction of the ABS Surveyors to the full requirements of this Guide, or to its equivalent, where approved by the Committee for service may be classed and distinguished in the *Record* by the symbols **✕ A1 Accommodation Barge**, indicating compliance with the requirements of the Guide and including compliance with the machinery requirements.

5.1.2 Barges Not Built under ABS Survey

Accommodation barges not built under ABS survey, but submitted for ABS classification, are subjected to special classification surveys. Where found satisfactory and thereafter approved by ABS, they may be classed and distinguished in the *Record* by **A1 Accommodation Barge**, as the case may be, but the symbol **✕** signifying survey during construction will be omitted.

5.3 Limited Service

Accommodation barges built to the satisfaction of the ABS Surveyors to special modified requirements for limited or restricted services and approved by ABS for that particular service, are to be classed and distinguished in the *Record* by the symbols and notations as described in 1/5.1 above, followed by or including the appropriate service limitation. Also see Appendix 1.

5.5 Machinery and Systems (1 November 2016)

Machinery and systems for accommodation barges are to comply with the requirements specified in Section 8 of this Guide. Thruster machinery and systems used for short field moves (consisting of moving the barge from one work location to another location within the same area of operation, that **takes no longer than 12 hours and** is conducted in daylight hours) of non-propelled units and complying with the requirements of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)* as applied to self-propelled barges, manufactured and installed under ABS survey and found satisfactory after trials, will be distinguished in the *Record* by the notation **✕ AMS-NP**, as appropriate.

5.7 Automatic or Remote Control and Monitoring Systems

For automatic or remote control and monitoring systems of the machinery other than the propulsion machinery as referenced in Subsection 1/1 of the *ABS Guide for Automatic or Remote Control and Monitoring for Machinery and Systems (other than Propulsion) on Offshore Installations*, ABS will consider additional classifications with symbols **✕ AMCC** or **✕ AMCCU**, as appropriate, provided that the applicable requirements of the *ABS Guide for Automatic or Remote Control and Monitoring for Machinery and Systems (other than Propulsion) on Offshore Installations* are satisfied.

5.9 Special Purpose

At the request of the Owner, accommodation barges that comply with the requirements in Section 5-1-2 of the *ABS Rules for Building and Classing Offshore Support Vessels (OSV Rules)* and the Code of Safety for Special Purpose Ships (SPS Code) adopted by the IMO Maritime Safety Committee as Resolution MSC 266(84) (SPS Code) will be assigned the class notation **SPS**.

7 Flag State Administration

Requirements additional to those given in Section 3 through 11 of the Guide may be imposed by the flag Administration with whom the accommodation barge is registered or by the Administration within whose territorial jurisdiction the accommodation barge is intended to operate.

Approval of safety plans of the accommodation barge (such as fire safety measures and features, lifesaving appliances and equipment, radio communication installations, and subdivisions and stability etc.) by a flag Administration, in accordance with requirements equivalent to those by class, may be considered as complying with the class requirements provided such approval can be satisfactorily documented.

9 Submission of Plans

Plans and specifications specified in the following sections, together with supporting calculations as appropriate, are to be submitted before proceeding with the work. Detailed listing of plans can be found in Sections 3 through 11.

Plans should generally be submitted electronically to ABS. However, hard copies will also be accepted.

9.1 Materials

This Guide is intended for accommodation barges designed and constructed of steels having the properties as specified in the *ABS Rules for Materials and Welding (Part 2)*.

The use of steels or other materials that have properties different from those specified in *ABS Rules for Materials and Welding (Part 2)*, and the corresponding scantlings are subject to special considerations.

9.3 Hull Plans

In general, hull plans indicated in 1-1-4/1 of the *Barge Rules* are to be submitted for review, unless otherwise requested.

9.5 Machinery and Systems Plans

Plans showing machinery installations, pumps and piping systems, as well as electrical systems, as specified in Sections 4-1-1, 4-1-2 and 4-1-3 of the *Steel Barge Rules*, in so far as applicable, are to be submitted for ABS review. Dimensions, makes, and sizes of standard approved appliances, welding details, and other details are to be shown on the plans as clearly and fully as possible.

9.7 Safety Plans

- i) Plans showing the structural fire protection
- ii) Means of escape, fire pumps, fire mains, fire detection, fire alarms, fire-extinguishing system
- iii) Lifesaving appliances and equipment, rescue boats
- iv) Radio communications installations
- v) Subdivisions, stability, etc.

9.9 Stability, Loading and Operating Information

Information is to be submitted on ballast, fuel, supplies and hold arrangement and capacities; summary and distribution of fixed and variable weights for each reviewed condition; and information on all loaded and ballasted conditions in which the accommodation barge may be operated.

In accordance with the requirements contained in Section 6 stability calculations demonstrating that the accommodation barge meets the stability criteria in all loading and ballast conditions are to be submitted for review.

11 Operating Manual

An operating manual which is consistent with the information and criteria upon which classification is based is to be placed aboard the accommodation barge for the guidance of the operating personnel. Accommodation barges built for limited or restricted services and approved in accordance with 1/5.3 are to include the appropriate services limitation in the Operating Manual. Insofar as classification is concerned, the operating manual is to include, as appropriate, the following information:

- i) A general description of the barge, including major dimensions, lightship characteristics
- ii) Summaries of approved transit and operation conditions including:
 - Limiting environmental conditions, such as wave height and period, wind velocity, current velocity, service temperature of the barge
 - Design deck loadings, mooring loads, icing loads, variable load, cranes and types of helicopter for which the helideck is designed
 - Disposition (open or closed) of watertight and weathertight closures
 - Identification of “Restricted Service” or “Limited Service” conditions
- iii) Vessel Information:
 - General arrangement drawings
 - Watertight and weathertight boundaries, location of unprotected openings, and watertight and weathertight closures
 - Type, location and quantities of permanent ballast
 - Allowable deck loadings

- Capacity, centers of gravity and free surface correction for each tank
- Hydrostatic curves or equivalent
- iv) Guidance for the maintenance of adequate stability and the use of the stability data
- v) Guidance for the routine recording of lightweight alterations
- vi) Examples of loading conditions for each mode of operation and instructions for developing other acceptable loading conditions, including the vertical components of the forces in the anchor cables
- vii) Operation limitations:
 - During transit of the accommodation barge, only members of the crew necessary for the transit operation are to be onboard.
 - Where applicable, limited or restricted services approved in accordance with 1/5.3
 - *(1 November 2016)* Where applicable, subject to flag Administration agreement, short field moves in accordance with 1/5.5 are repositioning of a barge during daylight hours that **takes no longer than 12 hours** in duration. Barges may be manned during short field moves if the bow height and reserve buoyancy requirements of Loadline in 6/1.1, are met. Otherwise the barges must be unmanned or the crew reduced to the minimum necessary to conduct the short field moves.

The Operating Manual shall be in the language or languages required by the flag State. If the language is not English, a translation into English is to be included and submitted to ABS.

The Operating Manual is to be submitted for review by the ABS solely to verify the presence of the above information which is to be consistent with the design information and limitations considered in the barge's classification. ABS is not responsible for the operation of the barge.

The Operating Manual required by this Subsection does not need to be in addition to that required by flag and coastal Administrations. The administration may require that additional information be included in the Operating Manual.

13 Trial

A final sea trial is to be made of all machinery, and all automatic controls are to be tested to the satisfaction of the Surveyor.



SECTION 2 Definitions

1 General

The following definitions of terms are to be understood (in the absence of other specifications) where they appear within this Guide.

3 Accommodation Barge

An *Accommodation Barge* is a non-self-propelled vessel principally intended for the accommodation of more-than 36 persons, excluding members of the crew, who are industrial personnel engaged in some aspect of coastal, offshore, or related employment. It is intended to accommodate these persons only when the barge is moored or otherwise fixed on location. During transit of the accommodation barge, only members of the crew necessary for the transit operation are to be onboard.

5 Accommodation Spaces

Accommodation Spaces are those used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances, and similar spaces.

7 "A" Class Divisions

"A" *Class Divisions* are those divisions as defined in Regulation II-2/3.2 of the 1974 SOLAS Convention, as amended.

9 "B" Class Divisions

"B" *Class Divisions* are those divisions as defined in Regulation II-2/3.4 of the 1974 SOLAS Convention, as amended.

11 "C" Class Divisions

"C" *Class Divisions* are those divisions as defined in Regulation II-2/3.10 of the 1974 SOLAS Convention, as amended.

13 Control Stations

Control Stations are those spaces in which the barge's radio or main navigating equipment or the emergency source of power is located or where the fire recording or fire control equipment is centralized. Spaces where the fire recording or fire control equipment is centralized are also considered to be a fire control station.

Spaces containing, for instance, the following battery sources are to be regarded as control stations, regardless of battery capacity:

- i) In general, all emergency batteries required in pursuance of 4-8-2/5 of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)*
- ii) Emergency batteries in separate battery room for power supply from black-out till start of emergency generator

iii) Emergency batteries in separate battery room as reserve source of energy to radiotelegraph installation

iv) Batteries for start of emergency generator

15 Crew

Crew means all persons employed onboard the accommodation barge to provide maintenance and operation of the barge, its machinery, systems, and arrangements or to provide services for other persons onboard the barge.

17 Displacement Hull

Displacement Hull is a hull supported entirely by the buoyancy of the water it displaces.

19 Flag State Administration

Flag State Administration means the Government of the State whose flag the barge is entitled to fly.

21 Industrial Personnel

Industrial Personnel are individuals from the offshore or similar industry who are temporarily housed on the barge. These persons do not include members of the crew of the accommodation barge itself, but may include crew members or industrial personnel from other vessels, drilling units, offshore installations, etc.

23 Machinery Spaces

Machinery Spaces are all machinery spaces of Category A and all other spaces containing boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air-conditioning machinery, and similar spaces and trunks to such spaces.

25 Machinery Spaces of Category A

Machinery Spaces of Category A are all spaces and trunks to such spaces which contain internal combustion type machinery where such machinery has in the aggregate a total power of not less than 375 kilowatts (500 hp), or which contain any oil-fired boiler or oil unit; and trunks to such spaces.

27 MODU Code

MODU Code refers to the IMO Resolution A.1023(26) Code for The Construction and Equipment of Mobile Offshore Drilling Units, 2009.

29 Noncombustible Material

Noncombustible Material means a material which neither burns nor gives off flammable vapors in sufficient quantity for self-ignition when heated to approximately 750°C (1382°F), by an established test procedure. Any other material is a combustible material.

31 Non Self-Propelled

Non self-propelled means a barge without propulsion or a barge with propulsion machinery (thrusters) that are utilized for positioning short field moves, or to provide assistance while being towed to or from a site. .

33 Public Spaces

Public spaces are those portions of the accommodation which are used for meeting halls, dining rooms, lounges, and similar permanently enclosed spaces.

35 Safe Area

Safe Area in the context of a casualty is, any area(s) which is not flooded or which is outside the main vertical zone(s) in which a fire has occurred.

37 Safety Center

Safety Center is a control station dedicated to the management of emergency situations. Safety systems' operation, control, and/or monitoring are an integral part of the safety center.

39 Service Spaces

Service Spaces are those used for galleys, pantries containing cooking appliances, lockers and store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.

41 Short Field Moves *(1 November 2016)*

Short Field Moves are moving the barge from one work location to another location within the same area of operation, which **are** conducted in daylight **hours that takes no longer than 12 hours** in duration.

43 SOLAS

SOLAS refers to the International Convention for the Safety of Life at Sea, 1974, as amended, applicable at the date of construction.



SECTION 3 Fire Safety – Measures and Features

1 General

All accommodation barges are to meet the requirements of this Section with regard to fire and safety measures and features.

In general, fire and safety measures and features for accommodation barges are to comply with the applicable sections in Part 5 of the *ABS Rules for Building and Classing Mobile Offshore Drilling Units (MODU Rules)*.

1.1 Administration Review

Where a review of all or part of the requirements covered in this Section has been conducted by the Administration of the State whose flag the barge is entitled to fly and found acceptable, the same may be acceptable to ABS providing that:

- i) The designer or builder is to submit evidence that the Administration has reviewed the arrangements and that the details are acceptable to that Administration.
- ii) ABS evaluates the Administration review to determine if the Administration's acceptance is acceptable to ABS as meeting the requirements of this Guide.

1.3 ABS Review

In all other cases, the required information and plans are to be submitted to ABS for review.

1.5 Materials Containing Asbestos

Installation of materials which contain asbestos is prohibited.

1.7 Alternative Design and Arrangements

When fire safety design or arrangements deviate from the prescriptive provisions of this Guide, including innovative means of structural fire protection, an engineering analysis, evaluation and approval of the alternative design and arrangements is to be carried out in accordance with SOLAS Regulation II-2/17 and the *ABS Guidance Notes on Alternative Design and Arrangements for Fire Safety*.

1.9 Plans and Specifications

1.9.1 General

The following plans together with supporting data and particulars are to be submitted.

- General arrangement
- Structural fire protection layout plan for decks and bulkheads
- Plans or a booklet of joiner work details of construction for all decks, bulkheads and doors
- Ventilation plan showing all horizontal and vertical duct work listing all materials, duct size and gauge
- Penetration details through bulkheads and decks to accommodate ventilation, piping, electrical, etc.
- Escape plan
- Arrangement and details of fire main systems

- Fire extinguishing arrangements.
- Fire control plans
- Fire detection systems
- Fixed fire extinguishing systems
- Fire extinguishing appliances
- Control station for emergency closing of openings and stopping machinery
- Fireman’s outfits

1.9.2 Fire Control Plans

Fire control plans complying with SOLAS regulation II-2/15.2.4 are to be permanently exhibited.

3 Structural Fire Protection

All accommodation barges are to meet the requirements of this Section with regard to structural fire protection, protection of accommodation spaces, service spaces and control stations.

3.1 General

Structural fire protection for accommodation barges is to comply with 5-1-1/3 and 5-1-1/5 of the *MODU Rules*, as shown in Section 3, Table 1.

**TABLE 1
Structural Fire Protection**

	<i>Section of MODU Rules</i>
Construction Materials	5-1-1/3.1
Alternate Materials	5-1-1/3.3
Details, Materials and Methods of Construction	5-1-1/3.5
Fire Integrity of Bulkheads and Decks	5-1-1/3.7
Application of Tables	5-1-1/3.9
Other General Requirements	5-1-1/3.11 through 3.23
Protection of Accommodation Spaces, Service Spaces and Control Stations	5-1-1/5

3.3 Additional Requirements

In addition to complying with the requirements in 3/3.1, the following requirements apply to accommodation barges.

3.3.1 Main Vertical Zones

(1 November 2016) Hull, superstructure and deckhouses are to be subdivided into main vertical zones by “A” Class divisions.

3.3.1(a) The length or width of the main vertical zone is the maximum distance between the furthestmost points of the bulkheads bounding it.

3.3.1(b) In general, the mean length and width of the main vertical zone on any deck is not to exceed 40 m (131 ft 3 in.)

3.3.1(c) The length and width of main vertical zones may be extended to a maximum of 48 m (157 ft 5³/₄ in.) in order to bring main vertical zone bulkheads into line with subdivision bulkheads below or to accommodate a large public space extending for the entire length of the zone provided the total area of the main vertical zone on any deck is not greater than 1600 m² (17220 ft²).

3.3.1(d) As far as practicable, bulkheads forming the boundaries of the main vertical zones above the bulkhead deck are to be in line with watertight subdivision bulkheads immediately below the bulkhead deck.

3.3.1(e) Main vertical zone boundary bulkheads are to extend from deck to deck and to the shell or other zone boundaries.

3.3.1(f) (1 November 2016) For barges accommodating on board a total of more than 240 industrial personnel, the hull, superstructure and deckhouses are to be subdivided into main vertical zones as specified in 3/3.3.1(a) through 3/3.3.1(e) by “A-60” Class divisions. Where open deck spaces, sanitary and similar spaces or tanks, voids and auxiliary machinery spaces having little/no fire risk are on one side or where fuel oil tanks are on both sides of the division, the standard may be reduced to “A-0”. The ventilation systems are to be provided for each main vertical zone as per SOLAS Regulation II-2/9.7.4.2 and II-2/9.7.4.3 and relevant interpretations in MSC./Circ. 1120. In addition, two means of escape are to be provided above the bulkhead deck from each main vertical zones in accordance with SOLAS Regulation II-2/13.3.2.2.

The duct penetrating through the main vertical zone division are acceptable provided SOLAS Reg. II-2/9.4.1.1.9, II-2/9.7.2 and II-2/9.7.3 and relevant interpretations in IMO MSC.1/Circ.1120 are complied with.

The ventilation/fire dampers are to comply with relevant requirements of IMO Resolution MSC.365(93).

3.3.2 Corridor Bulkheads

All corridor bulkheads not required to be “A” class divisions are to be “B” class divisions extending from deck to deck except:

- i) When continuous “B” class ceilings and linings are fitted on both sides of the bulkhead, the portion of the bulkhead behind the continuous ceiling or lining is to be of material which, in thickness and composition, is acceptable in the construction of a “B” class division, but which may be required to meet “B” class integrity standards only insofar as considered reasonable and practicable by the Administration;
- ii) In the case of a barge protected by an automatic sprinkler system complying with Chapter 7 of the *International Code for Fire Safety Systems (FSS Code)*, the corridor bulkheads of “B” class material may terminate at a ceiling in the corridor provided the ceiling is of material which, in thickness and composition, is acceptable in the construction of “B” class divisions. Such corridor bulkheads and ceilings are to meet “B” class integrity standards insofar as considered reasonable and practicable by the Administration. All doors and frames in such bulkheads are to be of noncombustible materials and constructed and erected to provide substantial fire resistance to the satisfaction of the Administration.

3.3.3 Exterior Boundaries of Accommodation Space

The exterior boundary of superstructures and deckhouses enclosing accommodations, including any overhanging decks supporting such accommodations, is to be an “A-60” Class boundary for the whole of the portion which faces and is within 30 m (98 ft) of any area in the adjacent drilling or production platform served by the accommodation barge where a hydrocarbon fire may arise. If the distance is more than 30 m (98 ft), but less than 100 m (328 ft), an “A-0” Class boundary is required. If the distance is more than 100m (328 ft), the boundary is required to be of steel or equivalent material.

Where “A-60” Class boundary is required, an “A-0” Class boundary used in conjunction with a water curtain system designed to provide a density of at least 6.1 liters/min/m² (0.15 gpm/ft²) of the exposed surface area may be used as an equivalent means of meeting the “A-60” class rating.

The ventilation inlets and outlets and other space openings in the deckhouse and superstructure exterior boundaries are to be located as far away from the adjacent drilling and production platform as practicable.

5 Fire Protection Systems and Equipment

All accommodation barges are to meet the requirements of this Section with regard to fire protection systems and equipment.

5.1 Governmental Authority

Attention is drawn to the appropriate governmental authority in each case, as there may be additional requirements, depending on the size, type and intended service of the barge, as well as other particulars and details. Consideration will be given to fire extinguishing systems which comply with the published requirements of the governmental authority in which the barge is to be registered, as an equivalent alternative or addition to the requirements of this section.

5.3 Fixed Fire Fighting Systems

5.3.1 Fire Pumps, Fire Main, Hydrants, Hoses and Nozzles

Fire pumps, fire main, hydrants, hoses and nozzles for accommodation barges are to comply with Section 5-2-2 of the *MODU Rules*, as shown in Section 3, Table 2.

**TABLE 2
Fire Main Systems**

	<i>Section of MODU Rules</i>
Fire Pumps	5-2-2/1.1
Fire Main	5-2-2/1.3
Hydrants, Hoses and Nozzles	5-2-2/1.5

5.3.2 Additional Fixed Fire Fighting Systems

In addition to the fire main system, other fixed fire fighting systems for accommodation barges are to comply with Section 5-2-3 of the *MODU Rules*, as shown in Section 3, Table 3.

**TABLE 3
Additional Fixed Fire Fighting Systems**

	<i>Section of MODU Rules</i>
Fixed Firefighting Systems	5-2-3/1
Gas Smothering	5-2-3/3
Foam	5-2-3/5
Fixed Pressure Water Spraying Systems	5-2-3/7
Clean Agent Fire Extinguishing Systems	5-2-3/8
Paint and Flammable Liquid Lockers	5-2-3/11

5.5 Portable Fire Fighting Systems

Portable fire fighting systems for accommodation barges are to comply with Section 5-2-4 of the *MODU Rules*, as shown in Section 3, Table 4.

**TABLE 4
Portable Fire Fighting Systems**

	<i>Section of MODU Rules</i>
Portable Fire Extinguishers and Sand	5-2-4/1
Firefighters' Outfit	5-2-4/3

5.7 Other Fire Protection Requirements

Fire detection in machinery spaces is to comply with Section 5-2-5 of the *MODU Rules*, as shown in Section 3, Table 5.

**TABLE 5
Fire Detection and Alarms**

	<i>Section of MODU Rules</i>
Fire Detection and Alarm Systems	5-2-5/1.1

5.9 Arrangement of Fire Water Supply

The arrangements for the ready availability of water supply are to be such that at least one effective jet of water is immediately available from any hydrant in an interior location and so as to provide for the continuation of the output of water by the automatic starting of one required fire pump. At interior locations, fire hoses are to be connected to the hydrants at all times.

5.11 Fixed Fire Detection and Fire Alarm Systems, and Fixed Automatic Sprinkler, Fire Detection and Fire Alarm Systems

There is to be installed throughout each separate vertical fire zone, in all accommodation and service spaces and, where it is considered necessary also in control stations, except spaces which afford no substantial fire risk such as void spaces, sanitary spaces, etc., either:

- i) A fixed fire detection and fire alarm system of an approved type and complying with the requirements of 4-7-3/11 of the *Steel Vessel Rules* and so installed and arranged as to detect the presence of fire in such spaces and provide smoke detection in corridors, stairways and escape routes within accommodation spaces; or
- ii) An automatic sprinkler, fire detection and fire alarm system of an approved type and complying with the requirements of 4-7-3/9 of the *Steel Vessel Rules* or equivalent and so installed and arranged as to protect such spaces, and in addition a fixed fire detection and fire alarm system of an approved type complying with the requirements of 4-7-3/11 of the *Steel Vessel Rules* and so installed and arranged as to provide smoke detection in corridors, stairways and escape routes within accommodation spaces.

5.13 General Alarm

Alarm signal devices are to produce a distinctive and loud sound. Attention is directed to the proper government authority concerning the requirements for general alarm systems on accommodation barges.

7 Outfitting

Means of escape and other fire and safety measures and features for accommodation barges are to comply with Section 5-3-1 of the *MODU Rules*, as shown in Section 3, Table 6.

**TABLE 6
Outfitting**

	<i>Section of MODU Rules</i>
Means of Escape	5-3-1/1
Means of Access and Egress	5-3-1/3
Guards and Rails	5-3-1/5
Arrangements in Machinery Space	5-3-1/9
Segregation of Fuel Oil Purifiers	5-3-1/11
Fire Precautions for Machinery Spaces	5-3-1/15

Note: Any reference to “drilling” in the *MODU Rules* is to be interpreted as referring to the type of operation for which the accommodation barge is designed and/or intended.



SECTION 4 Lifesaving Appliances and Equipment

1 General

For the purpose of this Section, unless expressly provided otherwise, the terms used relating to lifesaving appliances are as defined in Chapter III of 1974 SOLAS, as amended, and with applicable provisions of the International Life Saving Appliance (LSA) Code.

Life-saving appliances and equipment for accommodation barges are to comply with Chapter 10 of the IMO Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code) and the relevant sections of the International Life-Saving Appliance (LSA) Code.



SECTION 5 Radio Communication Installations

1 General

The purpose of this Section is to provide minimum requirements for distress and safety radio communications between accommodation barges and coast stations, ships, and supporting aircraft in the Maritime Mobile Service.

The following requirements are applicable to accommodation barges when being towed or stationary at a site.

In general, radio communication for accommodation barges is to comply with the applicable requirements in Chapter 11 of the IMO Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code).



SECTION 6 Subdivision, Stability, and Freeboard

1 General

1.1 Load Line

Every accommodation barge is to have marks which designate the maximum permissible draft when the barge is in the afloat condition. Such marks are to be placed at suitable visible locations on the structure, to the satisfaction of ABS.

The load lines are to be established under the terms of the International Convention on Load Lines (1966 ICLL) as a manned vessel. Where minimum freeboards cannot be computed by the normal methods laid down by the Convention, they are to be determined on the basis of compliance with the intact or damage stability requirements for afloat modes of operation.

The requirements of the International Convention on Load Lines with respect to weathertightness and watertightness of decks, superstructures, deckhouses, doors, hatchway covers, other openings, ventilators, air pipes, scuppers, inlets and discharges, etc., are to be taken as a basis for all barges in the afloat condition.

1.3 Inclining Experiment

An inclining test will be required for the first accommodation barge of a series, as near to completion as practical, to determine accurately the lightship weight and position of the center of gravity. An inclining test procedure is to be submitted for review prior to the test, which is to be witnessed by a Surveyor. For successive barges of a series, which are considered by ABS to be basically identical with regard to hull form and arrangement, with the exception of minor changes in machinery, outfit, etc., detailed weight calculations showing only the differences of weight and centers of gravity will be satisfactory, provided the accuracy of the calculations is confirmed by a deadweight survey. The results of the inclining test, or deadweight survey and inclining experiment adjusted for weight differences, are to be submitted for review.

3 Stability and Watertight/Weathertight Integrity

All accommodation barges are to have positive metacentric heights in calm water equilibrium positions for all afloat conditions.

An arrangement plan of watertight compartmentation is to be submitted as early in the design stage as possible, for the review of damage stability.

Diagrams showing the extents to which the watertight and weathertight integrity is intended to be maintained, the location, type, and disposition of watertight and weathertight closures are to be submitted.

Stability calculations, both intact and damaged, are to be submitted.

For the purpose of determining compliance with the stability requirements contained herein, it is to be assumed that the barge is floating free of mooring restraints. However, detrimental effects of catenary mooring systems or of the thrusters for dynamically positioned barges are to be considered.

Trim and stability calculations are to be submitted for all loading and ballast conditions with possible combinations of fixed and variable weight distribution, in which the accommodation barge may operate. The wind speeds referenced in this section are to be used to calculate heeling moments for intact and damage stability calculations. These wind speeds are not intended to represent actual environmental limits.

Stability requirements in accordance with 3-3-2/1 of the *MODU Rules* are to be complied with, as shown in Section 6, Table 1.

TABLE 1
Stability

	<i>Section of MODU Rules</i>
Stability Afloat	3-3-2/1.3
Intact Stability	3-3-2/1.3.1
Damage Stability	3-3-2/1.3.2, 3-3-2/1.3.3

3.1 Intact Stability

Righting moment curves and heeling moment curves with supporting calculations are to be prepared for the full range of anticipated operating drafts. The calculations are to be performed in a manner to reflect a sustained wind force from any horizontal direction in order to determine the critical stability axis. For purposes of these calculations, the configuration of the barge is to reflect the actual condition of the barge during afloat operation.

The stability criteria in accordance with 3-3-2/3 of the *MODU Rules* are to be applied to accommodation barges, as shown in Section 6, Table 2.

TABLE 2
Stability Criteria

	<i>Section of MODU Rules</i>
Righting Moment	3-3-2/3.3.1
Heeling Moment	3-3-2/3.7
Wind Tunnel Tests	3-3-2/3.9

3.3 Damage Stability

In assessing the damage stability of accommodation barges, as required by 3-3-2/1.3.2 and 3-3-2/1.3.3 of the *MODU Rules*, the following extent of damage is to be assumed.

If damage of a lesser extent results in a more severe condition, such lesser extent is to be assumed.

The extent of damage for accommodation barges is defined in 3-3-2/3.5 of the *MODU Rules* and assumed to occur between effective watertight bulkheads.

- i) Horizontal depth of penetration of 1.5 m (5 ft)
- ii) Vertical extent of damage from the bottom shell upwards without limit

All piping, ventilating systems, trunks, etc., within the area of assumed damage are to be considered damaged. Positive means of closure are to be provided to preclude progressive flooding of other intact spaces. In addition to the above, the compartments adjacent to the bottom shell are to be considered flooded individually. See 3-2-2/7 of the *MODU Rules* for specific requirements for watertight bulkheads and flats.

3.5 Watertight/Weathertight Integrity

Watertight and weathertight integrity in accommodation barges is to be in compliance with 3-3-2/5 of the *MODU Rules*, as shown in Section 6, Table 3.

TABLE 3
Watertight/Weathertight Integrity

	<i>Section of MODU Rules</i>
Weathertight Integrity	3-3-2/5.1
Watertight Integrity	3-3-2/5.3
Penetrations	3-3-2/5.5

3.7 Onboard Computers for Stability Calculations

The use of onboard computers for stability calculations is not a requirement of class. However, if stability software is installed onboard accommodation barges, it should cover all stability requirements applicable to the barge and is to be approved by ABS for compliance with the requirements of Appendix 3-3-A2 of the *MODU Rules*, “Onboard Computers for Stability Calculations”.



SECTION 7 Helicopter Facilities

1 General

Where provided, helicopter decks are to be of steel or equivalent fire resistant construction. If the space below the helicopter deck is a high fire risk space, the insulation standard is to be to the satisfaction of ABS. Each helicopter deck is to be of sufficient size located so as to provide a clear approach and take-off sector to enable the largest helicopter using the deck to operate under the most severe conditions.

3 Construction

3.1 General

Plans showing the arrangement, scantlings and details of the helicopter deck are to be submitted for review and approved before the work of construction is commenced.

- These plans are to clearly indicate the scantlings, structural details and welding, or other methods of connection.
- The arrangement plan is to show, in both plan view and elevation, the overall size of the helicopter deck and the designated landing area. If the arrangement provides for the securing of a helicopter or helicopters to the deck, the predetermined position(s) selected to accommodate the secured helicopter, in addition to the locations of deck fittings for securing the helicopter, are to be shown.
- The type of helicopter to be considered is to be specified and calculations for appropriate loading conditions are to be submitted.

Plans should generally be submitted electronically to ABS. However, hard copies will also be accepted.

3.3 Structure

Scantlings of helicopter decks and supporting structure are to be determined on the basis of the following loading conditions, whichever is greater, in association with the allowable factors of safety shown in Section 7, Table 1. Plastic design considerations may be applied for deck plating and stiffeners.

Scantlings of helicopter decks and supporting structures are to be such that the resulting stress in members does not exceed:

$$Y/F_s$$

where

Y = specified minimum yield point or yield strength of the material

F_s = factor of safety, as given in Section 7, Table 1

3.3.1 Overall Distributed Loading

For platform type helicopter decks, minimum distributed loading of 2010 N/m² (205 kgf/m², 42 lbf/ft²) is to be taken over the entire helicopter deck.

For all other helicopter decks provided on part of the barge's structure deck (e.g., deckhouse/superstructure top or strength/weather deck), the minimum weather load as specified for each type of structures is also to be applied (see also 7/3.3.6).

3.3.2 Helicopter Landing Impact Loading

A load of not less than 75% of the helicopter maximum take-off weight is to be taken on each of two square areas, 0.3 m × 0.3 m (1 ft × 1 ft). Alternatively, the manufacturer’s recommended wheel impact loading will be considered. The deck is to be considered for helicopter landings at any location within the designated landing area. The structural weight of the helicopter deck is to be added to the helicopter impact loading when considering girders, stanchions, truss supports, etc. Where the upper deck of a superstructure or deckhouse is used as a helicopter deck and the spaces below are normally manned (quarters, abridge, control room, etc.), the impact loading is to be multiplied by a factor of 1.15.

TABLE 1
Allowable Factors of Safety F_s for Helicopter Decks

Y = specified minimum yield point or yield strength of the material as defined in 2-1-1/13 of the *ABS Rules for Materials and Welding (Part 2)*

<i>Loading</i>	<i>Plating</i>	<i>Beams</i>	<i>Girders, Stanchions, Truss Support, etc. (See Note 3)</i>
Overall Distributed Loading	1.67	1.67	1.67
Helicopter Landing Impact Loading	(See Note 1) 1.00 ⁽²⁾	1.00	1.10
Stowed Helicopter Loading	1.00	1.10	1.25

Notes:

- 1 The minimum plate thickness t is generally not to be less than obtained from the following:

<i>Beam Spacing</i>	<i>t</i>	<i>Beam Spacing</i>	<i>t</i>
460 mm	4.0 mm	18 in.	0.16 in.
610 mm	5.0 mm	24 in.	0.20 in.
760 mm	6.0 mm	30 in.	0.24 in.

- 2 Alternatively, ultimate state limit methods may be considered.
 3 For members subjected to axial compression, the factor of safety is to be based on the yield stress or critical buckling stress, whichever is less.
 4 The minimum plate thickness for materials other than steel will be specially considered.

3.3.3 Stowed Helicopter Loading

If provisions are made to accommodate helicopters secured to the deck in a predetermined position, the structure is to be considered for a local loading equal to the manufacturer’s recommended wheel loadings at maximum take-off weight, multiplied by a dynamic amplification factor based on the predicted motions of the barge for this condition, as may be applicable for the barge under consideration.

In addition to the helicopter load, a uniformly distributed loading of 490 N/m² (50 kg/m², 10.5 lb/ft²), representing wet snow or ice, is to be considered, if applicable. For the girders, stanchions, truss supports, etc., the structural weight of the helicopter deck is also to be considered.

3.3.4 Loading due to Motions of Barge

The structure supporting helicopter decks is to withstand the loads resulting from the motions of the barge.

3.3.5 Special Landing Gear

Helicopters fitted with landing gear other than wheels will be specially considered.

3.3.6 Environmental Loading

Calculations are to consider anticipated wind and wave impact loading on helicopter decks and their supporting structures.

3.5 Size

3.5.1

In general, the helicopter deck is to be of sufficient size to contain a circle of a diameter equal to at least the rotor diameter of the largest helicopter using the helicopter deck. The helicopter deck is to have an approach/departure sector of at least 180° free of obstructions. The base of this sector is to be tangent to the periphery of the circle described above, as shown in Section 7, Figure 1. Outside the approach/departure sector, obstructions within one-third of the rotor diameter from the periphery of the circle described above are not to extend above a plane measured vertically from the edge of the deck with a rise equal to half of the horizontal distance from the periphery of the above circle.

3.5.2

Where adverse climatic conditions are prevalent for normal helicopter operation, a helicopter deck is to have sufficient size to contain a circle of a diameter at least equal to the overall length of the largest helicopter using the helicopter deck. The approach/departure sector is to be not less than 210° free of obstruction and is to intersect the periphery of the circle described above as shown in Section 7, Figure 1. Outside the approach/departure sector, obstructions within one-third of the helicopter's overall length from the periphery of the circle described above are not to extend more than $\frac{1}{20}$ of the helicopter overall length above the level of the helicopter deck. The overall length of a helicopter (*D or D-value*) is the distance from the tip of the main rotor blade to the tip of the tail rotor when the rotor blades are aligned along the longitudinal axis of the helicopter.

3.7 Drainage

The helicopter deck is to have drainage facilities to prevent the collection of liquids and prevent liquids from spreading to or falling on other parts of the barge having regard to the use of fire-fighting equipment and the possible spillage of fuel.

3.9 Surface

The helicopter deck is to have a non-skid surface.

3.11 Grating Type Construction

Where the helicopter deck is constructed in the form of grating, the under deck should be such that the ground effect is maintained.

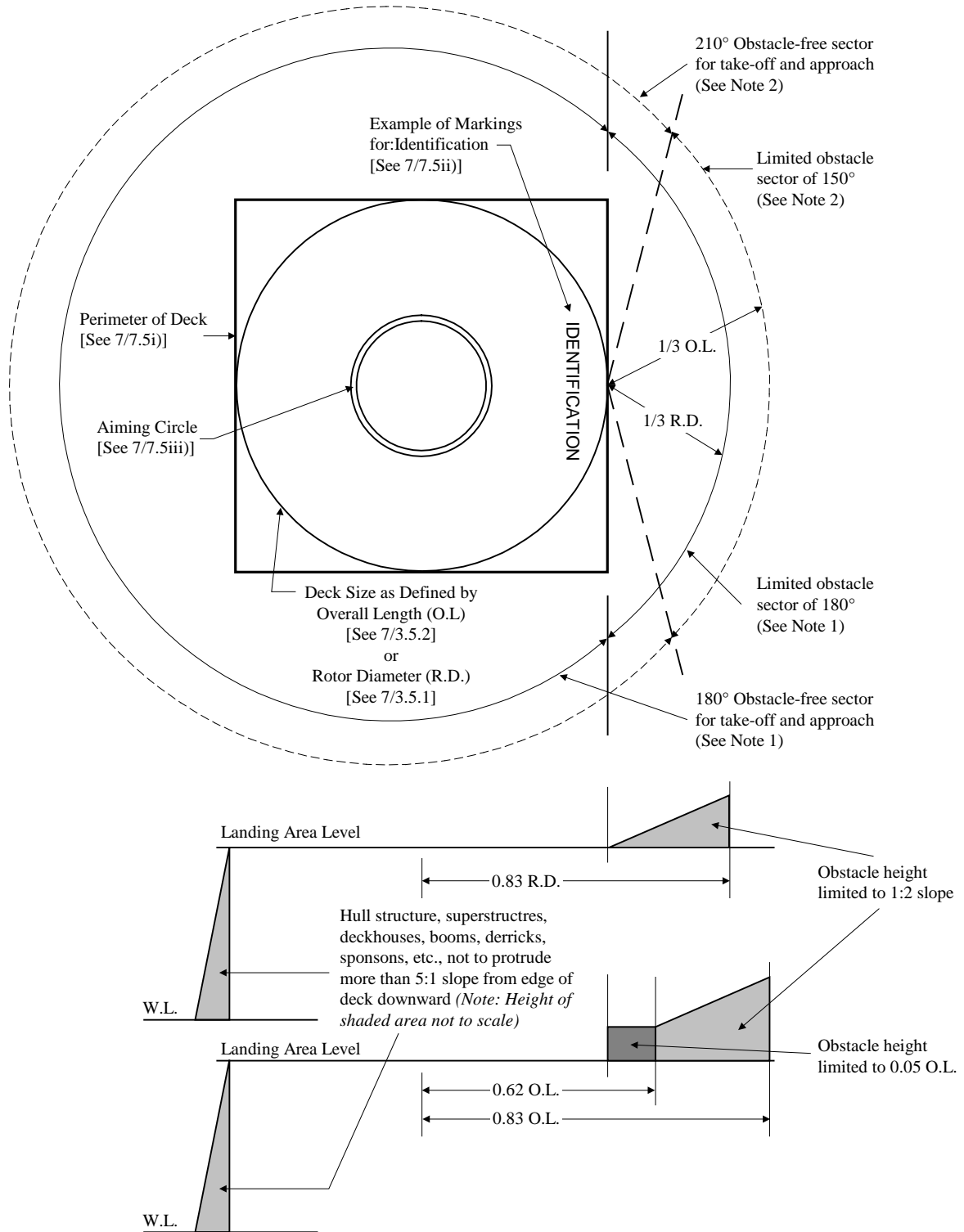
3.13 Materials

In general, the construction of helicopter decks is to be of steel or other material with equivalent ability to retain structural capacity in a fire (at least A-0 class). If the helicopter deck forms the deckhead of a deckhouse or superstructure, it is to be insulated to A-60 class standard.

Aluminum alloys may be used for helicopter decks above deckhouses, provided the following conditions are complied with:

- i) There are to be no openings in the exterior bulkheads directly below the helicopter deck
- ii) All windows in the lower exterior bulkheads are to be fitted with steel shutters.

FIGURE 1
Example of Helicopter Deck Arrangement



Notes:

- 1 Approach/departure sector and limited obstruction area defined in 7/3.5.1 shown by solid line ———— .
- 2 Approach/departure sector and limited obstruction area defined in 7/3.5.2 shown by broken line - - - - - .
- 3 Although a square helicopter deck is shown, other configurations are commonly used.

5 Arrangements

5.1 Projections

The helicopter deck is to be free of projections except that landing lights or other essential projections may be installed on or around the periphery of the deck provided they do not rise more than 150 mm (6 in.) above the level of the helicopter deck.

5.3 Tie Downs

The helicopter deck is to have sufficient recessed tie-down points for securing the maximum sized helicopter for which the helicopter deck is designed.

5.5 Safety Net

For personnel protection, a safety net 1.5 m (5 ft) wide is to be provided around the periphery of the helicopter deck, except where structural protection exists. The net should be inclined upwards and outwards from below the edge of the helicopter deck to a horizontal distance of 1.5 m, at a slope of approximately 10 degrees. The outer edge is not to rise above the level of the helicopter deck.

5.7 Means of Escape and Access

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

7 Visual Aids

7.1 General

Coastal States may have specific requirements that must be incorporated into the design. Where the coastal state has no requirements, the following (requirements for wind indicator, marking, and lights, in line with the latest International Code) are to be complied with.

7.3 Wind Indicator

A wind direction indicator located in an unobstructed area readily visible to helicopters approaching the helicopter deck is to be provided. Accommodation barges on which night helicopter operations take place should have provisions to illuminate the wind direction indicators.

7.5 Markings

Unless specific requirements are provided by the flag Administration or the cognizant authority (in which territorial waters the barge is being operated), the helicopter deck is to be marked as follows (see also Section 7, Figure 2):

- i) The perimeter with a continuous white line of at least 0.3 m (1 ft) in width. Perimeter marking for single main rotor helicopters is typically for a 1 *D* value, where the *D*-value is the reference diameter as described in 7/3.5.2.
- ii) Barge identification, positioned between the origin of the obstacle-free sector and aiming circle, with characters not less than 1.2 m (4 ft) in height in a color contrasting with the background.
- iii) Aiming circles in yellow, taking into account deck configuration, helicopter type and operational requirements. The inside diameter is to be equal to 0.5 *D* and the width of the line is to be 1 m (3.3 ft).
- iv) A white “H” centered on the landing area with the horizontal bar of the “H” on the bisector of the obstacle-free sector. The “H” is to be 4 m (13.15 ft) high, 3 m (9.85 ft) wide and 0.75 m (2.45 ft) wide lines.
- v) A black chevron positioned in the perimeter marking, each leg being 0.8 m (2.6 ft) long and 0.1 m (4 in.) wide forming an angle that indicates the origin of the obstacle-free sector and the directions of the limits of the sector.

- vi) The actual *D-value* of the helicopter deck inboard of the chevron in alphanumeric symbols of 0.1 m (4 in.) in height.
- vii) The *D-value* in the perimeter marking every 90 degrees starting from the chevron, in color contrasting with the helicopter deck (preferably white, but not black or grey for night use). The *D-value* is to be expressed to the nearest whole number with 0.5 rounded down (i.e., 18.5 marked as 18). Markings for some helicopters may require special consideration.
- viii) The maximum allowable mass marking consisting of a two- or three-digit number followed by the letter "t" to indicate the allowable helicopter mass in tonnes (1000 kg) expressed to one decimal place, rounded to the nearest 100 kg. The marking is to be located in a position which is readable from the preferred final approach direction (i.e., towards the obstacle-free sector origin), and the height of the figures is to be 0.9 m (2.95 ft) with a line width of approximately 0.12 m (4.75 in.) and in a color contrasting with the helicopter deck (preferably white, but not black or grey for night use). Where the coastal State requires the marking in pounds, it is to consist of a two- or three-digit number to indicate the maximum allowable mass in thousands of pounds, rounded to the nearest 1,000 pounds.

The helicopter deck is to be painted preferably in dark green color as background to the markings. Markings on aluminum helicopter decks of natural light grey color are to be enhanced with contrasting colors.

7.7 Lights

7.7.1 Perimeter Lights

The perimeter of the helicopter deck is to be fitted with green lights visible omni-directionally from on or above the landing area. These lights are to be above the level of the deck, but not to exceed 0.25 m (10 in.) in height for helicopter decks sized to a 1 D value. These lights are to be positioned around the perimeter of the deck not more than 3 m (9'-10") apart, coincident with the perimeter line as per 7/7.5i). In the case of square or rectangular decks, at least four lights are to be fitted along each side, including a light at each corner. Flush fitting lights may be used at the inboard edge of the helicopter deck (150° limited obstacle sector origin) where there is a need to move a helicopter or large equipment off the helicopter deck.

7.7.2 Floodlights

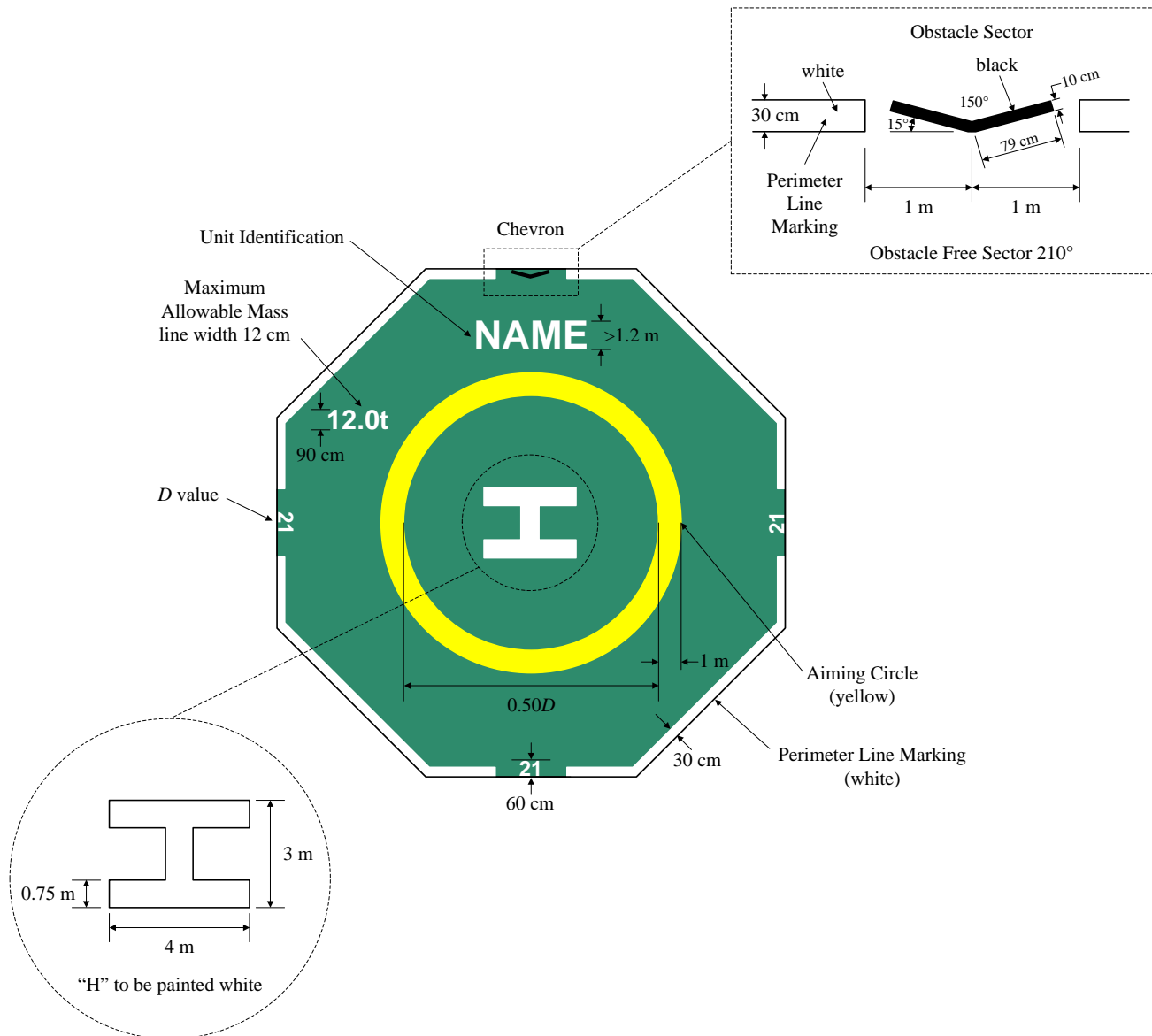
The whole of the helicopter deck landing area should be adequately illuminated if intended for night use. Helicopter deck floodlights, where fitted, should be located so as to avoid glare to pilots. The arrangement and aiming of floodlights should be such that helicopter deck markings are illuminated and that shadows are kept to a minimum.

7.7.3 Obstacles

Fixed obstacles which present a hazard to helicopters should be readily visible from the air. Examples of such fixed obstacles include but are not limited to any lattice tower structures and crane booms which are in the vicinity of the helicopter deck. Omni-directional red lights should be fitted at suitable locations to provide the helicopter pilot with visual information on the proximity and height of objects which are higher than the landing area and in the vicinity of the helicopter deck. Objects which are more than 15 meters higher than the landing area should be fitted with intermediate red lights spaced at 10 meter intervals down to the landing area, except where such lights would be obscured by other objects.

Additionally, at least one omni-directional red light is to be fitted to the highest point on the hotel or accommodation barge.

FIGURE 2
Example of Helicopter Deck Markings



9 Fire-Fighting for Helicopter Facilities

9.1 Hoses and Nozzles

At least two combination solid stream and water spray nozzles and hoses sufficient in length to reach any part of the helicopter deck are to be provided.

9.3 Portable Extinguishers

The helicopter deck area is to be protected by at least two dry powder extinguishers of a total capacity of not less than 45 kg (100 lb).

9.5 Back-up System

A back-up fire-fighting system is to be provided, consisting of CO₂ extinguishers of a total capacity of not less than 18 kg (40 lb) or equivalent, one of these extinguishers being equipped so as to enable it to reach the engine area of any helicopter using the landing and winch area. The back-up system is to be located so that the equipment would not be vulnerable to the same damage as the dry powder extinguishers required by 7/9.3.

9.7 Fixed-Foam System

When refueling capabilities are provided onboard, in addition to the fire-fighting system as required by 7/9.1, 7/9.3 and 7/9.5, a fixed-foam fire-extinguishing system consisting of monitors or hose streams or both is to be installed to protect the helicopter landing area in all weather conditions in which helicopters can operate and fuel storage areas. The helicopter landing area is the area contained within a circle of diameter “D” where “D” is the distance across the main rotor and tail rotor in the fore and aft line of a helicopter with a single main rotor and across both rotors for a tandem rotor helicopter or the full area of the deck, whichever is less. The system is to be capable of delivering foam solution at a rate of 6.0 liters per square meter per minute (0.15 gpm per square foot) of the areas protected for at least five minutes. The pump is to be capable of maintaining a pressure of 7 bar (7 kgf/cm², 100 psi) at the foam installation.

The foam agent is to meet the performance standards for Level B foam in the International Civil Aviation Organization’s Airport Services Manual (Part 1 Chapter 8, Paragraph 8.1.5, Table 8-1) and be suitable for use with sea water. Foam delivery at the minimum application rate is to start within 30 seconds of system activation.

The operation of the foam system is not to interfere with the simultaneous operation of the fire main.

9.9 Fire-fighter’s Outfits

In addition to the fire-fighter’s outfits required in 3/5.5, two additional sets of fire-fighter’s outfits are to be provided and stored near the helicopter deck.

9.11 Other Equipment

The following equipment is to be provided near the helicopter deck and is to be stored in a manner that provides for immediate use and protection from the elements:

- Adjustable wrench
- Fire resistant blanket
- Bolt cutters with arm length of 60 cm (24 in.) or more
- Grab hook or salving hook
- Heavy duty hack saw, complete with six spare blades
- Ladder
- Lifeline of 5 mm (³/₁₆ in.) diameter × 15 m (50 ft) length
- Side cutting pliers
- Set of assorted screwdrivers
- Harness knife, complete with sheath
- Crowbar

11 Helicopter Fuel Oil Storage and Transfer Facilities

11.1

A designated area is to be provided for the storage of fuel tanks and transfer facilities which are to be as remote as is practicable from accommodation spaces, escape routes, and embarkation stations and suitably isolated from areas containing a source of vapor ignition.

The storage and transfer area is to be permanently marked as an area where smoking and open flames are not permitted.

11.3

Fixed fuel storage tanks are to be of metal construction. Special attention is to be given to the design, mounting, securing arrangement, and electrical bonding of the storage tank and the fuel transfer system.

11.5

Tank vents are to be sized in accordance with the 4-1-2/5 of the *Barge Rules*, or other criteria. Vent outlets are to be fitted with corrosion-resistant flame screens and are to be located such that vapors will disperse freely.

11.7

Storage tank outlet valves are to be provided with a means of remote closure in the event of fire. Means are also to be provided for remote shutdown of the fuel transfer unit.

11.9

The helicopter fuel oil storage and transfer facilities are to have drainage facilities to prevent the collection of liquids and prevent liquids from spreading to or falling on other parts of the barge having regard to the use of fire-fighting equipment and the possible spillage of fuel.

To contain spillage and retain fire-extinguishing agents, a coaming at least 150 mm (6 in.) in height is to be provided. The coaming is to surround the fuel storage area, which consists of the fuel tank, associated piping, and any pumping unit adjacent to the storage tank. Where the pumping unit is remote from the tank, a separate coaming around the unit is to be provided. A coaming will be required only around the fuel pumping unit where the installation is such that the fuel storage tank is cantilevered from the barge and arranged to be jettisoned.

Drainage is to be provided for the area enclosed by the coaming complying with the following:

- i) The area within the coaming is to be sloped toward the drain line.
- ii) Drainage from the area within the coaming is to be led through a valve designed for selective output (e.g., 3-way valve) either to a holding tank complying with 7/11.3 and 7/11.5 or directly overboard. No other valves may be fitted in the drain line.
- iii) The drain line cross sectional area of the drain line from the fuel tank coaming is to be at least twice that of the fuel storage tank outlet connection.

Fuel tank coamings not provided with drainage arrangements in accordance with the above are to be sized to contain the full volume of the fuel storage tank plus 150 mm (6 in.) of foam.

11.11

Tanks and associated equipment are to be protected against physical damage and from a fire in an adjacent space or area.

11.13

The fuel pumping unit is to be connected to one tank at a time and 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.

11.15

Fire-extinguishing arrangements for protection of the designated area are to be submitted for review.

13 Helicopter Fuel Oil Pumping Arrangements

13.1

Electrical fuel pumping units and associated control equipment are to be of a type suitable for the location and potential hazard.

13.3

Fuel pumping units are to incorporate a device which will prevent over-pressurization of the delivery or filling hose.

13.5

The procedures and precautions during refueling operations are to be in accordance with good recognized practice.

13.7

Attention is to be paid to the electrical bonding of all equipment used in refueling operations.

13.9

“NO SMOKING” signs are to be displayed at appropriate locations.

15 Electrical Systems

15.1 Permanent Equipment Grounding Arrangements

Where not obtained through normal construction, arrangements are to be provided to effectively ground all machinery, armored cables and metal structures of helicopter decks.

15.3 Emergency Source of Power

The power available is to be sufficient to supply for at least 18 hours all services necessary for safety in an emergency, particular attention being given to the following:

- i)* Navigation and special purpose lights and warning systems including helicopter landing lights
- ii)* Emergency lighting for helicopter landing decks



SECTION 8 Mechanical Systems

1 General

In general, machinery, boilers, pressure vessels, pumps, piping, materials, electrical systems and fire extinguishing systems are to be in accordance with the applicable requirements of the *Steel Vessel Rules*, except as modified herein. Mechanical and electrical machinery not related to additional optional notations, such as **DPS**, **AMS-NP**, or **ACCU**, need not be inspected at the plant of the manufacturer, but will be accepted subject to satisfactory performance witnessed by the Surveyor after installation. Mechanical and electrical machinery of 135 horsepower and over is to be of an approved design. All machinery under 135 horsepower is to be constructed and equipped in accordance with good commercial practice.

Plans showing the general arrangement of all machinery spaces are to be submitted for review and/or approval.

3 Pumps and Piping Systems

3.1 General

Piping system design, fabrication and testing is to comply with Part 4, Chapter 6 of the *Steel Vessel Rules*.

3.3 Plans and Data to be Submitted

As applicable, three copies of plans showing clearly the arrangement and details of the following are to be submitted (see also Subsection 1/7):

- i) Fresh water and portable water systems
- ii) Sanitary system
- iii) Vent and overflow pipes
- iv) Fuel systems
- v) Lubricating-oil systems
- vi) Liquid level indicating systems
- vii) Hydraulic systems
- viii) Sea water and fresh water systems
- ix) Compressed air systems
- x) Fire-main and fire-extinguishing systems
- xi) Ballast systems

The plans are to consist of a diagrammatic drawing of each system accompanied by lists of material giving size, wall thickness, maximum working pressure and material of all pipes and the type, size, pressure rating, and material of valves and fittings.

In addition to the above plans, a booklet of standard details containing standard practices to be used in the construction of the barge, typical details of such items as bulkhead, deck and shell penetrations, welding details, pipe joint details, etc. This information may be included in the system plans.

5 Fabrication and Tests of Metallic Piping

5.1 Welded Fabrication

Requirements for welding of pipes and fittings, heat treatment and nondestructive testing are given in Section 2-4-4 of the *ABS Rules for Materials and Welding (Part 2)*. For the purpose of radiography, see 2-4-4/11.3.1 of the *ABS Rules for Materials and Welding (Part 2)*.

5.3 Hydrostatic Tests

5.3.1 Hydrostatic Test of Pipes Before Installation Onboard

All Classes I and II pipes and integral fittings after completion of shop fabrication, but before insulation and coating, are to be hydrostatically tested in the presence of a Surveyor, preferably before installation. See 4-6-2/7 of the *Steel Vessel Rules*.

7 Plastic Piping

Rigid plastic piping is to be in accordance with a recognized national or international standard acceptable to ABS. Specifications for the plastic piping, including thermal and mechanical properties and chemical resistance, are to be submitted for review in accordance with Section 4-6-3 of the *Steel Vessel Rules*.

Pipes and piping components made of thermoplastic or thermosetting plastic materials, with or without reinforcement are not to be used in lubricating oil, fuel oil, bilge or fire-extinguishing and protection piping systems. For all other systems plastic piping may be used as permitted by 4-6-3/Table 1 of the *Steel Vessel Rules*.

Plastic piping acceptance and testing is to be in accordance with Section 4-6-3 of the *Steel Vessel Rules*.

9 Vent Pipes

9.1 General

The structural arrangement of all tanks is to be such as to permit the free passage of air and gases from all parts of the tanks to the vent pipes. Vent pipes are to be arranged so that drainage of the vent pipe will be possible under normal conditions.

9.3 Protection from Weather and Sea Water Ingress

All vents terminating in the weather are to be fitted with return bends (gooseneck), or equivalent, and the vent outlet is to be an automatic type, i.e., close automatically upon submergence (e.g., ball float or equivalent). See also 4-6-4/9.3.5 of the *Steel Vessel Rules*.

9.5 Size and Height

The size of each vent pipe is not to be less than 38 mm (1.5 in.) I.D. for fresh-water tanks, 51 mm (2 in.) I.D. for water ballast tanks and 63 mm (2.5 in.) I.D. for oil tanks unless otherwise specially approved. Where tanks are to be filled by pump pressure, the aggregate area of the vents in the tank is to be at least 125% of the effective area of the filling line. Where overflows are fitted, in addition to vent pipes, the area of the overflow is to be at least 125% of the effective area of the filling line, and the vents need not exceed the above minimum sizes. Notwithstanding the above, the pump capacity and pressure head are to be considered in the sizing of vents and overflows.

Where vent pipes from tanks are exposed to the weather, their height is to be at least 760 mm (30 in.) above the freeboard deck or 450 mm (17.5 in.) above the superstructure deck, except that where these heights may interfere with the working of the barge, a lower height may be specifically approved. The height of vents on barges under 20 m (65 ft) will be specially considered.

9.7 Fuel Oil Tanks Vent Outlets

Vent outlets from fuel oil tanks are to be fitted with corrosion-resistant flame screens having a clear area through the mesh of not less than the required area of the vent pipe and are to be located where the possibility of ignition of gases issuing from the vent outlets is remote.

11 Sounding Arrangements

All tanks are to be provided with separate sounding pipes or with approved tank-level indicating apparatus. Where a tank-level indicating system is used, a supplementary manual means of sounding is to be provided, where applicable, for tanks which are not always accessible. Where a sounding pipe exceeds 20 m (65.6 ft) in length, the internal diameter is to be at least 50 mm (2 in.).

In general, void compartments adjacent to the sea or to tanks containing liquids, and void compartments through which piping carrying liquids pass are to be fitted with separate sounding pipes, approved tank liquid level indicating apparatus, or be fitted with means to determine if the void tanks contain liquids. Voids as defined above which do not comply with this requirements are to be accounted for in the unit's stability analysis.

13 Leakage Containment and Drain System

Fuel oil overflows, drains from fuel and lubricating oil tanks and from drip pans of oil pumps and tanks are to be led to a drain tank fitted with a level indicating device and with an independent suction from the fuel oil transfer pumps.

Where a gutter bar is fitted to intercept the seepage from oil tanks, the well-formed is to be drained into the oil-drain tank by way of drain valves, or the well is to have a suction from the fuel-transfer pump. Tanks are to be vented to the open atmosphere.

15 Fuel Oil Systems

15.1 General

Fuel oil pumping arrangements are to be separate from other pumping systems.

No fuel-oil tank is to be situated where spillage or leakage can constitute a hazard by falling on heated surfaces. Precautions are to be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces.

Fuel-oil pipes, valves and fittings are to be of steel or other approved materials. All packing is to be of a composition not affected by fuel oil.

15.3 Pipes in Fuel Oil Tanks

Oil pipes and other pipes, where passing through fuel oil tanks, are to be of steel, except that other materials may be considered where it is demonstrated that the material is suitable for the intended service. All packing is to be of a composition not affected by fuel oil.

Pumps, strainers, etc., are to have drip pans with drains to an oil drain tank.

15.5 Valves on Fuel Oil Tanks

Where pipes come out from fuel oil tanks at a level at which they will be subjected to a static head of oil from the tank, they are to be fitted with positive closing valves located at the tank or where the pipes run through adjacent tanks at the point where the pipe enters the machinery space. For tanks with capacity 500 liters (132 US gallons) and above, arrangements are to be provided for closing the valves from a readily accessible and safe location outside the compartment in which the valve is located, see 4-6-4/13.5.3 of the *Steel Vessel Rules*. Where independent filling lines are fitted, they are to enter at or near the top of the tank; but if this be impracticable they are to be fitted with non-return valves at the tank.

For remote shutdown of pumps see 5-3-1/9.3 of the *MODU Rules*.

15.7 Independent Tanks

Tanks not forming part of the structure are to have suitable drip pans with drains to oil drain tanks.

17 Lubricating-oil Systems

The lubricating systems are to be so arranged that they will function satisfactorily under normal operating conditions. The lubricating-oil piping is to be entirely separated from other piping systems. In addition, the requirements of Subsection 8/15 are applicable. Sight flow glasses may be used in lubricating systems provided they are fire-resistant.

19 Bilge Systems

19.1 General

All accommodation barges are to be provided with a fixed power operated bilge system capable of pumping from and draining any compartment below the freeboard or bulkhead deck. Bilge pumping systems are to be capable of draining the spaces when the barge is on even keel or either upright or listed 5 degrees on either side. At least two power driven bilge pumps are to be provided, and each is to have a capacity of not less than 11.0 m³/hour (50 gpm).

The bilge pumps and their sources of power are to be so distributed throughout the length of the barge that at least one pump in an undamaged compartment will be available.

The least internal diameter of bilge suction pipes is to be that of the nearest commercial size within 6 mm (0.25 in.) of the diameter determined by the following equations.

19.3 Barges 61 Meters (200 Feet) and Over

On barges 61 meters (200 ft) and over, at least three power pumps are to be fitted to the bilge main. Each power bilge pump is to be capable of pumping water through the required main bilge at a speed of not less than 2 m/sec (6.56 ft/sec). Sanitary, ballast and general service pumps may be accepted as independent power bilge pumps.

One of the required independent power pumps is to be fitted with a suction led directly from the pump room bilge to the suction main of the pump, so arranged that it can be operated independently of the bilge system. The size of this line is to be such that the pump will deliver its full capacity. The direct bilge suction is to be controlled by a stop-check valve. Barges with multiple pump rooms will be subject to special considerations.

19.5 Main Line

For the diameter of main-bilge-line suctions and direct bilge suctions to the pumps:

$$d = 25 + 1.68 \sqrt{L(B + D)} \quad \text{mm} \qquad d = 1 + \sqrt{\frac{L(B + D)}{2500}} \quad \text{in.}$$

19.7 Branch Lines

For the equivalent diameter of the combined branch suctions to a compartment:

$$d_B = 25 + 2.16 \sqrt{c(B + D)} \quad \text{mm} \qquad d_B = 1 + \sqrt{\frac{c(B + D)}{1500}} \quad \text{in.}$$

where

d = internal diameter of pipe in millimeters (inches)

L = length of barge in meters (feet)

B = breadth of barge in meters (feet)

D = molded depth to main deck in meters (feet)

c = length of compartment in meters (feet)

19.9 Size Limits

No main or branch suction piping is to be less than 50 mm (2.0 in.) internal diameter.

21 Ballast Systems

Water ballast systems are systems that use the movement of sea water (or other fluids) into, out of, or between ballast tanks to alter the draft, heel or trim of the barge. Water ballast systems are to be in compliance with the requirements of 4-6-4/7 of the *Steel Vessel Rules*.

23 Boilers and Pressure Vessels Including Heat Exchangers

23.1 General

Boilers and pressure vessels, including heat exchangers, are to be designed, constructed, and installed in accordance with the applicable requirements of Section 4-4-1 of the *Steel Vessel Rules* or other recognized standards.



SECTION 9 Electrical Systems

1 General

Electrical installations are to comply with this Section and the applicable requirements of Part 4, Chapter 8 of the *Steel Vessel Rules*, as far as acceptable details for generators, motors, switchgear, transformers, electric cable and methods of installation. Alternatively reference may be made to a recognized standard such as the National Electric Code (NEC – National Fire Protection Association No. 70). All generators, including emergency generators, motors, and other rotating machines of 100 kW (135 hp) and over are to be tested in the presence of and inspected by the Surveyor, preferably at the plant of the manufacturer. For these machines of less than 100 kW (135 hp), the tests may be carried out by the manufacturer provided that the certificate of tests is to be submitted and thereafter accepted by ABS.

3 Plans and Data to be Submitted

The following plans and data are to be submitted as applicable:

- i) Electrical load analysis
- ii) Generators and motors including complete rating, class of insulation, rated ambient temperature, rated temperature rise, enclosure type, and standard to which manufactured
- iii) Transformers including rating, class of insulation, rated ambient temperature, rated temperature rise, installation details including cooling, fire protection, and vault details
- iv) Switchgear, switchboards and power distribution boards including arrangements and details, front view, installation arrangements, wiring diagram including arrangements, wiring diagram including a schematic diagram and the setting or rating of each overcurrent device, and its associated interrupting capacity
- v) Motor-control center equipment including terminal arrangements, degree of enclosure, and wiring diagram including a schematic diagram and the setting or rating of each overcurrent device, and its associated interrupting capacity
- vi) Electrical elementary wiring plan, with a complete feeder list, giving for each feeder and branch circuit the load, wire size, type of wire or cable, rating or setting of circuit breakers, rating of fuses, and switches
- vii) Short-circuit analysis and coordination study. The analysis is to be submitted giving the maximum calculated short-circuit current at each point in the distribution system. A system coordination study is to be submitted to show that selective coordination is achieved under all fault conditions.
- viii) Cathodic protection where the plan is to give details of impressed-current-cathodic protection systems
- ix) Batteries having a charging facility of over 2 kW give the details of the arrangement, ventilation, and corrosion protection
- x) Emergency Lighting and power isometric or deck plan
- xi) Fire detection and alarm system
- xii) Emergency warning system
- xiii) Hazardous area plans (such as battery rooms, paint rooms if provided) and documentation for all electrical equipment installed therein

5 General Considerations

5.1 Watertightness

Electrical equipment exposed to the weather or other severe moisture conditions is to be of watertight or protected by a watertight enclosure

5.3 Corrosion Resistance

Enclosures, working and other parts of electrical equipment which may be damaged or rendered ineffective by corrosion are to be made of corrosion-resistant materials or of material rendered corrosion resistant.

5.5 Grounding

Where not obtained through normal construction, arrangements are to be provided to effectively ground all machinery, metal structures of derricks, masts, and helicopter platforms.

5.7 Structure

The structure is not to be used as a normal current carrying conductor.

7 Rotating Electrical Machinery

Motors and generators are to be designed, constructed and tested to 4-8-3/3 of the *Steel Vessel Rules*. Motors and generators manufactured to a recognized standard such as NEMA, BSS, VDE, or IEC may be considered. Where equipment has been rated on ambient temperatures less than the ambient temperatures expected, the application of the equipment is to be such that the total temperature for which the equipment is rated will not be exceeded.

9 Cables and Wiring

Cables and wiring are to be constructed in accordance with 4-8-3/9.1 of the *Steel Vessel Rules*. All electrical cables are to be at least of a flame retardant type that complies with the requirements of 4-8-3/9.5 of the *Steel Vessel Rules*. Industrial cables, such as ICEA, NEMA cables may be used provided they are of a type suitable for use in damp and wet locations as well as of a type that meets the flame retardancy properties mentioned above.

11 Protection and Coordination

Cables, wiring, and equipment are to be provided with overcurrent (overload and short circuit) protection in accordance with 4-8-2/9 of the *Steel Vessel Rules*. Compliance with a recognized standard such as IEC and IEEE standards or the NEC may be considered. The coordination of protective devices is to be in accordance with 4-8-2/9.7 of the *Steel Vessel Rules*.

13 Power Supply

At least two independent sources of electrical power are to be provided. The capacity of the sources is to be such that the full electrical load may be generated with any one source not in operation.

15 Emergency Source of Power

15.1 General

A self-contained emergency source of power, located on or above the freeboard or bulkhead deck, and its associated equipment is to be provided if a fire or other casualty in any space will make the two independent sources of electrical power required by Subsection 9/13 inoperative. The space containing the emergency source of power is to be separated from category “A” machinery space by a Class A-60 bulkhead.

Where an emergency source of power is not fitted, the two independent sources of electrical power required by Subsection 9/13 are to have their own systems, including power distribution and control systems, completely independent of the system in the other space and such that a fire or other casualty in any one space will not affect the power distribution in the other. In addition the two independent source of electrical power are to comply with 9/15.3, 9/15.7, and 9/15.9.

15.3 Power Supply

The power available is to be sufficient to supply for at least 18 hours all services necessary for safety in an emergency, particular attention being given to the following:

- i)* Navigation and special purpose lights and warning systems including helicopter landing lights
- ii)* Emergency lighting for machinery spaces, control stations, alleyways, stairways, exits, and elevators
- iii)* Emergency lighting at embarkation stations on decks and over sides
- iv)* General alarm and communications systems
- v)* Emergency lighting at stowage position(s) for firemen’s outfits
- vi)* Fire detection and alarm systems
- vii)* Fire-extinguishing systems
- viii)* Emergency lighting at helicopter landing decks
- ix)* Abandonment systems dependent on electrical power

15.5 Emergency Source of Power

The emergency source of power may be either a generator or an accumulator battery.

15.5.1 Emergency Generator

If the emergency source of electrical power is a generator, the generator is to have an independent supply of fuel, be started automatically upon failure of the electrical supply from the main source of electrical power and be connected automatically to the emergency switchboard. Unless a second independent means of starting the emergency generator is provided, the single source of stored energy should be protected to preclude its complete depletion by the automatic starting system.

The automatic starting system and the characteristic of the prime mover is to be such as to permit the emergency generator to carry its full rated load as quickly as is safe and practicable, subject to a maximum of 45 seconds.

15.5.2 Accumulation Battery

Where the emergency source of power is an accumulator battery it is to be capable of carrying the emergency load without recharging whilst maintaining the voltage of the battery throughout the discharge period within plus or minus 12 percent of its nominal voltage, automatically connecting to the emergency switchboard in the event of failure of the main power supply and immediately supplying at least those services specified in 9/15.3.

15.7 Transitional Source of Emergency Power

Where an emergency source of power is not fitted or where the emergency source of power is a generator, a transitional source of emergency power is to be installed consisting of storage batteries of sufficient capacity to supply the rated voltage and amperage for at least 30 minutes to the following:

- i)* Emergency lighting
- ii)* Fire detection and alarm systems
- iii)* General alarm and communications systems

Arrangements are to be such that the transitional source of emergency power will come into operation automatically in the event of failure of the main electrical supply.

15.9 Testing

A means is to be provided for periodic testing of the emergency source of power and the transitional source of power, if provided, and is to include the testing of automatic arrangements.



SECTION 10 Mooring Equipment

1 General

The following position mooring equipment notations or position mooring system certification are to be performed at the request of the Owner.

The symbols are not required as a condition of classification.

3 Temporary Mooring Equipment

At the request of the Owner, the symbol **Ⓢ** can be placed after the symbols of classification in the *Record*; for example **⊗ A1 Ⓢ** signifies that the equipment for temporary mooring is in compliance with the applicable requirements of Section 3-3-1 of the *Barge Rules*. For barges with symbol **Ⓟ**, this requirement may be met if position mooring equipment can be released in an emergency while the barge is in the transit mode.

The equipment weight and size for accommodation barges, where the symbol **Ⓢ** is requested, are to be in accordance with 3-3-1/Table 1 of the *Steel Barge Rules*.

Accommodation barges for which the symbol **Ⓢ** is not requested in the classification designation are to have equipment in accordance with 3-3-1/Table 2 of the *Steel Barge Rules*. Wire rope of equal breaking strength to the required tabular normal strength steel (Grade 1) stud-link bower chain will be approved in lieu of the required anchor chain, but the length of the wire rope is to be not less than 1.5 times the tabular chain length.

5 Position Mooring Equipment

At the request of the Owner, the symbol **Ⓜ** can be placed after the symbols of classification in the *Record*; for example, **⊗ A1 Ⓜ Accommodation Barge** signifies that the mooring equipment, anchors, chain or wire rope specified by the Owner for position mooring are satisfactorily tested in accordance with the specifications of the Owner and in the presence of a Surveyor.

Accommodation barges intended to be moored at the same site for periods longer than 5 years are to meet site-specific mooring criteria in Section 6-1-1 of *ABS Rules for Building and Classing Floating Production Installations*.

Dynamic positioning systems complying with the requirements of the *ABS Guide for Dynamic Positioning Systems*, manufactured and installed under ABS survey and found satisfactory after trials, will be distinguished in the *Record* by the notation **⊗ DPS-0**, **⊗ DPS-1**, **⊗ DPS-2** or **⊗ DPS-3**, as appropriate.

Position (pre-laid) mooring system complying with the requirements of the *ABS Guide for the Classification Symbols Pre-laid Position Mooring Systems and Equipment for Mobile Offshore Units*, manufactured and installed under ABS survey and found satisfactory after trials, will be distinguished in the *Record* by the notation **(P-PL)** (Position (pre-laid) mooring systems) and **(M-PL)** (Position (pre-laid) mooring equipment), as appropriate.

7 Position Mooring System Certification

When requested by the Owner, ABS is prepared to certify the position mooring capability of the Accommodation Barge in accordance with the requirements outlined in Appendix 3-4-A1 of the *MODU Rules*. An accommodation barge so certified for position mooring can be designated in the *Record* by the symbol **Ⓟ** placed after the symbols of classification in the *Record*; for example **⊗ A1 Ⓟ Accommodation Barge**.



SECTION 11 Surveys

1 Testing, Trials and Surveys During Construction

The requirements for hull testing, trial, and survey during construction in this Guide refer to Part 3, Chapter 4 of the *Barge Rules*.

3 Surveys After Construction

The requirements for Survey after Construction in this Guide refer to the following applicable Chapters of the independent booklet, *ABS Rules for Survey After Construction (Part 7)*:

CHAPTER 1 Conditions for Survey After Construction

CHAPTER 2 Survey Intervals

CHAPTER 3 Hull Surveys

CHAPTER 4 Drydocking Surveys

CHAPTER 6 Machinery Surveys

CHAPTER 7 Boiler Surveys

CHAPTER 8 Shipboard Automatic and Remote-control Systems

CHAPTER 9 Survey Requirements for Additional Systems and Services



APPENDIX 1 Limited or Restricted Service

1 General

This Guide is intended for Accommodation Barges which are intended to operate in offshore locations. 1/5.3 provides that special modified requirements can be accepted for limited or restricted service.

There is a multitude of limited or restricted services that could be considered, each with special modified requirements to meet the intention of this Guide. It is not possible to indicate all combinations acceptable to ABS and as an example we have indicated below what could be accepted for accommodation barges for a harbor installation.

3 Harbor Service

For an accommodation barge tied up at a pier or land mass and safe egress thereto and power and utilities supplied from shore, the following modifications to this Guide are acceptable to ABS.

3.1 Fire Pumps

The fire pumps, fire mains, hydrants and hoses are to be in accordance with 3/5.3 except that where shore supply of water is available for fire-fighting purposes, the requirements for fire pumps may be as indicated below.

Where the shore side pressure is not sufficient to meet 3/5.3, a booster pump with automatic starting is to be provided. In addition, an independently driven emergency fire pump of the capacity specified in 3/5.3 is to be provided and the fire main is to be fitted with a non-return valve between the shore connection and the first hydrant.

3.3 Lifesaving Appliances and Equipment

The only life-saving appliances and equipment required are the following.

- i) *Life Jackets.* Life jackets for five percent of the number of persons onboard the barge are to be provided in suitable locations on the offshore side of the barge.
- ii) *Life Buoys.* Life buoys in accordance with Section 4 are to be provided.
- iii) *Emergency Procedures.* Emergency procedures in accordance with Section 4 are to be provided as applicable.
- v) *Guards and Rails.* Guards and rails are to be provided in accordance with Subsection 3/7 are to be provided.

3.5 Radio Communication Installations

Radio communication installations are not required if land communications are provided.

3.7 Electrical Power

Where the electrical power is supplied from shore, the two independent sources of power indicated in Subsection 9/13 are not to be required. However, if the accommodation barge does not have its own source of power, an emergency source of power required by Subsection 9/15 is to be fitted the supply to be sufficient for at least 6 hours for the services listed.