RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part O Work-Ships

2018 AMENDMENT NO.2

Rule No.117 25 October 2018

Resolved by Technical Committee on 31 January 2018

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.117 25 October 2018
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

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

Part O WORK-SHIPS

Chapter 1 GENERAL

1.2 General

1.2.6 Load Lines*

Sub-paragraph -3 has been added as follows.

3 For ships of a special construction, the load line is to be at the discretion of the Society.

Chapter 3 CRANE SHIPS

3.2 Stability

Paragraph 3.2.1 has been amended as follows.

3.2.1 General

~~1~~ Intact and damage stability are to be according to this **3.2** in addition to **Part U** and **Chapter 4**, **Part C**.

~~2 Intact stability is to be in accordance with requirements given in **Part U**. In addition, special consideration is to be paid to stability during designated operations.~~

Paragraph 3.2.2 has been amended as follows.

3.2.2 ~~Calculation on Stability~~ Stability Requirements during Lifting Operations*

~~In applying the requirements in **2.1.2**, **Part U**, the heeling lever resulting from designated operations is to be considered the one most unfavorable for stability.~~ Intact stability during lifting operations is to be subject to stability requirements separately specified by the Society for the following ships:

(1) Ships intended to operate involving the lifting of the ship's own structures or for lifts in which the maximum heeling moment due to the lift is greater than that given in the following. The calculations are to be completed at the most unfavourable loading conditions for which the lifting equipment is to be used.

$$M_L = 0.67 \times \Delta \times G_0M \times \left(\frac{f}{B}\right)$$

M_L : Threshold value for the heeling moment, in ($t \cdot m$), induced by the (lifting equipment and) load in the lifting equipment.

G_0M : The initial metacentric height, in (m), with free surface correction, including the effect of the (lifting equipment and) load in the lifting equipment.

f : the minimum freeboard, in (m), measured from the upper side of the weather deck to the waterline.

B : the moulded breadth of the ship, in (m), as defined in **2.1.4**, **Part A**.

Δ : the displacement of the ship, including the lift load, in (t).

(2) Ships which are engaged in lifting operations where no transverse heeling moment is induced and the increase of the ship's vertical centre of gravity (VCG) due to the lifted weight is greater than 1%.

Chapter 11 has been amended as follows.

Chapter 11 WIND TURBINE INSTALLATION SHIPS

11.1 General

11.1.1 Application

1 Wind turbine installation ships (hereinafter referred to as "ships" in this Chapter) are to apply the requirements in this Chapter in addition to the relevant requirements of other Parts.

2 Column-stabilized units are to be at the discretion of the Society.

3 Notwithstanding the requirements in this Chapter, the requirements applicable to ships engaged on international voyages are to be confirmed by the Administration.

11.2 Stability

11.2.1 General

1 Intact and damage stability of ship-type and barge-type ships are to ~~be according to this **11.2** in addition to~~ be in accordance with the requirements given in **Part U** and **Chapter 4, Part C**.

2 ~~Intact stability is to be in accordance with requirements given in **Part U**. In addition, special consideration is to be paid to stability during designated operations.~~ Self-elevating ships are to be in accordance with the requirements in **4.1.2** to **4.1.5, Part P** and **4.2** to **4.5**, **Part P**.

~~**3** Self-elevating ships are to be in accordance with the requirement **Chapter 4, Part P** in addition to the requirements in **-1** and **-2**.~~

43 For ships carrying cargo on deck such as open pipes that may accumulate water inside, free surface effects are to be considered.

44 In case of the ships considered inadequate to be fully and/or directly applied the requirements in **-1** because of some special reasons, stability will be individually determined by the Society.

11.2.2 ~~Overturning Moments~~ Stability Requirements during Lifting Operations*

~~In the calculation of overturning moments, it is to be considered that:~~

~~(1) The safe working load of cargo handling appliances and the maximum design wind load may be simultaneously acting~~

~~(2) Crane positions, elevations and cargo weights are so arranged that the overturning moment may be at its maximum value~~

~~(3) Wind loads may be acting on the cargo~~

~~(4) For ships using counter-ballast during cargo handling operations, condition loads of cargo handling appliances may be suddenly lost. In addition, free water surface effects are also to be considered for ballasted tanks.~~

In cases where the ship is not to be secured by mooring at jetties, etc. or another equivalent method, or is intended to operate for lifts in the floating condition, intact stability during lifting operations is to be subject to stability requirements separately specified by the Society for the following ships:

(1) Ships intended to operate involving the lifting of the ship's own structures or for lifts in which the maximum heeling moment due to the lift is greater than that given in the following. The calculations are to be completed at the most unfavourable loading conditions for which the lifting equipment is to be used.

$$M_L = 0.67 \times \Delta \times G_0M \times \left(\frac{f}{B}\right)$$

M_L : Threshold value for the heeling moment, in ($t \cdot m$), induced by the (lifting equipment and) load in the lifting equipment.

G_0M : The initial metacentric height, in (m), with free surface correction, including the effect of the (lifting equipment and) load in the lifting equipment.

f : the minimum freeboard, in (m), measured from the upper side of the weather deck to the waterline.

B : the moulded breadth of the ship, in (m), as defined in **2.1.4, Part A**.

Δ : the displacement of the ship, including the lift load, in (t).

(2) Ships which are engaged in lifting operations where no transverse heeling moment is induced and the increase of the ship's vertical centre of gravity (VCG) due to the lifted weight is greater than 1%.

11.3 Watertight Bulkheads and Closing Appliances

11.3.1 General

1 Watertight bulkheads and closing appliances of ship-type and barge-type ships are to be according to relevant requirements in each chapter of **Part C**, **Part CS** or **Part Q**.

2 Watertight bulkheads and closing appliances of self-elevating ships are to be according to **Chapter 5**, **Part P**.

11.~~3~~4 Hull Constructions

11.~~3~~4.1 General

1 Hull constructions are to be according to this **11.~~3~~4** in addition to relevant requirements in each chapter of **Part C**, **Part CS** or **Part Q**.

2 Structural analysis is to be carried out in accordance with the requirements in **7.1.2** to **7.1.12, Part P** and **7.2** and **7.3, Part P**.

3 Self-elevating ships are to be according to the following **(1)** to **(5)** in addition to the requirements in **-1** and **-2**.

(1) Structural analysis for overall strength is to be carried out in accordance with the requirements in **-2**. In addition, an unbalanced supported condition by the legs, if necessary, is to be considered.

(2) The hull is to be considered as a complete structure having sufficient strength to resist all induced stresses while in the elevated position and supported by all legs.

(3) The scantlings of the respective hull structural members are to be in accordance with the requirements in **7.1.2** to **7.1.12, Part P** and **7.2** and **7.3, Part P** with reference to the loads prescribed in **Chapter 3, Part P** in addition to the requirements in **(1)**.

(4) The hull structure, including the parts of the well, etc., is to be good in the continuity of longitudinal strength and transverse strength.

(5) The ship is to be designed for a crest clearance, greater than that in the following **(a)** and **(b)**, whichever is smaller, between the underside of the ship in the elevated position and the crest of the design wave.

(a) 1.2 m

(b) 10% of the combined storm tide, astronomical tide and height of the maximum wave

crest above the mean low water level. The wave height may be specified by the Owner subject to the approval by the Society.

11.~~3~~4.2 Materials for Structural Members

1 Materials for the structural members of ship-type and barge-type ships are to be in accordance with **1.2.5**.

2 Materials for the structural members of self-elevating ships are to be in accordance with **6.2, Part P**.

11.~~3~~4.3 Supporting Structures for Cargo Handling Appliances

Allowable stresses for the supporting structures of cargo handling appliances and the supporting equipment of cargo handling appliances are to be in accordance with the following **(1)** and **(2)**:

(1) Considering the safe working loads of cargo handling appliances, allowable stresses for the static loads and dynamic loads of cargo handling appliances are not to exceed the values specified in **7.2.2, Part P**.

(2) Allowable stresses for the static loading and combined loading specified in **7.2.1, Part P** are not to exceed the values in **7.2.2, Part P**.

11.~~3~~4.4 Supporting Structures for Pile Driving Equipment

Allowable stresses for the supporting structures for pile driving equipment are to be in accordance with the following **(1)** and **(2)**:

(1) Allowable stresses for the static loads and dynamic loads of pile driving equipment are not to exceed the values specified in **7.2.2, Part P**.

(2) Allowable stresses for the static loading and combined loading specified in **7.2.1, Part P** are not to exceed the values in **7.2.2, Part P**.

11.~~3~~4.5 Supporting Structures for Loaded Cargoes

1 Allowable stresses for the supporting structures for positions and the surrounding areas where cargoes are loaded, and cargo loading equipment attached to the hull such as blade racks are not to exceed the values in **7.2.2, Part P** for the static loading and combined loading specified in **7.2.1, Part P**.

2 Supporting structures are to be designed as appropriate so as to withstand additional loads due to the trim and heel of the ship in damaged conditions.

11.~~3~~4.6 Deckhouses

For self-elevating ships, where deckhouses are close to the side shell of the ship, their scantlings are to apply the requirements in **Chapter 18, Part C**. Other deckhouses are to be in accordance with the requirements in **Chapter 19, Part C**.

11.~~3~~4.7 Legs

Legs of self-elevating ships are to be in accordance with the requirements in the following **(1)** to **(8)** in addition to the requirements in **11.~~3~~4.1-2**. However, with regard to the motions of the ship and legs, they may be determined by an analytical method or from a model experiment as deemed appropriate by the Society.

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

(2) Legs in the transit condition are to be in accordance with the following **(a)** and **(b)**. The wording "transit condition" means a condition which does not exceed a 12-*hour* voyage. However, during any portion of the voyage, the ship is to be capable of arriving at its

destination within 6 *hours*.

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

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

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

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

(b) The legs are to be investigated for any proposed leg arrangement with respect to vertical position, and the approved positions are to be specified in the operating manual.

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

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

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

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

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

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

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

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

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

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

(6) When computing leg stresses, while in the elevated position, the maximum overturning load on the ship, using the most adverse combination of applicable variable loadings together with the loadings specified in **Chapter 3, Part P** is to be considered. Forces and moments due to lateral frame deflections of the legs are to be taken into account.

(7) Leg scantlings are to be determined in accordance with a method of rational analysis to the satisfaction of the Society.

(8) Except for self-elevating ships utilizing a bottom mat, each leg is to have the capability of being pre-loaded to the maximum applicable combined load after initial positioning at a site. The pre-loading procedures are to be included in the operation manual.

11.~~3~~4.8 Bottom Mats

In cases where bottom mats are installed to the legs of self-elevating ships, such bottom mats are to be in accordance with the requirements in the following **(1)** to **(6)**:

(1) The construction of bottom mats is to be designed so that loads transmitted from the legs may be evenly distributed to the respective parts of the mats.

(2) The thickness of the shell plating of the bottom mats without opening to the sea and the scantlings of shell stiffeners are not to be less than determined by the requirements in **7.3.2** and **7.3.3, Part P**. In this case, the top of h_s is at the water level at flood tide, and the top of

h_c is 0.6 times the design wave height in the severe storm condition above the water level at the design water depth.

(3) The scantlings of the watertight bulkheads and their stiffeners provided in the bottom mats are not to be less than determined by the requirements in **Chapter 13, Part C**. In this case, the top of h is to be substituted for the top of h_c specified in **(2)**.

(4) Where the ship is resting on the seabed, the effects of scouring are also to be considered.

(5) The effects of skirt plates, where provided, are to be given special consideration.

(6) Mats are to be designed to withstand the shock of touching the seabed while the ship is afloat and subject to wave motions.

11.~~3~~4.9 Deck Elevating Apparatus and Load Carrying Members

Load carrying members of self-elevating ships are to be in accordance with the requirements in following **(1)** and **(2)**:

(1) Scantlings of load carrying members which transmit loads from the legs to the hull are to have sufficient strength for the loads prescribed in **Chapter 3, Part P** and **11.~~3~~4.7**.

(2) Constructions of load carrying members are to be so arranged that loads transmitted from the legs are properly diffused into the hull structure.

11.~~4~~5 Hull Equipment

11.~~4~~5.1 General

1 Hull equipment of ship-type and barge-type ships is to be according to this **11.~~4~~5** in addition to relevant requirements in each chapter of **Part C**, **Part CS** or **Part Q**.

2 Hull equipment of self-elevating ships is to be according to this **11.5** in addition to the requirements in **9.1** to **9.6** of **Part P**.

~~2~~3 In cases where equipment and devices for designated operations are fitted, suitable measures are to be taken so that ship safety is not impaired.

~~**11.4.2 Cargo Gear***~~

~~Cargo gear is to be at the discretion of the Society.~~

~~**11.4.3 Supporting Equipment of Cargo Gear**~~

~~Supporting equipment of cargo gear such as boom rests is to be appropriately designed so as to be capable of withstanding loads due to ship motions and inclination.~~

11.~~4.4~~5.2 Protective Coatings of Tanks

For dedicated seawater ballast tanks, including pre-load tanks on self-elevating ships, the requirements in **25.2.2, Part C** are to be ~~applied as if they are seawater ballast tanks~~ complied with. However, spud cans on such ships need not comply with such requirements.

11.6 Positioning Systems

11.6.1 General

Positioning systems provided for ships are to be according to the requirements in **Chapter 10, Part P**.

11.~~5~~7 Machinery

11.~~5~~7.1 General*

1 Main propulsion machinery, power transmission systems, shafting systems, propellers, prime movers other than the main propulsion machinery, boilers and related equipment, incinerators, pressure vessels, auxiliaries, piping systems, all of their respective control systems and deck elevating systems (hereinafter all of the above will be referred to as "machinery installations" in this Chapter) of the ship are to be according to this **11.~~5~~7** in addition to **Part D**.

2 Regarding the restoration from the dead ship condition for the ship which has a large embarking capacity, special consideration is to be paid when **22.2.1-4(1)**, **Part D** in addition to **-1** above.

11.~~5~~7.2 Tests

1 Before installation on board, equipment and components constituting the machinery installations are to be tested at the manufacturers in accordance with the relevant requirements in **Part D**.

2 Notwithstanding the requirements in **-1**, for machinery installations, other than boilers, pressure vessels belonging to Group I or II and piping systems which contain inflammable or toxic liquids, used solely for the operation which is the purpose of the ship, the tests may be deemed appropriate by the Society.

3 The systems or the equipment essential for the safety of the ship or for the propulsion of the ship (only applicable to the ship which has the main propulsion machinery) are, after installed on board, to be subjected to performance tests.

11.~~5~~7.3 Jacking Systems

1 The driving gears, mechanisms, strength and safety devices of jacking systems are to be those deemed appropriate by the Society.

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

3 Where hydraulic or pneumatic systems are used as a source of power for a jacking system, two or more sets of sources of power are to be provided so as to be capable of operating the jacking system even when one of the sets fails. However, one set may be acceptable for ships designated for use in restricted areas (except for a ship which has a large embarking capacity).

4 Elevating systems are to be designed and constructed for the maximum lowering and lifting loads of a ship as specified in the ship's operating manual.

5 Elevating systems are to be able to withstand the forces imposed upon a ship from the maximum environmental criteria for the ship.

6 Elevating systems are to be operable from central jacking control stations.

7 Jacking control stations are to be provided the following safety devices:

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

(2) Indicators for the following:

- (a) The inclination of the ship on two horizontal perpendicular axes
- (b) Power consumption or other indicators for the lifting or lowering of the legs, as applicable
- (c) Brake release status

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

11.~~5~~7.4 Bilge Piping~~s~~

The bilge piping~~s~~ of self-elevating ships is~~are~~ to be in accordance with the requirements in following **(1)** to **(3)**:

(1) A means to indicate whether a valve is open or closed is to be provided at each location from which said valve can be controlled. The indicator is to rely on the movement of the valve spindle.

(2) At least two independent power bilge pumps of a self-priming type or equivalent thereto are to be provided and are to be connected respectively to the main bilge suction pipes. Ballast pumps, sanitary pumps, general service pumps, etc. driven by independent power may be accepted as independent power bilge pumps provided that they are connected properly to the main bilge line. However, one bilge pump may be accepted for ships designated for use in restricted areas (except for a ship which has a large embarking capacity).

(3) Branch bilge suction pipes from each compartment are to have an internal diameter obtained from the following formula or be standard pipes which have an internal diameter nearest to the calculated diameter. In cases where the internal diameter of such standard pipes is less than the calculated value by 5*mm* or more, standard pipes of one grade higher diameter are to be used.

$d' = 2.15\sqrt{A} + 25$ (*mm*) minimum 50 (*mm*)

d': Internal diameter of branch bilge suction pipes (*mm*)

A: Wetted surface area of the compartment, excluding stiffening members, when the compartment is half filled with water (m^2)

11.~~5~~7.5 Air Pipes and Overflow Pipes

For self-elevating ships, the air pipe openings and discharge openings of overflow pipes are to be located above the final calculated immersion line in the assumed damage condition specified in **11.2** and are to be positioned outside the extent of damage defined in **11.2**.

11.~~5~~7.6 Sounding Pipes

Sounding pipes of self-elevating ships are to be in accordance with the requirements in the following **(1)** and **(2)**:

(1) The internal diameter of sounding pipes of 20 *m* or more in length is not to be less than 50 *mm*.

(2) Where a remote level indicator is used for tanks which are not always accessible, an additional sounding system is to be provided.

11.~~6~~8 Electrical Installations

11.~~6~~8.1 General*

1 Electrical installations of the ship are to be according to this **11.~~6~~8** in addition to **Part H**.

2 Regarding to the main source of electrical power of ship which has a large embarking capacity, special consideration is to be paid when applying **6.2.11-1**, **Part H** in addition to **-1** above.

3 Regarding to the emergency sources of electrical power of ship which has a large embarking capacity, special consideration is to be paid when applying **6.7.4**, **Part H** in addition to **-1** above.

11.~~6~~8.2 Tests

1 Among electrical equipment used solely for the operation which is the purpose of the ship, fuses, circuit breakers, explosion-protected electrical equipment and cables are to be subjected to be in accordance with the requirements in **1.2.1-4**, **Part H**. However, electrical installations which do not comply with this requirement may be accepted provided that the submission of documents such as specifications, sectional assembly drawings, test reports, certificates issued by public bodies for

the examination by the Society.

2 Electrical equipment used solely for the operation which is the purpose of the ship and not listed in **-1** may be in accordance with the standards deemed appropriate by the Society.

3 For electrical installations used solely for the operation which is the purpose of the ship, an insulation resistance test specified in **2.18.1**, **Part H** and performance tests of safety devices for generators and transformers are to be carried out after installed on board.

11.~~7~~9 Fire Protection~~,~~ and Means of Escape ~~and Fire Extinguishing Systems~~

11.~~7~~9.1 General*

1 Fire protection~~,~~ and means of escape ~~and fire extinguishing systems~~ are to be according to relevant requirements in each chapter of **Part R**.

2 For the ship which has a large embarking capacity, special consideration is to be paid in addition to requirement **-1**.

11.10 Fire Extinguishing Systems

11.10.1 General*

1 Fire extinguishing systems are to be according to relevant requirements in each chapter of **Part R**.

2 For fire pumps and water supply of ship-type and barge-type ships, the requirements in **15.2.2-11**, **Part P** are to be correspondingly applied, in addition to the requirement in **-1**.

3 For the ship which has a large embarking capacity, special consideration is to be paid in addition to requirements **-1** and **-2**.

11.11 Safety Equipment

11.11.1 General

1 Safety equipment is to be according to relevant requirements in each chapter of the **Rules for Safety Equipment**.

2 For self-elevating ships, the requirements **in Chapter 16**, **Part P** are to be correspondingly applied.

3 For ships which have no propelling machinery, **1.1.1-2, Part 1 of the Rules for Safety Equipment** may be applied. In such case, all or part of the application of the requirement in each chapter of the **Rules for Safety Equipment** may be dispensed with; however, even in such cases, particular attention is to be paid to the instructions issued by the Administrations.

11.12 Radio Installations

11.12.1 General

1 Radio installations are to be according to relevant requirements in each chapter of the **Rules for Radio Installations**.

2 For ships which have no propelling machinery, **1.1.2 of the Rules for Radio Installations** may be applied. In such case, all or part of the application of the remaining requirements in the **Rules for Radio Installations** may be dispensed with.

11.13 Habitation Installations

11.13.1 General

Habitation installations are to be according to instructions issued by the Administration.

11.14 Cargo Handling Appliances

11.14.1 General

Cargo handling appliances are to be according to the **Rules for Cargo Handling Appliances**. In addition, they are to be at the discretion of the Society.

11.14.2 Supporting Equipment of Cargo Handling Appliances

Supporting equipment for cargo appliances, such as boom rests, etc., is to be appropriately designed so as to be capable of withstanding loads due to ship motions and inclination.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 25 April 2019.

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

3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to ships for which the date of contract for construction is before the effective date upon request.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part O Work-Ships

2018 AMENDMENT NO.1

Notice No.79 25 October 2018
Resolved by Technical Committee on 31 January 2018

Notice No.79 25 October 2018
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

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

Part O WORK-SHIPS

O1 GENERAL

O1.2 General

Paragraph O1.2.6 has been added as follows.

O1.2.6 Load Lines

With respect to the provisions of **1.2.6-3**, **Part O of the Rules**, the requirements in **Chapter 8**, **Part P of the Rules** are to be correspondingly applied to self-elevating and column-stabilized ships.

O3 CRANE SHIPS

O3.2 Stability

Paragraph O3.2.1 has been deleted.

~~**O3.2.1 General**~~

~~Ships are to comply with the following requirements corresponding to their designated operations in addition to the requirements given in **2.2.1**, **Part U of the Rules**. However, in cases where other stability requirements deemed appropriate by the Society are in effect, this requirement may be dispensed with.~~

~~Stability curves are to comply with the following:~~

~~The residual area between a righting lever curve and a heeling lever curve due to designated operations is not to be less than 0.09 *m-rad*. The area is to be determined between the first intercept of the two curves and the second intercept or the angle of down flooding, whichever is less.~~

Paragraph O3.2.2 has been added as follows.

O3.2.2 Stability Requirements during Lifting Operations

"Stability requirements which are separately specified by the Society" specified in **3.2.2**, **Part O of the Rules** refers to requirements specified in **Annex U1.1.1-4 "GUIDANCE FOR REQUIREMENTS ON INTACT STABILITY DURING LIFTING OPERATIONS"**.

O11 WIND TURBINE INSTALLATION SHIPS

O11.2 Stability

Paragraph O11.2.1 has been deleted.

~~**O11.2.1 General**~~

~~Ships are to comply with the following requirements corresponding to their designated operations in addition to the requirements given in **2.2.1, Part U of the Rules**. However, in cases where other stability requirements deemed appropriate by the Society are in effect, this requirement may be dispensed with.~~

~~Stability curves are to comply with the following:~~

~~The residual area between a righting lever curve and a heeling lever curve due to designated operations is not to be less than 0.09*m-rad*. The area is to be determined between the first intercept of the two curves and the second intercept or the angle of down flooding, whichever is smaller.~~

Paragraph O11.2.2 has been added as follows.

O11.2.2 Stability Requirements during Lifting Operations

"Stability requirements which are separately specified by the Society" specified in **11.2.2**, **Part O of the Rules** refers to requirements specified in **Annex U1.1.1-4 "GUIDANCE FOR REQUIREMENTS ON INTACT STABILITY DURING LIFTING OPERATIONS"**.

Section O11.4 has been deleted.

~~**O11.4 Hull Equipment**~~

~~**O11.4.2 Cargo Gear**~~

~~"At the discretion of the Society" referred to in **11.4.2, Part O of the Rules** is to be in accordance with the requirements in the **Rules for Cargo Handling Appliances**.~~

Section O11.7 to O11.10 have been added as follows.

O11.7 Machinery

O11.7.1 General

"Special consideration" specified in **11.7.1-2**, **Part O of the Rules** means that measures deemed appropriate by the Administration (for example, risk assessments and treatments for the ship which has a large embarking capacity) are to be taken.

O11.8 Electrical Installations

O11.8.1 General

"Special consideration" specified in **11.8.1-2** and **-3**, **Part O of the Rules** means that measures deemed appropriate by the Administration (for example, risk assessments and treatments

for the ship which has a large embarking capacity) are to be taken.

O11.9 Fire Protection and Means of Escape

O11.9.1 General

"Special consideration" specified in **11.9.1-2**, **Part O of the Rules** means that measures deemed appropriate by the Administration (for example, the requirements specified in **Part 7 of the Rules for the Survey and Construction of Passenger Ships** are applied mutatis mutandis, risk assessments and treatments for the ship which has a large embarking capacity are conducted, etc.) are to be taken.

O11.10 Fire Extinguishing Systems

O11.10.1 General

"Special consideration" specified in **11.10.1-3**, **Part O of the Rules** means that measures deemed appropriate by the Administration (for example, the requirements specified in **Part 7 of the Rules for the Survey and Construction of Passenger Ships** are applied mutatis mutandis, risk assessments and treatments for the ship which has a large embarking capacity are conducted, etc.) are to be taken.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 25 April 2019.

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

3. Notwithstanding the provision of preceding **2.**, the amendments to the Guidance may apply to ships for which the date of contract for construction is before the effective date upon request.