CHAPTER 22A

SPECIFIC REQUIREMENTS APPLICABLE TO CRAFT LONGER THAN 110 M

22A-1   *Application of ~~Part I~~* **Chapter 2**

22A-1.1   *In addition to the requirements set out in ~~Article 2.03(3)~~* **Section 2-6**, *the* ~~*inspection body*~~ **competent authority on inspection of vessels** *which is subsequently to issue the ~~EU~~* **Ship,s** *certificate shall be informed by the owner or his representative before building of craft longer than 110 m, except sea-going ships, begins (building of a new vessel or extension of a vessel already in service). That ~~inspection body~~* **authority** *shall conduct inspections during the building stage. It may dispense with inspections during the building stage if a certificate is produced before building begins to show that an approved classification society declares that it is to supervise that building.*

22A-2   *Application of ~~Part II~~* **Chapter 3 to Chapter 23**

22A-2.1   *In addition to ~~Part II~~* Chapter 3 to Chapter 23, ~~*Articles 22a.03 to 22a.05*~~ the Sections 22A-3 to 22A-5 *shall apply to craft that are longer than 110 m.*

22A-03   ***Strength***

22A-3.1   *Sufficient hull strength in accordance with ~~Article 3.02(1)(a)~~* **paragraph 3-1.1** *(longitudinal, lateral and local strength) shall be verified by a certificate issued by an approved classification society.*

22A-04   *Buoyancy and stability*

22A-4.1   *Paragraphs ~~2 to 10~~* **22A-4.2 to 22A-4.10** *shall apply to craft that are longer than 110 m, with the exception of passenger vessels.*

22A-4.2.   *The basic values for the stability calculation, the vessel's lightweight and the location of the centre of gravity shall be determined by means of an inclining experiment carried out in accordance with Annex I to IMO Resolution MSC 267 (85).*

22A-4.3.   *The applicant shall prove, by means of a calculation based on the method of lost buoyancy, that the buoyancy and stability of the vessel are appropriate in the event of flooding. All calculations shall be carried out with free sinkage and trim.*

Sufficient buoyancy and stability of the vessel in the event of flooding shall be proven with a cargo corresponding to its maximum draught and evenly distributed among all the holds and with maximum supplies and fully fuelled.

For diversified cargo, the stability calculation shall be performed for the most unfavourable loading condition. This stability calculation shall be carried on board.

For this purpose, mathematical proof of sufficient stability shall be determined for the intermediate stages of flooding (25%, 50% and 75% of flood build up, and, where appropriate, for the stage immediately prior to transverse equilibrium) and for the final stage of flooding, in the loading conditions specified above.

22A-4.4.   *The following assumptions shall be taken into consideration for the damaged condition:*

(~~a~~ i)   *Extent of side damage:*

longitudinal extent   :   at least 0,10 L,

transverse extent   :   0,59 m,

vertical extent   :   from the bottom upwards without limit.

(~~b~~ ii)   *Extent of bottom damage:*

longitudinal extent   :   at least 0,10 L,

transverse extent   :   3,00 m,

vertical extent   :   from the base 0,39 m upwards, the sump excepted.

(~~c~~ iii)   *Any bulkheads within the damaged area shall be assumed damaged, which means that the subdivision shall be chosen so that the vessel remains afloat after the flooding of two or more adjacent compartments in the longitudinal direction. For the main engine room only the one compartment standard need be taken into account, i.e. the end bulkheads of the engine room shall be assumed as not damaged.*

For bottom damage, adjacent athwart ship compartments shall also be assumed as flooded.

(~~d~~ iv)   *Permeability*

Permeability shall be assumed to be 95%.

If a calculation proves that the average permeability of a compartment is less than 95%, the calculated value may be used instead.

The values used shall not be less than:

1.   engine and operation rooms 85%

2.   cargo holds : 70%

3.   double bottoms, fuel tanks, ballast tanks, etc. depending on whether, according to their function, they have to be assumed as full or empty for the vessel floating at the maximum permissible draught: 0 or 95%

(~~e~~ v)   *The calculation of free surface effect in intermediate stages of flooding shall be based on the gross surface area of the damaged compartments.*

22A-4.5.   *For all intermediate stages of flooding referred to in paragraph ~~3~~ 22A-4.3, the following criteria shall be met:*

(~~a~~ i)   *the heeling angle φ at the equilibrium position of the intermediate stage in question shall not exceed 15° (5° where containers are not secured);*

(~~b~~ ii)   *beyond the heel in the equilibrium position of the intermediate stage in question, the positive part of the righting lever curve shall display a righting lever value of GZ ≥ 0,02 m (0,03 m where containers are not secured) before the first unprotected opening becomes immersed or a heeling angle φ of 27° is reached (15° where containers are not secured);*

(~~c~~ iii)   *non-watertight openings shall not be immersed before the heel in the equilibrium position of the intermediate stage in question has been reached.*

22A-4.6.   *During the final stage of flooding, the following criteria shall be met:*

(~~a~~ i)   *the lower edge of non-watertight openings (e.g., doors, windows, access hatches) shall be not less than 0,10 m above the damaged waterline;*

(~~b~~ ii)   *the heeling angle φ at the equilibrium position shall not exceed 12° (5° where containers are not secured);*

(~~c~~ iii)   *beyond the heel in the equilibrium position of the intermediate stage in question, the positive part of the righting lever curve shall display a righting lever value of GZ ≥ 0,05 m and the area under the curve shall reach at least 0,0065 m.rad before the first unprotected opening becomes immersed or a heeling angle φ of 27° (10° where containers are not secured) is reached;*
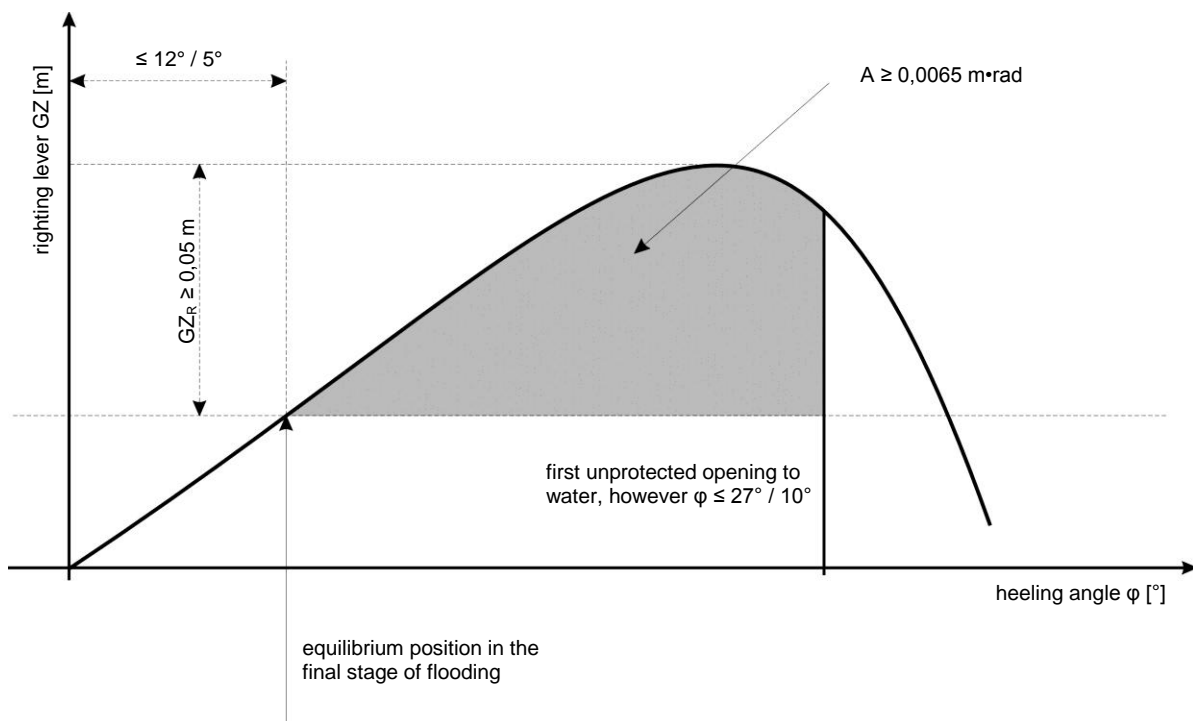
(~~d~~ iv)   *if non-watertight openings are immersed before the equilibrium position is reached, the rooms affording access shall be deemed flooded for the purposes of the damaged stability calculation.*

22A-4.7   *If cross-flood openings to reduce asymmetrical flooding are provided, the following conditions shall be met:*

(a̶ i)   *for the calculation of cross-flooding, IMO Resolution A.266 (VIII) shall be applied;*

(b̶ ii)   *they shall be self-acting;*

(c̶ iii)   *they shall not be equipped with shut-off devices;*

(d̶ iv)   *the total time allowed for equalisation shall not exceed 15 minutes.*

22A-4.8.   *If openings through which undamaged compartments may additionally become flooded are capable of being closed watertight, the shut-off devices shall bear the following readily legible instruction on both sides:*

          "Close immediately after passage".

22A-4.9.   *The proof by calculation in accordance with paragraphs ~~3 to 7~~ **22A-4.3 to 22A-4.7** shall be considered to have been provided if damaged stability calculations in accordance with Part 9 of the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (hereinafter referred to as 'ADN') are produced with a positive result.*

22A-4.10.   *Where necessary in order to meet the requirements in paragraph ~~3~~, **22A-4.3** the plane of maximum draught shall be re-established.*

Article 22A-5 Additional requirements

22A-5.1   *Craft longer than 110 m shall:*

(a̶ i)   *be fitted with a multi-propeller propulsion system, with at least two independent engines of equal power and a bow thruster that is controlled from the wheelhouse and is also effective when the craft is in an unladen state; or*

          have a single-propeller propulsion system and a bow thruster that is controlled from the wheelhouse with its own power supply and which is also effective when the craft is in an unladen state and makes it possible for the craft to proceed under its own power in the event of a breakdown of the main propulsion system;

(b̶ ii)   *be fitted with a radar navigation system, together with a rate-of-turn indicator in accordance with ~~Article 7.06(1)~~ **paragraph 7-4.1**;*

(c̶ iii)   *have a permanently-installed bilge pumping system in accordance with ~~Article 8.08~~ **Section 8-1.6**;*

(d̶ iv)   *meet the requirements of ~~Article 23.09(1)(1)~~ **Section 23-9.***

22A-5.2   *For craft, except passenger ships, with a length of more than 110 m, which in addition to paragraph ~~1~~ **22A-5.1***

(a̶ i)   *are capable of being separated, in the event of an accident, in the middle third of the vessel without the use of heavy salvage equipment while the separated parts of the vessel shall remain afloat after separation;*

(b̶ ii)   *are provided with a certificate that shall be carried on board and which is issued by an approved classification society regarding the buoyancy, trim position and stability of the separate parts of the vessel, indicating the degree of loading above which buoyancy of the two parts is no longer ensured;*

(e iii)   *are built as double-hull vessels in accordance with the ADN, where for dry cargo vessels sections 9.1.0.91 to 9.1.0.95, and for tank vessels paragraph 9.3.2.11.7 and sections 9.3.2.13 to 9.3.2.15 or paragraph 9.3.3.11.7 and sections 9.3.3.13 to 9.3.3.15 of Part 9 of the ADN shall apply;*

(d iv)   *are fitted with a multi-screw propulsion system in accordance withparagraph 1(a), first half sentence;*

it shall be entered in item 52 of the ~~EU~~ **Ship's** *certificate that they comply with all the requirements of points* ~~(a) to (d)~~ **(i) to (iv)**.

22A-5.3   *For passenger vessels with a length of more than 110 m which in addition to paragraph* ~~1~~ **22A-5.1**

(a i)   *are built or converted for their highest class under the supervision of an approved classification society, in which case compliance shall be confirmed by means of a certificate issued by the classification society while current class is not necessary;*

(b ii)   either

       have a double bottom with a height of at least 600 mm and subdivision to ensure that, in the event of flooding of any two adjacent watertight compartments, the vessel does not immerse lower than the margin line and a residual safety clearance of 100 mm remains,

       or

       have a double bottom with a height of at least 600 mm and a double hull with a distance of at least 800 mm between the side wall of the vessel and the longitudinal bulkhead;

(c iii)   *be fitted with a multi-screw propulsion system with at least two independent engines of equal power and a bow thruster system which can be operated from the wheelhouse and which operates longitudinally as well as transversely;*

(d iv)   *allow the stern anchor to be operated directly from the wheelhouse;*

it shall be entered in item 52 of the ~~EU~~ **Ship's** *certificate that they comply with all the requirements of points* ~~(a) to (d)~~ **(i) to (iv)**.

~~Article 22a.06~~

~~**Application of Part IV in the event of conversion**~~

~~*The inspection body may apply Chapter 24 to craft converted to a length of more than 110 m only on the basis of specific recommendations by the Committee.*~~

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