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Icelandic additional requirements to Nordic boatstandard of 1990

As stated in the preamble to the 1990 Nordic boatstandard for commercial boats, each Maritime Administration of the Nordic countries may adopt additional requirements to the Standard, based on accidents and other safety considerations.

Iceland has the exception from the other Nordic countries, that demands to safety of ships is mandatory by law for all boats down to 6 metres in length, not only where the building of the boats is concerned but also to annual survey. To enforce this law Iceland has to make some additional requirements to Nordic boatstandard, for example to reparation, to qualification of personal attending GRP-work on boats etc, which is not considered necessary in the other Nordic countries. The Icelandic version also makes allowances in some ways from Nordic boatstandard.

The Icelandic additional requirements to Nordic boatstandard of 1990 and, allowances from the Standard demands are as follows:

C = COMMERCIAL BOATS

C-1 Nordic approval

- 1.5 Owners of existing boats can get approval of their boats according to the Icelandic version of Nordic boatstandard. The procedure is as for approval of new boats.
- 1.6 Boats registered in Iceland are to be repaired or rebuilt according to Nordic boatstandard with respect to the construction of the boat in question.

3. The Icelandic version makes allowance for typeapproval of commercial boats.
 - 3.1 A boattype, is definition of boats of the same size and shape, fitted with the same equipment, same arrangements and maneuvering ability.
 - 3.2 Boats of an approved type are to be delivered from the boatbuilder fully built with all equipment fitted so the boats can be taken into use without any further process. The boats limitations are based on their design and construction according to approved specification.
 - 3.3 Boattype can be approved in different versions in form of steering arrangements, windscreen and other equipment that can easily be mounted.
 - 3.4 An approved boattype is to have a name which cannot be mistaken for another boattype or another version of the same boattype.
 - 3.5 Boats which are approved as a boat kit are to be completed by the boatbuilder in all extents bearing to the strength of the boat, including foundation for engine and other equipment that may cause load.
 - 3.6 Boats that are delivered to a customer as a kit are to be delivered with an approved building specification where there is clearly stated how the boats are to be completed and fitted out to comply to rules. There is also to be stated what kind of engine and equipment is accepted in the boats.
 - 3.7 When a customer has completed a boat which he bought as a kit, he is to have the boat surveyed, tested and approved by the authority.

- 5.1 According to the Icelandic version the specification and drawings in question are to be submitted for every boat, even boats built in series.

7. In the Icelandic version are additional demands for survey and testing to the demands in part 5 of chapter 1 in Nordic boatstandard.
 - 7.1 Survey of boatbuilding is based on controlling whether each boat or the prototype of a boattype is in every detail according to approved specification and that workmanship is as it should be.

- 7.2 Survey on boats built in series is mainly based on checking internal control, but the boats are subject to random survey.
- 7.3 The frequency of random survey is decided by surveyors with respect to the number of boats built at each boatbuilding yard.
- 7.4 Boat kits are subject to the same control as other boats. Only the boat parts completed at the boatbuilding yard can be accepted as a serie production. Each boat is to be marked with yard number as well as the name of the boatbuilder.
- 7.5 Large boats, boats with complicated construction and boats that are not built in series are to be surveyed seperately each and every one. The boats are to be surveyed as often as necessary but at least once under construction and again when the boat is fully built.
- 7.6 When a prototype is tested the stability is to be checked, buoyancy and loading of the boat is to be controlled and the boat is to be trial sailed under condition satisfactory to the surveyor. Calculation may be accepted for large boats instead of the tests stated above. The result of the tests is to be recorded.
- 7.7 Each boat with boatapproval is to be tested according to scedule made when the specification is approved, before the boat is delivered to the customer. It is however sufficient to test one prototype for boats with length over all less than 10m built in series.
- 7.8 in the Icelandic version is identical to 5.1 in Nordic boatstandard.
- 7.9 in the Icelandic version is identical to 5.2 in Nordic boatstandard except that in addition to the item to be controlled at trial trip there is a demand for high speed boats to be tested according to demands in chapter 10 in Nordic boatstandard for pleasure boats, which has been added to this chapter as an appendix and is as follows:

TRIAL TRIP OF SPEEDBOATS.

1. View
 - 1.1 View from the boats handles of controlequipments for a medium high man, standing or sitting respectively, is to be in such a manner that:
 - the surface of the water is visual at a distance from four boatlengths in front of the boat up to the horizon at the same angle as the lights of the side landterns. The demands are to be complied with at any load conditions and speed that can be expected of the boat in question. The view may though be less in front while the boat goes up on plane, providing it only takes a short time.
 - the horizon is visual at both sides when going at medium speed.
 - the view aft is sufficient for the helmsman to keep an eye on vessels behind, going the same course as the boat.
 - curtains that block view can be moved a side.
 - 1.2 If view is considerably reduced by splash or rain, the windows are to be arranged with wipers. The distance between the front window and the helmsman may also be reduced if view is insufficient.
 - 1.3 The arrangement in the wheelhouse is to be in such a way that lights or reflection, sunlight or other lights in the dark, do not make it difficult to keep control of the boat.
 - 1.4 Glass in windows that have to be used for keeping control of the boat, may not be of such properties that it reduces the light quantity going through the glass nor that it changes lights regarding the sailing of the boat.
2. Wheelhouse and controlequipments.
 - 2.1 Boat that goes faster than 15 knots is to have a steering wheel at a proper place in front of the helmsman. All boats with outboard engine of more than 15 kW (20 hp) are to have a steering wheel. Handle to control the engine is to be within armlength from the steering wheel.
 - 2.2 Boats with inboard engine going faster than 40 knots are to be arranged with safety switch to stop the engine. Boats with stearing wheel and other control hadles in open space, built for outboard engine and speed over 15 knots, are to have a signplate on the steering panel stating:
SAFETY SWITCH IS TO BE USED.
 - 2.3 Boat that goes faster than 25 knots is to have the control equipment for engine, trimming of the boat and adjustment of stern drives, arranged in such a manner that they can be reached all at once or one after the other without ever taking a hand of the steering wheel.
 - 2.4 Boat that goes faster than 25 knots is to be arranged with all gauges and other information equipment, such as indication of speed, position of stern drive, trimming of the boat, compas etc., as close as possible to the front of the helmsman.
 - 2.5 Boat that goes faster than 40 knots is to have the control handles positioned in such a manner that the helmsman is able to stand up, with support at back and sides, and still have full control of the boat according to the demands in this appendix.
3. Trial trip.

- 3.1 The bottom of the boats, engine and propeller is to be new or as good as new at a trial trip. Engine and propeller are to be such that a maximum speed of the boat can be obtained. The boats are to be fully equipped. The trial trip is to take place on a still water at a maximum wind force of 5 m/s.
- 3.2 The maximum speed of boats is to be measured with no more than two man on board. The boats are to keep a steady course and right plane during the trial.
- 3.3 The speed of boats is not to exceed:
 $V_{max} = 17 \text{ Loa knots}$
- 3.4 Speedboats are to be tested by turning the boats 90° to both sides. There are not to be more than two men on board and tanks are only to be filled to half. The boats are to go at full speed straight ahead when the steering wheel is suddenly turned and a course taken 90° to former course. The helmsman is to try to keep the course in the turn at a radius of 6 times Loa. While the boat takes the turn the helmsman is not to use other control equipment of the boat than the steering wheel. The test is to be repeated twice to each side. The boats are considered to comply to the demands if the helmsman has full control of the boat during the test and nothing of the following happens:
 - the boat changes suddenly course or slides to the side, out of the helmsman control.
 - sideforce makes it difficult for the helmsman to stay in his seat while the boat takes the turn.
 - the boat has an insufficient grip in the water which makes it difficult to keep course in the turns.
 - something that indicates that safety is not as it should be.
- 3.5 Speedboats are to be tested at full speed, with maximum two man on board and tanks only filled to half, by turning the steering wheel suddenly from one side to the other a few times. A boat is considered to comply to the demands if the helmsman has full control of the boat. This test is also to be done on a fully loaded boat at circumstances which the boat can be expected to be used in, if it is considered necessary.

C-2 Definitions and symbols.

The definitions of boats in the Icelandic version is slightly different from the definitions in Nordic boatstandard.

The Icelandic definitions are as follows:

- 1.2 Deckboat is a boat which has a watertight deck from stem to stern, except where it is interrupted with watertight superstructure and hatches.
 - 1.3 Open boat is a boat which is not a deckboat according to definition in 1.2
 - 1.4 Sheltered boat is a deckboat or an open boat with superstructure which serves as a shield to the deck or flooring.
- 3.2 Open boats are to be marked with a load line mark on both sides amidships and at stem on boats with wheelhouse aft and at stern on boats with wheelhouse forward, according to the Icelandic version.

C-3 Freeboard and stability.

- 3.3 The demands in the Icelandic version for boat conditions when righting arm is calculated is slightly different from the demands in Nordic boatstandard. The demands for boat conditions in the Icelandic version are as follows:
 - a) Lightweight condition according to 2.5.1 and as few men on board as possible.
 - b) With crew, fuel and watertanks filled to the utmost and equipment, including fishinggear.
 - c) With maximum cargo but only 30% of fuel, water and equipment.
 - d) With maximum cargo but only 10% of fuel, water and equipment.
 - e) With 20% cargo and 10% of fuel, water and equipment.

Iceing is to be added in the calculation of the one of the three load condition stated in c, d and e, that gives the most unfavourable stability. For iceing calculation a 40 kg/m^2 is to be added with respect to iceing on deck and 10 kg/m^2 on each side of the boat above waterline, mast and handrail included.

For centre of gravity see Nordic boatstandard.

- 3.4 According to the Icelandic version, all deckboats are to comply to the following stability demands at each load condition stated in 3.3. Iceing may though be excluded.
 - a) The area under ths GZ-curve is not to be less than 0,055 metreradians at 30° heeling and not less than 0,09 metreradians at heeling up to 40° or up to filling openings if that angle is less than 40° .
 The area under the GZ-curve between 30° and 40° or between 30° and heeling up to filling openings if that angle is less than 40° , is not to be less than 0,03 metreradians.
 - b) the righting arm GZ is to be at least 0,2 m at 30° heeling angle or more.

- c) The greatest value of the GZ curve is to be at an angle of heel greater than 25°, but preferably at an angle of heel greater than 30°.
- d) The metacentric height, GM, is not to be less than 0,35 m.

Demands to stability for special types of boats may be based on other verging of extreme than stated above, if it is considered necessary for safety reasons.

- 3.7 Instead of demands to boats with lifting gear the Icelandic version states that in every boat there are to be information which makes it possible for the captain to estimate swiftly the stability of the boat under variable conditions.

4. Stability for open boats.

The demands to stability for open boats in the Icelandic version are as follows:

- 4.1 The stability of open boats is to be checked either by heeling test or rolling test.
- 4.2 When stability is checked by heeling test the stability of the boats shall comply to demands for deckboats according to C-3.3, except for the demands to righting arm, GZ.
- 4.3 When stability is checked by rolling test the test is to be carried out under surveillance of the approval authority. The boats are to be tested when fully built and fitted out, with all equipment on board, including fishing gear.

The rolling test is to be carried out in such a manner that the boat rolls free of any interruption and the total time of at least three rolls is to be measured. The stability is considered satisfactory if the roll from one side to the other and back (port side-starboard-port side or vice versa), measured in seconds is less than the boat's breadth in metres.

C-4 Doors, hatchways and windows.

- 1.2 The permission for lower coamings with respect to increased freeboard does not apply in the Icelandic version.
- 2.4 The permission for lower door sills with respect to increased freeboard does not apply in the Icelandic version.
- 4.2 The demands to hinged deadlights in column 1a applies to all boats in the Icelandic version, not only displacement boats.

C-5 Freeing ports and hull penetrations.

- 2. Drainage of flooring in open boats.
 - 2.1 Drainage of flooring above waterline in open boats is not to be less than stated in C-30.11.1. The depth of the well is never to be less than 500 mm in the calculation, despite the real height of the bulwark.
 - 2.3 3.3 in the Icelandic version.

Openings in the hull above waterline at lightweight condition of the boat, G, and less than 350 mm above the load waterline or under deck, is to have a non-return valve which prevents water to penetrate into the boat. The non-return valve may be omitted if the hose system is lying partly above 350 mm over the load waterline or 250 mm over deck.
- 3.1 4.1 in the Icelandic version, is identical to the demands in Nordic boatstandard, except for a minimum height of ventilation openings in open boats of 380 mm above flooring.
- 6. Other openings.
 - 6.1 Other openings than stated above are to be at least 450 mm above the deck on deckboats or 380 mm above flooring or load waterline on open boats and be arranged in such a manner that a breaking sea will not in danger the safety of the boat.

C-6 Watertight subdivision and bilge pumping.

- 1.1 Bulkheads around engine space in open boats are to be watertight up to load waterline or flooring, which ever is higher, according to the Icelandic version.
- 2. Collection of oil spills.

The demands in this part does not apply according to the Icelandic version.
Part 2 is instead about allowance for pumping wells in open boats.

 - 2.1 Boats with drainage from flooring or deck may be arranged with a pumping well in the bottom of the boat for the drain water.

The volume of the pumping well is not to be less than 20% of the volume of the flooring/deck well.
The pumping well is to be fitted with a special pump of capacity at least 50% more than other pumps in the boat according to demands in 3.3 and if it is electrically driven the arrangement is to be according to 3.5. If the pumping well is larger than 20% of the volume of the flooring/deck well the capacity of the pump in the well may be reduced accordingly down to the demands in 3.3.

The volume of the flooring/deck well is to be calculated according to demands in C-5.2.1 for drainage.

3.3 According to the Icelandic version the capacity of the pumps is to be as follows:

Loa 8 = 80 l/min
8 Loa 12 = 120 l/min
12 Loa 15 = 180 l/min

4.1 Manual bilge pump for draining the engine room is to be fitted permanently outside the room as close to the wheelhouse as possible.

5. Water level alarm.

5.1 The article in the Icelandic version is as follows:

Deckboats and open boats with flooring over load waterline are to be fitted with an alarm system which indicates in a sufficient way, either in an acoustic or optical manner, for high water level in the engine room.

C-8 Engine installations.

1.2 A certificate confirming type approval of engines does only have to be submitted when required by the Icelandic Maritime Authority.

1.3 According to the Icelandic version the elastic shaft coupling may be omitted if the propeller shaft is only supported by one stern bearing, even if the distance from the shaft coupling to the bearing is less than 40 times the diameter of the shaft.

1.4 in the Icelandic version:

Engines may not be mounted on elastic fastenings unless the engine producers confirms that the elastic fastenings in question are sufficient for the respective engine.

4.4 The exhaust outlets are to be above deck on deckboats according to the Icelandic version and a swanneck on the exhaust tube is to extend at least 250 mm above the deck.

5.2 According to the Icelandic version the control devices on inboard engines may be in the form of lights if the capacity of the engine is less than 100 kW, except for the revolution of the propulsion machinery.

7.4 The Icelandic version does not demand that the filter can be cleaned when the engine is running.

8.1 The air intake for the engine space is to be placed in such a manner that exhaust is prevented from going straight into the engine space.

8.3 in the Icelandic version:

Mechanical ventilation is to have a capacity of at least:

$$Q = 8 \text{ kW m}^3/\text{h}$$

No respect is to be taken to natural air inlet when mechanical ventilation is calculated.

8.4 = 8.2 in Nordic boatstandard.

The demands for closing devices does only apply for deckboats according to the Icelandic version.

C-9 Fuel installation

2.6 The Icelandic version makes allowance for only the first layer on the inner side of the laminate in tanks to be made of isophthalic resin and powder bound mats. The laminate is also to be covered on the inside of the tanks with isophthalic coat.

2.8 The thickness of material in fuel tanks is either to be according to the table or the following Icelandic formula:

$$t = 0,8 s h + k \text{ mm}$$

s = spacing of stiffenings in metres.

h = pressure height in metres, from the bottom of the tank to the intake of ventilation.

k = 0,7 times the demands in the table for the respective material and size of the tank in question.

C-10 Propeller shafts and propellers.

1. The calculation of propeller shafts in the Icelandic version is unchanged from the 1983 Nordic boatstandard, i.e. a demand for minimum 440 N/mm² tensile strength and:
 $d = 30 \sqrt[3]{P/r}$ mm, where
d = shaft diameter in mm
P = maximum continuous power
r = propeller revolutions per second.

The diameter of the shaft may be corrected as follows if the tensile strength exceeds 440 N/mm²:

$$f = \sqrt[3]{600/b} + 160$$

where
b = tensile strength of the respective shaft.

Tensile strength above 700 N/mm² is however not to be taken into account.

Approval from other Nordic Maritime Authorities or Det norske Veritas according to Nordic boatstandard is accepted in Iceland.

C-11 Electrical installations.

- 6.5 In addition to the demands in Nordic boatstandard for liquid tight case, the case is to have closing arrangements of insulated material on the top according to the Icelandic version.
- 6.6 Instead of batteries more than 5 kWh to be placed in a separate compartment as stated in Nordic boatstandard, the Icelandic version allows for batteries up to 10 kWh to be placed in engine room or similar space with special ventilation.
- 7.2 Cable entrance to electrical equipment is under no circumstances to be at the top of the equipment according to the Icelandic version.

C-12 Accommodation.

- 3.1 Fresh water tanks are to be made of corrosion resistant material according to the Icelandic version.

C-13 Protection of personnel.

- 6.3 Opening of emergency exits is to be at least 600 mm or have a diameter of not less than 600 mm in boats with Loa 12m or more according to the Icelandic version.

C-14 Fire safety.

- 2.8 The following demands are added to the article in the Icelandic version:

Sides and bottom of the LPG bottle spaces are to have at least the same material dimensions as watertight bulkheads of the respective boat.

- 3.3 The demand in this article is not mandatory according to the Icelandic version.
4. in the Icelandic version is a demand to hand extinguishers which is unchanged from the 1983 Nordic boatstandard:
 - Vessels up to 10 m Loa are to have at least one 6 kg ABE hand extinguishers.
 - Vessel with Loa 10 m or more are to have at least two 6 kg ABE hand extinguishers.

Permission is made for smaller hand extinguishers with great effect, but it has to be accepted in each individual case with respect to the effect of the hand extinguishers in question.

- 4.6 = 5.6 in the Icelandic version.
Permission is made for less amount of carbon dioxide with great effect but it has to be accepted in each individual case with respect to the effect in question.
6. Fire alarm in the Icelandic version.
 - 6.1 Deckboats and partly covered open boats are to be fitted with fire alarm which indicates in an acoustic manner at the steering place if heat in the engine space becomes unnaturally high. The fire alarm may be omitted in boats with engine case in open space and in small boats where the engine space is open to the wheelhouse.
 - 6.2 Each boat that has stove, heater or other permanent installation that may start fire in the accommodation is to be fitted with fire alarm which indicates in an acoustic manner at the steering place if smoke arises in the

accommodation. In boats with wheelhouse and accommodation forward or wheelhouse and accommodation aft the fire alarm may be in one unite, i.e. the detector, signal device and power in the one and same unite.

7. Emergency switch.

7.1 Each boat with mechanical ventilation is to have emergency switch fitted on the device, clearly marked and accessibly placed outside the ventilated room in question.

C-15 Lifting gears.

2.1 The limitation of the lifting gear with respect to the heeling of the boat is not mandatory according to the Icelandic version.

C-16 Mooring and anchoring equipment.

2.2 Reduction of weight with respect to holding capacity of the anchors is not allowed according to the Icelandic version and all boats with Loa 8m or more are to have on board one anchor according to the diagram and another anchor weighting one third of that weight.

C-25 Dimensioning of wooden boats.

23.1 There are made demands to thickness of plywood flooring in open boats in the Icelandic version. The thickness of plywood flooring is not to be less than the greater value of the following formulas:

$$t = 0,09 f s p \text{ mm}$$

$$t = 2,0 + 1,0 \text{ Loa mm}$$

t minimum 12 mm

C-26 Building of GRP boats.

1.3 The Icelandic version states that reparation and lamination of hull structure important to the safety of the boats is to be carried out by skilled workers under supervision of a forman with approval from the Icelandic Director of Shipping.

3. in the Icelandic version:

Storage premises.

3.1 Storage premises are to be kept dry and clean. Especially storage premises for glassfibre and corematerial.

3.2 Polyester, gelcoat and such materials are to be stored in a cool place where the temperature is never high enough to effect the quality of the material. Polyester materials which are stored in temperature below 18°C are to be warmed up to the temperature in the manufacturing premises before use.

3.3 Tanks for polyester are to be equipped in such a manner that the content can be stirred every day.

3.4 Classfibre is in general to be stored for at least two days in temperature 2°C higher than the temperature in the manufacturing premises before use. Plastic wrappings are to be open during this two days.

3.5 Catalysts, acetone, styrene and such materials are to be stored in a special storage premises if possible.

4. in the Icelandic version is part 3 in Nordic boatstandard.

4.6 in the Icelandic version:

Core in structural members is to be of suitable material, but solid timber is not accepted. Plates of wood shavings is not to be used as core in sandwich construction or in stiffening members.

7.9 in the Icelandic version, part 6 in Nordic boatstandard, spray lamination:

Hull, deck and other structural members are only to be sprayed by qualified workers with approval from the Icelandic Director of Shipping.

11.1 in the Icelandic version, 10.1 in Nordic boatstandard:

Stiffeners are to be fastend with at least the same thickness as in the respective stiffener and the breadth of the fastening is not to be less than 20 times the thickness. If stiffeners are to be fastend to a fully cured laminate, the breadth of the fastening is to be up to 40 times the thickness.

14. in the Icelandic version:

Material properties.

14.1 Statement is to be submitted which confirms that the properties of glassfibres and polyester used for boatbuilding are according to demands for bases of approval.

14.2 If material properties are not known, are specimens to be taken for testing at an approved research istitute.

14.3 If new construction or another lamination procedure is taken up from the approved one, specimens may be taken from the production for research porpose.

14.4 Material properties are always to be examined if material dimensions are to be based on material quality above minimum demands.

OBS Article 4.3 in Nordic boatstandard makes allowance for building of boats using orthophthalic polyester, providing the surface being applied with waterresistant coat afterward. This allowance is not accepted in Iceland.

C-27 Building of steel boats.

2. in the Icelandic version is identical to part 2 of Nordic boatstandard for pleasure boats regarding: Manufacturing and storage premises.
- 2.1 Steel intended for construction of boats is to be stored under roof and free from the ground to avoid the material from getting damp.
- 2.2 Material that is stored flat is to be stored indoors.
- 2.3 Steel boats are generally to be built under roof at a temperature not less than -5°C.
- 2.4 When welded with gas-shield the working area is to be free from wind and draught.
- 2.5 Painting is to be carried out according to the paint manufacturer's instructions.
- 5.9 in the Icelandic version, 4.9 in Nordic boatstandard:
The minimum scantlings of weldings are to be as follows:

Plate thickness	a minimum
4 mm	2,0 mm
4 - 6 mm	3,0 mm
6 - 8 mm	3,5 mm

C-28 Building of aluminium boats.

- 6.4 All weldings are to be homogeneous through burning and have a smooth surface without visual defect. The welding scantlings are not to be less than as follows:

Welding method	Material thickness
MIG	2,0 mm
MIG short arc	1,5 mm
MIG pulsing arc	0,7 mm
TIG	0,7 mm

Plate thickness	a minimum
4 mm	2,0 mm
4 - 6 mm	3,0 mm
6 - 8 mm	3,5 mm

- 7.4 Rivets are to be as much as possible made of the same aluminium alloy as the respective plates and are not to be brittle when they are riveted.

10 in the Icelandic version:

- 10.1 The construction of aluminium boats is to be in such a manner that all welding work is sufficiently accessible.
- 10.2 Strength and stiffness of stiffeners is to be continuous and they are not to end on such a spot where it will cause a sudden change of strength in the construction. Brackets, washers and such is to be used where necessary.
- 10.3 Foundation of machinery and other equipment are to be connected to stiffeners.
- 10.4 Drainage to bilge well are to be arranged where necessary.

C-29 Building of wooden boats.

10. Caulking.

- 10.1 Seams are to be arranged between planks for caulking of carvel hulls and plank decks. The depth of the seams is to be about 3/5 of the plank thickness and the breadth at the top of it 3-5 mm, narrowing down to zero at the bottom.
- 10.2 The plank seams are to be stopped to half with oakum and then filled to the top with pitch or other approved composition.

C-30 Additional requirements for fishing boats.

- 4.4 The demands for marking on hatches does not apply according to the Icelandic version.

- 6.4 The demands to capacity of bilge pumps in service space according to the Icelandic version is not to be less than the greater value of the following formulas:

$$Q = 0,3 l b \text{ m}^3/\text{hour or}$$

$$Q = 1,25 Q_1 \text{ m}^3/\text{hour}$$

l = length of the service space in metres.

b = breadth of the service space in metres.

Q₁ = capacity of sea pump.

- 7.3 The openings with flaps according to 7.1 are only accepted if the service space is not included in the buoyancy for stability, as the condition for freeing ports according to 7.2.

C-31 Additional requirements for passenger boats.

8. in the Icelandic version for toilets.

- 8.1 Each boat approved for carrying passengers is to be equipped with at least one toilet. Boat approved for 15 passengers and up to 50 is to be equipped with at least two toilets. Boat approved for 50 passengers or more is to be equipped with the two toilets stated above and additional one toilet for each 25 passengers over the first 50.
- 8.2 Each toilet is to be a separate space with lockable door. The toilets are to be well lightened and ventilated and on every toilet is to be a wash basin, running water and drain.
- 8.3 The number of toilets may be reduced from the demands in 8.1 in boats that are only used on short voyages where there are toilets at every stop. Each passenger boat is though to have at least one toilet.

C-32 Additional requirements for tugs.

The Icelandic requirements for tugs are as follows:

1. General

- 1.1 The requirements in this chapter apply in addition to requirements in other chapters to boats that are to be approved as tugs.

2. Documentation.

- 2.1 The following plans and informations are to be submitted in three copies, along with specifications according to C-1.5, for approval of tugs:

- towing arrangements, stating the tug's maximum and continuous bollard pull and the breaking strength of the towline.
- towing hook with attachment to hull structure.
- towing winch, if any, with foundation and control arrangements, also stating the maximum braking power, material quality of shafts and vertical distance of towline above foundation.
- the bollard pull testreport, but the test is to be obtained by approved method.

- 2.2 In the stability manual is to be stated the maximum bollard pull, point of pulling force, heeling force and moment as well as towing heeling arm on the GZ diagram of the most unfavourable loading conditions.

3. Stability.

- 3.1 The boat's stability is to be assessed when the towing line is in a transverse position. The towing heeling moment is to be based on the demands in 3.2.

- 3.2 The transverse heeling force from the towing line is assumed to be half the maximum bollard pull.

The towing heeling lever, S, is to be taken as the vertical distance between the centre of propeller and the fastening point of towing hawse.

- 3.3 The towing heeling arm is to be calculated as follows:

$$T_a = 0,5 T S/$$

T = maximum bollard pull
S = see 3.2
= the boat's displacement according to C-2.5.3.

The towing heeling arm is not to exceed 0,5 times the maximum GZ corresponding to maximum allowable VCG.

4. Towing arrangement.
 - 4.1 The towing hook or towing winch is to be located as near as possible to the mid length of the boat. The arrangement is to be in such a manner that the heeling moment arising when the towline is running in the athwartships direction will be as small as possible.
 - 4.2 The design and scantlings of towing hook or towing winch, with attachment, is to be sufficient to withstand the breaking load of the towline without permanent deformation.
 - 4.3 The towline is to have a breaking strength of at least twice the specified maximum bollard pull of the boat.
5. Towing hook.
 - 5.1 Towing hooks are to be provided with reliable release arrangements, so that in case of critical situation, the towline can be immediately released regardless of angle of heel and direction of towline. The releasing device is to be operable from the wheel house.
6. Towing winch.
 - 6.1 Towing winches are to be provided with disconnecting coupling operable from the wheel house. The end attachment of the towline to the winch barrel is to be of limited strength so that it will break if in case of emergency the towline has to be run out.
7. Testing.
 - 7.1 The towing arrangement is to be function tested. That includes the releasing device on towing hooks and disconnecting coupling on towing winches.

P = PLEASURE BOATS

P-1 Nordic approval.

- 1.5 Owners of existing boats can get approval of their boats according to the Icelandic version of Nordic boatstandard. The procedure is as for approval of new boats.
- 1.6 Boats registered in Iceland are to be repaired or rebuilt according to Nordic boatstandard with respect to the construction of the boat in question.
- 5.1 According to the Icelandic version the specification and drawings in question are to be submitted for every boat, even boats built in series.
- 7.5 Only the boat parts completed at the boatbuilding yard can be accepted as a serie production according to the Icelandic version.

P-2 Definitions and symbols.

The definitions of boats in the Icelandic version is slightly different from the definitions in Nordic boatstandard. See the Icelandic definitions in C-2.1.2, C-2.1.3 and C-2.1.4.

P-14 Fire safety.

- 4.2 According to the Icelandic version a permission is made for smaller hand extinguishers with great effect, but it has to be accepted in each individual case with respect to the effect of the hand extinguishers in question.
6. in the Icelandic version are demands to fire alarm identical to demands in the rules for commercial boats. See C-14.6.1 and C-14.6.2.

P-16 Mooring and anchoring equipment.

2. in the Icelandic version are demands to anchoring equipment identical to demands in the rules for commercial boats with the same Icelandic additional demands.

P-19 in the Icelandic version are rules for construction of ferrocement boats, identical to Nordic rules for construction of vessels less than 15 metres, chapter 11, of 1983.

P-25 Dimensioning of wooden boats.

23.1 There are made demands to thickness of plywood flooring in open boats in the Icelandic version. The thickness of plywood flooring is not to be less than the greater value of the following formulas:

$$t = 0,07 f s p \text{ mm}$$

$$t = 2,0 + 0,8 L_{oa} \text{ mm}$$

t minimum 12 mm

P-26 Production of GRP boats.

1.3 The Icelandic version states that reparation and lamination of hull structure important to the safety of the boats is to be carried out by skilled workers under supervision of a forman with approval from the Icelandic Director of Shipping.