

REGULATIONS FOR THE ADMEASUREMENT OF VESSELS TO ASSESS TOLLS FOR USE OF THE PANAMA CANAL¹

Chapter I General Standards and Definitions

Article 1: These regulations establish the procedures and rules for the admeasurement of vessels, to assess the tolls to be charged by the Panama Canal Authority for the use of the Panama Canal, pursuant to its organic law.

Article 2: The words, expressions and acronyms used in these regulations shall have the following definitions:

Appendix. Complementary rules for the determination of the Panama Canal Universal Measurement System (PC/UMS) Net Tonnage, which is an integral part of these regulations.

Vessels with the Capacity to Carry Containers Above the Upper Deck²: A vessel that is not classified as a full container vessel, but has the capacity to transport containers above the upper deck. The Authority shall determine whether a vessel belongs in this category, taking into account the information provided by the ship.

Warship. Any vessel of government ownership that is being employed by its owners for military purposes, including armed coast guard patrol boats and naval training vessels. Auxiliary vessels such as tankers, ammunition vessels, refrigerator vessels, repair vessels, tenders or vessels used to transport general military supplies are excluded from this definition.

Full Container Vessel: ³A vessel specifically designed or converted to transport containers above the upper deck and that has permanently affixed cellular guides in its holds. The Authority shall determine whether a vessel belongs in this category, taking into account the information provided by the ship.

International Tonnage Certificate, 1969 (ITC 69). International Tonnage Certificate issued in accordance with the 1969 International Convention on Tonnage Measurement of Ships.

Upper Deck. The uppermost complete deck exposed to weather and sea, which has permanent means of weathertight closing of all openings in the weather part thereof, and below which all openings in the sides of the vessel are fitted with permanent means of watertight closing.

Weathertight. Water does not penetrate in the vessel, regardless of the condition of the sea.

Enclosed spaces. Those bounded by the vessel's hull, by fixed or portable partitions or bulkheads, by decks or coverings other than permanent or movable awnings. No break in a deck, nor any opening on the vessel's hull, in a deck or in a covering of a space, or in the partitions or

¹ Agreement No. 2 of September 3rd, 1998.

² Definition introduced by article 2 of Agreement 95 of March 30, 2005.

³ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

bulkheads of a space, nor the absence of a partition or bulkhead, shall preclude a space from being included in the enclosed space.

Excluded spaces. Notwithstanding the definition of enclosed spaces, the spaces referred to in Part C of Appendix, which are not included in the volume of the enclosed spaces. However, they shall be considered enclosed spaces when they meet any of the conditions stated in the first paragraph of the aforementioned Part.

Breadth or moulded breadth. The maximum breadth of the vessel, measured amidships to the moulded line of the frame in a vessel with a metal shell and to the outer surface of the hull in a vessel with a shell of any other material.

Number of TEU Carried During a Transit (NTT):⁴ Is the product of combining the various sizes of containers carried in open spaces above the upper deck of vessels that are not full container vessels, but have the capacity to carry containers above the upper deck, maximizing the volumetric space, expressing such volume in TEU units according to the conversion table in Article 10. The Authority reserves the right to verify the NTT to ensure that this data complies with the degree of accuracy required by the Authority.

Passenger. Every person on board, other than the master, members of the crew or other persons employed or engaged in any capacity on board on the business of that vessel, and children under one year of age.

Moulded Depth. The vertical distance measured from the top of the keel to the underside of the upper deck at side, with the variations described in Part A of Appendix of these regulations.

Universal Measurement System (UMS). The set of rules, measurements and calculations applicable for determining the gross and net tonnage, adopted in accordance with the 1969 International Convention on Tonnage Measurement of Vessels.

TEU (20-foot Container):⁵ A unit of measurement or reference equivalent to a 20-foot container whose external length, width, and height measurements are 20, 8, and 8.5 feet, respectively. A TEU represents a volume equal to 1,360 cubic feet.

Panama Canal Universal Measurement System (PC/UMS). The system based on the Universal Measurement System, 1969, using its parameters for determining the total volume of a vessel with the additional variations established by the Authority.

TEU Allowance Below Deck:⁶ The total container capacity in TEU that a full container vessel is able to carry in enclosed spaces, including those that may be transported in enclosed spaces above the upper deck. This capacity is determined by using the combination of the various sizes of the containers that maximize the volume of the space, expressing that volume in TEU units.

⁴ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

⁵ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

⁶ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

TEU Allowance Above Deck:⁷ The total container capacity in TEU that a vessel is able to carry in open spaces above the upper deck, not including those containers that may be carried in enclosed spaces above said deck. This capacity is determined by using the combination of the various sizes of the containers that maximize the volume of the space, expressing that volume in TEU units, which shall be adjusted to compensate for the visibility restriction of the Authority.

For vessels with the capacity to carry containers above the upper deck, the TEU allowance above deck shall be calculated for purposes of administrative managing of the transit reservation system.

Total TEU Allowance⁸: Is the sum of total allowable containers a vessel may carry in enclosed spaces below and above the upper deck (TEU allowance below deck) plus the total allowable containers that a vessel may carry above the upper deck (TEU allowance above deck).

Volume of Maximum Capacity (VMC).⁹

Total volume (V). The enclosed space of the vessel, expressed in cubic meters.

Article 3: The following shall be subject to measurement:

1. The enclosed spaces below deck.
2. The enclosed spaces above deck.
3. ¹⁰The maximum capacity of the vessel to carry containers below and above the upper deck.

Article 4: The Administrator of the Authority shall interpret and administer the rules of admeasurement established by these regulations.

Chapter II **Determination of Net PC/UMS Tonnage and Total TEU Allowance**¹¹

First Section **Requirements**

Article 5: For the purpose of admeasurement, the vessels transiting the Canal shall present an ITC 69 or a substitute document deemed acceptable by the Authority, based on a system substantially similar to the one adopted by the aforementioned agreement. In addition, these same vessels shall provide plans, classification certificates and documents with information stating the Total Volume of the vessel or sufficient information to determine this volume through mathematical calculations.

Warships, dredges, floating drydocks, vessels with a length overall of 30.48 meters or less, and vessels subject to the transitional relief measures referred to in article 11 of these regulations, are exempted from the requirement of presenting the documents mentioned in this article.

⁷ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

⁸ Definition introduced by article 2 of Agreement 95 of March 30, 2005.

⁹ Definition eliminated by article 1 of Agreement 95 of March 30, 2005.

¹⁰ Modified by article 3 of Agreement 95 of March 30, 2005.

¹¹ Chapter title modified by article 4 Agreement 95 of March 30, 2005.

Article 6:¹² In addition to the requirements of the previous article, vessels with the capacity to carry containers shall provide plans, classification certificates, and documentation with sufficient information to determine TEU allowance below deck and TEU allowance above deck, as defined in article 2 of this Regulation.

“The information to which the preceding paragraph makes reference shall be obtained from the Cargo Securing Manual (CSM) and the General Arrangement Plan (GA), which shall indicate the total number of containers and their measurements. In the event these documents do not meet the accuracy guidelines acceptable by the Authority, the alternate method of admeasurement set forth in this Regulation shall be followed.

All information referenced in this article and the preceding shall be submitted to the Boarding Officer of the Authority at the time the vessel is inspected.

Article 7:¹³ Vessels that fail to provide the documentation required in the preceding articles shall be subject to inspection by the Authority to determine **V**, pursuant to the PC/UMS Net Tonnage or total TEU allowance, as set forth in this Regulation.

Article 8:¹⁴ The Authority shall establish **V** to calculate the PC/UMS Net Tonnage; further, the Authority shall establish the values of TEU allowance below deck and TEU allowance above deck, as may be applicable.

“In calculating the PC/UMS Net Tonnage, TEU allowance below deck and TEU allowance above deck, the Authority may request and use complementary vessel information provided by the user or officials, persons or organizations authorized by national governments to undertake surveys, identify the capacity of containers that may be carried by the vessel, and issue national tonnage certificates. The information provided may be verified and corrected, if necessary, to ensure the accuracy required by the Authority.

“If the requested documentation is not provided, the user shall accept the figures resulting from the calculation by the Authority which, in its judgment, reflects **V**, TEU allowance below deck and TEU allowance above deck, as may be applicable.

Second Section Tonnage

Article 9:¹⁵ The tonnage of a vessel shall consist of the PC/UMS Net Tonnage, TEU allowance below deck and TEU allowance above deck, as may be applicable. These will be determined on the basis of the provisions set forth in this Regulation.

¹² Modified by article 5 of Agreement 95 of March 30, 2005.

¹³ Modified by article 6 of Agreement 95 of March 30, 2005.

¹⁴ Modified by article 7 of Agreement 95 of March 30, 2005.

¹⁵ Modified by article 8 of Agreement 95 of March 30, 2005.

The tonnage of novel types of vessels whose construction features make application of the rules unreasonable or impossible shall be determined in a manner that is acceptable to the Authority.

Article 10:¹⁶ PC/UMS Net Tonnage of vessels, except those subject to transitional relief measures or in the category of full container vessels as classified by the Authority, shall be calculated by the following formula:

$$\text{PC/UMS Net Tonnage} = K_4(V) + K_5(V)$$

For all vessels classified by the Authority as full container vessels, the admeasurement shall be based on the total TEU allowance, which shall be calculated by the following formula:

$$\text{Total TEU allowance} = \text{TEU allowance above deck} + \text{TEU allowance below deck}$$

To determine TEU allowance below deck, TEU allowance above deck, and NTT, as may be applicable, the following conversion table will be used.

SIZE	CALCULATION	EQUIVALENCE
20' x 8' x 8.5'	1360/1360	1.00 TEU
20' x 8' x 9.5'	1520/1360	1.12 TEU
40' x 8' x 8.5'	2720/1360	2.00 TEU
40' x 8' x 9.5'	3040/1360	2.24 TEU
45' x 8' x 9.5'	3420/1360	2.51 TEU
48' x 8' x 9.5'	3648/1360	2.68 TEU
54' x 8' x 9.5'	4104/1360	3.02 TEU

Any container whose size is not listed in the preceding table shall obtain its equivalence using the same method of calculation.

Article 11:¹⁷ Transitional relief measure is understood as the special treatment granted to the vessels that have made a transit of the Canal between March 23, 1976, and September 30, 1994. It consists in freezing the tonnage according to the Panama Canal Net Tonnage System that was in effect up to September 30, 1994. This measure is applied to vessels as long as they have not undergone a significant structural change, as defined in article 12 of these Regulations. These vessels may be exempted from presenting the ITC 69 or any other certificate regarding its **V**.

In these cases, the formula for determining the Panama Canal Universal Measurement System (PC/UMS) Net Tonnage is the following:

$$\text{PC/UMS Net Tonnage} = \text{Panama Canal Net Tonnage}$$

¹⁶ Modified by article 9 of Agreement 95 of March 30, 2005

¹⁷ Modified by article 10 of Agreement 95 of March 30, 2005

The transitional relief measure shall not apply to vessels classified by the Authority as full container vessels.

Article 12: Vessels whose PC/UMS Net Tonnage is determined in accordance with Article 10, may be subject to a new admeasurement if there is a change in the *V*.

Vessels whose PC/UMS Net Tonnage is determined in accordance with article 11, shall retain that tonnage classification as long as they do not undergo any significant structural change, understanding such a change to be a real variation of no less than ten percent (10%) of the vessel's *V*. In the event of a significant structural change, the vessel's PC/UMS Net Tonnage shall be determined in accordance with article 10.

Article 13:¹⁸ The full container vessels whose total TEU allowance has been calculated pursuant to article 10 shall maintain said total as long as they have not undergone a structural or documentation change affecting the total TEU allowance. In the event of a structural or documentation change affecting the carrying capacity of same, the total TEU allowance shall be determined pursuant to the provisions of said article.

Vessels with the capacity to carry containers above the upper deck, whose TEU allowance above deck has been calculated as defined in this Regulation and which undergo structural or documentation changes affecting said TEU allowance above deck, shall be established using the conversion table in article 10.

Article 14: All volumes included in the calculation of the PC/UMS Net Tonnage shall be measured, irrespective of the fitting of insulation or the like, to the inner side of the shell or structural boundary plating in vessels constructed of metal, and to the outer surface of the shell or to the inner side of structural boundary surfaces in vessels constructed of any other material.

The *V* shall include the volume of the appendages of the vessel and may exclude the spaces open to the sea.

Article 15: All measurements used in the calculation of volumes shall be taken to the nearest centimeter or to one-twentieth of a foot.

The volumes shall be calculated by generally accepted methods for the space concerned, and with the degree of accuracy accepted by the Authority, verifying the calculations in a detailed manner, so that their precision may be corroborated.

Chapter III **Alternative Method for the Admeasurement of Vessels**

Article 16:¹⁹ When the ITC 69 or suitable substitute or the necessary documentation to calculate *V* are not been presented, or when these documents do not meet the standards of accuracy acceptable by the Authority, the vessels will be measured to include the entire cubic contents of *V*, as is defined in this chapter.

¹⁸ Modified by article 11 of Agreement 95 of March 30, 2005

¹⁹ Modified by article 12 of Agreement 95 of March 30, 2005

In the event the vessels classified by the Authority as full container vessels or vessels with the capacity to carry containers above the upper deck that have not submitted the Cargo Securing Manual and the General Arrangement Plan, their equivalents, or when these documents do not comply with the standards of accuracy acceptable to the Authority, the TEU allowance below deck and TEU allowance above deck, as may be applicable, shall be established using any other method acceptable to the Authority.

Article 17:²⁰ The Authority shall endeavor to determine **V**, TEU allowance below deck and TEU allowance above deck, as may be applicable, as accurately as possible, on the basis of information available at the time of the calculation, using generally accepted methods for the space concerned and/or for determining allowable TEU within the parameters of accuracy acceptable to the Authority.

Article 18: Vessels that do not present the documentation prescribed by the previous article shall be measured as follows:

(1) The volume of structures above the upper deck may be determined by any method or combination of methods that are acceptable to the Authority. These methods shall include simple geometric formulas, Simpson’s rules and other standard mathematical formulas. If special procedures are used, they must be identified.

Measurements and calculations should be sufficiently detailed and concise, so as to permit easy review by the Authority.

(2) The volume of the hull under the upper deck (UDV) shall be determined by using the formula:

$$UDV = \{0.91 \times [(LOA \times MB) \times (D - SLD)]\} + (SLDISP/1.025)$$

If the previous formula proves unworkable, the **V** of the hull below the upper deck shall be determined by multiplying the product of the LOA, MB and D, as defined in Part G of the Appendix, by the corresponding coefficient indicated in the following table:

LOA in meters	COEFFICIENT
>0 to 30	.7150
>30 to 60	.7250
>60 to 90	.7360
>90 to 120	.7453
>120 to 150	.7328
>150 to 180	.7870
>180 to 210	.8202
>210 to 240	.7870
>240 to 270	.7328
>270	.7453

²⁰ Modified by article 13 of Agreement 95 of March 30, 2005

(3) The V of a vessel is the sum of the volume of the structures above the upper deck as determined in accordance with (1) above, and the volume of the hull below the upper deck, as determined in accordance with the parameters established in (2) above.

Article 19: Vessels which have had their V determined in accordance with article 16 may apply for re-admeasurement when they present a new or corrected ITC 69, a suitable substitute, or sufficient documentation to re-calculate their V .

Article 20:²¹ Vessels for which TEU allowance below deck and TEU allowance above deck have been determined in accordance with the guidelines of article 16, may request the determination of a new admeasurement upon the presentation of a new and revised Cargo Securing Manual and a General Arrangement Plan or other pertinent, acceptable documents that will allow a recalculation of their allowable TEU.

Chapter IV **Certificate of Admeasurement**²²

Article 21: The admeasurement of vessels shall be carried out by the Authority's specialized personnel, or by agents authorized by it. Each transiting vessel shall present to the Authority a complete set of plans and calculation sheets, with the dimensions that served as the basis for obtaining its ITC 69, and a copy of the same.

Article 22:²³ The Authority shall provide each vessel or its representative or agent, the Certificate of Admeasurement, which shall be carried on board the vessel as proof that it has been inspected and measured.

Article 23:²⁴ The Authority may correct the Certificates of Admeasurement when a difference in either V , TEU allowance below deck, or TEU allowance above deck, as applicable, is found after examining the documents or inspection of the vessels.

Chapter V **Warships, Dredges and Floating Drydocks**

Article 24: The toll on warships, dredges and floating drydocks shall be based on their tonnage of actual displacement. To this effect, these vessels shall be required to present documents stating accurately the displacement tonnage at each possible mean draft.

Article 25: The actual displacement tonnage of these vessels shall be determined in a manner acceptable to the Authority, and shall be expressed in long tons (equivalent to 1.016 metric tons or 2 240 pounds).

²¹ Modified by article 14 of Agreement 95 of March 30, 2005

²² Title modified by article 15 of Agreement 95 of March 30, 2005

²³ Modified by article 16 of Agreement 95 of March 30, 2005

²⁴ Modified by article 17 of Agreement 95 of March 30, 2005

Article 26: If the user does not produce the necessary documents, the Authority may use any acceptable and practicable method to determine the displacement tonnage.

Chapter VI Final Provisions

Article 27: To prepare the documentation required by the Authority, a vessel must meet the following conditions to be considered in ballast status:

- (1) Not carry passengers.
- (2) Not carry fuel for its own use, in excess of the volume of its liquid fuel tanks certified by official marking.
- (3) Not use the spaces certified and marked as sedimentation tanks for the storage of lubricants or liquid fuel and fixed tanks or compartments for the stowage of cargo or stores.

Non-observance of the foregoing shall cause the vessel to be considered laden.

Article 28: Vessels passing through the locks at either end of the Panama Canal and returning to the original point of entry without passing through the locks at the other end of the Canal, shall be considered as having made a full transit. Re-entry of the same vessel shall be considered a new transit.

Article 29: Vessels of a length overall equal to or less than 30.48 meters (100 feet), unless otherwise prescribed by other regulations, are exempted from the PC/UMS admeasurement.

Article 30: These regulations shall become effective as of noon, December thirty-first, nineteen ninety-nine.

PARAGRAPH: The Administrator of the Panama Canal Authority is hereby authorized to publish and disseminate these regulations in a different format, including notes and comments, to facilitate its use by the users of the Canal.”

APPENDIX

A. EXPANSION ON THE DEFINITION OF MOULDED DEPTH:

In **wood and composite vessels** the distance is measured from the lower edge of the keel rabbet. Where the form at the lower section of the midvessel section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

In vessels having **rounded gunwales**, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwales were of angular design.

Where the **upper deck is stepped** and the raised section of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower section of the deck along a line parallel with the raised section.

B. MEANING OF THE SYMBOLS USED WITH THE FIGURES IN THIS REGULATION:

O = excluded space.

C = enclosed space.

I = space to be considered as an enclosed space.

Hatched in sections to be included as enclosed spaces.

B = breadth of the deck in way of the opening.

In vessels with rounded gunwales the breadth is measured as indicated in Figure 11.

C. DEFINITION OF EXCLUDED SPACES:

Are the spaces described below, unless they meet any of the following three conditions, in which case they shall be considered enclosed spaces:

- The space is fitted with shelves or other means for securing cargo or stores;
- The openings are fitted with any means of closure;
- The construction provides any possibility of such openings being closed.

1.a A space within an erection opposite an end opening extending from deck to deck except for a curtain plate of a depth not exceeding by more than 25 millimeters (one inch) the depth of the adjoining deck beams, such opening having a breadth equal to or greater than 90 percent of the breadth of the deck at the line of the opening of the space. This provision shall be applied so as to exclude from the enclosed spaces only the space between the actual end opening and a line

drawn parallel to the line or face of the opening at a distance from the opening equal to one-half of the width of the deck at the line of the opening (Figure 1).

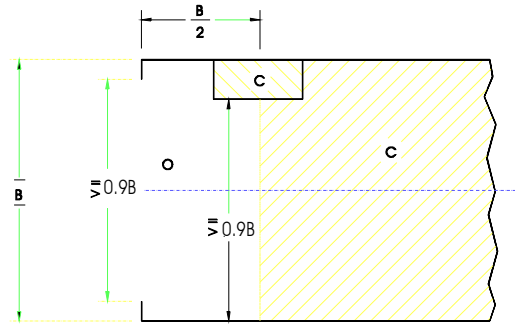


Fig. 1

1.b Should the width of the space because of any arrangement except by convergence of the outside plating, become less than 90 percent of the breadth of the deck, only the space between the line of the opening and a parallel line drawn through the point where the athwarships width of the space becomes equal to or less than 90 percent of the breadth of the deck shall be excluded from the volume of enclosed spaces. (Figures 2, 3 and 4).

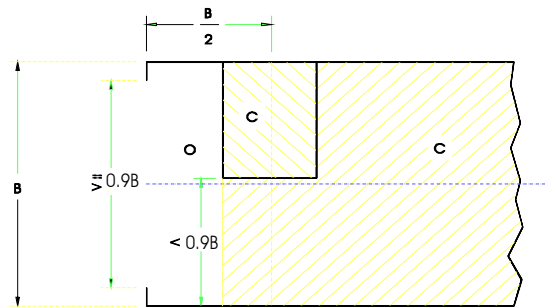


Fig. 2

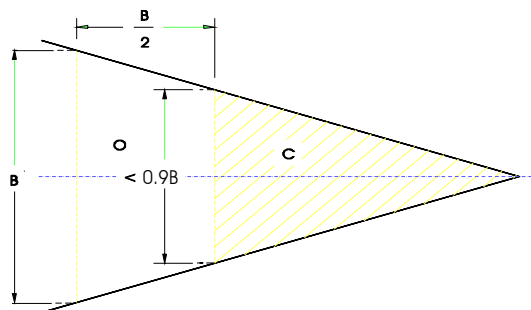


Fig. 3

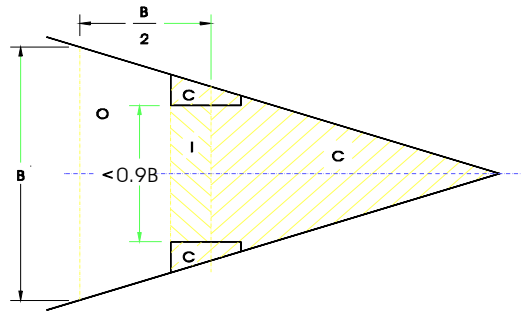


Fig. 4

1.c Where an interval which is completely open except for bulwarks or open rails separates any two spaces, the exclusion of one or both of which is permitted under paragraphs 1.a and 1.b , such exclusion shall not apply if the separation between the two spaces is less than the least half breadth of the deck in way of the separation. (Figures 5 and 6).

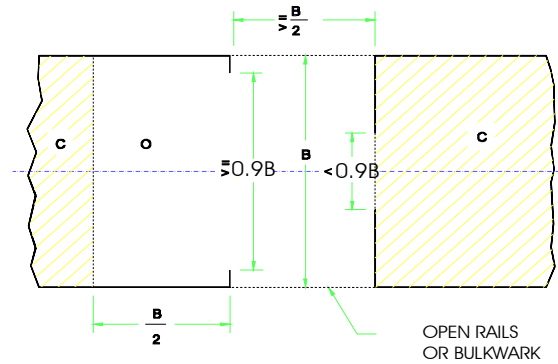


Fig. 5

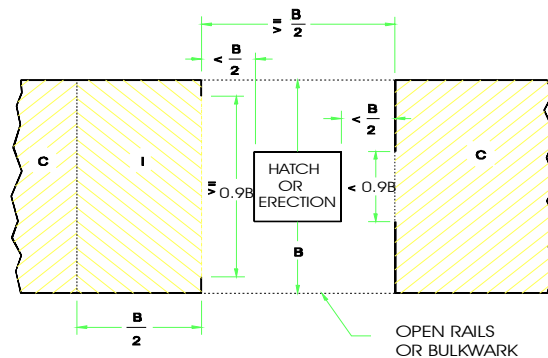
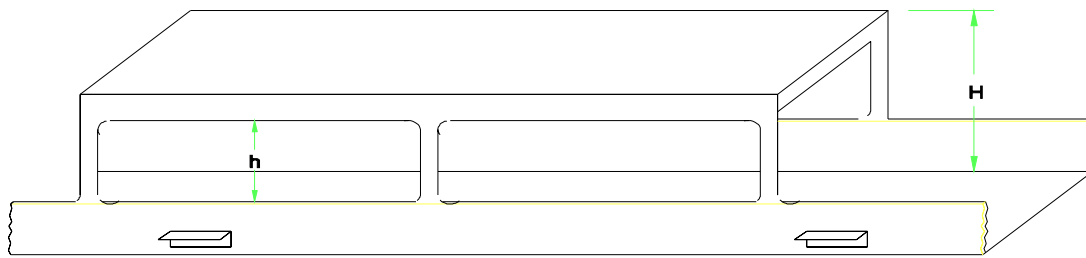


Fig. 6

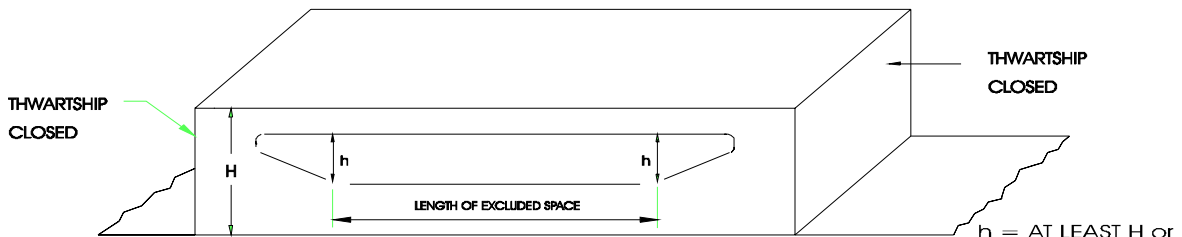
2. A space under an overhead deck covering open to the sea and weather, having no other connection on the exposed sides with the body of the vessel than the stanchions necessary for its support. In such a space, open rails or a bulwark and curtain plate may be fitted or stanchions fitted at the vessel's side, provided that the distance between the top of the rails or the bulwark and the curtain plate is not less than 0.75 meters (2.5 feet) or one-third of the height of the space, whichever is the greater. (Figure 7).



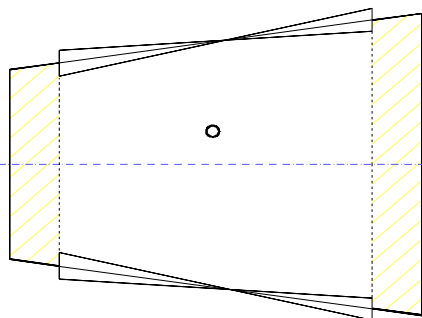
$h = \text{AT LEAST } \frac{H}{3}$
 0.75m (2.5 FEET)
 WHICHEVER IS
 THE GREATER

Fig. 7

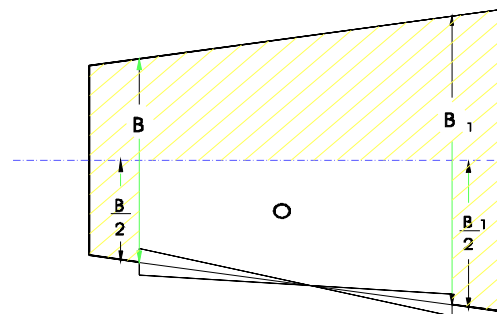
3. A space in a side-to-side erection directly in way of opposite side openings not less in height than 0.75 meters (2.5 feet) or one-third of the height of the erection, whichever is the greater. If the opening in such an erection is provided on one side only, the space to be excluded from the volume of enclosed spaces shall be limited inboard from the opening to a maximum of one-half of the breadth of the deck in way of the opening (Figure 8).



$h = \text{AT LEAST } \frac{H}{3}$
 0.75m (2.5 FEET)
 WHICHEVER IS
 THE GREATER



OPPOSITE SIDE OPENINGS



OPENING ON ONE SIDE ONLY

Fig. 8

4. A space in an erection immediately below an uncovered opening in the deck overhead, provided that such an opening is exposed to the weather and the space excluded from enclosed spaces is limited to the area of the opening. (Figure 9).

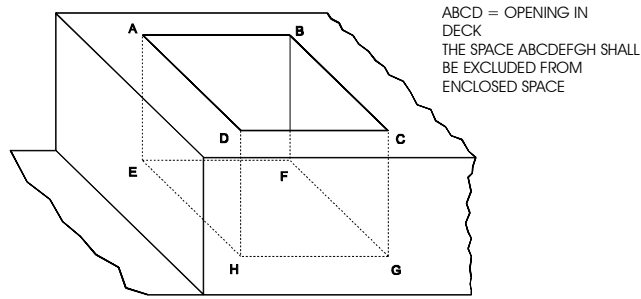


Fig. 9

5. A recess in the boundary bulkhead of an erection which is exposed to the weather and the opening of which extends from deck to deck without means of closing, provided that the interior width is not greater than the width at the entrance and its extension into the erection is not greater than twice the width of its entrance. (Figure 10).

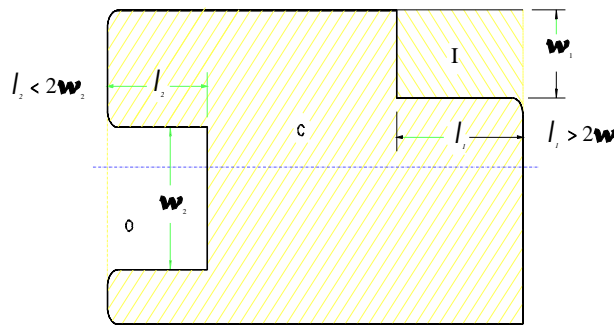


Fig. 10

SHIPS WITH ROUNDED GUNVALES

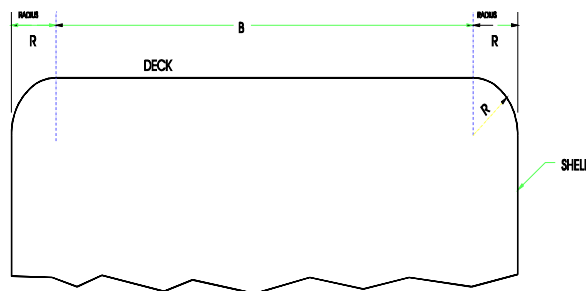


Fig. 11

D. EXPANSION OF THE UPPER DECK:

In a vessel having a stepped upper deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper section of the deck is taken as the upper deck.

E. DETERMINATION OF THE PC NET TONNAGE IN ACCORDANCE WITH THE UMS:²⁵

Explanation of the component of the formula used:

$$\text{PC/UMS Net Tonnage} = K_4(V) + K_5(V)$$

$$(a) K_4 = \{0.25 + [0.01 \times \text{Log}_{10}(V)]\} \times 0.830$$

$$(b) K_5 = [\text{Log}_{10}(\text{DA}-19)] / \{[\text{Log}_{10}(\text{DA}-16)] \times 17\}.$$

If the number of passengers ($N_1 + N_2$) is greater than 100 or DA is equal to or less than 20.0 meters, then K_5 is equal to zero.

(c) V = Total volume of all enclosed spaces of the vessel in cubic meters and is identical to V as specified in the 1969 International Convention on Tonnage Measurement of Vessels.

(d) DA (Average depth) = The result of the division of the V by the product of the length in meters multiplied by the moulded breadth in meters. $DA = V / (L \times MB)$.

(e) L (Length) is defined as 96 percent of the total length on a waterline at 85 percent of the least moulded depth measured from the top of the keel, or the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.

(f) MB = Moulded breadth is defined in article 2.

(g) N_1 = Number of passengers in cabins with no more than 8 berths.

(h) N_2 = Number of other passengers.

(i) $N_1 + N_2$ = Total number of passengers the vessel is permitted to carry as indicated in the vessel's passenger certificate."

F. CHANGE IN THE PC/UMS NET TONNAGE:

The Authority shall perform a fair and equitable volumetric comparison where a vessel does not have total comparative volumes according to ITC 69, or other suitable source of volumetric comparison, to determine if the vessel's structure has undergone a significant change.

G. MEASUREMENT OF VESSELS WHEN TONNAGE CANNOT BE OTHERWISE ASCERTAINED:

Explanation of the components of the formula:

²⁵ Paragraph modified by article eighteen of Agreement 95 of March 30, 2005.

The formula: $UDV = \{0.91 \times [(LOA \times MB) \times (D - SLD)]\} + (SLDISP/1.025)$

Where:

UDV = V of all enclosed spaces below the upper deck in cubic meters.

LOA = The Length overall, i.e., the length of the vessel in meters from the foremost to the aftermost points, including a bulbous bow if present.

MB = Moulded breadth in meters as defined in article 2.

D = Moulded depth in meters as defined in article 2.

SLD = Summer loaded draft (in meters) i.e., the maximum depth to which the vessel's hull may be immersed when in a summer zone.

SLDISP = Summer loaded displacement, i.e., the actual weight in metric tons of the water displaced by the vessel when immersed to her SLD.