Amendment on 20 June 2025 Resolved by Technical Committee on 29 January 2025

Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2)

Object of Amendment

Rules for the Survey and Construction of Steel Ships Part C Guidance for the Survey and Construction of Steel Ships Part C

Reason for Amendment

Part C of the Rules and Guidance for the Survey and Construction of Steel Ships was revised comprehensively in July 2022, and there are plans to continuously review it with the aim of improving their practicality and usability based on various feedback from relevant industry members.

Additionally, insights gained through research and development will be appropriately reflected in Part C to enhance safety and rationality.

Accordingly, relevant requirements are amended to reflect the results of the rule reviews and the research and development outcomes.

Outline of the Amendment

- (1) Revises the composition of requirements regarding hold bulkheads.
- (2) Revises the composition of requirements regarding side frames and clarifies their application.
- (3) Revises the composition of requirements regarding simple girders with the aim of clarifying the requirements.
- (4) Adds harbour condition for longitudinal strength assessments of container carriers.
- (5) Revises the scope of application for correction coefficient for the aspect ratio in the local strength calculation formula of plate members.
- (6) Specifies a simplified method for deriving stress due to hull girder loads as a reference in the early consideration of ship design.
- (7) Revises the simplified formula for the ship's hull centre of gravity to enhance accuracy.
- (8) Revises requirements regarding assessments for double hull structures based on feedback from ships applying Part C.
- (9) Clarifies some definitions and corrects typographical errors.

Effective Date and application

- 1. This amendment applies to ships for which the date of contract for construction is on or after 20 December 2025.
- 2. Notwithstanding the provision of preceding 1, this draft amendment may apply, upon request, to ships for which the date of contract for construction is before the effective date.

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance. ID:DH24-07

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
RULES FOR THE SURVEY AND	RULES FOR THE SURVEY AND	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
CONSTRUCTION OF STELL SHIFS	CONSTRUCTION OF STELL SHIFS	
Part CHULL CONSTRUCTION AND	Part CHULL CONSTRUCTION AND	
EQUIPMENT	EQUIPMENT	
Part 1 GENERAL HULL REQUIREMENTS	Part 1 GENERAL HULL REQUIREMENTS	
Chapter 1 GENERAL	Chapter 1 GENERAL	Amendment (9)
		Clarifies some
		definitions and corrects
1.1 General	1.1 General	typographical errors:
112 Application	112 Application	Removes the underlined
1.1.2 Application	1.1.2 Application	words because it can be
1.1.2.1 General	1.1.2.1 General	misunderstood that ships
1 The requirements in Part C apply to ships constructed	1 The requirements in Part C apply to ships constructed	to be classed for
of welded steel structures, composed of stiffened plate panels.	of welded steel structures, composed of stiffened plate panels.	restricted service can be
having a length L (as defined in 2.1.2, Part A) of not less than	having a length L (as defined in 2.1.2, Part A) of not less than	excluded from the
90 <i>m</i> However the hull structure requirements for ships	90 <i>m</i> and intended for unrestricted service. However, the hull	application of Part C.
complying with either the following (1) or (2) may be in	structure requirements for ships complying with either the	
accordance with those specified in Part C of the Rules for	following (1) or (2) may be in accordance with those specified	
the Survey and Construction of Steel Shins applicable to	in Part C of the Rules for the Survey and Construction of	
shins for which the date of contract for construction was	Steel Shins applicable to shins for which the date of contract	
before 1 July 2023 (hereinafter referred to as "Old Part (")	for construction was before 1 July 2023 (hereinafter referred	
may be applied	to as "Old Part C") may be applied	
(1) Sister shins of shins subject to Old Part C for which	(1) Sister shins of shins subject to Old Part C for which	
(1) Sister simps of simps subject to Ord 1 art C for which		

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
 the date of contract for construction was before 1 January 2025 (2) Ships for which the date of contract for construction is before 1 January 2028 and whose length L_c is less than 200 m. When Old Part C is applied, "Advanced Structural Rules" (abbreviated to ASR) defined in 1.2.1-4, Part A is not to be affixed. 2 Hull construction, equipment and scantlings of ships to be classed for restricted service may be appropriately modified depending on the condition of service in accordance with Annex 1.1 "Special Requirements for Restricted Service". 	 the date of contract for construction was before 1 January 2025 (2) Ships for which the date of contract for construction is before 1 January 2028 and whose length L_c is less than 200 m. When Old Part C is applied, "Advanced Structural Rules" (abbreviated to ASR) defined in 1.2.1-4, Part A is not to be affixed. 2 Hull construction, equipment and scantlings of ships to be classed for restricted service may be appropriately modified depending on the condition of service in accordance with Annex 1.1 "Special Requirements for Restricted Service". 	
1.4 Symbols and Definitions	1.4 Symbols and Definitions	
1.4.2 Primary Symbols and Units	1.4.2 Primary Symbols and Units	
1.4.2.2 Ship's Main Data Unless otherwise specified, the symbols of a ship's main data and their units used in Part C are those defined in Table 1.4.2-2 .	1.4.2.2 Ship's Main Data Unless otherwise specified, the symbols of a ship's main data and their units used in Part C are those defined in Table 1.4.2-2 .	

Original Amended Remarks Table 1.4.2-2 Ship's Main Data Table 1.4.2-2 Ship's Main Data Amendment (9) Clarifies some Symbol Meaning Unit Symbol Meaning Unit definitions and corrects (Omitted) (Omitted) typographical errors: Emergency ballast draught at midship, which is a Emergency ballast draught at midship, which is a draught at an emergency ballast condition. The draught at an emergency ballast condition. The Adds the definition of emergency ballast condition refers to a ballast emergency ballast condition refers to a ballast bow draught in the TRAL-E condition involving a cargo oil tank loaded with condition involving a cargo oil tank loaded with т T_{BAL-E} т ballast condition ballast water at emergency or heavy weather ballast water at emergency or heavy weather conditions allowable under Regulation 18 of conditions allowable under Regulation 18 of Annex I to the MARPOL Convention. Annex I to the MARPOL Convention. Bow draught in the ballast condition Midship draught in the loading condition to be TBAL-F <u>m</u> TLC т considered Midship draught in the loading condition to be TLC т considered (Omitted) (Omitted) Table 1.4.2-4 Loads Table 1.4.2-4 Loads Amendment (9) Clarifies some Symbol Meaning Unit Symbol Meaning Unit definitions and corrects (Omitted) (Omitted) typographical errors: Design uniform load due to cargoes, Deck load due to unspecified cargoes stores or other equipment loaded on kN/m^2 or stores loaded on general cargo Clarifies the definition kN/m^2 P_{dk} P_{dk} ships and the like deck. of deck load (Omitted) (Omitted) 1.4.2.5 Scantlings 1.4.2.5 Scantlings Unless otherwise specified, the symbols regarding Unless otherwise specified, the symbols regarding scantlings and their units used in Part C are those defined in scantlings and their units used in Part C are those defined in Table 1.4.2-5. Table 1.4.2-5.

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2)) Original Remarks Amended Table 1.4.2-5 Scantlings Amendment (9) Clarifies some Symbol Meaning Unit definitions and corrects (Omitted) typographical errors: Distance from the upper edge of the web to the top of the flange for L3 profiles de mm Deletes the definition of (Omitted) d_e because L3 profile is not used in Part C SPECIAL REQUIREMENTS FOR Annex 1.1 **SPECIAL REOUIREMENTS FOR** Annex 1.1 **RESTRICTED SERVICE RESTRICTED SERVICE** An1 General An1 General An1.3.1 General An1.3.1 General 8 For ships having a freeboard length $L_{\rm f}$ no less than 80 (Newly Added) Amendment (1) *m* and not engaged on international voyages are not to comply Revises the composition with the damage stability requirements specified in 2.2.1.1-7, of requirements 2.3.2.1-2 and 2.4.1.1-1, following (1) and (2) are to be met. regarding hold (1) Ships are to have watertight hold bulkheads at bulkheads. reasonable intervals, in addition to the watertight Transferred from Ch.2. bulkheads specified in 2.2.1.1 to 2.2.1.3, so that the For ships not engaged in total number of watertight bulkheads will be no less international voyages than that specified in Table An4. Where the distance with a Lf of 80 m or between two neighbouring bulkheads is less than more that do not satisfy $0.7\sqrt{L_c}$ (m), these two bulkheads are not counted as the requirements regarding damage two bulkheads. Where it is impracticable for the ship's trade, the stability as stipulated in (2)number of hold bulkheads of ships of special types the SOLAS have been transferred from Chapter may be reduced in accordance with (a) to (c), taking into account the effect on the transverse strength of 2. In accordance with

()	Amendment related to	Part C of the	Rules for Surve	y and Construction	of Steel Ships	(2024 Amendment 2))
				5	1		

Amended	Original	Remarks
Antended the hull. (a) Ships carrying long cargoes (rails, sheet piles or similar long cargoes), train ferries and car carriers may omit one bulkhead where the required number is 5 or less, and 2 bulkheads where the required number is 6 or more. (b) Ships having conveyor systems for handling cargoes may omit all hold bulkheads, if necessary. (c) Ships other than those specified above are, as a rule, not regarded as special type ships.		Remarksthis change, the provision to reduce the total number of bulkheads by considering flooding into one compartment, which was originally specified, has been deleted. Ships with Lf of less than 80m are applied the requirements of Pert CS, so there is no change.
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	state state otal number of watertight bulkheads	Transferred from Ch.2.
100 200 International of the second sec	the Society.	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amendeo	d		Remarks	
Chapter 2 GENERAI	LARRANGEMENT	Chapter 2	GENERAL ARRANGEMENT	
DESIG	N		DESIGN	
2.2 Subdivision Arrangemen	it	2.2 Subdivisio	on Arrangement	
2.2.1 Arrangement of Wate	ertight Bulkheads	2.2.1 Arrang	gement of Watertight Bulkheads	
2.2.1.4 Hold Bulkheads 1 <u>For all ships</u> to satisfy the requirements, watertight hold bu reasonable intervals, in addition to specified in 2.2.1.1 to 2.2.1.3. (Deleted)	applicable damage stability lkheads are to be fitted at to the watertight bulkheads	2.2.1.4 Hold B 1 For ships applicable damage bulkheads are to b to the watertight but (1) Ships con (including (2) Tankers in Part 3 Preventio (3) Ships car carrying da (4) Ships in con Annex 1.1 Bulk Carr 2 Ships other watertight hold but to the watertight b that the total number than that specifice between two neight	Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution	Clarifies that ships which applies to Part C are required to have watertight bulkheads to satisfy the requirements regarding damage stability. Transferred to Annex 1.1, An1.3.1.
(Deleted)		<u>3</u> Where it is	impracticable to adhere to -2 above due to	

Amended	Original	Remarks
	the requirements for the ship's trade, the number of hold	
	bulkheads may be reduced in accordance with one of the	
	following (1) to (3), taking into account the effect of the	
	smaller number of bulkheads on the transverse strength of the	
	hull. Where the number of watertight bulkheads is decreased	
	from that required according to the following (2), an	
	application for the omission of bulkheads stating the reasons	
	for such omission is to be submitted by the shipowner to the	
	Society:	
	(1) The number of bulkheads specified by the	
	requirements of Note (1) or (2) in Table 2.2.1-1.	
	(2) For ships of special types, the number is in accordance	
	<u>with (a), (b) or (c):</u>	
	(a) Ships carrying long cargoes (rails, sheet piles or	
	similar long cargoes), train ferries and car carriers	
	may omit one bulkhead where the required	
	number is 5 or less, and 2 bulkheads where the	
	required number is 6 or more.	
	(b) Ships having conveyor systems for handling	
	cargoes may omit all hold bulkheads, if	
	necessary.	
	(c) Ships other than those specified above are, as a	
	rule, not regarded as special type ships.	
	(3) Where special consideration is given for improving	
	the safety of ships by means such as that of a double	
	<u>null, the arrangement of watertight bulkheads may be</u>	
	different from that required in the Rules.	

Amended	Original	Remarks
(Deleted)	Table 2.2.1-1 Number of Watertight Bulkheads	Transferred to Annex
	<u><i>L_C</i>(<i>m</i>)</u> Total number of watertight bulkheads	1.1, Table An4.
	<u>not</u> <u>less</u>	
	<u>less</u> <u>than</u>	
	than	
	90 102 5	
	102 123 6	
	123 143 7	
	143 105 8	
	$\frac{105}{186}$ $\frac{100}{200}$ The number of bulkbeads arranged in accordance	
	with Notes (1) and (2)	
	200 The number of bulkheads arranged in accordance	
	with Note (2)	
	(Notes)	
	(1) The ship has sufficient transverse strength of the hull.	
	(2) The final waterline does not exceed the upper surface of	
	the bulkhead deck at the side of the ship even after any	
	under the load condition corresponding to the summer	
	load water line. The permeability used in flooding	
	calculations is to be in accordance with Tables 2.2.1-2 or	
	2.2.1-3.	

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Origi	Remarks					
(Deleted)	Table 2.2.1-2 Permeab	Table 2.2.1-2 Permeability of Cargo Holds					
	Cargo hold condition	Permeability					
	Empty	<u>0.95</u>					
	Loaded with general cargo	0.60					
	Loaded with timber	0.55					
	Loaded with ore	<u>0.50</u>					
	Loaded with cars or containers	$\frac{0.95 - 0.35 \times \frac{V_C}{V_0}}{}$					
	(Notes) $V : Volume (m^3)$ occupied by cars and/or	containers					
	V_0 : Moulded volume (m^3) of the compart	ment					
(Deleted)	Table 2.2.1-3 Permea	bility of Deep Tanks					
	Tank condition	Permeability					
	Empty	<u>0.95</u>					
	<u>Filled</u>	<u>U</u>					
	For spaces loaded with special kinds of	cargo, a suitable permeability is used					
	depending on the kind of cargo.						
Chapter 3 STRUCTURAL DESIGN PRINCIPLES	Chapter 3 STRU PRINCI						
3.3 Net Scantling Approach	3.3 Net Scantling Approac						
Symbols	Symbols						
For symbols not defined in this Section, refer to 1.5.	For symbols not defined in th						
t: Net thickness (<i>mm</i>)	t: Net thickness (<i>mm</i>)	t: Net thickness (<i>mm</i>)					
t_c : Corrosion addition (<i>mm</i>)	t_c : Corrosion addition (<i>mm</i>)	1)					

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Amended t_{gr} : Gross thickness (mm) h_{stf} : Height (mm) of stiffener or primary supportingmember h_w : Web height (mm) of stiffener or primary supportingmember t_w : Web thickness (mm) of stiffener or primarysupporting member b_f : Face plate width (mm) of stiffener or primarysupporting member t_f : Face plate thickness (mm) of stiffener or primarysupporting member t_f : Face plate thickness (mm) of stiffener or primarysupporting member t_f : Thickness (mm) of the plating attached to a stiffeneror to a primary supporting member (hereinafter referred toas "attached plating")(Deleted) d_f : Distance (mm) for the shorter extension of flange forL2 profiles (See Fig. 3.3.3-1)(Omitted)	$t_{gr}: \text{ Gross thickness } (mm)$ $h_{stf}: \text{Height } (mm) \text{ of stiffener or primary supporting member}$ $h_w: \text{ Web height } (mm) \text{ of stiffener or primary supporting member}$ $t_w: \text{ Web thickness } (mm) \text{ of stiffener or primary supporting member}$ $t_f: \text{ Face plate width } (mm) \text{ of stiffener or primary supporting member}$ $t_f: \text{ Face plate thickness } (mm) \text{ of stiffener or primary supporting member}$ $t_f: \text{ Face plate thickness } (mm) \text{ of stiffener or primary supporting member}$ $t_f: \text{ Face plate thickness } (mm) \text{ of stiffener or primary supporting member}$ $t_p: \text{ Thickness } (mm) \text{ of the plating attached to a stiffener or to a primary supporting member (hereinafter referred to as "attached plating")}$ $d_e: \text{ Distance } (mm) \text{ from the upper edge of the web to the top of the flange for L3 profiles (See Fig. 3.3.3-1)}$ $d_f: \text{ Distance } (mm) \text{ for the shorter extension of flange for } L2 \text{ profiles } (See \text{ Fig. 3.3.3-1})$ (Omitted)	Remarks Amendment (9) Clarifies some definitions and corrects typographical errors: Deletes the definition of d_e because L3 profile is net topological errors
3.5 Minimum Requirements3.5.2 Slenderness Requirements	3.5 Minimum Requirements3.5.2 Slenderness Requirements	
 3.5.2.1 Application 1 All structural members are to meet the slenderness requirements specified in 3.5.2, except for those listed below: Bilge plates within the cylindrical part of the ship and the radius gunwale 	 3.5.2.1 Application 1 All structural members are to meet the slenderness requirements specified in 3.5.2, except for those listed below: Bilge plates within the cylindrical part of the ship and the radius gunwale 	

Amended-Original Requirements Comparison Table

(Amendment related to Par	rt C of the Rules for Surve	y and Construction of Steel Shi	ps	(2024 Amendment 2))
`		(1		/

Amended	Original	Remarks
• Structure members in superstructures and deck	• Structure members in superstructures and deck	
houses in cases where such members do not	houses in cases where such members do not	
contribute to longitudinal strength.	contribute to longitudinal strength.	
Pillars in superstructures and deckhouses are to	Pillars in superstructures and deckhouses are to	
comply with the applicable slenderness and proportion	comply with the applicable slenderness and proportion	
requirements specified in 3.5.2.	requirements specified in 3.5.2.	
2 Where structural members are deemed by the Society	2 Where structural members are deemed by the Society	
as having an effectiveness equivalent to those compliant with	as having an effectiveness equivalent to those compliant with	
3.5.2, such members are to be deemed compliant with 3.5.2.	3.5.2, such members are to be deemed compliant with 3.5.2.	Amendment (9)
3 Notwithstanding -1 above, thickness of shell plating,	3 Notwithstanding -1 above, thickness of shell plating,	Clarifies some
deck, bulkhead and web of girder and stiffness of stiffener	deck, bulkhead and web of girder and stiffness of stiffener	definitions and corrects
need not to comply with 3.5.2, provided that buckling strength	need not to comply with 3.5.2, provided that buckling strength	typographical errors:
requirements specified in 5.3 and 8.6.2, if applicable, are	requirements specified in 5.3 and 8.6.2, if applicable, are	
satisfied.	satisfied.	In the case of the hatch
<u>4</u> Notwithstanding -1 above, thickness of hatch cover	(Newly Added)	cover, as with section -3,
plating and web of girder, and stiffness of stiffener need not		it should be clearly
comply with 3.5.2, provided that buckling strength		stated that slenderness
requirements specified in 14.6.5.6, if applicable, are satisfied.		requirements need not to
		be applied where a
		detailed buckling
		strength assessment is
		conducted.

(/	Amendmen	t related	to P	art C	of the	Rule	s for	Survey	^v and	Constru	ction of	of Ste	el Sh	ips ((2024)	Amen	dment	2))
· ·								2						1				

Amended	Original	Remarks
3.6 Idealisation of Stiffeners and Primary Suppo Members	rting 3.6 Idealisation of Stiffeners and Primary Supporting Members	
3.6.4 Shear Area, Effective Shear Depth, Se Modulus and Moment of Inertia for Stiff and Primary Supporting Members	ction 3.6.4 Shear Area, Effective Shear Depth, Section Modulus and Moment of Inertia for Stiffeners and Primary Supporting Members	
3.6.4.2 Effective Shear Depth of Stiffeners	3.6.4.2 Effective Shear Depth of Stiffeners	
The effective shear depth d_{shr} (mm) of stiffen	The effective shear depth d_{shr} (<i>mm</i>) of stiffeners is to	
to be taken as:	be taken as:	
$d_{shr} = (h_{stf} - 0.5t_{c-stf} + t_p + 0.5t_{c-pl})\sin\phi$	$d_{shr} = (h_{stf} - 0.5t_{c-stf} + t_p + 0.5t_{c-pl})\sin\phi_w$	Amendment (9)
h_{stf} Height (mm) of stiffener as specified in	Fig. h_{stf} Height (mm) of stiffener as specified in Fig.	Clarifies some
3.3.3-1	3.3.3-1	definitions and corrects
t_p : Thickness (<i>mm</i>) of the stiffener attached p	ating t_p : Thickness (<i>mm</i>) of the stiffener attached plating	typographical errors:
as specified in Fig. 3.3.3-1	as specified in Fig. 3.3.3-1	
t_{c-stf} : Corrosion addition (mm) of consi	lered t_{c-stf} : Corrosion addition (<i>mm</i>) of considered	Corrects the references
stiffener as given in 3.3.3	stiffener as given in <u>3.2.5</u>	
t_{c-pl} : Corrosion addition (<i>mm</i>) of attached pl	te of t_{c-pl} : Corrosion addition (<i>mm</i>) of attached plate of	
the stiffener considered as specified in 3.3.3	the stiffener considered as specified in <u>3.2.5</u>	
ϕ_W : Angle (deg) as specified in Fig. 3.6.4-1. ϕ	w is ϕ_W : Angle (deg) as specified in Fig. 3.6.4-1. ϕ_W is	
to be taken as 90 <i>degrees</i> if the angle is g	eater to be taken as 90 <i>degrees</i> if the angle is greater	
than or equal to 75 degrees	than or equal to 75 degrees	

Amended Original Remarks Chapter 4 LOADS **Chapter 4** LOADS 4.2 Ship Motions and Accelerations 4.2 Ship Motions and Accelerations **Envelope Accelerations Envelope Accelerations** 4.2.4 4.2.4 4.2.4.1 Envelope Accelerations at Any Position 4.2.4.1 Envelope Accelerations at Any Position Envelope accelerations in the ship's longitudinal Envelope accelerations in the ship's longitudinal direction a_{Xe} (m/s²), those in transverse direction a_{Ye} direction a_{Xe} (m/s²), those in transverse direction a_{Ye} (m/s^2) and those in vertical direction a_{Ze} (m/s^2) at any (m/s^2) and those in vertical direction a_{Ze} (m/s^2) at any position are given in Table 4.2.4-1. position are given in Table 4.2.4-1.

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Ameno	ded	Original		Remarks
Table 4	4.2.4-1 Envelope Acceleration	s a_{Xe} , a_{Ye} and a_{Ze} at Any Position		Amendment (7)
Direction	Envelope accele	eration a_{Xe} , a_{Ye} and a_{Ze} (m/s^2)		Revises the simplified
Longitudinal	_			formula for the ship' s
direction	$a_{Xe} = 0.35\sqrt{a}$	$a_1^2 + [g \cdot \sin \phi + a_5(z - z_G)]^2$		hull centre of gravity to
Transverse				enhance accuracy.
direction	$a_{Ye} = \sqrt{a_2^2}$	$a^2 + [g \cdot \sin \theta + a_4(z - z_G)]^2$		
Vartical				Improves accuracy of
direction	$a_{Ze} = \sqrt{a_3^2 + \{\max(0, C_{SS}[-g(1 - \cos q)]\}}$	$(\phi) + a_5 x - x_G])^2 + [\max(0, -g(1 - \cos \theta) + a_4 y)]^2$		the simplified formula
Notes:				for X coordinate at the
x_G : X coordinate (m) at t	he centre of gravity of the ship to be take:	n as $x_G = 0.45(0.36 + 0.2C_{BLC})L_C$. However, the value		hull centre of gravity of
calculated based on t	he weight distribution corresponding to t	he loading condition under consideration may be used.		the ship, so that it can be
z_G : Z coordinate (m) at the	he centre of gravity of the ship, the value	¹⁾ in the loading condition under consideration, which is		used for various hull
described in the load	ing manual, is to be used.			shapes
a_1 : Surge acceleration (<i>n</i>)	n/s^2) at the centre of gravity of the ship, a	s given in Table 4.2.3-1		1
a_2 : Sway acceleration (<i>n</i>)	u/s^2) at the centre of gravity of the ship, as	s given in Table 4.2.3-2		
a_3 : Heave acceleration (a)	m/s^2) at the centre of gravity of the ship, a	as given in Table 4.2.3-3		1
a_4 : Roll angular accelera	ation (rad/s^2) at the centre of gravity of the	e ship, as given in Table 4.2.3-4		1
a_5 : Pitch angular acceler	cation (rad/s^2) at the centre of gravity of the	he ship, as given in Table 4.2.3-5		1
θ : Roll angle (<i>rad</i>), as gi	Ven in Table 4.2.2-1			1
φ : Fich angle (<i>raa</i>), as g	21ven in Table 4.2.2-2			
	L_{C}			
$L_{\rm SS} = \min($	$0.3 + \frac{1}{325}, 1.0$			
(1) The relevant requirement	ents in Part 2 may be applied where the value	is not available.		
	r			
4.4 Loads to be Considered	l in Local Strength	4.4 Loads to be Considered in Local Stren	lgth	
442 Maximum Load Co	ndition	4.4.2 Maximum Load Condition		
4.4.2 Maximum Load Co	nution	4.4.2 Maximum Load Condition		Λ m on $d_{\rm m}$ on t (0)
4422 Lateral Loads		4422 Lateral Loads		Clarifica como
3 Notwithstanding -2 abo	ve design uniform load P.	3 Notwithstanding -2 above deck load	P_{ii} (kN/m^2)	definitions and corrects
(kN/m^2) due to cargoes stores of	or other equipment loaded on	due to unspecified cargoes and stores in general	1 cargo shins	trm a grambia -1
deck is to be obtained from the	following formula but not to	etc is to be obtained from the following formula	ila but not to	typographical errors:
<u>acen</u> , is to be obtained from the	iono ming ionnuia, oui not to	<u>etc.</u> , is to be obtained from the following formula	in, out not to	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks	
be less than 0.	be less than 0.	Clarifies the definition	
$P_{dk} = P_{dks} + P_{dkd}$	$P_{dk} = P_{dks} + P_{dkd}$	of deck load	
P_{dks} : Static pressure (kN/m^2) due to <u>cargoes</u> , stores of	P_{dks} : Static pressure (kN/m^2) due to <u>unspecified</u>		
other equipment loaded on deck, as specified in	cargoes and stores in general cargo ships, as		
Table 4.4.2-2	specified in Table 4.4.2-2		
P_{dkd} : Dynamic pressure (kN/m^2) due to <u>cargoes</u>	P_{dkd} : Dynamic pressure (kN/m^2) due to <u>unspecified</u>		
stores or other equipment loaded on deck, as	cargoes and stores in general cargo ships, as		
specified in Table 4.4.2-2	specified in Table 4.4.2-2		
Table 4.4.2-2 Lateral Loads	Table 4.4.2-2 Lateral Loads		
Internal	Internal		
P_{in}	P_{in}		
Design uniform	External <u>Unspecified</u>		
External load due to Green	pressure P_{ex} (Omitted) <u>cargoes and</u> Green		
(Omitted) <u>cargoes, stores</u> sea	stores in general pressure		
<u>or other</u> pressure	cargo ships, etc.		
loaded on deck	P_{exs} (Omitted) P_{dks} P_{GW}		
P_{exs} (Q : (4)) P_{dks} D	$\frac{P_{erw}}{P_{erw}} = \frac{P_{arw}}{P_{arw}} + \frac{P_{arw}}{P_{arw}} = \frac{P_{arw}}{P_{arw}} + \frac{P_{arw}}{P_{arw}} $		
$(4.4.2.3-1) \qquad (Omitted) \qquad (4.4.2.7-1) \qquad P_{GW}$	$(4.4.2.3-2) \qquad (Omitted) \qquad (4.4.2.7-2) \qquad (4.4.2.8)$		
P_{exw} (Omitted) P_{dkd} (4.4.2.8)	Notes:		
(4.4.2.3-2) (4.4.2.7-2)	The numbers in parentheses () indicate the sections of the		
The numbers in parentheses () indicate the sections of the	referenced requirements.		
referenced requirements.			
4.4.2.3 External Pressure due to Seawater	4.4.2.3 External Pressure due to Seawater		
1 Hydrostatic pressure P_{exs} (kN/m^2) corresponding to	1 Hydrostatic pressure P_{exs} (kN/m^2) corresponding to		
the scantling draught T_{SC} is to be considered (See Table	the scantling draught T_{SC} is to be considered (See Table		
4.4.2-3).	4.4.2-3).		
2 Hydrodynamic pressure P_{exw} (kN/m ²) specified in	2 Hydrodynamic pressure P_{exw} (kN/m ²) specified in		
Iable 4.4.2-4 is to be considered.	Table 4.4.2-4 is to be considered.		

Amended		Original	Remarks
Ta	ble 4.4.2-4 Hydrod	ynamic Pressure P _{exw}	Amendment (9)
Position under consideration		Hydrodynamic pressure P_{exw} (kN/m^2)	Clarifies some
$z \leq T_{SC}$	$P_{exw} = 0.5 C_R C_{NI}$	$C_{WD}\left[(P_d - P_c)\cos\left(\left(2 - \frac{z}{T_{SC}} - C_{yB}\right)\frac{\pi}{2}\right) + (P_d + P_c)\right]$	definitions and corrects typographical errors:
$T_{SC} < z \le T_{SC} + h_W$		$P_{WL} - \rho g(z - T_{SC})$	Corrects the case
$z > T_{SC} + h_W$		0	division of C_{WD} in RP
Notes: C_R : Coefficient considering the effect C_{NL} : Coefficient considering nonlinear C_{WD} : Coefficient for load condition, and In <i>HF</i> , For $x/L_C \le 0.2$, $C_{WD} = ($ For $0.2 < x/L_C \le 0.4$, C_W For $0.4 < x/L_C \le 0.5$, C_W For $0.5 < x/L_C \le 0.7$, C_W For $0.7 < x/L_C$, $C_{WD} = ($ C_{yB} : Ratio of the <i>Y</i> coord following formula by $C_{yB} = \frac{ 2y }{B_{x1}}$ B_{x1} : Breadth of ship the waterline of In <i>RP</i> , For $0.32 < x/L_C \le 0.7$, $C_{WD} = ($ P_d : As given by the following formular For $x/L_C \le 0.3$, $P_d = 7.2$	et of ship operation, to be ta r effects, to be taken as 0.9 s given by the following for $-2.6 - 1.2C_{yB})\frac{x}{L_{C}} + 1.0$ $_{D} = (2.6 - 1.8C_{yB})\frac{x}{L_{C}} - 0$ $_{D} = 1.0 - 0.6C_{yB}$ $_{D} = (-1.9 + 1.1C_{yB})\frac{x}{L_{C}} + 0.27$ in the of the load calculation at not more than 1.0. Where (m) at the waterline of drauge oes not intersect the transver $(2.15 - 1.4\frac{z}{T_{SC}} - 0.25C_{yB}$ $_{WD} = 0.75 - 0.15\frac{z}{T_{SC}} + 0.17C_{yL}$ e: $92T_{SC} + 1.109B + 69.68 - 0.000$	taken as 0.85 rmulae: $0.04 + 0.12C_{yB}$ $- 1.95 - 1.15C_{yB}$ $7 - 1.26C_{yB}$ In point or acceleration calculation point to B_{x1} , as given by the e $B_{x1} = 0$, to be taken as $C_{yB} = 0$. ght in the transverse section of the hull under consideration. Where erse section, to be taken as $B_{x1} = 0$. $ght in the transverse section of the hull under consideration. Where erse section, to be taken as B_{x1} = 0.ght = 0.32 + 0.13 \frac{z}{T_{SC}} + 0.15C_{yB} 1C_{yB} B_{T_{C}} = 1.85 - 0.5 \frac{z}{T_{SC}} - 0.02C_{yB} + (0.7315L_{C} + 146.2) \left(\frac{x}{L_{C}} - 0.3\right)$	

(Amendment related to Part C of the Rules for	or Survey and Construction of Steel Ships (2)	2024 Amendment 2))
Amended	Original	Remarks
For $0.3 < x/L_C \le 0.7$, $P_d = 7.292T_{SC} + 1.109B + 6$ For $0.7 < x/L_C$, $P_d = 7.292T_{SC} + 1.109B + 69.68 - 6$	$59.68 + (-1223C_W + 1271) \left(\frac{x}{L} - 0.7\right)$	
P_c : As given by the following formulae: For $x/L_c \le 0.3$, $P_c = 2.857T_{sc} - 0.5231B + 14.87$ For $0.3 < x/L_c \le 0.7$, $P_c = 2.857T_{sc} - 0.5231B + 14.87$	$+ (-0.1572L_c - 152.8) \left(\frac{x}{L_c} - 0.3\right)$ 14.87	
For $0.7 < x/L_c$, $P_c = 2.857T_{SC} - 0.5231B + 14.87$ P_{WL} : Hydrodynamic pressure (kN/m^2) at the waterline, to be taken For $y \ge 0$, the value of P_{exW} at $y = B_{x1}/2$ and z For $y \ge 0$, the value of P_{exW} at $y = B_{x1}/2$ and z	+ $(-2447C_W + 2622)\left(\frac{x}{L_C} - 0.7\right)$ h as: $z = T_{SC}$ d $z = T$	
h _W : Water head (m) equivalent to the pressure at the waterline, to $h_W = \frac{P_{WL}}{\rho g}$	$d z = I_{SC}$ be taken as:	
(1) In the range of $x/L_C < 0.0$, $x/L_C = 0.0$ (2) In the range of $x/L_C > 1.0$, $x/L_C = 1.0$		
4.4.2.7 Internal Pressure due to Cargoes, Stores <u>or</u> Other Equipment Loaded on Deck	4.4.2.7 Internal Pressure due to <u>Unspecif</u> and Stores on General Cargo Ships	ied Cargoes , etc. Amendment (9) Clarifies some definitions and corrects

Other Equipment Loaded on Deck

Static pressure P_{dks} (kN/m²) due to <u>cargoes</u>, stores or other equipment loaded on deck is to be in accordance with the following (1) to (3):

((1) to (3) are omitted.)

Dynamic pressure P_{dkd} (kN/m²) due to <u>cargoes</u>, stores 2 or other equipment loaded on deck is to be in accordance with the following formula:

$$P_{dkd} = C_{WDz}P_{dks}\frac{a_{Ze}}{g}$$

$$C_{WDz}:$$
 As specified in **Table 4.4.2-8**

$$a_{Ze}:$$
 Envelope acceleration (m/s^2) in the vertical direction specified in **4.2.4.1**. In obtaining the dynamic pressure acting on the cargo hold, the

and Stores on General Cargo Ships, etc.

Static pressure P_{dks} (kN/m²) due to <u>unspecified</u> 1 cargoes and stores on general cargo ships, etc. is to be in accordance with the following (1) to (3):

((1) to (3) are omitted.)

Dynamic pressure P_{dkd} (kN/m²) due to <u>unspecified</u> 2 cargoes and stores on general cargo ships, etc. is to be in accordance with the following formula:

$$P_{dkd} = C_{WDz} P_{dks} \frac{a_{Ze}}{g}$$

 C_{WDz} : As specified in Table 4.4.2-8

 a_{Ze} : Envelope acceleration (m/s²) in the vertical Amendment (9) direction specified in 4.2.4.1. In obtaining the Clarifies some dynamic pressure acting on the cargo hold, the definitions and corrects

typographical errors:

Clarifies the note of

deck load

vertical

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
average value between the value of acceleration	average value between the value of acceleration	typographical errors:
at the forward and aft ends, whichever is	at the forward and aft ends, whichever is	
greater, of the cargo hold at the centreline and	greater, of the cargo hold at the centreline and	
the value at the mid-length of the cargo hold	the value at the mid-length of the cargo hold	Clarifies that parameters
may be taken. In this case, $T_{LC} = T_{SC}$ and $\theta =$	may be taken. In obtaining the dynamic	related to rolling motion
$a_4 = 0.$	pressure, the values of K_{xx} , GM, etc. may be	are not used in
	calculated by the following formulae:	calculation because it is
	$K_{xx} = 0.35B$	simplified that
	T_{SC} B^2 $3C_W - 1$	acceleration is
	$GM = \frac{z_G}{2} + \frac{z_G}{T_{cc}C_{P}} - \frac{z_G}{24} - z_G$	calculated at the centre
	$\frac{1}{T - T}$	line.
	$\frac{I_{LC} - I_{SC}}{D}$	
	$z_{c} = 0.25 \frac{B}{-1}$	
	C_B	
4.6 Loads to be Considered in Strength Assessment by	4.6 Loads to be Considered in Strength Assessment by	
Cargo Hold Analysis	Cargo Hold Analysis	
4.6.2 Maximum Load Condition	4.6.2 Maximum Load Condition	
		Amendment (7)
4.6.2.4 External Pressure due to Seawater	4.6.2.4 External Pressure due to Seawater	Revises the simplified
1 Hydrostatic pressure P_{exs} corresponding to the	1 Hydrostatic pressure P_{exs} corresponding to the	formula for the ship' s
draught $T_{LC}(m)$ in the loading condition under consideration	draught $T_{LC}(m)$ in the loading condition under consideration	hull centre of gravity to
is to be considered (See Table 4.6.2-5).	is to be considered (See Table 4.6.2-5).	enhance accuracy.
2 Hydrodynamic pressure P_{exw} specified in the	2 Hydrodynamic pressure P_{exw} specified in the	
following (1) to (4) is to be considered.	following (1) to (4) is to be considered.	See the remark of
(1) Hydrodynamic pressure in equivalent design wave	(1) Hydrodynamic pressure in equivalent design wave	amended-original
<i>HM</i> is to be in accordance with Table 4.6.2-6 (See	<i>HM</i> is to be in accordance with Table 4.6.2-6 (See	requirements
Fig. 4.6.2-1).	Fig. 4.6.2-1).	comparison table in
(2) Hydrodynamic pressure in equivalent design wave	(2) Hydrodynamic pressure in equivalent design wave	Table 4.2.4-1.
<i>FM</i> is to be in accordance with Table 4.6.2-7 (See Fig.	<i>FM</i> is to be in accordance with Table 4.6.2-7 (See Fig.	

Amended-Original Requirements Comparison Table

(A	Amendment related to Par	rt C of the Rules for Surve	v and Construction of Steel S	hips	(2024 Amendment 2)))
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 4.6. (3) Hyd is to 4.6. (4) Hyd is to 4.6. 	.2-2). drodynamic J o be in acco .2-3 and 4.6. drodynamic J o be in acco .2-5 and 4.6.	Amended pressure in equivalent design wave <i>BR</i> rdance with Table 4.6.2-8 (<i>See</i> Figs. 2-4). pressure in equivalent design wave <i>BP</i> rdance with Table 4.6.2-9 (<i>See</i> Figs. 2-6). Table 4.6.2-6 Hydrodynamic Pressure	 4.6.2-2). (3) Hydrodynamic presis to be in accorda 4.6.2-3 and 4.6.2-4 (4) Hydrodynamic presis to be in accorda 4.6.2-5 and 4.6.2-6 	Driginal ssure in equivalent des nce with Table 4.6.2-). ssure in equivalent des nce with Table 4.6.2-	ign wave <i>BR</i> 8 (<i>See</i> Figs. ign wave <i>BP</i> 9 (<i>See</i> Figs.	Remarks
 4.6. (3) Hydisto (4) Hydisto (4) Hydisto (4.6.) 	.2-2). drodynamic j o be in acco .2-3 and 4.6. drodynamic j o be in acco .2-5 and 4.6.	pressure in equivalent design wave <i>BR</i> ordance with Table 4.6.2-8 (<i>See</i> Figs. 2-4). pressure in equivalent design wave <i>BP</i> ordance with Table 4.6.2-9 (<i>See</i> Figs. 2-6). Table 4.6.2-6 Hydrodynamic Pressure	 4.6.2-2). (3) Hydrodynamic presis to be in accorda 4.6.2-3 and 4.6.2-4 (4) Hydrodynamic presis to be in accorda 4.6.2-5 and 4.6.2-6 	ssure in equivalent des nce with Table 4.6.2 -). ssure in equivalent des nce with Table 4.6.2 -	ign wave <i>BR</i> 8 (<i>See</i> Figs. ign wave <i>BP</i> 9 (<i>See</i> Figs.	
	,	Table 4.6.2-6 Hydrodynamic Pressure).	λ Ο	
			Pexw in Equivalent Design	Wave HM		
		Hydrodynan	nic pressure P_{exw} (kN/m ²)			
		$z \leq T_{LC}$	$T_{LC} < z \le T_{LC} + h_W$	$z > T_{LC} + h_W$		
	<i>HM</i> -1	$P_{exw} = \max(-P_{HM}, \rho g(z - T_{LC}))$	$P_{WI} - \rho q(z - T_{IC})$	0		
	НМ-2	$P_{exw} = \max(P_{HM}, \rho g(z - T_{LC}))$				
	P_{HM} : As given P_H (O P_H	h by the following formula: $I_{IM} = 0.5C_{R_{L}HM}C_{NL_{L}HM}C_{M}C_{HM1}H_{S_{L}HM}(P_{HM1} + P_{HM2})$ mitted) I_{M3} : As given by the following formula: $P_{HM3} = -\rho g R_{5_{L}HM} (x - x_{G})(-0.002\lambda_{HM} + 1)$ $R_{5_{L}HM}$: As given by the following formula: $R_{5_{L}HM} = 2.08\pi \left(\frac{1}{L_{C}}\right)^{1.15}$ x_{G} : X coordinate (m) at the centre of gravity of t calculated based on the weight distribution be used. Dmitted)	$P_2 + P_{HM3} + P_{HM4}$) 0) he ship, to be taken as $x_G = 0.45 (0.36)$ n corresponding to the loading condition	$\frac{5}{2} + 0.2C_{B_{LC}}L_{C}$. The value on under consideration may		

(Amendment related to	o Part C of the	Rules for Survey	and Construction of	of Steel Ships	(2024 Amendment 2)))
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	Amended				Original		
4.6.2-11. 2 Dyna ballast holds 4.6.2-13.	mic 1 load	pressure ed with	P_{ld} (kN/m ²) acting on tanks liquids is to be as given in T	and 2 Dynamic p ballast holds load 4.6.2-13 .	pressure P_{ld} (kN/m^2) acting on tanks and ed with liquids is to be as given in Table		
			Table 4.6.2-14 Accelerat	ion a_X^{\prime} , a_Y^{\prime} and a_Z^{\prime} at An	y Position	Amendment (7)	
	Equ desi	uivalent gn wave	Longitudinal acceleration a_X (m/s^2)	Transverse acceleration a_Y (m/s^2)	Vertical acceleration $a_Z (m/s^2)$	Revises the simplified formula for the ship's	
		<i>HM</i> -1	$-0.6g \cdot \sin \phi +(-0.2f_T + 0.3)a_1 -0.7a_5(z - z_6)$	0	$(-0.15 + 0.5f_T)a_3 + 0.7a_5(x - x_G)$	hull centre of gravity to enhance accuracy.	
	HM	HM-2	$0.6g \cdot \sin \phi \\ + (0.2f_T - 0.3)a_1 \\ + 0.7a_5(z - z_G)$	0	$(0.15 - 0.5f_T)a_3 - 0.7a_5(x - x_G)$	See the remark of amended-original	
	EM	<i>FM</i> -1	$0.1g \cdot \sin \phi +(-0.4f_T + 0.2)a_1 +(0.02T_{LC} - 0.14)a_5(z - z_G)$	0	$\begin{array}{c} 0.075a_{3} \\ -(0.02T_{LC}-0.14)a_{5}(x-x_{G}) \end{array}$	requirements comparison table in Table 4.2.4-1.	
	ΓM	FM-2	$-0.1g \cdot \sin \phi + (0.4f_T - 0.2)a_1 + (-0.02T_{LC} + 0.14)a_5(z - z_G)$	0	$-0.075a_3 \\ -(-0.02T_{LC} + 0.14)a_5(x - x_G)$		
		BR-1P	0	$-g \cdot \sin \theta$ +(-0.2f _T + 0.2)a ₂ -a ₄ (z - z _G)	$g(\cos \theta - 1) + (0.7 - 0.4f_T)a_3 + a_4y$		
	DD	BR-2P	0	$g \cdot \sin \theta$ +(0.2f _T - 0.2)a ₂ +a ₄ (z - z _G)	$g(\cos \theta - 1) + (-0.7 + 0.4f_T)a_3 - a_4y$		
	DK	BR-1S	0	$g \cdot \sin \theta$ +(0.2f _T - 0.2)a ₂ +a ₄ (z - z _G)	$g(\cos \theta - 1) + (0.7 - 0.4f_T)a_3 - a_4y$		
		BR-2S	0	$-g \cdot \sin \theta$ +(-0.2f _T + 0.2)a ₂ -a ₄ (z - z _G)	$g(\cos \theta - 1) + (-0.7 + 0.4f_T)a_3 + a_4y$		
	BP	BP-1P	0	$-0.002\lambda_{BP}g\cdot\sin\theta$ $-0.3a_2-0.3a_4(z-z_G)$	$[1 - 1.6\exp(-0.012\lambda_{BP})]a_3 + 0.3a_4y$		

Amendeu	Original		Remarks
<i>BP-2P</i> 0	$0.002\lambda_{BP}g \cdot \sin\theta$ $+0.3a_2 + 0.3a_4(z - z_G)$	$[-1 + 1.6\exp(-0.012\lambda_{BP})]a_3 - 0.3a_4y$	
<i>BP-1S</i> 0	$0.002\lambda_{BP}g \cdot \sin\theta$ $+0.3a_2 + 0.3a_4(z - z_G)$	$[1 - 1.6\exp(-0.012\lambda_{BP})]a_3 - 0.3a_4y$	
BP-2S 0	$-0.002\lambda_{BP}g \cdot \sin\theta$ $-0.3a_2 - 0.3a_4(z - z_6)$	$\frac{[-1+1.6\exp(-0.012\lambda_{BP})]a_{3}}{+0.3a_{4}y}$	
calculated based on the weight distribution corresponding	to the considered loading cor	ndition may be used	
calculated based on the weight distribution corresponding z_G : Z coordinate (m) at the centre of gravity of the ship in the lo λ_{BP} : As specified in Table 4.6.2-9	to the considered loading cor bading condition under consid	ndition may be used. leration	
calculated based on the weight distribution corresponding z_G : Z coordinate (m) at the centre of gravity of the ship in the lo λ_{BP} : As specified in Table 4.6.2-9 Loads to be Considered in Fatigue	to the considered loading con- bading condition under considered of the considered of the considered of the considered of the constant of the	ndition may be used. deration De Considered in Fatigue	
 calculated based on the weight distribution corresponding z_G: Z coordinate (m) at the centre of gravity of the ship in the lo λ_{BP}: As specified in Table 4.6.2-9 Loads to be Considered in Fatigue Cyclic Load Condition 	to the considered loading con- bading condition under considered 4.7 Loads to b 4.7.2 Cyclic	ndition may be used. deration De Considered in Fatigue Load Condition	

1 Static pressure P_{ls} (kN/m^2) acting on tanks and ballast holds loaded with liquids is to be in accordance with Table 4.7.2-7.

2 Dynamic pressure P_{ld} (kN/m^2) acting on tanks and ballast holds loaded with liquids is to be as given in Table 4.7.2-8.

1 Static pressure P_{ls} (kN/m^2) acting on tanks and ballast holds loaded with liquids is to be in accordance with Table 4.7.2-7.

2 Dynamic pressure P_{ld} (kN/m^2) acting on tanks and ballast holds loaded with liquids is to be as given in Table 4.7.2-8.

 Amended				Original	Remarks
		Table 4.7.2-9 Accelera	tions a_X , a_Y and a_Z at Any	y Position	Amendment (7)
Equ desi	ivalent gn wave	Longitudinal acceleration a_X (m/s^2)	Transverse acceleration $a_Y (m/s^2)$	Vertical acceleration $a_Z (m/s^2)$	Revises the simplified formula for the ship's
	<i>HM</i> -1	$-0.6g \cdot \sin \phi +(-0.2f_T + 0.3)a_1 -0.7a_5(z - z_G)$	0	$(-0.15 + 0.5f_T)a_3 + 0.7a_5(x - x_G)$	hull centre of gravity to enhance accuracy.
HM	HM-2	$0.6g \cdot \sin \phi + (0.2f_T - 0.3)a_1 + 0.7a_5(z - z_G)$	0	$(0.15 - 0.5f_T)a_3 \\ -0.7a_5(x - x_G)$	See the remark of amended-original
FM	<i>FM</i> -1	$0.1g \cdot \sin \phi +(-0.4f_T + 0.2)a_1 +(0.02T_{LC} - 0.14)a_5(z - z_G)$	0	$\begin{array}{c} 0.075a_3\\ -(0.02T_{LC}-0.14)a_5(x-x_G)\end{array}$	requirements comparison table in Table 4.2.4-1.
I' IVI	FM-2	$-0.1g \cdot \sin \phi +(0.4f_T - 0.2)a_1 +(-0.02T_{LC} + 0.14)a_5(z - z_G)$	0	$-0.075a_3 \\ -(-0.02T_{LC}+0.14)a_5(x-x_G)$	
	BR-1P	0	$-g \cdot \sin \theta$ +(-0.2f _T + 0.2)a ₂ -a ₄ (z - z _G)	$g(\cos \theta - 1) + (0.7 - 0.4f_T)a_3 + a_4y$	
DD	BR-2P	0	$g \cdot \sin \theta$ +(0.2 f_T - 0.2) a_2 + $a_4(z - z_G)$	$g(\cos \theta - 1) \\ + (-0.7 + 0.4f_T)a_3 - a_4y$	
DK	BR-1S	0	$g \cdot \sin \theta$ +(0.2f _T - 0.2)a ₂ +a ₄ (z - z _G)	$g(\cos \theta - 1) + (0.7 - 0.4f_T)a_3 - a_4y$	
	BR-2S	0	$-g \cdot \sin \theta$ +(-0.2f _T + 0.2)a ₂ -a ₄ (z - z _G)	$g(\cos \theta - 1) \\ + (-0.7 + 0.4f_T)a_3 + a_4y$	
	BP-1P	0	$-0.002\lambda_{BP}g\cdot\sin\theta$ $-0.3a_2-0.3a_4(z-z_G)$	$[1 - 1.6 \exp(-0.012\lambda_{BP})]a_3 + 0.3a_4y$	
ממ	BP-2P	0	$0.002\lambda_{BP}g \cdot \sin\theta$ +0.3 a_2 + 0.3 $a_4(z - z_G)$	$\frac{[-1+1.6\exp(-0.012\lambda_{BP})]a_3}{-0.3a_4y}$	
ВΡ	BP-1S	0	$\frac{0.002\lambda_{BP}g\cdot\sin\theta}{+0.3a_2+0.3a_4(z-z_G)}$	$[1 - 1.6 \exp(-0.012\lambda_{BP})]a_3 \\ -0.3a_4y$	
	BP-2S	0	$-0.002\lambda_{BP}g\cdot\sin\theta$ $-0.3a_2-0.3a_4(z-z_G)$	$[-1 + 1.6\exp(-0.012\lambda_{BP})]a_3 + 0.3a_4y$	

(Amendment related to Part C of the Rules for	r Survey and Construction	n of Steel Ships	(2024 Amendment 2))
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Amended	Original	Remarks
Notes: a_1, a_2, a_3, a_4, a_5 : As specified in 4.2.3 θ, ϕ : As specified in 4.2.2 x_G : X coordinate (m) at the centre of gravity of the ship, to be tak based on the weight distribution corresponding to the consider z_G : Z coordinate (m) at the centre of gravity of the ship in the load λ_{BP} : As specified in Table 4.6.2-9	en as $x_G = \frac{0.45}{(0.36 + 0.2C_{B_LC})}L_C$. The value calculated level loading condition may be used. ding condition under consideration	
4.8 Loads to be Considered in Additional Structural Requirements	4.8 Loads to be Considered in Additional Structural Requirements	
4.8.2 Maximum Load Condition	4.8.2 Maximum Load Condition	
4.8.2.2 Bottom Slamming 1 In ships with $T_{BAL-F}(m)$ less than $0.037L_{C230}$, the bottom slamming load specified in the following (1) to (3) is to be considered. Here, "ballast condition" means the ordinary condition where only ballast tanks such as clean ballast tanks, segregated ballast tanks and ballast holds are ballasted. When multiple ballast conditions are planned, it is permissible to consider only the ballast condition specified for heavy weather conditions, limited to the case where the loading manual specifies a ballast condition for heavy weather. This ballast condition, however, excludes exceptional cases where cargo tanks are ballasted in heavy weather conditions to ensure the safety of the ship. (1) In ships with $T_{BAL-F}(m)$ equal to or less than $0.025L_{C230}$, the bottom slamming load P_{SL1} (kN/m^2) specified in Table 4.8.2-1 is to be considered. In ships with $T_{BAL-F}(m)$ greater than $0.025L_{C230}$ but less than $0.037L_{C230}$, the requirements specified in	4.8.2.2 Bottom Slamming 1 In ships <u>having a bow draught</u> less than $0.037L_{C230}$ in the ballast condition, the bottom slamming load specified in the following (1) to (3) is to be considered. Here, "ballast condition" means the ordinary condition where only ballast tanks such as clean ballast tanks, segregated ballast tanks and ballast holds are ballasted. When multiple ballast conditions are planned, it is permissible to consider only the ballast condition specified for heavy weather conditions, limited to the case where the loading manual specifies a ballast condition for heavy weather. This ballast condition, however, excludes exceptional cases where cargo tanks are ballasted in heavy weather conditions to ensure the safety of the ship. (1) In ships <u>having a bow draught</u> equal to or less than $0.025L_{C230}$ in the ballast condition, the bottom slamming load P_{SL1} (kN/m^2) specified in Table 4.8.2-1 is to be considered. In ships <u>having a bow</u> draught greater than $0.025L_{C230}$ but less than	Amendment (9) Clarifies some definitions and corrects typographical errors: Unifies the notes of the bow draught in the ballast condition newly specified in 1.4.2.4

Amended-Original Requirements Comparison Table

(Amendment related to I	Part C of the	Rules for Survey	and Construction of	f Steel Ships	(2024 Amendment 2))
•			2				/

Amended	Original	Remarks
10.6.2.3-2 are to be satisfied.	$0.037L_{C230}$ in the ballast condition, the requirements	
	specified in 10.6.2.3-2 are to be satisfied.	
(2) Notwithstanding (1) above, in ships of which L_C is	(2) Notwithstanding (1) above, in ships of which L_C is	
equal to or less than 150 m, where $V/\sqrt{L_c}$ is not less	equal to or less than 150 m, where $V/\sqrt{L_c}$ is not less	
than 1.4 and C_B is not more than 0.7, the bottom	than 1.4 and C_B is not more than 0.7, the bottom	
slamming load P_{SL2A} (kN/m ²) and P_{SL2B} (kN/m ²)	slamming load P_{SL2A} (kN/m ²) and P_{SL2B} (kN/m ²)	
are to be as specified in Table 4.8.2-2. However, (1)	are to be as specified in Table 4.8.2-2. However, (1)	
above may be applied for ships that can be expected	above may be applied for ships that can be expected	
to carry a certain amount of cargo regularly such as	to carry a certain amount of cargo regularly such as	
container carriers.	container carriers.	
(3) Notwithstanding (1) above, in ships of which L_C is	(3) Notwithstanding (1) above, in ships of which L_c is	
equal to and greater than 150 m and L_B is not less	equal to and greater than 150 m and C_B is not less	
than 0.7, the bottom slamming load P_{SL3} (<i>klv/m²</i>)	than 0.7, the bottom slamming load P_{SL3} (kN/m^2)	
specified in Table 4.8.2-3 is to be considered.	specified in Table 4.8.2-3 is to be considered.	
2 Notwithstanding the requirements of (1) to (3) in -1	2 Notwithstanding the requirements of (1) to (3) in -1	
above, where the strengthened bottom forward is of structural	above, where the strengthened bottom forward is of structural	
arrangement other than that specified in $10.0.2.2(1)$ and $10.(2.2)$ the better classing loads P_{10} (b)(w^2) P_{10}	arrangement other than that specified in $10.6.2.2(1)$ and	
10.0.3.2, the bottom stamming loads P_{SL4A} (kN/m^2), P_{SL4B}	10.6.3.2, the bottom slamming loads P_{SL4A} (kN/m^2), P_{SL4B}	
(KIV/m^{-}) and P_{SL4C} (KIV/m^{-}) specified in Table 4.8.2-4 are to	(kN/m^2) and P_{SL4C} (kN/m^2) specified in Table 4.8.2-4 are to	
de considerea.	be considered.	

(Amendment related to Part C of the Rules f	or Surve	y and Construct	ion of Steel Sl	nips	(2024 Ameno	dment 2))	í.

Original	Remarks
nming Impact Pressure P _{SL1}	
Bottom slamming impact pressure P_{SL1} (kN/m^2)	
$P_{SL1} = 2.48 \frac{L_C C_{SL1A} C_{SL2}}{\beta_1}$	
ter shell and the horizontal line where the height from the top of ection of the hull $0.2L_c$ aft from the fore end (<i>See</i> Fig. 4.8.2-1) ore than $0.025L_{c230}$ in the ballast condition. For ships where the bow $7L_{c230}$ in the said ballast condition, the scantlings of members are to be then as 11.43.	
	Original nming Impact Pressure P_{SL1} Bottom slamming impact pressure P_{SL1} (kN/m^2) $P_{SL1} = 2.48 \frac{L_C C_{SL1A} C_{SL2}}{\beta_1}$ ter shell and the horizontal line where the height from the top of ection of the hull $0.2L_C$ aft from the fore end (See Fig. 4.8.2-1) ore than $0.025L_{C230}$ in the ballast condition. For ships where the bow $7L_{C230}$ in the said ballast condition, the scantlings of members are to be teen as 11.43.

		0	1	1			
((Amendment related to Part C of the l	Rules for	Survey and	Construction of	of Steel Ships	(2024 Amendment 2))	

Amended	Original	Remarks
Table 4.8.2-2 Bottom Slamming I	mpact Pressures P_{SL2A} and P_{SL2B}	Amendment (9)
Structural member under consideration	Bottom slamming impact pressures P_{SL2A} and P_{SL2B} (kN/m^2)	Clarifies some
Stiffeners attached to outer shell and bottom longitudinals ⁽¹⁾	$P_{SL2A} = 2.48 \frac{L_C C_{SL1B} C_{SL2} C_{SL3}}{\beta_1}$	definitions and corrects typographical errors:
Floor ⁽²⁾	$P_{SL2B} = 2.48 \frac{L_C C_{SL1B} C_{SL2} C_{SL3}}{\beta_2}$	Clarifies the case of
Notes:		$0.025L_C < T_{BAL-F} <$
C_{SL2} , β_1 : As specified in Table 4.8.2-1 ⁽³⁾		$0.037L_c$ in calculating
C_{SL1B} : Coefficient, as specified in Table 4.8.2-5		bottom slamming
C_{SL3} : Coefficient, as given by the following formula:		impact pressure
$C_{SL3} = 1.9 - 0.9 \frac{\frac{T_{BAL-F}}{BAL-F}}{0.025L_c}$		
T_{BALemp} : Minimum bow draught (m) in the ballast condition		
β_2 : Coefficient, as given by the following formula ⁽³⁾ :		
(a) In cases where $T_{BAL-F} \leq 0.025L_{C}$		
$\beta_2 = 0.0025L_C/b_1$		
$\underline{b_1}$: Distance (m) from the centreline to the intersection of the	e outer shell to the horizontal line where the height from the top of the	
keel equals $0.0025L_{c}$, at the transverse section of the h	null $0.2L_c$ aft from the fore end. Where the bow draught is greater than	
$0.025L_{c}$ but less than $0.037L_{c}$ in ballast condition, the	e bow draught in the actual condition is to be used to calculate the	
horizontal line <u>As specified in Table 4.8.2-1</u> (See Fig. 4	.8.2-1).	
(b) In cases where $0.025L_C < T_{BAL-F} < 0.037L_C$		
$\frac{D_2 = 0.11_{BAL-F}/D_2}{D_2}$	outer shall to the herizontal line where the height from the ten of the least	
\underline{D}_2 : Distance (<i>m</i>) from the centremie to the intersection of the bull (outer shell to the horizontal line where the neight from the top of the keel $0.2L$ off from the fore and (See Fig. 4.8.2.1)	
(1) Formula for ships where the how drought T_{-m} is not more than ($0.025L$ in the ballest condition. For ships where the bow drought $T_{\rm eff}$	
(1) Formula for sings where the covertaining $T_{BAL} = F$ is not more than 0.025L, but less than 0.037L, in the ballast condition	n the scantlings of members are to be determined in accordance with the	
requirements in 10.6.3.3-2.	in, the scatterings of memoers are to be determined in accordance with the	
(2) Formula for ships where the bow draught T_{PALE} is less than 0.0371	a in the ballast condition.	
(3) Where the values of C_{s12}/β_1 and C_{s12}/β_2 are 11.43 or more, to be	taken as 11.43.	

(Amendment related to	o Part C of the Rule	s for Survey and Co	onstruction of Steel S	hips	(2024 Amendment	2))
			2				

Amended	Original	Remarks
Table 4.8.2-3 Bottom Slam	ming Impact Pressure P _{SL3}	
Structural member under consideration	Bottom slamming impact pressure P_{SL3} (kN/m^2)	
Stiffeners attached to outer shell and bottom longitudinals $^{\left(1\right) \left(2\right) }$	$P_{SL3} = 1.14 \frac{V_{SL}^2}{\beta_3}$	
Notes: (Omitted)		
(1) Formula for ships where the bow draught $T_{BAL=F}$ is not more than 0. is more than $0.025L_{C230}$ but less than $0.037L_{C230}$ in the ballast of with the requirements in 10.6.2.3-2.	$025L_{C230}$ in the ballast condition. For ships where the bow draught $T_{BAL=F}$ condition, the scantlings of members are to be determined in accordance	
 (2) For the examination of positions within ballast tanks which are fully may be reduced by ΔP_{SL} (kPa), as given by the following formula. It is to be filled up in the heavy weather condition. ΔP_{SL} = 5h_b h_b: Ballast tank depth (m) 	loaded with sea water in the ballast condition, the bottom slamming load n this case, it is to be stated in the loading manual that the said ballast tank	
is to be filled up in the heavy weather condition. $\Delta P_{SL} = 5h_b$ h_b : Ballast tank depth (m)		

Amended		Original	Rem
le 4.8.2-4 Bottom Slamming Impac	t Pressures P_{SL4A} , P_{SL4B}	and P _{SL4C} for Special Types of Construc	tion
Ship and structural n	nember	Bottom slamming impact pressure (kN/m^2)	
Ships where L_c is not greater than 150 m,	Floor of longitudinal framing system	$P_{SL4A} = C_{SL7} P_{SL2B}$	
$V/\sqrt{L_C}$ is not less than 1.4 and C_B is not greater than 0.7	Girder of transverse framing system	$P_{SL4A} = P_{SL2B}$	
General		$P_{SL4B} = \max\left(C_{SL8}P_{SL1}, P_{\min}\right)$	
Ships where L_C is not greater than 150 m, $V/\sqrt{L_C}$ is not less than 1.4 and C_B is not greater than 0.7	Floors and girders ⁽¹⁾	$P_{SL4B} = \max\left(C_{SL8}P_{SL2B}, P_{\min}\right)$	
Ships where L_C is not less than 150 $m \square$ and C_B is not less than 0.7		$P_{SL4B} = \max\left(C_{SL8}P_{SL3}, P_{\min}\right)$	
General		$P_{SL4C} = \max\left(C_{SL7}P_{SL1}, P_{\min}\right)$	
Ships where L_C is not greater than 150 m, $V/\sqrt{L_C}$ is not less than 1.4 and C_B is not greater than 0.7	Stiffeners attached to outer shell or bottom longitudinals ⁽²⁾	$P_{SL4C} = \max\left(C_{SL7}P_{SL2A}, P_{\min}\right)$	
Ships where L_C is not less than 150 $m \equiv$ and C_B is not less than 0.7		$P_{SL4C} = \max\left(C_{SL7}P_{SL3}, P_{\min}\right)$	
Notes: (Omitted)			
 For ships-having bow draught of with T_{BAL-A} linear interpolation assuming the bottom slamm Formula for ships-having bow draught of with more than 0.025L_{C230} but less than 0.037L_C the requirements in 10.6.2.3-2 and 10.6.3.3-2. 	more than $0.025L_{C230}$ but less that ning impact pressure is P_{\min} when the T_{BAL-F} not more than $0.025L_{C230}$ T_{C230} in the ballast condition, the scant	In $0.037L_{C230}$ in the ballast condition, to be obtained by the bow draught is $0.037L_{C230}$. in the ballast condition. Where the bow draught T_{BAL-F} is lings of members are to be determined in accordance with	



(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

(Amended		Original	(Remarks			
Г	Table 4.8.2-13 Equivalent Pressure for Plate Panels and Sloshing Loads Due to Pitch							
Relev	vant ship motion		Clarifies some					
			F _{slb} -p	-	definitions and corrects			
	Pitch		typographical errors.					
Notes:					Deletes angle (rad) of			
C_{slh1}, C_{slh}	$_{2}$: Coefficients related to 1	nember and panel length dep	ending on the type of stiffened system, to be taken as:		corrugated bulkheads θ			
C _{slh1}	$= b, C_{slh2} = a$ for plate	panels of stiffened system A			because it is not used in			
C _{slh1}	$= a, c_{slh2} = b$ for plate = h_c or h_c $c_{u_0} = l$	for vertically corrugated bulk	theads		formula of sloshing			
Sth	b_f of b_W , $b_{slh2} = t$	verse bulkheads, transverse v	wash bulkheads front and aft walls of tanks with vertically		loads due to pitch			
st	iffened systems: vertical g	irders of vertically stiffened s	systems attached to longitudinal bulkheads or tank side walls:		loads due to pitch			
ta	nk top plates of longitudin	ally stiffened systems; horizo	ontal girders stiffened in parallel to depth direction of webs which					
ar	e attached to transverse bu	lkheads or transverse wash b	ulkheads or front and aft walls of tanks					
St	iffened system B ⁽²⁾ : Trans	verse bulkheads, transverse w	vash bulkheads, front and aft walls of tanks with horizontally					
st	iffened systems; vertical g	irders of horizontally stiffene	d systems attached to longitudinal bulkheads or tank side walls;					
ta	nk top plates of transverse	stiffened systems; horizontal	girders in perpendicular to depth direction of webs which are					
at	tached to transverse bulkh	eads or transverse wash bulkl	heads or front and aft walls of tanks; cross-ties in transverse					
di	rection	naida af tha nlata nanal						
d: b:	Length (mm) of the short	r side of the plate panel						
b. b.	b_{m} : Width (<i>mm</i>) of the f	lange and web of corrugated	bulkheads respectively, as specified in 10.9.2.1					
0	Angle (rad) of corrugated	bulkheads, as specified in 1	0.9.2.1					
l:	Height (mm) of corrugated	d bulkheads, as specified in 7	.2.7.3					
F_{slh-p} :	Equivalent impact force	(kN), to be taken as:						
F _{slh} -	$\rho_p = \rho_L \cdot C_{slh1} \cdot \ell_{tk}^{1.5} \cdot C_d$	$\cdot C_{SS} \cdot a_{5_slh} \cdot C_{slh3} \cdot 10^{-3}$						
$ ho_L$:	Maximum design cargo o	lensity (t/m^3) in considered h	<i>n_{lc}</i> . Table 4.4.2-6 may be applied correspondingly.					
ℓ_{tk} :	Maximum tank length (<i>n</i>	2)						
C_d :	Coefficient depending or							
	$C_d = 0.65 + 0.35 \tanh($	$4 - \frac{1.5t_{tk}}{h_{tk}}$						
	h_{tk} : Maximum tar	nk height (m)						
C_{SS} :	Coefficient, as given by t							
	$C_{SS} = \min\left(0.3 + \frac{L_C}{325}\right), 1$.0)						
a_{5_sl}	h: Pitch angular	acceleration (rad/s^2), as spec	cified in Table 4.8.2-11. The parameters for the ballast condition		Amendment (7)			
are to	o be used.				Revises the simplified			

Ame	ended	Original	`	Remarks
$C_{slh3}:$ to the tank, to be $C_{slh3} = C_h$ C_{h1} x_{TG} x_G Where dee (1) See Fig. 10.9.3-1 (2) See Fig. 10.9.3-2	Coefficient related to members under cone e taken as: $h_{11}(0.0104 x_{TG} - x_G + 1.0)$: Parameter depending on h_{lc} , as specified : X coordinate (m) at the volumetric centre : X coordinate (m) at the centre of gravity emed appropriate by the Society, the value r	sideration and the distance from the centre of gravity of the ship ed in Table 4.8.2-15. e of gravity of the tank under consideration of the ship, to be taken as $x_G = 0.45(0.36 + 0.2C_{B_LC})L_C$ may be defined by the designer.		formula for the ship's hull centre of gravity to enhance accuracy. See the remark of amended-original requirements comparison table in Table 4.2.4-1.

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended		Original		Remarks	
Table 4.8.2-14 Eq		Amendment (9)			
Polovent ship motion	Relevant ship motion Equivalent pressure (kN/m^2)				
Relevant ship motion		Equivalent pressure (kivim)		definitions and corrects	
Roll	P _s ,	$F_{h-r} = \frac{F_{slh-r}}{C_{slh1} \cdot \min(1000, C_{slh2})} \cdot 10^{6}$		typographical errors:	
Notes:				Deletes angle (rad) of	
C_{slh1}, C_{slh2} : Coefficients related to	member and panel length dep	ending on the type of stiffened system, to be taken as:		corrugated bulkheads A	
$C_{slh1} = b, \ C_{slh2} = a$ for plat	e panels of stiffened system A			confugated bulkheads b	
$C_{slh1} = a, \ C_{slh2} = b$ for plat	e panels of stiffened system E				
$C_{slh1} = b_f$ or b_w , $C_{slh2} = l$	for vertically corrugated bull	cheads			
Stiffened system A ⁽¹⁾ : Long	gitudinal bulkheads, longitudi	nal wash bulkheads, tank side walls with vertically stiffened			
systems; vertical girders of	vertically stiffened systems a	ttached to transverse bulkheads or front and aft walls of tanks;			
tank top plates of transverse	e stiffened systems; horizonta	l girders stiffened in parallel to depth direction of webs which are			
attached to longitudinal bul	kheads or longitudinal wash l	bulkheads or front and aft walls of tanks			
Stiffened system B ⁽²⁾ : Long	itudinal bulkheads, longitudii	nal wash bulkheads, front and aft walls of tanks with			
longitudinally stiffened sys	tems; vertical girders of horiz	ontally stiffened systems attached to transverse bulkheads or			
front and aft walls of tanks	tank top plates of longituding	ally stiffened systems; horizontal girders stiffened in			
perpendicular to depth direct	ction of webs attached to long	itudinal bulkheads or longitudinal wash bulkheads or tank side			
walls; cross-ties in longitud	linal direction				
$a, b, b_f, b_w, \frac{\theta}{\theta}$: As specif	fied in Table 4.8.2-13				
F_{slh-r} : Equivalent impact force	(kN), to be taken as:				
$F_{slh-r} = \rho_L \cdot C_{slh1} \cdot b_{tk} \cdot a_{2k}$	$c_{slh3} \cdot 10^{-3}$				
ρ_L : As specified in Table 4.8.2	2-13				
b_{tk} : Maximum tank breadth	(<i>m</i>)				
a_4 : Roll angular acceleration	n (rad/s^2), as specified in 4.2.	3.4. The parameters for the ballast condition are to be used.			
C_{slh3} : Coefficient related to m	embers under consideration, t	o be taken as:			
$C_{slh3} = C_{h1}$	1 1' 7 '0'	1			
L_{h1} : Parameter	depending on h_{lc} , as specific	a in Table 4.8.2-15			
(1) See Fig.10.9.3-1					

Amended	Original	Remarks
Annex 5.1 EXTENT OF HIGH TENSILE STEEL	Annex 5.1 EXTENT OF HIGH TENSILE STEEL	
An1 Extent of High Tensile Steel Use	An1 Extent of High Tensile Steel Use	
An1.2 Vertical Extent	An1.2 Vertical Extent	
An1.2.1 1 The vertical extent (m) of high tensile steel $z_{hts,i}$ use in the deck zone or bottom zone, respectively, from the deck or the baseline, is not to be taken less than the value obtained from the following formula. (See Fig. An1) $z_{hts,i} = z_1 \left(1 - \frac{\sigma_{perm,i}}{\sigma_L} \right)$ z_1 : Distance (m) from the horizontal neutral axis to the deck or the baseline. $\sigma_{perm,i}$: Permissible vertical bending stress (N/mm ²) of the steel under consideration as given in Table 5.2.1-2 and Fig. An1. σ_L : Vertical bending stress σ_{dk} (N/mm ²) at the deck or σ_{bl} (N/mm ²) at the baseline as given in Table An1 2 The requirement in -1 above is to be applied for ships to which Part 2-1 applies. In this case, the requirement is to be modified as necessary, e.g. by using net scantlings and by using the value specified in 5.2.1.1-1, Part 2-1 as $\sigma_{perm,i}$:	An1.2.1 The vertical extent (m) of high tensile steel $z_{hts,i}$ use in the deck zone or bottom zone, respectively, from the deck or the baseline, is not to be taken less than the value obtained from the following formula. (See Fig. An1) $z_{hts,i} = z_1 \left(1 - \frac{\sigma_{perm,i}}{\sigma_L} \right)$ z_1 : Distance (m) from the horizontal neutral axis to the deck or the baseline. $\sigma_{perm,i}$: Permissible vertical bending stress (N/mm ²) of the steel under consideration as given in Table 5.2.1-2 and Fig. An1. σ_L : Vertical bending stress σ_{dk} (N/mm ²) at the deck or σ_{bl} (N/mm ²) at the baseline as given in Table An1	Amendment (9) Clarifies some definitions and corrects typographical errors: Clarifies the usage of gross/net scantlings in the extent of high tensile steel

	Amended			Original	Remarks				
	Condition Baseline Deck								
	Seagoing	$\sigma_{bl} = \frac{ M_{SW} + M_{WV} }{\underline{I_{gr}} \underline{I_{y-n50}}} z_n > $	< 10⁻³10⁵	$\sigma_{dk} = \frac{ M_{SW} + M_{WV} }{\underline{I_{gr}I_{y=\pi50}}} V_D \times \frac{10^{-3}}{10^5} \underline{10^5}$					
	Operation in harbor/sheltered water $\sigma_{bl} = \frac{ M_{SW-p} }{\underline{I_{gr}} \underline{I_{y-n50}}} z_n \times \underline{10^{-3}} \underline{10^5} \qquad \sigma_{dk} = \frac{ M_{SW-p} }{\underline{I_{gr}} \underline{I_{y-n50}}} V_D \times \underline{10^{-3}} \underline{10^5}$								
	V_D : Refer to 5.2.1.2								
Chapter									
6.2 Design Loa Assessed	ad Scenarios and Loads o	of the Ship to Be	6.2	Design Load Scenarios and Loa Assessed	ds of the Ship to Be				
6.2.2 Assessn for Mer	nent Design Load Scena mbers to <u>b</u> e Assessed	arios and Loads	6.2.2	Assessment Design Load Sc for Members to <u>Be</u> Assessed	enarios and Loads				

		Ar	nend	ed-	Ori	gina	ıl Re	equirements	s Cor	npari	son Tał	ole	
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Ame	nded			J	Orig	inal	Remarks		
Table 6.2.2-1 Asses	Amendment (9)								
				Lo	ad		Clarifies some definitions and corrects typographical errors: Clarifies the notes of		
Compartments or members to be assessed	or Design load	Lateral		Load	Refer to the	he following:			
		load	Load type	component	Lateral load (P)	Hull girder load (M_{V-HG}, M_{H-HG})			
Outer shell (including stiffeners)		External pressure	Seawater	Static + dynamic loads	4.4.2.2-1		deck load		
Cargo tanks, ballast tanks, ballast holds and other tanks		Internal	Liquid loaded	Static + dynamic loads	4.4.2.2-2				
Cargo holds ⁽¹⁾	Maximum load	pressure	Dry bulk cargoes	oes Static + dynamic loads Static + dynamic loads		4.4.2.9			
Cargo holds ⁽²⁾	condition		Others						
Weather decks (including stiffeners)		Others	Green sea, unspecified loads cargoes on the deck, etc.	Green sea load, static + dynamic loads	Greater of the pressures specified in 4.4.2.2-3 and -4				
Internal decks ⁽²⁾ (including stiffeners)			Cargoes	Static + dynamic loads	4.4.2.2-3				
	(Omitted)								
(Notes)	(Notes) (Omitted)								

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))
Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
6.3 Plates	6.3 Plates	
6.3.2 Plates 6.3.2 Plates 6.3.2.1 Bending Strength The plate thickness is to be not less than the largest of the values obtained by the following formula under all applicable design load scenarios specified in Table 6.2.2-1. Application of gross or net scantlings in the values obtained from the following is specified in Table 6.3.2-1: $t = C_{safety}C_{Aspect} \sqrt{\frac{4}{1.15C_a\sigma_Y}} \sqrt{\frac{ P b^2}{f_P}} \times 10^{-3} (mm)$	6.3.2 Plates 6.3.2 Plates 6.3.2.1 Bending Strength The plate thickness is to be not less than the largest of the values obtained by the following formula under all applicable design load scenarios specified in Table 6.2.2-1. Application of gross or net scantlings in the values obtained from the following is specified in Table 6.3.2-1: $t = C_{safety}C_{Aspect} \sqrt{\frac{4}{1.15C_a\sigma_Y}} \sqrt{\frac{ P b^2}{f_P}} \times 10^{-3} (mm)$	Amendment (5) Revises the scope of application for correction coefficient for the aspect ratio in the local strength calculation formula of plate members.
 σ_Y: Specified minimum yield stress (N/mm²) b: Length (mm) of the shorter side of the plate panel a: Length (mm) of the longer side of the plate panel a: Aspect ratio to be taken as a/b. f_P: Strength coefficient as given in Table 6.3.2-1. P: Lateral pressure (kN/m²) corresponding to each Design load scenario specified in Table 6.3.2-1, to be calculated at the load calculation point specified in 3.7. C_a: Coefficient of axial force effect as specified in Table 6.3.2-2. 	 σ_Y: Specified minimum yield stress (N/mm²) b: Length (mm) of the shorter side of the plate panel a: Length (mm) of the longer side of the plate panel a: Aspect ratio to be taken as a/b. f_P: Strength coefficient as given in Table 6.3.2-1. P: Lateral pressure (kN/m²) corresponding to each Design load scenario specified in Table 6.3.2-1, to be calculated at the load calculation point specified in 3.7. C_a: Coefficient of axial force effect as specified in Table 6.3.2-3 when α < 2. C_{4spect}: Correction coefficient for the aspect ratio of 	Correct the references because the tables are merged.
the plate panel as given in Table 6.3.2-1 . C_{Safety} : Safety factor taken as 1.0. σ_{BM} : Axial stress (<i>N/mm²</i>) due to hull girder bending as specified in 6.2.3.1 .	the plate panel as given in Table 6.3.2-1 . C_{Safety} : Safety factor taken as 1.0. σ_{BM} : Axial stress (<i>N/mm²</i>) due to hull girder bending as specified in 6.2.3.1 .	

	X	Amende	:d		<i>J</i>	Original			Remarks
Table 6.	3.2-1 Applica	ation of Gr	oss or Net Sca	ntlings and Each Parar	neter in the Evaluat	tion for Each Design	n Load S	Scenario	Amendment (5)
	Design load	scenario	Application of gross or net scantlings	Lateral load P (kN/m ²)	Member	C_{Aspect}	f _P		Revises the scope of application for correction coefficient for
				P_{ex} , P_{in} , P_{dk} and P_{GW} To be in accordance with	Longitudinal hull girder structural members	1.0			the aspect ratio in the local strength
	Maximum load	l condition	Net scantling	4.4.2.2-1 to -4 corresponding to compartments/members to be assessed in Table 6.2.2-1	g Other members	$\frac{1.07 - 0.28 \left(\frac{b}{a}\right)^2}{1.07 - 0.28 \left(\frac{1}{a}\right)^2}$	12		The parameter C_{Aspect} ,
					T '4 1' 11 11	but 1.0 for $\alpha > 2$		-	which expresses the
				D	Longitudinal hull girder structural members	1.0			increase in strength due to aspect ratio, will be
Case	Case 1	Gross scantling	P_{ST-in1} To be in accordance with 4.4.3.2	Other members	$\frac{1.07 - 0.28 \left(\frac{b}{a}\right)^2}{1.07 - 0.28 \left(\frac{1}{\alpha}\right)^2}$ but 1.0 for $\alpha > 2$	12		changed to apply to longitudinal strength members as well. In addition, the	
	Testing condition				Longitudinal hull girder structural members	1.0			expression b/a is changed to $1/\alpha$.
		Case 2	Net scantling	P_{ST-in2} To be in accordance with 4.4.3.2	Other members	$ \frac{\frac{1}{\sqrt{1+\left(\frac{b}{a}\right)^{2}}}}{\sqrt{\frac{1}{1+\left(\frac{1}{a}\right)^{2}}}} $	16		
	Flooded co	ndition	Net scantling	P_{FD-in} To be in accordance with 4.4.4.1	Longitudinal hull girder structural members	1.0	16		

(Amendment related	to I art C of the Rules for S	burvey and construct	cton of Steel Ships (20	247 milendinent 2))	
Amended			Original	Remarks	
		Other members	$ \frac{\frac{1}{1+\left(\frac{b}{a}\right)^{2}}}{\sqrt{\frac{1}{1+\left(\frac{1}{\alpha}\right)^{2}}}} $		
(Deleted)		Table 6.3.2-2 Defendence Member 1 Longitudinal hull fr girder structural fr members fr Other member fr	$\frac{\text{efinition of } C_a \text{ (for } \alpha \ge 2)}{\frac{C_a}{\frac{Longitudinal}{raming system}}} \sqrt{1 - \left(\frac{\sigma_{BM}}{\sigma_Y}\right)}$ $\frac{\frac{10 - \frac{\sigma_{BM}}{\sigma_Y}}{\frac{\sigma_Y}{\sigma_Y}}}{\frac{10 - \frac{\sigma_{BM}}{\sigma_Y}}{\sigma_Y}}$ $\frac{10 - \frac{\sigma_{BM}}{\sigma_Y}}{\frac{10 - \frac{\sigma_{BM}}{\sigma_Y}}{\sigma_Y}}$	2	

Amended				Original	• · ·		Remarks	
Table 6.3.2-32 Definition of C_a - (for $\alpha < 2$)				: < 2)			Amendment (5)	
	Mem	ber	<u>α</u>	C_a	ζ	η		Revises the scope of
	$\frac{1}{2 \le \alpha}$				2	<u>1</u> <u>2</u>		application for correction coefficient for the aspect ratio in the
	Longitudinal framing system $\alpha < 2$ Longitudinal hull		$\left[\left(\left \sigma_{n,n} \right \right)^{\zeta} \right]^{\eta}$	2	$\frac{b}{a}$ $\frac{1}{\alpha}$		local strength calculation formula of plate members.	
	girder structural members	Transverse framing system	<u>α < 2</u>	$\left[1-\left(\frac{10BM}{\sigma_Y}\right)\right]$	$2\frac{b}{a}$ $2\frac{1}{a}$	1		Table 6.3.2-2. and Table 6.3.2-3. are combined into one table.
		numing system	<u>2 < α</u>		1	1		expression b/a is changed to $1/\alpha$.
		Other members			1.0			
6.4 Stiffeners 6.4.1 General			6.4 Stiffen 6.4.1 Ger	ers neral			Amendment (2)	
 6.4.1.1 Application Stiffeners subject to lateral loads are to be in accordance with the requirements in 6.4.2. Side frames within the cargo region are to be in accordance with the following (1) to (3) (See Table 6.4.1-1). The scantlings of side frames in single-deck ships are to be in accordance with 6.4.3.2 instead of -1 above. However, for side frames abaft of collision bulkheads, the scantlings are also to be in accordance with 6.4.3.4. 		6.4.1.1 App 1 Stiffene accordance wit 2 Notwith cargo region ar	plication ers subject to lat h the requirements <u>istanding -1 above</u> , the to be in accordance	teral loads are to in 6.4.2. <u>the side frames wi</u> ce with 6.4.3.	be in <u>ithin the</u>	Clarifies the requirements regarding side frames: Reviews the composition so that the case divisions of application which was in 6.4.3 is newly specified in 6.4.1.1.		

(Amendment related to Part C of the Rules for Surv	ey and Construction of Steel Shi	ips (2024 Amendment 2))
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Amended		2	Original		Remarks
 (2) The scantlings of side frames supporting transverses (except cantilever beams) longitudinal framing systems are to be in accor with 6.4.3.3 in addition to -1 above. (3) The scantlings of side frames supporting can beams are to be in accordance with 7.2.3 to 7. addition to -1 above. The bending moments and forces to be considered in applying 7.2.3 to 7.2.5 be in accordance with 7.2.2.1. 	deck for rdance tilever 2.6 in shear are to				
Table	6.4.1-1	Side Frames		_	(Newly Added)
	Si	ngle-deck ships	Multiple-deck ships	_	
Side Frames	<u>6.</u>	4.3.2 and 6.4.3.4	<u>6.4.2</u>		
Side frames supporting deck transverses	<u>6.</u>	6.4.3.2 and 6.4.3.3 6.4.2 and 6.4.3.3			
Side frames supporting cantilever beams	6.4	4.3.2 and 7.2.2.1	6.4.2 and 7.2.2.1		
 6.4.1.2 Grouping of Stiffeners The scantlings of stiffeners may be decided based on the concept of grouping stiffeners of equal scantlings and specified minimum yield stresses sequentially arranged between primary supporting members. The scantling of the group of stiffeners is to be taken as the greater of the values obtained from the following (1) and (2): (1) The average of the required scantlings of all stiffeners within a group (2) 00% of the maximum scantling members. 			uping of Stiffeners Intlings of stiffeners may be f grouping stiffeners of anged between primary s f the group of stiffeners in lues obtained from the fo rage of the required scant a group	be decided based on of equal scantlings upporting members. is to be taken as the llowing (1) and (2): lings of all stiffeners	Amendment (9) Clarifies some definitions and corrects typographical errors: Clarifies that stiffeners with different specified minimum yield stress cannot be included in the same group.
(2) 90% of the maximum scantling required for an stiffener within the group	iy one	(2) 90% of stiffener	r within the group	required for any one	

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(Amendment related to Part C of the Rules for Survey and Construct	tion of Steel Ships (2024 Amendment 2))
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Amended	Original	Remarks
 6.4.3 Side Frames 6.4.3.1 General Side frames are frames that fall under the following (1) and (2): Frames supporting the side shell plating installed between the decks or side stringers in ships with multiple decks Frames supporting the side shell plating in single deck ships 	 6.4.3 Side Frames 6.4.3.1 General Side frames are frames that fall under the following (1) and (2): Frames supporting the side shell plating installed between the decks or side stringers in ships with multiple decks Frames supporting the side shell plating in single deck ships 	Amendment (2) Clarifies the requirements regarding side frames:
Fig. 6.4.3-13 Side frames between decks (a) Ship with multiple decks	Side Frames Side frames (b) Single deck ship	Amendment (2) Clarifies the requirements regarding side frames: Replaces the figure because the lowest tier side frames of multi- deck ships are excluded from the application of 6.4.3 due to this amendment
(Deleted)	 2 The scantlings of side frames in ships with multiple decks are to be in accordance with the following (1) to (4): (1) The scantlings of side frames between decks, except the lowest tier side frames, are to be in accordance with 6.4.2, and are also to be determined in relation to such factors as the strength of the lowest tier side 	Amendment (2) Clarifies the requirements regarding side frames: Transferred to 6.4.1.1 due to composition

Amended	Original	Remarks
(Deleted)	 frames and the arrangement and transverse stiffness of bulkheads. (2) The scantlings of the lowest tier side frames are to be in accordance with 6.4.3.2. (3) The scantlings of side frames supporting deck transverses (except cantilever beams) for the longitudinal framing system are to be in accordance with 6.4.3.3. 3 The scantlings of side frames in single deck ships are to be in accordance with the following (1) and (2): (1) The scantlings are to comply with the requirements in 6.4.3.2 and 6.4.3.4. (2) In addition to (1) above, the requirements in 6.4.3.3 and 7.2.8.3 are to apply to deck transverses (except cantilever beams) for the longitudinal framing system and side frames supporting cantilever beams, respectively. 	review Amendment (2) Clarifies the requirements regarding side frames: Transferred to 6.4.1.1 due to composition review
6.4.3.2 Side Frames in Single-Deck Ships	6.4.3.2 Side Frames in Single Deck Ships and Lowest	Clarifies the
The scantlings of the side frames in single deck ships are to be in accordance with the following (1) and (2): (1) Bending strength The section modulus is to be not less than the value obtained from the following formula: $Z = C_{Safety} \frac{M_1 + M_2}{\sigma_Y} \times 10^3 (cm^3)$ (Omitted)	Tier Side Frames in Ships with Multiple DecksThe scantlings of the side frames in single deck shipsand the lowest tier side frames in ships with multiple decks areto be in accordance with the following (1) and (2):(1) Bending strengthThe section modulus is to be not less than the valueobtained from the following formula: $Z = C_{Safety} \frac{M_1 + M_2}{\sigma_Y} \times 10^3 (cm^3)$ (Omitted)	requirements regarding side frames: the lowest tier side frames of multi-deck ships are excluded from the application of 6.4.3.2 and newly in accordance with 6.4.2

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
		Amendment (2)
6.4.3.3 Side Frames Supporting Deck Transverses	6.4.3.3 Side Frames Supporting Deck Transverses	Clarifies the
The scantlings of side frames supporting deck transverses	The scantlings of side frames supporting deck transverses	requirements regarding
for the longitudinal framing system are to be in accordance	for the longitudinal framing system are to be in accordance	side frames:
with the following (1) and (2).	with the following (1) and (2) in addition to the requirements	
(Omitted)	<u>in 6.4.2 or 6.4.3.2:</u>	
(1) Bending strength	(1) Bending strength	
The section modulus is to be not less than the value	The section modulus is to be not less than the value	
obtained from the following formula:	obtained from the following formula:	
$Z = C_{Safety} \frac{M_B}{\sigma_Y} \times 10^3 (cm^3)$	$Z = C_{Safety} \frac{M_B}{\sigma_Y} \times 10^3 (cm^3)$	
C_{safety} : Safety factor taken as 1.0.	C_{safety} : Safety factor taken as 1.0.	
M_B : Bending moment (kN-m) at the upper end of the	M_B : Bending moment (kN-m) at the upper end of the	
frame according to the following formula:	frame according to the following formula:	
$k_t \ell_{1bdg}^2 s_1 (P_{lower} + 1.5P_{upper}) + 5P_{Deck} s_2 \ell_2^2$	$k_t \ell_{1bdg}^2 s_1 (P_{lower} + 1.5P_{upper}) + 5P_{Deck} s_2 \ell_2^2$	
$M_B = \frac{30k_t + 40}{30k_t + 40} \times 10^{-5}$	$M_B = \frac{30k_t + 40}{30k_t + 40} \times 10^{-5}$	
However, $k_t = 0.4s_2/s_1$	However, $k_t = 0.4s_2/s_1$	
ℓ_{1bdg} : Effective bending span (m) of the side	ℓ_{1bdg} : Effective bending span (m) of the side	
frame. Where a bracket is provided, the	frame. Where a bracket is provided, the	
end of the effective bending span is to be	end of the effective bending span is to be	
taken to the position where the depth of	taken to the position where the depth of	
the side frame and the bracket is equal	the side frame and the bracket is equal	
to $2h_w$, where h_w is the web depth of	to $2h_w$, where h_w is the web depth of	
side frame.	side frame.	
s_1 : Spacing (<i>mm</i>) of side frames	s_1 : Spacing (<i>mm</i>) of side frames	
ℓ_2 : Full length (<i>m</i>) of the deck transverse	ℓ_2 : Full length (<i>m</i>) of the deck transverse	
s_2 : Spacing (<i>mm</i>) of deck transverses	s_2 : Spacing (<i>mm</i>) of deck transverses	
P_{upper} : Lateral pressure (kN/m^2) due to the	P_{upper} : Lateral pressure (kN/m^2) due to the	
external pressure under the maximum	external pressure under the maximum	
load condition specified in 4.4.2, to be	load condition specified in 4.4.2, to be	
calculated at the upper end of the full	calculated at the upper end of the full	
length ℓ_1 of the side frame.	length ℓ_1 of the side frame.	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

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Amended	Original	Remarks
P_{lower} : Lateral pressure (kN/m^2) due to the external pressure under the maximum load condition specified in 4.4.2, to be calculated at the lower end of the full length ℓ_1 of the side frame.	P_{lower} : Lateral pressure (kN/m^2) due to the external pressure under the maximum load condition specified in 4.4.2, to be calculated at the lower end of the full length ℓ_1 of the side frame.	Amendment (9)
P_{deck} : Average value of the lateral pressure (kN/m^2) on the deck, to be taken as the greater of the cargo load or green sea load under the maximum load condition specified in 4.4.2.2. When calculating green sea deck pressure as specified in 4.4.2.8, the value of coefficient <i>a</i> and the minimum value of P_{GW} are to be in accordance with Table 4.5.2-1. This P_{deck} is to be calculated at the midpoint of the full spen of the deck transverse.	P_{deck} : Average value of the lateral pressure (kN/m^2) on the deck, to be taken as the greater of the cargo load or green sea load under the maximum load condition specified in 4.4.2.2. This <u>load</u> is to be calculated at the midpoint of the full span of the deck transverse.	Clarifies some definitions and corrects typographical errors: Specifies the reference of the value of coefficient a and the minimum value of P_{GW} in calculating green sea deck pressure P_{GW}
(2) Shear strength	(2) Shear strength	
(2) Shear Strength	(Dmitted)	
Chapter 7 STRENGTH OF PRIMARY SUPPORTING STRUCTURES	Chapter 7 STRENGTH OF PRIMARY SUPPORTING STRUCTURES	
Symbols	Symbols	Amendment (9) Clarifies some
For symbols not defined in this Chapter, refer to 1.4.	For symbols not defined in this Chapter, refer to 1.4.	definitions and corrects
D_{DB} : When considering bending stiffness, depth (m) of	D_{DB} : When considering bending stiffness, depth (m) of	typographical errors:
double bottom is to be taken as the value at $x_{DH} = 0$ and $y_{DH} = 0$ D_{DS} : When considering bending stiffness, breadth (<i>m</i>) of	double bottom is to be taken as the value at $x_{DH} = 0$ and $y_{DH} = 0$ D_{DS} : When considering bending stiffness, breadth (<i>m</i>) of	Clarifies the definition of breadth of double
- , , ,		side

Amendment related to Part C of the Rules for Surv	ey and Construction of Steel Shi	ps (2024 Amendment 2))
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Amended	Original	Remarks
double side is to be taken as the value at $x_{DH} = 0$ and $z_{DH} = 0$ D_{DH} : Depth or breadth (<i>m</i>) of double hull, given as D_{DB} or D_{DS} , depending on whether assessing a double bottom or a double side x_{DB} : <i>X</i> coordinate with the $\frac{\ell_{DH}}{2}$ point in the double bottom under assessment being $x_{DB} = 0$ x_{DS} : <i>X</i> coordinate with the $\frac{\ell_{DH}}{2}$ point in the double side under assessment being $x_{DS} = 0$ x_{DH} : <i>X</i> coordinate, given as x_{DB} or x_{DS} , depending on whether assessing a double bottom or a double side under assessing a double bottom or a double side y_{DH} : <i>X</i> coordinate, given as x_{DB} or x_{DS} , depending on whether assessing a double bottom or a double side of the cargo hold under assessment being $y_{DH} = 0$ z_{DH} : <i>X</i> coordinate with the $B_{DS}/2$ point in the double side of the cargo hold under assessment being $z_{DH} = 0$	double side D_{DH} : Depth or breadth (m) of double hull, given as D_{DB} or D_{DS} , depending on whether assessing a double bottom or a double side x_{DB} : X coordinate with the $\frac{\ell_{DH}}{2}$ point in the double bottom under assessment being $x_{DB} = 0$ x_{DS} : X coordinate with the $\frac{\ell_{DH}}{2}$ point in the double side under assessment being $x_{DS} = 0$ x_{DH} : X coordinate, given as x_{DB} or x_{DS} , depending on whether assessing a double bottom or a double side y_{DH} : Y coordinate with the $\frac{B_{DB}}{2}$ point in the double bottom of the cargo hold under assessment being $y_{DH} = 0$ z_{DH} : Z coordinate with the $B_{DS}/2$ point in the double side of the cargo hold under assessment being $z_{DH} = 0$	
7.2 Simple Girders	7.2 Simple Girders	
 7.2.1 General 7.2.1.1 Assessment Conditions and Loads 1 For the members listed in Table 7.2.1-1 and the 	 7.2.1 General <u>7.2.1.1 Assessment Models</u> 1 Girders are to be assessed by applying one of the 	Amendment (3) For clarification of the
primary supporting structural strength members constituting	assessment models shown in Table 7.2.1-1 as appropriate for	composition of the
the boundaries of compartments, the strength assessments	the form of load distribution and the surrounding structural	requirements related to
specified in this Chapter are to be carried out considering the	arrangement. For cases not corresponding to any of the	simple girders.
lateral loads and hull girder loads specified in the table. For	assessment models shown in Table 7.2.1-1, girders are to be	The requirements
girders corresponding to multiple conditions, the strength	deemed appropriate by the Society.	remain unchanged.
assessments are to be carried out under all applicable	2 Notwithstanding -1 above, the specific assessment	• Transferred to 7.2.1.2
conditions.	models for the ship types specified in Part 2 are to be referred	
2 Simple girders are to be assessed for strength in each	to Chapter 7, Part 2. For members not specifically specified	1

Υ.	Original					Remarks			
of the assessment conditiontesting condition and flo3For longitudinalgirder loads due to theconsidered in addition to4Lateral loads areside of the girder memiconstantly acting from thinto account.	in Chapter appropriate <u>3</u> Whe with distribu assessments correspondit	7, Part 2 , by the Society are multiple lo uted and conce are to be ng multiple as	applied mode y. bads act simul entrated loads a e carried ou ssessment mod	ls are to be de taneously, as in acting simultaned t by applying els.	cases ously, g the				
Table 7.	2. <u>21</u> -1 Assessmen	nt Condition	ns and Lo	ads for Membe	ers/Compartm	ents to be Asso	essed		Amendment (3)
Compartments/members to be assessed	Typical members	Assessment condition	Lateral load	Load type	Loads Load components	Ret	èr to: Hull girder load		rules, reviews the composition of the requirements related to
	Web frames (including multiple- deck ships), side stringers (single side skin structure)		External pressure	Seawater	Static + dynamic loads	4.4.2.2-1	(M_{V-HG}, M_{H-HG})		 Add "Web frames supporting cantilever beams" as typical
Girders on shell plating	Web frames supporting cantilever beams	Maximum load condition	<u>Others</u>	<u>Green sea</u> (weather decks only), <u>Unspecified</u> cargoes on the <u>deck, etc.</u>	<u>Green sea load,</u> static + dynamic loads	Greater of the pressures specified in 4.4.2.2-3 and -4	4.4.2.9		members.Transferred fromTable 7.2.2-1
Cargo oil tanks, ballast tanks, ballast holds and other tanks	Stiffening girders, corrugated bulkheads		Internal pressure	Liquid loaded	Static + dynamic loads	4.4.2.2-2			

Amended					Original				emarks
Cargo holds ⁽¹⁾	Stiffening girders, corrugated bulkheads			Dry bulk cargoes and others	Static + dynamic loads				
Single-bottomed cargo holds	Girders, floors			Unspecified Cargoes on the deck	Static + dynamic loads				
Girders on deck	Deck girders, deck transverses		Others	Green sea (weather decks only), unspecified <u>C</u> argoes <u>on the</u> <u>deck</u>	Green sea load, static + dynamic loads	Greater of the pressures specified in 4.4.2.2-3 and -4			
Internal decks ⁽²⁾	Deck girders, deck transverses			Unspecified Cargoes on the deck	Static + dynamic loads	4.4.2.2-3			
Members constituting compartments subject to hydraulic testing	Stiffening girders, corrugated bulkheads	Testing condition	Internal pressure	Seawater	Static loads	P_{ST-in1} as specified in 4.4.3.2	4.4. <u>3</u> .3		
Compartments not carrying liquids ⁽³⁾	Stiffening girders, corrugated bulkheads	Flooded condition	Internal pressure	Seawater	-	4.4.4.1	4.4.4.2		
Notes:(1)For ships of a singl(2)For ships carrying loads can be deem plating and the inte(3)Not required for gi	e side skin structure for cargoes other than bu ed as acting only on t ernal deck. rders on shell plating a	or carrying carg ilk and liquid c the inner botton and weather de	goes other th argoes with n plating ar ck.	nan liquids, girders o the cargoes properl ad internal deck, the	n the shell plating y fastened or othe assessment may l	may be excluded fr rwise held in positi be performed only f	om the assessment. on so that the cargo for the inner bottom		
2.1.2 Assessment M Girders are to b ssment models show form of load distribution	Models e assessed by a m in Table 7.2.1 ution and the su	applying or -2 as appro prrounding	ne of the priate for structura					Amendme For clarifie rules, revie compositie requiremen	nt (3) cation of the ews the on of the nts related to

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

		Amended	Original	1	Remarks
arrangement. For assessment models deemed appropriate 2 Notwithstar Chapter 7, Part 2 models for the ship specifically specifi are to be as deemed 3 Where multi with distributed and assessments are corresponding multi	case show e by t nding 2 wit types ed in 1 app tiple 1 con to tiple	s not corresponding to any of the wn in Table 7.2.1-2, girders are to be the Society. g -1 above, reference is to be made to the respect to the specific assessment is specified in Part 2. For members not a Chapter 7, Part 2, applied models ropriate by the Society. loads act simultaneously, as in cases centrated loads acting simultaneously, be carried out by applying the assessment models.			simple girders. • Transferred from 7.2.1.1
_		Table 7.2.1- <u>12</u> Examples of Struct	ures and Assessment Models		Amendment (3)
		Examples of structures	Assessment models		For clarification of the
	1		$x \qquad P$ $1 \qquad \ell \qquad 2$		rules, reviews the composition of the requirements related to simple girders. • Transferred from
	2	e	P_2 $1 \leftarrow \ell \rightarrow 2$		Table 7.2.1-1 • Add the assessment model 8
	3	e	$\mu = \frac{\ell_2}{\ell}$		



Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Amended 8 9 1 <td>Image: Conginal Image: Cong Image: Conging</td> <td>Kemarks</td>	Image: Conginal Image: Cong Image: Conging	Kemarks
 <u>7.2.2.1 General*</u> <u>1</u> Girders are to be assessed in accordance with 7.2.3 to <u>7.2.5 using the moments and shear forces given in the following (1) to (3), depending on the applicable assessment models.</u> (1) Assessment model 1 to 7 shown in Table 7.2.1-2: Moments and shear forces are to be in accordance with Table 7.2.2-1. (2) Assessment model 8 shown in Table 7.2.1-2: Moments and shear forces are to be in accordance with 7.2.2.2. (3) For cases not corresponding to (1) and (2) above, applied models are to be deemed appropriate by the Society. 2 Corrugated bulkheads are to be assessed in accordance with 7.2.7. 	 <u>7.2.2.1 General</u> <u>1</u> Simple girders are to be assessed for strength in each of the assessment conditions of the maximum load condition, testing condition and flooded condition. <u>2</u> For longitudinal hull girder structural members, hull girder loads due to the ship's longitudinal bending are to be considered in addition to lateral loads on girder members. <u>3</u> Lateral loads are, in general, assumed to act from one side of the girder members. However, where any loads are constantly acting from the other side, such loads may be taken into account. <u>4</u> Girder members constituting watertight boundaries of compartments not intended to carry liquids, excluding girders on the shell plating and weather deck, are to be subjected to lateral loads in the flooded condition. 	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred to 7.2.1.1 • Specifies the strength assessment method

	Amended			Original		Remarks
_	Table 7.2. 3 2-	1 Mome	ents and Shear Forces			Amendment (3)
	Assessment model		М	F		For clarification of the
1	$\begin{array}{c} x \qquad P \\ \hline \\ 1 \qquad \qquad$		$M_1 = M_2 = \frac{SP\ell_{bdg}^2}{12}$	$F_1 = F_2 = \frac{SP\ell_{shr}}{2}$		rules, reviews the composition of the requirements related to simple girders. • Transferred from
2	$\begin{array}{c} P_2 \\ P_2 \\$		$M_{1} = \frac{SP_{2}\ell_{bdg}^{2}}{30}$ $M_{2} = \frac{SP_{2}\ell_{bdg}^{2}}{20}$	$F_1 = \frac{3SP_2\ell_{shr}}{20}$ $F_2 = \frac{7SP_2\ell_{shr}}{20}$		Table 7.2.3-1• Add Table 7.2.9-1 toassessment model 6 and7 and note• Modifies thereferences due to
3	$\mu = \frac{\ell_2}{\ell}$	M_1 $M_2 = \frac{S}{2}$	$= -\frac{SP_2\ell_{bdg}^2}{60}(3\mu^4 - 5\mu^3)$ $\frac{SP_2\ell_{bdg}^2}{60}(3\mu^4 - 10\mu^3 + 10\mu^2)$	$F_1 = -\frac{SP_2\ell_{shr}}{20}(2\mu^4 - 5\mu^3)$ $F_2 = \frac{SP_2\ell_{shr}}{20}(2\mu^4 - 5\mu^3 + 10\mu)$	composit	composition review
4	$ \begin{array}{c} P_1 \\ P_1 \\ \hline P_2 \\ \hline $	M	$M_{1} = \frac{S\ell_{bdg}^{2}}{60}(3P_{1} + 2P_{2})$ $M_{2} = \frac{S\ell_{bdg}^{2}}{60}(2P_{1} + 3P_{2})$	$F_{1} = \frac{S\ell_{shr}}{20}(7P_{1} + 3P_{2})$ $F_{2} = \frac{S\ell_{shr}}{20}(3P_{1} + 7P_{2})$		
5	$ \begin{array}{c} $		$M_1 = P\mu_1\mu_2^2 \ell_{bdg}$ $M_2 = P\mu_1^2\mu_2 \ell_{bdg}$	$F_1 = P\mu_2^2(3\mu_1 + \mu_2)$ $F_2 = P\mu_1^2(3\mu_2 + \mu_1)$		

Amended	Remarks		
6			
$ \underbrace{ \begin{array}{c} \underline{ } \\ $	$M_2 = \frac{SP\ell_{bdg}^2}{2}$	$\underline{F_2 = SP\ell_{shr}}$	
$\begin{array}{c} 2 \\ \\ 1 \\ \\ 1 \\ \\ 2 \end{array}$	$\underline{M_2 = P\ell_{bdg}}$	$\underline{F_2 = P}$	
S:Breadth (m) of the area supported by the girder ℓ :Full length (m) of the girder ℓ_{bdg} :Effective bending span (m) of the girder as given in 3.6.1.4 ℓ_{shr} :Effective shear span (m) of the girder as given in 3.6.1.5P:Load corresponding to each assessment condition specified in Tah Assessment Model 1: Uniform load (kN/m^2) acting on the girder Assessment Model 5: Concentrated load (kN) acting on the girder Assessment Model 6: Average lateral load (kN/m^2) acting on the de load condition specified in 4.4.2.2. These load condition specified in 4.4.2.2. These load Assessment Model 7: Load (kN) due to the cargo loaded on the had $P_g = SBP_h$ B :B:A half of the breadth (m) of the hatch in the deck s P_h :Load corresponding to each assessment condition specified Assessment Models 2, 3 and 4: Loads (kN/m^2) acting on the ends of the girder			
<u>7.2.2.2 Web Frames Supporting Cantilever Beams</u> For web frames supporting cantilever beams, the bending moments and shear forces are to be in accordance with the following (1) or (2).	<u>7.2.2.2 Assessment</u> <u>to Be Asses</u> For the memb	<u>Conditions and Loads for Meml</u> sed ers listed in Table 7.2.2-1 and uctural strength members constitu	<u>the</u> <u>the</u> <u>the</u> <u>the</u> <u>the</u> <u>transference</u> <u>the</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u> <u>transference</u>
(1) Web frames in double-deck ships with the first layers	the boundaries of con	npartments, the strength assessm	<u>ents</u> simple girders.
being double side and the second layers being single	specified in this Chapte	er are to be carried out considering	g the

()	Amendment r	elated to	Part C	of the	Rules	for Survey	and (Construction	of Steel	Ships	(2024 A)	Amendment	2))
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Amended	Original	Remarks
side, single-deck ships, multi-deck ships with three or	lateral loads and hull girder loads specified in the table. For	Transferred to 7.2.1.1
more decks:	girders corresponding to multiple conditions, the strength	 Transferred from
i) Moment	assessments are to be carried out under all applicable	7.2.8.3
m	conditions.	• changes the usage of
ii) Shear force		variable i
3 m		
-21-		
<u><i>m</i></u> : Moment acting on the upper ends of web		
frames to be assessed, as follows:		
$\underline{m} = \underline{M}_d + \underline{M}_h$		
M_d : Moment $(kN-m)$ due to the cargo		
loaded on the deck or wave loads to		
be obtained from Assessment Model		
<u>6 shown in Table 7.2.2-1. However,</u>		
$\frac{\ell}{\ell}$ is to be used for calculation		
$\frac{\text{instead of } \ell_{bdg}}{1}$		
<u>M_h: Moment (kN-m) due to the cargo</u>		
loaded on the hatch cover or wave		
Accessment Model 7 shown in Table		
Assessment Model / shown in Table		
$\frac{7.2.2-1.10}{\text{for calculation instead of } l_{1.2.2}$		
$\frac{101 \text{ calculation instead of } t_{bdg.}}{101 \text{ calculation instead of } t_{bdg.}}$		
(2) Web frames in double deals shing with the first layers		
(2) web frames in double-deck sings with the first layers and the second layers being single side		
(a) Web frame in the first tier from the inner bottom		
nlating:		
i) Moment		
$0.6 m_1 $		
ii) Shear force		

Amended	Original	Remarks
$0.9 \left \frac{m_1}{\ell_1} \right $		
(b) Web frame in the second tier:		
i) Moment		
$\max(0.25m_2 + 0.5m_1 , m_2)$		
ii) Shear force		
$0.5m_1 + 1.25m_2$		
ℓ_2		
$\underline{m_1}, \ \underline{m_2}$: Moment acting on the upper ends of		
web frames in the first and second		
tier from the inner bottom plating, in		
accordance with (1) above (See Fig.		
<u>7.2.2-1)</u>		
ℓ_1, ℓ_2 : Span (m) of the web frame in the first		
and the second tier from the inner		
bottom plating		

		-		
(Amendment related to Part C of the	e Rules for Survey	and Construction of	f Steel Ships ((2024 Amendment 2))

(Amendment related to Part C of the Rules for Survey	and Construction of Steel Shi	ps (2024 Amendment 2))

Amended	Original	Remarks
Fig. 7.2.2-1 Web Frames in a Double-deck Ships with the <u>First Layers and the Second Layers being Single Side</u> Cargo load acting on the deck transverse cargo load acting on the hatch cover m_2 m_1 m_1 m_2 m_1 m_2 m_2 m_3 m_4 m_1 m_1 m_2 m_3 m_4 m_1 m_2 m_3 m_4 m_1 m_1 m_2 m_3 m_1 m_2 m_3 m_4 m_1 m_1 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_3 m_1 m_2 m_2 m_2 m_3 m_1 m_2 m_2 m_2 m_3 m_1 m_2 m_2 m_2 m_2 m_3 m_2 m_3 m_1 m_2 m_2 m_3 m_2 m_3 m_2 m_3 m_2 m_3		Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred to 7.2.1.1 • Transferred from 7.2.8.3
(Deleted)	7.2.2.3 Stress Due to Hull Girder Loads The stress σ_{BM} (N/mm ²) due to the hull girder load at the girder to be assessed is to be obtained from the following formula. However, in case of load condition RP in the maximum load condition, σ_{BM} is not to be less than when $M_{V-HG} = 0$ or $M_{H-HG} = M_{WH}$. $\sigma_{BM} = \left[\left \frac{M_{V-HG}}{I_{y-n50}} (z - z_n) \right + \left \frac{M_{H-HG}}{I_{z-n50}} y \right \right] \times 10^5$ (Omitted)	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred to 7.2.3.1

Amended	Original	Remarks
7.2.3 Bending Strength	7.2.3 Bending Strength	
7.2.3 Bending Strength 7.2.3.1 Section Modulus In each assessment condition, the section modulus of simple girders is to be not less than that obtained from the following formula: $Z_{n50} = C_{safety} \frac{ M }{\sigma_{all} - \sigma_{BM}} \times 10^3 (cm^3)$ $C_{safety}: \text{ Safety factor, to be taken as 1.1}$ $M: \text{ Maximum moment } (kN-m) \text{ of the assessment}$ $model \text{ as specified in } \underline{7.2.2.1}$ $\sigma_{all}: \text{ Permissible bending stress } (N/mm^2) \text{ to be}$ $taken as follows:$ $\sigma_{all} = \frac{235}{K}$ $K: \text{ Material factor as specified in } 3.2.1.2$ $\sigma_{BM}: \text{ Stress } (N/mm^2) \text{ due to the hull girder load at the}$ $girder to be assessed as follows. However, in case of load condition RP in the maximum load condition, \sigma_{BM} is not to be less than when M_{V-HG} = 0 or M_{H-HG} = M_{WH}. In addition, for members other than longitudinal hull girder structural members, \sigma_{BM} is to be taken as 0.\sigma_{BM} = \left[\left \frac{M_{V-HG}}{I_{y-n50}} (z - z_n) \right + \left \frac{M_{H-HG}}{I_{z-n50}} y \right \right] \times 10^5 M_{V-HG}: \text{ Hull girder load (vertical bending moment)} corresponding to each assessment condition aspecified in Table 7.2.1-1}$	7.2.3 Bending Strength 7.2.3 Bending Strength In each assessment condition, the section modulus of simple girders is to be not less than that obtained from the following formula: $Z_{n50} = C_{Safety} \frac{ M }{\sigma_{all} - \sigma_{BM}} \times 10^3 (cm^3)$ $C_{Safety}: \text{Safety factor, to be taken as 1.1}$ $M: \text{ Maximum moment } (kN-m) \text{ of the assessment model as specified in 7.2.3.2}}$ $\sigma_{all}: \text{ Permissible bending stress } (N/mm^2) \text{ to be taken as follows:}$ $\sigma_{all} = \frac{235}{K}$ $K: \text{ Material factor as specified in 3.2.1.2}$ $\sigma_{BM}: \text{ Stress } (N/mm^2) \text{ due to the hull girder load at the girder to be assessed as specified in 7.2.2.3. However, for members other than longitudinal hull girder structural members, \sigma_{BM} is to be taken as 0.$	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Modifies the reference
moment) considered in maximum load		

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
condition, as specified in 4.4.2.9-2.		
$M_{\mu_{-}\mu_{C}} = 0$ in load conditions other than		
maximum load condition.		
M_{WH} : Horizontal wave bending moment (kN-m)		
specified in 4.4.2.9-2		
$I_{\nu-n50}$: Moment of inertia (cm ⁴) of the hull		
transverse section under consideration about		
its horizontal neutral axis. Corrosion		
additions considered in the calculation are as		
specified in 3.3.4.		
$I_{z=n50}$: Moment of inertia (cm^4) of the hull		
transverse section under consideration about		
its vertical neutral axis. Corrosion additions		
considered in the calculation are as specified		
$\frac{1113.3.4}{11.1}$		
Z: Z coordinate (m) of the load calculation point for		
Vertical distance (m) from the tan of the least in		
$\underline{z_n}$ vertical distance (<i>m</i>) from the top of the keel in the transverse section under consideration to its		
horizontal neutral axis		
v: V coordinate (m) of the load calculation point for		
the member under consideration		
The coordinate system and the load calculation points are as		
given in 1.4.3.6 and 3.7.3, respectively.		
		Amendment (3)
(Deleted)	7.2.3.2 Moments	For clarification of the
	1 Members of interest are to be assessed based on the	rules, reviews the
	moment in an appropriate assessment model selected from	composition of the
	Table 7.2.3-1 according to their boundary condition and load	requirements related to
	distribution. For cases not corresponding to any of the	simple girders.
	assessment models snown in Table 7.2.3-1, moments are to be	• Deleted due to
	deemed appropriate by the Society.	composition review

(Ar	nendment	related to	Part C	of the	Rules	for Survey	and C	Construction	of Steel	Ships	(2024)	Amendmer	t 2))
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Amended	Original	Remarks
	2 Where multiple loads act simultaneously, as in cases	
	where distributed and concentrated loads act simultaneously,	
	the assessment is to be carried out by the summation of the	
	moments in the respective assessment models.	
7.2.4 Shear Strength	7.2.4 Shear Strength	
		Amendment (3)
7.2.4.1 Web Thickness	7.2.4.1 Web Thickness	For clarification of the
In each assessment condition, the web thickness of	In each assessment condition, the web thickness of	rules, reviews the
simple girders is to be not less than that obtained from the	simple girders is to be not less than that obtained from the	composition of the
following formula:	following formula:	requirements related to
		simple girders.
$t_{n50} = C_{Safety} \frac{1}{D_{sh-m50} \tau_{all}} (mm)$	$t_{n50} = C_{Safety} \frac{1}{D_{sh-m50} \tau_{all}} (mm)$	• Modifies the
C_{safety} : Safety factor to be taken as 1.2	C_{Safaty} : Safety factor to be taken as 1.2	reference due to
F: Maximum shear force (kN) of the assessment	F: Maximum shear force (kN) of the assessment	composition review
model as specified in 7.2.2.1	model as specified in 7.2.4.2	1
D_{ch} m $_{m = 0}$: Shear depth (m) as given in 3.6.4.5	D_{ch} mpc: Shear depth (m) as given in 3.6.4.5	
τ_{au} : Permissible shear stress (N/mm ²) to be taken as	τ_{au} : Permissible shear stress (N/mm ²) to be taken	
follows:	as follows:	
235	235	
$\tau_{all} = \frac{1}{K_{a}/3}$	$\tau_{all} = \frac{1}{K_{1}/3}$	
K: Material factor as specified in 3.2.1.2	K:Material factor as specified in 3.2.1.2	
1	1	Amendment (3)
(Deleted)	7.2.4.2 Shear Forces	For clarification of the
	<u>1</u> Members of interest are to be assessed based on the	rules, reviews the
	shear force in an appropriate assessment model selected from	composition of the
	Table 7.2.3-1 according to their boundary condition and load	requirements related to
	distribution. For cases not corresponding to any of the	simple girders.
	assessment models shown in Table 7.2.3-1, Shear forces are	• Deleted due to
	to be deemed appropriate by the Society.	composition review
	2 Where multiple loads act simultaneously, as in cases	*

(Amendment related to	Part C of the R	ules for Survey and	Construction of Steel	Ships	(2024 Amendment 2)))
			2		1		

Amended	Original	Remarks
	where distributed and concentrated loads are applied simultaneously, the assessment is to be carried out by the	
	summation of the shear forces in the respective assessment	
	models.	
7.2.5 Shear Buckling Strength	7.2.5 Shear Buckling Strength	Δ mendment (3)
7.2.5.1 Web Thickness	7.2.5.1 Web Thickness	For clarification of the
The web thickness of simple girders is to be not less	The web thickness of simple girders is to be not less	rules reviews the
than that obtained from the formulae shown in the following	than that obtained from the formulae shown in the following	composition of the
(1) to (3) for each assessment condition:	(1) to (3) for each assessment condition:	requirements related to
(1) For girder webs with no opening	(1) For girder webs with no opening	simple girders.
$t = \sqrt[3]{C_{Safety} \frac{ F b^2}{D_w} \frac{12(1-\nu^2)}{K_\tau \pi^2 E}} (mm)$	$t = \sqrt[3]{C_{safety} \frac{ F b^2}{D_w} \frac{12(1-\nu^2)}{K_\tau \pi^2 E}} (mm)$	• Modifies the reference due to composition review
C_{Safety} : Safety factor to be taken as 1.2	C_{Safety} : Safety factor to be taken as 1.2	-
<i>F</i> : Maximum shear force (<i>kN</i>) of the assessment model as specified in <u>7.2.2.1</u>	F: Maximum shear force (kN) of the assessment model as specified in <u>7.2.4.2</u>	
D_W : Web depth (m) of the primary supporting	D_W : Web depth (m) of the primary supporting	
members (<i>See</i> Fig. 7.2.5-1)	members (See Fig. 7.2.5-1)	
K_{τ} : Shear buckling factor to be taken as follows:	K_{τ} : Shear buckling factor to be taken as follows:	
$K_{\tau} = 5.34 + \frac{4.0}{\alpha^2}$	$K_{\tau} = 5.34 + \frac{4.0}{\alpha^2}$	
α : Panel aspect ratio to be taken as follows:	α : Panel aspect ratio to be taken as follows:	
$\alpha = \frac{a}{b}$	$\alpha = \frac{a}{b}$	
a: Length (mm) of the longer side of the	a: Length (mm) of the longer side of the	
plate panel (See Fig. 7.2.5-1)	plate panel (See Fig. 7.2.5-1)	
b: Length (<i>mm</i>) of the shorter side of the	b: Length (<i>mm</i>) of the shorter side of the	
plate panel. Where the plate panel is	plate panel. Where the plate panel is	
aiviaea in the girder depth direction, this	aiviaea in the girder depth direction, this	

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

	Amended	Original	Remarks
	length is to be the greatest of the lengths	length is to be the greatest of the lengths	
	of the resulting shorter sides. (See Fig.	of the resulting shorter sides. (See Fig.	
	7.2.5-1)	7.2.5-1)	
	ν : Poisson's ratio to be taken as 0.3	ν : Poisson's ratio to be taken as 0.3	
	<i>E</i> : Young's modulus to be taken as $206,000 (N/mm^2)$	<i>E</i> : Young's modulus to be taken as $206,000 (N/mm^2)$	
(2)	For girder webs provided with an opening reinforced	(2) For girder webs provided with an opening reinforced	
	by stiffeners in the girder span direction	by stiffeners in the girder span direction	
	$t = \sqrt[3]{C_{safety} \frac{ F b^2}{D D D} \frac{12(1-\nu^2)}{V \sigma^2 E}} (mm)$	$t = {}^{3} \boxed{C_{safety} \frac{ F b^{2}}{D} \frac{12(1-v^{2})}{K\pi^{2}E}} (mm)$	
	$\sqrt{\frac{1}{\sqrt{D_W - D_0}} \frac{1}{\sqrt{\pi^2 E}}}$	$\sqrt{\frac{1}{N}} D_w - D_0 - K_\tau n^2 E$	
	C_{Safety} : Safety factor to be taken as 1.2	C_{Safety} : Safety factor to be taken as 1.2	
	F: Maximum shear force (kN) of the assessment	F: Maximum shear force (kN) of the assessment	
	model as specified in 7.2.2.1	model as specified in 7.2.4.2	
	D_W : Web depth (m) of the primary supporting	D_W : Web depth (m) of the primary supporting	
	members (<i>See</i> Fig. 7.2.5-2)	members (<i>See</i> Fig. 7.2.5-2)	
	K_{τ} : Shear buckling factor to be taken as follows:	K_{τ} : Shear buckling factor to be taken as follows:	
	$K_{\tau} = 5.34 + \frac{4.0}{\alpha^2}$	$K_{\tau} = 5.34 + \frac{4.0}{\alpha^2}$	
	D_0 : Size (m) of manholes and other openings in the	D_0 : Size (m) of manholes and other openings in the	
	girder depth direction (See Fig. 7.2.5-2)	girder depth direction (See Fig. 7.2.5-2)	
	α : Panel aspect ratio to be taken as follows:	α : Panel aspect ratio to be taken as follows:	
	$\alpha = \frac{a}{-}$	$\alpha = \frac{a}{-}$	
	a: Length (mm) of the longer side of the plate	a: Length (mm) of the longer side of the plate	
	panel (See Fig. 7.2.5-2)	panel (See Fig. 7.2.3-2)	
	<i>D</i> : Length (<i>mm</i>) of the shorter side of the plate	<i>D</i> : Length (<i>mm</i>) of the shorter side of the plate	
	lengths of the resulting shorter sides (Sag	lengths of the resulting shorter sides (See	
	Fig 7 2 5-2)	Fig. 7.2.5-2)	
	v: Poisson's ratio to be taken as 0.3	v: Poisson's ratio to be taken as 0.3	
	<i>E</i> : Young's modulus to be taken as 206,000 (N/mm^2)	<i>E</i> : Young's modulus to be taken as 206 000 (N/mm^2)	
(3)	For girder webs provided with an opening (an	(3) For girder webs provided with an opening (an	

Amended	Original	Remarks
unreinforced opening)	unreinforced opening)	
$t = \sqrt[3]{C_{Safety} \frac{ F b^2}{D_w} \frac{12(1-v^2)}{\gamma_{a_0} K_\tau \pi^2 E}} (mm)$	$t = \sqrt[3]{C_{Safety} \frac{ F b^2}{D_w} \frac{12(1-\nu^2)}{\gamma_{a_0} K_\tau \pi^2 E}} (mm)$	
C_{Safety} : Safety factor to be taken as 1.2	C_{Safety} : Safety factor to be taken as 1.2	
F: Maximum shear force (kN) of the assessment model as specified in 7.2.2.1	<i>F</i> : Maximum shear force (<i>kN</i>) of the assessment model as specified in <u>7.2.4.2</u>	
D_W : Web depth (m) of the primary supporting members (See Fig. 7.2.5-3)	D_W : Web depth (<i>m</i>) of the primary supporting members (See Fig. 7.2.5-3)	
K_{τ} : Shear buckling factor to be taken as follows: $K_{\tau} = 5.34 \pm \frac{4.0}{2}$	K_{τ} : Shear buckling factor to be taken as follows: $K_{\tau} = 5.34 \pm \frac{4.0}{2}$	
$R_{\tau} = 3.5 + \frac{\alpha^2}{\alpha^2}$	$R_{\tau} = 5.5 + \frac{\alpha^2}{\alpha^2}$	
γ_{a_0} : Coefficient of the effect of an opening, such as a	γ_{a_0} : Coefficient of the effect of an opening, such as a	
manhole, on shear buckling to be taken as follows:	manhole, on shear buckling to be taken as follows:	
$\gamma_{a_0} = \left(1 + \frac{D_0}{2a} \times 10^3\right)^{-2}$	$\gamma_{a_0} = \left(1 + \frac{D_0}{2a} \times 10^3\right)^{-2}$	
D_0 : Size (<i>m</i>) of manholes and other openings in	D_0 : Size (m) of manholes and other openings in	
the girder depth direction (See Fig. 7.2.5-3)	the girder depth direction (See Fig. 7.2.5-3)	
α : Panel aspect ratio to be taken as follows:	α : Panel aspect ratio to be taken as follows:	
$\alpha = \frac{a}{b}$	$\alpha = \frac{a}{b}$	
a: Length (mm) of the longer side of the	a: Length (mm) of the longer side of the	
plate panel (See Fig. 7.2.5-3)	plate panel (See Fig. 7.2.5-3)	
b: Length (<i>mm</i>) of the shorter side of the	b: Length (<i>mm</i>) of the shorter side of the	
plate panel (See Fig. 7.2.5-3)	plate panel (See Fig. 7.2.5-3)	
ν : Poisson's ratio to be taken as 0.3	v: Poisson's ratio to be taken as 0.3	
<i>E</i> : Young's modulus to be taken as $206,000 (N/mm^2)$	<i>E</i> : Young's modulus to be taken as $206,000 (N/mm^2)$	

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

 7.2.6 Bending Stiffness 7.2.6.1 Depth of Girders For the members specified in Table 7.2.6-1, depth is not to be less than that specified in the table. However, the depth may be reduced provided that the member has equivalent moment of inertia or deflection to the required 7.2.6 Bending Stiffness 	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred from 7.2.9 due to composition
 <u>and (2):</u> (1) The depths of the cantilever beams may be gradually tapered down towards their inboard ends from the toes of the end brackets and may be reduced to about 1/2 of the depth at the toe of the end bracket. (2) The sectional areas of face plates may be gradually tapered down from the toes of the end brackets toward the inboard end of the cantilever beams and may be reduced to 0.60 <i>times</i> that at the toe of the end bracket. 	review
Table 7.2.6-1 Depths of Girders	
Member Depths of Girders (m)	
$\frac{125 \mu}{125 \mu}$	
Web frame supporting cantilever $0.125\ell_{bdg}$	
Web frame supporting side stringer $0.125\ell_{bdg}$ Side stringer $0.125\ell_{cdg}$	
Side stringer $0.125t_{bdg}$	
Web frame forward of collision bulkhead	
$\frac{0.2\ell_{bdg}}{0.2\ell_{bdg}}$	Transferred from
Note: ℓ_{bdg} : Effective bending span (m) of the girder as given in 3.6.1.4	7.2.9 due to composition review

Amended				Original	Remarks		
Table 7.2.7-1 Moments and Shear Forces (with $d_H \ge 2.5d_0$)							
Upper end of	Lower end of	Load distribution	Assessment model	Lower part of corrugated bulkhea	d (Point 2 in assessment model)		
bulkhead	bulkhead	Load distribution	Assessment moder	Moment	Shear force <i>F</i>		
Supported by girder Connected to stool	Supported by girder Connected to	Pressure P_1 at the upper end of $\ell \ge 0$	P_1 P_2	$M_2 = \frac{S\ell^2}{60}(2P_1 + 3P_2)$	$F_2 = \frac{S\ell}{20}(3P_1 + 7P_2)$		
	double bottom Connected to stool	Midspan pressure = 0	$\mu = \frac{\ell_2}{\ell}$ $\downarrow \qquad \qquad$	$M_2 = \frac{SP_2\ell^2}{60}(3\mu^4 - 10\mu^3 + 10\mu^2)$	$F_2 = \frac{SP_2\ell}{20}(2\mu^4 - 5\mu^3 + 10\mu)$		
	deck Supported by girder Connected to double bottom Connected to stool	Supported by girder Connected to	Pressure P_1 at the upper end of $\ell \ge 0$	$\begin{array}{c} P_1 \\ P_2 \\ P_1 \\ P_2 \\$	$M_2 = \frac{S\ell^2}{120}(7P_1 + 8P_2)$	$F_2 = \frac{S\ell}{40}(9P_1 + 16P_2)$	
Connected to deck		Midspan pressure = 0	$\mu = \frac{\ell_2}{\ell} \qquad \qquad P_2$	$M_2 = \frac{SP_2\ell^2}{120}(3\mu^4 - 15\mu^3 + 20\mu^2)$	$F_2 = \frac{SP_2\ell}{40}(\mu^4 - 5\mu^3 + 20\mu)$		
<i>l</i> : Length (<i>m</i>) between the supporting points as specified in Fig. 7.2.7-2 and -3							
ℓ_1 : Length (<i>m</i>) from one end of ℓ to the zero pressure point to be taken as $\ell_1 = \ell - \ell_2$							
ℓ_2 : Length (<i>m</i>) from the other end of ℓ to the zero pressure point							
P_1 and P_2 : Loads $(k/V/m^2)$ corresponding to each assessment condition specified in Table 7.2.12-1 to be calculated at the upper and lower ends of ℓ of the girder, respectively. However,							
where an upper stort is provided, F_1 is to be calculated at the deck level. So Breadth of $1/2$ pitch (m) of the corrugation							
S: Breadth of 1/2 pitch (m) of the corrugation							

		Amended		Original		Remarks
			Table 7.2.7-2	Moments and Shear Forces (with $d_H <$	$2.5d_0$)	
Upper end Lower end Load		Assessment model	Lower part of corrugated bulkhead		Lower stool at inner bottom plating	
of buikfiead	of buikhead	distribution		Moment M	Shear force F	Moment M
Supported by girder Supported by girder to deck or Connected to stool bottom Connected to stool	Pressure P_1 at the upper end of $\ell \ge 0$	$\begin{array}{c} P_1 \\ \hline \\ 1 \\ \hline \\ 1 \\ \hline \\ 2 \end{array}$	$M = \max(M_1 , M_a)$ $M_1 = \frac{S\ell^2}{60}(3P_1 + 2P_2)$ $M_a = \frac{S\ell^2}{60} \begin{bmatrix} 10(P_2 - P_1)\alpha^3 + 30P_1\alpha^2\\ -3(7P_1 + 3P_2)\alpha + 3P_1 + 2P_2 \end{bmatrix}$	$F = \max(F_1 , F_a)$ $F_1 = -\frac{S\ell}{20}(7P_1 + 3P_2)$ $F_a = \frac{S\ell}{20} \begin{bmatrix} 10(P_2 - P_1)\alpha^2 + 20P_1\alpha \\ -7P_1 - 3P_2 \end{bmatrix}$	$M_2 = \frac{S\ell^2}{60}(2P_1 + 3P_2)$	
	to deck or double bottom Connected Midspan to stool pressure = 0	Midspan pressure = 0	$\mu = \frac{\ell_2}{\ell} \qquad \qquad P_2$ $\mu = \frac{\ell_2}{\ell} \qquad \qquad P_2$ $\mu = \frac{\ell_2}{\ell} \qquad \qquad P_2$	$M = \max(M_1 , M_a)$ $M_1 = -\frac{SP_2\ell_2^2}{60}(3\mu^2 - 5\mu)$ $M_a = \frac{SP_2\ell_2^2}{60}[(6\mu^2 - 15\mu + 10)\alpha - 3\mu^2 + 5\mu]$ $-\frac{SP_2\ell_2^2}{6}\alpha + \left[\frac{SP_2}{6\ell_2}(\alpha\ell - \ell_1)^3\right]$	$F = \max(F_1 , F_a)$ $F_1 = \frac{SP_2\ell_2}{20}(2\mu^3 - 5\mu^2)$ $F_a = \frac{SP_2\ell_2}{20}(2\mu^3 - 5\mu^2)$ $+ \left[\frac{SP_2}{2\ell_2}(\alpha\ell - \ell_1)^2\right]$	$M_2 = \frac{SP_2\ell_2^2}{60}$ $(3\mu^2 - 10\mu + 10)$
Connected	Supported by girder Connected to deck or	Pressure P_1 at the upper end of $\ell \ge 0$	$\begin{array}{c} P_1 \\ P_2 \\ P_1 \\ P_2 \\$	$M_{a} = \max(M_{a} , 0.6M_{2})$ $M_{a} = \frac{S\ell^{2}\alpha}{120} \begin{bmatrix} 20(P_{2} - P_{1})\alpha^{2} + 60P_{1}\alpha \\ -33P_{1} - 12P_{2} \end{bmatrix}$	$F = \max(F_1 , F_a)$ $F_1 = -\frac{S\ell}{40}(11P_1 + 4P_2)$ $F_a = \frac{S\ell}{40} \begin{bmatrix} 20(P_2 - P_1)\alpha^2 \\ +40P_1\alpha - 11P_1 - 4P_2 \end{bmatrix}$	$M_2 = \frac{S\ell^2}{120}(7P_1 + 8P_2)$
to deck double bottom Connect to stoo	double bottom Connected to stool	Midspan pressure = 0	$\mu = \frac{\ell_2}{\ell}$ $\mu = \frac{\ell_2}{\ell}$ $\mu = \frac{\ell_2}{\ell}$	$M = \max(M_a , 0.6M_2)$ $M_a = \frac{SP_2\ell_2\ell\alpha}{40}(\mu^3 - 5\mu^2) + \left[\frac{SP_2}{6\ell_2}(\alpha\ell - \ell_1)^3\right]$	$F = \max(F_1 , F_a)$ $F_1 = \frac{SP_2\ell_2}{40}(\mu^3 - 5\mu^2)$ $F_a = \frac{SP_2\ell_2}{40}(\mu^3 - 5\mu^2)$ $+ \left[\frac{SP_2}{2l_2}(\alpha\ell - \ell_1)^2\right]$	$M_2 = \frac{SP_2\ell_2^2}{120}$ $(3\mu^2 - 15\mu + 20)$
$\ell, \ \ell_1 \ \text{and} \ \ell_2$ $P_1 \ \text{and} \ P_2:$ respectively. $S: \text{Breadth}$ $\alpha: \frac{\ell - h_S}{\ell}$ $h_S: \text{Height}$: As given Loads (k/ However, of 1/2 pitch (m	W/m ²) correspon where an upper) of the corrugat	ding to each assessment con stool is provided, P_1 is to be	dition specified in Table 7.2. <u>1</u> 2-1 to be calculated at e calculated at the deck level.	the web centre of the upper and lower	r ends of ℓ of the girder,

Amended				Original	Remarks
Lo	Lower end Upper end				
		Connected to s	stool	Connected to deck	
		Supported by g	girder		
(1)) Supported by girder		$P_b S \ell^2$	$P_b S \ell^2$	
	Connected to deck or double bottom	4(2 +	$+\frac{z_1'}{z_0'}+\frac{z_2'}{z_0'}$	$4(2 + \frac{Z_2'}{Z_0'})$	
(2)) Connected to stool	$P_S S$	$(\ell + h_S)^2$	$P_S S(\ell + h_S)^2$	
		4(2 +	$-\frac{z_1'}{z_0'}+\frac{d_H}{d_0}$	$4(2 + \frac{d_H}{d_0})$	
		Not to be less	than the value in (1).		
P _b	: Load (kN/m^2) acting on the bulkh $P_b = \frac{P_1 + P_2}{2}$	ead to be taken a	as follows:		
P_{S} $S:$ $\ell:$ d_{0} d_{H} Z_{i}	$P_{b} = \frac{P_{1} + P_{3}}{2}$ $P_{b} = \frac{P_{1} + P_{3}}{2}$ $P_{1} \text{ and } P_{2}: \text{ Loads } (kN/m)$ calculated at t However, where an up $P_{3}: \text{ Load } (kN/m^{2}) \text{ in the fl}$ end of the lower stool 1/2 pitch (m) of the corrugation Length (m) between the supporting Corrugation depth (mm) Breadth (mm) of the stool on the the $Z_{i}' = \frac{2C_{xi}}{C_{xi} + 1} f Z_{i}$ $(i = 0, j)$	ead and lower st t^2) in the flow the upper and low opper stool is provided condition and points as spect top of the inner by ng the effect of by , 1,2)	tool to be taken as fol oded condition spe wer ends of ℓ , respec vided, P_1 is to be cal a specified in Table 7 dified in Fig. 7.2.7-2 bottom plating buckling to be taken a	lows: ccified in Table 7.2. <u>1</u> 2-1 to be tively. culated at the deck level. .2. <u>1</u> 2-1 to be calculated at the lower	
W Z ₀ Z ₁	here: $C_{xi} = \frac{2.25}{\beta_i} - \frac{1.25}{\beta_i^2} (i = 0)$ $\beta_i = \frac{b_f}{t_{fi-n50}} \sqrt{\frac{\sigma_Y}{E}} (i = 0)$ and t_{f0-n50} : Minimum section the flange of midpart for 0. and t_{f1-n50} : Minimum section	0, 1,2) 0, 1,2) on modulus (cm^3 6 ℓ of the corrug on modulus (cm^3) per 1/2 pitch and m gated bulkhead, respe) per 1/2 pitch and th	inimum thickness (<i>mm</i>) of ctively e minimum thickness (<i>mm</i>)	

Amended		Original	Remarks
(Deleted) (Deleted)	of the flange at the upper end of the bulkheau Z_2 and t_{f2-n50} : Minimum section modulus (cm^3) of the flange at the lower end of the bulkheau σ_{Y} : Specified minimum yield stress $(N/mm, E:$ Young's modulus to be taken as 206,00 $f:$ Shape coefficient to be taken as 1.1	 d, respectively p per 1/2 pitch and the minimum thickness (mm) d, respectively p²) 20 (N/mm²) 7.2.8 Web Frames 7.2.8 applies to web frames in multi-deck ships with two or more decks as defined in the following (1) and (2): (1) Web frames extending continuously from the inner bottom plating to the freeboard deck. The "web frames" meant here include the adjacent side frames above and below the web frame (in cases of ships with both longitudinal and transverse framing systems). Web frames in single-deck ships are to be in accordance with the requirements in 7.2.3 to 7.2.5. (2) Web frames specified in -1(1) and (2) above are to be in accordance with the requirements in 7.2.8.2 and 7.2.8.3, respectively. 3 Notwithstanding -2 above, web frames may be assessed based on the moments and shear forces obtained by direct strength calculations such as beam analysis. 	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Deleted due to composition review

Amended	Original	Remarks
(Deleted)	Fig. 7.2.8-1 Example of Application	Amendment (3)
		For clarification of the
	1 4	rules, reviews the
	$/$ S_4, ℓ_4	composition of the
	P_3 3 3rd-tier web frame subject to	simple sinders
	$S_3, \ell_3 \qquad \text{Moment: } C_{load} \max(M_{3,2} , M_{2,3})$	• Transferred to Part 2-
	P_2 Shear force: $C_{load} \max(F_{3,2} , F_{2,3})$	6 due to composition
	S_2, ℓ_2	review
	$P_1 / 1$	
	$\int S_1, \ell_1$	
	$P_0 \xrightarrow{I} 0$	
		Amendment (3)
(Deleted)	7.2.8.2 Multi-Deck Ship Web Frames Subject to	For clarification of the
	External Pressure	rules, reviews the
	<u>The scantlings of web frames are to be in accordance</u>	composition of the
	and shear forces to be considered in applying 7.2.3 to 7.2.5 are	requirements related to
	to be 1.1 times the greater of their respective absolute values	simple girders.
	at the upper and lower ends of web frames (<i>See</i> Fig. 7.2.8-1).	6 due to composition
	Nodal bending moments and shear forces are to be in	review
	accordance with the following (1) and (2), respectively:	
	(1) Moments acting on web frames at each node are to be	
	in accordance with the following (a) and (b): (a) The memory $M_{\rm eff}$ (b) with a string on the second	
	(a) The moment $M_{i,i-1}$ (k/V-m) acting on a web	
	<u>Trame with node i being its upper end (the</u> moment at the upper end of the web frame) is to	
	be taken as follows (See Fig. 7.2.8-2).	
	i) For $i = n$	
	$\underline{M_{n,n-1}=0}$	

Amended	Original	Remarks
	ii) For $1 \le i \le n-1$	
	$M_{ii-1} = \frac{1}{2} \left(C_{ii-1} - C_{ii+1} + \phi_{i-1} - \phi_{i+1} \right)$	
	(b) The moment M_{k+1} $(kN_{-}m)$ acting on a web	
	frame with node <i>i</i> being its lower end (the	
	moment at the lower end of the web frame) is to	
	be taken as follows (See Fig. 7.2.8-2):	
	i) For $1 \le i \le n-1$	
	$\underline{M}_{i,i+1} = -\frac{1}{2} (C_{i,i-1} - C_{i,i+1} + \phi_{i-1})$	
	$- \phi_{i+1}$	
	<u>ii) For $i = 0$</u>	
	$\underline{M}_{0,1} = -\frac{1}{4} (C_{1,2} + C_{1,0} - \emptyset_0 + \emptyset_2) - C_{0,1}$	
	$\underline{C_{i,i-1}}$: Coefficient to be taken as follows:	
	$\underline{C_{i,i-1}} = \frac{S_i \ell_i^2}{60} (3P_i + 2P_{i-1}) \tag{0}$	
	$\frac{\langle i \leq n-1 \rangle}{\langle i \leq n-1 \rangle}$	
	$\frac{L_{i,i+1}}{2} = \frac{C_{i,i+1}}{C_{i,i+1}} $	
	$\frac{1) \text{For } 0 \leq t \leq n-2}{S \rho^2}$	
	$C_{i,i+1} = -\frac{S_{i+1} + i_{i+1}}{60} (2P_{i+1})$	
	$+3P_i$)	
	$\underbrace{\text{ii)} \text{For } i = n - 1}_{n - 1}$	
	$\underline{C_{n-1,n} = -\frac{S_n \ell_n^2}{120}}(7P_n$	
	$(+8P_{n-1})$	
	i) For $i = 0$	
	$\frac{\phi_0 = 0}{1 + 1 + 1}$	
	ii) For $1 \le i \le n-1$	

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
	$\phi_i = -\frac{1}{2}(C_{i,i-1} + C_{i,i+1})$	
	$\frac{4}{100} + \frac{4}{100} + \frac{10}{100} + \frac{10}$	
	$\frac{111) \operatorname{FOI} t - h}{1}$	
	$\underline{\phi_n = -\frac{1}{2}\phi_{n-1}}$	
	S_i : Spacing (m) of the web	
	frame in the <i>i</i> -th tier from the inner	
	bottom plating	
	ℓ_i : Span (m) of the web frame	
	in the <i>i</i> -th tier from the inner bottom	
	plating	
	$\underline{P_i: \text{Load } (kN/m^2) \text{ due to the}}$	
	external load at node <i>i</i> in the	
	maximum load condition	
	(2) Nodal shear forces acting on web frames are to be in	
	accordance with the following (a) and (b):	
	(a) The shear force F_{i} , (kN) acting on a web	
	frame with node <i>i</i> being its upper end (the shear	
	force at the upper end of the web frame) is to be	
	taken as follows:	
	$\overline{E} = \frac{1}{M} (M + M)$	
	$\frac{F_{i,i-1}\frac{1}{\ell_i} (M_{i,i-1} + M_{i-1,i})}{\ell_i}$	
	$-\frac{\ell_i}{(2S,P_i)}$	
	$-6^{(23i1i)}$	
	$+S_{i-1}P_{i-1}) \qquad (1 \le i \le n)$	
	(b) The shear force $F_{i,i+1}$ (kN) acting on a web	
	frame with node i being its lower end (the shear	
	force at the lower end of the web frame) is to be	
	taken as follows:	
	i) For $0 \le i \le n-1$	

Amended	Original	Remarks
(Deleted)	$F_{i,i+1} = -\frac{1}{\ell_{i+1}} \left(M_{i+1,i} + M_{i,i+1} \right) \\ + \frac{\ell_{i+1}}{6} (S_{i+1}P_{i+1} + 2S_iP_i) \\ i) \text{For } i = 0 \\ F_{0,1} = -\frac{1}{\ell_1} \left(M_{1,0} + M_{0,1} \right) \\ + \frac{\ell_1}{6} \left(S_1P_1 + 2S_1P_0 \right) \\ M_{1,0}, M_{0,1}, M_{i+1,i}, M_{i,i+1}, \ell_i, S_i \text{ and } P_i: \\ \underline{As \text{ specified in (1) above}} \\ Fig. 7.2.8-2Moment Acting on a Web Frame at Node i \\ i \\ R_{n-1} \int_{q_{n-1}}^{q_{n-1}} M_{n-1} \\ R_{n-1} \int_{q_{n-1}}^{q_{n-1}} M_{n-1} \\ Moment acting on a web frame with node i being its lower end (the moment at the lower end of the web frame): M_{i,i+1} \\ M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_{j,j} \int_{q_{n-1}}^{q_{n-1}} M_{j,j} \\ Moment acting on a web frame with node i being its lower end (the moment at the upper end of the web frame): M_{i,i+1} \\ M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_{j,j} \int_{q_{n-1}}^{q_{n-1}} M_{i,j} \\ M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_{j,j} \int_{q_{n-1}}^{q_{n-1}} M_{j,j} \int_{q_{n-1}}^{q_{n-1}} M_{i,j} \int_{q_{n-1}}^{q_{n-1}} M_$	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred to Part 2- 6 due to composition review
(Deleted)	7.2.8.3 Web Frames Supporting Cantilever Beams The scantlings of web frames are to be in accordance	Amendment (3) For clarification of the rules, reviews the

Amended	Original	Remarks
	with the requirements in 7.2.3 to 7.2.5. The bending moments	composition of the
	and shear forces to be considered in applying 7.2.3 to 7.2.5 are	requirements related to
	to be in accordance with the following (1) or (2) as applicable	simple girders.
	depending on the number of decks:	Transferred to 7.2.2.2
	(1) Web frames in double-deck ships (See Fig. 7.2.8-3)	due to composition
	(a) Web frame in the first tier from the inner bottom	review
	<u>plating:</u>	
	<u>i) Moment</u>	
	$0.6 m_1 $	
	ii) Shear force	
	$0.3 \left \frac{m_1}{\ell_1} \right $	
	(b) Web frame in the second tier:	
	i) Moment	
	$\max(0.25m_2 + 0.5m_1 , m_2)$	
	ii) Shear force	
	$ 0.5m_1 - 0.75m_2 $	
	ℓ_2	
	(2) Web frames in multi-deck ships with three or more	
	decks:	
	i) Moment	
	$ \underline{m}_i $	
	ii) Shear force	
	$3 m_i $	
	$2\ell_i$	
	m_i : Moment due to the deck load acting on	
	the web frames at the <i>i</i> -th tier deck	
	to be taken as follows:	
	$\underline{m_i = M_{di} + M_{hi}}$	
	<u>M_{di}:</u> Moment (kN - m) due to the	
	cargo loaded on the <i>i</i> -th tier deck or	
Amended	Original	Remarks
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	wave loads to be obtained from	
	Assessment Model A shown in	
	Table 7.2.9-1. However, ℓ is to be	
	used for calculation instead of	
	<u>ℓ_{bdg}.</u>	
	<u>M_{hi}:</u> Moment (kN - m) due to the	
	cargo loaded on the <i>i</i> -th tier hatch	
	cover or wave loads to be obtained	
	from Assessment Model B shown in	
	Table 7.2.9-1. However, ℓ is to be	
	used for calculation instead of	
	<u>lbdg</u> .	
	ℓ_i : Horizontal distance (m) from the	
	inboard end of the supported deck	
	transverse to the inner surface of the web	
	frame	

Amended	Original	Remarks
(Deleted)	Fig. 7.2.8-3 Web Frames in a Double-Deck Ship Cargo load acting on the deck transverse $cargo load acting on the deck transverse cargo load acting on the hatch cover m_1m_1m_2m_1m_2m_1m_2m_2m_1m_2m_2m_1m_2m_2m_1m_2m_2m_2m_1m_2m_2m_2m_1m_2m_2m_2m_1m_2m_2m_1m_2m_2m_2m_2m_2m_2m_2m_2m_2m_1m_2m$	
(Deleted)	7.2.9 Cantilever Beam Systems	
(Deleted)	 7.2.9.1 Cantilever Beams Cantilever beams are to comply with the requirements in the following (1) to (5): (1) The depth of the cantilever beams measured at the toe of the end brackets is to be not less than 1/5 of the horizontal distance from the inboard end of the cantilever beam to the toe of the end bracket. (2) The depth of the cantilever beams may be gradually tapered down towards their inboard end from the toe of the end brackets where it may be reduced to about 1/2 of the depth at the toe of the end bracket. (3) The section modulus at the end of the requirements in the top in accordance with the requirements in the section is to be in accordance with the requirements in the top in the to	Amendment (3) For clarification of the rules, reviews the composition of the requirements related to simple girders. • Transferred to 7.2.6.1 and Table7.2.2-1 due to composition review

 7.2.3. The bending moment to be considered in applying 7.2.3 is to be not less than that obtained from the following formula: M = M_d + M_h. M_d: Moment (kN-m) due to deck cargo or wave loads to be obtained from Assessment Model A shown in Table 7.2.9-1. M_h: Moment (kN-m) due to the cargo loaded on the hatch cover or wave loads to be obtained from Assessment Model B shown in Table 7.2.9-1. (4) The sectional area of face plates may be gradually tapered down from the co of the end brackets toward the inboard end of the cantilever beams at any be reduced to 0.60 times that at the toc of the end brackets in the bracket. (5) The web thickness of the cantilever beams at any point is to be in accordance with the requirements in 7.2.4. The shear force to be considered in applying 7.2.4 is to be not less than that obtained from the following formula: F = F_d + F_h, F_d: Shear force (kN) due to deck cargo or wave loads to be obtained from the following formula: F = F_d + F_h, F_d: Shear force (kN) due to deck cargo or wave loads to be obtained from Assessment Model B shown in Table 7.2.9-1. 	Amended	Original	Remarks
	Amended	Original7.2.3. The bending moment to be considered in applying 7.2.3 is to be not less than that obtained from the following formula: $M = M_d + M_h$ M_d:Moment (kN-m) due to deck cargo or wave loads to be obtained from Assessment Model A shown in Table 7.2.9-1.M_h:Moment (kN-m) due to the cargo loaded on the hatch cover or wave loads to be obtained from Assessment Model B shown in Table 7.2.9-1.(4)The sectional area of face plates may be gradually tapered down from the toe of the end brackets toward the inboard end of the cantilever beams where it may be reduced to 0.60 times that at the toe of the end bracket.(5)The web thickness of the cantilever beams at any point is to be in accordance with the requirements in 7.2.4. The shear force to be considered in applying 7.2.4 is to be not less than that obtained from the following formula: $F = F_d + F_h$ Equation of the form Assessment Model A shown in Table 7.2.9-1.F_h:Moment (kN) due to the cargo loaded on the hatch cover or wave loads to be obtained from Assessment Model B shown in Table 7.2.9-1.	Remarks

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

	Amended				Original		Remarks
	Table 7.2.9-1 Moments and Shear Forces						Amendment (3)
		Assessment model		M	F		For clarification of the
	A	P_A $1 \ell 2$	<u>M₂</u>	$=\frac{SP_A \ell_{bdg}^2}{2}$	$F_2 = SP_A \ell_{shr}$		rules, reviews the composition of the requirements related to simple girders. • Transferred to
	₽	$ \begin{array}{c} $	<u>4</u>	$r_2 = P_{g} \ell_{bdg}$	$F_{\underline{z}} = P_{\underline{y}}$		Table7.2.1-2 and Table7.2.2-1 due to composition review
	S: <i>t</i> : <i>t</i> _{BAG} : <i>t</i> _{ShF} : <i>P</i> _A : <i>P</i> _B :	 Spacing of cantilever beam (m) Full length (m) of the cantilever beam Effective bending span (m) of the cantilever Effective shear span (m) of the cantilever Average lateral load (kN/m²) acting on the load condition specified in 4.4.2.2. These load (kN) due to the cargo loaded on th P_B = SBP_R B: A half of the breadth (m) of P_R: Load (kN/m²) acting on the logo (kN/m²) (kN/m	ever beam as giv er beam as giv e deck to be tal e loads are to l e hatch cover the hatch in th hatch cover as	given in 3.6.1.4 en in 3.6.1.5 ten as the greater of the ca be calculated at the midpo to be taken as follows: te deck supported by decl specified in 4.4.2.7 or 4.	rgo load or green sea load in the maximum sint of the span - <i>l</i> . c transverses 10.2.1		
7.3 Dou	ıble H	ull Structures		7.3 Double l	Hull Structures		

7.3.1.2 Double Hull Models

Double hull strength assessments are to be carried out using an appropriate double hull model selected from Table 7.3.1-2 according to the presence or absence of double side skin structures and hopper tanks, the breadth of hatchways and the presence or absence of longitudinal bulkheads on the

7.3.1.2 Double Hull Models

Double hull strength assessments are to be carried out	definitions and correct
using an appropriate double hull model selected from Table	typographical errors:
7.3.1-2 according to the presence or absence of double side	JI 8 I
skin structures and hopper tanks, the size of hatchways and the	
presence or absence of longitudinal bulkheads on the	

Amendment (9)

corrects

Clarifies some

		Amended				Origin	al	Remarks
centreline.					centreline.			
			Table 7.3.1-2 C	lassificati	 ion of Double H	ull Models		Amendment (9)
	Type of structure	Side structure	Other features	Typical tr	ansverse sectional view	Boundary condition at the left and right of the double bottom	Boundary condition at the upper end of the double side	Clarifies some definitions and corrects typographical errors:
	S1	Single side skin structure	No bilge hopper tanks provided			Supported		When selecting the D1/D2 types, clarify how to measure the breadth of the hatchway where the ship's side structure changes from a
	S2	Single side skin structure	Bilge hopper tanks provided		5	Rotational spring support		double to a single in the middle of its height.
	Dl	Double side skin structure	Hatchway greater than 0.7 <i>B</i> in breadth ⁽¹⁾			Rotational spring support	Upper end: Free	
	D2	Double side skin structure	Hatchway 0.7 <i>B</i> and under in breadth ⁽¹⁾			Rotational spring support	Upper end: Supported	

(AI	nenament	related to	Part C of the	e Rules I	or Survey and	1 Cons	struction of	Steel Ship	s (2024 Amend	iment 2))
	Amended			Original			Remarks			
	D3 D sk	ouble side in structure	No hatchway provided			Rota	itional spring support	Upper end: Fixed		
	D4 D sk	ouble side in structure	No hatchway provided C.L. BHD provided			Left a Rota C.L.:	and right ends: ational spring support Supported or fixed	Upper end: Fixed		
<u>Note:</u> (1) When selecting the D1/D2 types, breadth of hatchways is to be taken as the distance up to the upper end of the double side.										
1 The pr shown in Tabl members.	7.3.1.5Idealisation of Loads1The pressures at the load calculation points (LCP)hown in Table 7.3.1-1 are to be used according to the type of nembers.nembers.					n points (LCP) ng to the type of				
	Table 7.3.1-1 Load Calculation Points								Amendment (9)	
	LCP coordinate	Bottom shell	Inner bottom plating		Side shell		Longitudin	al bulkhead		Clarifies some definitions and corrects
	x coordinat	$e x_{DH} = 0$	$x_{DH} = 0$		$x_{DH} = 0$		x _{DH}	= 0		typographical errors:
	y coordinat	$y_{DH} = 0$	$y_{DH} = 0$	Portside Starboard si	$\frac{y_{DH} = 0.5B_{DB} + I}{\text{ide: } y_{DH} = -0.5B_{DB}}$ $\frac{y = y_{SS}}{y_{SS}}$	9 	Portside: y Starboard side: y =	$\frac{1}{y} = 0.5B_{DB}$ $\frac{1}{y} = -0.5B_{DB}$ y_{LB}		The definition of the y-
	z coordinat	e $z = 0$	$z = D_{DB}$		$z_{DH} = -0.5B_{DS}$		$z_{DH} = -$	$-0.5B_{DS}$		e los la time de los de
	(Notes)					calculation points on the				
	<u>y_{ss}</u> : <u><i>y</i>-coordinate of the side shell corresponding to the <i>z</i>-coordinate at the $z_{DH} = 0$ point.</u>						side shell and the			
	<u><i>Y</i>_{LB}:</u> <i>y</i> -coon	dinate of the lo	ongitudinal bulkhead	l correspondir	ng to the z-coordinate	e at the z	$z_{DH} = 0$ point.			longitudinal bulkhead
	Either of the of double bo	load calculatio	n point of port or st	arboard side o	ard side of the longitudinal bulkhead may be used for the assessment					will be amended to

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
		accommodate ships with
		bilge hoppers or steps
		with double-hull
		structuers.
7.3.2 Requirements for Scantlings7.3.2.1 Bending Strength	7.3.2 Requirements for Scantlings7.3.2.1 Bending Strength	Amendment (8)
In each assessment condition, the thickness of plating	In each assessment condition, the thickness of plating	hull Structures
of double hull is to be in accordance with the following	of double hull is to be in accordance with the following	nun Structures
requirements (1) and (2). The thickness of plating according to these requirements is to be uniform at any point in the double hull under assessment. (1) The thickness of bottom shell plating and inner bottom plating constituting a double bottom and that of side shell plating and side longitudinal bulkheads constituting a double side are to be not less than that obtained from the following formula: $t_{n50} = \frac{C_{Safety} (1 - v^2)}{C_{cnd}} \sum_{D_{DH}} \frac{ M_X }{\gamma_{stf-x}C_{bi-x}(\sigma_{all} - \sigma_{BM})}, \frac{ M_Y }{\gamma_{stf-y}C_{bi-y}\sigma_{all}}$ (mm) $C_{Safety}: Safety factor to be taken as 1.1(Omitted)$	requirements (1) and (2). The thickness of plating according to these requirements is to be uniform at any point in the double hull under assessment. (1) The thickness of bottom shell plating and inner bottom plating constituting a double bottom and that of side shell plating and side longitudinal bulkheads constituting a double side are to be not less than that obtained from the following formula: $t_{n50} = \frac{C_{Safety} (1 - v^2)}{C_{cnd}} \sum_{D_{DH}} \frac{ M_X }{\gamma_{stf-x}C_{bi-x}(\sigma_{all} - \sigma_{BM})}, \frac{ M_Y }{\gamma_{stf-y}C_{bi-y}\sigma_{all}} \right) (mm)$ $C_{Safety}: Safety factor to be taken as 1.2(Omitted)$	The safety factor is amended based on the feedback from trial calculation results, balancing it with the safety factor from the old Part C, the evaluation model which are considered to be more in line with reality in Part C of the Rules and Guidance for the Survey and Construction of Steel Ships.
(2) Notwithstanding (1) above, where any of the	(2) Notwithstanding (1) above, where any of the	
requirements specified in 2.4.1.2-6(1) and 2.4.1.3-	requirements specified in 2.4.1.2-6(1) and 2.4.1.3-	
1(1) for the spacing of girders and floors in double	1(1) for the spacing of girders and floors in double	
bottom is not satisfied, the thickness of the bottom	bottom is not satisfied, the thickness of the bottom	
double bottom is to be not less than that obtained from	double bottom is to be not less than that obtained from	
the following formula Similarly if any of the	the following formula Similarly if any of the	
requirements specified in 2.4.2.1(1) and 2.4.2.2(1) for	requirements specified in 2.4.2.1(1) and 2.4.2.2(1) for	
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(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

	······································	
Amended	Original	Remarks
the spacing of side transverses and side stringers is not satisfied, the thickness of the side shell plating and longitudinal bulkheads constituting a double side is to be not less than that obtained from the following formula. However, $C_{EX} = 1.0$ where no longitudinal girders are provided, while $C_{EY} = 1.0$ where no transverse girders are provided.	the spacing of side transverses and side stringers is not satisfied, the thickness of the side shell plating and longitudinal bulkheads constituting a double side is to be not less than that obtained from the following formula. However, $C_{EX} = 1.0$ where no longitudinal girders are provided, while $C_{EY} = 1.0$ where no transverse girders are provided.	
$ \begin{array}{l} t_{n50} \\ = \frac{C_{Safety}}{C_{cnd}} \frac{(1 - \nu^2)}{D_{DH}} \\ \times \max\left(\frac{1}{\min(C_{bi-x}, C_{EX})} \cdot \frac{ M_X }{\gamma_{stf-x}(\sigma_{all} - \sigma_{BM})}, \frac{1}{\min(C_{bi-y}, C_{EY})} \cdot \frac{ M_Y }{\gamma_{stf-y}\sigma_{all}}\right) (mm) \\ C_{Safety}: \text{ Safety factor to be taken as } \underline{1.1} \\ \gamma_{stf-x}, \gamma_{stf-y}, C_{bi-x}, C_{bi-y}, M_X, M_Y \text{ and } \sigma_{BM}: \\ \text{ As specified in (1) above} \end{array} $	$ \begin{split} t_{n50} &= \frac{C_{Safety}}{C_{cnd}} \frac{(1 - \nu^2)}{D_{DH}} \\ &\times \max \left(\frac{1}{\min(C_{bi-x}, C_{EX})} \cdot \frac{ M_X }{\gamma_{stf-x}(\sigma_{all} - \sigma_{BM})}, \frac{1}{\min(C_{bi-y}, C_{EY})} \cdot \frac{ M_Y }{\gamma_{stf-y}\sigma_{all}} \right) (\text{mm}) \\ & C_{Safety}: \text{ Safety factor to be taken as } \frac{1.2}{\gamma_{stf-x}}, \gamma_{stf-y}, C_{bi-x}, C_{bi-y}, M_X, M_Y \text{ and } \sigma_{BM}: \\ & \text{ As specified in (1) above} \end{split} $	
7.3.2.2 Shear Strength In each assessment condition, the web thickness of girder members in double hull is to be not less than that obtained from the following formula: $t_{n50} = \frac{C_{safety}}{C_{cnd}} \frac{ F }{D_{sh}\tau_{all}} (mm)$ $C_{safety}: \text{ Safety factor to be taken as } \underline{1.1}$ $F: \text{ Shear force } (kN) \text{ of the girder in double hull under assessment as given in 7.3.3.2}$	7.3.2.2 Shear Strength In each assessment condition, the web thickness of girder members in double hull is to be not less than that obtained from the following formula: $t_{n50} = \frac{C_{Safety}}{C_{cnd}} \frac{ F }{D_{sh}\tau_{all}} (mm)$ $C_{Safety}: \text{ Safety factor to be taken as } 1.2$ $F: \text{ Shear force } (kN) \text{ of the girder in double hull under assessment as given in 7.3.3.2}$	Amendment (8) Assessments for double hull Structures The safety factor is amended based on the feedback from trial calculation results, balancing it with the safety factor from the old Part C, the evaluation model which are considered to be more in line with reality in Part C of the Rules and Guidance for the Survey and Construction

Amended	Original	Remarks
		of Steel Ships.
		Amendment (8)
7.3.2.3 Shear Buckling Strength	7.3.2.3 Shear Buckling Strength	Assessments for double
In each assessment condition, the web thickness of	In each assessment condition, the web thickness of	hull Structures
girder members in double hull is to be not less than that	girder members in double hull is to be not less than that	
obtained from the following formulae (1) to (3):	obtained from the following formulae (1) to (3):	The safety factor is
(1) For girder webs with no opening	(1) For girder webs with no opening	amended based on the
$ F b^2 12(1-\nu^2)$	$ F b^2 12(1-v^2)$	feedback from trial
$t = \left C_{safety} \frac{1}{C_{max}D} \frac{1}{K \pi^2 E} \right (mm)$	$t = \left C_{safety} \frac{1}{C_{max}D} - \frac{K}{K} \frac{\pi^2 E}{\pi^2 E} \right (mm)$	calculation results,
$\sqrt{\frac{1}{2}}$	$\sqrt{\frac{3}{2}} \frac{1}{2} \frac$	balancing it with the
C_{safety} : Safety factor to be taken as <u>1.1</u>	L_{Safety} : Safety factor to be taken as <u>1.2</u>	safety factor from the
F: Shear force (kN) of the girder in double hull under	F: Shear force (kN) of the girder in double hull under	old Part C, the
assessment as given in 7.3.3.2	assessment as given in 7.3.3.2	evaluation model which
(2) For girder webs with an opening reinforced by	(2) For girder webs with an opening reinforced by	are considered to be
stiffeners in the girder span direction	stiffeners in the girder span direction	more in line with reality
$ F b^2 = 12(1-v^2)$	$ F b^2 = 12(1-v^2)$	in Part C of the Rules
$t = \int_{0}^{1} C_{safety} \frac{1}{C_{cnd}(D_w - D_0)} \frac{1}{K_{\tau}\pi^2 E} (mm)$	$t = \int_{C_{safety}} \frac{C_{safety}}{C_{cnd}(D_w - D_0)} \frac{K_{\tau}\pi^2 E}{K_{\tau}\pi^2 E} (mm)$	and Guidance for the Survey and Construction
F: Shear force (kN) of the girder in double hull under	F: Shear force (kN) of the girder in double hull under	of Steel Ships.
assessment as given in 7.3.3.2	assessment as given in 7.3.3.2	or stoor simps:
(3) For girder webs with an opening (an unreinforced	(3) For girder webs with an opening (an unreinforced	
opening)	opening)	
$ F h^2 + 12(1-v^2)$	$ F h^2 + 12(1 - v^2)$	
$t = \int C_{safety} \frac{1}{C} \frac{1}{D} \frac{1}{V} \frac{1}{K} \frac{1}{\pi^2 F} (mm)$	$t = \int C_{safety} \frac{1}{C} \frac{1}{D} \frac{1}{2} \frac{1}{C} \frac{1}{V} 1$	
$\sqrt{\frac{C_{cnd}D_W}{V_{a_0}K_T h^2 L}}$	$\sqrt{\frac{C_{cnd}D_{W}}{V_{a_0}K_{\tau}\mu^{-L}}}$	
C_{Safety} : Safety factor to be taken as <u>1.1</u>	C_{Safety} : Safety factor to be taken as <u>1.2</u>	
F: Shear force (kN) of the girder in double hull under	F: Shear force (kN) of the girder in double hull under	
assessment as given in 7.3.3.2	assessment as given in 7.3.3.2	
γ_{a_0} : Coefficient of the effect of an opening, such as a	γ_{a_0} : Coefficient of the effect of an opening, such as a	
manhole, on shear buckling to be taken as	manhole, on shear buckling to be taken as	
follows:	follows:	

(Amendment related to 1 art c of the Rules R	I survey and construction of sider ships (2024 Americ	
Amended	Original	Remarks
$\gamma_{a_0} = \left(1 + \frac{D_0}{2a} \times 10^3\right)^{-2}$	$\gamma_{a_0} = \left(1 + \frac{D_0}{2a} \times 10^3\right)^{-2}$	
Chapter 10 ADDITIONAL STRUCTURAL REQUIREMENTS	Chapter 10 ADDITIONAL STRUCTURAL REQUIREMENTS	
10.4 Deck Structure	10.4 Deck Structure	
10.4.1 Camber of Weather Deck*	10.4.1 Camber of Weather Deck*	Amendment (9)
10.4.1.1 <u>In general, appropriate camber is to be provided in the weather deck.</u>	10.4.1.1 Appropriate camber is to be provided in the weather deck.	Although the installation of camber on weather decks is generally recommended, "In general" is added because camber may not be installed in some cases.

(Amendment related to Part C of the Rules for Surv	ey and Construction of Steel Shi	ps (2024 Amendment 2))
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Amended	Original	Remarks
10.6 Strengthened Bottom Forward	10.6 Strengthened Bottom Forward	
10.6.2 General Ships (Ship other than those with L_c	10.6.2 General Ships (Ship other than those with L_c	
of not more than 150 m, $V/\sqrt{L_c}$ of not less	of not more than 150 m, $V/\sqrt{L_c}$ of not less	
than 1.4 and C_B of not more than 0.7)	than 1.4 and C_B of not more than 0.7)	
		Amendment (9)
10.6.2.2 Structural Arrangement	10.6.2.2 Structural Arrangement	Clarifies some
The structural arrangement is to be in accordance with the	The structural arrangement is to be in accordance with the	definitions and corrects
following (1) and (2).	following (1) and (2).	typographical errors
(1) (Omitted)	(1) (Omitted)	
(2) Where the structural arrangement of the strengthened	(2) Where the structural arrangement of the strengthened	Clarifies the application
bottom forward is different from the structural	bottom forward is different from the structural	of bottom slamming
arrangement specified in (1) above, the following (a)	arrangement specified in (1) above, the following (a)	impact pressure
to (c) are to be applied:	to (c) are to be applied:	
(a) (Omitted) (b) $(0 - i) = 1$	(a) (Omitted) (b) $(0 - i\pi - 1)$	
(b) (Omitted) $()$	(b) (Omitted) (\rightarrow T1 = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	The requirements
(c) (Deleted)	(c) <u>The calculation of the section modulus of bottom</u>	remain unchanged.
	to be as specified in 10 (2.2.1. The slowning	
	to be as specified in 10.0.2.5-1. The stamming	
	<u>impact pressure P are to be P_{SL4C} specified in</u>	
	4.0.2.2-2.	In 106222 and
10.6.2.3 Shell Longitudinals	10.6.2.3 Shell Longitudinals	10.6.2.3-2 and $10.6.2.2.1$
1 In ships having a bow draught in the ballast condition	1 In ships having a bow draught in the ballast condition	10.0.2.4, 10.0.2.3-1 18
of not more than $0.025L_{max}$ the section modulus of the side	of not more than $0.025L_{core}$ the section modulus of the side	to be used in strength
longitudinal and bottom longitudinal in way of the	longitudinal and bottom longitudinal in way of the	assessment, so the
strengthened bottom forward is to be not less than that given	strengthened bottom forward is to be not less than that given	assessment, so the loads
by the following formula.	by the following formula.	is collectively specified
$Z = 0.44 KP \lambda \ell^2 (cm^3)$	$Z = 0.44 KP \lambda \ell^2 (cm^3)$	in 10.6.2.3-1
K: Material factor	K: Material factor	In 10.0.2.3-1.
ℓ : Spacing (<i>m</i>) of floors	ℓ : Spacing (<i>m</i>) of floors	P_{cl_1} to P_{cl_4} are

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
λ : 0.774 ℓ . However, where the spacing of the	λ : 0.774 ℓ . However, where the spacing of the	specified.
longitudinals is not more than 0.774ℓ , the spacing	longitudinals is not more than 0.774ℓ , the spacing	
(<i>m</i>) of that is to be used.	(m) of that is to be used.	
<i>P</i> : Slamming impact pressure (kN/m^2) as specified	<i>P</i> : Slamming impact pressure (kN/m^2) as per the	
<u>in 4.8.2.2.</u>	following:	
	Ships other than noted below: Bottom slamming	
	pressure P_{SL1} (kN/m^2), as specified in	
	4.8.2.2.	
	Ships having L_c of not less than 150 m and	
	$\underline{C_B}$ of not less than 0.7: Bottom slamming	
	pressure P_{SL3} (kN/m^2), as specified in	
	<u>4.8.2.2.</u>	
2 (Omitted)	2 (Omitted)	
10.9 Tank Structures for Sloshing	10.9 Tank Structures for Sloshing	
10.9.2 Plates	10.9.2 Plates	
		Amendment (5)
10.9.2.1	10.9.2.1	Revises the scope of
The thickness of plates on which sloshing loads act is	The thickness of plates on which sloshing loads act is	application for
to be not less than the value obtained from the following	to be not less than the value obtained from the following	correction coefficient for
formula.	formula.	the aspect ratio in the
$b P_{slb} \times 10^{-3}$	$b P_{slb} \times 10^{-3}$	local strength
$t = \frac{1}{2} \left(\frac{3m}{1.15C \sigma_{\rm ex}} \right) (mm)$	$t = \frac{1}{2} \left(\frac{3m}{1150 \sigma_{\rm ex}} (mm) \right)$	calculation formula of
$2\sqrt{1.15c_a b \gamma}$	$2\sqrt{1.15c_a b \gamma}$	plate members.
σ_Y : Specified minimum yield stress (<i>N/mm²</i>)	σ_Y : Specified minimum yield stress (<i>N/mm²</i>)	
b: Length (<i>mm</i>) of the shorter side of the plate panel.	b: Length (<i>mm</i>) of the shorter side of the plate panel.	
However, it is to be taken as breadth of flange b_f	However, it is to be taken as breadth of flange b_f	
(<i>mm</i>) or breadth of web $b_w(mm)$ in the case of	(<i>mm</i>) or breadth of web $b_w(mm)$ in the case of	
corrugated bulkheads (See Fig. 10.9.2-1)	corrugated bulkheads (See Fig. 10.9.2-1)	Delete the definition of
	a: Length (<i>mm</i>) of the longer side of the plate panel.	a and α since they are

	•••••••••••••••••••••••••••••••••••••••	
Amended	Original	Remarks
	α : Aspect ratio, to be taken as a/b .	no longer used in this
P_{slh} : Equivalent pressure (kN/m^2) for the plate panels,	P_{slh} : Equivalent pressure (kN/m^2) for the plate panels,	formula.
as specified in Table 10.9.2-1	as specified in Table 10.9.2-1	
C_a : Coefficient of axial force effect as specified in	C_a : Coefficient of axial force effect as specified in	Correct the references
Table 6.3.2-2. However, it is taken as 1.0 for	Table 6.3.2-2 when $\alpha \ge 2$ or Table 6.3.2-3	because the tables are
corrugated bulkheads.	when $\alpha < 2$. However, it is taken as 1.0 for	merged.
	corrugated bulkheads.	
σ_{BM} : Stress (<i>N/mm²</i>) due to hull girder bending, as	σ_{BM} : Stress (<i>N/mm</i> ²) due to hull girder bending, as	
specified in 10.9.1.4	specified in 10.9.1.4	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Part 2-1 CONTAINER CARRIERS	Part 2-1 CONTAINER CARRIERS	
Chapter 4 LOADS	Chapter 4 LOADS	
4.4 Loads to be Considered in Strength of Primary Supporting Structures	4.4 Loads to be Considered in Strength of Primary Supporting Structures	
4.4.2 Maximum Load Condition	4.4.2 Maximum Load Condition	
4.4.2.2 External Pressure	4.4.2.2 External Pressure	
For the requirements of double hull structures, the	For the requirements of double hull structures, the	
hydrostatic pressure at the draught and the hydrodynamic	hydrostatic pressure at the draught and the hydrodynamic	
pressure at the equivalent design wave specified in Table	pressure at the equivalent design wave specified in Table	
4.4.2-2 are to be considered.	4.4.2-2 are to be considered.	

Amended		Original	Remarks	
Table 4.4.2-2 External and Internal Pressure to be Considered				
Structures to be assessed	$P_{DB}(kN/m^2)^{(1)(2)}$	$P_{DS}(kN/m^2)^{(1)(2)}$	Clarifies some definitions and corrects	
Double bottom $S1^{(3)}$	$P_{exs} + P_{exw} - P_{in_s1}$	$P_{exs} + P_{exw}$	typographical errors	
Double side S2	$P_{exs} + P_{exw} - P_{in_s1}$	$P_{exs} + P_{exw}$	Clarifies the cases where	
S3	$P_{exs} + P_{exw} - P_{in_s3}$	$P_{exs} + P_{exw}$	container cargo loads can be taken into	
Notes: P_{exs} , P_{exw} : Hydrostatic and Hyd on side shell in the case of P_{DS} . Each P_{in_s1} , P_{in_s3} : In general, T the value be taken as 0: however, said values are	rodynamic pressures (kN/m^2) acting on both value is to be calculated in accordance with es considering the effect of container cargo to be taken as 0 when the number of bays i	for shell in the case of P_{DB} , and the values acting 4.6.2.4 , Part 1 . (kN/m^2) , as given by the following formula: is to n the cargo hold is only one. however, when there	account.	
there are partial bulkheads and there are there are partial bulkheads and there are the cargo hold under assessment, such $P_{in,s1} = 0.15\rho g T_{SC}$	partial bulkheads and there are two or more bays between watertight bulkheads in the cargo hold under assessment, or when re partial bulkheads and there are two or more bays within the range from the watertight bulkhead to the partial bulkhead in go hold under assessment, such values are to be given by the following formula. = $0.15 \rho a T_{sc}$			
$P_{in_s3} = 0.3\rho g T_{SC}$ (1) Load calculation points are to be in (2) When calculating loads, $T_{LC} = T_{SC}$ (3) P_{exw} is to be not less than the value	accordance with 7.3.1.5, Part 1 for all loading co of P_{exw} for <i>HM</i> -2 at x_G , which is the <i>X</i> coordin	productions. $f(m)$ at the centre of gravity of the ship.	Specifies equivalent design wave HM-2 value of P_{exw} at the ship's centre of gravity	
			position x_G as the minimum value to calculate the equivalent design wave HM value of P_{exw} as a safer side evaluation load in the condition where external pressure becomes dominant	

Amended	Original	Remarks
Chapter 5 LONGITUDINAL STRENGTH	Chapter 5 LONGITUDINAL STRENGTH	
5.1 General	5.1 General	
5.1.4 Hull Girder Stress	5.1.4 Hull Girder Stress	
		Amendment (4)
5.1.4.1 Vertical Bending Moment	5.1.4.1 Vertical Bending Moment	Adds harbour condition
1 Vertical bending moment σ_{HG} (<i>N/mm</i> ²) is to be	1 Vertical bending moment σ_{HG} (<i>N/mm</i> ²) is to be	to longitudinal strength
obtained from the following formula:	obtained from the following formula:	assessment of container
$\sigma = -\frac{\gamma_S M_S + \gamma_W M_W}{(z - z)} \times 10^5$	$\sigma = -\frac{\gamma_S M_S + \gamma_W M_W}{(z - z)} \times 10^5$	carriers.
$O_{HG} = \frac{I_y}{I_y}$ (2 Z_n) × 10	$O_{HG} = \frac{I_y}{I_y}$ (2 Z_n) × 10	
γ_S , γ_W : Partial safety factors, to be taken as 1.0	γ_S , γ_W : Partial safety factors, to be taken as 1.0	Modifies the definitions
$M_{\rm s}$, $M_{\rm W}$: Vertical still water bending moment and	$M_{\rm s}$, $M_{\rm W}$: Vertical still water bending moment and	of vertical bending
vertical wave bending moment (kN-m) under	vertical wave bending moment $(kN-m)$ for	moment and shear force
consideration, as specified in Table 5.1.4-1	the load cases "hogging" and "sagging" as	as in Part 1.
	specified in 4.2.2.5	
I_y : Moment of inertia (cm^4) for the cross section	I_{y} : Moment of inertia (cm ⁴) for the cross section	
under consideration	under consideration	
z: Vertical coordinate of the location under	z: Vertical coordinate of the location under	
consideration (m)	consideration (<i>m</i>)	
z_n : Distance from the baseline to the horizontal	z_n : Distance from the baseline to the horizontal	
neutral axis (m)	neutral axis (m)	
2 Vertical shear stress τ_{HG} (<i>N/mm</i> ²) is to be obtained	2 Vertical shear stress τ_{HG} (<i>N/mm</i> ²) is to be obtained	
from the following formula:	from the following formula:	
$\tau = -\frac{(\gamma_s Q_s + \gamma_W Q_W) q_v}{(\gamma_s Q_s + \gamma_W Q_W) q_v} \times 10^3$	$(\gamma_S Q_S + \gamma_W Q_W) q_v \times 10^3$	
$t_{HG} = \frac{1}{t} \times 10$	$t_{HG} = \frac{t}{t} \times 10^{4}$	
γ_S , γ_W : As specified in <u>-1</u> above.	γ_S , γ_W : As specified in <u>1</u> above.	
Q_s , Q_w : Vertical still water shear force and vertical	Q_s , Q_w : Vertical still water shear force and vertical	
wave shear force (kN-m) under	wave shear force (kN) for the load cases	
consideration, as specified in Table 5.1.4-2	"hogging" and "sagging" as specified in	

(Amendment related to Part C of	of the Rules for Surve	y and Construction of St	teel Ships	(2024 Amendment 2))
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Amended			Original		Remarks
 q_v: Shear flow (N/mm) at any location shear force acts along the cross section consideration, to be determined accord the calculation method which are spectrated action of the section of	on when on under ording to ecified in of Shear	<i>q_v</i> : shea cons calcu 5.2 , FLO <i>t</i> : Thic	4.2.2.5 Shear flow (<i>N/mm</i>) at a r force acts along the created sideration, to be determined ulation method which are a Part 1 "CALCULATI OW ". Extremests of plate considered	my location when ross section under ed according to the specified in Annex ON OF SHEAR (<i>mm</i>)	
Table 5.1.4-1 Still Water and	Wave Ver	tical Bending Mom	ents to be Considered	I	Amendment (4)
Condition		<u>Ms</u>	<u>M</u> _W .		Newly added as in Part
Maximum load condition	Still water sagging lo	and wave vertical bendin ad cases shown in 4.2.2.5	g moment for the hogging and		
Harbour condition	\underline{M}_{PT}	$_{max}$ or M_{PT} $_{min}$	<u>0</u>		
Table 5.1.4-2 Still Water ar	nd Wave V	Vertical Shear Force	es to be Considered	I	Amendment (4) Newly added as in Part
Condition		<u>Qs</u>	Q_W		1
Maximum load condition	Still water load cases	and wave vertical shear f shown in 4.2.2.5	orce for the hogging and sagging		
Harbour condition	Q_{PT}	max or Q _{PT_min}	<u>0</u>		
5.2 Yield Strength Assessment5.2.1 Bending Strength and Shear Strength		5.2 Yield Str 5.2.1 Bending	ength Assessment Strength and Shear Stre	ngth	
5.2.1.1 Evaluation Area 1 For each of the load cases "hogging" and "s the equivalent hull girder stress σ_{eq} (N/mm ²) is	agging", to be in	5.2.1.1 Evalu 1 For each <u>defined in 4.2.2</u>	nation Area of the load cases "hogging <u>2.5</u> , the equivalent hull	," and "sagging" <u>as</u> girder stress σ_{eq}	Amendment (4) Modifies the reference.

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
accordance with the following formula:	(N/mm^2) is to be in accordance with the following formula:	
$\sigma_{eq} < \sigma_{perm}$	$\sigma_{eq} < \sigma_{perm}$	
$\sigma_{eq} = \sqrt{\sigma_x^2 + 3\tau^2}$	$\sigma_{eq} = \sqrt{\sigma_x^2 + 3\tau^2}$	
Where σ_x and τ are combination of hull girder stresses, to be taken as the following formulae according to the bending strength assessment and shear strength assessment, and where σ_{HG} and τ_{HG} are to be in accordance with 5.1.4.1. $\sigma_x = \sigma_{HG}$ and $\tau = 0$, for bending strength assessment	Where σ_x and τ are combination of hull girder stresses, to be taken as the following formulae according to the bending strength assessment and shear strength assessment, and where σ_{HG} and τ_{HG} are to be in accordance with 5.1.4.1. $\sigma_x = \sigma_{HG}$, $\tau = 0$, for bending strength assessment	
$\sigma_x = 0$ and $\tau = \tau_{HG}$, for shear strength assessment	$\sigma_x = 0, \ \tau = \tau_{HG}$, for shear strength assessment	
assessment $\sigma_{perm}: \text{Permissible stress } (N/mm^2), \text{ to be taken as}$ $\sigma_{perm} = \frac{\sigma_Y}{\gamma_1 \gamma_2}$ $\sigma_Y: \text{ Specified minimum yield stress of the material } (N/mm^2)$ $\gamma_1: \text{ Partial safety factor for material, to be taken as}$ $\gamma_1 = K \frac{\sigma_Y}{235}$ $\gamma_2: \text{ Partial safety factor for load combinations}$ and permissible stress, to be taken as follows: $\gamma_2 = 1.24, \text{ for bending strength assessment}$ $\frac{\text{in the maximum load condition}}{\gamma_2 = 1.46, \text{ for bending strength assessment}}$	$\sigma_{perm}: \text{Permissible stress } (N/mm^2), \text{ to be taken as}$ $\sigma_{perm} = \frac{\sigma_Y}{\gamma_1 \gamma_2}$ $\sigma_Y: \text{ Specified minimum yield stress of the material } (N/mm^2)$ $\gamma_1: \text{ Partial safety factor for material, to be taken as}$ $\gamma_1 = K \frac{\sigma_Y}{235}$ $\gamma_2: \text{ Partial safety factor for load combinations}$ and permissible stress, to be taken as follows: $\gamma_2 = 1.24, \text{ for bending strength assessment}$	Adds the permissible stresses for yield strength in harbour condition as in Part 1
$\gamma_2 = 1.13$, for shear strength assessment in the maximum load condition $\gamma_2 = 1.22$, for shear strength assessment in the harbour condition	$\gamma_2 = 1.13$, for shear strength assessment	

Amended Original Remarks (Omitted) 2 (Omitted) 2 Chapter 7 **STRENGTH OF PRIMARY** Chapter 7 **STRENGTH OF PRIMARY** SUPPORTING STRUCTURES SUPPORTING STRUCTURES 7.1 General 7.1 General 7.1.1 Application 7.1.1 Application 7.1.1.2 Application Example of Assessment Model 7.1.1.2 Application Example of Assessment Model An application example of assessment model applying An application example of assessment model applying 1 1 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. For girder members that have a structure not shown in For girder members that have a structure not shown in 2 2 Fig. 7.1.1-1 and can be regarded as a simple girder, the Fig. 7.1.1-1 and can be regarded as a simple girder, the boundary conditions and acting load are to be considered, and boundary conditions and acting load are to be considered, and the assessment model from Table 7.2.1-2, Part 1 is to be the assessment model from Table 7.2.1-1, Part 1 is to be appropriately selected. appropriately selected. 7.2 Double Hull Structure 7.2 Double Hull Structure General General 7.2.1 7.2.1 Amendment (8) 7.2.1.1 Application 7.2.1.1 Handling of Partial Bulkheads in the Hold Assessments for double In applying 7.3, Part 1, when there are partial In applying 7.3, Part 1, the length between the hull Structures bulkheads in the middle of the hold, the range in the cargo hold watertight bulkheads is to be assessed as the length of the cargo hold regardless of whether there are partial bulkheads in under assessment is to be from the partial bulkhead to the Amended the evaluation watertight bulkhead. the middle of the hold. When assessing in consideration of the range to extend from the influence of the partial bulkheads in the middle of the hold, partial bulkheads to the the strength is to be assessed by the cargo hold analysis watertight bulkheads, as

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(Amendment related to	o Part C of th	e Rules for Surv	ey and Construction	of Steel Ships	(2024 Amendment 2))
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Amended	Original	Remarks
	specified in Chapter 8. Girders near partial bulkheads are to	with the old Part C to
	ensure sufficient strength to account for shear force effects.	evaluate the shear force
		effects in girders near
		partial bulkheads.
7712 Idealisation of Structures	(Nowly added)	
$\frac{7.2.1.2}{1}$ Idealisation of Structures	(Ivewiy added)	Amendment (8)
$1 \qquad t_{DB}$ is to be taken as the length of the double bottom		Assessments for double
in the cargo hold under assessment.		hull Structures
<u>2</u> B_{DB} is to be taken as the breadth of the double bottom		
in the cargo hold under assessment as either the following (1)		Specified the definition
or (2); however, if the breadth of the double bottom changes,		for the length and
\overline{B}_{DB} is to be taken as the maximum breadth of double bottom		breadth of the double
in the cargo hold under assessment (See Fig. 7.2.1-1)		bottom. Previously, $\underline{B_{DB}}$
(1) Where the cargo hold is not provided with steps $B_{\rm DD}$		(the breadth of the
(1) where the earge hold is not provided with steps, <u>DDB</u>		double bottom) was
is to be taken as the distance between the connections		measured at the center
of the inner bottom plating and longitudinal		of the cargo hold under
$\frac{\text{DUIKNeads.}}{Where the correct ball is presided with store P is in$		evaluation: however,
(2) where the cargo hold is provided with steps, B_{DB} is		considering cases where
to be taken as the distance between the steps.		B_{DB} varies within the
		cargo hold under
		evaluation, the method
		for measuring B_{DB} has
		been amended.



(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	
8.5 Boundary Conditions and Loads Conditions	8.5 Boundary Conditions and Loads Conditions	
8.5.2 Load Conditions	8.5.2 Load Conditions	
 8.5.2.2 Method of Applying Moments to the Structural Model 1 In applying 8.5.2.2-5, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted, based on the boundary conditions specified in 8.5.1 and the value of the moment for each analysis case, in accordance with the following (1) to (3). (1) (Omitted) (2) The adjustment vertical bending moment M_V-end, and adjustment horizontal bending moment M_H-end (kN-m) are given by the following formulae. M_V-end = M_V-targ - M_V-min for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-max for M_V-targ < 0 M_H-end = M_H-targ - M_H-min for M_H-targ < 0 M_H-end = M_H-targ - M_H-max for M_H-targ < 0 M_V-targ, M_H-targ: The maximum or minimum value in the target hold for the vertical bending moment and horizontal bending moment and horizontal bending moment and horizontal bending moment (kN-m) specified 	 8.5.2.2 Method of Applying Moments to the Structural Model 1 In applying 8.5.2.2-5, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted, based on the boundary conditions specified in 8.5.1 and the value of the moment for each analysis case, in accordance with the following (1) to (3). (1) (Omitted) (2) The adjustment vertical bending moment M_V-end, and adjustment horizontal bending moment M_H-end (kN-m) are given by the following formulae. M_V-end = M_V-targ - M_V-min for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-max for M_V-targ < 0 M_V-end = M_H-targ - M_H-min for M_H-targ < 0 M_V-end = M_H-targ - M_H-max for M_H-targ < 0 M_V-targ, M_H-targ: The maximum or minimum value in the target hold for the vertical bending moment (kN-m) specified 	Amendment (9) Clarifies some definitions and corrects typographical errors: Corrects the typographical errors in adjustment moment
(3) (Omitted)	(3) (Omitted)	

Amended			Original		Remarks			
Part 2-2	BOX	K-SHA	PED BULK CARRIERS	Part 2-	2 BOX-SHAPE	D BULK CA	RRIERS	
4.4 Lond	Char	oter 4	LOADS	4.4	Chapter 4	LOADS	of Primary	
Supp	orting St	ructure	es		Supporting Structures	in Strength (or i rimary	
4.4.2 M	laximum	Load (Condition	4.4.2	Maximum Load Cond	lition		
4.4.2.2 External Pressure For the requirements of double hull, the hydrostatic pressure at the draught and the hydrodynamic pressure at the equivalent design wave specified in Table 4.4.2-2 are to be considered.								
		Tab	ble 4.4.2-2 External Pressure and	l Internal	Pressure to be Considered			Amendment (8)
	Structures to be assessed		$P_{DB} (kN/m^2)^{(1)(2)}$		$P_{DS} (kN/m^2)^{(1)(2)}$			Assessments for double hull Structures
		S1(<u>3)</u>	$P_{exs} + P_{exw}$		$P_{exs} + P_{exw}$			See the remark of
		<i>S2</i>	$P_{exs} + P_{exw} - (P_{bs} + P_{bd})$		$P_{exs} + P_{exw} - (P_{bs} + P_{bs})$	P_{bd})		requirements
	Double	<i>S3</i>	$P_{exs} + P_{exw} - (P_{bs} + P_{bd})$		$P_{exs} + P_{exw} - (P_{bs} + P_{bs})$	P _{bd})		comparison table in Table 4.4.2-2 Chapter
	bottom	S4 <u>(3)</u>	$P_{exs} + P_{exw}$		$P_{exs} + P_{exw}$			4, Part2-1.
		S5 <u>(3)</u>	$P_{exs} + P_{exw}$		$P_{exs} + P_{exw}$			
		<i>S6</i>	$P_{exs} + P_{exw} - (P_{ls1} + P_{ld1}) - (P_{ls2} + P_{ld1})$	$P_{ld2})$	$P_{exs} + P_{exw} - (P_{ls1} + P_{ld1}) - $	$(P_{ls2} + P_{ld2})$		
	Double	<i>S</i> 7	$P_{exs} + P_{exw} - (P_{bs} + P_{bd})$		$P_{exs} + P_{exw}$			

sideS8 $P_{exs} + P_{exw}$ $P_{exs} + P_{exw}$ Notes: P_{exs}, P_{exw} :Hydrostatic and Hydrodynamic pressure (kN/m^2) act on bottom shell in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.4, Part 1. P_{bs}, P_{bd} :Static and dynamic pressure due to dry bulk cargo (kN/m^2) act on inner bottom plating in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.6, Part 1. P_{bs}, P_{bd} :Static and dynamic pressure due to liquid cargo loaded in ballast hold (kN/m^2) act on inner bottom plating in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. $P_{ls1} = P_{ls}$ $P_{ls1} = P_{ls}$ P_{ls2}, P_{ld2} :Difference of the pressure in upward and downward direction due to liquid cargo loaded in ballast tanks in double bottom construction (kN/m^2) in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. P_{ls2}, P_{ld2} :Difference of the pressure in upward and downward direction due to liquid cargo loaded in ballast tanks in double bottom construction (kN/m^2) in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. $P_{ls2} = P_{ls2a} - P_{ls2b}$ $P_{ls2} = P_{ls2a} - P_{ls2b}$ $P_{ls2} = P_{ls2a} - P_{ls2b}$ $P_{ls2} = P_{ls2b} - P_{ls2b}$ $P_{ls2} = P_{ls2a} - P_{ls2b}$ $P_{ls2} = P_{ls2b} - P_{ls2b}$
Notes: P_{exs}, P_{exw} : Hydrostatic and Hydrodynamic pressure (kN/m^2) act on bottom shell in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.4, Part 1. P_{bs}, P_{bd} : Static and dynamic pressure due to dry bulk cargo (kN/m^2) act on inner bottom plating in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.6, Part 1. P_{ls1}, P_{ld1} : Static and dynamic pressure due to liquid cargo loaded in ballast hold (kN/m^2) act on inner bottom plating in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. $P_{ls1} = P_{ls}$ $P_{ld1} = P_{ld}$ P_{ls2}, P_{ld2} : Difference of the pressure in upward and downward direction due to liquid cargo loaded in ballast tanks in double bottom construction (kN/m^2) in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. P_{ls2}, P_{ld2} : Difference of the pressure in upward and downward direction due to liquid cargo loaded in ballast tanks in double bottom construction (kN/m^2) in case of P_{DB} . Those values act on longitudinal bulkheads in case of P_{DS} . Each value is calculated in accordance with the following formulae. $P_{ls2} = P_{ls2a} - P_{ls2b}$ $P_{ld,2} = P_{ld,2a} - P_{ld,2b}$
 P_{ls_2a}, P_{ld_2a}: Static pressure P_{ls} and dynamic pressure P_{ld} act on bottom shell in case of P_{DB}. Those values act on side shell in case of P_{DS}. P_{ls_2b}, P_{ld_2b}: Static pressure P_{ls} and dynamic pressure P_{ld} act on inner bottom plating in case of P_{DB}. Those values act on side shell in case of P_{DS}.

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2)) Amended Original Remarks (3) P_{exw} is to be not less than the value of P_{exw} for HM-2 at x_c , which is the X coordinate (m) at the centre of gravity of the ship. **Chapter 7 STRENGTH OF PRIMARY** Chapter 7 **STRENGTH OF PRIMARY** SUPPORTING STRUCTURES SUPPORTING STRUCTURES 7.1 General 7.1 General 7.1.1 Application 7.1.1 Application 7.1.1.2 Application Example of Assessment Model 7.1.1.2 Application Example of Assessment Model An application example of assessment model applying An application example of assessment model applying 1 1 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. For girder members that have a structure not shown in For girder members that have a structure not shown in 2 2 Fig. 7.1.1-1 and can be regarded as a simple girder, the Fig. 7.1.1-1 and can be regarded as a simple girder, the boundary conditions and acting load are to be considered, and boundary conditions and acting load are to be considered, and the assessment model from Table 7.2.1-2, Part 1 is to be the assessment model from Table 7.2.1-1, Part 1 is to be appropriately selected. appropriately selected.

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	
8.4 Boundary Conditions and Loads Conditions	8.4 Boundary Conditions and Loads Conditions	
8.4.2 Load Conditions	8.4.2 Load Conditions	
 8.4.2.2 Method of Applying Moments to the Structural Model In applying 8.5.2, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the following (1) to (3) based upon the boundary conditions specified in 8.4.1 and the value of the moment for each analysis case. (1) (Omitted) (2) The adjustment vertical bending moment M_V-end, and adjustment horizontal bending moment M_H-end (kN-m) are obtained by the following formulae. M_V-end = M_V-targ - M_V-max, for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-min, for M_V-targ < 0 M_H-end = M_H-targ - M_H-max, for M_H-targ < 0 M_H-end = M_H-targ - M_H-min, for M_H-targ < 0 M_V-targ, M_H-targ : The maximum or minimum value in the target hold of the vertical bending moment (kN-m) specified in Table 8.4.2-1 	 8.4.2.2 Method of Applying Moments to the Structural Model In applying 8.5.2, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the following (1) to (3) based upon the boundary conditions specified in 8.4.1 and the value of the moment for each analysis case. (1) (Omitted) (2) The adjustment vertical bending moment M_V-end, and adjustment horizontal bending moment M_H-end (kN-m) are obtained by the following formulae. M_V-end = M_V-targ - M_V-max, for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-min, for M_V-targ < 0 M_V-end = M_H-targ - M_H-max, for M_H-targ < 0 M_V-end = M_H-targ - M_H-min, for M_H-targ < 0 M_V-targ, M_H-targ : The maximum or minimum value in the target hold of the vertical bending moment (kN-m) specified in Table 8.4.2-1 	Amendment (9) Clarifies some definitions and corrects typographical errors: Corrects the typographical errors in adjustment moment

(Amendment related to Part C o	f the Rules for Surve	y and Construction of	Steel Ships	(2024 Amendment 2))
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Amended	Original	Remarks
Part 2-5 GENERAL CARGO SHIPS AND REFRIGERATED CARGO SHIPS	Part 2-5 GENERAL CARGO SHIPS AND REFRIGERATED CARGO SHIPS	
Chapter 4 LOADS 4.2 Loads to be Considered in Local Strength	Chapter 4 LOADS 4.2 Loads to be Considered in Local Strength	
4.2.2 Maximum Load Condition	4.2.2 Maximum Load Condition	Amendment (9)
4.2.2.1 Lateral Loads <u>1</u> Cargo mass and cargo density are to comply with Table 4.2.2-1 instead of 4.4.2.5 Part 1; however, for ships in which the loading condition of high-density bulk cargo is included as a standard loading condition in the loading manual, 4.4.2.5 Part 1 is to be applied, and cargo mass and cargo density are to be appropriately considered. <u>2</u> In applying 4.4.2, Part 1, the parameters (GM , z_G , etc.) required to calculate dynamic pressure due to cargo are to be the values for the appropriate loading condition among all full load conditions in consideration of cargo mass and cargo density. However, the values in Table 4.2.2-2 may be used if the parameters are not available. <u>3</u> In applying 4.4.2, Part 1, the parameters (GM , z_G , etc.) required to calculate dynamic pressure due to ballast water are to be the values for the ballast condition. The same parameters are to be applied where the dynamic pressure due to liquid other than ballast water, such as the pressure due to fuel oil tank, is considered. However, the values in Table 4.2.2-2 may be used if the parameters are not available.	4.2.2.1 Lateral Loads 1 In applying 4.4.2, Part 1, the parameters (GM , z_G , etc.) required to calculate dynamic pressure due to cargo are to be the values for the appropriate loading condition among all full load conditions in consideration of cargo mass and cargo density. However, the values in Table 4.2.2-1 may be used if the parameters are not available. 2 In applying 4.4.2, Part 1, the parameters (GM , z_G , etc.) required to calculate dynamic pressure due to ballast water are to be the values for the ballast condition. The same The same parameters are to be applied where the dynamic pressure due to liquid other than ballast water, such as the pressure due to fuel oil tank, is considered. However, the values in Table 4.2.2-1 may be used if the parameters are not available.	Clarifies some definitions and corrects typographical errors: Excludes the loading conditions which are generally not included in general cargoes: however, cargo, it is specified that 4.4.2.5 Part 1 is to be applied for vessels that plan to carry heavy.

A	mended		Original			Remarks
	Table 4.2.2	-1 Dry Bulk Cargo	Mass and Cargo Density			(Newly added)
	Consideration of dry bu	ulk cargo mass <u>M (t</u>)	<u>Mp</u>			Amendment (9) Clarifies some definitions and corrects
	Cargo density ρ_{c} (t/m ³)					typographical errors:
	Notes M_D : Maximum permissible cargo mass (t) in the cargo hold under consideration V_{Full} : Volume (m ³) of the hold (including its hatch coaming).					
	Table 4.2.2- <u>12</u> Simplified Formulae for Parameters					Amendment (9)
Loading conditio	n Draught T_{LC} (m) amidships	Z coordinate $z_G(m)$ of the centre of gravity of the ship	Metacentric height GM (m)	Radius of Gyration K_{xx} (m)		Clarifies some definitions and corrects typographical errors:
Full load condition	n T _{SC}	$0.25 \frac{B}{C_B}$	$\frac{T_{SC}}{2} + \frac{B^2}{T_{SC}C_B} \frac{3C_W - 1}{24} - z_G$	0.35 <i>B</i>		Modifies the table number
Ballast condition	T _{BAL}	$0.20 \frac{B}{C_{B_LC}}$	$\frac{T_{LC}}{2} + \frac{B^2}{T_{LC}C_{B_{LC}}} \frac{3C_{W_{LC}} - 1}{24} - z_G$	0.40 <i>B</i>		
	1			1		

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
4.3 Loads to be Considered in Strength of Primary Supporting Structures	4.3 Loads to be Considered in Strength of Primary Supporting Structures	
4.3.1 General 4.3.1.1 General 1 The loads to be considered in the requirements of strength of primary supporting structures specified in Chapter 7 and Chapter 7, Part 1 are also to be in accordance with 4.3; however, 4.4, Chapter4, Part 2-2 is to be applied where the cargo density ρ_c is more than 0.9 for double hull structure ships, or to holds with double hull structure ships that are empty in the fully loaded condition. The definition of ρ_c is as specified in Table 4.2.2-1. 2 Additional requirements for loads in the maximum load condition are to be in accordance with 4.3.2.	 4.3.1 General 4.3.1.1 General 1 The loads to be considered in the requirements of strength of primary supporting structures specified in Chapter 7 and Chapter 7, Part 1 are also to be in accordance with 4.3. 2 Additional requirements for loads in the maximum load condition are to be in accordance with 4.3.2. 	Amendment (8) Assessments for double hull Structures Clarify the application of loads to be considered for the strength of primary supporting structures on vessels carrying high- density cargo.
 4.3.2 Maximum Load Condition 4.3.2.1 General Loads for simple girders are also to be in accordance with the relevant requirements of 4.2. The loads specified in Table 4.3.2-1 are to be considered when applying the requirements for double hull. However, where deemed necessary by the Society, additional loading patterns taken the loading conditions into account specified in the loading manual may be required. 	 4.3.2 Maximum Load Condition 4.3.2.1 General Loads for simple girders are also to be in accordance with the relevant requirements of 4.2. The loads specified in Table 4.3.2-1 are to be considered when applying the requirements for double hull. However, where deemed necessary by the Society, additional loading patterns taken the loading conditions into account specified in the loading manual may be required. 	

Amended				Original			Remarks		
		Т	able 4.3.2-1	Loads to be Consid	lered in Maxim	um Load Co	ndition	_	Amendment (8)
				Loading patterns			Difference between		Assessments for double
Structures to be assessed Double bottom			Draught(m)	Vertical still water bending moment (kN-m)	Loaded to be considered	Equivalent design wave	external and internal pressure to be considered (kN/m ²)		The load for assessing
		0.7<u>0.6</u>T_{SC}	M _{SV max}	None	HM-1 / HM-2	Double bottom: Pop		transverse girders of double bottom assumes	
	S2	<i>S</i> 2	T _{SC}	M _{SV min}	Cargo	$BP-1P/$ Double side: P_D	Double side: P_{DS}		an evaluation loading
	Double side $S3 T_{SC} M_{SV min} Cargo$		Cargo	Cargo BP-1S			draught in a ballast		
							evaluation loading draught will be amended based on the draft in the ballast condition of actual vessels.		
4.3.2.2 External Pressure For the requirements of double hull, the hydrostatic pressure and the hydrodynamic pressure at the equivalent design wave specified in Table 4.3.2-2 are to be considered.				4.3.2.2 E For t pressure and design wave	Axternal Pres he requirement the hydrod specified in T	sure ents of double hull, th ynamic pressure at th Table 4.3.2-2 are to be	e hydrostatic ne equivalent considered.		

Aı	mended			Original		Remarks
	Table	4.3.2-2 External and Inte	ernal Pres	sure to be Considered		Amendment (8)
Structures to be assessed		$P_{DB}(kN/m^2)^{(1)(2)}$		$P_{DS}(kN/m^2)^{(1)(2)}$		Assessments for double hull Structures
Double bottom	S1(<u>3)</u>	$P_{exs} + P_{exw}$		$P_{exs} + P_{exw}$		The load for assessing
Deuble eile	<i>S</i> 2	$P_{exs} + P_{exw} - P_{in_s2}$		$P_{exs} + P_{exw}$		longitudinal and
Double side	<i>S</i> 3	$P_{exs} + P_{exw} - P_{in_s3}$		$P_{exs} + P_{exw}$		transverse girders of
Notes: P_{exs}, P_{exw} : H sl P_{in_s2}, P_{in_s3} : L P_i (1) Load calculati (2) When calculati (3) P_{exw} is to be r	 Notes: P_{exs}, P_{exw}: Hydrostatic and Hydrodynamic pressure (kN/m²) act on bottom shell in case of P_{DB}. Those values act on side shell in case of P_{DS}. Each value is calculated in accordance with 4.6.2.4, Part 1. P_{in_S2}, P_{in_S3}: Loads considering the effect of cargo (kN/m²), as given by the formulae: P_{in_S2} = 0.5ρgT_{SC} P_{in_S3} = ρgT_{SC} (1) Load calculation points are to be in accordance with 7.3.1.5, Part 1 for all loading conditions. (2) When calculating loads, T_{LC} = 0.70.6T_{SC} for S1 and T_{LC} = T_{SC} for S2 and S3. (3) P_{exw} is to be not less than the value of P_{exw} for HM-2 at x_G, which is the X coordinate (m) at the centre of gravity of the ship. 					
						Assessments for double hull Structures
4.4 Loads to be Consi Requirements	dered ir	Additional Structural	4.4	Loads to be Considered in Additiona Requirements	l Structural	See the remark of amended-original requirements comparison table in Table 4.4.2-2, Chapter 4, Part2-1.
4.4.2 Maximum Load	l Condit	ion	4.4.2	Maximum Load Condition		

×	Amende	ed	Original	Remarks
4.4.2.1 S	teel Coils		4.4.2.1 Steel Coils	
		Table 4.4.2	-3 Dynamic Load F_{SCd}	
	Members		Load in waves F_{SCd} (kN)	
	Inner bottoms		$\frac{F_{SCS}}{g}C_{WDz}a_{Ze-SC}$	
		Case 1	$\frac{F_{SCS}}{g}C_{WDz}a_{Ze-SC}\cdot\cos\alpha$	
	Bilge hopper plating	Case 2	$C_{SC3}W_{SC}\frac{n_1n_2}{n_3}g\sin\theta\cdot\cos\left(\min\left(\frac{\pi}{2}-\alpha,\frac{\pi}{4}\right)\right)$	
	Longitudinal bulkheads	$n_2 \le 10$ and $n_3 \le 5$	$C_{SC3}W_{SC}\frac{n_1n_2}{n_3}g\sin\theta$	
		$n_2 > 10$ or $n_3 > 5$	$C_{SC3}W_{SC}n_1\frac{\ell}{\ell_{st}}g\sin\theta$	
	Side frames		$C_{SC3}W_{SC}\frac{n_1}{n_4}g\sin\theta$	
	Notes: C_{WDz} : Coefficient of a_{Ze-SC} : Envelope acce considered, as cal α , n_1 , n_2 , n_3 , W_{SC} , q_2 θ : Roll angle (rac C_{SC3} : Coefficient, as C_{SC3} = 3.2 for position from the ship side C_{SC3} = 2.0 fo n_4 : The number of (1) The centre of gravity of (2) The parameters (<i>GM</i> ,	each load condition, specified leration in vertical direction (<i>n</i> culated in accordance with 4.2 ℓ , ℓ_{st} : As specified in Table <i>d</i>), as specified in 4.2.2, Part 1 follows: single-tiered stacking or mult r all other cases <u>f side frames that support a sin</u> of steel coil to be considered is z_G , etc.) required to calculate	in Table 4.4.2-8, Part 1 n/s^2) at the centre of gravity of steel coil in the cargo hold to be .4.1, Part 1 ⁽¹⁾ e 4.4.2-2 (⁽²⁾). :i-tiered stacking in which the key coil is arranged in the second or third gle steel coil. is in accordance with Table 4.4.2-4. the ship motions and acceleration is in accordance with the values in the	
	full load condition. Th	ne values in Table 4.2.2-12-ma	y be used if the parameters is not available.	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

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Amended	Original	Remarks
Chapter 7 STRENGTH OF PRIMARY	Chapter 7 STRENGTH OF PRIMARY	
SUPPORTING STRUCTURES	SUPPORTING STRUCTURES	
7.1 General	7.1 General	
711Ann Backien	711 Amplication	
7.1.1 Application	7.1.1 Application	
7.1.1.2 Application Example of Assessment Model for	7.1.1.2 Application Example of Assessment Model for	
General Cargo Ship	General Cargo Ship	
1 An application example of assessment model applying	1 An application example of assessment model applying	
7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	
2 For girder members deemed to be simple girders with	2 For girder members deemed to be simple girders with	
structures different from that shown in Fig. 7.1.1-1, the	structures different from that shown in Fig. 7.1.1-1, the	
boundary conditions and acting loads are to be considered, and	boundary conditions and acting loads are to be considered, and	
the assessment model from Table 7.2.1-2, Part 1 is to be	the assessment model from Table 7.2.1- <u>1</u> , Part 1 is to be	
appropriately selected.	appropriately selected.	
7.2 Simple Girders	7.2 Hatch Side Girders	
7.2.1 <u>Hatch Side Girders</u>	7.2.1 <u>Hatch Side Girders Supported by Pillars, etc.</u>	
7211 Hatah Sida Cindana Supported by Dillana ata	7 2 1 1	Amendment (9)
7.2.1.1 <u>Hatch Side Girders Supported by Pillars, etc.</u>	7.2.1.1 Where betch side sinders are supported by support	Clarifies some
members such as pillars, the following requirements (1) and	members such as pillars, the following requirements (1) and	definitions and corrects
(2) are to be complied	(2) are to be complied	typographical errors:
(1) The required cross-sectional property is to be the	(1) The required cross-sectional property is to be the	Modifies the numbering
value calculated by the method specified in 7.2.3.1.	value calculated by the method specified in 7.2.3.1.	iviolities the numbering
Part 1 multiplied by the value of C_{RC} shown in Fig.	Part 1 multiplied by the value of C_{RC} shown in Fig.	as in Chapter 7, Part 1.
7.2.1-1 according to the positional relationship	7.2.1-1 according to the positional relationship	

Amendment related to Part C of the Rule	s for Survey and Construction	of Steel Ships	(2024 Amendment 2))
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Amended	Original	Remarks
 between the pillar and the hatch side coaming. (2) If (a) to (c) in Fig. 7.2.1-1 are applicable, hatch side coamings may be considered in cross-sectional property calculations. 	 between the pillar and the hatch side coaming. (2) If (a) to (c) in Fig. 7.2.1-1 are applicable, hatch side coamings may be considered in cross-sectional property calculations. 	
7.2.2 Web Frames	(Newly Added)	
7.2.2.1 Web Frames Supporting Cantilever Beams In applying 7.2.2.2, Part 1 to double-deck ships with the first layers being double side and the second layers being single side, moments and shear forces are to be in accordance with 7.2.2.2(1), Part 1. However, ℓ_2 and m_2 shown in Fig. 7.2.2-1 are to be used.	(Newly Added)	Amendment (3) Reviews the composition of the requirements related to simple girders: Clarifies the assessment method in web frames supporting cantilever beams in typical general cargoes.

Amended	Original	Remarks
Fig. 7.2.2-1 Web Frames of Double-deck Ships with the	First Layers being Double Side and the Second Layers being	(Newly Added)
Fig. 7.2.2-1 Web Frames of Double-deck Ships with the Single ℓ_2	Side Cargo load acting on the deck transverse Cargo load acting on the hatch cover	(Newly Added)
7.3 Double Hull Structures	(Newly Added)	
7.3.1 General	(Newly Added)	
	(Amendment (9)
7.3.1.1 Idealisation of Structures of Double-deck Ships	(Newly Added)	Clarifies some
with the First Layers being Double Side and the		definitions and corrects
<u>Second Layers being Single Side</u> 1 Hatchway breadth is to be taken as the breadth of the		typographical errors:
hatchway of the first tier (See Fig. 7.3.1-1)		
$2 B_{\rm DC}$ is to be taken as the distance up to the upper end		Clarify the definitions of the breadth of the
of the double side. (See Fig. 7.3.1-1)		hatchways and the

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))


Amended	Original	Remarks
Part 2-6 VEHICLES CARRIERS AND	Part 2-6 VEHICLES CARRIERS AND	
ROLL-ON/ROLL-OFF SHIPS	ROLL-ON/ROLL-OFF SHIPS	
Chapter 4 LOADS	Chapter 4 LOADS	
4.3 Loads to be Considered in Strength of Primary Supporting Structures	4.3 Loads to be Considered in Strength of Primary Supporting Structures	
4.3.2 Maximum Load Condition	4.3.2 Maximum Load Condition	
4.3.2.2 External Pressure	4.3.2.2 External Pressure	
For the requirements of double hull, the hydrostatic	For the requirements of double hull, the hydrostatic	
pressure and the hydrodynamic pressure at the equivalent	pressure and the hydrodynamic pressure at the equivalent	
design wave specified in Table 4.3.2-2 are to be considered.	design wave specified in Table 4.3.2-2 are to be considered.	

	At	nended		Original	Remarks
		Tabl	e 4.3.2-2 External and Inte	ernal Pressure to be Considered	Amendment (8)
	Structures to be assessed		$P_{DB}(kN/m^2)^{(1)(2)}$	$P_{DS}(kN/m^2)^{(1)(2)}$	Assessments for double hull Structures
	Double bottom	S1(<u>3)</u>	$P_{exs} + P_{exw}$	$P_{exs} + P_{exw}$	See the remark of
	Dauble aide	<i>S</i> 2	$P_{exs} + P_{exw} - P_{in_s2}$	$P_{exs} + P_{exw}$	amended-original
	Double side	\$3	$P_{exs} + P_{exw} - P_{in_s3}$	$P_{exs} + P_{exw}$	requirements
	Notes: P_{exs} , P_{exw} : Hydrostatic and Hydrodynamic pressure (kN/m^2) act on bottom shell in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.4, Part 1. P_{in_s2} , P_{in_s3} : The values considering the effect due to cargo (kN/m^2) , as given by the following formulae: $P_{in_s2} = 0.5\rho gT_{SC}$ $P_{in_s3} = \rho gT_{SC}$			Table 4.4.2-2, Chapter 4, Part2-1.	
	(1)Load ca(2)When ca(3) P_{exw} isthe ship.	lculation p alculating to be not l	oints are to be in accordance with 7 loads, $T_{LC} = 0.7T_{SC}$ for S1 and T_{LC} ess than the value of P_{exw} for HM:	.3.1.5, Part 1 for all loading conditions. $T_c = T_{SC}$ for S2 and S3. .2 at x_G , which is the X coordinate (m) at the centre of gravity of	
4.7 Loa Req 4.7.2 Max	ds to be Consid Juirements ximum Load Co	dered i ondition	n Additional Structural	 4.7 Loads to be Considered in Additional Structura Requirements 4.7.2 Maximum Load Condition 	1
4.7.2.1 I 1 The are to be co attached to formula. P_{CD}	Load Acting on Deck concentrated load onsidered as load the car decks, in $P_K = P_{Wh-max} \cdot (0)$	the Car ds due to ds for can accord $(1 + C_{CL})$	• Deck and Movable Car of the wheels of the vehicle ar decks on the stiffeners dance with the following	4.7.2.1 Load Acting on the Car Deck and Movable Ca Deck 1 The concentrated loads due to the wheels of the vehicl are to be considered as loads for car decks on the stiffener attached to the car decks, in accordance with the followin formula. $P_{CDK} = P_{Wh-max} \cdot (1 + C_{CDK})$	Amendment (9) Clarifies some definitions and corrects typographical errors: s

Amended-Original Requirements Comparison Table (Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
Pwhemax:Designed maximum wheel load (kN). When the wheel load is given in units of t, multiply this value by 9.81. C_{CDK} :As given by the following formula: $C_{CDK} = C_{WDz} \frac{a_{Ze-CDK}}{g}$ C_{WDz} :Coefficient related to load condition, as specified in Table 4.4.2-8, Part 1.1. a_{Ze-CDK} : $multiply the consideration obtained from theformula specified in 4.2.4.1, Part 1.multiply the consideration obtained from theformula specified in 4.2.4.1, Part 1.multiply the consideration of the cardeck under consideration, obtained from theformula specified in 4.2.4.1, Part 1.multiply the consideration of the car deck under considerationis taken as the centre of the distance betweensupport points for stiffeners on the car deckaccounted for.2The load to be considered in the primary supportingmembers attached to the movable car deck P_{LCDK}P_{LCDK_d}: Deck dead weight (kN/m^2) per unit areaC_{CDK}:P_{LCDK_d}:Deck dead weight (kN/m^2) per unit areaC_{CDK}:C_{CDK}:As specified in -1 above.$	$P_{Wh-max}:$ Designed maximum wheel load (kN). When the wheel load is given in units of t, multiply this value by 9.81. $C_{CDK}:$ As given by the following formula: $C_{CDK} = C_{WDz} \frac{a_{Ze-CDK}}{g}$ $C_{WDz}:$ Coefficient related to load condition, as specified in Table 4.4.2-8, Part 1. $a_{Ze-CDK}:$ Envelope acceleration (m/s^2) in the vertical direction at the centre line of the car deck under consideration, obtained from the formula specified in 4.2.4.1, Part 1. Further, the centre of gravity in the longitudinal direction of the car deck under consideration is taken as the centre of the distance between support points for stiffeners on the car deck accounted for. 2 The load to be considered in the primary supporting members attached to the movable car deck P_{LCDK} (kN/m^2) is to be in accordance with the following formula: $P_{LCDK} = (P_{LCDK_d} + w_{LCDK}) \cdot (1 + C_{CDK})$ $P_{LCDK_d}:$ Deck dead weight (kN/m^2) per unit area $C_{CDK}:$ As specified in -1 above.	Clarifies that parameters related to rolling motion are not used in calculation because it is simplified that acceleration is calculated at the centre line.

Amended	Original	Remarks
Chapter 7 STRENGTH OF PRIMARY	Chapter 7 STRENGTH OF PRIMARY	
SUPPORTING STRUCTURES	SUPPORTING STRUCTURES	
7.1 General	7.1 General	
7.1.1 Application	7.1.1 Application	
7.1.1.2 Application Example of Assessment Model	7.1.1.2 Application Example of Assessment Model	
1 An application example of assessment model applying	1 An application example of assessment model applying	
7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	
2 For girder members deemed to be simple girders with	2 For girder members deemed to be simple girders with	
structures different from that shown in Fig. 7.1.1-1, the	structures different from that shown in Fig. 7.1.1-1, the	
boundary conditions and acting loads are to be considered, and	boundary conditions and acting loads are to be considered, and	
the assessment model from Table 7.2.1-2, Part 1 is to be	the assessment model from Table 7.2.1-1, Part 1 is to be	
appropriately selected.	appropriately selected.	



(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
frames (See Fig. 7.2.1-1).		remain unchanged.
(1) Moments acting on web frames at each node are to be		
in accordance with the following (a) and (b):		
(a) The moment $M_{i,i-1}$ (kN-m) acting on a web		
frame with node <i>i</i> being its upper end (the		
moment at the upper end of the web frame) is to		
be taken as follows (See Fig. 7.2.1-2):		
<u>i) For $i = n$</u>		
$\underline{M_{n,n-1}} = 0$		
$\underbrace{\text{ii)}}_{i} \text{For } 1 \leq i \leq n-1$		
$\underline{M}_{i,i-1} = \frac{1}{2} (C_{i,i-1} - C_{i,i+1} + \phi_{i-1} - \phi_{i+1})$		
(b) The moment $M_{i,i+1}$ (kN-m) acting on a web		
frame with node <i>i</i> being its lower end (the		
moment at the lower end of the web frame) is to		
be taken as follows (See Fig. 7.2.1-2):		
i) For $1 \le i \le n-1$		
$\underline{M}_{i,i+1} = -\frac{1}{2} \left(C_{i,i-1} - C_{i,i+1} + \phi_{i-1} - \phi_{i+1} \right)$		
ii) For $i = 0$		
$\underline{M}_{0,1} = -\frac{1}{4} (C_{1,2} + C_{1,0} - \emptyset_0 + \emptyset_2) - C_{0,1}$		
$\underline{C_{i,i-1}}$: Coefficient to be taken as follows:		
$\underline{C_{i,i-1}} = \frac{S_i \ell_i^2}{60} (3P_i + 2P_{i-1}) \qquad (0 < i \le n-1)$		
<u><i>C_{i,i+1}</i>: Coefficient to be taken as follows:</u>		
i) For $0 \le i \le n-2$		
$\underline{C_{i,i+1}} = -\frac{S_{i+1}\ell_{i+1}^2}{60}(2P_{i+1} + 3P_i)$		
ii) For $i = n - 1$		
$\underline{C_{n-1,n} = -\frac{S_n \ell_n^2}{120} (7P_n + 8P_{n-1})}$		

Amended	Original	Remarks
ϕ_i : Coefficient to be taken as follows:		
i) For $i = 0$		
$\phi_0 = 0$		
ii) For $1 \le i \le n-1$		
$\underline{\phi_i = -\frac{1}{4}(C_{i,i-1} + C_{i,i+1})}$		
<u>iii) For $i = n$</u>		
$\underline{\qquad } \phi_n = -\frac{1}{2}\phi_{n-1}$		
S_i : Spacing (m) of the web		
frame in the <i>i</i> -th tier from the inner		
bottom plating		
ℓ_i : Span (m) of the web frame		
in the <i>l</i> -th tier from the inner bottom		
$\frac{\text{pratting}}{P_{\text{c}}}$ Load (kN/m^2) due to the		
$\underline{r_i}$ Eval (\underline{ki}) at node <i>i</i> in the		
maximum load condition		
as specified in 4.4.2.1-1, Part 1		
(2) Nodal shear forces acting on web frames are to be in		
accordance with the following (a) and (b):		
(a) The shear force $F_{i,i-1}$ (kN) acting on a web		
frame with node <i>i</i> being its upper end (the shear		
force at the upper end of the web frame) is to be		
taken as follows:		
$\underline{F_{i,i-1}} = -\frac{-}{\ell_i} (M_{i,i-1} + M_{i-1,i})$		
$\frac{-\frac{\ell_i}{6}(2S_iP_i + S_{i-1}P_{i-1})}{(1 \le i \le n)}$		
(b) The shear force $F_{i,i+1}$ (kN) acting on a web		
frame with node <i>i</i> being its lower end (the shear		
force at the lower end of the web frame) is to be		
<u>taken as follows:</u>		

Amended-Original	Requirements	Comparison Table	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
$i) For \ 0 \le i \le n-1$ $F_{i,i+1} = -\frac{1}{\ell_{i+1}} (M_{i+1,i} + M_{i,i+1})$ $+ \frac{\ell_{i+1}}{6} (S_{i+1}P_{i+1} + 2S_iP_i)$ $ii) For \ i = 0$ $F_{0,1} = -\frac{1}{\ell_1} (M_{1,0} + M_{0,1}) + \frac{\ell_1}{6} (S_1P_1 + 2S_1P_0)$ $M_{1,0}, \ M_{0,1}, \ M_{i+1,i}, \ M_{i,i+1}, \ \ell_i, \ S_i \ and \ P_i:$ $As specified in (1) above$		
Fig. 7.2.1-1 Example of Application	(Newly Added)	
P_{3} P_{3} P_{3} P_{3} P_{3} P_{4} S_{4}, ℓ_{4} $Moment: C_{load}max(M_{3,2} , M_{2,3})$ $Shear force: C_{load}max(F_{3,2} , F_{2,3})$ S_{2}, ℓ_{2} P_{1} I S_{1}, ℓ_{1} P_{0} Q		

Amended	Original	Remarks
Amended Fig. 7.2.1-2 Moment Acting on a Web Frame at Node i P_{n-1} R_n R_n P_{n-1} S_{n-1} R_n P_n R_n R_n P_n R_n R_n P_i R_n R_n R_n P_i R_n R_n R_n R_n P_i R_n R_n R_n R_n P_n R_n R_n R_n R_n R_n P_n R_n R_n R_n R_n R_n R_n P_n R_n R_n R_n R_n R_n R_n R_n P_n R_n	Original (Newly Added)	Remarks
Chapter 9 FATIGUE 9.5 Screening Assessment	Chapter 9 FATIGUE 9.5 Screening Assessment	
9.5.6 Fatigue Strength Assessment	9.5.6 Fatigue Strength Assessment	
9.5.6.2 Reference Stress for Fatigue Strength Assessment Hot spot stress ranges used in screening assessments, $\Delta \sigma_{FS,(j)}$, are $\Delta \sigma_{FS_ort,(j)}$ and $\Delta \sigma_{FS_par,(j)}$, and fatigue damage is to be calculated for each stress range. where, $\Delta \sigma_{FS_ort,(j)} = \max_{i} (\Delta \sigma_{FS_ort,i(j)})$ $\Delta \sigma_{FS_par,(j)} = \max_{i} (\Delta \sigma_{FS_par,i(j)})$ $\Delta \sigma_{FS_ort,i(j)}$: Hot spot stress range (N/mm ²) for screening assessment according to the hot	9.5.6.2 Reference Stress for Fatigue Strength Assessment Hot spot stress ranges used in screening assessments, $\Delta \sigma_{FS,(j)}$, are $\Delta \sigma_{FS_ort,(j)}$ and $\Delta \sigma_{FS_par,(j)}$, and fatigue damage is to be calculated for each stress range. where, $\Delta \sigma_{FS_ort,(j)} = \max_{i} (\Delta \sigma_{FS_ort,i(j)})$ $\Delta \sigma_{FS_par,(j)} = \max_{i} (\Delta \sigma_{FS_par,i(j)})$ $\Delta \sigma_{FS_ort,i(j)}$: Hot spot stress range (N/mm ²) for screening assessment according to the hot	Amendment (9) Clarifies some definitions and corrects typographical errors: Specifies the correction factor corresponding to the wave environment in screening assessment

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
spot stress in the direction orthogonal to the	spot stress in the direction orthogonal to the	
formula:	formula:	
$\Delta \sigma_{FS_ort,i(j)} = f_{mean_ort,i(j)} \cdot \Delta \sigma_{HS_ort,i(j)}$	$\Delta \sigma_{FS_ort,i(j)} = f_{mean_ort,i(j)} \cdot \Delta \sigma_{HS_ort,i(j)}$	
Δ $\sigma_{FS_par,i(j)}$: Hot spot stress range (N/mm ²) for	$\Delta \sigma_{FS_par,i(j)}$: Hot spot stress range (N/mm ²) for	
screening assessment according to the hot	screening assessment according to the hot	
spot stress in the direction parallel to the	spot stress in the direction parallel to the	
weld line, as obtained from the following	weld line, as obtained from the following	
formula:	formula:	
$\Delta \sigma_{FS_{par},i(j)} = 0.72 \cdot f_{mean_{par},i(j)} \cdot \Delta \sigma_{HS_{par},i(j)}$	$\Delta \sigma_{FS_par,i(j)} = 0.72 \cdot f_{mean_par,i(j)} \cdot \Delta \sigma_{HS_par,i(j)}$	
f_R : Correction factor corresponding to the wave		
environment in accordance with 9.5.2.1, Part 1		
$f_{mean_ort,i(j)}, f_{mean_par,i(j)}$: Correction factor	$f_{mean_ort,i(j)}, f_{mean_par,i(j)}$: Correction factor	
for mean stress effect, as	for mean stress effect, as	
obtained by the following	obtained by the following	
formulas for each	formulas for each	
combination of	combination of	
$\Delta \sigma_{HS_ort,i(j)}$,	$\Delta \sigma_{HS_ort,i(j)}$,	
$\sigma_{mean_ort,i(j)}$ and	$\sigma_{mean_ort,i(j)}$ and	
$\Delta \sigma_{HS_par,i(j)}$,	$\Delta \sigma_{HS_par,i(j)}$,	
$\sigma_{mean_par,i(j)}$	$\sigma_{mean_par,i(j)}$	
respectively.	respectively.	
$\int f_{mean,i(j)} = \min\left[1.0, 0.8 + 0.2 \frac{\sigma_{mCor,i(j)}}{2\Delta\sigma_{HS,i(j)}}\right] : \sigma_{mCor,i(j)} \ge 0$	$\int f_{mean,i(j)} = \min\left[1.0, 0.8 + 0.2 \frac{\sigma_{mCor,i(j)}}{2\Delta\sigma_{HS,i(j)}}\right] : \sigma_{mCor,i(j)} \ge 0$	
$\int f_{mean,i(j)} = \max\left[0.6, 0.8 + 0.2 \frac{\sigma_{mCor,i(j)}}{2\Delta\sigma_{HS,i(j)}}\right] : \sigma_{mCor,i(j)} < 0$	$\left f_{mean,i(j)} = \max\left[0.6, 0.8 + 0.2 \frac{\sigma_{mCor,i(j)}}{2\Delta\sigma_{HS,i(j)}} \right] : \sigma_{mCor,i(j)} < 0 \right $	
Where, $\sigma_{mCor,i(j)}$ is to be obtained as	Where, $\sigma_{mCor,i(j)}$ is to be obtained as	
follows:	follows:	

(Amenument related to 1 art C of the Rules R	a survey and construction of steer ships (2024 Americ	intent 2))
Amended	Original	Remarks
$\begin{cases} \sigma_{mCor,i(j)} = \sigma_{mean,i(j)} : \sigma_{max} \le \sigma_{YEq} \end{cases}$	$\begin{cases} \sigma_{mCor,i(j)} = \sigma_{mean,i(j)} : \sigma_{max} \le \sigma_{YEq} \end{cases}$	
$(\sigma_{mCor,i(j)} = \sigma_{YEq} - \sigma_{max} + \sigma_{mean,i(j)} : \sigma_{max} > \sigma_{YEq})$	$(\sigma_{mCor,i(j)} = \sigma_{YEq} - \sigma_{max} + \sigma_{mean,i(j)} : \sigma_{max} > \sigma_{YEq}$	
$\sigma_{max} = \max_{i(i)} (\Delta \sigma_{HS,i(i)} + \sigma_{mean,i(i)})$	$\sigma_{max} = \max_{i(i)} (\Delta \sigma_{HS,i(i)} + \sigma_{mean,i(i)})$	
$\sigma_{VEq} = \max(315, \sigma_V)$	$\sigma_{VEq} = \max(315, \sigma_V)$	
	Λσμο τις Λσμο το	
$\Delta s \text{ given in } 9.5.51_2$	Δs given in 9.5.5.1.2	
As given in $9.5.5.1-2$.	As given in $9.5.5.1-2$.	
$\boldsymbol{O}_{mean_ort,i(j)}, \boldsymbol{O}_{mean_par,i(j)}.$ As given in 9.5.5.1-2.	$\boldsymbol{O}_{mean_ort,i(j)}, \boldsymbol{O}_{mean_par,i(j)}.$ As given in 9.5.5.1-2.	
Part 2-7 TANKERS	Part 2-7 TANKERS	
Chapter 4 LOADS	Chapter 4 LOADS	
4.3 Loads to be Considered in Strength of Primary Supporting Structures	4.3 Loads to be Considered in Strength of Primary Supporting Structures	
4.3.2 Maximum Load Condition	4.3.2 Maximum Load Condition	
4.3.2.2 External Pressure	4.3.2.2 External Pressure	
For the requirements of double hull, the hydrostatic	For the requirements of double hull, the hydrostatic	
pressure and the hydrodynamic pressure at the equivalent	pressure and the hydrodynamic pressure at the equivalent	
design wave specified in Table 4.3.2-2 are to be considered.	design wave specified in Table 4.3.2-2 are to be considered.	

Am	ended		Original	Remarks	
	Table 4.3.2-2 External	l and Internal Pressur	e to be Considered	Amendment (8)	
Structures to be assessed	$P_{DB}(k)$	N/m^2) ⁽¹⁾⁽²⁾	$P_{DS}(kN/m^2)^{(1)(2)}$	Assessments for dou hull Structures	uble
Double bottom	S1(3) Pexs	$+ P_{exw}$	$P_{exs} + P_{exw}$	See the remark of	
Double bottom	S2 $P_{exs} + P_{exw}$	$P_{ls} - (P_{ls} + P_{ld})$	$P_{exs} + P_{exw} - (P_{ls} + P_{ld})$	amended-original	
Double side	S3 P _{exs}	$+ P_{exw}$	$P_{exs} + P_{exw}$	requirements	
Double side	S4 $P_{exs} + P_{exw}$	$p_{ls} - (P_{ls} + P_{ld})$	$P_{exs} + P_{exw} - (P_{ls} + P_{ld})$	Table 4.4.2-2, Chap	ter
Notes: P_{exs} , P_{exw} : Hydros in case P_{ls} , P_{ld} : Static a on side (1) The parameters S1, $S3$: As gir S2, $S4$: As gir (2) Load calculation (3) P_{exer} is to be no	static and Hydrodynamic pressure of P_{DS} . Each value is calculated and dynamic pressure due to liqui e shell in case of P_{DS} . Each value (GM, z_G, K_{XX}) required to calcu- ven by the formula for full load c ven by the formula for ballast con a points is in accordance with 7.3 t less than the value of P_{mm} for	e (kN/m^2) act on bottom shel l in accordance with 4.6.2.4, id cargo (kN/m^2) act on inner e is calculated in accordance late loads is given by the fol condition specified in Table 4. .1.5, Part 1 for all loading c HM-2 at x_c which is the X	l in case of P_{DB} . Those values act on side a Part 1. r bottom plating in case of P_{DB} . Those value with 4.6.2.5, Part 1. llows. 4.2.2-1 2.2-1 onditions.	e ship	

(Amendment related to Part C of the Rules for Surve	y and Construction of Steel Ship	ps (2024 Amendment 2))

Amended	Original	Remarks
Part 2-8 SHIPS CARRYING LIQUEFIED GASES IN BULK (INDEPENDENT SPHERICAL TANKS OF TYPE P)	Part 2-8 SHIPS CARRYING LIQUEFIED GASES IN BULK (INDEPENDENT SPHERICAL TANKS OF TVDE D)	
Chapter 7 STRENGTH OF PRIMARY SUPPORTING STRUCTURES	Chapter 7 STRENGTH OF PRIMARY SUPPORTING STRUCTURES	
7.1 General	7.1 General	
7.1.1 Application	7.1.1 Application	
 7.1.1.2 Application Example of Assessment Model for Oil Tanker 1 An application example of assessment model applying 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. 2 For girder members deemed to be simple girders with structures different from that shown in Fig. 7.1.1-1, the boundary conditions and acting loads are to be considered, and the assessment model from Table 7.2.1-2, Part 1 is to be appropriately selected. 	 7.1.1.2 Application Example of Assessment Model for Oil Tanker 1 An application example of assessment model applying 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1. 2 For girder members deemed to be simple girders with structures different from that shown in Fig. 7.1.1-1, the boundary conditions and acting loads are to be considered, and the assessment model from Table 7.2.1-1, Part 1 is to be appropriately selected. 	
 7.1.1.3 Application Example of Assessment Model for Chemical Tanker 1 An application example of an assessment model applying 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-2. 2 For girder members that have a structure not shown in Fig. 7.1.1-2 and can be regarded as a simple girder, the boundary conditions and acting loads are to be considered, and 	 7.1.1.3 Application Example of Assessment Model for Chemical Tanker 1 An application example of an assessment model applying 7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-2. 2 For girder members that have a structure not shown in Fig. 7.1.1-2 and can be regarded as a simple girder, the boundary conditions and acting loads are to be considered, and 	

(A	Amendment related to Par	rt C of the Rules for Surve	v and Construction of Steel S	hips	(2024 Amendment 2)))
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Amended	Original	Remarks
an assessment model from Table 7.2.1-2, Part 1 is to be appropriately selected.	an assessment model from Table 7.2.1-1, Part 1 is to be appropriately selected.	
Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	Chapter 8 STRENGTH ASSESSMENT BY CARGO HOLD ANALYSIS	
8.4 Boundary Conditions and Loads Conditions	8.4 Boundary Conditions and Loads Conditions	
8.4.2 Loads Condition	8.4.2 Loads Condition	A
 8.4.2.2 Method of Applying Loads to the Structural Model 1 In applying 8.5.2, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the following (1) to (3) based upon the boundary conditions specified in 8.4.1.1 and the value of the moment for each analysis case. (1) (Omitted) (2) The adjustment vertical bending moment M_V-end and adjustment horizontal bending moment M_H-end (kN-m) are obtained by the following formulae: M_V-end = M_V-targ - M_V-max, for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-min, for M_V-targ < 0 M_H-end = M_H-targ - M_H-max, for M_H-targ ≥ 0 M_V-targ, M_H-targ = M_H-min, for M_H-targ < 0 M_V-targ, M_H-targ : The maximum or minimum value in the target hold of the vertical bending moment and horizontal bending moment (kN-m) 	 8.4.2.2 Method of Applying Loads to the Structural Model 1 In applying 8.5.2, Part 1, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the following (1) to (3) based upon the boundary conditions specified in 8.4.1.1 and the value of the moment for each analysis case. (1) (Omitted) (2) The adjustment vertical bending moment M_V-end and adjustment horizontal bending moment M_H-end (kN-m) are obtained by the following formulae: M_V-end = M_V-targ - M_V-max, for M_V-targ ≥ 0 M_V-end = M_V-targ - M_V-min, for M_V-targ < 0 M_V-end = M_H-targ - M_H-max, for M_H-targ ≥ 0 M_V-end = M_H-targ - M_H-max, for M_H-targ < 0 M_V-end = M_H-targ - M_H-min, for M_H-targ < 0 M_V-targ, M_H-targ: The maximum or minimum value in the target hold of the vertical bending moment and horizontal bending moment (kN-m) 	Amendment (9) Clarifies some definitions and corrects typographical errors: Corrects the typographical errors in adjustment moment

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Amended	Original	Remarks
(3) (Omitted) specified in Table 8.4.2-1	(3) (Omitted) specified in Table 8.4.2-1	
Part 2-9 SHIPS CARRYING LIQUEFIED GASES IN BULK (INDEPENDENT PRISMATIC TANKS TYPE A/B)	Part 2-9 SHIPS CARRYING LIQUEFIED GASES IN BULK (INDEPENDENT PRISMATIC TANKS TYPE A/B)	
Chapter 4 LOADS	Chapter 4 LOADS	
4.3 Loads to be Considered in Strength Assessment by Cargo Hold Analysis	4.3 Loads to be Considered in Strength Assessment by Cargo Hold Analysis	
4.3.2 Maximum Load Condition	4.3.2 Maximum Load Condition	
 4.3.2.4 External Pressure due to Seawater In applying 4.6.2.4, Part 1, hydrodynamic pressure P_{exw} specified in (1) to (2) is to be additionally considered. (1) Hydrodynamic pressure in the equivalent design wave AV is in accordance with Table 4.3.2-5 and Fig. 4.3.2-1. (2) Hydrodynamic pressure in the equivalent design wave PCL is in accordance with Table 4.3.2-6 and Fig. 4.3.2-2.	 4.3.2.4 External Pressure due to Seawater In applying 4.6.2.4, Part 1, hydrodynamic pressure <i>P_{exw}</i> specified in (1) to (2) is to be additionally considered. (1) Hydrodynamic pressure in the equivalent design wave <i>AV</i> is in accordance with Table 4.3.2-5 and Fig. 4.3.2- 1. (2) Hydrodynamic pressure in the equivalent design wave <i>PCL</i> is in accordance with Table 4.3.2-6 and Fig. 4.3.2-2. 	

`	Amended		Original	Remarks	
	Table 4.3.2-5 Hydrodynamic Pressu	re Pexw in Equivalent Design	Wave AV	Amendment (7)	
	Hydrodynamic pressure P_{exw} (kN/m^2)		Hydrodynamic pressure P_{exw} (kN/m ²)		Revises the simplified
	$z \le T_{LC}$	$T_{LC} < z \le T_{LC} + h_W$	$z > T_{LC} + h_W$	formula for the ship s hull centre of gravity to	
AV-1P	$P_{exw} = \max(P_{AV}, \rho g(z - T_{LC}))$			enhance accuracy.	
AV-2P	$P_{exw} = \max\left(-P_{AV}, \rho g(z - T_{LC})\right)$			See the remark of	
AV-1S	$P_{exw} = \max\left(P_{AV}, \rho g(z - T_{LC})\right)$	$P_{WL} - \rho g(z - T_{LC})$	0	amended-original	
AV-2S	$P_{exw} = \max\left(-P_{AV}, \rho g(z - T_{LC})\right)$			requirements	
$P_{AV}: As P_{AV}$ (Or P_{AV}) (Or P_{AV})	given by the following formula: = $0.5C_{R_{AV}}C_{NL_{AV}}C_MC_{AV1}H_{S_{AV}}(P_{AV1} + P_{AV2} + P_{AV3})$ nitted) 2: As given by the following formulae: For equivalent design waves $AV.1P$ and $AV.2$ For $y > 0.0$, $P_{AV2} = \rho g \left\{ 0.6 \sin \left(\frac{2(x-x)}{L_C} + \frac{2(x-x)}$	$+ P_{AV4} + P_{AV5})$ 2P: $\frac{G}{G} = \pi - [-2.0 \cdot 10^{-5} \cdot (x - x_G) + 2.0 \cdot 10^{-3} \cdot (y^2 + z^2)]$ 2S: $\frac{G}{G} = \pi - 1.0 \cdot 10^{-3} \cdot (y^2 + z^2)]$ 2S: $\frac{G}{G} = \pi - [-2.0 \cdot 10^{-5} \cdot (x - x_G) + 2.0 \cdot 10^{-5} \cdot (x - x$	$(10^{-3}](y^2 + z^2)$ $(10^{-3}](y^2 + z^2)$ $(10^{-3}](y^2 + z^2)$ $(10^{-3})L_C$ The value calculated value calculated value calculated value valu		

(Omi				
(tted)			
, 	Table 4.3.2-6 Hydrodynamic Pressure	P_{exw} in Equivalent Design mic pressure P_{exw} (kN/m^2)	Wave PCL	Amendment (7) Revises the sim
	$z \leq T_{LC}$	$T_{LC} < z \le T_{LC} + h_W$	$z > T_{LC} + h_W$	formula for the hull centre of gr
PCL-1	$P_{exw} = \max\left(-P_{PCL}, \rho g(z - T_{LC})\right)$		0	enhance accurac
PCL-2	$P_{exw} = \max(P_{PCL}, \rho g(z - T_{LC}))$	$P_{WL} - \rho g(z - I_{LC})$	0	See the remark
Notes: P_{WL} , h_W : As P_{PCL} : As gi P_{PCL} (Omi P_{PCL3}	specified in Table 4.3.2-5. Even by the following formula: = $0.5C_{R_{PCL}}C_{NL_{PCL}}C_MC_{PCL1}H_{S_{PCL}}(P_{PCL1} + P_{PCL2} + A_{PCL2})$ (itted) g: As given by the following formula: $P_{PCL3} = -\rho g R_{5_PCL} \left(x - \frac{L_{c}}{2}x_{G}\right) \cos\left(\left(0.05_{M}R_{5_PCL}\right) + A_{S_{1}}R_{5_{1}}\right) \cos\left(\left(0.05_{M}R_{5_{1}}R_{5_{1}}\right) + A_{S_{1}}R_{5_{1}}\right)$	(P_{PCL3}) $\sqrt{\lambda_{PCL}} - 1.28 (\pi - \varepsilon_{PCL2})$		amended-origina requirements comparison tabl Table 4.2.4-1.

	Amended			(Original		Remarks
	Table 4.3	B.2-7 Phase of In	ncident Wave in t	the Equivalent Design	Wave	-	Amendment (7)
		$C_{RE} > 0$	$C_{RE} < 0$	$C_{RE} = 0$ and $C_{IM} \ge 0$	$C_{RE} = 0$ and $C_{IM} < 0$		Revises the simplified
	6 6	1	1	1	1		formula for the ship' s
	C_{AV2}, C_{PCL2}	1	-1	1	-1		hull centre of gravity to
	$\varepsilon_{AV1}, \ \varepsilon_{PCL1}$	arcta	$n\left(\frac{C_{IM}}{C_{RE}}\right)$		$\frac{\pi}{2}$		ennance accuracy.
Notes:	·						See the remark of
C_{RE} :	As given by the follow	ving formula:					requirements
				$2\pi \left[\left(x - \frac{L_{c}}{2} \underline{x}_{G} \right) / \sqrt{3} \right] \right]$			comparison table in
	For equivalent design	waves $AV-1P$ and A	$V-2P$, $C_{RE} = \cos\left(\pi - \pi\right)$	$+\frac{1}{\lambda_{AV}}$ $\frac{1}{2}$ $+\frac{1}{2}$ y			Table 4.2.4-1.
	For equivalent design	n waves <i>AV</i> -1 <i>S</i> and <i>AV</i>	$Z-2S, C_{RE} = \cos\left(\pi + \frac{1}{2}\right)$	$-\frac{2\pi}{\lambda_{AV}}\left[\frac{\left(x-\frac{L_{E}}{2}x_{G}\right)}{2}-\frac{\sqrt{3}}{2}y\right]\right)$			
	For equivalent design	wave <i>PCL</i> , $C_{RE} = c$	$\cos\left(\pi + \frac{2\pi}{\lambda_{PCL}}\left(x - \frac{E_{e}}{2}\right)\right)$	$(\underline{x_G}))$			
	λ_{AV} : As specified in T	able 4.3.2-5.					
	x_{G} : As specified in Ta	ble 4.3.2-5.					
<i>CIM</i> :	As given by the follow	ving formula:					
	For equivalent design	waves $AV-1P$ and A	$V-2P, C_{IM} = \sin\left(\frac{2\pi}{\lambda_{AV}}\right)$	$\left[-\frac{\left(x-\frac{L_{\overline{c}}}{2}x_{G}\right)}{2}-\frac{\sqrt{3}}{2}y\right]\right)$			
	For equivalent design	waves AV-1S and A	$V-2S, C_{IM} = \sin\left(\frac{2\pi}{\lambda_{AV}}\right)$	$\left[-\frac{\left(x-\frac{L_{E}}{2}\underline{x}_{G}\right)}{2}+\frac{\sqrt{3}}{2}y\right]\right)$			
	For equivalent design	wave <i>PCL</i> , $C_{IM} = s$	$ \inf\left(-\frac{2\pi}{\lambda_{PCL}}\left(x-\frac{L_{e}}{2}x_{c}\right)\right) $				

(Amendment related to	Part C of the F	Rules for Survey	and Construction of	f Steel Ships	(2024 Amendment 2))
`			2		1	()	/

Amended					Original			Remarks
4.3.2.5 In 1 In ag equipped wi is no swash to cargo. 2 In ag position with PCL is to be	nternal oplying th swas bulkhea oplying h respe in acco	l Pressur 4.6.2.5, sh bulkhe ad when o 4.6.2.5, ct to the ordance w	e due to Loaded Liquid Part 1, where the cargo tar ad, it is to be assumed that calculating dynamic pressure Part 1 , the acceleration at equivalent design wave <i>AV</i> with Table 4.3.2-8 .	nk is there e due t any 7 and	 4.3.2.5 Internal 1 In applying equipped with swash is no swash bulkhea to cargo. 2 In applying position with respect PCL is to be in accossion 	Pressure due to Loaded Li 4.6.2.5, Part 1 , where the h bulkhead, it is to be assun d when calculating dynamic 4.6.2.5, Part 1 , the accele ct to the equivalent design rdance with Table 4.3.2-8 .	equid cargo tank is ned that there pressure due ration at any wave AV and	Amondmont (7)
	Table 4.3.2-8 Acceleration Equivalent design Longitudinal acceleration Tr				at Any Position, a_X , a_X , a_X	a_Y, a_Z		Revises the simplified
	W	vave	(m/s^2)		(m/s^2)	Vertical acceleration a_Z (<i>m</i> /s ²)	forr hull enh	formula for the ship' s
		AV-1P	$-0.5g \cdot \sin \phi \\ +0.1a_1 - 0.95a_5(z - z_G)$	+0.0	$0.1g \cdot \sin \theta \\ 16Ma_2 + 0.1a_4(z - z_G) \\ + [-0.9a_6(x - x_G)]$	$ \left(1.7 \frac{\lambda_{AV}}{L_C} - 0.6 \right) a_3 - 0.1 a_4 y + 0.95 a_5 (x - x_G) $		hull centre of gravity to enhance accuracy.
	417	AV -2 P	$\begin{array}{c} 0.5g \cdot \sin \phi \\ -0.1a_1 + 0.95a_5(z-z_G) \end{array}$	$-0.1g \cdot \sin \theta \\ -0.01GMa_2 - 0.1a_4(z - z_G) \\ + [0.9a_6(x - x_G)]$	$ \left(-1.7 \frac{\lambda_{AV}}{L_C} + 0.6 \right) a_3 + 0.1 a_4 y -0.95 a_5 (x - x_G) $		See the remark of amended-original	
AV	AV	AV -1S	$-0.5g \cdot \sin \phi \\ +0.1a_1 - 0.95a_5(z - z_G)$	-0.0	$-0.1g \cdot \sin \theta$ $1GMa_2 - 0.1a_4(z - z_G)$ $+[0.9a_6(x - x_G)]$	$ \left(1.7 \frac{\lambda_{AV}}{L_C} - 0.6 \right) a_3 + 0.1 a_4 y + 0.95 a_5 (x - x_G) $		requirements comparison table in Table 4.2.4-1.
		AV -2 S	$\begin{array}{c} 0.5g \cdot \sin\phi \\ -0.1a_1 + 0.95a_5(z-z_G) \end{array}$	+0.0	$0.1g \cdot \sin \theta \\ 11GMa_2 + 0.1a_4(z - z_G) \\ + [-0.9a_6(x - x_G)]$	$ \left(-1.7 \frac{\lambda_{AV}}{L_C} + 0.6 \right) a_3 - 0.1 a_4 y -0.95 a_5 (x - x_G) $		
	DCI	PCL-1	$-0.15 \frac{T_{LC}}{D} \sin \phi - 0.3 \frac{T_{LC}}{D} a_1 + \left(-40 \frac{f_T}{L_C} - 0.2\right) a_5(z - z_G)$		0	$15\frac{f_T}{L_C}a_3 - \left(-40\frac{f_T}{L_C} - 0.2\right)a_5(x - x_G)$		
	FCL	PCL-2	$0.15 \overline{\frac{T_{LC}}{D}} \sin \phi + 0.3 \overline{\frac{T_{LC}}{D}} a_1$ $+ \left(40 \frac{f_T}{L_C} + 0.2\right) a_5 (z - z_G)$		0	$-15\frac{f_T}{L_C}a_3$ $-\left(40\frac{f_T}{L_C}+0.2\right)a_5(x-x_G)$		

(Amendment related to Part C of the Rules for Survey and Construction	n of Steel Ships	(2024 Amendment 2)))
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Amended	Original	Remarks
Notes: $a_1, a_2, a_3, a_4, a_5, a_6$: As specified in 4.2.3, Part 1. θ, ϕ : As specified in 4.2.2, Part 1. x_G : X coordinate (m) at the centre of gravity of the ship, taken	n as $x_G = 0.45(0.36 + 0.2C_{B_{LC}})L_C$. However, the value	
calculated based on the weight distribution according to t z_G : Z coordinate (m) at the centre of gravity of the ship in the GM: Metacentric height (m), the value specified in the loading λ_{AV} : As specified Table 4.3.2-5.		
4.4 Loads to be Considered in Fatigue 4.4.2 Cyclic Load Condition	4.4 Loads to be Considered in Fatigue 4.4.2 Cyclic Load Condition	
4.4.2.5 Internal Pressure due to Loaded Liquid In applying 4.7.2.5 , Part 1 , the acceleration at any position with respect to the equivalent design wave <i>AV</i> and <i>PCL</i> is to be in accordance with Table 4.4.2-5 .	4.4.2.5 Internal Pressure due to Loaded Liquid In applying 4.7.2.5, Part 1 , the acceleration at any position with respect to the equivalent design wave AV and PCL is to be in accordance with Table 4.4.2-5 .	

	An	nended		Original	Remarks
		Table 4.4.2-5 Acceler	cation at Any Position a_X , a_X	a_Y, a_Z	Amendment (7)
Equival w	ent design vave	Longitudinal acceleration a_X (m/s^2)	Transverse acceleration a_Y (m/s^2)	Vertical acceleration a_Z (<i>m/s</i> ²)	Revises the simplified formula for the ship' s
	AV-1P	$-0.5g \cdot \sin \phi \\ +0.1a_1 - 0.95a_5(z - z_G)$	$0.1g \cdot \sin \theta \\ + 0.01GMa_2 + 0.1a_4(z - z_G) \\ + [-0.9a_6(x - x_G)]$	$ \left(1.7 \frac{\lambda_{AV}}{L_C} - 0.6 \right) a_3 - 0.1 a_4 y + 0.95 a_5 (x - x_G) $	hull centre of gravity to enhance accuracy.
AV	AV -2 P	$0.5g \cdot \sin \phi$ $-0.1a_1 + 0.95a_5(z - z_G)$	$-0.1g \cdot \sin \theta -0.01GMa_2 - 0.1a_4(z - z_G) +[0.9a_6(x - x_G)]$	$ \left(-1.7 \frac{\lambda_{AV}}{L_C} + 0.6 \right) a_3 + 0.1 a_4 y -0.95 a_5 (x - x_G) $	See the remark of amended-original
AV	AV -1S	$-0.5g \cdot \sin \phi \\ +0.1a_1 - 0.95a_5(z - z_G)$	$-0.1g \cdot \sin \theta -0.01GMa_2 - 0.1a_4(z - z_G) +[0.9a_6(x - x_G)]$	$ \left(1.7 \frac{\lambda_{AV}}{L_C} - 0.6 \right) a_3 + 0.1 a_4 y + 0.95 a_5 (x - x_G) $	requirements comparison table in Table 4.2.4-1.
	AV -2 S	$0.5g \cdot \sin \phi$ $-0.1a_1 + 0.95a_5(z - z_G)$	$0.1g \cdot \sin \theta \\ + 0.01GMa_2 + 0.1a_4(z - z_G) \\ + [-0.9a_6(x - x_G)]$	$\left(-1.7\frac{\lambda_{AV}}{L_C} + 0.6\right)a_3 - 0.1a_4y \\ -0.95a_5(x - x_G)$	
DCI	PCL-1	$-0.15 \frac{T_{LC}}{D} \sin \phi - 0.3 \frac{T_{LC}}{D} a_1 + \left(-40 \frac{f_T}{L_C} - 0.2\right) a_5(z - z_G)$	0	$15\frac{f_T}{L_C}a_3 - \left(-40\frac{f_T}{L_C} - 0.2\right)a_5(x - x_G)$	
T CL	PCL-2	$0.15 \frac{T_{LC}}{D} \sin \phi + 0.3 \frac{T_{LC}}{D} a_1 + \left(40 \frac{f_T}{L_C} + 0.2\right) a_5 (z - z_G)$	0	$-15\frac{f_T}{L_C}a_3 - \left(40\frac{f_T}{L_C} + 0.2\right)a_5(x - x_G)$	
Notes: $a_1, a_2, \\ \theta, \phi:$ $x_G:$ $z_G:$ GM:	a_3, a_4, a_7 As specified X coordinate calculated b Z coordinate Metacentric	As specified in 4.2.3, d in 4.2.2, Part 1. e (m) at the centre of gravity of the sh ased on the weight distribution accor e (m) at the centre of gravity of the sh height (m), the value specified in the	Part 1. hip, taken as $x_G = 0.45(0.36 + 0.2C_{i})$ ding to the loading condition to be conclusion in the loading condition under consideration loading condition under consideration	$B_{LC}L_{C}$. However, the value nsidered may be used. sideration on is to be used.	

(Amenument related to Part C of the Kules for Survey and Construction of Steel Ships (2024 Amenument
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Amended			Original			Remarks	
Part 2-10	SHIPS (CARF	RYING LIQUEFIED	Part 2-10	SHIPS CA	RRYING LIQUEFIEI)
GASES IN BULK				GASES IN	BULK		
(IND)	EPENDENT	TAN	KS OF TYPE C)	(INDE	PENDENT TA	NKS OF TYPE C)	
				· ·			
	Chapter 4]	LOADS		Chapter 4	LOADS	
4.3 Load Supj	ls to be Consi porting Structu	dered res	in Strength of Primary	4.3 Loads Suppo	s to be Consider orting Structures	ed in Strength of Prima	ry
4.3.2 N	/laximum Load	Cond	ition	4.3.2 M	aximum Load Co	ndition	
4.3.2.2 External Pressure			4.3.2.2 Ex				
For 1	the requirements	s of do	ouble hull, the hydrostatic	For the requirements of double hull, the hydrostatic			ic
pressure and	the hydrodyna specified in Tal	amic p	pressure at the equivalent $2-2$ are to be considered	pressure and	the hydrodynamic recified in Table 4	c pressure at the equivale $432-2$ are to be considered	nt 1
	specified in Tai	JIC 7.J		design wave a	specified in Table -	1.3.2-2. are to be considered	
		Tab	le 4.3.2-2 External and Inte	ernal Pressure to	o be Considered		Amendment (8)
			$P_{DB}(kN/m^2)^{(1)(2)}$		$P_{DS}(kN/m^2)^{(2)}$	(1) (2)	Assessments for double
	Double bottom	S1(<u>3)</u>	$P_{exs} + P_{exw}$		$P_{exs} + P_{ex}$	^{cw}	nun suuctures
		<i>S</i> 2	$P_{exs} + P_{exw}$		$P_{exs} + P_{ex}$	cw	See the remark of
Notes: P_{exs} , P_{exw} : Hydrostatic and Hydrodynamic pressure (kN/m^2) act on bottom shell in case of P_{DB} . Those values act on side shell in case of P_{DS} . Each value is calculated in accordance with 4.6.2.4, Part 1.							requirements comparison table in
	4 , Part2-1.						
	$(5) r_{exw}$ is to be in	ot 1688 th	an the value of r_{exw} for rivi-2 at χ_{G}	α , which is the Λ coo.	iumate (m) at the centre (<u>or gravity of the snip.</u>	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))	(Amendment related to Part C of the Rules for	or Surve	y and Construction of Steel Sh	ips	(2024 Amendment 2)))
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Amended	Original	Remarks
Chapter 7 STRENGTH OF PRIMARY	Chapter 7 STRENGTH OF PRIMARY	
SUPPORTING STRUCTURES	SUPPORTING STRUCTURES	
7.1 General	7.1 General	
7.1.1 Application	7.1.1 Application	
II III	rr	
7.1.1.2 Application Example of Assessment Model for	7.1.1.2 Application Example of Assessment Model for	
Liquified Gas Bulk Carriers with Independent	Liquified Gas Bulk Carriers with Independent	
Tanks Type C	Tanks Type C	
1 An application example of assessment model applying	1 An application example of assessment model applying	
7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	7.2 and 7.3, Part 1 is shown in Fig. 7.1.1-1.	
2 For girder members deemed to be simple girders with	2 For girder members deemed to be simple girders with	
structures different from that shown in Fig. 7.1.1-1, the	structures different from that shown in Fig. 7.1.1-1, the	
boundary conditions and acting loads are to be considered, and	boundary conditions and acting loads are to be considered, and	
the assessment model from Table 7.2.1-2, Part 1 is to be	the assessment model from Table 7.2.1-1, Part 1 is to be	
appropriately selected.	appropriately selected.	

(Amendment related to Part C of the Rules for Survey and Construction of Steel Ships (2024 Amendment 2))

Amended	Original	Remarks
CUIDANCE FOD THE SUDVEV AND	CUIDANCE FOR THE SUBVEV AND	
CONSTRUCTION OF STEEL SUDS	CONSTRUCTION OF STEEL SHIPS	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
Part C HULL CONSTRUCTION AND	Part C HULL CONSTRUCTION AND	
EQUIPMENT	EQUIPMENT	
Part 1 GENERAL HULL REOUIREMENTS	Part 1 GENERAL HULL REOUIREMENTS	
C7 STRENGTH OF PRIMARY SUPPORTING	C7 STRENGTH OF PRIMARY SUPPORTING	
STRUCTURES	STRUCTURES	
STREETERES	STRUCTURES	
C7.2 Simple Girders	C7.2 Simple Girders	
C722 Strongth Assossment	(Nowly Added)	
<u>C1.2.2</u> Strength Assessment	(Itewiy Added)	Amendment (3)
C7.2.2.1 General		For clarification of the
In applying 7.2.2.1-1, Part 1, Part C of the Rules to web		rules reviews the
frames, moments and shear forces are to be in accordance with		composition of the
Table C7.2.2-1.		requirements related to
		simple girders
		• Newly adds the list of
		applications of web
		frames

Amended			Original			Remarks	
	Table C7.2.2-1	Table C7.2.2-1 Moments and Shear Forces to be Considered in the Assessment of Web Frames					
		Single-deck ships		Double-deck ships	Multi-deck ships with three or more decks		applications of web frames
	Web frames subject to external pressure	<u>7.2.2.1, Part 1,</u> Part C of the Rules	<u>7.2.2.1,</u>	Part 1, Part C of the Rules	7.2.2.1, Part 1, Part C of the Rules or 7.2.1.1, Part 2-6, Part <u>C of the Rules</u>		
	Web frames supporting <u>cantilever beams</u>	<u>7.2.2.2(1), Part 1,</u> <u>Part C of the Rules</u>	Double-deck double side and <u>7.2.2.2(1)</u> Double-deck sh <u>7.2.2.2(2)</u>	the second layers being single side: <u>, Part 1, Part C of the Rules</u> <u>being single side:</u> <u>, Part 1, Part C of the Rules</u> <u>being single side:</u> <u>, Part 1, Part C of the Rules</u>	<u>7.2.2.2(1), Part 1, Part C of</u> <u>the Rules</u>		

(A	mendment	related	to Part	C of the	Rules	for Survey	v and Constru	uction o	f Steel S	Ships	(2024)	Amendmen	nt 2))
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Amended	2	Original	Remarks
Appendix C1 REFERENCE DATA FOR DESIGN	Appendix C1	REFERENCE DATA FOR DESIGN	
<u>1.4 Simplified Method for Deriving Stress due to Hull</u> <u>Girder Loads</u>	(Newly added)		
 <u>1.4.1 General</u> <u>1</u> This 1.4 is specified for the purpose of deriving the stresses due to the hull girder loads required for the local strength assessment specified in Chapter 6 and the primary supporting structure strength assessment specified in Chapter 7 using a simplified method in the initial study of shipbuilding design and to determine the initial scantlings. <u>2</u> The stress due to the hull girder load derived in this 1.4 corresponds to the maximum load condition. <u>3</u> The stress due to the hull girder load derived in accordance with 6.2.3.1, 7.2.3.1 and 7.3.2.1 is to be used for deciding the final scantlings. 			Amendment (6) Simplified method for deriving stress due to hull girder loads For the purpose of reducing the number of work hours, specifies a simplified method for deriving stress due to hull girder loads as a reference in the early consideration of ship design.
<u>1.4.2 Stress due to Hull Girder Loads</u> <u>A simplified method for deriving the stress due to the hull</u> girder load is given in Table 1 .			

Amended			Ot	Remarks				
	Ta	ble 1 Simplified Method for Deriving Str	ess due to Hull Girder	Loads	Amendment (6)			
<u>Design load</u> <u>scenario</u>	Load Condition	Stress due to hull girder loads	<u>β</u> .	Wave and still water vertical bending moments to be considered M _W and M _S	Simplified method for deriving stress due to hull girder loads			
<u>Maximum</u> <u>load</u>	$\frac{\underline{HF}^{(1)}}{\underbrace{HM}^{(2)}}$	$\frac{\sigma_{BM} = \sigma_{BM-HF}}{\sigma_{BM-HF}} = \begin{cases} \frac{190}{K} f_D \frac{z - z_n}{z_D - z_n} \text{ for } z \ge z_n \\ \left \frac{190}{K} f_B \frac{z - z_n}{z_B - z_n} \right \text{ for } z < z_n \end{cases}$	_	_				
condition	$\frac{\underline{RP}^{(1)}}{\underline{Or}}$ $\underline{\underline{BP}}^{(2)}$	$\frac{\sigma_{BM} = \max(\beta \sigma_{BM-HF} + 0.35C_{MH}y , C_{MH}y)}{\frac{where}{C_{MH}} = \min\left(\frac{118}{B_{\chi_2}}, 5.9\right)}$	$\frac{0.35M_W + M_S}{M_W + M_S}$	Waveandstillwatervertical bending moments forhoggingandsaggingloadcases				
$\frac{(\text{Notes})}{f_D \text{ and } f_R: \text{Strem}}$ $\frac{\text{desig}}{z_n: \text{Verti}}$ $\frac{(\text{Remarks})}{(1) \text{Load}}$ $(2) \text{Equi}$								
		EFFECTIVE DATE AND AI	PPLICATION					
 Effective d Notwithsta constructio Notwithsta 	 Effective date of this amendment is 20 December 2025. Notwithstanding the amendments, the current requirements apply to ships for which the date of contract for construction is before the effective date. 							
constructio	3. Notwithstanding the provision of preceding 2., the amendments may apply to ships for which the date of contract for construction is before the effective date upon requests.							