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SECTION SCANTLINGS

Hull Section Scantlings according to DNV Rules for ships with $L < 100$ m

Rule edition : Jan. 2012
Program version ... : 18.5.3278

Ship Identification **Vessel ID: Brønnbåt**

ID No : Brønnbåt
Date/Sign : 2020-03-30 ingried

Cross Section Identification **Section 1**

Midship section? : No
Distance from AP (m) : 66.000
Date/Sign : 2020-04-16 ingried

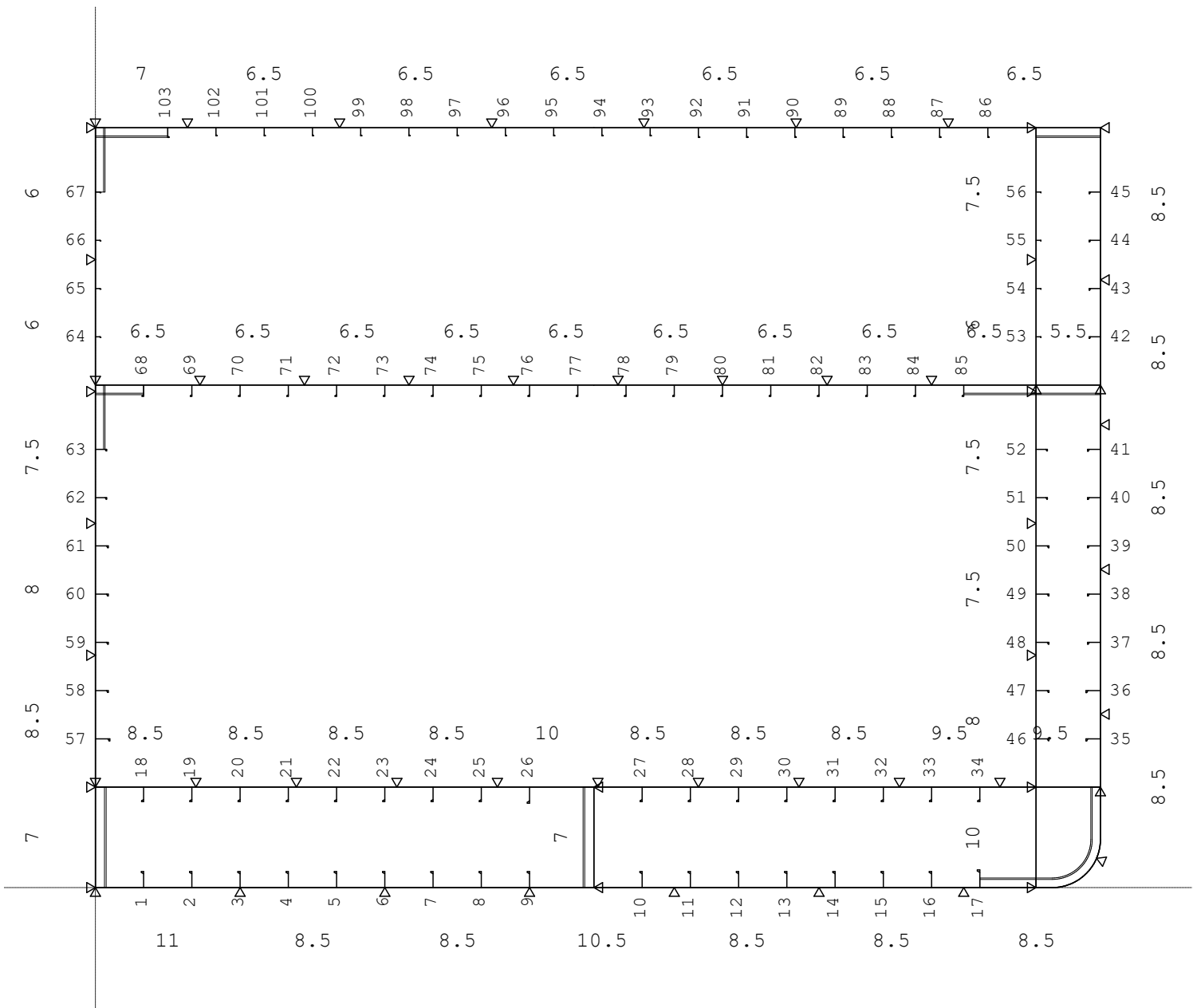
Database: C:\Documents\DNV\Nauticus\Vessels\Brønnbåt\WFDpot\Fwd RSW #110.pw

Main Dimensions

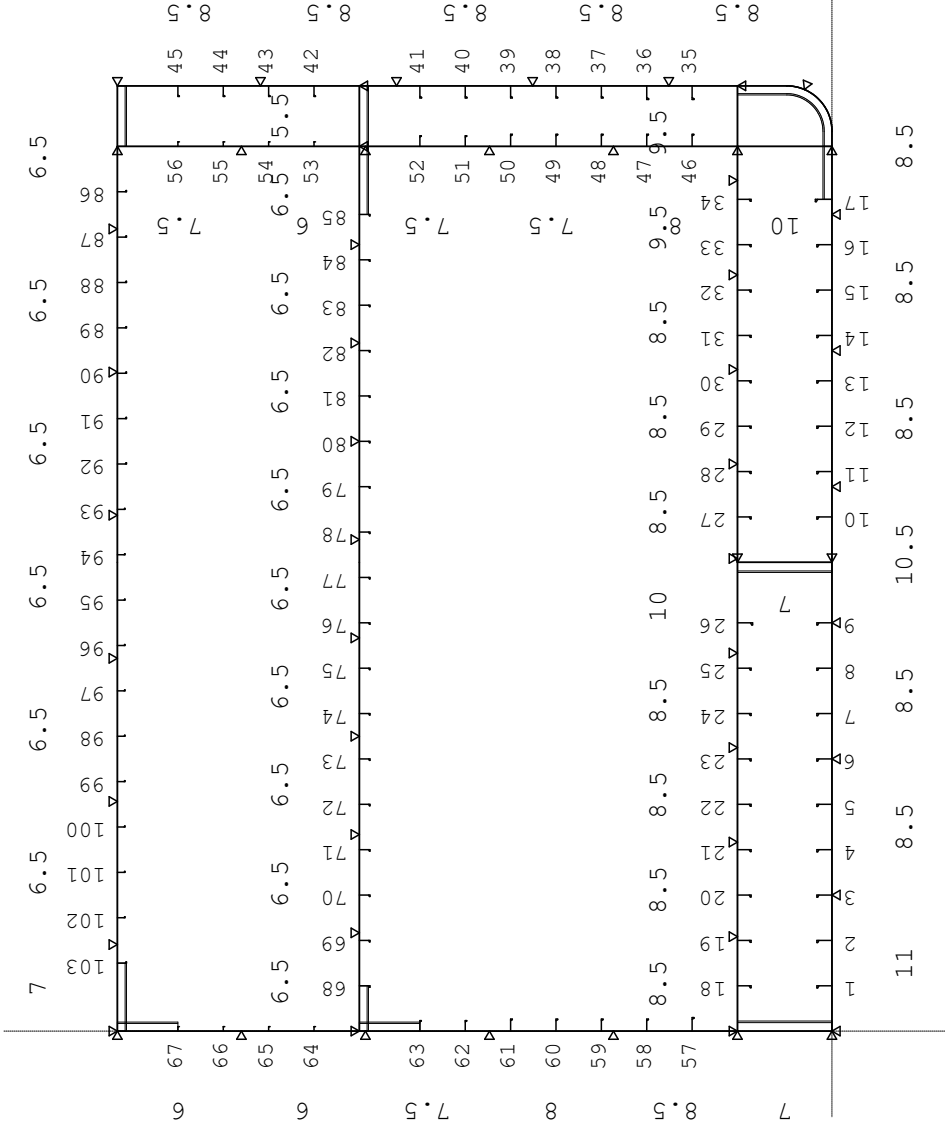
Length betw. perpendiculars, Lbp	(m) :	84.350
Rule length, L	(m) :	84.350
Breadth moulded, B	(m) :	25.000
Depth moulded, D	(m) :	9.450
Draught moulded, T	(m) :	7.000
Block coefficient, Cb	:	0.798
Min. design draught at AP	(m) :	3.464
Min. design draught at FP	(m) :	1.395
Waterplane area coefficient, Cwp	:	0.954

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Profiles:			Steel	
Nos	Type	Dimensions		
Outer Shell				
1 - 11	HPbulb	200 x 10		
12 - 16	HPbulb	200 x 11		
17	HPbulb	220 x 9		
35	HPbulb	180 x 9		
36	HPbulb	180 x 8		
37 - 38	HPbulb	160 x 11		
39	HPbulb	160 x 9		
40 - 41	HPbulb	160 x 8		
42	HPbulb	140 x 8		
43 - 44	HPbulb	140 x 7		
45	HPbulb	140 x 9		
86	HPbulb	120 x 7		
87 - 92	HPbulb	120 x 6		
93 - 102	HPbulb	100 x 8		
103	HPbulb	120 x 6		
Inner Bottom				
18 - 25	HPbulb	180 x 9		
26	HPbulb	200 x 8.5		
27 - 33	HPbulb	180 x 9		
34	HPbulb	180 x 11		
'tween deck 6250				
68 - 84	HPbulb	140 x 7		
85	HPbulb	140 x 10		
Inner Side 11700				
46	HPbulb	160 x 11.5		
47	HPbulb	160 x 11		
48	HPbulb	160 x 9		
49	HPbulb	160 x 8		
50	HPbulb	160 x 7		
51 - 52	HPbulb	140 x 9		
53 - 56	HPbulb	60 x 6		
Long. Bulkhead 0				
57	HPbulb	180 x 8		
58	HPbulb	160 x 11.5		
59	HPbulb	160 x 11		
60	HPbulb	160 x 9		
61	HPbulb	160 x 7		
62 - 63	HPbulb	140 x 10		
64 - 67	HPbulb	60 x 6		



Nauticus Hull Section Scantlings	Vessel ID: Brønnbåt Date/Sign : 2020-03-30 ingried Main dim. : Lpp=84.35 B=25 D=9.45 T=7 {m} CB=0.798	Scale: 1:100
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1 Rule Reference

NOTE: THE FOLLOWING REQUIREMENTS ARE NOT INCLUDED:

- Floors and brackets
- Ice strengthening of hull
- Slamming and bow impact
- Tugs, Supply vessels and other offshore/harbour vessels
- Class notation ICM (Increased corrosion margins)

2 Input Data

Main Dimensions

Length betw. perpendiculars, Lbp	(m) :	84.350
Rule length, L	(m) :	84.350
Breadth moulded, B	(m) :	25.000
Depth moulded, D	(m) :	9.450
Draught moulded, T	(m) :	7.000
Block coefficient, Cb	:	0.798
Min. design draught at AP	(m) :	3.464
Min. design draught at FP	(m) :	1.395
Waterplane area coefficient, Cwp	:	0.954

General Ship Data

Maximum service speed, V	(knots) :	9.000
Bilge keel?	:	Yes
Active roll damping facility?	:	No
Period of roll, Tr	(s) :	0.000
Metacentric height, GM	(m) :	0.000
Homogeneous stowage rate, roDC	(t/m3) :	0.000
No of decks above 0.7D from baseline	:	2
Height from base to top of ship side	(mm) :	9450

Areas forward of 0.2L from FP:

- Projected area of the upper deck	(m2) :	0.000
- Area of the waterplane	(m2) :	0.000
Height from base to deck line at FP	(mm) :	0
Speed/flare factor, Caf	:	0.000

Continuous Strength Members above Strength Deck

None

Class notations

Hull Section Material

Location	Amidships			Current cross section		
	Group	Yield N/mm2	f1	Group	Yield N/mm2	f1
- Above strength deck	NV-NS	235	1.00	NV-NS	235	1.00
- Strength deck	NV-NS	235	1.00	NV-NS	235	1.00
- Between bottom and deck	NV-NS	235	1.00	NV-NS	235	1.00
- Bottom	NV-NS	235	1.00	NV-NS	235	1.00

Transverse Bulkhead Positions (Frame No)

Aft peak bulkhead	: Not given.
Engine room bulkhead	: Not given.
Fore peak bulkhead	: Not given.

Hull girder Bending Moments

(From curves given as input in Brix Explorer)
Considered cross-section: 66.000 m from AP.

Hull girder bending moments:		Amidships	Current cross section
- Still water, sagging	(kNm) :	0	0
- Still water, hogging	(kNm) :	206381	149658
- Wave, sagging	(kNm) :	0	0
- Wave, hogging	(kNm) :	0	0
- Wave, horizontal	(kNm) :	0	0
Hull girder shear forces			
- Still water, positive	(kN) :	0	0
- Still water, negative	(kN) :	0	0

Spacing between Transverse Frames

(Where the frame spacing changes along the ship)

Position of frame 0: 0 mm aft of A.P..

Frame Nos where the spacing changes:	
Frame No	Spacing forward (mm)
0	600

3 Panel Geometry

Node No	y (mm)	z (mm)	Radius (mm)	Position
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Outer Shell

0	0			
6200	0			Bottom
11700	0			Bottom
11900	0			Bottom
12500	600		600	Bilge
12500	1250			Side
12500	6250			Side
12500	9450			Side
11700	9450			Strength deck
6200	9450			Strength deck
0	9450			Strength deck

Inner Bottom

0	1250			
6200	1250			Inner bottom
11700	1250			Inner bottom
12500	1250			Inner bottom

'tween deck 6250

0	6250			
6200	6250			'tween deck
11700	6250			'tween deck
12500	6250			'tween deck

Inner Side 11700

11700	0			
11700	1250			Inner side
11700	6250			Inner side
11700	9450			Inner side

Long. Bulkhead 0

0	0			
0	1250			Longitudinal bulkhead
0	6250			Longitudinal bulkhead
0	9450			Longitudinal bulkhead

Long. Bulkhead 6200

6200	0			
6200	1250			Longitudinal bulkhead

4 Node Co-ordinates

Node No	y (mm)	z (mm)
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6200	1250
6200	6250
6200	9450
6200	0
11700	1250
11700	6250
11700	9450
11700	0
12500	6250
0	6250
12500	1250
0	1250
12500	9450
0	9450
12500	600
11900	0
0	0

5 Layout of Plates and Profiles

Plate		Y ₁ (mm)	Z ₁ (mm)	Y ₂ (mm)	Z ₂ (mm)	—	B (mm)	BCUT (mm)	T (mm)	Steel	Area cm ²
Stiff	No	Y	Z	Y _{CG}	Z _{CG}	Typ	H	BF	T	TF (mm)	Area

Outer Shell (Bending efficiency: 100%)

PL	1	0	0	1800	0		1800	0	11.0	std	198.00
PL	2	1800	0	3600	0		1800	0	8.5	std	153.00
PL	3	3600	0	5400	0		1800	0	8.5	std	153.00
PL	4	5400	0	7200	0		1800	0	10.5	std	189.00
PL	5	7200	0	9000	0		1800	0	8.5	std	153.00
PL	6	9000	0	10800	0		1800	0	8.5	std	153.00
PL	7	10800	0	12452	364		1800	0	8.5	std	153.00
PL	8	12452	364	12500	2158		1800	0	8.5	std	153.00
PL	9	12500	2158	12500	3958		1800	0	8.5	std	153.00
PL	10	12500	3958	12500	5758		1800	0	8.5	std	153.00
PL	11	12500	5758	12500	7558		1800	0	8.5	std	153.00
PL	12	12500	7558	12500	9450		1892	0	8.5	std	160.86
PL	13	12500	9450	10608	9450		1892	0	6.5	std	123.01
PL	14	10608	9450	8715	9450		1892	0	6.5	std	123.01
PL	15	8715	9450	6823	9450		1892	0	6.5	std	123.01
PL	16	6823	9450	4930	9450		1892	0	6.5	std	123.01
PL	17	4930	9450	3038	9450		1892	0	6.5	std	123.01
PL	18	3038	9450	1145	9450		1892	0	6.5	std	123.01
PL	19	1145	9450	0	9450		1145	0	7.0	std	80.16

ST	1	600	0	596	120	20	200	0	10.0	0.0	25.66
ST	2	1200	0	1196	120	20	200	0	10.0	0.0	25.66
ST	3	1800	0	1796	120	20	200	0	10.0	0.0	25.66
ST	4	2400	0	2396	120	20	200	0	10.0	0.0	25.66
ST	5	3000	0	2996	120	20	200	0	10.0	0.0	25.66
ST	6	3600	0	3596	120	20	200	0	10.0	0.0	25.66
ST	7	4200	0	4196	120	20	200	0	10.0	0.0	25.66
ST	8	4800	0	4796	120	20	200	0	10.0	0.0	25.66
ST	9	5400	0	5396	120	20	200	0	10.0	0.0	25.66
ST	10	6800	0	6796	120	20	200	0	10.0	0.0	25.66
ST	11	7400	0	7396	120	20	200	0	10.0	0.0	25.66
ST	12	8000	0	7996	118	20	200	0	11.0	0.0	27.66
ST	13	8600	0	8596	118	20	200	0	11.0	0.0	27.66
ST	14	9200	0	9196	118	20	200	0	11.0	0.0	27.66
ST	15	9800	0	9796	118	20	200	0	11.0	0.0	27.66
ST	16	10400	0	10396	118	20	200	0	11.0	0.0	27.66
ST	17	11000	0	10995	135	20	220	0	9.0	0.0	26.80
ST	35	12500	1850	12393	1847	20	180	0	9.0	0.0	20.66
ST	36	12500	2450	12391	2447	20	180	0	8.0	0.0	18.86
ST	37	12500	3050	12408	3048	20	160	0	11.0	0.0	21.00
ST	38	12500	3650	12408	3648	20	160	0	11.0	0.0	21.00
ST	39	12500	4250	12406	4247	20	160	0	9.0	0.0	17.80
ST	40	12500	4850	12405	4847	20	160	0	8.0	0.0	16.20
ST	41	12500	5450	12405	5447	20	160	0	8.0	0.0	16.20
ST	42	12500	6850	12418	6848	20	140	0	8.0	0.0	13.83
ST	43	12500	7450	12417	7448	20	140	0	7.0	0.0	12.43
ST	44	12500	8050	12417	8048	20	140	0	7.0	0.0	12.43
ST	45	12500	8650	12419	8648	20	140	0	9.0	0.0	15.23
ST	86	11100	9450	11102	9379	20	120	0	7.0	0.0	10.52
ST	87	10500	9450	10502	9378	20	120	0	6.0	0.0	9.32
ST	88	9900	9450	9902	9378	20	120	0	6.0	0.0	9.32
ST	89	9300	9450	9302	9378	20	120	0	6.0	0.0	9.32
ST	90	8700	9450	8702	9378	20	120	0	6.0	0.0	9.32
ST	91	8100	9450	8102	9378	20	120	0	6.0	0.0	9.32
ST	92	7500	9450	7502	9378	20	120	0	6.0	0.0	9.32
ST	93	6900	9450	6902	9392	20	100	0	8.0	0.0	9.75
ST	94	6300	9450	6302	9392	20	100	0	8.0	0.0	9.75
ST	95	5700	9450	5702	9392	20	100	0	8.0	0.0	9.75
ST	96	5100	9450	5102	9392	20	100	0	8.0	0.0	9.75
ST	97	4500	9450	4502	9392	20	100	0	8.0	0.0	9.75
ST	98	3900	9450	3902	9392	20	100	0	8.0	0.0	9.75
ST	99	3300	9450	3302	9392	20	100	0	8.0	0.0	9.75
ST	100	2700	9450	2702	9392	20	100	0	8.0	0.0	9.75
ST	101	2100	9450	2102	9392	20	100	0	8.0	0.0	9.75
ST	102	1500	9450	1502	9392	20	100	0	8.0	0.0	9.75
ST	103	900	9450	902	9378	20	120	0	6.0	0.0	9.32

Inner Bottom (Bending efficiency: 100%)

PL	1	0	1250	1250	1250		1250	0	8.5	std	106.25
PL	2	1250	1250	2500	1250		1250	0	8.5	std	106.25
PL	3	2500	1250	3750	1250		1250	0	8.5	std	106.25
PL	4	3750	1250	5000	1250		1250	0	8.5	std	106.25
PL	5	5000	1250	6250	1250		1250	0	10.0	std	125.00
PL	6	6250	1250	7500	1250		1250	0	8.5	std	106.25

Layout of Plates and Profiles (cont.)

Plate		Y ₁ (mm)	Z ₁ (mm)	Y ₂ (mm)	Z ₂ (mm)	—	B (mm)	BCUT (mm)	T (mm)	Steel	Area cm ²
Stiff	No	Y	Z	Y _{CG}	Z _{CG}	Typ	H	BF	T	TF (mm)	Area
PL	7	7500	1250	8750	1250		1250	0	8.5	std	106.25
PL	8	8750	1250	10000	1250		1250	0	8.5	std	106.25
PL	9	10000	1250	11250	1250		1250	0	9.5	std	118.75
PL	10	11250	1250	12500	1250		1250	0	9.5	std	118.75
ST	18	600	1250	597	1143	20	180	0	9.0	0.0	20.66
ST	19	1200	1250	1197	1143	20	180	0	9.0	0.0	20.66
ST	20	1800	1250	1797	1143	20	180	0	9.0	0.0	20.66
ST	21	2400	1250	2397	1143	20	180	0	9.0	0.0	20.66
ST	22	3000	1250	2997	1143	20	180	0	9.0	0.0	20.66
ST	23	3600	1250	3597	1143	20	180	0	9.0	0.0	20.66
ST	24	4200	1250	4197	1143	20	180	0	9.0	0.0	20.66
ST	25	4800	1250	4797	1143	20	180	0	9.0	0.0	20.66
ST	26	5400	1250	5396	1128	20	200	0	8.5	0.0	22.66
ST	27	6800	1250	6797	1143	20	180	0	9.0	0.0	20.66
ST	28	7400	1250	7397	1143	20	180	0	9.0	0.0	20.66
ST	29	8000	1250	7997	1143	20	180	0	9.0	0.0	20.66
ST	30	8600	1250	8597	1143	20	180	0	9.0	0.0	20.66
ST	31	9200	1250	9197	1143	20	180	0	9.0	0.0	20.66
ST	32	9800	1250	9797	1143	20	180	0	9.0	0.0	20.66
ST	33	10400	1250	10397	1143	20	180	0	9.0	0.0	20.66
ST	34	11000	1250	10997	1145	20	180	0	11.0	0.0	24.26

'tween deck 6250 (Bending efficiency: 100%)

PL	1	0	6250	1300	6250		1300	0	6.5	std	84.50
PL	2	1300	6250	2600	6250		1300	0	6.5	std	84.50
PL	3	2600	6250	3900	6250		1300	0	6.5	std	84.50
PL	4	3900	6250	5200	6250		1300	0	6.5	std	84.50
PL	5	5200	6250	6500	6250		1300	0	6.5	std	84.50
PL	6	6500	6250	7800	6250		1300	0	6.5	std	84.50
PL	7	7800	6250	9100	6250		1300	0	6.5	std	84.50
PL	8	9100	6250	10400	6250		1300	0	6.5	std	84.50
PL	9	10400	6250	11700	6250		1300	0	6.5	std	84.50
PL	10	11700	6250	12500	6250		800	0	5.5	std	44.00
ST	68	600	6250	598	6167	20	140	0	7.0	0.0	12.43
ST	69	1200	6250	1198	6167	20	140	0	7.0	0.0	12.43
ST	70	1800	6250	1798	6167	20	140	0	7.0	0.0	12.43
ST	71	2400	6250	2398	6167	20	140	0	7.0	0.0	12.43
ST	72	3000	6250	2998	6167	20	140	0	7.0	0.0	12.43
ST	73	3600	6250	3598	6167	20	140	0	7.0	0.0	12.43
ST	74	4200	6250	4198	6167	20	140	0	7.0	0.0	12.43
ST	75	4800	6250	4798	6167	20	140	0	7.0	0.0	12.43
ST	76	5400	6250	5398	6167	20	140	0	7.0	0.0	12.43
ST	77	6000	6250	5998	6167	20	140	0	7.0	0.0	12.43
ST	78	6600	6250	6598	6167	20	140	0	7.0	0.0	12.43
ST	79	7200	6250	7198	6167	20	140	0	7.0	0.0	12.43
ST	80	7800	6250	7798	6167	20	140	0	7.0	0.0	12.43
ST	81	8400	6250	8398	6167	20	140	0	7.0	0.0	12.43
ST	82	9000	6250	8998	6167	20	140	0	7.0	0.0	12.43
ST	83	9600	6250	9598	6167	20	140	0	7.0	0.0	12.43
ST	84	10200	6250	10198	6167	20	140	0	7.0	0.0	12.43
ST	85	10800	6250	10798	6170	20	140	0	10.0	0.0	16.63

Inner Side 11700 (Bending efficiency: 100%)

PL	1	11700	0	11700	1250		1250	0	10.0	std	125.00
PL	2	11700	1250	11700	2890		1640	0	8.0	std	131.20
PL	3	11700	2890	11700	4530		1640	0	7.5	std	123.00
PL	4	11700	4530	11700	6170		1640	0	7.5	std	123.00
PL	5	11700	6170	11700	7810		1640	0	6.0	std	98.40
PL	6	11700	7810	11700	9450		1640	0	7.5	std	123.00
ST	46	11700	1850	11791	1848	20	160	0	11.5	0.0	21.80
ST	47	11700	2450	11792	2448	20	160	0	11.0	0.0	21.00
ST	48	11700	3050	11794	3047	20	160	0	9.0	0.0	17.80
ST	49	11700	3650	11795	3647	20	160	0	8.0	0.0	16.20
ST	50	11700	4250	11797	4247	20	160	0	7.0	0.0	14.60
ST	51	11700	4850	11781	4848	20	140	0	9.0	0.0	15.23
ST	52	11700	5450	11781	5448	20	140	0	9.0	0.0	15.23
ST	53	11700	6850	11736	6848	20	60	0	6.0	0.0	4.71
ST	54	11700	7450	11736	7448	20	60	0	6.0	0.0	4.71
ST	55	11700	8050	11736	8048	20	60	0	6.0	0.0	4.71

Layout of Plates and Profiles (cont.)

Plate		Y ₁ (mm)	Z ₁ (mm)	Y ₂ (mm)	Z ₂ (mm)	—	B (mm)	BCUT (mm)	T (mm)	Steel	Area cm ²
Stiff	No	Y	Z	Y _{CG}	Z _{CG}	Typ	H	BF	T	TF (mm)	Area

ST	56	11700	8650	11736	8648	20	60	0	6.0	0.0	4.71
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Long. Bulkhead 0 (Bending efficiency: 100%)

PL	1	0	0	0	1250		1250	0	7.0	std	87.50
PL	2	0	1250	0	2890		1640	0	8.5	std	139.40
PL	3	0	2890	0	4530		1640	0	8.0	std	131.20
PL	4	0	4530	0	6170		1640	0	7.5	std	123.00
PL	5	0	6170	0	7810		1640	0	6.0	std	98.40
PL	6	0	7810	0	9450		1640	0	6.0	std	98.40
ST	57	0	1850	109	1847	20	180	0	8.0	0.0	18.86
ST	58	0	2450	91	2448	20	160	0	11.5	0.0	21.80
ST	59	0	3050	92	3048	20	160	0	11.0	0.0	21.00
ST	60	0	3650	94	3647	20	160	0	9.0	0.0	17.80
ST	61	0	4250	97	4247	20	160	0	7.0	0.0	14.60
ST	62	0	4850	80	4848	20	140	0	10.0	0.0	16.63
ST	63	0	5450	80	5448	20	140	0	10.0	0.0	16.63
ST	64	0	6850	36	6848	20	60	0	6.0	0.0	4.71
ST	65	0	7450	36	7448	20	60	0	6.0	0.0	4.71
ST	66	0	8050	36	8048	20	60	0	6.0	0.0	4.71
ST	67	0	8650	36	8648	20	60	0	6.0	0.0	4.71

Long. Bulkhead 6200 (Bending efficiency: 100%)

PL	1	6200	0	6200	1250		1250	0	7.0	std	87.50
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6 Layout of transverse stiffeners

Stiffener	(mm)	y1 (mm)	z1 (mm)	y2 (mm)	z2 (mm)	Type	(mm)	h (mm)	bf (mm)	t (mm)	tf (mm)
Bracket	Arm1	h1	bf1	t1	tf1		Arm2	h2	bf2	t2	tf2

Outer Shell

Tstif		11000	0	11700	0	20		120		7.0	
Tstif		11700	0	12500	1250	20		120		7.0	
Tstif		12500	9450	11700	9450	20		120		7.0	
Tstif		900	9450	0	9450	20		120		7.0	

'tween deck 6250

Tstif		0	6250	600	6250	20		120		7.0	
Tstif		10800	6250	11700	6250	20		120		7.0	
Tstif		11700	6250	12500	6250	20		120		7.0	

Long. Bulkhead 0

Girder		0	0	0	1250	0		0		0.0	
Tstif		0	5450	0	6250	20		120		7.0	
Tstif		0	8650	0	9450	20		120		7.0	

Long. Bulkhead 6200

Girder		6200	0	6200	1250	0		0		0.0	
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7 Cross-Sectional Area

Plates

Panels:	NS-Steel		HS-Steel		Total	
	Effective cm ²	Gross cm ²	Effective cm ²	Gross cm ²	Effective cm ²	Gross cm ²
Outer Shell	5486.2	5486.2	0.0	0.0	5486.2	5486.2
Inner Bottom	2212.5	2212.5	0.0	0.0	2212.5	2212.5
'tween deck 6250	1609.0	1609.0	0.0	0.0	1609.0	1609.0
Inner Side 11700	1447.2	1447.2	0.0	0.0	1447.2	1447.2
Long. Bulkhead 0	677.9	677.9	0.0	0.0	677.9	677.9
Long. Bulkhead 6200	175.0	175.0	0.0	0.0	175.0	175.0
TOTAL AREA	11607.8	11607.8	0.0	0.0	11607.8	11607.8

Profiles

Panels:	NS-Steel		HS-Steel		Total	
	Effective cm ²	Gross cm ²	Effective cm ²	Gross cm ²	Effective cm ²	Gross cm ²
Outer Shell	1612.5	1612.5	0.0	0.0	1612.5	1612.5
Inner Bottom	713.6	713.6	0.0	0.0	713.6	713.6
'tween deck 6250	455.7	455.7	0.0	0.0	455.7	455.7
Inner Side 11700	281.4	281.4	0.0	0.0	281.4	281.4
Long. Bulkhead 0	146.2	146.2	0.0	0.0	146.2	146.2
Long. Bulkhead 6200	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL AREA	3209.5	3209.5	0.0	0.0	3209.5	3209.5

DESCRIPTION:

Gross Results based on the given scantlings.

Effective Results based on the effective cross-sectional area, as follows:
Possible cut-outs are subtracted (plates only).
The area of plates and stiffeners are multiplied by the given bending efficiency for the related panel.

8 Cross-Sectional Data

	EFFECTIVE Cut-outs subtracted	GROSS Cut-outs disreg.
Cross sectional area of the longitudinal elements (cm2) :	14817.2	14817.2
Position of the centroid: Ycg (mm) :	1	1
Position of the centroid: Zcg (mm) :	3775	3775
Moment of inertia about the horz. neutral axis, I _h (m4) :	17.488	17.488
Moment of inertia about the vert. neutral axis, I _v (m4) :	105.156	105.156
Product of inertia about the neutral axes, I _{hv} (m4) :	-0.000	-0.000
<hr/>		
SECTION MODULUS, BOTTOM (z = 0 mm) (m3) :	4.632	4.632
SECTION MODULUS, DECK LINE (z = 9449 mm) (m3) :	3.082	3.082
SECTION MODULUS, TOP (z = 9450 / 9450 mm) * (m3) :	3.082	3.082
SECTION MODULUS, AT SIDE (y = 12500 mm) (m3) :	8.413	8.413
<hr/>		
First moment of the area above the neutral axis, S (cm3) :	2321957.2	2321957.2
I/S (cm) :	753	753

DESCRIPTION:

Gross Results based on the given scantlings.

Effective Results based on the effective cross-sectional area, as follows:
Possible cut-outs are subtracted (plates only).
The area of plates and stiffeners are multiplied by the given bending efficiency for the related panel.

9 Design Bending Moments

AMIDSHIPS	SAGGING (kNm)	HOGGING (kNm)
Still water bending moments:		
- Standard values according to Rules, Mso	116872	116872
- Given as input in Brix Explorer (curves)	0	206381
Design still water bending moments, Ms	116872	206381
Design wave bending moments, Mw	195806 (Rules)	180168 (Rules)
AT ACTUAL POSITION (66.0 m from AP)	SAGGING (kNm)	HOGGING (kNm)
Still water bending moments:		
- Standard values according to Rules, Ms	84750	84750
- Given as input in Brix Explorer (curves)	0	149658
- Given as input (Design Bending Moments dialog).....	0	0
Design still water bending moments, Ms	84750	149658
Design wave bending moments, Mw	121705 (Rules)	111985 (Rules)
Design wave bending moments, Mw for buckling check	121705 (Rules)	111985 (Rules)

10 Hull Girder Strength Requirements

	BOTTOM	DECK	ABOVE DECK	SIDE
Material strength group	NV-NS	NV-NS	NV-NS	NV-NS
Yield point of material (N/mm ²) :	235	235	235	235
Material factor, f1.....	1.00	1.00	1.00	1.00
Section modulus ratio, Za/Zr.....	1.000	1.000		

Based on:

Za	0.000	0.000
Zr	2.209	2.209

Note: Za/Zr must be specified for sections outside the 0.4 L midship area.

Speed factor, Cav	0.000
Speed/flare factor, Caf	0.000
Wave coefficient, Cw	6.681
Wave coefficient, Cwo	7.556
Wave coefficient, Cwu	6.681

MIDSHIP SECTION	BOTTOM	DECK
Minimum section modulus, Zo	(m3) : 2.01325	2.01325
Section modulus based on given moments (kNm):		
- Sagging (still w = 116872, wave = 195806)	(m3) : 1.78673	1.78673
- Hogging (still w = 206381, wave = 180168)	(m3) : 2.20885	2.20885
Rule section modulus amidships	(m3): 2.20885	2.20885

AT ACTUAL POSITION (66.0 m from AP) (Not a midship section)

	BOTTOM	DECK
Rule section modulus (reduced outside 0.4L amidships).....	(m3) : 1.60175	1.60175
Rule section modulus	(m3): 1.60175	1.60175

GUIDANCE:

The required section modulus along the hull girder will normally be satisfied when calculated for the midship section only, provided the following rules for tapering are complied with:

- Scantlings at bottom and deck are kept unaltered within 0.4L amidships.
- Scantlings outside 0.4L amidships are gradually reduced to the local requirements at the ends, and the same material strength group is applied over the full length of the ship.

11 Hull Girder Strength Summary

	ACTUAL	RULE	STATUS (%) (100=Rule)
Cross-sectional area (cm2) :	14817		
Height to the neutral axis (mm) :	3775		
Section modulus, bottom (m3) :	4.632	1.602	289.2
Section modulus, deck line (z = 9450 mm)..... (m3) :	3.082	1.602	192.4
Material factor, f1, strength deck	1.00		
Material factor, f1, bottom	1.00		

11.1 Variation of the section modulus and moment of inertia

Change at bottom	dZb dZd dl	Change at deck				
		-100 cm2	-1 mm	0	+ 1 mm	+100 cm2
-100 cm2	dZb	-0.104	-0.164	-0.065	0.026	-0.028
	dZd	-0.088	-0.204	-0.010	0.183	0.067
	dl	-0.455	-0.946	-0.134	0.651	0.183
-1 mm	dZb	-0.226	-0.285	-0.188	-0.099	-0.152
	dZd	-0.107	-0.223	-0.030	0.162	0.047
	dl	-0.707	-1.190	-0.391	0.381	-0.079
0	dZb	-0.039	-0.100	0.000	0.092	0.038
	dZd	-0.078	-0.194	0.000	0.194	0.078
	dl	-0.324	-0.819	0.000	0.792	0.320
+1 mm	dZb	0.148	0.085	0.188	0.283	0.227
	dZd	-0.050	-0.167	0.028	0.224	0.106
	dl	0.044	-0.462	0.376	1.188	0.704
+100 cm2	dZb	0.026	-0.036	0.065	0.158	0.103
	dZd	-0.068	-0.184	0.010	0.204	0.088
	dl	-0.195	-0.694	0.132	0.931	0.455

Bottom plating: 1 mm = 288.0 cm2. 100 cm2 = 0.3 mm.
Deck plating: 1 mm = 250.0 cm2. 100 cm2 = 0.4 mm.

EXPLANATION:
Change at bottom Assumed change to the bottom and bilge plating
Change at deck Assumed change to the deck plating

dZb Resulting change in section modulus, bottom
dZd do., deck
dl Resulting change in moment of inertia

12 Compartments and Loads

12.1 Compartment Data I

Ref.	Comp. group (Comp. type)	Comp No	Frame No aft	Frame No fwd	Restr. filling (*)	Coated (*)	Volume (m3)	Contents WB / Oil / Liq / Hliq / Bulk
1	void						0	
2	void						0	
3	Ballast						0	WB
4	RSW						0	
5	void						0	
6	void						0	
7	void						0	

12.2 Compartment Data II

Ref.	Comp. No	Length (mm)	Sloshing length (mm)	Sloshing breadth (mm)	Hatch length (mm)	Hatch breadth (mm)	Top of hatch (mm)	Top of air pipe (mm)	WL in dam'gd cond (mm)	Heated cargo?	Over- pressure dpDyn (kN/m2)
1		5000	0	0	0	0	0	1250	0	No	0.0
2		5000	0	0	0	0	0	1250	0	No	0.0
3		5000	0	0	0	0	0	8250	0	No	25.0
4		17092	0	0	0	0	0	0	0	No	0.0
5		5000	0	0	0	0	0	9450	0	No	0.0
6		5000	0	0	0	0	0	9450	0	No	0.0
7		5000	0	0	0	0	0	9450	0	No	0.0

12.3 Compartment Data III

Ref.	Comp. No	Designed for BWE with flow- through?	Centre of gravity (m)			Accelerations in the centre of gravity (m/s ²)					
			From A.P. x	From CL y	Above baseline z	Full load			Ballast		
						Vert. a _v	Horz. a _t	Long. a _{ing}	Vert. a _v	Horz. a _t	Long. a _{ing}
1		No	67.500	3.100	0.625	5.649	4.048	2.167	5.649	4.048	2.167
2		No	67.500	8.950	0.625	5.649	4.048	2.167	5.649	4.048	2.167
3		No	67.500	5.850	3.750	5.649	4.287	1.634	5.649	4.287	1.634
4		No	73.500	5.850	7.850	6.380	4.602	1.998	6.380	4.602	1.998
5		No	67.500	12.078	0.666	5.649	4.051	2.160	5.649	4.051	2.160
6		No	67.500	12.100	3.750	5.649	4.287	1.634	5.649	4.287	1.634
7		No	67.500	12.100	7.850	5.649	4.602	1.998	5.649	4.602	1.998

12.4 Bulk Cargo and Liquid Loads

Ref.	Comp. group (Comp type)	Comp. No	Load No	Load type	Density t/m ³	Filling height mm	Pressure valve setting kN/m ²		Mass t	Angle of repose degrees	Perme- ability
							S	S+D			
1	void										
2	void										
3	Ballast		1	WB	1.025	6250	25.0	0.0			
4	RSW										
5	void										
6	void										
7	void										

12.5 Double Bottom Stresses and Hull Girder Bending Moments

Ref.	Comp. group (Comp. type)	Comp. No	Load No	Load type	Dbl. bottom stresses		Still water bending moments - = sagging, + = hogging kNm
					Bottom N/mm ²	Inner bot. N/mm ²	
1	void						
2	void						
3	Ballast		1	WB	0	0	0.00
4	RSW						
5	void						
6	void						
7	void						

Ref.	Comp. group (Comp. type)	Comp. No	Load No	Load type	Dbl. bottom stresses		Still water bending moments - = sagging, + = hogging kNm
					Bottom N/mm ²	Inner bot. N/mm ²	

13 Deck loads (general cargo)

Load No.	Stowage rate, ro t/m ³	Stowage height, H mm	Extent (dist. from CL)		Panel
			y_1 mm	y_2 mm	
1	0.10	7800	0	12500	Outer Shell
1	0.02	2600	0	11700	'tween deck 6250

14 Summary of data used in the Local Rule Requirements

Distance from AP to considered section	(m) :	66.000		
Moment of inertia about the horz. neutral axis, I _h	(m ⁴) :	17.488		
Moment of inertia about the vert. neutral axis, I _v	(m ⁴) :	105.156		
Section modulus, bottom	(m ³) :	4.632		
Section modulus, deck line (z = 9450 mm).....	(m ³) :	3.082		
Height from base line to the neutral axis	(mm) :	3775		
Section modulus ratio, Z _a /Z _r				
Z _a /Z _r , bottom.....	(Rules) :	1.000		
Z _a /Z _r , deck.....	(Rules) :	1.000		
DESIGN BENDING MOMENTS:				
Still water bending moment, sagging	(kNm) :	84750	(Rules)	
Still water bending moment, hogging	(kNm) :	149658	(Input)	
Wave bending moment, sagging	(kNm) :	121705	(Rules)	
Wave bending moment, hogging	(kNm) :	111985	(Rules)	
Wave bending moment for buckling check, sagging	(kNm) :	121705	(Rules)	
Wave bending moment for buckling check, hogging	(kNm) :	111985	(Rules)	
Shear forces, seagoing condition:				
Positive shear forces (still water / wave / total).....	(kN) :	0 /	0 /	0
Negative shear forces (still water / wave / total).....	(kN) :	0 /	-0 /	-0

NOTE - Sloshing pressure

There are tanks where the sloshing length $L_s > 0.13L$.
The sloshing pressure acc. to DNV Rules is valid for L_s in the range 10 m to $0.13L$,
so L_s is outside the range where the sloshing pressure is valid.
However, the sloshing pressure is included in the calculations.

The sloshing pressure is applicable within $L_s/4$ from the tank ends, but is used in this cross-section also.

NOTE - Impact pressure

The impact pressure is not included in the calculations (ref. DNV Rules Pt.3 Ch.1 Sec.4 C305).
Here the sloshing length $L_s > 0.13L$ and/or the sloshing breadth $B_s > 0.56B$.
The impact pressure should therefore be considered by the user.

15 Local Rule Requirements - Plates

Plate No	ACT	t _{act} mm	Steel	t _k mm	t _{kb} mm		Ω m ²	Eff (%)	Span mm	Spac mm	τ N/mm ²	σ _F N/mm ²	f ₁
LOC			t _{loc} mm	Pos		Load Ref.		Loc. ref.	y _l mm	z _l mm	Comp ref.	σ N/mm ²	p kN/m ²
BUC			t _{buc} mm	η	ψ	k	c	Buc. ref.	y _b mm	z _b mm	σ _L N/mm ²	σ _c or τ _c N/mm ²	σ _{cr} or τ _{cr} N/mm ²

Outer Shell

Bottom

1	ACT LOC BUC	11.0	std 11.22 5.52	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.32	100 Min compr	2400 300 600	600 0 0	0.0 56.5	235.0 136.5 179.6	1.00 95.8 62.8
2	ACT LOC BUC	8.5	std 8.37 5.52	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.21	100 Min compr	2400 2100 2400	600 0 0	0.0 56.5	235.0 136.5 142.2	1.00 95.8 62.8
3	ACT LOC BUC	8.5	std 8.37 5.52	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.21	100 Min compr	2400 3900 4200	600 0 0	0.0 56.5	235.0 136.5 142.2	1.00 95.8 62.8
4	ACT LOC BUC	10.5	std 10.59 7.36	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.32	100 Lat compr	2400 5800 6200	800 0 0	0.0 56.5	235.0 136.5 126.9	1.00 95.8 62.8
5	ACT LOC BUC	8.5	std 8.37 5.52	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.21	100 Min compr	2400 8900 7200	600 0 0	0.0 56.5	235.0 136.5 142.2	1.00 99.4 62.8
6	ACT LOC BUC	8.5	std 8.37 5.52	0.0 Bottom 0.90	0.0 1.00	Sea 4.00	- 1.21	100 Min compr	2400 10700 9000	600 0 0	0.0 56.5	235.0 136.5 142.2	1.00 101.8 62.8
7	ACT LOC BUC	8.5	std 8.47 5.52	0.0 Bilge 0.90	0.0 1.00	Sea 4.00	- 1.21	100 Lat compr	942 12188 10800	600 t 73 0	0.0 56.5	235.0 101.2 142.2	1.00 103.1 62.8

Side

8	ACT LOC BUC	8.5	std 8.38 4.95	0.0 Bilge 0.90	0.0 0.80	Sea 4.18	- 1.10	100 Lat compr	942 12452 12500	600 t 364 600	0.0 47.5	235.0 101.2 146.2	1.00 100.9 52.8
9	ACT LOC BUC	8.5	std 8.37 3.28	0.0 Side 1.00	0.0 0.82	Sea 4.38	- 1.10	100 Min compr	2400 12500 12500	600 2158 2158	0.0 24.2	235.0 143.2 150.2	1.00 85.2 24.2
10	ACT LOC BUC	8.5	std 8.37 4.32	0.0 Side 1.00	0.0 0.84	Sea 4.32	- 1.20	100 Min compr	2400 12500 12500	800 5758 5758	0.0 23.4	235.0 144.1 90.4	1.00 53.5 23.4
11	ACT LOC BUC	8.5	std 8.37 4.41	0.0 Side 1.00	0.0 0.84	Sea 4.34	- 1.10	100 Min compr	2400 12500 12500	800 5850 7450	0.0 43.4	235.0 143.9 149.4	1.00 52.7 43.4
12	ACT LOC BUC	8.5	std 8.37 7.34	0.0 Side 1.00	0.0 0.86	Sea 4.29	- 1.20	100 Min compr	2400 12500 12500	800 9050 9450	0.0 67.0	235.0 137.3 89.7	1.00 33.0 67.0

Strength deck

13	ACT LOC BUC	6.5	std 6.34 6.55	0.0 Strdk 1.00	0.0	Sea	-	100 Min compr	2400 11400 12500	600 9450 9450	0.0 67.0	235.0 136.5 65.9	1.00 23.7 67.0
14	ACT LOC BUC	6.5	std 6.34 5.70	0.0 Strdk 1.00	0.0 1.00	Sea 4.00	- 1.10	100 Min compr	2400 10200 9900	600 9450 9450	0.0 67.0	235.0 136.5 87.0	1.00 22.4 67.0
15	ACT LOC BUC	6.5	std 6.34 5.70	0.0 Strdk 1.00	0.0 1.00	Sea 4.00	- 1.10	100 Min compr	2400 8400 8100	600 9450 9450	0.0 67.0	235.0 136.5 87.0	1.00 20.5 67.0
16	ACT LOC BUC	6.5	std 6.34 5.70	0.0 Strdk 1.00	0.0 1.00	Sea 4.00	- 1.10	100 Min compr	2400 6600 6823	600 9450 9450	0.0 67.0	235.0 136.5 87.0	1.00 18.5 67.0

Local Rule Requirements - Plates (cont)

Plate No	ACT	t _{act} mm	Steel	t _k mm	t _{kb} mm		Ω m ²	Eff (%)	Span mm	Spac mm	τ N/mm ²	σ _F N/mm ²	f ₁
LOC			t _{loc} mm	Pos		Load Ref.		Loc. ref.	y _l mm	z _l mm	Comp ref.	σ N/mm ²	p kN/m ²
BUC			t _{buc} mm	η	ψ	k	c	Buc. ref.	y _b mm	z _b mm	σ _L N/mm ²	σ _c or τ _c N/mm ²	σ _{cr} or τ _{cr} N/mm ²
17	ACT	6.5	std	0.0	0.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.34	Strdk		Sea		Min	4800	9450		136.5	18.1
	BUC		5.70	1.00	1.00	4.00	1.10	compr	4930	9450	67.0	87.0	67.0
18	ACT	6.5	std	0.0	0.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.34	Strdk		Sea		Min	3000	9450		136.5	18.1
	BUC		5.70	1.00	1.00	4.00	1.10	compr	1145	9450	67.0	87.0	67.0
19	ACT	7.0	std	0.0	0.0		-	100	900	600 t	0.0	235.0	1.00
	LOC		6.34	Strdk		Sea		Min	600	9450		101.2	18.1
	BUC		7.09	1.00				compr	900	9450	67.0	65.3	67.0

Inner Bottom

1	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB rol 2		Min	300	1250	3	148.2	84.7
	BUC		5.51	0.90	1.00	4.00	1.32	compr	600	1250	37.8	115.9	42.0
2	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB rol 2		Min	1500	1250	3	148.2	81.0
	BUC		5.51	0.90	1.00	4.00	1.21	compr	1250	1250	37.8	115.9	42.0
3	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB rol 2		Min	2700	1250	3	148.2	77.4
	BUC		5.51	0.90	1.00	4.00	1.21	compr	2500	1250	37.8	115.9	42.0
4	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB tst 5		Min	3900	1250	3	148.2	75.3
	BUC		5.51	0.90	1.00	4.00	1.21	compr	3750	1250	37.8	115.9	42.0
5	ACT	10.0	std	1.0	1.0		-	100	2400	800	0.0	235.0	1.00
	LOC		10.01	Inbot		WB tst 5		Lat	5800	1250	3	148.2	75.3
	BUC		7.02	0.90	1.00	4.00	1.32	compr	6200	1250	37.8	93.9	42.0
6	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB tst 5		Min	6500	1250	3	148.2	75.3
	BUC		5.51	0.90	1.00	4.00	1.32	compr	6250	1250	37.8	115.9	42.0
7	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB rol 2		Min	8750	1250	3	148.2	76.7
	BUC		5.51	0.90	1.00	4.00	1.21	compr	7500	1250	37.8	115.9	42.0
8	ACT	8.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		8.53	Inbot		WB rol 2		Min	10000	1250	3	148.2	80.4
	BUC		5.51	0.90	1.00	4.00	1.21	compr	8750	1250	37.8	115.9	42.0
9	ACT	9.5	std	1.0	1.0		-	100	2400	700	0.0	235.0	1.00
	LOC		9.34	Inbot		WB rol 2		Lat	11250	1250	3	148.2	84.2
	BUC		6.27	0.90	1.00	4.00	1.32	compr	11250	1250	37.8	109.3	42.0
10	ACT	9.5	std	1.0	1.0		-	100	2400	700	0.0	235.0	1.00
	LOC		9.35	Inbot		WB rol 2		Lat	11350	1250	3	148.2	84.5
	BUC		6.27	0.90	1.00	4.00	1.32	compr	11250	1250	37.8	109.3	42.0

'tween deck 6250

1	ACT	6.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.50	'twdk		WB rol 2		Min	900	6250	3	160.0	32.6
	BUC		4.77	1.00	1.00	4.00	1.10	compr	600	6250	29.2	62.3	29.2
2	ACT	6.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.50	'twdk		WB rol 2		Min	1500	6250	3	160.0	30.8
	BUC		4.77	1.00	1.00	4.00	1.10	compr	1300	6250	29.2	62.3	29.2
3	ACT	6.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.50	'twdk		WB air 4		Min	2700	6250	3	160.0	30.2
	BUC		4.77	1.00	1.00	4.00	1.10	compr	2600	6250	29.2	62.3	29.2
4	ACT	6.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.50	'twdk		WB air 4		Min	3900	6250	3	160.0	30.2
	BUC		4.77	1.00	1.00	4.00	1.10	compr	3900	6250	29.2	62.3	29.2
5	ACT	6.5	std	1.0	1.0		-	100	2400	600	0.0	235.0	1.00
	LOC		6.50	'twdk		WB air 4		Min	5200	6250	3	160.0	30.2
	BUC		4.77	1.00	1.00	4.00	1.10	compr	5200	6250	29.2	62.3	29.2

Local Rule Requirements - Plates (cont)

Plate No	ACT	t _{act} mm	Steel	t _k mm	t _{kb} mm		Ω m ²	Eff (%)	Span mm	Spac mm	τ N/mm ²	σ _F N/mm ²	f ₁	
LOC			t _{loc} mm	Pos		Load Ref.		Loc. ref.	y _l mm	z _l mm	Comp ref.	σ N/mm ²	p kN/m ²	
BUC			t _{buc} mm	η	ψ	k	c	Buc. ref.	y _b mm	z _b mm	σ _L N/mm ²	σ _c or τ _c N/mm ²	σ _{cr} or τ _{cr} N/mm ²	
6	ACT LOC BUC	6.5	std 6.50 4.77	1.0 'twdk 1.00	1.0	WB air 4 4.00	- 1.10	100 Min compr	2400 6900 7200	600 6250 6250	0.0 3 29.2	235.0 160.0 62.3	1.00 30.2 29.2	
7	ACT LOC BUC	6.5	std 6.50 4.77	1.0 'twdk 1.00	1.0		WB air 4 4.00	- 1.10	100 Min compr	2400 8100 8400	600 6250 6250	0.0 3 29.2	235.0 160.0 62.3	1.00 30.2 29.2
8	ACT LOC BUC	6.5	std 6.50 4.77	1.0 'twdk 1.00	1.0			WB rol 2 4.00	- 1.10	100 Min compr	2400 10400 9100	600 6250 6250	0.0 3 29.2	235.0 160.0 62.3
9	ACT LOC BUC	6.5	std 6.50 5.68	1.0 'twdk 1.00	1.0	WB rol 2			- 	100 Min compr	2400 10500 10800	600 6250 6250	0.0 3 29.2	235.0 160.0 40.3
10	ACT LOC BUC	5.5	std 5.50 4.33	0.0 1.00	0.0		-		100 Min compr	800 0 11700	600 0 6250	0.0 29.2	235.0 0.0 47.2	1.00 0.0 29.2
Inner Side 11700														
1	ACT LOC BUC	10.0	std 5.84 10.01	0.0 1.00	0.0 0.67	WB rol 2 4.51	- 1.30	100 Min compr	2400 0 11700	1250 0 0	0.0 56.5	235.0 0.0 56.3	1.00 0.0 56.5	
2	ACT LOC BUC	8.0	std 8.13 5.03	1.0 Insid 1.00	1.0 0.76		WB rol 2 4.51	- 1.20	100 Lat compr	2400 11700 11700	600 1550 1250	0.0 3 37.8	235.0 146.1 113.8	1.00 82.6 37.8
3	ACT LOC BUC	7.5	std 7.34 3.42	1.0 Insid 1.00	1.0 0.82			WB rol 2 4.38	- 1.10	100 Lat compr	2400 11700 11700	600 2890 2890	0.0 3 13.2	235.0 154.5 95.2
4	ACT LOC BUC	7.5	std 7.44 5.57	1.0 Insid 1.00	1.0 0.70	WB rol 2 4.67			- 1.20	100 Lat compr	2400 11700 11700	800 5850 6170	0.0 3 28.3	235.0 151.4 57.1
5	ACT LOC BUC	6.0	std 5.84 4.71	0.0 1.00	0.0 0.91		-		100 Min compr	2400 0 11700	600 0 7810	0.0 47.6	235.0 0.0 77.5	1.00 0.0 47.6
6	ACT LOC BUC	7.5	std 5.84 7.34	0.0 1.00	0.0 0.86		-	100 Min compr	2400 0 11700	600 0 9450	0.0 67.0	235.0 0.0 69.9	1.00 0.0 67.0	
Long. Bulkhead 0														
1	ACT LOC BUC	7.0	std 5.84 6.85	0.0 1.00	0.0 0.67	WB rol 2 4.51	- 1.30	100 Min compr	1250 0 0	600 0 0	0.0 56.5	235.0 0.0 59.0	1.00 0.0 56.5	
2	ACT LOC BUC	8.5	std 8.63 5.53	1.5 Lbhd 1.00	1.5 0.76		WB rol 2 4.51	- 1.20	100 Lat compr	2400 0 0	600 1550 1250	0.0 3 37.8	235.0 146.1 113.8	1.00 82.6 37.8
3	ACT LOC BUC	8.0	std 7.84 3.92	1.5 Lbhd 1.00	1.5 0.82			WB rol 2 4.38	- 1.10	100 Lat compr	2400 0 0	600 2890 2890	0.0 3 13.2	235.0 154.5 95.2
4	ACT LOC BUC	7.5	std 7.34 5.69	1.5 Lbhd 1.00	1.5 0.70	WB rol 2 3.13			- 1.10	100 Min compr	2400 0 0	600 4550 6170	0.0 3 28.3	235.0 156.8 58.1
5	ACT LOC BUC	6.0	std 5.84 4.71	0.0 1.00	0.0 0.91		-		100 Min compr	2400 0 0	600 0 7810	0.0 47.6	235.0 0.0 77.5	1.00 0.0 47.6
6	ACT LOC BUC	6.0	std 5.84 6.72 *	0.0 1.00	0.0 0.86		-	100 Min compr	2400 0 0	600 0 9450	0.0 67.0	235.0 0.0 53.4	1.00 0.0 67.0	

Local Rule Requirements - Plates (cont)

Plate No	ACT	t _{act} mm	Steel	t _k mm	t _{kb} mm		Ω m ²	Eff (%)	Span mm	Spac mm	τ N/mm ²	σ _F N/mm ²	f ₁
LOC			t _{loc} mm	Pos		Load Ref.		Loc. ref.	y _l mm	z _l mm	Comp ref.	σ N/mm ²	p kN/m ²
BUC			t _{buc} mm	η	ψ	k	c	Buc. ref.	y _b mm	z _b mm	σ _L N/mm ²	σ _c or τ _c N/mm ²	σ _{cr} or τ _{cr} N/mm ²

Long. Bulkhead 6200

1	ACT	7.0	std	0.0	0.0		-	100	1250	600	0.0	235.0	1.00
	LOC		5.84					Min	0	0		0.0	0.0
	BUC		6.85	1.00	0.67	2.34	1.30	compr	6200	0	56.5	59.0	56.5

16 Local Rule Requirements - Stiffeners

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conh} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f

Outer Shell

Bottom

1	ACT ACT LOC FAT/BUC	Bottom 230	0.00 0.0 226 0	20 HPbulb 1	200 10.0 5.8 0.0	0 0.0 Sea 0.0	600 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.0	0.0 0.0 95.8 0.0	11.0	2400 600 15.1 0.0
2	ACT ACT LOC FAT/BUC	Bottom 230	0.00 0.0 226 0	20 HPbulb 1	200 10.0 5.8 0.0	0 0.0 Sea 0.0	1200 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.0	0.0 0.0 95.8 0.0	11.0	2400 600 15.1 0.0
3	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	1800 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
4	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	2400 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
5	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	3000 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
6	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	3600 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
7	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	4200 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
8	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 226 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	4800 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 95.8 0.0	8.5	2400 600 15.1 0.0
9	ACT ACT LOC FAT/BUC	Bottom 231 *	0.00 0.0 263 0	20 HPbulb -12	200 10.0 5.8 0.0	0 0.0 Sea 0.0	5400 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 226.6	0.0 0.0 95.8 0.0	10.5	2400 700 17.2 0.0
10	ACT ACT LOC FAT/BUC	Bottom 228	0.00 0.0 227 0	20 HPbulb 0	200 10.0 5.8 0.0	0 0.0 Sea 0.0	6800 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.2	0.0 0.0 96.5 0.0	10.5	2400 600 15.2 0.0
11	ACT ACT LOC FAT/BUC	Bottom 223 *	0.00 0.0 229 0	20 HPbulb -2	200 10.0 5.8 0.0	0 0.0 Sea 0.0	7400 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 97.3 0.0	8.5	2400 600 15.3 0.0
12	ACT ACT LOC FAT/BUC	Bottom 235	0.00 0.0 231 0	20 HPbulb 1	200 11.0 5.8 0.0	0 0.0 Sea 0.0	8000 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 98.1 0.0	8.5	2400 600 15.5 0.0
13	ACT ACT LOC FAT/BUC	Bottom 235	0.00 0.0 233 0	20 HPbulb 0	200 11.0 5.8 0.0	0 0.0 Sea 0.0	8600 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 98.9 0.0	8.5	2400 600 15.6 0.0
14	ACT ACT LOC FAT/BUC	Bottom 235	0.00 0.0 235 0	20 HPbulb 0	200 11.0 5.8 0.0	0 0.0 Sea 0.0	9200 0	235.0 1.00 121.8 56.5	12.0 1.00 0.0 227.7	0.0 0.0 99.8 0.0	8.5	2400 600 15.7 0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conh} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
15	ACT	Bottom	0.00	20	200	0	9800	235.0	12.0	0.0	8.5	2400
	ACT	235	0.0	HPbulb	11.0	0.0	0	1.00	1.00	0.0		600
	LOC	*	237	0	5.8	Sea		121.8	0.0	100.6		15.8
	FAT/BUC		0		0.0	0.0		56.5	227.7	0.0	0.0	0.0
16	ACT	Bottom	0.00	20	200	0	10400	235.0	12.0	0.0	8.5	2400
	ACT	235	0.0	HPbulb	11.0	0.0	0	1.00	1.00	0.0		600
	LOC	*	239	-1	5.8	Sea		121.8	0.0	101.4		16.0
	FAT/BUC		0		0.0	0.0		56.5	227.7	0.0	0.0	0.0
17	ACT	Bottom	0.00	20	220	0	11000	235.0	12.0	0.0	8.5	2400
	ACT	270	0.0	HPbulb	9.0	0.0	0	1.00	1.00	0.0		650
	LOC		261	3	6.1	Sea		121.8	0.0	102.2		17.2
	FAT/BUC		0		0.0	0.0		56.5	229.1	0.0	0.0	0.0
Side												
35	ACT	Side	0.00	20	180	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1850	1.00	1.00	0.0		600
	LOC		158	4	5.3	Sea		160.0	0.0	87.9		13.8
	FAT/BUC		0		0.0	0.0		30.0	225.2	0.0	0.0	0.0
36	ACT	Side	0.00	20	180	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	155	0.0	HPbulb	8.0	0.0	2450	1.00	1.00	0.0		600
	LOC		148	4	5.3	Sea		160.0	0.0	82.7		13.0
	FAT/BUC		0		0.0	0.0		30.0	225.0	0.0	0.0	0.0
37	ACT	Side	0.00	20	160	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	139	0.0	HPbulb	11.0	0.0	3050	1.00	1.00	0.0		600
	LOC		139	0	5.3	Sea		160.0	0.0	77.4		12.2
	FAT/BUC		0		0.0	0.0		30.0	222.0	0.0	0.0	0.0
38	ACT	Side	0.00	20	160	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	139	0.0	HPbulb	11.0	0.0	3650	1.00	1.00	0.0		600
	LOC		129	7	5.3	Sea		160.0	0.0	72.1		11.4
	FAT/BUC		0		0.0	0.0		30.0	222.0	0.0	0.0	0.0
39	ACT	Side	0.00	20	160	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	124	0.0	HPbulb	9.0	0.0	4250	1.00	1.00	0.0		600
	LOC		120	3	5.3	Sea		160.0	0.0	66.8		10.5
	FAT/BUC		0		0.0	0.0		30.0	221.5	0.0	0.0	0.0
40	ACT	Side	0.00	20	160	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	116	0.0	HPbulb	8.0	0.0	4850	1.00	1.00	0.0		600
	LOC		110	4	5.3	Sea		160.0	0.0	61.5		9.7
	FAT/BUC		0		0.0	0.0		30.0	221.1	0.0	0.0	0.0
41	ACT	Side	0.00	20	160	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	117	0.0	HPbulb	8.0	0.0	5450	1.00	1.00	0.0		700
	LOC	*	118	0	5.3	Sea		160.0	0.0	56.3		10.1
	FAT/BUC		0		0.0	0.0		30.0	219.9	0.0	0.0	0.0
42	ACT	Side	0.00	20	140	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	85	0.0	HPbulb	8.0	0.0	6850	1.00	1.00	0.0		600
	LOC		83	2	5.3	Sea		151.8	0.0	43.9		6.9
	FAT/BUC		0		0.0	0.0		36.3	215.0	0.0	0.0	0.0
43	ACT	Side	0.00	20	140	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	79	0.0	HPbulb	7.0	0.0	7450	1.00	1.00	0.0		600
	LOC	*	80	-1	5.3	Sea		144.9	0.0	40.5		6.4
	FAT/BUC		0		0.0	0.0		43.4	214.3	0.0	0.0	0.0
44	ACT	Side	0.00	20	140	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	79	0.0	HPbulb	7.0	0.0	8050	1.00	1.00	0.0		600
	LOC		78	1	5.3	Sea		137.9	0.0	37.7		5.9
	FAT/BUC		0		0.0	0.0		50.5	214.3	0.0	0.0	0.0
45	ACT	Side	0.00	20	140	0	12500	235.0	12.0	0.0	8.5	2400
	ACT	92	0.0	HPbulb	9.0	0.0	8650	1.00	1.00	0.0		700
	LOC		89	3	5.3	Sea		131.0	0.0	34.9		6.3
	FAT/BUC		0		0.0	0.0		57.6	213.9	0.0	0.0	0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conh} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f

Strength deck

86	ACT	Strdk	0.00	20	120	0	11100	235.0	12.0	0.0	6.5	2400
	ACT	56	0.0	HPbulb	7.0	0.0	9450	1.00	1.00	0.0		600
	LOC		55	1	5.3	Sea		121.8	0.0	23.4		3.7
	FAT/BUC		0		0.0	0.0		67.0	207.8	0.0	0.0	0.0
87	ACT	Strdk	0.00	20	120	0	10500	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC	*	54	-3	5.3	Sea		121.8	0.0	22.7		3.6
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
88	ACT	Strdk	0.00	20	120	0	9900	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC		52	0	5.3	Sea		121.8	0.0	22.1		3.5
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
89	ACT	Strdk	0.00	20	120	0	9300	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC		50	2	5.3	Sea		121.8	0.0	21.4		3.4
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
90	ACT	Strdk	0.00	20	120	0	8700	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC		49	5	5.3	Sea		121.8	0.0	20.8		3.3
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
91	ACT	Strdk	0.00	20	120	0	8100	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC		47	8	5.3	Sea		121.8	0.0	20.1		3.2
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
92	ACT	Strdk	0.00	20	120	0	7500	235.0	12.0	0.0	6.5	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		600
	LOC		46	12	5.3	Sea		121.8	0.0	19.5		3.1
	FAT/BUC		0		0.0	0.0		67.0	206.7	0.0	0.0	0.0
93	ACT	Strdk	0.00	20	100	0	6900	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC	*	44	-4	5.3	Sea		121.8	0.0	18.8		3.0
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
94	ACT	Strdk	0.00	20	100	0	6300	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.2		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
95	ACT	Strdk	0.00	20	100	0	5700	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
96	ACT	Strdk	0.00	20	100	0	5100	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
97	ACT	Strdk	0.00	20	100	0	4500	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
98	ACT	Strdk	0.00	20	100	0	3900	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
99	ACT	Strdk	0.00	20	100	0	3300	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conn} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
100	ACT	Strdk	0.00	20	100	0	2700	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
101	ACT	Strdk	0.00	20	100	0	2100	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
102	ACT	Strdk	0.00	20	100	0	1500	235.0	12.0	0.0	6.5	2400
	ACT	43	0.0	HPbulb	8.0	0.0	9450	1.00	1.00	0.0		600
	LOC		43	0	5.3	Sea		121.8	0.0	18.1		2.9
	FAT/BUC		0		0.0	0.0		67.0	193.4	0.0	0.0	0.0
103	ACT	Strdk	0.00	20	120	0	900	235.0	12.0	0.0	7.0	2400
	ACT	52	0.0	HPbulb	6.0	0.0	9450	1.00	1.00	0.0		750
	LOC	*	53	-1	5.3	Sea		121.8	0.0	18.1		3.4
	FAT/BUC		0		0.0	0.0		67.0	200.9	0.0	0.0	0.0

Inner Bottom

18	ACT	Inbot	0.00	20	180	0	600	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
19	ACT	Inbot	0.00	20	180	0	1200	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
20	ACT	Inbot	0.00	20	180	0	1800	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
21	ACT	Inbot	0.00	20	180	0	2400	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
22	ACT	Inbot	0.00	20	180	0	3000	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
23	ACT	Inbot	0.00	20	180	0	3600	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
24	ACT	Inbot	0.00	20	180	0	4200	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
25	ACT	Inbot	0.00	20	180	0	4800	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
26	ACT	Inbot	0.00	20	200	0	5400	235.0	12.0	0.0	10.0	2400
	ACT	212	0.0	HPbulb	8.5	0.0	1250	1.00	1.00	0.0		700
	LOC		193	9	5.8	WB tst 5		130.6	0.0	75.3	3	15.7
	FAT/BUC		0		0.0	0.0		37.8	226.5	0.0	0.0	0.0
27	ACT	Inbot	0.00	20	180	0	6800	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conh} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
28	ACT	Inbot	0.00	20	180	0	7400	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
29	ACT	Inbot	0.00	20	180	0	8000	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
30	ACT	Inbot	0.00	20	180	0	8600	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
31	ACT	Inbot	0.00	20	180	0	9200	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
32	ACT	Inbot	0.00	20	180	0	9800	235.0	12.0	0.0	8.5	2400
	ACT	164	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC	*	165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	225.2	0.0	0.0	0.0
33	ACT	Inbot	0.00	20	180	0	10400	235.0	12.0	0.0	9.5	2400
	ACT	166	0.0	HPbulb	9.0	0.0	1250	1.00	1.00	0.0		600
	LOC		165	0	5.8	WB tst 5		130.6	0.0	75.3	3	13.8
	FAT/BUC		0		0.0	0.0		37.8	224.8	0.0	0.0	0.0
34	ACT	Inbot	0.00	20	180	0	11000	235.0	12.0	0.0	9.5	2400
	ACT	186	0.0	HPbulb	11.0	0.0	1250	1.00	1.00	0.0		650
	LOC		179	3	5.8	WB tst 5		130.6	0.0	75.3	3	14.8
	FAT/BUC		0		0.0	0.0		37.8	224.8	0.0	0.0	0.0
'tween deck 6250												
68	ACT	'twdk	0.00	20	140	0	600	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
69	ACT	'twdk	0.00	20	140	0	1200	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
70	ACT	'twdk	0.00	20	140	0	1800	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
71	ACT	'twdk	0.00	20	140	0	2400	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
72	ACT	'twdk	0.00	20	140	0	3000	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
73	ACT	'twdk	0.00	20	140	0	3600	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
74	ACT	'twdk	0.00	20	140	0	4200	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conn} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
75	ACT	'twdk	0.00	20	140	0	4800	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
76	ACT	'twdk	0.00	20	140	0	5400	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
77	ACT	'twdk	0.00	20	140	0	6000	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
78	ACT	'twdk	0.00	20	140	0	6600	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
79	ACT	'twdk	0.00	20	140	0	7200	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
80	ACT	'twdk	0.00	20	140	0	7800	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
81	ACT	'twdk	0.00	20	140	0	8400	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
82	ACT	'twdk	0.00	20	140	0	9000	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
83	ACT	'twdk	0.00	20	140	0	9600	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
84	ACT	'twdk	0.00	20	140	0	10200	235.0	12.0	1.5	6.5	2400
	ACT	77	0.0	HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		78	0	7.3 *	WB air 4		121.8	0.0	30.2	3	6.0
	FAT/BUC		0		0.0	0.0		29.2	217.7	0.0	0.0	0.0
85	ACT	'twdk	0.00	20	140	0	10800	235.0	12.0	1.5	6.5	2400
	ACT	96	0.0	HPbulb	10.0	0.0	6250	1.00	1.09	1.5		750
	LOC	*	97	0	7.3	WB air 4		121.8	0.0	30.2	3	7.2
	FAT/BUC		0		0.0	0.0		29.2	217.3	0.0	0.0	0.0

Inner Side 11700

46	ACT	Insid	0.00	20	160	0	11700	235.0	12.0	0.0	8.0	2400
	ACT	141	0.0	HPbulb	11.5	0.0	1850	1.00	1.00	0.0		600
	LOC	*	143	0	5.3	WB rol 2		160.0	0.0	79.5	3	12.5
	FAT/BUC		0		0.0	0.0		30.0	222.3	0.0	0.0	0.0
47	ACT	Insid	0.00	20	160	0	11700	235.0	12.0	0.0	8.0	2400
	ACT	138	0.0	HPbulb	11.0	0.0	2450	1.00	1.00	0.0		600
	LOC		132	4	5.3	WB rol 2		160.0	0.0	73.5	3	11.6
	FAT/BUC		0		0.0	0.0		30.0	222.2	0.0	0.0	0.0
48	ACT	Insid	0.00	20	160	0	11700	235.0	12.0	0.0	7.5	2400
	ACT	122	0.0	HPbulb	9.0	0.0	3050	1.00	1.00	0.0		600
	LOC		121	0	5.3	WB rol 2		160.0	0.0	67.5	3	10.6
	FAT/BUC		0		0.0	0.0		30.0	222.1	0.0	0.0	0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conn} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
49	ACT ACT LOC FAT/BUC	Insid 114	0.00 0.0 110 0	20 HPbulb 3	160 8.0 5.3 0.0	0 0.0 WB rol 2 0.0	11700 3650	235.0 1.00 160.0 30.0	12.0 1.00 0.0 221.8	0.0 0.0 61.4 0.0	7.5 3 0.0	2400 600 9.7 0.0
50	ACT ACT LOC FAT/BUC	Insid 107	0.00 0.0 99 0	20 HPbulb 7	160 7.0 5.3 0.0	0 0.0 WB rol 2 0.0	11700 4250	235.0 1.00 160.0 30.0	12.0 1.00 0.0 221.5	0.0 0.0 55.4 0.0	7.5 3 0.0	2400 600 8.7 0.0
51	ACT ACT LOC FAT/BUC	Insid 90	0.00 0.0 89 0	20 HPbulb 2	140 9.0 5.3 0.0	0 0.0 WB rol 2 0.0	11700 4850	235.0 1.00 160.0 30.0	12.0 1.00 0.0 216.6	0.0 0.0 49.4 0.0	7.5 3 0.0	2400 600 7.8 0.0
52	ACT ACT LOC FAT/BUC	Insid 91	0.00 0.0 91 0	20 HPbulb 0	140 9.0 5.3 0.0	0 0.0 WB rol 2 0.0	11700 5450	235.0 1.00 160.0 30.0	12.0 1.00 0.0 215.1	0.0 0.0 43.3 0.0	7.5 3 0.0	2400 700 7.8 0.0
53	ACT ACT LOC FAT/BUC	Insid 14 *	0.00 0.0 15 0	20 HPbulb -8	60 6.0 5.3 0.0	0 0.0 0.0	11700 6850	235.0 1.00 0.0 36.3	0.0 1.00 0.0 85.4	0.0 0.0 0.0 0.0	6.0 4 0.0	2400 600 0.0 0.0
54	ACT ACT LOC FAT/BUC	Insid 14 *	0.00 0.0 15 0	20 HPbulb -8	60 6.0 5.3 0.0	0 0.0 0.0	11700 7450	235.0 1.00 0.0 43.4	0.0 1.00 0.0 85.4	0.0 0.0 0.0 0.0	6.0 4 0.0	2400 600 0.0 0.0
55	ACT ACT LOC FAT/BUC	Insid 14 *	0.00 0.0 15 0	20 HPbulb -4	60 6.0 5.3 0.0	0 0.0 0.0	11700 8050	235.0 1.00 0.0 50.5	0.0 1.00 0.0 74.8	0.0 0.0 0.0 0.0	7.5 4 0.0	2400 600 0.0 0.0
56	ACT ACT LOC FAT/BUC	Insid 14 *	0.00 0.0 15 0	20 HPbulb -4	60 6.0 5.3 0.0	0 0.0 0.0	11700 8650	235.0 1.00 0.0 57.6	0.0 1.00 0.0 66.3 *	0.0 0.0 0.0 0.0	7.5 4 0.0	2400 700 0.0 0.0

Long. Bulkhead 0

57	ACT ACT LOC FAT/BUC	Lbhd 155 *	0.00 0.0 155 0	20 HPbulb 0	180 8.0 7.3 0.0	0 0.0 WB rol 2 0.0	0 1850	235.0 1.00 160.0 28.8	12.0 1.09 0.0 225.4	1.5 1.5 79.5 0.0	8.5 3 0.0	2400 600 15.7 0.0
58	ACT ACT LOC FAT/BUC	Lbhd 142 *	0.00 0.0 144 0	20 HPbulb 0	160 11.5 7.3 0.0	0 0.0 WB rol 2 0.0	0 2450	235.0 1.00 160.0 19.8	12.0 1.09 0.0 222.5	1.5 1.5 73.5 0.0	8.5 3 0.0	2400 600 14.5 0.0
59	ACT ACT LOC FAT/BUC	Lbhd 138	0.00 0.0 132 0	20 HPbulb 4	160 11.0 7.3 0.0	0 0.0 WB rol 2 0.0	0 3050	235.0 1.00 160.0 10.8	12.0 1.09 0.0 222.7	1.5 1.5 67.5 0.0	8.0 3 0.0	2400 600 13.3 0.0
60	ACT ACT LOC FAT/BUC	Lbhd 123	0.00 0.0 120 0	20 HPbulb 2	160 9.0 7.3 0.0	0 0.0 WB rol 2 0.0	0 3650	235.0 1.00 160.0 1.9	12.0 1.09 0.0 222.3	1.5 1.5 61.4 0.0	8.0 3 0.0	2400 600 12.1 0.0
61	ACT ACT LOC FAT/BUC	Lbhd 107 *	0.00 0.0 108 0	20 HPbulb 0	160 7.0 7.3 * 0.0	0 0.0 WB rol 2 0.0	0 4250	235.0 1.00 160.0 5.6	12.0 1.09 0.0 221.6	1.5 1.5 55.4 0.0	8.0 3 0.0	2400 600 10.9 0.0
62	ACT ACT LOC FAT/BUC	Lbhd 96	0.00 0.0 96 0	20 HPbulb 0	140 10.0 7.3 0.0	0 0.0 WB rol 2 0.0	0 4850	235.0 1.00 160.0 12.7	12.0 1.09 0.0 217.8	1.5 1.5 49.4 0.0	7.5 3 0.0	2400 600 9.7 0.0

Local Rule Requirements - Stiffeners (cont.)

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
LOC			Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	σ _{DB} N/mm ²	p kN/m ²	Comp ref.	a _{conn} cm ²
FAT/BUC			Z _{rf} cm ³	excess (%)	p _d kN/m ²	σ _d N/mm ²		σ _L N/mm ²	Lat N/mm ²	Torsion N/mm ²	Web N/mm ²	b _f /t _f
63	ACT	Lbhd	0.00	20	140	0	0	235.0	12.0	1.5	7.5	2400
	ACT	97	0.0	HPbulb	10.0	0.0	5450	1.00	1.09	1.5		700
	LOC	*	99	-1	7.3	WB rol 2		160.0	0.0	43.3	3	9.7
	FAT/BUC		0		0.0	0.0		19.8	216.5	0.0	0.0	0.0
64	ACT	Lbhd	0.00	20	60	0	0	235.0	0.0	0.0	6.0	2400
	ACT	14	0.0	HPbulb	6.0	0.0	6850	1.00	1.00	0.0		600
	LOC	*	15	-8	5.3			0.0	0.0	0.0	4	0.0
	FAT/BUC		0		0.0	0.0		36.3	85.4	0.0	0.0	0.0
65	ACT	Lbhd	0.00	20	60	0	0	235.0	0.0	0.0	6.0	2400
	ACT	14	0.0	HPbulb	6.0	0.0	7450	1.00	1.00	0.0		600
	LOC	*	15	-8	5.3			0.0	0.0	0.0	4	0.0
	FAT/BUC		0		0.0	0.0		43.4	85.4	0.0	0.0	0.0
66	ACT	Lbhd	0.00	20	60	0	0	235.0	0.0	0.0	6.0	2400
	ACT	14	0.0	HPbulb	6.0	0.0	8050	1.00	1.00	0.0		600
	LOC	*	15	-8	5.3			0.0	0.0	0.0	4	0.0
	FAT/BUC		0		0.0	0.0		50.5	85.4	0.0	0.0	0.0
67	ACT	Lbhd	0.00	20	60	0	0	235.0	0.0	0.0	6.0	2400
	ACT	14	0.0	HPbulb	6.0	0.0	8650	1.00	1.00	0.0		700
	LOC	*	15	-7	5.3			0.0	0.0	0.0	4	0.0
	FAT/BUC		0		0.0	0.0		57.6	76.0	0.0	0.0	0.0

17 Local Rule Requirements - Transverse stiffeners

Stiff. No	ACT ACT	Pos Z _a cm ³	K c	Type Type	h t (mm)	b _f t _f (mm)	y z (mm)	σ _F f ₁ N/mm ²	m w _k	t _{kw} t _{kf} (mm)	t _{pl} (mm)	span spac (mm)
	LOC		Z _r cm ³	excess (%)	t _{min} (mm)	Load Ref.		σ N/mm ²	ang_PL deg	p kN/m ²	Comp ref.	a _{conn} cm ²

Outer Shell

1	Bottom (Trv. stiffener). End points (y,z) = (11000, 0)-(11700, 0).											
	ACT	Bottom	0.00	20	120	0.0	11350	235.0	10.0	0.0	8.5	700
	ACT	58		HPbulb	7.0	0.0	0	1.00	1.00	0.0		600
	LOC		19	203	5.8	Sea		121.8	90	102.7		0.0
2	Bilge (Trv. stiffener). End points (y,z) = (11700, 0)-(12500, 1250).											
	ACT	Bilge	0.00	20	120	0.0	12324	235.0	10.0	0.0	8.5	849
	ACT	58		HPbulb	7.0	0.0	176	1.00	1.00	0.0		600
	LOC		28	107	5.8	Sea		121.8	90	102.4		0.0
3	Strength deck (Trv. stiffener). End points (y,z) = (12500, 9450)-(11700, 9450).											
	ACT	Strdk	0.00	20	120	0.0	12100	235.0	10.0	0.0	6.5	800
	ACT	56		HPbulb	7.0	0.0	9450	1.00	1.00	0.0		600
	LOC		15	274	5.3	Sea		160.0	90	24.5		0.0
4	Strength deck (Trv. stiffener). End points (y,z) = (900, 9450)-(0, 9450).											
	ACT	Strdk	0.00	20	120	0.0	450	235.0	10.0	0.0	7.0	899
	ACT	57		HPbulb	7.0	0.0	9450	1.00	1.00	0.0		600
	LOC		15	277	5.3	Sea		160.0	90	18.1		0.0

'tween deck 6250

1	'tween deck (Trv. stiffener). End points (y,z) = (0, 6250)-(600, 6250).											
	ACT	'twdk	0.00	20	120	0.0	300	235.0	10.0	1.5	6.5	600
	ACT	56		HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		15	274	7.3 *	WB rol 2		160.0	90	34.4	3	0.0
2	'tween deck (Trv. stiffener). End points (y,z) = (10800, 6250)-(11700, 6250).											
	ACT	'twdk	0.00	20	120	0.0	11250	235.0	10.0	1.5	6.5	900
	ACT	56		HPbulb	7.0	0.0	6250	1.00	1.09	1.5		600
	LOC		15	274	7.3 *	WB rol 2		160.0	90	33.9	3	0.0
3	'tween deck (Trv. stiffener). End points (y,z) = (11700, 6250)-(12500, 6250).											
	ACT	'twdk	0.00	20	120	0.0	12100	235.0		0.0	5.5	800
	ACT	55		HPbulb	7.0	0.0	6250	1.00	1.00	0.0		600
	LOC		15	268	5.3				90	0.0	7	0.0

Long. Bulkhead 0

1	Longitudinal bulkhead (Trv. stiffener). End points (y,z) = (0, 5450)-(0, 6250).											
	ACT	Lbhd	0.00	20	120	0.0	0	235.0	10.0	1.5	7.5	800
	ACT	57		HPbulb	7.0	0.0	5850	1.00	1.09	1.5		600
	LOC		15	279	7.3 *	WB rol 2		160.0	90	39.3	3	0.0
2	Longitudinal bulkhead (Trv. stiffener). End points (y,z) = (0, 8650)-(0, 9450).											
	ACT	Lbhd	0.00	20	120	0.0	0	235.0		0.0	6.0	800
	ACT	56		HPbulb	7.0	0.0	9050	1.00	1.00	0.0		600
	LOC		15	271	5.3				90	0.0	4	0.0