

SECTION 1

DESIGN REVIEW FLOW CHART

1 General

1.1 Design review process

1.1.1 Typical chronological steps of the design review aiming at assessing the scantlings of yachts structure against the Rules are given in Tab 1.

Table 1 : Structure design review steps

Steps		Sub-steps	Calculation	BV software	Rules references
1	MATERIALS	Steel	Admissible stresses (local stress and overall stresses)		Ch 4, Sec 3
		Aluminium	Mechanical characteristics in welded conditions		Rule Note NR216 Materials and Welding Ch 4, Sec 3
			Admissible stresses (local stress and overall stresses)		Ch 4, Sec 3
		Composites	Elastic characteristics of single layers	see Ch 1, Sec 4	Ch 12, Sec 3
			Elastic characteristics of laminates	see Ch 1, Sec 4	Ch 12, Sec 4
			Safety factors		Ch 4, Sec 3
2	OVERALL GLOBAL LOADS	Wave global loads	In hogging and sagging conditions		Ch 6, Sec 2
		Still water bending moment			Ch 6, Sec 2
		Rig global loads (if relevant)			Ch 6, Sec 3
		Combination of global loads			Ch 6, Sec 4
3	GLOBAL STRENGTH	Transverse sections geometrical characteristics	Global stresses	see Ch 1, Sec 4	Ch 8, Sec 2 (1) Ch 8, Sec 3 (1) Ch 8, Sec 4 (1) Ch 9, Sec 2 (2) Ch 9, Sec 3 (2) Ch 9, Sec 4 (2)
			Buckling check of members contributing to global strength		
4	LOCAL LOADS	Hydrodynamic loads	Loading on bottom, side, decks		Ch 7, Sec 1
		Slamming loads	Loading on bottom of fast motor yacht and monohull sailing yachts		Ch 7, Sec 2
		Impact pressure	Loading on side shells Loading on underside of catamaran cross deck		Ch 7, Sec 1
(1) for steel and aluminium structure (2) for composites structures (3) for steering gear, refer to Pt C, Ch 1, Sec 3					

Steps		Sub-steps	Calculation	BV software	Rules references
5	STRUCTURE SCANTLINGS	Platings			Ch 8, Sec 3 <b>(1)</b> Ch 9, Sec 3 <b>(2)</b>
		Secondary stiffeners			Ch 8, Sec 4 <b>(1)</b> Ch 9, Sec 4 <b>(2)</b>
		Primary supporting members			Ch 8, Sec 4 <b>(1)</b> Ch 9, Sec 4 <b>(2)</b>
		Pillars			Ch 8, Sec 10 <b>(1)</b> Ch 9, Sec 10 <b>(2)</b>
6	WATERTIGHT TRANSVERSE BULKHEADS	Number and locations			Ch 2, Sec 1
		Sea design pressure and admissible stresses.			Ch 7, Sec 1 Ch 4, Sec 3
		Platings and stiffeners			Ch 8, Sec 8 <b>(1)</b> Ch 9, Sec 8 <b>(2)</b>
7	SUPERSTRUCTURES	Local sea pressure and minimum pressure			Ch 7, Sec 1
		Platings and stiffeners			Ch 8, Sec 9 <b>(1)</b> Ch 9, Sec 9 <b>(2)</b>
		Doors, windows, height of sills			Ch 2, Sec 2
8	ADDITIONAL CALCULATIONS	Anchors and chains	Equipment number		Ch 10, Sec 1
		Rudder, rudder stock, steering gear <b>(3)</b>			Ch 10, Sec 2 Ch 10, Sec 3
		Shaft brackets			Ch 10, Sec 4
		Independent tanks			Ch 10, Sec 5
		Chain plates for sailing yachts standing rigging			Ch 10, Sec 6
		Solid keel for sailing yacht			Ch 10, Sec 7
<b>(1)</b> for steel and aluminium structure <b>(2)</b> for composites structures <b>(3)</b> for steering gear, refer to Pt C, Ch 1, Sec 3					