SECTION 7 DECK STRUCTURE

1 General

1.1 Application

1.1.1 The requirements of this Section apply to longitudinally or transversely framed deck structures.

1.2 General

1.2.1 The deck supporting structure consists of ordinary stiffeners (beams or longitudinals), longitudinally or transversely arranged, supported by primary supporting members which may be sustained by pillars or bulkheads.

1.2.2 Adequate continuity of strength is to be ensured in way of:

- stepped strength decks
- changes in the framing system.

Details of structural arrangements are to be submitted for review to the Society.

1.2.3 Deck supporting structures under cranes and king posts are to be adequately stiffened.

1.2.4 Pillars or other supporting structures are generally to be fitted under heavy concentrated loads.

1.2.5 Stiffeners are also to be fitted in way of the ends and corners of deck houses and partial superstructures.

1.2.6 Where beams are fitted in a hatched deck, these are to be effectively supported by at least two longitudinal girders located in either side of the deck opening.

1.2.7 As a rule, the buckling strength of decks is to be checked under global hull girder loads.

1.2.8 The buckling strength of decks may also be requested to be checked under transverse loads:

- in way of mast of sailing yacht. The loads to consider are the horizontal transversal compression force induced by the traction in the shrouds
- in way of transverse bulkheads of cross deck of catamarans. The loads to consider are induced by the global torque exerted on the cross deck.

2 Structure arrangement

2.1 Stiffeners

2.1.1 Deck longitudinals are to be continuous in way of deck transverses and transverse bulkheads.

Other arrangements may be considered, provided adequate continuity of longitudinal strength is ensured.

2.2 Openings

2.2.1 The deck openings are to be as much spaced apart as possible.

As practicable, they are to be fitted as far as possible from highly stressed deck areas or from stepped deck areas.

2.2.2 An increase of lamination plate or additional reinforcements may be requested where deck openings are located:

- in the area of mast foot on sailing yachts
- in the areas of standing rigging chain plates on sailing yachts
- close to the primary transverse cross bulkheads on catamarans
- in areas of deck structural singularities (cockpit, stepped deck...)
- in way of the fixing of out-fittings.

2.2.3 As a rule, all the deck openings are to be fitted with radiused corners. Generally, the corner radius is to be not less than 5% of the transverse width of the opening.

The laminate cut out is to be protected as mentioned in Ch 9, Sec 4, [1.4].

2.2.4 Corner radiusing, in the case of the arrangement of two or more openings athwartship in one single transverse section, is considered by the Society on a case by case basis.

3 Pillars

3.1 General

3.1.1 Pillars are to be connected to the inner bottom at the intersection of girders and floors and at deck at the intersection of deck beams and deck girders.

3.1.2 Where pillars are not connected to the intersection of primary supporting members, partial floors, partial girders, partial deck beams or partial deck girders, an other appropriate structure is to be fitted to support the pillars.

3.1.3 Local high density core in stiffeners may be required in way where pillars are attached at their heads and heels.

3.1.4 Manholes may not be cut in the girders and floors below the heels of pillars.

3.1.5 Tight or non-tight bulkheads may be considered as pillars, provided that their scantlings comply with [3.2].

3.2 Scantling

3.2.1 The scantlings of pillars are to comply with the requirements of Ch 8, Sec 10 (for steel or aluminium pillars) or Ch 9, Sec 10 (for composite material pillars).