SECTION 6 SIDE STRUCTURE

1 General

1.1 Application

1.1.1 The requirements of this Section apply to longitudinally or transversally framed side structures.

1.2 General

1.2.1 Structures of sides with transverse framing system are made of transverse frames, possibly supported by horizontal stringers.

1.2.2 Structures of sides with longitudinal framing system are made of ordinary longitudinal stiffeners supported by vertical primary supporting members.

1.2.3 The sheerstrake may be rounded. If it is rounded, the radius, in mm, is to be not less than 15 t_S, where t_S is the thickness, in mm, of the sheerstrake.

2 Structure arrangement

2.1 Stiffeners

2.1.1 The ordinary stiffeners are normally to be continuous through the primary supporting members.

Otherwise, the detail of the connection is examined by the Society on a case by case basis.

2.1.2 In general, the section modulus of 'tween deck frames is to be not less than that required for frames located immediately above.

2.1.3 Web frames and ordinary side frames are to be attached to floors by brackets, or any other equivalent structure.

2.1.4 For transverse framing system, attention of Designer is drawn on the risk of vertical buckling of plate panels at ends of frames. Extra-thickness or additional vertical intercostals may be requested.

2.2 Openings in the shell plating

2.2.1 Openings in the yacht sides are to be well rounded at the corners and located well clear of superstructure ends.

2.2.2 Openings for stabiliser fins are considered by the Society on a case by case basis. The thickness of sea chests is generally to be that of the local shell plating.

2.2.3 Openings of considerable size are to be adequately compensated by means of insert plates of increased thickness. Such compensation is to be partial or total depending on the stresses occurring in the area of the openings.

2.2.4 Ordinary stiffeners cut in way of openings are to be attached to local structural member supported by continuous adjacent ordinary stiffeners.

2.3 Side shell plating in way of chain plates of sailing yachts

2.3.1 Where chainplates are welded directly on the side shell plating, the following requirements apply:

- as a rule, chain plates are to be inserted in the side shell plating, where they are parallel to it
- where there thickness is significantly larger that the side shell plate thickness, chain plates are to be welded to an inserted plate having extra thickness. The thickness of this inserted plate is to be intermediate between the thickness of chain plate and thickness of side shell.

2.3.2 Local reinforcements may be requested on the side shell, to distribute adequately the secondary loads induced by the chain plate. These local reinforcements are to be connected to the stiffening system of the side shell.

2.3.3 Chain plates scantling are to be according to Ch 10, Sec 6.

2.4 Upper brackets of frames

2.4.1 The arm length of upper brackets connecting frames to deck beams is to be not less than the value obtained, in mm, from the following formula:

$$d = \varphi \sqrt{\frac{w + 30}{t}}$$

where:

φ : Coefficient equal to:
- for unflanged brackets: $\varphi = 48$
- for flanged brackets: $\varphi = 43,5$

w : Required section modulus of the stiffener, in cm^3, given in [2.4.2] and [2.4.3] and depending on the type of connection

t : Bracket thickness, in mm.

2.4.2 For connections of perpendicular stiffeners located in the same plane (see Fig 1) or connections of stiffeners located in perpendicular planes (see Fig 2), the required section modulus is to be taken equal to:

$w = w_2$ if $w_2 \leq w_1$

$w = w_1$ if $w_2 > w_1$

where w_1 and w_2 are the required section moduli of stiffeners, as shown in Fig 1 and Fig 2.

Figure 1 : Connections of perpendicular stiffeners in the same plane

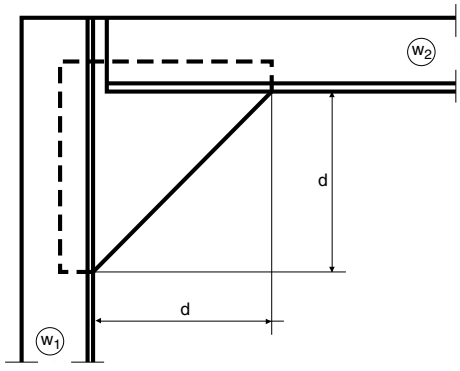
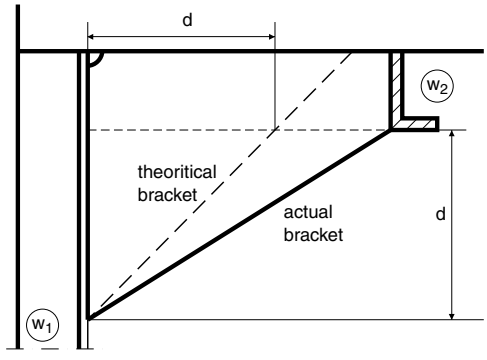


Figure 2 : Connections of stiffeners located in perpendicular planes



2.4.3 For connections of frames to deck beams (see Fig 3), the required section modulus is to be taken equal to:

- for bracket "A":

  $w_A = w_1$ if $w_2 \leq w_1$

  $w_A = w_2$ if $w_2 > w_1$

- for bracket "B":

  $w_B = w'_1$ need not be greater than w_1

where w_1, w'_1 and w_2 are the required section moduli of stiffeners, as shown in Fig 3.

2.5 Lower brackets of frames

2.5.1 In general, frames are to be bracketed to the inner bottom or to the face plate of floors as shown in Fig 4.

2.5.2 The arm lengths d_1 and d_2 of lower brackets of frames are to be not less than the value obtained, in mm, from the following formula:

$$d = \varphi \sqrt{\frac{w + 30}{t}}$$

where:

φ : Coefficient equal to:

- for unflanged brackets:

  $\varphi = 50$

- for flanged brackets:

  $\varphi = 45$

w : Required section modulus of the frame, in cm^3

t : Bracket thickness, in mm.

2.5.3 Where the bracket thickness, in mm, is less than $16,5L_b$, where L_b is the length, in m, of the bracket free edge, the free edge of the bracket is to be flanged or stiffened by a welded face plate.

The sectional area, in cm^2, of the flange or the face plate is to be not less than $10L_b$.

Figure 3 : Connections of frames to deck beams

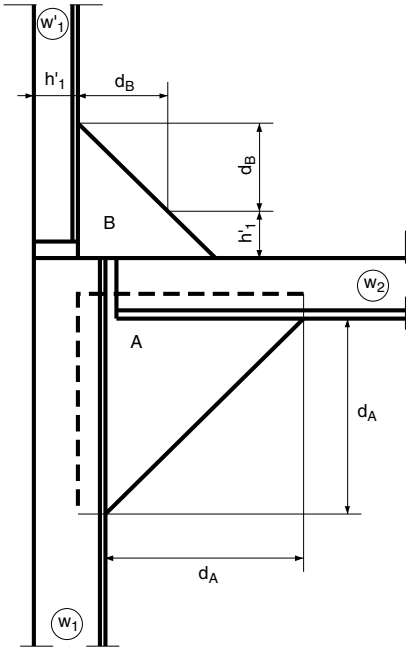


Figure 4 : Lower brackets of main frames