For ice class IA Super, ship with a bulb, C_1 and C_2 shall be calculated as follows:

$$C_1 = f_1 \frac{BL}{2\frac{T}{B}+1} + 2.89(f_2 B + f_3 L + f_4 BL),$$

$$C_2 = 6.67(g_1 + g_2 B) + g_3 \left(1 + 1.2\frac{T}{B}\right)\frac{B^2}{\sqrt{L}}.$$

Coefficients f_1-f_4 and g_1-g_3 are given in Table 3-3.

Table 3-3: Values of coefficients f_1-f_4 and g_1-g_3 for the determination of C_1 and C_2

f_1 = 10.3 N/m^2	g_1 = 1530 N
f_2 = 45.8 N/m	g_2 = 170 N/m
f_3 = 2.94 N/m	g_3 = 400 N/m$^{1.5}$
f_4 = 5.8 N/m^2	

C_3 = 460 kg/(m^{2}s^2)

C_4 = 18.7 kg/(m^{2}s^2)

C_5 = 825 kg/s^2

If the value of the term $\left(\frac{LT}{B^2}\right)^3$ is less than 5, the value 5 shall be used and if the value of the term is more than 20, the value 20 shall be used.

3.2.5 Other methods of determining K_e or R_{CH}

For an individual ship, in lieu of the K_e or R_{CH} values defined in sections 3.2.2 and 3.2.3, the use of K_e or R_{CH} values based on more precise calculations or values based on model tests may be approved. Such approval will be given on the understanding that it can be revoked if experience of the ship's performance provides grounds for this in practice.

The design requirement for ice classes is a minimum speed of 5 knots in the following brash ice channels:

IA Super	H_M	= 1.0 m and a 0.1 m thick consolidated layer of ice
IA		= 1.0 m
IB		= 0.8 m
IC		= 0.6 m.

4 HULL STRUCTURAL DESIGN

4.1 General

The method for determining hull scantlings is based on certain assumptions concerning the nature of the ice load on the structure. These assumptions are based on full-scale observations made in the northern Baltic.

It has thus been observed that the local ice pressure on small areas can reach rather high values. This pressure may well be in excess of the normal uniaxial crushing strength of sea ice. This is explained by the fact that the stress field is in fact multiaxial.

Furthermore, it has been observed that the ice pressure on a frame can be higher than on the shell plating at the midspacing between frames. This is due to the different flexural stiffness of frames and shell plating. The load distribution is assumed to be as shown in Figure 4-1.