



TECHNICAL CIRCULAR No. 305 of 16th November 2015

To:	All Surveyors/Auditors
Applicable to flag:	All Flags
Subject:	<b>Cargo hold region –Upper structure inspection</b>
Reference:	<b>Structural detail failure and repairs</b>

**Structural detail failure and repairs**

**What to look for – Internal inspection**

**1 General**

1.1 The shear capacity is the main contribution of the side shell to the general structural strength of the ship's hull. Shear stresses arise as a consequence of local unbalance longitudinally between the vertical forces of cargo loads and steel-weight, and the up-thrust of buoyancy.

1.2 In addition to the contribution to the general structural strength of the ship's hull, the side shell is the defense against ingress/leakage of sea water, when subjected to static sea pressure and dynamic effects of ship movement and wave actions in heavy weather.

1.3 The ship side may suffer damage due to contact with the quay during berthing and impacts from cargo and/or equipment during cargo handling.

1.4 The marine environment (such as ultraviolet rays, high temperature, alternate wet and dry conditions due to wave or change of loading conditions etc.) in association with the characteristics of certain cargoes (e.g. wet timber loaded from sea water) may result in deterioration of coating and severe corrosion of plating and stiffeners. This situation makes the structure more vulnerable to the exposures described above.

1.5 The transition regions are subject to stress concentrations due to structural discontinuities. The side shell plating in fore and aft transition regions is also subject to panting. The lack of continuity of the longitudinal structure, and the greater slenderness and flexibility of the side structure near the more rigid end structures, can result in damages.

1.6 A summary of potential problem areas is shown in Figures 1 (a) and (b).

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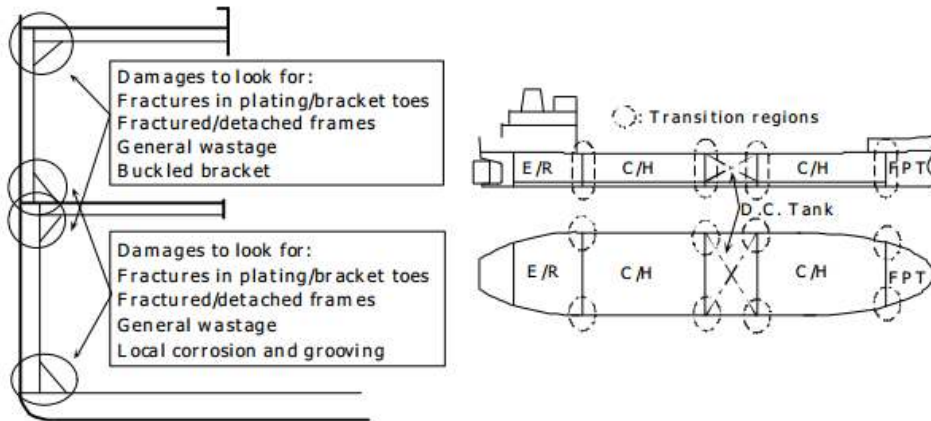
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(a) Side shell frames

(b) Transition regions

Figure 1 Potential problems areas

REFERENCES:

- CONARINA Instructions

ATTACHMENTS: No.

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