



OSR Plan Review Interpretation 001-11

Effective Date: 21 July 2011

Relevant Documentation

Relevant documentation

ISO 12215-5:2008(E) Small craft – Hull construction and scantlings – Part 5: Design pressures for monohulls, design stresses, scantling determination

Relevant Section

Section 10.5 FRP sandwich plating

10.5.1 General

This section applies to sandwich panels where the outer and inner skins are similar in layout, in strength and in elastic properties. The skin laminates are considered similar when the ratio of their mechanical properties is within 25 percent of each other.

If this is not the case, the sandwich shall be analysed in accordance with Annex H using Equations (33) and (34) for shear force and bending moment, and the flexural rigidity required by Equation (42). In any case, the thickness requirement from the shear load capacity of 10.5.4 shall be followed.

Question

Under 10.5.1 of ISO 12215-5, what Sections of 10.5 FRP Sandwich Plating apply for sandwich panel skins that are not “considered similar” in accordance with Section 10.5.1?

Answer

The ISO Working Group (WG18) agrees that the wording is ambiguous in this Section 10.5.1 and is addressing this in the next revision of ISO 12215-5. For full scantling determination the ISO Working Group's intentions in writing this requirement is that for sandwich panel skins that are not considered similar in accordance with 10.5.1 the following sections of 10.5 shall apply:

1. Annex H using Equations (33) and (34) for shear force and bending moment, and the flexural rigidity required by Equation (42).
2. Thickness requirement from the shear load capacity of 10.5.4 shall be followed.

In addition to the above the following shall also apply and be analysed and checked accordingly:

3. Equation (41) Design compressive stress on the inner skin (skin wrinkling)
4. Section 10.5.5 Minimum core shear strength.
5. Section 10.5.6 Minimum sandwich skin fibre mass requirements.