Australian Government
Australian Maritime Safety Authority

Generic Equivalent Solution[1]:
2010/02

NSCV PART C3 - CONSTRUCTION
USE OF AS 4132 FOR CONSTRUCTION OF VESSELS USING FRP OR ALUMINIUM

Application

GES 2010/02

This equivalent solution is only applicable to Fibre Reinforced Plastic and Aluminium vessels up to 13m in measured length which:

- have a service speed less than or equal to 30 knots; and
- operate only in areas C, D or E.

Current Requirement

NSCV Part C Section 3 - Construction sets out the following required outcomes:

2.1 SUFFICIENT STRENGTH TO WITHSTAND STATIC LOADING

A vessel must be designed and constructed to withstand all static loading in both normal and abnormal conditions of operation.

2.2 SUFFICIENT STRENGTH TO WITHSTAND DYNAMIC LOADING

A vessel must be designed and constructed to withstand the dynamic loading that may arise in both normal and abnormal conditions of operation.

2.3 SUITABILITY FOR OPERATING ENVIRONMENT

A vessel must be designed and constructed to withstand the loads that arise from the intended operating environment, in normal and abnormal conditions.

2.4 CONCENTRATED LOADING

A vessel must be designed and constructed to withstand any concentrated loading that might occur in normal or abnormal conditions of loading.

2.5 DEFORMATION

The structure of a vessel must be designed and constructed to

a. avoid permanent deformation in normal operations unless specifically designed to do so; and

b. limit the extent of deformation in normal or abnormal conditions of operation where such deformations would compromise the safety of the vessel or damage to adjacent structure.

2.6 REDUNDANCY

A vessel must be designed and constructed to incorporate a measure of redundancy to maintain serviceability in the event of structural degradation that might be expected over a period of time in normal operation.

2.7 IMPACT RESISTANCE

A vessel must be designed and constructed to reduce the risks of impact loading that could cause structural failure and/or loss of watertight integrity.

[1] This solution is approved by the National Regulator for the purposes of NSCV Part B 1.6.

2.8 FATIGUE

Structure subject to cyclical loadings or repeated stress fluctuations must be designed and constructed to avoid or control the risks of fatigue failure.

2.9 AVOIDANCE OF CAUSES OF HIGH STRESS CONCENTRATION

The structure of a vessel must be designed and constructed to avoid or minimise the effect of discontinuities, abrupt changes in section of structural members, misalignments, penetrations and other causes of high stress concentration.

The applicable deemed to satisfy solutions for compliance with these outcomes for vessels of measured length up to 13m, not in class and conducting either light or robust operations are listed in Clause 3.2.2, Table 1 of NSCV Part C3 as follows:

Measured Length	Robust Operations	Light Operations
< 13 m and > 7.5 m	The relevant Lloyd's Rules	The relevant Lloyd's Rules; or ISO 12215
< 7.5 m	The relevant Lloyd's Rules	The relevant Lloyd's Rules; or ISO 12215; or AS1799

Note: "relevant" rules are specified in NSCV Part C3 - Clauses 3.3, 3.4 and 3.5 respectively.

Equivalence

The National Regulator considers that the design and construction of Fibre Reinforced Plastic or Aluminium vessels up to 13m in measured length which:

- have a service speed less than or equal to 30 knots; and
- operate only in areas C, D or E waters

in accordance with AS 4132 Parts 1, 2 and 3 as applicable, for both light and robust duties, is at least as effective in meeting the required outcomes listed above as the deemed to satisfy solution set out in clause 3.2.2 of the NSCV Part C3.