NSCV part C section 3 — Construction		
NSCV reference	**Topic**	**Comment**
Forward	This section of the NSCV should also be read in conjunction with part B — General Requirements of the National Standard for Commercial Vessels. It should also be read in conjunction with part A — Safety Obligations	This section of the NSCV is available for use for all vessels in Queensland now. It will be necessary for all new vessels to show compliance for new registration applications and a change in service Class. Refer to the Design and Build Standard.
Chapter 1	**Preliminary**	This section applies to all vessels, other than vessels that fall within the application of part F — Special Vessels, unless specified otherwise in part F. Note: a) special vessels include fast craft and novel vessels 2) part F section 2 permits the application of this section to hire and drive vessels.
1.4	**Definitions**	Robust operations Operations of a vessel that in normal circumstances may be exposed to loading arising from: a) heavy seas (for example all Class A and Class B vessels and seagoing patrol vessels b) heavy loads from cargo, machinery, deck machinery or rigging (cargo vessels, ro-ro vessels, trawlers, crane barges, dredgers and tankers) c) heavy or frequent impacts (tugs, ferries and barges) d) frequent grounding (landing craft and large houseboats) e) large accelerations and slamming (vessels used in skiing and wakeboarding, thrill ride vessels and dive vessels). Light operations Operations of a vessel that are characterised by relatively light loading in normal circumstances (operations that are not robust operations). Note: light operations would be applicable to most hire and drive vessels and vessels intended primarily for sport and recreation. Vessels designed for light operations may be limited as to its suitability for other purposes.
Chapter 2 2.1 to 2.3	**Required outcomes**	Vessels must be designed and constructed to withstand all static, dynamic and environmental conditions in normal and abnormal conditions.
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. (Impact loads arise from contact with the wharf, other vessels, floating objects, grounding and dropped cargo or cargo handling gear.)
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.

Chapter 3 3.1	**Deemed-to-satisfy solutions for determination of scantlings**	Vessels of measured length 35 metres (m) or more shall be classed — designed, constructed and maintained, in accordance with the rules of a classification society.
3.2	**Vessels of measured length less than 35 m**	Vessels shall be deemed-to-satisfy if they are classed or comply with clause 3.2.2 which incorporates table 1. Table 1 incorporates the relevant Lloyd's rules, USL Code Subsection 5M, ISO12215 or AS1799.
3.3.4	**Relationship between NSCV operational area categories and Lloyd's service area restrictions**	Table 2 — application of Lloyd's rules as a deemed-to-satisfy solution. As Lloyd's rules allow total manipulation of operational parameters to get the lightest construction, it is important that accredited persons match the design category (service area restriction) to the operational area. Table 3 — relationship between NSCV operational area categories and Lloyd's special service craft service area restrictions.
3.4 3.4.2	**ISO standards**	This standard allows for the application of specified standards in the ISO12215 series to specified craft engaged in light operations, not withstanding that the scope of these ISO standards limits their application to small boats used for recreational purposes only, including craft equivalent to hire and drive. Table 4 lists the ISO standard and the type of construction material appropriate. ISO — 13 m or less in length equals light operations.
3.4.4	**Relationship between NSCV operational area categories and ISO design**	Vessels built to ISO design categories will be subject to wave height and wind speed restrictions. Accredited persons must supply this information on certificates of compliance accompanying applications for commercial registration. Operational area categories are defined in NSCV part B.
3.5	**Australian standards**	This standard allows the application of the specified Australian standard to certain craft 7.5 m measured length or less engaged in light operations and is limited to small boats used for recreational purposes only.
Chapter 4	**Deemed-to-satisfy solutions for materials**	Materials used for the construction of vessels shall comply with the material standards specified in the specific set of construction rules that are applied in Table 7. Materials for vessels designed to Lloyd's rules need not be certified by Lloyd's. Table 7 — material standards Table 8 — alternative Australian Standards for hull construction materials.
Chapter 5	**Workmanship and manufacturing facilities**	This section covers production facilities, workshop conditions, material storage and handling.
5.3	**Steel and aluminium vessels**	Covers welding, welding operators and contamination of work spaces. Where the design standard being used does not have its own welding schedule, the schedules contained in annex B shall be used. Welding operators shall be proficient in the type of welding on which they are engaged. The builder shall test welding operators to a suitable recognised standard and shall keep records of tests and qualifications.
5.4	**Manufacture of FRP vessels**	This covers materials, control of environmental conditions, control and verification of the laminating process. FRP materials should be applied as per the manufacturer's instructions.
Annex A	**Daily record of laminating of FRP vessels**	This is closely aligned to the laminating record in the accredited person's manual but should be developed by the builder to incorporate all of their requirements.

Annex B	**Type and size of welds for various structural connections for aluminium and steel**	Aluminium welding schedule and detail extracted from AS1665. Drawings of welds supplied and tables for type and size of welds for various connections.
Annex C	**Minimum mechanical properties for non welded and welded aluminium alloys**	Table C.1 provided.