

National Standard for Commercial Vessels (NSCV)
Part C section 6 — Stability
Subsection 6A — Intact Stability
Subsection 6C — Stability Tests and Stability Information



NSCV part 6 — Stability, Intact Stability and Stability Tests and Information		
NSCV reference	Topic	Comment
Subsection 6A	Intact stability requirements	<p>The <i>Transport Operations (Marine Safety) Act 1994</i> (the Act) section 40 places a safety obligation on ship designers, ship builders and marine surveyors about the condition of ships. The guide for designing commercial and fishing ships and for building commercial and fishing ships references subsection 6A (Intact Stability) and subsection 6C (Stability Tests and Stability Information) of the NSCV.</p> <p>Already available for use in Queensland through the design and build standard.</p> <p>This part of the NSCV is to be read in conjunction with:</p> <ul style="list-style-type: none"> • part A — Safety Obligations • part B — General Requirements • part C — Design and Construction <ul style="list-style-type: none"> ○ subsection 2A — Watertight and Weathertight Integrity, Load Line Vessels ○ subsection 6B — Buoyancy and Stability after Flooding ○ subsection 6C — Stability Tests and Stability Information <p>Equivalent solutions applicable to intact stability shall be verified in a manner appropriate to the risks that would arise should the stability be found inadequate.</p>
Chapter 1 1.3	Objectives of NSCV part C section 6	<p>a) Minimise the likelihood of sudden or progressive capsize or floundering.</p> <p>b) Prevent excessive angles of heel or trim that could:</p> <ol style="list-style-type: none"> i. reduce the safety of persons on board ii. hamper the crew in the performance of their duties iii. interfere with the safe functioning of the vessel and its essential equipment.
Figure 1	Flow chart for determining applicable intact stability criteria	Comprehensive chart that explains the process for establishing the criteria and referencing other sections of NSCV
1.7	Definitions	Comprehensive list of explanations and diagrams of vessels in different conditions of heel. It also refers to the definitions in part B. Removes the ambiguity.
Chapter 2 2.2	Conditions of loading to be safe	
2.3	Vessel to be capable of withstanding the effect of heeling moments	Note: heeling moments may include one or more of those caused by wind, wave, persons, turning, lifting heavy masses, trawling and towing.
2.5	Stability analysis to be appropriate	Stability criteria applied to a vessel must be appropriate, taking into account the vessel's operation and form, the nature and likelihood of potential hazards and the consequences of inadequate stability.
Chapter 3	Deemed-to-satisfy criteria	All vessels shall, for normal conditions of loading and over the relevant range of drafts and trims, comply with the applicable criteria for maximum displacement and longitudinal stability specified in Chapter 4 and transverse stability (Chapter 3).

Tables 1,2,3	1. Table of intact stability criteria 2. Deemed-to-satisfy solutions for general application 3. Deemed-to-satisfy solutions for vessels engaged in special operations	Simplified calculations are possible for some low risk ships. Use of tables is necessary.
Chapter 4	Maximum displacement and longitudinal stability criteria	This applies to all vessels as specified in the criteria. Table 6 and Table 7 outline the requirements. Compliance with these criteria shall be established through calculation or by practical demonstration during a stability proof test.
Chapter 5	Comprehensive stability criteria of general application	Data and information — which are to be established in order to apply the stability criteria.
Chapter 5A	Comprehensive criteria of general application to all vessels	Table 10 — now mandatory to have wind heeling in calculations as well as combined wind and passenger during a turn.
Chapter 5B	Alternative comprehensive criteria of general application to catamarans in operational areas B, C, D and E.	Table 11
Chapter 5D	Alternative comprehensive criteria for dumb barges	Table 13
Chapter 6	Additional comprehensive stability criteria for special operations	Refers to vessels that are exposed to particular hazards during operations. Vessels less than 24 metres (m) that set sail, catamarans that set sail, vessels engaged in lifting, vessels that employ counter ballasting or counter weights when engaged in lifting, vessels engaged in towing, vessels engaged in trawling and sheltered water crane barges while on transfer voyages at sea.
Chapter 7	Simplified criteria of general application	Covers areas of operation C, D and E and specifies particular length of vessel.
7.7.3.2	Testing	Standard person mass of 80 kilograms (kg) plus an allowance of 10 kg per person for ancillary equipment is now to be used.
Annex A to K	Heel due to person crowding, wind, turning, wind on a vessel under sail, lifting, towing, trawl net snagging, severe wind and rolling from weather. angle to prevent down flooding in gusting winds	

Subsection 6C	Stability tests and stability information	<p>Section 40 of the Act places a safety obligation on ship designers, ship builders and marine surveyors about condition of ships. The guide for designing commercial and fishing ships and building commercial and fishing ships references subsection 6A (Intact Stability) and subsection 6C (Stability Tests and Stability Information) of the NSCV.</p> <p>Already available for use in Queensland through the design and build standard.</p> <p>This part of the NSCV is to be read in conjunction with:</p> <ul style="list-style-type: none"> • part A — Safety Obligations • part B — General Requirements • part C — Design and Construction <ul style="list-style-type: none"> ○ subsection 2A — Watertight and Weathertight Integrity, Load Line Vessels ○ subsection 6B — Buoyancy and Stability after Flooding ○ subsection 6C — Stability Tests and Stability Information
Chapter 3 3.3.2	<p>Determination of lightship particulars applies for vessels:</p> <ul style="list-style-type: none"> • for which the lightship particulars have not been established • that have been significantly altered • for which a lightship measurement has shown that either the lightship displacement or the lightship LCG has altered significantly. 	<p>A vessel shall be considered to have been significantly altered if the total mass of items added and removed exceeds 4% of the original lightship displacement.</p> <p>This section also defines sister ships and near-sister ships.</p>
Chapter 4	Methods of conducting simplified stability tests	<p>Specifies the methods for conducting simplified stability tests. The test methods are to comply with the requirements nominated in Table 2.</p> <p>The results of the tests shall be documented in the form of a stability compliance report.</p>
Chapter 5	Presentation of stability information	<p>Requirements for the carriage and use of stability information are specified in NSCV part E clause 2.10.3.1</p> <p>The <i>Transport Operations (Marine Safety) Regulation 2004</i> (the Regulation) schedule 4 part 1 requires commercial ships to keep records (stability information for loading ships). This is not a requirement for most fishing ships. However, Certificate of Compliance for stability is to be kept together with other certificates.</p>
Chapter 6	Arrangements for determining draft	<p>This chapter applies to all vessels for which the draft is to be determined for the purpose of intact stability.</p>
Annex A	Methods for conducting an inclining experiment or a lightship measurement	<p>Specifies the equipment and methods to be used in the inclining experiment, the controls over the area where the experiment is to be performed, control of tanks and bilges and equipment on board, location of inclining masses, calculations, results and report. Tables are supplied regarding the information and data that is to be recorded.</p>
Annex B and C	Guidance regards inclining experiments	<p>Guidance regarding determination of the cause of excessive deviations in mass movement/ guidance of accuracy of inclining experiment.</p>
Annex D	Method for conducting a practical inclining experiment	<p>The procedure applies to each condition of loading specified by the criteria to be analysed.</p>

Annex E	Method for conducting a stability proof test	The test for stability allows a vessel to be assessed against specified criteria quickly and without unduly compromising accuracy.
Annex F	Specification for the form and content of a stability book	The stability book shall be in a form suited for ready use by the operator and other persons responsible for controlling the intact stability of the vessel. This shall be a paper copy having a durable cover and secure binding. The information in the book is to be relevant to the operations of the vessel
Annex G to K	Preparation of KN data and GZ curves, abbreviated stability calculation methods and presentation, guidance for the preparation of a stability notice and specification for the format, positioning and marking of draft marks.	Guidance