



**Australian Government**

# **MARM002 Apply vessel construction theory to marine survey tasks**

**Release: 1**

# MARM002 Apply vessel construction theory to marine survey tasks

## Modification History

Release 1. New unit of competency.

## Application

This unit involves the skills and knowledge required to recognise how the construction and structural issues of commercial vessels relate to marine survey tasks.

This unit applies to people who assist marine surveyors or undertake administration duties in the maritime industry and/or marine surveying sector.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

Not applicable.

## Competency Field

M – Marine Surveying

## Unit Sector

Not applicable.

## Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------------------|
| <b>1 Identify major parts of a hull relevant to commercial vessel inspections and surveys</b> | <table border="0"><tr><td style="vertical-align: top;">1.1</td><td>Appropriate nomenclature is used to identify major parts of hull to be inspected as part of commercial vessel marine survey</td></tr><tr><td style="vertical-align: top;">1.2</td><td>Structure of vessel hull in plan-view, profile, cross-section and perspective are accurately analysed across a range of different plans and drawings of vessels to determine survey requirements</td></tr><tr><td style="vertical-align: top;">1.3</td><td>Use of plans and drawings in the survey are identified and applied during survey plan development</td></tr></table> | 1.1 | Appropriate nomenclature is used to identify major parts of hull to be inspected as part of commercial vessel marine survey | 1.2 | Structure of vessel hull in plan-view, profile, cross-section and perspective are accurately analysed across a range of different plans and drawings of vessels to determine survey requirements | 1.3 | Use of plans and drawings in the survey are identified and applied during survey plan development |
| 1.1                                                                                           | Appropriate nomenclature is used to identify major parts of hull to be inspected as part of commercial vessel marine survey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |                                                                                                                             |     |                                                                                                                                                                                                  |     |                                                                                                   |
| 1.2                                                                                           | Structure of vessel hull in plan-view, profile, cross-section and perspective are accurately analysed across a range of different plans and drawings of vessels to determine survey requirements                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |                                                                                                                             |     |                                                                                                                                                                                                  |     |                                                                                                   |
| 1.3                                                                                           | Use of plans and drawings in the survey are identified and applied during survey plan development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |                                                                                                                             |     |                                                                                                                                                                                                  |     |                                                                                                   |

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|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2 Identify commercial vessel types and their structure</b> | <ul style="list-style-type: none"><li>2.1 Basic factors determining design of commercial vessels are outlined</li><li>2.2 Features of vessel designed to ensure its watertight and weather tight integrity are identified and maintained</li><li>2.3 Survey or inspection plan relating to vessel design is identified and implemented</li><li>2.4 Vessel construction methods and materials are identified and used as the basis to determine inspection and survey tasks</li></ul>          |
| <b>3 Interpret basic vessel stability criteria</b>            | <ul style="list-style-type: none"><li>3.1 Basic stability theory as outlined in the National Standard for Commercial Vessels (NSCV) in relation to construction of a commercial vessel is accurately defined and basic stability calculations are performed</li><li>3.2 Purpose of a vessel stability assessment is correctly explained</li><li>3.3 Documentation and records required by surveyor to assess stability of vessel are identified and confirmed according to the NSCV</li></ul> |
| <b>4 Apply vessel construction theory to survey</b>           | <ul style="list-style-type: none"><li>4.1 Different types of vessel materials are identified to determine scope of survey</li><li>4.2 Survey plan appropriate to type of vessel is developed according to survey requirements and discussed with surveyor</li><li>4.3 Feedback on survey plan is sought from others and possible changes or improvements are clarified where required and incorporated</li></ul>                                                                              |

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Appropriate nomenclature must include:

- all of the terms in the NSCV and referenced standards

Commercial vessels must include:

- any vessel currently defined as a commercial vessel in Marine Safety (Domestic Commercial Vessel) National Law

Plans and drawings include one or more of the following:

- any plan as referred to in the NSCV
- bilge diagram
- cargo arrangement/tank plan
- docking plans
- fire and evacuation
- general arrangement plan
- lines plan
- sections and views
- shell expansion plan
- system operating procedures

Basic factors must include:

- Australian and New Zealand Standards
- class rules
- NSCV
- Uniform Shipping Laws (USL) Code

Basic factors include one or more of the following:

- framing requirements
- plating
- scantlings

Basic stability theory includes one or more of the following:

- differences between transverse and longitudinal stability and causes of list and trim
- effects of density of sea water on draught and freeboard of a small vessel
- impact of design and hull shape on stability
- relationship between light displacement, loaded displacement and deadweight tonnage
- relationship between weight and buoyancy in relation to floating bodies reserve buoyancy equilibrium
- stability terms and definitions
- any other terms referred to in standard works on small ship naval architecture

Types of vessel materials include one or more of the following:

- ferrocement
- laminated materials and fabrics
- laminated timber
- moulded fibre composites
- riveting

- welded and riveted
- welded metal
- wood
- any other methods relevant to local commercial vessel market referred to in standard works on small craft construction

## Unit Mapping Information

This unit replaces and is equivalent to MARM3002A Apply vessel construction theory to marine survey tasks.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>