



Australian Government

Department of Education, Employment and Workplace Relations

LMTTF3005A Apply lofting skills to sail making

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor This unit covers the skills and knowledge required to reproduce design lines onto sailcloth using manual techniques, for the purpose of sail making.

Application of the Unit

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This unit applies to the laying out of sailcloth on a floor and reproducing in full scale, the 'line drawings' and 'table of offsets' supplied by the sail designer onto the fabric in order to achieve a pattern with a three-dimensional outcome. Lofting is a traditional technique that does not require the use of computerised equipment.

Work may involve interaction with other people in the workplace including supervisors and production personnel or sail designers.

Work may be conducted in small to large scale enterprises and may involve individual and team activities. Work is performed within defined procedures under supervision of the sail designer.

The application of this unit is according to OHS practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control and recycling

This unit requires the application of skills associated with planning and organising to ensure safe and effective application of lofting skills to sail making. This unit also requires an ability to interpret sail design specifications, check the quality of outcomes, complete workplace documentation and identify production faults in own work. Self management skills are applied to ensure workplace and quality standards are achieved.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Interpret lofting requirements	<ul style="list-style-type: none">1.1 Sail design specifications are accessed and <i>sail type</i> is identified1.2 Design lines and Table of Offsets are interpreted correctly, and <i>sail features</i> identified1.3 <i>Lay up</i> specifications of sailcloth are identified1.4 Amount of floor space required to lay out <i>sailcloth</i> is determined1.5 <i>Equipment</i> needed for lofting is selected and set up for use1.6 Steps in lofting processes are determined and sequenced for maximum productivity
2 Lay out sailcloth	<ul style="list-style-type: none">2.1 Loft floor is cleaned and checked for foreign objects2.2 Sailcloth is laid out correctly using proper handling techniques, according to <i>OHS practices</i>2.3 Sailcloth is checked for faults or inconsistencies and appropriate action taken2.4 Directional and topside layout of sailcloth is checked according to fabric cutting requirements and design specifications2.5 Sailcloth is braced to the loft floor using appropriate method
3 Create lofted lines	<ul style="list-style-type: none">3.1 Straight baseline is determined and created using appropriate baseline marker3.2 Grid and line markings from line drawings are measured and marked onto sailcloth square to the baseline3.3 Heights are measured and marked3.4 Offsets are copied full-scale onto sailcloth3.5 Profile lines are drawn correctly3.6 Pattern is drawn from lofted lines directly onto sailcloth, with accurate allowances made for seams, joins, reinforced edges and other design features
4 Complete lofting process	<ul style="list-style-type: none">4.1 Pattern markings are checked for accuracy of three-dimensional outcome against design specifications4.2 Faults in marking and inconsistencies with design specifications are identified, recorded and corrected if possible4.3 Completed work is labelled, folded, packed, and loaded correctly and transferred to next area for cutting where appropriate4.4 Housekeeping and <i>required documentation</i> is completed

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Demonstrates knowledge of:

- the reasons for using lofting
- maintenance of the loft floor
- sail types for various uses and boat sizes
- performance and handling requirements of sail cloths
- design lines and tables of offsets
- common sail features applied in sail making
- cross-cut, radial and membrane panel layouts
- sail cloths commonly used in sail-making, and their performance factors
- steps involved in lofting process
- bracing methods and materials
- geometry and geometric drawing
- practices for laying out sailcloth
- practices for measuring and marking sailcloth
- equipment used for measuring and marking onto sailcloth
- quality standards for the sail making industry
- manual handling techniques
- environmental and waste-management requirements of sail-making industry
- labelling, folding, packing, and transferring requirements of lofted sail cloths
- product construction processes
- environmental requirements of relevant industry and workplace procedures
- general industry housekeeping policies and procedures
- OHS practices, including hazard identification and control measures
- workplace practices
- recording and reporting practices

Demonstrates skills to:

- correctly interpret sail design lines and table of offsets
- interpret enterprise requirements
- identify sail features
- select, prepare and use equipment
- apply proper handling techniques when laying out and transferring sailcloth
- identify faults and inconsistencies in sailcloth and in pattern line markings
- measure correctly
- check work against information and specifications throughout lofting process
- maximise material use and minimise waste
- maintain equipment and work area
- read, interpret and follow information on work specifications, standard operating

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procedures and work instructions and other reference material

- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- carry out work according to OHS practices

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Demonstrates skills and knowledge to:

- comply with all relevant safety requirements including safe use of tools and equipment used in handling materials, laying out and marking out
- interpret and apply Design Lines and Table of Offsets defining the pattern to be marked out
- interpret dimensions and other relevant specifications of components to be incorporated in pattern
- apply lay out, measuring and mark out techniques
- document and communicate work related information

Consistently applies skills and knowledge when:

- organising work
- completing tasks
- identifying improvements
- using workplace practices
- using OHS practices
- recording and reporting accidents and incidents
- assessing operational readiness of equipment used and work processes
- recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
- completing work systematically with attention to detail without damage to goods and equipment

Context and specific resources for assessment

Assessment may occur on the job or in an appropriately simulated environment and requires access to work areas, materials and equipment, and to information on workplace practices and OHS practices.

Guidance information for assessment

This unit may be assessed independently or in combination with other relevant units.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Legislative/regulatory requirements All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Sail type may include:

- one design
- cruising
- cruiser and racing
- racing yacht
- sails for a range of boat sizes

Equipment includes:

- marking chalk, tape, or other suitable implement for marking lines onto sailcloth
- measuring tools
- bracing materials
- baseline marker
- calculator
- specifications charts
- relevant plans and design drawings

Lay-up includes:

- cross-cut, radial and membrane panel layouts

Sail Features include:

- luff curves
- roach profiles
- leech hollows
- foot rounds
- marking reef points
- batten pockets
- openings
- inserts
- gussets
- reinforcing
- attachments

Sail cloth may include:

- dacron
- nylon
- vinyl
- canvas
- wovens
- spinnaker

	<ul style="list-style-type: none">• laminet• composite sailcloth
OHS practices	<p>OHS practices must include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may include:</p> <ul style="list-style-type: none">• manual handling techniques• standard operating procedures• personal protective equipment• safe materials handling• taking of rest breaks• ergonomic arrangement of workplaces• following marked walkways• safe storage of equipment• housekeeping• reporting accidents and incidents• other OHS practices relevant to the job and enterprise
Required documentation may include:	<ul style="list-style-type: none">• record of inconsistencies or faults• record of adhesives, materials and processes used• instructions for finishing• time and date• labelling• packing or transfer information

Unit Sector(s)

Sector Textile Fabrication