40083 Select materials for an advanced textiles project

Kaupae | Level	4
Whiwhinga | Credit	14
Whāinga | Purpose	This skill standard is intended for people who want to gain specialist knowledge and understanding of materials in large or complex advanced textiles projects in order to make informed decisions about their use. This skill standard can be used in programmes leading to the New Zealand Certificate in Advanced Textiles (Level 4) with strands in Industrial Textiles Fabrication, and Industrial Trimming [Ref: 5060].

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako | Learning outcomes	**Paearu aromatawai |** Assessment criteria
1. Describe properties of materials used in large or complex advanced textiles projects.	a. Describe the composition of materials used.
	b. Describe the construction of yarn and thread used.
	c. Describe the methods of construction and the features of materials used.
	d. Describe the types of weaving used in materials.
	e. Describe how to best store materials to maintain their particular aesthetic condition for use, maximise shelf life, and minimise deterioration.
	f. Describe how the capabilities and limitations of materials affect decisions about how they are used.
	g. Describe the environmental impact of the manufacture, use and disposal of materials.

Hua o te ako | Learning outcomes	**Paearu aromatawai |** Assessment criteria
2. Describe how fabric is specified for advanced textiles projects.	a. Describe how mass per area of fabric is specified in the workplace.
	b. Describe how the measurement of yarn is specified in the workplace.
	c. Describe how the thread count of a fabric is specified in the workplace.
3. Describe the finishes and treatments used on materials in advanced textiles projects.	a. Describe the types of treatments used on materials and their purpose.
	b. Describe the colourants and methods used to colour fabric.
	c. Describe the methods used to coat materials with Polyvinylchloride (PVC).
4. Describe the aesthetic properties of materials used in advanced textiles projects.	a. Describe material colours and the associated properties that impact their aesthetic performance.
	b. Describe the different aesthetics exhibited by workplace materials.
5. Describe standard material tests used in advanced textiles projects.	a. Describe the standard material tests used and the factors they measure.
	b. Explain the reasons for carrying out standard material tests and how test results would be applied.
6. Select materials for a large or complex advanced textiles project.	a. Compare specifications from two materials of similar end use capabilities and describe the effect of the differences identified on material performance.
	b. Select materials for an advanced textiles project with reference to the project requirements.
	c. Explain the selection of materials for an advanced textiles project with reference to the project requirements.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

The evidence presented for assessment against this skill standard must be consistent with safe working practices and be in accordance with applicable workplace requirements, industry guidelines, legislative requirements, and manufacturer's information.

Evidence must be provided of at least three different large or complex projects.

Examples of projects that may be used include (but are not limited to) manufacture or repair of: vehicle and marine upholstery, boat covers, convertible tops, tonneau covers, protective covers, clear enclosures, carpets, tarpaulins, tents and marquees, screens and blinds, awnings, shade sails, canopy structures, tension membrane skins and textile structures.

Definitions

Complex projects – projects that have a level of complexity in their production, e.g. multiple materials to be sourced, advanced technical skills required, coordination of other agencies or contractors, multiple components or parts to the product.

Industry guidelines – those practices and procedures commonly used as standard procedures to produce items of acceptable saleable quality in the industrial textile fabrication and trimming industry such as related textbook descriptors.

Large projects – projects that have additional production requirements due to their size or volume, e.g. high quantity of material, high labour needs, large production area.

Manufacturer's information – technical information for a machine or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

Material(s) – fabric, fittings and any other components used in the manufacture of industrial textile fabrication and trimming products.

Project requirements – refers to customer needs, material specifications, legislative or regulatory requirements where applicable.

Workplace requirements – instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.

***Ngā momo whiwhinga* |** *Grades available*

Achieved.

Ihirangi waitohu | Indicative content

Material composition

- Leathers, vinyls, carpets, canvas, PVC; calendared vs extruded vs press polished clear PVC.
- Components such as natural, spun, viscose, synthetics – high density polyethylene, polyethylene, polyvinyl chloride, polyester, acrylic.
- Synthetic materials such as solid PVC, clear PVC, PVC mesh, polyethylene.
- Natural fibre materials such as canvas, jute, calico.
- Foam grades and uses, bonding, layering.
- Foam shaping – hand/CNC/reverse shaping.
- Fabrics – fabric nap, pattern matching, stretch factors, bias.
- Carpets – types and uses, making and fitting.
- Sound and acoustic materials.
- Mouldings and rubber extrusions.

Yarn and thread construction

- Single and multi-ply, continuous monofilament, continuous multi-filament, spun staple, core spun.

Construction methods and features of materials

- Plastic extruded sheet, knitted, spun bonded, felt bonded, woven, warp, weft, bias, selvedge, stentering.
- Types of weaving such as plains, oxford, twill, jacquard, ripstop, panama.

Terminology

- Used to specify mass per area of fabric such as loom state, finished state, ounces per square yard, grams per square metre.
- Used to specify the measurement of yarn such as denier, tex, decitex, cotton count.
- Used to specify the thread count of a fabric such as pickscm, picksinch, endscm, endsinch, threads.

Treatments

- Coatings, waterproofing, ultraviolet (UV) stabilisers, mildew inhibiters.
- Colourants and methods used to colour fabric such as dye stuffs, pigments and mass dyed, yarn dyed, piece dyed, printed.
- Methods used to coat materials with Polyvinylchloride (PVC) such as laminate, hot melt, spread coat.

Capabilities and limitations

- Material colours and the associated properties that impact their performance such as weathering, pollution, contamination, UV, water.
- Different aesthetics exhibited by workplace materials such as light effects – translucency, opacity, gloss, matt; physical effects – rough, smooth, hard, soft, flexible, rigid.

Common material tests

- The factors they measure such as tear strength, tensile strength, waterproofing, colour fastness, abrasion, flex, stretch, shrinkage, cold crack, UV resistance.

Rauemi | Resources

Legislation, regulations and/or industry standards relevant to this skill standard include but are not limited to:

- Health and Safety at Work Act 2015.

Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this skill standard will take precedence for assessment purposes, pending review of this skill standard.

Legislation can be accessed at: https://www.legislation.govt.nz.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa | Standard Setting Body	Hanga-Aro-Rau Engineering, Manufacturing and Logistics Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai | DASS classification	Manufacturing > Industrial Textile Fabrication > Industrial Textile Fabrication Core Skills
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga | CMR	0014

Hātepe | Process	**Putanga |** Version	**Rā whakaputa |** Review Date	**Rā whakamutunga mō te aromatawai |** Last date for assessment
Rēhitatanga | Registration	1	29 August 2024	N/A
Kōrero whakakapinga | Replacement information	This skill standard replaced unit standard 23508.		
Rā arotake | Planned review date	31 December 2029		

Please contact Hanga-Aro-Rau Engineering, Manufacturing and Logistics Workforce Development Council at qualifications@hangaarorau.nz if you wish to suggest changes to this skill standard.