



Australian Government

Department of Education, Employment and Workplace Relations

LMFFDT5003A Assess and resolve technical integrity of a design

Revision Number: 1

LMFFDT5003A Assess and resolve technical integrity of a design

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit specifies the outcomes required to assess and resolve technical integrity of a design for a product using fundamental design elements and principles.
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Application of the Unit

Application of the unit	<p>This unit supports the attainment of skills and knowledge required for competent workplace performance in furnishing operations of all sizes. Assessment and resolution of technical integrity for a design applies to an industry workplace or design studio environment and involves application of skills and knowledge at a para-professional level. These skills and knowledge are to be used within the scope of the individual's job and authority.</p> <p>This unit includes employability skills in initiative and enterprise and problem solving to analyse designs and resolve design issues. Communication skills are applied to conduct research and interpret and document information. Learning is applied in openness to find new information.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for assessment	1.1. Applicable OHS, legislative and organisational requirements relevant to assessing and resolving technical integrity of a design are verified and complied with 1.2. Design brief is reviewed, confirmed and clarified with appropriate personnel 1.3. Communication with others is established and maintained 1.4. Problems or underlying factors being addressed by the design brief are verified 1.5. Client requirements and desires are reviewed, confirmed and clarified 1.6. Elements of design are assessed for the intended outcome 1.7. Principles of design are assessed for the intended outcome
2. Assess technical integrity	2.1. Requirements of the brief are prioritised and assessed for conflicts 2.2. Integrity of a design is tested for structural and ergonomic compliance 2.3. Mechanical strength and stress points of a design are evaluated and reported 2.4. Success and failure points of a design are analysed and reviewed 2.5. Distinctive and strong points of a design are highlighted and recorded 2.6. Level of innovation and technical merit of a design is assessed and recorded
3. Resolve technical integrity	3.1. Most suitable materials, equipment and manufacturing processes to resolve the technical faults of a brief are assessed to comply with the requirements 3.2. Alternative design solutions for a technical failure are researched and instigated 3.3. Restoration of existing designs are considered and acted upon for viable cases 3.4. Final documentation outlining the full analysis of the design brief is compiled and produced as a report

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- collect, organise and understand information related to work orders, basic plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- accurately recording and maintaining information relating to the furniture making and design functions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
- use pre-checking and inspection techniques to ensure the tools are serviceable and ready to use
- recognise and respond to circumstances outside instructions or personal competence
- efficiently and safely contribute to innovative design process
- plan and organise activities, including the preparation and layout of own worksite and the obtaining and use of tools and materials to avoid any backtracking, work flow interruptions or wastage
- use mathematical ideas and techniques to correctly complete measurements, calculate area and volume, and estimate other material requirements
- clarify and confirm work instructions
- plan own work within the given task parameters
- accept responsibility for given tasks
- set, monitor and satisfy personal work goals
- satisfy the competency requirements for the job
- learning of thinking, problem solving and conceptual techniques
- maintain current knowledge of tools and materials
- maintain current knowledge of furniture making and designing techniques
- seek learning opportunities
- use the workplace technology related to the use of tools, including calculators, measuring and recording devices.

Required knowledge

- State or Territory OHS legislation, regulations, standards and codes of practice relevant to assessing and resolving technical integrity of a design
- organisational and site standards, requirements, policies and procedures for assessing and resolving technical integrity of a design
- environmental protection requirements
- established communication channels and protocols

REQUIRED SKILLS AND KNOWLEDGE

- problem identification and resolution
- elements and principles of design
- technical integrity of design
- ergonomics and aesthetic values
- types of tools and equipment and procedures for their safe use, operation and maintenance
- characteristics of materials, products and defects
- computer programs
- product assembly techniques and equipment capabilities
- sketching and drawing
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

Evidence Guide

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 relevant Training Package.

Overview of assessment

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

- Effectively assess and resolve technical integrity of a design, work through the design process assessing the requirements and recording the intended resolution
- Effectively apply design elements and principles to assess and resolve technical integrity of a design
- Effectively produce a report on the intended resolution as a result of assessing and resolving technical integrity of a design
- Comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for assessing and resolving technical integrity of a design
- Communicate effectively and work safely with others in the work area

Context of, and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to assessing and resolving technical integrity of a design
 - specifications and work instructions

Method of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Furnishing Industry Training Package
- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application

EVIDENCE GUIDE	
	<ul style="list-style-type: none">• Assessment may be applied under project related conditions (real or simulated) and require evidence of process• Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances• Assessment may be in conjunction with assessment of other units of competency
Guidance information for assessment	

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 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.

OHS requirements	<ul style="list-style-type: none"> are to be in accordance with Commonwealth, State or Territory legislation and regulations, organisational safety policies and procedures requirements may include but not be limited to the use of personal protective equipment and clothing, fire fighting equipment, first aid equipment, hazard and risk control and elimination of hazardous materials and substances, manual handling including lifting and carrying
Legislative requirements	<ul style="list-style-type: none"> are to be in accordance with applicable legislation from all levels of government that affect organisational operation requirements may include but not be limited to award and enterprise agreements, industrial relations, Australian Standards, confidentiality and privacy, OHS, the environment, equal opportunity, anti-discrimination, relevant industry codes of practice, duty of care and heritage
Organisational requirements	<ul style="list-style-type: none"> may include but not be limited to legal, organisational and site guidelines, policies and procedures relating to own role and responsibility, quality assurance, procedural manuals, quality and continuous improvement processes and standards, OHS, emergency and evacuation, ethical standards, recording and reporting, access and equity principles and practices, equipment use, maintenance and storage, environmental management (waste disposal, recycling and re-use guidelines)
Design brief	<ul style="list-style-type: none"> may include but not be limited to the aims, objectives, milestones for the design project, the point of reference for everyone, elements and principles of design and may include organisational or personal profiles, aims, target audience, budget, timeline, consultation requirements, colour requirements, image requirements and function
Appropriate personnel	<ul style="list-style-type: none"> may include but not be limited to trainers, supervisors, suppliers, clients, colleagues and managers
Communication	<ul style="list-style-type: none"> may include verbal and non-verbal language, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of

RANGE STATEMENT	
	voice and body language
Client	<ul style="list-style-type: none"> may include but not be limited to suppliers, manufacturers, private clients, colleagues, retailers or the public
Elements of design	<ul style="list-style-type: none"> may include but not be limited to line, shape, form (geometric or organic), texture, colour, and function
Principles of design	<ul style="list-style-type: none"> may include but not be limited to balance, proportion (symmetry, asymmetry), harmony, contrast, pattern, movement, rhythm, unity, style, focus, scale, dominant, sub dominant or subordinate relationship, emphasis, proximity, alignment, space, anthropometry, ergonomics, arrangement, workload, materials handling capacity, skills, control, equipment capabilities, aesthetic relations, tension and development methods
Conflicts	<ul style="list-style-type: none"> may include but not be limited to technical aspects of a design which appear or act in different manner to the intent of the product design
Integrity	<ul style="list-style-type: none"> may include but not be limited to the intended structural qualities and construction methods of a designed product
Structural	<ul style="list-style-type: none"> may include but not be limited to construction methods for all or parts of a designed product which are not intended to fail under regular and continual use
Ergonomics	<ul style="list-style-type: none"> is to include the study of the efficiency of persons in their working environment
Mechanical strength	<ul style="list-style-type: none"> is to include the strength of parts or joints under the pressure of operation in general usage situations
Material	<ul style="list-style-type: none"> may include but not be limited to native timber (native and imported), man-made timber products, plastic, metal, alloys, stones, glass, textiles, fibreglass, foam, cardboard, paper products or any other manipulable substance
Equipment	<ul style="list-style-type: none"> may include but not be limited to hand tools, static machinery, portable power tools and computer numerically controlled equipment may also include procedures for lock out protecting operators and co-workers from accidental injury by isolating the machine from the power source
Manufacturing process	<ul style="list-style-type: none"> may include but not be limited to the methods by which the product will be produced, these steps usually entail working from working drawings and specifications, producing components utilising machine operations, assembly of the components and finishing techniques

Unit Sector(s)

Unit sector	Furniture design and technology.
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		