



# Skills for Employment Investment Program (SEIP)

**COMPETENCY-BASED LEARNING MATERIAL  
(FACULTY GUIDE)**

**FOR**

**ALUMINIUM FABRICATION AND INSTALLATION  
(CONSTRUCTION SECTOR)**

**Finance Division, Ministry of Finance  
Government of the People's Republic of Bangladesh**

## Table of Contents

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<b>Copyright</b>	<b>4</b>
<b>Approval Sheet</b>	<b>5</b>
<b>How to Use this Competency-based Learning Material</b>	<b>7</b>
<b>Introduction to Teaching Adult Learners</b>	<b>8</b>
<b>List of Icons</b>	<b>10</b>
<b>Modules</b>	<b>11</b>
Module 1: Explain fundamentals of aluminium materials and processes	11
Learning Outcome 1.1 - Describe the properties of aluminium materials	12
Learning Outcome 1.2 - Identify the fabrication processes for aluminium profiles	13
Module 2: Cut aluminium profile materials	14
Learning Outcome 2.1 - Prepare machines and work area for safe operation	15
Learning Outcome 2.2 - Perform cutting of aluminum materials	16
Learning Outcome 2.3 - Finish cut ends of aluminium materials	17
Learning Outcome 2.4 - Clean and maintain tools, equipment and work area	18
Module 3: Fabricate and install aluminium windows and glass	19
Learning Outcome 3.1 - Identify work requirements	21
Learning Outcome 3.2 - Prepare for work	22
Learning Outcome 3.3 - Fabricate aluminium structure for windows	23
Learning Outcome 3.4 - Install aluminum windows and glass	24
Learning Outcome 3.5 - Clean and maintain tools, equipment and work area	25
Module 4: Fabricate and install aluminium doors and glass	26
Learning Outcome 4.1 - Identify work requirements	28
Learning Outcome 4.2 - Prepare for work	29
Learning Outcome 4.3 - Fabricate aluminium structure for doors	30
Learning Outcome 4.4 - Install aluminum door and glass	31
Learning Outcome 4.5 - Clean and maintain tools, equipment and work area	32
Module 5: Fabricate and install aluminium partition and glass	33
Learning Outcome 5.1 - Identify work requirements	35
Learning Outcome 5.2 - Prepare for work	36
Learning Outcome 5.3 - Fabricate aluminium structure for glass partition/wall	37
Learning Outcome 5.4 - Install aluminum partition/wall and glass	38
Learning Outcome 5.5 - Clean and maintain tools, equipment and work area	39
Module 6: Fabricate and Install Aluminium False Ceiling	40
Learning Outcome 6.1 - Identify work requirements	42
Learning Outcome 6.2 - Prepare for work	43
Learning Outcome 6.3 - Fabricate aluminium structure for false ceiling	44
Learning Outcome 6.4 - Install aluminum structure for false ceiling and board	45



## Copyright

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The Competency-based Learning Material (Faculty Guide) for Aluminium Fabrication and Installation is a document, aligned to its applicable competency standard, for providing training consistent with the requirements of industry in order for individuals who graduated through the established standard via competency-based assessment to be suitably qualified for a relevant job.

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## Approval Sheet

Identification and validation of modules and content for this occupation were made by experts within this sector. A series of consultations were held to accurately capture industry and employer needs and expectations and develop the learning material that would help to enhance the employability of the youth trained. This process started on 8 July 2018 and concluded with a validation workshop with a sectoral working group on 2 October 2018.

### Experts Involved

Industry and subject-matter experts who provided their valuable inputs to develop this competency-based learning material [July 2018 - October 2018]:

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Competency-based learning material validation workshop participants [held on 2 October 2018]:

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Md. Monriuzzaman Hoque	Home Technology Limited	Senior Project Engineer
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## How to Use this Competency-based Learning Material

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Welcome to the competency-based learning material for Aluminium Fabrication and Installation for use in Textile works. These modules contain training materials and activities for learners to complete in order to become competent and qualified as a skilled worker.

There are six (6) modules that make up this course which comprises the skills, knowledge and attitudes required to become a skilled worker including:

1. Explain fundamentals of aluminium materials and processes
2. Cut aluminium profile materials
3. Fabricate and install aluminium windows and glass
4. Fabricate and install aluminium doors and glass
5. Fabricate and install aluminium partition and glass
6. Fabricate and install aluminium false ceiling

As a trainer, you are required to guide the learners through a series of activities in order to complete each learning outcome of the module. These activities may be completed as part of structured classroom activities or they may be required to work at their own pace.

These activities will require the learners to complete associated learning and practice activities in order to gain knowledge and skills they need to achieve the learning outcomes. Refer to **Learning Activity Page of each module** to know the sequence of learning tasks and the appropriate resources to use for each task.

This page will serve as the road map towards the achievement of competence. If you read the **Information Sheets**, these will give you an understanding of the work, and why things are done the way they are. Once the learners have finished reading the Information Sheets, they are required to complete the questions in the **Self-Check Sheets**.

The self-check process follows the Information Sheets in the learning guide. Completing self-checks will help the learners know how they are progressing. To know how they fared with self-checks, they can review the **Answer Key**.

The learners are required to complete all activities as directed in the **Job Sheet**. This is where they will apply their newly acquired knowledge while developing new skills. When working, high emphasis should be laid on safety requirements. The learners should be encouraged to raise relevant queries or ask the facilitator for assistance as required.

When the learners have completed all the tasks required in the learning guide, an assessment event will be scheduled to evaluate if they have achieved competency of the specified learning outcomes and are ready for the next task.

## Introduction to Teaching Adult Learners

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Since you will be dealing with adult learners, it is important to understand the basic principles of adult learning and methodologies. Adults learn best through associations, experiences and application. A few facts to consider while teaching adult learners:

**Discussion:** Adult learning is best managed through mutual dialogue and discussion. Discussion needs to be encouraged and used in the classroom to maximise learning.

**Associations:** Adults have experiences which can be related to any learning objectives to create associations which enhance conceptual comprehension. Associations can be used to create user interest and gain attention. Adults learn new attitudes or skills best in relation to previous life experiences.



This strategy also ensures knowledge retention.

**Create an environment conducive to learning and sharing:** Make people feel comfortable talking to you and each other. They should feel at ease asking questions, sharing views even if they are not very sure of the efficacy of their suggestions or views.

**Physical surroundings:** Temperature, light, space and furniture should be optimal. There should be no distractions.

**Inculcate respect:** Encourage learners' contributions and experiences. People are more encouraged to learn and share when their experiences are acknowledged - new information builds easily on past knowledge and experience.

**Reward and recognition:** Acknowledging the efforts of people, even small attempts, can reap great benefits. Learners like to receive praise and positive encouragement, which motivates them to deliver their best.

Learners also like to be reassured that they are correctly recalling or using information they have absorbed in the classroom.

**Structured teaching:** Learners study faster when information or skills are presented in a structured way:

- Concepts to be taught in small, bite sized portions for easy assimilation
- Put forth the easiest ideas or skills first and then gradually build on them
- Bring in the important ideas first
- Reinforce key ideas at regular intervals
- Reinforce high order concepts at regular intervals

**Move learner from generic to specific flow of information:** Introduce the generic concepts first and then move to specific more complex information to ease understanding and comprehension.

**Application of concepts/ideas taught:** Help students put into practice the concepts taught in the class through exercises and work-based projects. Application ensures knowledge retention and skill building.

**Relevance building:** Build up relevance of the concepts being taught in class by relating them to day-to-day life and workplace experiences.

Learners should know to use and apply what they have learned in the classroom as they learn faster when they recognise that what they are learning will be useful in the future.

**Sharing:** Encourage learners to learn from each other and solve problems collectively. This makes learning easier and improves team spirit and the interpersonal skills of the learners.

**Participation:** Involve learners in the class - adults favour to be *active participants* in learning rather than passive receivers of knowledge. People learn faster when they actively process information, solve problems and practice skills.

**Motivate:** Inspire the class so that teaching does not become a one-way process of knowledge download. Learners will learn faster when they feel an inner urge to learn and be an active participant in the class.

Create a learning environment in which the learners feel free and able to shed their inhibitions and develop receptivity towards new ideas and concepts.



Students will have different motivation levels - some will be more eager to learn than others as each learner is different from the other and therefore need to be treated differently.

And remember - adapt your communication style to suit the needs of the audience.

**Communicate effectively:** Communicate in a manner that is understood by the class. The language and sentence structuring should be clear and succinct.

Technical concepts should be explained in a manner that de-mystifies the concept - make things simple and easy to understand.

Avoid using *too much* technical jargon - if it is part of the curriculum, ensure the class is first made familiar with the words or jargon used.

**Assessments:** Conduct skill and knowledge checks regularly:















- Reinforce high order concepts at regular intervals.
- Conduct formative and summative assessments.
- Strengthen areas which appear to be weak.

**Regular feedback:**

- Provide regular feedback to learners
- Help them identify their strengths and areas of improvement
- Feedback should always be constructive
- Timely and specific feedback is easier to accept and act on



## List of Icons

Icon Name	Icon
Module content	
Learning outcomes	
Performance criteria	
Contents	
Assessment criteria	
Resources required	
Information sheet	
Self-check Quiz	
Answer key	
Activity	
Video reference	
Learner job sheet	
Assessment plan	
Review of competency	

## Module 1: Explain fundamentals of aluminium materials and processes

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<b>Module Descriptor:</b>	This module covers the skills, knowledge and attitudes to explain fundamentals of aluminium materials and processes. It specifically includes describing the properties of aluminium materials and identifying the fabrication processes for aluminium profiles.	
<b>Nominal Duration:</b>	24 hours	
<b>Learning Outcomes:</b>	1.1.	Describe the properties of aluminium materials
	1.2.	Identify the fabrication processes for aluminium profiles
<b>Performance Criteria:</b>	1.1.	Properties of aluminium materials are identified.
	1.2.	Uses of Aluminium in the construction sector is identified.
	1.3.	Advantages and disadvantages of aluminium materials in construction application is explained.
	1.4.	Aluminium production by extrusion method is identified.



## Learning Outcome 1.1 – Describe the Properties of Aluminium Materials

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Properties of aluminium</li> <li>▪ Uses of aluminium in the construction sector</li> <li>▪ Advantages and disadvantages of aluminium materials in construction application</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium materials</li> <li>▪ Catalogue/magazine related to aluminium profile materials</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	1.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 1.1.1</li> <li>▪ Self-Check Quiz 1.1.1</li> <li>▪ Answer Key 1.1.1</li> </ul> <a href="http://www.aalco.co.uk/.../Aluminium-Alloy_Introduction-to-Aluminium-and-its-alloys_9.a...">www.aalco.co.uk/.../Aluminium-Alloy_Introduction-to-Aluminium-and-its-alloys_9.a...</a>	8 9 14
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Properties of aluminium materials are identified</li> <li>▪ Uses of Aluminium in the construction sector is identified</li> <li>▪ Advantages and disadvantages of aluminium materials in construction application is explained</li> </ul>		



## Learning Outcome 1.2 – Identify the Fabrication Processes for Aluminium Profiles

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium extrusion method and process</li> <li>▪ Fabrication processes for aluminium</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Printed materials on aluminium production by extrusion method</li> <li>▪ Print copy/drawing of fabrication processes for aluminium profiles</li> <li>▪ Video on aluminium production and fabrication process</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	1.2	<ul style="list-style-type: none"> <li>▪ Information Sheet 1.2.1</li> <li>▪ Self-Check Quiz 1.2.1</li> <li>▪ Answer Key 1.2.1</li> </ul> <a href="http://en.wikipedia.org/wiki/Extrusion">http://en.wikipedia.org/wiki/Extrusion</a>	11 13 14
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium production by extrusion method is identified</li> <li>▪ Fabrication processes for aluminium profiles are identified</li> </ul>		

## Module 2: Cut aluminium profile materials

<b>Module Descriptor:</b>	This module covers the knowledge, skills and attitudes to cut aluminium profile materials. It specifically includes preparing machines and work area for safe operation, performing cutting of aluminium materials, finishing cut ends of aluminium materials and cleaning and maintaining tools, equipment and work area.	
<b>Nominal Duration:</b>	40 hours	
<b>Learning Outcomes:</b>	<b>2.1.</b>	Prepare machines and work area for safe operation
	<b>2.2.</b>	Perform cutting of aluminium materials
	<b>2.3.</b>	Finish cut ends of aluminium ends
	<b>2.4.</b>	Clean and maintain tools, equipment and work area
<b>Performance Criteria:</b>	<b>2.1.</b>	Machines used for aluminium fabrication works are prepared and checked for operating condition.
	<b>2.2.</b>	Tools and personal protective equipment (PPE) are gathered and check for usability.
	<b>2.3.</b>	Work area is cleaned and prepared for safe cutting operation.
	<b>2.4.</b>	Recommended aluminium cutting equipment and tools are used to cut aluminium profiles safely.
	<b>2.5.</b>	Hazards associated when performing aluminium cutting and grinding work is identified.
	<b>2.6.</b>	Personal protective equipment is used when cutting aluminium materials.
	<b>2.7.</b>	Cutting of aluminium materials is performed in accordance with workplace requirements.
	<b>2.8.</b>	Appropriate processes are carried out on an aluminium end after cutting.
	<b>2.9.</b>	Cut ends of aluminium materials are finished in accordance with workplace/work plan specification.
	<b>2.10.</b>	PPE, tools and equipment are cleaned and checked for usability.
	<b>2.11.</b>	Work area is cleaned in accordance with workplace requirements.
	<b>2.12.</b>	Tools, equipment and PPE are stored in accordance with workplace policy.



## Learning Outcome 2.1 – Prepare Machines and Work Area for Safe Operation

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Machines used for aluminium fabrication works</li> <li>▪ Uses of tools and personal protective equipment (PPE)</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plug, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.1.1</li> <li>▪ Information Sheet 2.1.2</li> <li>▪ Information Sheet 2.1.3</li> <li>▪ Self-Check Quiz 2.1.1</li> <li>▪ Self-Check Quiz 2.1.2</li> <li>▪ Self-Check Quiz 2.1.3</li> <li>▪ Answer Key 2.1.1</li> <li>▪ Answer Key 2.1.2</li> <li>▪ Answer Key 2.1.3</li> </ul>	<p>16</p> <p>19</p> <p>21</p> <p>19</p> <p>21</p> <p>22</p> <p>32</p> <p>32</p> <p>32</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Machines used for aluminium fabrication works are prepared and checked for operating condition</li> <li>▪ Tools and personal protective equipment (PPE) are gathered and check for usability</li> <li>▪ Work area is cleaned and prepared for safe cutting operation</li> </ul>		



## Learning Outcome 2.2 – Perform Cutting of Aluminium Materials

<b>Contents:</b>	<ul style="list-style-type: none"> <li>Hazards in aluminium cutting and grinding work</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>Workplace (simulated or actual)</li> <li>Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scriber, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.2	<ul style="list-style-type: none"> <li>Information Sheet 2.2.1</li> <li>Self-Check Quiz 2.2.1</li> <li>Answer Key 2.2.1</li> </ul>	23 25 32
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>Recommended aluminium cutting equipment and tools are used to cut aluminium profiles safely</li> <li>Hazards associated when performing aluminium cutting and grinding work is identified</li> <li>Personal protective equipment is used when cutting aluminium materials.</li> <li>Cutting of aluminium materials is performed in accordance with workplace requirements</li> </ul>		





### Learning Outcome 2.3 – Finish Cut Ends of Aluminium Materials

<b>Contents:</b>	<ul style="list-style-type: none"> <li>Appropriate processes</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>Workplace (simulated or actual)</li> <li>Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>Tools and equipment: files, sand paper, reamer</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.3	<ul style="list-style-type: none"> <li>Information Sheet 2.3.1</li> <li>Self-Check Quiz 2.3.1</li> <li>Answer Key 2.3.1</li> </ul> <a href="https://en.wikipedia.org/wiki/Burr_(edge)">https://en.wikipedia.org/wiki/Burr_(edge)</a> <a href="https://en.wikipedia.org/wiki/Filing_(metalworking)">https://en.wikipedia.org/wiki/Filing_(metalworking)</a> <a href="https://en.wikipedia.org/wiki/Chamfer">https://en.wikipedia.org/wiki/Chamfer</a> <a href="https://en.wikipedia.org/wiki/Miter_joint">https://en.wikipedia.org/wiki/Miter_joint</a>	26 27 32
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>Appropriate processes are carried out on an aluminium end after cutting</li> <li>Cut ends of aluminium materials are finished in accordance with workplace/work plan specification</li> </ul>		



**Learning Outcome 2.4 – Clean and maintain tools, equipment and work area**

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Importance and necessity of cleaning tools, equipment and workplace</li> <li>▪ Methods of cleaning, tools and equipment required for cleaning</li> <li>▪ Storing of tools and equipment used</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): gloves, dust mask, safety shoes, hard hat, belt/body harness, goggles, working clothes, apron, ear plugs</li> <li>▪ Tools and equipment: brooms, dusters, dust pans, cleaning brushes, mops, waste containers and cotton rags</li> <li>▪ Materials: water, detergents, abrasives, bleaches</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.4.1</li> <li>▪ Self-Check Quiz 2.4.1</li> <li>▪ Answer Key 2.4.1</li> </ul> <p><a href="https://en.wikipedia.org/wiki/Cleaning_agent">https://en.wikipedia.org/wiki/Cleaning_agent</a></p> <p><a href="https://www.hunker.com/12406192/how-to-store-tools-equipment">https://www.hunker.com/12406192/how-to-store-tools-equipment</a></p>	<p>28</p> <p>31</p> <p>33</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ PPE, tools and equipment are cleaned and checked for usability</li> <li>▪ Work area is cleaned in accordance with workplace requirements</li> <li>▪ Tools, equipment and PPE are stored in accordance with workplace policy</li> </ul>		

## Module 3: Fabricate and install aluminium windows and glass

<b>Module Descriptor:</b>	This module covers the skills, knowledge and attitudes to fabricate and install aluminium windows with glass. It specifically includes identifying work requirements, preparing for work, fabricating aluminium structure for windows, installing aluminium windows and glass and cleaning and maintaining tools, equipment and work area.	
<b>Nominal Duration:</b>	56 hours	
<b>Learning Outcomes:</b>	3.1.	Identify work requirements
	3.2.	Prepare for work
	3.3.	Fabricate aluminium structure for windows
	3.4.	Install aluminium windows and glass
	3.5.	Clean and maintain tools, equipment and work area
<b>Performance Criteria:</b>	3.1.	Dimensions of aluminium windows are identified in accordance with workplace plan/drawing and specifications.
	3.2.	Types/classification of aluminium profile for window is identified in accordance with workplace plan/drawing and specifications.
	3.3.	Shape of aluminium profile for window and glass works is determined.
	3.4.	Work requirements are identified in accordance with workplace plan/drawing and specifications.
	3.5.	Tools and equipment are gathered and checked for usability and working conditions.
	3.6.	Materials are gathered and checked for quality and compliance to workplace specifications.
	3.7.	Aluminium profile/materials are measured in accordance with work plan/drawing specifications.
	3.8.	Aluminium profile/materials are cut in accordance with work plan/drawing specifications.
	3.9.	Method of assembly of structure for windows is identified in accordance with workplace plan/drawing specifications.
	3.10.	Assembly of aluminium structure for windows is performed in accordance with plans/drawings.
	3.11.	Aluminium window frame/structure is installed on location in accordance with workplace requirement.
	3.12.	Aluminium window frame/structure is fixed on location in accordance with workplace requirements.
	3.13.	Type of glass and size to be installed is identified in accordance with work plan/drawing specification.
	3.14.	Glasses are cut to specified dimension in accordance with work plan/drawing specification.
	3.15.	Glasses are installed into the aluminium window frame/structure safely and in accordance with workplace requirements.
	3.16.	PPE, tools and equipment are cleaned and checked for usability.

	<b>3.17.</b>	Work area is cleaned in accordance with workplace requirements.
	<b>3.18.</b>	Tools, equipment and PPE are stored in accordance with workplace policy.



### Learning Outcome 3.1 – Identify Work Requirements

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Types/classification of aluminium profile for window</li> <li>▪ Shape of aluminium profile for window</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile materials for windows</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	3.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 3.1.1</li> <li>▪ Self-Check Quiz 3.1.1</li> <li>▪ Answer Key 3.1.1</li> </ul>	36 37 49
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Dimensions of aluminium windows are identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Types/classification of aluminium profile for window is identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Shape of aluminium profile for window and glass works is determined</li> <li>▪ Work requirements are identified in accordance with workplace plan/drawing and specifications</li> </ul>		



### Learning Outcome 3.2 – Prepare for Work

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment</li> <li>▪ Aluminium materials</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	3.2	<ul style="list-style-type: none"> <li>▪ Information Sheet 3.2.1</li> </ul>	38
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment are gathered and checked for usability and working condition</li> <li>▪ Materials are gathered and checked for quality and compliance to workplace specifications</li> </ul>		



### Learning Outcome 3.3 – Fabricate Aluminium Structure for Windows

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Cutting of aluminium profile/materials</li> <li>▪ Method of assembly of structure for windows</li> <li>▪ Assembly of aluminium structure for windows</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	3.3	<ul style="list-style-type: none"> <li>▪ Information Sheet 3.3.1</li> <li>▪ Self-Check Quiz 3.3.1</li> <li>▪ Answer Key 3.3.1</li> </ul> <p><a href="https://www.wikihow.com/Measure-Your-Windows">https://www.wikihow.com/Measure-Your-Windows</a></p>	<p>40</p> <p>43</p> <p>49</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile/materials are measured in accordance with work plan/drawing specifications</li> <li>▪ Aluminium profile/materials are cut in accordance with work plan/drawing specifications</li> <li>▪ Method of assembly of structure for windows is identified in accordance with workplace plan/drawing specifications</li> <li>▪ Assembly of Aluminium structure for windows is performed in accordance with plans/drawings</li> </ul>		



### Learning Outcome 3.4 – Install Aluminium Windows and Glass

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Install and fix aluminium window frame/structure</li> <li>▪ Type of glass</li> <li>▪ Cut and install glass into the aluminium windows</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: fabricated aluminium structure, window glass</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	3.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 3.4.1</li> <li>▪ Job Sheet 1</li> <li>▪ Self-Check Quiz 3.4.1</li> <li>▪ Answer Key 3.4.1</li> </ul> <p><a href="https://www.youtube.com/watch?v=t9Ty95hZo38">https://www.youtube.com/watch?v=t9Ty95hZo38</a></p>	<p>44</p> <p>46</p> <p>47</p> <p>49</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium window frame/structure is installed on location in accordance with workplace requirement</li> <li>▪ Aluminium window frame/structure is fixed on location in accordance with workplace requirements</li> <li>▪ Type of glass and size to be installed is identified in accordance with work plan/drawing specification</li> <li>▪ Glasses are cut to specified dimension in accordance with work plan/drawing specification</li> <li>▪ Glasses are installed into the Aluminum window frame/structure safely and in accordance with workplace requirements</li> </ul>		





### Learning Outcome 3.5 – Clean and Maintain Tools, Equipment and Work Area

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Importance and necessity of cleaning tools, equipment and workplace</li> <li>▪ Methods of cleaning, tools and equipment required for cleaning</li> <li>▪ Storing of tools and equipment used</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): gloves, dust mask, safety shoes, hard hat, belt/body harness, goggles, working clothes, apron, ear plugs</li> <li>▪ Tools and equipment: brooms, dusters, dust pans, cleaning brushes, mops, waste containers and cotton rags</li> <li>▪ Materials: water, detergents, abrasives, bleaches</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.4.1</li> </ul> <a href="https://en.wikipedia.org/wiki/Cleaning_agent">https://en.wikipedia.org/wiki/Cleaning_agent</a> <a href="https://www.hunker.com/12406192/how-to-store-tools-equipment">https://www.hunker.com/12406192/how-to-store-tools-equipment</a>	28
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ PPE, tools and equipment are cleaned and checked for usability</li> <li>▪ Work area is cleaned in accordance with workplace requirements</li> <li>▪ Tools, equipment and PPE are stored in accordance with workplace policy</li> </ul>		

## Module 4: Fabricate and install aluminium doors and glass

<b>Module Descriptor:</b>	This module covers the skills, knowledge and attitudes to fabricate and install aluminium doors with glass. It specifically includes identifying work requirements, preparing for work, fabricating aluminium structure for doors, installing aluminium doors and glass and cleaning and maintaining tools, equipment and work area.	
<b>Nominal Duration:</b>	56 hours	
<b>Learning Outcomes:</b>	4.1.	Identify work requirements
	4.2.	Prepare for work
	4.3.	Fabricate aluminium structure for doors
	4.4.	Install aluminium doors and glass
	4.5.	Clean and maintain tools, equipment and work area
<b>Performance Criteria:</b>	4.1.	Dimensions of aluminium doors are identified in accordance with workplace plan/drawing and specifications.
	4.2.	Types/classification of aluminium profile for door is identified in accordance with workplace plan/drawing and specifications.
	4.3.	Shape of aluminium profile for door and glass works is determined.
	4.4.	Work requirements are identified in accordance with workplace plan/drawing and specifications.
	4.5.	Tools and equipment are gathered and checked for usability and working conditions.
	4.6.	Materials are gathered and checked for quality and compliance to workplace specifications.
	4.7.	Aluminium profile/materials are measured in accordance with work plan/drawing specifications.
	4.8.	Aluminium profile/materials are cut in accordance with work plan/drawing specifications.
	4.9.	Method of assembly of structure for doors is identified in accordance with workplace plan/drawing specifications.
	4.10.	Assembly of aluminium structure for doors is performed in accordance with plans/drawings.
	4.11.	Aluminium door frame/structure is installed on location in accordance with workplace requirement.
	4.12.	Aluminium door frame/structure is fixed on location in accordance with workplace requirements.
	4.13.	Type of glass and size to be installed is identified in accordance with work plan/drawing specification.
	4.14.	Glasses are cut to specified dimension in accordance with work plan/drawing specification.
	4.15.	Glasses are installed into the aluminium door frame/structure safely and in accordance with workplace requirements.
	4.16.	PPE, tools and equipment are cleaned and checked for usability.

	<b>4.17.</b>	Work area is cleaned in accordance with workplace requirements.
	<b>4.18.</b>	Tools, equipment and PPE are stored in accordance with workplace policy.



## Learning Outcome 4.1 – Identify Work Requirements

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Types/classification of aluminium profile for door</li> <li>▪ Shape of aluminium profile for door</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile materials for doors</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	4.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 4.1.1</li> <li>▪ Self-Check Quiz 4.1.1</li> <li>▪ Answer Key 4.1 .1</li> </ul>	<p>52</p> <p>53</p> <p>63</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Dimensions of aluminium doors are identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Types/classification of aluminium profile for door is identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Shape of aluminium profile for door and glass works is determined</li> <li>▪ Work requirements are identified in accordance with workplace plan/drawing and specifications</li> </ul>		



## Learning Outcome 4.2 – Prepare for Work

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment</li> <li>▪ Aluminium materials</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch.</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	4.2	<ul style="list-style-type: none"> <li>▪ Information Sheet 4.2.1</li> </ul>	54
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment are gathered and checked for usability and working conditions</li> <li>▪ Materials are gathered and checked for quality and compliance to workplace specifications</li> </ul>		



### Learning Outcome 4.3 – Fabricate Aluminium Structure for Doors

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Cutting of aluminium profile/materials</li> <li>▪ Method of assembly of structure for doors</li> <li>▪ Assembly of aluminium structure for doors</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	4.3	<ul style="list-style-type: none"> <li>▪ Information Sheet 4.3.1</li> <li>▪ Self-Check Quiz 4.3.1</li> <li>▪ Answer Key 4.3.1</li> </ul> <a href="https://www.wikihow.com/Measure-Your-Windows">https://www.wikihow.com/Measure-Your-Windows</a>	<p>56</p> <p>57</p> <p>63</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile/materials are measured in accordance with work plan/drawing specifications</li> <li>▪ Aluminium profile/materials are cut in accordance with work plan/drawing specifications</li> <li>▪ Method of assembly of structure for doors is identified in accordance with workplace plan/drawing specifications</li> <li>▪ Assembly of aluminium structure for doors is performed in accordance with plans/drawings</li> </ul>		



## Learning Outcome 4.4 – Install Aluminium Doors and Glass

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Install and fix aluminium door frame/structure</li> <li>▪ Type of glass</li> <li>▪ Cut and install glass into the aluminium doors</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: fabricated aluminium structure for doors, door glass</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	4.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 4.4.1</li> <li>▪ Job Sheet 2</li> <li>▪ Self-Check Quiz 4.4.1</li> <li>▪ Answer Key 4.4.1</li> </ul> <p><a href="https://www.youtube.com/watch?v=t9Ty95hZo38">https://www.youtube.com/watch?v=t9Ty95hZo38</a></p>	<p>58</p> <p>60</p> <p>61</p> <p>63</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium door frame/structure is installed on location in accordance with workplace requirement</li> <li>▪ Aluminium door frame/structure is fixed on location in accordance with workplace requirements</li> <li>▪ Type of glass and size to be installed is identified in accordance with work plan/drawing specification</li> <li>▪ Glasses are cut to specified dimension in accordance with work plan/drawing specification</li> <li>▪ Glasses are installed into the aluminum door frame/structure safely and in accordance with workplace requirements</li> </ul>		



### Learning Outcome 4.5 – Clean and Maintain Tools, Equipment and Work Area

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Importance and necessity of cleaning tools, equipment and workplace</li> <li>▪ Methods of cleaning, tools and equipment required for cleaning</li> <li>▪ Storing of tools and equipment used</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): gloves, dust mask, safety shoes, hard hat, belt/body harness, goggles, working clothes, apron, ear plugs</li> <li>▪ Tools and equipment: brooms, dusters, dust pans, cleaning brushes, mops, waste containers and cotton rags</li> <li>▪ Materials: water, detergents, abrasives, bleaches</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.4.1</li> </ul> <a href="https://en.wikipedia.org/wiki/Cleaning_agent">https://en.wikipedia.org/wiki/Cleaning_agent</a> <a href="https://www.hunker.com/12406192/how-to-store-tools-equipment">https://www.hunker.com/12406192/how-to-store-tools-equipment</a>	28
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ PPE, tools and equipment are cleaned and checked for usability</li> <li>▪ Work area is cleaned in accordance with workplace requirements</li> <li>▪ Tools, equipment and PPE are stored in accordance with workplace policy</li> </ul>		



## Module 5: Fabricate and install aluminium partition and glass

<b>Module Descriptor:</b>	This module covers the skills, knowledge and attitudes to fabricate and install aluminium partition/wall with glass. It specifically includes identifying work requirements, preparing for work, fabricating aluminium structure for glass partition/wall, installing aluminium partition/wall and glass and cleaning and maintaining tools, equipment and work area.	
<b>Nominal Duration:</b>	56 hours	
<b>Learning Outcomes:</b>	5.1.	Identify work requirements
	5.2.	Prepare for work
	5.3.	Fabricate aluminium structure for glass partition/wall
	5.4.	Install aluminium partition/wall and glass
	5.5.	Clean and maintain tools, equipment and work area
<b>Performance Criteria:</b>	5.1.	Dimensions of aluminium partition/wall are identified in accordance with workplace plan/drawing and specifications.
	5.2.	Types/classification of aluminium profile for partition/wall is identified in accordance with workplace plan/drawing and specifications.
	5.3.	Shape of aluminium profile for partition/wall and glass works is determined.
	5.4.	Work requirements are identified in accordance with workplace plan/drawing and specifications.
	5.5.	Tools and equipment are gathered and checked for usability and working conditions.
	5.6.	Materials are gathered and checked for quality and compliance to workplace specifications.
	5.7.	Aluminium profile/materials are measured in accordance with work plan/drawing specifications.
	5.8.	Aluminium profile/materials are cut in accordance with work plan/drawing specifications.
	5.9.	Method of assembly of structure for partition/wall is identified in accordance with workplace plan/drawing specifications.
	5.10.	Assembly of aluminium structure for partition/wall is performed in accordance with plans/drawings.
	5.11.	Aluminium partition/wall frame/structure is installed on location in accordance with workplace requirement.
	5.12.	Aluminium partition/wall frame/structure is fixed on location in accordance with workplace requirements.
	5.13.	Type of glass and size to be installed is identified in accordance with work plan/drawing specification.
	5.14.	Glasses are cut to specified dimension in accordance with work plan/drawing specification.
	5.15.	Glasses are installed into the aluminium partition/wall frame/structure safely and in accordance with workplace requirements.

	<b>5.16.</b>	PPE, tools and equipment are cleaned and checked for usability.
	<b>5.17.</b>	Work area is cleaned in accordance with workplace requirements.
	<b>5.18.</b>	Tools, equipment and PPE are stored in accordance with workplace policy.



## Learning Outcome 5.1 – Identify Work Requirements

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Types/classification of aluminium profile for partition/wall</li> <li>▪ Shape of aluminium profile for partition/wall</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile materials for partition/wall</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	5.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 5.1.1</li> <li>▪ Self-Check Quiz 5.1.1</li> <li>▪ Answer Key 5.1.1</li> </ul>	66 67 77
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Dimensions of aluminium partition/wall are identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Types/classification of aluminium profile for partition/wall is identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Shape of aluminium profile for partition/wall and glass works is determined</li> <li>▪ Work requirements are identified in accordance with workplace plan/drawing and specifications</li> </ul>		



## Learning Outcome 5.2 – Prepare for Work

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment required</li> <li>▪ Aluminium materials required for partition/wall</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	5.2	<ul style="list-style-type: none"> <li>▪ Information Sheet 5.2.1</li> </ul>	68
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment are gathered and checked for usability and working conditions</li> <li>▪ Materials are gathered and checked for quality and compliance to workplace specifications</li> </ul>		



### Learning Outcome 5.3 – Fabricate Aluminium Structure for Glass Partition/Wall

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Cutting of aluminium profile/materials</li> <li>▪ Method of assembly of structure for partition/wall</li> <li>▪ Assembly of aluminium structure for partition/wall</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitring jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	5.3	<ul style="list-style-type: none"> <li>▪ Information Sheet 5.3.1</li> <li>▪ Self-Check Quiz 5.3.1</li> <li>▪ Answer Key 5.3.1</li> </ul> <p><a href="https://www.wikihow.com/Measure-Your-Windows">https://www.wikihow.com/Measure-Your-Windows</a></p>	<p>70</p> <p>71</p> <p>77</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile/materials are measured in accordance with work plan/drawing specifications</li> <li>▪ Aluminium profile/materials are cut in accordance with work plan/drawing specifications</li> <li>▪ Method of assembly of structure for partition/wall is identified in accordance with workplace plan/drawing specifications</li> <li>▪ Assembly of aluminium structure for partition/wall is performed in accordance with plans/drawings</li> </ul>		



## Learning Outcome 5.4 – Install Aluminium Partition/Wall and Glass

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Install and fix aluminium partition/wall frame/structure</li> <li>▪ Type of glass</li> <li>▪ Cut and install glass into the aluminium partition/wall</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, glass cutter (diamond tip), glass file set, glass holder, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: fabricated aluminium structure for partition/wall, partition/wall glass</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	5.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 5.4.1</li> <li>▪ Job Sheet 3</li> <li>▪ Self-Check Quiz 5.4.1</li> <li>▪ Answer Key 5.4.1</li> </ul> <p><a href="https://www.youtube.com/watch?v=t9Ty95hZo38">https://www.youtube.com/watch?v=t9Ty95hZo38</a></p>	<p>73</p> <p>74</p> <p>75</p> <p>77</p>
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium partition/wall frame/structure is installed on location in accordance with workplace requirement</li> <li>▪ Aluminium partition/wall frame/structure is fixed on location in accordance with workplace requirements</li> <li>▪ Type of glass and size to be installed is identified in accordance with work plan/drawing specification</li> <li>▪ Glasses are cut to specified dimension in accordance with work plan/drawing specification</li> <li>▪ Glasses are installed into the aluminum partition/wall frame/structure safely and in accordance with workplace requirements</li> </ul>		



### Learning Outcome 5.5 – Clean and Maintain Tools, Equipment and Work Area

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Importance and necessity of cleaning tools, equipment and workplace</li> <li>▪ Methods of cleaning, tools and equipment required for cleaning</li> <li>▪ Storing of tools and equipment used</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): gloves, dust mask, safety shoes, hard hat, belt/body harness, goggles, working clothes, apron, ear plugs</li> <li>▪ Tools and equipment: brooms, dusters, dust pans, cleaning brushes, mops, waste containers and cotton rags</li> <li>▪ Materials: water, detergents, abrasives, bleaches</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.4.1</li> </ul> <a href="https://en.wikipedia.org/wiki/Cleaning_agent">https://en.wikipedia.org/wiki/Cleaning_agent</a> <a href="https://www.hunker.com/12406192/how-to-store-tools-equipment">https://www.hunker.com/12406192/how-to-store-tools-equipment</a>	28
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ PPE, tools and equipment are cleaned and checked for usability</li> <li>▪ Work area is cleaned in accordance with workplace requirements</li> <li>▪ Tools, equipment and PPE are stored in accordance with workplace policy</li> </ul>		

## Module 6: Fabricate and install aluminium false ceiling

<b>Module Descriptor:</b>	This module covers the skills, knowledge and attitudes to fabricate and install aluminium false ceiling. It specifically includes identifying work requirements, preparing for work, fabricating aluminium structure for false ceiling, installing aluminium false ceiling and board and cleaning and maintaining tools, equipment and work area.	
<b>Nominal Duration:</b>	48 hours	
<b>Learning Outcomes:</b>	<b>6.1.</b>	Identify work requirements
	<b>6.2.</b>	Prepare for work
	<b>6.3.</b>	Fabricate aluminium structure for false ceiling
	<b>6.4.</b>	Install aluminium structure false ceiling and board
	<b>6.5.</b>	Clean and maintain tools, equipment and work area
<b>Performance Criteria:</b>	<b>6.1.</b>	Dimensions of aluminium false ceiling are identified in accordance with workplace plan/drawing and specifications.
	<b>6.2.</b>	Types/classification of aluminium profile for false ceiling is identified in accordance with workplace plan/drawing and specifications.
	<b>6.3.</b>	Shape of aluminium profile for false ceiling and board works is determined.
	<b>6.4.</b>	Work requirements are identified in accordance with workplace plan/drawing and specifications.
	<b>6.5.</b>	Tools and equipment are gathered and checked for usability and working conditions.
	<b>6.6.</b>	Materials are gathered and checked for quality and compliance to workplace specifications.
	<b>6.7.</b>	Aluminium profile/materials are measured in accordance with work plan/drawing specifications.
	<b>6.8.</b>	Aluminium profile/materials are cut in accordance with work plan/drawing specifications.
	<b>6.9.</b>	Method of assembly of structure for false ceiling is identified in accordance with workplace plan/drawing specifications.
	<b>6.10.</b>	Assembly of aluminium structure for false ceiling is performed in accordance with plans/drawings.
	<b>6.11.</b>	Aluminium frame/structure of false ceiling is installed on location in accordance with workplace requirement.
	<b>6.12.</b>	Aluminium frame/structure of false ceiling is fixed on location in accordance with workplace requirements.
	<b>6.13.</b>	Type of ceiling board and size to be installed is identified in accordance with work plan/drawing specification.
	<b>6.14.</b>	Ceiling boards are cut to specified dimension in accordance with work plan/drawing specification.
	<b>6.15.</b>	Ceiling boards are installed into the aluminium false ceiling frame/structure safely and in accordance with workplace requirements.



	<b>6.16.</b>	PPE, tools and equipment are cleaned and checked for usability.
	<b>6.17.</b>	Work area is cleaned in accordance with workplace requirements.
	<b>6.18.</b>	Tools, equipment and PPE are stored in accordance with workplace policy.



## Learning Outcome 6.1 – Identify Work Requirements

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Types/classification of aluminium profile for false ceiling</li> <li>▪ Shape of aluminium profile for false ceiling</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile materials for false ceiling</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	6.1	<ul style="list-style-type: none"> <li>▪ Information Sheet 6.1.1</li> <li>▪ Self-Check Quiz 6.1.1</li> <li>▪ Answer Key 6.1.1</li> </ul>	80 82 92
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Dimensions of aluminium false ceiling are identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Types/classification of aluminium profile for false ceiling is identified in accordance with workplace plan/drawing and specifications</li> <li>▪ Shape of aluminium profile for false ceiling and board works is determined</li> <li>▪ Work requirements are identified in accordance with workplace plan/drawing and specifications</li> </ul>		



## Learning Outcome 6.2 – Prepare for Work

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment required for false ceiling</li> <li>▪ Aluminium materials required for false ceiling</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	6.2	<ul style="list-style-type: none"> <li>▪ Information Sheet 6.2.1</li> </ul>	83
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Tools and equipment are gathered and checked for usability and working conditions</li> <li>▪ Materials are gathered and checked for quality and compliance to workplace specifications</li> </ul>		



### Learning Outcome 6.3 – Fabricate Aluminium Structure for False Ceiling

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Cutting of aluminium profile/materials</li> <li>▪ Method of assembly of structure for false ceiling</li> <li>▪ Assembly of aluminium structure for false ceiling</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: aluminium profile materials (as required)</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	6.3	<ul style="list-style-type: none"> <li>▪ Information Sheet 6.3.1</li> <li>▪ Self-Check Quiz 6.3.1</li> <li>▪ Answer Key 6.3.1</li> </ul> <p><a href="https://www.indiamart.com">https://www.indiamart.com</a> &gt; ... &gt; Abhi Fabrication</p>	85 86 92
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium profile/materials are measured in accordance with work plan/drawing specifications</li> <li>▪ Aluminium profile/materials are cut in accordance with work plan/drawing specifications</li> <li>▪ Method of assembly of structure for false ceiling is identified in accordance with workplace plan/drawing specifications</li> <li>▪ Assembly of aluminium structure for false ceiling is performed in accordance with plans/drawings</li> </ul>		



## Learning Outcome 6.4 – Install Aluminium False Ceiling and Board

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Install and fix aluminium false ceiling frame/structure</li> <li>▪ Type of ceiling board</li> <li>▪ Cut and install glass into the aluminium false ceiling</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Personal protective equipment (PPE): hard hat (helmet), safety eye glass, face shield, face mask, respirator, hand gloves, apron (vest), safety shoes, ear plugs, safety belt</li> <li>▪ Tools: measuring tape, steel rule, tri-square, marking pen/pencil, hacksaw, wrenches, tin snip, drill bits, plastic hammer, combination plier, spirit level, plumb bob, screwdrivers, sealant gun, rivet gun, string lines, scribe, centre punch</li> <li>▪ Equipment: pneumatic circular saw, band saw, aluminium profile cutting machine, mitering jig, deburring machine, work benches, drill press, bending machine, portable grinder</li> <li>▪ Materials: fabricated aluminium structure for false ceiling, ceiling boards</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	6.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 6.4.1</li> <li>▪ Job Sheet 4</li> <li>▪ Self-Check Quiz 6.4.1</li> <li>▪ Answer Key 6.4.1</li> </ul> <p><a href="https://www.youtube.com/watch?v=t9Ty95hZo38">https://www.youtube.com/watch?v=t9Ty95hZo38</a></p>	88 89 90 92
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ Aluminium false ceiling frame/structure is installed on location in accordance with workplace requirement</li> <li>▪ Aluminium false ceiling frame/structure is fixed on location in accordance with workplace requirements</li> <li>▪ Type of board and size to be installed is identified in accordance with work plan/drawing specification</li> <li>▪ Ceiling boards are cut to specified dimension in accordance with work plan/drawing specification</li> <li>▪ Ceiling boards are installed into the aluminum partition/wall frame/structure safely and in accordance with workplace requirements</li> </ul>		



### Learning Outcome 6.5 – Clean and Maintain Tools, Equipment and Work Area

<b>Contents:</b>	<ul style="list-style-type: none"> <li>▪ Importance and necessity of cleaning tools, equipment and workplace</li> <li>▪ Methods of cleaning, tools and equipment required for cleaning</li> <li>▪ Storing of tools and equipment used</li> </ul>		
<b>Resources Required:</b>	<ul style="list-style-type: none"> <li>▪ Workplace (simulated or actual)</li> <li>▪ Personal protective equipment (PPE): gloves, dust mask, safety shoes, hard hat, belt/body harness, goggles, working clothes, apron, ear plugs</li> <li>▪ Tools and equipment: brooms, dusters, dust pans, cleaning brushes, mops, waste containers and cotton rags</li> <li>▪ Materials: water, detergents, abrasives, bleaches</li> </ul>		
<b>Learning Activities:</b>	<b>Activity</b>	<b>Resource</b>	<b>Student Guide Page</b>
	2.4	<ul style="list-style-type: none"> <li>▪ Information Sheet 2.4.1</li> </ul> <a href="https://en.wikipedia.org/wiki/Cleaning_agent">https://en.wikipedia.org/wiki/Cleaning_agent</a> <a href="https://www.hunker.com/12406192/how-to-store-tools-equipment">https://www.hunker.com/12406192/how-to-store-tools-equipment</a>	28
<b>Assessment Criteria:</b>	<ul style="list-style-type: none"> <li>▪ PPE, tools and equipment are cleaned and checked for usability</li> <li>▪ Work area is cleaned in accordance with workplace requirements</li> <li>▪ Tools, equipment and PPE are stored in accordance with workplace policy</li> </ul>		