# Skills Assessment- Stair assembly

**Event 3 of 3**

# Trainer & Assessor Marking Guide

## Criteria

### Unit code, name and release number

MEM09002 - Interpret technical drawing (1)

### Qualification/Course code, name and release number

MEM30319 - Certificate III in Engineering - Fabrication Trade (1)

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*Location – Block B Level 1 Hamilton TAFE Newcastle*

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This assessment can be found in the: [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?doc=%3Cxml%2F%3E&in=P7ac4831b-430a-4b8d-8b56-f7b32ed5b9cf&q=&type=standard&sort=rank&dr=AFTER)

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Instructions for the trainer and assessor** | This is a skill based assessment and will be assessing the student on their ability to demonstrate skills required in the unit.  This assessment is in 2 parts:   1. Practical 2. Observation Checklist   Model answers, sample responses or a criteria for each task or activity is provided below.  Use these to support your judgement when determining a satisfactory result.  The student’s response to each question must contain the information indicated in this marking guide in order for their response to be correct. However, if a student provides information other than indicated below, and in the professional opinion of the assessor it is appropriate and meets the intent of the question, it may be considered correct.  Complete the Observation Checklist for each task and activity and the Assessment Feedback to the student. Ensure you have taken a copy of the assessment prior to it being returned to the student.  The Assessment Feedback page must be signed by both the student and the assessor so the student displays that they have received, understood and accepted the feedback.  Ensure the students name appears on the bottom of each page of the submitted assessment. |
| **About this marking guide** | The student’s response to each task or activity must contain the criteria indicated in this marking guide in order for their response to be correct.  All tasks and activities must be completed correctly in order to satisfactorily complete this assessment event.  Assessors will need to make a judgement call as to whether each response meets the criteria based upon the:   * Rules of Evidence:   + Validity – does the answer address the skill required and does the evidence reflect the four dimensions of competency?   + Sufficiency – is the task or activity sufficient in terms of length and depth?   + Currency – has the work been done so recently as to be current?   + Authenticity – is this work the student’s own authentic work? * Principles of Assessment   + Fairness – individual student’s needs are considered in the assessment process   + Flexibility – assessment is flexible to the individual student   + Validity – any assessment decision is justified, based on the evidence of performance of the student   + Reliability – evidence presented for assessment is consistently interpreted and assessment results are comparable irrespective of the assessor conducting the assessment * Dimensions of competency   + Task skills   + Task Management Skills   + Contingency Planning Skills   + Job Role Environment Skills |
| **Student must provide** | Calculator, pens, pencil, eraser, PPE. |
| **Assessor must provide** | Drawings: 09204-T5-1 Stair Assembly Iso Arrgt (Issue B)  09204-T5-2 Stair Assy Orthogonal Arrgt (Issue B)  09204-T5-3 Stair Assy Frame Details (Issue B and Issue C)  09204-T5-4 Stairs Assy Handrail Details (Issue B)  SOP Issue 1.1 Engineering Technical Drawing Issue and Interpretation See MEM09002\_AE\_Sk\_3of3\_SR3 (Attachment Pack 3.0) |
| **Due date/time allowed/venue** | 75 minutes duration  Venues can be either, TAFE classroom, TAFE workshop facility, or an agreed workplace. |

#### Part 1: Practical

To complete this part of the assessment, the student is required to participate in a practical demonstration of how to complete a task or activity.

These practicals will be observed by you, or the student can digitally record them and submit them as evidence.

The student’s responses will be used as part of the overall evidence requirements of the unit.

You should refer to the list of criteria provided in the Observation Checklist to understand what skills the student is required to demonstrate in this section of the assessment. This Checklist outlines the Performance Criteria, Performance Evidence and Assessment Conditions you will be marking the student on.

Once completed the student is required to submit this assessment and the tasks and activities required to be completed to you for marking.

**Contingency Management:**

While undertaking this task a number of unforeseen circumstances may arise. As an assessor you have the opportunity to question each learner to gather an understanding of how the student will respond to these events. Below is table 2.0 with examples of possible questions.

The assessor also has the opportunity in the observation checklist to record other relevant questions and responses in the table “Table 10.0 Additional Questions”

|  |  |  |
| --- | --- | --- |
| Scenario | Assessors question | Acceptable students response |
| Power failure in workshop | What is the correct action in the case of power failure? | *Power failure may or may not impact on this assessment as only involves interpreting drawing, answering questions and doing calculations.*  *Lights going out in the workshop may mean that drawing cannot be read due to lack of light. Would need to talk to assessor about alternative lighting or moving to another area.*  *Would need to re-schedule assessment if lights went out and another alternative could not be found* |
| Emergency evacuation | What do you do if an emergency evacuation drill happens during the assessment? | *Would be required to follow the emergency evacuation procedure that was explained duration induction. Which should include:*  *Leave work area in a safe manner*  *Follow instructions of warden*  *Assemble in emergency evacuation area*  *Return to work as directed by warden and resume assessment with time allowance adjustment* |

## Specific task instructions

The instructions and the criteria in the tasks and activities below will be used by the assessor to determine whether the tasks and activities have been satisfactorily completed. Use these instructions and criteria to ensure the student demonstrates the required skills and knowledge.

This assessment requires the student to complete checklists, answer questions, and perform calculations within 4 (four) tasks summarised below:

* Task 1 - Check and validate Documentation
* Task 2 – Read Standard Operating Procedures (SOP)
* Task 3 – Interpret Technical Drawing
* Task 4 – Compile a Material List and Cutting List

To satisfy PE2 “Selecting, checking and validating” documentation the assessor should provide access to the reference documentation and direct the students to the location.

Each student is required to

* Source, check and validate the reference documentation (Task 1)
* Answer all questions and show working in the spaces provided on the assessment document
* **Not mark or change the reference documents.** They must be returned to the assessor at the assessment completion and will be used for further assessment events
* Follow the Standard Operating Procedure 1.1
* Follow any additional work instructions provided by the assessor

**Contingency Management:**

While undertaking this task a number of unforeseen circumstances may arise. As an assessor you have the opportunity to question each learner to gather an understanding of how the student will respond to these events. Below is table 2.0 with examples of possible questions.

The assessor also has the opportunity in the observation checklist to record other relevant questions and responses in the table “Table 11.0 Additional Questions”

**Task 1: Check and validate Documentation**

The student will be given access to a set of drawings and a Standard Operating Procedure. The document, types, title and issue number required for this assessment are listed in Table 3.0 Document validation checklist below.

(PE2)The student is required to:

1. Source the documents from their location
2. Check and validate the document title and issue
3. Confirm this information is correct by responding Yes or No in the “Received/Validated” column of the Table 3.0 Documents validation checklist below.

**Table 3.0: Document validation checklist**

|  |  |  |  |
| --- | --- | --- | --- |
| *Document Type* | *Document Title* | *Issue* | *Received/Validated* |
| Standard Operating Procedure (SOP) | Engineering Technical Drawing Issue and Interpretation | 1.1 | Yes |
| Drawing | STAIR ASSY ISO ARRG’T  09204-T5-1 | B | Yes |
| Drawing | STAIR ASSY ORTHOGONAL ARRG’T  09204-T5-2 | B | Yes |
| Drawing | STAIRS ASSY FRAME DETAILS  09204-T5-3 | B | Yes |
| Drawing | STAIRS ASSY FRAME DETAILS  09204-T5-3 | C | Yes |
| Drawing | STAIRS ASSY HANDRAIL DETAILS  09204-T5-4 | B | Yes |

**Refer to the Drawings checked and validated in Task 1**

d) (PE2) Go to Table 4.0 Revisions and Amendments and complete the following:

|  |  |
| --- | --- |
| * Drawing Issue * Revision Date | * Revision Description * Reviser (Initials) |

**Table 4.0: Revisions and Amendments.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Drawing Number* | *Drawing Issue* | *Revision Date* | *Revision Description* | *Reviser (initials)* |
| 09204-T5-1 | B | 9.03.18 | Approved for construction | AM |
| 09204-T5-2 | B | 10.03.18 | Approved for construction | AM |
| 09204-T5-3 | B | 11.03.18 | Approved for construction | AM |
| 09204-T5-3 | C | 1.05.18 | Hole Dia changed top flange | IW |
| 09204-T5-4 | B | 12.03.18 | Approved for construction | AM |

e) (PE2) The document pack contains two (2) drawings numbered 09204-T5-3. Which of these drawings would be considered current and why?

|  |
| --- |
| Drawing Issue C 09204-T5-3 is current |
| It holds the latest Issue letter (C) not (B) and has revised hole size in the top flange of stringer |

f) (PE2) Refer to the drawing you answered as current above and in the space below write the:

1. hole size and
2. number of holes

to be drilled in the top flange of the staircase stringers.

|  |  |
| --- | --- |
| (i) | ∅18 |
| (ii) | 16 |

**Task 2: Read Standard Operating Procedure (SOP) .**

**Refer to the Document: SOP Issue 1.1 Section 5.0**

a) (PE1) In table 5.0 below list three (3) potential safety hazards associated with drawing interpretation in a workshop area:

**Table 5.0 Hazard Identification**

|  |  |
| --- | --- |
| *#* | Potential Hazards |
|  | Electric Shock or Burns or Fumes |
|  | Sparks and spatter, or arc flashes or Hot work pieces |
|  | UV Radiation or Hot slag |

**Refer to Refer to the Document: SOP Issue 1.1 Section 1.0**

*b)* (PE1) In table 6.0 below list three (3) requirements that must be checked when a drawing is issued:

**Table 6.0 Drawing Issue**

|  |  |
| --- | --- |
| *#* | Drawing Issue Requirements |
|  | Check the drawing issued matches the job sheet instructions or check the drawing has been printed  properly |
|  | Check the borders on the drawing are visible or Ensure the dimension and text have printed large  enough to be clearly read |
|  | Ensure the date and issue of the drawing are the current version or confirm drawing issued in part  contain all the relevant details |

**Refer to Refer to the Document: SOP Issue 1.1 Section 2.0**

c) (PE1)In table 7.0 below list two (2) safe work practices to follow when interpreting drawings

**Table 7.0 Safe work practices**

|  |  |
| --- | --- |
| *#* | Drawing Interpretation Safe Work Practices |
|  | Ensure the work area is clean and clear of grease, oil or any ignition sources |
|  | Access will lit areas of the workshop away from hazards when interpreting drawings |

**Task 3 Interpret Technical Drawing.**

**Refer to Drawing 09204-T5-4 and the WEBFORGE STANCHION SPECIFICATONS below.**

Drawing 09204-T5-4 details the top Stanchion on the Stairs Assembly as WEBORGE (P) PLATFORM type.

a) (PE4) Using the WEBFORGE STANCHIONS SPECIFICATIONS (extract) below right complete the following details in Table 8.0 for a Mild Steel Stanchion – Std:

* NB
* OD
* Wall Thickness

**Table 8.0: WEBFORGE Stanchion Details.**

|  |  |
| --- | --- |
| Refer to Catalogue | |
| NB = 40 mm |  |
| OD = 48.3 mm |
| Wall Thickness = 3.2 mm |

**Refer to Drawing 09204-T5-4**

b) (PE3) How many Webforge (P) Platform Stanchions will be required for the Stair Assembly Handrails?

|  |
| --- |
| 2 Off |

1. (PE3) How many Webforge (AM) Stair Stanchions will be required for the Stair Assembly Handrails?

|  |
| --- |
| 6 Off |

1. (PE5) The angle for the Webforge (AM) Stair Stanchions is provided on the drawing as a slope diagram. In the space below provide the missing dimension for the slope diagram.

|  |
| --- |
|  |

1. (PE4) The 32DN SCH 10 Top Rail of the Stair Assembly is supplied in 6.0 Metre lengths. How many lengths will be required to be ordered from the supplier to complete the top rail?

|  |
| --- |
| 1818 + 1812+300 +300 = 4230 per side  = 8460  = 2 Lengths |

1. (PE5) Is the joint where the Top Rail passes through the Stanchion tacked in place or welded all round?

|  |
| --- |
| Welded all round |

1. (PE3) Will the Top Rail be welded to the Stanchion in the workshop or on site?

|  |
| --- |
| On site |

1. (PE3) What Australian Standard will the Top Rail weld need to conform to?

|  |
| --- |
| AS1554.1 GP |

1. (PE5) Will the Rail Joint be welded in the workshop or on site?

|  |
| --- |
| On site |

1. (PE3) How many bolts will be required to join the Handrails to the Stingers?

|  |
| --- |
| 16 |

1. (PE3) What Australian Standard will the bolts need to conform to?

|  |
| --- |
| AS 1250 |

**Task 4 Compile a Material List**

(PE6) Drawing 09204-T5-T3 provides the details required to fabricate the Stair Assembly Frame, however a Material List is not shown. The table below has a partially completed Material List (left) and a partially completed Cutting List (right).

1. On the left side of Table 9.0 complete the Material List by entering the required details into the blank spaces
2. On the right side of Table 9.0 complete the Cutting list by entering the required details into the blank spaces.

**Table 9.0: Material List and Cutting List**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Material List | | | | | | Cutting List | | | | |
| **Item** | **Description** | **Quantity** | **Material Grade** | **Material Type/Section** |  | **Length** | **Width** | **Thickness** | **Quantity** |
| Item 2 | Stair Tread | 13 | AS3678: 250 | Diamond Plate | 1000 | 264 +25 + 25 = 314 | 6 | 13 |
| Item 2 | Top Landing | 1 | AS3678:250 | Diamond Plate | 1000 | 625 | 6 | 1 |
| Item 3 | LH Stringer | 1 | AS3679: 350 | 300 PFC | 4231 + 600 = 4831 | NA | NA | 1 |
| Item 4 | RH Stringer | 1 | AS3679: 350 | 300 PFC | 4231 + 600 = 4831 | NA | NA | 1 |
| Item 5 | Wall Plate | 1 | AS3679: 350 | 200 PFC | 1000 | NA | NA | 1 |

## Part 2: Observation Checklist

The Observation Checklist will be used by you to mark the students’ performance in any of the previous three event types. Use this Checklist to understand what skills the student is required to demonstrate in this section of the assessment. This Checklist outlines the Performance Criteria, Performance Evidence and Assessment Conditions you will be marking the student on. All the criteria must be met. The student’s demonstration will be used as part of the overall evidence requirements of the unit. You may ask questions while the demonstration is taking place or if appropriate directly after the task/activity has been completed.

Observation Checklist

| Task # | Task/Activity Performed | S | U/S | Assessor Comments (Describe the student’s ability in demonstrating the required skills and knowledge) |
| --- | --- | --- | --- | --- |
| 1 | **Check and Validate Documentation**  The Student:   * Selects the six (6) documents listed in Table 3.0 from their location * Checks and validates the document titles and issue * Completes Table 3.0 * Checks the drawing amendments * Completes Table 4.0 * Answers questions (e) and (f) |  |  | *Date of Observation:*   * Student selects correct documents from their location * Student validates documents * Student completes Table 3.0 * Students completes Table 4.0 * Student answers questions (e) to (f) as per sample benchmark provided |
| 2 | **Read the Standard Operating Procedure (SOP)**  The Student:   * Reads SOP 1.1 * Completes Table 5.0 * Completes Table 6.0 * Completes Table 7.0 |  |  | * Student completes Table 5.0 as per sample benchmark provided * Student completes Table 6.0 as per sample benchmark provided * Student completes Table 7.0 as per sample benchmark provided |
| 3 | **Interpret Technical Drawing**  The Student   * Follows SOP 1.1 complies with WHS requirements and work instructions * Answers questions (a) to (k) * Completes Table 8.0 |  |  | * Follows SOP 1.1 and complies with WHS requirements and work instructions eg:   + 2.1 – work area clean and clear of grease, oil and any ignition sources   + 4.1 – store all drawings in clean, dry locations away from ignition sources   + 6.0 – PPE requirements adhered to * Answers questions (a) to (l) as per sample benchmark provided * Completes Table 8.0 as per sample benchmark provided |
| 4 | **Compile a Material List and Cutting List**  The Student   * Completes Table 9.0 |  |  | * Completes Table 9.0 as per sample benchmark provided |

|  |
| --- |
|  |
| Assessors may ask additional questions to clarify student understanding. List here any additional questions that were asked during this assessment event.  *Record all additional questions that were asked of the student during the assessment event.* |
| **Student Reponses to Additional Questions** |
| List here the student responses to any additional questions that were asked during this assessment event.  *Record the student responses to any additional questions that were asked during this assessment event.* |

Table 11.0 Additional Questions