Carpentry

Level-II

Learning Guide-59

Unit of Competence: Construct Stairs and Stair Components

Module Title: Constructing Stairs and Stair Components

LG Code: EIS CRP2 M13 0919LO-5 LG-59

TTLM Code: EIS CRP2 M13 0919V1

LO5: Assemble and install landings

Instruction Sheet	Learning Guide # 59

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Fitting and fixing joists to level.
- Form landing by fitting and fixing Nosing and flooring.
- Fitting and fixing Fascia to landing

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:

- ✓ Bearers, where applicable, and joists fitted and fixed to level to specification for fixing.
- ✓ Nosing and flooring fitted and fixed to form landing to specified finish.
- ✓ Fascia fitted and fixed to landing to specification for finish.

Learning Instructions:

Read the specific objectives of this Learning Guide.

Follow the instructions described below

Read the information written in the information Sheets below

Accomplish the Self-check

If you earned a satisfactory evaluation from the “

Do the “LAP test” (if you are ready).

1.1 Fitting and fixing joists to level

Trimming newel at bottom of outer string before fixing the bottom newel to the outer string the bottom end of the newel may need to be trimmed to the correct total rise or floor to floor site measurement. (Refer back to the section on cutting the wall string). Note: the bottom newel may not be at the bottom of the flight. There could be up to three additional steps to be fitted.

Figure 1 Bull nose treads - plan view Simple bottom tread Bull nose tread Bull nose and Curtail Noggin pieces are often required to support the bull nose tread.

Figure 2 Bottom treads - plan view For example, if the maximum height is 600mm without balustrade and an individual rise less than 200mm there may be a bull nose step, or a bull nose step together with a curtail step. It may be necessary to remove bottom of newel to assist with access for fitting. Fixings are to be structural screws, which are CE marked to EN 14592, 6mm x 90mm.

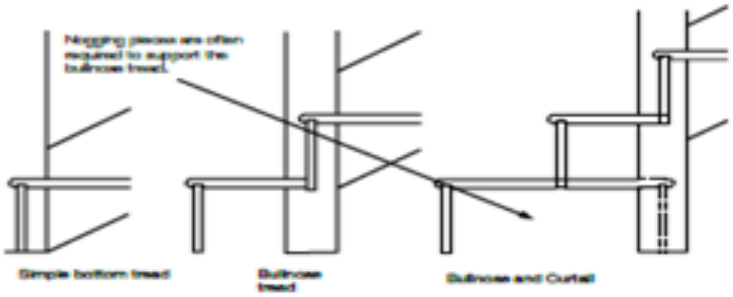

Fig-1 Bull nose treads

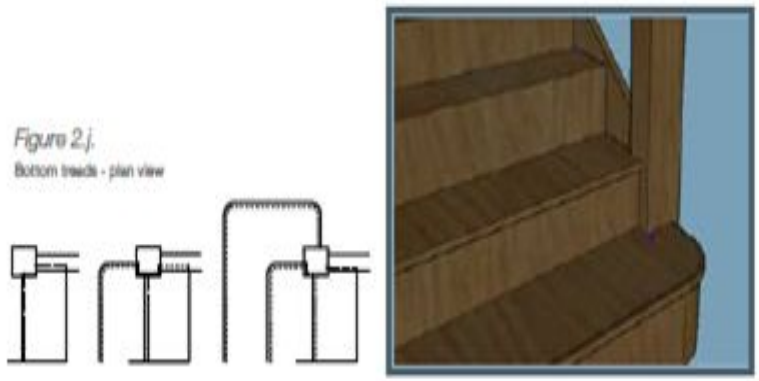

Fig- 2 Bull nose bottom

1.2 Preparing the outer handrail

Handrails are used to support a person using the stairs in the event of a trip or a slip and to provide assistance to people with impaired movement. Handrails can also form the top of a balustrade or “safety barrier” protecting users of the stair from falling. It is essential that handrails are fixed securely. Once the top and bottom newel have been fixed in position it will not be possible to “spring-in” a tenoned handrail. Do not remove the tenons as this will weaken the joint between the handrail and the newel. If the handrail is provided with a mechanical fixing system please refer to the manufacturer’s instructions. When fixing the base rail, screw fixings should be positioned 100mm from each end and at 600mm (minimum) centres thereafter. The screw length should be specified to ensure adequate length to fix through any floor thicknesses and into the floor joist below. The head of the screw should be flush to the top surface of the base rail, to prevent any interruption when the timber infill pieces are fitted between balusters into the base rail. Note: A handrail on its own cannot act as a safety barrier. Full protection from falling will only be afforded by the completed guarding system or a suitably accredited temporary guarding system.

1.3 Half Landings

Half landings will need to support the same loads as the floors of the property into which the stair is being installed. The trimmer onto which the top of one flight and the bottom of the second flight will bear will need to support the loads imposed when the flights are

being used. Unless specified otherwise half landings should use the following minimum joist sizes up to a maximum landing size 1.2 m x 2.6 m. Trimmers should be let into the walls, but not into cavities, for support or Supported by joist hangers. Joists can be screwed or bolted to walls. Where trimmers are doubled, the two sections should be screwed or bolted together to avoid slippage and to share the imposed loads from the flights. The top of the lower flight should be prepared as if the landing was an upper floor (The bottom of the upper flight should be prepared as if the landing was the lower floor with the newel finishing in-line with the bottom riser the flights should bear on the trimmer and not on the boarding used to form

Table –1 joist and trimmer sizes for half landings timber to be equivalent to C24 grade or better

Type of stair	Joists at walls and at 600 mm centres max (mm)	Trimmer between walls (mm)
Domestic	47 x 147	2 x 47 x 195
Common	47 x 195	2 x 47 x 225

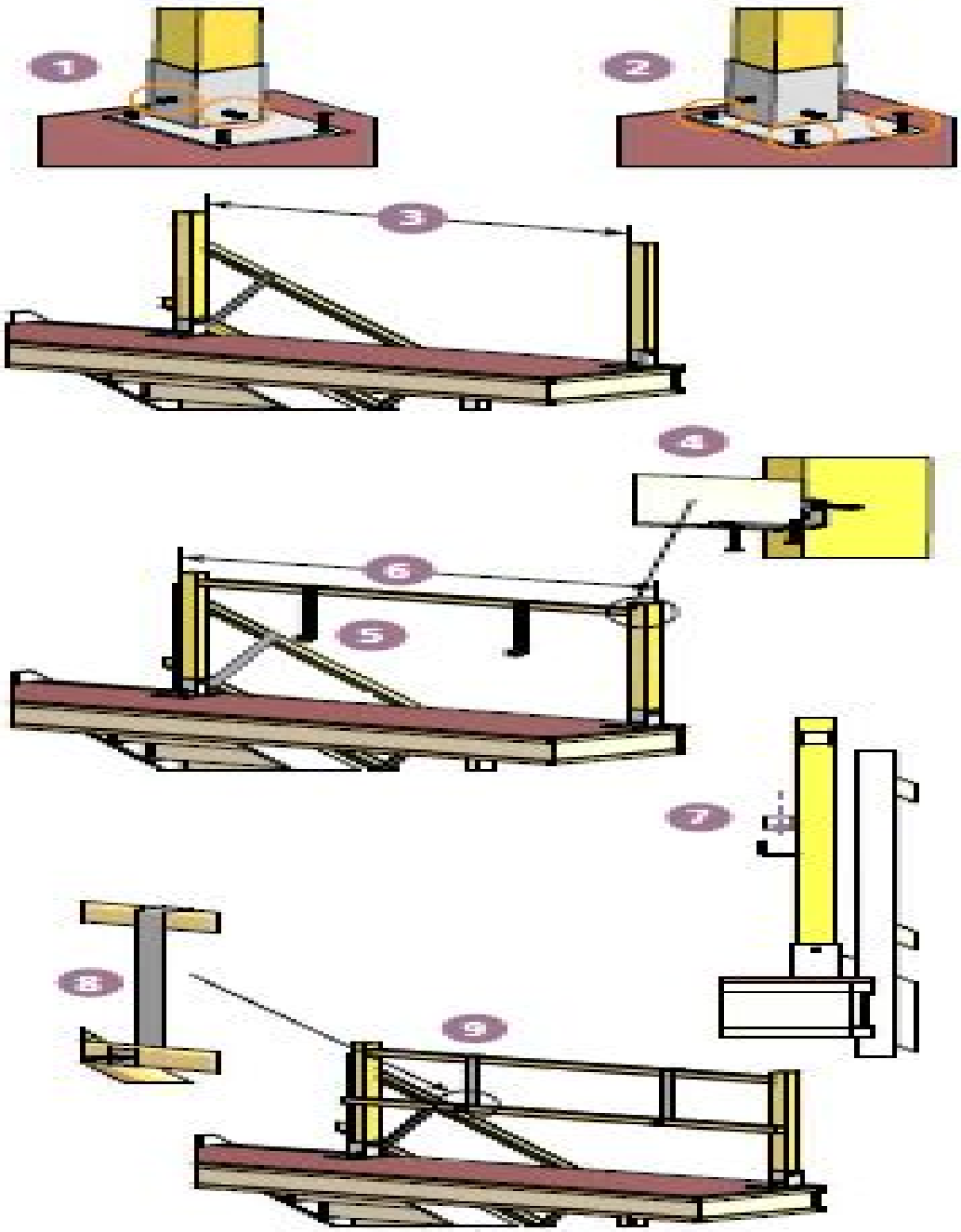

Fig-3 fixing of landing

1.4. Procedures for fitting and fixing joists to level

Step 1

Locate temporary newel post into metal floor plate. Secure using 4 no. M5x60mm CE marked screws. Repeat this to create both ends of the landing return.

Step 2

Fix both floor plates to the floor at either end of the edge to be protected using 4 no. M5x60mm CE marked screws for each plate. Please note overall width of the complete system should not exceed 2500mm.

Step 3

Measure between the two fixed newel posts and ensure the guardrail is the correct length. Trim to suit if necessary.

Step 4

Locate L bracket into the pre-machined recess in the newel post and fix using 2 no. M4x40mm CE marked screws on each newel post. Locate upper guardrail onto the L bracket as illustrated, ensure it sits central over the L bracket and screw from underside as per illustration using 2x M4x40mm screws. Please note image shows cross-sectional detail.

Step 5

Hang both hanging brackets over the upper guardrail and position evenly from each end to create three equal gaps. Fix using 2 no. M4x40mm CE marked screws on each bracket.

Step 6

Measure the overall width of the guardrail system from the outer edge of each newel post as per illustration and cut mid-guardrail to suit this dimension.

Step 7

Locate the mid-guardrail into the hanging bracket as per illustration. Ensure the length of the mid-guardrail overhangs the newel post at both ends.

Step 8

Fix the mid-guardrail to the hanging bracket using the 2 no. M4x40mm CE marked screws per hanger.

Step 9

The finished system should look as per illustration 9. Ensure all fixings are in place and secure. To ensure full compliance with BS EN 13374:2013 a toe board should be fitted.

Lap Test -1	Practical

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary equipments, tools and materials you are required to perform the following tasks within1 hour.

Task1. Fitting and fixing joists to level

Note: Satisfactory rating – above 100% **Unsatisfactory - below 100%**

Name: _____ Date: _____

Information sheet #2	Form landing by fitting and fixing nosing and flooring.

2.1 Form landing by fitting and fixing nosing and flooring.

2.1.1 Fitting Bull nose & Fitting Treads

Bull nose treads are feature curved first or second treads that curve into the front face of the newel post(s), or out past the newel post(s) to the side of the stair or in the absence of a newel post into a return string.

- Single go: single end bull nose tread
- Single go: double end bull nose tread

Handrail to both strings of flight best suited for quarter spaced and half spaced stairs.

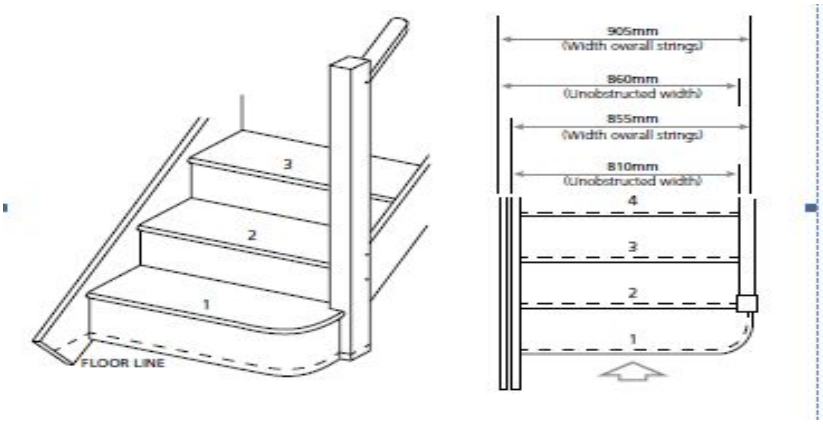

Fig- 4 Single go: single end bull nose tread

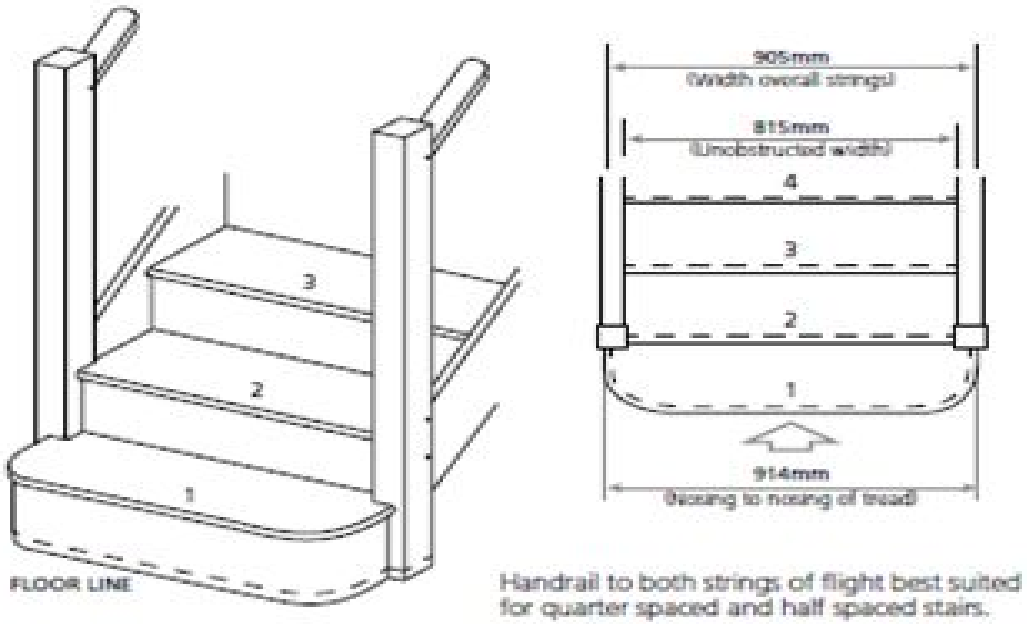

Fig-5 Single goes: double end bull nose trea

Self check # 2	Written test

Name: _____ Date: _____

Part: I true or false item

Direction: if the statement is correct write true if the statement is wrong write false on space provided.

_____1. Bull nose treads the first landing.

_____2. Handrail to both strings of flight best suited for quarter spaced and half spaced stairs.

Note: Satisfactory rating – above 50% **Unsatisfactory - below 50%**

You can ask you teacher for the copy of the correct answers.

Name: _____ Date: _____

Answer sheet

Score = _____

Rating: _____

Information sheet #3	Fitting and fixing Fascia to landing

3.1 Fitting and fixing Fascia to landing

These is not correct part of star changing in to Fitting and fixing Skirts to landing

3.1.1 Installing Skirts, Treads, and Risers

Once the basic design and layout of the staircase have been established, you can proceed with adding the skirts, treads, and risers to the stairs. The treads and risers are the basic elements of the stair that make up its walking surface. Important considerations to take into account when installing treads and risers are safety and comfort. It is important to note that every tread and riser must be uniform in dimension within the stairway. The skirt is basically a piece of trim used to cover the structural section of the stairs. Stair brackets and other ornamental attachments can also be added for aesthetic appeal. A skirt board is installed to the finished wall (sheet rock, paneling, etc.) once the open side of the stair has been finished.

This chapter will illustrate the principles of installing the skirts, treads and risers to the foundation of your staircase.

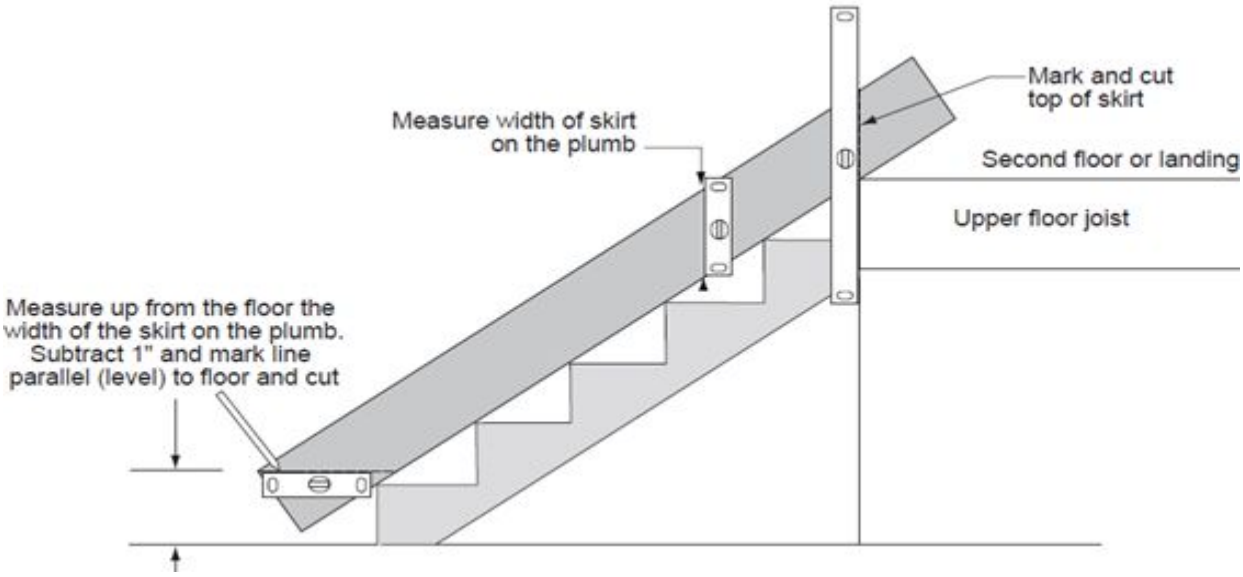

Fig- 1.1 Determining width of skirt.

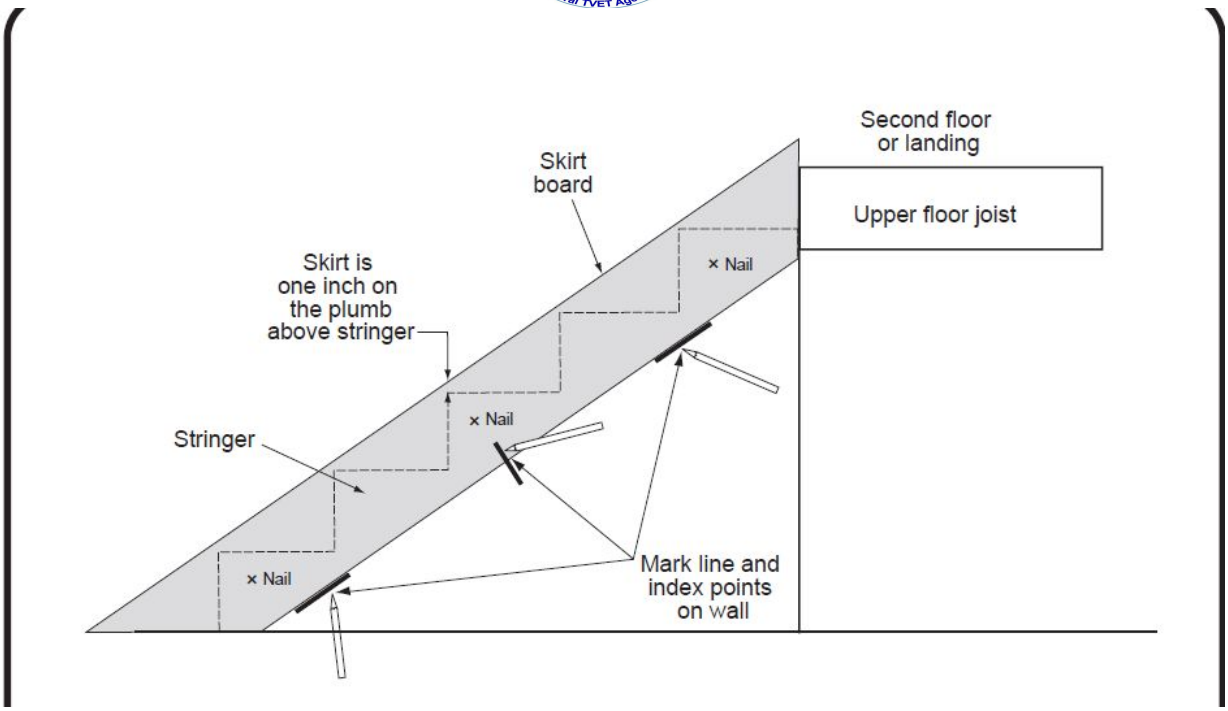

Fig- 1.2 Marking wall skirt in place (index points on wall and skirt).

3.2 Installing Mitered Skirts

The first step when installing the mitered skirt is to determine the size of the skirt necessary for the application. The fundamental measurements include the length and the width. You must make sure to select a piece of material that is long enough to cover the total run of the staircase. The width should be at least 9-1/2-inches wide.

A second consideration is the thickness of the skirt board. Thickness is a variable that is based on aesthetical purposes and not for structural stability. The thickness may vary from 1/4-to 2-inches, depending on preference and cost.

Operation sheet #1	Fitting and fixing joists to level

1.1 Procedures for fitting and fixing joists to level

Step 1

Locate temporary newel post into metal floor plate. Secure using 4 no. M5x60mm CE marked screws. Repeat this to create both ends of the landing return.

Step 2

Fix both floor plates to the floor at either end of the edge to be protected using 4 no. M5x60mm CE marked screws for each plate. Please note overall width of the complete system should not exceed 2500mm.

Step 3

Measure between the two fixed newel posts and ensure the guardrail is the correct length. Trim to suit if necessary.

Step 4

Locate L bracket into the pre-machined recess in the newel post and fix using 2 no. M4x40mm CE marked screws on each newel post. Locate upper guardrail onto the L bracket as illustrated, ensure it sits central over the L bracket and screw from underside as per illustration using 2x M4x40mm screws. Please note image shows cross-sectional detail.

Step 5

Hang both hanging brackets over the upper guardrail and position evenly from each end to create three equal gaps. Fix using 2 no. M4x40mm CE marked screws on each bracket.

Step 6

Measure the overall width of the guardrail system from the outer edge of each newel post as per illustration and cut mid-guardrail to suit this dimension.

Step 7

Locate the mid-guardrail into the hanging bracket as per illustration. Ensure the length of the mid-guardrail overhangs the newel post at both ends.

Step 8

Fix the mid-guardrail to the hanging bracket using the 2 no. M4x40mm CE marked screws per hanger.

Step 9

The finished system should look as per illustration 9. Ensure all fixings are in place and secure. To ensure full compliance with BS EN 13374:2013 a toe board should be fitted.

Operation sheet # 2	**Installing Skirts, Treads, and Risers**

Procedures for Installing Skirts, Treads, and Risers

The following steps describe the process:

1. Lay the skirt along the top of the stringer parallel with the stringer resting on the points.
2. Measure the width of the skirt on the plumb.
3. Measure up from the floor at the bottom of the stringer. Take this distance, less 1-inch, and scribe a line level with the floor at this point. Please note Fig. 1-1 on the above
4. Cut the bottom of the skirt off on this line and make any necessary cuts or notches as to allow the top of the skirt to rest 1-inch above the points of the stringers.
5. Tack the skirt into place with small finish nails.
6. Mark the wall and the skirt so that the skirt can be taken down, cut, and put back into exactly the same position. Please note Fig. 1-2 on the above

Lap Test -1	Practical

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary equipments, tools and materials you are required to perform the following tasks within 1.5 hour.

Task1 Fitting and fixing joists to level

Task2. Installing Skirts

Note: Satisfactory rating – above 100% **Unsatisfactory - below 100%**

Name: _____ Date: _____

Reference

Publications about wood Order at www.swedishwood.com/publications.

Prepared by: Colin mackenzie Timber Queensland Limited First produced: April 2007 Revised: May 2012, October 2013

Www.jeld-wen.co.uk

Design Guide 34 Steel-Framed Stairway Design

Answers key for self check information sheet LG 59

Self check -2

1. True
2. True

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