TVET CERTIFICATE V in CARPENTRY

INSTALLING EXTERIOR CLADDING

CAPEC501

Install exterior cladding

Competence

REQF Level: 5

Credits: 12

Learning hours: 120

Sector: Construction

Sub-sector: Carpentry

Module Note Issue date: June, 2020

Purpose statement

This module describes knowledge and skills required to install exterior cladding. It describes the skills, knowledge and attitudes required for the trainee to prepare materials, tools and equipment, fix cladding frame, fix cladding frame, set out, cut and fix weatherboards/ panels and clean up.

Table of Contents

Elements of competence and performance criteria	
Learning Unit	Performance Criteria
1. PREPARE MATERIALS, TOOLS AND EQUIPMENT	1.1 Appropriate selection of tools and equipment to carry out tasks that are consistent with job requirements, check for serviceability, and rectification of faults if any or reported prior to commencement
	1.2 Proper selection of material quantity requirements that are calculated in accordance with plans, specifications and quality requirements
	1.3 Appropriate preparation of materials to the work application are identified, obtained, prepared, safely handled and located ready for use.
2. FIX CLADDING FRAME	2.1 Proper trimming or packing of studs to provide true surface.
	2.2 Proper fitting and fixing rows of nogging.
	2.3 Adequate plumb of the frame to check the flushness of the frame.
3. FIX CLADDING FRAME	3.1 Proper determination of weatherboards coverage, according to the recommended lap, type and profile of board and height of wall.
	3.2 Proper locating of edge finishing, joiners, corner moulds and flashing is prepared to length and position, and secured to specifications.
	3.3 Proper application of wall insulation.
4. SET OUT,CUT AND FIX WEATHERBOARDS/ PANELS	4. Proper determination of weatherboards coverage, according to the recommended lap, type and profile of board and height of wall.
	4.2 Adequate fixing gauge rod and mark stop and starting board

	4.3 Accurate cutting of boards to fit length of wall face.
	4.4 Proper joining and fixing of the boards using manufacturer recommendation.
5. CLEAN UP	5.1 1.Adequate cleaning of work area and dispose of materials in accordance with legislation and job requirements.
	5.2 Appropriate cleaning and/or maintenance of tools and equipment.
	5.3 Proper storage of tools and equipment in accordance with manufacturer recommendations and standard work practices.

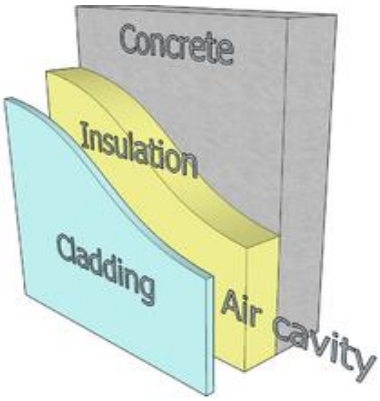
Learning Unit 1 PREPARE MATERIAL, TOOLS AND EQUIPMENT FOR CLADDING

Introduction to Cladding.

Exterior wall cladding is any material that is used to cover the exterior wall of your home. Cladding is available in many different types and styles from brick, stone, wood siding, and vinyl siding. Metal siding, PVC, and even cement fiber boards can be considered to be exterior wall cladding. Cladding is mostly installed over a plywood sheathing in rows to give the home an organized look. Other types of cladding, like exterior finishing products, are spread over the plywood in the form of stucco or plaster. Installing exterior wall cladding to your home will depend greatly on the exact type you are using.

Cladding is the application of one material over another to provide a skin or layer. In construction, cladding is used to provide a degree of thermal insulation and weather resistance, and to improve the appearance of buildings. Cladding can be made of any of a wide range of materials including wood, metal, brick, etc

An example of cladding.



Exterior cladding may not be something that you give a lot of thought, but it is what keeps a building safe when weather happens. It is the exterior wall covering that protects all the interior components of a house. Today's cladding choices are more varied than ever, offering better technical protection but also more aesthetic options. Wood is always able to be painted for a new look, but it also needs that constant maintenance every few years or decades, which is partly why other cladding trends are on the rise.

LO 1.1 Select tools and equipment

- Content/Topic 1 **Identification of tools and equipment for exterior cladding**

Tools that will be used in installing exterior cladding are classified into the following groups:

- ✓ **Holding tools/ Holding devise:** Workbench, bench vise, hook…

- ✓ **Setting out tools:** Try square, tape measure, spirit level, bevel, marking gauges…
- ✓ **Impelling/ fixing tools**: Hammers, nail punches, mallets…
- ✓ **Boring tools**: braces, bits, chisels, etc
- ✓ **Cutting and shaving tools**: planes, saws, gauges.

- **Equipment needed for cladding are:**
  - ✓ **Portable machines:** Jigsaws, routers, drilling machine, circular saw **etc**
  - ✓ **Heavy duty machines:** Wood rather machine, thicknesser, surface planer, molding machines…

- **PPE** needed for cladding are:

The different types of personal protective equipment include safety belt, grooves, goggles and glasses, mask, helmet, overall, safety boots and hearing protection.

- **Tools and equipment methods serviceability and safety requirement for cladding**
  - ✓ **Cleaning:**

    It is a process to remove the dirty, rubbish on the cladding.

List of basic cleaning supplies: Sponges, cleaning brush, yellow dusters, a mop and bucket, glass polishing cloths.

- ✓ **Oiling (greasing)**

Difference between oiling and Grease

Both oil and grease are generally used by people to lubricate machines parts, tools and equipment that are used every day.

Grease is made out of either animal flat or combination of different minerals that are found in nature. Oil is extracted from animal flat or plant extracts.

Grease is semisolid in its appearance and not easy affected by extreme temperatures, which is why they are commonly used in tools, machines and equipment. Oil in room temperature is liquid and become solid when subjected to extremely low temperatures and tends to evaporate when subjected to extremely high temperatures.

Oil is used by people in cooking, personal grooming and lubrication and so much more.

Lubrication is a process which aims at reducing friction between two or more moving pieces.

When the surface comes in contact with one another, a fluid must be injected to separate them.

The term **greasing** applies when grease is used to lubricate**.**

The main purpose of lubrication

Lubrication allows to:

- ➢ **Protect from corrosion**
- ➢ **Absorb/ reduce shocks**
- ➢ **Reduce friction(robbing/ deformation)**
- ➢ **Isolate components from contamination**
- ➢ **Clean/ rid of contaminants**

Lubricants aim at reducing friction between moving pieces and at reducing passive resistance of the stationary parts. They are produced by refining (purifying) heavy fractions of crude oil (remaining crude oil parts after refining hydrocarbons such as gas, fuel oil or kerosene). There are different kinds of lubricants: liquid or fluid (oils), semi- solid (grease, silicon gels) or solid (Teflon, graphite).

Performances and characteristics many differ from one lubricant to another, but they all have in common the same main component called" **base oil**".

Lubricating tools

These lubricating tools have metallic body, made in steel or brass.

Use grease when

-You need lubrication to stay put and stick to surfaces a long time.
-You want to seal out contaminants such as water or rust.
-You use a machine so infrequently that may forget toil it.

Don't use grease when

-You have fine or fast moving mechanisms where thick grease would create too much resistance.
-You don't want a mess (uncleanliness).
When parts move, they can fling grease all around, so it may not be the best option for keeping thing clean.

-**Topping**

- Setting

-Re- sharpening

Why sharpen

Todays mass produced plastic handled and teflon coated disposable saws are poor comparision to the quality saw of old. They never inspire any loyalty, for they are designed to be simply thrown away as soon as they get blunt.

A set of grinding stone or bench stone is the core most sharpening systems. These are available in different sizes, shapes and grits. The materials are either natural stone or synthetics abrasives in hard binder. Many stones are used with light oil or water. The liquid cleans the surfaces ,removing away the **swarf**(metal particles)

On sharpening machines liquid also serve as coolant, keeping the tool steel overheating and losing some of it hardness.

Honing (sharpening using an oilstone)

All of this can be done with several effective types of sharpening tools

- Aluminum oxide or ceramic, Water stones
- Diamond stones
- Oil stones, sandpaper of various grits adhered to thick, flat glass (float glass)

Sharpening and setting saw blades (saw reconditioning)

Which saws can be sharpened?

Basically, any saw that has not got special hardened teeth can be sharpened. Saws with hardened teeth- which means the majority of sold today- cannot be sharpened in the normal sense of the word. Hardened

teeth have exactly the same hardness as the file, which thus can have no effect on them, so you only can use diamond files. Many manufacturers only harden the tips of the teeth, which has the advantage that they later break off less easily, but the advantage that once the topmost the layer has been worn away the soft metal below is exposed.

What tools are required?

You need only a few tools:

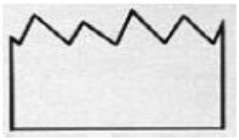
- A saw set
- A saw file
- A flat file
- A saw vice

What are the steps of the work?

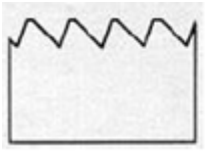
Getting saws back into shape for sawing involves four successive processes:

- Trimming
- Shaping
- Setting
- Sharpening the teeth, in that order. Depending the state the teeth are in, you can start at four stage or have to begin at the beginning.

1. **Trimming/ Topping**
   Repeated sharpening will alter the shape and the height the teeth.



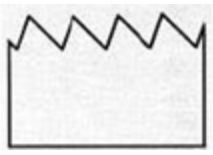
If this is what your saw blade looks like, it needs trimming!



This is what your saw blade will look like when it has been trimmed.

2. Sharping the teeth

The saw blade is now treated to even filling with a triangle sided file, so that each tooth without exception receives 3 or 4 strokes of the file overall. The process is repeated until all the teeth are the same shape and the base of the teeth is in a neat line.



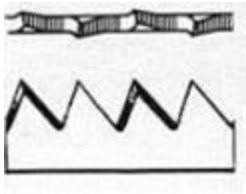
A crosscut saw blade after the teeth have been reshaped.

3. Setting

Setting a saw means binding alternate teeth outwards to either side , making the cut winder that blade, so that the latter does not jam. The offset must be absolutely equal to both sides, or else the saw will go off course in the direction of the winder offset side. For this job you need a saw set. To avoid tooth breakage, never bend a tooth to the rigth that was previously bent to the left and vice versa.

4. Sharpening

Sharpening should take place after the setting, to avoid the tool damaging the teeth.A three- square saw file is required for the task. First the sawblade must be clamped in the asw vise right up close to the base of the teeth, to avoid vibration. The file should just be able to pass above the jaws (between teeth). It is guided horizontally through the gap between the teeth, at right angles to the blade when sharpening a rip cut saw. When sharpening cross cut saw, the file must be guided horizontally at a 60 angle .



Teeth of a crosscut saw after they have been correctly set and sharpened.

- **Personal safety rules while handling tools and equipment for cladding**
  - Inspect your tools and equipment
  - Make sure you are using the correct tool for the task
  - Operate tools or equipment according to manufacturer's instructions
  - Examine each tool for damage before use and not damaged tools
  - Keep tools in good condition with regular maintenance

LO 1.2 Select and prepare materials for cladding

- Content/Topic 1 **Identification of materials for cladding**
  - Aluminium weatherboards
  - Chamfer boards
  - Fiber cement sheet panels, sheets and planks
  - Metal panelling
  - Nails and screws
  - Temperature hardboard strips
  - Timber weatherboards

- Tongue and groove timber boards
- Reconstituted timber products
- Vinyl weatherboard and cladding
- Manufactured cladding material(strips, boards, planks and sheets)
- Patented metal fasteners clips and joiners

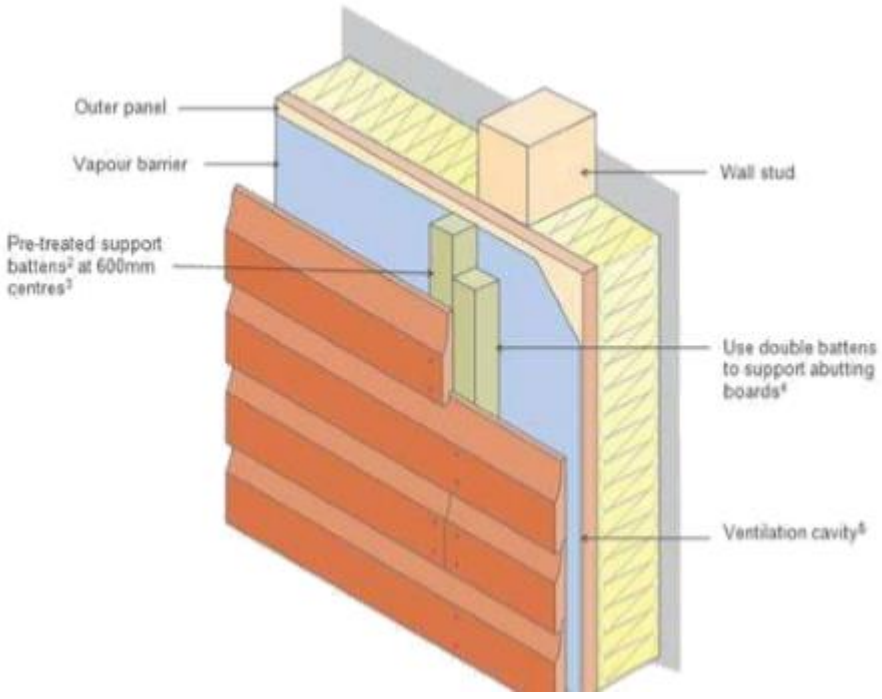
- **Requirements quality of exterior cladding materials**
  - Durability
  - Thermal insulation
  - Fire resistance
  - Weather resistance
  - Strength to resist impact
  - Easy to maintain
  - Resilience to abrasion
- **Determination of quantity required materials according to the plans of cladding**

Calculation of area

Firstly, calculate how many square meters your project require, then add between 5% to 10% onto the figure calculated. This allows for wastage or on site damage to the timber. It is worth nothing that the inconvenience and extra costs incurred of not ordering enough timber can be quite significant.

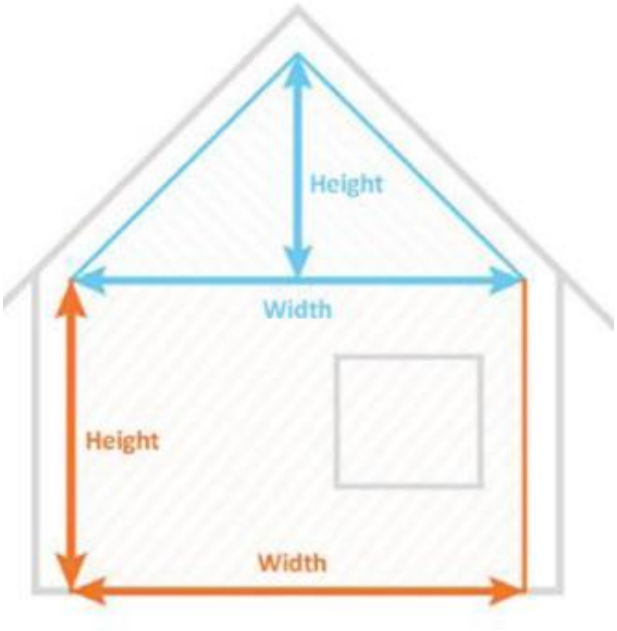
How far parts should battens be positioned?

Generally 600mm will be recommended distance, but this can on occasion be alerted based on the thickness of cladding board and location of your project.



Calculation of volume

When it comes to measure a regular wall for **cladding**, it is simple; all you have to do is divide either width or height of the wall (depending on panel orientation) by the width panels you intend to install.



- **Steps involved in preparation of cladding elements**
  - Measuring
  - Marking
  - Planing
  - Cutting
  - Jointing
  - Molding / Chamfering

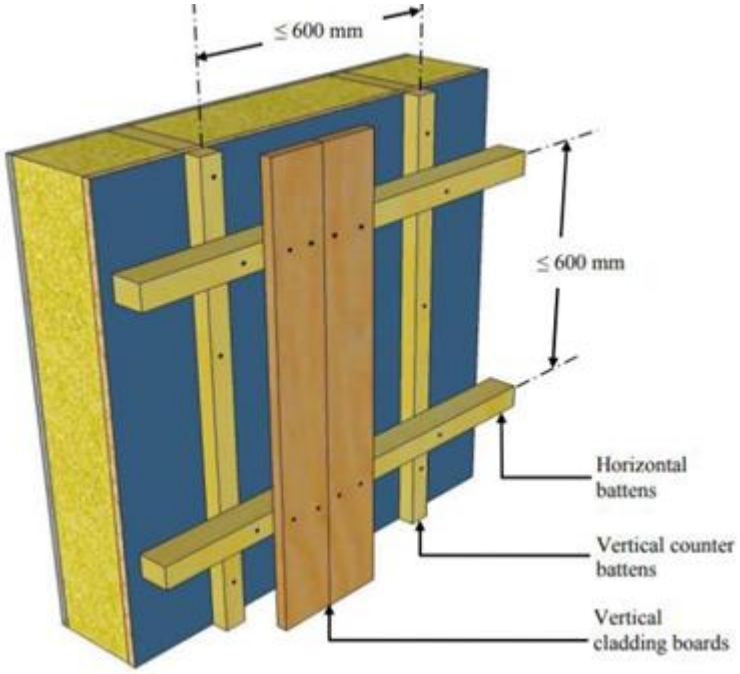
LU2. FIX CLADDING FRAME

LO2.1. Trim or pack of studs to provide true surface

Content/Topic 1 Process of trimming,fixing techniques of trimmed pieces and straightening studs.

You may need to cut your bead board to fit areas.

- ✓ Butt the groove end of a board into a corner and nail it in place.
- ✓ Align the top edge with a level line.
- ✓ Check the edge for plumb with a level.
- ✓ Press the boards with the heels of your hands to help bond the width of the wall.



LO 2.2. Proper fitting and fixing rows of noggins

Content/Topic 1 Considerations and fixing steps of noggings

A noggin is strut used to give rigidity to a frame cladding, fixed between joists or studs to increase strength and stiffness**.**

You will need to ensure:

- You don't apply cladding directly to any solid wall. Moisture will be trapped at the back of the timbers and they will rot. Ensure there is an air space between the timber cladding and the solid wall using battens a moisture or water that penetrates the cladding can readily escape to the outside at the bottom of cladding.
- On vertical cladding, the horizontal battens allow space for water to escape. It is best to pack the horizontal studs out from the wall by placing the vertical battens first, then the horizontal ones.
- Battens are fixed securely to the wall, using flush fixings according the manufactures guidelines. The battens must be thick enough to take the cladding nails, without having the nail points hit the bricks. We suggest at least **30mm** thick battens.

LO2.3. Plumb the frame to check the flushness of the frame

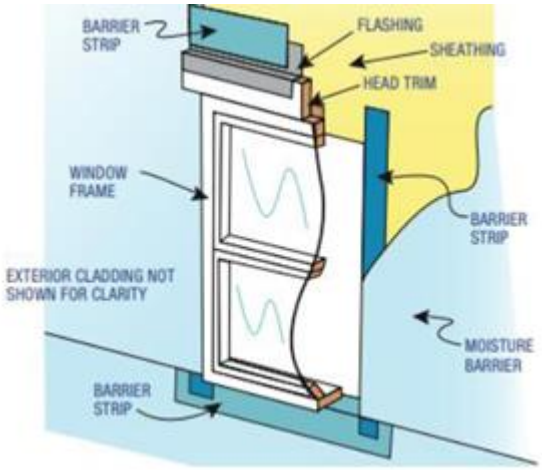
Content/Topic 1 Characteristics of a levelled frame and Method of levelling.

The structural support of cladding layer, the facade, as a highly engineered system of the overall design, has a significant in the operation and configuration of the building and regardless of the level of its complexity, requires an integrated design system with that of the building of which it forms the final finish.

The steps to follow while to install the plump the frame to check the flushness of the frame such as:

1. Prepare the wall. (To check the levelling, smoothness)
2. Mark the layout (measure and mark outside corner of each frame on falls on the top layout line).
3. Make a jig (Using a framing square).
4. Build the frames.
5. Install the frames.
6. Paint the frames/ polish the frames.

The flushness frame is a wall cladding made of flush facing panels and with windows with pull and push opening, single or double, when windows are closed the entire system is a continuous wooden cladding without any visible.



LU 3.Fix the frame

LO3.1. Apply weather proof, vapor barrier and flashing material

Content/Topic **Cladding, cutting techniques and application methods of weatherproof materials**

Flashings are to prevent moisture from entering the wall system and to redirect it to the exterior. Flashing is typically located at exterior door and windows assemblies and any penetrations, projections or terminations in the exterior of the building.

The poor performance flashing, resulting in the loose of water intrusion protection in areas that frequently experience strong wind s, enhance d flashing details are recommended to provide the better protection against wind driven rain.

The steps to perform in installing the weather proof and vapor barrier in cladding are:

a. Lay down moisture barrier

b. Protect exposed foundation

c. Complete crawl space insulation

Required characteristics of weatherproof

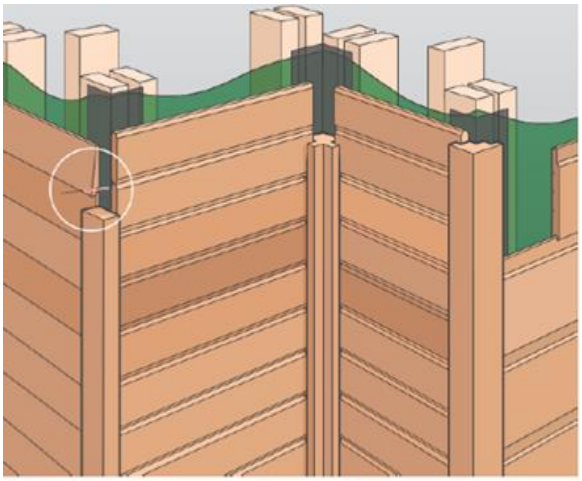
Interception of water behind the cladding

- Redirection of water flowing down the face of the wall
- No rain penetrating through the cladding
- No penetration of moist air from the exterior or condensation.

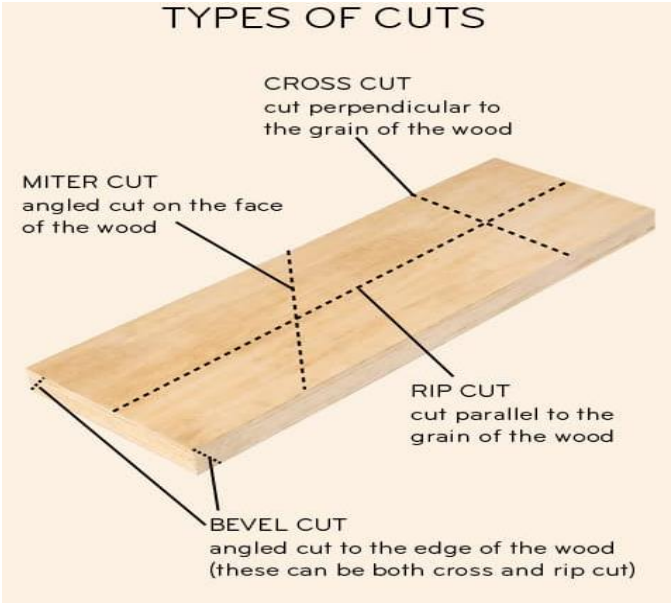
LO3.2 .Locate edge finishing, joiners and corner moulds

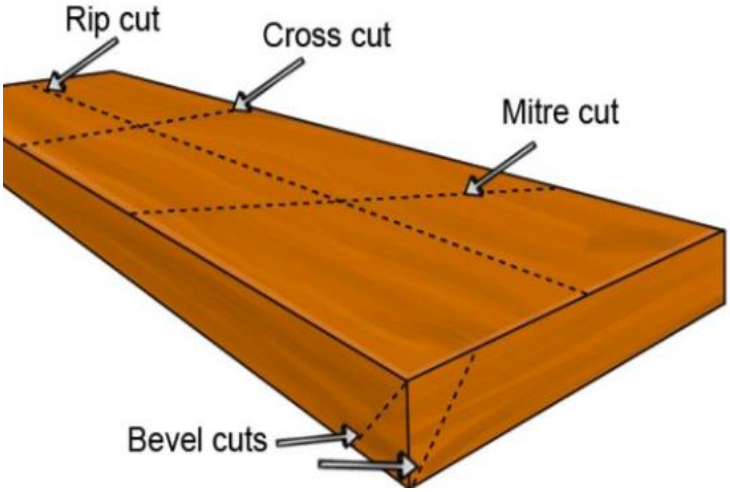
Content/Topic : Types of corner joiners, moulds and elements to consider in locating edge.

To install edge finishing and corner moulding, start by cutting the pieces to the right size. Next locate and mark studs as it's best to nail moulding into a support structure. When placing the moulding, first glue the edges that make contact with the wall or cladding then nail the moulding into the studs.

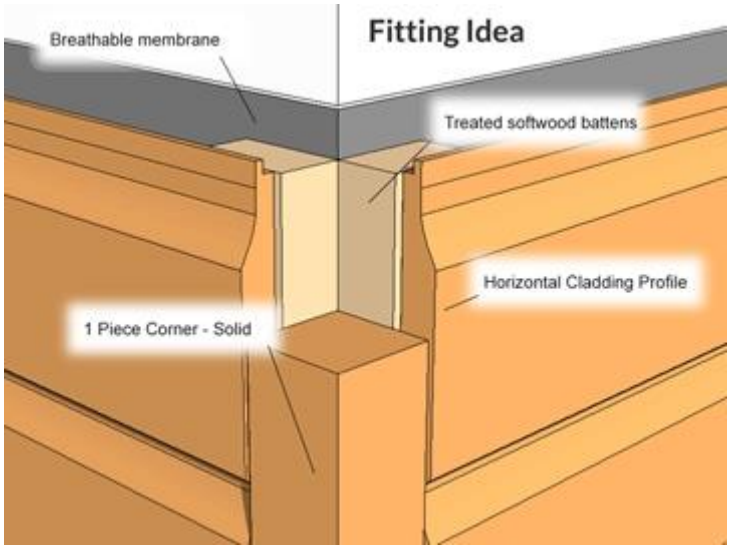


- **How to cut the pieces used while to locate edge finishing, joiners and corner moulds**





- **How to join the corner moulds**



LO3.3. Apply wall insulation material

Topic/Content: Types of insulation, Steps and methods of applying insulators.

Thermal insulation for cladding

Cladding systems often contribute little to overall wall insulation values.

Specific performance is outlined under cladding options below.

Several composite cladding products include insulation: those with higher r R-values (the measure of a materials resistance to heat flow) can eliminate the need for bulk insulation between the frame members in many climates. With adequately designed and correctly install vapor cavities, condensation risk can be reduced or eliminated.

Sound insulation for cladding

With the exception of brick veneer which is a high mass, high thickness system cladding generally provides limited sound insulation. The contribution of denser products and foam insulation backed products is usually indicated as an RW (weighted sound reduction index) rating or STC (sound transmission class).

LO 4.1 Determine weatherboards coverage

Topic/Content: The relevant provisions and elements for determining weatherboards.

- The relevant provions of the weatherboards
- External moiture
- Durability

Elements for determining weatherboards caverage extrerior cladding

- **Lap**

The weatherboards used on the outside of the building are 170mm wide, the manufacturer specifications give a minimum **overlap** of 25mm, therefore the caverage for each board is 145mm. The 145mm **overlap** can be increased if the cut over openings is too severe.

- **Types and profile of boards cladding**

The common types of cladding are curtain walling, sandwich panels,rainsreen, timber cladding,brick slips, metal profile cladding, tensile faric covering and patent glazing.

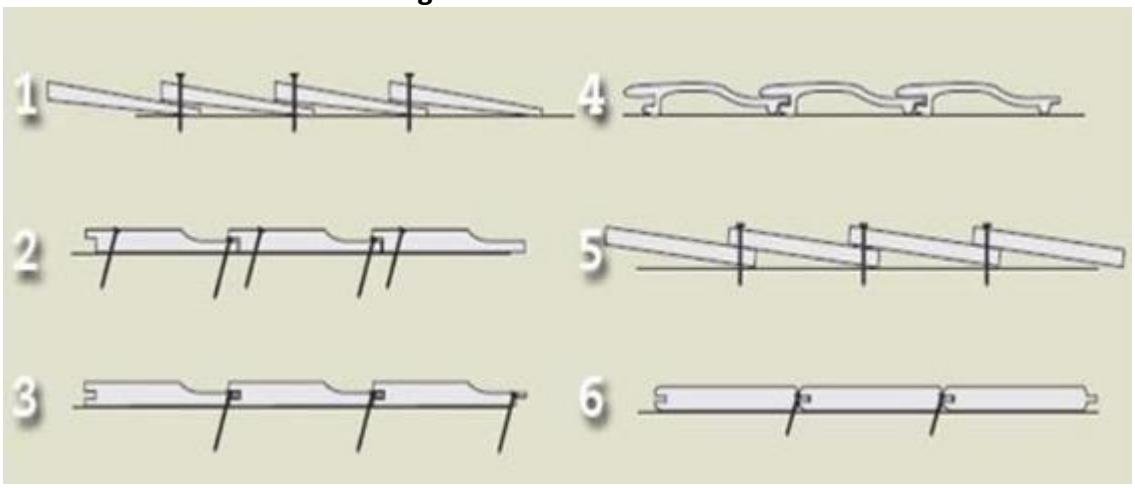
- **Area of wall cladding**

The formula to find the area of the cladding walls of a rectangular room is **A=2h (L+B**), **h** is **wall height**, **L is room length**, and B is room breadth. The area of doors and windows are ignored.

Steps for installing exterior cladding weatherboards

- Number each weatherboard.
- Cut off both log ends 350mm in from each end.
- Cut the natural edge off your first board so it is straight.
- Cut weatherboard to required length.
- Sequentially nail the natural edge weatherboard from the bottom up**.**

The common cladding formats



- Feather edge
- Shiplap
- Shiplap, tongue and groove
- PVC cladding
- Square edge
- Tongue and groove

LO 4.2 Fix gauge rod and mark stop and starting board

Topic/Content Steps to marking a story rod, mark stop and starting board

Before you to fix gauge rod make sure the surface you'll be working on are clean, dry and flat.

A gauge rod is smart way to help you with your row end cladding size**.**

- **Steps to mark a story rod for cladding**

- Measure the height of the wall
- Width of weatherboard minus the overlap.
- Divide the wall height by the above answer.
- Wall height divided by number of boards this measurement is then transferred to the gauge rod.

- **Mark stop and starting board for cladding**

- The bottom weatherboard should overlap the bottom plate or bearer by a minimum of 50mm.
- Place the mastic on the ends the boards before installing and fastening in order to prevent water entering the frame during rainy conditions.

LO 4.3 Cut boards to fit length of wall face on the cladding

Topic/Content Cutting methods, Cutting tools and equipment of wall face on the cladding

First, cut your battens to fit the length of the wall you want to panel. Decide on the height of the paneling and cut each tongue and groove plank to length. Take one of cut planks and mark the height on the wall with a pencil. Then use a tape measure and pencil to measure and mark the other levels. There have two methods of cutting such as:

- **Cutting methods**

- Manual
- Mechanical

- **Cutting tools and equipment**

- Shaving tools. Ex: Planes
- Portable machines. Ex: Portable sander machine, Portable circular saw, jig saw etc.
- Heavy duty machines. Ex: Band saw machine, Surface planer machine, Thicknesser etc.

LO 4.4 Join and fix boards/ panels

Topic/Content Application method and techniques of joining boards/ panels

If timber cladding is to be coated with paint or stain, at least on coat, preferably two, should be applied to all sides and ends of the boards before fixing. A second or third coat can be applied after the boards are fixed. Some pictures shown how to join and fix boards for cladding.

Some boards used on cladding

- **Application method for cladding**

✓ Horizontal boarding

When mounted horizontally, the fixing can be made invisible.

For horizontal boarding not exceeding 300mm face width, the open joint chamfered boards should be at least a 1mm gap between the boards at the outer face.

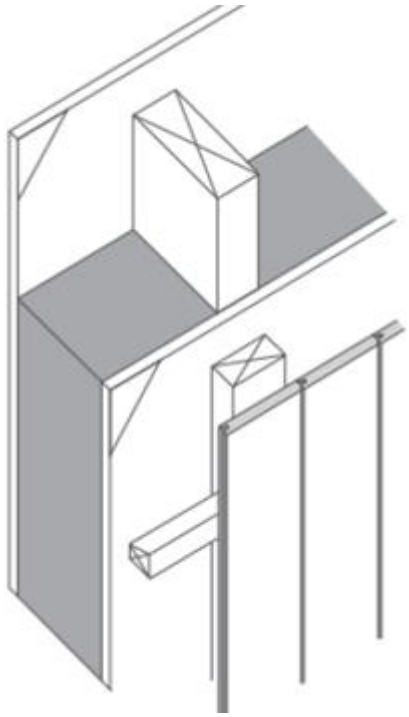
The vertical overlaps of square and feather edge should be at least 20mm.

When choosing a shiplap profile, the minimum vertical overlap can be reduced to 10mm, but there should be at least a 1mm gap between rebates.

✓ Vertical and diagonal

The board designs suitable for vertical boarding are (overlapping, square edge, shiplap and tongue and groove).

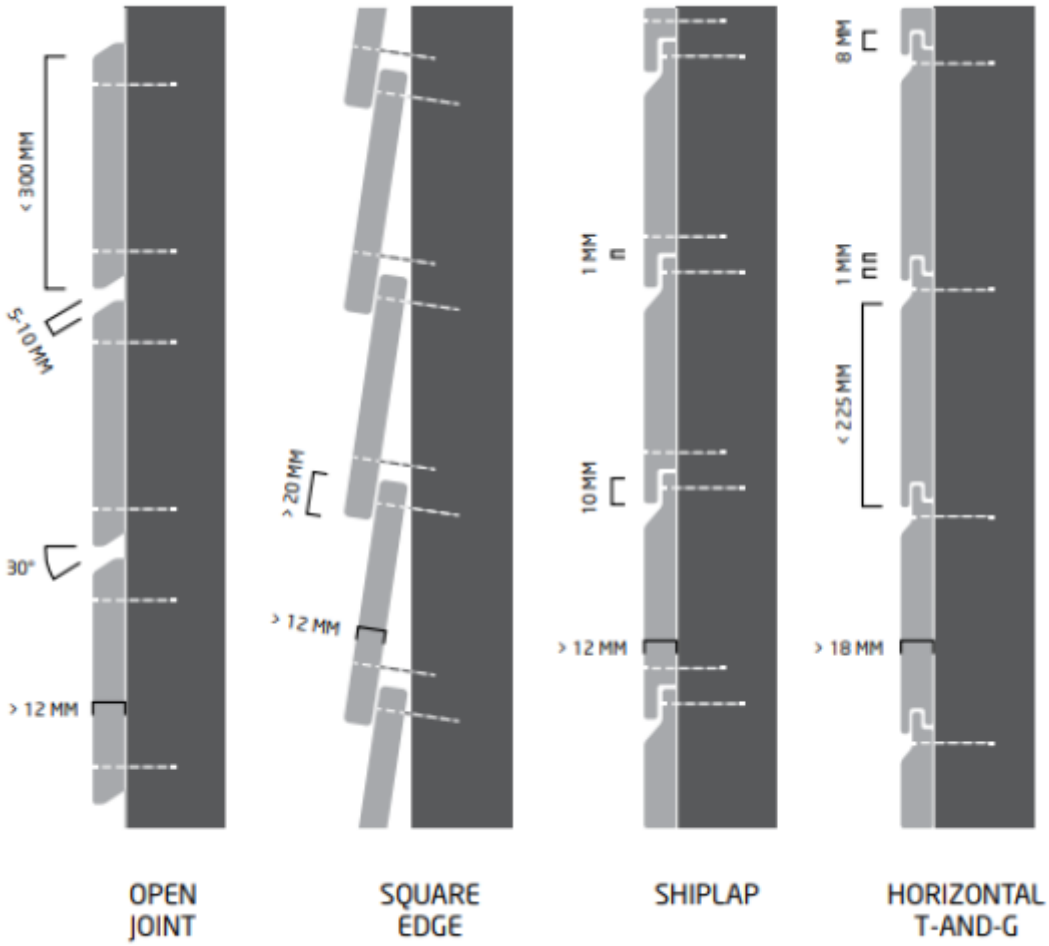
When installing the profiles vertically at least two fasteners per board are necessary and at least one of these, such as a nail will be visible .It is recommended to limit the board lengths to the storey height and joints must relate to batten positions. A double sub frame is the best practice where horizontal fixing battens fastened on vertical counter battens.



The horizontal battens should be chamfered at the top side, shedding water into the cavity. The lowest batten should slant inward at the bottom, creating a drip lip at the intersection with the counter battens.

If only horizontal (fixing) battens are used, additional measures need to be taken to ensure sufficient ventilation. Water penetration at the end of vertical battens should be avoided by applying a sealer.

- **Techniques of joining and fixing according to the types of boards for cladding**
  - ✓ Using screws
  - ✓ Using nails
  - ✓ Using bolts and nuts



The most popular designs are:

- Open jointed
- Square edge
- Shiplap
- Tongue and groove
- Other designs are of course possible

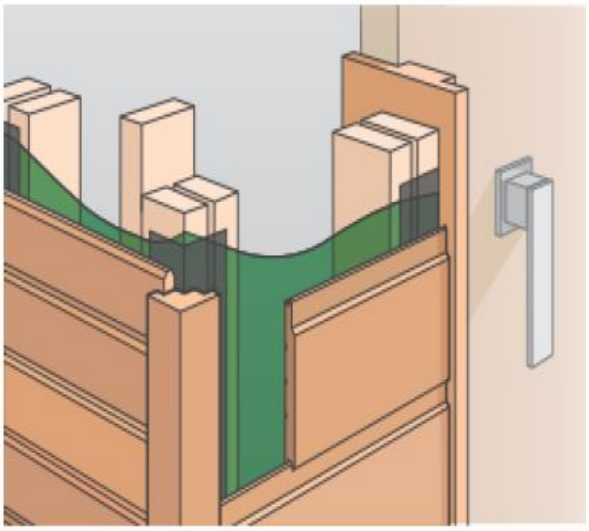
- **Using binding materials for cladding**

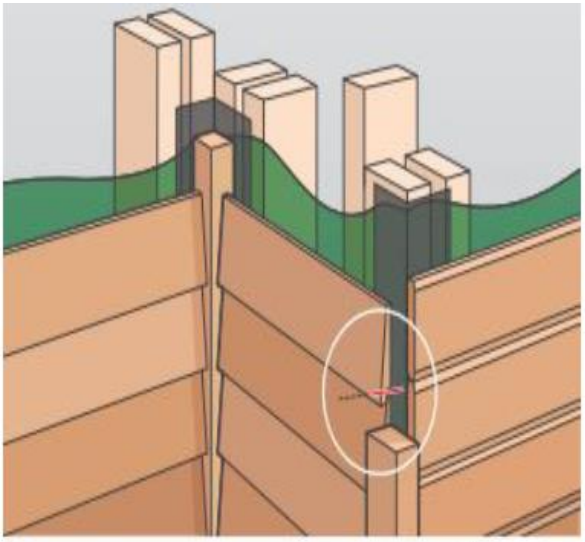
Binding material for cladding is any material or substance that holds or draws other materials together to form a cohesive whole mechanically, chemical by adhesion or cohesion, generally formed form paper vinyl or other plastics. Some binders are formed from rigid plastic or thick cardstock, but more commonly binders are constructed of a plastic or paper sheet wrapped around heavy paperboard and how to permeate binding materials for cladding are:

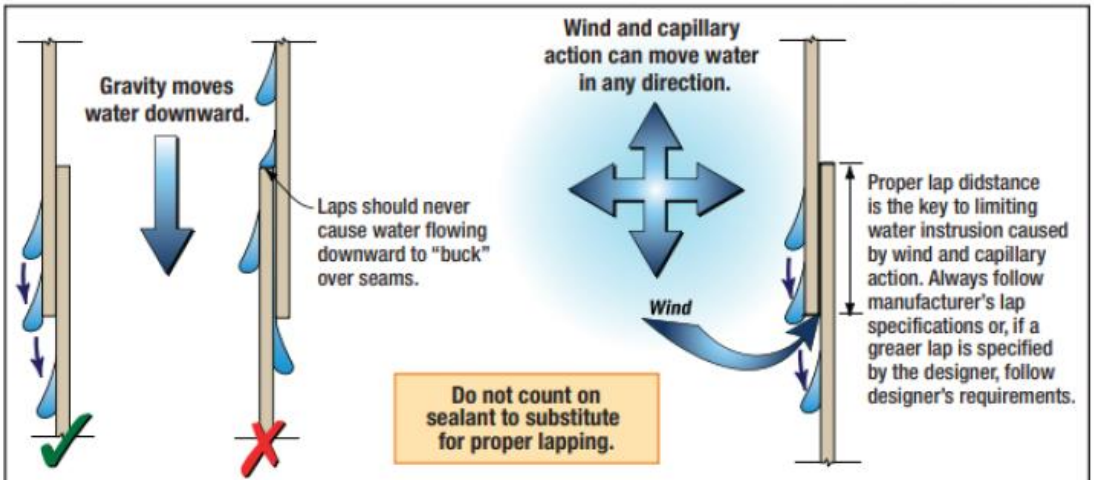
- Collect material to be used (boards, insulators).

- Collect holds materials such as glue, screws, and nails.

- Put in practice.







LU5. CLEAN UP

LO 5.1 clean the work area for cladding

Topic/Content Separation, Disposal of wastes and cleaning method

- **Separation of wastage materials for cladding**
  - ✓ Worn but functioning
  - ✓ Unwanted and which requires collection
  - ✓ Use able only by specialized waste recovery establishments
  - ✓ Use able otherwise than by means of specialized waste recovery
- **Disposal of wastes and environment aspect for cladding**
  - Site clearance waste
  - Excavation materials
  - Chemical waste
  - Construction and demolition waste

- General refuse

- **Cleaning method for cladding**
  - Manual
  - Mechanical

LO 5.2 Clean and/ or maintain tools and equipment

Topic/content Maintenance techniques and cleaning methodology.

- **Types and nature of waste**

Waste can be classified into five types of waste which is all commonly found around the house. These include liquid waste, solid rubbish, organic waste, recyclable rubbish and hazardous waste. Make sure that you segregate your waste into these different types to ensure proper waste removal.

If you one such resident, by knowing the different types of wastes you will be able to be better understand that you can and cannot and recycle.

1. **Liquid waste**.

Liquid waste is commonly found both in house hold as well as in industries.

This includes dirt water. Organic liquid, wash water, water detergents and even rain water.

You should also know that liquid waste can be classified into point and non point source waste. All manufactured liquid waste is classified as point source waste..On the other hand, natural liquid waste is classified as non point source weste.

2. **Solid rubbish**

Solid rubbish can include a variety of items found in your household along with commercial and industrial locations.
Solid rubbish is commonly broken into the following types:

Plastic waste

This consists of bags, containers, jars, bottles and many other products that can be found in your household. Plastic is not biodegradable, but many types of plastic can be recycled, plastic should not be mix in with your regular waste, it should be sorted and placed in your recycling bin.

Paper/card waste

This includes the packaging materials, newspapers, cardboard and other products materials. Paper can easily be recycled and reused to make sure to place them in your recycling bin or take them to your closet Brisbane recycling depot.

Tins and metals.

This can be found in various forms throughout your home.
Most metals can be recycled. Consider taking these items to a scrap yard or your closet Brisbane recycling depot to dispose of these waste types properly.

Ceramics and glass

These items can easily be recycled. Look for special glass recycling bins and bottles banks to dispose them correctly. If you still cannot grasp the concept of recycling, then an incredibly easy and efficient way to dispose solid rubbish is by hiring a Brisbane waste removal company, like 4 waste removals, to take care of your recycling for you. We will removal all of your rubbish and ensure it is disposed of properly.

Organic waste

Organic waste is another common household. All food waste, garden waste, manure and rotten meat as classified. As organic waste. Over time organic waste is turned into manure by microorganisms. However, this does not mean that you can dispose them anywhere.
Organic waste in landfills causes production of methane so it must never be simply discarded with general waste.

Recyclable rubbish

Recyclable rubbish includes all waste items that can be converted into products that can be used again. Solid items such as paper, metals, furniture and organic waste can all be recycled. Instead of throwing these items in with regular waste, which then ends up in landfills, place them in your yellow recycling bin if you are ensure whether an item is recyclable or not, look at the packaging or the diagrams on the lid of your yellow recycling bin. Most products will explicitly state whether they are recyclable or not.

Hazardous waste

Hazardous waste includes all types of rubbish that are flammable, toxic, corrosive and reactive.

These items are harm you as well as the environment and must be disposed of correctly. Therefore, I recommended you make use of a waste removal company for proper disposal all hazardous waste.

- **Disposal of waste and environment aspect for cladding**

- Site clearance waste
- Excavated materials
- General refuse
- Chemical waste
- Construction and demolition waste.

- **Waste removing techniques for cladding**
  Below we will venture into six effective waste disposal methods.

1. **Preventing or reducing waste generation**: Extensive use of new or unnecessary products is the root cause of unchecked waste formation.

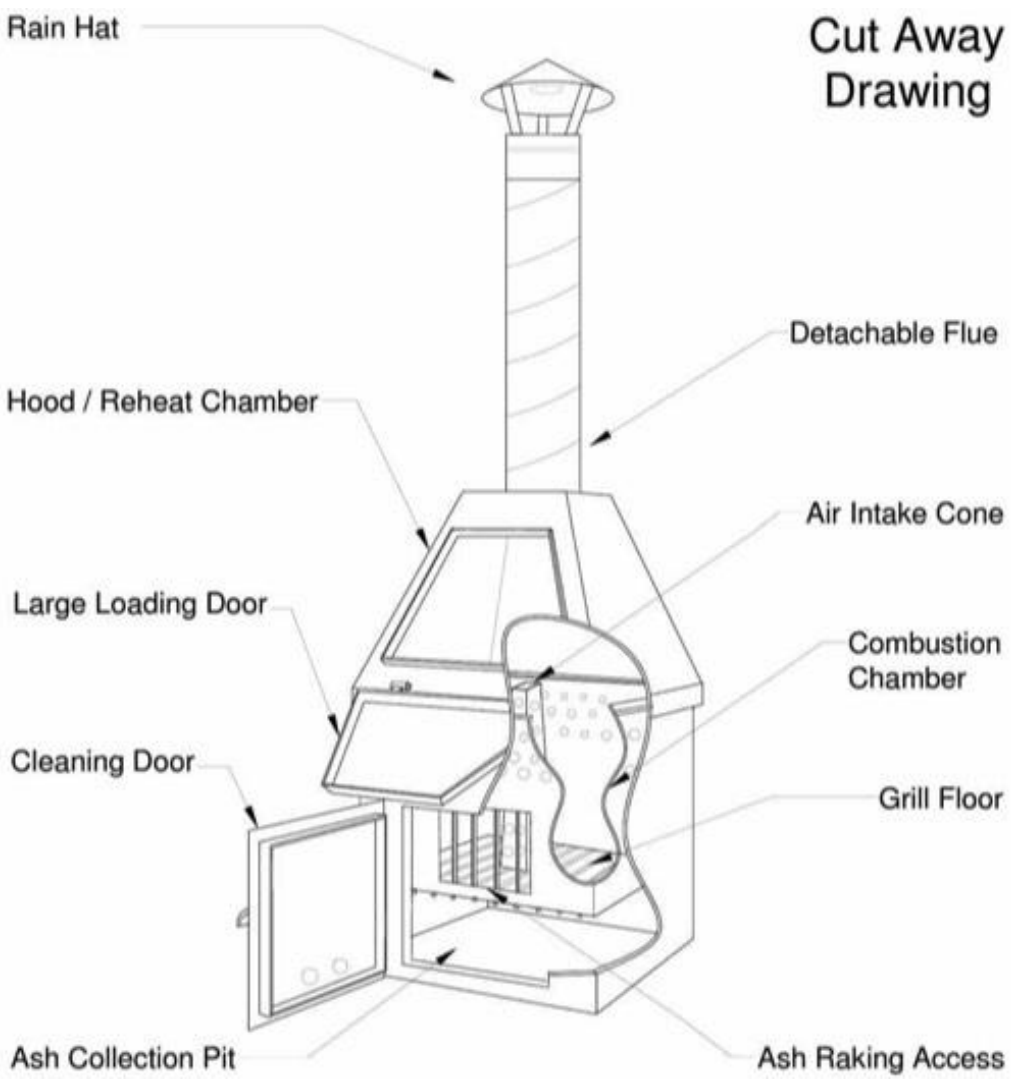
   The rapid population growth makes it imperative to use second hand products or judiciously use the existing ones because if not, there is potential risk of people succumbing to the ill effects of toxic wastes. A conscious decision should be made at the personal and professional level to careful control of menacing growth of wastes.

2. **Recycling**

Recycling serves to transform the wastes into products of their own type through industrial processing paper ,glass,aluminum and plastics are commonly recycled. It is environmentally friendly to reuse the waste instead of adding them to nature. However, processing technologies are pretty expensive.

3. Incineration

Incinerationfeatures combustible of wastes to transform them into base components, whith the generated heat being trapped for deriving energy. Assorted gases and inert ash are common by products. Pllution is caused by varied degrees dependent on nature of waste combusted and incinerator design.Use of filters can check pollution. It is rather inexpensive to burn waste volume is reduced by about 90%

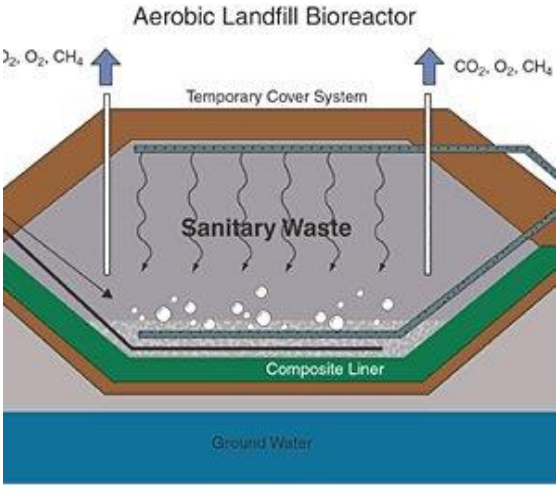


4.Composting

It is involves decomposting of organic wastes by microbes by allowing the waste to stay accumulated in pit for a long period of time. The nutrient rich composite can be used as plan mature. Hawever, the process is slow and consumes a significant amount of land. Biologicaly reprocessing extremely improve the fertility of the soil.

4.Sanitary landfill

This involves the dumping of wastes into a landfill



4. **Disposal in ocean/sea**
   Wastes generally of radioactive nature are dumped in the oceans far from active human habitats. However, environmentalists are challenging this method; as such an action is believed to spell doom for aquatic life by depriving the ocean wastes of its inherent nutrients.

- **Cleaning methods for cladding**

- **Manual**

  Procedures of manual cleaning methods are:

  - Swiping.
  - Dusting.
  - Dust mopping.
  - Manual scrubbing.
  - Manual polishing.
  - Spot cleaning.

- **Mechanical**

  Procedures of mechanical cleaning methods:

  - Suction cleaning/ Vacuum cleaning.
  - Spray buffing.
  - Polishing.
  - Scrubbing.
  - Stripping
  - Laundering.
  - Dry cleaning.

LO5.3 Store tools and equipment for cladding

Topic/ content Storing techniques, Condition of storage and Role of tools and equipment storage.

You have to work with the space you have.

May be you hang them on **pegboards.**

Maybe you store them in **boxes, bags or chests.**

Maybe you keep them in **drawers or shelves in you shop**.

Example of storing tools and equipment

- **Condition of storage**

They should be stored in **dry place, shelves, toolbox** in order to separate secure place so that they are safe and easy to find.

- **Role of tools and equipment storage for cladding**

1. It is an important factor for safety and as well as arrangement.
2. Improves appearance of general – shop and construction areas.
3. Reduces overall tool cost through maintenance
4. This also ensures that tools are in good repair at hand.
5. Teacher worker principals (tools) accountability.

NOTICE: Pointers to follow in storing tools and equipment such as

- Have a designated place for each kind of tools or equipment.
- Label the storage cabinet or place correctly for immediate finding.
- Wash and dry properly before storing
- Store knives properly when not in use with sharp edge down.
- Store them near the point of use.
- Put frequently used items in conveniently accessible locations.
- Make sure the areas where you are storing the equipment are clean, dry not overcrowded.

➢ Perform the proper storing of tools and equipment for cladding in designated places, put labels on equipment storage place. Do the following steps:

- ❖ Classify.
- ❖ Clean and dry
- ❖ Store in proper place
- ❖ Labelling

REFERENCES

Brian porter, second edition, 1984, carpentry and joinery.

https://www.designingbuildings.co.uk

https://www.bestdesk.co.za/ wall- cladding.

https://theconstuctor.org

https://en.m.wikipedia.org

https://sustainebledevelopment.un.org

http://books.google.com