

L5-CAPEC501 INSTALL EXTERIOR CLADDING.

L.U 1Prepare materials, tools and equipment.

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.

1.1 Select tools and equipment

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

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.

General Information

- All timber cladding and battens should be appropriately treated to protect them against rot and insect attack.
- Timber cladding can provide a cost effective and attractive external envelope to a building but the design and fixing detail needs to accommodate the fact that timber is a natural material and will move in accordance with changing moisture content and the humidity of the environment.
- A timber rain-screen can allow moisture through joints and in such an installation an appropriate breather membrane is recommended to prevent moisture ingress into the structure of the wall.
- The design details should include a cavity of at least 21mm directly behind the cladding in order to provide adequate drainage and ventilation. This will ensure any moisture which does collect at the back of the boards can be dispersed.
- External softwood timber cladding should be at a moisture content of approximately 16% at the time of fixing when it will be in approximate equilibrium with the average atmospheric conditions found in the UK..
- Vertical cladding will require double battening (vertical and horizontal) to ensure airflow to the cavity.

Before Fixing

- If timber cladding is to be coated with paint or stain, at least one 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.
- Any cut ends of boards or drill holes should be protected with a suitable wood preserver.
- If the boards are not being coated it is still recommended that the end grain is protected to prevent moisture uptake. Unprotected end grain will readily absorb moisture which can lead to swelling and discolouration.
- Battens should be at least twice the thickness of the cladding boards.
- Nails should be annular ring shank stainless steel to prevent staining and provide sufficient holding power. The nail length should be at least 3 times the thickness of the board.

Fixing Instructions

Examples:

Horizontal cladding fixed to vertical batten and vertical cladding fitted onto double battening. For both timber frame and masonry walls the same batten and cladding configuration is used.

- Battens should be approximately twice the thickness of the board. Eg. for a 20mm finished cladding, a minimum 38mm thick batten should be used
- Battens should be set at a maximum 600mm centres for vertical and horizontal cladding. 400mm centres should be used if boards are being fitted in a diagonal layout.

- Insect mesh should be fitted to all cavity openings.
- A clear ventilation gap of at least 21mm should be incorporated into the design to permit air circulation and unrestricted drainage of any rainwater that penetrates the cladding.
- Where horizontal cladding boards are butted together additional end support should be provided by fixing a second batten which extends at least the width of one board above and below the board being fixed.
- Butt jointed boards should be fitted with a 5mm gap to allow airflow.
- Ventilation gaps of at least 16mm should be provided at the top and bottom of the cavity.
- Horizontal cladding should be cut to ensure a minimum 8mm gap before vertical members of windows, doors, corner trims or similar. This allows airflow to the end of the boards which aids drying and helps prevent excessive moisture uptake.
- Fix with nails at least 20mm from the end of boards and at least 15mm from the edges. Pre-drilling should be carried out if it is necessary to fix closer to the end or edge of the boards.
- It is recommended that all cladding boards should be double nailed at each batten and through the thickest part of the board preferably at quarter points from the edge as
- Secret fixing through the tongue or groove of standard profiled boards is not recommended as this can split the timber and reduce the holding effect of the nail.
- Nail heads should be fitted flush with the surface of the boards.

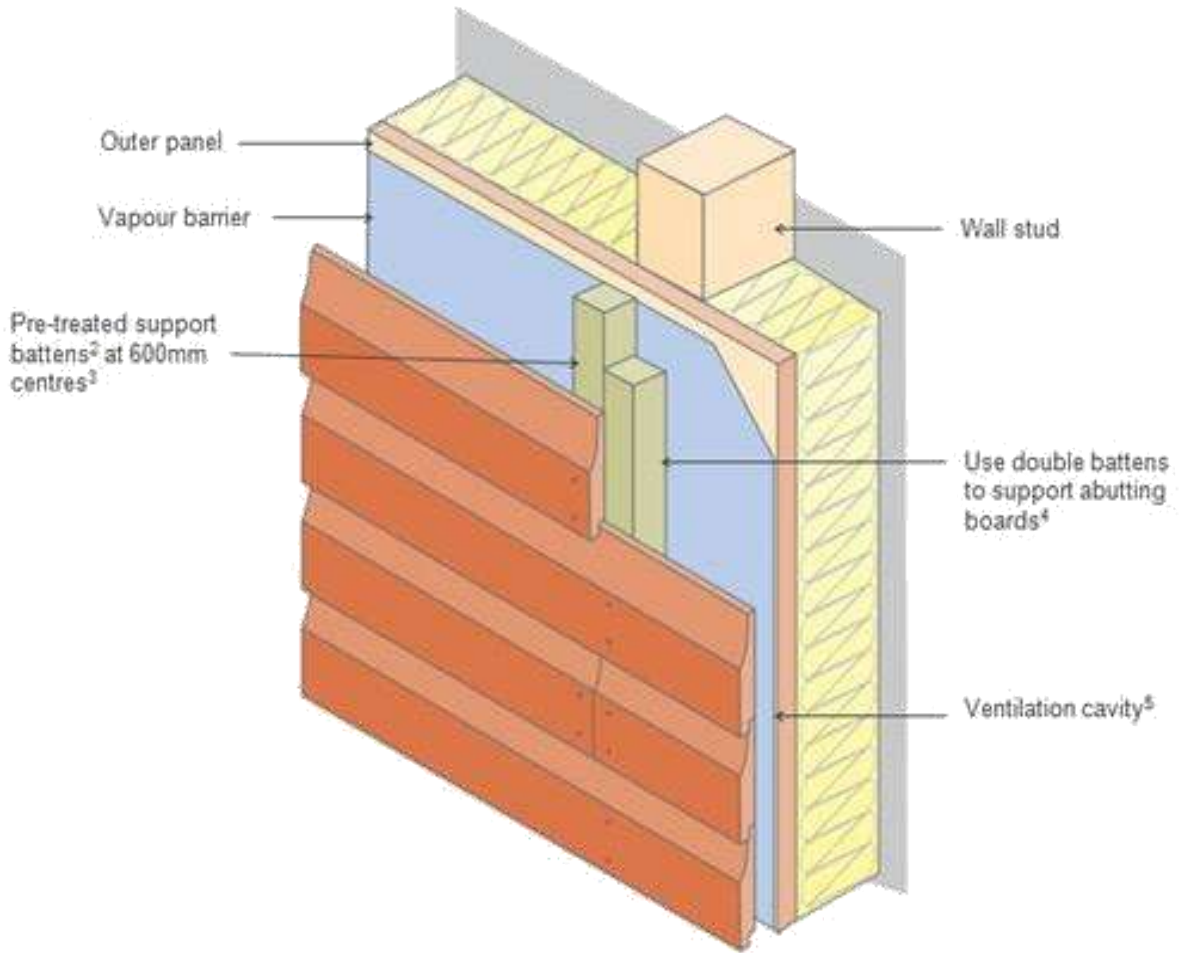
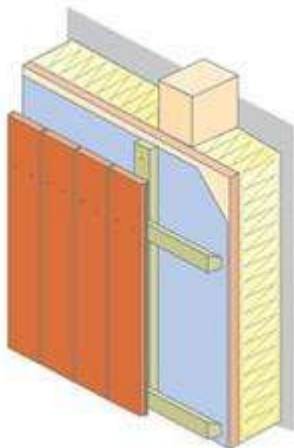


Fig. 1



Timber Cladding in Service

Timber cladding is a natural product which is hygroscopic and will swell and shrink in relation to the air humidity and the moisture content of the wood. This timber movement is expected and is accommodated for in the design of the timber profile and cladding system.

Movement of up to 3-4 mm per board can be expected when atmospheric conditions change and the moisture content of the boards increase or decrease from the 16% norm.

Regular maintenance by way of cleaning and removal of any surface algae growth, sanding and re-coating when necessary, together with the replacement of any damaged boards will enhance the service life of timber cladding and help maintain an attractive appearance.

Step 1 - Measure Exterior Walls of Home

In order to get the right amount of materials that you need in exterior wall cladding you must take plenty of measurements. This is mostly the length and width of each of the walls. However, you will also want to know other measurements like around windows and doors for any assorted trims or channels that are needed.

Complete All Sheathing

Before you set any exterior wall cladding onto the outside of your home make sure that all of the plywood sheathing is installed.

Install House Wrap and Foam Insulation

These two necessities are often overlooked by do-it-yourselfers who want to finish the project quickly. However, these 2 items are important to the overall energy efficiency and weather protection for your home. Wrap the home with the paper wrap and secure with staples. Next install the foam insulation panels with nails.

Timber Cladding Profile Design

All exposed edges and internal and external mould details must have a minimum 3mm radius, to avoid thinning of the coating.

All non-vertical surfaces must allow efficient water shedding, with a minimum slope angle of not less than 15°.

Key points to note:

- Installation and design must include air gaps at the top and bottom of the facade to allow ventilation of the back of the boards and preclude moisture ingress.
- A chalk line or jig block should be used to obtain 3mm clearance between board joints, allowing for board expansion and contraction in service
- Profile design should allow for individual boards to be removed and replaced without damaging adjacent boards or incurring significant maintenance cost.
- Cladding profile design should maximise water shedding to encourage rainwater to run off and eliminate traps for standing water.
- Stress grooves must be machined into the back face of the boards to minimise warping and twisting.

Building Design

Reducing exposure stress will significantly reduce maintenance and increase the durability of a coating system. Where possible building design should give consideration to roof overhangs and recessing clad sections, normal design features in European countries where clad buildings are common. Avoiding or limiting cladding features on elevations exposed to direct weathering should also be considered.

Fixings

The design should incorporate concealed fixing where possible. Moisture ingress through surface fixings will cause localised saturation and discolouration of the timber, creating a weak spot for Stain development and leading to localised failure.

If factory finished Cladding boards are fixed through the face, caps and fillers will help protect the fixing and a final site applied finish is required to ensure the integrity of the coating system.

Factory Finishing

Most modern factory finished cladding coating systems use water based acrylic resins because of their durability and flexibility. These systems dry much faster than traditional solvent paints, allowing for faster handling, but require a period of time to fully cure before developing full water resistance. A minimum temperature of 15oC is recommended during coating and drying operations and Teknos' recommended overcoating and drying schedules must be followed at all times.

Important Installer Responsibilities:

- Seal all site cuts with 2 coats.
- Use a chalk line story pole or jig block to obtain 3mm clearance between board joints
- Nails must penetrate solid wood (sheathing and stud) by 30mm. Nailing to sheathing alone does not properly secure the cladding
- Claddings must not be installed over wet sheathing. Use kiln-dried sheathing and strapping. Allow rain-soaked materials to dry prior to installation.
- Butt joints must be tight, treated with 2 coats of end grain sealer, and made over solid wood to provide secure nailing.
- Do not lift pieces to allow for alignment. Cut along the top and touch up the cut. Raising one end may result in unlocking.

Making Walls Waterproof

Weatherproofing exterior walls require the proper application of an approved sheathing membrane under the cladding. The purpose of the sheathing membrane is to provide a continuous barrier to prevent drafts and the entry of wind-driven rain into the wall cavity.

Joints in the cladding are not designed to prevent passage of wind and rain. Passage of wind and moisture into the wall may occur, with sustained exposure to strong winds. Moisture may be driven through nail penetrations and overlap joints of sheathing membrane. In such exposures, improved resistance against moisture penetration may be obtained by a modified construction technique known as the Rain Screen Method in which the cladding is fastened to vertical wood strapping placed over the sheathing membrane and attached to the wall studs. This construction technique provides an air space for wind driven moisture to flow by gravity down the back face of the cladding to vents at the bottom of the wall.

Installing over Rigid Insulation

Timber cladding should not be applied directly over rigid insulation. Rigid foam sheathing can cause moisture to accumulate on the back of cladding, causing staining, buckling, and damage to finish coats. Application over rigid foam sheathing must meet the following conditions:

- Cladding must be applied to strapping, creating an air space between cladding and rigid foam or fibreglass.
- Strapping must be a full 30mm thick and kiln dried. The airspace allows for the venting of accumulated moisture.
- Use thicker cladding patterns in widths of 150mm or less. Thick, narrow cladding is more stable than thinner, wider patterns and better able to resist dimensional changes.
- Lighter opaque colours will maximise heat reflection and reduce dimensional movement.

Caulking

If Caulk is used where cladding meets corners, windows, doors and trim, use colour matched or clear caulking. Take care to avoid creating water traps or inhibiting ventilation of the back of the boards and, as an alternative in critical areas, consider the use of cover moulds in jointing details.

To complement this External Timber Cladding Installation & Maintenance guide we provide practical training and support to ensure its coatings achieve optimum performance.

Tools and equipment used in exterior timber cladding.

Tools are particularly important in construction work. They are primarily used to put things together (e.g., hammers and nail guns) or to take them apart (e.g., jackhammers and saws). Tools are often classified as *hand tools* and *power tools*. Hand tools include all non-powered tools, such as hammers and pliers. Power tools are divided into classes, depending on the power source: electrical tools (powered by electricity), pneumatic tools (powered by compressed air), liquid-fuel tools (usually powered by gasoline), powder-actuated tools (usually powered by an explosive and operated like a gun) and hydraulic tools (powered by pressure from a liquid). Each type presents some unique safety problems.

Hand tools include a wide range of tools, from axes to wrenches. The primary hazard from hand tools is being struck by the tool or by a piece of the material being worked on. Eye injuries are very common from the use of hand tools, as a piece of wood or metal can fly off and lodge in the eye. Some of the major problems are using the wrong tool for the job or a tool that has not been properly maintained. The size of the tool is important: some women and men with relatively small hands have difficulty with large tools. Dull tools can make the work much harder, require more force and result in more injuries. A chisel with a mushroomed head might shatter on impact and send fragments flying. It is also important to have the proper work surface. Cutting material at an awkward angle can result in a loss of balance and an injury. In addition, hand tools can produce sparks that can ignite explosions if the work is being done around flammable liquids or vapours. In such cases, spark-resistant tools, such as those made from brass or aluminium, are needed.

Power tools, in general, are more dangerous than hand tools, because the power of the tool is increased. The biggest dangers from power tools are from accidental start-up and slipping or losing one's balance during use. The power source itself can cause injuries or death, for example, through electrocution with electrical tools or gasoline explosions from liquid-fuel tools. Most power tools have a guard to protect the moving parts while the tool is not in operation. These guards need to be in working order and not overridden. A portable circular saw, for example

Scaffolding

One of the types of construction equipment that frequently affects worker safety is scaffolding, the primary means of providing a work surface at elevations. Scaffolds are used in connection with construction, rebuilding, restoration, maintenance and servicing of buildings and other structures. Scaffold components may be used for other constructions such as support towers (which are not considered scaffolds) or for the erection of temporary structures such as grandstands (i.e., seating for spectators) and stages for concerts and other public presentations. Their use is associated with many occupational injuries, particularly those caused by falls from heights (see also the article "Lifts, escalators and hoists" in this chapter).

Types of scaffolds

Support scaffolds may be erected using vertical and horizontal tubing connected by loose couplers. Prefabricated scaffolds are assembled from parts manufactured in accord with standardized procedures that are permanently attached to fixation devices. There are several types: the traditional frame or modular type for building facades, mobile access towers (MATs), craftsmen scaffolds and suspended scaffolds.

Vertical adjustment of the scaffold

The working planes of a scaffold are normally stationary. Some scaffolds, however, have working planes that may be adjusted to different vertical positions; they may be suspended from wires that raise and lower them, or they may stand on the ground and be adjusted by hydraulic lifts or winches.

Erection of prefabricated facade scaffolds

The erection of prefabricated facade scaffolds should follow the following guidelines:

Detailed erection instructions should be provided by the manufacturer and kept at the building site, and the work should be supervised by trained personnel. Precautions should be taken to protect anyone walking under the scaffold by blocking off the area, erecting additional scaffolding for the pedestrians to walk under or creating a protective overhang.

The base of the scaffold should be placed on a firm, level surface. An adjustable steel base plate should be placed on planking or boards to create a sufficient surface area for weight distribution. A scaffold that is more than 2 to 3.5 m off the ground should be equipped with fall protection comprising a guard rail at a height of at least 1 m above the platform, an intermediate guard rail and a toe board. To move tools and supplies on or off the platform, the smallest possible opening in the guard rail may be created with a foot stop and guard rail

on either side of it. Access to the scaffold should normally be provided by stairs and not ladders.

The scaffold should be firmly secured to the wall of the building as directed by the manufacturer's instructions.

The stability of the scaffold should be reinforced using diagonal elements (braces) according to the manufacturer's instructions.

HOW TO CLEAN YOUR SUSTAINABLE WOODEN CLADDING!

Learn how to clean your wooden cladding to help prolong its life, maintain its efficiency as an insulator, and act as a shield against the elements.

If you have wooden **cladding** on the exterior of your home then you will be aware of the importance of maintaining this cladding. Not only will the wooden cladding be providing an excellent design to your home, it will protect your home from the weather and provide insulation, which will reduce your energy output.

It is therefore important to keep your wooden cladding in a healthy state, and to do that you must look after your wood. Wood is susceptible to nature, it can warp and rot and generally fall apart if not looked after.

Why do I need to clean the wooden cladding?

It is very important to clean the wooden cladding first. Any dirt, stains, or mould on the cladding will obviously be covering the surface and stop the protection from working.

To ensure the protection of your wooden cladding for years to come you will need to give it a good clean before applying a protective layer.

How to clean your wooden cladding

For the best effect you should use a specialized timber cleaning product. The right product will remove any stains, mould and dirt effectively; all you have to do is follow the instructions on the bottle.

Alternatively you can use pretty much any household cleaning products to do the job. It won't be as effective but with a large bucket, some dish washing liquid and an expendable mop you can scrub your wooden cladding clean.

The final method of cleaning your wooden cladding is using a pressure washer. If you don't have one then don't worry, this method isn't for you. If you do have a pressure washer you could save yourself a lot of time and effort and clean your wooden cladding from the safety of the ground. There is a need to be cautious when using a pressure washer to clean your cladding as too much pressure can actually cause damage to the wood. If you're not sure, ask a professional to do the job for you.

Next steps

Now that you know how to clean your wooden cladding it is time to learn how to protect it. Purchase an appropriate gloss or finish from a trusted DIY/maintenance dealer and brush it on to the clean wood. You may need a few coats for better effect, remember to read the instructions of the product for full advice. This should ensure the protection of the wood for a few years to come.

How to Clean Your Timber Cladding

A home with timber cladding is beautiful, stylish, and timelessly elegant. However, like all other exterior surfaces, it needs to be regularly cleaned, both to maintain its appearance and to prepare the timber for the periodic recoating that it needs. Here's everything you need to know about cleaning timber cladding. For more information about timber cladding in particular, speak with your local [cladding](#) supplier.

Using a Timber Cleaning Product

If you need to thoroughly clean your timber, one of the best ways to do so is by using a timber cleaning product. These cleaners are specially designed to be used on wood and they will get rid of oils, mould, mildew, tannins, dirt, and other contaminants on the surface of the timber. As well, they'll also rid the cladding of any grey timber. Grey timber is old, dead timber fibres that have occurred as the timber weathers. To use these specialist timber cleaning products, you should follow the instructions provided by the manufacturer as far as possible. Don't forget to protect your other outdoor surfaces and plants with drop cloths.

Pressure Washing Your Timber Cladding

Pressure washing is an excellent way to keep your timber cladding clean as it doesn't damage the product coating the timber (oil, stain, paint etc) but effectively removes all dirt and grime. You can get your home pressure washed yearly to keep the timber in excellent condition. However, to get the best results from pressure washing, you should always engage the services of an experienced professional, as the high pressure from the water can actually damage the timber if you are not careful. Pressure washing is most commonly done with environmentally friendly products so it doesn't cause any damage in storm water drains and so on, and also so there is no chance of harming pets.

Frame & Fixings

There are a variety of methods of fixing cladding panels back to masonry/block work raw backing walls or onto lightweight steel frame backing structures.

These fixing systems hold the cladding panels onto the structure sitting behind them to the required strength and spacing. This façade system is called 'rain screen cladding', or 'decorative cladding'; both fall under the general classification of 'ventilated facades'. If your project is at design stage or not yet out of the ground, you have the flexibility to weigh up each

method in terms of suitability and cost. If the project is an over clad or involves cladding applied to a particular part of a building, the fixing method will also be determined by the existing sub structure of the building.

There are a number of factors to consider before selecting a fixing method:

- The thickness of the cladding panel required and the type/brand.
- The size of the panel you require to achieve the desired external aesthetic design.
- The effect of wind loading in certain areas or at a certain height of the facade.
- The substructure being fixed back to and the required pull-out strength.