Carpentry NTQF Level II

Learning Guide #52

Unit of Competence: Install Lining, Paneling and Molding

Module Title: Installing Lining, Paneling and Molding

LG Code: EIS CRP2 M12 LO5-LG-52

TTLM Code: EIS CRP2 M12 TTLM 0919v1

LO: 5 Set out, cut and fix underlay board

Instruction Sheet	Learning Guide #48

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

- Determining Cover for underlay board
- Producing Gauge rod.
- Marking Stop locations of each underlay board or starting board
- Cutting Underlay board to fit length of wall/roof faces.
- Joining Butt joints of timber boards at center of stud
- Joining Other underlay board are
- Pre-drilling Material is subject to splitting,
- Fixing materials at end junction or butt joints to avoid splitting.
- Finishing internal and external corners
- Preparing Timber boards, where specified

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 –

- Determining Cover for underlay board
- Producing Gauge rod.
- Marking Stop locations of each underlay board or starting board
- Cutting Underlay board to fit length of wall/roof faces.
- Joining Butt joints of timber boards at center of stud
- Joining Other underlay board are
- Pre-drilling Material is subject to splitting,
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- Finishing internal and external corners
- Preparing Timber boards, where specified

Learning instruction

- ✓ Read the specific objectives of this Learning Guide.
- ✓ Read the information written in the “Information Sheets 1”. Try to understand and familiarize what are being shown and discussed. Ask your teacher for assistance if you have hard time understanding them.
- ✓ Accomplished and submit “Self-checks 1” for evaluation.
- ✓ If you earned a satisfactory evaluation for "self-check 1" then proceed to “Operation Sheet 1”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Information Sheet 1.
- ✓ Read the “Operation Sheet 1” and try to understand the procedures discussed.
- ✓ Accomplish and submit “Operation Sheet 1” for evaluation.
- ✓ If you earned a satisfactory evaluation for one "Operation Sheet 1" then proceed to the next “Information Sheet”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Operation Sheet where you get unsatisfactory evaluation.
- ✓ Continue to the next “Information Sheet” and follow instruction for learning activities
- ✓ After all “Self Check” and “Operation Sheet” is accomplished and evaluated proceed to “LAP Test”.

- ➢ Your teacher will evaluate your output either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work. But if satisfactory you can proceed to the next topic.

Information Sheet 24	Determining Cover for underlay board

24.1 underlying board

Do I need underlayment for laminate flooring on plywood?

If you are installing laminate flooring with pre-attached underlayment on a wood subfloor, you do not need any additional underlayment. The attached underlayment will allow your flooring to float just as standard underlayment would.

Figure 1 underlying board

One of the most important reasons to use underlayment is to protect your hardwood floor against moisture damage. You can often find underlayment with an added vapor barrier which helps to keep your wood floors safe from water damage.

Figure 2 underlying board

Self-Check - 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the most important reason of using underlayment?

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 25	Producing Gauge rod.

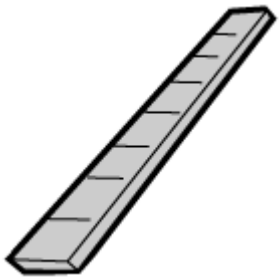
25.1 Gauge rod.

This is used by bricklayers to work out courses. It is usually two to three meters long and is made of timber or aluminum. It is marked off in required vertical measurements, such as the height of window sills or door heads.

- ✓ **Gauge rod**. A measuring stick for checking the accuracy of the **gauge** in brickwork; called a story **rod** if used to mark floor and sill levels.

The **gauge** rod is used for checking and keeping. the **brick** courses at even multiples of **bricks**, plus mortar joint. Thicknesses, when working on different sections of the building.

Gauge rod



This is used by bricklayers to work out courses. It is usually two to three meters long and is made of timber or aluminum. It is marked off in required vertical measurements, such as the height of window sills or door heads. It can be used, for example to make sure the courses are a regular height at the main corners of a building.

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. ---------is a measuring stick for checking the accuracy of the gauge in brickwork
   A. Ruler
   B. Gauge
   C. Pencil
   D. None

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 26	Marking Stop locations of each underlay board or starting board

26.1 Marking Stop locations of each underlay board or starting board

I install laminate flooring to a showroom standard every time, it is really easy when you know how

Follow these simple DIY tips & tricks to lay floating click together floors perfectly, including tips to help lay the floor on your own

When you **install laminate flooring**, two of the most important things to get right are where you choose to start laying the first boards, and which tools you use to cut laminate flooring with.

✓ **Start your flooring install right by laying the first row straight**

There are two things I generally consider before I decide on laying the first row to start the installation. Which is the straightest wall, and which is the trickiest area to deal with?

There's a bit of a judgment call to make. Ideally, in a normal square room I start laying the floor on the longest, straightest wall if it's parallel to the direction I want the floor to run (I generally lay the floor to run in the same direction as the light coming in). Once you have two or three straight rows clicked together it's usually plain sailing after that.

However, sometimes I start to install laminate flooring at the most difficult side of the room instead.

That could be the area that has four doorways in, that are much quicker and easier to manage now at the beginning of the installation when you can still slide the floor backwards and forwards a bit. These areas would be much trickier to deal with at the end, when you have much less room to manoeuvre (there is more detail about laying laminate in doorways further down the page).

If you need to know the tools I use to cut and install laminate flooring with, have a look at my laminate flooring tools list and get yourself set-up first.

Figure 3 flooring laminator

✓ **How to install laminate flooring step by step**

Step 1: Prepare the floor boards first

Before you can install laminate flooring, you will need to acclimatize the boards by leaving them in the room where you are laying for at least two days. Check the instructions that come with the boards, as this will help prevent problems with the floor shrinking/expanding too much after installation.

Step 2: Prepare the room you will lay the flooring in

When I install laminate flooring on a timber floor I make sure all screws are countersunk/buried and nail heads are punched down below the surface first.

Concrete sub-floors will need to be level and may even need Latexing or another leveling compound applied in the worst cases to ensure the floor is flat enough for a floating floor to be laid.

A waterproof membrane will need to be laid before you can install laminate flooring on top of the concrete oversight too.

Unless fitting a cover bead over the expansion gap because the skirting ins already fitted, I will generally cut the skirting boards around temporarily and once they fit remove them and put to one side to refit later. This reduces the time you spend working on the finished floor after it is laid, when you'll be more likely to damage it.

I scrape clean, sweep the floor, and keep it *really* tidy throughout the day. Any grit on the floor will scratch it so set the saw up at the opposite end to where you will be starting the first rows. Half way through the job, use the cardboard packaging from the flooring to cover and protect a large section of the floor already laid, then later swap over and set up on that side of the room for the second half.

- **Step 3: Prepare the doors & door linings/frames for the laminate floor**

Unless you are laying the wood flooring continuously between two rooms, you need to work out at each doorway where the floor will finish and the threshold transition strip will be. These need to be fitted so they are under the center of the door when it is closed and so can't be seen from either side unless the door is open.

Cut it to length, so it fits tightly between the legs of the door lining.

Transfer the centre point of the threshold onto the door frame, then get an off-cut each of the underlay and a floor board. Lay the board upside down and place it on the underlay against the architrave. Using a thin, fine-cut handsaw saw the bottom of the architrave and door lining off so the flooring can slide neatly underneath it. By cutting to the centre of the threshold, you will leave enough of an expansion gap without cutting so much a hole is visible after laying the floor.

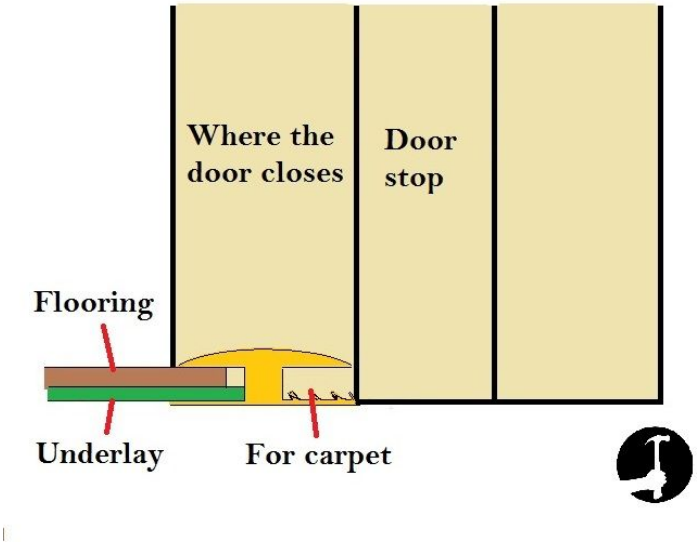


Figure 4 door lining

We can use a sharp chisel to carefully clean it up underneath if it needs it. I never try and cut laminate flooring around architraves or door frames because you need to leave an expansion gap. this gap can be hidden underneath the frame and architrave moulding instead, and appears as though they were installed on top of the laminate flooring. It's also 10x easier to do too!

Sometimes the easiest place to start to install laminate flooring is at the doorways, because they're trickier when you do them last.

There is a lot more in depth information about how to install laminate flooring and end at a doorway on this page.

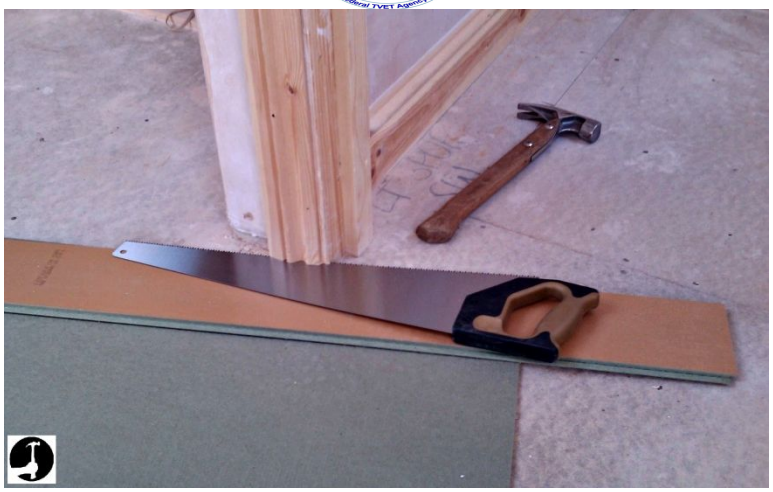


Figure 5 laminate flooring

After that mark the bottom of the doors using the same method. Mark the door in both it's open and closed positions in case the floor or frame are out of level and cut/plane to whichever line means taking the most off.

Every time I install laminate flooring I remove the doors and cut the bottoms first, then leave them off so they are well out the way.

Figure 6 direction of flooring

- **Step 4: Choose which direction to install**

Laminate flooring should either be laid in the same direction that the light shines into the room, or if there are windows all around along the longest wall.

- **Step 5: Install the correct underlay for your laminate floor and sub-floor**

Once you have checked which the best underlay is, it will most likely be supplied in a roll or as square tiles. If it is square tiles just lay enough to get the first few rows down, and lay the tiles in the opposite direction to which the floor boards will go down. Underlay is easy to trip over and sometimes harder to sweep dust off than the floor underneath so just put down all you need to to start. Also, stagger the underlay tiles like brickwork so that you don't just lay a grid of tiles. This helps them stay put and adds strength by spreading loads.

If you have a roll of underlay it again needs to be laid the opposite direction to the floor and you should tape the joints to stop it either from moving apart or from overlapping under the floor.

Figure 7 underlay laminate floor

Step 6: Start laying the first row of floor boards

Laying from left to right and with the tongue facing the wall get the first boards clicked together end to end. Use 8-10mm spacers to leave an expansion gap around the perimeter. The last board will need cutting to length. To do this turn it back to front, keep it 10mm away from the wall and mark the end of the row onto it. You can use a tape instead, measure from the wall to the end of the row and subtract 10mm. Just remember that if you are fitting to a groove always measure the next board starting from

the tongue end, and vice versa. Square the line across the board with a combination or Tri-Square.

A good way of setting out boards when you come up against an obstacle or corner is like in the picture below, by clicking the next row / board in temporarily. This gives you something to measure from in case the wall isn't perfectly 90° and/or is out of square as the exact shape of the board to cut is highlighted. You can mark out the missing board by measuring the gap, just remember to allow for the expansion gap too.

Figure 8 setting out boards

- **Step 7: Clicking the boards together**

When I first learned to install laminate flooring I would get a few boards clicked together, get to the end of a row and when fitting the last board in the first in that row would pop out!

It can get frustrating if you let it. Spend five minutes at the beginning getting the hang of clicking the tongue and groove together. With one board flat on the floor, the next should be up at around 30°. As you push the tongue into the groove wobble the board up and down as you lower it down flat and it should slide into the groove. Every type of flooring is different but once you find the right angle to hold the board as you push it in you will get the hang of it and start to pick up speed. If I'm working on my own,

sometimes I put full packs of flooring on the boards already laid so that the joints can't lift up and pop out.

Figure 9 cutting laminate boards

- **Step 8: How to cut laminate boards**

All types of man made board like MDF, plywood and laminates that contain glues and resins will take the edge off saw blades much more quickly than natural timber. I only cut laminate flooring using either a Hard point handsaw specifically designed for laminated materials or more often with a downward cutting laminate specific blade in my jigsaw. If you don't have downward cutting blades you'll need to mark and cut the board face down.

As you install the laminate flooring, avoid letting a repeat pattern form and stagger the joins in a random fashion

When you cut the last board of the first row to length, you can use the off-cut from it to start the next row as long provided it is 150mm long (6"). Always wherever possible avoid having a piece shorter than that.

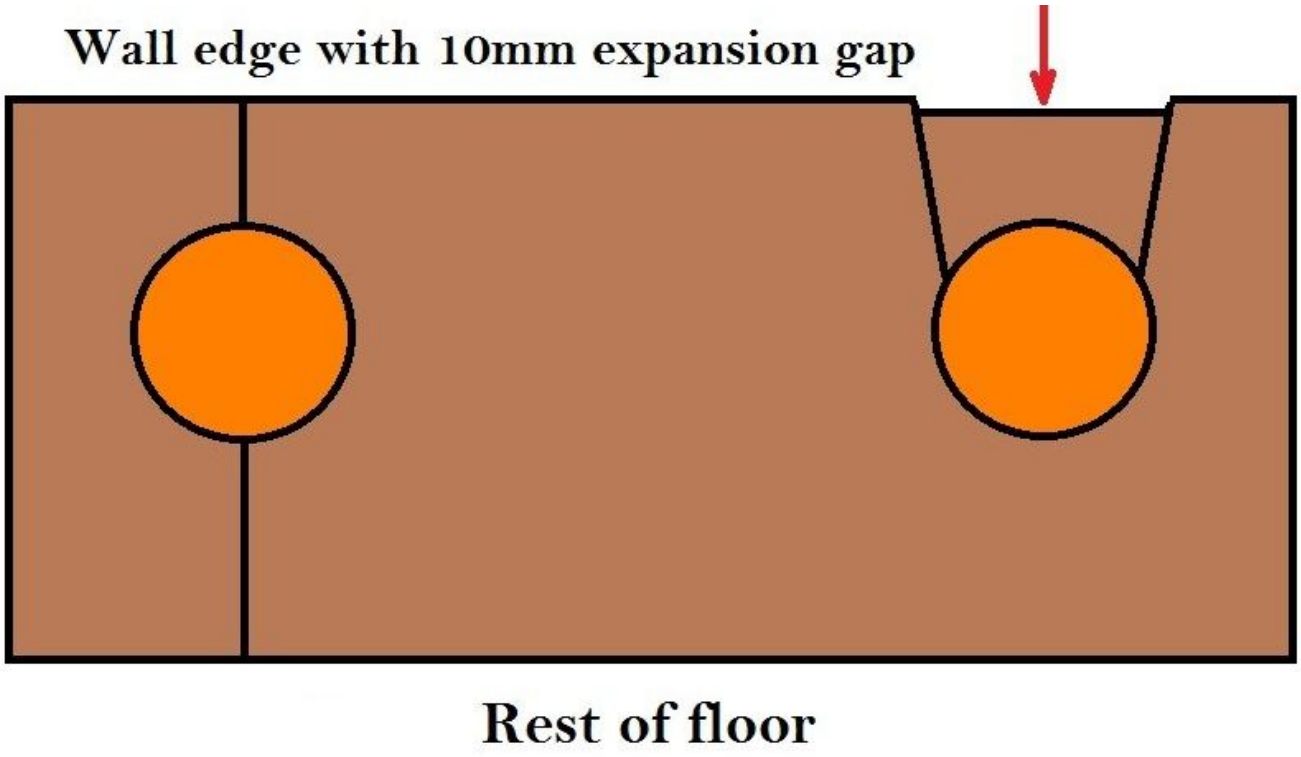
However if you only continue like this, a clear pattern will emerge which looks awful as each join travels down across the floor in a repetitive manner.

So instead stagger the end joints so that no obvious pattern is repeated, making sure the boards always stagger by at least 150mm (never less). Don't do this in such a way

- **Step 9: How install laminate flooring under radiators, cutting the boards for pipes**

Radiator pipes in the UK often come up through the floor and the laminate floor needs to be cut and fitted around them.

There are a couple of ways you can plan for and tackle this, depending on the direction of the radiator compared to the flooring (in line or opposing)



The first method is to start the row at the pipe and join the ends of the boards either side of it.

For this you can join the two boards end to end and put them on a scrap piece of timber. Mark the position of and drill the hole for the pipe (slightly larger to allow for expansion) and then detach them and install.

- ✓ The second way is to drill the hole for the pipe and then cut a keyhole shape behind it towards the wall with a thin hack saw blade, like in the second picture. Because you cut a keyhole shape, when you refit the small piece it can slide closer to the pipe and close up the gaps made by the saw blade.

You will need a larger hole than the size of the pipe so you can manoeuvre the board up and down to click it in and to allow for expansion. Pipes expand and contract and will creak if you install laminate flooring boards too tightly around them. Don't worry about the expansion gap around the pipes, I just buy some neat little radiator pipe covers to clip on and cover the gap.

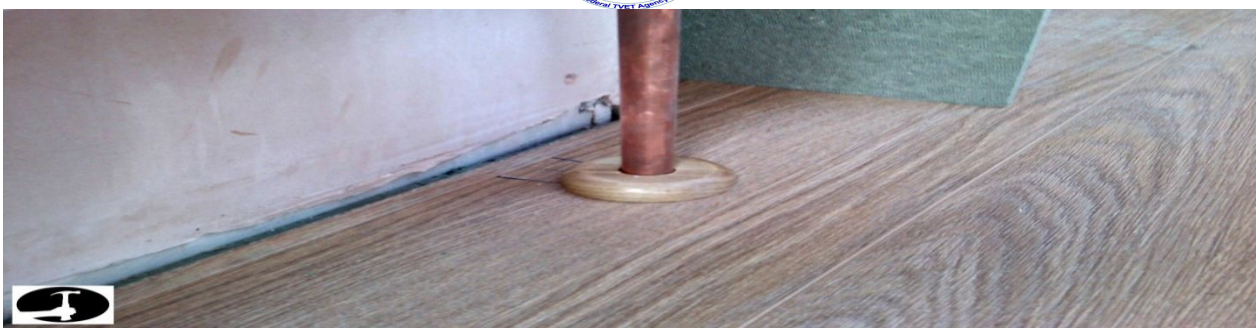
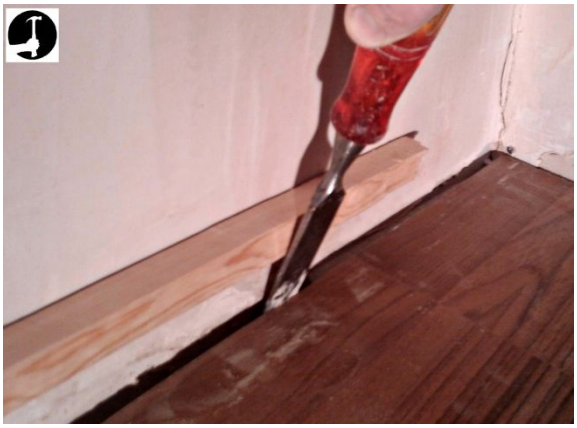


Figure 10drill hole of the pipe

Finally, get the last floor boards in

To get the last laminate floor board in I rip it down so it is 10mm narrower than the gap that is left. Then, I use an old chisel to lever it in off the wall like in the picture below. This can sometimes be tricky you have to wiggle the board up and down until you feel it locate. If there's a long run left I usually join all the rips together end to end and fit them as one piece, working my way along and tapping it in with the special bar.

Make sure you put a piece of scrap timber against the wall to protect it when levering especially if the walls are stud-work, otherwise you could make a nice big hole in the plasterboard.



Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the steps of installing laminate flooring

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 27	Cutting Underlay board to fit length of wall/roof faces

27.1 Cutting Underlay board to fit length of wall/roof faces

Wall underlay plays an important role in the weather tightness of exterior wall assemblies in light timber-framed residential buildings, yet often it is poorly installed.

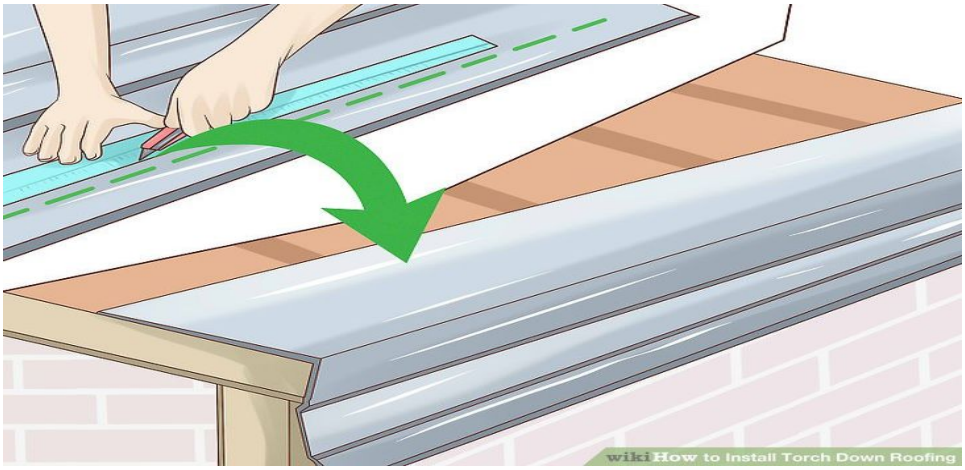


Figure 11 underlay board
Wall underlay installati

What happens when water meets wall underlay?

Where water comes into contact with the wall underlay, some of the water:

- will drain down the surface, hence the installed wall underlay must allow water to flow downwards across the surface and over or around any joints or penetrations without getting through to the vulnerable timber frame, insulation and interior linings
- may be absorbed and dry over time by evaporation
- may pass through the wall underlay into the framing and insulation behind – this will be slow to dry and may result in long-term damage.

Although wall underlays must not be relied on as a water barrier, the selection and accurate installation of the correct type of wall underlay is fundamentally important to the overall weather tight performance of the wall assembly.

Drainage paths

A drainage path is simply a surface that facilitates the gravity-assisted downwards flow of water across it. In all cladding construction types, the outer face of the wall is the primary drainage path.

DIRECT FIXED CLADDING

When water penetrates a direct fixed cladding it drains down the back of the cladding and the face of the wall underlay. The type and profile of the cladding dictates the amount of water contact with the underlay – flat claddings obviously having a greater contact area than profiled claddings. Bevel-backed weatherboards, for example, may allow some water to drain at the laps.

The majority of water should drain downwards over the wall underlay but water may be absorbed by the wall underlay and the back of the cladding. This will evaporate over time.

DRAINED AND VENTED CAVITY CLADDING

When water penetrates drained and vented cavity assemblies, it will again drain down the back of the cladding, but because of the depth of the cavity, there will be less potential contact with the wall underlay. The back of the cladding may also absorb some of the water, but drying will be faster because of the air movement in the cavity.

In extreme situations, water may bridge the cavity and reach the face of the wall underlay. The water must be able to shed down the underlay and drain at the bottom, so laps must be correct and penetrations correctly taped.

Two main types of wall underlay

A wide range of wall underlays are available, but there are primarily two main types – Kraft paper or synthetic.

PAPER-BASED

Paper-based underlays come in various types but are generally kraft paper treated with bitumen or fire retardant chemicals to improve performance. These underlays are generally:

- breather type and air permeable

- semi-absorbent
- Seen as weaker and less durable than synthetics, particularly if they remain wet.

SYNTHETIC

Synthetic wall underlays also come in a range of styles, compositions and performance characteristics. They may be absorbent or non-absorbent, and offer water vapor permeability performance similar to paper-based underlays and offer more durability.

Wall underlay construction sequence (cavity construction)

Step 1 – Install the wall underlay over the framing starting from 10–15 mm below the bottom plate and carrying it up to the top of the top plate (lapping higher layers over the lower layer).
Step 2 – Trim openings by cutting at 45º away from the corners and folding the wrap around the framing.
Step 3 – Install flexible flashing tape to the opening (see Build 111, April/May 2009, page 15).
Step 4 – Fix vertical battens if installed (except above openings) as per E2/AS1 and a continuous horizontal closer batten across the top. Add a slotted cavity closure for drainage and ventilation along the bottom of the wall.
Step 5 – If battens are spaced at more than 450 mm centres, provide additional strapping support over the underlay to prevent it from bridging the cavity after the insulation is installed.
Step 6 – Install all penetrations and seal with flexible tape.
Step 7 – Repair any cuts and tears that may have occurred.
Step 8 – The wall is now ready to have windows, doors and cladding installed.

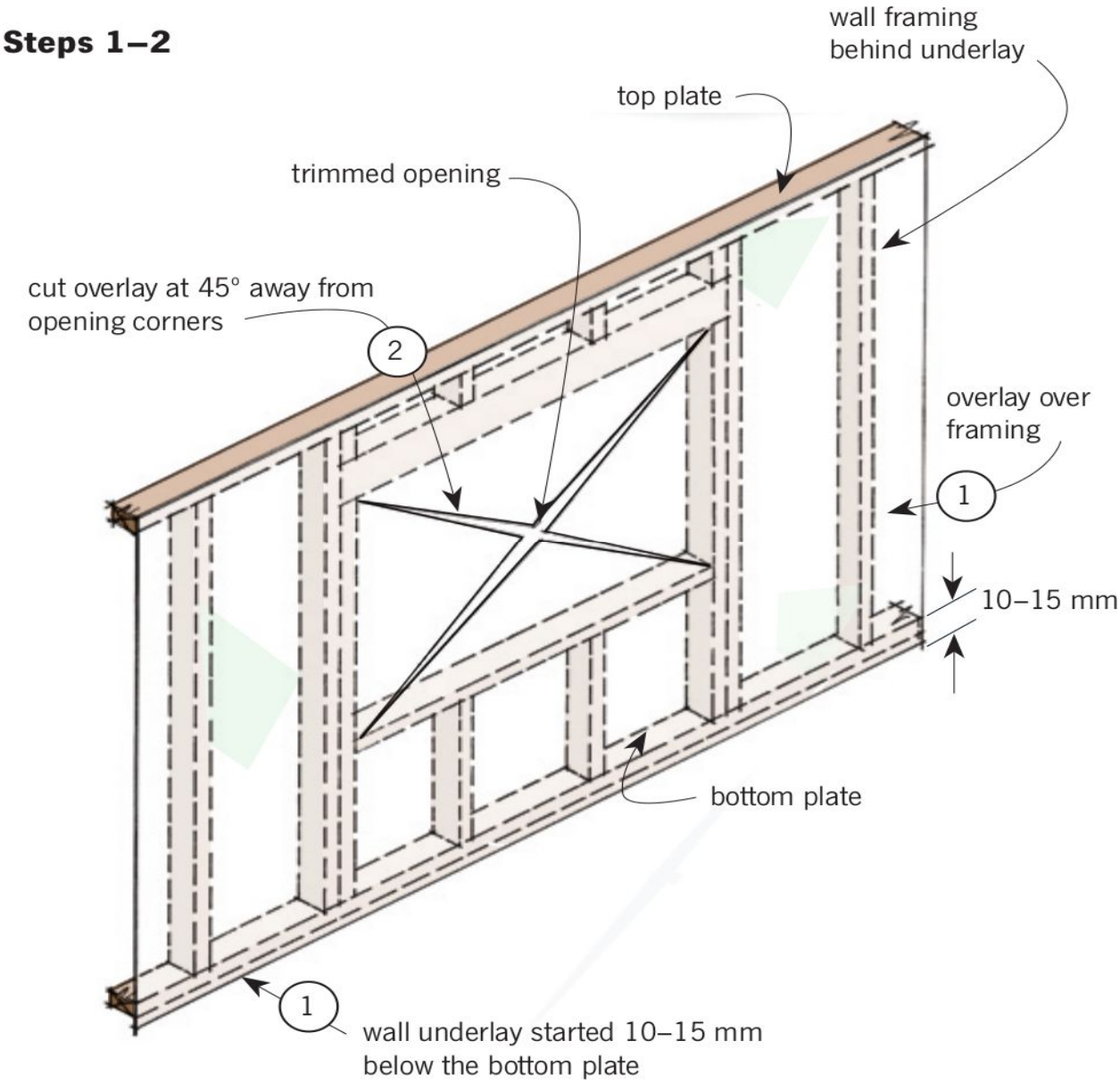
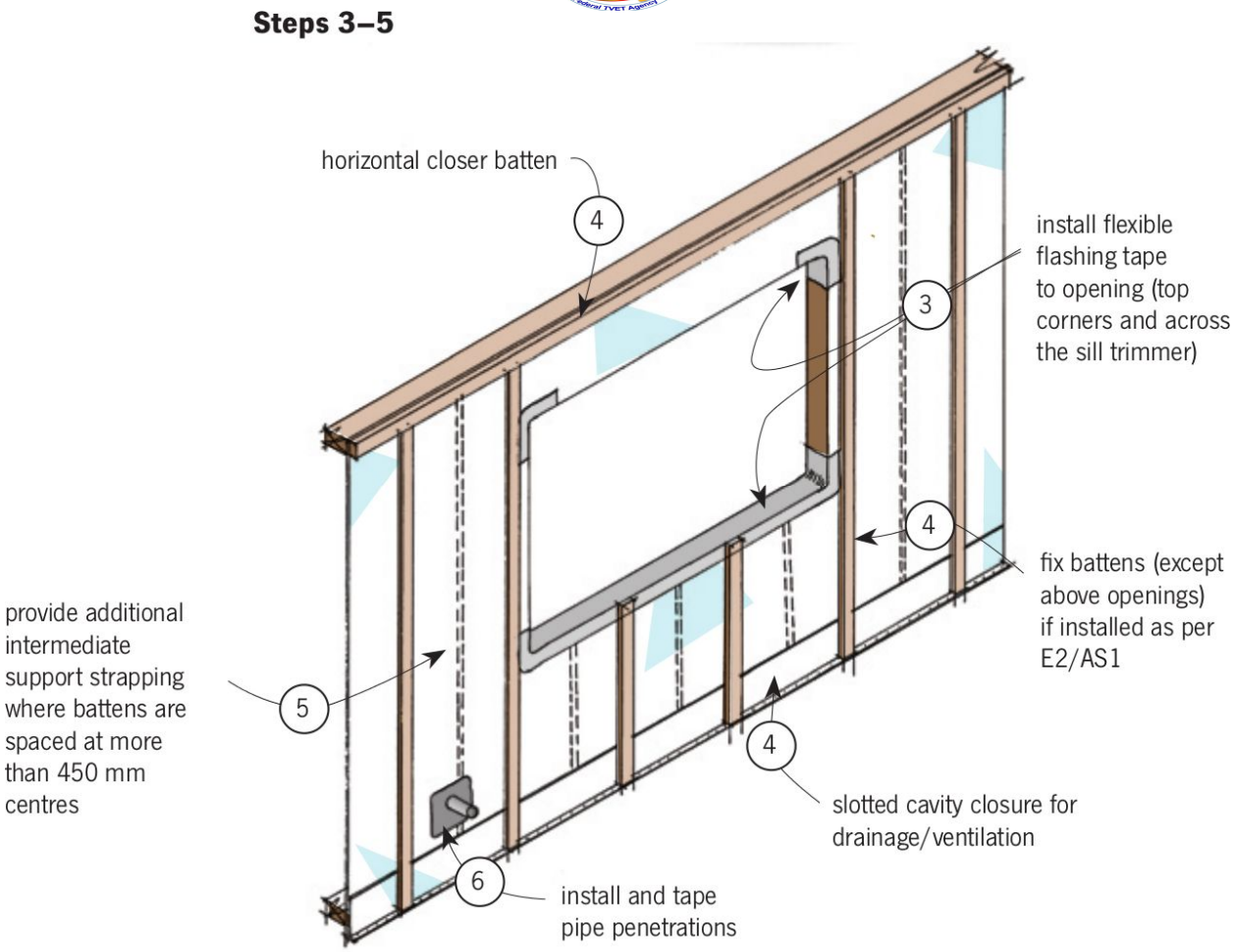


Figure 12 underlay sequence



Select the right wall underlay

All wall underlays are definitely not the same. Performance characteristics vary across types, from absorbent to non-absorbent and air permeable to non-air permeable (classified as an air barrier when meeting the performance requirements for air barriers given in Table 23 of E2/AS1).

Selecting the appropriate wall underlay for the particular cladding assembly is critical, for example use:

- non-absorbent wall underlay directly behind absorbent claddings such as fibre-cement board, timber weatherboards, brick or stucco
- semi-absorbent wall underlay behind non-absorbent wall claddings in direct fix applications.

Some wall underlays are not guaranteed by the manufacturer when exposed to occasional wetting (including before the cladding is installed). Do not specify these underlays where they may be exposed to water, including leaks in the building envelope.

When using E2/AS1 as a means of compliance with the Building Code clause E2 *External moisture*, wall underlays must also comply with the performance requirements in Table 23, especially when used as an air barrier, for example, in an unlined gable end wall.

✓ Installation

Only one wall underlay product should be used on a building, but unfortunately many buildings are wrapped with a selection of underlays, often with different performance characteristics.

Install the wall underlay horizontally, running from the top of the top plate to 10–15 mm below the bottom plate, held tautly across the face of the frame and securely fixed to studs and nods.

150 MM OVERLAPS

In 2-storey buildings, or situations where more than one width of underlay is required, the top layer needs to overlap the bottom layer by 150 mm at horizontal laps.

At the end of runs and other situations such as up gable walls, all laps should be made vertically with a 150 mm end lap over studs. Taping vertical joints with a suitable joint tape is recommended.

WIND AND UV DAMAGE

Loosely installed underlays with insufficient laps may allow water infiltration and are at increased risk of wind damage.

If the wall underlay is being used to partially protect the building during construction and could be left exposed for a length of time, it is important that it is installed to withstand wind pressure, rain and UV exposure during this period. Manufacturers also define

maximum exposure times (some are 30 days, others up to 60 days) for underlays, and these should be followed, as any deterioration in the underlay will significantly reduce its in-service performance.

Any damaged underlay needs to be replaced before the cladding is installed.

INSTALL PLASTIC TAPES BEFORE INSULATION

In drained and vented cavity situations, there is potential when installing bulk insulation into the frame cavity to push the wall underlay out across the cavity and into contact with the back of the cladding. To avoid this and maintain clear drainage and ventilation paths within the cavity, plastic tape should be installed vertically from top to bottom plate at mid stud, to hold the underlay back against the frame.

OPENINGS, PENETRATIONS AND HOLES

At window and doors, the wall underlay needs to be cut and fixed into the frame around the entire framed opening and the opening prepared with flexible flashing tape (see *Build* 111 April/May 2009, page 15).

It is critical that components such as pipes and electrical wiring that penetrate the wall underlay and create a potential water leakage path from the building exterior to the interior, are installed before cladding installation. This allows the penetrations through the wall underlay to be taped with a sealing tape. To do this, some change to construction sequencing may be required, with the cladding fitted to the pre-installed components, but it is important that the wall underlay is as weather tight as possible before the building is closed in.

Any tears or holes in the wall underlay should also be taped before the installation of the cladding and exterior joinery, ensuring that the entire exterior of the building is completely wrapped and sealed, and that the wall underlay creates an effective drainage plane.

Correct selection and accurate installation of wall underlay will ensure that it provides an efficient extra line of weather tightness defense for a building exterior.

Self-Check -4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Essay

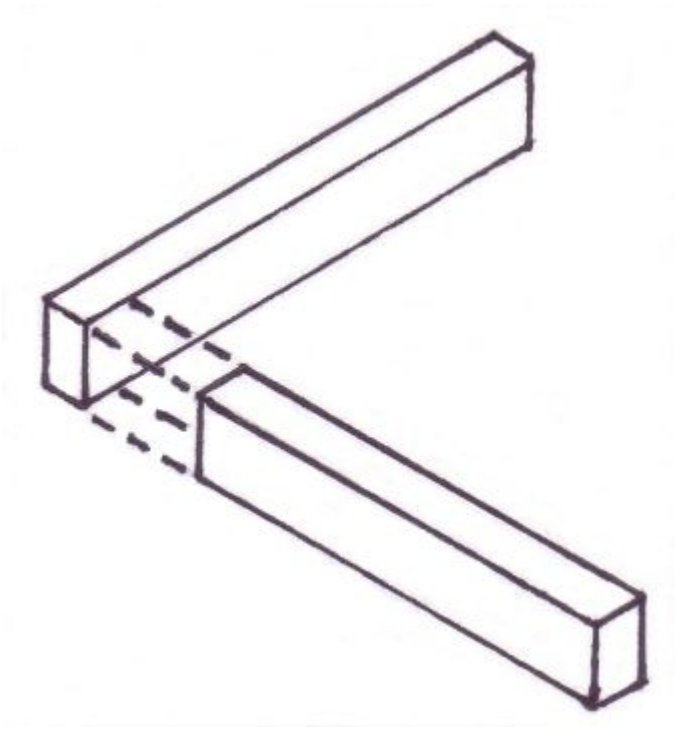
1. What happens when water meets wall underlay?

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 28	Joining Butt joints of timber boards at center of stud

28.1 Butt joints

A butt joint is a technique in which two pieces of material are joined by simply placing their ends together without any special shaping. The name 'butt joint' comes from the way the material is joined together.



- ✓ Scarf Joints vs. Butt Joints

Beginners may be tempted to use a simple butt joints in which two square-cut pieces are simply butted together, but this is the worst kind of joint for baseboards. For one thing, because the pieces aren't overlapping, it is difficult or impossible to push them together to create a tight joint. And if the wood shrinks even the slightest bit along its length—a common seasonal phenomenon—the joint will open up and leave a dark, noticeable line.

By contrast, a scarf joint is cut so that there overlapping surfaces where the boards meet. If the wood shrinks, you still see wood rather than a gap. A scarf joint also can be glued for added strength; the angled cut helps the glue bond better than trying to glue the end grain, which doesn't adhere very well. Finally, the thin edge of the front piece on a scarf joint is easy to sand flush if the boards aren't perfectly flush.

Tools for Making Scarf Joints

The best tool for cutting the angles for a scarf joint is a power miter saw. But if you don't have access to this expensive power tool, you can use a simple miter box and hand saw. A good scarf joint requires precise 45-degree cuts, and these are very difficult to make without a miter saw or miter box.

For nailing the baseboards, an air compressor-driven or electric nail gun is far preferable to hand-nailing with a hammer and finish nails. The reason is that hand nailing lightweight wood such as trim causes it to rattle and move out of position. The fast, decisive strike of a power nail gun fixes the baseboard in place before it can shift out of position.

That said, there's no reason why you can't create a perfectly good joint with a hammer and nails. If you choose this route, it's best hold the pieces firmly in place where you want them and drill pilot holes for the finish nails. This helps the nails go in smoothly. After the nails are driven, recess them slightly below the wood surface with a nail set to hide the nail heads.

Tools and Supplies You Will Need

- Baseboard trim
- Tape measure
- Pencil
- Miter saw, or miter box and handsaw
- Nail gun, or hammer and nail set
- Wood glue

Instructions

1. Plan the Joint Location

   Measure for the first board so that the end joint will fall over a wall stud, if possible. Locating the joint over a wall stud allows you to nail into the stud (not just the wall plate along the floor) to help secure the entire joint. If this

is not possible, you can still make the joint, but make sure you are anchoring the pieces into the bottom wall plate.

2. Cut and Install the First Board

   Cut the end of the first baseboard at a 45-degree angle with the bevel facing the room; the side with the point goes against the wall. Position the board against the wall and fasten it to the wall plate and studs (as applicable) with a nail gun or hand-driven finish nails. Don't nail within 6 feet or so of the beveled end so you can adjust the board for a good fit at the scarf joint.

3. Cut and Test-Fit the Second Board

   Measure and cut the second baseboard, also at a 45-degree angle, but with the bevel facing the wall. Set the second board in place, testing the fit of the scarf joint. If the second board is too long, shave off a bit with the miter saw and re-fit the joint.

4. Glue and Nail the Boards

   Apply a thin layer of wood glue to the bevel of the second board. Fit the boards together so the joint looks pleasing, then drill pilot holes and drive two nails at the joint, driving them them through both baseboard pieces and into the wall stud, if possible. (If you are using finish nails and hammer, make sure to drill pilot holes for the nails.) Nail off the rest of the second board, then go back and nail the remainder of the first board to within a foot or so of the join

Figure 13 installation of scarf joints

Self-Check -5	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Multiple choices

1. Which one of the following is the simple and easy type of joints?

   A. Lap joint
   B. Butt joint

C. Miter joint

D. All

Essay part

2. How we can make butt joints? Describe the steps

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 29	Joining Other underlay board

29.1 Joining other underlay board

- ✓ What is floor underlay?

Underlay is a barrier that sits beneath your **flooring**. ... When installing a new **floor** over a concrete subfloor it is recommended that you use a **flooring underlay** with a built in Damp Proof Membrane (DPM). This will give your **floor** an extra layer of protection against moisture.

✓ Laminate Underlayment:

What to Know Before Installation

Figure 14 floor underlay

- With laminate flooring's many advantages, it can be an enticing floor covering choice for living rooms, bedrooms, home offices, and other low-moisture areas of your home. But if you are accustomed to other types of floors like hardwood, engineered wood, vinyl, and tile, all of which require no underlayment, you might be surprised to learn that underlayment is practically a requirement with laminate flooring.

What is laminate underlayment, why is it so necessary, and what type of underlayment should you purchase?

✓ What Is Laminate Underlayment?

Laminate underlayment is a supplementary pad that is installed under laminate flooring to help the laminate planks lay smoother, connect better, and feel slightly softer underfoot.

Underlayment is either attached to the bottom of the laminate flooring or it comes as a separate roll of polyethylene foam, felt, or cork.

The strips, usually 36 to 44 inches wide, are attached side-to-side with seaming tape or with attached adhesive strips. Rolls are from 30 to 100 feet long, with thicknesses ranging from 6 mm to 8mm.

One benefit of laying separate underlayment as opposed to installing laminate flooring with pre-attached underlayment is that separate underlayment provides a cohesive barrier under the laminate.

- ✓ Why Laminate Flooring Needs Underlayment

Because laminate flooring is thin and is constructed of a type of fiberboard rather than solid hardwood or even plywood, as with engineered wood flooring, underlayment is a recommended supplement.

Corrects Minor Imperfections

Subfloors are often not perfectly flat and featureless. Subfloors exposed after the existing flooring has been removed are often dotted with nail holes, pits, gaps, grooves, and splinters. Even new subflooring can be considered less than perfect since the OSB or plywood sheets are seamed.

Solid hardwood or engineered wood can easily bridge small gaps, running directly over imperfections without the need for underlayment. Even ceramic and porcelain tile can bridge a few small holes and gaps, plus mortar works to fill them in. But laminate flooring will eventually telegraph (transmit or duplicate) subfloor imperfections. Underlayment helps to prevent laminate damage.

Laminate underlayment cannot cure all imperfections, though. Application of leveling compound is one way to fill in and correct large depressions. Thin, 1/8-inch luan ply is

often used at an underlayment, too, residing above the subfloor and below the soft laminate underlayment.

- ✓ Softens Footfall

When you are installing on top of hard surfaces such as concrete, you may want the extra padding that underlayment provides to make it softer to walk on. Wood subflooring has enough flexibility that underlayment will only slightly soften the surface of the laminate. But concrete, brick, and other forms of masonry practically demand the softening qualities that underlayment can provide.

While laminate underlayment softens your footfall, it can also make the flooring feel hollow. It is a feeling that is apparent when you walk from a solid surface, such as tile, to a laminate floor with underlayment. Laminate flooring with denser felt underlayment more closely approximates the feeling of real wood flooring.

- ✓ Absorbs Sound

Laminate flooring is so thin that it needs underlayment's extra help to feel and act like real wood. Consider the issue of sound transmission. You do not need foam padding under solid hardwood for many reasons, but one reason is that hardwood is so dense that it limits the transmission of sound, both within the room and to floors below.

Laminate flooring has neither thickness nor density since it is usually no more than 12mm thick and it is made of a type of low-density fiberboard. As a result, the underlayment will help boost laminate's sound-absorbing qualities, but only minimally so.

- ✓ Controls Moisture

You will need moisture-proof underlayment or vapor barrier when there is a chance of moisture migrating upward from a concrete slab, tile, or cement board. Even a wood subfloor or flooring over a crawlspace or other non-climate-controlled space can be subject to rising moisture. Common foam underlayment will inhibit moisture, but there are types of underlayment that require a separate 6 mil. polypropylene vapor barrier.

Laminate Underlayment Pros and Cons

Pros

- Softens footfall
- Absorbs some sound
- Helps planks lock together better
- Assists in a flatter installation
- Helps control some moisture

Cons

- Extra cost (unless it is pre-attached)
- Extra installation step
- Hollow feeling and sound underfoot

When Laminate Underlayment Is Not Necessary

Generally, you will want to use underlayment under your laminate flooring. In one instance, though, underlayment should not be installed under any circumstances. In another instance, underlayment is an option.

- ✓ When Underlayment Is Pre-Attached

The only instance when you absolutely do not need underlayment is when the laminate flooring already has underlayment attached to its bottom.

The laminate flooring that you intend to purchase might already have *pre-attached* underlayment, rendering separate underlayment unnecessary and even detrimental. A rare feature only a few years ago, laminate with pre-attached padding is now found in increasing numbers. Currently, over 50-percent of Lumber Liquidators' laminate floors come with pre-attached padding. Over 75-percent of Pergo's laminates now have pre-attached underlayment.

It is detrimental to the stability of your flooring to install underlayment beneath flooring that already has pre-attached underlayment. However, when you have pre-attached underlayment, manufacturers recommend that you still install a vapor barrier.

- ✓ For a Bargain Installation

Laminate underlayment can be surprisingly expensive. Premium underlayments specially designed to mitigate sound can represent a large portion of your flooring bill. If you are installing in an area that receives little attention such as a mudroom or laundry room, and you simply need quick flooring, laminate flooring can be installed without underlayment. Floor performance will, in most cases, be affected.

Figure 15 bargain underlay installation

Self-Check -6	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. ---------- is so thin that it needs underlayment's extra help to feel and act like real wood
    A. Laminate flooring
    B. Wood paneling
    C. Interior design

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 30	Pre-drilling Material is subject to splitting,

30.1 Pre-drilling

- Pre-drilling refers to the drilling of a hole in the work piece that has a smaller diameter than the screw. Pre-drilling creates space for the screw in the material and thus prevents the work piece from splitting.

✓ Pre-drilling

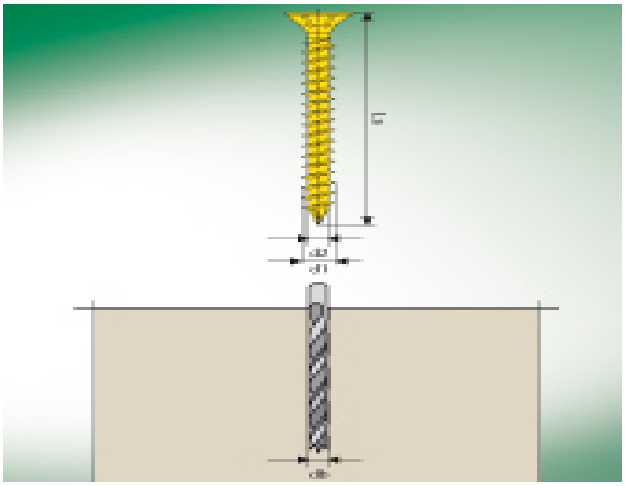


Figure 16 drilling tools

Pre-drilling refers to the drilling of a hole in the work piece that has a smaller diameter than the screw. Pre-drilling creates space for the screw in the material and thus prevents the work piece from splitting. Pre-drilling is a time-consuming work step that can be effectively dispensed with by using SPAX with ground serrations and SPAX 4CUT point (depending on the wood). This tedious pre-drilling is then no longer

necessary (depending on the wood) as the special SPAX 4CUT point cleanly pushes aside the fibers of the wood, preventing splintering and splitting of the wood even when the screws are positioned close to the edge. It should be noted that pre-drilling is always recommended for very hard woods.

Pre-drilling diameters for SPAX in softwood and hardwood:

Gewindeaußen-durchmesser d1 (in mm)	Vorbohr-durchmesser db (in mm) **für Nadelholz**	Vorbohr-durchmesser db (in mm) **für Laubholz***
4,0	2,5	3,0
4,5	3,0	3,0
5,0	3,0	3,5
6,0	4,0	4,0
7,0 **	4,5	5,0
8,0	5,0	6,0
10,0	6,0	7,0
12,0	7,0	8,0

Softwood: fir, spruce, larch, pine, Douglas fir

Hardwood: oak, beech

Self-Check -7	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Fill in the blank space

1. ---------- is refers to the drilling of a hole in the work piece that has a smaller diameter than the screw

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

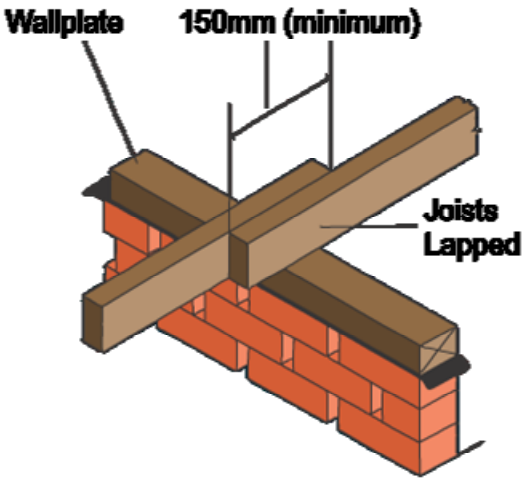
Information Sheet 31	Fixing materials at end junction or butt joints to avoid splitting.

31.1 Fixing materials at end junction or butt joints to avoid splitting.

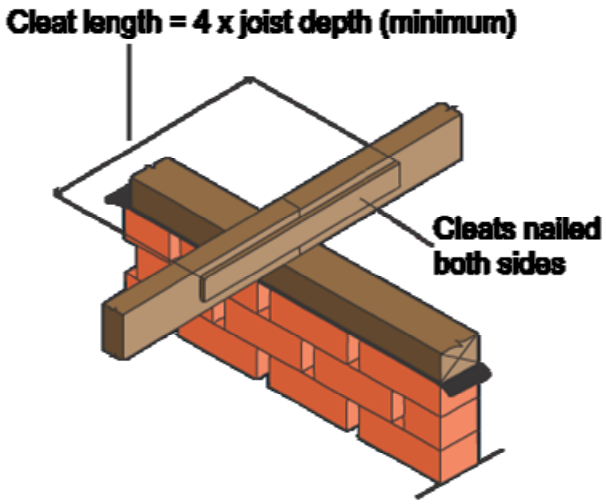
- ✓ **Fixing butt joints to avoid splitting**

Adding more screws on each side of the joint will certainly help, and then re tape the joint. 2.) Another reason is if the previous taper used fiber tape on the joints along with regular compound. With fiber tape a product called sheetrock 90 or 45 or 20 must be used on the first coat in order to avoid cracking.

Usually the seams are invisible due to the use of drywall mud and tape. The mud fills in the seam, and the tape covers it up. Cracks form due to stress placed on the seams. ... Temperature fluctuations can cause the drywall to expand and contract creating stress that cracks the seams.



Lapped Joists



Joists with cleated butt joint

Figure 17 fixing

Fixing to types of Material - Fixings and Screws DIY how to projects help, tips and information covering fixings, chemical fixings, plasterboard fixings, screws, nails and all related subjects

Figure 18 gluing

Glues, Adhesives and Chemical Fixings - Adhesives DIY how to projects help, tips and information covering pva adhesives, fixing using adhesives and all other related subjects

Figure 19 materials

Materials - Building Materials DIY how to projects help, tips and information self-build materials and discounts, calculating material volumes and other related topics

Figure 20 fixing type

Types of Fixing - Find out all the different types of DIY and construction fixings including nails, screws and nuts and bolts all the different sizes of screws used in the building industry

This section deals with a whole host of fixing and fittings, screws, nails, nuts, bolts etc , to fit things to things, put stuff up, and tie things down. Whether you want to find out about external fixings or internal fixings, whether you have something to fit to wall or bolt to the floor we have information fro all your home improvement questions this section.

Figure 21 screws

There are screws available for every type of material

Find out what fixing is best to use if you want to hang a picture, and what brackets and hooks are best if you are hanging a heavy mirror or picture (a clue – the advice is the same for both).

Let us help you put up curtain poles, blinds and curtain rails, fit shelves, and install kitchen cabinets by giving you advice on the correct tools for the job and what size screws to use for any DIY project.

We also offer advice on how to the best ways of fixing to plasterboard walls, how to fix to masonry and how to get round problems you might encounter with more difficult surfaces. Fixing a hole in these surfaces is dealt with in our Repairing holes section.

If you are baffled by the different sizes and colours of plastic wall plugs, or you have no idea when to use a panel pin, a nail, or a screw then we answer all these problems in our project pages and don't forget you can ask any other questions in our DIY forum.

We also look at some less common types of fixings and fittings such as expanded metal lathing, self-tapping Ankerbolt. screw eyes, cup hooks and Black japanned screw. If that doesn't whet your appetite who knew there were so many types of nail for instance there are wire nails, lost-head nails, annular ring nails and pin nails as well as galvanised or copper clouts.

Oh and while we don't deal with fixing a dripping tap here (see our plumbing section) we do deal with fixing skirting boards.

Self-Check -8	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the materials that used for Fixing butt joints to avoid splitting

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 32	Finishing internal and external corners

32.1 Finishing internal and external corners

How do you finish drywall corners outside?

1. Apply drywall to corners. Apply drywall over one side of the corner then the other, using adhesive and screws.
2. Measure and cut metal strip. ...
3. Nail the bead to the wall. ...
4. Apply drywall compound to the bead. ...
5. Let the first coat dry overnight and apply second coat. ...
6. Apply third coat.

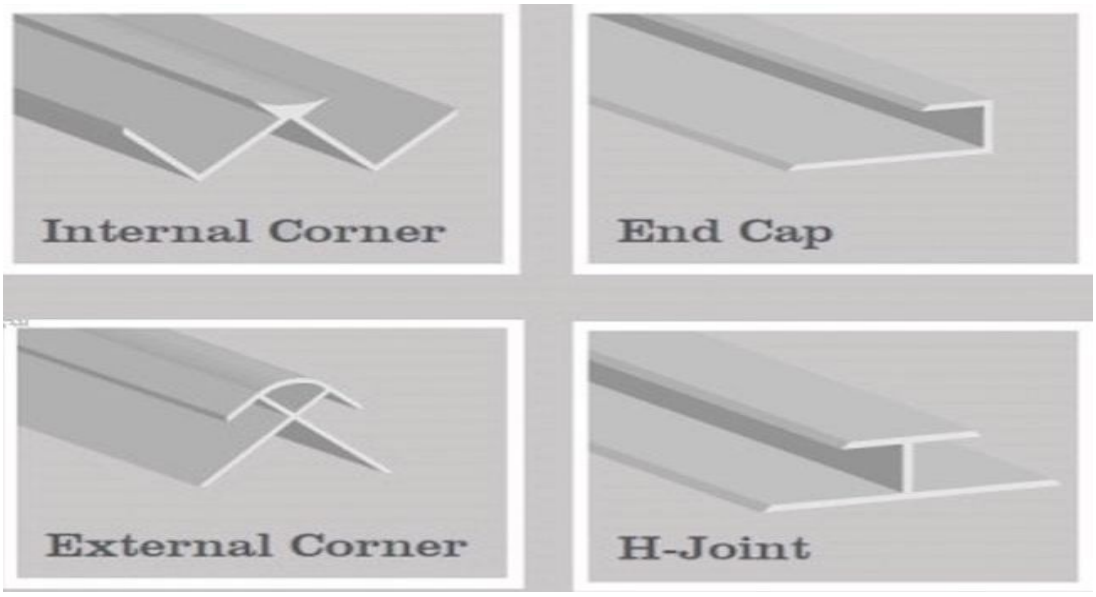


Figure 22 internal and external corner

- ✓ Interior finishing is the installation of cover materials to the interior spaces such as walls, floor and ceilings. This stage of construction can start after utilities, heating and insulation are installed, exterior door must be hung and windows installed. They will protect the finishing materials from the weather.

- **Materials**

The designer is responsible for putting many of the finishing touches on the interior of the building prior to the work of the painter and decorator. When this work is done with care, the beauty and value of the house are enhanced greatly.

Following are the important materials used in interior finish:

A. wooden materials

Wood has maintained its popularity as an interior finish material because it's easy to work with and attractive. The use of wood for wall covering has increasingly measurable. The common application is in the form of plywood sheets with a face ply of selected veneer. A variety of beautiful wood, pre-finished in several attractive ways, is available. Although less common board paneling is still used in homes, when economy is not the main consideration. The boards usually selected are without blemish, or at the other extreme, chosen because they have knots and other random imperfections.

Hardboard, which is the reconstitute wood product made by reducing wood to small fibers and then pressing it in to sheets, is widely used for wall covering. Hardboard is pre-finished in many colors and textures. It is also made to simulate/imitate wood paneling, brick, leather, and other material.

B. Non wooden materials;

Various none wooden materials are today commonly used for interior finish. None wooden pre-finished wall paneling is available in large sheets. It has a gypsum core with paper on each side. One surface is finished with durable vinyl in several colors and textures. The vinyl is finished in a color, are made to resemble wood.

- **INTERIOR WALL COVERING**

Builders are responsible for constructing the main structure of the buildings of a construction project. Interior finish consists mainly of the coverings of the rough walls, ceilings, and floors and installing doors and windows with trim and hardware. Under this

subtopic, we'll discuss interior wall coverings, including the closely related topics. Though many types of interior finishes are still used in building construction today, drywall finish has become the most popular. Because Drywall finish saves time in construction. Drywall finish requires only short drying time since little, if any, water is required for application. Drywall (also known as plasterboard, wallboard, gypsum board, or LAGYP) is a panel made of gypsum plaster pressed between two thick sheets of paper. It is used to make interior walls and ceilings. Drywall construction became prevalent as a speedier alternative to traditional lath and plaster.

There are many types of drywall. One of the most widely used is gypsum board in 4- by 8-foot sheets. Plywood, hardboard, fiberboard, particleboard, wood paneling, and similar types are also used. Many of these drywall finishes come prefinished. The use of thin sheet materials, such as gypsum board or plywood, requires that studs and ceiling joists have good alignment to provide a smooth, even surface.

Interior Wall coverings serve as the backdrop for all the other furnishings in a room. They can be the star of the show or simply a neutral background for everything else in the room.

When it comes to Wall covering ideas, there are color, texture and material, as well as the skills necessary to apply them. After the rough framing is complete and a building is weather-tight, carpenters begin the inside finish carpentry.

1. Gypsum wallboard:

Gypsum Wallboard, also known as **Drywall**, is a panel used typically in interior construction to form a wall or ceiling. Gypsum board is the most commonly used wall and ceiling covering in construction today. Because gypsum is nonflammable and durable, it is appropriate for application inmost building types.

The panel has a gypsum core and is faced with heavy paper on both sides; one side specially treated for finishing .Gypsum Wallboard may also have a special treatment of adding noncombustible fibers to the gypsum for fire improved rating. The terms "drywall" and "gypsum wallboard" are commonly used in the construction industry to describe gypsum board.

Gypsum board may be applied using screw, nails or adhesive, depending on the surface to which board is applied. Screws are recommended for all applications of gypsum board. The use of nails contributes to nail popping problems. The recommended nails are those specially manufactured for gypsum board installations.

Gypsum wallboard is a construction product used to finish interior walls. This product is used in structures all over the world, classically covered with a layer of paint or textured plaster, and was introduced as a replacement for traditional lathe and plaster (a mixture of lime, sand, and water that is applied as a liquid paste to the ceilings and internal walls of a building and dries to a hard surface) finishing.

Unlike lathe and plaster, which can take a week or more to install properly, gypsum wallboard can be installed quickly and efficiently in an entire structure by a relatively small team, saving construction costs and helping a project move along quickly.

This product is made by sandwiching a layer of gypsum plaster between two layers of reinforced paper. Typically, one side of the paper is designed to be used on the finished side, with a textured surface which will help paint adhere without creating a dimpled or devoted look.

2. Vinyl surface gypsum wallboard:

Gypsum wallboard is also manufactured with a finished vinyl surface. It is not classed as drywall. Drywall requires that the joints be taped then finished with joint compound. The same gypsum core with paper faces found in conventional gypsum panels is used. However one surface is covered with a durable vinyl coating. The surface treatment comes in a variety of colors. Several textured finishes, such as wooden grain like, stipple, linen, travertine, etc are available. it is applied with adhesive to a layer or studs. Vinyl-faced gypsum board has a vinyl fabric film bonded to the face surface,

3. Plywood paneling:

Plywood is a type of manufactured wood made from thin sheets of wood. It is then glued together for greater strength. A common reason for using plywood instead of natural wood is its resistance to cracking, shrinkage, twisting/warping, and its general high degree of strength. Also, plywood can be manufactured in sheets far wider than the trees from which it was made.

It has replaced many dimensional lumbers on construction applications for these reasons.

Plywood and fiberboard can be used for interior wall coverings; however, plywood is most commonly used. It comes in 4-feet-wide and 5-to 8-feet-long sheets, 1/4 to 3/4 inch thick. It is usually applied vertically from the floor to the ceiling. When plywood is correctly applied (with flush joints), the joints do not need to be concealed. However, to improve wall appearance, joints may be covered with moldings. These may be battens fastened over the joints or applied as splines between the panels. Less expensive plywood can be covered with paint or covered in the same way as plastered surfaces.

4. Hardboard paneling:

Hardboard Panels are an engineered wood product that is hard and dense. Hardboard Panels are manufactured from exploded wood fiber, the core is made up of medium or high density fiberboards, which has been compressed. Hardboard Panels are homogeneous with no grain. Hardboard Panels are ideal for furniture, construction, appliance and cabinetry. Hardboard or wood can be relatively inexpensive. The surface is more rigid so there tends to be is less cracking in the painting.

Hardboard is easy to cut to the size you want. There's usually a smooth side and one with a weave-like finish which is very coarse; you can paint on the painted smooth side hard board is manufactured with a vinyl or plastic coating bonded to the face. This results in a durable surface. It’s available with a variety of effects. Fiberboard has minimal expansion and contraction so the core is very stable. Fiberboard is also denser and harder than most wood and is less prone to denting. Floors with a fiberboard core are hydrophobic and must never be exposed to large amounts of water or very high

humidity - the expansion caused from absorbing water combined with the density of the fiberboard, will cause it to lose its form. Fiberboard is less expensive than timber.

5. Wood board paneling:

Paneling of different wood comes in random widths of 4, 6, 8, 10, 12, inches, with a dressed thickness of approximately ¾ of an inch. The lengths available are from 6to 16 feet. There are several edge types, but boards with tongue and groove edges provide the best results for concealing the joints.

A number of interesting effects can be produced with board paneling .it can be installed vertically, horizontally, diagonally or in a combination of these partitions.

Self-Check -9	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Multiple choices

1,-----is the installation of cover materials to the interior spaces such as walls, floor and ceilings.

A. Flooring
B. Interior finishing
C. Finishing
D. None

Enumeration

2- Write the types of paneling

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

Information Sheet 33	Preparing Timber boards, where specified

33.1 Preparing Timber boards

- ✓ **Timber preparation** is the series of processes used to turns trees into timber, ready for use in woodworking workshop. ... Felling of trees. Conversion of logs into boards. Seasoning (drying) of green boards into dry timber, ready for use.

Timber manufactured

The trees from which lumber is produced are classified as hardwoods or softwoods. ... During felling, the trees are cut down with chain saws and the limbs are removed. At the mill, the logs are debarked and bucked, or cut to a predetermined length. Then they proceed to the band saw for further processing.

Types of timber

- Bamboo.
- Birch.
- Cedar.
- Cherry.
- Cross-laminated timber.
- Engineered bamboo.
- Glulam.
- Green timber.

- ✓ Timber is prepared from The chemical composition of wood varies from species to species, but is approximately 50% carbon, 42% oxygen, 6% hydrogen, 1% nitrogen, and 1% other elements (mainly calcium, potassium, sodium, magnesium, iron, and manganese) by weight.

Timber Preparation

Figure 23 timber

When working with Real Cedar in the great outdoors, proper storage is paramount. Otherwise, you may expose your wood to UV or water damage before you even get a chance to build your dream project. For more info on how to best protect your wood from the elements, please refer to our **outdoor preparation section.**

For construction and interior trim, wood should be preconditioned in the area of the building in which it will be used, prior to installation. This will enable the cedar to achieve equilibrium moisture content with its surroundings. Generally speaking, kiln dried clear cedar will take 3-5 days, dry knotty cedar will take 7-10 days and green (unseasoned) cedar will take at least 30 days.

As for interior design purposes, it's recommended that you test out your finish on a scrap sample of your wood to ensure the effect is to your liking. As well, it's good practice to use the same brand and product throughout to avoid any color inconsistencies. It's also important to follow manufacturer's instructions. For more info on which products are best suited for interior applications, please see our section on **indoor finishing types.**

Figure 24 prepared timber

- ✓ Timber preparation is the series of processes used to turns trees into timber, ready for use in woodworking workshop.

Broadly the stages are:

- Felling of trees
- Conversion of logs into boards
- Seasoning (drying) of green boards into dry timber, ready for use.

Self-Check -10	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Fill in the blank space

1. ----------is the series of processes used to turns trees into timber, ready for use in woodworking workshop

Enumeration

2. Write the types of timber

Note: **Satisfactory above – 4 out of 8 points Unsatisfactory - below 4 out of 8 point**

List of Reference Materials

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- https://www.ccaa.com.au/imis_prod/documents/Library Documents/C
- https://www.houselogic.com/remodel/painting-lighting/concrete-painting/
- https://www.google.com/search?sxsrf=ACYBGNQHUi0Oo5VLVWER8HU5E4Hiyr5yWw:1569940933971&q=what+is+Applying+co

The trainers prepare TTLM

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3	Abdulahi Muktare	Somale	Somalia TVET Bureau		0935635068