



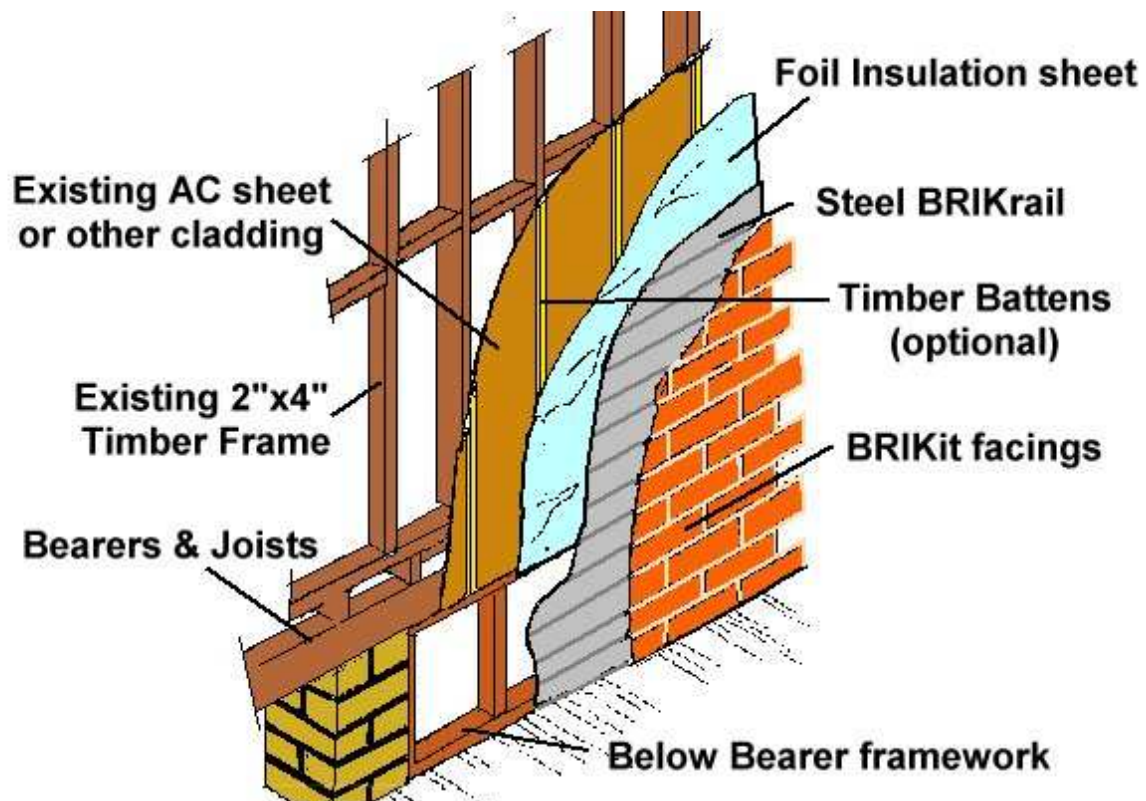
THE BRiKit WALLING SYSTEM

Installation Guide

First published April 1996

This guide is not designed to be a full installation manual, as the “BriKit Walling System” can be applied to so many different situations that they cannot all be covered in a document such as this. This Installation Guide simply explains the basic concepts of installation and provides a few ‘tips’ on the installation. If you have any specific installation questions, please contact us. With over 18 years experience in lightweight brick systems application.. we have encountered most potential problem areas by now.

There is no substitute for best building practice and common sense.

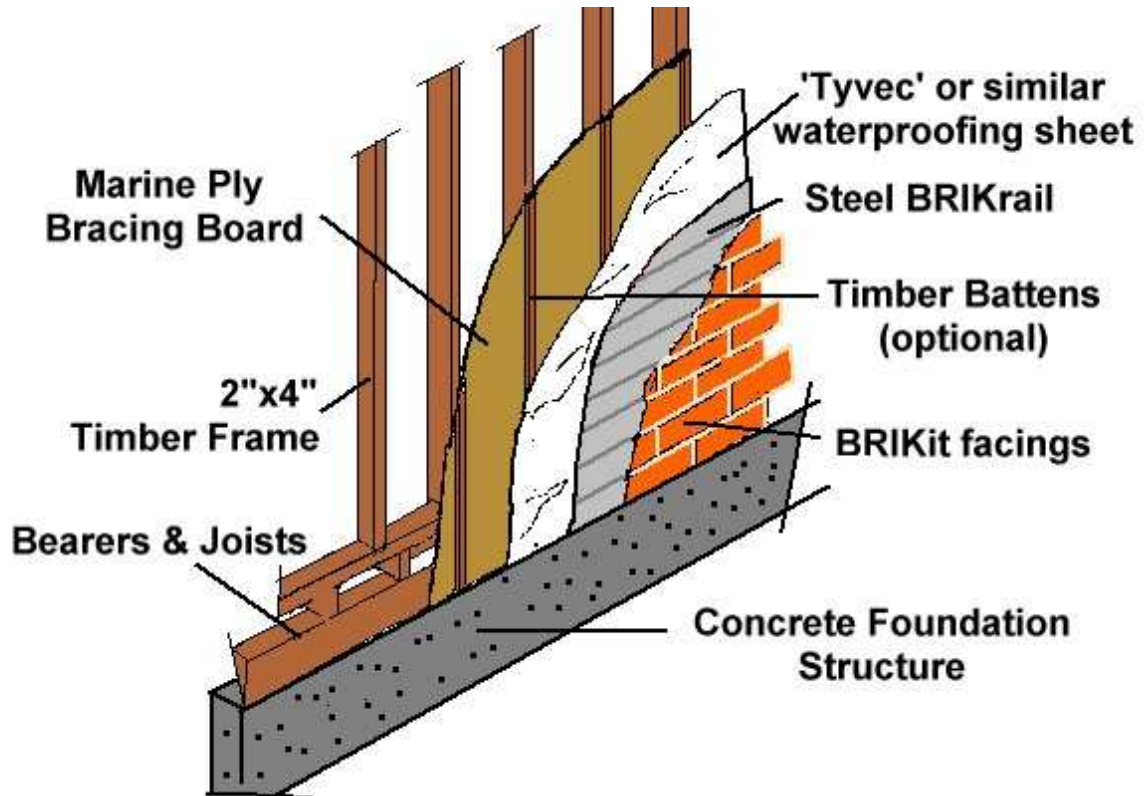


The “BRiKit Walling System” is a product mainly used in Australia to renovate older homes where other claddings like timber or fibro have degraded or need continual maintenance, but is gaining more acceptance on new dwellings now. This new “external skin” provides older homes with a REAL brick finish that will last for generations and also allows for a brick finish on new projects that would normally be too difficult to attempt.

The drawing above shows how it is typically used in this application. It is a simple product to use if you PLAN CAREFULLY before you start.

In Japan, New Zealand, Sth Pacific Islands, Middle East and the many other countries where The “BRIKit Walling System” is exported to, it is mainly used on NEW buildings to provide a high quality, waterproof, brick veneer exterior that is resistant to the extreme structural loads caused by earthquakes and cyclones (typhoons). The “BRIKit Walling System” is also ideal to use in areas with unstable soil conditions or highly sloping building sites.

The drawing below shows the “BRIKit Walling System” as it is used in Japan, applied over 2x4 or Post & Beam construction methods using either timber or steel studs.



“BRIKit” in typical use - 2”x 4” timber framed home in Hokkaido, Japan.



What are the BRiKit Components?

The BRiKrail TOP RAIL

Specially designed rail section that fits inside the BRiKrail to 'finish off' at the top of a section of brickwork

THE Zincalume Steel BRiKrail

3.6 metres long x 86mm high
Hi-tensile Steel.

THE BRiKit FACING

230mm long x 76mm high BRiKfacing
25mm thick. (nominal sizing).

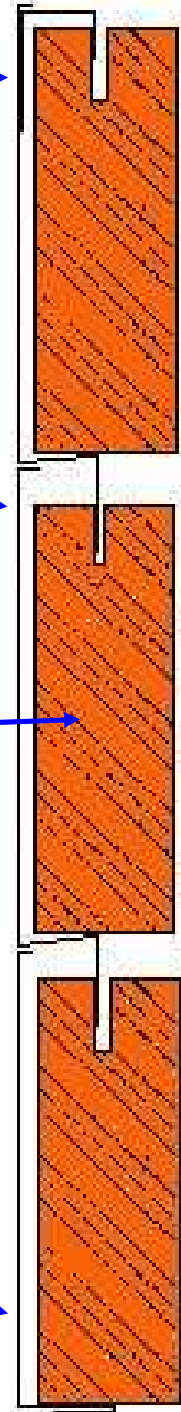
AND.. (not shown but available)

THE BRiKit 90° CORNER PIECE

25mm thick "L" shaped corner piece.
1 face (230mm), 1 header (110mm).

THE BRiKrail STARTER RAIL

Specially designed rail section
that provides a flush finish at the
base of the section of brickwork



THE MAIN ADVANTAGE OF USING THE "BRiKit WALLING SYSTEM" IS THAT YOU DO NOT NECESSARILY NEED THE SKILLS OF A SPECIALIST BRICKLAYER. ANY TRADE BASED PERSON WITH AN UNDERSTANDING AND APPRECIATION OF STANDARD BUILDING PRACTICE CAN INSTAL THIS SYSTEM EASILY..

REAL BRICKS.. MADE REAL EASY !

Where do I start ?

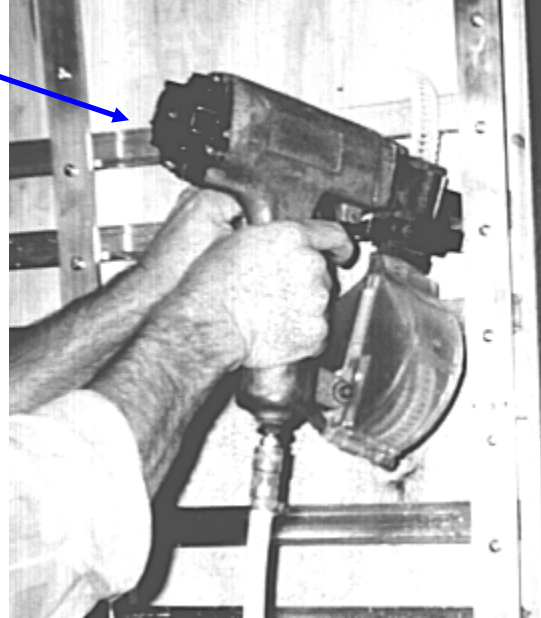
Preparation

Here is a typical list of tools you may need for timber framed buildings.

[BRiKit: Tools for Installation to timber frame buildings](#)

In addition to the normal kit of tools that a carpenter would carry, please make sure you have:

- COMPRESSOR
(for nail gun with 30-50 metres hose)
- **NAIL GUN** (taking Nails suitable for use with Galvanised steel - 38mm x 2.5mm shank)
- ELECTRIC SAW (with metal blade for steel rail and a diamond or fibre blade for brick)
- ANGLE GRINDER (with metal and masonry blades)
- TIMBER SAW
- ELECTRIC EXTENSION LEADS
(to suit above)
- WATER LEVEL (clear plastic hose) or LASER LEVEL
- LONG SPIRIT LEVEL
- 8m TAPE MEASURE
- PENCILS & STRING LINE
- HAMMER & CLOUT NAILS (75 & 100mm)
- WOOD CHISELS & TIN SNIPS
- 50mm PLASTIC TAPE
- COLD GALVANISING PAINT (small can) & PAINT BRUSH (25mm)
- PLASTIC SHEET & STIFF BRUSH (like a scrubbing brush - for brushing down)
- WHEEL BARROW & PLASTIC BUCKETS
- SAND (A good mix of sharp and medium particles – brickies mix)
- BAGGED LIME & CEMENT (off-white or grey, whatever is specified for colour)
- A BRICKLAYER'S LARRY (a hand tool for mixing sand/cement)
- DISHWASHING DETERGENT & SILICONE SEALANT + APPLICATOR GUN
- APPROVED LADDERS & PLANK SYSTEMS
- SCAFFOLDING (for work above 1.8 metres above ground level)



[If applying to steel framed buildings..](#)
you may need to substitute some items

e.g.

COMPRESSOR (for screw gun with 30-50 metres hose)
AIR SCREW GUN (taking self drilling tek screws with the flattest heads possible)
ELECTRIC DRILL DRIVERS (reversible)
SCREWDRIVERS, METAL CHISEL AND HAMMER

[In addition to this list of tools, you will need..](#)

to check the delivery of the materials and familiarise yourself with the components..

And.. make sure you still have some patience and common sense.

Now - LOOK AT THE BUILDING or AREA YOU ARE ABOUT TO COVER !

Check it - for structural adequacy.

Check it - with a string line for alignment at the top, bottom and centre.

If there are any problems or variations with the walls, fix them now !

THESE WALLS ARE THE “FOUNDATIONS” OF THE BRiKit SYSTEM

OK.. Let's get onto it..

The dimensions you must plan & set out with are:

- FROM THE BACK OF THE RAIL TO THE FACE OF THE BRICK IS 25-27mm dependant on brick type.. check yours now!
- THE SET OUT of the course rails IS 86-87mm CENTRES.
- Check where you want a full brick to be BEFORE you do any nailing, etc.
This is your set out point & it can be at either...

THE EAVE LINE - THE HEADS OF THE WINDOWS or - THE BASE LINE

YOU HAVE TO MAKE THIS DECISION

EACH PROJECT IS DIFFERENT!

It is called the DATUM POINT

This is where all levels and measurements must be calculated.

Zincalume Steel BRiKrail Installation



**As timber framed construction is the most commonly encountered framing material, this Installation Guide is predominately aimed at this type of framing.
If you are fixing to steel frames.. use typical steel fixing methods.**

Before you start fixing the rail, it is recommended to instal a layer of insulation or weatherproof building paper (such as Sisalation, Tyvec or similar) to the wall. This acts as a moisture barrier behind the system and can also add to the insulation value.

If using battens to form a cavity, fix this building paper to the OUTSIDE of the battens and make sure that the battens are plumb – BEFORE you fix the building paper.

Choose flat head nails or screws that are recommended for use with galvanised materials.



**The rail simply 'sits'
on the rail beneath it**



All nails & screws must be "driven home" otherwise they will cause the brick facing to stick out. It is recommended to use a compressed air powered nail gun to instal the rails make sure that the nail gun can fire suitable nails and that the pressure is set correctly for the framing material you are using.

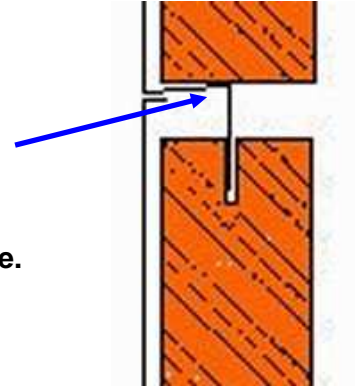
Look at the course rail.

You will see that the 'lug' on the rail points downwards to engage into the groove on the top of the brick facing.

Check this before you start ANY nailing...

(you wouldn't be the first to nail the whole system upside down!!)

Also identify your Top Rail and Starter Rail and put them aside.



We now assume that you are familiar with the components..
You have a plan of what you want to do.. and are prepared..



Great! .. now **SLOW DOWN !..**

Too many jobs have been ruined by people who want to 'rush in'..

Yes.. It's easy.. but don't rush it!.. **CHECK WHAT YOU ARE DOING AS YOU GO !!**

The most simple method of installation..

- As stated earlier.. decide on your datum level. Where do you want to finish off with a full brick?? Is it at the eave line??.. the tops of the windows??.. where??
- Use a water or laser level and mark out the datum point around the building and then measure down and mark where to use your starter rail at the bottom of the wall. **NAIL THE STARTER RAIL HERE**



Recommended nailing pattern is one nail high (under where the 'lug' will cover) and one nail low. If stud spacings are standard, this is fine. If stud spacings are close together, you can alternate high and low nailing on each alternate stud, but **ALWAYS double nail at the ends of the rail and join them on a stud.**

- Once the starter rail is installed..
check it for level.. **then check it again..**
- You will see that the top of this starter rail is folded over 5mm to provide you with a 'shelf' to rest the next layer of BRIKrail onto.
GET A LENGTH OF BRIKrail AND NAIL THAT INTO PLACE WHILE RESTING THE BRIKrail ON THE TOP OF THE STARTER RAIL.
check it for level.. **then check it again..**
- **CHECK YOUR LEVELS.. CHECK YOUR LEVELS.. CHECK, CHECK, CHECK!**



It only takes a second to grab your spirit level and double check your work as you go... It takes **HOURS** to fix an initial mistake at this early point... so **CHECK!!!**
This is the most common place for errors.. It seems so simple.. you do not even realise that you are 'creeping' the rail by 2mm or 3mm every time you nail..
so **CHECK!!**

- From here on it is simple... just keep nailing the rail one course above the next, by resting the rail on top of the one below

... BUT REMEMBER THESE TIPS!!



VERY IMPORTANT

Don't lean on the rail when fixing or you'll cause "bows" between the battens or studs. (This is a common problem).

Set the rail back about 10-15mm from a corner.. this makes installation of a corner brick easier. At the corners, **CHECK** that your rail 'lines up' with the rail on the adjoining wall.. remember that 1mm variation per rail multiplied by 10 rails means that you will be a complete mortar joint out in under 1 metre!!

The tip is to use a corner brick or slide a facing into the rail and use this to check the level..

Make sure the nails / screws are driven home FULLY...

This is VERY important when fixing the bricks into the rail.. if the nail heads are sticking out it will make the bricks uneven.

When you need to cut the rail for any reason, it is recommended to paint the cut area with a protective 'cold gal' paint before installation.

Installation of the Top Rail is easy.. simply nail it in place over the top of the last BRiKrail at the top of your wall and use a BRiKit facing to check for the height needed.

CHECK YOUR LEVELS...CHECK YOUR ADJOINING WALLS

It's easier to do any brick cuts at the bottom of a wall rather than cutting bricks at the eave line! You can "open out" the rail slightly but it is difficult to "close up" without cutting bricks.

When fixing the rail to an outside corner, come back about 10-15mm from the corner to allow the corner brick to sit in easily. BUT.. MAKE SURE that the rails line up EXACTLY at the corners before nailing. The easiest way is to 'slide' the rail you're about to nail past the corner and sight it. If OK, slide back & nail it.. if not **FIX IT NOW**.

So.. All the rail is on... the next step...

SET OUT THE BRICKWORK

There is NO book that that shows the ideal way to set out brickwork, it is a practical thing gained by experience.. but it is also common sense.. Go and look at some conventional brickwork somewhere.. you will start to see how easy it is..



LOOK at the wall once you have put the bricks in the rail..

A small movement of the perp (perpendicular or the "up and down" joint) now could save you many cuts later.. If you need to cut a piece of facing 25mm or less to 'fill in'.. think again!.. there is a better way !

The way we recommend to set out is:

- Starting with a corner, set out 2 courses by "sitting" them on the rail.
- Sometimes the wall will "work brickwork" perfectly, other times you need to reverse the corner bricks, spread the "perps" (perpendicular joints) a little, or cut a brick.



Do not think that your 'perps' will all be an exact 10mm, vary them as you set out to line up in the middle of the course above.

Once you've set out 2 courses and you're happy with them, you're ready to install the bricks.

BUT BEFORE YOU DO!!!

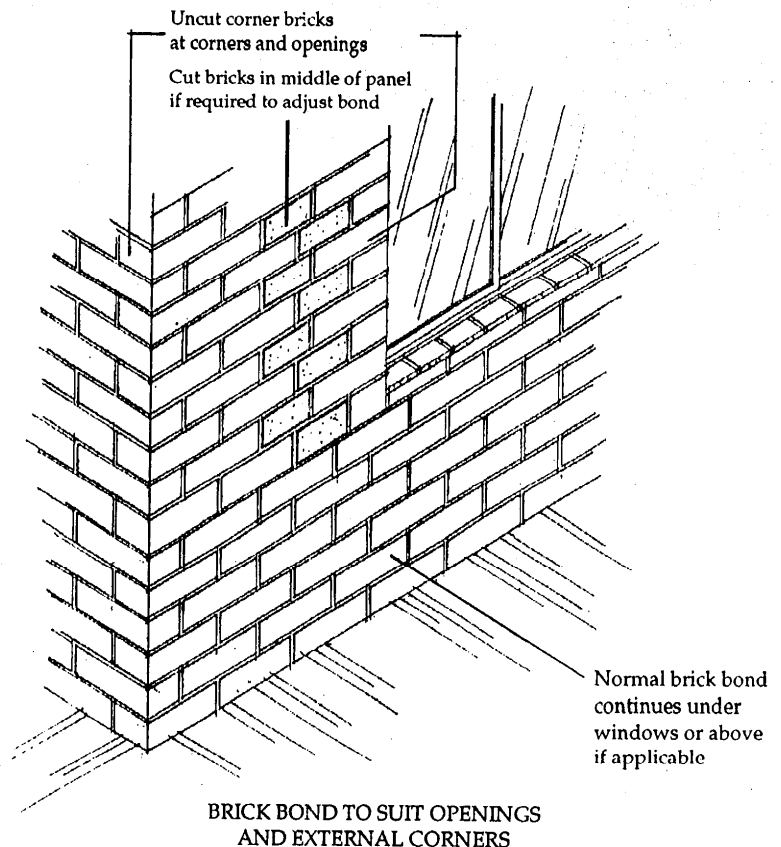
Walk along the wall and look up to see where the windows or openings line up, sometimes a minor change at this time can minimise cutting later.

You'll find areas that don't work brickwork, particularly between windows, so **STOP & THINK!!**

Try a number of combinations if necessary but, **AVOID CUTTING THE CORNER BRICKS.**



You are better to cut a little off a few bricks rather than cut a small 20-30mm piece of brick to "fill in".



FACT: BRIKit facings are made from real bricks, but they are much thinner.. ALL bricks develop almost invisible 'hairline cracks' in them when they are fired at 1000°C+.. In transport, some BRIKit facings MAY break along these cracks.. **THESE ARE NOT WASTE!!!!!!**

As you instal the BRIKit facings you WILL need some small pieces to maintain the correct bond pattern on the wall..

USE THE BROKEN PIECES.. RATHER THAN CUTTING A FULL BRIKit FACING!

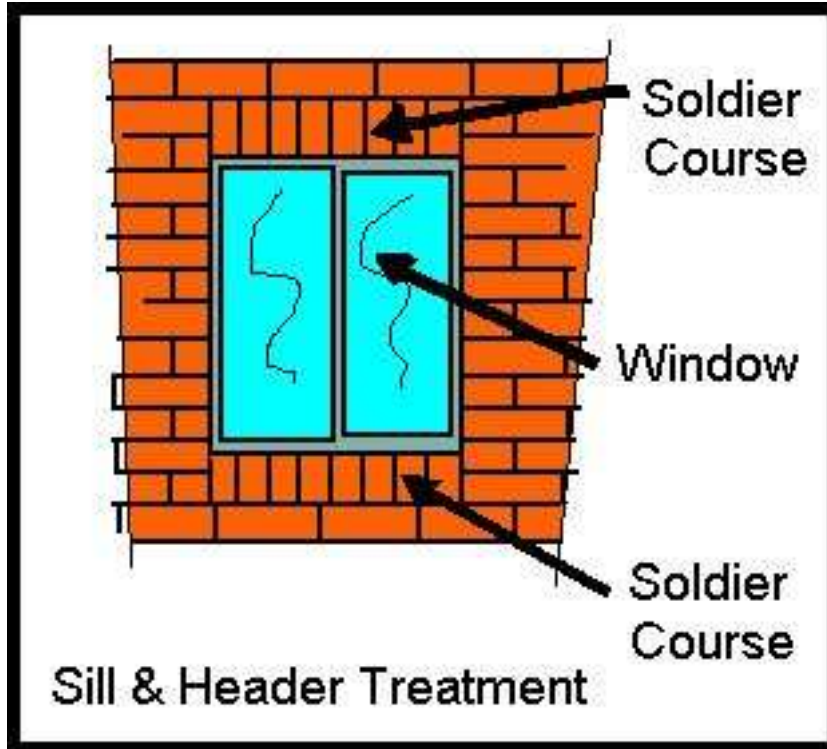
This saves time, money and is less to clean up at the end of the job..

Laying the BRIKit facings is an extremely fast and simple task if you follow these guidelines:

- Lay the corner bricks **FIRST!!**
- Always lay the facings from the bottom of the wall up. It is easier to 'line up' correctly.
- Make sure you are have the 'perps' (perpendicular or vertical joints) lined up as you go. Moving a wall of facings later is not easy!!
- Check the wall as you go. Any bricks 'sticking out' or not sitting properly for any reason, **FIX NOW...** Once those bricks are mortared into position, you **WILL NOT MOVE THEM!!**

Window, Door & Opening Treatments

The easiest method of treating these areas is to 'butt finish' the brickwork to the architrave of the window/door, above & below an opening can be a vertical 'soldier' course.



You can also use windows that are specifically designed for cladding applications and have an inbuilt architrave section that is approx. 30mm wide and the 25mm BRICKclad facings then simply 'slip in'.

Check with your local window supplier or we can refer you to manufacturers that supply this type of window.



FLASH THE WINDOW ALL THE WAY ROUND!! - i.e the 4 sides
A little bit of extra time and cheap plastic flashing put in now.. can save you a fortune later if the rain finds a way to seep in around an unflashed window.

Sills

The simplest method is to take some facings and stand them up to form a 'soldier course' sill that engages into the normal brick coursing.

If you want a sill to protrude beyond the face of the brickwork you can use a BRICK facing cut down to suit and glued in position or a quarry tile installed in the same way.

You can also use corner bricks in this area, but this can be a costly option.

MORTARING THE JOINTS

A general on-site mix is:
4 Sand (mixed particle sizes) : 1 Cement : 1 Lime
 plus some 'DYNEX' Admixture.

'DYNEX' IS NOT A STANDARD BRICKIES AIR ENTRAINING ADMIXTURE.. DO NOT USE BYCOL OR SIMILAR AND DEFINITELY AVOID THE USE OF PVA BONDING AGENTS SUCH AS BONDCRETE!

Mortar can be inserted with a plastic bag shaped like a cone, or a mortar gun or pumped.



The easiest method of mortaring BRICKclad is:

- Place approx 40kg of your chosen mix in a standard wheelbarrow & add any colouring oxide, if required.
- Add water, as required, & also add the Dynex admixture, then mix to a consistency similar to "yoghurt".
- The water addition rate is sensitive to the climate, so until you get used to the mixing it is better to add water slowly & mix thoroughly.
- The best test to see if your mortar is "right" is to get a mortar bag & fill it over the barrow...
 - if the mortar "runs out" - it's too wet.
 - if the mortar "dribbles out" - it's OK.
 - if the mortar stays in the bag - it's too dry!



IF IT STILL DOESN'T FLOW.. GET SOME WASHING UP DETERGENT & PUT SOME IN THE MIX. THIS CREATES AIR BUBBLES TO HELP IT MOVE.

Put down some dropsheets around the job and with the mix now ready simply fill the joints as cleanly as you can.

There is no "right" way to do this, it's just a matter of perseverance & keeping the wall as clean as you can. The idea is to 'over-fill' the joint slightly. Always fill the 'perps' (vertical joints) from the bottom up and ensure the mix gets right into the top of the joint.



**Mortars are not good for your hands, use gloves & eye protection.
(& don't let the mix get inside the gloves while you're working).**

Once you've got the 1st mix in, the walls should be ready for tooling, but keep your eye on this as you go.

Grinding out mortar joints because you let it go off before tooling is very difficult and costly!



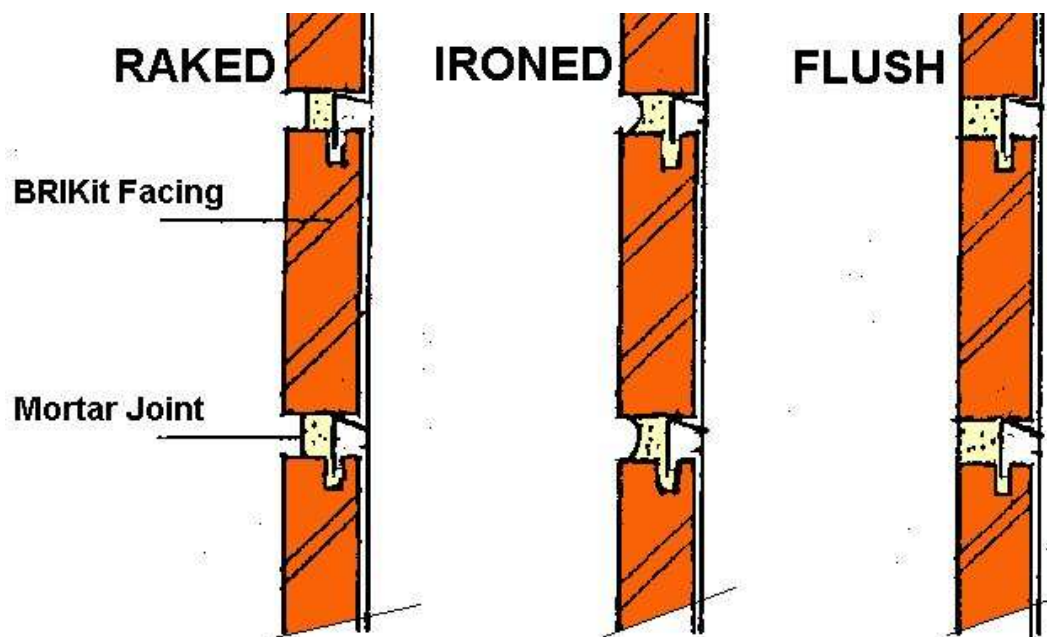
Rather than use conventional steel brickies tooling equipment, experience has shown us that a simple piece of round timber (similar to a broom handle) will give the standard "ironed joint" finish and is excellent at forcing the mix into the joint.

IMPORTANT NOTE:

When mortaring a brick into place, look at the bricks as you go. If one is "sticking out" too much or not straight for some reason.. **ADJUST IT NOW** - whilst the mortar is still wet.

It is pointless coming along after the mortar has gone off and trying to fix anything then.

JOINT DESIGNS



BRICKWORK JOINTS

IRONED JOINTS: are best for the BRiKit system, they compact the mortar & push it into the joint. An ironing tool is easy to use.

FLUSH JOINTS: are also easy, but make sure the mix fully fills the joint because there is no compression when doing it this way.

RAKED JOINTS: are more difficult. Use the raking tool carefully and don't go too deep or you'll expose the lugs on the rail.



Once you've done the tooling in an area let it go off a little more & then brush it down. If you brush it immediately after tooling you will smear the moist edges of the mortar all over the bricks.

IMPORTANT NOTE

You **CANNOT** clean bricks the same way you do tiles!!!

Tiles are glazed and the mortar does not stick to them

BRiKit is made from brick materials and the mortar will stick to them!!

So.. **DO NOT SMEAR MORTAR OVER THE FACE OF THE BRICKS!**

A light wash down of all the walls is advised to remove all of the dust and dirt from the bricks and clean any mortar smears.

If you have installed the mortar correctly,
you **SHOULD NOT NEED TO ACID WASH.**

**If you do need acid, make sure it is the right one,
diluted properly and wet the bricks down before applying ANY acid solutions.**

If you have any specific installation
questions.. Contact us:



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