

# Technical Design & Installation Guide

## Inlay Brick System

Bringing the natural beauty of real brick to precast concrete



# InBrick

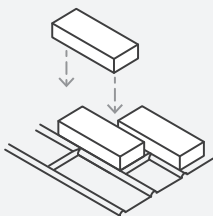
a quick and creative solution

InBrick is an inlay brick system that embeds genuine clay brick tiles into precast concrete panels, providing the look and feel of brick, with its durable aesthetic, to precast concrete panels.

The InBrick system combines the lasting beauty and durability of traditional brick with all the benefits and efficiencies of precast concrete. InBrick allows faster enclosure and removes the brick façade from the critical path. As InBrick is prefabricated offsite

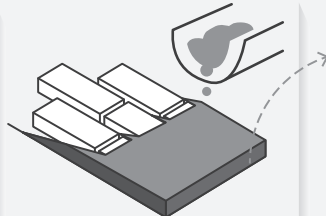
it allows for faster construction times onsite, saving time and money. InBrick is available in multiple brick sizes: Australian, European, UK, US, and is customisable to suit your project.

With limitless options when it comes to the range of brick tiles on offer and the ways in which they can be applied, InBrick enables the creation of truly original buildings.



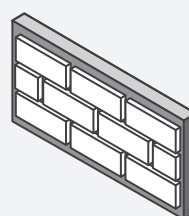
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PGH thin brick facings are placed into VersaLiner® single use liner in the desired configuration, a process which is quick and forms perfect courses of brick.



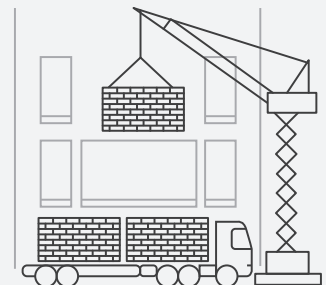
2

After reinforcing is placed, concrete is poured over the configuration and finished in the normal manner.



3

When the InBrick panel is erected, the VersaLiner® is stripped from the face and the panels are cleaned. The end result is an InBrick concrete precast panel with an InBrick cast façade.



4


InBrick panels are delivered on-site, ready for installation. They can be used in a variety of project applications: pre-cast, tilt-up or cast in place.



## Patented single liner technology

The InBrick system uses VersaLiner®, a patented single liner technology, to embed thin brick tiles into precast concrete. It is a patented, single use liner that offers a multitude of advantages, including:

- Higher production efficiencies
- Faster construction
- Lower labour cost
- Quicker clean up
- Less power washing
- Better overall finish
- Faster cycle times
- More realistic mortar joints
- Multiple brick sizing and bond patterns
- Greater design flexibility
- Form-liner technology using recycled and reclaimed post-manufacturing PET and HIPS.



**VersaLiner®**  
– patented single use liner

## InBrick

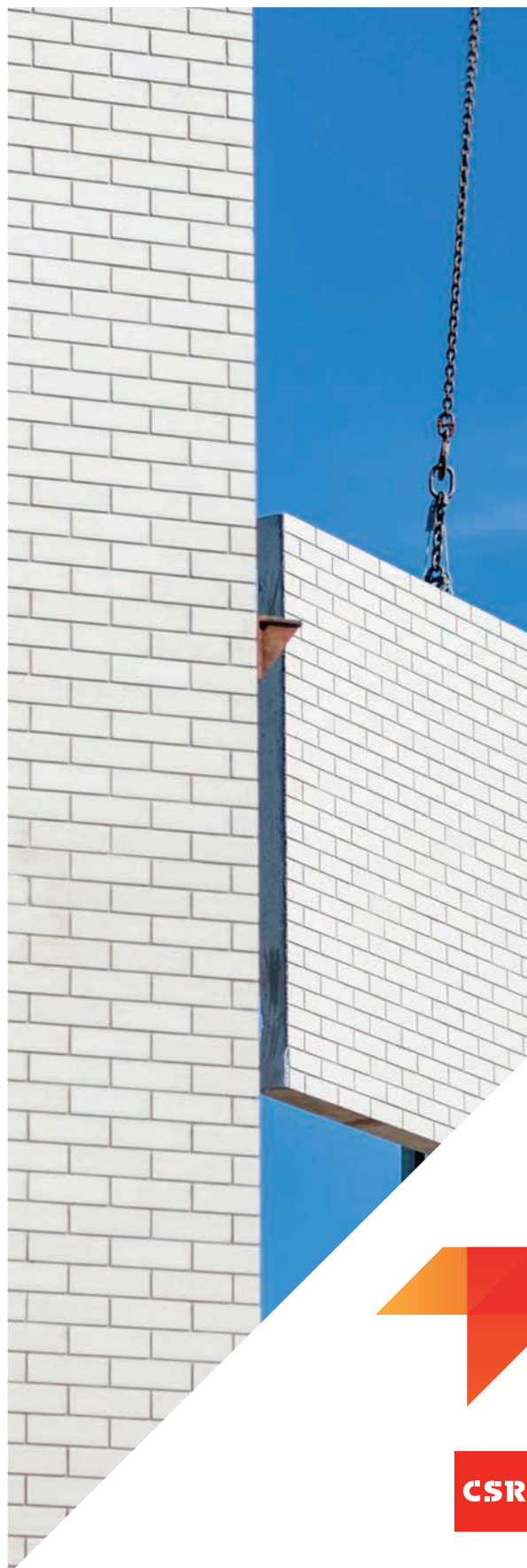
### features&benefits

- Achieves a real brick look and feel
- Design flexibility with limitless range of brick colours and textures to choose from
- Accommodates arches, headers, soffits and multiple coursing patterns and brick sizes
- Combines the aesthetic of brick with the benefits of offsite manufacture
- Cost-effective way of achieving intricate brick detailing
- Structurally sound and durable - precast concrete panels are strong and resistant to impact
- Excellent fire-resistance and acoustic properties
- The bond of brick tiles and concrete is permanent
- Easy to install with accelerated construction and enclosure times
- Prefabricated offsite and delivered ready to install
- Ideal solution where access is restricted, or project schedule demands fast onsite construction
- Speeds up the construction process, reducing construction costs
- Can be used in a variety of project applications: pre-cast, tilt-up or cast in place
- Ideal for repeat panels
- Low maintenance
- Independent NATA Testing for mechanical embedment strength – exceeding 1Mpa of extraction force
- Extensive design and technical support from PGH Bricks & Pavers - one of Australia's largest brick manufacturers



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| Armstrong Creek Town Centre                                    | 21        |



**CSR**



## **01 System Compliance**

The InBrick system is confined to the embedment of clay brick facings into precast concrete. The precast concrete performance is subjected to the project professional's design.

InBrick precast concrete external wall system is in compliance to:

- National Construction Code (NCC) Volume 1 Amendment 1;
- National Construction Code (NCC) Volume 2; and
- New Zealand Building Code (NZBC) Section B - Stability: B1 Structure and B2 Durability.

PGH recommends the system be used in climate zones 1 to 6 and AS 4312\* corrosivity categories C1 to C4. If InBrick is being considered for situations outside of this scope, please contact PGH.

### **A. Structural Behaviour**

The structural capacity of the overall InBrick wall should not rely on contribution from the PGH brick units. The precast concrete panels (which form the substrate of the InBrick system) are required to comply with AS 3600\* for Australian application and NZS 3101\* for New Zealand application.

The total wall thickness is subject to project requirements, to be specified by the project structural engineer. The thickness of the wall when calculating for its structural capacity should be measured from the rear of the concrete, to the rear of the brick tiles. The thickness of brick units should not be included when designing or measuring the concrete cover to reinforcements.

### **B. Non-Combustibility**

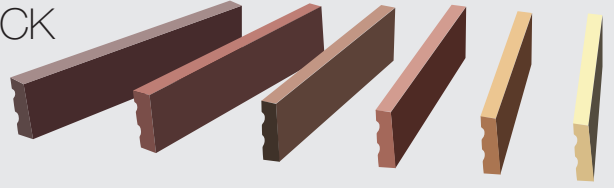
PGH clay masonry units forming the InBrick system are non-combustible and will remain stable during a fire. They will not contribute to the spread of fire, nor produce smoke or toxic gases.

The clay brick tiles will contribute marginally to an InBrick wall's fire resistance. PGH recommends practitioners assume no contribution from InBrick tiles to the overall InBrick walling system's fire resistance.



## 02 Brick Tiles

### THIN BRICK



Brick tiles are real, clay fired brick that have all of the durable and timeless characteristics of genuine face brick. [Click here](#) to view the entire InBrick brick tiles range.

Brick tiles for InBrick are cut from certain bricks within the standardised PGH brick range. PGH Bricks & Pavers™ manufactures clay fired masonry products, satisfying the requirements of the Australian and New Zealand Standard AS/NZS 4455\*. Products are tested to the Australian and New Zealand Standard AS/NZS 4456\*. The testing is carried out in a NATA\* accredited laboratory prior to cutting.

As these bricks comply with AS/NZS 4455, they also comply with the unit requirements of the Australian Standard, AS 3700\*, and are therefore in compliance with the National Construction Code of Australia (NCC/BCA).

Please [click here](#) to further specifications.

#### A. Dimension and Tolerance

Standard InBrick tile units vary from 25mm +2mm / -1mm in thickness.

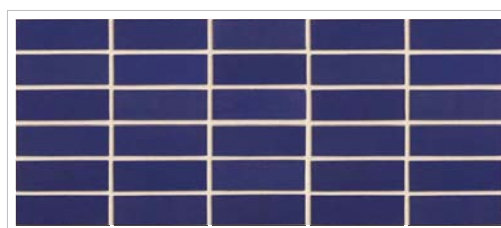
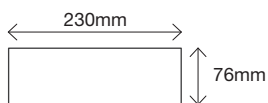
#### B. Product Specification

InBrick tiles are cut from standard PGH bricks. For the full range of product specifications, please refer to the [Technical Data Sheet](#) available for each PGH brick.

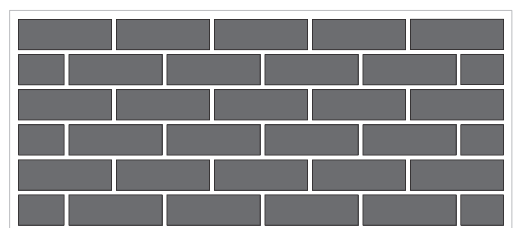
Note that the weight of InBrick tiles should be based on 25mm thick tiles, rather than 110mm thick PGH bricks.

#### C. Brick sizes & bond patterns

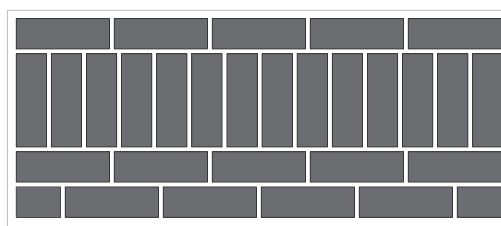
##### Standard Brick



Stacked



Stretcher



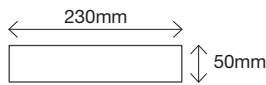
Soldier



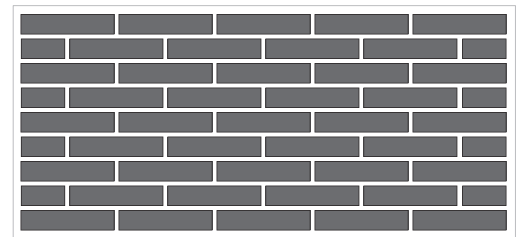
Flemish



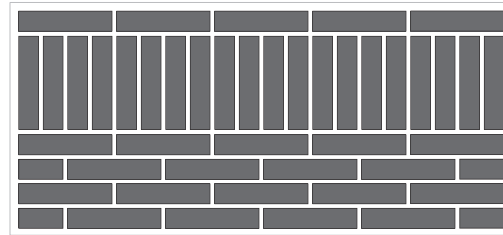
## Split Brick



Stacked



Stretcher

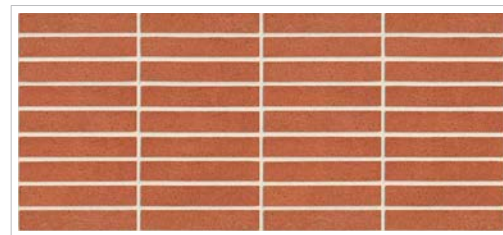
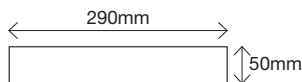


Soldier

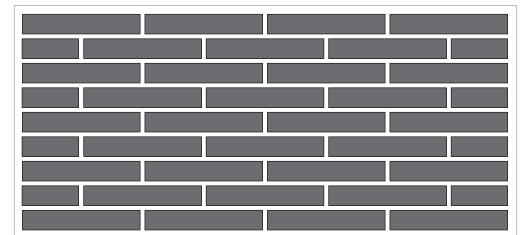


Flemish

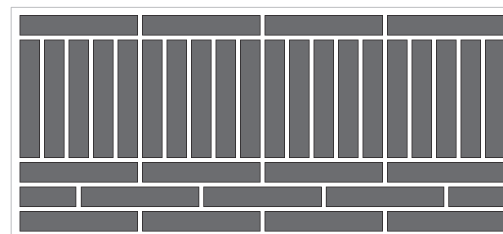
## Linear Brick



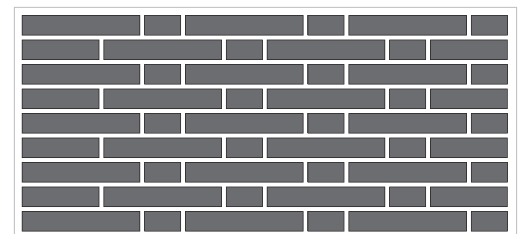
Stacked



Stretcher



Soldier



Flemish

Brick sizing should be considered as a primary modelling criteria when sizing panels and openings. This can speed installation immensely.

There are a number of important elements that need to be included on each shop drawing:

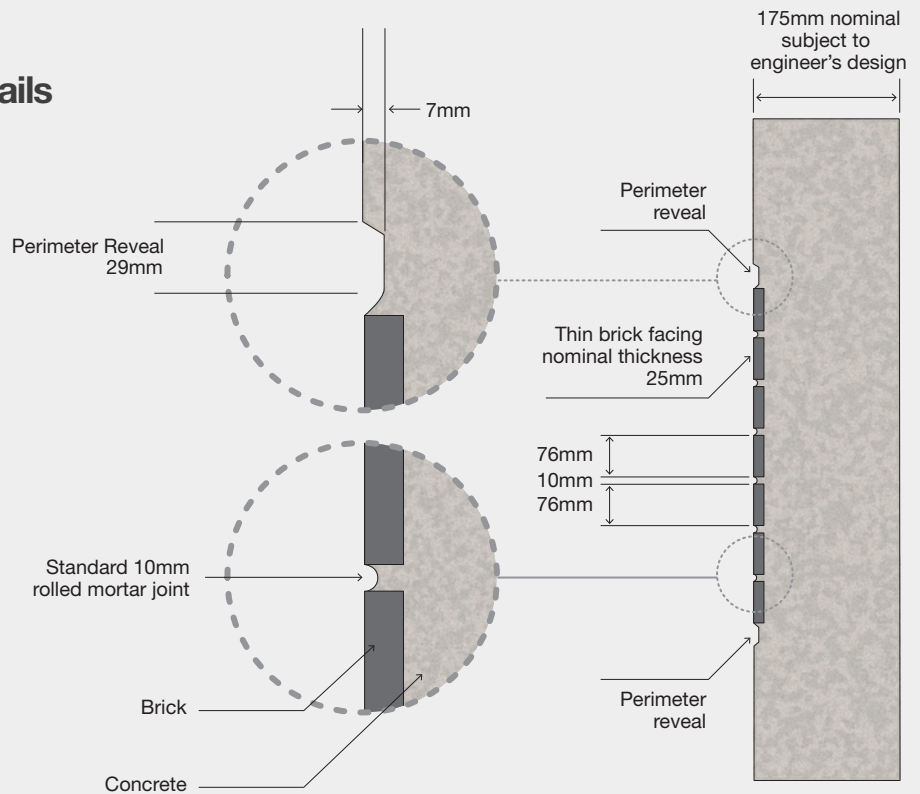
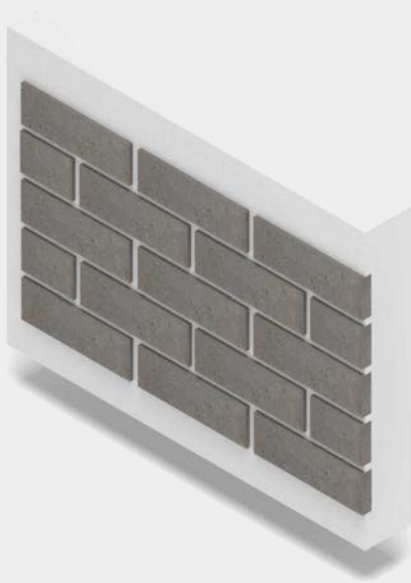
1. Actual brick should be drawn to scale. Avoid inaccurate hatches that may misrepresent the exact intent with regard to brick placement and size.
2. Coursing and alignment need to be taken into account.
3. Brick should continue in pattern across construction joints consistently. Full brick should abut full brick, half to half etc. A notation is helpful in directing the installers to use either a full or half brick at one corner of the panel.
4. Where cutting or trimming brick is necessary, it should be clearly dimensioned to avoid ambiguity.
5. Coursing heights are one of the more critical elements of the drawings. Dimensions such as bottom of brick (B.O. BRICK), top of brick (T.O. BRICK), or header, sill and panel heights, can be established from datums set at the finished floor or bottom of panels. These are easy for the installer to interpret and help avoid cumulative errors in establishing coursing heights. It is also useful to include partitioned dimensions whenever possible.
6. On panels with more than a few courses, it is important to give intermediate coursing height check points. These are helpful to the installer. When course heights are critical, they should be gauged at least every 80mm vertically. Horizontally, a check every 200mm will suffice.



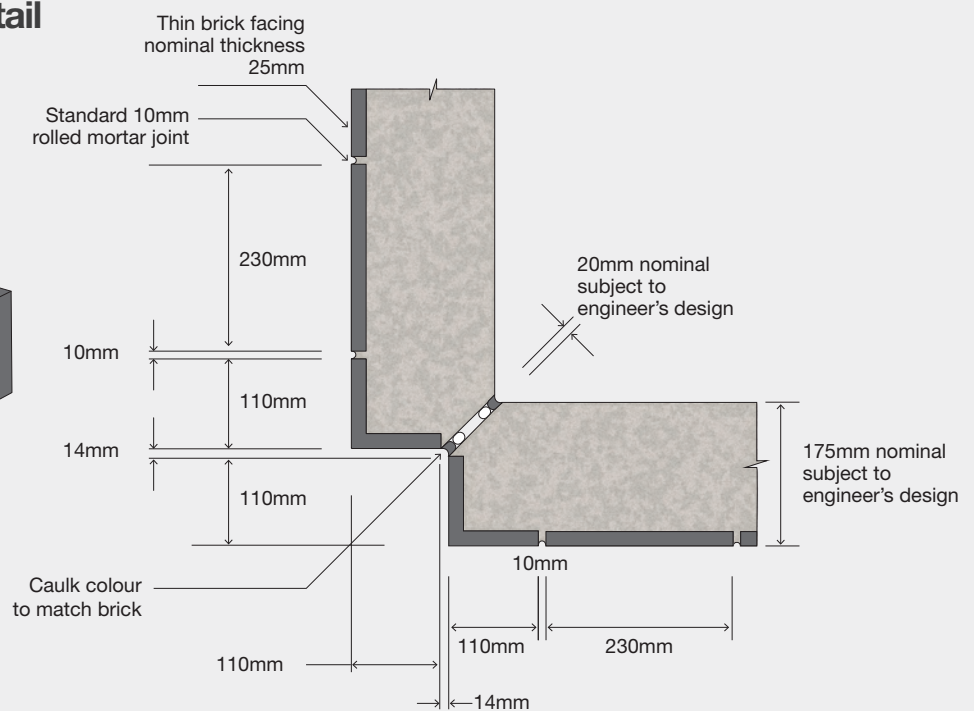
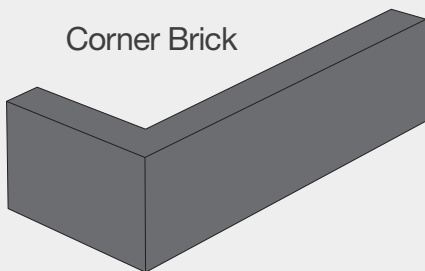
## D. Technical Drawings

The following drawings show various typical details of the InBrick system:

### 01/ Mortar joint and reveal details

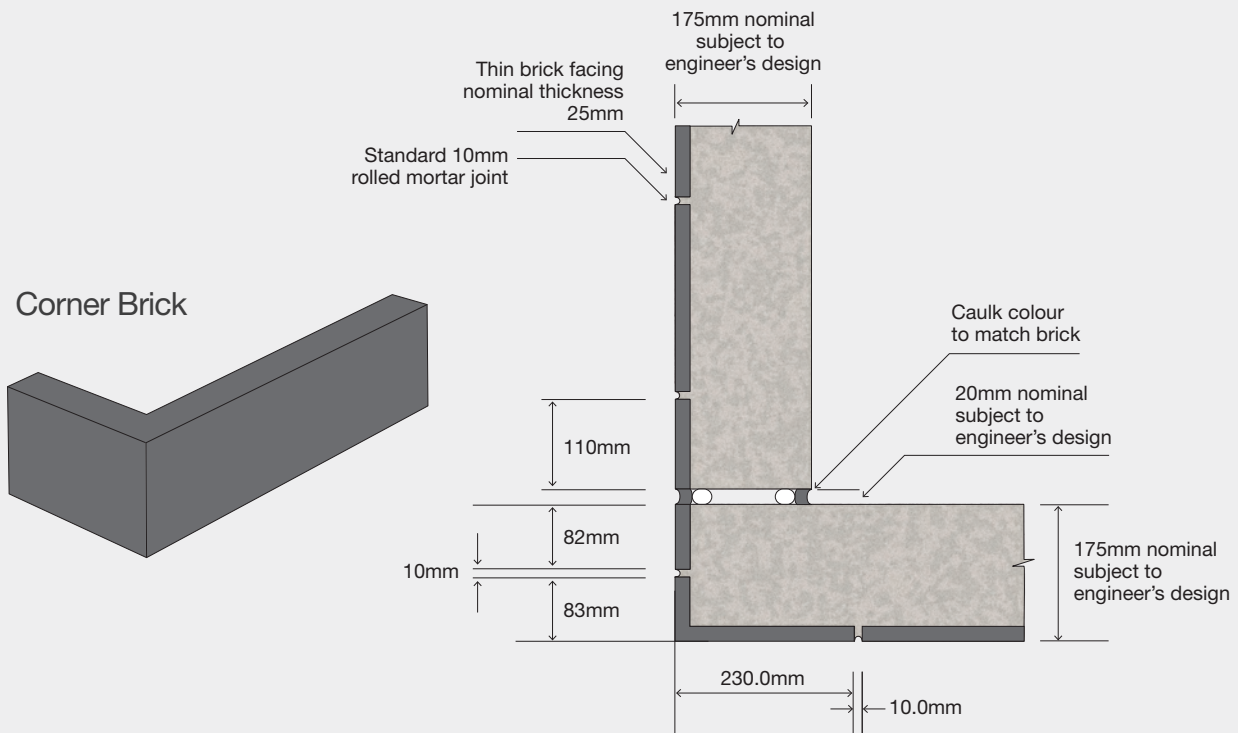


### 02/ Indented Corner Detail

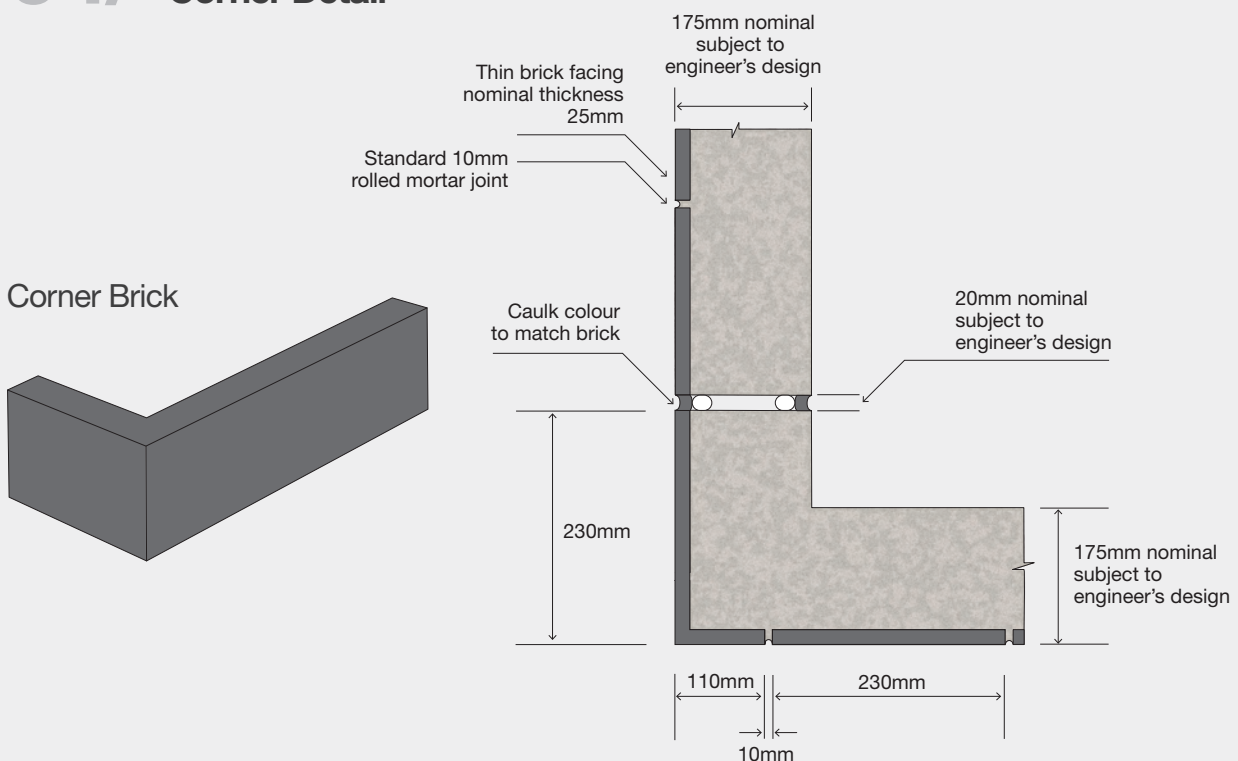




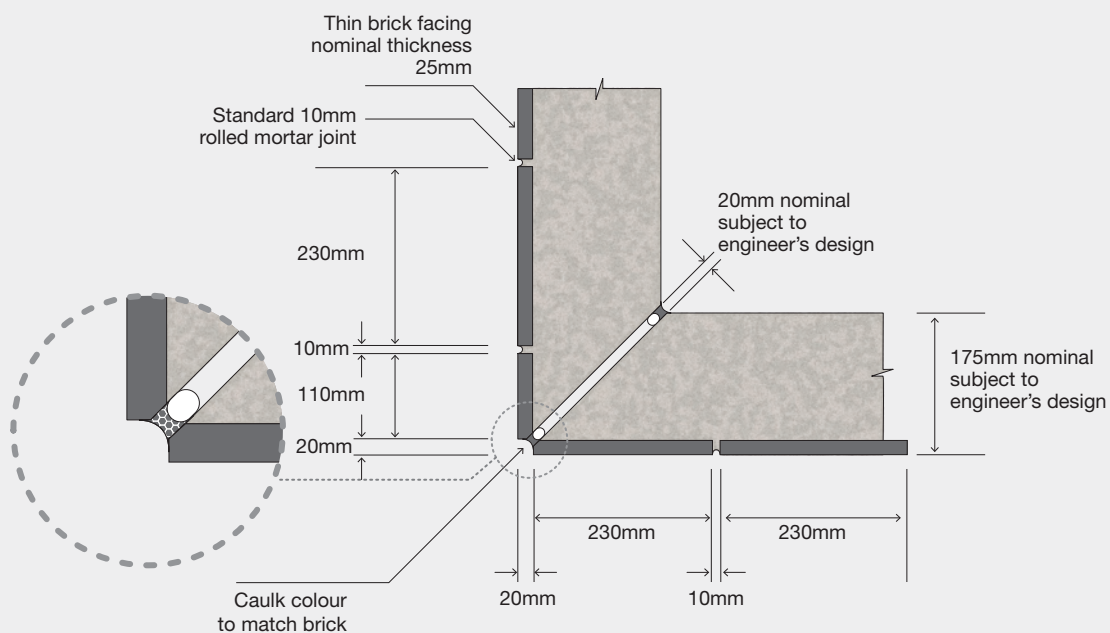
## 03/ Wrapped Corner Detail



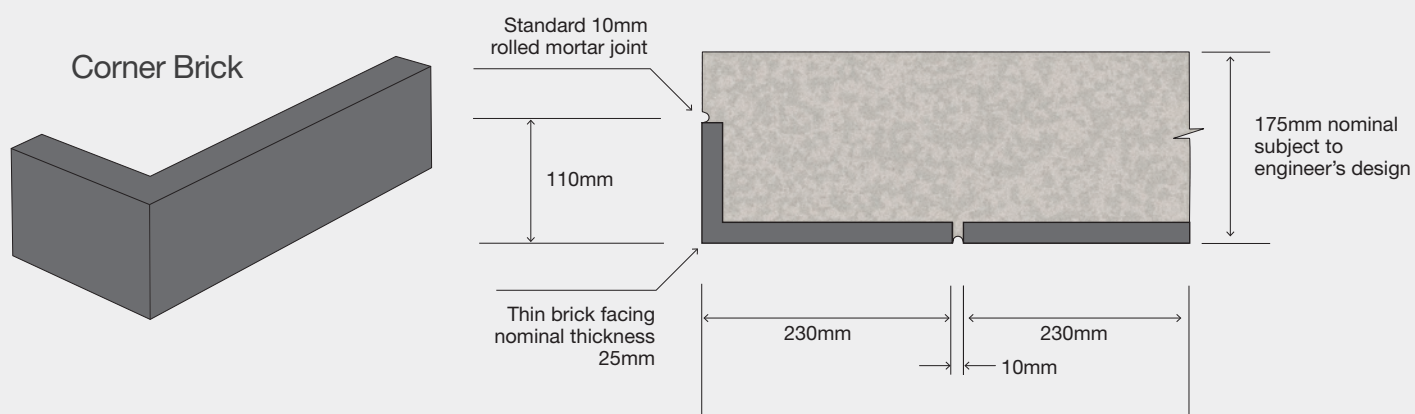
## 04/ Wrapped Corner Detail



## 05/ Quirk Corner Detail



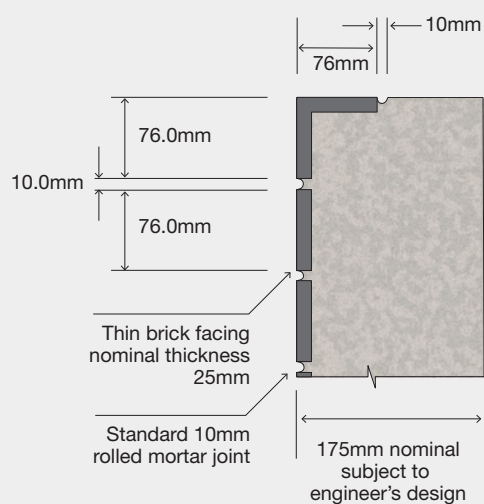
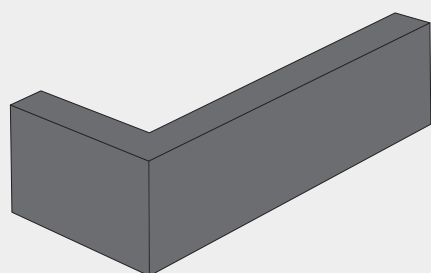
## 06/ Wrapped Jamb Detail





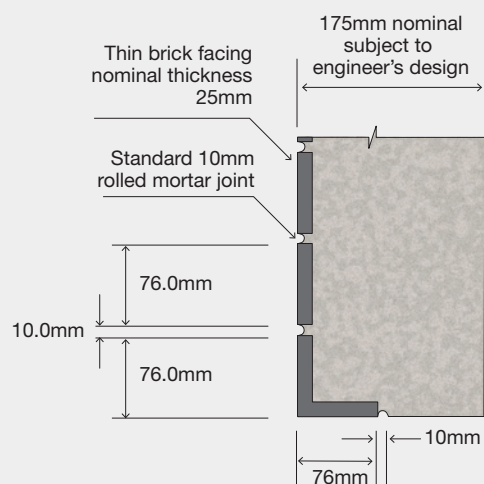
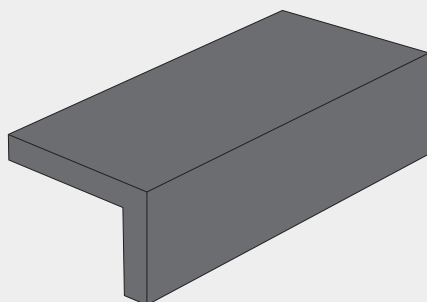
## 07/ Wrapped sill detail w/edge cap

Corner Brick



## 08/ Wrapped header detail w/edge cap

Edge Cap



## 03 VersaLiner® – Product Description and Specifications

VersaLiner® is a patented single use liner that enables precast and sitecast contractors to create the closest look to masonry available on a concrete panel. Its unique, seamless joint design provides a realistic coved joint and embeds the brick tile for superior bonding and weatherproofing. Each liner is designed with a unique indexing feature that makes setting up the panel easy. Standard liner comes with a rolled joint. To request the variety of liner joints, please contact PGH.



VersaLiner®'s single use design enhances bed utilisation and lowers costs.



VersaLiner® brick tile cross section

### A. Material Specifications

VersaLiner® sheets are made of high impact polystyrene – a rigid, yet flexible material optimally suited for easy setup and teardown.

Thermo Form High Impact Polystyrene recyclable material number 6 PS

U.S. Patent No. D479614

Thickness 0.6mm

Weight 0.006 kg per square metre

Tensile 4080 psi at yield

Izod Impact 3.3 @ 23°C

Vicat Softening 104°C

Colour White-primary; can vary

### B. Brick Sizes and Bonds

VersaLiner® can be ordered to accommodate a variety of brick sizes. All common bonds are available, including stacked, stretcher, soldier and Flemish. Special bonds are available on a custom order basis.

### C. Sheet Indexing – for easy installation

Each sheet of stacked bond VersaLiner® has embossed markings [plus (+) and minus (-) signs] around its perimeter. These refer to the slight size distinction between the molded mortar joints that form the perimeter of each sheet. The joints near the minus signs are slightly smaller in order to fit properly underneath the larger joints. The difference is 0.2mm and is hardly visible to the eye. The difference, however, provides proper overlapping of each adjoining liner for enhanced stability and performance.



VersaLiner® is a flexible plastic that reacts to hot and cold conditions by slightly expanding or contracting. These slight variations may be compensated for by simply compressing or stretching, the elastic joints as the bricks are being installed. Once the bricks are nested, their weight will hold the liner in position.



#### D. Re-use

VersaLiner® liners are a balanced combination of durability and economy. They are designed to be applicable to a variety of creative panel designs and to assure they will hold up, even under the most extreme conditions for a single cast. However, considering the designed-in safety factor, some contractors may find the sheets to be useable more than once. PGH Bricks & Pavers warrants only a single use of each VersaLiner® sheet.

#### E. Thermal Effects

VersaLiner® is a flexible plastic that reacts to hot and cold conditions by slightly expanding or contracting. These slight variations may be compensated for by simply compressing, or stretching, the elastic joints as the bricks are being installed. Once the bricks are nested, their weight will hold the liner in the position.



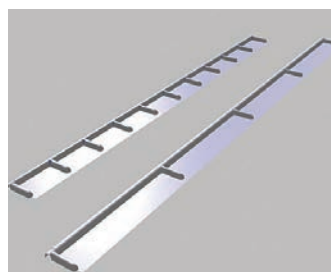
#### F. Easy Liner Removal

VersaLiner® is made from plastic with an oily microfilm on the surface. This film resists sticking to concrete so that the liner can be removed extremely easily. Removal is generally done by hand with the aid of a small screwdriver or chisel for areas where concrete may have leaked underneath the liners. The labour to strip the VersaLiner® is a negligible component of the job.

#### G. Bounding Rustications (Termination Strips)

To prevent the brick tile coverage from ending promptly into visual concrete and an awkward or untrimmed appearance, PGH Bricks & Pavers offers easy-to-use liner edge accessories called “term strips” or “rustications”. These simulate a smooth mortar joint and may be attached to the form.

Most of these rustications are small, ranging from 10mm to 26mm wide. They need to be at least 3mm deep, but are usually 10mm to 13mm deep. Typically, they will have a 90 degree edge against the brick and a small amount of taper on the outside. Often a 13mm radius timber dowel is used. This is one of the simplest types, and is readily available at most lumber yards.



VersaLiner® rustication strips

## 04 Installation

### A. General Personal Protective Equipment

Generic tools include gloves, masks, goggles, safety hats, and safety boots. Please [refer here](#) for the Formwork General Guide by Safework Australia.

When required to cut a brick tile to a required length or special shape, a wet diamond-tipped masonry saw should be used, and appropriate PPE worn.

#### Caution

Product contains Crystalline Silica. [Refer here](#) for Management of Silica Dust Onsite by Think Brick Australia.

### B. Basic Steps for InBrick panel installation

1. Preparing the brick tiles
2. Installation of liner
3. Installing brick tiles
4. Versatility
5. Walking on brick
6. Concreting & vibration
7. Cleaning the finished panel

#### 1. Preparing The Brick Tiles

##### A. Variation in Bricks

Clay bricks are made from natural materials. Variation in both the clay and firing process means textures, composition, size, and colour can vary from batch to batch.

##### B. Brick Protective Coating

A retardant will act as a bond-breaker against concrete residue that leaks around the joints of the liner and settles underneath the face of the brick tiles. Without this coating cleaning the brick panel of the concrete residue may be difficult, if not impossible. Wax is the most common bond-breaker application. PGH InBrick tiles are supplied with wax as a concrete bond-breaker. In some circumstances, a brick release agent may be required as a substitute. Please contact PGH for more information.

A thin layer of wax can be factory applied to the face of the brick to act as a bond-breaker for concrete residue and leakage. This wax can be removed with hot water. Concrete residue varies in thickness from 3mm to a thin cloudy stain. The wax in conjunction with high pressure hot water will in almost all cases remove the latent concrete.

Wax that has melted prior to concrete placement usually wicks into the brick. This reduces its effectiveness, but will still aid greatly in the cleaning. As with any protective coating, the brick should be cleaned as soon as possible.

### C. Adhesive Coatings (For adhering thin brick units to vertical return form rails)

When adhering thin brick units to vertical return form rails, it is recommended to use Pressure Sensitive Adhesive (PSA) e.g. Bostik XTREME® HIGH TACK or equivalent, and remove after dismantling the formwork.

For more information, please contact the adhesive manufacturer for a suitable product.

### D. Mock-up Testing

As always, a mock-up panel should be produced before casting begins in order to assess the appropriateness of the brick to be installed. The rolled joint is the most natural looking type available. One of its benefits is in the way it blends smoothly into the face edge of brick. This blending can visually absorb the thin concrete band or 'eyebrow' that is usually present around the perimeter of embedded brick.

#### 2. Installation of Liner

##### A. Trimming liners

VersaLiner® liners are made of a thin, rigid, non-brittle plastic that can easily be trimmed on the jobsite using scissors or a utility knife. For cutting multiple liners at once a band saw is advantageous. A sharp 4-8 tpi blade works well. Care should be taken not to compress the liners before gang-cutting them as this may spread some joints and produce unexpected results.



## B. Preparing the form

The form surface should be swept or blown clean. Debris or unevenness will transfer into the brick surface.

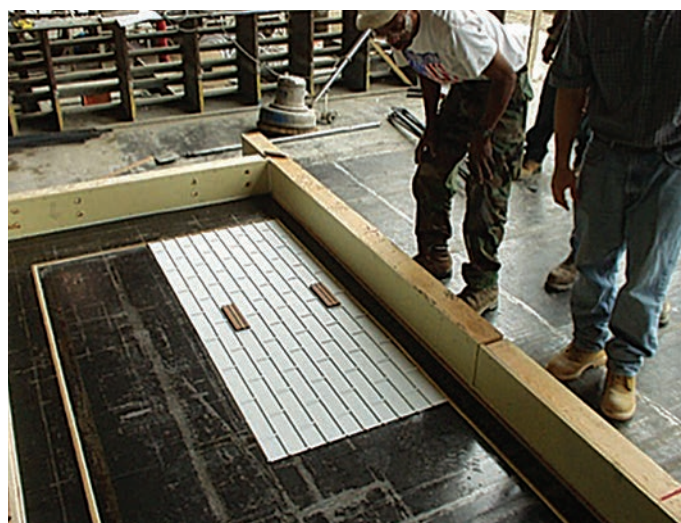
It is a good idea to use a base coat of bond breaker or release agent under the area where the VersaLiner® liners are placed. There is usually very little leakage of concrete through the VersaLiner® joints. However, some leakage is likely to occur at the edges.



Reference marks, which are sometimes called 'story lines', are a necessity for most jobs. These help keep the courses lined up to match adjacent panels and properly space brick in their designated areas. VersaLiner®, as with any brick template system, is prone to expand, contract, and in general display elastic tendencies when installed. Reference marks along the side rails and bottom of form give the installer a visual checkpoint to lay to. Brick tiles rarely move or shift, as long as they are properly placed, bounded with a fixed element such as rustication or form-edge, and care is taken during the concrete placement.



Adhering liners to the form or bed is generally unnecessary. The bounding term strip and edges of the form will hold the liner from moving laterally, and proper concrete placement and vibration will keep the brick and liner from rising. If the brick area is not bounded by some rustication or form element, then it may need to be secured to the form face through clips. Refer to section: VERSATILITY for more information.



To reduce the risk of liner movement, fix the liner to the formwork through double-sided tape, adhesives, staples, or nails (used with care).

## C. Applying VersaLiner® liner

Take care to note whether the first course of brick requires a full or half unit. It is desirable to match brick edges to those of the adjacent panels, both in alignment and spacing consistency. A spacer or 'full' brick should abut another like unit. The exception to this is at inside corner junctions, or overlaps, where it is irrelevant. Properly prepared shop drawings which are drawn transparently from the back of the panel, should display which brick to start with (e.g., half or full).



Full mortar joints are usually removed from the perimeters of the brick areas. This is easily accommodated by cutting or sawing the VersaLiner® liners prior to installation.



Each piece of running bond VersaLiner® liner has embossed plus (+) and minus (-) signs around its perimeter. The joints near the minus signs are slightly smaller in order to fit properly underneath the larger, plus joints. The difference, so minor it is hardly noticeable, enables the liners to adjoin without buckling.

Avoid walking on the liners before the brick is placed in them. Once brick is installed it can be walked on, however caution and care is advised in doing so.

### 3. Installing Brick Tiles



Measure and lay-out coursing lines. This is an important step. Where panels are adjacent with one another it is imperative that brick tiles align across their construction joints. Layout lines, often referred to as 'story lines', should be drawn or snapped periodically along the edges of the brick tile perimeter. The liners may be stretched or compressed manually to accommodate the varying conditions encountered at times. This flexibility must be considered when installing the brick tiles. When installing, it is wise to mark vertical story lines at 600mm increments (9 complete courses). Horizontally, 2400mm would be sufficient as there is less flexibility between liners in that direction.

Check to establish whether a particular course, (top for instance) should begin with a full or half brick. While this is not critical, it adds to the professional appearance of the finished product if bricks are properly matched, as the pattern crosses construction joints, e.g., a full brick adjacent to another full brick – and halves adjacent to halves. Well prepared shop drawings will have taken this into consideration.

**VersaLiner®**  
– patented single use liner



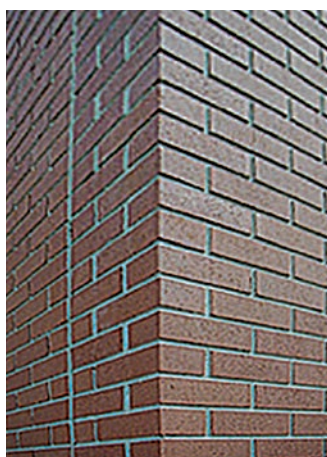
Be sure to install brick tiles face down in the form.



#### 4. Versatility

##### A. Corner Methodology

Corner, or return, brickwork can be easily installed with VersaLiner®. Return liners are available as foldable corner liners, or can be prepared on site from the standard liners. One or more of the mechanical methods of holding brick against the form will sandwich the liner at the top.



##### B. Brick Arches

Special liners are available that are customised for particular arch design. The liners are similar in material to the standard liner. They are used in much the same way. However, arched liners are more flexible and can be manipulated and customised. Similar to corner methodology, adhering the bricks to the liner and using double sided tape to adhere the liner to the formwork is recommended for brick arches. The minimum arch for InBrick panels needs to be 1.1m. Please consult PGH if this design is desired.



#### 5. Check Before Concreting

One of the most important procedures is to check the coursing frequently as the brick tile is being installed. Brick tiles may be on course at the top and bottom, but still vary in the center. This can be easily avoided by marking and referring to story lines on the edges of each form as the bricks are installed. Story poles are useful as well.

##### Walking On Brick

Prior to concrete placement, foot traffic over the installed brick tiles is often necessary. This can be done without incurring a great deal of damage to the brick tiles. Brick tiles are prone to breaking, or becoming dislodged if overstressed. If some care is taken to walk 'softly', 'set' reinforcing bars (not drop them), and not 'whip' strands while pulling them, then breakage may be kept to an acceptable minimum. These brick tiles should be immediately removed and replaced. Placers and vibrator operators should only step in the concrete when absolutely necessary and then only on top of the reinforcing.

#### 6. Concreting & Vibration

##### A. Placing Concrete

When placing concrete, care should be taken not to create currents with the concrete that could disturb the brick tiles. Placement should be done in such a way that there is little or no forceful impact of concrete onto the brick tiles. Ideally the discharge hose or trough should be approx. 150mm above the brick. It is also preferable to pour the concrete onto itself into a small 'buffer' pile and follow it across the brick to fill the bricked areas. This minimises the chance of brick lifting, or tilting. Never use vibration to move the concrete over embedded brick, and be careful when screeding not to drag heavy piles of concrete. The weight of the concrete



produces a sticky current over the back of the bricks that can easily dislodge them.



### B. Self Consolidating Concrete

Self consolidating, sometimes called 'self compacting' or 'self leveling' concrete, is by far the easiest to place. It requires little or no vibration, and rarely disturbs the brick tiles. One thing however that must be considered is that some of the same properties that give these cements their elastic properties also tend to inhibit them from attaining the 'feather edges' that otherwise surround each brick. To compensate for this, some mild vibration may be necessary. PGH highly recommends producing a mock-up panel as a way to find the method that will give you the best results.

### C. Vibration

Consolidating the concrete through vibration rarely causes brick tiles to become dislodged from the liner. Brick tiles will not 'float' into the concrete under normal conditions. However, excessive vibrating that causes segregation may affect both the brick tiles and joints.

If interior vibration is used it is best to insert the vibrator into the concrete perpendicularly to the panel. Do not lay the vibrator horizontal and drag it into, or along the surface of, the concrete. When the vibrator is properly inserted the energy affects a broader area and does not induce strong concentrated currents that may tilt brick. Care should of course be taken not to touch the brick tiles with the head of the vibrator. A tennis ball or tape on the head is handy for marking the maximum depth of insertion.

When exterior vibration is used it should be done sparingly. Never use the vibration to level the concrete, instead utilise hoes or screeds. High frequency vibration is preferred to high impact shock tables. Whatever method is used it is advisable to try it on the mock-up test panel first.

### D. Slump of Concrete

It is not necessary to adjust the slump from the normal setting in order to accommodate the brick tiles. The same batch design that gives satisfactory results to the smooth casting surfaces will work for the brick tiles in VersaLiner® liner.

## 7. Cleaning the Bricked Panel (see also: Protective coatings, Section IV.C.)

Clean concrete residue from the face of the brick once concrete is properly cured. Protective elements on the face of the brick make cleaning much easier. Wax, brick release, or retarders are some of the materials used to diminish the bond between the brick's face and leakage. In most cases a powerful hot water pressure washer is recommended. The minimum recommended output is 82 degrees C temperature w/ 1500psi pressure.

It is important to consider the cleaning method most suited for each project. The cleaning operation is often the most overlooked component of the embedded brick system, and can be the most frustrating. Inadequate cleaning machinery or protective coatings on the brick may drastically increase cleaning time. It is important to realise that there will be a substantial amount of water involved as well.

This cleaning equipment should be tested on the sample panel prior to the cleaning on site. Care should be taken to not over clean the brick after the wax is cleaned from the finished panel.



## 05 Tolerance

### Precast Concrete Wall & Joints

Concrete substrates should be designed and constructed in accordance with AS 3600 and AS 3850.

Please consult with your project designer(s), ensuring compliance to your state's Guide to Standards and Tolerances Guide, or the requirements of the National Construction Code (NCC).

### Masonry Tiles

Bricks for InBrick are made in accordance with AS 4455.

In transportation, breakage of brick tiles may occur. This should be identified at the time of delivery of the product. Brick tiles are defective if they are cracked or pitted at handover. Please replace defective brick tiles before commencing installation.

Unlike conventional masonry walls, the tolerance for InBrick panels are not required to be in compliance with the requirements under AS 3700, though this is recommended.

## 06 Storage and Handling / Usage Restrictions

### A. Storage of Brick Tile

Brick tile is generally packed in cartons, put on pallets and wrapped in protective plastic for transportation. The brick itself is relatively impervious to the elements. However, the protective coatings that applied to the face of the brick may weather or age. In the case of wax coatings, which are recommended for the VersaLiner® system, they will begin to melt and wick into the brick at temperatures around 55 degrees C. If this happens, its effectiveness as a bond-breaker and release agent is diminished.

It is advisable to store the brick tiles indoors and out of the weather.

### B. VersaLiner® Storage

VersaLiner® is relatively impervious to hot and cold weather conditions. However, prolonged exposure to direct sunlight will damage the liners. It is recommended to store them in the packaging provided until they are ready for use. Avoid top-loading, or crushing them in their packaging. While they may remain useable, the resulting distortion may make them more time consuming to install.

## 07 Maintenance

For ongoing maintenance cleaning of InBrick panels, refer to the PGH Brick Cleaning Guides and PGH Technical Document [available here](#)

## 08 Warranty

### A. Brick Tile Colour

PGH Bricks & Pavers (PGH) warrants that the bricks manufactured and supplied to the Builder/Installer, or to the Consumer, on or after 1 May 2015 for use in a wall cladding application (Intended Purpose), which are of the appropriate grade for their intended purpose and are laid in accordance with the relevant building codes, regulations and Australian standards, will remain fit for purpose and colourfast (will not fade or change colour / shape), for a period of 25 years

from the date of this warranty, or if not specified, 25 years from the date of purchase. This warranty is subject to the terms, conditions and exclusions set out below. All of the conditions and requirements stated in this warranty must be met in order to make a claim under this warranty.

[Click here](#) to refer to warranty.

## 09 Reference

AS 4312 - Atmospheric Corrosivity Zones in Australia

AS 3600 - Concrete Structures

AS 3700 - Masonry Structures

AS 3985 - Tilt-up Concrete Construction

AS/NZS 4455 - Masonry Units, Pavers, Flags and Segment Retaining Wall Units

AS/NZS 4456 - Masonry units, Segmental Pavers and Flags - Methods of Test

NZS 3101 - Concrete Structure Standard

NCC - National Construction Code

NZBC - New Zealand Building Code

NATA - National Association of Testing Authorities



## 10 Case Study



### Armstrong Creek Town Centre

A newly completed shopping centre just outside of Geelong shows the flexibility and beauty of the InBrick system

On a commercial building site, time is money, which is why the choice of InBrick was such a game changer for the builders of the new Armstrong Creek Town Centre, just outside of Geelong in Victoria.

PGH Bricks & Pavers' InBrick is an inlay brick system that embeds genuine clay brick facings into precast concrete panels, providing the look and feel of brick to precast concrete panels.

Low in maintenance, extremely safe and much faster to construct, it's a great way to get the durable aesthetic of brick in a shorter timeframe.

Georgie Laverick of Hutchinsons Builders was the project engineer on the Armstrong Creek build and says that the InBrick product was the perfect choice for the project.

Architects ClarkeHopkinsClarke (CHC) wanted a premium look for the centre, which is a 1400sqm shopping and community hub for a new suburb. InBrick presented the opportunity to achieve a beautiful brick façade and unlock the potential of the great range of PGH bricks in commercial construction.

"The developer really wanted brick," explains Laverick. "They wanted a light brick, a dark brick and a smooth black brick, with the darker brick to have more of a tactile, porous feel to it. So what was specified really hit the nail on the head with regards to their brief."

InBrick precast panels can be for structural or non-structural purposes, depending on the building type and application and don't need a scaffold on site. Everything is prefabricated off site and craned into the project, allowing it to fit in with the construction schedule.

"It is assumed that a lot of people will come to the space and because it's a town centre, it's supposed to be the heart of town, where everyone goes. This was an important project aesthetically and architecturally to get right."

While this is the first time that Hutchinsons has used InBrick, the product impressed Laverick. "It is a good material or methodology to adopt," she says. "From a program point of view, it meant we could bring a lot of things forward because we're not installing precast and then cladding it in the material."

Another bonus was that because InBrick uses real bricks from the PGH Bricks & Pavers range, Hutchinsons were able to get the bricks individually and apply them in circumstances where there was block work instead of precast panelling, for areas such as below and above window sills and other details.

Indeed, unlike similar products on the market, InBrick uses real bricks and most of the end users – in this case shoppers in the town centre – would not be able to tell that it wasn't traditional brickwork.

The InBrick system was installed by precaster, Statewide Panels. Owner Dale Baldi of Statewide Panels said this was also their first project with InBrick, but felt the system met the brief.

"Armstrong Creek was perfect for this project, with a minimal timeline" he explained. "Precast can be made and erected in half the time a brick layer would be on site. It is ideal for anything with height to the building where access is a big issue."

"Install is very easy, quick and very time-wise," he adds.

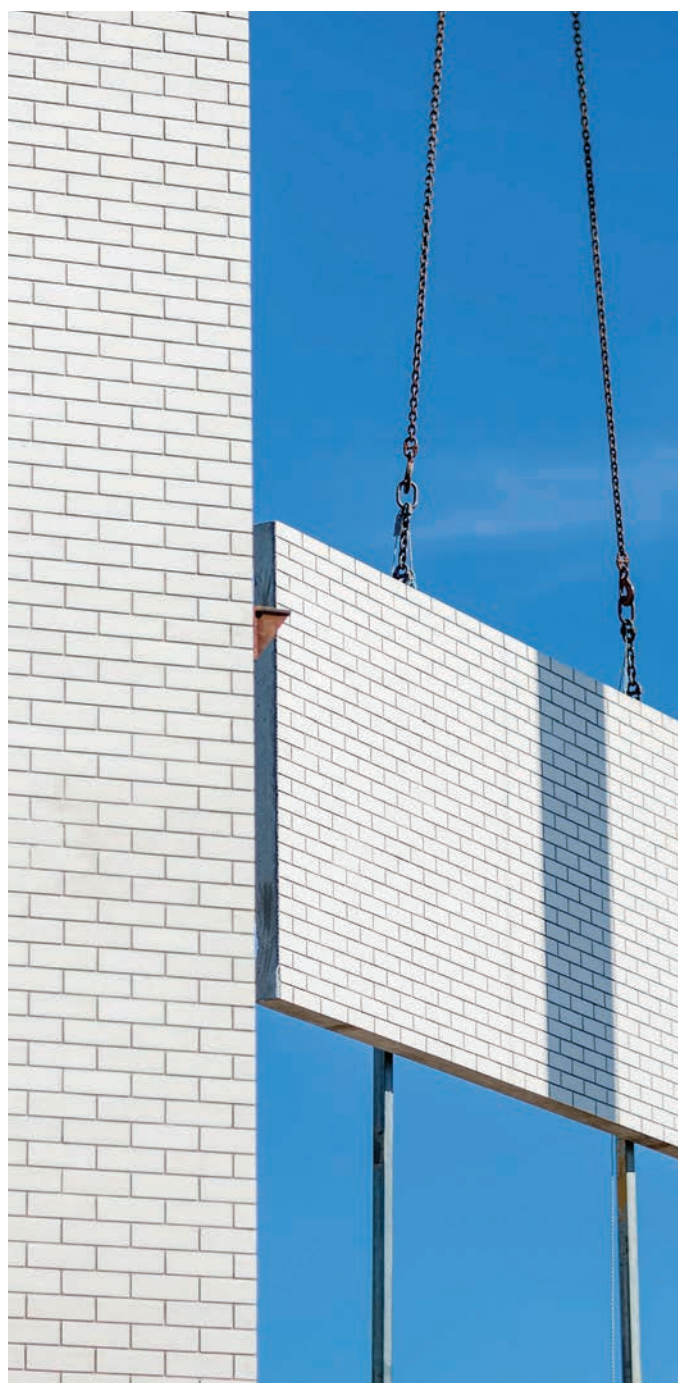
"We were standing 20-25 precast panels per day so a whole front of a building would be up within the week."

"The developer wanted the brick finish but timeline was critical. With InBrick, structurally you still keep the precast integrity and steel support with a brick finish externally. The engineer uses the panels as a support to the entire roof and steel work, second levels, steel supports, external awnings, etc, so this keeps the structural integrity of the building while giving an architectural finish. This system makes it easy to keep both engineer and architect happy and the client pleased with the finish."

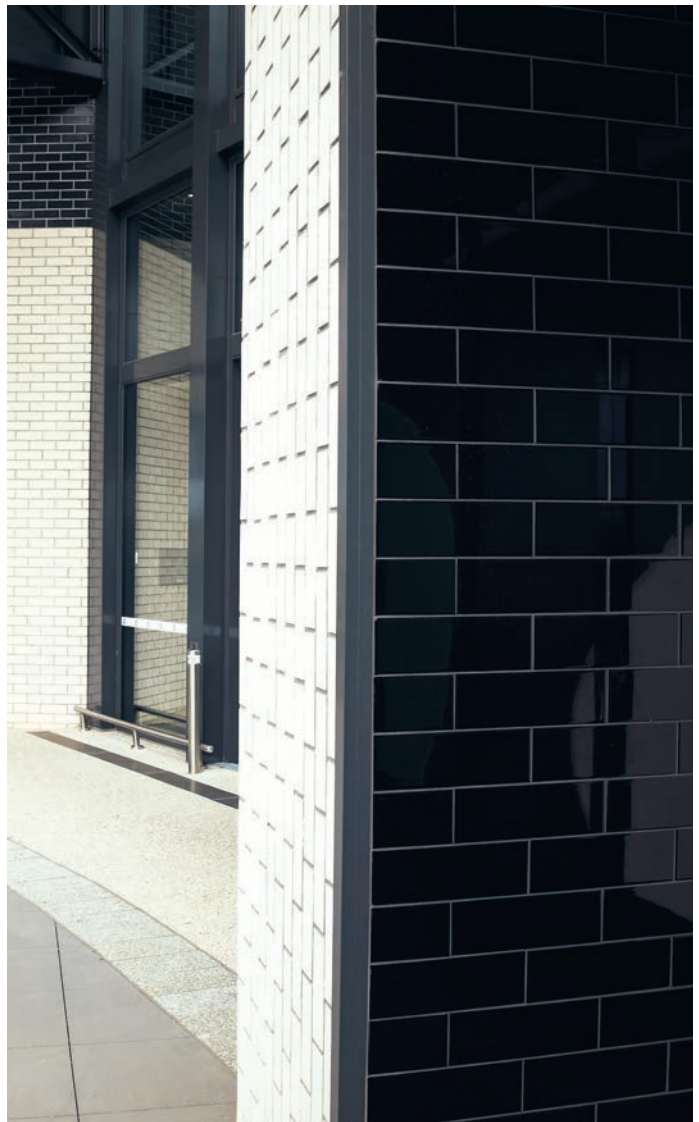
The flexibility of the InBrick liner is also a bonus, allowing the builder to create brick profiles that might otherwise be only within the reach of very experienced and in-demand bricklayers. The liners allow the system to change coursing,

do curves or archways – all the complex features that can be undertaken by a very skilled traditional bricklayer, but created quickly by a precaster using InBrick.

"Brick looks like brick," says Baldi. "The standard person shopping in Coles would not really take too much notice and just think it was a brickie's job, but very neat. If you went with another product with a brick pattern, it comes out with the brick finish, but you could tell it's a precast painted pattern. Brick especially feels different. Other products look like you have tried to keep the build on a tight budget and while they may look like brick, they will feel like concrete."











PGH Bricks & Pavers is part of CSR Limited, the name behind some of Australia and New Zealand's most trusted building industry brands, including Gyprock™ plasterboard, Bradford™ insulation, Monier™ roof tiles and Viridian™ glass.

\* Images used show the possibilities of using InBrick in the design and construction of buildings and are not actual buildings built using InBrick.

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