

# GENUINE CLAY BRICK



A Home Owner's Guide



**CLAY BRICK**  
Association of Canada

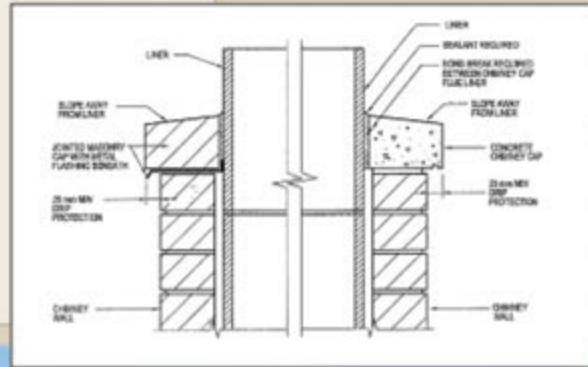
[claybrick.ca](http://claybrick.ca)

## GENUINE CLAY BRICK...The One That Will Last!

The clay brick exterior of your house will stand the test of time if properly designed, installed and maintained. The main source of deterioration of all building products is moisture. Excessive moisture exposure over time can cause staining, mold and mildew growth, leakage and spalling due to ice expansion upon freezing. Many of the design and installation requirements found in the **National Building Code** (NBC) involve practices to ensure the moisture exposure is minimized and normal moisture loadings are handled in a safe way. Some of the most basic elements from the NBC are referenced in this guide in **bold**.

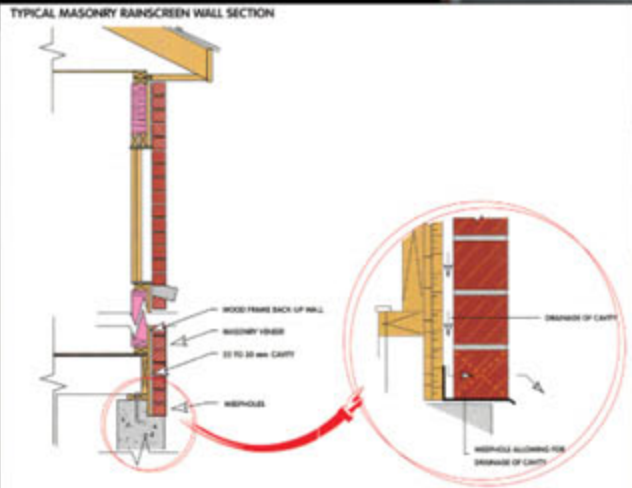
### Chimney Design:

The chimney is completely exposed to the environment and care must be taken to ensure that the proper water management details are used to divert water away from the brick surface. Typical faults include insufficient overhang or missing drip edge to divert water from the brick surface, caps made of brick where the mortar joints leak and cause excessive moisture penetration into the masonry below and no flashing below the cap as outlined in **Clause 9.214.6**.



## Behind the Brick:

Between the brick and the back up wall is a 25 mm air cavity as detailed in **Clause 9.20.6.4. 2**. The air (drainage) cavity is an integral part of the masonry Rainscreen wall system. Any water that leaks between the brick and the mortar can drain down the back of the wall, collect in the flashing and drain out the weepholes as outlined in **9.20.13.3. Location of Flashing and 9.20.13.8. Required Weep Holes**. As well the weepholes and air cavity are important as they provide venting that help dry the brick veneer. Other important design requirements are a vapour barrier and an air barrier that prevent moist warm air from leaving the house and condensing on the back of the cold brick in the winter time. This requirement can be found in clauses **9.25.3 Air Barrier Systems and 9.25.4. Vapour Barriers**.



**Window / Door Maintenance:**

Brick masonry work around windows and doors needs special care. Caulking joints around these areas must be inspected on a regular basis, because elastomeric caulking compounds tend to deteriorate over time. Also, the caulking must be replaced when necessary to avoid excess moisture penetration in the wall.





### Colour and Texture:

Colour and texture variation within any production run should be recognized as an inherent part of the manufacturing process. It is not possible to include these variations in normal sampling. Different types of mortar joints do affect the overall look of the brickwork and can lead to a perceived colour difference.

### Minor Imperfections:

Manufacturers endeavour to ensure that every brick is in a perfect condition. Unfortunately, due to the nature of the industry, the brick may have some minor imperfections such as chips or hairline cracks. Chips can occur during handling, transportation and installation. Hairline cracks can occur during the firing process where the brick is heated to temperatures in excess of 1000°C. Neither of these imperfections affect the integrity or durability of the brick or the brickwork. The CSA standard makes allowance for these. The rule is that brickwork should be judged from a distance of 6.1 m to assess the overall aesthetics of the masonry.

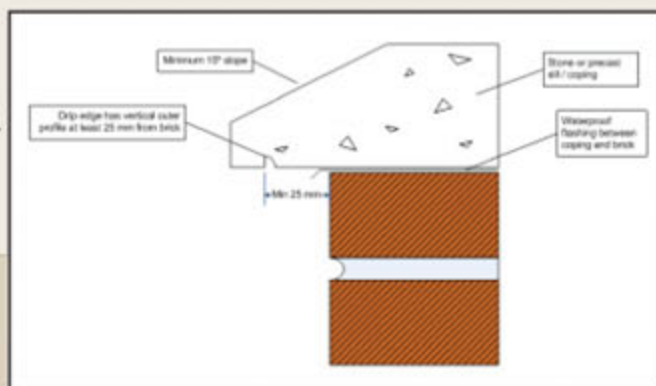
### Efflorescence:

Efflorescence is a white powdery deposit of water soluble salts sometimes found on the brick surface. Efflorescence is difficult to predict, but is normally associated with wet and cold conditions, i.e. winter or spring construction. Efflorescence is not harmful to the brick masonry. Once the moisture within the building materials used in construction dries out to ambient humidity level, no further efflorescence should be expected. Efflorescence salts are water soluble and should disappear of their own accord with normal weathering. If more immediate removal is required, efflorescence salts can be removed by dry brushing or by using clean water and a stiff brush.

### Keeping Water Off:

Anywhere there is a transition from a horizontal element to the wall (like a roof or top of garden wall) there is a need for moisture control detailing. The most exposed elements in a wall are sills and wall coping. Rain and snow can accumulate and melt there. As a result, these elements have a large amount of moisture loading so proper detailing is critical. It is recommended that natural stone or precast sill/coping be used as the mortar joint in a brick sill/coping will lead to higher moisture penetration. This element should be sloped at a minimum of 15° to promote drainage and have a drip edge at least 25mm from the wall to help water shed from the wall. As well, there must be a waterproof flashing below the sill/coping to prevent the moisture from being transmitted to the brick veneer below as outlined in 9.20.13.3. This is shown below.

The roof / wall intersection is another major source of moisture loading if left unchecked. Eavestroughs must be inspected regularly for blockage and connection integrity. Overflowing eaves or disconnected downspouts can cause localized saturation of the masonry veneer leading to staining and deterioration.



### Water Repellents:

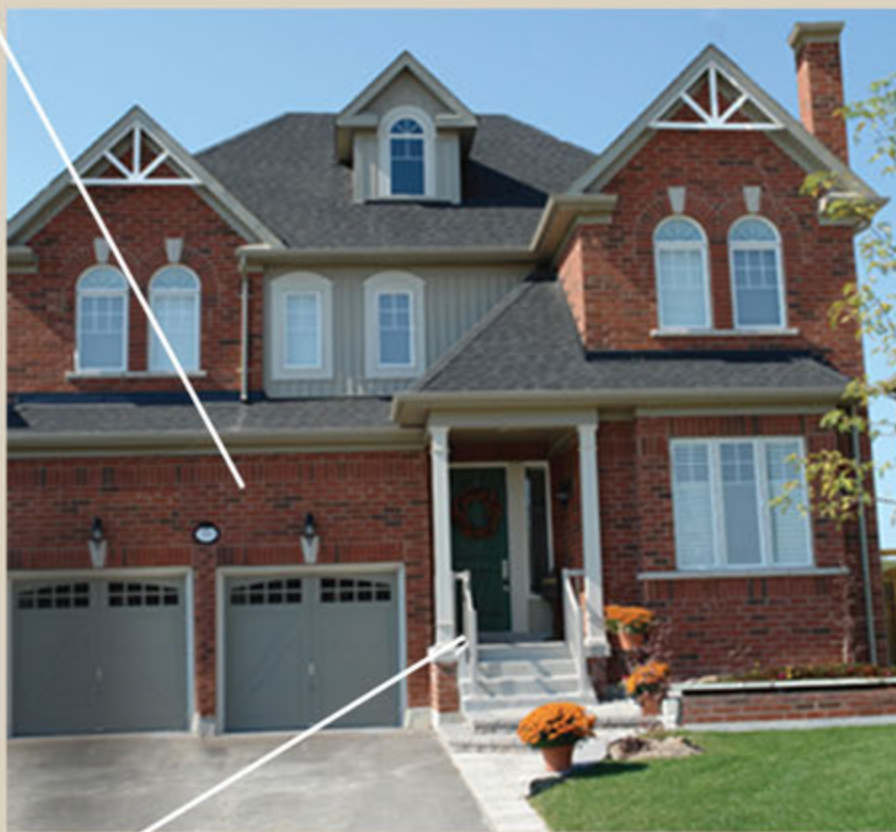
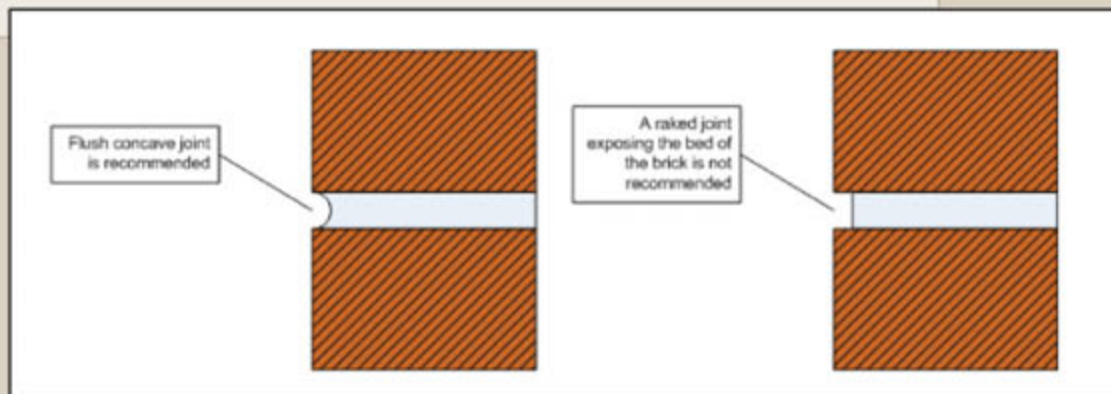
Many people think that use of a clear water repellent will keep water off the brick and lower the moisture levels in the wall. This is not always the case. These water repellents can sometimes retard the drying process of the wall and actually lead to higher moisture levels and subsequent severe damage. Most of the water entering the wall comes through mortar joints, improper copings or sills, moisture from inside the house due to air leakage and rising damp from poor detailing at grade. A water repellent will not seal the cracks in the mortar joints nor will it stop the moisture from penetrating the masonry from other sources. There is no substitute for proper masonry design and detailing. Manufacturers will not warrant any product that has been treated with any surface coating.

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## Mortar Joints:

The amount of water entering the wall is directly impacted by the quality and profile of the mortar joints. Mortar joints should be filled through the depth of the brick and use a profile that is flush with the bed of the brick such as a concave profile shown below. Joint profiles that expose the bed of the brick are not as weatherproof and should be avoided. Mortar joints should be checked annually for signs of cracks. If cracks are observed, the source of the cracking should be identified before repointing of the mortar is done.



## Brick / Porch or Stair Intersection:

As mentioned in the Section of Brick at Grade, it is important that brickwork be kept a minimum of 150 mm above grade. The addition of porches, stairs and decks are usually done after the veneer is completed. Unfortunately, they are often installed at a level that reduces the height between the brick and the grade, sometimes even covering the weepholes. Not only does this compromise the durability of the brick, but by covering the weepholes, it interferes with the important drainage function of the masonry Rainscreen wall system, which can result in moisture being forced back into the house, typically in the basement. The following rules should be followed:

- Brick should be kept above grade
- The landscaping should slope away from the house and the brickwork
- If a deck is built adjacent to the brickwork, a gap of 30 mm between the two is recommended to allow for the drainage of water and the drying of the brickwork

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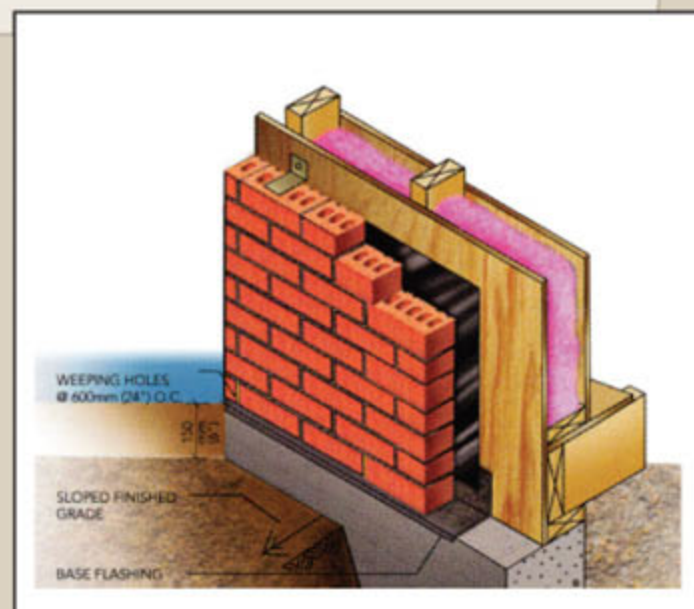


## Brick at Grade:

There are several design and installation requirements to prevent ground moisture from weeping up the foundation into the veneer and saturating it over time. According to **Clause 9.15.4.6** of the building code and good building practice, brick veneer is to be off grade by at least 150 mm. This keeps the brick away from the moisture laden soil and snow. Waterproof flashing is required between the foundation that is in contact with the earth and the brick veneer to keep the moisture from wicking from the foundation into the veneer. The correct detailing is shown below:

## Summary:

*This guide shows homeowners the main facets of moisture control in brick masonry construction. The information contained herein is not purported to be exhaustive and must be used in conjunction with a competent understanding of masonry construction and local building codes. CBAC is not responsible for decisions made based on this information. It remains the responsibility of the architect, builder and mason to ensure proper design, detailing and installation practices are used.*





## Staining Brick

### 1) The History of Tinting

The concept of staining a brick (or other masonry product) has existed for hundreds of years. Attempting to match old masonry to new masonry has throughout history produced some unusual solutions dating back to the 18th century in England.

### 2) How does it work?

The tints are comprised of a combination of pigments and an aqueous based chemical solution to lighten, darken or completely change the color of the masonry unit to best match your project's original or required color. This tinting formulation has been chosen as it allows the masonry to "breathe" in exactly the same manner as the untreated surfaces and therefore the ongoing natural weathering of the building is unaffected.

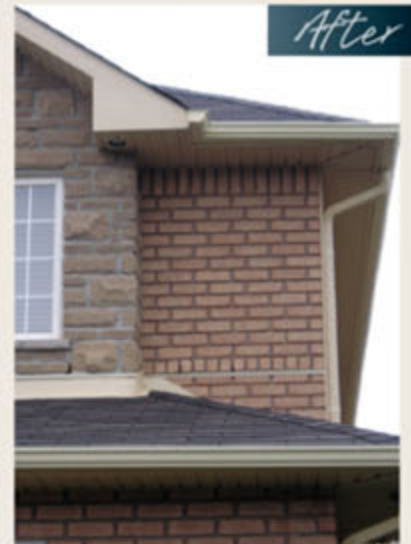
### 3) Will the color last over time?

The tinting process is not a surface treatment, but rather penetrates into the substrate and upon curing creates a durable bond that permanently locks in the color. The fixing agent literally petrifies within the substrate rendering them inseparable. The tints are light fast, ultra violet resistant and unaffected by frost.

### 4) Will staining clay brick affect the structural integrity of clay brick?

No. The masonry stain used is specifically developed for this application and will not affect the structural integrity of clay brick. The properties of the stain offer the following advantages:

- Environmentally friendly, non-toxic applications
- High durability (especially on masonry products)
- Lightfast
- Breathable finish
- Acid rain resistance
- Antifungal properties



# Make the right choice!

## A CHOICE OF SAFETY

A clay brick home is one of the safest choices for your family and valuables. Clay bricks are kiln-fired, a process that makes them naturally fire-retardant. What's more, the natural density of clay acts as a barrier against high winds, hail, rain, snow, wind driven debris and bullets effectively weather-proofing your home.

## A CHOICE OF BEAUTY

Using clay brick for your home guarantees a lifetime of beauty. Never going out of style, clay brick actually looks better with age. Also, clay brick offers countless design possibilities. With a full range of colors and textures, you can achieve the look you want for your dream home.

## A CHOICE OF QUALITY

Clay brick manufacturing has reached high levels of sophistication, yielding consistently high quality. Our genuine burned clay bricks meet or exceed the CSA A82 EG exterior grade for severe weathering. For enduring quality and everlasting value, there is simply no alternative to brick.

## A CHOICE OF SAVINGS

Using clay brick makes sound economic sense. By maintaining a consistent thermal transfer rate, brick keeps your home warm in winter and cool in summer, saving you money all year round. Also, clay brick is a great investment, as it increases "curb appeal" and enhances the resale value of your home.



## Going Green with Brick

It's as old as history itself. It's natural, abundant, recyclable and extremely durable. It's manufacturing is cost-efficient in its use of energy. It generates near zero waste. And it's beautiful, versatile, fire-retardant, maintenance-free and all natural. It's clay brick, the most environment friendly cladding material of all building cladding materials. From an environmental standpoint, building with clay brick reduces the impact of natural resource consumption. Numerous studies have shown that brick enhances occupants' comfort and health. Clay brick reduces the strain on local infrastructure by reducing demand for landfills, water supply, storm water management and transportation of materials.

## FAQ's

**Q:** Why do some brick have the appearance that the brick was tumbled?

**A:** Some architectural designs prefer the look of an old historical brick that was hand made. To accommodate these specific designs, the ends and edges of the brick are purposely distressed to give the appearance of a hand made brick.

**Q:** Does tumbled brick have an effect on the mortar joint itself?

**A:** Visually, the mortar joint may appear to be larger than that required by regional codes. However, the thicker mortar joints are only seen at the surface of the wall and the actual depth of the brick allows the mortar joint to be installed according to code.

*When the brick headers are separated by a standard mortar joint distance of 10 mm, the edge of the face of the brick could appear to be separated by a maximum of 25 mm when the corner texture is fully filled in. This will lead to the appearance of thick joints at the face, while the actual mortar joint is approximately 15 mm thinner.*



Built to Last





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