

## Technical Bulletin – Brick Masonry Details

Proper detailing of brick masonry is a combination of aesthetics and physical properties. Details should result in a structure which is pleasing to the eye, performs well over its lifetime, and most importantly, manages water infiltration.

It is possible to have a successful detail while compromising either the aesthetic value or the economic considerations, but it is impossible to have a successful detail if the performance considerations are compromised.

Both cored and un-cored brick are commonly used in masonry detailing, and the properties of each should be considered to determine which is best for the job.

### Detail Definitions

**Sill:** The prime function of a sill is to channel water away from the building. The sill may consist of a single unit or multiple units; it may be built in place or prefabricated; and it may be constructed of various materials.

**Cap & Coping:** The definitions for cap and coping are entirely dependent upon which dictionary or glossary is used as a reference. In addition, there are other terms which are used interchangeably with them, such as water table, canting strip, and offset. For the purpose of this Tech Bulletin, the word "coping" applies to the covering at the top of a wall, and the term "cap" refers to a covering within the height of the wall, normally where there is a change in wall thickness.

**Corbel & Racking:** A corbel is defined as a shelf or ledge formed by projecting successive courses of masonry out from the face of the wall. Racking is defined as masonry in which successive courses are stepped back from the face of the wall.

**Soffit:** Detailing of soffits for brick masonry requires special considerations. The primary function of a brick masonry soffit is to enclose the building while providing an aesthetically pleasing appearance.

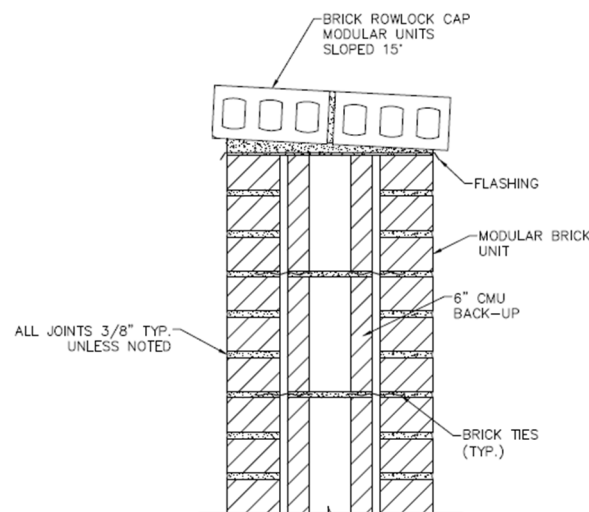
### Design Considerations

**Whenever possible, cored units should be used as opposed to un-cored solid units.**

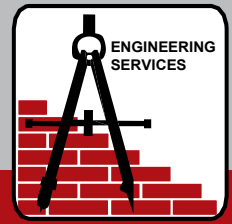
**Color:** The bed of solid un-cored brick is not finished giving it a distinctly different appearance than the face of the brick. This is often an issue with un-cored brick and can pose aesthetic issues with the variation in color. Un-cored brick tends to be laid with the bed exposed due to the absence of core holes.

**Interlocking (Bond):** The bond between brick, achieved by mortar joints, is vitally important to all masonry. Details are no different. Core holes enhance interlocking as the mortar can penetrate the cores and increase the overall bond. This is especially important for copings.

**Drainage:** Details should be designed to shed water. For caps, copings, and sills this is accomplished by incorporating a slope on the finished surface. This slope should be a minimum of 15 degrees from horizontal. For sills, another rule of thumb is that the sill should drop one inch vertically from back to front. Details without slope allow water to accumulate and sit on the horizontal flat faces of brick. Over time this water may migrate into and saturate the masonry causing issues.



Masonry wall with cored brick cap



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**Coring:** Brick coring helps facilitate the manufacturing process by enabling better drying and allowing more heat into the body of the brick. This results in better firing and is another reason cored units are preferred over un-cored solid units.

### Detailing

In addition to proper slope to shed water, details should be designed to eliminate exposed core holes. The most common method to accomplish this is with the use of miters at corners and termination of caps. See photos below for successful examples of mitering.



### Paving Applications

In no instance should un-cored solid units be used for paving applications. Paving brick adhere to a separate set of standards. Only units manufactured in accordance with ASTM C902 should be used in pedestrian and light traffic paving applications.