Affordable Masonry Detailing

Introduction

Brick

Brick is made by molding blobs of clay into cubes and then firing the cubes into weather-resistant, rock-hard construction modules. Bricks are typically small, easily handled bits of fired clay held together with a cementitious paste.

Concrete Block

Concrete block units are made by forcing a paste of cement, sand and water into molds. Once the blocks are unmolded, they are steam cured until the concrete hardens. Blocks are larger and take less labor to set than bricks. Because they are about 50% solid, concrete blocks are lighter than other masonry products. The core holes are also an ideal place to run lines of steel reinforcing and grout. This steel reinforcing greatly adds to the strength of tall, thin walls.

Stone

Stone is a naturally occurring material that is quarried and cut to size rather than molded. The naturally occurring flaws and fault lines that appear in the stone add to its natural beauty. They also define planes of weakness which can fail prematurely. Stone is the most expensive masonry choice so it is usually installed on high-end buildings like cathedrals or civic structures which are expected to have a very long life span. There are literally hundreds of kinds of stone. Each has a different color, texture and strength. This wide range of values makes it difficult to find definitive information about handling and detailing stone.

Barrier Walls

Up until about 1950, most masonry walls were built thick and solid. They were constructed of several wythes (layers) of stone or brick. This thick, dense construction was very forgiving of temperature changes. It was also thick enough to resist moisture penetration. These historic walls were often deeply textured, allowing shadow lines to add interest to the wall. These heavy, thick barrier-type walls worked well but they were expensive.

Cavity Walls

Modern cavity walls are cheaper, more quickly built and, if constructed correctly, more resistant to water penetration than old-fashioned massive barrier walls. Cavity walls are built as two parallel walls separated by a narrow slot of air. The exterior skin of the wall (usually about 4” deep) is the decorative, weather-resisting layer of the wall. The interior layer of the wall can be built of poured-in-place concrete, concrete block or studs with insulation and sheathing. This interior layer provides the structural strength of the wall.

The narrow air space serves as a drainage channel. Any water that penetrates the exterior wythe of the wall drains down the cavity and is directed harmlessly to the exterior face of the wall through the flashing and weep holes at the base of the cavity. It is important to keep this air space clean and free of mortar. Blobs of dropped mortar can block the path to the weep holes. If the weep holes cannot drain away trapped moisture, the bottom of the cavity can turn into a little masonry bathtub. Not a good idea.

Affordable Detailing Suggestions

Keep the Masonry Rectangular

Brick and blocks come in rectilinear pieces and are easiest to install in straight walls with 90-degree corners. We can build curves and odd angles, but this is more expensive. If you want to maximize your budget, let the masonry be square and do the odd angles and swooping curves with other materials.

Lay the Masonry Out in Modular Dimensions

Both brick and block come in repeatable, modular units. The wall will look best, weather well and be most economical if you lay the wall out so the doors and windows are spaced at modular dimensions in the wall. This means that the mason can build the infill wall with full length and half-length bricks and blocks. Use nominal dimensions for this layout. For instance, if you are using 8" nominal brick (7-5/8" actual length), you should call for door and window openings that can be divided by 4".

For a simpler approach, you do not have to "course the building" if you do not interrupt the panel of brick with cuts for doors and windows. Using high clerestory windows or a low wainscot of brick avoids this coordination of materials.

Vary the Scale of the Masonry to Bring Your Design to Life

Brick comes in many different sizes. Concrete block can also be manufactured in varying modules. Natural stone can obviously be cut to any size you need. A designer can use this scale shift to create a rich and subtle patchwork of color and texture.

A work or warning: Do not use a piece of brick, block or stone that is larger than 12" x 24" or 16" x 16". Pieces larger than these limits need to be installed with heavy-gauge metal stone anchors and sealant instead of mortar.

Let the Changes in Material Define the Masses of the Building

Try to see your building in three dimensions. Architects who spend too much time looking at flat elevations are often disappointed when they see the finished building "in the round". If you change materials arbitrarily at an outside corner, it emphasizes the thin quality of the masonry veneer and makes the building look cheap. Carry the masonry around the corner and change to another material where the masses of the building change plane. This will help define your building as a complex, three-dimensional object.

Don't forget to install backer rod and sealant where you change materials. The soft joint allows the different materials to move independently and keeps water out of your building.

Use Earth-toned Colors

Most bricks get their color from the color of the clay used to make the brick. Although there are many shades and textures of brick, most are earth tones. You can order brick which has a ceramic glaze fired onto the face of the brick. This glazed finish can be any color you choose, but they are pricey. Glazed bricks cost about ten times as much as standard bricks.

Concrete block is naturally gray but integral colorants can be added to the mix during manufacture to tint the block any of a hundred shades. Adding colorant raises the price of the block by 30 to 50 percent. Most of these integral colorants are earth-toned. The designer can specify a decorative finish on the block—smooth faced, ground faced, split faced, fluted or scored. You can also get block with a shiny, glazed finish on one or two faces. As with brick, glazed finishes are expensive.

Stone, obviously, gets its color from the earth. You can, however, change its appearance by changing the texture of the stone. Stone finishes range from smooth, shiny polished surfaces to honed (matte), flamed (lightly textured) and deeply rusticated textures.

Use Expensive Detailing Sparingly

Don't avoid expensive detailing entirely. Just be judicious about where you use it. An arch over the front door or a deeply shadowed corbel at the top of the chimney might not be as expensive as you might think because they are limited in scope. Both cover a relatively small portion of the building but pack a big decorative punch.

Surprising Facts about Masonry Pricing

1. Thin bricks cost more than standard bricks. Use thin brick only when the weight of the wall is an issue (dormers, interior fireplaces, chimneys).
2. Seventy percent of masonry cost goes to labor. Thirty percent goes to material. If you are trying to save money, devise a straight-forward installation rather than giving up material you love.
3. Used brick costs more than new brick. If you want the aged look, specify "tumbled brick".
4. Piers, pilasters and tall, thin strips of masonry cost about three times as much to install as standard wall installation. This work must be installed with a level and cannot utilize the time-saving trick of "laying to the level line".
5. Complex, deep corbels are expensive while a simple ¾" jog costs almost nothing. Corbelled shadow lines show up best if the masonry units are smooth, monolithic and light in color.

Masonry construction is designed to last a long time. It is well worth the effort to build it right. If you ever have any questions about masonry construction, call the Rocky Mountain Masonry Institute for technical support. We are here to help you.

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