



**Construction Best
Practices**



CONCRETE PRODUCTS GROUP

INNOVATIVE CONCRETE MASONRY SYSTEMS

Construction Best Practices Check List for Spec-Brik® Projects

Storage and Handling of Masonry Materials

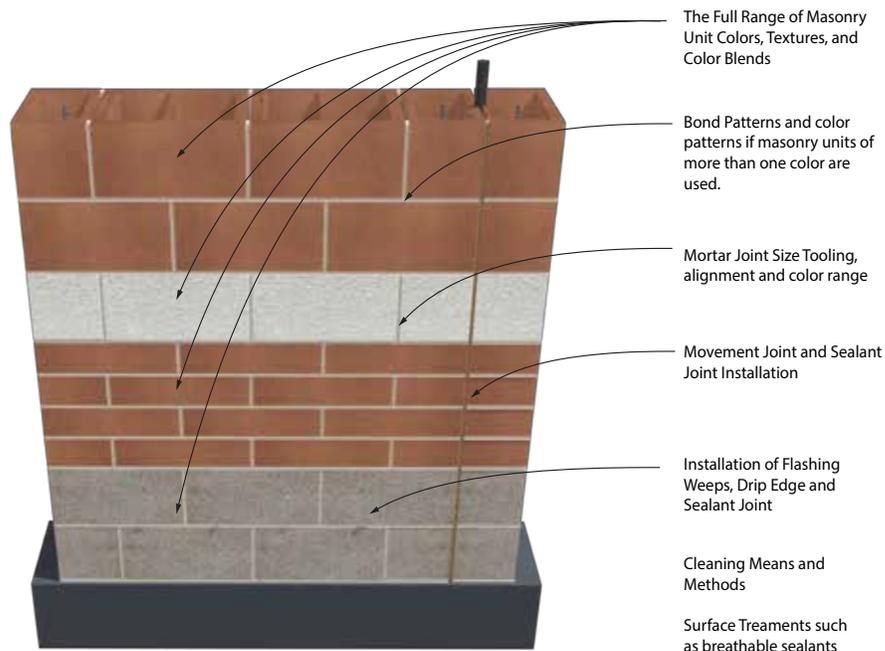
- **Minimize on-site storage time.**
Concrete Masonry Units should be laid in the wall as soon as possible after delivery. Staging deliveries so that masonry materials are not left unused on the job site for prolonged periods will help avoid discoloration and/or staining due to site conditions or prolonged weathering on the pallet.
- **Cover and Protect the Units Prior to Installation.**
Concrete Masonry Units should be stored on pallets and covered at all times prior to installation to prevent exposure to rain, snow or job site staining from mud or other materials. This will help prevent the formation of efflorescence. Once the units are removed from covered storage, they should not be exposed to water or soil.



Materials should be stored on pallets and protected from the elements while stored on site

Installation of Masonry Units

- **Job Site Sample Panel**
Always Construct and Use a Job Site Sample Panel. The Sample Panel provides the basis for acceptance of the finished wall. It should demonstrate all masonry materials and features to be used on the project, the mortar color(s), flashing and weep installation as well as the cleaning method and sealing treatment. During the pre-construction meeting, the parties should go over how the sample panel will be constructed and the approval process for both the panel and the finished walls. The use of a sample panel is a powerful tool to avoid issues.



- **Protect the Walls from Rain During Construction**

Cover all uncapped masonry walls or exposed masonry structures to protect them during breaks in construction and/or rainfall. The cause of efflorescence in masonry walls is exposure to water, which results in the water leaching salts from the masonry, forming a white stain on the walls. Leaving uncapped walls unprotected is one of the leading causes of efflorescence since the cavities in the wall collect rainwater. This can easily be avoided by tarping the walls so that they are protected from rain.



Wall top tarped to protect against rain during a break in construction.



A failure to protect the exposed wall tops from rain during construction can lead to the wall's empty cores filling with water, which as it drains out of the wall leaches salts from the concrete which results in efflorescence forming on the exterior. This makes cleaning the wall much more difficult

- **Use a Suitable Integral Water Repellent in the Mortar.**

SPEC-BRIK units contain integral water repellent admixture, and require the use of a chemically matched integral water repellent admixture in the mortar mix, which should be found in the job specification. If you need additional guidance on compatible mortar admixtures, consult your CPG manufacturer.



Integral Water Repellent and Post-Applied Sealant Provide Excellent Weather Protection



BlockFlash® Flashing and Weep System at ungrouted cores above a bond beam

- **Flashing and Weeps**

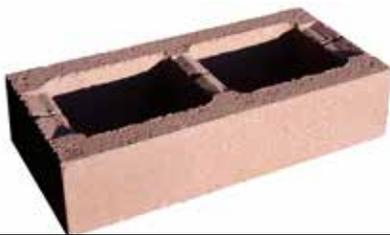
For partially grouted walls, a suitable flashing and weep system should be placed at any interruptions in the drainage path in the wall's cores, including foundation bond beams, sills, lintels, bond beams at load bearing areas such as floors or roofs or bond beams at other locations. For fully grouted walls, flashing should be used at any locations where water may collect on the exterior of the wall and potentially penetrate to the interior, such as at sill or wall top locations. Proper flashing and weep design will allow water to drain out of the wall so that it will not be left in the wall to cause efflorescence stains.

- **Tooling Joints**

Tool joints when mortar reaches "thumb-print hardness" and be consistent about this. If a joint is tooled too soon, shrinkage cracks at the mortar/block interface are likely to occur and the final mortar color may be very light. If the joint is tooled too late the color becomes very dark and the mortar may not be plastic enough to seal properly against the masonry units. If wall sections are tooled when the mortar is at inconsistent degrees of hardness, the overall look of the wall will be significantly affected by the resulting differences in mortar color. Use a concave joint to avoid collection of moisture at the mortar joints.



Tool Joints when they have reached thumb-print hardness for best results



Drainage Zones Shown on top of WCT™ block

- **WCT™ Units**

WCT™ Units are designed for use in partially grouted walls to direct water or moisture in the cores to drain downward to the wall's flashing and weep system rather than passing toward the interior of the wall. The units should be installed so that the WCT drainage zones are on the top of the block.

- **Cutting Units**

Cutting Concrete Masonry Units will result in the formation of concrete dust on the units which can form stains that are very difficult to remove if left on the units after sawing is completed. Use a dry saw for masonry cuts and remove the residue prior to placing the units. A dustless saw will avoid dust formation



Staining from Saw Dust Left on Block

Concrete Masonry Construction Cleaning

- **Remove Stains from the Wall**

Concrete Masonry Units must be cleaned by removing mortar droppings, mortar splatters and efflorescence. ***Demonstrate Cleaning Methods on the Sample Panel First.*** Then do a test section on an inconspicuous location on the walls before doing the entire wall. Cleaning results should be evaluated after the walls have dried. There are reputable cleaning products that are available to clean concrete masonry that will perform well if used properly. These include Light Duty Concrete Cleaner from ProsoCo and NMD-80 from EaCo Chem. While they can be effective, they require careful use to avoid having the cleaning process itself cause damage to the wall's texture or colors.



Mortar Stains Prior to Cleaning



Make Sure Water Will Be Available On Site

- **Plan Ahead to Have Water Available When You Will Need it.**

Make sure at the Pre-Construction Meeting that there will be a source of water at the site available when cleaning needs to occur. All that is needed is a source of water that has typical water pressure for a garden hose - about 40-50 psi. Avoid delay by setting this up on schedule.

- **Follow Manufacturer's Recommendations and Use Care**

Follow the Manufacturer's application recommendations for concrete brick regarding recommended concentrations and application methods with these additional considerations:

- **Clean the Walls Promptly - For Best Results, Between 7 and 14 days after installation**

This will make cleaning the units much easier, which will avoid the need for aggressive brushing or repeated applications of the cleaning agent to persistent stains, thus reducing the chance of damage to textures and colors. The longer mortar stains are left on the wall, the more bonded and difficult to remove they become.



This Wall Was Cleaned within 7 Days of Construction Using Low Pressure Application and Rinsing

- **Use Low Water Pressure for Applying the Cleaner and Rinsing it Off - Preferably 50 psi or Less.**
Use of pressure washers set at high pressure to clean walls is extremely risky due to multiple problems this practice will cause. These include: (1) the formation of post-cleaning efflorescence by driving water under high pressure into the concrete masonry, and (2) defacing the wall with unsightly streaks and altering the texture and color of the wall. High pressure washing will actually scour the cement paste off of the surface of the wall, particularly when used to rinse off an acid based cleaner, and in extreme cases this can compromise the wall's ability to resist moisture penetration. ***You should never use more water pressure than you could tolerate if the water stream were directed at your hand.***



Cleaned Wall Section showing discoloration and damage due to use of high pressure rinse - note the wand marks where the wall was particularly hard hit (water pressure was 500 psi)



This Masonry Unit was cleaned with EaCo Chem NMD-80 using standard application methods, but the left side was rinsed using low water pressure and the right side was rinsed with high water pressure



Scarring from High Pressure Washing

- **As a Rule, Be Gentle**
Bear in mind that masonry walls, when soaked with acid-based cleaners, are vulnerable to damage. As a result, aggressive use of chemical cleaners and/or abrasives and/or high water pressure will leave stains and scars that will diminish the beauty of the wall after it has dried and should be avoided in all circumstances.

Post-Applied Sealants

- **Benefits of Post-Applied Clear Breathable Water Repellent Sealants**

A suitable post-applied water repellent sealant will provide extra weather protection to the wall system and will assist with efflorescence control by protecting the wall from moisture penetration. Select a sealant that is clear and will not alter wall coloration. In addition, the sealant must be breathable. Finally, seek out sealants that offer protection against moisture penetration even in the event of cracks in the wall. Some sealants will offer protection even against cracks of up to 1/16" in size.

- **Make sure all stains have been removed from the walls before application**

Application of the sealant to the wall will make removal of any remaining efflorescence or mortar stains very difficult to accomplish as the sealant will need to be removed. This is likely to result in damage to the walls aesthetics. Needless to say, completely clean the walls prior to application of the sealant.

- **Be Careful Regarding Potential Color Alteration from Certain Post-Applied Coatings.**

Sacrificial Anti-Graffiti Coatings may significantly darken the wall surface and add a shiny texture to them, which likely will be undesirable from an aesthetic standpoint. In addition, silicone based sealants are likely to darken the walls. **Always test surface treatments on the sample panel prior to application to the main walls to avoid undesirable results.**

- **Avoid plugging the drainage weeps during application of post-applied coatings.**

This is a particular risk with paints - make sure the weep holes are unimpeded after application to assure that they will function properly.