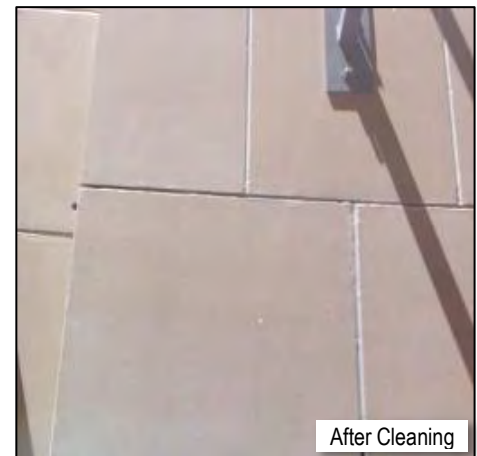
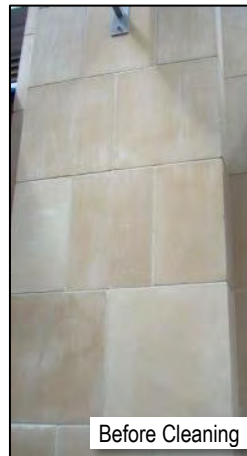


CLEANING

Despite all efforts to prevent dirt and staining on new building construction, a final wash down is recommended. To minimize the severity of cleaning though, every effort should be taken to protect the cast stone during storage and installation. Storage of cast stone should be above ground on non-staining planks or pallets and away from heavy construction traffic. Cast stone stored for an extended period of time should be kept on pallets or non-staining planking and covered with non-staining tarps. After setting, columns, pilasters, entry jambs, windowsills and all stone with projecting profiles should be protected with non-staining materials during the remaining construction.

The most common stains due to construction are dirt, mortar smears and efflorescence. A general rule of thumb is to use the least aggressive cleaning material and method to clean the building. There are a variety of commercial cleaners available to remove mortar smears, dirt and efflorescence without altering the finish or causing damage to the cast stone. Most contain detergents combined with mild solutions of phosphoric and/or muriatic acids. Use only the commercial cleaner developed for the specific stain to be removed.

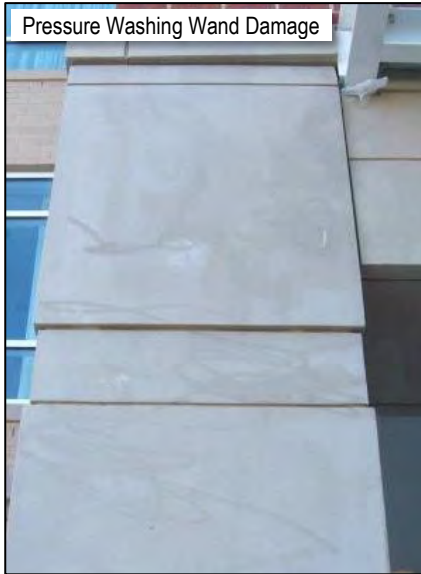


Dirt can be removed by scrubbing with a mild detergent and water and thorough rinsing. Extreme care should be taken when applying acidic based cleaners to areas where joints are left open or where joint sealant is used as jointing material. Hardened mortar stains are more tenacious and may require a more aggressive solution to remove. The manufacturers of adjacent building materials (clay brick, concrete block, windows, doors, sealant, etc...) should be consulted to determine compatibility with the cleaning materials.

Dunnage materials used in the packing and transport of cast stone can leave stains (or clean spots) after becoming wet. Wood packaging products can transfer resins to the surface, which may be easily removed. However, solid dunnage made from fresh timber can cause dunnage marks, which become difficult to remove. Packing and dunnage materials should always allow the exposed surfaces to breathe, especially when stones are palletized or placed into storage shortly after manufacture. This will avoid color differential due to moisture becoming trapped on the surface of the stone.

When unusual stains are encountered, the same procedures, which are recommended to clean concrete, will normally clean Cast Stone. The Portland Cement Association publishes a guide for the removal of stains in concrete.

The most important step to stain removal is identifying the stain and its cause. Manufacturers of cleaners should be contacted for guidance on removing particular stains. For the best result, follow the manufacturer's recommendations for using their product. Any treatment should be tested in a small inconspicuous area prior to cleaning the main wall. Also, ensure that lower cast stone courses are frequently rinsed with water because as acid is rinsed down the wall it can gather strength when reapplied. Take necessary steps to protect windows door and grade materials. Cleaners not fully rinsed from the building may cause corrosion to embedded steel later.



Direct high pressure power washing and sandblasting are not recommended procedures for cleaning cast stone. Furthermore, metal fiber brushes, rubbing stones and any tool or device that can scar the cast stone not to be used for cleaning cast stone.

This Technical Bulletin addresses generally accepted practices, methods and general details for the use of Architectural Cast Stone. This document is designed *only as a guide* and is *not* intended for any specific application or project. It is the responsibility of design and construction professionals to determine the applicability and appropriate application of any detail to a specific project based on professional judgment, specific project conditions, manufacturer's recommendations and solid understanding of product characteristics. The Cast Stone Institute makes no express or implied warranty or guarantee of the techniques or construction methods identified herein. Technical references shall be made to the edition of the International Building Codes for the location of the structure, the latest edition of the TMS 402/406 Masonry Standards document and TMS 404, 504, 604 Standards for Design, Fabrication and Installation of Architectural Cast Stone.

The Cast Stone Institute (CSI) is a not-for-profit organization created to advance the design, manufacture and use of Architectural Cast Stone. To further this goal, the CSI continually disseminates information to targeted construction industry audiences through presentations, programs and technical publications.

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