

# Stone-Faced Veneer Precast Concrete

An excerpt from the *Dimension Stone Design Manual*,  
Version VIII (May 2016)



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# STONE-FACED VENEER PRECAST CONCRETE PANELS

**1.0 Physical Properties.** When using precast panels, careful attention should be given to ensuring the necessary strength and serviceability requirements, with particular attention given to the physical properties of the stone, anchorage of the stone to the concrete, safety factors, and effect of finishes on the strength of the stone.

**1.1** The physical properties of the stone facing material must be compared with the properties of the concrete backup. These properties include:

**1.1.1** Tensile (axial and flexural), compressive, and shear strength.

**1.1.2** Modulus of elasticity (axial tension, flexure, and axial compression).

**1.1.3** Coefficient of thermal expansion.

**1.1.4** Volume change.

**1.2 Testing mockups** should be built to test wall, window, and joint performance under the most severe wind and rain conditions.

**1.3 Coordinator.** It is recommended that a qualified person be engaged to coordinate delivery, scheduling, and color uniformity of the panels (to satisfy samples or mockup) among the General Contractor, Stone Fabricator, and Precast Supplier.

**1.4 Detailed recommendations** can be obtained from:

Prestressed Concrete Institute  
175 West Jackson Blvd.  
Chicago, IL 60604  
Phone: 312.786.0300  
Fax: 312.786.0353

**1.5 Geographic Methods.** Some installation methods and materials are not recognized and may not be suitable in some geographical areas because of local trade practices, building codes, climatic conditions, or construction methods. Therefore, while every effort has been made to produce accurate guidelines, they should be used only with the independent approval of technically qualified persons.

## DATA SHEET

### STONE-FACED VENEER PRECAST CONCRETE PANELS

#### 1.0 PRODUCT DESCRIPTION

**1.1 Basic Use.** Exterior precast panels.

**1.2 Limitations.** The physical properties of the stone veneer facing should be compared with those of the concrete, including tensile (axial and flexural), compressive and shear strength, modulus of elasticity (axial tension, flexure, and axial compression), coefficient of thermal expansion, and volume change. Refer to the Prestressed Concrete Institute Handbook for detailed information.

**1.3 Finishes.** Polished, honed, thermal, bush-hammered, rough, abrasive, and natural cleft. Polished finish is not recommended for marble and limestone.

**1.4 Colors.** Most of the commercially available varieties are suitable.

**1.5 Sizes.** Stone veneer panels generally are 1", 1¼", 1½", 2", or thicker as specified. Refer to PCI Handbook for detailed information.

## 2.0 TECHNICAL DATA

2.1 Each stone variety used for veneer precast panels should conform to the applicable ASTM standard specification and the physical requirements contained therein. The specification for each stone type follows:

**2.1.1 Granite:** ASTM C615, Standard Specification for Granite Dimension Stone

**2.1.2 Limestone:** ASTM C568, Standard Specification for Limestone Dimension Stone

**2.1.3 Marble:** ASTM C503, Standard Specification for Marble Dimension Stone

**2.1.4 Quartz-based Stone:** ASTM C616, Standard Specification for Quartz-based Dimension Stone

**2.1.5 Serpentine:** ASTM C1526, Standard Specification for Serpentine Dimension Stone

**2.1.6 Slate:** ASTM C629, Standard Specification for Slate Dimension Stone

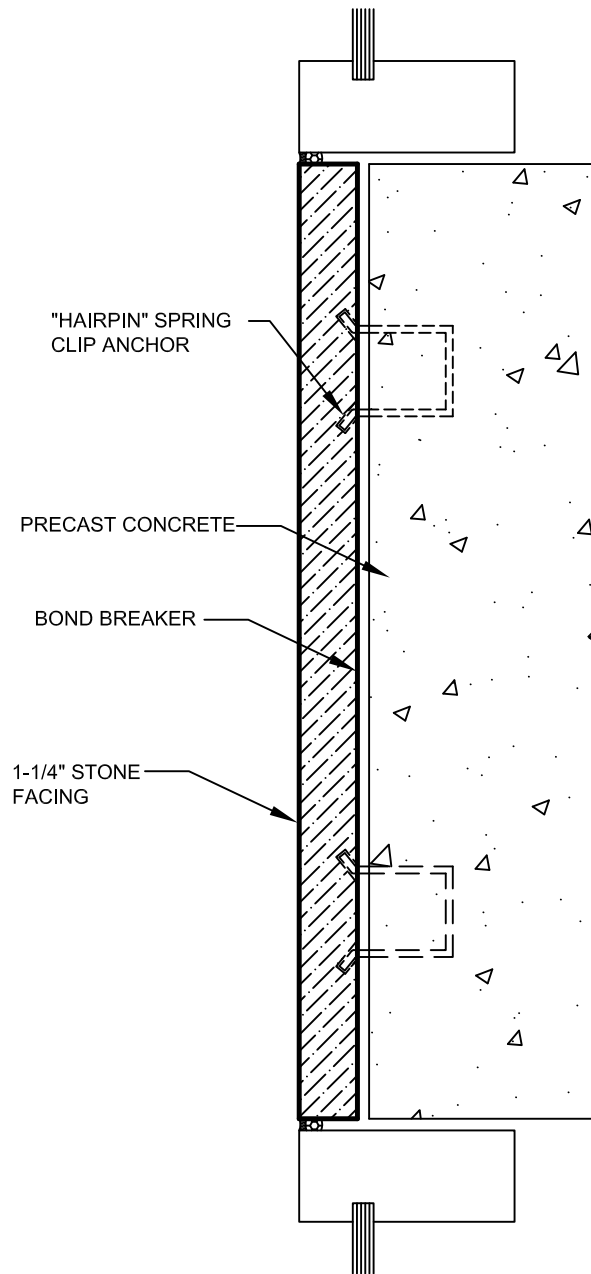
**2.1.7 Travertine:** ASTM C1527, Standard Specification for Travertine Dimension Stone

## 3.0 INSTALLATION

**3.1 Methods:** Precast panels are generally installed by the General Contractor. Refer to [PCI Handbook](#) or contact Precast Producer for detailed information.

**3.2 General Precaution:** Contact Precast Producer or review the [PCI Handbook](#) for detailed information.

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**1** TYPICAL SECTION



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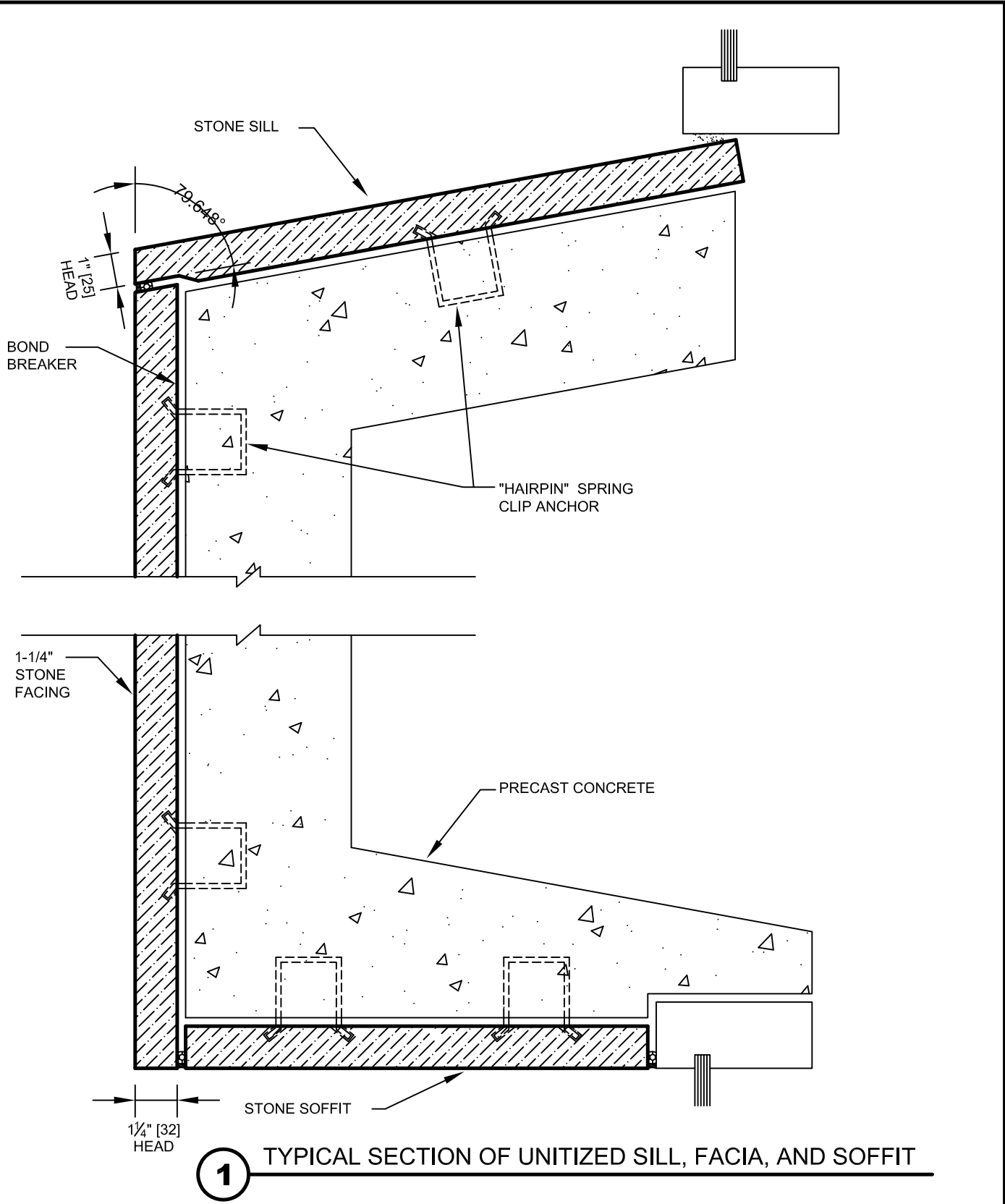
REV	DATE
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1	Oct 2006

## STONE VENEERED PRECAST CONCRETE PANELS

MIA DIMENSION STONE DESIGN MANUAL VIII

DRWG NO: 20-D-1

SCALE:  
 3" = 1'-0"



**MIA** 

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PRECAST CONCRETE PANELS

MIA DIMENSION STONE DESIGN MANUAL VIII

DRWG NO: 20-D-2

SCALE:  
3" = 1'-0"