Pittsburgh Corning Corporation has been manufacturing Pittsburgh Corning Glass Block products since 1937 and today is the only domestic manufacturer in North America. The company recognizes its responsibility to provide a variety of products and to furnish accurate descriptive and technical information which will help the design professional select and specify Pittsburgh Corning Glass Block products.

The comprehensive variety of patterns, styles and sizes available have been designed to work together in your projects as a total system. Pittsburgh Corning stands behind all its glass block when used exclusively with Pittsburgh Corning accessory products by offering a limited five-year warranty.

pittsburghcorning.com features application photos, product information, specifications, installation case histories, and much more information on how to design with Pittsburgh Corning Glass Block products.
Energy Conservation

Glass block can provide more than double the thermal resistance (R-Value) of single-glaze 1/8” thick plate glass. The differences between the shading coefficient of glass block and flat sheet glass is also significant. Contributing to this is the louvering effect of glass block’s horizontal mortar joints, which helps reduce light transmission from the higher summer sun. The size and orientation of the block can greatly affect the amount of shading that can occur.

Graffiti Resistant

Glass block resists damage and is easy to clean.
GLASS BLOCK BENEFITS & APPLICATIONS

Beauty and Versatility
Extraordinarily versatile and available in many aesthetically pleasing sizes and styles, glass block offers virtually limitless design possibilities. Glass block walls, partitions and windows combine the delicate beauty and light transmission of glass with the strength of glass block.

Visibility/Light Transmission
Glass block provides exceptional visibility in compliance with ADA guidelines for enclosed areas and has a dynamic relationship with light, both natural and artificial. As light changes, so does the material’s appearance in turn the surrounding environment. It is also scratch-resistant and transmits up to 80% of available light in both directions without any yellowing, clouding or weathering.

Security
When top architects need to add security to their projects, Pittsburgh Corning answers with a range of solutions:

Premiere Series
Available in the widest range of sizes, shapes and patterns, these blocks offer enhanced resistance to impact, fire, sound transmission, graffiti and weather.

THICKSET® Series
These thicker-faced blocks offer all the performance features of our Premiere Series but with an extra reduction in sound transmission and increased fire resistance available in 60- or 90-minute ratings.

VISTABRIK® Glass Block
Three inches of solid glass block make this the top-performing product offering the highest ballistic ratings, resistance to impact and sound transmission while still transmitting 80% of available light.

Impact and Ballistic Resistant
Pittsburgh Corning Glass Blocks are inherently stronger than conventional glass because of the thickness of the faces and the mortar that binds the blocks together. As a result the glass blocks are more difficult to break and therefore provide resistance and are a deterrent to forced entry. Our solid 3” VISTABRIK® Glass Block resists penetration from high-impact ballistics, including 9mm and .357 magnum bullets. VISTABRIK® glass blocks are UL® tested and component recognized for ballistic levels 1, 2, and 6.
Earthquake Resistance
The Northridge, CA earthquake on January 17, 1994 was the largest earthquake in the United States to have its epicenter in an urban area. A detailed survey was made of the performance of structures containing Pittsburgh Corning glass block panel applications. In all sites visited, the glass block walls and panel systems that were designed and constructed in accordance with Pittsburgh Corning specifications and the provision of the Uniform Building Code resisted the seismic forces without failure.

Noise Resistant
Three inches of solid glass makes VISTABRIK® a dense barrier to sounds from trains, traffic, crowds, sirens, and machinery with a 53 STC level. THICKSET® Series Block STC ranges between 48-50, and Premiere Series Glass Block 35 to 40.

Sustainable Design
Glass block, made largely from sand and limestone, is 100 percent recyclable, inert, low maintenance, and highly durable, lasting 50 years or more. Yet its dynamic relationship with light gives architects the opportunity to create both aesthetically pleasing and energy efficient spaces.

Pittsburgh Corning glass block not only supports LEED® building certification, it also contributes to sustainable design in other ways:

1. Safety and Security
   • Glass block is noncombustible
   • Glass block combines visibility with security

2. Environmentally Preferable Materials and Products
   • Glass block is made largely from sand, an abundant raw material
   • Glass block is recyclable
   • Glass block is durable
   • Glass block has low construction waste

3. Visual Comfort
   • Certain glass block products may help avoid glare

Fire Resistant
An important feature of glass block, critical to safe building design, is the product’s inherent fire-resistance property. By varying the face thickness of the product and conforming to installation specifications, Pittsburgh Corning is able to offer a family of fire rated products approved and rated according to Underwriters Laboratory (UL®), standards. Glass block are available in 45-, 60- and 90-minute ratings for window assemblies. See page 11 for additional technical information. Visit our website at www.pittsburghcorning.com for electronic details.

PREMIERE SERIES
• Includes the largest selection of patterns and sizes for the utmost in design flexibility.
• All patterns are classified by UL®, for use in 45-minute rated window assemblies.
• All sizes available are rated except 12” x 12” and shapes.
• Nominal face thickness: 0.25”

THICKSET® 60 Block
• Classified by UL®, for use as 45- or 60-minute rated window assemblies.
• Nominal face thickness: 0.375”

THICKSET® 90 Block
• Classified by UL®, for use as 45-, 60- or 90-minute rated window assemblies.
• Nominal face thickness: 0.75”

VISTABRIK® Solid Glass Block
• The ultimate glass block solution, 3 solid inches of glass which resists bullets, fire, noise, and graffiti.
• Classified by UL®, for use as 45-, 60- or 90-minute rated window assemblies.
• Actual face thickness: 3.0”

North Hollywood Police Station, N. Hollywood, CA
Architect: Meyer & Allen Associates
ARGUS® Pattern and HEDRON® Corner Block

Glass Block Wall Tubes
University of the Pacific John T. Chambers Technology Center, Stockton, CA – LEED Gold Certification
ARGUS™ Pattern with custom colors.
PITTSBURGH CORNING GLASS BLOCK PRODUCTS

HIGH PERFORMANCE LINE – Pittsburgh Corning’s High Performance Line of glass block products is comprised of products that offer the highest value, performance features and benefits related to improved safety, energy efficiency, aesthetics and decorative choices.

SIGNATURE LINE – Pittsburgh Corning’s Signature Line of glass block products is comprised of high quality Premiere Series products and the largest selection of patterns and shapes. This line has become the standard in the industry and provides the most design flexibility in the selection and use of glass block for walls, windows, partitions, and showers in residential and commercial applications.

PITTSBURGH CORNING GLASS BLOCK PRODUCTS

THICKSET® Block
Cutaways show the greater face thickness of the THICKSET® Series Block. THICKSET® 60 Block on left vs. the THICKSET® 90 Block on right.

THICKSET® 60 Block DECAPA® Pattern
THICKSET® 60 block provides a 60-minute fire rating. The DECAPA® pattern provides maximum light transmission with subtle visual distortion. The nondirectional faces make installation quick.

THICKSET® 60 Block VUE® Pattern
THICKSET® 60 block provides 60-minute fire rating. The VUE® pattern transmits maximum light and allows ultimate visibility.

DECORA® Pattern
Rounded perpendicular flutes diffuse light while allowing maximum light transmission and a medium degree of privacy.

ESSEX® AA Pattern
The fine grid design of the closely spaced ridges in this pattern offers moderate light transmission and a maximum degree of privacy.

FOCUS™ Pattern
This new circular pattern gives an exciting new way to bring more light and drama to any project.

VUE® Pattern
Faces are smooth and undistorted to transmit the most light and allow ultimate visibility. This is your best choice for passive solar collection and visual clarity.

IceScapes® Pattern
Non-directional pattern lets light in without sacrificing privacy. Maximum light transmission/medium to maximum privacy.

Energy Efficient Glass Block
Blocks out the sun’s heat and ultraviolet light – to help keep interiors cooler in the summer. In winter, improved insulating ability helps keep interiors warmer. The blocks are available in DECAPA®, DELPH®, IceScapes®, and VUE® patterns.

THICKSET® 90 Block DECORA® Pattern
THICKSET® 90 block provides a 90-minute fire rating. The DECORA® pattern provides maximum light transmission with subtle visual distortion. The nondirectional faces make installation quick.

THICKSET® 90 Block ENDURA™ Pattern
THICKSET® 90 block provides a 90-minute fire rating. The ENDURA™ pattern’s narrow flutes provide moderate light transmission/maximum privacy.

THICKSET® 90 Block VUE® Pattern
THICKSET® 90 block provides a 90-minute fire rating. The VUE® pattern transmits maximum light and allows ultimate visibility.

DECORA® Pattern
The trademark wavy undulations of this pattern provides maximum light transmission with subtle visual distortion. The nondirectional faces make installation quick.

ESSEX® AA Pattern
The fine grid design of the closely spaced ridges in this pattern offers moderate light transmission and a maximum degree of privacy.

Energy Efficient Glass Block
Blocks out the sun’s heat and ultraviolet light – to help keep interiors cooler in the summer. In winter, improved insulating ability helps keep interiors warmer. The blocks are available in DECAPA®, DELPH®, IceScapes®, and VUE® patterns.

VUE® Pattern
Faces are smooth and undistorted to transmit the most light and allow ultimate visibility. This is your best choice for passive solar collection and visual clarity.

Focus™ Pattern
This new circular pattern gives an exciting new way to bring more light and drama to any project.

VUE® Pattern
Faces are smooth and undistorted to transmit the most light and allow ultimate visibility. This is your best choice for passive solar collection and visual clarity.

Focus™ Pattern
This new circular pattern gives an exciting new way to bring more light and drama to any project.
SIGNATURE LINE – (continued)

Shapes and Finishing Units

ARQUE® Block
DECORA® and IceScapes® Patterns
ARQUE® Block is a brilliant way to create smooth, graceful curves and columns. ARQUE® Block forms a consistent, tight curve ideally suited for columns.

ENCURVE® Block,
DECORA® and IceScapes® Patterns
Arched, soft edges to round out your design options or finish panels. Use with 8” x 8” EndBlock™ Finishing Units for a stepped panel.

EndBlock™ Finishing Unit DECORA® and IceScapes® Patterns 6” x 8” and 8” x 8”
The rounded, finished surface on one edge of these blocks makes them virtually disappear when used vertically or horizontally on the edges of panels, walls or dividers.

HEDRON® Corner Block
DECORA® and IceScapes® Patterns
Hexagonal corner unit allows you to form 90-degree corners resulting in a gently rounded continuous glass face.

TRIDRON 45º Block®
DECORA® and IceScapes® Patterns
The unique shape of this block lets you create everything from 45-degree angles to full circles.

MADE TO ORDER PRODUCTS – Items listed below are subject to minimum order quantities and lead times.

Premiere Series Glass Block

ARGUS® Parallel Fluted Pattern
Rounded parallel flutes on each face diffuse light while allowing maximum light transmission and a medium degree of privacy. Compliments the SPYRA® pattern.

SeaScapes™ Pattern
The three dimensional circles appear to float within the glass block. The pattern lets in light and also provides a degree of privacy.

SPYRA® Pattern
SPYRA® Pattern gives you many options for decorative patterns, such as bold circles, rounded corners and the illusions of waves. Maximum light transmission and minimal privacy.

PC® Custom Signature Block
Custom manufactured with your corporate logo or other design pressed into one or both inside surfaces of an eight inch square, standard unit.

VISTABRIK® Stippled Glass Block
Solid 3” thickness of glass with a stippled finish to add privacy. Durable, impact, vandal and bullet resistant, low maintenance and aesthetically attractive. Good light transmission/medium privacy.

HEDRON® LX Corner Block,
DECORA® Pattern
Hexagonal corner unit allows you to form 90-degree corners resulting in a gently rounded continuous glass face.
# Physical & Design Data

## Pittsburgh Corning Glass Block Products

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<thead>
<tr>
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<tbody>
<tr>
<td>THICKSET® 60 Block—DECORA® &amp; VUE®</td>
<td>8” x 8” (197mm)</td>
<td>25</td>
<td>0.51</td>
<td>1.96</td>
<td>VUE®=75</td>
<td>0.65</td>
<td>48</td>
<td>.66-.68³</td>
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<tr>
<td>THICKSET® 90 Block—DECORA® &amp; VUE®</td>
<td>8” x 8” (197mm)</td>
<td>30</td>
<td>0.51</td>
<td>1.96</td>
<td>VUE®=70</td>
<td>0.65</td>
<td>50</td>
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<tr>
<td>THICKSET® 90 Block—ENDURA™</td>
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<td>1.96</td>
<td>38</td>
<td>0.65</td>
<td>50</td>
<td>.66-.68³</td>
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**Glas Block with “LX” Fibrous Glass Inserts—Nominal Thickness = 4”; Actual Thickness = 3½” (98mm)**

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<tr>
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<td>20</td>
<td>0.48</td>
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<td>44</td>
<td>0.45 iv</td>
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<tr>
<td>8” x 8” (197mm)</td>
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<td>0.48</td>
<td>2.06</td>
<td>44</td>
<td>0.45 iv</td>
<td>40</td>
<td>.56</td>
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<tr>
<td>12” x 12” (299mm) †</td>
<td>20</td>
<td>0.48</td>
<td>2.06</td>
<td>44</td>
<td>0.45 iv</td>
<td>40</td>
<td>.56</td>
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**VISTABRIK® Solid Glass Block—See Nominal/Actual Sizes Listed**

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<tr>
<td>DECORA®, DELPHI®, IceScapes®, and VUE®</td>
<td>8” x 8” x 3½” Nominal</td>
<td>6”, 7¼” x 7¼” x 3½” Actual (197mm x 197mm x 89mm)</td>
<td>20</td>
<td>.45</td>
<td>2.22</td>
<td>63</td>
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**Energy Efficient Glass Block—See Nominal/Actual Sizes Listed**

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<tbody>
<tr>
<td>DECORA®, DELPHI®, IceScapes®, and VUE®</td>
<td>8” x 8” x 3½” Nominal</td>
<td>7¼” x 7¼” x 3½” Actual (197mm x 197mm x 89mm)</td>
<td>20</td>
<td>.45</td>
<td>2.22</td>
<td>63</td>
<td>33</td>
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### Standard Premiere Series Block—Nominal Thickness = 4”; Actual Thickness = 3½” (98mm)

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<tbody>
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<td>6” x 6” (146mm)</td>
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<td>0.51</td>
<td>1.96</td>
<td>55</td>
<td>0.65</td>
<td>37</td>
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<td>8” x 8” (197mm)</td>
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<td>1.96</td>
<td>55</td>
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<td>75</td>
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<td>8” x 8” (197mm)</td>
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<td>0.65</td>
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<tr>
<td>12” x 12” (299mm)</td>
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<td>1.96</td>
<td>75</td>
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<td>35</td>
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<tr>
<td>ESSEX® AA</td>
<td>6” x 8” (95 x 197mm)</td>
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<td>12” x 12” (299mm)</td>
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<td>1.96</td>
<td>75</td>
<td>0.65</td>
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<tr>
<td>FOCUS® IceScapes®</td>
<td>8” x 8” (197mm)</td>
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<td>1.96</td>
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<td>0.65</td>
<td>39</td>
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<td>12” x 12” (299mm)</td>
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<td>1.96</td>
<td>67</td>
<td>0.65</td>
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<td>ARGUS®</td>
<td>4” x 8” (95 x 197mm)</td>
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<td>1.96</td>
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<td>Opal Plain</td>
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<tr>
<td>Opal Silk</td>
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<tr>
<td>SeaScapes®</td>
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<td>0.51</td>
<td>1.96</td>
<td>67</td>
<td>0.65</td>
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<td>.66-.68³</td>
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<tr>
<td>VUE®</td>
<td>6” x 8” (146mm) †</td>
<td>20</td>
<td>0.51</td>
<td>1.96</td>
<td>64</td>
<td>0.65</td>
<td>39</td>
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<td>8” x 8” (197mm)</td>
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<td>91</td>
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<td>37</td>
<td>.66-.68³</td>
<td></td>
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<tr>
<td>12” x 12” (299mm)</td>
<td>20</td>
<td>0.51</td>
<td>1.96</td>
<td>91</td>
<td>0.65</td>
<td>35</td>
<td>.66-.68³</td>
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<tr>
<td>4” x 8” (95 x 197mm) †</td>
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<td>0.51</td>
<td>1.96</td>
<td>91</td>
<td>0.65</td>
<td>35</td>
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<tr>
<td>6” x 8” (146 x 197mm) †</td>
<td>20</td>
<td>0.51</td>
<td>1.96</td>
<td>91</td>
<td>0.65</td>
<td>35</td>
<td>.66-.68³</td>
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### ½” Flat Sheet Glass Comparison (3mm)

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<tr>
<td>½” FLAT SHEET GLASS COMPARISON (3mm)</td>
<td>1.04</td>
<td>0.96</td>
<td>28</td>
<td>0.75-.78</td>
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1. Size: Block are manufactured to ±1/16” (2mm) tolerance.
3. Light Transmission: Based on test results.
4. Shading Coefficient: Estimated figures based on accumulated data.
5. SHGC: Default values as interpreted from International Energy Conservation Code.

† MTO – Made to Order items subject to minimum order quantities and lead times.
**Installed Panel Weight**

Refer to Table on page 8 for weight of panels installed with mortar. Glass block panels installed with the ProVantage® Glass Block Installation System are up to 25% lighter per square foot than panels installed with mortar. Local building codes should be consulted for any limits on panel sizes or installation details.

**Non-load Bearing**

Glass block panels are non-load bearing; adequate provisions must be made for support of construction above these panels. Panels are mortared at the sill, with jamb and head details designed to accommodate for building movement and lintel deflection. The compressive strength (for information purposes only) of all hollow glass block is 400 to 600 psi.; THICKSET® Series Glass Block is 2500 psi.; and VISTABRIK® Series is 80,000 psi.

**Thermal Expansion Coefficient**

The thermal expansion coefficient of glass block is $47 \times 10^{-7}/(\text{°F})$.

**Detailed Drawings**

Structural members illustrated on page 14 and other “detail” pages indicate general principles of construction. Member sizes should be determined by structural analysis to avoid excessive deflections. Maximum deflection for supports shall not exceed $L/600$.

**FINISHING UNITS**

### PREMIERE SERIES

<table>
<thead>
<tr>
<th>EndBlock™ Finishing Units</th>
<th>HEDRON® Corner Unit</th>
<th>TRIDRON 45° Block® Unit</th>
<th>ENCURVE® Finishing Unit</th>
<th>ARQUE® Block Unit</th>
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<tr>
<td>DECORA® &amp; IceScapes® Patterns 8” High Premiere Series</td>
<td>DECORA® &amp; IceScapes® Patterns 8” High Premiere Series</td>
<td>DECORA® &amp; IceScapes® Patterns 8” High Premiere Series</td>
<td>DECORA® &amp; IceScapes® Patterns 8” High Premiere Series</td>
<td>DECORA® &amp; IceScapes® Patterns 8” High Premiere Series</td>
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**Glass Block between TRIDRON 45° Block®**

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<th>s (in.)</th>
<th>d (in.)</th>
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<tr>
<td>None</td>
<td>4.75</td>
<td>11.45</td>
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<td>1-4” x 8” x 4”</td>
<td>8.75</td>
<td>21.08</td>
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<td>1-6” x 8” x 4”</td>
<td>10.75</td>
<td>25.90</td>
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<tr>
<td>1-8” x 8” x 4”</td>
<td>12.75</td>
<td>30.72</td>
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<td>1-4” x 8” x 4” + 1-8” x 8” x 4”</td>
<td>16.75</td>
<td>40.36</td>
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<tr>
<td>2-8” x 8” x 4”</td>
<td>20.75</td>
<td>50.00</td>
</tr>
<tr>
<td>1-4” x 8” x 4” + 2-8” x 8” x 4”</td>
<td>24.75</td>
<td>59.64</td>
</tr>
<tr>
<td>3-8” x 8” x 4”</td>
<td>28.75</td>
<td>69.28</td>
</tr>
</tbody>
</table>

**Maximum Panel Dimensions**

<table>
<thead>
<tr>
<th>*</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Sq.Ft.)</td>
<td>H (Ft.)</td>
<td>W (Ft.)</td>
<td>&amp; (Ft.)</td>
<td>H (Ft.)</td>
<td>W (Ft.)</td>
</tr>
<tr>
<td>EXTERIOR</td>
<td>144</td>
<td>20</td>
<td>25</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>INTERIOR</td>
<td>250</td>
<td>20</td>
<td>25</td>
<td>150</td>
<td>10</td>
</tr>
</tbody>
</table>

*All exterior areas and dimensions are based on 20 psf design windload with 2.7 safety factor.*

**Mortar Mix and Estimating Tables**

An optimum mortar mix for installing Pittsburgh Corning Glass Block is:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>Lime</td>
<td>Sand</td>
</tr>
<tr>
<td>1 Part</td>
<td>½ Part</td>
<td>3.4 Parts</td>
</tr>
<tr>
<td>1.0 cubic foot</td>
<td>0.5 cubic foot</td>
<td>3.4 cubic feet</td>
</tr>
</tbody>
</table>

**Number of Block for 100 Sq. Ft. Panel**

<table>
<thead>
<tr>
<th>Block Sizes (Nominal)</th>
<th>6”</th>
<th>8”</th>
<th>12”</th>
<th>4” x 8”</th>
<th>6” x 8”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Block</td>
<td>400</td>
<td>225</td>
<td>100</td>
<td>450</td>
<td>300</td>
</tr>
</tbody>
</table>

Columns can be All-TRIDRON 45° Block® (left) or interspersed with 4” x 8” or 8” x 8” glass block.

NOTES:

- All mortar joints are 1/16”.
- a = 0.415 s
- d = 1.083 s

*NOTE: All mortar joints are 1/16".*
PHYSICAL & DESIGN DATA

INSIDE RADIUS MINIMUMS FOR CURVED PANEL CONSTRUCTION

NOTES:
1. It is suggested that curved areas be separated from flat areas by intermediate expansion joints and supports, as indicated in these drawings.
2. When straight, ladder-type reinforcing is used on curved walls, the innermost parallel wire may be cut periodically and/or bent to accommodate the curvature of the wall.

ARQUE® Block used along with other Pittsburgh Corning Block sizes, allows you to form consistent curves of various radii. Radii shown are to inside face of curve.

RESISTANCE TO SURFACE CONDENSATION

Example: At a relative humidity of 40%, an outside temperature of approximately -3 °F will cause condensation on Premiere Series Glass Block or approximately 3 °F above zero on Thinline® Series block. Under the same conditions, condensation will form on a single-glazed flat glass window at 34 °F above zero.
FIRE RATINGS & CODE INFORMATION

All sizes (exceptions listed below) of Premiere Series and Thinline® Series glass blocks have at least a 45 minute fire rating when used as a window assembly within a one hour fire-rated wall assembly. All THICKSET® 90 (thick-faced) and solid glass blocks have fire ratings of up to 90 minutes, and the THICKSET® 60 and ESSEX® AA Pattern glass blocks have fire ratings of up to 60 minutes, when used as window assemblies and where permitted by code.

Pittsburgh Corning Glass Block units that are not fire-rated:
• All 12" x 12" sizes
• All DELPHI®, pattern block
• All Hedron® Corner block, TRIDRON 45° Block® units, EndBlock®, ENCURVE® and ARQUE® finishing units
• All paver units
• VISTABRIK® Corner Block

THICKSET® 90 Block and VISTABRIK® Solid Glass Block are all listed for use as 45-, 60- or 90-minute fire rated window assemblies in panels up to 100 square feet.

Where permitted by building codes, glass block fire-rated window assemblies having a fire resistance rating of not less than 45 minutes may be used as “opening protectives”. These assemblies shall not exceed 25% of the wall areas separating a tenancy from a corridor or a corridor from an enclosed vertical opening or one fire-rated area from another fire-rated area.

Exception: Although glass block masonry systems have been tested as window assemblies (not wall assemblies), they may be used as one hour fire partitions as required for corridors in the enclosure of atriums only when sprinkler protection is provided on occupied sides.

45- AND 60-MINUTE RATED CONSTRUCTION

All 45- and 60-minute rated Pittsburgh Corning Glass Block may be used in both masonry and non-masonry (steel or wood stud framing with gypsum board) walls.

These rated glass block windows may be framed and anchored with either PC® Panel Anchor construction or channel-type restraints.

The use of a fire retardant type sealant for head and jamb locations is required.

Specifications and construction details of such panels are as per Pittsburgh Corning Corporation recommendations.

Twice the typical thickness (½") total expansion material is required at head and jamb locations.

45-MINUTE RATED CURVED CONSTRUCTION

The glass blocks noted under 90-minute rating and those 8" x 8" x 4" sized glass block noted under 45-minute rating are classified for use in masonry walls as curved window assemblies, provided that the radius of the assembly is at least twice the opening width (i.e. chord length).

CODE COMPLIANCE

All of our fire-rated glass block products are listed with Underwriters Laboratories. A listing of our products can be viewed on the Underwriters Laboratories Website at www.ul.com.

• U.L. Classification: R2556 (For Glass Block)
• U.L. Classification: R18572 (For Plastic Spacers)

In accordance with NFPA 80, AND U.L.-9

CITY CODE APPROVALS

• New York City Materials and Equipment Acceptance MEA 406-90-M. Vol.IV
• Los Angeles Research Report RR-24486
• Dade County Acceptance 12-0406.04 12-0406.05 12-0406.06 13-1028.02
• State of Florida Approvals FL 1363 FL 1357 FL 15813 FL 11669
• Texas Department of Insurance WIN #s 62, 63, 1327, and 1525

BUILDING CODE AND NATIONAL STANDARDS REFERENCES:

• International Building Code (IBC)
• International Residential Code (IRC)
• Canadian Standards Association (CSA) A37.1-94 “Masonry Construction for Buildings”
• Canadian Standards Association (CSA) S304.1-94 “Masonry Design for Buildings”
• TMS 402/602 “Building Code Requirements and Specification for Masonry Structures”

Fire Ratings — Glass Block Assemblies

Premiere Series Glass Blocks, THICKSET® 60 Blocks, THICKSET® 90 Blocks and 3" thick VISTABRIK® Solid Glass Block units have been tested and classified by Underwriters Laboratories (UL®) for use in fire-rated window assemblies to panel sizes and dimension limitations as listed.

Panel Sizes and Dimension Limitations

Pittsburgh Corning Glass Block listed above have been tested and classified by Underwriters Laboratories (UL®) for use as fire-rated window assemblies to panel sizes and dimension limitations listed below:

• With the exception of all 12" x 12" sizes, finishing blocks, corner blocks and the DELPHI® pattern block, all Premiere Series and Thinline® Series glass blocks in panels up to 120 square feet in masonry walls or 94 square feet in non-masonry walls are classified by Underwriters Laboratories, for use as 45-minute rated window assemblies.

• These panels are usually acceptable as window assemblies for use in fire separation walls that are rated one hour or less.

• THICKSET® 60 Block are listed for use as 45- or 60-minute fire rated window assemblies in panels up to 100 square feet.

<table>
<thead>
<tr>
<th>Product</th>
<th>Masonry Wall Construction</th>
<th>Non-Masonry Wall Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Panel Limitations</td>
<td>Fire Rating</td>
</tr>
<tr>
<td></td>
<td>Max. Area/Panel</td>
<td>Max. Ht. or Width</td>
</tr>
<tr>
<td>Thinline® Series**</td>
<td>120 sq. ft.</td>
<td>12 ft.</td>
</tr>
<tr>
<td>Premiere Series**</td>
<td>120 sq. ft.</td>
<td>12 ft.</td>
</tr>
<tr>
<td>THICKSET® 60 and ESSEX® AA Pattern**</td>
<td>100 sq. ft.</td>
<td>10 ft.</td>
</tr>
<tr>
<td>THICKSET® 90</td>
<td>100 sq. ft.</td>
<td>10 ft.</td>
</tr>
<tr>
<td>VISTABRIK®</td>
<td>100 sq. ft.</td>
<td>10 ft.</td>
</tr>
</tbody>
</table>

* ¼" steel channel. ½" thick expansion material at head and jamb, and fire retardant sealant are required.
** Includes “LX” option.
ACCESSORIES

PC® PANEL REINFORCING, PANEL ANCHORS & EXPANSION STRIPS

PC® Panel Reinforcing (top) — in panels — is embedded horizontally in the mortar joints between every other course.

PC® Panel Anchors (middle) are used to tie Pittsburgh Corning Glass Block panels into the surrounding framework when channels are not used. PC® Expansion Strips (bottom), made of white polyethylene, are inserted at the head and jambs. The strips replace mortar at these locations to cushion the glass block and allow the panel to expand and contract freely.

OTHER ACCESSORIES

Additional materials — such as mortar, channels or framing, packing, sealants and asphalt emulsion are available from other manufacturers.

PROVANTAGE® INSTALLATION SYSTEM

Unlike previous systems using sealant and spacers, the new ProVantage® Installation System for use with Premiere Series glass blocks, can turn corners, build showers and is suitable for interior or exterior applications. The system utilizes spacers to align and hold the blocks in place for easy assembly. Sealant is used to bond the spacer and blocks together. The consistent, even-spaced joints are then finished with a special tile grout resulting in a clean, smooth professional look. For smaller straight wall panels, with 3-side support, sealant can be used in the joints to provide an all-glass look.

CHANNEL-TYPE RESTRAINT CONSTRUCTION

NOTE: This dimension is determined by the anticipated deflection of the structural member above the glass block.
GLOSSARY OF TERMS (Detail Drawings pages 13-18)

- BLDG – Building
- CMU – Concrete Masonry Unit (concrete block)
- CONT STL – Continuous Steel (used to reinforce wall)
- ELEV – Elevation (side view of building)
- GYP BD – Gypsum Board
- HML – Hollow Metal (door frame)
- INT – Interior
- MAX HT – Maximum Height (for Pittsburgh Corning Glass Block panel 20ft./6m)
- SILL – Bottom of Panel
- TYP – Typical (detail)
- CLG – Ceiling
- CONC – Concrete
- EIFS – Exterior Insulation Finishing System
- EXT – Exterior
- HEAD – Top of Panel
- HORIZ – Horizontal
- JAMB – Side of Panel
- PLAN – View of Building from above, typically the floor
- STL – Steel
- WD – Wood

Materials shown other than glass block are for illustration purposes only as examples of typical construction details.

DETAILS CAN BE DOWNLOADED AS .DWG OR .DXF FILES FROM OUR WEBSITE

pittsburghcorning.com

TYPICAL HEAD DETAILS (Exterior Openings)

(PCD 031) Head – Glass Block in Steel Stud Wall with Synthetic Plaster Finish

TYPICAL JAMB DETAILS (Exterior Openings)

(PCD 062) Jamb – Glass Block in Steel Stud Wall with Brick Veneer

(PCD 032) Jamb – Glass Block in Steel Stud Wall with Synthetic Plaster Finish

TYPICAL SILL DETAILS (Exterior Openings)

(PCD 063) Sill – Glass Block in Steel Stud Wall with Brick Veneer

(PCD 033) Sill – Glass Block in Steel Stud Wall with Synthetic Plaster Finish
TYPICAL CONSTRUCTION DETAILS

TYPICAL STIFFENER DETAILS
Continuous Panels ≤ 144 Sq. Ft. Each

Vertical Stiffener

1/4” L #5 TYPICAL
ANCHOR OR EQUAL (16” O.C. MAX.)
EXPANSION STRIP
SEALANT & BACKER (TP)
FACED THE STRUCTURAL MEMBER

(PCD 132A) Intermediate Vertical Support in Multiple Horizontal Panels

Horizontal Stiffener

1/4” L #5 TYPICAL
ANCHOR OR EQUAL (16” O.C. MAX.)
EXPANSION STRIP
SEALANT (TP)

(PCD 128) Interim Horizontal Support in Multiple Vertical Panels

HOLLOW METAL DOOR FRAME DETAILS

(PCD 132B) Intermediate Support in Multiple Horizontal Panels

(PCD 132C & D) Intermediate Support in Multiple Horizontal Panels

(PCD 153) Head – Hollow Metal Door Frame at Glass Block

(PCD 154) Jamb – Hollow Metal Door Frame at Glass Block
**TYPICAL SHELF ANGLE DETAILS – FOR VISTABRIK® PANELS**
Continuous Panels ≤ 100 Sq. Ft. Each

**TYPICAL STIFFENER DETAILS – FOR VISTABRIK® PANELS**
Continuous Panels ≤ 100 Sq. Ft. Each

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**DETAILS FOR FIRE RATED CONSTRUCTION**

- **(PCD 004) Head – 90 Minute Fire Rated Glass Block in CMU Wall**
- **(PCD 005) Jamb – 90 Minute Fire Rated Glass Block in CMU Wall**
- **(PCD 006) Sill – 90 Minute Fire Rated Glass Block in CMU Wall**
- **(PCD 130) Intermediate Horizontal Support in Multiple Vertical Panels**
- **(PCD 131) Intermediate Horizontal Support in Multiple Vertical Panels**
- **(PCD 133) Intermediate Vertical Support in Multiple Horizontal Panels**
- **(PCD 159) Head – 45 & 60 Minute Fire Rated Glass Block Panel**
- **(PCD 160) Jamb – 45 & 60 Minute Fire Rated Glass Block Panel**
- **(PCD 161) Sill – 45 & 60 Minute Fire Rated Glass Block Panel**
VISTABRIK® SOLID GLASS BLOCK DETAILS

(PCD 045) Sill – Solid Glass Block in Steel Stud Wall with Brick Veneer

(PCD 049) Head – Solid Glass Block in Steel Stud Wall with Synthetic Plaster Finish

(PCD 050) Jamb – Solid Glass Block in Steel Stud Wall with Synthetic Plaster Finish

(PCD 051) Sill – Solid Glass Block in Steel Stud Wall with Synthetic Plaster Finish

(PCD 148) Head – Glass Block in Suspended Ceiling

(PCD 149) Head – Glass Block in Partition

(PCD 150) Jamb – Glass Block in Partition

(PCD 151) Jamb – Glass Block Perpendicular to Partition

(PCD 241) Sill – Interior Concrete Floor Slab
PART 1 – GENERAL

1.01 Summary
This specification has been prepared by Pittsburgh Corning Corporation using generally accepted and appropriate technical information but is not intended to be solely relied upon for the specification design or technical applications. Having no control over the elements of design, installation, workmanship or site conditions, Pittsburgh Corning assumes that the actual design choices and installation will be made by persons trained and qualified in the appropriate disciplines. Therefore, Pittsburgh Corning disclaims all liability potentially arising from the use or misuse of this specification.

1.02 Section Includes
A. Glass Block Units, hollow or solid
B. Integral Joint Reinforcement
C. Mortar

1.03 Related Sections
A. Steel Channels
B. Sills, lintels, jambs
C. Sealant (caulk)
D. Packing Material

1.04 References
A. ASTM A82—Spec. for Cold Drawn Steel Wire
B. ASTM A153—Class B-2, Spec. Zinc Coating (Hot dip) on Iron and Steel Hardware (Canada same)
C. ASTM A240, Spec. for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications
D. ASTM A580, Spec. for Stainless Steel Wire
E. ASTM C144, Spec. for Aggregate for Masonry (Canada – A179-94)
F. ASTM C150, Spec. for Portland Cement (Canada – CAN/CSA-A5-93)
G. UL® 9, Fire Tests of Window Assemblies (equivalent to CAN 4-S106-M80
H. ASTM C207, Spec. for Hydrated Lime for Masonry Purposes (Canada same)
I. ASTM C270, Spec. for Mortar for Unit Masonry (Canada – A179-94)
J. ASTM D1187, Type II—Spec. for Asphalt-Base Emulsions (For Metal Surfaces)
K. ASTM D1227, Type III—Spec. for Emulsified Asphalt (For Porous Surfaces)

1.05 System Description
Knowledge of the following basic information is essential for proper installation of Pittsburgh Corning Glass Block units:
1. Glass block panels shall not be designed to support structural loads.
2. Maximum deflection of structural members supporting glass block panels shall not exceed L/600.
3. Sills of all panels must be painted with a heavy coat of asphalt emulsion and must cure for two hours before first mortar bed is placed.
4. Provision for expansion, movement and isolation of the glass units from the surrounding frame, must be made at jambs and heads of all panels. Mortar must not bridge expansion spaces.
5. Mortar should be mixed and applied in accordance with the recommendations of Pittsburgh Corning Corporation. See Mortar Materials. Because glass block will not absorb water, mortar must be considerably stiffer than mortar for ordinary masonry. The consistency can be described as “mashed potatoes” or “peanut butter” and be clay-like. The joints must be full and struck smooth, not sponged.
6. Design and installation of glass block projects should be done by whole units since cutting glass block is not recommended.

1.06 Submittals
A. Product Data
Submit two (2) copies of manufacturer’s literature and two (2) copies of manufacturer’s installation instructions.
B. Samples
1. Submit two (2) glass block units of each type specified, showing size, design and pattern of faces.
2. Submit representative samples of (panel reinforcing), (panel anchors), (expansion strips), and (sealant).
C. Test Reports — Fire Tests
Submit documents verifying glass block units are classified for a 1/4, 1 or 1/2-hour fire exposure according to ASTM E2010. Underwriters Laboratories of Canada CAN 4-S106-M80, UL® 9, or NFPA 257 “Fire Tests of Window Assemblies.” All such glass block unit cartons shall carry appropriate UL® labels.

1.07 Storage and Protection
A. Store unopened cartons of glass block in a clean, cool, dry area.
B. Protect opened cartons of glass block against windblown rain or water run-off with tarpaulins or plastic covering.

1.08 Project/Site Conditions
A. Do not install glass block units when temperature is 40°F (4°C) and falling. Maintain the temperature of glass unit masonry and falling. Maintain the temperature of glass unit masonry above 40°F (4°C) for the first 48 hours after construction.

1.09 Warranty
A. Pittsburgh Corning Corporation offers a limited 5-year warranty on Pittsburgh Corning Glass Block units.

PART 2 – PRODUCTS

2.01 Acceptable Manufacturers
A. The drawings and specifications are based on catalog data, specifications and products of Pittsburgh Corning Corporation and designate the type and quality of work intended under this section.
1. Products of other manufactures proposed as equivalent quality must be submitted through the bidding contractors for written approval of the architect ten days prior to the bid date.
2. Supporting technical data, samples, published specifications and the like must be submitted for comparison.
3. Contractor shall warrant that proposed substitutions, if accepted, will provide performance equivalent to the materials specified herein.
4. These specifications have been developed by Pittsburgh Corning

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5. Mortar should be mixed and applied in accordance with the recommendations of Pittsburgh Corning Corporation. See Mortar Materials. Because glass block will not absorb water, mortar must be considerably stiffer than mortar for ordinary masonry. The consistency can be described as “mashed potatoes” or “peanut butter” and be clay-like. The joints must be full and struck smooth, not sponged.
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A. Store unopened cartons of glass block in a clean, cool, dry area.
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1.08 Project/Site Conditions
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6. Design and installation of glass block projects should be done by whole units since cutting glass block is not recommended.
Corning Based on extensive tests of panels composed of Pittsburgh Corning Première Series Glass Block masonry units as manufactured by Pittsburgh Corning Corporation. These specifications do not apply to panels made from glass block masonry units produced by any other manufacturer.

2.02 Glass Block Units

A. Glass block units, nominally _____ x _____ x _____ inch thickness of 3/8 inch, by Pittsburgh Block Supply Company (1-877-427-8775) in Medina, OH.

B. Glass block units, nominally _____ x _____ x _____ inch thickness of 3/8 inch, by Pittsburgh Block Supply Company (1-877-427-8775) in Medina, OH.

C. Solid glass units, nominally _____ x _____ x _____ inch thickness of 3/8 inch, by Pittsburgh Block Supply Company (1-877-427-8775) in Medina, OH.

D. Thinner glass block units, nominally _____ x _____ x _____ inch thickness of 3/8 inch, by Pittsburgh Block Supply Company (1-877-427-8775) in Medina, OH.

E. Glass Block, use 15/8 inch wide Type Stainless Steel channels, manufactured by any source, by Karnak 100AF from the Glass Corporation (1-800-243-6739). Note: Remove any remaining film on the block to dry to a powder. After all sealants, caulking, etc., have been removed, excess caulk and caulk materials with commercial solvents such as xylene, toluene, mineral spirits or naphtha and follow with normal wash and rinse. Be careful not to damage caulking by overgenerous application of strong solvents. Comply with solvent manufacturers’ printed directions on label for toxicity and flammability warnings.

E. Final cleaning of glass block panels is accomplished after they are completely installed. Wait until panels are not exposed to direct sunlight. Start at the top of the panel and wash with generous amounts of clean water. Dry all water from the glass block surface. Change cloth frequently to eliminate dried mortar particles or aggregate that could scratch glass surfaces. To remove the dry grime from glass surfaces: use a clean, dry, soft cloth. For stubborn or hard to remove powder or stains, use an “ethylene powder or stains, use an “ethylene glycol” type powder that is 100% passing a No. 8 sieve. Consult local building codes in coastal areas. For VISTABRIK® Solid Glass Block, use 1/4 inch mastic for reinforcing (same as thinline Series glass block). Do not bridge mortar to end of panels. Lap reinforcing continuously to end of panels. Lap reinforcing not less than 6 inches whenever it is necessary to use more than one length. NOTE: In corrosive atmospheres (i.e. saline air, chlorinated air, etc.), the use of stainless steel, reinforcing and panel anchors should be considered. Consult local building codes in coastal areas. For VISTABRIK® Solid Glass Block, use 1/4 inch mastic for reinforcing (same as thinline Series glass block). Do not bridge expansion strips to jambs and head. Make certain expansion strip extends to sill and covers leg of panel anchor that is attached to jambs and head. Set a lower mortar bed joint, applied to sill.

2.03 Mortar Materials

Mortar: Limit cementitious materials in mortar to Portland Cement and Lime. Type C in accordance with ASTM C270. Mortar shall be 1 part Portland Cement, 1/2 part lime, and sand equal to 3 times the amount of cementitious material (cement plus lime), all measured by volume. (For exterior glass block panels, an integral type waterproofer should be added to the mortar mix.) NO anfrostee compounds or accelerators allowed.

NOTE: All model building codes also accept the use of Type N Mortar.

1. Portland Cement: Type I in accordance with ASTM C150. If a waterproof Portland Cement is used, the integral type waterproofer shall be omitted. (Masonry Cement is not recommended.)

2. Lime: Shall be a dolomitic (lime-hydrated) lime, Special Hydrate, Type S, in accordance with ASTM C207.

3. Sand: A clean, white quartzite or silica type, essentially free of iron compounds, in accordance with ASTM C144, not less than 100% passing a No. 8 sieve.

4. Integral Type Water-repellent. Stearatene Type by The Euclid Chemical Company (Integral Waterproofer Powder, Not Liquid, 1-800-321-7906), or approved equal. Note: Add Integral Waterproofer powder to dry mortar mix. Do not add powder to wet mortar mix.

5. External Type Water proofer: Water based silane type sealer by BASF Corporation (HYDROZON ENVIRONMENTAL™ 40, 1-800-243-6739). Note: Remove excess sealer from glass surfaces soon after application.

PART 3 – EXECUTION

3.01 Preparation

A. Verify that (channels), (panel anchors) have been provided at head and jambs for the purpose of providing panel support within the opening.
High Performance Systems are engineered pre-fabricated systems of Pittsburgh Corning glass block which provide both aesthetic and performance characteristics. Systems include — Blast-Resistance Glass Block Panels, Hurricane-Resistant Glass Block Windows, Detention & Security Windows, and Ballistic-Resistant Glass Block Panels, High Performance Systems can be specified under Division 8 Openings.

All High Performance Systems have the following benefits:
- Panelized systems for consistent workmanship
- Easily and quickly installed
- Offers a range of visibility and privacy options
- Provides daylighting
- Enhanced security
- Graffiti-resistant, damage-resistant, easy to clean
- Noise reduction

Tornado-Resistant Glass Block Windows
Uses laminated VISTABRIK® solid glass block with steel frame. Enhanced security. Also qualifies as a Ballistic-Resistant Window used in high security facilities.

Energy Efficient Glass Block Panels
Filters out 70% of total solar energy.
U-value = 0.38

Blast-Resistant Glass Block Panels
Meets GSA & UFC 04-010-01 Blast Glass Standard.

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