

# **StoGuard**<sup>®</sup> over Concrete Masonry

ONE WA

Design Guide and Detail Booklet Series 61c.xx | March 2022



StoGuard<sup>®</sup> is a water-based air and water-resistive barrier system, ideal for all types of construction and beneath multiple cladding types.

A fluid-applied system, StoGuard<sup>®</sup> forms a fully adhered and seamless monolithic air and waterresistive barrier on the exterior wall, protecting against moisture intrusion and unwanted air movement. StoGuard® liquid membranes can be applied either by roller or airless sprayer increasing the speed of application on the wall while simplifying integration with other wall assembly components.



# **Design Guide**



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#### ATTENTION

The final design of any project is the sole responsibility of the Design Professional, with considerations for compliance with local building and design codes and requirements. Sto Corp. accepts no liability for design, engineering, or workmanship of any project.The information provided herein is in addition to other technical data provided by Sto Corp. (System Bulletin, Specification, Guide Details, etc). For more information, please visit www.stocorp.com

#### Sto Corp.

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## **Components**



**Sto Gold Coat®** - Roller or spray applied vapor-permeable air & moisture barrier designed for use in StoTherm<sup>®</sup> ci Systems.



**Sto Gold Coat® TA** - Trowel applied vapor-permeable air & moisture barrier for use behind siding, brick, stone, adhered veneer, and StoTherm<sup>®</sup> ci Systems.



**Sto RapidGuard**<sup>®</sup> - One-component air barrier and waterproof material used to protect rough openings, sheathing joints, seams, cracks, penetrations, and other transitions in above grade wall construction.



**Sto AirSeal**<sup>®</sup> - Roller or spray applied, medium-to-high build, vapor-permeable air & moisture barrier for use behind siding, brick, stone, adhered veneer, StoTherm<sup>®</sup> ci Systems, and other claddings.



**StoGuard VaporSeal**<sup>®</sup> - Roller or spray applied high build air barrier and Class 1 vapor retarder (< 0.1 perms). Provides superior protection against vapor diffusion, moisture intrustion, and air leakage.



**Sto ExtraSeal**<sup>®</sup> - Trowel applied, single component polymer modified portland cement-based water-resistive air barrier for use over prepared concrete and concrete masonry (CMU) walls.

## **Detail Component Products**

**Sto Gold Fill**<sup>®</sup> - Trowel applied joint treatment and air barrier material used to treat rough openings, corners, and sheathing joints with StoGuard<sup>®</sup> Mesh or Sto Detail Mesh.



**StoGuard® Fabric** - Non-woven cloth reinforcement to treat joints, inside and outside corners and rough openings when embedded in Sto Gold Coat, Sto Emerald Coat, Sto AirSeal or Sto VaporSeal.



**Sto Mesh & Sto Detail Mesh** - A variety of designed coated glass fiber meshes used to provide reinforcement and impact resistance in Sto claddings.



**Sto Armor Mat & Sto Armor Mat XX** - A heavy, specifically designed coated glass fiber mesh used to provide ultra-high impact resistance in Sto claddings..





**StoGuard® Transition Membrane** - Flexible air barrier material used to make connections with adjoining construction to achieve continuity of the air barrier assembly at dynamic joints and dissimilar materials.



**StoGuard® Tape** - A self-adhering membrane composed of spun bond polyester fabric laminated to rubberized asphalt adhesive for use as rough opening protection at windows and doors. StoGuard® Primer required.

#### Structural - Wind and Axial Loads

- 1. Design for maximum allowable deflection normal to the plane of the wall of L/240 or as required by cladding (e.g., Brick L/720, Stucco L/360).
- 2. Design for wind load in conformance with code requirements.

#### Fire

- 1. <u>Non-Combustible Construction</u>: meets requirements for use on non-combustible construction based on testing in accordance with NPFA 285. Refer to ICC-ES ESR 1233 for allowable assemblies.
- 2. Fire-Resistant Rated Construction: Refer to ICC-ES ESR 1233 for allowable assemblies.
- 3. Refer to the Sto Tech Hotline No. 0111 BSc Fire Safety & Testing of Air Barriers and NFPA 285 Wall System Compliance Directory for more information.

#### **Moisture Protection**

- 1. Refer to Sto Tech Hotline No. 0603-BSc Moisture Control Principles for Design and Construction of Wall Assemblies and TH-0403-BSc, Critical Detail Checklist for Wall Assemblies for basic principles that must be employed in design and construction of wall assemblies to control moisture and to prevent water infiltration.
- 2. StoGuard functions as an air barrier and water-resistive barrier (WRB) in wall assemblies. The moisture protection provided by StoGuard protects walls against moisture damage from rain during the construction process and in the event of a breach in the wall cladding while in service. Flashing must always be integrated with the WRB in the wall assembly to direct water to the exterior of the cladding, not into the wall assembly, particularly at potential leak sources such as windows.
- 3. The function of an air barrier should not be confused with that of a vapor retarder. A vapor retarder is placed in the wall to resist differential vapor pressures, whereas the air barrier is designed to resist the structural live loads induced by air pressure difference.

Generally a vapor retarder is placed on the warm side of the wall. Specifically, it is placed on the interior side of the insulation in cold climates to minimize condensation within the wall assembly.

A vapor retarder may not be necessary depending on the wall components, the range of temperature/humidity conditions inside and outside, and the mechanical ventilation of the building. A vapor retarder should not be used on the interior side of walls in warm humid climates. Refer to applicable building codes for further guidance. If a vapor barrier is required refer to information on Sto VaporSeal products.

4. Some claddings, such as Portland Cement Stucco and Adhered Masonry Veneer require two layers of moisture protection and a path for drainage. Refer to Sto detail 22s.03 and local code requirements.

# •

## **Regulatory Compliance**

- 1. Complies with IBC, IRC and IECC as an air barrier material and water-resistive barrier (WRB). Refer to ICC-ES ESR 1233 for listed products.
- 2. Complies with VOC requirements of SCAQMD Rule 1113.
- 3. Complies with air barrier material requirements of ASHRAE 90.1 2013, 2016, 2019
- 4. Complies with air barrier material requirements of ASHRAE 189.1 2014, 2017
- 5. Complies with ABAA requirements for air barrier materials. Refer to ABAA website (www.airbarrier.org) for listed porducts.

#### Compatibility

1. All StoGuard<sup>®</sup> materials are adhesively and chemically compatible with one another. Verify compatibility of other air barrier materials, such as sealants, that come into contact with StoGuard<sup>®</sup> materials.

#### Other

- 1. Always construct a site built mock-up using materials and sub-trades associated with the project to verify installation, sequencing, detailing, and aesthetics, and test the performance of the window/wall assembly and other selected critical detail areas for air leakage, water infiltration, and structural adequacy in relation to design wind pressures. Correct any deficiencies shown by the mock-up and testing before commencing work.
- 2. Refer to product bulletins and specifications for complete information on Sto products. Refer to **StoGuard® Air and Water-Resistive Barrier Detail Series 22s.xx** for information on detailing with StoGuard products.
- 3. The final design of the project is the responsibility of the Design Professional. Sto accepts no liability for design, engineering, or workmanship of any project. The notes provided herein are in addition to Sto Guide Details, Guide Specifications, and other items available at www.stocorp.com

Table 1.1 - StoGuard <sup>®</sup> Det	tail Component	Applications			
StoGuard <sup>®</sup> Detail Component	Sheathing Joints and Corners	Flashing and Rough Opening Protection	Penetrations	Static Joints and Seams	Dynamic Joints
Sto RapidGuard®	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
StoGuard <sup>®</sup> Conformable Membrane	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
StoGuard <sup>®</sup> Fluid Applied Air & Water-Resistive Barrier <sup>1</sup> with StoGuard <sup>®</sup> Fabric	$\checkmark$	$\checkmark$	$\checkmark$		
StoGuard® Transition Membrane embedded with any StoGuard® Fluid Applied Air & Water-Resistive Barrier <sup>1</sup>				$\checkmark$	$\checkmark$
Sto Gold Fill with StoGuard® Mesh (or Sto Detail Mesh embedded)	$\checkmark$	$\checkmark$	$\checkmark$		
Sto Gold Coat® TA with StoGuard® Mesh	$\checkmark$	$\checkmark$	$\checkmark$		

 $^{1}$  StoGuard  $^{\otimes}$  Fluid Applied Air & Water-Resistive Barriers: Sto AirSeal  $^{\otimes}$  and Sto Gold Coat  $^{\otimes}$ 

# **Design Details**

## Components

Base of Wall	61c.01
Shelf Angle	61c.21
Shelf Angle with Stand-offs	61c.21A

## Installation at Windows

Window Sill - Partial View Showing Termination	61c 31A
Window Sill	
Window Sill - Clarifying Views	
Window Jamb	
Window Jamb	
Window Head - Partial View Showing Termination	

## Installation at Joints

Restrained Joint at Concrete Column Interface	61c.41
Movement Joint at Concrete Column Interface - Option A	61c.42A
Movement Joint at Concrete Column Interface - Option B	61c.42B
Restrained Joint at Steel Column Interface - Option A	61c.43A
Restrained Joint at Steel Column Interface - Option B	61c.43B
Movement Joint at Steel Column Interface - Option A	61c.44A
Movement Joint at Steel Column Interface - Option B	61c.44B

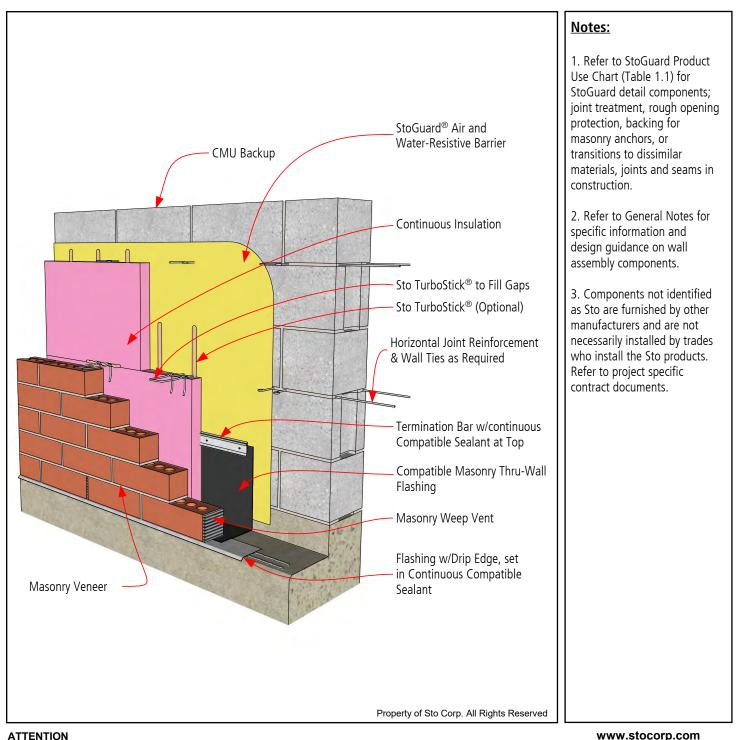
## **Installation at Parapet**

Roof to Wall Parapet
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# **StoGuard**<sup>®</sup> Masonry Veneer on CMU Backup **Base of Wall**

## Detail No.: 61c.01 Date: March 2022



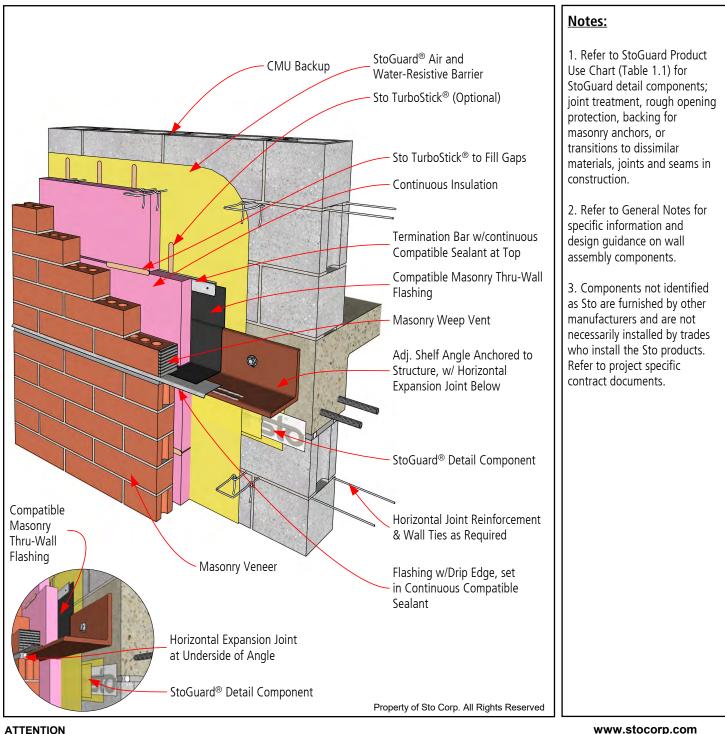
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# StoGuard<sup>®</sup> Masonry Veneer on CMU Backup **Shelf Angle**

## Detail No.: 61c.21 Date: March 2022



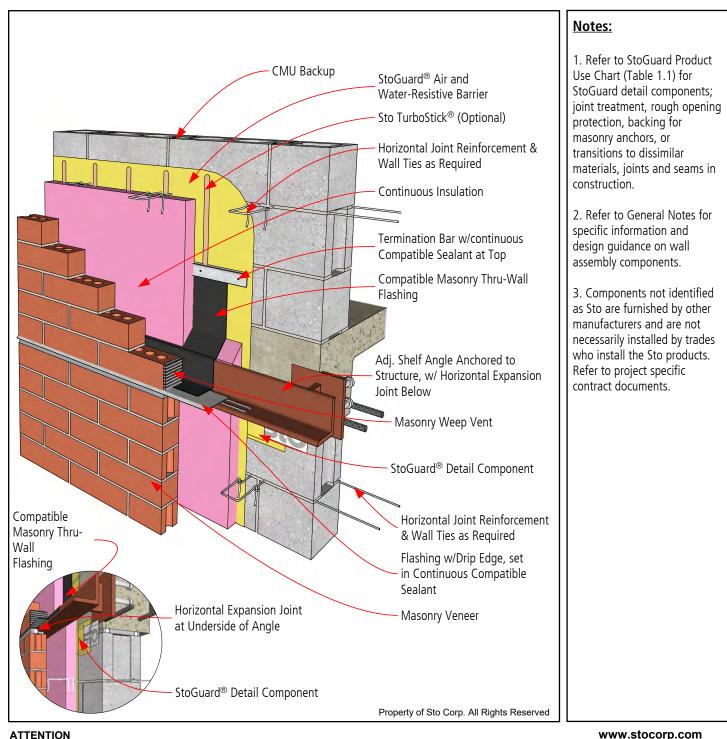
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# **StoGuard**<sup>®</sup> Masonry Veneer on CMU Backup Shelf Angle w/ Stand-offs

## Detail No.: 61c.21A Date: March 2022



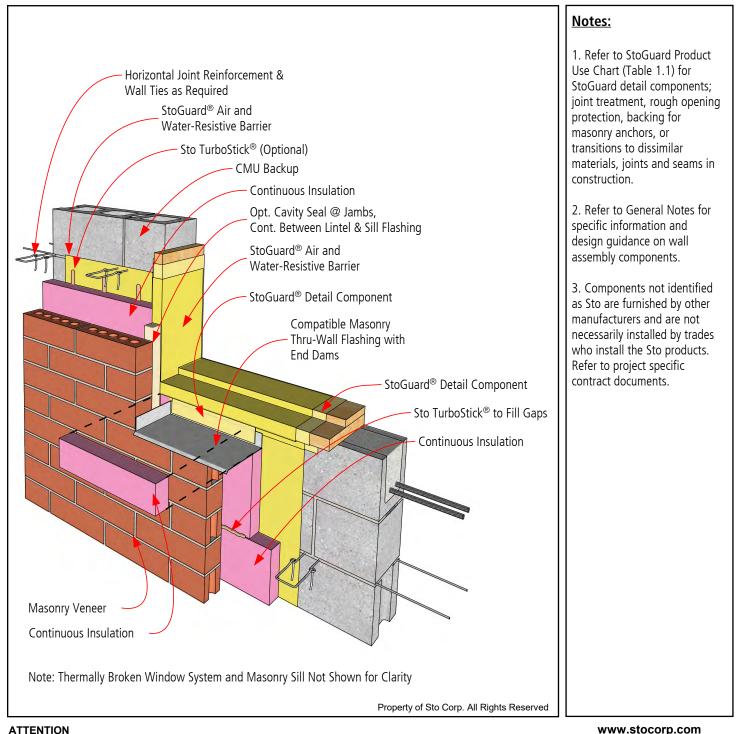
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# **StoGuard**<sup>®</sup> Masonry Veneer on CMU Backup Window Sill - Partial View Showing Terminations

## Detail No.: 61c.31A Date: March 2022



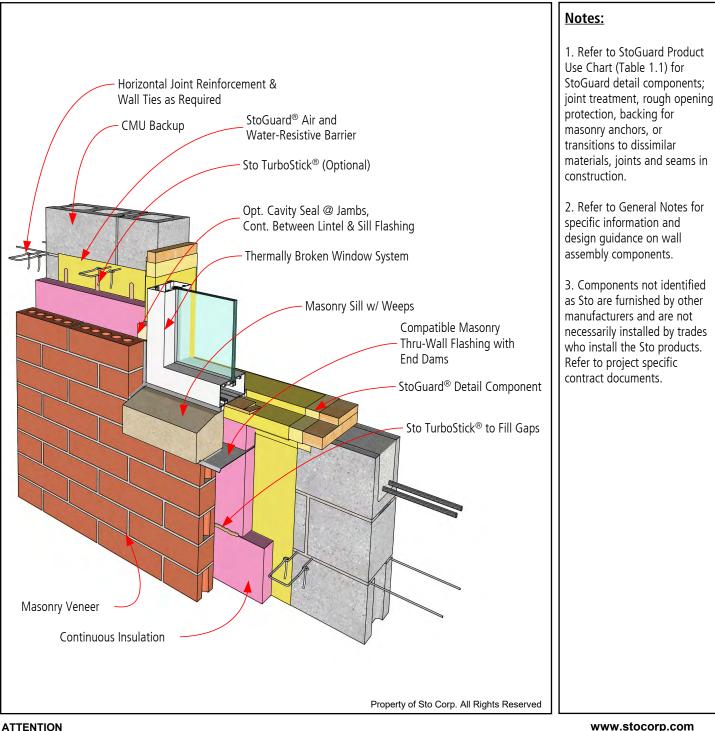
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# **StoGuard**<sup>®</sup> **Masonry Veneer on CMU Backup** Window Sill

## Detail No.: 61c.31B Date: March 2022



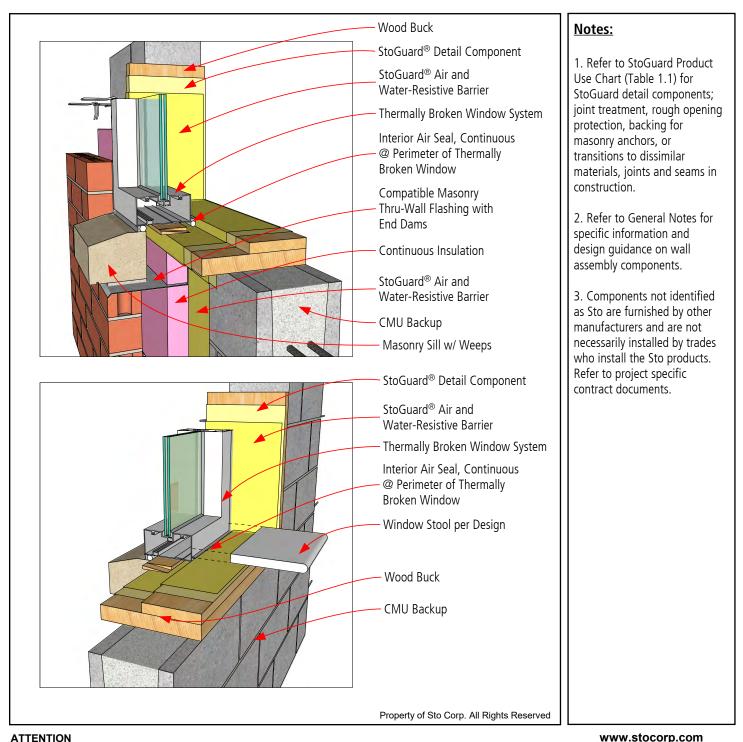
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# **StoGuard**<sup>®</sup> Masonry Veneer on CMU Backup Window Sill – Clarifying Views

### Detail No.: 61c.31C Date: March 2022



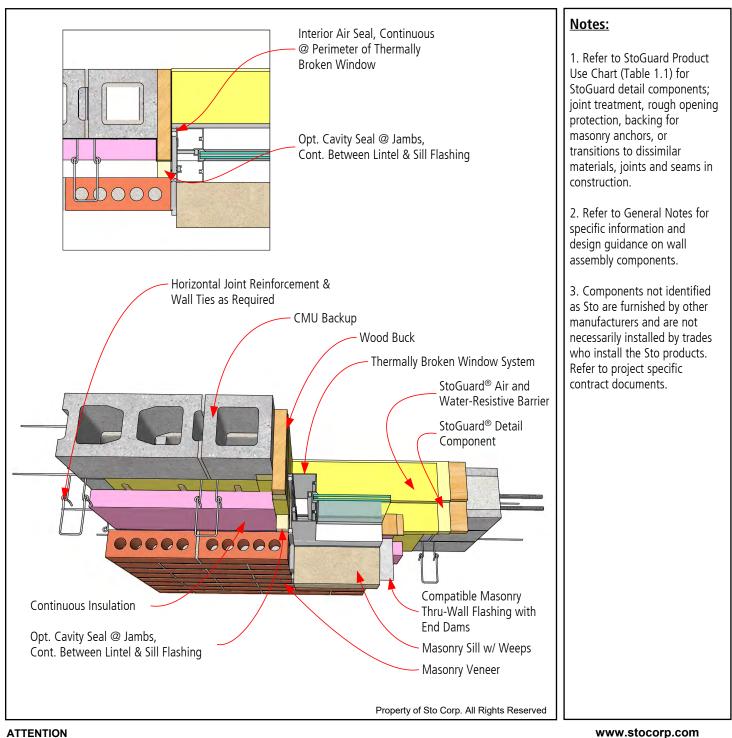
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# **StoGuard**<sup>®</sup> **Masonry Veneer on CMU Backup** Window Jamb

## Detail No.: 61c.34 Date: March 2022



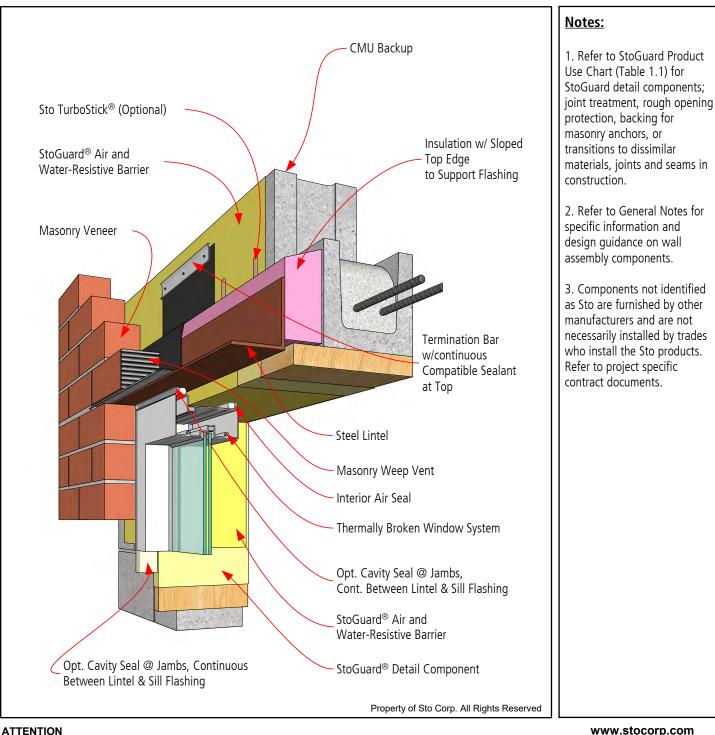
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# **StoGuard**<sup>®</sup> **Masonry Veneer on Steel Stud Backup** Window Head

## Detail No.: 61c.35 Date: March 2022



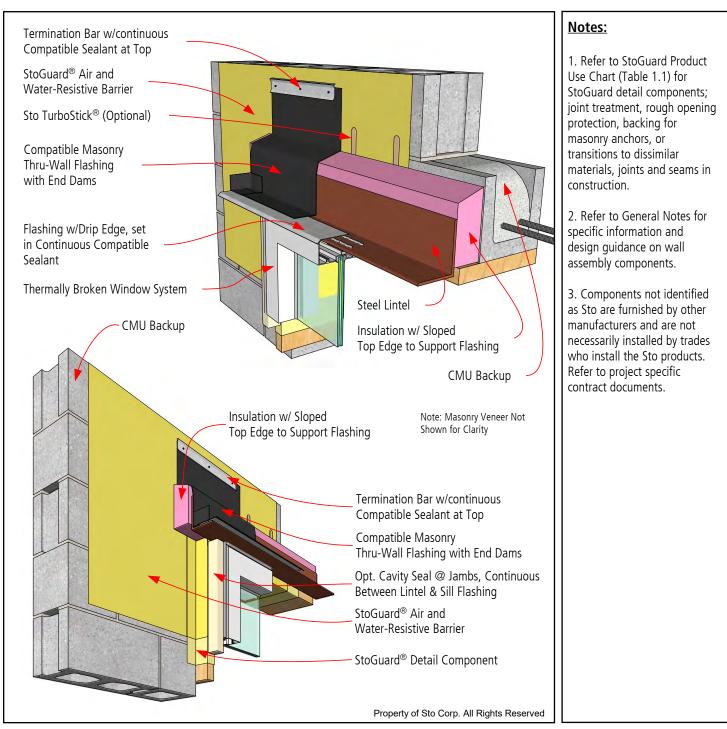
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# StoGuard<sup>®</sup> Masonry Veneer on CMU Backup Window Head – Partial View Showing Terminations

### Detail No.: 61c.36 Date: March 2022



#### ATTENTION

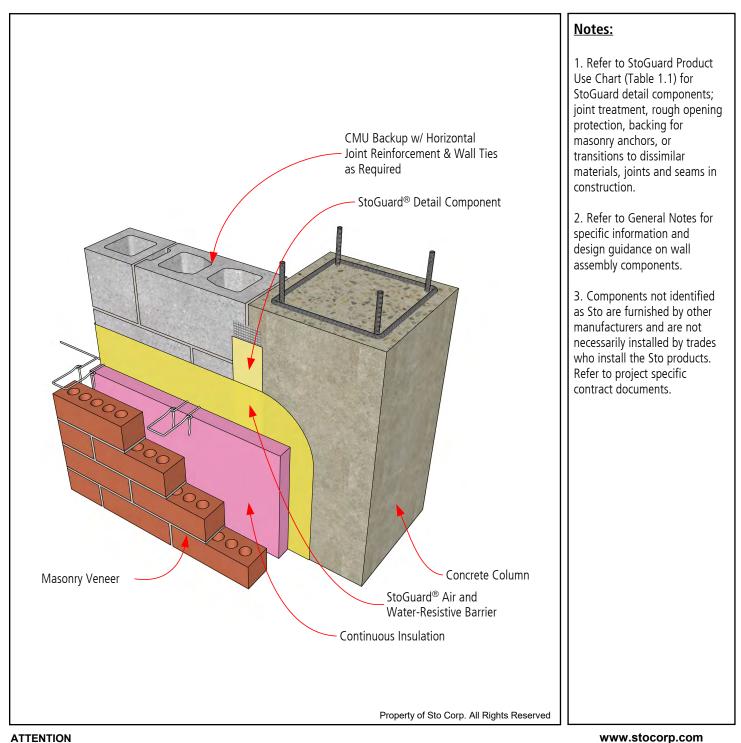
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# **StoGuard**® **CMU Backup Wall to Concrete Column Interface Restrained Joint**

### Detail No.: 61c.41 Date: March 2022



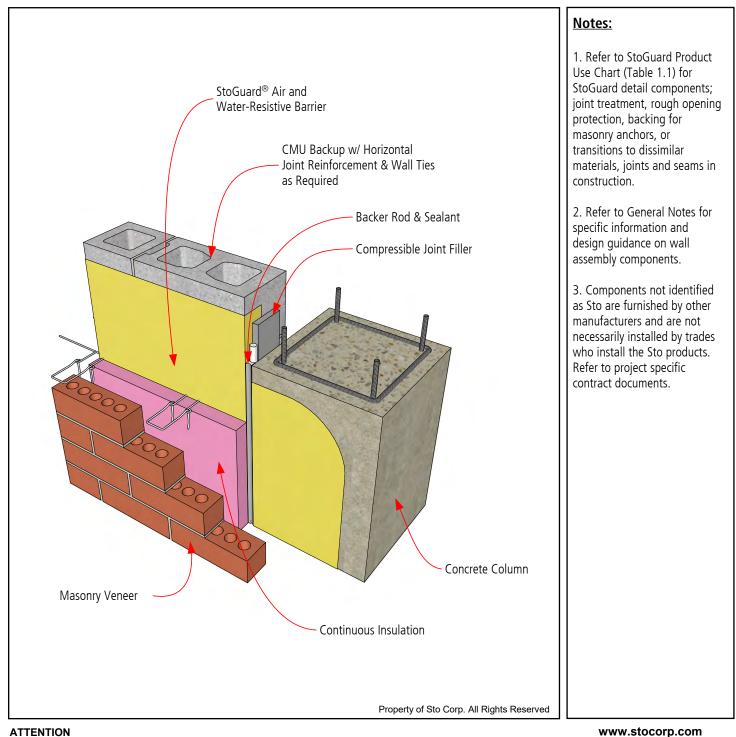
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# **StoGuard**® **CMU Backup Wall to Concrete Column Interface Movement Joint - Option A**

## Detail No.: 61c.42A Date: March 2022



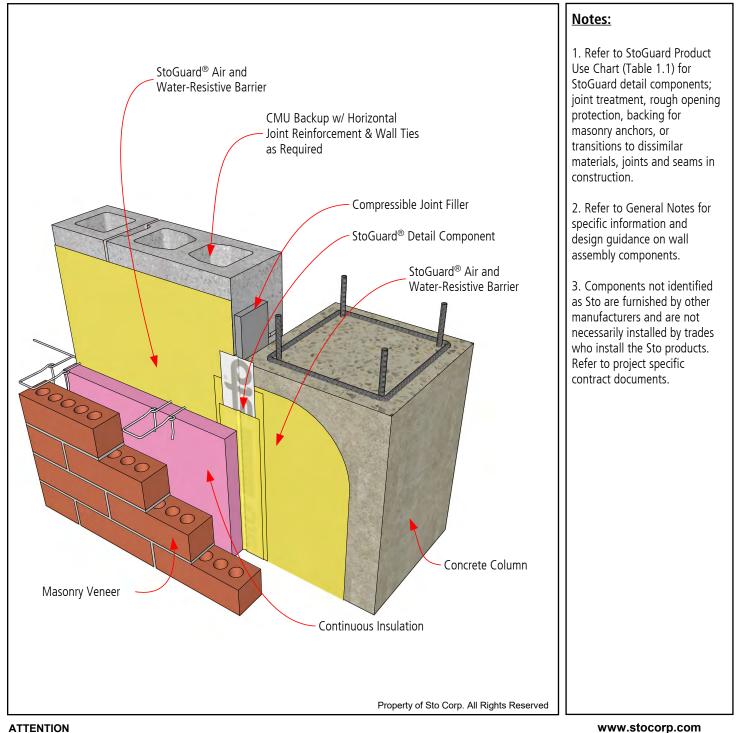
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# **StoGuard**® **CMU Backup Wall to Concrete Column Interface Movement Joint - Option B**

## Detail No.: 61c.42B Date: March 2022



#### ATTENTION

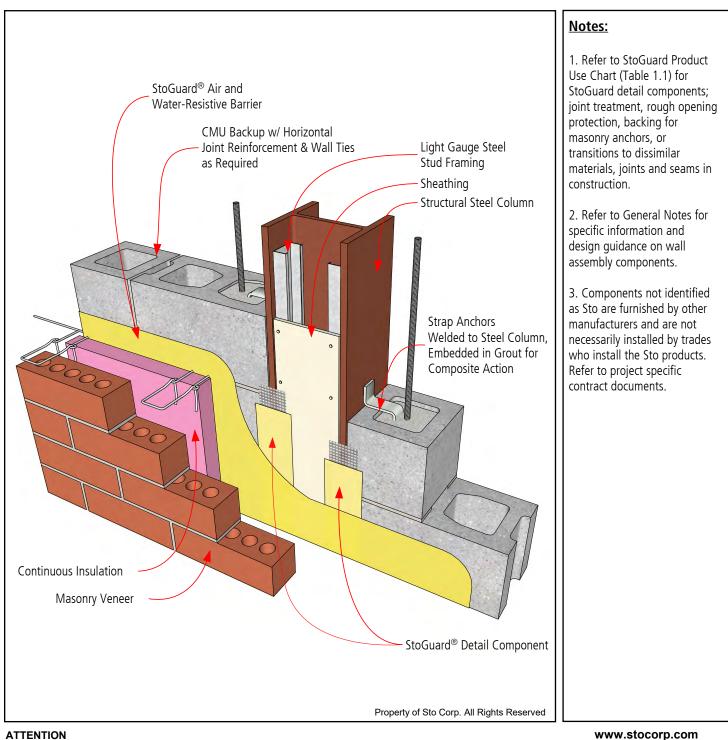
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# **StoGuard**® **CMU Backup Wall to Steel Column Interface Restrained Joint - Option A**

### Detail No.: 61c.43A Date: March 2022



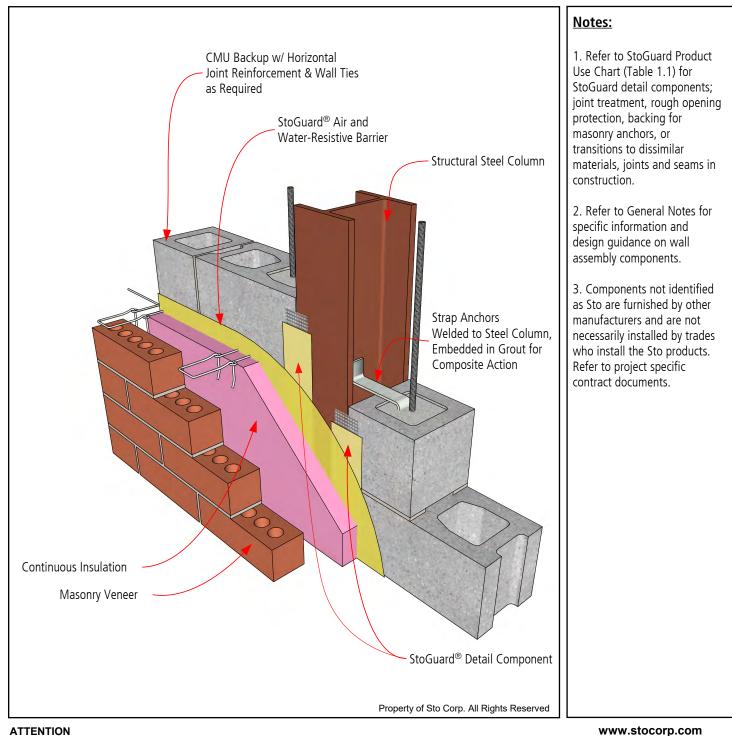
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# **StoGuard**® **CMU Backup Wall to Steel Column Interface Restrained Joint - Option B**

### Detail No.: 61c.43B Date: March 2022



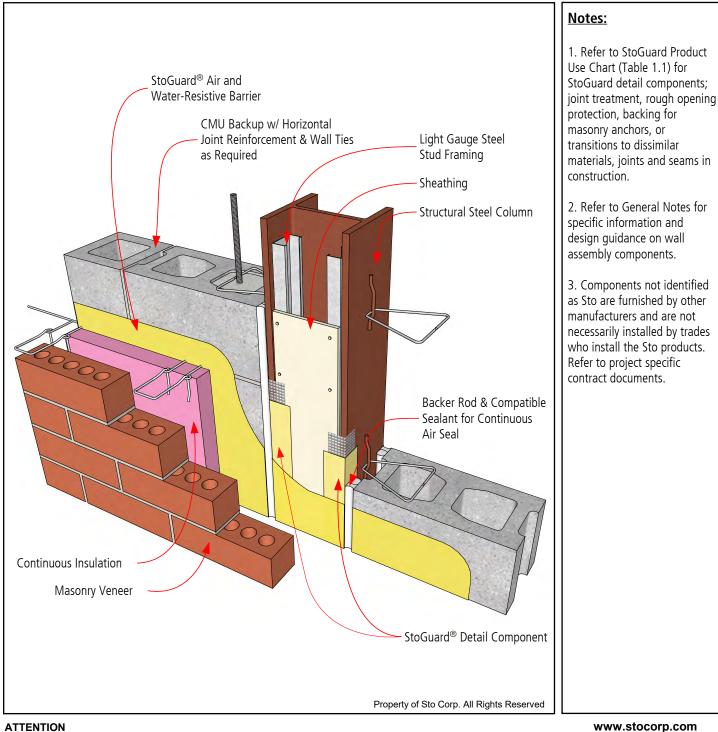
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# **StoGuard**® **CMU Backup Wall to Steel Column Interface Movement Joint - Option A**

### Detail No.: 61c.44A Date: March 2022



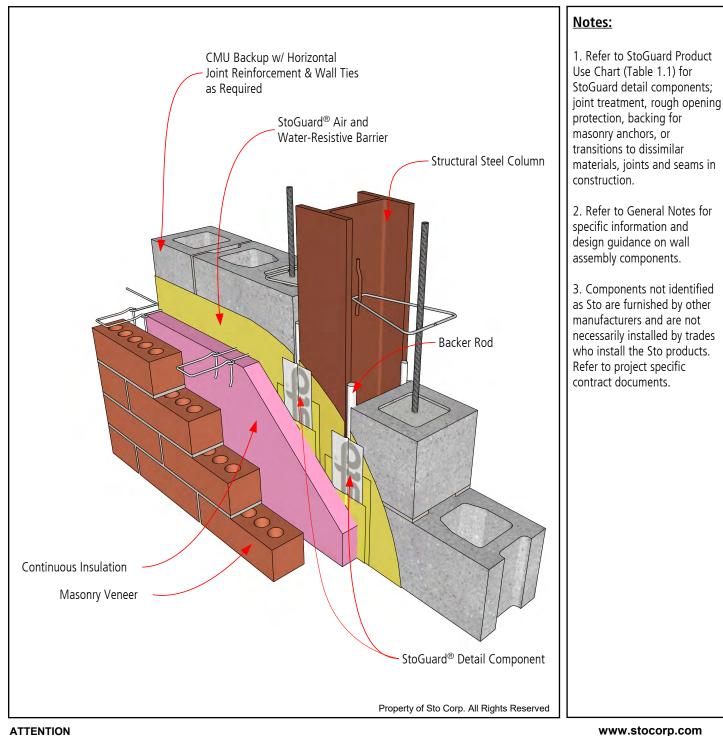
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# **StoGuard**® CMU Backup Wall to Steel Column Interface -**Movement Joint - Option B**

### Detail No.: 61c.44B Date: March 2022



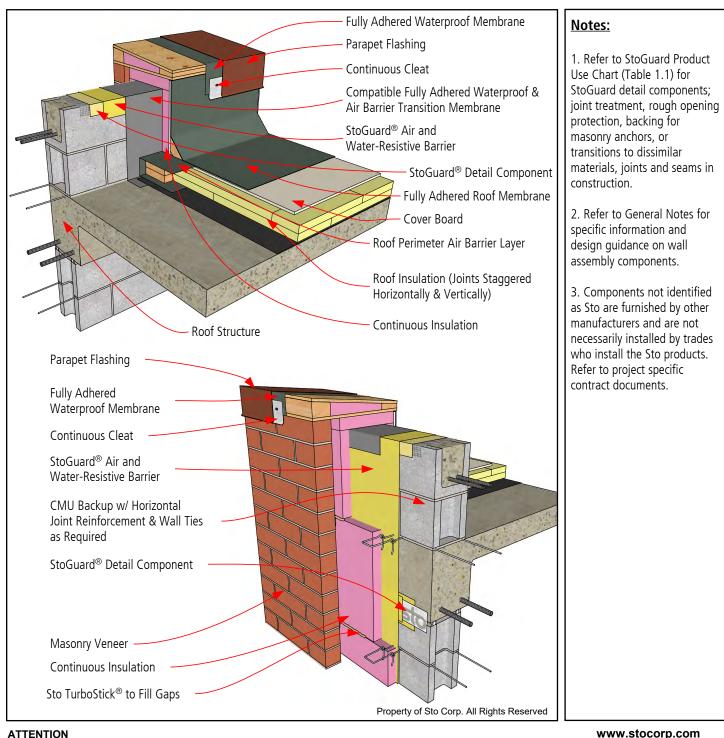
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# **StoGuard**<sup>®</sup> **Masonry Veneer on CMU Backup Roof to Wall Parapet**

## Detail No.: 61c.81 Date: March 2022



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