

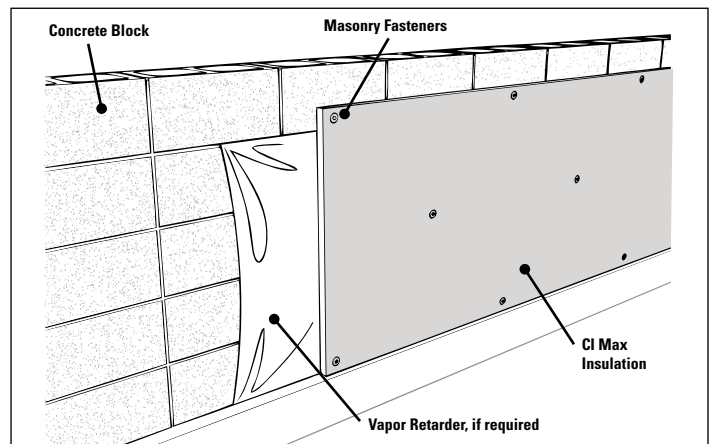
The following installation recommendations relate to the installation of CI Max Polyisocyanurate Foam Sheathing in an exposed condition on the interior of a building. CI Max foam sheathing is designed to be installed in the applications described below without the addition of a thermal barrier.

**GENERAL**

1. CI Max foam sheathing is not a structural material. It must not be used as a nailing base for any other building products.
2. CI Max foam sheathing passed NFPA 286 corner burn test for walls only or ceiling only without joint treatment. Boards need to be tightly butted. Taping the seams is acceptable with tapes that have a flame spread index of 25 or less and a smoke developed index of 450 or less.
3. All framed walls insulated with CI Max foam sheathing must be properly braced for lateral loads according to local building codes.
4. Consult local building codes and authorities regarding special applications or details required when using CI Max foam sheathing as an exposed product.
5. The interior and/or exterior of the building should be protected with a suitable vapor retarder and/or air barrier/weather resistive barrier, based on local building codes and climate zone.
6. Repair any boards damaged during installation. Patch holes less than one inch across with seam tape. Patch holes greater than one inch across with matching board material and then seal with flashing tape that have a flame spread of 25 or less and a smoke development of 450 or less.
7. Special training and/ or certification is not required. This product is designed for an easy install for both DIYs and professional contractors.
8. Warning: Polyisocyanurate foam is an organic material which will burn when exposed to an ignition source of sufficient heat and intensity and may contribute to flames spreading. Boards must not be in direct contact with hot objects requiring a certain amount of clearance. Refer to equipment/ fixture rating for guidance.
9. Occupancy time after installation: There are no specific requirements related to re-entry or re-occupancy time after installation of the insulation

**MASONRY WALLS**

- CI Max foam sheathing may be installed to the interior of masonry walls, including above-grade masonry and tilt-up walls and below-grade basement and crawl space walls.
- Walls should already have any required air/water/vapor barriers or damp-proofing installed prior to installation of CI Max foam sheathing.
- Below-grade applications may require additional materials to effectively manage water, water vapor and/or radon.
- Some below-grade applications may require a two- to three-inch inspection strip along the top of the foundation wall for termite mitigation. Always adhere to local building code or pest control requirements.



**Figure 1.** CI Max boards mechanically fastened

**FASTEN CI MAX INSULATION DIRECTLY TO THE WALL**

1. Fasten CI Max insulation boards to the interior of the wall using power-driven masonry nails with 1½-inch minimum diameter metal washers or caps, or other suitable masonry fastener. For crawl space wall installation, CI Max insulation should be installed horizontally (as shown in Figure 1). For basement installations, CI Max insulation can be installed either vertically or horizontally.
2. Space fasteners approximately 24 inches on center across the short board dimension and 48 inches on center across the long board dimension.
3. Butt board edges together tightly and carefully fit around penetrations. CI Max foam sheathing may be installed and left exposed without joint treatment. However, tape may be installed to reduce air leakage using aluminum or white foil tape that has a flame spread of 25 or less and a smoke development of 450 or less.

**FASTEN CI MAX INSULATION OVER FURRING STRIPS**

1. Install wood or pressure-treated wood furring strips, preferably spaced not more than 24 inches on center. Furring strips may be installed with power-driven masonry nails.
2. Install CI Max board over furring strips. Butt board edges together tightly, align seams over furring strips, and carefully fit around openings and penetrations. CI Max foam sheathing may be installed and left exposed without joint treatment. However, tape may be installed to reduce the air leakage of the wall system using aluminum or white foil tape that must have a flame spread of 25 or less and a smoke developed index of 450 or less.

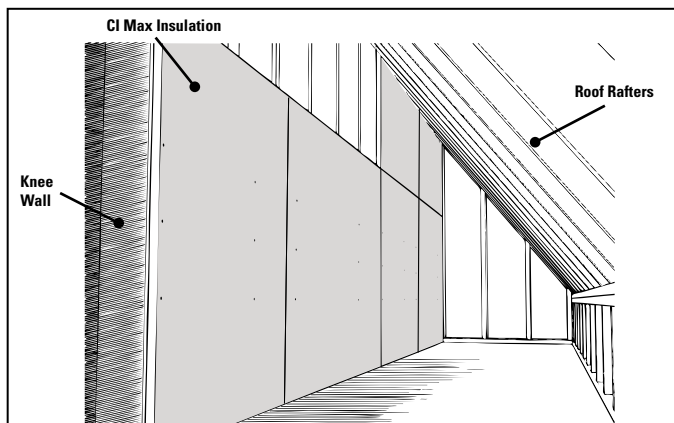
- Fasten insulation boards to the furring strips using screws or roofing nails with a 1½-inch minimum metal washer or top cap. Alternate fasteners may be used, with the type and length as recommended by their manufacturer for securing foam plastic insulating sheathing.

**Table 1**

Insulation Thickness	Masonry Screw Length
½"	1"
.77"	1½"
1"	1½"
1½"	2"
2"	2½"
2½"	3"
3"	3½"
3½"	4"
4"	4½"
<b>Special Order Thickness</b>	<b>Thickness + ½"</b>

**FRAMED WALLS**

- Fasten CI Max insulation boards to the interior of the framing using #6 screws or nails with 1½-inch minimum metal washers or caps as described in Table 2. Alternate fasteners may be used, with the type and length as recommended by their manufacturer for securing foam plastic insulating sheathing.
- Space fasteners approximately 16 inches on center around the perimeter and in the field of each board. (16 or 24 inches on center across framing, depending on framing spacing.)
- Use maximum board lengths to minimize number of joints. Locate joints square to framing and center end joints over framing (as shown in Figure 2). Provide additional framing as necessary. It is not necessary to stagger board joints.
- Butt board edges together tightly and carefully fit around openings and penetrations.
- Drive fasteners so the stress plate/washer is tight and flush with the board surface but do not countersink.
- CI Max sheathing may be installed and left exposed without joint treatment. However, tape may be installed to reduce air leakage, using aluminum or white foil tape that must have a flame spread of 25 or less and a smoke developed index of 450 or less.



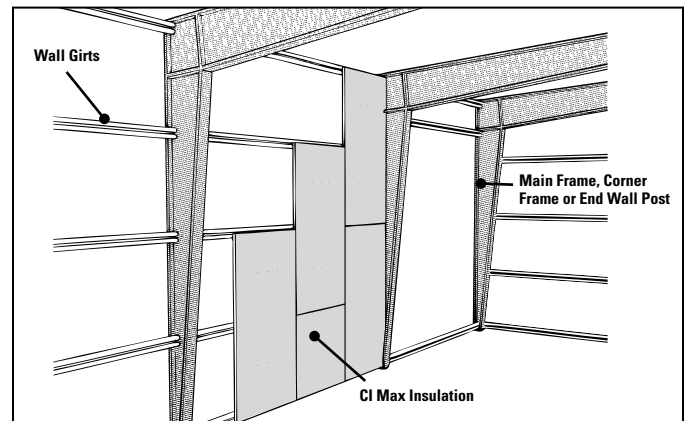
**Figure 2.** Knee wall installation of CI Max boards

**Table 2**

Insulation Thickness	Screw Length
½"	1½"
.77"	1½"
1"	1¾"
1½"	2¼"
2"	2¾"
2½"	3¼"
3"	3¾"
3½"	4¼"
4"	4¾"
<b>Special Order Thickness</b>	<b>Thickness + ¾"</b>

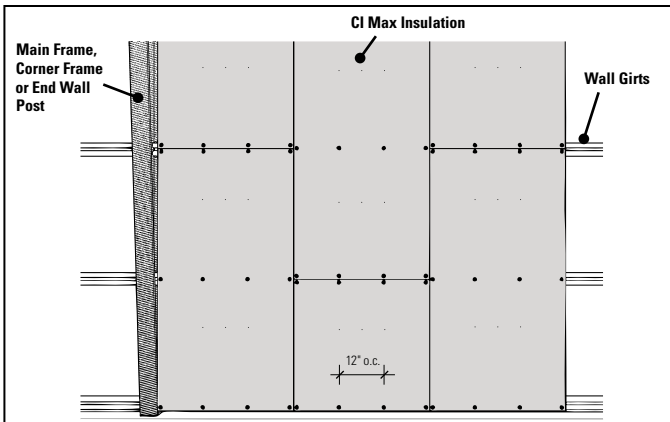
**PRE-ENGINEERED METAL BUILDINGS**

- All exterior wall panels should be installed. To avoid moisture accumulation within the wall, one of the following recommendations should be followed
  - If the joints of CI Max insulation will be sealed to reduce air leakage, any fiber glass metal building insulation blankets should have perforated facings to avoid a double vapor retarder in the wall system.
  - If the joints of CI Max insulation will not be sealed, no change is required to the metal building insulation blankets.
- Install CI Max insulation over the interior face of the wall girts.
- Use maximum board lengths to minimize number of joints. Locate joints square to girts and center end joints over girts. Provide additional framing as necessary. Stagger each course at least one girt. See Figure 3.



**Figure 3.** CI Max boards on interior of pre-engineered metal building

- Butt board edges together tightly and carefully fit around openings and penetrations.
- Fasten the insulation board to the face of the girts using preassembled screw and metal stress plate fasteners as described in Table 2. Alternate fasteners may be used, with the type and length as recommended by their manufacturer for securing foam plastic insulating sheathing.
- Fasteners should be spaced 12 inches, across the face of each girt, as shown in Figure 4. Drive fasteners so the metal stress plate is tight and flush with the board surface but do not countersink.



**Figure 4.** Fastener spacing for CI Max foam sheathing over the interior of pre-engineered metal building girts

### INTERIOR CEILINGS

CI Max foam sheathing may be installed onto interior ceilings, including framed (wood or metal) or masonry constructions.

### MASONRY/CONCRETE CEILINGS

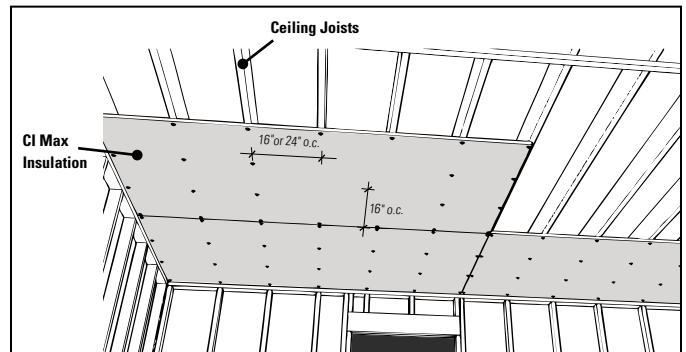
1. Fasten CI Max insulation boards to the interior of the ceiling using power-driven masonry nails with 1½-inch minimum metal washers or caps, or other suitable masonry fastener.
2. Space fasteners approximately 24 inches on center across the short board dimension and 48 inches on center across the long board dimension
3. Butt board edges together tightly and carefully fit around penetrations.

### MASONRY/CONCRETE CEILINGS OVER FURRING STRIPS

1. Install wood or pressure-treated wood furring strips, preferably spaced not more than 24 inches on center. Furring strips may be installed with power-driven masonry nails.
2. Install CI Max board over furring strips. Butt board edges together tightly, align seams over furring strips, and carefully fit around openings and penetrations. CI Max foam sheathing may be installed and left exposed without joint treatment. However, tape may be installed to reduce the air leakage of the wall system using aluminum or white foil tape that must have a flame spread of 25 or less and a smoke developed index of 450 or less.
3. Fasten insulation boards to the furring strips using screws or roofing nails with a 1½-inch minimum metal washer as described in Table 1 above. Alternate fasteners may be used, with the type and length as recommended by their manufacturer for securing foam plastic insulating sheathing.
4. Fasteners should be spaced 24 inches on center across the short board dimension and 48 inches on center across the long board dimension along each furring strip. Drive fasteners so the plate or washer is tight and flush with the board surface but do not countersink.

### FRAMED CEILINGS

1. Fasten CI Max insulation boards to the interior of the ceiling framing using #6 screws or nails with 1½-inch minimum metal washers or caps as described in Table II. Alternate fasteners may be used, with the type and length as recommended by their manufacturer for securing foam plastic insulating sheathing.
2. Space fasteners approximately 16 inches on center around the perimeter and in the field of each board. (16 or 24 inches on center across framing, depending on framing spacing.)
3. Use maximum board lengths to minimize number of joints. Locate joints square to framing and center end joints over framing. Provide additional framing as necessary. It is not necessary to stagger board joints. See Figure 5.
4. Butt board edges together tightly and carefully fit around openings and penetrations.
5. Drive fasteners so the stress plate is tight and flush with the board surface but do not countersink.
6. CI Max sheathing may be installed and left exposed without joint treatment. However, tape may be installed to reduce air leakage using aluminum or white foil tape that must have a flame spread of 25 or less and a smoke developed index of 450 or less.



**Figure 5.** CI Max insulation installed over framed ceiling

### CI Max Insulation for Exposed Interior Use

ICC (2012)	Flame Spread*	Smoke Development*
IBC Section 2603.5	4" thick (102 mm), 25 or less	4" thick (102 mm), 450 or less
IBC Section 2603		
IBC Section R316		

\* Per ASTM E84.

### VICTORY BEAR CLIP INSTALLATION

The Victory Bear accessories are aesthetic and require approved mechanical fastening as described in the Masonry Walls, Framed Walls, Pre-engineered Metal Buildings and Ceiling sections above.

#### Victory Bear Flex-Tite Installation

- 1) Choose the appropriate clip size depending on the insulation thickness
- 2) Do not span framing with interlocking clips.
- 3) Align the Flex-Tite J-Channel horizontally to the desired height and check for level. Nail or staple into place.
- 4) Align the Flex-Tite Female clip vertically at desired spacing and check for plumb. Use a ¾" to 1" nail to fix clip into place.
- 5) Install the CI Max boards in place with approved mechanical fasteners and fastening pattern. Clip the Flex-Tite Male into the Female.

### **Victory Bear Quick Clip Installation**

- 1) Choose the appropriate clip size depending on the insulation thickness
- 2) Do not span framing with interlocking clips.
- 3) Align the Victory Bear J-Channel to the desired height and check for level. Nail or staple into place.
- 4) Align the Quick Clip vertically at desired spacing and check for plumb. Use a ¾" to 1" nail to affix nail into place via the nail fin.
- 5) Install the CI Max boards in place with approved mechanical fasteners and fastening pattern. Board should be tucked under the Quick Clip "T" section for a tight seal.

### **PERSONAL PROTECTIVE EQUIPMENT**

#### **Personal Protective Equipment: Eyes/Face**

Safety glasses with side shields are recommended to keep dust out of the eyes.

#### **Personal Protective Equipment: Skin**

Leather or cotton gloves should be worn to prevent skin contact and irritation.

### **Personal Protective Equipment: Respiratory**

A NIOSH-certified respirator should be used if ventilation is unavailable, or is inadequate for keeping dust levels below the applicable exposure limits.

### **Ventilation**

In fixed manufacturing settings, local exhaust ventilation should be provided at areas of cutting to remove airborne dust. General dilution ventilation should be provided as necessary to keep airborne dust below the applicable exposure limits and guidelines. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

### **Personal Protective Equipment: General**

Loose-fitting, long-sleeved clothing should be worn to protect skin from irritation. Work clothing should be washed separately from other clothes, and the washer should be rinsed thoroughly (run empty for a complete wash cycle). This will reduce the chances of dust being transferred to other clothing.



Approval #

BP-092200006-BVP  
(Replaces DIS-062230219)

Industry Services Division  
4822 Madison Yards Way  
P.O. Box 7302  
Madison, WI 53701-7302

## Wisconsin Building Product Evaluation

Material

CI MAX®  
Polyisocyanurate Continuous Insulation

Manufacturer

Johns Manville  
10100 West Ute Ave  
Littleton, CO 80127

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### SCOPE OF EVALUATION

Johns Manville CI MAX® thermal insulation is used as nonstructural thermal insulating material on the interior of dwellings & commercial buildings. Continuous insulation known as CI MAX® thermal insulation may be left exposed without a thermal barrier to the building interior of either walls only or ceiling only. CI MAX® thermal insulation may be left exposed without an ignition barrier in attics and crawl spaces of a building in either walls only or ceiling only (but not both).

### DESCRIPTION AND USE

When CI MAX® thermal insulation is to be left exposed without a thermal barrier, the printed side must not be exposed to the building interior. CI MAX® insulation core is a closed-cell, rigid polyisocyanurate foam plastic of nominal density of 1.7 pcf (28.8 kg/m<sup>3</sup>). Bonded to one side is nonprinted glass-mat laminated with aluminum foil facer and is bonded on the other side with a printed bilaminate (kraft paper laminated with aluminum foil) facer. CI MAX® has square edges and is available in various lengths & widths and in thicknesses between ½ inch & 4 inches.

The faced CI MAX® has a flame-spread index of 25 or less and a smoke-developed index of 450 or less at a maximum thickness of 4 inches (102mm). CI MAX® has a thermal resistance (R-value) at a mean temperature of 75°F (24°C) as shown in Table 1 below. CI MAX® must be installed in accordance with the Johns Manville published installation instructions, the applicable codes, and this report. Installation instructions are to remain available at the jobsite during the



installation. With a thermal barrier CI MAX® may be used on any or all surfaces (wall or ceiling assembly) in any type of construction. CI MAX® boards must be attached with fasteners spaced a maximum of 24 inches (610 mm) on center along the width & maximum of 48 inches (1219 mm) on center along the length of CI MAX®. Where CI MAX® is installed in interior applications with a prescriptive thermal barrier, it may be held with 1- to 2-inch spots of construction grade adhesive, spaced 16- to 24-inches in each direction. Without thermal barrier the CI MAX® insulation must be attached to the walls only or the ceiling only with non-printed face exposed. The CI MAX® must be attached with either masonry nails, or No. 6 screws or nails, and 1½-inch metal washers or caps spaced 24 inches (610 mm) on center along the width of the CI MAX® and a maximum of 24 inches (1219 mm) along the length of the CI MAX®.

**Table 1 – Thermal Resistance (R-values) for CI MAX® Continuous Insulation**

<b>Thickness (inches)</b>	<b>R-value at 75°F (°F-ft<sup>2</sup>-hr)/Btu</b>
1	6.0
1.20	7.5
1.65	10
2	13
4	26

When CI MAX® is installed within attics and crawl spaces, where entry is made only for service of utilities, an ignition barrier must be installed per IBC 2603.4.1.6 provision. Ignition barrier if provided must cover the insulation so that none is exposed. Installation of CI MAX® without an ignition barrier is permitted with maximum 4-inch thickness installed on either the wall or on the ceiling with the following items as applicable: 1) Attic ventilation per IBC 1203.2 or SPS 322.39 is provided, 2) Crawl space ventilation per IBC 1203.4 for commercial buildings is provided, & 3) Combustion air is provided in accordance with IMC 701 or IFGC 304 or SPS 323.06 provisions.

## **TESTS AND RESULTS**

CI MAX® is classified as Type I, class 1 & class 2 material in accordance with ASTM C1289-18 standard. Intertek Code Compliance Research Report CCRR-0444 and ICC ESR-3398 product approval noting as passing ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12) and noted as passing fire test for evaluating contribution of wall and ceiling interior finish to room fire growth in accordance with NFPA 286. Surface burning testing to ASTM E84-18b shows flame spread index of 25 or less and a smoke developed index of 450 or less. Insulation values of Table 1 are per ASTM C518 testing.

Copy of Intertek CCRR-0444 is available at: [CCRR-0444 \(intertek.com\)](https://intertek.com)

Copy of ICC-ESR report SSR-3398 is available at: <https://icc-es.org/report-listing/esr-3398/>

## **LIMITATIONS OF APPROVAL**

The Wisconsin Building Product Evaluation Number &/either ESR-3398 or CCRR-0444 must be provided when plans that include this product are submitted for review. CI MAX® must be installed in accordance with the Johns Manville published installation instructions, the applicable codes, and this report. Resistance to structural loads is outside this report. CI MAX® used on the interior of buildings must have a thermal barrier or ignition barrier as required by IBC 2603.4 & 2603.4.1.6 or SPS 321.11; unless meeting the above requirements in unoccupied attic or crawl spaces as installed on either a ceiling or wall, but not both. Product must bear the label on the boards or on the packaging material with Johns Manville name, plant location, CI MAX® name, the flame spread & smoke developed indices, and the ICC-ER number of ESR-3398 or Intertek CCRR-0444 & Intertek Control Number.

**DISCLAIMER**

This approval will be valid through 12/31/2027 unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: Jack A. Miller

Peer Review: JZ

Approval Date: 09/06/2022 By: Jack A. Miller  
Commercial building plan examiner and product reviewer