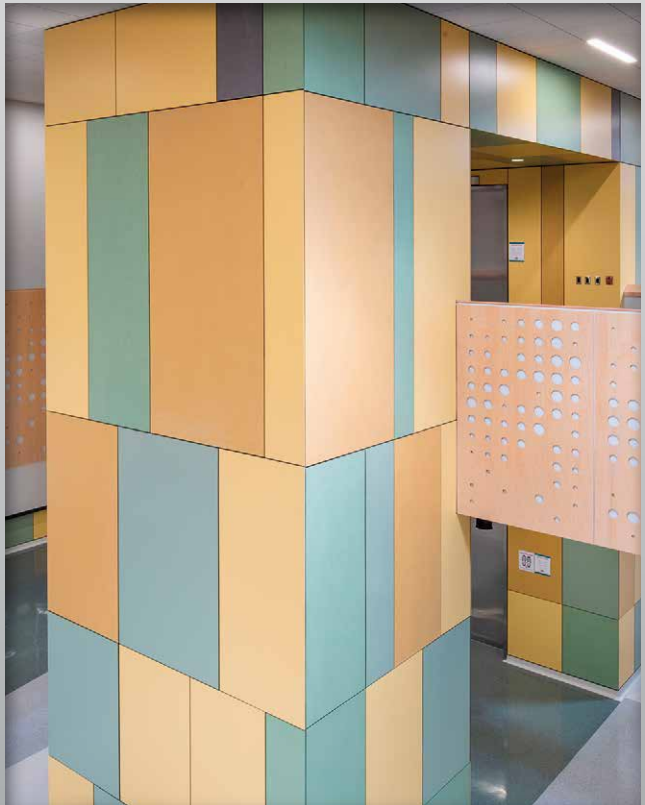


# **aFC** *cladding*

SUSTAINABLE SOLUTIONS

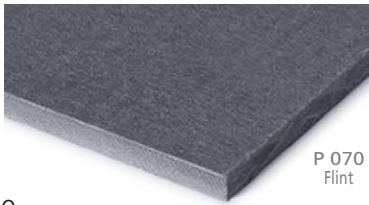



**American Fiber  
Cement Corporation**




# Patina

Patina has a natural, textured surface. You can see the fiber and natural characteristics of the raw materials, and you can see and feel the sanding lines on the surface. As the seasons change and the years pass, the natural aging of the fiber cement leaves subtle traces on the surface, and the façade will gradually acquire a distinctive patina.






P 020  
Granite




P 050  
Graphite




P 070  
Flint

Grays




P 222  
Pearl


Whites




P 313  
Tufa



P 323  
Magma




P 333  
Adobe




P 343  
Ruby

Reds




P 545  
Sand



P 565  
Amber

Yellows



P 626  
Emerald

Greens



# Patina Inline

Patina Inline reflects strength and durability. Its milled linear grooves add a 3D effect to a building and make it possible to create custom squares or triangular patterns. When viewed in natural light, its featured lines offer a vibrant look that changes throughout the day. Over time, this material will patinate, enriching its natural look. This material is virtually maintenance-free and is available in five timeless colors.



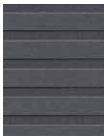
PI 070  
Flint



PI 020  
Granite

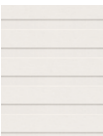


PI 050  
Graphite



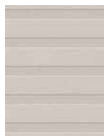
PI 070  
Flint

Grays



PI 222  
Pearl

White

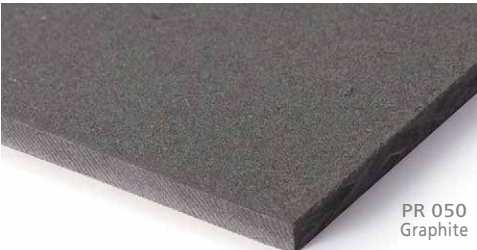


PI 545  
Sand

Tan

# Patina Rough

Patina Rough has a tough textured surface and stone-like finish which adds character to any building. When combined with other products from the Patina design line, it creates an interesting interplay. This material has an eroded, natural looking surface. It's virtually maintenance-free and is available in five timeless colors.



PR 050  
Graphite



PR 020  
Granite

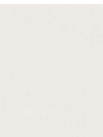


PR 050  
Graphite



PR 070  
Flint

Grays



PR 222  
Pearl

White



PR 545  
Sand

Tan





# Solid

Solid is a through-colored panel with an acrylic paint surface. It's designed this way so it closely matches the surface's acrylic paint layer.



This means if you choose the Solid product line for your façade, every edge of the board will feature the same hue as the surface color, giving the wall an unblemished appearance.



S 030  
Mercury



S 071  
Orcus

## Grays



S 101  
Pluto



S 131  
Juno

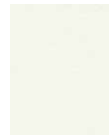


S 151  
Pallas



S 191  
Erebus

## Blacks



S 212  
Luna



S 282  
Saturn

## Whites



S 334  
Jupiter



S 353  
Mars

## Reds



S 515  
Venus



S 525  
Triton

## Yellows



S 606  
Rhea



S 616  
Ceres



S 656  
Terra



S 676  
Callisto

## Greens



S 747  
Neptune



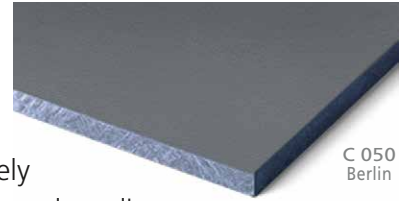
S 757  
Mimas

## Blues








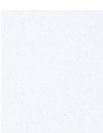



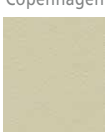





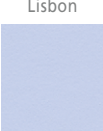


# Cover

Cover is the ideal solution if you prefer the strongest colors and bolder design statements. The natural gray fiber-cement core is completely covered by a layer of water-based acrylic paint, with 26 standard Colors and more than 1,950 NCS® colors to choose from. (Custom colors available.)



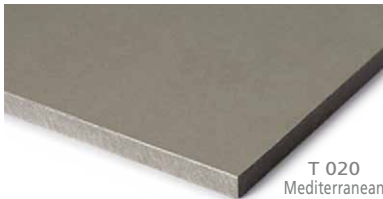
C 050  
Berlin




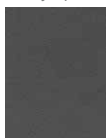








					Grays	
C 010 Stockholm	C 020 Vilnius	C 040 Sofia	C 050 Berlin	C 060 Helsinki		
					Blacks	
C 160 London	C 190 Munich					
					Whites	
C 200 Gothenburg	C 210 Nuuk					
					Reds	
C 350 Brussels	C 360 Copenhagen	C 370 Moscow	C 390 Istanbul			
					Yellows	
C 450 Amsterdam	C 530 Rome	C 540 Kiev	C 550 Athens	C 570 Barcelona		
					Greens	
C 610 Lisbon	C 630 Geneva	C 640 Hamburg	C 650 Madrid	C 670 Dublin		
						Blues
C 730 Oslo	C 760 Naples	C 770 Riga				



# Transparent

Transparent combines the textured nuances and natural characteristics of the baseboard with the long-lasting performance of the transparent top coat. The color added to the fiber cement reveals and highlights fibers and other raw materials that provide its strength and character. The durable transparent coating protects the board and ensures a smooth surface with a long service life.



				Grays
T 020 Mediterranean	T 030 Olympus			
				Blacks
T 101 Arabian	T 111 Kilimanjaro	T 161 Denali	T 171 Etna	
			Whites	
T 242 Antarctic	T 252 Blanc	T 262 Sahara		
		Reds		
T 373 Kalahari	T 383 Vesuv			
		Yellows		
T 505 Mojave	T 515 Gobi			
	Greens			
T 626 Sonoran				
	Blues			
T 737 Caribbean				



# Deco

Deco features a rustic coated surface for ventilated facades by combining the characteristics of Solid and Patina. Deco creates a smooth polished look with a natural texture by melding an acrylic paint finish with a directional sanding grain. The combination of the delicate structure and the true nature of the fiber cement boards requires very limited maintenance and provides excellent UV stability.



D 100  
Charcoal



D 030  
Fossil

## Grays



D 100  
Charcoal



D 190  
Carbon

## Blacks



D 212  
Cirrus

## Whites



D 330  
Sienna



D 350  
Chestnut

## Reds



D 555  
Aspen



D 562  
Wheat

## Yellows



D 600  
Sage

## Greens

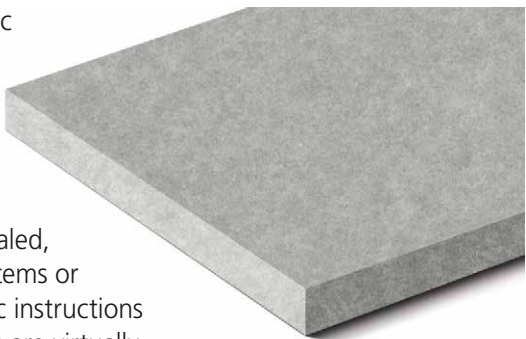
Deco	U.S. Trimmed sizes in. (mm)	Weight (lbs/ft <sup>2</sup> )
Thickness	5/16 (8mm)	2.6
Width	46 1/4 (1,175)	
Length	96 (2,440) 119 7/8 (3,045)	



# Minerit HD (Raw)

Minerit HD is an uncoated fiber cement board that allows the authentic appearance of the fiber cement to stand out. In application, Minerit HD is a building board that can be installed for certain cladding purposes when a natural expression is desired. It’s an unpigmented material, so variations may occur in the individual boards and from board to board, adding a lively expression to the façade.

When used for cladding in a rainscreen system, the boards must be sealed, typically on all sides. They can be painted on-site with acrylic paint systems or transparent stains that are suitable for cement-based materials (Specific instructions for painting/staining are available). After surface treatment, the boards are virtually maintenance free. In industrial applications where the surface appearance is of less importance, the boards do not need to be sealed but efflorescence will likely occur over time depending on the type of exposure and climate conditions.



The color charts displayed in this brochure give an impression of the available colors. Reproduction of the exact colors is restricted by the printing process. For an exact color match, samples are available upon request.

Cover, Patina, Patina Rough, Transparent and Solid			
U.S. Trimmed sizes in. (mm)		Weight (lbs/ft²)	
Thickness	8 mm	Patina and Patina Rough	Cover, Transparent & Solid
Width	48 (1,220)	2.5	2.9
Length	96 (2,440)      120 (3,050)		

Patina Inline		
U.S. Trimmed sizes in. (mm)		Weight (lbs/ft²)
Thickness	9.5 mm (non-grooved areas), 8 mm (grooved areas)	Patina Inline
Width	48 (1,220)	2.9
Length	96 (2,440)      120 (3,050)	

Minerit HD						
Trimmed sizes — in. nominal (mm)			Weight (lbs/ft²)			
Thickness	4 mm, 6 mm 8 mm or 10 mm		4 mm	6 mm	8 mm	10 mm
Width	48 (1,220)		1.6	2.3	3.1	3.9
Length	96 (2,440)	120 (3,050)	The recommended thickness for Minerit HD in a rainscreen application is 8mm.			

## Product Sustainability

AFC Cladding is committed to providing the highest quality high density compressed fiber cement panels to the U.S. building markets. In order to do this, we feel it necessary to provide not only high quality products, but sustainable products that can contribute to green (LEED) building projects, which in turn benefit the environment we all live in.

AFC Cladding products currently have a potential contribution to various LEED credits including but not limited to:

### Direct Contribution

#### Materials and Resources:

- ◆ BPDO – Environmental Product Declarations

### Indirect Contribution

#### Indoor Environmental Quality:

- ◆ Thermal Comfort

### Energy and Atmosphere:

- ◆ Optimize Energy Performance

One of the most important sustainable attributes is the durability of AFC Cladding panels. With their long lifespan, virtually requiring no refurbishment, AFC Cladding panels can contribute to less replacement of materials and to drastically lower maintenance costs over the useful life of the building.

The Ventilated and Insulated Rainscreen Cladding (VIRSC) system, which is used to affix AFC Cladding panels to the exterior of a structure, offers many benefits and green attributes to the performance of the building envelope. Durability and resistance to moisture and mold build-up are noteworthy benefits. Equally important is its ability to accommodate external insulation.

In addition, AFC Cladding is dedicated to further research and analysis of our products to achieve additional LEED credits, and help further the cause of building sustainable and efficient buildings.

Warranty information available upon request.

## Fiber Cement — Distinct Properties

**Sound and Weather Resistant** — AFC's fiber cement boards deliver optimal sound and weather insulation. Noise as well as changing weather conditions such as freeze/thaw, heat and water pose no threat to fiber cement façades. The boards retain their shape at all times.

**Low Maintenance** — The ability of the boards to resist mold and algae attacks is equally impressive. The result is a long-lived façade that saves you time and effort on inconvenient and costly repairs and repaints.

**Non-combustible** — The boards are non-combustible, which is your guarantee for a safe building.

**Easy Handling** — AFC's fiber cement boards are flexible and easy to handle. They can be delivered cut to size, ready for installation. All this makes for lower construction costs, shorter construction times, and lower installed costs.

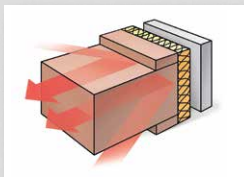
## Fiber Cement — A Unique Composition

**Natural Ingredients** — With the strong composition of cement, mineral fillers, cellulose and non-toxic, organic fibers — and not to forget a dash of water — AFC's fiber cement boards are made up of purely natural and environmentally friendly raw materials. This makes for sustainable and fully reusable boards.

**Strong Recipe** — The secret behind the impressive strength and durability of AFC's fiber cement boards resides in the manufacturing technology. Thin layers of fiber cement are added on top of each other, pressed firmly together under tremendous pressure before completing a slow air curing process. Reinforced by carefully selected fibers, the many thin layers give the fiber cement cladding a strength with few peers in the world of building materials.

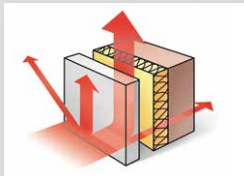
**Green Footprints** — A comprehensive analysis of the environmental impact of the AFC boards can be made from AFC's EPDs in accordance with EN 15804 on the Sustainability of Construction Works. The EPDs provide a Life-Cycle Assessment, manufacturing process details, and information on the use of any dangerous materials. These EPDs are available online.

## Rainscreen Cladding



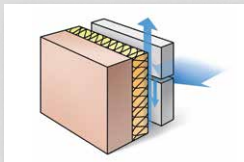
### Preventing thermal bridges

As the insulating material is on the outside of the structural wall, it can easily be mounted without interruptions caused by floor slabs. In this way, any thermal bridges that occur at each floor slab can be prevented. These thermal bridges are also the cause of surface condensation that may result in fungus growth.



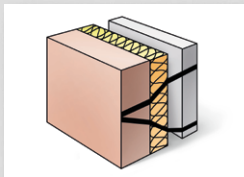
### Dissipating heat from the sun

The ventilated rainscreen cladding system has a cooling effect when temperatures outside are high. Most of the sun's rays are reflected away from the building. Heat passing through the exterior wall panel is partially dissipated by the ventilating effect of the space between the exterior cladding panel and the structural wall. Any residual heat managing to penetrate buildings is very minor.



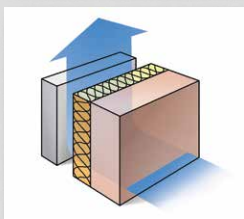
### Rainscreen

Architectural wall-cladding panels act as a rainscreen on the outside of the building and keep the structural wall absolutely dry. The air space connected to the outside air evacuates water and humidity that might have penetrated behind the wall-cladding panels through its horizontal or vertical joints. This water will never reach the load bearing wall and/or the thermal insulation.



### Protecting the basic structure and load-bearing wall against temperature variations

In view of the fact that the insulation material is applied to the outside of the building, changes in temperature are very minor compared with those found in conventional constructions where insulation is applied on the interior. This principle works in summer and winter in both hot and cold climates.



### Prevention of internal condensation

Insulation material can be applied to the outside of the structural wall because it is protected effectively by the architectural exterior wall panel. Because of differences in vapor pressure and temperature passing through the wall, condensation has been shown to occur close to the ventilated area and not in the structural wall itself. As a result, the ventilating effect is easily sufficient to dry out the thermal insulating material.

Distributed by



**American Fiber  
Cement Corporation**

6901 South Pierce Street, Suite 180  
Littleton, CO 80128 U.S.A.

Phone: 303-972-5107  
Fax: 303-978-0308

[www.americanfibercement.com](http://www.americanfibercement.com)



**ATA  
Continuing  
Education  
Provider**

# Transparent

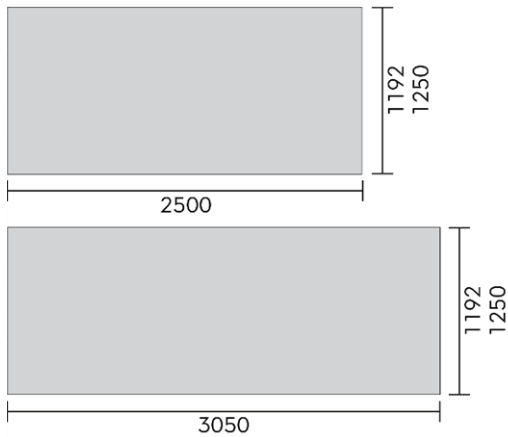
## Datasheet - Facade Boards

Transparent facade boards combine the textured nuances and natural characteristics of the base board with a long lasting performance of the transparent top coat. The color added to the fiber cement reveals and highlights the fibers and other raw materials that provide its strength and character.

The extremely durable transparent coating then protects the board and ensures a smooth surface with a long service life. Transparent facade boards are a high quality fiber cement used as a part of a ventilated facade solution on all types of construction.

Dimensions (nominal)	Standard size	
Thickness	mm	8
Width	mm	1192 1250
Length	mm	2500 3050

Standard sizes



[www.americanfibercement.com](http://www.americanfibercement.com)

Please visit our website for contact details and further information.





# Transparent

Dimension tolerance (EN 12467, Level I)		
Thickness (up to 20 mm)	mm	± 0.8
Width (a ≤ 1000 mm)	mm	± 3.0
Width/Length (1000 mm < a ≤ 1600 mm)	mm	± 0.3% a
Length (1600 mm < a)	mm	± 5.0

\* a is the nominal width or length

Physical properties		
Density, dry minimum (EN 12467)	kg/m <sup>3</sup>	≥ 1550
Density, dry average (EN 12467)	kg/m <sup>3</sup>	1700
Weight *	kg/m <sup>2</sup>	15.4

\* nominal value may vary depending on the conditions

Mechanical properties (EN 12467)		
Flexural modulus		
E-module along grain, ambient	GPa	14
E-module across grain, ambient	GPa	16

Bending strength (EN 12467)		
Along grain, ambient	MPa	25
Across grain, ambient	MPa	39
Along grain, wet	MPa	25
Across grain, wet	MPa	31

Thermal properties		
Thermal conductivity ( ISO 8301, EN 12667), $\lambda_{10}$	W/mK	0.37
Coefficient of thermal expansion	mm/m °C	0.01
Frost resistance (max. cycles RL > 0,75 EN 12467)	Cycles	>100

Fire Performance		
Reaction to fire (EN 13501-1)	Rating	A2-s1, d0

Other properties		
Category, class (EN 12467)		NT A4 I
M1-Classification, VOC emission of building materials		Pass

**[www.americanfibercement.com](http://www.americanfibercement.com)**

Please visit our website for contact details and further information.



# Transparent

Impact resistance test (EAD 090062-00-0404, ISO 7892), 8 mm					
	Max.	Category IV	Category III	Category II	Category I
Hard body	1 Joule	Passed			
	3 Joules		Passed	Passed	Passed
	10 Joules			Passed	Passed
Soft body	10 Joules	Passed	Passed		
	60 Joules			Passed	Not Passed
	300 Joules			Not passed	
	400 Joules				Not passed
Evaluation		Passed	Passed	Not passed	Not passed

**[www.americanfibercement.com](http://www.americanfibercement.com)**

Please visit our website for contact details and further information.

# SAFETY DATA SHEET

## Section 1.

## Identification

**GHS product identifier:** AFCC Fiber Cement Panels  
Transparent

**Other means  
Of identification:** Fiber Cement Panels

**Product type:**

**SDS No.:** AFC-102

**Relevant identified uses of the substance or mixture and uses advised against:**

**Identified uses:** Building Facade

**Uses advised against:** None known

**Supplier:** American Fiber Cement Corporation.  
6901 S. Pierce St., Suite 180  
Littleton, CO 80128

**Technical Support:** 800-688-8677  
[www.americanfibercement.com](http://www.americanfibercement.com)

**Emergency telephone  
Number:**

CHEMTREC - 800-424-9300 or 703-741-5970 (Outside USA and Canada – collect calls accepted). 24 Hour service.

## Section 2.

## Hazards Identification

**OSHA/HCS status :** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**NOTE:** *These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Classification of the  
substance or mixture:** CARCINOGENICITY/Inhalation - Category 1A  
SPECIFIC TARGET ORGAN TOXICITY (STOT) REPEATED EXPOSURE – Category 2  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] – Category 3  
SKIN IRRITATION – Category 2  
SKIN SENSITIZATION – Category 1  
EYE IRRITATION – Category 2A  
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 0%



**GHS label elements**

**Hazard pictograms:**



*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Signal word:** Danger

**Hazard statements:** **If dust is present:**  
May cause cancer.  
May cause damage to lungs  
May cause respiratory irritation.  
Causes serious eye irritation  
Causes skin irritation  
May cause allergic skin reaction.

**Precautionary statements**

**Prevention: If dust is present:**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Use only outdoors or in a well-ventilated area.  
Do not breathe dust.  
Wear eye protection  
Wear protective gloves, protective clothing, eye protection, face protection  
Wash thoroughly after handling.  
Contaminated work clothing must not be allowed out of the workplace.

**Response:** If inhaled: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation occurs: Get medical attention.  
If on skin: Wash with plenty of water  
If skin irritation or rash occurs: Get medical attention.  
Take off contaminated clothing and wash before reuse.  
If exposed, or concerned: Get medical advice/attention if you feel unwell.

**Storage:** Store locked up.  
Store in a well-ventilated place. Keep container tightly closed.

**Disposal:** Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplementary Information** Use precautions if exposure exceeds the established OSHA limits.  
This material does not present a hazard unless dust is generated from cutting, grinding, or other operations.

**Hazards not otherwise Classified** None known

<b>Section 3.</b>	<b>Composition/Information on Ingredients</b>
-------------------	---

**Substance or mixture:** Mixture

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Other means of:** Fiber Cement Panels  
**identification**

**CAS number/other identifiers**

**CAS number :** Mixture  
**Product code :** Fiber Cement Panels

<b><u>Ingredient name</u></b>	<b><u>CAS number</u></b>	<b><u>%</u></b>
Portland Cement	65997-15-1	57 – 78
Crystalline Silica	14808-60-7	5 – 15
Limestone Meal	1317-65-3	5 – 15
Pigments		0.5 – 5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

<b>Section 4.</b>	<b>First Aid Measures</b>
-------------------	---------------------------

**Description of necessary first aid measures**

**Inhalation:** Remove victim to fresh air.  
Drink plenty of water and blow nose to evacuate remaining dust.  
If coughing or irritation persist seek medical attention.

**Eye contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.  
Check for and remove any contact lenses.  
Rinse for at least 15 minutes.  
If irritation persists seek medical attention.

**Skin contact:** Gently wash with plenty of soap and water.  
If irritation persists seek medical attention.

**Ingestion** Emergency procedures not normally required.  
If prolonged irritation to gastrointestinal tract or mouth persist seek medical attention.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

**Inhalation :** Respirable airborne particles may cause temporary irritation to the lungs and upper respiratory system.

**Skin contact:** Prolonged exposure may cause dryness or irritation to the skin.

**Eye contact:** Will cause mechanical irritation to the eyes. May cause moderate to severe eye irritation and dryness.

**Ingestion:** May cause irritation to gastrointestinal tract or mouth.

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Over-exposure signs/symptoms**

<b>Inhalation:</b>	Adverse symptoms may include the following: Irritation
<b>Eye contact:</b>	Adverse symptoms may include the following: Irritation Dryness
<b>Skin contact:</b>	Adverse symptoms may include the following: Irritation Dryness
<b>Ingestion:</b>	Adverse symptoms may include the following: Irritation Stomach pains

**Indication of immediate medical attention and special treatment needed, if necessary**

<b>Notes to physician:</b>	Medical conditions which may be aggravated by exposure include dry skin, dermatitis, and pre-existing lung conditions such as bronchitis, emphysema, and asthma.
<b>Specific treatments:</b>	No specific treatment.
<b>Protection of first-aiders:</b>	No action shall be taken involving any personal risk or without suitable training Wear a suitable NIOSH-approved dust mask if airborne dust is present. Wash contaminated clothing before re-use.

**Section 5.**

**Firefighting Measures**

**Specific hazards arising from the chemical:**

None known other than those represented elsewhere in this SDS.

**Hazardous thermal decomposition products**

Decomposition products may include the following materials:

- Crystalline Silica

**Special protective actions for firefighters**

Material will not burn.  
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.  
No action shall be taken involving any personal risk or without suitable training.  
No special firefighting equipment is necessary.

**Special protective equipment for fire-fighters**

Firefighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.



*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

<b>Section 6.</b>	<b>Accidental Release Measures</b>
-------------------	------------------------------------

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency  
Personnel**

No action shall be taken involving any personal risk or without suitable training.  
Evacuate surrounding areas.  
Keep unnecessary and unprotected personnel from entering.  
Provide adequate ventilation.  
Wear appropriate respirator when ventilation is inadequate.  
Put on appropriate personal protective equipment.

**For emergency  
responders**

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental  
precautions**

This material does not pose a significant threat to the environment.  
Avoid dispersion of material and runoff and contact with waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, or air)

**Methods and materials for containment and cleaning up**

**Small spill**

Stop source of spill .  
Avoid creating airborne dust  
Use dust suppressant as necessary  
Place material into closed waste disposal container.  
Any sweeper or vacuum should be equipped with High Efficiency Particulate (HEPA) filter.  
Dispose of using a licensed waste disposal contractor.

**Large spill**

Stop source of spill.  
Avoid creating airborne dust  
Use dust suppressant as necessary  
Place material into closed waste disposal container.  
  
Any sweeper or vacuum should be equipped with High Efficiency Particulate (HEPA) filter.  
Dispose of using a licensed waste disposal contractor.  
Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

<b>Section 7.</b>	<b>Handling and Storage</b>
-------------------	-----------------------------

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Protective measures for safe handling**

**Protective Measures:** Minimize dust generation  
Use appropriate respiratory protection if dust is present above the established exposure limits.  
If dusty conditions exist (such as during cutting, sanding, or milling) use engineering controls and/or respiratory protection (See Section 8).

**Advice on general occupational hygiene**

Eating and smoking should be prohibited in areas where this material is handled, stored and processed.  
Workers should wash hands and face before eating and smoking.  
Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities**

Store in accordance with local regulations.  
Store in original container in a dry area, away from incompatible materials (see Section 10) and food and drink.

<b>Section 8.</b>	<b>Exposure Controls/Personal Protection</b>
-------------------	--

**Control parameters**

**Occupational exposure limits:**

US Occupational Safety and Health Administration Permissible Exposure Limit (OSHA PEL):

Irritant (Nuisance) Dust:	5 mg/m <sup>3</sup>
Crystalline Silica	
Permissible Exposure Limit	50 µg/m <sup>3</sup>
Action Level	25 µg/m <sup>3</sup>

*(See 29 CFR 1910.1053, effective June 23, 2018. Regulation contains additional requirements, including written exposure plan, medical exams, training, and recordkeeping.)*

American Conference of Governmental and Industrial Hygienists Threshold Limit Value (ACGIH TLV®):

Irritant (Nuisance) Dust:	3 mg/m <sup>3</sup>
Crystalline Silica	0.025 mg/m <sup>3</sup>

*Note: TLV® and PEL values are for eight hour exposures, unless noted.*

**Appropriate**

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Engineering controls:** If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.  
Power equipment should be fitted with a properly designed dust collection device.

**Environmental**

**Exposure controls:** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.  
In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Hygiene Measures:** Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.  
Appropriate techniques should be used to remove potentially contaminated clothing.  
Wash contaminated clothing before reusing.  
Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory Protection:** Wear a NIOSH-approved dust mask to limit exposure to product dust.  
Higher dust levels may require use of a half or full mask respirator with dust filters.  
Use local exhaust if necessary to lower dust levels.  
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Eye/Face Protection:** Wear safety glasses with side shields or goggles complying with an approved standard to avoid exposure to dust.

**Hand Protection:** Protective gloves should be worn when handling and to avoid abrasion or drying of skin.

**Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

**Other Skin Protection:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

**Section 9.**

**Physical and Chemical Properties**

**Appearance**

**Physical State**

Solid Blocks of various size

**Color**

Various

**Odor**

None

**Odor Threshold**

Not Applicable

**pH**

Not Applicable

**Melting Point**

N/A

**Boiling Point**

N/A

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

<b>Flash Point</b>	None
<b>Burning Time</b>	Not applicable
<b>Specific Gravity</b>	1.7
<b>Burning Rate</b>	Not applicable
<b>Evaporation Rate</b>	0 (butyl acetate = 1)
<b>Flammability (solid, gas)</b>	Not applicable
<b>Lower Explosive (flammable) Limit</b>	Not available
<b>Upper Explosive (flammable) Limit</b>	Not available
<b>Vapor Pressure</b>	Not applicable
<b>Vapor Density</b>	Not applicable
<b>Relative Density</b>	Not available
<b>Solubility</b>	Insoluble
<b>Solubility in Water</b>	Insoluble
<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Auto-ignition Temperature</b>	Not available
<b>Decomposition Temperature</b>	Not available
<b>SADT</b>	Not available
<b>Viscosity</b>	Not available

## **Section 10.**

## **Stability and Reactivity**

**Reactivity:** This product is normally not reactive.

**Chemical stability:** The product is stable.

### **Possibility of**

**Hazardous Reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to Avoid:** Avoid strong acids and ammonium salts. Contact with strong oxidizing agents (such as fluorine, chlorine trifluoride) may present a fire hazard.

### **Incompatible**

**Materials:** Reactive or incompatible with the following strong oxidizers such as:  
Hydrofluoric acid, fluorine, chlorine trifluoride, oxygen difluoride

### **Hazardous Decomposition**

**Products** Crystalline silica will dissolve in hydrofluoric acid and produce silicon tetrafluoride, a corrosive gas.

## **Section 11.**

## **Toxicological Information**

### Information on toxicological effects

#### Acute toxicity

<b>Product/ingredient name</b>	<b>Result</b>	<b>Species</b>	<b>Dose</b>	<b>Exposure</b>
--------------------------------	---------------	----------------	-------------	-----------------

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

None Known	--	--	--	--
	--	--	--	--

**Irritation/Corrosion:** Not available

**Sensitization** Not available

**Mutagenicity** Not available

**Carcinogenicity:** Not available

**Reproductive toxicity** Not available

**Teratogenicity** Not available

**Specific target organ toxicity  
(single exposure)** Not available

**Specific target organ toxicity  
(repeated exposure)** This material contains Crystalline Silica, which is known to cause silicosis. Silicosis is a rapidly progressive, non-cancerous lung disease that is often fatal.

**Aspiration hazard** Not available

**Information on the likely  
routes of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

**Inhalation :** Respirable airborne particles may cause temporary irritation to the lungs and upper respiratory system.

**Skin contact:** Prolonged exposure may cause dryness or irritation to the skin.

**Eye contact:** Will cause mechanical irritation to the eyes. May cause moderate to severe eye irritation and dryness.

**Ingestion:** May cause irritation to gastrointestinal tract or mouth.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Inhalation:** Adverse symptoms may include the following:  
Irritation

**Eye contact:** Adverse symptoms may include the following:  
Irritation



*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

Dryness

**Skin contact:** Adverse symptoms may include the following:  
Irritation  
Dryness

**Ingestion:** Adverse symptoms may include the following:  
Irritation  
Stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**

**Potential immediate effects:** Not available.

**Potential delayed effects :** Not available.

**Long term exposure**

**Potential immediate effects:** Not available.

**Potential delayed effects :** Not available.

**Potential chronic health effects:** Not available

**General:** No other known significant effects or critical hazards.

**Carcinogenicity:** Crystalline silica – long term overexposure may cause permanent and irreversible lung damage, including silicosis, and increase the risk of lung cancer, kidney, and liver damage. Silicosis is a rapidly progressive, non-cancerous lung disease that is often fatal.

**IARC (International Agency for Research on Cancer)** 014808-60-7 Silica dust, crystalline, in the form of quartz or cristobalite - Group 1 (Sup 7, 68,100C, 2012)

**National Toxicology Program (NTP) Report on Carcinogens** Silica, Crystalline (Respirable Size) - Known To Be Human Carcinogen

**OSHA:** Crystalline Silica classified as a Category 1A Carcinogen

**Mutagenicity:** No known significant effects or critical hazards.

**Teratogenicity:** No known significant effects or critical hazards.

**Developmental:** No known significant effects or critical hazards.

**Fertility effects:** No known significant effects or critical hazards.

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

Numerical measures of toxicity

Acute toxicity estimates

Not available.

**Section 12.**

**Ecological Information**

Toxicity

Not available.

**Persistence and  
Degradability:**

Not available.

**Bioaccumulative  
Potential:**

Not available.

Mobility in soil

**Soil/water partition  
coefficient (K<sub>OC</sub>):**

Not available

**Other adverse effects:** Most of the ingredients in this product are naturally occurring minerals, and, unless contaminated in service, are not hazardous to the environment.

**Section 13.**

**Disposal Considerations**

**Disposal methods:**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

This material and its container must be disposed of in a safe way.

Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

Empty containers or liners may retain some product residues.

Avoid dispersal of spilled material and runoff and contact with waterways, drains and sewers.

**Section 14.**

**Transport Information**

	<b>DOT Classification</b>	<b>TDG Classification</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN Number</b>	Not Regulated	Not Regulated	Not Regulated	Not Regulated

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Special precautions for user:**

**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage

**Section 15.**

**Regulatory Information**

**U.S. Federal regulations**

**TSCA 8(a) CDR Exempt/Partial exemption:** Not applicable

**United States inventory (TSCA 8b):** This material is listed.

**Clean Air Act Section 112**

**(b) Hazardous Air**

**Pollutants (HAPs):** Not listed

**Clean Air Act Section 602**

**Class I Substances:** Not listed

**Clean Air Act Section 602**

**Class II Substances:** Not listed

**DEA List I Chemicals**

**(Precursor Chemicals):** Not listed

**DEA List II Chemicals**

**(Essential Chemicals):** Not listed

**SARA 302/304**

**Composition/information on ingredients:** No products were found.

**SARA 304 RQ:** Not applicable.

**SARA 311/312**

**Classification :**

**Composition/information on ingredients:**

Name	Immediate (acute) Health	Delayed (chronic) Health	Fire Hazard	Reactivity Hazard	Sudden Release of Pressure

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

	<b>Hazard</b>	<b>Hazard</b>			
Portland Cement	Yes	Yes	No	No	No
Crystalline Silica (Quartz)	Yes	Yes	No	No	No
Limestone Meal	Yes	No	No	No	No
Pigments	Yes	No	No	No	No

**Section 313 listed:** No

**Listed material/compound:** Not Applicable

**State regulations**

**New York:** Crystalline Silica  
**New Jersey:** Crystalline Silica  
**Pennsylvania:** Crystalline Silica  
**Massachusetts:** Crystalline Silica  
**Rhode Island:** Crystalline Silica  
**California Prop. 65:** Crystalline Silica

**International Lists**

**DSL (Canada)** All ingredients are listed, or exempt from inclusion, on the Canadian Domestic Substances List (DSL).

**WHMIS 2015 (Canada):** See Section 2.

**Australia inventory (AICS):** Not determined.  
**China inventory (IECSC):** Not determined.  
**Japan inventory:** Not determined.  
**Korea inventory:** Not determined.  
**Malaysia Inventory (EHS Register):** Not determined.  
**New Zealand Inventory of Chemicals (NZIoC):** Not determined.  
**Philippines inventory (PICCS):** Not determined.  
**Taiwan inventory (CSNN):** Not determined.

**Chemical Weapons Convention List Schedule I Chemicals:** Not listed

**Chemical Weapons Convention List Schedule II Chemicals:** Not listed

**Chemical Weapons Convention List Schedule III Chemicals:** Not listed

**DSCL (Europe):** R48/20: Harmful – Danger of serious damage to health by prolonged exposure through inhalation.  
R36: Irritating to the eyes  
R39: Danger of serious irreversible side effects.  
R45: May cause cancer.

**Section 16.**

**Other Information**

*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

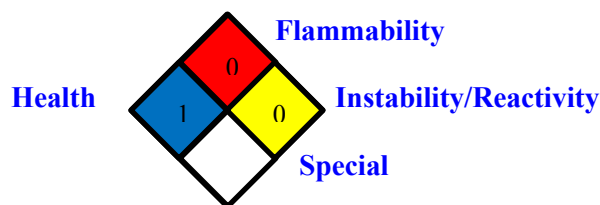
**Hazardous Material Information System (U.S.A.)**

Health	2
Flammability	0
Physical Hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)**



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

**DISCLAIMER** – American Fiber Cement Corp., (AFCC) believes the information contained in this Safety Data Sheet (SDS) to be accurate and reliable as of the date of issue, and is provided in good faith as a service to our customers and to comply with applicable laws. This document is intended as a guide for the safe handling, storage, and use of this material under normal conditions of use. No representation, warranty, or guarantee, either express or implied, is intended or given. AFCC does not accept any liability for any loss, injury, or damage resulting from the use of this product.

**History**

**Date of issue/Date of revision:** May 1, 2020



*NOTE: These panels are considered to be non-hazardous unless dust is generated by cutting, drilling, breaking, or other means.*

**Date of previous issue:**

None

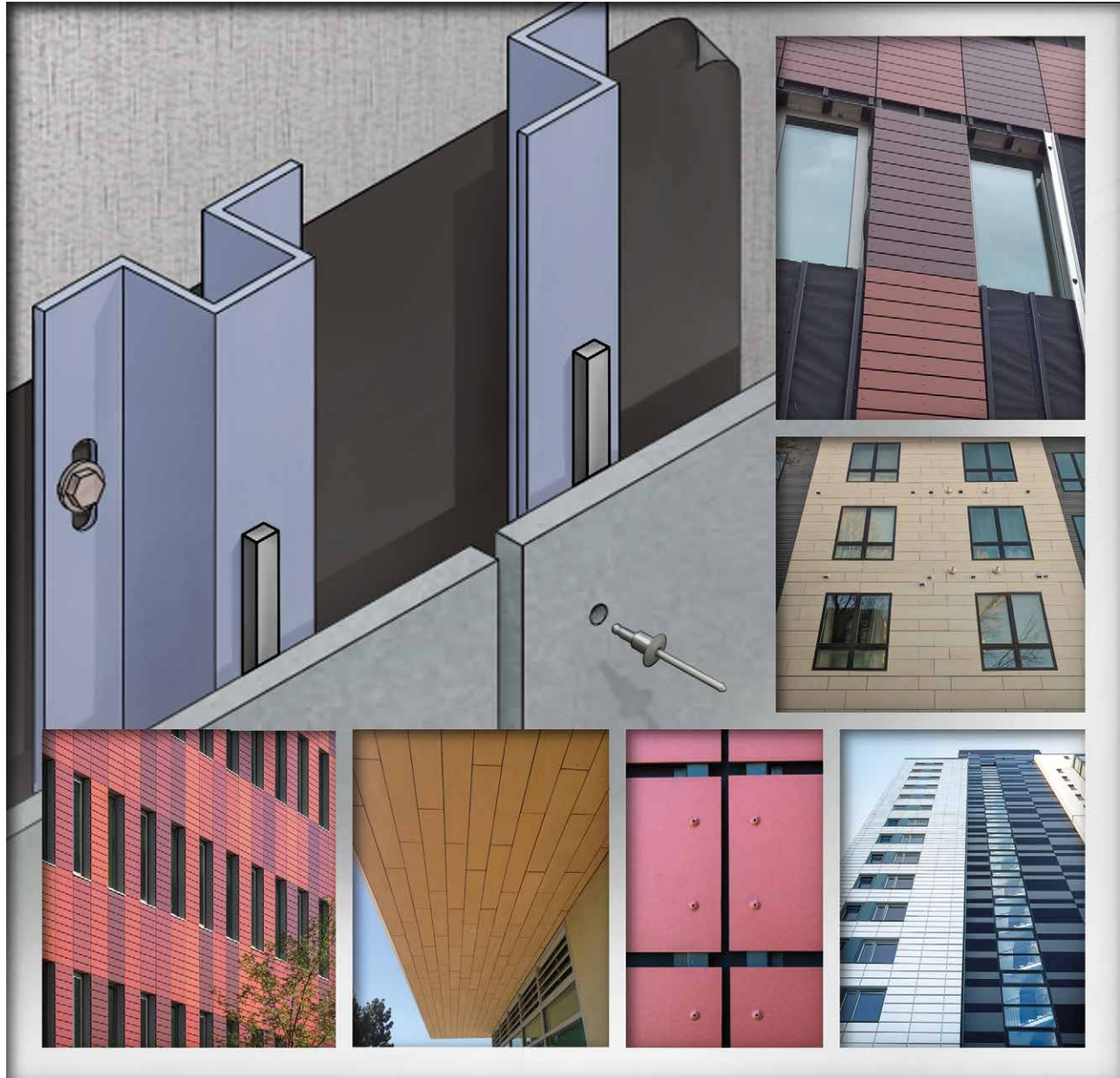
**Changes :**

Not Applicable

**Prepared by:**

T Square Associates, Inc.

[www.tsquare.us](http://www.tsquare.us)



**American Fiber  
Cement Corporation**

**AIA  
Continuing  
Education  
Provider**

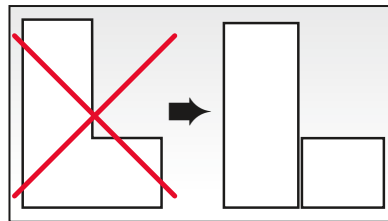


<sup>1</sup> These guidelines represent an **abbreviated illustration** for proper installation of Cover, Patina, Solid, Transparent and Deco architectural panels in a ventilated rain screen application. Additional guidelines for interior applications, hidden adhesive attachment, sealing, and weather barrier attachment can be found at [www.americanfibercement.com](http://www.americanfibercement.com).

*Note: The online copy of the Installation Guidelines obtained at [www.americanfibercement.com](http://www.americanfibercement.com) supersedes any printed copy.*

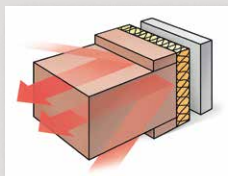
## Construction Practices

1. Air space at top and bottom of building or wall termination to be 25mm (1") to facilitate airflow from out behind the panels. Do not block vertical airflow at windows, doors, eaves, or at the base of the building. Airflow needs to be continuous from bottom to top so there is air movement behind each panel. See item 4 under Building/Structure on page 4 for proper profile depth based on wall height. 1" is required for walls between 15ft and 60ft. Vertical air flow behind the fiber cement panels is a critical necessity in rainscreen constructions.
2. For areas that receive moderate to high snowfall, panels must terminate 6 to 12 inches above grade line based on expected snow build-up.
3. A metal drip edge may be used at window heads, door heads and the panel base, but it must not restrict airflow ( $\frac{3}{4}$ "; 1" at base openings).
4. Install panels from top of building to bottom.
5. For straight walls, start panel installation in center and work outward.
6. For walls with inside corners, start installation there and work across wall.
7. Jobsite storage: See AFCC Fabrication, Maintenance, and Storage Guidelines
  - Keep material laying flat, under cover, dry and protected with a waterproof tarp.
  - Transport material on edge.
  - Using a microfiber cloth, brush off any material dust generated by drilling or cutting prior to installation.
  - Do not use the shipping crates or pallets containing the fiber cement panels as a work surface. Keep panels dust-free.
8. For field cuts and drilling, use carbide or diamond blades/bits and slower turning/feed rates. AFCC offers saw blades and drill bits.
9. All Cover, Solid and Transparent field-cut edges and field-drilled holes must be sealed with Edge Sealer and Deco edges must be painted. See AFCC's website for application instructions.



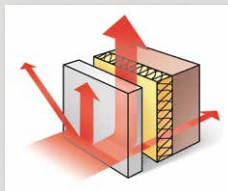
L or C-Shaped panels are not allowed.

## Rain Screen Cladding



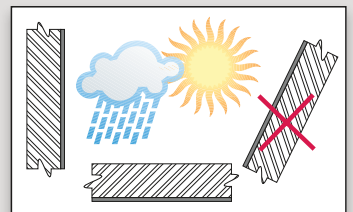
### Preventing thermal bridges

As the insulating material is on the outside of the structural wall, it can easily be mounted without interruptions caused by floor slabs. In this way, any thermal bridges that occur at each floor slab can be prevented. These thermal bridges are also the cause of surface condensation that may result in fungus growth.

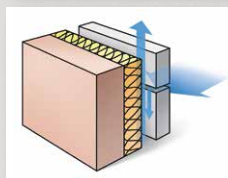


### Dissipating heat from the sun

The ventilated rainscreen cladding system has a cooling effect when temperatures outside are high. Most of the sun's rays are reflected away from the building. Heat passing through the exterior wall panel is partially dissipated by the ventilating effect of the air space between the exterior cladding panel and the structural wall. Any residual heat managing to penetrate buildings is very minor.

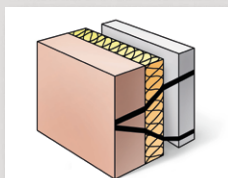


**Panels exposed to weather (rain, sun) may only be assembled vertically. Soffit applications not exposed to weather are allowed.**



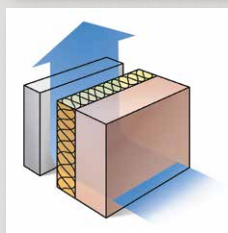
### Rainscreen

Architectural wall-cladding panels act as a rainscreen on the outside of the building and keep the structural wall absolutely dry. The air space connected to the outside air evacuates water and humidity that might have penetrated behind the wall-cladding panels through its horizontal or vertical joints. This water will never reach the load-bearing wall and/or the thermal insulation.



### Protecting the basic structure and load-bearing wall against temperature variations

In view of the fact that the insulation material is applied to the outside of the building, changes in temperature are very minor compared with those found in conventional constructions where insulation is applied on the interior. This principle works in summer and winter, in both hot and cold climates.



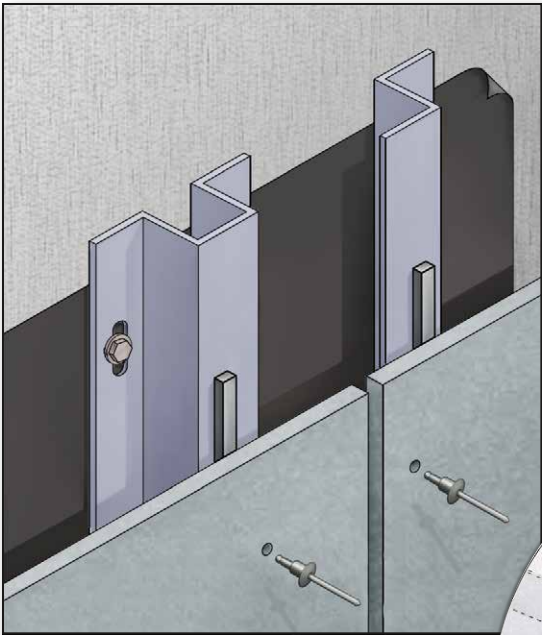
### Prevention of internal condensation

Insulation material can be applied to the outside of the structural wall because it is protected effectively by the architectural exterior wall panel. Because of differences in vapor pressure and temperature passing through the wall, condensation has been shown to occur close to the ventilated area and not in the structural wall itself. As a result, the ventilating effect is easily sufficient to dry out the thermal insulating material.

Profile Attachment — illustrated

For wall assemblies utilizing exterior sheathing with low screw-holding strength, a two-layer attachment system may be required. (See FIG. D-1B)

FIG. D-1A —  
Vertical profiles are typically  
"Z" channels or "Hat" channels.



Hat channel can be attached with the crown facing in or out, depending on fastener spacing and the visibility of the profile through the joint.

FIG. D-2 —  
Exterior insulation, when  
vertical profiles are attached  
to horizontal profiles affixed to wall.

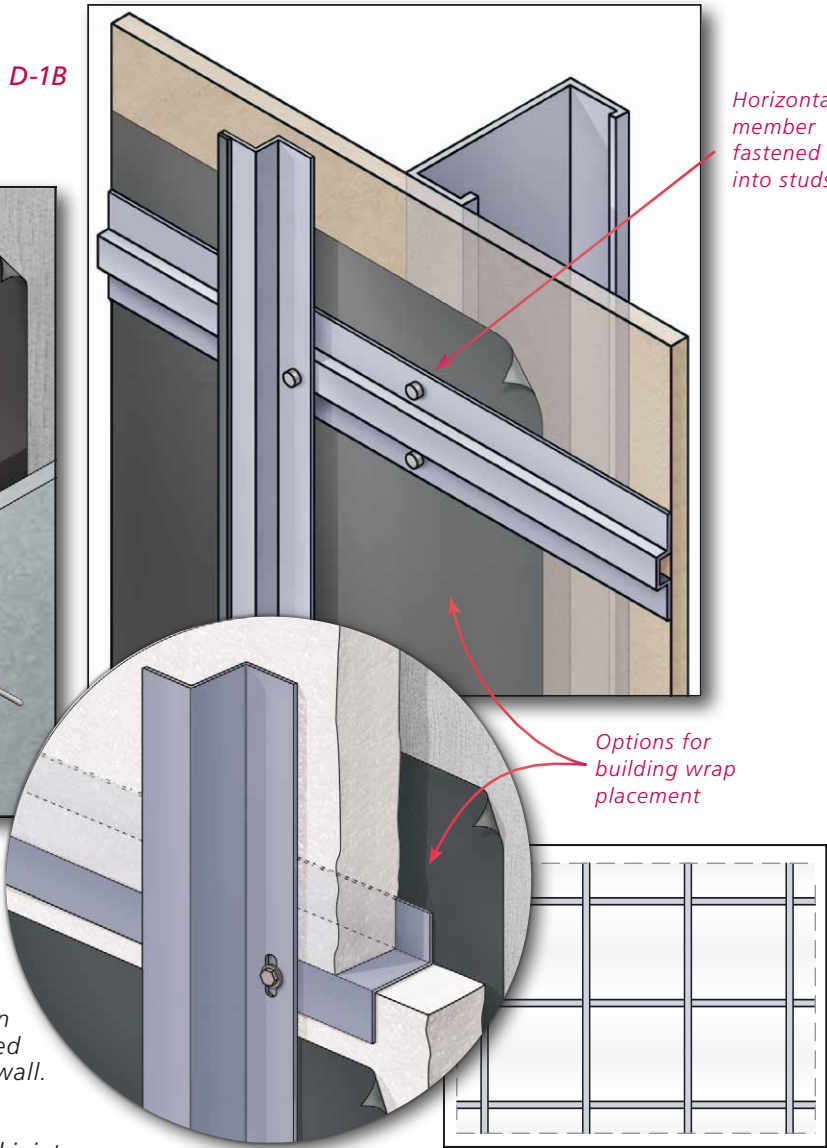
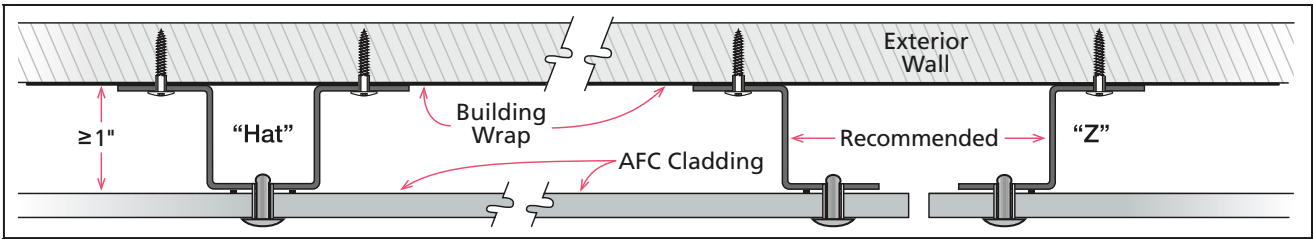


FIG. J — "Hat" or "Z" channels and vertical joint.  
(G90 and Powder Coated "Z" channels offered by AFCC.)



Can be vertically affixed directly to wall if there is no exterior insulation,  
provided sheathing has adequate screw-holding strength; (¾" plywood sheathing is recommended).

FIG. H — Astro Rivet® with fixed cylinder

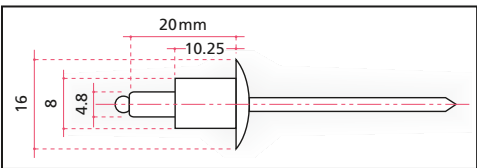
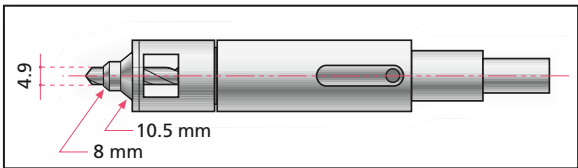


FIG. I — Centralizing drill bit



For centering pilot  
hole in profile for  
**Fixed Points** and  
**Gliding Points**.



## Building/Structure

### 1. Architect/Engineer/Contractor to design and build structurally sound, water-tight exterior wall.

- Substructure Horizontal Straightness Tolerance:  $\pm 3.0 \text{ mm per } 2 \text{ m } (\pm 0.0625" \text{ per } 42")$
- Substructure Vertical Straightness Tolerance:  $\pm 0.5 \text{ mm per } 600 \text{ mm } (\pm 0.0625" \text{ per } 75")$

If the wall is not straight, the profiles should be shimmed to create a flat plane for the panels. Shims should not be used between the profile and the panel.

### 2. Attach profiles to exterior walls. *Structural engineer to determine fastening/affixing specification*, i.e. quantity and type of attachment and fasteners, based upon exterior wall construction. Attachment must support 3.2 lbs/ft<sup>2</sup> (8 mm panel) dead load, plus design wind loads. Fasteners in profile must accommodate thermal expansion/contraction of metal and not interfere with panel application. Shortening the length of the profiles can minimize thermal expansion and contraction. It is also recommended to oversize holes at or near the tops and bottoms of the profiles while having fixed points near the center. This reduces stress in the panels.

### 3. Profiles for affixing panels to be a minimum of 16 gauge steel or greater, determined by building orientation/location and load factors. Depending on location and climate, a minimum of G90 or greater hot-dipped galvanized coating is recommended. Galvalume® and powder coat finishes may also be used.

### 4. Vertical profiles for affixing panels must be the following depth to allow for optimal air flow and water drainage:

- 19 mm (¾") for panel runs 0–15 ft
- 25 mm (1") for panel runs 15–60 ft
- 32 mm (1¼") for panel runs 60–100 ft
- 38 mm (1½") for panel runs 100–150 ft

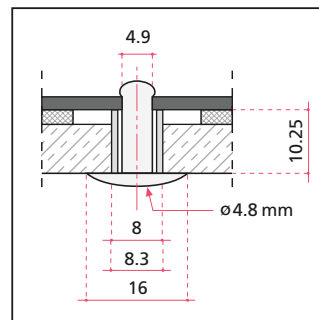
For buildings over 150 feet high, special provisions are required; check with your AFC Cladding representative.

### 5. Maximum length of steel profile ≤10 feet. Two profiles ("Z" recommended, or "Hat" with ≥ 1¼"

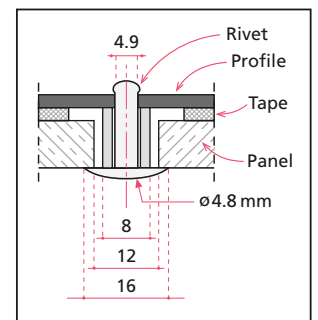
legs) are recommended in place of one wide profile at vertical joints. The sides of the panel can be cantilevered 2"–6" over edge profile so vertical joint is open. (See FIG. C)

6. Profiles to be straight, plumb, level and aligned correctly on the building. **For installations without exterior insulation, the metal profiles are typically hat-channels or Z-channels affixed directly to the exterior wall, provided the sheathing has adequate screw-holding strength.** (See FIG. J)
7. **It is recommended to take field measurements before panels are cut or drilled.** Field measurements verify print dimensions to ensure proper fit.
8. Spacing between vertical profiles to be  $\geq 20 \text{ mm } (\frac{3}{4}" )$ . A joint between the vertical profiles must **always** coincide with a joint between the panels (FIG. A). The joint is preferably continued at the same horizontal height among adjacent profiles. (Reduces stress in panels). If a two layer system is used, the same concept must be applied for the horizontal profiles. 20mm spacing, and coincide a joint between panels with a joint between horizontal profiles.
9. For structures with **exterior insulation**, follow the insulation manufacturer's installation instructions. Horizontal metal profiles (the same depth as the exterior insulation) can be attached to the exterior wall. Vertical metal profiles are then attached to the horizontal profiles (See FIG. D-2).

FIG. E — Fixed and Gliding Points



Fixed Point — cylinder & rivet



Gliding Point — cylinder & rivet

FIG. A

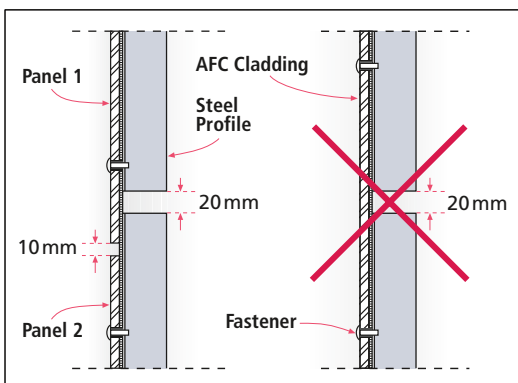


FIG. B —

### Standard profile.

Affix adhesive foam tape to either **or** both sides of rivet. (Foam tape will compress to correct depth when panel is fastened.)

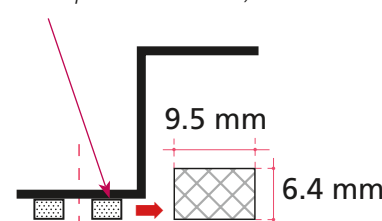
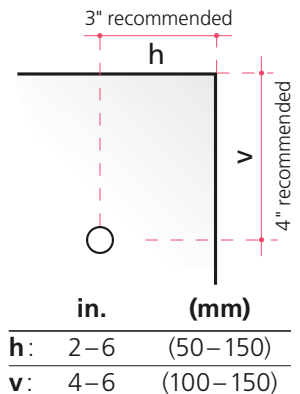


FIG. C





## Prepare Profile

1. Typical vertical and horizontal joints are left open and have a black background (use a black weather and UV resistant building wrap). Metal profiles visible at joint openings (vertical and horizontal) can be covered with a black UV weather resistant tape or UV weather resistant coating. Other reveal colors are possible if desired.
2. Affix adhesive foam tape (supplied by AFCC) to the profile's full length — 1 strip on either side of the rivet location or 1 strip on each side of the rivet location, no more than 1/2" from the rivet location. At vertical joints, place 1 strip on the panels center side of the rivet location. (See FIG. B)
3. See page 6 regarding closing horizontal and vertical joints.

## Panels

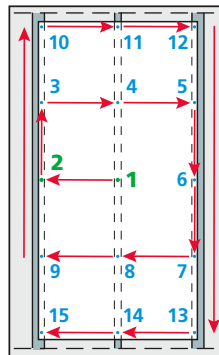
1. Panels to be Patina, Solid, Transparent, Deco or Cover.
  - Patina and Deco panels have a sanding grain that must be accounted for when positioning panels. Rotating some panels 90° from the orientation of adjacent panels can result in the appearance of color shading.
2. Vertical and horizontal joints to be 10 mm (3/8"). This is the minimum distance between the edges of two adjacent panels, or the distance from panel edge to metal trim extrusions or structural members. (See FIG. A)
3. Pre-drill holes in panel so that there are: (See FIGS. E, F & G)
  - Two (2) **fixed points** per panel (F).
  - The rest of the holes are to be **gliding points** (G).
  - See **Fixing** section (and FIGS. F & G) for determining location of fixed points in each panel.
4. Diameter of the fixed point hole is to be 8.3 mm.
5. Diameter of the gliding point hole is to be 12 mm.
  - 8.3 mm and 12 mm drill bits supplied by AFCC
6. Joints between profiles must coincide with horizontal joints in the panels. **Panels cannot bridge a break in the profiles.** (See FIG. A)
7. **The pilot hole in metal profile** must be in the center of both the fixed point and gliding point holes. Use a drill bit centralizing fixture (supplied by AFCC) to accomplish this geometry. Pilot hole to be 4.9 mm in diameter — use #10 drill bit (4.9 mm). (See FIG. I)
8. After first affixing the two fixed-point rivets, affix the rivets in a manner moving from nearest the center of the panel to the outside ring. (See FIG. K)

## Fixing

1. Rivets to be Astro Rivet (supplied by AFCC) with colored or stainless steel head with 8 mm x 11.1 mm cylinder. Shank of rivet is 4.8 mm x 20 mm long, with a 16 mm diameter head. (See FIG. H)
2. Fixing pattern is typically either 16" or 24" (max) on center horizontally (based upon vertical profile spacing) and 16" to 24" (max) on center vertically, depending upon building height, building location, design criteria/specifications, and panel/fastener location on building. Edge areas on facades and high wind load conditions require closer fixing distances. Structural engineer to determine spacings. For soffit applications, the maximum fastener spacing is 16" on center in both directions.
3. Corner rivets to be located at 50 – 150 mm (2" – 6") horizontally and 100 – 150 mm (4" – 6") vertically from every corner of panel. (FIG. C)
4. 10 mm (3/8") clearance is required from the edge of metal profile to pilot hole for rivet.
5. Two **fixed points** are required per panel. (FIGS. I & J)

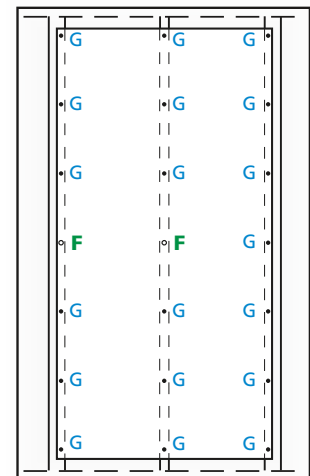
Fixed points (for attachment to vertical profiles) are:

- Always the same height in each panel.
- As close to center of panel as possible, and then either the next adjacent point to the left **or** right. Be consistent in panel-to-panel location (center and left **or** center and right, so fixed points are at the same level horizontally for attachment to vertical profiles).
- No two fixed points on one panel can be on the same profile, and no two fixed points on two adjacent panels can be on the same profile when adjacent panels share a profile at a vertical joint.

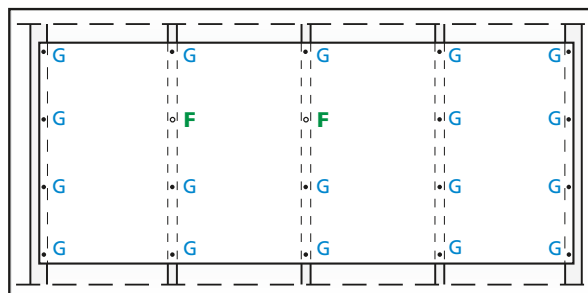


◀ FIG. K — Fixing sequence  
Attach fixed points first.

▼ FIG. F — Vertical installation on vertical profiles



▼ FIG. G — Horizontal installation on vertical profiles



If there is no perfectly centered row, the Fixed points go one row up, as shown.

## Ventilated Rainscreen Application

### Fixing (continued)

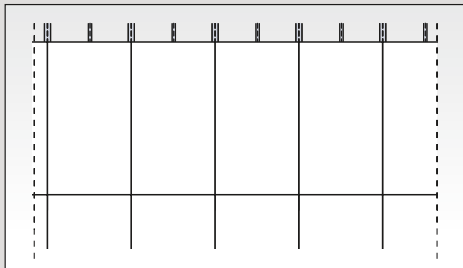
- For smaller panel sizes with only two rows of fasteners, fixed points to be top center and top left **or** top right (horizontal applications on vertical profiles). For vertical narrow panel applications on vertical profiles, vertical joints must incorporate two separate profiles (as illustrated, **FIG J**).
- Joint closures can be installed (maximum thickness of finishing profile to be .8 mm or 21 gauge). Standard practice is to leave the joints open. If the joints are closed, the base and parapet openings must be increased to a minimum of 1½".
  - Pilot hole for rivet in metal profile to be 4.9 mm diameter. See **Panel** section for drill size. (See **FIGS. E & I**)
  - Remove drill shavings from metal profile holes and panel fixed and gliding holes prior to installing rivets.

### Fabrication/Maintenance/Storage

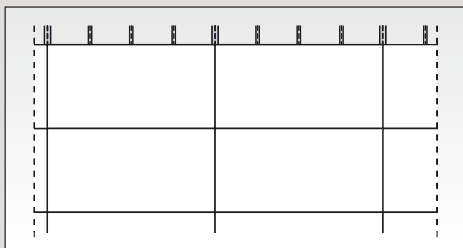
See AFCC Fabrication, Maintenance and Storage Guidelines.

#### Typical Pattern Layout

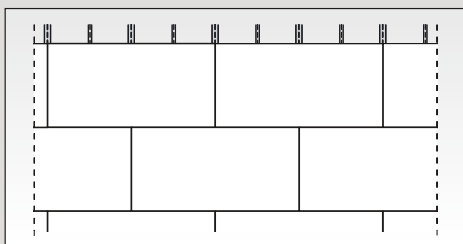
Panels can be used full size (4' x 8' or 4' x 10'), or fabricated to smaller dimensions.



*Straight pattern with vertical panels*



*Straight pattern with horizontal panels*

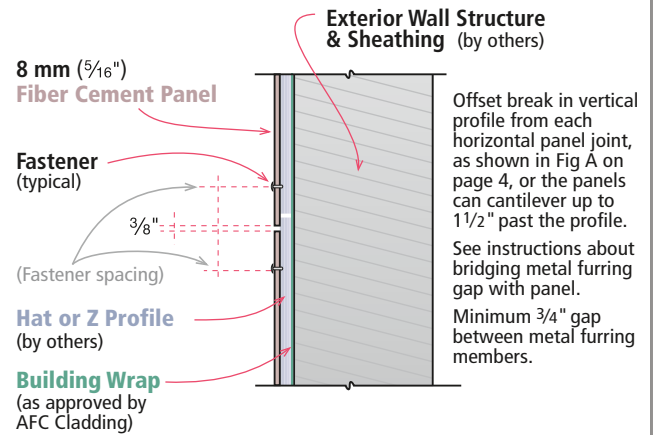


*Semi pattern with horizontal panels*

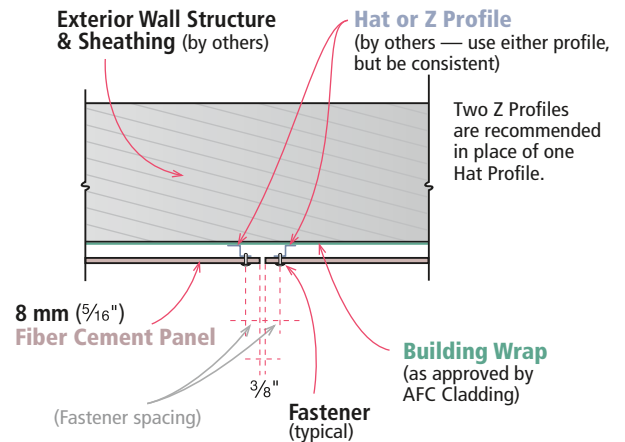
### Details

See AFCC Standard Details for detailing requirements in architectural drawing format.

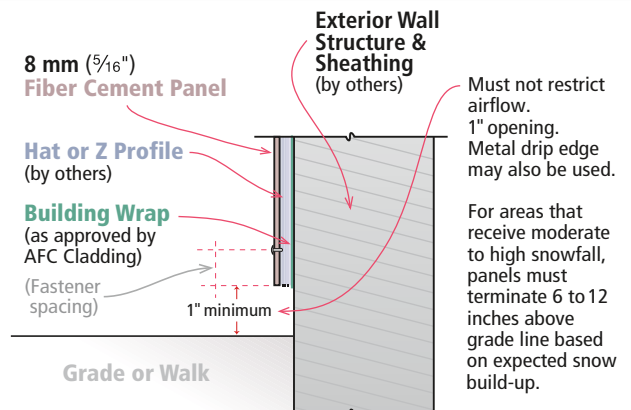
#### Typical Horizontal Panel Joint



#### Typical Vertical Panel Joint



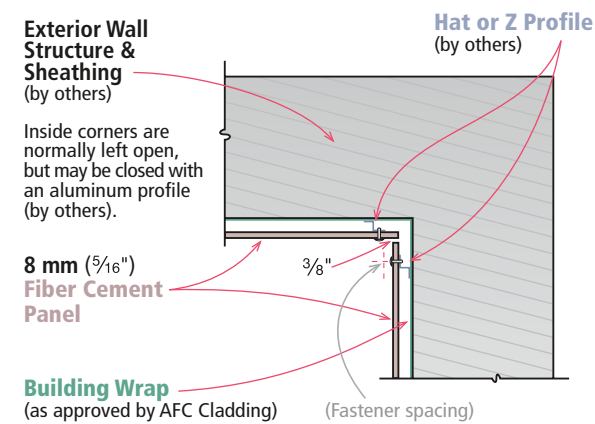
#### Typical Panel Base



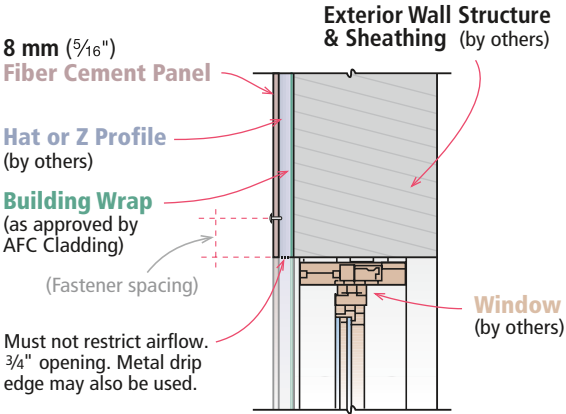
# Ventilated Rainscreen Application

**Details** (continued) See AFCC Standard Details for detailing requirements in architectural drawing format.

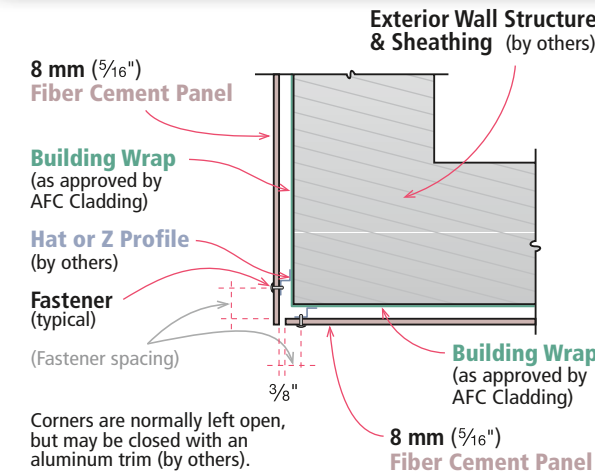
Typical Inside Corner – Plan View



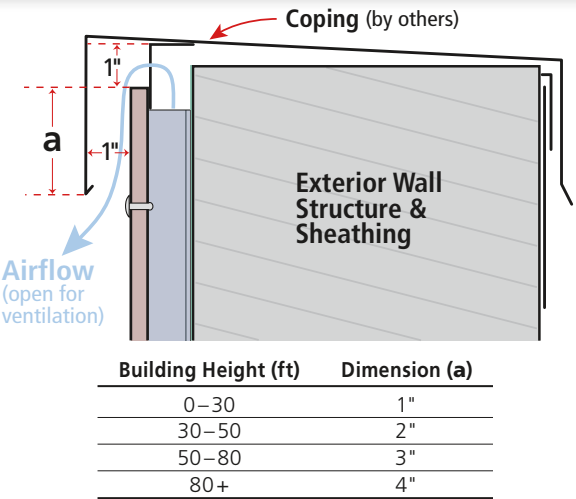
Typical Panel @ Window Head or Door Head



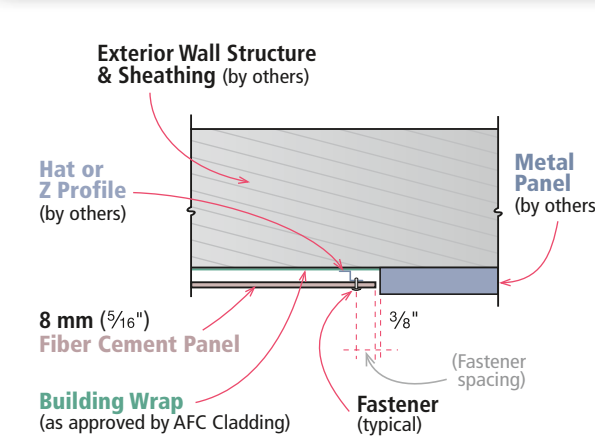
Typical Outside Corner – Plan View



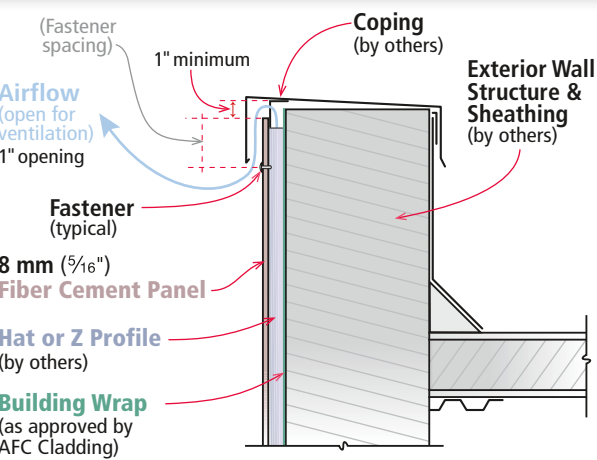
Parapet Coping – Closeup



Typical Panel End @ Metal Panel



Typical Panel @ Parapet



## Product Sustainability Statement

AFC Cladding is committed to providing the highest quality high density compressed fiber cement panels to the U.S. building markets. In order to do this, we feel it necessary to provide not only high quality products, but sustainable products that can contribute to green (LEED) building projects, which in turn benefit the environment we all live in.

AFC Cladding products currently have a potential contribution to various LEED credits including but not limited to:

### Direct Contribution

#### Materials and Resources:

- ◆ BPDO – Environmental Product Declarations

### Indirect Contribution

#### Indoor Environmental Quality:

- ◆ Thermal Comfort

#### Energy and Atmosphere:

- ◆ Optimize Energy Performance

One of the most important sustainable attributes is the durability of AFC Cladding panels. With their long lifespan, virtually requiring no refurbishment, AFC Cladding panels can contribute to less replacement of materials and to drastically lower maintenance costs over the useful life of the building.

The Ventilated and Insulated Rainscreen Cladding (VIRSC) system, which is used to affix AFC Cladding panels to the exterior of a structure, offers many benefits and green attributes to the performance of the building envelope. Durability and resistance to moisture and mold build-up are noteworthy benefits. Equally important is its ability to accommodate external insulation.

In addition, AFC Cladding is dedicated to further research and analysis of our products to achieve additional LEED credits, and help further the cause of building sustainable and efficient buildings.

---

Warranty information available upon request.

## Limited Warranty

American Fiber Cement Corporation (AFCC) warrants that its products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship using AFCC's specifications as a standard. Only products which are installed and used in accordance with applicable AFCC instructions and specifications are in any way warranted by AFCC. This warranty is applicable only to claims made in writing and received by AFCC within thirty (30) days after the defect was discovered and within ten (10) years after the date of the shipment of the product by AFCC. All other claims are waived. If a claim is made, you must allow reasonable investigation of the product you claim is defective and you must supply samples that adequately demonstrate the problem you claim for testing by AFCC.

AFCC DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY PROVIDES YOUR EXCLUSIVE REMEDY AS A PURCHASER OF AFCC PRODUCTS. THIS LIMITED WARRANTY MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF AFCC. WITHOUT AN EXPRESS, WRITTEN AUTHORIZATION FROM AFCC, NO RETAILER OR DISTRIBUTOR OF AFCC PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS LIMITED WARRANTY.

## Limitation of Liability

This limited warranty is your sole and exclusive remedy. It is expressly understood and agreed that the limit of liability will be, at AFCC's option, repair, resupply of a like quantity of non-defective product, or refund of purchase price of the material. All labor and service charges which may be incurred with respect to either the original or replacement product are excluded. AFCC shall have no liability except where the claim results solely from breach of AFCC's limited warranty.

AFCC SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. FURTHERMORE, AFCC SHALL NOT BE LIABLE FOR DAMAGE TO THE PROPERTY TO WHICH THE PRODUCT IS APPLIED OR ITS CONTENTS, LOSS OF TIME, PROFITS, OR ANY INCONVENIENCE ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY OR OBLIGATIONS UNDER THIS LIMITED WARRANTY. AFCC SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY EXCEPT THE LIMITED WARRANTY SET FORTH ABOVE. INCIDENTAL AND CONSEQUENTIAL DAMAGES SHALL NOT BE RECOVERABLE EVEN IF THE REPLACEMENT REMEDY FAILS OF ITS PURPOSE OR FOR ANY OTHER REASON.

Distributed exclusively by:



**American Fiber  
Cement Corporation**

6901 South Pierce Street  
Suite 180  
Littleton, CO 80128 U.S.A.

Phone: 303-972-5107

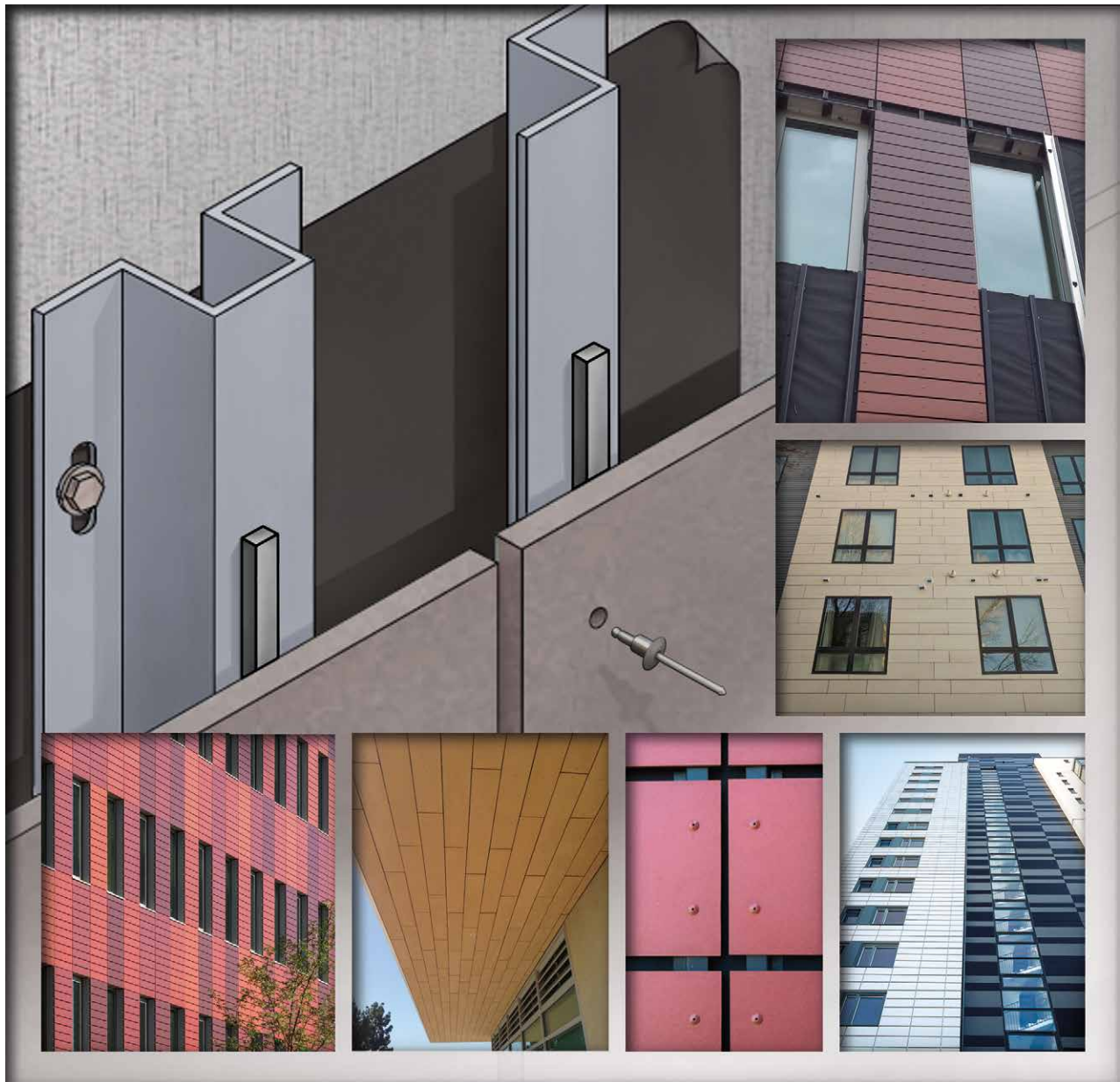
800-688-8677

Fax: 303-978-0308

[www.americanfibercement.com](http://www.americanfibercement.com)

For the nearest authorized fabricator, call 303-972-5107.



**Standard Installation Guidelines**<sup>1</sup>**Aluminum Profiles with Rivets****Rainscreen Application — 8 mm Panels****American Fiber  
Cement Corporation**

<sup>1</sup> These guidelines represent an **abbreviated illustration** for proper installation of Cover, Patina, Solid, Transparent and Deco architectural panels in a ventilated rain screen application. Additional guidelines for interior applications, hidden adhesive attachment, sealing, and weather barrier attachment can be found at [www.americanfibercement.com](http://www.americanfibercement.com).

**AIA  
Continuing  
Education  
Provider**

*Note: The online copy of the Installation Guidelines obtained at [www.americanfibercement.com](http://www.americanfibercement.com) supersedes any printed copy.*

# Construction Practices

1. Air space at top and bottom of building or wall termination to be 25 mm (1") to facilitate airflow from out behind the panels. Do not block vertical airflow at windows, doors, eaves, or at the base of the building. Airflow needs to be continuous from bottom to top so there is air movement behind each panel. See item 4 under Building/Structure on page 4 for proper profile depth based on wall height. 1" is required for walls between 15ft and 60ft. Vertical air flow behind the fiber cement panels is a critical necessity in rainscreen constructions.

2. For areas that receive moderate to high snowfall, panels must terminate 6 to 12 inches above grade line based on expected snow build-up.

3. A metal drip edge may be used at window heads, door heads and the panel base, but it must not restrict airflow (¾"; 1" at base openings).

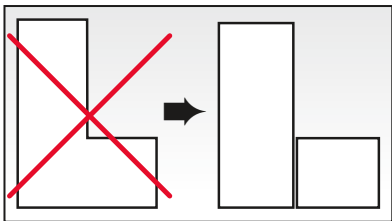
4. Install panels from top of building to bottom.

5. For straight walls, start panel installation in center and work outward.

6. For walls with inside corners, start installation there and work across wall.
7. Jobsite storage: See AFCC Fabrication, Maintenance, and Storage Guidelines
  - Keep material laying flat, under cover, dry and protected with a waterproof tarp.
  - Transport material on edge.
  - Using a microfiber cloth, brush off any material dust generated by drilling or cutting prior to installation.
  - Do not use the shipping crates or pallets containing the fiber cement panels as a work surface. Keep panels dust-free.

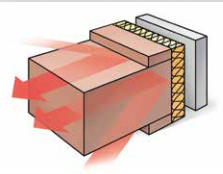
8. For field cuts and drilling, use carbide or diamond blades/bits and slower turning/feed rates. AFCC offers saw blades and drill bits.

9. All Cover, Solid and Transparent field-cut edges and field-drilled holes must be sealed with Edge Sealer and Deco edges must be painted. See AFCC's website for application instructions.



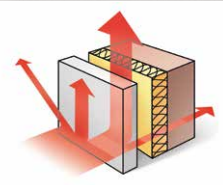
L or C-Shaped panels are not allowed.

## Rain Screen Cladding



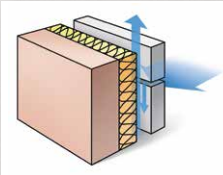
**Preventing thermal bridges**

As the insulating material is on the outside of the structural wall, it can easily be mounted without interruptions caused by floor slabs. In this way, any thermal bridges that occur at each floor slab can be prevented. These thermal bridges are also the cause of surface condensation that may result in fungus growth.



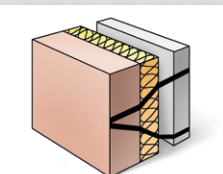
**Dissipating heat from the sun**

The ventilated rainscreen cladding system has a cooling effect when temperatures outside are high. Most of the sun's rays are reflected away from the building. Heat passing through the exterior wall panel is partially dissipated by the ventilating effect of the air space between the exterior cladding panel and the structural wall. Any residual heat managing to penetrate buildings is very minor.



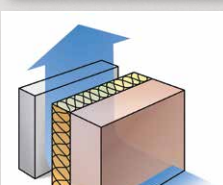
**Rainscreen**

Architectural wall-cladding panels act as a rainscreen on the outside of the building and keep the structural wall absolutely dry. The air space connected to the outside air evacuates water and humidity that might have penetrated behind the wall-cladding panels through its horizontal or vertical joints. This water will never reach the load-bearing wall and/or the thermal insulation.



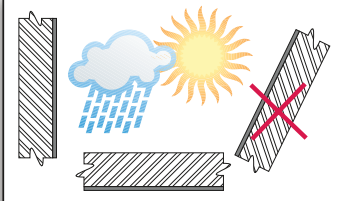
**Protecting the basic structure and load-bearing wall against temperature variations**

In view of the fact that the insulation material is applied to the outside of the building, changes in temperature are very minor compared with those found in conventional constructions where insulation is applied on the interior. This principle works in summer and winter, in both hot and cold climates.



**Prevention of internal condensation**

Insulation material can be applied to the outside of the structural wall because it is protected effectively by the architectural exterior wall panel. Because of differences in vapor pressure and temperature passing through the wall, condensation has been shown to occur close to the ventilated area and not in the structural wall itself. As a result, the ventilating effect is easily sufficient to dry out the thermal insulating material.



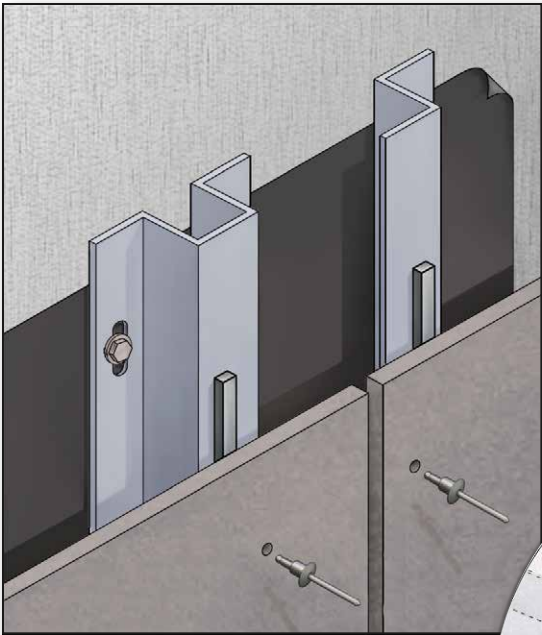
**Panels exposed to weather (rain, sun) may only be assembled vertically. Soffit applications not exposed to weather are allowed.**



Profile Attachment — illustrated

For wall assemblies utilizing exterior sheathing with low screw-holding strength, a two-layer attachment system may be required. (See FIG. D-1B)

FIG. D-1A —  
Vertical profiles are typically  
"Z" channels or "Hat" channels.



Hat channel can be attached with the crown facing in or out, depending on fastener spacing and the visibility of the profile through the joint.

FIG. D-2 —  
Exterior insulation, when  
vertical profiles are attached  
to horizontal profiles affixed to wall.

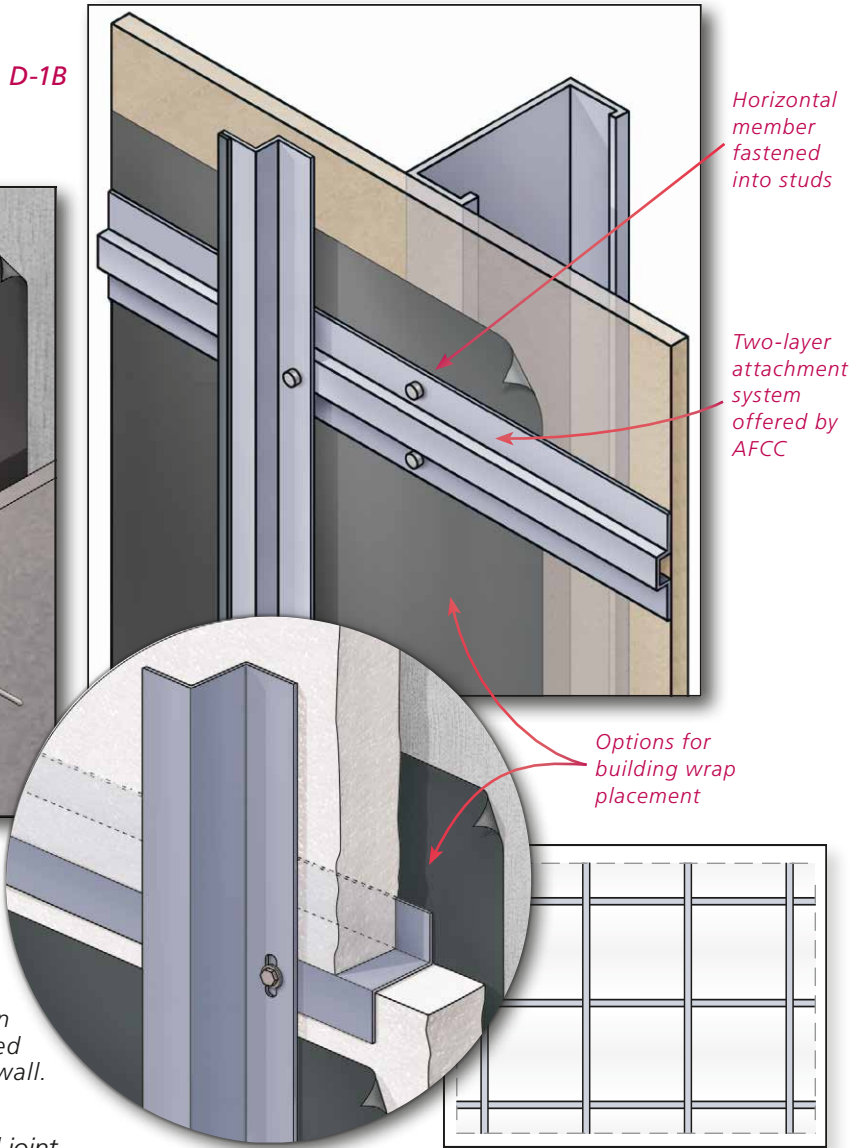
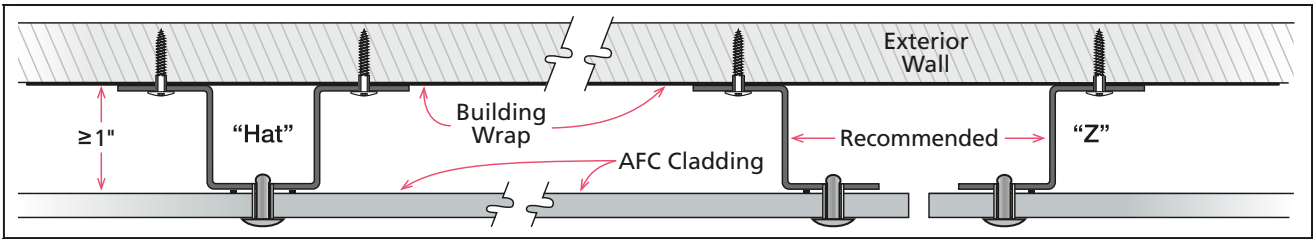


FIG. J — "Hat" or "Z" channels and vertical joint.  
(Black Anodized "Z" channels offered by AFCC.)



Can be vertically affixed directly to wall if there is no exterior insulation, provided sheathing has adequate screw-holding strength; (3/4" plywood sheathing is recommended).

FIG. H — Astro Rivet® with fixed cylinder

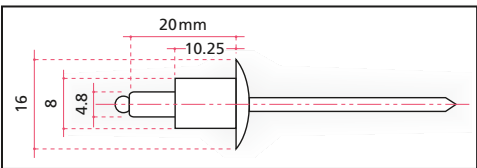
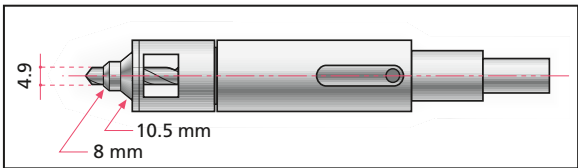


FIG. I — Centralizing drill bit



For centering pilot hole in profile for  
**Fixed Points** and  
**Gliding Points**.

## Building/Structure

### 1. Architect/Engineer/Contractor to design and build structurally sound, water-tight exterior wall.

- Substructure Horizontal Straightness Tolerance:  $\pm 3.0 \text{ mm per } 2\text{m}$  ( $\pm 0.0625'' \text{ per } 42''$ )
- Substructure Vertical Straightness Tolerance:  $\pm 0.5 \text{ mm per } 600\text{mm}$  ( $\pm 0.0625'' \text{ per } 75''$ )

If the wall is not straight, the profiles should be shimmed to create a flat plane for the panels. Shims should not be used between the profile and the panel.

### 2. Attach profiles to exterior walls. *Structural engineer to determine fastening/affixing specification*, i.e. quantity and type of attachment and fasteners, based upon exterior wall construction. Attachment must support 3.2 lbs/ft<sup>2</sup> (8 mm panel) dead load, plus design wind loads. Fasteners in profile must accommodate thermal expansion/contraction of metal and not interfere with panel application. Shortening the length of the profiles can minimize thermal expansion and contraction. It is also recommended to oversize holes at or near the tops and bottoms of the profiles while having fixed points near the center. This reduces stress in the panels.

### 3. Profiles for affixing panels to be a minimum of 16 gauge steel or greater, determined by building orientation/location and load factors. Depending on location and climate, a minimum of G90 or greater hot-dipped galvanized coating is recommended. Galvalume® and powder coat finishes may also be used.

### 4. Vertical profiles for affixing panels must be the following depth to allow for optimal air flow and water drainage:

- 19 mm ( $\frac{3}{4}''$ ) for panel runs 0–15 ft
- 25 mm (1") for panel runs 15–60 ft
- 32 mm ( $1\frac{1}{4}''$ ) for panel runs 60–100 ft
- 38 mm ( $1\frac{1}{2}''$ ) for panel runs 100–150 ft

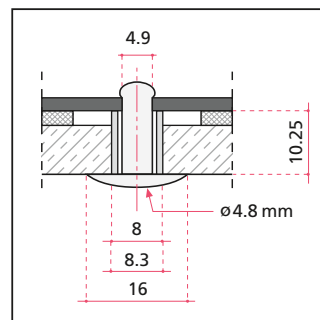
For buildings over 150 feet high, special provisions are required; check with your AFC Cladding representative.

### 5. Maximum length of steel profile $\leq 10$ feet. Two profiles ("Z" recommended, or "Hat" with $\geq 1\frac{1}{4}''$

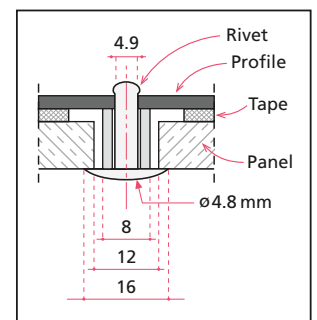
legs) are recommended in place of one wide profile at vertical joints. The sides of the panel can be cantilevered 2"–6" over edge profile so vertical joint is open. (See FIG. C)

6. Profiles to be straight, plumb, level and aligned correctly on the building. **For installations without exterior insulation, the metal profiles are typically hat-channels or Z-channels affixed directly to the exterior wall, provided the sheathing has adequate screw-holding strength.** (See FIG. J)
7. **It is recommended to take field measurements before panels are cut or drilled.** Field measurements verify print dimensions to ensure proper fit.
8. Spacing between vertical profiles to be  $\geq 20 \text{ mm}$  ( $\frac{3}{4}''$ ). A joint between the vertical profiles must **always** coincide with a joint between the panels (FIG. A). The joint is preferably continued at the same horizontal height among adjacent profiles. (Reduces stress in panels). If a two layer system is used, the same concept must be applied for the horizontal profiles. 20mm spacing, and coincide a joint between panels with a joint between horizontal profiles.
9. For structures with **exterior insulation**, follow the insulation manufacturer's installation instructions. Horizontal metal profiles (the same depth as the exterior insulation) can be attached to the exterior wall. Vertical metal profiles are then attached to the horizontal profiles (See FIG. D-2).

FIG. E — Fixed and Gliding Points



Fixed Point — cylinder & rivet



Gliding Point — cylinder & rivet

FIG. A

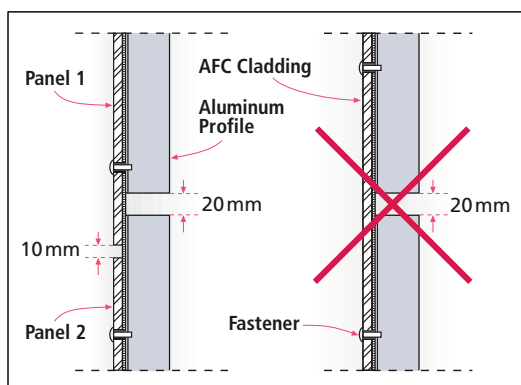


FIG. B —

### Standard profile.

Affix adhesive foam tape to either **or** both sides of rivet. (Foam tape will compress to correct depth when panel is fastened.)

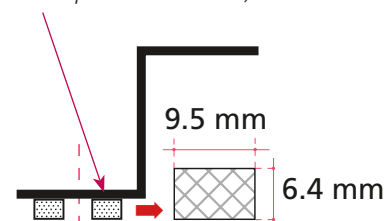
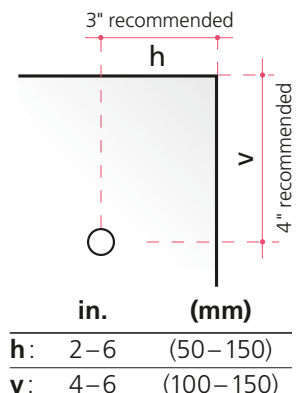


FIG. C



## Prepare Profile

1. Typical vertical and horizontal joints are left open and have a black background (use a black weather and UV resistant building wrap). Metal profiles visible at joint openings (vertical and horizontal) can be covered with a black UV weather resistant tape or UV weather resistant coating. Other reveal colors are possible if desired.
2. Affix adhesive foam tape (supplied by AFCC) to the profile's full length — 1 strip on either side of the rivet location or 1 strip on each side of the rivet location, no more than 1/2" from the rivet location. At vertical joints, place 1 strip on the panels center side of the rivet location. (See FIG. B)
3. See page 6 regarding closing horizontal and vertical joints.

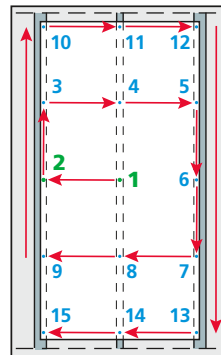
## Panels

1. Panels to be Patina, Solid, Transparent or Cover.
  - Patina and Deco panels have a sanding grain that must be accounted for when positioning panels. Rotating some panels 90° from the orientation of adjacent panels can result in the appearance of color shading.
2. Vertical and horizontal joints to be 10 mm (3/8"). This is the minimum distance between the edges of two adjacent panels, or the distance from panel edge to metal trim extrusions or structural members. (See FIG. A)
3. Pre-drill holes in panel so that there are: (See FIGS. E, F & G)
  - Two (2) **fixed points** per panel (F).
  - The rest of the holes are to be **gliding points** (G).
  - See **Fixing** section (and FIGS. F & G) for determining location of fixed points in each panel.
4. Diameter of the fixed point hole is to be 8.3 mm.
5. Diameter of the gliding point hole is to be 12 mm.
  - 8.3 mm and 12 mm drill bits supplied by AFCC
6. Joints between profiles must coincide with horizontal joints in the panels. **Panels cannot bridge a break in the profiles.** (See FIG. A)
7. **The pilot hole in metal profile** must be in the center of both the fixed point and gliding point holes. Use a drill bit centralizing fixture (supplied by AFCC) to accomplish this geometry. Pilot hole to be 4.9 mm in diameter — use #10 drill bit (4.9 mm). (See FIG. I)
8. After first affixing the two fixed-point rivets, affix the rivets in a manner moving from nearest the center of the panel to the outside ring. (See FIG. K)

## Fixing

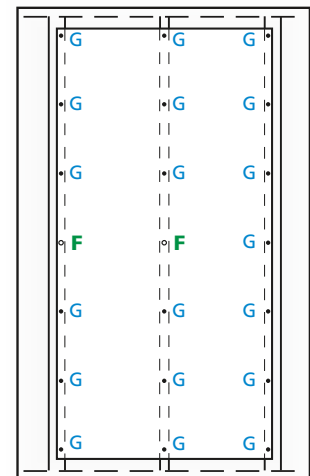
1. Rivets to be Astro Rivet (supplied by AFCC) with colored or stainless steel head with 8 mm x 11.1 mm cylinder. Shank of rivet is 4.8 mm x 20 mm long, with a 16 mm diameter head. (See FIG. H)
2. Fixing pattern is typically either 16" or 24" (max) on center horizontally (based upon vertical profile spacing) and 16" to 24" (max) on center vertically, depending upon building height, building location, design criteria/specifications, and panel/fastener location on building. Edge areas on facades and high wind load conditions require closer fixing distances. Structural engineer to determine spacings. For soffit applications, the maximum fastener spacing is 16" on center in both directions.
3. Corner rivets to be located at 50 – 150 mm (2" – 6") horizontally and 100 – 150 mm (4" – 6") vertically from every corner of panel. (FIG. C)
4. 10 mm (3/8") clearance is required from the edge of metal profile to pilot hole for rivet.
5. Two **fixed points** are required per panel. (FIGS. I & J)  
Fixed points (for attachment to vertical profiles) are:

- Always the same height in each panel.
- As close to center of panel as possible, and then either the next adjacent point to the left **or** right. Be consistent in panel-to-panel location (center and left **or** center and right, so fixed points are at the same level horizontally for attachment to vertical profiles).
- No two fixed points on one panel can be on the same profile, and no two fixed points on two adjacent panels can be on the same profile when adjacent panels share a profile at a vertical joint.

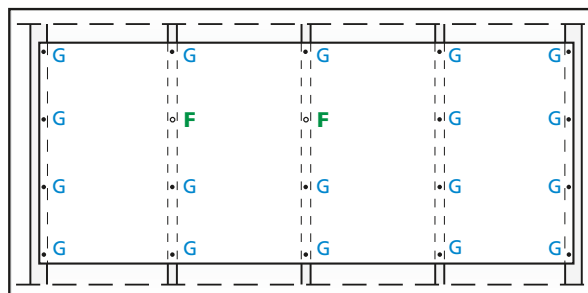


◀ FIG. K — Fixing sequence  
Attach fixed points first.

▼ FIG. F — Vertical installation on vertical profiles



▼ FIG. G — Horizontal installation on vertical profiles



If there is no perfectly centered row, the Fixed points go one row up, as shown.

## Ventilated Rainscreen Application

### Fixing (continued)

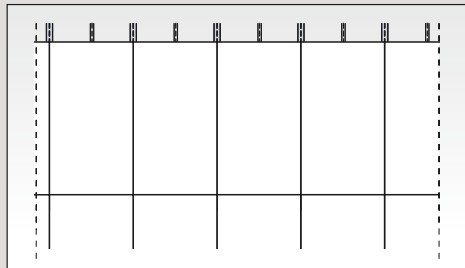
- For smaller panel sizes with only two rows of fasteners, fixed points to be top center and top left **or** top right (horizontal applications on vertical profiles). For vertical narrow panel applications on vertical profiles, vertical joints must incorporate two separate profiles (as illustrated, **FIG J**).
- Aluminum joint closures can be installed (maximum thickness of finishing profile to be .8 mm or 21 gauge). Standard practice is to leave the joints open. If the joints are closed, the base and parapet openings must be increased to a minimum of 1½".
  - Pilot hole for rivet in metal profile to be 4.9 mm diameter. See **Panel** section for drill size. (See **FIGS. E & I**)
  - Remove drill shavings from metal profile holes and panel fixed and gliding holes prior to installing rivets.

### Fabrication/Maintenance/Storage

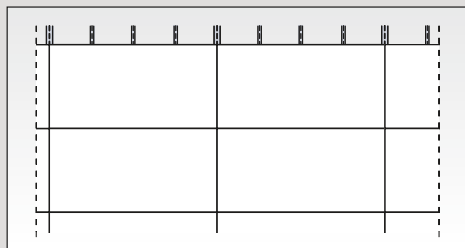
See AFCC Fabrication, Maintenance and Storage Guidelines.

#### Typical Pattern Layout

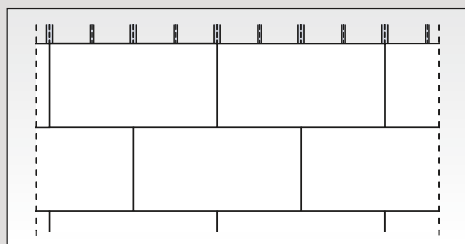
Panels can be used full size (4' x 8' or 4' x 10'), or fabricated to smaller dimensions.



*Straight pattern with vertical panels*



*Straight pattern with horizontal panels*

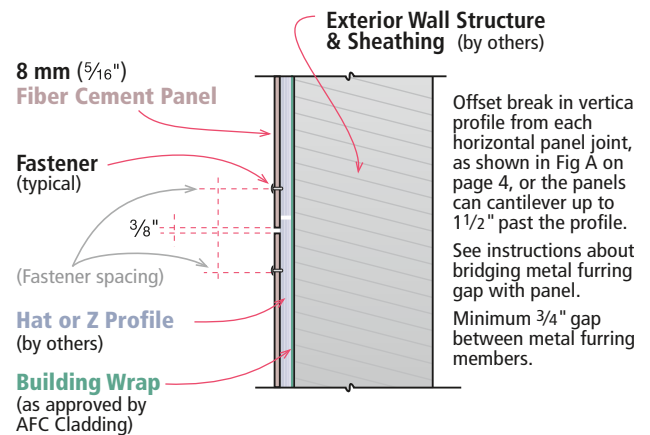


*Semi pattern with horizontal panels*

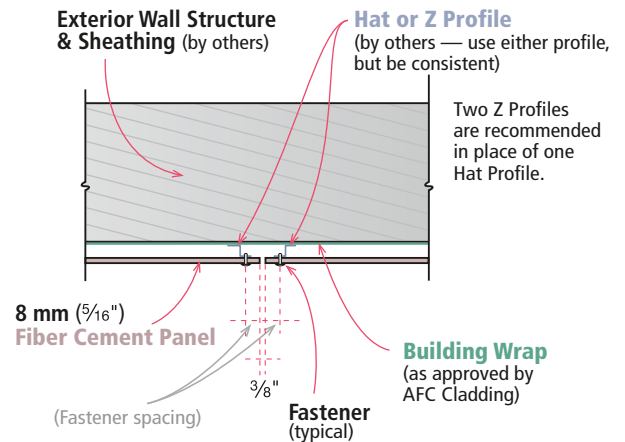
### Details

See AFCC Standard Details for detailing requirements in architectural drawing format.

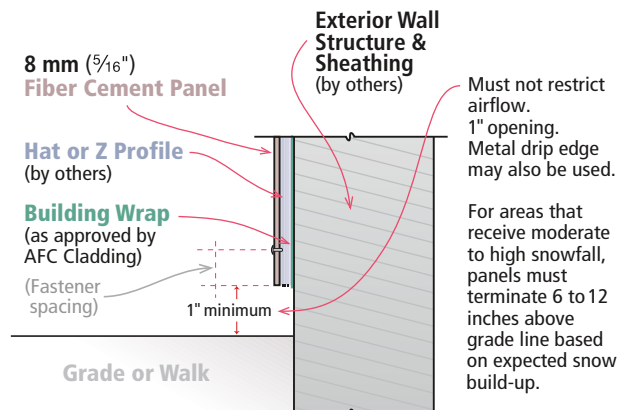
#### Typical Horizontal Panel Joint



#### Typical Vertical Panel Joint



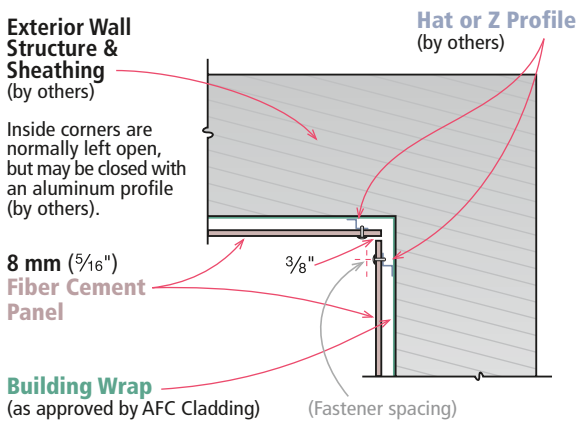
#### Typical Panel Base



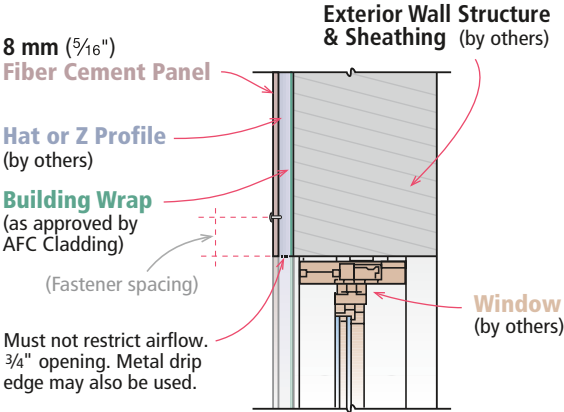
Ventilated Rainscreen Application

Details (continued) See AFCC Standard Details for detailing requirements in architectural drawing format.

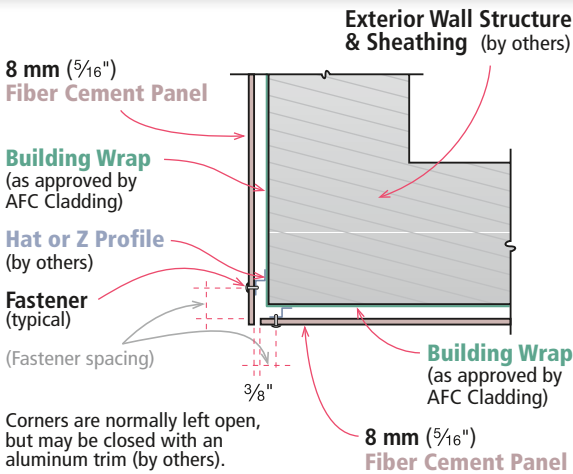
Typical Inside Corner – Plan View



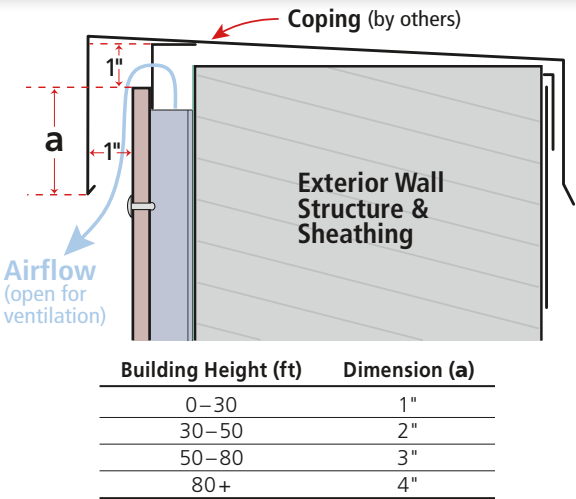
Typical Panel @ Window Head



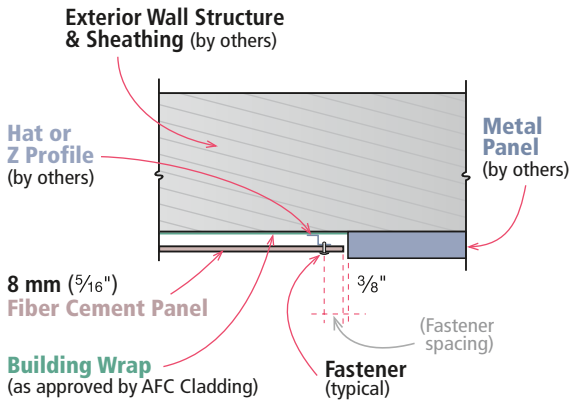
Typical Outside Corner – Plan View



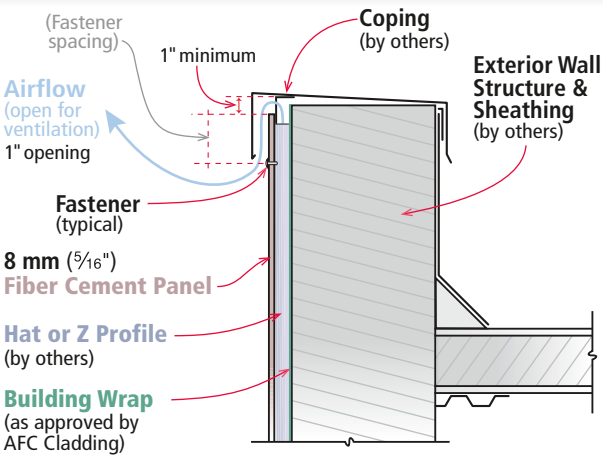
Parapet Coping – Closeup



Typical Panel End @ Metal Panel



Typical Panel @ Parapet





## Product Sustainability Statement

AFC Cladding is committed to providing the highest quality high density compressed fiber cement panels to the U.S. building markets. In order to do this, we feel it necessary to provide not only high quality products, but sustainable products that can contribute to green (LEED) building projects, which in turn benefit the environment we all live in.

AFC Cladding products currently have a potential contribution to various LEED credits including but not limited to:

### **Direct Contribution**

#### **Materials and Resources:**

- ◆ BPDO – Environmental Product Declarations

### **Indirect Contribution**

#### **Indoor Environmental Quality:**

- ◆ Thermal Comfort

#### **Energy and Atmosphere:**

- ◆ Optimize Energy Performance

One of the most important sustainable attributes is the durability of AFC Cladding panels. With their long lifespan, virtually requiring no refurbishment, AFC Cladding panels can contribute to less replacement of materials and to drastically lower maintenance costs over the useful life of the building.

The Ventilated and Insulated Rainscreen Cladding (VIRSC) system, which is used to affix AFC Cladding panels to the exterior of a structure, offers many benefits and green attributes to the performance of the building envelope. Durability and resistance to moisture and mold build-up are noteworthy benefits. Equally important is its ability to accommodate external insulation.

In addition, AFC Cladding is dedicated to further research and analysis of our products to achieve additional LEED credits, and help further the cause of building sustainable and efficient buildings.

---

Warranty information available upon request.

## Limited Warranty

American Fiber Cement Corporation (AFCC) warrants that its products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship using AFCC's specifications as a standard. Only products which are installed and used in accordance with applicable AFCC instructions and specifications are in any way warranted by AFCC. This warranty is applicable only to claims made in writing and received by AFCC within thirty (30) days after the defect was discovered and within ten (10) years after the date of the shipment of the product by AFCC. All other claims are waived. If a claim is made, you must allow reasonable investigation of the product you claim is defective and you must supply samples that adequately demonstrate the problem you claim for testing by AFCC.

AFCC DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY PROVIDES YOUR EXCLUSIVE REMEDY AS A PURCHASER OF AFCC PRODUCTS. THIS LIMITED WARRANTY MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF AFCC. WITHOUT AN EXPRESS, WRITTEN AUTHORIZATION FROM AFCC, NO RETAILER OR DISTRIBUTOR OF AFCC PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS LIMITED WARRANTY.

## Limitation of Liability

This limited warranty is your sole and exclusive remedy. It is expressly understood and agreed that the limit of liability will be, at AFCC's option, repair, resupply of a like quantity of non-defective product, or refund of purchase price of the material. All labor and service charges which may be incurred with respect to either the original or replacement product are excluded. AFCC shall have no liability except where the claim results solely from breach of AFCC's limited warranty.

AFCC SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. FURTHERMORE, AFCC SHALL NOT BE LIABLE FOR DAMAGE TO THE PROPERTY TO WHICH THE PRODUCT IS APPLIED OR ITS CONTENTS, LOSS OF TIME, PROFITS, OR ANY INCONVENIENCE ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY OR OBLIGATIONS UNDER THIS LIMITED WARRANTY. AFCC SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY EXCEPT THE LIMITED WARRANTY SET FORTH ABOVE. INCIDENTAL AND CONSEQUENTIAL DAMAGES SHALL NOT BE RECOVERABLE EVEN IF THE REPLACEMENT REMEDY FAILS OF ITS PURPOSE OR FOR ANY OTHER REASON.

Distributed exclusively by:



6901 South Pierce Street  
Suite 180  
Littleton, CO 80128 U.S.A.

Phone: 303-972-5107

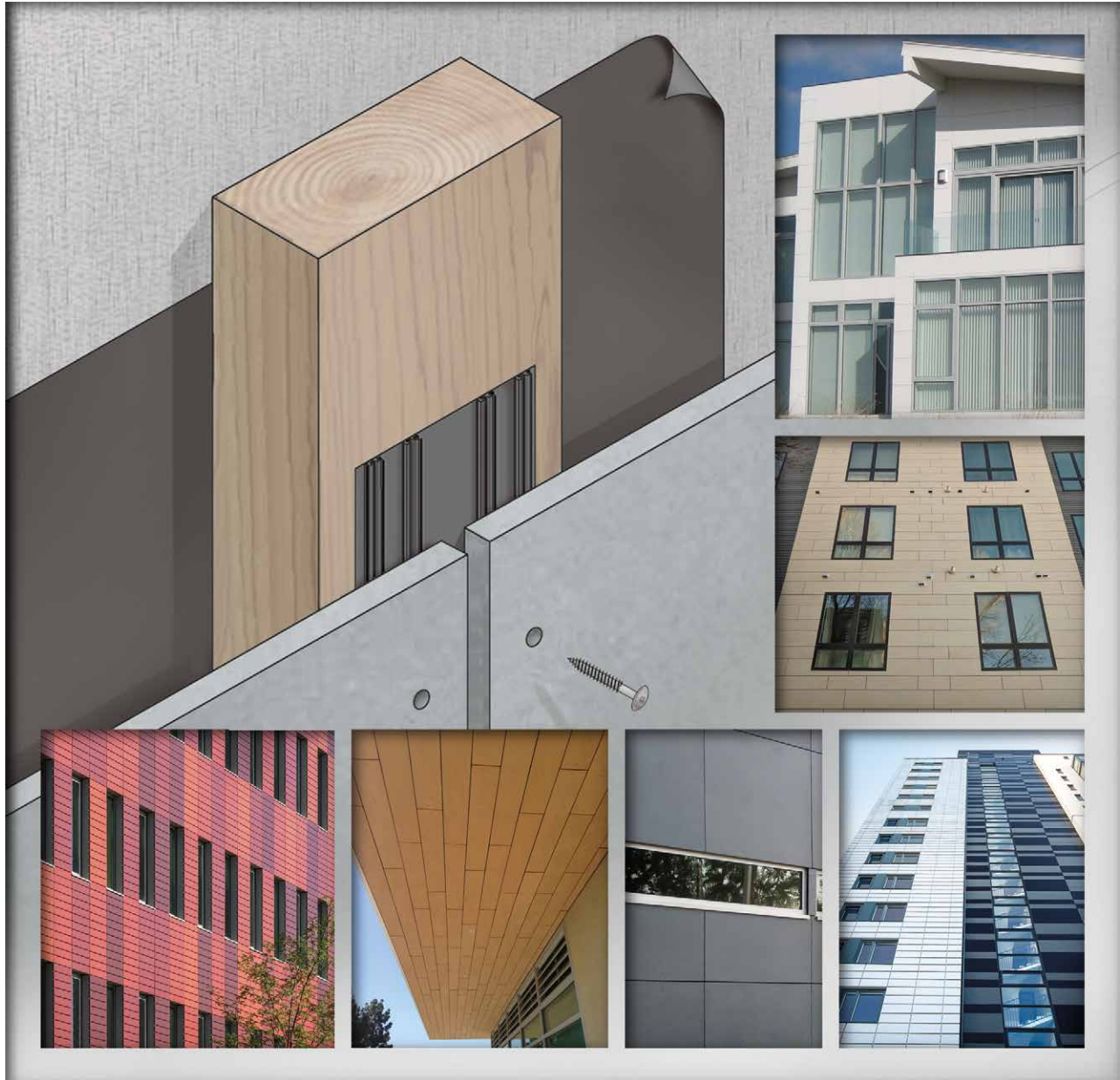
800-688-8677

Fax: 303-978-0308

[www.americanfibercement.com](http://www.americanfibercement.com)

For the nearest authorized fabricator, call 303-972-5107.





**American Fiber  
Cement Corporation**

<sup>1</sup> These guidelines represent an **abbreviated illustration** for proper installation of Cover, Patina, Solid, Transparent and Deco architectural panels in a ventilated rain screen application. Additional guidelines for interior applications, hidden adhesive attachment, sealing, and weather barrier attachment can be found at [www.americanfibercement.com](http://www.americanfibercement.com).

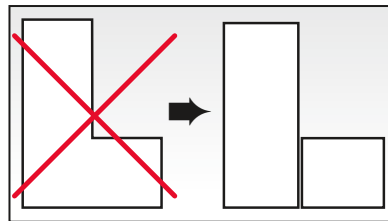
**AIA  
Continuing  
Education  
Provider**



*Note: The online copy of the Installation Guidelines obtained at [www.americanfibercement.com](http://www.americanfibercement.com) supersedes any printed copy.*

## Construction Practices

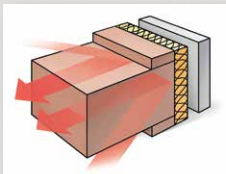
1. Air space at top and bottom of building or wall termination to be 20 mm ( $\frac{3}{4}$ ") to facilitate airflow from out behind the panels. Do not block vertical airflow at windows, doors, eaves, or at the base of the building. Airflow needs to be continuous from bottom to top so there is air movement behind each panel. For walls over 60 feet high, the ventilated cavity between rear of panels and exterior wall should be increased to 30 mm ( $1\frac{1}{4}$ "). Air flow behind the fiber cement panels is a critical necessity in rainscreen constructions.
2. For areas that receive moderate to high snowfall, panels must terminate 6 to 12 inches above grade line based on expected snow build-up.
3. A metal drip edge may be used at window heads, door heads and the panel base, but it must not restrict airflow ( $\frac{3}{4}$ "; 1" at base openings).
4. Install panels from top of building to bottom.
5. For straight walls, start panel installation in center and work outward.
6. For walls with inside corners, start installation there and work across wall.
7. Jobsite storage:
  - Keep material laying flat, under cover, dry and protected with a waterproof tarp.
  - Transport material on edge.
  - Using a microfiber cloth, brush off any material dust generated by drilling or cutting prior to installation.
  - Do not use the shipping crates or pallets containing the fiber cement panels as a work surface. Keep panels dust-free.
8. For field cuts and drilling, use carbide or diamond blades/bits and slower turning/feed rates. AFCC offers saw blades and drill bits.
9. All Cover, Solid and Transparent field-cut edges and field-drilled holes must be sealed with



Edge Sealer. See Instructions for the Edge Sealer on AFCC's website.

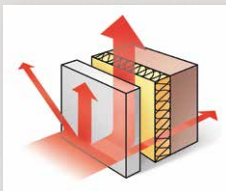
*L or C-Shaped panels are not allowed.*

## Rain Screen Cladding



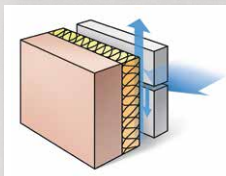
### Preventing thermal bridges

As the insulating material is on the outside of the structural wall, it can easily be mounted without interruptions caused by floor slabs. In this way, any thermal bridges that occur at each floor slab can be prevented. These thermal bridges are also the cause of surface condensation that may result in fungus growth.



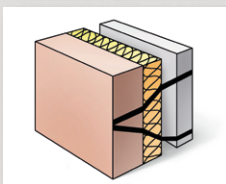
### Dissipating heat from the sun

The ventilated rainscreen cladding system has a cooling effect when temperatures outside are high. Most of the sun's rays are reflected away from the building. Heat passing through the exterior wall panel is partially dissipated by the ventilating effect of the air space between the exterior cladding panel and the structural wall. Any residual heat managing to penetrate buildings is very minor.



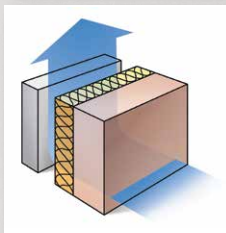
### Rainscreen

Architectural wall-cladding panels act as a rainscreen on the outside of the building and keep the structural wall absolutely dry. The air space connected to the outside air evacuates water and humidity that might have penetrated behind the wall-cladding panels through its horizontal or vertical joints. This water will never reach the load-bearing wall and/or the thermal insulation.



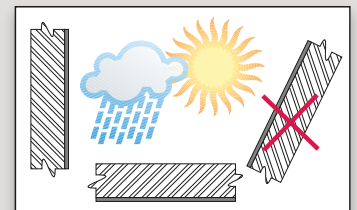
### Protecting the basic structure and load-bearing wall against temperature variations

In view of the fact that the insulation material is applied to the outside of the building, changes in temperature are very minor compared with those found in conventional constructions where insulation is applied on the interior. This principle works in summer and winter, in both hot and cold climates.



### Prevention of internal condensation

Insulation material can be applied to the outside of the structural wall because it is protected effectively by the architectural exterior wall panel. Because of differences in vapor pressure and temperature passing through the wall, condensation has been shown to occur close to the ventilated area and not in the structural wall itself. As a result, the ventilating effect is easily sufficient to dry out the thermal insulating material.

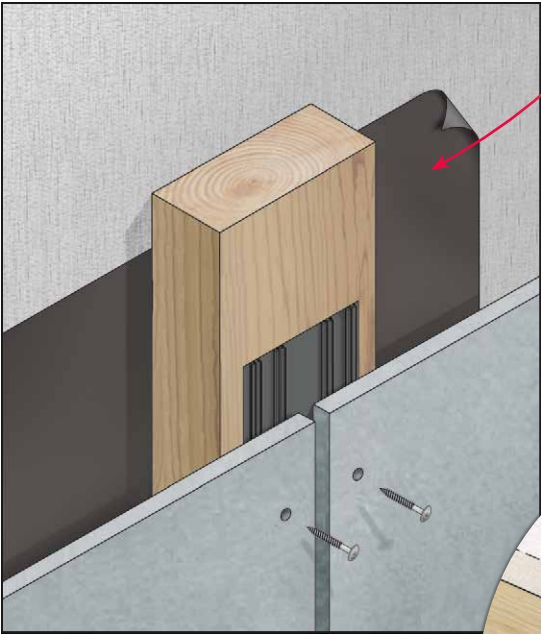


**Panels exposed to weather (rain, sun) may only be assembled vertically. Soffit applications not exposed to weather are allowed.**

Profile Attachment — illustrated

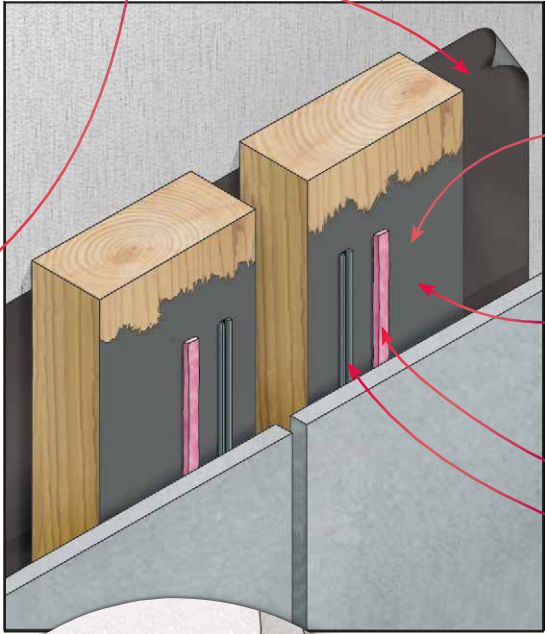
For wall assemblies utilizing exterior sheathing with low screw-holding strength, a two-layer attachment system may be required.

FIG. D-1 — Vertical profiles are attached using wood furring, without insulation.



Building wrap per AFCC.  
Weather and UV resistant.  
Check local codes for proper placement.

Contact your AFCC representative or visit AFCC's website for application instructions utilizing Dynamic Bond adhesive.

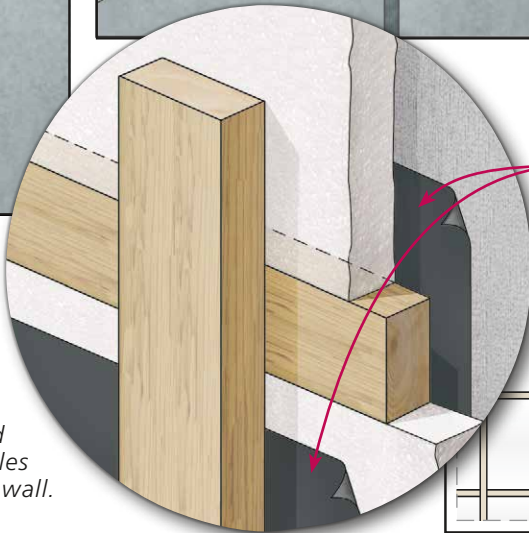


Dynamic Bond installation

Dynamic Protect

Glue bead

Dynamic tape



Options for building wrap placement

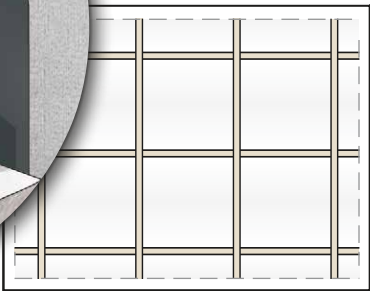
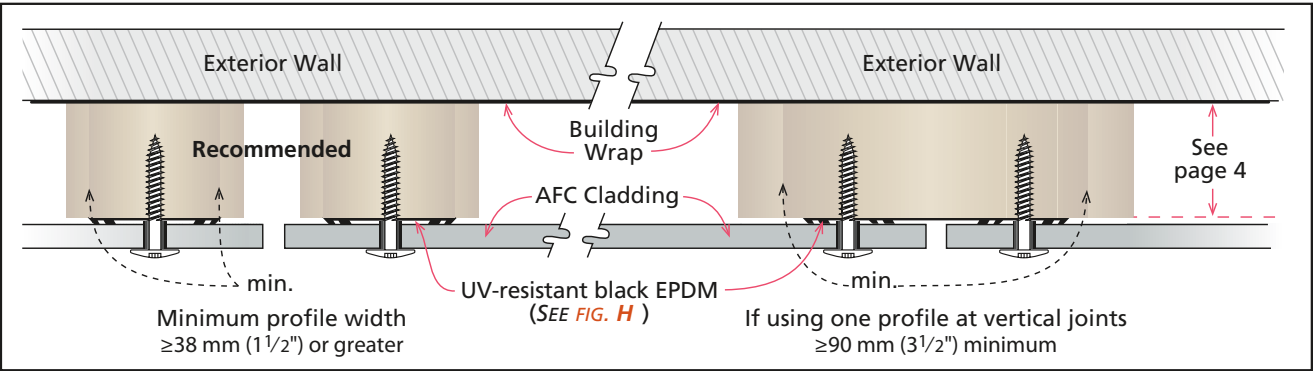


FIG. D-2 — Exterior insulation, when vertical profiles are attached to horizontal profiles affixed to wall.

FIG. J — Wood profiles: interior and vertical joint. Vertical joints may also use two  $\geq 38\text{mm}$  profiles (recommended) in place of one  $\geq 90\text{mm}$  profile.



Wood profiles can be vertically affixed directly to wall if there is no exterior insulation, provided sheathing has adequate screw-holding strength; (3/4" plywood sheathing is recommended).



## Building/Structure

### 1. Architect/Engineer/Contractor to design and build structurally sound, water-tight exterior wall.

- Substructure Horizontal Straightness Tolerance:  $\pm 3.0 \text{ mm per } 2 \text{ m } (\pm 0.0625" \text{ per } 42")$
- Substructure Vertical Straightness Tolerance:  $\pm 0.5 \text{ mm per } 600 \text{ mm } (\pm 0.0625" \text{ per } 75")$

If the wall is not straight, the profiles should be shimmed to create a flat plane for the panels. Shims should not be used between the profile and the panel.

### 2. Attach wood profiles to exterior walls. **Structural engineer to determine fastening specification,**

i.e. quantity and type of attachment and fasteners, as well as the dimensions and species of wood profiles compatible with exterior wall construction (FIG. D-1). Attachment must be sufficient to support 3.2 lbs/ft<sup>2</sup> (8 mm panel) dead load, plus design wind loads.

### 3. The quality of the wood must be consistent with prevailing standards in the area. The wood should be pressure treated construction grade lumber with a smooth surface finish. Fungi-resistant woods are required, but must not be treated with agents that are corrosive to stainless steel screws.

### 4. Vertical profiles for affixing panels must be the following depth to allow for optimal air flow and water drainage:

- 19 mm ( $\frac{3}{4}"$ ) for panel runs 0–15 ft (1x2 or 1x4)
- 38 mm ( $1\frac{1}{2}"$ ) for panel runs 15–150 ft (2x2 or 2x4)

For buildings over 150 feet high, special provisions are required; check with your AFC Cladding representative.

### 5. Profile width at vertical joints to be $\geq 90 \text{ mm } (3\frac{1}{2}"$ ) minimum, and interior profile width to be $\geq 38 \text{ mm } (1\frac{1}{2}"$ ) or greater, to allow tolerances in alignment. Maximum length of wood profile $\leq 12$ feet. Minimum screw depth in wood profile is 19 mm ( $\frac{3}{4}"$ ).

### 6. Profiles to be straight, plumb, level and aligned correctly on the building. For installations without exterior insulation, the wood profiles are typically 2x2 or 2x4 pressure treated lumber affixed directly to the exterior wall, provided the sheathing has adequate screw-holding strength. (See FIG. J)

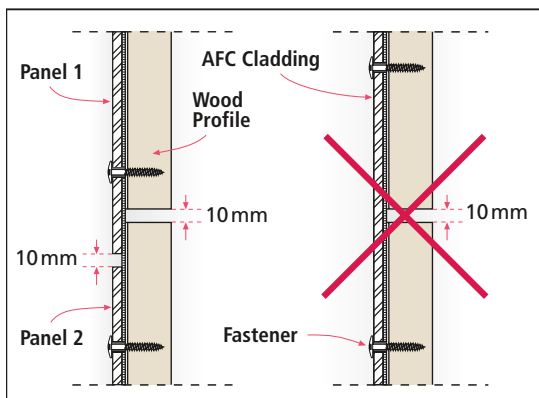
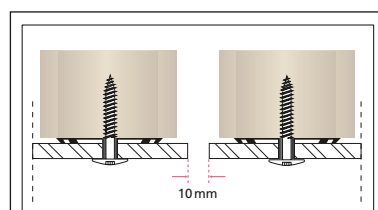


FIG. A

### Typical Vertical Panel Joint



**Alternative:**  
Use one 90 mm wide profile

### 7. It is recommended to take field measurements before panels are cut or drilled. Field measurements verify print dimensions to ensure proper fit.

### 8. Joints between vertical wood profiles to be $\geq 10 \text{ mm } (\frac{3}{8}"$ ). A joint between the vertical profiles must **always** coincide with a joint between the panels (FIG. A). The joint is preferably continued at the same horizontal height among adjacent profiles (reduces stress in panel). If a two layer system is used, the same concept must be applied for the horizontal profiles. 20mm spacing, and coincide a joint between panels with a joint between horizontal profiles.

### 9. For structures with **exterior insulation**, follow the insulation manufacturer's installation instructions. Horizontal wood profiles (the same depth as the exterior insulation) can be attached to the exterior wall. Vertical wood profiles are then attached to the horizontal profiles (FIG. D-2).

## Prepare Profile

### 1. Typical vertical and horizontal joints are left open and have a black background (use a black weather and UV resistant building wrap). Other reveal colors are possible if desired.

### 2. At the vertical joints, the wood profile is covered with a 90 mm ( $3\frac{1}{2}"$ ) UV-resistant black EPDM rubber joint sealing strip with ribs (FIG. H).

### 3. The joint sealing strip can be applied with a chemically compatible spray adhesive, staples, or double-sided tape until panels are affixed with screws. The screws must be positioned between the ribs to permit penetrated water to run off.

### 4. At interior wood profiles, a 38 mm ( $1\frac{1}{2}"$ ) UV-resistant black EPDM rubber sealing strip with ribs is applied. Spray adhesive, staples, or double-sided tape can be employed to hold up the strips until the panels are fastened.

FIG. B-2 — Interior profile

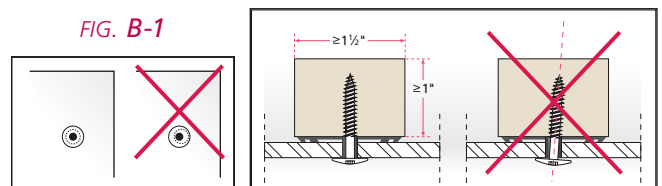


FIG. C

	3" recommended	
	h	
		v
in.		(mm)
h:	1–4	(25–100)
v:	4–6	(100–150)

## Panels

1. Panels to be Patina, Solid, Transparent, Deco or Cover.
2. Vertical and horizontal joints to be 10 mm ( $\frac{3}{8}$ "). This is the minimum distance between the edges of two adjacent panels, or the distance from panel edge to metal trim extrusions or structural members. (See FIG. A)
3. Pre-drill **all** fixed and gliding point holes in panel so that there are: (See FIG. E & F)
  - Two (2) **fixed points** per panel (F).
  - The rest of the holes are to be **gliding points** (G). (See FIG. E & F)
  - See **Fixing** section (and FIGS. E & F) for determining location of fixed points in each panel.
4. Diameter of the fixed point hole is to be 5 mm — use #8 drill bit: 5.05 mm ( $\frac{13}{64}$ ").
5. Diameter of the gliding point hole is to be 8 mm — use #0 drill bit: 8.02 mm ( $\frac{5}{16}$ ").
  - Drill bits supplied by AFCC.
6. Joints between profiles must coincide with joints in the panels. **Panels cannot bridge a break in the profiles.** (See FIG. A)
7. Patina and Deco panels have a sanding grain that must be accounted for when positioning panels. Rotating some panels 90° from the orientation of adjacent panels can result in the appearance of color shading.
8. After first affixing the two fixed point screws, affix the rivets in a manner moving from nearest the center of the panel to the outside ring. (See FIG. K)

## Fixing

1. The screw specifications for Patina, Solid, Transparent, Deco or Cover must be respected. (See FIG. G)
2. Fixing pattern is typically either 16" or 24" (max.) on center horizontally (based upon wood profile spacing) and 16" to 24" on center vertically, depending upon building height, building location, design criteria/specifications, and panel/fastener location on building.

*The screws are inserted using an electric drill with a high quality bit suitable for the type of screw head. AFCC supplied screws have a Torx T20 head. The screws must be inserted perpendicular to the panel surface (FIG. B-2), and must not be over-tightened. Check torque setting frequently during installation of the panels. Overtightening will restrict the panels' freedom of movement that is necessary to accommodate changes in thermal and moisture conditions.*

Edge areas on facades and high wind load conditions require closer fixing distances. For soffit applications, the maximum fastener spacing is 16" on center in both directions.

3. Corner rivets to be located at 25–100 mm (1"–4") horizontally and 100–150 mm (4"–6") vertically from each corner of panel. (See FIG. C)
4. 15 mm ( $\frac{5}{8}$ ") clearance is required from the edge of wood profile to screw location.
5. **Screws must be located in the center of each hole in the panel (FIG. B-1). They must be perpendicular to panel surface (FIG. B-2), and not be over-tightened, which would prevent the panel's normal movement.**
6. Two **fixed points** are required per panel. (FIGS. E & F)

Fixed points (for attachment to vertical profiles) are:

- Always the same height in each panel.
- As close to center of panel as possible, and then either the next adjacent point to the left **or** right. Be consistent in panel-to-panel location (center and left **or** center and right, so fixed points are at the same level horizontally for attachment to vertical profiles).
- No two fixed points on one panel can be on the same profile, and no two fixed points on two adjacent panels can be on the same profile.
- For vertical narrow panel applications on vertical profiles, vertical joints must incorporate two separate profiles (as illustrated in DETAILS – TYPICAL VERTICAL PANEL JOINT on page 4).

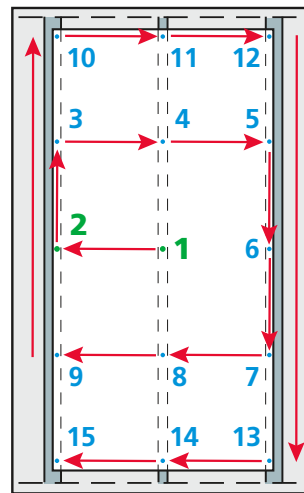


FIG. K —  
Fixing sequence  
Attach fixed points first.

FIG. E —  
Vertical installation  
on vertical profiles

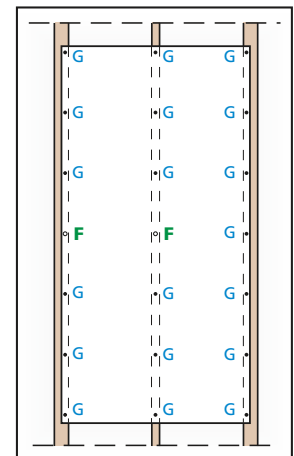
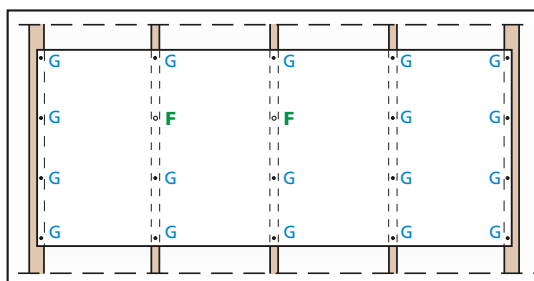


FIG. F — Horizontal installation  
on vertical profiles



If there is no perfectly centered row, the Fixed points go one row up, as shown.

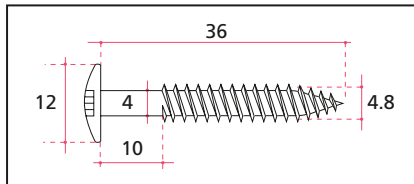
## Ventilated Rainscreen Application

### Fixing (continued)

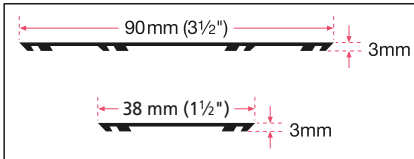
- Aluminum joint closures can be installed (maximum thickness of finishing profile to be .8 mm or 21 gauge). Standard practice is to leave the joints open.
- Remove residue from drilling fixed and gliding holes prior to installing screws.

### Fabrication/Maintenance/Storage

See AFCC Fabrication, Maintenance and Storage Guidelines.



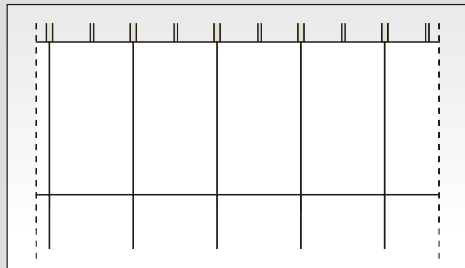
**FIG. G** —  
Screw (supplied  
by AFCC)



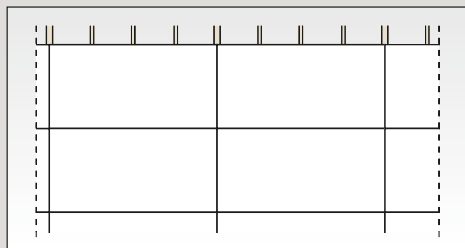
**FIG. H** —  
UV-resistant EPDM  
rubber joint sealing  
strip with ribs  
(supplied by AFCC)

### Typical Pattern Layout

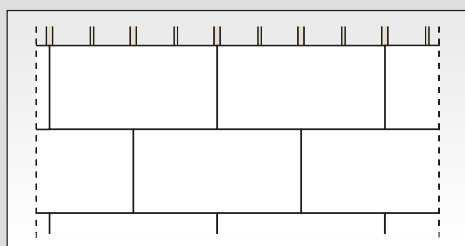
Panels can be used full size (4' x 8' or 4' x 10'), or fabricated to smaller dimensions.



*Straight  
pattern  
with  
vertical  
panels*



*Straight  
pattern  
with  
horizontal  
panels*

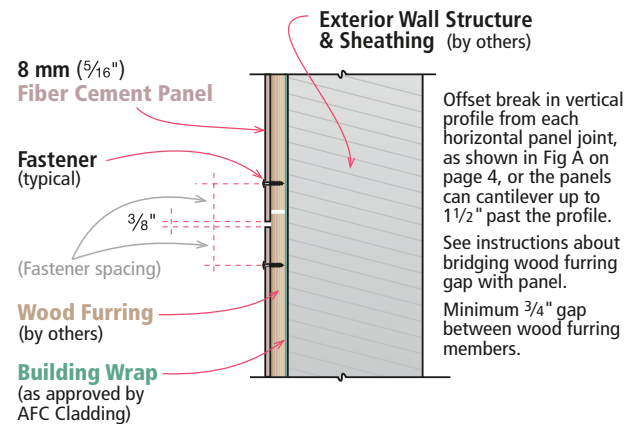


*Semi  
pattern  
with  
horizontal  
panels*

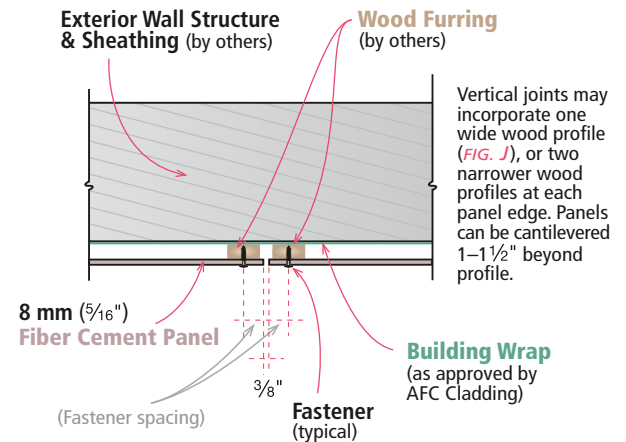
### Details

See AFCC Standard Details for detailing requirements in architectural drawing format.

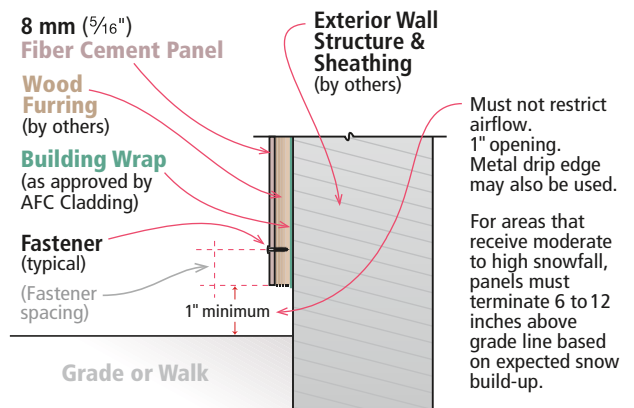
#### Typical Horizontal Panel Joint



#### Typical Vertical Panel Joint



#### Typical Panel Base

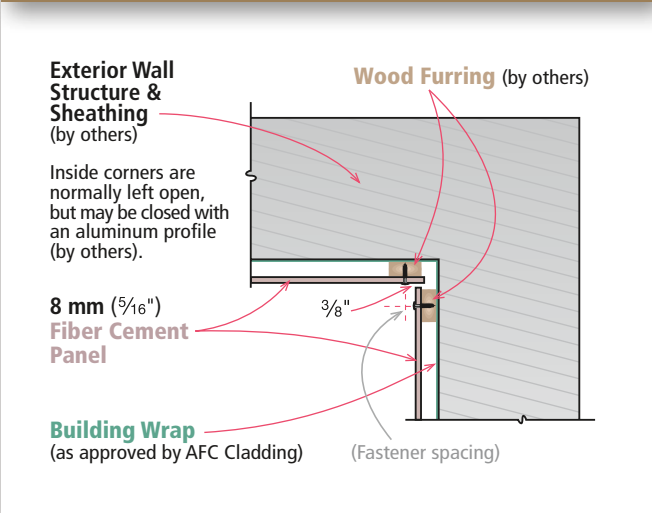




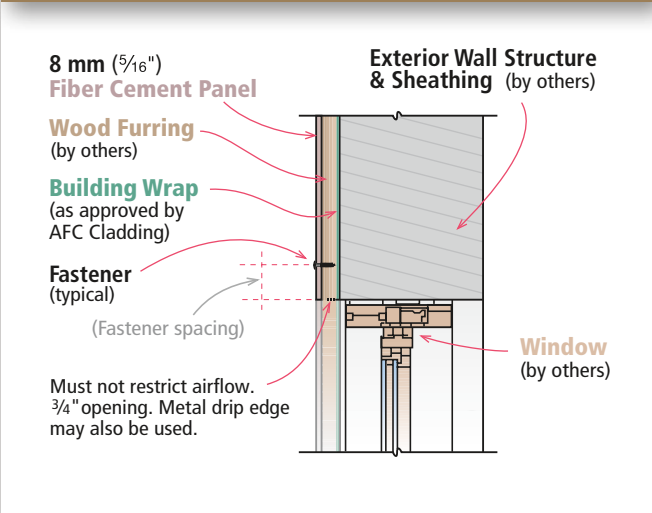
Ventilated Rainscreen Application

Details (continued) See AFCC Standard Details for detailing requirements in architectural drawing format.

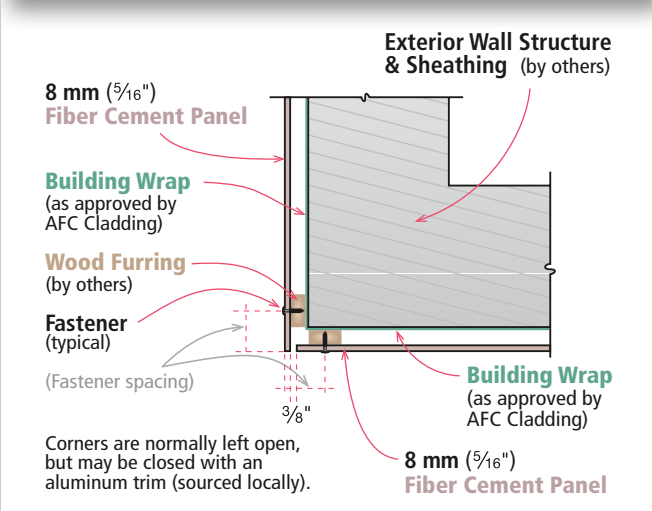
Typical Inside Corner – Plan View



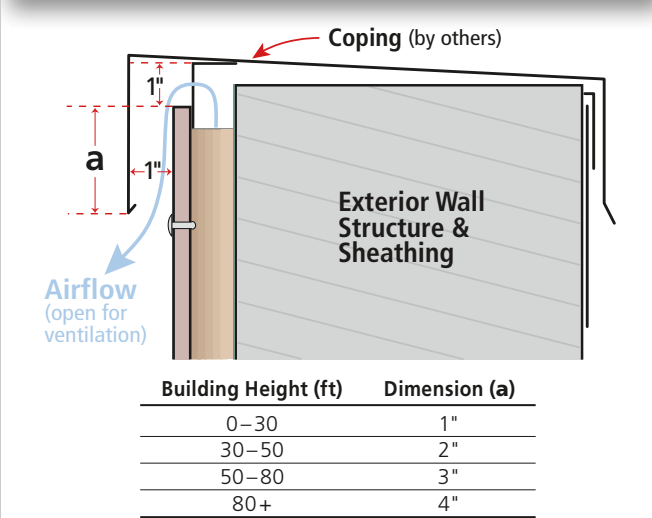
Typical Panel @ Window Head



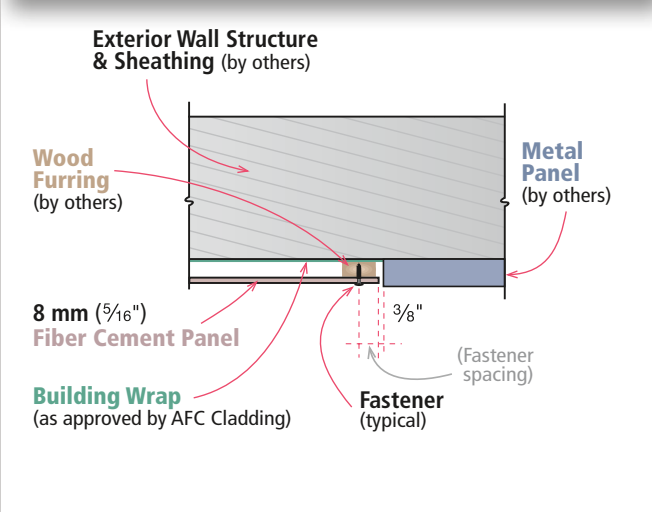
Typical Outside Corner – Plan View



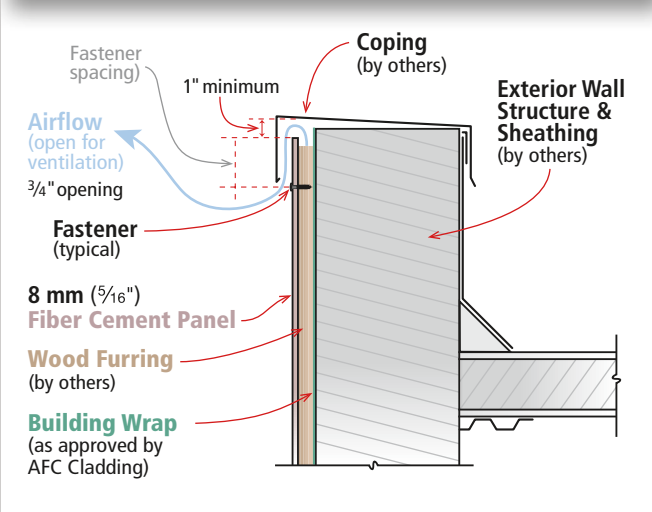
Parapet Coping – Closeup



Typical Panel End @ Metal Panel



Typical Panel @ Parapet



## Product Sustainability Statement

AFC Cladding is committed to providing the highest quality high density compressed fiber cement panels to the U.S. building markets. In order to do this, we feel it necessary to provide not only high quality products, but sustainable products that can contribute to green (LEED) building projects, which in turn benefit the environment we all live in.

AFC Cladding products currently have a potential contribution to various LEED credits including but not limited to:

### **Direct Contribution**

#### **Materials and Resources:**

- ◆ BPDO – Environmental Product Declarations

### **Indirect Contribution**

#### **Indoor Environmental Quality:**

- ◆ Thermal Comfort

#### **Energy and Atmosphere:**

- ◆ Optimize Energy Performance

One of the most important sustainable attributes is the durability of AFC Cladding panels. With their long lifespan, virtually requiring no refurbishment, AFC Cladding panels can contribute to less replacement of materials and to drastically lower maintenance costs over the useful life of the building.

The Ventilated and Insulated Rainscreen Cladding (VIRSC) system, which is used to affix AFC Cladding panels to the exterior of a structure, offers many benefits and green attributes to the performance of the building envelope. Durability and resistance to moisture and mold build-up are noteworthy benefits. Equally important is its ability to accommodate external insulation.

In addition, AFC Cladding is dedicated to further research and analysis of our products to achieve additional LEED credits, and help further the cause of building sustainable and efficient buildings.

---

Warranty information available upon request.

## Limited Warranty

American Fiber Cement Corporation (AFCC) warrants that its products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship using AFCC's specifications as a standard. Only products which are installed and used in accordance with applicable AFCC instructions and specifications are in any way warranted by AFCC. This warranty is applicable only to claims made in writing and received by AFCC within thirty (30) days after the defect was discovered and within ten (10) years after the date of the shipment of the product by AFCC. All other claims are waived. If a claim is made, you must allow reasonable investigation of the product you claim is defective and you must supply samples that adequately demonstrate the problem you claim for testing by AFCC.

AFCC DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY PROVIDES YOUR EXCLUSIVE REMEDY AS A PURCHASER OF AFCC PRODUCTS. THIS LIMITED WARRANTY MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF AFCC. WITHOUT AN EXPRESS, WRITTEN AUTHORIZATION FROM AFCC, NO RETAILER OR DISTRIBUTOR OF AFCC PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS LIMITED WARRANTY.

## Limitation of Liability

This limited warranty is your sole and exclusive remedy. It is expressly understood and agreed that the limit of liability will be, at AFCC's option, repair, resupply of a like quantity of non-defective product, or refund of purchase price of the material. All labor and service charges which may be incurred with respect to either the original or replacement product are excluded. AFCC shall have no liability except where the claim results solely from breach of AFCC's limited warranty.

AFCC SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. FURTHERMORE, AFCC SHALL NOT BE LIABLE FOR DAMAGE TO THE PROPERTY TO WHICH THE PRODUCT IS APPLIED OR ITS CONTENTS, LOSS OF TIME, PROFITS, OR ANY INCONVENIENCE ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY OR OBLIGATIONS UNDER THIS LIMITED WARRANTY. AFCC SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY EXCEPT THE LIMITED WARRANTY SET FORTH ABOVE. INCIDENTAL AND CONSEQUENTIAL DAMAGES SHALL NOT BE RECOVERABLE EVEN IF THE REPLACEMENT REMEDY FAILS OF ITS PURPOSE OR FOR ANY OTHER REASON.

Distributed exclusively by:



6901 South Pierce Street  
Suite 180  
Littleton, CO 80128 U.S.A.

Phone: 303-972-5107

800-688-8677

Fax: 303-978-0308

[www.americanfibercement.com](http://www.americanfibercement.com)

For the nearest authorized fabricator, call 303-972-5107.

### Fabrication, Maintenance & Jobsite Storage Guidelines<sup>1</sup>



**American Fiber  
Cement Corporation**

- 2-3** Care & Maintenance
- 4-5** Cutting Instructions
- 6-7** Edge Finishing
- 8** Storage and Handling of Flat Sheets

<sup>1</sup> These guidelines show how to manage Cover, Deco, Minerit HD, Patina, Solid and Transparent on-site. This includes proper storage, handling, fabrication, edge sealing and edge painting. Installation guidelines for these product lines can be found at [www.americanfibercement.com](http://www.americanfibercement.com).

AIA  
Continuing  
Education  
Provider



Note: The online copy of the Installation Guidelines obtained at [www.americanfibercement.com](http://www.americanfibercement.com) supersedes any printed copy.

### After installation

#### Annual Inspection

Normally, façade boards do not require any maintenance. Weathering, however, may influence the appearance of the façade. Therefore, an annual inspection of the ventilation gaps, joints and fixings is a good idea. Detection and repair of possible damage ensures a prolonged lifespan for the façade.

#### Cleaning

AFCC façade boards can be cleaned with cold or lukewarm water with the addition, if necessary, of a mild household cleaning agent not containing solvents. Rinse with plenty of clean water until the façade boards are perfectly clean. Before cleaning full scale, it is recommended to test the chosen cleaning method on a smaller area, to ensure it works and does not damage the surface of the boards.

#### High-Pressure Cleaning

**Warning!** High-pressure cleaning is a severe treatment for a fiber cement façade. Exaggerated or incorrect use of a high-pressure cleaner may damage the surface.

#### Moss and Algae

Moss and algae growth can be removed with common agents available on the market. Care should be taken to ensure that the cleaning agent does not cause damage to the surface of the AFCC façade boards.

Confirm the compatibility of your cleaning agent with your cleaning agent supplier, and ensure it is applied according to the supplier's instructions. It is advised that before conducting a large-scale application, a test is carried out on a small, inconspicuous area to ensure that the cleaning agent has no effect on the color of AFCC façade boards.

#### Efflorescence

Efflorescence is a naturally occurring, white, powdery deposit that can appear on cement-based building materials (including bricks, cement walls, grout, and fiber cement). It is the result of a process in which moisture draws salt crystals to the surface, evaporates, and leaves a chalky substance behind. Efflorescence occurs when all three of the following conditions exist:

1. Water-soluble salts are present in the building material.
2. There is enough moisture in the wall to turn the salts into a soluble solution.
3. There is a path for the soluble salts to get to the surface.

Efflorescence may also be a sign of water ingress behind the façade. Make certain that all openings are properly covered and there is no water intrusion due to over-driven nails.

While some efflorescence may weather away naturally on its own, it is best to take steps to treat it. Efflorescence can be removed with household white vinegar and water. For most cases of efflorescence, Step 1 – 3 works well. But for substantial deposits of efflorescence go to Step 4.

For best results, follow these cleaning instructions:

1. Protect areas that are not to be cleaned. Rinse all plants and vegetation around the façade with water before and after application of the vinegar.
2. Generously coat the entire surface area with vinegar. Allow the solution to sit on the surface for 10 minutes.
3. Rinse the treated area thoroughly with water from the top down and allow the area to air dry.
4. For extra tough efflorescence: Use a 10% acetic acid solution and apply to the affected area with a cotton cloth. A light scrubbing with the cotton cloth may be required. After about 20 seconds rinse with water.



### On-site

#### Cleaning of boards after cutting and drilling

It is important to immediately remove dust caused by cutting and drilling from the front and rear of the boards with a soft brush/duster or a vacuum cleaner, as it otherwise might damage the boards. Ensure that the boards are properly cleaned before installation, and if necessary use clean water or water with a mild detergent and a soft sponge or brush to remove dirt and dust from the surface. Thereafter, wipe the boards with a damp cloth. It may also be necessary to wash the surface after installation if the building site conditions have been unfavorable. This is done with lots of clean water or water with a mild detergent and a soft sponge or brush and finally wiping the boards with a damp cloth.

#### Removal of calcium-based residues

Calcium carbonate residue may occasionally be seen on the board surface. This can be difficult to remove with water or even with detergents because it does not dissolve in water. For cleaning purposes 10% acetic acid ( $\text{CH}_3\text{COOH}$ ) solution is used to dissolve the calcium compounds.

**Note!** Carefully observe safety precautions (MSDS) when working with acetic acid. R-phrase R36/R38 is valid: "Irritating to eyes, respiratory system and skin". Use proper clothing, nitrile rubber gloves, eye protection goggles and approved respirator (filter A, E or A/E).

#### Carry out the mixing outdoors.

Apply the diluted 10% acetic acid solution evenly with a spray can to the surface of the stained board. Leave it to react for a few minutes. Do not allow the solution to dry, but rinse with lots of clean water. Repeat the process if necessary and rinse with water afterwards.

**Note!** Do not execute the cleaning process with acetic acid in direct sunlight or on hot surfaces. This might create permanent stains. Neighboring areas such as windows and glass must also be cleaned.

#### Cleaning of neighboring areas

Windows and glass in particular, but also other adjacent areas, must be kept clean during the façade board installation and, if necessary, protected with plastic film. Alkaline leaching from cement bonded materials (dust from cutting or drilling holes in structural concrete, etc.) is prone to damaging glass and other materials. Therefore, frequent cleaning during and after the construction period is needed.

#### Surface damages and scratches

Damages and scratches should be avoided by lifting the boards off the pallet and handling them carefully during installation. Scratches might leave white streaks on the surface which will turn dark when exposed to rain, because the board absorbs water through the scratch. Repair paint is not available. The only way to prevent dark stripes or spots is to carefully apply clear AFCC Edge Sealer onto the scratch with a thin brush (does not apply to Patina design line boards). In any case the dark area will diminish after 6 to 12 months, because of the carbonation reactions in the cement matrix of the board.

#### Behavior in wet conditions

Since the boards are made of Portland cement, their color may turn darker when exposed to rain if the board absorbs moisture through holes, scratches or insufficiently sealed edges. This is natural behavior for any cement-based product and it does not affect the integrity or long-term durability of the board. The original color is restored as soon as the boards dry out. The darkening will show after heavy rainfall for the first months after installation. It will gradually reduce within 6 to 12 months, because the cement based matrix reacts with carbon dioxide from the atmosphere—carbonation— and thereby reduces water penetration.

### Cutting instructions for using a circular saw for a straight cut

#### Summary

When making 'straight' cuts on AFCC boards, a circular diamond blade saw should be used in order to achieve excellent results. AFCC offers 7¼" Diamond Saw blades for purchase.

#### Equipment

1. Wide diameter, Circular Diamond Saw Blade
2. Solid and stable cutting surface (dust free) with several pieces of 1½" framing lumber used to elevate AFCC boards above the table height. Clamping the framing lumber supports and the board to the work surface will help reduce vibration of the piece being cut. Be careful not to damage the board surface with the clamp.
3. Sand paper: 60–100 grit

#### Set-up

1. Use several pieces of framing lumber to provide support of the board on both sides of the cut line sufficient to keep the board from binding as the cut is made (for cuts in the center section of the panel).
2. Place the board, face side *DOWN* on top of the framing lumber with pieces of the framing lumber on either side of the cut line, no more than 2" on either side of cut. For cuts at either end of the panel, do not extend panel more than 2" beyond the supporting lumber. Make sure the panel is gently placed onto the surface with no sliding. Once placed, carefully clamp the panel.
3. Make provisions for capturing dust that will be generated by the saw kerf.

#### Cutting

1. When cutting with the diamond blade, turn down the turn rate of the saw and lower the feed rate to reduce heat (heat can cause non-linear cuts and can burn the fiber cement).
2. Set saw blade to be perpendicular to the cut surface.
3. Be certain that the framing lumber completely supports the drop piece to prevent break-off at the end of the cut.
4. After the cut is complete, use sanding block along the edge to remove any burrs that may have lifted during cutting. Angle the sanding block away from the front face of the panel.
5. Once complete, wipe off any dust seen on the backside of the panel with a microfiber cloth. Then flip the panel face side up and remove any dust that may be on the surface of the panel.
6. For Cover, Solid, and Transparent, Edge Sealer must be applied to the field cut edge. See page 6. For Deco, the field cut edge must be painted. See page 7.

#### Drilling

- Fixed Point Hole Size =  $2\frac{1}{64}$ " (rivets) or  $1\frac{3}{64}$ " (screws)
  - Gliding Point Hole Size =  $7\frac{1}{16}$ " (rivets) or  $5\frac{1}{16}$ " (screws)
  - AFCC offers long lasting carbide drill bits.
  - See AFCC Installation Guidelines for correct fixed/gliding point hole placement, edge distance restrictions, and maximum on center spacing.
1. Place fiber cement panel face up on top of the framing lumber.
  2. Measure and mark hole locations.
  3. Drill holes with the correct sized drill bit.
  4. Remove excess dust with a microfiber cloth or blow the dust off.

Once done cutting, drilling, and sealing (if necessary), store the panels laying flat in a waterproof environment until being installed on the wall.

#### AFCC Offered Saw Blade

**Recommended Turn Rate: 3200-3300 rpm**





### Cutting instructions for when a straight cut using a circular saw is not possible.

#### Summary

When making 'non-straight' cuts on boards (for example, cutting a scribed line to match an irregular floor or window ledge) readily available tools can be used to achieve excellent results by using some special techniques.

#### Equipment

1. Construction grade jig (sabre) saw such as Bosch JS 365 with speed control settings and variable speed trigger
2. Carbide grit blade (30 grit) similar to Vermont American item #30004
3. Painter's masking tape similar to 3M Blue
4. Solid and stable cutting surface (dust free) with several pieces of 1½" framing lumber used to elevate boards above the table height. Clamping the framing lumber supports and the board to the work surface will help reduce vibration of the piece being cut. Be careful not to damage the surface with the clamp.
5. Sand paper: 60 – 100 grit

#### Set-up

1. Use several pieces of framing lumber to provide support of the board on both sides of the cut line sufficient to keep the board from binding as the cut is made (for cuts in the center section of the panel).
2. Place the board, face side UP on top of the framing lumber with pieces of the framing lumber on either side of the cut line, no more than 2" on either side of cut. For cuts at either end of the panel, do not extend panel more than 2" beyond the supporting lumber.
3. Make provision for capturing dust that will be generated by the ⅜" saw kerf.
4. Apply strips of painter's masking tape along both sides of the cut line (one strip for end cuts) sufficiently wide to protect the board's face from the jig saw's table/foot. Do not cover the cut line, as the tape will interfere with the cutting action of the blade.

#### Cutting

1. Set the jig saw speed control to slow/medium #3 on the Bosch JS 365 (higher speeds will tend to cause tearing of the top surface).
2. Set saw blade to be perpendicular to the cut surface.
3. Cut with even, forward pressure at a rate of approximately 3 feet per minute.
4. Be certain that the framing lumber completely supports the drop piece to prevent break off at the end of the cut.

#### AFCC Fabrication

AFCC does not recommend fabricating the entire project on-site. AFCC offers state-of-the-art fabrication using numerical control saws for cutting and numerical control routers for drilling. The precision and finish cannot be matched fabricating on-site. With the use of shop drawings, the panels can then be delivered to the jobsite sorted by elevation with panel ID tags on the back, marking their exact location on the wall.



**AFCC Fabrication Equipment**

### Finishing of edges with Universal Edge Sealer

#### Product type

Solvent based clear Edge Sealer for Solid, Transparent and Cover.

#### Usage

Universal Edge Sealer must always be used to protect all jobsite cut EDGES of Solid, Transparent and Cover fiber cement boards.

Factory-cut edges are always sealed. Only Universal Edge Sealer should be used to protect the edges of facade boards.

#### Surface preparation

After cutting, edges must be treated immediately with Universal Edge Sealer. Board must be dry. Edges should be beveled with fine grade sand paper and must be thoroughly cleaned from dust and dirt before applying the Edge Sealer.

#### Application conditions

Board temperature and ambient temperature should be 40° to 85° F (+5° to +30°C) and relative humidity < 85%. Process temperature must be minimum 40°F (+5°C).

#### Application

1. Shake the Edge Sealer can well before filling the applicator with Edge Sealer. Shake the filled applicator also before use if applicator unused for a while.
2. Remove the protective cap.
3. Position the applicator horizontally.
4. Place the sponge parallel to the board edge and run twice along the edge with a moderate pressure.

**Note!** Carefully prevent the Edge Sealer from flowing onto the front side of the board. Excess Edge Sealer on front side of the board must be wiped off immediately with a clean cloth.

5. Check that the liquid has been applied over the entire edge surface.
6. Close the applicator with the cap when interrupting the job.
7. Replace the sponge when necessary. The boards can be handled 2 minutes after application of the Edge Sealer.

#### Cleaning

No cleaning of equipment necessary. Unintended spillage can be cleaned with white spirit.

#### Storage

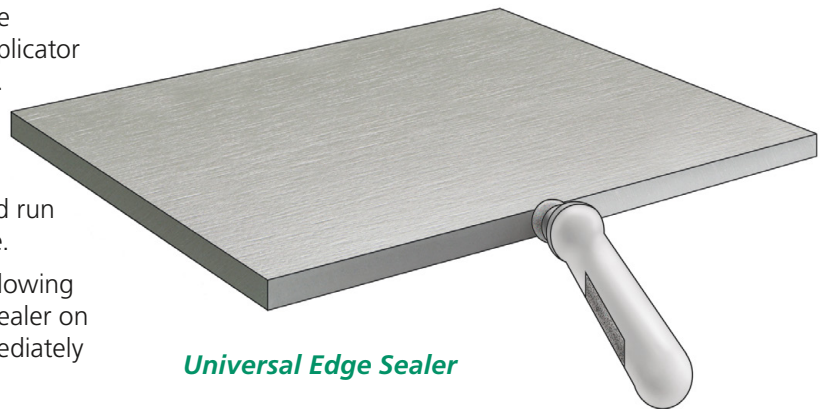
Always keep the containers tightly closed and avoid direct exposure to sunlight. Store in a dry, cool and well-ventilated place. Keep away from sources of ignition. No smoking. Shelf life is 6 months in unopened original packaging at cool temperatures. Can be stored at temperatures from -5° to 85°F (-20° to +30°C).

#### Disposal

Disposal of the Edge Sealer must be in compliance with local and national regulations. Please refer to Material Safety Data Sheet.

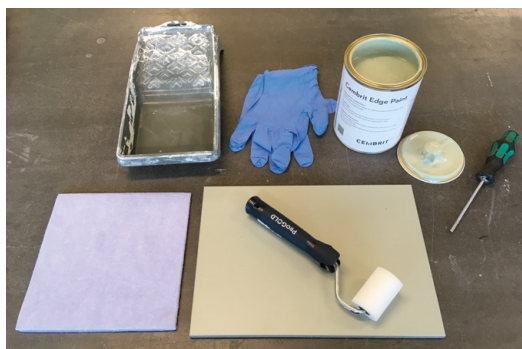
#### Safety measures

Please refer to Material Safety Data Sheet.

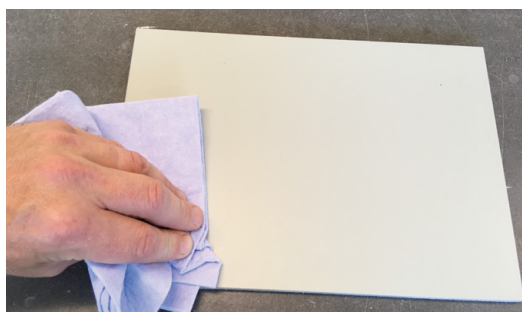


Universal Edge Sealer

### Edge Paint — Deco



Before you start edge painting Deco, be sure you have all necessary things to perform the task and make sure to cover the area before painting.



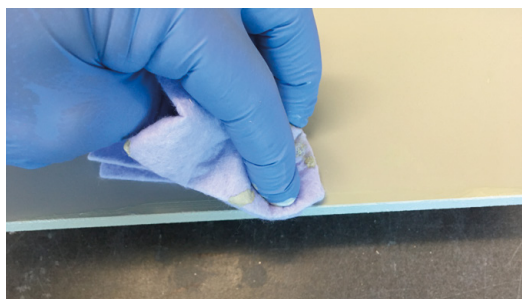
Before you start, the edge and the board surfaces must be wiped off to remove any dirt or dust.



Apply an appropriate amount of paint on the roller so that the sponge is saturated. Apply the paint without pressing too hard and ensure to do it slowly.

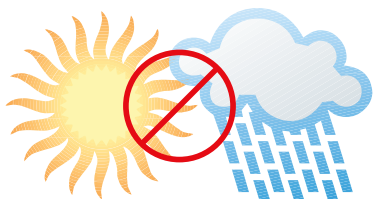


Make sure that the entire edge is covered with Edge Paint.



Excess Edge Paint must be removed with a clean cloth immediately after the edge is painted. If this is not done, it will be difficult to remove and leave visible marks. Never stack Deco boards that have just been edge painted.

The Edge Paint typically dries in 5 to 10 minutes.



Do not edge paint in direct sunlight or rain. Board and air temperature should be between 40° and 85°F (+5° and +30°C), optimal 70°F (+20°C). Relative humidity below 80%.

## Storage and Handling of Flat Sheets

### Flat Sheets

The following flat sheets are covered by these handling and working instructions:

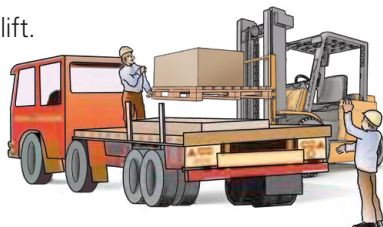
**Cover, Deco, Solid, Patina, Patina Design Line, Minerit HD, Transparent**

For product data of the various panels, please refer to the product information leaflets.

### Storage and Handling

Remove panels using a forklift.

**Note!** The crating and plastic wrapping that the panels are shipped in are not sufficient protection from weather. **Additional protection is required.**

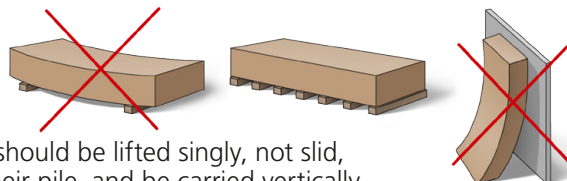


The sheets must be stored in a **dry, ventilated space**. If the pallets are stored outside when they arrive at the building site, the plastic cover should be removed and replaced with a tarpaulin. It is very important that there is ventilation all around the tarpaulin and also on top of the pallet under the tarpaulin. This reduces condensation. If the sheets do become wet in the packing, all packaging must be removed and the sheets must be wiped dry and placed in a way that they can totally dry.

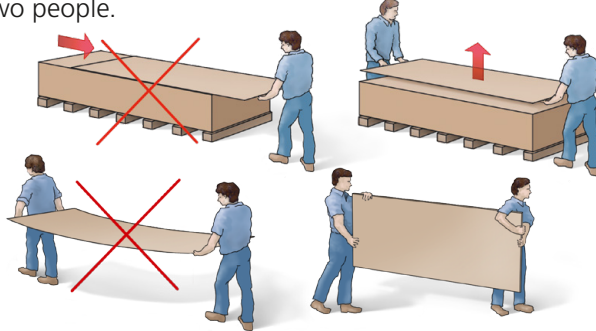


If the facade boards are stored more than 2-3 weeks on site, the pallets should be kept under a roof to ensure dry and ventilated conditions.

The sheets must be stacked horizontally on a flat surface. The sheets must always be sufficiently supported so that they don't sag. Only two pallets can be stacked on top of one another. Make sure they are positioned so they stand securely and stable.



Panels should be lifted singly, not slid, from their pile, and be carried vertically by two people.



### Limited Warranty

American Fiber Cement Corporation warrants that the products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship using AFCC specifications as the standard. Only products which are stored, installed, and used for purposes in accordance with applicable AFCC instructions and specifications are in any way warranted by AFCC. Prior to installation, purchaser shall inspect all panels for any visible faults or deviations from AFCC product specifications. This warranty is applicable only to claims made in writing and received by AFCC within in sixty (60) days after the defect was discovered and within ten (10) years after the date of shipment of the product by AFCC. All other claims are waived. If a claim is made, you must allow reasonable investigation of the product you claim is defective and you must supply samples that adequately demonstrate the problem you claim for testing by AFCC.

AFCC DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY PROVIDES YOUR EXCLUSIVE REMEDY AS A PURCHASER AND/OR OWNER OF AFCC PRODUCTS. THIS LIMITED WARRANTY MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF AFCC. WITHOUT AN EXPRESS, WRITTEN AUTHORIZATION FROM AFCC, NO RETAILER OR DISTRIBUTOR OF AFCC PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS LIMITED WARRANTY.

### Limitation of Liability

This limited warranty is your sole and exclusive remedy. It is expressly understood and agreed that the limit of liability will be, at AFCC option, repair, re-supply of a like quantity of non-defective product, or refund of the purchase price of the material. All labor and service charges which may be incurred with respect to either the original or replacement product are excluded. AFCC shall not be liable for incidental or consequential damages, for damage to the property to which the product is applied or its contents, loss of time, profits, or any inconvenience arising out of any breach of this limited warranty or obligations under this limited warranty. AFCC shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory except as provided in the limited warranty set forth above. This limitation of liability shall apply to any replacement product or remedy if it fails of its purpose or for any other reason.

AFCC SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. FURTHERMORE, AFCC THIS LIMITED WARRANTY COVERS THE STRUCTURAL OR PHYSICAL DEFECTS OF THE BASE MATERIAL ONLY. ALTERATIONS OF THE SURFACE OR DAMAGE DUE TO EXTERNAL INFLUENCES SUCH AS MECHANICAL LOADS AND DEFECTS FROM USE OF IMPROPER ACCESSORIES ARE EXPRESSLY EXCLUDED FROM THIS WARRANTY. MINERIT HD/RAW IS A NON-COATED, NON-PIGMENTED BOARD. COLOR VARIATION FROM BOARD TO BOARD IS NORMAL AND TO BE EXPECTED AND IS EXPRESSLY EXCLUDED FROM THIS WARRANTY. CHANGES IN COLOR/EFLORESCENCE ON THE BOARDS (E.G. FADING) DUE TO NORMAL WEATHERING ARE PART OF THE AGING PROCESS OF CEMENT BASED MATERIALS AND ARE ALSO EXPRESSLY EXCLUDED FROM THIS WARRANTY.

Distributed exclusively by:



**American Fiber  
Cement Corporation**

6901 South Pierce Street  
Suite 180  
Littleton, CO 80128 U.S.A.

Phone: 303-972-5107

800-688-8677

Fax: 303-978-0308

[www.americanfibercement.com](http://www.americanfibercement.com)

For the nearest authorized fabricator, call 303-972-5107.



# ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	<b>Cembrit Holding A/S</b>
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-CEM-20180031-IAD1-EN
Issue date	5/3/2018
Valid to	5/2/2023

**Large-size fibre cement boards, pigmented, coated**  
**Cembrit Transparent**  
**Cembrit Holding A/S**

[www.ibu-epd.com](http://www.ibu-epd.com) / <https://epd-online.com>





## 1. General Information

### Cembrit Holding A/S

#### Programme holder

IBU - Institut Bauen und Umwelt e.V.  
Panoramastr. 1  
10178 Berlin  
Germany

#### Declaration number

EPD-CEM-20180031-IAD1-EN

#### This declaration is based on the product category rules:

Fibre cement / Fibre concrete, 07.2014  
(PCR checked and approved by the SVR)

#### Issue date

5/3/2018

#### Valid to

5/2/2023



Prof. Dr.-Ing. Horst J. Bossenmayer  
(President of Institut Bauen und Umwelt e.V.)



Dipl. Ing. Hans Peters  
(Head of Board IBU)

### Cembrit Transparent

#### Owner of the declaration

Cembrit Holding A/S  
Sohngaardsholmsvej 2  
9100 Aalborg  
Denmark

#### Declared product / declared unit

Large-size fibre cement boards, pigmented, coated / t

#### Scope:

The EPD refers to large-size, coated grey boards made of fibre cement that are produced on behalf of Cembrit Holding A/S in Vöcklabruck, Austria. The EPD represents an average of the supplier's average production, weighted by production volumes, in two production plants. Besides the Austrian one, a plant in Switzerland has been considered.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

#### Verification

The standard /EN 15804/ serves as the core PCR

Independent verification of the declaration and data according to /ISO 14025:2010/

☐ internally ☒ externally



Prof. Dr. Birgit Grahl  
(Independent verifier appointed by SVR)

## 2. Product

### 2.1 Product description / Product definition

Large-size, even boards made of natural-hardened fibre cement based on grey cement. The boards are made as pigmented boards (dyed) with a translucent or opaque Coating.

The placing on the market of the product in the EU/EFTA (except for Switzerland) is governed by Regulation (EU) No. 305/2011 (/CPR/). The product requires a declaration of performance considering the /EN12467:2012+A1:2016/ and the CE labelling. For use, the respective national regulations apply.

### 2.2 Application

Even boards for installation on the facade or on the roof on substructures made of wood or metal. On the façade according to the principle of the curtain, ventilated facade.

### 2.3 Technical Data

The following technical data are to be mentioned:

#### Structural data

Name	Value	Unit
Thermal conductivity	0.56	W/(mK)

Calculation value for thermal conductivity	0.56	W/(mK)
Water vapour diffusion resistance factor	0.00328	-
Swelling (air-dry to water-saturated)	0.5	mm/m
Gross density	1750 - 1950	kg/m <sup>3</sup>
Compressive strength	40	N/mm <sup>2</sup>
Tensile strength transverse/longitudinal Mean	6.0/9.3	N/mm <sup>2</sup>
Flexural strength Class 4	21	N/mm <sup>2</sup>
Modulus of elasticity	13000 - 15000	N/mm <sup>2</sup>
Moisture content at 23 °C, 80% humidity	7	M.-%
Coefficient of thermal expansion	10	10 <sup>-6</sup> K <sup>-1</sup>
Chemical resistance	constant	-
Ageing resistance	according to /EN 12467/	-
Permanent temperature resistance	-40 bis + 80	°C
Frost resistance Category A	fulfilled	
Impermeability to water	fulfilled	

Performance values of the product according to the declaration of performance with regard to its essential characteristics according to /EN12467:2012+A1:2016/.

## 2.4 Delivery status

The large-size fibre cement boards are delivered in different length/width ratios in thicknesses from 6 to 12 mm. The maximum formats are 3070 x 1250; the max. usable formats are 3040 x 1220.

They are delivered on pallets with a maximum weight of up to 1900 kilograms. For use, the boards can be cut to individual size and drilled.

## 2.5 Base materials / Ancillary materials

The large-size boards made of fibre cement consist of the following Elements:

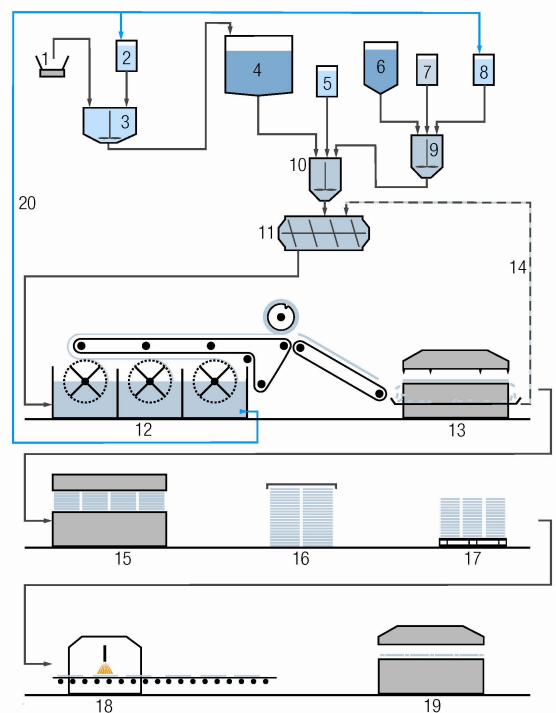
Name	Value	Unit
Cement	57 to 78	%
Pulp	1,2 to 5	%
Polyethylene fibrils	1,5 to 4	%
Polyvinyl alcohol fibres	1,5 to 3	%
Silica fume/Limestone meal	5 to 15	%
Pigments	0,5 to 5	%
Acrylate for the coating	0,5 to 3	%
Water (chemically bound and free water)	11 to 17	%

The unbound water content at delivery is about 5-8%.

The elements are in % by mass in the cured product.

## 2.6 Manufacture

The production of large-size boards made of fibre cement is carried out by an automated filament winding (see figure):



- |   |                                      |
|---|--------------------------------------|
| 1 Scales for process fibres (pulp)      | 11 Horizontal mixer                  |
| 2 Water                                 | 12 Platen machine                    |
| 3 Pulper                                | 13 Punching machine                  |
| 4 Vat process fibres in water           | 14 Punching sections                 |
| 5 Reinforcing fibres (synthetic fibres) | 15 Press                             |
| 6 Portland cement                       | 16 Setting                           |
| 7 Admixed substances                    | 17 Half-finished products' warehouse |
| 8 Water                                 | 18 Coating                           |
| 9 Intensive mixer 1                     | 19 Punching                          |
| 10 Intensive mixer 2                    | 20 Water cycle                       |

The raw materials are treated with water to a homogeneous mixture. The mixture is pumped into head boxes, in which sieve cylinders rotate, that are dewatered inside. Thereby the sieve surface is covered with a thin fleece of fibre cement, which is transferred to the endless circulating conveyor belt (transport felt). From there, the fleece of fibre cement reaches a format roller, which is gradually covered with a thickening layer of fibre cement. Once the desired material thickness is achieved, the still moist and formable layer of fibre cement (fleece) is separated and unrolled from the format roller.

In the next step, the layer of fibre cement (fleece) is punched, residual material is returned to the production process, so that no waste is left. The cut, not yet hardened, mouldable board is stacked with intermediate layers and pressed.

Subsequently, the boards are stored for hardening, later stacked on pallets and stored for further hardening in a maturation store. The setting time is about four weeks.

The visible side is usually coated for which high-grade pure acrylate paint is twice applied and hot-filmed in the casting process and spray treatment.

The back side gets a single or double coating which is usually rolled on.

A quality management system according to the /EN ISO 9001:2015/ has been introduced and certified in the manufacturing plants.

## 2.7 Environment and health during manufacturing

All manufacturing plants adhere to the national environment and health regulations. The necessary processes, monitoring and measurements are installed and implemented. Measurements in the past have shown that, in any case, the limit values are well below. A safety system according to the /EKAS directive 6508/ has been introduced at the manufacturing plant in Switzerland.

Directive /2003/53/EC/ of the European Parliament and of the Council of 18 June 2003 for the 26th amendment of Directive /76/769 /EEC/ on restrictions regarding the placing on the market and use of certain dangerous substances and preparations (nonylphenol, nonylphenoethoxylat and cement) is considered and implemented in the manufacturing plants.

The preparation and processing of the substances takes place exclusively in closed rooms in order to keep the noise emissions as low as possible. The transport of raw materials is largely done by rail to keep emissions as low as possible there as well. The process water is kept in a closed circuit. Excess quantities are reprocessed and returned to public waters under the supervision of regional waste-water treatment sites. This minimises the environmental impact of waste-water.

## 2.8 Product processing/Installation

Usually, the boards are factory-cut or drilled according to customer requirements by appropriately equipped suppliers. On the construction site, single fitting cuts are possible. Suitable portable circular saws or table saws with a saw blade suitable for fibre cement must be used for processing.

The installation on the facade is carried out according to the principle of the curtain, ventilated facade on substructures of wood or metal with the corresponding anchoring and fastening devices.

For mounting on the roof own systems in which the boards are screwed and/or mounted, are available. In the case of machine cuts, the cutting dust must be removed by a suitable dust suction plant. Respirators are recommended and must be used in accordance with national regulations.

The basis is the technical documentation of the individual companies of Cembrit Holding A/S. During transport, storage and assembly work, all measures must be taken which can prevent the risk of injury, property damage and consequential damage. The moving of the pallet-bundled boards is allowed only if the boards are properly secured with security elements.

The relevant accident prevention measures to avoid injuries and material damage in accordance with the country-specific regulations must be followed. Further extraordinary measures are not to be taken.

## 2.9 Packaging

For regional or intra-European shipment to dealers or directly to the construction site, the boards are bundled and tied to reusable pallets according to the format. These pallets are usually used multiple times.

Depending on the format, specific container pallets are used for overseas transport, which can be disposed of on site or sent for further use.

In addition, recyclable cardboard is used as edge protection and recyclable polyethylene film for weather protection.

•

## 2.10 Condition of use

The hardening (hydration) of the cement water mixture forms cement paste (calcium silicate hydrates) with embedded fibres and fillers as well as smallest air voids.

During the period of use, the cement paste reacts on the surface under the influence of CO<sub>2</sub> (carbon dioxide) from the air and from moisture to calcium carbonate (carbonation).

Due to the material composition, there are no specific features to be considered during the use phase.

## 2.11 Environment and health during use

According to the current state of knowledge, no risks for the environment or health are given for the intended use of the products.

## 2.12 Reference service life

The use phase is not evaluated in this environmental product declaration.

Influences on aging when applied according to the rules of technology.

## 2.13 Extraordinary effects

### Fire

The large-size fibre cement boards have the following fire behaviour according to DIN /EN 13501-1/:

### Fire protection

Name	Value
Class of inflammability ; non-combustible, with fractions of combustible building materials	A2
Smoke gas development no little/ smoke development	s1
Burning droplets no dripping/falling off	d0

### Water

The ingredients are firmly embedded in the cement / fibre matrix after hardening. Due to the firm binding no ingredients that could be water-contaminating are flushed out in the event of extraordinary impacts by water.

### Mechanical destruction

The product shows a brittle fracture behaviour under mechanical stress. It can cause chipping and rough edges.

The resistance to mechanical effects, according to /EN 12467/, corresponds to the classe A4.

## 2.14 Re-use phase

The large-size boards can be removed non-destructively by unscrewing. In undamaged form, the disassembled products can be used according to their original Purpose.

## 2.15 Disposal

When fully separated, the said uncoated as well as coated fibre cement products can be comminuted and recycled as an additive in the production of cement (material recycling). Furthermore, the said uncoated as well as coated fibre cement products are suitable for further use as filling and bulk material in civil engineering, in particular in road construction or for noise protection walls (material recycling).

Residues of the fibre cement products mentioned above as well as those from demolition can, if the above-mentioned recycling possibilities are not practicable, be easily deposited on disposal sites of

Class Type B due to their predominantly mineral contents without pretreatment:

In the European countries and Switzerland according to the European Waste Catalogue Ordinance (/AVV/) according to waste classification 170107/170101 and the Regulation on Handling Waste (/VeVA/), in Austria according to the Austrian Landfill Ordinance 2008 (Federal Law Gazette No. II No. 39/2008 Part II) under the key number 31409.

## 2.16 Further information

Further information can be found on the following Websites:  
www.cembrit.com

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The life-cycle assessment refers to 1 ton of fibre cement boards.

The declared indicators for the inventory and impact assessment indicators were calculated as an average, weighted by the production volumes, from the results of the life-cycle assessments of the production in the plants in Switzerland and Austria.

#### Declared Unit

Name	Value	Unit
Declared unit	1	t
Gross density	1850	kg/m <sup>3</sup>
Conversion factor to 1 kg	0.001	-

### 3.2 System boundary

Type of the EPD: Cradle to factory gate

The LCA refers to the stage of product development in accordance with /EN 15804/ (information modules A1 to A3). Other life-cycle phases such as processing, use and disposal have not been accounted for. The system boundary includes the provision and processing of raw materials. These include in particular cement, plastic fibres, pulp and packaging materials (A1). The transports to the manufacturer (A2) were specifically collected for all starting materials. The production (A3) includes also all in-plant energy consumption, the consumption of auxiliary materials, VOC emissions of the coating process as well as the treatment of the quantities of waste and waste-water. All material and energy input processes of modules A1 to A3 and the treatment of all waste are part of the system. A large part of the waste arises when cutting the boards. Some of the waste-water is treated in in-plant sewage treatment plants.

### 3.3 Estimates and assumptions

The VOC emissions of the coating process were estimated on the basis of formulations of the coatings. It was assumed that all organic solvents in the coating products are emitted into the environment.

### 3.4 Cut-off criteria

All collected data were taken into account in the LCA. No data was collected on the infrastructure. The production halls and warehouses as well as the administration buildings are already several decades old. Similarly, little has changed in the production

process over the years, so that the machines are often older and are only partially replaced. According to the product category rules, the impact of the infrastructure per tonne of the product is expected to be less than 1% of the total use of primary energy (renewable and non-renewable) and less than 1% of the total mass of the stage of product development.

### 3.5 Background data

Data from /ecoinvent v3.1/ (data status 2014) was used to compile the LCA.

### 3.6 Data quality

The data collection was extensive and was carried out on the basis of a standardised questionnaire for 2016 directly at the various production sites. All data was checked for plausibility together with the manufacturers. Therefore, with regard to the foreground data, a very good data quality can be assumed.

Most input and output flows of the inventory could be displayed with corresponding data from the ecoinvent v3.1 database. Data developed by ESU-services as part of a project of the Swiss Federal Office of Energy (SFOE, Switzerland), was used for polyvinyl alcohol (PVA). The data was collected according to ecoinvent guidelines and recalculated with ecoinvent v3.1. Where possible, regionally specific data was used in the selection of background data.

### 3.7 Period under review

Data on total production for 2016 was collected at the production sites. In addition to large-size boards, the various plants of the Swisspearl Group also produce medium- and small-size boards, corrugated sheets and roof boards.

### 3.8 Allocation

Within the modules A1, A2 and A3, those inputs and outputs of the data collection that could not be directly assigned to a product were assigned via the production quantity to the individual products. For the production of fibre cement products, silica fume is used. 3.5 – 7% by mass. Silica fume is a by-product of the production of silicon and ferrosilicon alloys. All environmental impacts have been assigned to the production of the alloys. As a result, no environmental burdens have been recorded for the production of silica fume.

### 3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building

context, respectively the product-specific characteristics of performance, are taken into account.

. Background data from ecoinvent v3.1 (data status 2014) was used.

## 4. LCA: Scenarios and additional technical information

No further information.



## 5. LCA: Results

The following tables show the results of life-cycle assessment indicators, resource use and waste related to 1 ton large-size fibre cement boards, pigmented, coated.

The data is representative of the products of Cembrit Holding A/S.

### DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	MND	MND	MND	MND	MND

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 ton large-size fibre cement boards, pigmented, coated

Parameter	Unit	A1-A3
Global warming potential	[kg CO <sub>2</sub> -Eq.]	1.28E+3
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.56E-4
Acidification potential of land and water	[kg SO <sub>2</sub> -Eq.]	3.60E+0
Eutrophication potential	[kg (PO <sub>4</sub> ) <sup>3</sup> -Eq.]	4.90E-1
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	2.45E-1
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.83E-2
Abiotic depletion potential for fossil resources	[MJ]	1.57E+4

### RESULTS OF THE LCA - RESOURCE USE: 1 ton large-size fibre cement boards, pigmented, coated

Parameter	Unit	A1-A3
Renewable primary energy as energy carrier	[MJ]	2.74E+3
Renewable primary energy resources as material utilization	[MJ]	8.31E+2
Total use of renewable primary energy resources	[MJ]	3.57E+3
Non-renewable primary energy as energy carrier	[MJ]	1.61E+4
Non-renewable primary energy as material utilization	[MJ]	9.79E+2
Total use of non-renewable primary energy resources	[MJ]	1.71E+4
Use of secondary material	[kg]	0.00E+0
Use of renewable secondary fuels	[MJ]	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0
Use of net fresh water	[m <sup>3</sup> ]	1.10E+1

### RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

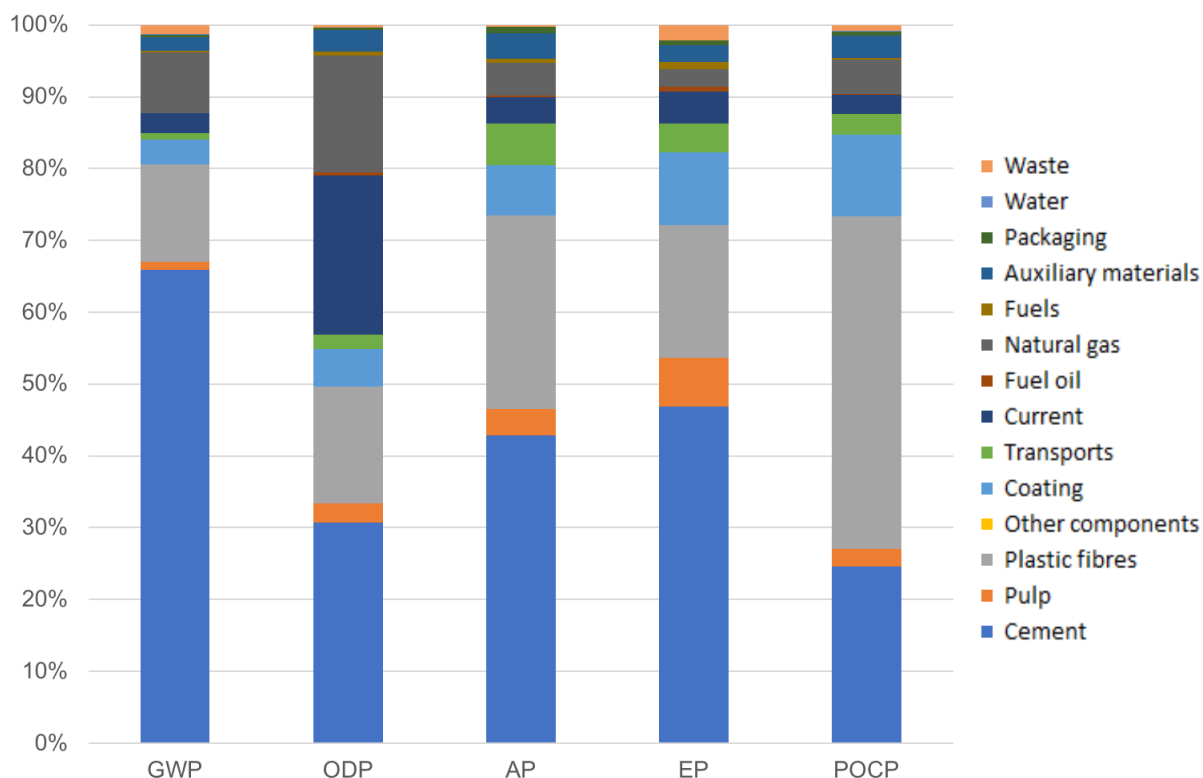
#### 1 ton large-size fibre cement boards, pigmented, coated

Parameter	Unit	A1-A3
Hazardous waste disposed	[kg]	3.03E-2
Non-hazardous waste disposed	[kg]	2.01E+2
Radioactive waste disposed	[kg]	7.85E-2
Components for re-use	[kg]	0.00E+0
Materials for recycling	[kg]	0.00E+0
Materials for energy recovery	[kg]	0.00E+0
Exported electrical energy	[MJ]	0.00E+0
Exported thermal energy	[MJ]	0.00E+0

## 6. LCA: Interpretation

The following figure shows a dominance analysis for the most important impact assessment indicators. Regardless of the indicator, the results of small and medium-size boards are largely determined by the proportions of cement and plastic fibres in the base

mix, as well as electricity and natural gas consumption during manufacture. On the other hand, packaging, water consumption and waste only affect the overall results in the range of a few percent.



The proportion of pigments in the overall result is mainly dominant at the degradation potential of the stratospheric ozone layer (ODP). The environmental impact of the pulp in the base mix is relevant only in the eutrophication potential (EP). The share of the total load for this indicator is 12%. The influence of the coating is greatest at the formation potential for tropospheric ozone (POCP) and amounts to 10%. The share of transport in the environmental impact is less than 5% for all indicators. Depending on the indicator, the auxiliary materials contribute 1 to 2% to the environmental impact.

The declared average product differs from specific products in terms of pigmentation and colour scheme of the coating. As a result, LCA results for specific products should differ by a few percent from the values declared here.

With regard to the production site, regarding the large-size, pigmented boards, the deviation of the plant-specific result for **PENRT** (totally non-renewable primary energy) compared to the average value of the EPD is in the range of -6% to +0%, thus, the declared value corresponds to the maximum.

## 7. Requisite evidence

### 7.1 Radioactivity

According to ÖNORM S 5200:2009/ (test 'A'), the material is to be classified as non-hazardous since the limit assessment factor (ÖNORM S5200 / level 'A') of 1 was clearly undercut with the evaluation factors of 0.09 to 0.016 +/- 0.02.

The measurements were carried out on material of each single manufacturing plant.

Measurement Institute/Report/Date:

Seibersdorf Laboratories, Austria - 2444 Seibersdorf / LA278-1/12, LA278-2/12, LA278-3/12, LA278-4/12/18.06.2012

### 7.2 Leaching

The examinations are within the scope of the accreditation according to ISO /IEC 17025 conforms to DIN 12457-4.

Analysis report 09.02.2018 (A18-00230) of the Arcadis (Schweiz) AG

Eluate solid matter M1802-00721 according to VVEA 'no limit exceeded'

### 7.3 VOC-emissions

The product is not used in indoor spaces.

## 8. References

Creation of environmental product declarations (EPDs);

**General principles** for the EPD program of the Institut Bauen und Umwelt e.V. (IBU), 2016-03.

### Product Category Rules for Construction Products

**Part A:** Calculation rules for the LCA and requirements for the background report. Version 1.5, 11.08.2016

### Product Category Rules for Construction Products

**Part B:** Requirements for the EPD for fibre cement/fibre concrete. Version 1.3, 04.07.2014

**Construction Products Regulation CPR EU 305/2011**

**EN ISO 9001:2015** Quality management system

**EN 12467:** 2012+A1;2016 Fibre-cement panels - product specification and test methods

**EN 13501-1:**2007+A1/2009, Classification of construction products and types of fire behaviour - Part 1: Classification with the results of the fire behaviour tests of construction products

**ÖNORM S 5200:2009** / Level A /

**European Waste Catalogue (EWC)**  
**(Swiss) Ordinance of 22 June 2005 for handling waste** (VeVA)

**Austrian Landfill Ordinance 2008** (Federal Law Gazette No. BGBl. II No. 39/2008 Part II)

Data:

**ecoinvent Centre**, Swiss Centre for Life Cycle Inventories, ecoinvent v3.1, vnitru. ecoinvent.org

**N. Jungbluth et al.**, Life Cycle Inventories of Photovoltaics, ESU-service s, 2012,  
<http://www.esuservices.ch/data/public-lci-reports/>

**Institut Bauen und Umwelt e.V.**, Berlin (publ.):  
Creation of environmental product declarations (EPDs);

**/IBU 2016/**

IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin. [www.ibu-epd.de](http://www.ibu-epd.de)

**/IBU 2016/**

IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin.

[www.ibu-epd.de](http://www.ibu-epd.de)

**/ISO 14025/**

DIN EN /ISO 14025:2011-10/, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

**/EN 15804/**

/EN 15804:2012-04+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

**Publisher**

Institut Bauen und Umwelt e.V.  
Panoramastr. 1  
10178 Berlin  
Germany

Tel +49 (0)30 3087748- 0  
Fax +49 (0)30 3087748- 29  
Mail [info@ibu-epd.com](mailto:info@ibu-epd.com)  
Web [www.ibu-epd.com](http://www.ibu-epd.com)

**Programme holder**

Institut Bauen und Umwelt e.V.  
Panoramastr. 1  
10178 Berlin  
Germany

Tel +49 (0)30 - 3087748- 0  
Fax +49 (0)30 - 3087748 - 29  
Mail [info@ibu-epd.com](mailto:info@ibu-epd.com)  
Web [www.ibu-epd.com](http://www.ibu-epd.com)

**Author of the Life Cycle Assessment**

Büro für Umweltchemie  
Schaffhauserstrasse 21  
8006 Zürich  
Switzerland

Tel +41 43 300 50 40  
Fax -  
Mail [m.klingler@umweltchemie.ch](mailto:m.klingler@umweltchemie.ch)  
Web [www.umweltchemie.ch](http://www.umweltchemie.ch)

**Owner of the Declaration**

Cembrit Holding A/S  
Sohngaardsholmsvej 2  
9100 Aalborg  
Denmark

Tel +45 99 37 22 22  
Fax +45 99 37 23 22  
Mail [info@cembrit.com](mailto:info@cembrit.com)  
Web [www.cembrit.com](http://www.cembrit.com)

HPD UNIQUE IDENTIFIER: 29455  
CLASSIFICATION: 07 44 53 Glass-Fiber-Reinforced Cementitious Panels  
PRODUCT DESCRIPTION: Cement Board

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format	Threshold Level	Residuals/Impurities Evaluation	For all contents above the threshold, the manufacturer has:
<input checked="" type="radio"/> Nested Materials Method	<input checked="" type="radio"/> 100 ppm	<input type="radio"/> Completed	<b>Characterized</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="radio"/> Basic Method	<input type="radio"/> 1,000 ppm	<input checked="" type="radio"/> Not Completed	<i>Provided weight and role.</i>
<b>Threshold Disclosed Per</b>	<input type="radio"/> Per GHS SDS	<b>Explanation(s) provided for Residuals/Impurities?</b>	<b>Screened</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="radio"/> Material	<input type="radio"/> Other	<input checked="" type="radio"/> Yes <input type="radio"/> No	<i>Provided screening results using HPDC-approved methods.</i>
<input checked="" type="radio"/> Product			<b>Identified</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
			<i>Provided name and CAS RN or other identifier.</i>

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | RESIDUAL OR IMPURITY  
GREENSCREEN SCORE | HAZARD TYPE  
TRANSPARENT CEMENT BOARD [ PORTLAND CEMENT (PORTLAND CEMENT) LT-P1 | CAN | END | | MAM | MUL | PHY LIMESTONE BM-3dg | MUL CELLULOSE PULP (CELLULOSE PULP) NoGS POLYETHYLENE LT-UNK | | CAN POLY(VINYL ALCOHOL) LT-UNK | MUL | CAN ]

Number of Greenscreen BM-4/BM3 contents ... 1  
Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-P1  
Nanomaterial ... No  
INVENTORY AND SCREENING NOTES:

Paints and pigments were excluded from the screening.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE See Section 3 for additional listings.  
VOC emissions: N/A  
VOC content: N/A  
LCA: Environmental Product Declaration (EPD) by UL - Industry Generic

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.  
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?  
☐ Yes  
☒ No

PREPARER: Self-Prepared  
VERIFIER:  
VERIFICATION #:

SCREENING DATE: 2022-08-01  
PUBLISHED DATE: 2022-08-01  
EXPIRY DATE: 2025-08-01



This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- Basic Inventory method with Product-level threshold.
- Nested Material Inventory method with Product-level threshold
- Nested Material Inventory method with individual Material-level thresholds

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: [www.hpd-collaborative.org/hpd-2-3-standard](http://www.hpd-collaborative.org/hpd-2-3-standard)

TRANSPARENT CEMENT BOARD

%: 77.0000 - 100.0000

PRODUCT THRESHOLD: 100 ppm	RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No	MATERIAL TYPE: Other: MINERAL-FIBER-REINFORCED CEMENTITIOUS PANELS
RESIDUALS AND IMPURITIES NOTES: Residuals and Impurities are not considered.		
OTHER MATERIAL NOTES: None		

PORTLAND CEMENT (PORTLAND CEMENT)

ID: 65997-15-1

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-08-01 11:35:29		
%: 66.0000 - 84.0000	GreenScreen: LT-P1	RC: UNK	NANO: No	SUBSTANCE ROLE: Filler
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
CAN	MAK		Carcinogen Group 3B - Evidence of carcinogenic effects but not sufficient for classification	
END	TEDX - Potential Endocrine Disruptors		Potential Endocrine Disruptor	
	EC - CEPA DSL		Persistent	
MAM	GHS - Japan		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]	
MUL	EC - CEPA DSL		Inherently Toxic to Humans (iTH)	
PHY	Québec CSST - WHMIS 1988		Class E - Corrosive materials	
MAM	GHS - Japan		H335 or H336 [Specific target organs/systemic toxicity following single exposure - Category 3]	
MUL	EC - CEPA DSL		Inherently Toxic in the Environment (iTE)	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
None found			No listings found on Additional Hazard Lists	
SUBSTANCE NOTES: White or grey				

LIMESTONE

ID: 1317-65-3

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-08-01 11:35:30		
%: 8.0000 - 14.0000	GreenScreen: BM-3dg	RC: UNK	NANO: No	SUBSTANCE ROLE: Filler

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
MUL	Québec CSST - WHMIS 1988	Class D2A - Very toxic material causing other toxic effects
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE SCIL  Green Circle - Verified Low Concern
SUBSTANCE NOTES:		

CELLULOSE PULP (CELLULOSE PULP)

ID: 65996-61-4

HAZARD DATA SOURCE: <b>Pharos Chemical and Materials Library</b>		HAZARD SCREENING DATE: <b>2022-08-01 11:35:30</b>		
%: <b>1.0000 - 5.0000</b>	GreenScreen: <b>NoGS</b>	RC: <b>UNK</b>	NANO: <b>No</b>	SUBSTANCE ROLE: <b>Filler</b>
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
None found		No warnings found on HPD Priority Hazard Lists		
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions		
		Exempted from REACH Annex IV listing due to intrinsic safety		
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE SCIL		
		Green Circle - Verified Low Concern		
SUBSTANCE NOTES: None				

POLYETHYLENE

ID: 9002-88-4

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-08-01 11:35:31		
%: 0.0000 - 4.0000	GreenScreen: LT-UNK	RC: UNK	NANO: No	SUBSTANCE ROLE: Filler
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
	EC - CEPA DSL		Persistent	
CAN	IARC		Group 3 - Agent is not classifiable as to its carcinogenicity to humans	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
None found			No listings found on Additional Hazard Lists	
SUBSTANCE NOTES:				

POLY(VINYL ALCOHOL)

ID: 9002-89-5

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-08-01 11:35:31		
---	--	--	--	--

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
MUL	German FEA - Substances Hazardous to Waters	Class 1 - Low Hazard to Waters
CAN	IARC	Group 3 - Agent is not classifiable as to its carcinogenicity to humans
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE SCIL  Green Circle - Verified Low Concern
SUBSTANCE NOTES: None		

## Section 3: Certifications and Compliance

*This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.*

VOC EMISSIONS	N/A	
CERTIFYING PARTY: Self-declared	ISSUE DATE: 2022-03-15	CERTIFIER OR LAB: N/A
APPLICABLE FACILITIES: N/A	EXPIRY DATE:	
CERTIFICATE URL:		
CERTIFICATION AND COMPLIANCE NOTES: No emissions test conducted.		
VOC CONTENT	N/A	
CERTIFYING PARTY: Self-declared	ISSUE DATE: 2022-03-24	CERTIFIER OR LAB: N/A
APPLICABLE FACILITIES: N/A	EXPIRY DATE:	
CERTIFICATE URL:		
CERTIFICATION AND COMPLIANCE NOTES: N/A		
LCA	Environmental Product Declaration (EPD) by UL - Industry Generic	
CERTIFYING PARTY: Third Party	ISSUE DATE: 2022-02-01	CERTIFIER OR LAB: IBU
APPLICABLE FACILITIES: Austria and Switzerland.	EXPIRY DATE: 2023-05-02	
CERTIFICATE URL:		
<a href="https://www.americanfibercement.com/wp-content/uploads/2021/01/epd-transparent-1.pdf">https://www.americanfibercement.com/wp-content/uploads/2021/01/epd-transparent-1.pdf</a>		
CERTIFICATION AND COMPLIANCE NOTES:		

## Section 4: Accessories

*This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.*

MISCELLANEOUS
MANUFACTURER (OR GENERIC): Generic
HPD URL: No HPD available
ACCESSORY TYPE: Fastner
CONDITION WHEN RECOMMENDED OR REQUIRED AND/OR OTHER NOTES: STEEL OR ALUMINUM PROFILES (1) Black astro foam tape (2) Stainless steel rivets (or bonding system) (3) Weather barrier PRESSURE TREATED WOOD PROFILES (1) Black EPDM rubber (2) Stainless screws (or bonding system) (3) Weather barrier

## Section 5: General Notes

Required entries are: explanation of variations among different products listed in a single HPD [See 3.1], if not addressed in Material or Product Notes [See 2.2.1.7] or Substance Notes [See 2.2.2.11]; and definition of the scope of the HPD when products are composed of combinations of parts [See 3.4].

Safety data sheet available. The product does not have to be classified.

## MANUFACTURER INFORMATION

**MANUFACTURER:** American Fiber Cement Corporation  
**ADDRESS:** 6901 S. Pierce St., Ste. 180  
 Littleton CO 80128, United States  
**WEBSITE:** <http://www.americanfibercement.com>

**CONTACT NAME:** Spencer Anderson  
**TITLE:** Technical Director  
**PHONE:** 303-972-5107  
**EMAIL:** [sanderson@afcccladding.com](mailto:sanderson@afcccladding.com)

*The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.*

## KEY

### Hazard Types

<b>AQU</b> Aquatic toxicity	<b>LAN</b> Land toxicity	<b>PHY</b> Physical hazard (flammable or reactive)
<b>CAN</b> Cancer	<b>MAM</b> Mammalian/systemic/organ toxicity	<b>REP</b> Reproductive
<b>DEV</b> Developmental toxicity	<b>MUL</b> Multiple	<b>RES</b> Respiratory sensitization
<b>END</b> Endocrine activity	<b>NEU</b> Neurotoxicity	<b>SKI</b> Skin sensitization/irritation/corrosivity
<b>EYE</b> Eye irritation/corrosivity	<b>NF</b> Not found on Priority Hazard Lists	<b>UNK</b> Unknown
<b>GEN</b> Gene mutation	<b>OZO</b> Ozone depletion	
<b>GLO</b> Global warming	<b>PBT</b> Persistent, bioaccumulative, and toxic	

### GreenScreen (GS)

<b>BM-4</b> Benchmark 4 (prefer-safer chemical)	<b>LT-P1</b> List Translator Possible 1 (Possible Benchmark-1)
<b>BM-3</b> Benchmark 3 (use but still opportunity for improvement)	<b>LT-1</b> List Translator 1 (Likely Benchmark-1)
<b>BM-2</b> Benchmark 2 (use but search for safer substitutes)	<b>LT-UNK</b> List Translator Benchmark Unknown
<b>BM-1</b> Benchmark 1 (avoid - chemical of high concern)	<b>NoGS</b> No GreenScreen.
<b>BM-U</b> Benchmark Unspecified (due to insufficient data)	

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, [www.greenscreenchemicals.org](http://www.greenscreenchemicals.org), and Best Practices for Hazard Screening on the HPDC website ([hpd-collaborative.org](http://hpd-collaborative.org)).

### Recycled Types

<b>PreC</b> Pre-consumer recycled content
<b>PostC</b> Post-consumer recycled content
<b>UNK</b> Inclusion of recycled content is unknown
<b>None</b> Does not include recycled content

### Other Terms:

**GHS SDS** Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

### Inventory Methods:

<b>Nested Method / Material Threshold</b> Substances listed within each material per threshold indicated per material
<b>Nested Method / Product Threshold</b> Substances listed within each material per threshold indicated per product
<b>Basic Method / Product Threshold</b> Substances listed individually per threshold indicated per product

**Nano** Composed of nano scale particles or nanotechnology

**Third Party Verified** Verification by independent certifier approved by HPDC

**Preparer** Third party preparer, if not self-prepared by manufacturer

**Applicable facilities** Manufacturing sites to which testing applies

*The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:*

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

*Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.*

*The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.*

*The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.*





## **EMISSION CLASSIFICATION OF BUILDING MATERIALS**

### **Cembrit Holding A/S**

The classification working group set up by The Building Information Foundation RTS has approved the following products:

**Cembrit Solid**  
**Cembrit Cover**  
**Cembrit Transparent**

as belonging to emission class M1 for building materials.

The classification is valid until 19.3.2024.

Cembrit Holding A/S has the right to equip its classified products with the classification mark and to use this classification mark when marketing these products.

The decision is in line with the requirements laid down in the Classification of Indoor Climate 2018 and the Classification of Building Materials: General Rules.

**BUILDING INFORMATION LTD**

Laura Apilo  
Chief Executive Officer

Arja Valtanen  
Secretary of the Classification  
Working Group



**CEMBRIT HOLDINGS A/S**  
**Postfach 750, Sohngaardsholmsvej 2**  
**Aalborg, Denmark DK-9100**  
**+ (45) 9937-2217**  
[www.cembrit.com](http://www.cembrit.com)

## CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM

CSI Section:  
 07 46 46 Fiber-Cement Siding

### 1.0 RECOGNITION

Cembrit Fiber-Cement Façade Panel System described in this report has been evaluated for use as an exterior and interior wall covering. The physical, mechanical, durability, weather resistance, wind-load resistance, non-combustibility, and surface burning characteristics of the panel system were evaluated for compliance with the following codes and regulations:

- 2018, 2015, and 2012 International Building Code® (IBC)
- 2018, 2015, and 2012 International Residential Code® (IRC)
- 2017 Florida Building Code, Building and 2017 Florida Building Code, Residential (FBC) – Supplement attached

### 2.0 LIMITATIONS

Use of the Cembrit Fiber-Cement Façade Panel System described in this report is subject to the following limitations:

**2.1** Installation of the Cembrit Fiber-Cement Façade Panel System shall be in accordance with this report, the project details, installation instructions, and the applicable code. Where conflicts occur between the manufacturer's published installation instructions and this report, the more restrictive shall govern.

**2.2** The maximum allowable wind pressure for the Cembrit Fiber-Cement Façade Panel System is provided in Table 1 of this report. The capacities of the supporting wall, framing members, and connections shall be equal to or greater than the allowable wind pressure.

**2.3** Where installed as exterior cladding only on buildings of Type I, II, III, or IV Construction, the Cembrit Fiber-Cement Façade Panel System shall be constructed in accordance with Section 3.4 of this report.

**2.4** When use is as an interior wall covering, with spaces between adjacent panels, the Cembrit Fiber-Cement Façade Panel System shall be installed over a substrate having a Class A finish, complying with the 2018 IBC Section 803.1.2 or 2015 and 2012 IBC Section 803.1.1.

**2.5** Maximum panel fastener spacings and fastener contributory area shall be in accordance with Section 3.2 of this report

### 3.0 PRODUCT USE

**3.1 General:** Cembrit Fiber-Cement Façade Panel System is used as exterior or interior wall covering on buildings of all construction types under the IBC and on buildings constructed under the IRC. The panel system shall be installed in accordance with the applicable code, the manufacturer's installation instructions, and this report. A copy of the installation documents shall be available on the job site at all times during construction.

The Cembrit Fiber-Cement Façade Panel System may be used as a non-load-bearing exterior wall covering in accordance with Chapter 14 of the IBC and Chapter 7 of the IRC. The fiber-cement panels may also be used for interior applications as part of a Class A interior wall finish. The panels may be installed on buildings of Types I, II, III, or IV construction when installed in accordance with Section 3.4 of this report.

**3.2 Design:** Table 1 of this report provides the allowable wind load for the Cembrit Fiber-Cement Façade Panel System when used as an exterior wall covering.

TABLE 1 – ALLOWABLE TRANSVERSE (WIND) LOAD		
Panel Thickness Installation Method	POSITIVE (psf)	NEGATIVE (psf)
8-mm Visible Attachment System	49	48
12-mm Concealed Attachment System	42	40

SI: 1-inch = 25.4 mm; 1 psf = 0.0479 kPa

The supporting walls, framing members, and connections shall be designed to meet the loads prescribed by IBC Chapter 16 or IRC Section R301.2, as applicable. The allowable transverse loads for the Cembrit Fiber-Cement Façade Panel System shall equal or exceed the design loads. The attachment of the façade panel system to walls or substrates shall be designed by a registered design professional in accordance with the limitations described in Sections 3.2.1 and 3.2.2 of this report, and submitted to the building official for approval.





**3.2.1 8-mm Visible Attachment System:** The 8-mm Visible Attachment System shall have brackets spaced a maximum of 24 inches (610 mm) on-center horizontally or vertically. Each bracket shall be connected to supporting framing, spaced a maximum of 16 inches (406 mm) on-center, with two self-tapping screws, complying with Section 4.1.2 of this report. Horizontal L-Profiles, as described in Section 4.1.3 of this report, shall be secured to each bracket with two self-tapping screws, complying with Section 4.1.2 of this report. Vertical Z-Profiles or Hat-Channels, used behind intersecting panel joints shall be secured to intersecting L-Profiles with one self-drilling screw, complying with Section 4.1.2 of this report. The 8-mm Cembrit Fiber-Cement Panels are fastened to the Z- or Hat-Channel profiles with rivets, complying with Section 4.1.2 of this report, supporting a maximum of 2.5 square feet (0.23 m<sup>2</sup>) of contributory panel area per rivet. Panel rivets shall be spaced a maximum of 24 inches (610 mm) on-center horizontally or vertically. Rivets shall be a maximum of 4 inches (102 mm) from panel edges.

**3.2.2 12-mm Concealed Attachment System:** The 12-mm Concealed Attachment System shall have brackets spaced a maximum of 16 inches (406 mm) on-center horizontally and 30 inches (762 mm) on-center vertically. Each bracket shall be connected to supporting framing, with self-tapping screws, complying with Section 4.1.2 of this report. Vertical L-Profiles, as described in Section 4.1.3 of this report, shall be secured to each bracket with two self-tapping screws, complying with Section 4.1.2 of this report. Horizontal C-Profiles, spaced a maximum of 17<sup>1</sup>/<sub>16</sub> inches (433 mm) on center, shall be secured to intersecting L-Profiles with one self-drilling screw, complying with Section 4.1.2 of this report. The 12-mm Cembrit Fiber-Cement Panels are fastened to C-Hangers, complying with Section 4.1.3 of this report, with undercut anchors, complying with Section 4.1.2 of this report. The 12-mm Panels are connected to C-Hangers with undercut anchors supporting a maximum of 2.1 square feet (0.195 m<sup>2</sup>) of contributory panel area per anchor. Undercut anchors shall be spaced a maximum of 18.1 inches (460 mm) on-center horizontally or vertically. Anchors shall be a maximum of 5<sup>7</sup>/<sub>8</sub>-inches (149 mm) from panel edges.

**3.3 Installation General:** The Cembrit Fiber-Cement Façade Panel System shall be installed in accordance with the design documents, the manufacturer's published installation instructions, and this evaluation report.

Exterior wall assemblies shall include a water-resistive barrier, flashing, a means for draining water that enters the assembly to the exterior and protection against condensation in accordance with IBC Section 1403.2 or IRC Section R703.2, as applicable. The Cembrit Fiber-Cement Panels may be cut and trimmed in accordance with the design documents and this report. A nominal gap of <sup>3</sup>/<sub>8</sub> inch (9.5 mm) shall be maintained at panel-to-panel and panel-to-penetration joints, except that horizontal joints and corners may be closed with joint closures and corner closures as decorative elements when specified by the building designer.

The panels may be used for interior applications as part of a Class A interior wall finish.

### 3.4 Types I, II, III, and IV Construction:

**3.4.1 8-mm Thick Panels:** The Cembrit 8-mm thick panels using the Visible Attachment System as described in this report may be installed on buildings of Types I, II, III, or IV construction under the IBC. The base wall framing shall be minimum 18 gage by 3<sup>5</sup>/<sub>8</sub>-inch (92.1 mm) cold-formed C-channel steel studs spaced 16 inches (406 mm) on-center. The interior side of the studs shall be covered with a minimum of one layer of <sup>5</sup>/<sub>8</sub>-inch-thick (15.9 mm) Type X gypsum wallboard, complying with ASTM C1396. The exterior side of the studs shall be covered with a minimum of one layer of <sup>1</sup>/<sub>2</sub>-inch-thick (12.7 mm) glass mat gypsum substrate, Type X, complying with ASTM C1177. The gypsum boards shall be fastened to the studs with 1<sup>1</sup>/<sub>4</sub>-inch-long (31.7 mm) corrosion-resistant self-tapping screws spaced 12 inches (305 mm) on-center in the field and 8 inches (203 mm) on-center at the perimeters. Stud cavities shall be filled with minimum 4-inch-thick (102 mm) minimum 4 pcf density (64 kg/m<sup>3</sup>) mineral wool secured with Z-clips at floor lines. Vertical Z-Profiles shall be installed at 16 inches (406 mm) on-center. Hat-Channels shall be installed at panel joints and fastened to the steel studs with 1<sup>1</sup>/<sub>4</sub>-inch-long (31.7 mm) corrosion-resistant self-tapping screws. Window and door openings shall be flashed with minimum 18 gage steel flashing.

**3.4.2 12-mm Thick Panels:** The Cembrit 12-mm thick panels using the Concealed Attachment System as described in this report may be installed on buildings of Types I, II, III, or IV construction under the IBC. Installation on exterior walls is limited to heights not greater than 40 feet (12.2 m) above grade plane when the wall assembly includes a combustible water-resistive barrier. For use with combustible water-resistive barriers at heights greater than 40 feet (12.2 m) above grade plane, the wall constructions shall be tested in accordance with and comply with the acceptance criteria of NFPA 285, in accordance with Section 1403.5 of the IBC.

### 4.0 PRODUCT DESCRIPTION

**4.1 General:** The Cembrit Fiber-Cement Façade Panel System consists of Cembrit Fiber-Cement Panels attached with concealed or visible fasteners to metal brackets that are connected to aluminum or steel track.

**4.1.1 Cembrit Fiber-Cement Panels:** Cembrit Fiber-Cement Panels comply with ASTM C1186 as Type A Grade IV fiber-cement boards, in accordance with Sections 1404.10 and 1405.16 of the IBC. The Cembrit Fiber-Cement Panels are nominally 8 mm or 12 mm (0.31 or 0.47 inch) thick, available in widths up to 1250 mm (49.2 inches) and lengths up to 3070 mm (121 inches). Cembrit Fiber-Cement Panels have a flame spread index of 0 and a smoke-developed index





of not more than 5 when tested in accordance with ASTM E84 and comply as a Class A interior finish in accordance with IBC Section 803.1.1. The boards are classified as noncombustible when tested in accordance with ASTM E136.

**4.1.2 Fasteners:** Fasteners used with the Cembrit Fiber-Cement Façade Panel Systems are shown in Table 2 of this report. Where installed as exterior cladding, fasteners shall be corrosion-resistant.

**TABLE 2 - FASTENERS**

Attachment	8-mm Panel Visible Attachment System	12-mm Panel Concealed Attachment System
Bracket to Framing	¼-20 by 2-inch long self-tapping hex head screws	¼-20 by 2-inch long self-tapping hex head screws
L-Profile to Bracket (8-mm Visible System); or L-Profile to C-Profile (12-mm Concealed System)	No. 10 by 1-inch-long self-tapping hex head screws	No.10 by 1-inch-long self-tapping hex head screws
Z- or Hat-Channel to horizontal L-Profile; or Horizontal C-Profile to Vertical L-Profile	M5.5 by 25 mm self-drilling galvanized screw with sealing washer <sup>1</sup>	M5.5 by 25 mm self-drilling galvanized screw with sealing washer <sup>1</sup>
Panel to C-Hanger	NA	Stainless Steel, threaded, undercut anchors <sup>1</sup>
Panel to vertical Z- or Hat-Profile	Rivets - Stainless steel ¾-inch-diameter 4-by-19/K15 <sup>1</sup>	NA

SI: 1-inch = 25.4 mm

<sup>1</sup> provided with the Cembrit Fiber-Cement Façade Panel System.

**4.1.3 Brackets and Profile Descriptions:** Descriptions of the attachment systems elements are shown in Table 3 of this report. The 8-mm thick Cembrit panels use the Visible Attachment System. The 12-mm thick Cembrit panels use the Concealed Attachment System. Figure 1 of this report provides typical bracket profiles and installation illustrations.

**TABLE 3 – ATTACHMENT SYSTEM ELEMENTS**

Element	8-mm Panel Visible Attachment System (inch)	12-mm Panel Concealed Attachment System (inch)
Brackets <sup>1</sup>	5¼ x 3½ x 1¾	3½ x 2½ x 2 <sup>2</sup> or 6⅞ x 2½ x 2 <sup>3</sup>
C-Hangers <sup>1</sup>	NA	Proprietary <sup>1</sup>
L-Profiles	1½ x 2⅜ x ⅝/64	1½ x 2⅜ x ⅝/64
Z-Profiles	16 Ga. 1⅞/16 x 1½ x 1⅞/16	NA
Hat-Channels	16 Ga. 2 x 1½ x 2	NA
C-Profiles <sup>1</sup>	NA	Proprietary <sup>1</sup>

SI: 1 inch = 25.4 mm

<sup>1</sup> provided with Cembrit Fiber-Cement Façade Panel System.

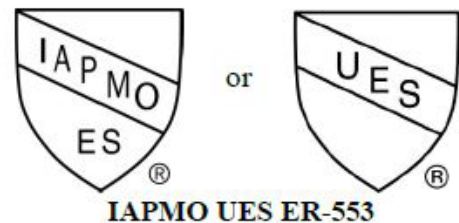
<sup>2</sup> Attached with one fastener per bracket.

<sup>3</sup> Attached with two fasteners per bracket.

**4.1.4 Metal Tracks and Profiles:** Metal framing shall be made of 6063-T6 alloy extruded aluminum complying with ASTM B317, or better.

## 5.0 IDENTIFICATION

The Cembrit Fiber-Cement Panels shall be labeled with the manufacturer's name and address, product name, thickness, color, finish, and batch number. The label shall identify the fiber-cement panels as conforming to the requirements of ASTM C1186, Type A, and the name of the approved inspection agency, Quality Control Consultants (QCC). The label shall include the IAPMO Uniform ES Mark of Conformity and the Evaluation Report Number (ER-553). Either Mark of Conformity may be used as shown below:





### 6.0 SUBSTANTIATING DATA

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Fiber-cement Siding (AC90), dated June 2012 (editorially revised September 2015).

6.2 Reports of non-combustibility testing in accordance with ASTM E136.

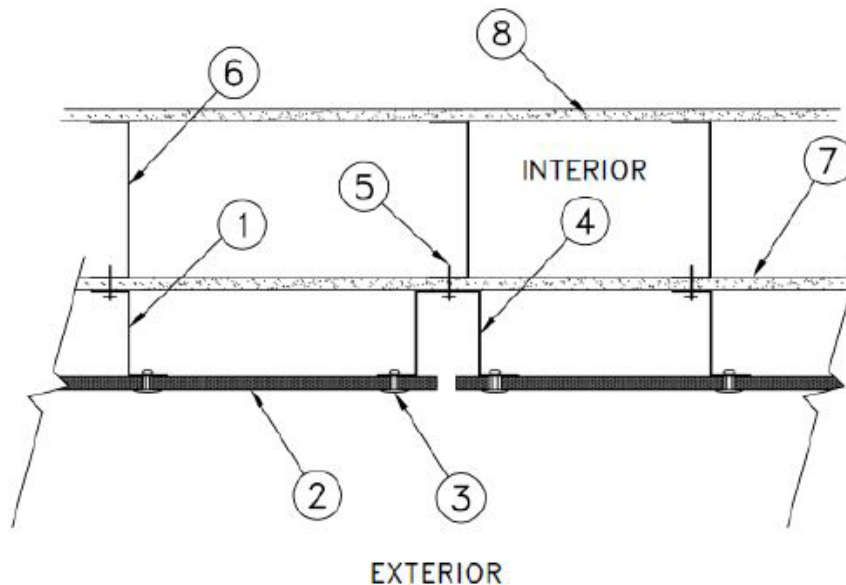
6.3 Reports of Surface Burning Characteristics testing in accordance with ASTM E84.

6.4 Reports of Fire Propagation Characteristics testing in accordance with NFPA 285.

### 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on the Cembrit Fiber-Cement Façade Panel System manufactured in Vocklabruck, Austria under a quality control program with inspections by Quality Control Consultants (QCC) to assess its conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



- ① –  $1\frac{3}{8}$ " X  $1\frac{1}{2}$ " X  $1\frac{3}{8}$ " 16 GA. 'Z' CHANNEL
- ② – CEMBRIT PANEL
- ③ – POP RIVETS
- ④ – 2" X  $1\frac{1}{2}$ " X 2" X  $1\frac{1}{2}$ " DEEP 16 GA. HAT CHANNEL
- ⑤ –  $1\frac{1}{4}$ " FASTENER (APPROPRIATE FOR STRUCTURAL MEMBER)
- ⑥ – 3- $\frac{5}{8}$ " 18ga. STEEL STUD FRAMING
- ⑦ –  $\frac{1}{2}$ " TYPE "X" SHEATHING
- ⑧ –  $\frac{5}{8}$ " TYPE "X" SHEATHING

**FIGURE 1**  
**CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM**





## FLORIDA SUPPLEMENT

### CEMBRIT HOLDINGS A/S

Postfach 750, Sohngaardsholmsvej 2

Aalborg, Denmark DK-9100

+ (45) 9937-2217

[www.cembrit.com](http://www.cembrit.com)

### CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM

CSI Section:

07 46 46 Fiber-Cement Siding

#### 1.0 RECOGNITION

The Cembrit Fiber-Cement Façade Panel System evaluated in IAPMO UES Evaluation Report ER-553 is a satisfactory alternative to the following codes and regulations:

- 2017 Florida Building Code, Building (FBC, Building)
- 2017 Florida Building Code, Residential (FBC, Residential)

#### 2.0 LIMITATIONS

Use of the Cembrit Fiber-Cement Façade Panel System described in this report supplement is subject to the following limitations:

**2.1** Load combinations shall be in accordance with Sections 1605.2 or 1605.3 of the FBC-Building, as applicable.

**2.2** For installations in accordance with FBC-Building Section 1403.8, the Cembrit Fiber-Cement Façade Panel System shall provide clearance between the façade panel and final earth grade on the exterior of a building of not less than 6 inches (152 mm) in order to provide for inspection for termite infestation, or in accordance with the exceptions to Section 1403.8 of the FBC, Building, as applicable.

**2.3** Use of the Cembrit Fiber-Cement Façade Panel System for compliance with the high-velocity hurricane zone provisions of the FBC-Building and FBC, Residential has not been evaluated and is outside the scope of this evaluation report.

**2.4** The design and installation of the Cembrit Fiber-Cement Façade Panel System shall be in accordance with the 2015 International Building Code for the 2017 FBC-Building; or the 2015 International Residential Code for the 2017 FBC-Residential, as noted in ER-553.

**2.5** For products falling under Section (5)(d) of Florida Rule 61G20-3.001, verification that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

**2.6** This supplement expires concurrently with ER-553.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email at [info@uniform-es.org](mailto:info@uniform-es.org)



American Fiber Cement Corporation



## 10-year Limited Warranty



---

**Products: Cover, Minerit HD, Patina, Patina Rough, Patina Inline, Solid, Transparent**

---

American Fiber Cement Corporation warrants that the products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship using AFCC specifications as the standard. Only products which are stored, installed, and used for purposes in accordance with applicable AFCC instructions and specifications are in any way warranted by AFCC. Prior to installation, purchaser shall inspect all panels for any visible faults or deviations from AFCC product specifications. This warranty is applicable only to claims made in writing and received by AFCC within sixty (60) days after the defect was discovered and within ten (10) years after the date of shipment of the product by AFCC. All other claims are waived. If a claim is made, you must allow reasonable investigation of the product you claim is defective and you must supply samples that adequately demonstrate the problem you claim for testing by AFCC.

AFCC DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY PROVIDES YOUR EXCLUSIVE REMEDY AS A PURCHASER AND/OR OWNER OF AFCC PRODUCTS. THIS LIMITED WARRANTY MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF AFCC. WITHOUT AN EXPRESS, WRITTEN AUTHORIZATION FROM AFCC, NO RETAILER OR DISTRIBUTOR OF AFCC PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS LIMITED WARRANTY.

This limited warranty is your sole and exclusive remedy. It is expressly understood and agreed that the limit of liability will be, at AFCC option, repair, re-supply of a like quantity of non-defective product, or refund of the purchase price of the material. All labor and service charges which may be incurred with respect to either the original or replacement product are excluded. AFCC shall not be liable for incidental or consequential damages, for damage to the property to which the product is applied or its contents, loss of time, profits, or any inconvenience arising out of any breach of this limited warranty or obligations under this limited warranty. AFCC shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory except as provided in the limited warranty set forth above. This limitation of liability shall apply to any replacement product or remedy if it fails of its purpose or for any other reason.

This limited warranty covers the structural or physical defects of the base material only. Alterations of the surface or damage due to external influences such as mechanical loads and defects from use of improper accessories are EXPRESSLY EXCLUDED from this warranty. Minerit HD/Raw is a non-coated, non-pigmented board. Color variation from board to board is normal and to be expected and is expressly excluded from this warranty. Changes in color/efflorescence on the boards (e.g. fading) due to normal weathering are part of the aging process of cement based materials and are also EXPRESSLY EXCLUDED from this warranty.