

Alfred FR ZCM

Zinc Composite Material

Digital Architectural Submittal Package



alfred

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ALFREX FR ZINC COMPOSITE MATERIAL

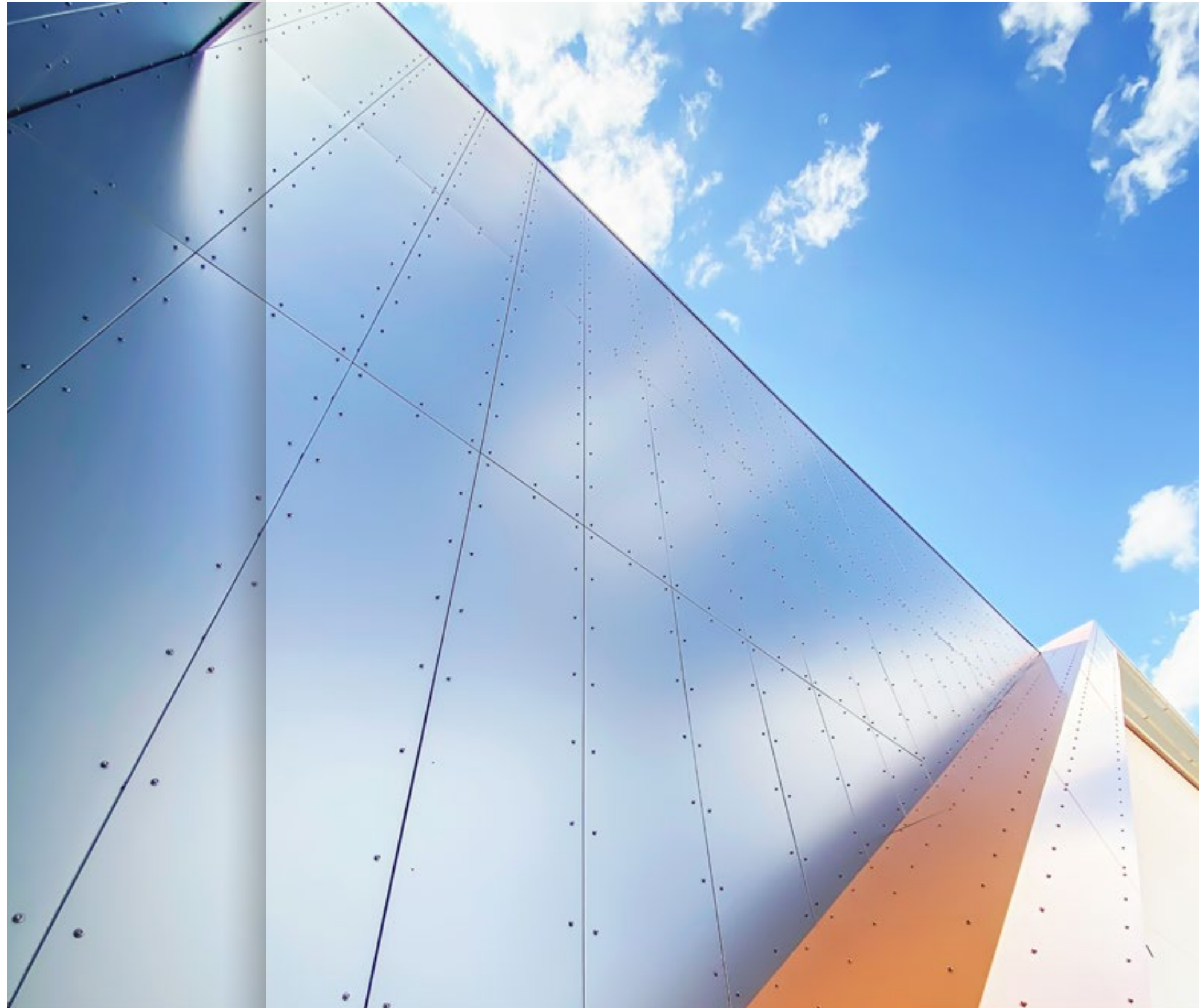
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ALFLEX OVERVIEW

Alflex specializes in fire-resistant and non-combustible architectural metal wall cladding with a portfolio including Alflex FR Metal Composite Material, Alflex Pre-Finished Solid Aluminum Plate, Alflex FR Zinc Composite Material, and Matching 0.040" Flat Sheet & Trim Profiles. Its Buford, Georgia USA manufacturing plant is dedicated to the production of Alflex FR core aluminum composite material (ACM) utilizing proprietary fire-resistant core technology manufactured in-house.

Its parent company, Unience, Co Ltd., began operation in 2000 as a manufacturer of specialty fire-resistant coatings, bonding materials, and pelletized mineral filled FR core compound for globally recognized MCM manufacturers. In 2008, Unience launched Alflex in South Korea with a multi-line MCM production facility dedicated to the exclusive production of FR core MCM. Today, both Unience and Alflex are headquartered in Buford, Georgia USA with a commercial branch in Toronto, Ontario Canada. Its company history and highlights include:

- 2000** Parent company Unience, Ltd. founded manufacturing fire-resistant compounds
- 2008** Alflex FR Metal Composite Material launched with 2 manufacturing lines
- 2016** Alflex USA commercial offices opened
- 2017** Alflex Canada commercial offices opened
- 2019** Alflex Plate - coil coated architectural aluminum plate added to portfolio
- 2020** New FR-core only MCM manufacturing plant and global headquarters inaugurated in Buford, Georgia USA
- 2020** All required product testing and certifications for the USA and Canada completed for Alflex FR MCM and Alflex Plate
- 2021** Alflex launches Flat Sheet and Trim Profiles Program



PRODUCT OVERVIEW



Alfred FR MCM *Metal Composite Material Wall Panels*

Alfred FR is a continuous process manufactured metal composite material (MCM) consisting of an extruded fire-resistant core permanently bonded to pre-finished aluminum skins on each side. It is fully tested and compliant with building codes in both the USA and Canada - holding key certifications such as ICC ES Evaluation Report ESR-4566, ICC AC25, NPFA 285, CAN S134, Florida Product Approval for High Velocity Hurricane Zones, and many others.

Alfred FR ZCM *Zinc Composite Material Wall Panels*

Alfred FR Zinc Composite Material (ZCM) is a natural zinc metal version of Alfred FR MCM manufactured from zinc coils from eZinc®. It has successfully passed NFPA 285 with a pressure equalized rainscreen system assembly employing ½" wide panel joints and Alfred 4mm ZCM joint splines. The configuration enables façade design with a consistent material transition between panel face and joint without caulk, and the assurance of an NFPA 285 tested assembly.

Alfred Plate *Pre-Finished Architectural Wall Panels*

Alfred Plate is a 100% solid aluminum, non-combustible wall cladding panel with a standard nominal thickness of 0.125" (3mm) by a maximum 62" width - allowing it to be fabricated and installed with the same methods and system assemblies utilized with MCM. Like MCM, it is pre-finished via coil coating lines - providing better color consistency and economics versus the post-painting of individual plate panels.

Matching Flat Sheet and Trim Profiles

Alfred stocks tension leveled 0.040" (1mm) aluminum flat sheet in all MCM standard colors to address the challenge of coordinating color match between metal wall cladding products and sheet metal for trim and accessories. Matching flat sheet can also be made-to-order in 5 standard profiles commonly used for flashing applications.

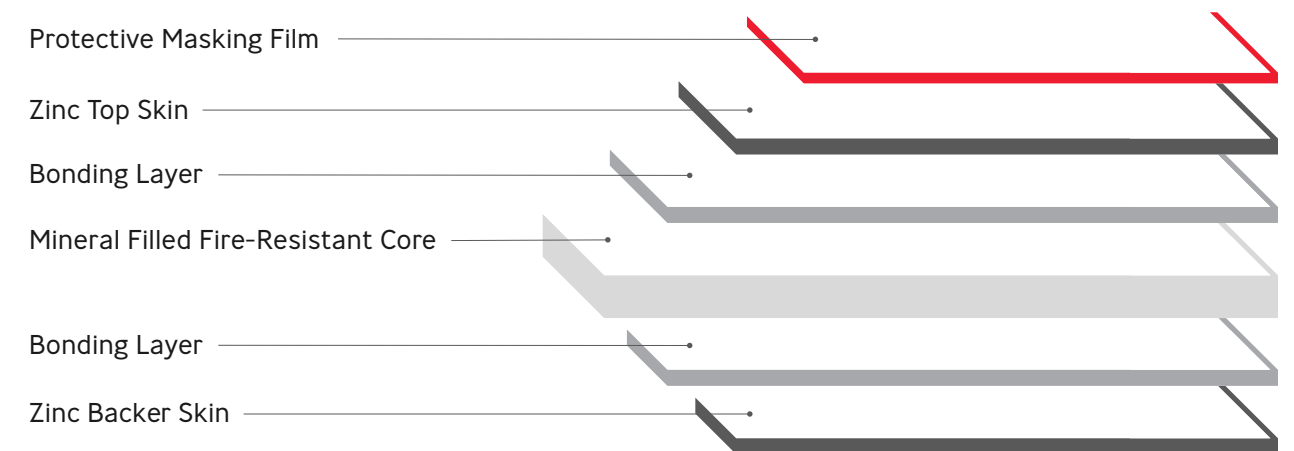
ALFRED FR ZCM OVERVIEW



INTRODUCTION

ALFRED FR ZCM - ZINC COMPOSITE MATERIAL is a natural zinc metal version of Alfred FR MCM, a continuous process manufactured metal composite material consisting of an extruded fire-resistant core permanently bonded to pre-weathered zinc metal skins on each side.

ALFRED FR COMPOSITION



INTRODUCTION

The Zinc in Alfrex ZCM

Alfrex ZCM is manufactured utilizing pre-weathered zinc coils either from Asturiana de Laminados S.A of Spain (eZinc®), or RHEINZINK GmbH & Co. of Germany. Their Titanium Zinc alloy coils and sheet are manufactured to the highest levels of purity (Zn 99.995%) and meet critical requirements for the building and construction industry such as European standard EN 988 and North American standard ASTM B-69.

How to Purchase Matching Flat Sheet

Two options are available for addressing the challenge of maintaining color and texture continuity between Zinc Composite wall panels and sheet metal used for trim and accessories.

01

Both eZinc® America and RHEINZINK America, Inc. stock coil in standard finishes for manufacture of flat sheet for trim and accessories. Please inquire for sourcing options.

02

Alfrex stocks 0.040" (1mm) aluminum flat sheet in three coil coated finishes which approximate the color and grain of natural metal zinc: Faux Zinc Graphite, Faux Zinc, and Faux Zinc Lite.

Alfrex ZCM Finishes

Alfrex provides custom matching to transform your imagination into reality using the color or finish of your choice. Simply send us a color sample, coating manufacturer paint code, Pantone number, or PMS number and we will quickly turn around an accurate match that meets your project requirements.

FEATURES



Non-Combustibility

Alfrex Plate is non-combustible 100% solid aluminum, 3003-H14 alloy. For applications where meeting local building codes or satisfying owner preference is mandated, a non-combustible metal wall cladding option may be desired. Alfrex Plate fits this requirement and much more.



Coil Coated Aluminum Plate

Architectural quality coil coated finishes are rarely available on plate thickness greater than 0.080". With Alfrex 3mm Plate, "Coil Coated" is the standard. Projects requiring a non-combustible solution with greater panel spans can count on Alfrex 3mm Plate, coil coated with the same wide range of finishes and exterior coating performance warranties as Alfrex FR MCM.



Custom Colors

Alfrex provides custom matching to transform your imagination into reality using the color or finish of your choice. Simply send us a color sample, coating manufacturer paint code, Pantone number, or PMS number and we will quickly turn around an accurate match that meets your project requirements.



Small Lot Custom Colors

Alfrex stocks 3mm thick aluminum plate in 62" wide x 165" and 196" long sheets with a primed back side. This enables the post-painting of sheets in either air dry or baked on spray finishes, eliminating the need for customers to source sheets from multiple sources. This capability also provides a more economical solution for small, custom color requirements where coil coating minimums cannot be met.



Cut to Length for the Project

Alfrex Plate is tension leveled and cut to length per the requirements of each individual project. With a minimum quantity of 20 sheets per length, customers can take off and optimize Alfrex Plate in the same manner as Alfrex FR MCM - reducing scrap and processing costs.



Compatibility and Formability

Alfrex Plate can be fabricated using proven methods such as: cutting, routing, shearing, bending, folding, and roll forming. It can be folded to a 2T bend naturally, and to 90 degrees when routed from the back side. This enables closer compatibility between Alfrex Plate and popular MCM installation systems with only slight modifications.

REFERENCE DATA

ALFLEX FR ZCM INTRODUCTION

Product Thickness	4.0mm (0.157")			
Core Material	Mineral Filled Fire-Resistant Core			
Zinc Skin Thickness	Top Side	0.7mm (0.028")		
	Bottom Side	0.7mm (0.028")		
Zinc Alloy	Titanium Zinc Alloy	Zn 99.995%	Ti < 0.005%	CU < 0.005%
Zinc Manufacturer	Asturiana de Laminados S.A of Spain	RHEINZINK GMBH & Co. of Germany		
Standard Widths	39.37" (1,000mm), 48" (1,220mm)			
Minimum Quantity	Consult for minimum quantity details.			
Finishes	Pre-Weathered Finishes			
Weight	2.92lbs/sqft	14.26kg/sqm		
Cut-to-Length	Standard length 146", Maximum length 196", 15 sheets per length minimum			
Protective Film	70 micron thick protective film			
Fire Testing	NFPA 285 - Passed with a pressure equalized rainscreen system assembly employing 1/2" wide panel joints and Alfred 4mm ZCM joint splines			
Technical Data	Consult the Technical Data Sheet of this document for Technical Properties, Production Tolerances, and Coating Performance Data, etc.			

ALFLEX FR ZCM PRE-WEATHERED FINISHES



PRE-WEATHERED FINISHES

Available eIZinc



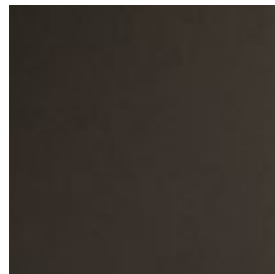
eIZinc CRYSTAL®

eIZinc Crystal® is pearl gray pre-patina finish designed to provide a unique finish in contrast to the lighter Natural and darker Slate finishes. It is reflective in nature with a tone that changes according to the ambient light conditions and reflections from surrounding structures.



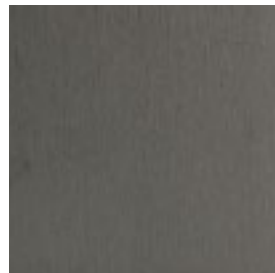
eIZinc SLATE®

eIZinc Slate® is a matte gray pre-patina finish specifically designed to provide the appearance of naturally weathered zinc after years of exterior exposure in the elements. Even though it is the most specified finish for new projects, it is often used in situations where it will be installed in the vicinity of existing zinc products as its initial color allows it to easily integrate.



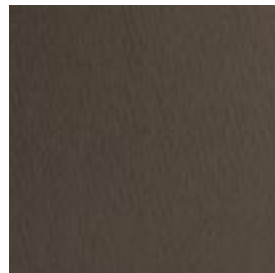
eIZinc GRAPHITE®

eIZinc Graphite® is a dark gray pre-patina finish designed to approximate the feel and color of natural slate.



eIZinc OLIVA®

eIZinc Oliva® is a unique member of the pre-weathered finish family, sporting a dark gray pre-patina finish with subtle hues of green and blue.



eIZinc LAVA®

eIZinc Lava® rounds out the grayscale color range of pre-weathered eIZinc® finishes with a basalt gray pre-patina finish which provides an additional option for putting a unique signature on any project.

Available RHEINZINK-pre-PATINA



RHEINZINK-pre-PATINA graphite-grey

RHEINZINK-pre-PATINA blue-grey provides the appearance of natural zinc after years of exposure in the external environment. After installation, the finish will continue to evolve over time as its natural zinc patina matures.



RHEINZINK-PRE-PATINA BLUE-GREY

RHEINZINK-pre-PATINA blue-grey provides the appearance of natural zinc after years of exposure in the external environment. After installation, the finish will continue to evolve over time as its natural zinc patina matures.

ALFRED FR ZCM SPECIFICATION 07 42 13 COMPOSITE METAL WALL PANELS



SECTION 07 42 13 COMPOSITE METAL WALL PANELS

PART I: GENERAL

I.01 SCOPE

A. Section Includes

1. MCM – Fire-Resistant Zinc Composite Material Wall panels with Zinc-Alloy skins.
2. Panel system requirements of composite fire resistive panels including exterior and interior installation assemblies, components, and accessories.

B. Related Sections: Section(s) related to this section include:

1. Division 05 Metal Framing Sections
2. Division 07 Air and Vapor Barrier
3. Division 07 Flashing and Trim Sections
4. Division 07 Joint Treatment Section
5. Division 08 Aluminum Windows Section
6. Division 08 Glass and Glazing Section
7. Division 08 Curtain Wall Sections

I.02 QUALITY ASSURANCE

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to the extent indicated. Standards listed have either been identified by the International Building Code (IBC), local building code, or specific requirement for this building construction type.

B. American Society for Testing and Materials (ASTM) International

1. ASTM B69 Standard Specification for Rolled Zinc
2. ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives
3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
4. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
5. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Wall, and Doors by Uniform Static Air Pressure Difference
6. ASTM E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

C. American Architectural Manufacturers Association (AAMA)

1. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
2. AAMA 509 Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems.

D. National Fire Protection Association (NFPA):

1. NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

I.03 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Provide installed MCM system designed to withstand specified loadings while maintaining allowable deflection, thermal movement performance as defined by the Manufacturer.
- B. Deflection and Thermal Movement: Provide installed MCM systems that have been designed to resist to the wind loading, acting inward and outward.
 - 1. Perimeter Framing Deflection: Deflection of panel perimeter framing member shall not exceed L/175 normal to plane of the wall where L is the unsupported span of the perimeter framing member.
 - 2. Panel Deflection: Deflection of the panel face shall not exceed L/60 at design load where L is the unsupported span of the panel.
 - 3. Anchor Deflection: At connection points of framing members to anchors, anchor deflection in any direction shall not exceed 0.0625 inch (1.6 mm).
 - 4. Thermal Movements: Allow for free and noiseless horizontal and vertical thermal movement due to expansion and contraction of component parts over a temperature range of -20°F (- 29°C) to +180°F (82.2°C) at the material surface.
 - a. Buckling, opening of joints, undue stress on fasteners, failure of sealants, or any other detrimental effects of thermal movement will not be permitted.
 - b. Fabrication, assembly and erection procedures shall take into account the ambient temperature range at the time of the respective operation.
- C. Water and Air Leakage: Provide systems that have been tested and certified to conform to the following criteria:
 - 1. Air Leakage, ASTM E283: Not more than 0.06 cfm per ft² of wall area (0.003 (L/s m²) when tested at 1.57 psf (0.075 kPa).
 - 2. Water Penetration: No water infiltration under static pressure when tested in accordance with ASTM E331 at a differential of 10% of inward acting design load, 6.24 psf (0.299 kPa) minimum, after 15 minutes.
 - a. Water penetration is defined as the appearance of uncontrolled water in the wall.
 - b. Wall design shall feature provisions to drain to the exterior face of the wall any leakage of water at joints and any condensation that may occur within the construction.
- D. Provide a pressure equalized rain screen system tested and passed to AAMA 508 and AAMA 509 with MCM, and tested in accordance with ASTM E330 at a design pressure of [specify design pressure in psf (kPa)] and certified to be without permanent deformation or failures of structural members.
- E. Fire Performance: Provide composite fire rated panels that have been evaluated and are in compliance with regulatory code agency requirements specified herein.

I.04 SUBMITTALS

- A. Submit in accordance with Conditions of the Contract and Division 01 Submittal Procedures Section.
- B. Submit product data, including manufacturer's brochures and Spec-Data Sheets SPEC-DATA sheets.
- C. Shop Drawings: Submit shop drawings showing project layout and elevations; fastening and anchoring methods; detail and location of joints, sealants, and gaskets, including joints necessary to accommodate thermal movement; trim; flashing; and accessories.
- D. Samples: Submit selection and verification samples for finishes, colors and textures.
 - 1. Selected Samples: Manufacturer's color charts or chips illustrating full range of colors, finishes and patterns available for composite metal panels with factory applied finishes.
 - 2. Verification Samples:
 - a. Panel System Assembly: Two samples of each assembly 12 inch x 12 inch (304 x 304 mm)

- b. Two samples of sample Zinc MCM sheets, or single-skin zinc sheet used in the manufacture thereof, not less than 3 inches x 4 inches (76 mm x 102 mm).

E. Quality Assurance Submittals:

- 1. Product Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties, or a third-party listing documenting compliance to a comparable code section.
- 2. Product Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical requirements.
- 3. Manufacturer's Product Literature.
- 4. Manufacturer's Field Reports: Manufacturer's field reports.

F. Closeout Submittals: Submit the following:

- 1. Warranty: Warranty documents specified.

I.05 QUALITY ASSURANCE

A. MCM Manufacturer Qualifications

- 1. MCM Manufacturer Qualifications: Company with a minimum of 10 years of continuous experience manufacturing MCM of the type specified.
 - a. Able to provide specified warranty on bond integrity.
 - b. Able to provide a list of other projects of similar size, including approximate date of installation and name of Architect for each.
 - c. Able to produce the composite material without outsourcing of the fire-resistant core manufacture and compounding, or panel bonding process.

B. MCM Fabricator Qualifications

- 1. MCM system fabricator will have at least (3) years of continuous documented experience fabricating the panel material type specified.
- 2. MCM system fabricator will have been in business under its present name for at least five (5) years prior to the start of this project.
- 3. MCM system fabricator will be capable of providing field service representation during construction.
- 4. MCM system fabricator will not have filed for protection from creditors under state or federal insolvency or debtor relief statutes or codes

C. MCM System Installer Qualifications

- 1. MCM system fabricator will have been in business under its present name for at least five (5) years prior to the start of this project and have experience with similar sized MCM system projects.
- 2. MCM system fabricator will be capable of providing field service representation during construction.
- 3. The MCM System Installer must be an approved installer by the MCM Fabricator for the installation of their MCM System and have undergone proper training for the specified system thereof.

D. Mock-Up

- 1. At location on building and to extent directed by Architect, install areas of specified wall panels, support framing, flashing, trim and accessories to show:
 - a. Substrate preparation
 - b. Support framing, furring, and flashing
 - c. Clearances and gaps between members
 - d. Fastening methods
 - e. Trim details
 - f. Joint protection
 - g. Workmanship
- 2. Prepare mock-up for Architect's approval before start of wall panel work. Prepare additional mock-ups, if required by Architect, until approved.

3. Maintain approved mock-up during construction to establish required standard of workmanship and basis of comparison for installation of wall panel work. Approved mock-up may remain as part of finished work.

E. Installation Documents On-Site

1. Maintain copies of installation instructions, approved submittals and other execution related documents on-site; make available as needed to confirm proper installation.

F. [___]

I.06 DELIVERY, STORAGE & HANDLING

- A. Adhere to manufacturer's ordering instructions and lead time requirements to avoid delays.
- B. Deliver materials to fabricator in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Protect finish of panels by applying heavy-duty removable plastic film during production.
- D. After fabrication, package composite wall panels for protection against transportation damage.
- E. Store material in accordance with manufacturer's guidelines.
 1. Exercise care unloading, storing and installing panels to prevent bending, warping, twisting and surface damage to the factory applied finish.
 2. Store materials protected from exposure to harmful weather conditions, out of direct sunlight when unpackaged, and at temperatures not to exceed 120 degrees F.
 3. Protect panels from moisture and condensation with tarpaulins or other suitable weather tight covering installed to provide ventilation.
 4. Slope panels to ensure positive drainage of any accumulated water.
 5. Avoid contact with any other materials that might cause staining, denting or other surface damage to the factory applied finish.

I.07 WARRANTY

- A. Manufacturer's Warranties: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
- B. Warranty Periods:
 1. Panel Integrity: 10 years commencing on Date of Substantial Completion.
 2. Zinc-Alloy Natural Metal: No finish warranty.

PART 2: PRODUCTS

2.01 FIRE RESISTANT METAL COMPOSITE MATERIAL (MCM)

A. Fire Resistant Metal Composite Material (MCM) Manufacturer:

1. Alfrex, Inc. 943 Gainesville HWY, Building 100, Suite 4000, Buford, GA 30518; Phone (470) 589-7449; Website: <http://alfrexusa.com/>; Email: alfrex@alfrexusa.com

2.02 BASIS OF DESIGN

A. Alfrex FR Zinc | Zinc Composite Material (ZCM)

- B. Description: Two sheets of pre-weathered zinc sandwiching a solid core of extruded thermoplastic fire-resistant material formed in a continuous process with no glues or liquid adhesives between dissimilar materials. The core material shall be free of voids and/or air spaces and not contain foamed insulation material. Products that are laminated sheet by sheet in a batch process using glues or adhesives between materials shall not be acceptable.

C. MCM Thickness:

1. 4mm (0.157 inch)

D. Zinc-Alloy: > 99.995% Zinc

E. Zinc-Alloy Face Sheets:

1. Front Face: 0.7mm (0.028") nominal, 0.5mm (0.020") nominal
2. Fire Resistant Mineral Core:
 - a. 2.6mm(0.102inch),3.0mm(0.118inch)
3. Back Face: 0.7mm (0.028") nominal, 0.5mm (0.020") nominal

F. Finishes

I. Pre-Weathered Finishes

- a. elZinc® Crystal
- b. elZinc® Slate
- c. elZinc® Graphite
- d. elZinc® Oliva
- e. elZinc® Lava
- f. RHEINZINK-pre-PATINA Graphite Gray (JY-Z100)
- g. RHEINZINK-pre-PATINA Blue Gray (JY-Z110)

2.03 ALTERNATES

- A. Product Substitutions: No substitutions permitted

2.04 MCM PRODUCT PERFORMANCE

- A. Bond Integrity: Tested for resistance to delamination as follows:
 - 1. Peel Strength (ASTM D1781): 22.5 in-lb/in (100 N-m/m) minimum.
 - 2. No degradation in bond performance after 8 hours of submersion in boiling water at 212 degrees Fahrenheit, (100 degrees Celsius).
 - 3. No degradation in bond performance after and 21 days of immersion in water at 70 degrees Fahrenheit, (21 degrees Celsius).
 - 4. Thermally bonded to the fire-resistant core material in a continuous process under tension.
- B. Fire Performance of Core Material
 - 1. Flame spread Index: ASTM E84 <25
 - 2. Smoke Developed: ASTM E84 <450
- C. Fire Performance of Assembly
 - 1. Exterior, non-load-bearing wall assembly must meet the requirements of NFPA 285 with standard 4mm thick Alfrex FR MCM
- D. Production Tolerances:
 - 1. Width: +/- 0.080 inch (2.0 mm)
 - 2. Length: + 0.197 inch (5 mm)
 - 3. Thickness (4 mm Panel): +/- 0.008 inch (0.2 mm)
 - 4. Bow: Maximum 0.2% length or width.
 - 5. Squareness: Maximum 0.157 inch (4 mm)

2.05 COMPOSITE METAL PANEL SYSTEM

- A. Rear Ventilated Pressure Equalized Rain Screen / Dry Joint System
 - 1. Rainscreen panel system to have a nominal two-inch depth with shop applied, concealed continuous perimeter extrusions employing clips with sliding capability for exact location over supports, and configured to allow for thermal movement in all four directions. Fixed attachment systems that do not allow free movement are not permissible.
 - 2. Vertical and horizontal rainscreen panel system joints to be 1/2" wide with no exposed sealants permitted in the panel to panel joinery. Caulking is allowed only for non-exposed areas (e.g. top of roof coping).
 - 3. Panel joints to utilize an integral spline of Alfrex 4mm FR ZCM. Splines to be held in place by slots in the perimeter panel extrusions. Bonding of metal material within the joinery to simulate an encapsulated spline is not permissible.
 - 4. All fasteners used to attach the ZCM sheet to the extrusions to be 300 series stainless steel or comparable, and countersunk.
 - 5. All internal weeps baffled and aligned vertically
 - 6. All panel corners reinforced with aluminum angles with routed folds at panel perimeters reinforced by the continuous extrusion system.
 - 7. Panel system assembly to be provided in panel modules dimensioned as indicated on the contract drawings (up to 46" in the short direction and up to 144" in the long direction). Weather sealants and underlayment to be applied per manufacturer's standards and published guidelines to meet performance standards.
 - 8. Panel system to be applied over properly installed Vaproshield Revealsheld SA vapor barrier as indicated.

2.06 ACCESSORIES

- A. Flashing and Trim
 - 1. Shop or field fabricated zinc-alloy sheets from the same manufacturer as the ZCM material to match the surface appearance of adjacent metal wall panels.
 - 2. Minimum thickness: 0.7mm (24 ga)
 - 3. Weather sealants and underlayment to be applied per manufacturer's standards and published guidelines to meet performance standards.
- B. Clips and Fasteners: Provide 300 series stainless steel concealed clips and stainless-steel fasteners; or other suitable fasteners designed to meet the load requirements as specified by architect and confirmed by engineering calculations.
- C. Solder: Lead solder containing 50% tin and 50% lead in accordance with ASTM B32 - 08 (or latest edition) or lead-free solder. Flux: Felder ZD-Pro or equal.

2.07 FABRICATION

- A. General: Shop fabricate to sizes and joint configurations indicated on drawings.
 - 1. Fabricate panels too dimensions indicated on drawings based on an assumed design temperature of 70°F(21°C). Allow for ambient temperature range at time of fabrication.
 - 2. Formed MCM panel lines, breaks and angles to be sharp and true, with surfaces that are free from warp or buckle.
 - 3. Fabricate panels with sharply cut edges and no displacement of face sheet or protrusion of core.
- B. Fabrication Tolerances: Shop-fabricate panels to sizes and joint configurations indicated on drawings.
 - 1. Width: +/- 0.079 inch [+/- 2 mm] @ 70°F (21°C)
 - 2. Length: +/- 0.079 inch [+/- 2 mm] @ 70°F (21°C)
 - 3. Squareness: +/- 0.079 inch [+/- 2 mm] @ 70°F (21°C)

PART 3: EXECUTION

3.01 MCM FABRICATOR/INSTALLER INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions.

3.02 EXAMINATION AND PREPARATION

- A. Verify that conditions of substrates previously installed under other sections or divisions are acceptable for MCM system installation. Documentation should be provided indicating any conditions detrimental to the performance or installation of the MCM System.
 - 1. Notify [Architect] of unacceptable conditions once discovered.
 - 2. Proceed with preparation and installation only after unacceptable conditions have been corrected.
- B. Field Measurements
 - 1. If required per project conditions, field measurements of the site condition are to be taken prior to beginning fabrication work and notification of any material modifications and resulting schedule adjustment shall be formally documented.
 - 2. Field measurements are to be made once all substrate and adjacent materials are installed, verifying the locations of wall framing members and wall opening dimensions before commencement of installation. Indicate measurements on the "As Built Shop Drawings".
- C. Project Schedule: Provisions in the project schedule must accommodate the time interval between field measurements and fabrication/installation.
- D. Miscellaneous Framing: Install miscellaneous MCM system support members and anchorage according to MCM System written instructions and drawings supplied by the MCM System Fabricator.

3.04 INSTALLATION

- A. General:
 - 1. Install panels plumb, level and true in compliance with fabricator's recommendations.
 - 2. Anchor panels securely in place in accordance with fabricator's approved shop drawings.
 - 3. Comply with fabricator's instructions for installation of concealed fasteners and with provisions of Section 07 90 00 for installation of joint sealers.
 - 4. Installation Tolerances: Maximum deviation from horizontal and vertical alignment of installed panels: 0.25 inch in 20 feet (6.4 mm in 6.1 m), noncumulative.
 - 5. Separate contact of dissimilar metals with bituminous paint, approved plastic shims, or other approved methods as defined within the Aluminum Design Manual (ADM). Use gasketed or approved coated fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.
- B. Related Products
 - 1. General: Refer to other related sections in Related Sections paragraph specified herein for related materials, including cold-form metal framing, flashing and trim, joint sealants, aluminum windows, glass and glazing and curtain walls.

3.05 FIELD QUALITY REQUIREMENTS

- A. Field Quality Control: Comply with panel system fabricator's recommendations and guidelines for field forming of panels.
- B. Field Quality Control: When required by contract, mock up shall be constructed and tested at the expense of the Architect/Owner/General Contractor.

- C. Testing Agency: If required, the Owner shall engage a qualified testing agency to perform tests and inspections.

- D. Fabricator's Field Services: Upon Owner's request, provide fabricator's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with fabricator's instructions.

3.06 ADJUSTING AND CLEANING

A. ADJUSTING

- 1. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and replacement are the responsibility of the General Contractor.
- 2. Removal of panels damaged by other trades is the responsibility of the General Contractor.
- 3. Repair components of the MCM system that present with minor damage provided said repairs are not visibly apparent at a distance of 10 feet (3m) from the surface at a 90° angle per AAMA 2605.
- 4. Remove and replace components of the MCM system damaged beyond repair.
- 5. Remove protective film immediately after installation of MCM and immediately prior to completion of the MCM system work. Protective film intentionally left in place after panel installation on any elevation at the direction of the General Contractor, is the responsibility of the General Contractor.
- 6. Any additional protection, after installation, is the responsibility of the General Contractor.
- 7. Ensure weep holes and drainage channels are unobstructed and free of dirt and sealants.
- 8. Promptly remove from the jobsite any damaged MCM panels, protective film, and other debris attributable to MCM system and installation, and legally dispose of said materials.

B. CLEANING

- 1. After MCM system installation remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

3.07 PROTECTION

- A. Protect installed products from damage during subsequent construction work until final inspection and acceptance by Owner.

B. []

END OF SECTION

TECHNICAL DATA SHEET

Alfred Zinc Composite Material

ALFLEX FR ZCM TECHNICAL DATA SHEET



COMPOSITION		
PROPERTY	ZCM 4mm FR	UNITS
Zinc Skin Alloy	Titanium Zinc Alloy (Zn 99.995%, Ti 0.07% - 0.12%, Cu 0.08% - 0.2%, Al 0.001% - 0.015%)	
Zinc Skin Finish	Pre-Weathered Finish	
Sheet Thickness	0.157	in
	4.0	mm
Skin Thickness (nominal)	0.028	in
	0.70	mm
Core Material	Fire rated mineral filled core	
Panel Weight	2.92	lb/ft ²
	14.26	kg/m ²

STANDARD SIZES		
PROPERTY	ZCM 4mm FR	UNITS
Standard Widths	39.37	in
	1000	mm
Max Width	48	in
	1220	mm
Recommended Length	144	in
	3658	mm
Max Length	196	in
	4978	mm

PRODUCTION TOLERANCES		
PROPERTY	4mm FR	UNITS
Width	+ / - 0.080	in
	2.0	mm
Length	+ / - 0.157	in
	4.0	mm
Thickness	+ / - 0.008	in
	0.20	mm
Squareness	+ / - 0.157	in
	4.0	mm

TECHNICAL PROPERTIES			
PROPERTY		ZCM 4mm FR	UNITS
Minimum Bond Strength	ASTM D1781	22.5	in•lb/in
		100	Nm/m
Tensile Strength (Zinc Skin)	ASTM B69	13.92 x 10 ³ - 37.99 x 10 ³	Psi
		96 - 262	Mpa
Breaking Elongation	EN 988	Min 40	%
	ASTM B69	10 - 70	
Yield Strength (Zinc Skin)	EN 988	14.5 x 10 ³	Psi
		100	Mpa
Coefficient of Expansion (Longitudinal - Length Dimension)		12.2 x 10 ⁻⁶	in/in/°F
		22 x 10 ⁻⁶	mm/mm/°C
Coefficient of Expansion (Transverse - Width Dimension)		9.44 x 10 ⁻⁶	in/in/°F
		17 x 10 ⁻⁶	mm/mm/°C
Core Density		0.054	lb/in ³
		1.5	g/cm ³

PRODUCT WARRANTY		
<i>See warranty tables and sample warranties for conditions and exclusions</i>		
Alfred FR ZCM	10 Years	Bond Integrity ASTM D1781

FIRE PERFORMANCE	
TEST	RESULT
NFPA 285	PASSED <i>Pressure equalized rainscreen assembly with 1/2" panels joints and ZCM splines</i>

Alfred, Inc. endeavors to provide accurate and current technical information but cannot warrant or make any representations as to the accuracy or completeness of the information contained herein. All data is intended for informational purposes only and subject to change without notice. Please consult a licensed structural engineer for evaluations of structural soundness, specification, or final design.

Issue Date: August 5, 2021

Intertek Letter Report No. 104620087-006L
Intertek Project No: G104620087

Julia Jun
Alfrex, LLC
430 Satellite BLVD, Suite 101
Suwanee, GA 30024
USA

Phone: 470-589-7449

Subject: Summary Letter for Report No. G104620087SAT-002, NFPA 285 testing of Altech Panel Systems Accu-Trac DS System utilizing 4 mm Alfrex FR Zinc Composite Panels

Dear Julia Jun,

This letter report represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

The assembly described above underwent fire resistance testing to the applicable requirements of *NFPA 285 Standard Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components, 2019 Edition*. The test took place on June 23, 2021 and was conducted at the Intertek B&C test facility in Elmendorf, Texas, USA.

Interior cladding was composed of 5/8 in. thick, American Gypsum Firebloc TYPE X gypsum board. Studs used were 2 in. x 6 in., 20 GA galvanized steel studs, 24 in. oc. Exterior sheathing was composed of 5/8 in. DensGlass® Gold Exterior Sheathing (Georgia Pacific). One layer of Vapro Shield® WrapShield SA vapor barrier was installed over the exterior sheathing, stapled into place. Insulation, 3 in. thick mineral wool with a dual density of 6.2psf on the outer layer and 4.1psf on the inner layer, was used between the vapor barrier and ACM panel. This was held in place with 3 in. wide, 18GA steel zees installed horizontally, spaced 24-in. on center with #12-1-1/2-in. self-drill screws. Exterior panels were 4mm Alfrex FR Zinc Composite Panels. The panels were installed leaving a nominal 1/2 in. gap between panels edges.

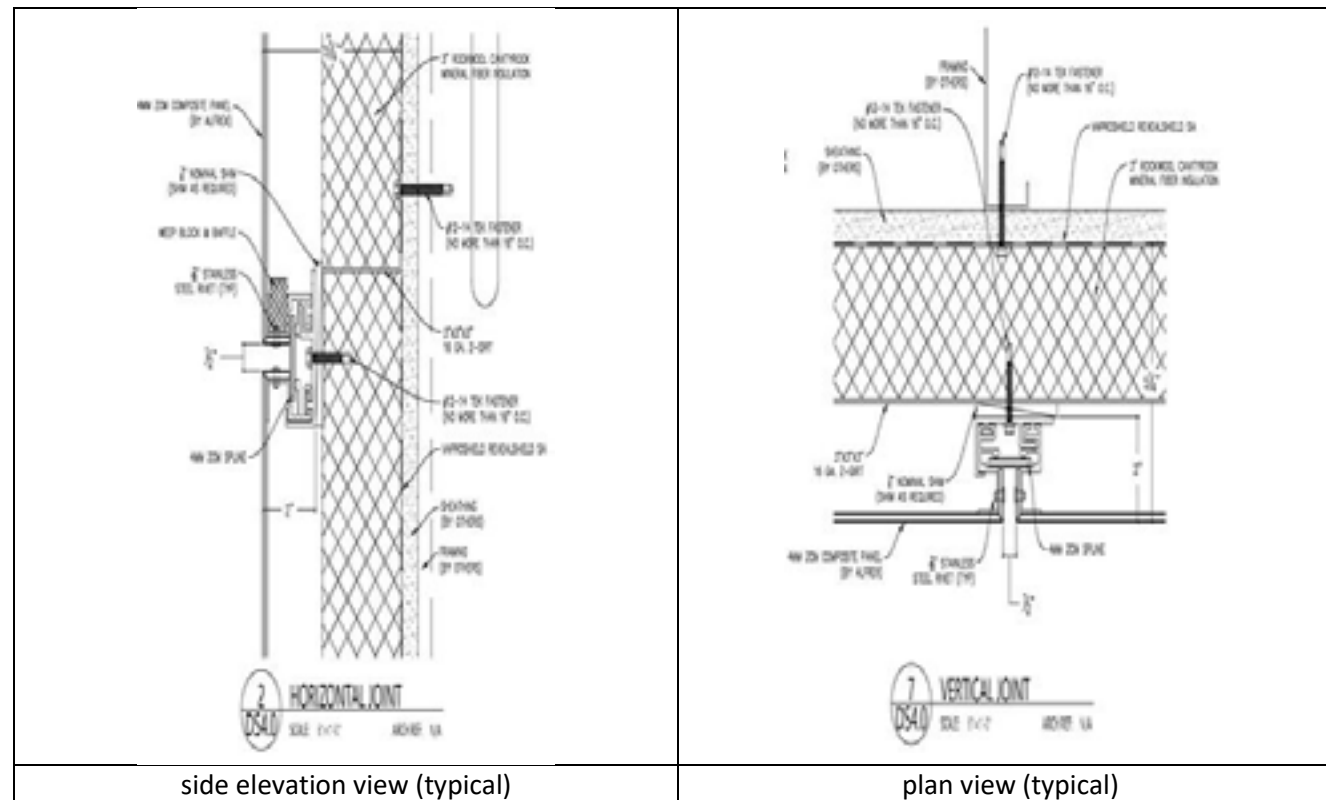
The assembly and testing are described in full in Intertek Test Report No. G104620087SAT-002

NFPA 285 TEST REPORT SUMMARY



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The conclusion of the report states, "The Alfred wall system containing 4 mm Alfred FR Zinc Composite Material panels met the conditions of acceptance outlined in NFPA 285, STANDARD FIRE TEST METHOD FOR EVALUATION OF FIRE PROPAGATION CHARACTERISTICS OF EXTERIOR NON-LOAD-BEARING WALL ASSEMBLIES, dated November 2018."



APPENDIX A: Photos



Photo No. 1
4 mm Alfred FR Zinc Composite Panels Wall Assembly Before Test.





Photo No. 2
4 mm Alfred FR Zinc Composite Wall assembly after test.





If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact your designated Intertek Project Manager.

Completed by:	Adriana Machuca Project Engineer, Fire Resistance	Reviewed by:	Mike Dey
Title:		Title:	Senior Project Engineer
Signature:		Signature:	
Date:	05 August 2021	Date:	13 August 2021

10 YEAR LIMITED WARRANTY AND REMEDY BOND INTEGRITY SAMPLE WARRANTY



10 YEAR LIMITED WARRANTY AND REMEDY BOND INTEGRITY

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

This limited warranty ("Limited Warranty") is provided by Alfred® Inc. ("Company") to the property owner ("Owner") and relates to the ("Products") installed at the ("Property") at the ("Property Address") as identified below.

Property Name		Property Owner	
Property Address			
City	State or Province	Zip Code	
Date of Substantial Completion			
Customer Name			
Customer Address			
City	State or Province	Zip Code	
Product(s)	Alfred FR Aluminum Composite Material		
	Alfred FR Zinc Composite Material		
Warranty Number			

The "Company" provides warranty coverage subject to the definitions, terms, conditions, limitations, and remedies stated herein. All of the following conditions and additional conditions constitute material terms of this limited warranty and failure to satisfy any one or more are of the conditions and additional conditions by owner or their agents or representatives shall render this limited warranty null and void and release Alfred, Inc. from its obligations hereunder.

- Company warrants that the Product(s) listed above will not exhibit any visually observable deformation as a result of delamination of the aluminum skin or natural metal skin from the core material due to manufacturing defects.
- The Warranty period shall be for (10) years and shall begin (6) months after the time of shipment by Company or upon the date of substantial completion, whichever comes first.
- Should any panels show signs of delamination during the term of the warranty, at the sole discretion of Company, the portion of panels not conforming to this warranty shall be refunded at the purchase price or replaced at no cost to the Customer.
- The applicable warranty period shall be limited to, and shall in no event extend beyond, the warranty period as set forth herein.
- In no event will the original applicable warranty period set forth in the warranty table be extended by a warranty claim.
- This Limited Warranty only pertains to delamination during normal use and service and in no way will cover any other forms of delamination including, but not limited to, mechanical abrasion or mechanical damages, faulty or improper fabrication or installation of the product, exposure to corrosive atmospheres such as, exposure to such as those containing salt spray, acid rain, harmful chemicals or vapors, improper storage, improper installation or mishandling during installation, improper cleaning, unreasonable use, misuse, physical abuse, accidental damage, vandalism, use of incompatible accessories, fire, flood, earthquake, lightning, ice, windstorms, other acts of God, wind borne objects, building settlement, structural failures, wall or foundation failure, use of harmful cleaning compounds, intermittent or continual submersion in water or any other liquid or solid material, deliberate damage, acts of terrorism, or any other physical damage.
- This warranty does not cover weathering of any exposed core material due to UV radiation exposure.
- Under no circumstances will Alfred, Inc. be held liable for any incidental, special, punitive, or consequential damages and shall not be responsible for the installation or maintenance of the Customer's panels.
- In no event does Alfred Inc. cover the cost of labor or sundry materials required to remove and/or replace any defective product.
- All claims must be submitted in writing to Alfred Inc. in 943 Gainesville Hwy. Bldg. 100-4000 Buford, GA 30518. All claims must be accompanied by this certificate, fully completed and signed by the customer that furnished the product to the owner. In order to qualify for warranty coverage, all claims must be submitted within (30) days from the date the damage is first discovered or could have been discovered. No claims can be submitted (30) days after expiration of the warranty period.

10 YEAR LIMITED WARRANTY AND REMEDY BOND INTEGRITY

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

- Alfred, Inc. shall be given a reasonable opportunity to inspect the product claimed to be defective. All warranty work will be performed by Alfred, Inc. or by a company, customer, contractor, applicator, or distributor selected by Alfred, Inc. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration without written notice and agreement by a duly authorized officer of Alfred, Inc. following the rules and regulations set herein, and the abiding of all maintenance of such panels of the industry standards to which the Customer belongs with respect to handling, delivering, storing, processing, treating, installing and maintaining. Any failure to satisfy the conditions contained herein or proceeding with such work undertaken by the claiming party or any other party shall be for the claiming party's own account, and shall be construed as a waiver by the Customer or Owner of any right they may have for enforcement of this warranty, and shall result in this warranty becoming null and void.
- As color variances may occur between replacement or refinished product in comparison with the originally installed product due to normal weathering and aging of the originally installed product, this condition will not be indicative of a defect in either the replacement product or the originally installed product.
- The warranty for any replaced Product(s) shall be only for the remainder of the original warranty period applicable to the Product(s).
- This Limited Warranty is given solely to the Owner and is non-transferable and non-assignable.
- Alfred Inc. reserves the right to discontinue or modify its products lines. If the original product is no longer available, Alfred Inc. agrees to use commercially reasonable efforts to substitute a comparable product.
- This warranty is subject to, enforced by, and construed according to the laws of the State of Georgia. Any legal action to enforce or construe any portion of this warranty shall be brought in a Court of Company's choice in Georgia.
- Any attempt to construe this warranty, be it by law or other legal means, that ultimately leads to any court of competent jurisdiction stating any provision herein as invalid or unenforceable the remainder of the provisions following shall come into effect. These provisions shall come into effect as though the prior provisions had not been contained herein.
- The United Nations Convention on Contracts for the International Sale of Goods is expressly disclaimed and does not apply to the sale of Seller products. Any and all disputes between the parties that may arise pursuant to this order will be heard and determined before an appropriate arbitrator, federal or state court located in Atlanta, Georgia. The owner hereto acknowledges such court has the jurisdiction to interpret and enforce the provisions herein and/ or an arbitrator's judgment, and the owner and the Customer waives any and all objections that they may have as to personal jurisdiction or venue in any of the above courts.
- Company has the right to termination of the warranty at any time if a (30) day notice is given to the Customer prior to Rights accruing to Customer are not lost prior to termination.
- All information hereto shall be adhered to by both parties and shall not extend beyond the directives made herein. No modification shall be made without the understanding, consent, and signing by both Customer and Company of a contract explicitly stating this warranty's subsequent modification.
- EXCEPT AS SET FORTH HEREIN, ALFRED, INC. MAKES NO OTHER EXPRESS WARRANTIES AND DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, WITH RESPECT TO ANY OF THE PRODUCTS.
- IT IS UNDERSTOOD AND AGREED THAT THE REMEDIES PROVIDED FOR HEREIN FOR THE FINISH OF THE PRODUCT DESCRIBED ABOVE ARE EXCLUSIVE WHETHER FOR BREACH OF EXPRESS WARRANTIES OR OTHERWISE AND SHALL CONSTITUTE THE OWNER'S EXCLUSIVE REMEDY AND ALFRED, INC.'S EXCLUSIVE LIABILITY. IN NO EVENT SHALL ALFRED, INC. BE LIABLE FOR LABOR COSTS, DIRECT, INDIRECT, INCIDENTAL, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES FOR ANY BREACH OF ANY EXPRESS OR IMPLIED WARRANTIES IN CONNECTION WITH THE PRODUCT.
- THIS WARRANTY IS THE ONLY EXPRESS WARRANTY EXTENDED BY ALFRED, INC. IN CONNECTION WITH THE PRODUCT, OTHER THAN ALFRED, INC.'S STANDARD COATING WARRANTY, IF ANY, AND THE LIMITED WARRANTY SET OUT IN ALFRED, INC.'S SALES TERMS AND CONDITIONS, FOR THE PRODUCT, AND IT EXCLUDES ALL OTHER WARRANTIES, REPRESENTATIONS OR GUARANTEES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALFRED, INC.'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE PURCHASE PRICE.
- Owner is solely responsible for proper selection and installation of Alfred, Inc.'s products. Owner agrees that it will use Alfred, Inc. products only for their intended uses and according to the specifications and limitations established by Alfred, Inc. from time to time. Owner shall indemnify, defend and hold Alfred, Inc. harmless from and against any and all damages arising out of or relating to improper product selection, application, use, misuse, neglect, abuse of products or improper installation or incorporation of products.

SAMPLE

Accepted By:

Alfred, Inc.
943 Gainesville Hwy.
Building 100-4000
Buford, GA 30518
Phone: 470.589.7449

Authorized By

Authorized Signature

Date

SPECIAL CONSIDERATIONS



SPECIAL CONSIDERATIONS

ZCM is different from ACM in many aspects which have to be taken into consideration well in advance of executing a project.

ZINC PATINATION PROCESS AND PRE-WEATHERING

Zinc is a natural metal which upon exposure to outdoor elements, develops a protective zinc-carbonate patina layer. Over time, the patina will mature into a rich blue-gray patina which incorporates elements of its surroundings to provide a finish unique to its location. Pre-weathering is the process of utilizing a non-pollutant phosphate treatment to accelerate the natural patination process that zinc undergoes. Pre-patina finishes are manufactured to varying tones and hues and enable panel surface finishes, upon installation, to achieve a look which would only otherwise be achieved numerous years after installation in its outdoor environment.

MINIMIZING OPTICAL TONE VARIATION

Titanium Zinc is an alloyed natural metal which is cast into ingots, rolled into its coil format, and pre-patinated via the pre-weathering process. Due to inherent variations during each step of the process, ZCM panels will be subject to slight variations in optical tone, even within the same production batch. Optical differences between production batches will be more pronounced therefore it is very important to order all the required material for a singular project at the same time to ensure it is sourced from one production lot.

THERMAL EXPANSION AND CONTRACTION

Aluminum Composite Material expands and contracts with temperature fluctuations in a uniform manner in all directions. Zinc Composite Material will expand and contract differently with the metal grain versus against the metal grain. Great care must be taken during design to accommodate for differing vertical and horizontal expansion coefficients in wall design.

SPECIAL CONSIDERATIONS

Alfred FR ZCM



Fire Resistant & Non-Combustible Cladding

	ALFRED FR ZINC COMPOSITE MATERIAL	ALFRED FR ALUMINUM COMPOSITE MATERIAL
SKIN ALLOY	Titanium Zinc Alloy	Aluminum 3003 H14
SKIN THICKNESS	Top Side 0.028" (0.7mm)	Top Side 0.020" (0.5mm)
	Bottom Side 0.028" (0.7mm)	Bottom Side 0.020" (0.5mm)
CORE MATERIAL	Mineral Filled Fire-Resistant Core	Mineral Filled Fire-Resistant Core
STANDARD THICKNESS	4.0mm (0.157")	4.0mm (0.157")
STANDARD WIDTHS	39.37" (1000mm)	62" (1575mm)
	48" (1220mm)	50" (1270mm)
CUSTOM WIDTHS	Not Available	Minimum 42,000 SF
WEIGHT	2.92lbs/SF (14.26kg/sqm)	1.51lbs/SF (7.37kg/sqm)
FINISHES	Pre-Weathered Finishes	70% PVDF Kynar Resin Coil Coatings
COEFFICIENT OF THERMAL EXPANSION ASTM D696	Lengthwise (With Metal Grain) 12.2×10^{-3} in/in/°F (@-22-86°F)	1.44×10^{-3} in/in/°F (@-22-86°F)
	Widthwise (Against Metal Grain) 9.4×10^{-3} in/in/°F (@-22-86°F)	
PRODUCTION MINIMUMS	Made to order for each specific project	Standard colors from finished goods or made-to-order
	Consult for minimum quantity details.	Standard color minimum production quantity 2,000 SF
	Production runs are classified as a specific finish and product width manufactured from the same batch of zinc coil.	Custom color minimum production quantity of 2,300 SF
FINISHED GOODS	NO	YES
CUSTOM COLORS	NO	YES
STANDARD COILS STOCKED	NO	YES
MATCHING FLAT SHEET	YES From zinc manufacturer	YES
BOND INTEGRITY WARRANTY	YES	YES
FINISH WARRANTY	NO	YES

SPECIAL CONSIDERATIONS

Alfred FR ZCM



Fire Resistant & Non-Combustible Cladding

ALFRED FR ZINC COMPOSITE MATERIAL

ALFRED FR ALUMINUM COMPOSITE MATERIAL

STORAGE AND HANDLING	<p>It is essential to review the technical support documentation of both eZinc and RHEINZINK for detailed recommendations</p> <p>Zinc is a much heavier, softer metal versus aluminum with higher sensitivity to moisture exposure, standing water conditions, and deformation due to improper storage, stacking, and handling. Employees must use gloves and sleeves to avoid fingerprinting and marking.</p>	<p>Standard storage and handling procedures per experienced MCM fabricators</p>
FINISH DIRECTIONALITY	<p>Extremely high due to visible metal grain. Always install sheets in the same direction.</p>	<p>Extremely high for Mica and Metallic colors. Always install sheets in the same direction.</p>
PRODUCTION BATCH SENSITIVITY	<p>Extremely high between coils</p>	<p>Coil coated solid colors - low</p> <p>Coil coated Mica and Metallic colors - high</p>
TONE VARIATION	<p>Slight optical variations are expected since a natural metal such as zinc has minor fluctuations in alloy and grain throughout a coil</p>	<p>Low to non-existent with coil coatings</p>
FINISH AGING	<p>Patina formation will progress at different rates based on environmental factors resulting in some variation between panels depending on their location on a building</p>	<p>Coil coated finishes will age differently based on degrees of UV exposure</p>
CLEANING & MAINTENANCE	<p>It is essential to review the technical support documentation of both eZinc and RHEINZINK for detailed recommendations.</p> <p>DO NOT USE TRADITIONAL CLEANING AGENTS used in construction.</p> <p>Any stains, fingerprints, or other discolorations which are not removed immediately will be permanently incorporated into the patina</p> <p>After installation, periodic cleaning is not recommended other than a freshwater rinse</p>	<p>Standard cleaning procedures using mild detergents per Alfred's published recommendations</p>
CONTACT WITH DISSIMILAR METALS	<p>More sensitive than aluminum</p> <p>Stainless steel fasteners & rivets only</p> <p>Use standard industry practices for separating panel surfaces from dissimilar metals with shims or other materials for that purpose</p>	<p>Aluminum or stainless-steel fasteners & rivets</p> <p>Use standard industry practices for separating panel surfaces from dissimilar metals with shims or other materials for that purpose</p>
STANDING WATER CONDITIONS	<p>Highly susceptible to permanent staining and corrosion</p>	<p>Susceptible to corrosion</p>

ALFRED FR ZCM INSTALLATION DETAILS



Accu-Trac® is shown courtesy of Altech Panel Systems
Alfred only manufactures MCM sheets

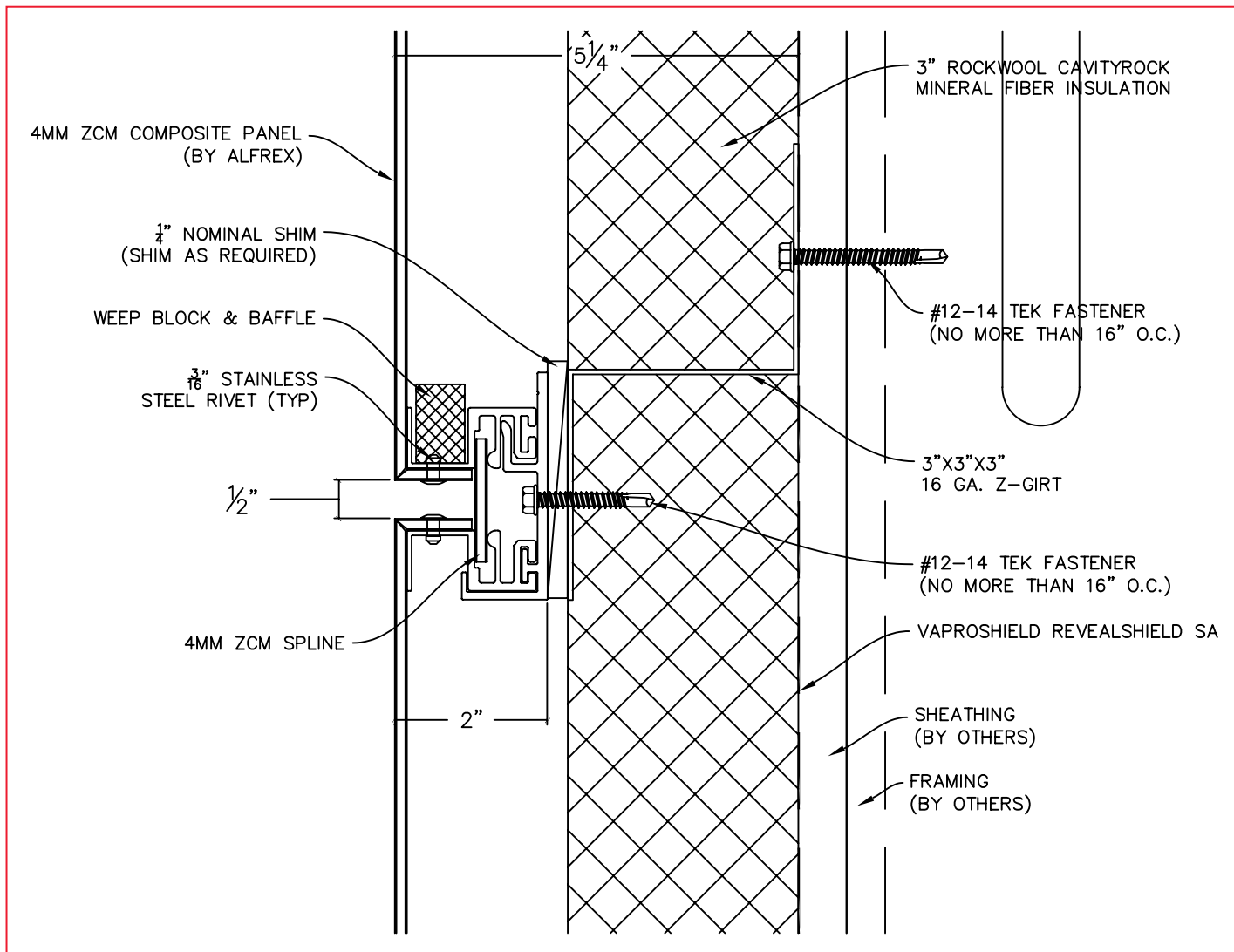
HORIZONTAL DETAIL ACCU-TRAC® DS RAINSCREEN

Horizontal Joint



Fire Resistant & Non-Combustible Cladding

HORIZONTAL JOINT



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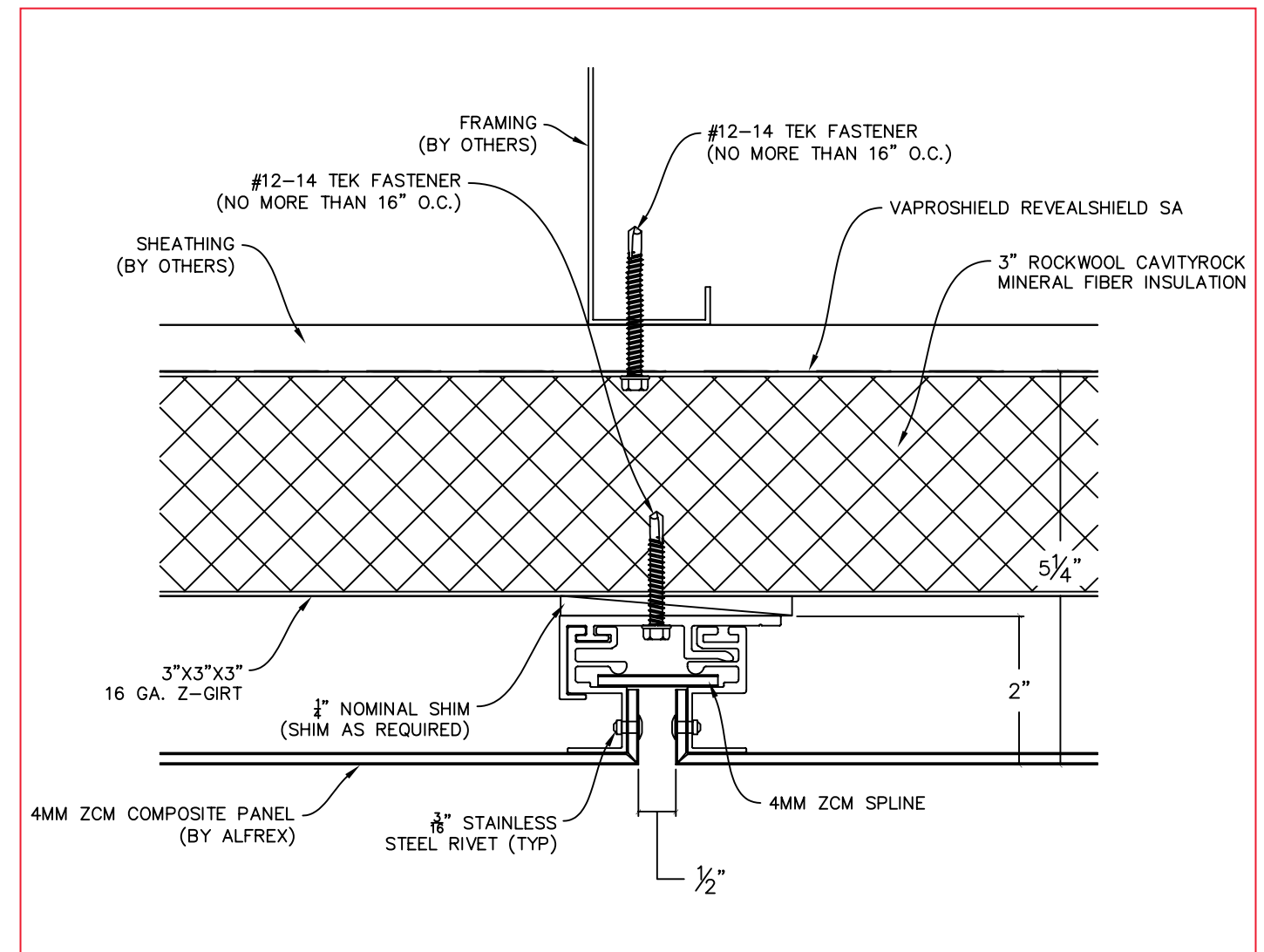
VERTICAL DETAIL ACCU-TRAC® DS RAINSCREEN

Vertical Joint



Fire Resistant & Non-Combustible Cladding

VERTICAL JOINT



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alfrex

Fire Resistant & Non-Combustible Cladding



Alfred, Inc.
943 Gainesville Hwy Bldg. 100, Suite 4000
Buford, GA, 30518
470.589.7449
alfrex@alfrexusa.com
www.alfrexusa.com

