SECTION 07 42 00

WALL PANELS - COMPOSITE, ALUMINUM PLATE, AND SINTERED CERAMIC

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2021 - 2021 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* Northern Facades - ISOclip; Architectural Panels, Thermal Isolation Clips and Unitized Glazing Systems.
This section is based on the products of Northern Facades - ISOclip, which is located at:6451 Northwest Dr.Mississauga, ON, Canada L4V 1K2Toll Free Tel: 844-740-2050Tel: 905-740-2050Fax: 905-740-2054Email: [request info (info@isoclips.com )](https://arcat.com/rfi?action=email&company=Northern%252BFacades%252B-%252BISOclip&message=RE%253A%2520Spec%2520Question%2520(07420nfl)%253A%2520&coid=50965&spec=07420nfl&rep=&fax=905-740-2054)
Web: <http://www.northernfacades.com>
 [ [Click Here](https://arcat.com/company/northern-facades-isoclip-50965) ] for additional information.
Northern Facades Ltd, is a leading supply only fabricator of architectural rain screen panel systems in plate aluminum, MCM- composite, exotic metals, Laminam ceramic as well as high performance unitized glazing systems. We are experts in design assist, engineering, custom systems design, drafting, manufacturing, testing, value engineering, and project management. We partner with the building envelope community to deliver engineered, designed, code-compliant fabricated systems to building owners, who can experience and enjoy the integrity, performance and longevity of beautiful facades.
Born of total building envelope construction contracting we have a unique perspective and understanding compared to most manufacturers and suppliers, we have a proven track record taking architectural design from concept to reality wining International recognition.
Our primary 200,000 square foot manufacturing facility with state of the art glazing and CNC equipped production lines is complimented by regional production facilities throughout North America.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Aluminum composite panel systems. (Accumet)
		2. Aluminum plate panel systems. (Axiom)
		3. Sintered ceramic architectural wall panels. (STX)
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 10 00 - Structural Metal Framing.
		2. Section 06 10 00 - Rough Carpentry.
		3. Section 05 40 00 - Cold-Formed Metal Framing.
		4. Section 07 60 00 - Flashing and Sheet Metal.
		5. Section 07 90 00 - Joint Protection.
		6. Section 08 50 00 - Windows.
		7. Section 08 83 13 - Mirrored Glass Glazing.
		8. Section 08 44 23 - Structural Sealant Glazed Curtain Wall.
		9. Section 09 25 23 - Lime Based Plastering.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Architectural Manufacturers Association:
			1. AAMA 501.1-05- Standard Test Method for Water Penetration of Windows, Curtain Walls and Door Using Dynamic Pressure.
			2. AAMA 508-14- Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.
			3. AAMA 509-14- Voluntary Test Method and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems.
			4. AAMA 2604-13- Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
			5. AAMA 2605-13- Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
		2. ASTM International (ASTM):
			1. ASTM A653/A653M-15- Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
			2. ASTM A792/A792M- Standard Specification for Steel Sheet, 55 percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
			3. ASTM B117-11- Standard Practice for Operating Salt Spray (Fog) Apparatus.
			4. ASTM C794-15a- Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
			5. ASTM D714-02(09)- Standard Test Method for Elevating Degree of Blistering of Paints.
			6. ASTM D968-15- Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
			7. ASTM D1308-02(13)- Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
			8. ASTM D1781-98(12)- Standard Test Method for Climbing Drum Peel for Adhesives
			9. ASTM D2244-15a- Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
			10. ASTM D2247-11- Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
			11. ASTM D2794-93(10)- Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
			12. ASTM D3359-17- Standard Test Methods for Rating Adhesion by Tape Test.
			13. ASTM D4214-07(15)- Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
			14. ASTM E283-04(2012)- Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
			15. ASTM E330/E330M-14- Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
			16. ASTM E331-00(2016)- Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
			17. ASTM E1233/E1233M-14- Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.
		3. European Technical Approvals (ETAG):
			1. ETAG 002-12- Guideline for European Technical Approval for Structural Sealant Glazing Kits (SSGK).
		4. 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.
		5. Underwriters Laboratories Canada (ULC):
			1. CAN/ULC-S134-13- Standard Method of Fire Test of Exterior Wall Assemblies. [Note conducted on both combustible and non-combustible cladding.
	1. DEFINITIONS
		1. ACM: Aluminum composite material.
		2. Polyamide: Glass fiber reinforced polyamide.
		3. PVDF: Polyvinylidene Fluoride.
	2. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Northern Facades - ISOclip, which is located at:6451 Northwest Dr.Mississauga, ON, Canada L4V 1K2Toll Free Tel: 844-740-2050Tel: 905-740-2050Fax: 905-740-2054Email: [request info (info@isoclips.com )](https://arcat.com/rfi?action=email&company=Northern%252BFacades%252B-%252BISOclip&message=RE%253A%2520Spec%2520Question%2520(07420nfl)%253A%2520&coid=50965&spec=07420nfl&rep=&fax=905-740-2054);Web: <http://www.northernfacades.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* The following is a complete standalone article for provision of "dry joint" aluminum composite panels systems. Delete article if not required.

* 1. ALUMINUM COMPOSITE PANELS SYSTEMS
		1. Basis of Design: Accumet Aluminum Custom Made Prefinished Aluminum Composite Panel Systems as manufactured by Northern Facades Ltd.
			1. System uses rear ventilated dry joint rain screen construction.
		2. Performance and Design Criteria:
			1. Structural Design:
				1. Calculated Wind Load: Per local building code. Provide adequate stiffening to prevent wind induced vibrations and fatigue problems.
				2. Panels Systems Testing: According to ASTM E330/E330M.
				3. Perimeter Framing: Not to deflect more than L/180 between supports.
				4. Panel Stresses: Not to exceed manufacturer's recommended maximum values to avoid permanent deformation.
				5. Fasteners: Designed to transmit all loads to the main structure without exceeding any fastener capacity.
				6. Thermal Movement: Allowance for expansion and contraction of the panel assembly system caused by varying surface temperatures.

Surface Temperature Variance: Minus 40 to 140 degree F (4.4 to 60 degrees C).

Variance must not cause buckling on enclosed or adjoining materials or fasteners, or impair system performance and appearance.

* + - * 1. Panel Skin: Test to ASTM D1781. Ensure no panel delamination due to:

Adhesive failure of bond between core and skin.

Cohesive Failure of ore itself below following values:

22.57 ft lbs per ft (100 N mm per mm) as manufactured.

22.57 ft lbs per ft (100 N mm per mm) after 21 days soaking in water at 70 degree F (21 degree C).

* + - 1. Static Air Infiltration: Air barrier system; performance level of 6.24 psf (0.3 kPa) of pressure and leakage rate less than 0.06 cu ft per min per sq ft (0.0003048 cu m per sec per sq m), when tested in accordance with ASTM E283.
			2. Static Water Infiltration:
				1. Provide water barrier system capable of withstanding a 15 minute water test at 15 psf (0.72 kPa) of pressure when tested in accordance with ASTM E331.
				2. Panel system is to provide clear, internal paths of drainage that weep any trapped moisture to exterior. Weep water must discharge in a manner that limits staining of architectural finishes, standing water, or formation of icicles.
			3. Pressure Equalized Rain Screen Performance:
				1. Panel System: Test in accordance with AAMA 508 to the following criteria:

Pass 100, three second cycles of cyclic pressure according to ASTM E1233/E1233M ranging from 5 psf to 25 psf (0.2 to 1.2 kPa). Must attain pressure equalization within 0.08 sec.

Pass dynamic water penetration test, AAMA 501.1 at 6.24 psf (0.3 kPa).

* + - 1. Three-Coat High Performance Finishing Requirements: 3-Coat Wet System including primer, color coat, and clear coat. Include thermal setting application of 70 percent fluoropolymer resin minimum, PVDF with added color pigment finish. Exceed or meet AAMA 2605.
				1. Fluoropolymer baked resins must form a continuous physically locked finish during manufacturing process.

Fluoropolymer Application: Finish after a multistage chemical treatment cleaning providing corrosion resistance surfaces ready to receive primer.

During Baking Process: Apply primer in accordance with manufacturer's recommendations followed by a flash process whereby evaporating solvent and then fluoropolymer finish sprayed on to aluminum; apply another flash procedure and then bake for approximately 10 minutes with aluminum surface reaching a temperature of 450 degrees F (232 degrees C).

* + - * 1. Humidity Resistance per ASTM D714 and ASTM D2247; 3000 hrs at 100 percent Relative Humidity, at 100 degrees F (38 degrees C): A few No. 8 blisters, maximum.
				2. Salt Spray Resistance per ASTM B117; 3000 hrs, 5 percent NaCl at 100 degrees F (degrees C): 1/16 inch (1.6 mm) maximum undercutting.
				3. Chemical Resistance per ASTM D1308, Procedure 6.2:

No discoloration or blistering:

After 15 minute spot test with 10 percent muriatic acid.

After 18 hour spot check with 20 percent sulfuric acid.

* + - * 1. Abrasion Resistance Falling Sand (ASTM D968): 50 l/ml.
				2. Color Retention per ASTM D2244; 5000 hrs, 45 degree South Florida:

Delta E: Less than 5.0.

* + - * 1. Chalking Resistance per ASTM D4214; 10 years, 45 degrees South Florida:

No more than No. 8.

* + 1. Panels:

\*\* NOTE TO SPECIFIER \*\* Choose core material based on type of construction required. Delete core option not required.

* + - 1. Composition: 5/32 inches (4 mm) Aluminum Composite Plank.
				1. Aluminum Skins: 0.02 inch (0.5 mm) minimum thickness.
				2. Core: Non-Fire Resistant - Low Density Polyethylene core (PE).
				3. Core: Fire Resistant - Extruded thermoplastic core (FR).
			2. Tolerances:
				1. Panel Bow: Not to exceed 0.8 percent of panel overall dimension in width or length.
				2. Length and Width: Plus 0 inches (0 mm). Minus 1/8 inches (3 mm).
				3. Squareness: 1/32 inches (0.8 mm) per linear ft.
				4. Panel Size: As indicated on Drawings.
			3. Accumet Extrusion Set: Including perimeter and clip system to be used to secure panel to structure.
			4. Fasteners to Secure Aluminum Sheet: 1/8 inch (3 mm) domed stainless steel rivets.
				1. Fasten panel only on the return edges.
		1. Fasteners: To be coated with an anti-corrosion coating system or made from 300 series stainless steel.
			1. Coating Type: To be determined based on intended use and environmental factors.
		2. Openings: Coordinate openings with work of other installers. Holes accommodating work of other Sections are to be provided in the panels prior to finishing. Reinforce perimeter of holes greater than 12 x 12 inch (305 x 305 mm) to manufacturer's standard.
		3. Sub Girt System:
			1. Panel Load Transfer Grids: Formed from 18 ga full-galvanized steel with Grade A zinc coating to a G90 designation, conforming to ASTM A653/A653M.
				1. Hat bars, Z-bars, and adjustable Z-bars, or combination thermal clips and Z-bars.
			2. Sub-Framing ISO Clip Thermal Spacer: Suitable for vertical and horizontal sub-girts.
				1. Approved Component: ISO Clips by Northern Facades Ltd.

\*\* NOTE TO SPECIFIER \*\* Delete product options not required.

Product: 2.0 inch (51 mm) ISO Thermo Isolation Clips

Product: 3.25 inch (83 mm) ISO Thermo Isolation Clip

Product: 4.75 inch (121 mm) ISO Thermo Isolation Clip

Contains an integral polyamide thermal isolator pad.

Depth: Adjustable.

Material: 14 ga Galvalume steel.

Material: 14 ga Galvanized steel.

Effective R-Value: Determined by Architect in combination with Insulation system.

Fasten structural members and panels with interlocking clips as indicated.

Dielectric Separator: Wherever 2 dissimilar metals are in contact.

* + 1. Flashings: Wherever practical at corners, jambs and abutments, no flashings will be permitted. Panel design to include for these connections.
			1. Where Flashings are Unavoidable: Use prefinished material matching composite sheet.
		2. Finishes:
			1. Color: Selected by Architect from panel manufacturer's color selection guide.
			2. Prefinished fluorocarbon base with 70 percent Kynar Resins.
				1. Colors: \_\_\_\_\_\_\_\_.
			3. Coating Thickness: 0.75 to 1.25 mils to NCAA 11-12, F minimum using Eagle Turquoise T2375.
			4. Impact Test Method: ASTM D2794 Gardner variable impact tester.
			5. Adhesion Test Methods: NCAA 11-5 and ASTM D3359 crosshatched.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ALUMINUM PLATE PANELS SYSTEMS
		1. Basis of Design: Axiom Custom Made Preformed, Prefinished Aluminum Plate Panel Systems as manufactured by Northern Facades Ltd
			1. System uses rear ventilated dry joint rain screen construction.
		2. Performance and Design Criteria:
			1. Structural Design:
				1. Calculated Wind Load: Per local building code. Provide adequate stiffening to prevent wind induced vibrations and fatigue problems.
				2. Panels Systems Testing: According to ASTM E330/E330M.
				3. Perimeter Framing: Not to deflect more than L/180 between supports.
				4. Panel Stresses: Not to exceed manufacturer's recommended maximum values to avoid permanent deformation.
				5. Fasteners: Designed to transmit all loads to the main structure without exceeding any fastener capacity.
				6. Thermal Movement: Allowance for expansion and contraction of the panel assembly system caused by varying surface temperatures.

Surface Temperature Variance: Minus 40 to 140 degree F (4.4 to 60 degrees C).

Variance must not cause buckling on enclosed or adjoining materials or fasteners, or impair system performance and appearance.

* + - 1. Static Air Infiltration: Air barrier system; performance level of 6.24 psf (0.3 kPa) of pressure and leakage rate less than 0.06 cu ft per min per sq ft (0.0003048 cu m per sec per sq m), when tested in accordance with ASTM E283.
			2. Static Water Infiltration:
				1. Provide water barrier system capable of withstanding a 15 minute water test at 15 psf (0.72 kPa) of pressure when tested in accordance with ASTM E331.
				2. Panel system is to provide clear, internal paths of drainage that weep any trapped moisture to exterior. Weep water must discharge in a manner that limits staining of architectural finishes, standing water, or formation of icicles.
			3. Pressure Equalized Rain Screen Performance:
				1. Panel System: Test in accordance with AAMA 508 to the following criteria:

Pass 100, three second cycles of cyclic pressure according to ASTM E1233/E1233M ranging from 5 psf to 25 psf (0.2 to 1.2 kPa). Must attain pressure equalization within 0.08 sec.

Pass dynamic water penetration test, AAMA 501.1 at 6.24 psf (0.3 kPa).

* + - 1. Water Tightness of Exterior Wall Panels: Design to the rain screen principle.
				1. Prevent water infiltration into the interior systems.
				2. No panel to panel joint caulking will be permitted in the wall or soffit area.

\*\* NOTE TO SPECIFIER \*\* Use the following for a three coat finish system. Delete if not required.

* + - 1. Three-Coat High Performance Finishing Requirements: 3-Coat Wet System including primer, color coat, and clear coat. Include thermal setting application of 70 percent fluoropolymer resin minimum, PVDF with added color pigment finish. Exceed or meet AAMA 2605.
				1. Fluoropolymer baked resins must form a continuous physically locked finish during manufacturing process.

Fluoropolymer Application: Finish after a multistage chemical treatment cleaning providing corrosion resistance surfaces ready to receive primer.

During Baking Process: Apply primer in accordance with manufacturer's recommendations followed by a flash process whereby evaporating solvent and then fluoropolymer finish sprayed on to aluminum; apply another flash procedure and then bake for approximately 10 minutes with aluminum surface reaching a temperature of 450 degrees F (232 degrees C).

* + - * 1. Humidity Resistance per ASTM D714 and ASTM D2247; 3000 hrs at 100 percent Relative Humidity, at 100 degrees F (38 degrees C): A few No. 8 blisters, maximum.
				2. Salt Spray Resistance per ASTM B117; 3000 hrs, 5 percent NaCl at 100 degrees F (degrees C): 1/16 inch (1.6 mm) maximum undercutting.
				3. Chemical Resistance per ASTM D1308, Procedure 6.2:

No discoloration or blistering:

After 15 minute spot test with 10 percent muriatic acid.

After 18 hour spot check with 20 percent sulfuric acid.

* + - * 1. Abrasion Resistance Falling Sand (ASTM D968): 50 l/ml.
				2. Color Retention per ASTM D2244; 5000 hrs, 45 degree South Florida:

Delta E: Less than 5.0.

* + - * 1. Chalking Resistance per ASTM D4214; 10 years, 45 degrees South Florida:

No more than No. 8

\*\* NOTE TO SPECIFIER \*\* The the following for a two coat finish system. Delete if not required.

* + - 1. Two-Coat High Performance Finishing Requirements: 2-Coat Wet System including thermal setting application of 70 percent fluoropolymer resin minimum, PVDF with added color pigment finish. Exceed or meet AAMA 2604.
				1. Fluoropolymer Baked Resins: Form a continuous physically locked finish during manufacturing process.

Fluoropolymer Application: Finish after a multistage chemical treatment cleaning providing corrosion resistance surfaces ready to receive primer.

During Baking Process: Apply primer in accordance with manufacturer's recommendations followed by a flash process whereby evaporating solvent and then fluoropolymer finish sprayed on to aluminum; apply another flash procedure and then bake for approximately 10 minutes with aluminum surface reaching a temperature of 450 degrees F (232 degrees C).

* + - * 1. Humidity Resistance per ASTM D714 and ASTM D2247; 1500 hrs at 100 percent Relative Humidity, at 100 degrees F (38 degrees C): A few No. 8 blisters, maximum.
				2. Salt Spray Resistance per ASTM B117; 1500 hrs, 5 percent NaCl at 100 degrees F (38 degrees C): 1/16 inch (1.6 mm) maximum undercutting.
		1. Panels:
			1. Solid Aluminum Sheet: 0.08 inch (2 mm), 3003 or 5052 alloy.
			2. Solid Aluminum Sheet: 0.12 inch (3 mm), 3003 or 5052 alloy.
			3. Tolerances:
				1. Panel Bow: Not to exceed 0.8 percent of panel overall dimension in width or length.
				2. Length and Width: Plus: 0 inches (0 mm). Minus: 1/8 inches (3 mm).
				3. Squareness: 1/32 inches (0.8 mm) per linear ft.
				4. Panel Size: As indicated on Drawings.
			4. Axiom Extrusion Set: Including perimeter and clip system to be used to secure panel to structure.
			5. Fasteners to Secure Aluminum Sheet: 1/8 inch (3 mm) domed stainless steel rivets.
				1. Fasten panel only on the return edges.
		2. Fasteners: To be coated with an anti-corrosion coating system or made from 300 series stainless steel.
			1. Coating Type: To be determined based on intended use and environmental factors.
		3. Flashings: Wherever practical at corners, jambs and abutments, no flashings will be permitted. Panel design to include for these connections.
			1. Where Flashings are Unavoidable: Use prefinished material matching composite sheet.
		4. Weep Holes: Aligned for drainage system at the back of the panel for standard extrusions at termination of dissimilar materials.
		5. Sub-Girt System: Size, gauge, and material to be determined in association with Project requirements as indicated on Drawings.
			1. Sub-Framing ISO Clip Thermal Spacer: Suitable for vertical and horizontal sub-girts.
				1. Approved Component: ISO Clips by Northern Facades Ltd.

\*\* NOTE TO SPECIFIER \*\* Delete product options not required.

Product: 2.0 inch (51 mm) ISO Thermo Isolation Clips

Product: 3.25 inch (83 mm) ISO Thermo Isolation Clip

Product: 4.75 inch (121 mm) ISO Thermo Isolation Clip

Contains an integral polyamide thermal isolator pad.

Depth: Adjustable.

Material: 14 ga Galvalume steel.

Material: 14 ga Galvanized steel.

Effective R-Value: Determined by Architect in combination with Insulation system.

Fasten structural members and panels with interlocking clips as indicated.

Dielectric Separator: Wherever 2 dissimilar metals are in contact.

* + 1. Substrate Wall Sheathing: Refer to appropriate specifications in Division 06 for requirements.
		2. Air/Vapor Barrier: In accordance with Project location, climate region, and associated performance characteristic regarding air penetration, water vapor transmission and water penetration resistance. Refer to appropriate specifications in Division 07.
		3. Openings: Coordinate openings with work of other installers. Holes accommodating work of other Sections are to be provided in the panels prior to finishing. Reinforce perimeter of holes greater than 12 x 12 inch (305 x 305 mm) to manufacturer's standard.
		4. Finishes:
			1. Aluminum Material: Tension leveled, fluoropolymer PDVF painted finish 3003-H14 manganese alloy.
			2. Aluminum Material: Tension leveled, anodized finish 5005 - AQ Manganese alloy.
			3. PPG 2-coat Duranar. Color: To be determined by the Architect.
			4. PPG 3-coat Duranar. Color: To be determined by the Architect.
			5. Finish: 2-Coat PPG Duranar Color
				1. Paint Color: \_\_\_\_\_\_\_\_.
				2. Paint Color Manufacturer Code Number: \_\_\_\_\_\_\_\_.
			6. Finish: 3-Coat PPG Duranar XL
				1. Paint Color: \_\_\_\_\_\_\_\_.
				2. Paint Color Manufacturer Code Number: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. SINTERED CERAMIC ARCHITECTURAL WALL PANELS SYSTEMS
		1. Basis of Design: STX Sintered Ceramic Architectural Modular Wall and Soffit Panel Systems as manufactured by Northern Facades Ltd
			1. System uses rear ventilated dry joint rain screen construction.
		2. Performance and Design Criteria:
			1. Structural Design:
				1. Calculated Wind Load: Per local building code.
				2. Panels Systems Testing: According to ASTM E330/E330M.
				3. Deflection Movement: Not to exceed L/60.

Panels are not to exhibit permanent deformation when subject to specified design loads.

Panel Systems must allow for movement within the system caused by building structure deflection.

* + - * 1. Panel: Sintered Ceramic Tile Panel System, including support and attachments.

Must resist positive and negative wind loads as calculated in latest edition of the International Building Code and its supplement, using a 1/50 return period.

Provide adequate stiffening to prevent excessive deflection, wind induced vibrations and fatigue problems.

* + - * 1. Fasteners: Must transmit all loads to the main structure without exceeding the capacity of any fastener.
				2. Thermal Movement: Allowance for expansion and contraction of the panel assembly system caused by varying surface temperatures.

Surface Temperature Variance: Minus 40 to 140 degree F (4.4 to 60 degrees C).

Variance must not cause buckling on enclosed or adjoining materials or fasteners, or impair system performance and appearance.

* + - * 1. Sub System: Incorporate a gridlock to eliminate rocking of the Z-bars on gypsum board or other support sub-wall systems.
			1. Static Air Infiltration: Air barrier system; performance level of 6.24 psf (0.3 kPa) of pressure and leakage rate less than 0.06 cu ft per min per sq ft (0.0003048 cu m per sec per sq m), when tested in accordance with ASTM E283.
				1. System must have been successfully tested by an accredited testing facility to the ASTM E283.
			2. Static Water Infiltration:
				1. Provide water barrier system capable of withstanding a 15 minute water test at 15 psf (0.72 kPa) of pressure when tested in accordance with ASTM E331.
				2. Panel system is to provide clear, internal paths of drainage that weep any trapped moisture to exterior. Weep water must discharge in a manner that limits staining of architectural finishes, standing water, or formation of icicles.
			3. Pressure Equalized Rain Screen Performance:
				1. Panel System: Comprised of a dry joint system without the use of external joint sealants.
				2. Test in accordance with AAMA 508 to the following criteria:

Pass 100, three second cycles of cyclic pressure according to ASTM E1233/E1233M ranging from 5 psf to 25 psf (0.2 to 1.2 kPa). Must attain pressure equalization within 0.08 sec.

Pass dynamic water penetration test, AAMA 501.1 at 6.24 psf (0.3 kPa).

* + - 1. Water Tightness of Exterior Wall Panels: Design to the rain screen principle.
				1. Prevent water infiltration into the interior systems.
				2. No panel to panel joint caulking will be permitted in the wall or soffit area.
		1. Panels:
			1. Panel Composition: Ceramic tile composed of clay, granite and metamorphic, feldspar-containing rocks and ceramic pigments; compacted at high pressure then sintered at 2192 degrees F (1200 degrees C). Reinforced with a fiberglass mesh backing.
				1. Laminam 3-Plus Nominal Thickness: 0.138 inch (3.5 mm).

Maximum Size: 39-3/8 inches x 9 to 10 ft (1000 x 2743 x 3048 mm).

\*\* NOTE TO SPECIFIER \*\* The following is to be used in high-impact areas at grade level, with optional stiffeners available for reinforcement if required. Delete if not required.

* + - * 1. Laminam 5 Nominal Thickness: 0.018 inch (5.6 mm).

Maximum Size: 64-1/2 inches x 10 ft 7-1/2 inches (1638 x 3239 mm)

* + - 1. Color and Texture Selection:
				1. No. 1. Collection No. and Name: \_\_\_\_\_\_\_\_. Color and Finish: \_\_\_\_\_\_\_\_.
				2. No. 2. Collection No. and Name: \_\_\_\_\_\_\_\_. Color and Finish: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Laminam now offers the innovative Hydrotect self-cleaning and anti-pollution treatment on all Laminam ceramic surfaces except dark and polished surfaces. Contact your local Laminam technical representative for more details about Hydrotect Treatments.

* + - 1. Exposed STX Panel (Edge, Edgeless) Extrusions: Finish to compliment porcelain tile.
				1. Finish: Anodized as standard. Color: \_\_\_\_\_\_\_\_.
				2. Finish: Painted PPG/Duranar. Color: \_\_\_\_\_\_\_\_.
			2. Structural Silicone: Dow Corning 983. Two-part, neutral cure, RTV silicone sealant.
		1. Fasteners: To be coated with an anti-corrosion coating system or made from 300 series stainless steel.
			1. Coating Type: To be determined based on intended use and environmental factors.
		2. Openings: Coordinate openings with work of other installers. Holes accommodating work of other Sections are to be provided in the panels prior to finishing.
		3. Sub Girt System:
			1. Panel Load Transfer Grids: Formed from 18 ga full-galvanized steel with Grade A zinc coating to a G90 designation, conforming to ASTM A653/A653M.
				1. Hat bars, Z-bars, and adjustable Z-bars, or combination thermal clips and Z-bars.
			2. Sub-Framing ISO Clip Thermal Spacer: Suitable for vertical and horizontal sub-girts.
				1. Approved Component: ISO Clips by Northern Facades Ltd.

\*\* NOTE TO SPECIFIER \*\* Delete product options not required.

Product: 2.0 inch (51 mm) ISO Thermo Isolation Clips

Product: 3.25 inch (83 mm) ISO Thermo Isolation Clip

Product: 4.75 inch (121 mm) ISO Thermo Isolation Clip

Contains an integral polyamide thermal isolator pad.

Depth: Adjustable.

Material: 14 ga Galvalume steel.

Material: 14 ga Galvanized steel.

Effective R-Value: Determined by Architect in combination with Insulation system.

Fasten structural members and panels with interlocking clips as indicated.

Dielectric Separator: Wherever 2 dissimilar metals are in contact.

* + 1. Fabrication:
			1. Fabricate with straight lines, square corners or smooth bends, free from twists or warps, kinks dents and other imperfections, which may affect appearance or serviceability.
			2. Panel Flatness in All Directions Across the Surface: 0.1 percent maximum.
			3. System Appearance: Flush from exterior with no surface fixings or other irregularities and with no reveal other than the module joint width.
			4. Panels must align with no lap or reveal other than joint width to permit expansion and contraction.
			5. Thickness of metal and details of assembly and support shall provide sufficient strength and stiffness to resist distortion of finished surface.
			6. Exposed edges and ends of metal shall be dressed smooth, free from sharp edges.
			7. Connections and joints exposed to the weather shall be constructed to exclude water.
			8. Panels to be constructed with aluminum extrusions framing all sides. Provisions shall be made for individual panel drainage at panel base.
		2. Flashings: Wherever practical at corners, jambs and abutments, no flashings will be permitted. Panel design to include for these connections.
			1. Where Flashings are Unavoidable: Use prefinished material matching Porcelain facing or panel perimeter extrusion.
			2. Exposed Surfaces of Aluminum Extrusions: Anodized to match finish of the panels. Colors: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* ISO Clip is suitable for either vertical or horizontal sub-girts. Its versatility, thermal performance, and ease of use make ISO Clip the product to specify for high-performance building envelopes. The thermal performance of the clip has been modeled and evaluated by the industry leaders, Morrison Hershfield. Delete article if not required or delete products not required.

* 1. ISO THERMO ISOLATION CLIPS.
		1. Performance and Design Requirements:
			1. High Load Capacity per Clip: Less clips may be required compared to synthetic or aluminum clips resulting in less thermal bridging.
			2. May assist achieving multiple LEED V4 credits as a component part of wall assembly.
			3. Built in slotted retaining tab to ease installation of girts.
			4. Mounting Orientation: The same regardless of horizontal or vertical girt orientation.
			5. Substrates: All, including concrete, concrete block, steel studs or wood.
			6. Accommodate a variety of wall depths and insulation thicknesses.
				1. Insulation Thickness Range: 2 to 8 inches (51 to 203 mm).
			7. Effective Wall Assembly R-Value: As determined by Architect in combination with Insulation system.
		2. Product: 2.0 inch (51 mm) ISO Thermo Isolation Clips: Assists in creating thermal break between interior and exterior of building. Reduces thermal transfer through building envelope.
			1. Standards Compliance:
				1. ASHRAE 90.1, NECB SB-10 compliant, with thermal analysis available.
				2. NFPA 285: Pass.
				3. CAN / ULC S134-13: Pass.
			2. Clip Material: 14ga ASTM A792 Galvalume or ASTM A653 galvanized, steel.

\*\* NOTE TO SPECIFIER \*\* Salmon-Safe coating is optional. Delete if not required.

* + - * 1. Salmon-Safe encapsulated coating.
			1. Thermal Isolator Pad: Glass fibre reinforced polyamide.
			2. Adjustment: Plus or minus 1/4 inch (6 mm) wall deviation. No shims required.
			3. Insulation Thickness Range: 2 to 3.5 inch (51 to 89 mm) of insulation
			4. Fasteners:

\*\* NOTE TO SPECIFIER \*\* Delete fastener options not required.

* + - * 1. Girt Fastener: 10-16 x 5/8 inch (16 mm) Ind. Hex Washer Head (5/16AF)
				2. Steel Stud Assembly: 14-14 x 2 inch (51 mm) Ind. Hex Washer Head (5/16AF)
				3. Wood Stud Fasteners: No. 14 HWH cladding, metal to wood fastener.
				4. Concrete Wall: 2-1/4 inch (57 mm) long No. 14 Tapcons
		1. Product: 3.25 inch (83 mm) ISO Thermo Isolation Clip: Assists in creating thermal break between interior and exterior of building. Reduces thermal transfer through building envelope.
			1. Standards Compliance:
				1. ASHRAE 90.1, NECB, SB-10 compliant, with thermal analysis available.
				2. NFPA 285: Pass.
				3. CAN / ULC S134-13: Pass.
			2. Clip Material: 14ga ASTM A792 Galvalume or ASTM A653 galvanized, steel.

\*\* NOTE TO SPECIFIER \*\* Salmon-Safe coating is optional. Delete if not required.

* + - * 1. Salmon-Safe encapsulated coating.
			1. Thermal Isolator Pad: Glass fibre reinforced polyamide.
			2. Adjustment: Plus or minus 1/2 inch (13 mm) wall deviation. No shims required.
			3. Insulation Thickness Range: 4 to 6 inch (101 to 152 mm) of insulation.
			4. Fasteners:

\*\* NOTE TO SPECIFIER \*\* Delete fastener options not required.

* + - * 1. Girt Fastener: 10-16 x 5/8 inch (16 mm) Ind. Hex Washer Head (5/16AF)
				2. Steel Stud Assembly: 14-14 x 2 inch (51 mm) Ind. Hex Washer Head (5/16AF)
				3. Wood Stud Fasteners: No. 14 HWH cladding, metal to wood fastener.
				4. Concrete Wall: 2-1/4 inch (57 mm) long No. 14 Tapcons
		1. Product: 4.75 inch (121 mm) ISO Thermo Isolation Clip: Assists in creating thermal break between interior and exterior of building. Reduces thermal transfer through building envelope.
			1. Standards Compliance:
				1. ASHRAE 90.1, NECB, SB-10 compliant, with thermal analysis available.
				2. NFPA 285: Pass.
				3. CAN / ULC S134-13: Pass.
			2. Clip Material: 14 ga ASTM A792 Galvalume or ASTM A653 galvanized, steel.

\*\* NOTE TO SPECIFIER \*\* Salmon-Safe coating is optional. Delete if not required.

* + - * 1. Salmon-Safe encapsulated coating.
			1. Thermal Isolator Pad: Glass fibre reinforced polyamide.
			2. Adjustment: Plus or minus 1/2 inch (13 mm) wall deviation. No shims required.
			3. Insulation Thickness Range: 5 to 8 inch (127 to 203 mm) of insulation.
			4. Fasteners:

\*\* NOTE TO SPECIFIER \*\* Delete fastener options not required.

* + - * 1. Girt Fastener: 10-16 x 5/8 inch (16 mm) Ind. Hex Washer Head (5/16AF)
				2. Steel Stud Assembly: 14-14 x 2 inch (51 mm) Ind. Hex Washer Head (5/16AF)
				3. Wood Stud Fasteners: No. 14 HWH cladding, metal to wood fastener.
				4. Concrete Wall: 2-1/4 inch (57 mm) long No. 14 Tapcons
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. Verification of Conditions:
			1. Prior to installation, inspect structure to ensure all walls and openings are within plus or minus 1/8 inch (3 mm) of location shown on Architectural Drawings.
			2. Structure is to be plumb within 1:1000 of overall height. Installation is not to proceed until the building is within these tolerances.
				1. Verification of site tolerances to be conducted using a 3D Laser Scanner.
				2. A report showing the deviations of the structure from the nominal condition will be created from the analysis of the point cloud. Scanning and analysis of the structure to be conducted by an approved service provider.

Approved Service Provider: TSC Inc. Phone: 416 803 0642.

* + 1. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	1. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
		3. Develop all dimensions from the Architectural Drawings and where possible coordinate with field dimensions to obtain final panel layout.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
		2. Support system shall be attached to the structure as required to transmit design loads.
		3. Framing and other components shall be straight to match plane of panel as required to meet the installed panel tolerances with straight, sharply formed edges.
		4. After their correct position has been determined and allowances for expansion, building movement, uniform joint width and alignment of all parts has been determined, the components shall be permanently fastened.
		5. Installed panels shall not deviate from overall plane or alignment by more than 1:1000. Joints shall be not less than their dimensioned width, or more than 5% greater than their dimensioned width at any location along their full length, and shall not be wavy, out of line or of different width from panel to panel.
		6. Install flashings to divert all moisture to the exterior.
		7. Install panels to structural supports by hidden mechanical fasteners, clips and perimeter framing extrusions.
	3. SITE QUALITY CONTROL
		1. Site Tests and Inspections:
			1. Carry out thorough inspections of the air barrier and insulation in the system, prior to the enclosure and concealment of these Products.
			2. Final inspection and approval of completed work shall be carried out by manufacturer's representative and Contractor or their designate.
	4. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturers recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION