

07 48 xx
(True Ci) V-Girt / (True Ci) H-Girt Guide Specification

SECTION 07 48 XX

RAINSCREEN and CONTINUOUS INSULATION ATTACHMENT SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide a rainscreen attachment system for attachment of exterior cladding **(Insert Cladding Type)** installed over continuous exterior insulation.
- B. Related Sections:
 - 1. Refer to Division 05 Section "Steel Stud Framing".
 - 2. [Refer to Division 06 Section "Rough Carpentry" for wood framing.]
 - 3. [Refer to Division 06 Section "Sheathing".]
 - 4. Refer to Division 07 Section "Air Barrier"
 - 5. Refer to Division 07 Section **(Insert Type Rainscreen or Siding System)**.
 - 6. Refer to Division 07 Section "Thermal Insulation" for exterior continuous insulation.
 - 7. [Refer to Division 07 Section "Spray Applied Polyurethane Insulation".]

1.2 SYSTEM DESCRIPTION

- A. System assembly shall include the following components from the substrate out:
 - 1. Substrate: Wall framing assembly and sheathing: Concrete masonry unit wall: Concrete wall].
 - 2. Weather Resistant/Air Barrier over Sheathing.
 - 3. Continuous insulation.
 - 4. Thermally improved rainscreen and Continuous Insulation attachment system.
 - 5. Exterior cladding.
- B. Design Requirements:
 - 1. Manufacturer is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 - 2. Employ registered professional engineer, licensed to practice engineering in jurisdiction where Project is located, to engineer each component of rainscreen attachment system.
 - 3. Structural Design: Exterior-insulated rainscreen wall assembly capable of withstanding effects of load and stresses from dead loads, wind loads, ice loads (if applicable) as indicated on Structural General Notes on Structural Drawings, and normal thermal movement without evidence of permanent defects of assemblies or components.
 - a. Thermal Movements: Provide assemblies that allow for thermal movements resulting from the following maximum ambient temperatures by preventing overstressing of components and other detrimental effects:
 - 1) Temperature Change (range): **180** degrees Fahrenheit (**82** degrees C), ambient:
 - 4. Support Framing/Attachment System:
 - a. No framing component may **penetrate or compress** the layer of continuous exterior insulation other than horizontal or vertical girt fasteners.

- b. Insulation pins/wires must not penetrate or be attached adhesively to the weather barrier.

C. Performance Requirements:

1. Rainscreen Attachment and Continuous Insulation System Performance: Comply with the ANSI/ASHRAE 90.1-2019 definition of continuous insulation.
 - a. No thermal bridges other than fasteners and service openings.
 - b. No compression of the insulation.
2. Thermal Performance
 - a. Full constructed effect on Wall Assemblies Thermal Resistance: Insulation and Framing system thermal efficiency must be demonstrated in a side-by-side comparison to other insulation and cladding support systems.
 - 1) Two- or three-dimensional computer simulated thermal analysis or guarded hot-box test (ASTM C1363-11) results required.
 - 2) Side by side comparative computer simulated thermal analysis to at least 7 other insulation and cladding support systems.
 - b.
 - c. Continuous framing profiles (including L, C, Z or other shaped sections or furring) penetrating or compressing the insulation not allowed.
 - d. Perform effective R-Value calculation or modeling in accordance with ASHRAE guidelines.
 - e. Wall Assembly effective R-Value (U-Factor): **(Insert R-Value U-0.XXX)**
3. Structural Performance:
 - a. Gravity load (dead load) performance – Attachment system must demonstrate resistance to deflection under shear loading, applied parallel to the wall assembly and directly to the attachment system. Testing must be conducted using calibrated equipment by an IAS accredited third party laboratory. Deflection not to exceed 0.125 inches maximum up to 4" from wall and tested without insulation.
4. Framing Members:
 - a. Fasteners must include a locking device attached to framing members so that framing members cannot deflect into the insulation due to inward live load pressures.
 - b. Framing Members must have fastener holes at 8 inches on center.
 - c. Framing Members must have double walls for added deflection strength on the fasteners.
 - d. Framing Members to have pre-drilled holes for attachment of fasteners into W-Girts. W-Girts hold the continuous insulation in place using Insulation Girt Wires without penetrating the weather barrier.
5. Fasteners:
 - a. Type and size of fastener must be used per tested criteria.
 - b. Combined tension and shear shall be evaluated according to an interaction formula provided and stamped by a professional Engineer.

1.3 SUBMITTALS

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- A. Product Data: Submit manufacturer's product literature and descriptions of testing performed on system components to indicate meeting or exceeding specified performance.
- B. Shop Drawings:
 - 1. Submit connection details to the cladding manufacturer, showing interface of rainscreen attachment system to substrate and panels with adjacent construction, signed and sealed by Professional Engineer.
 - 2. Show system installation and attachment, including fastener type, size and spacing.
- C. Structural Calculations:
 - 1. Submit rainscreen attachment manufacturer's comprehensive Structural Design analysis signed and sealed by a Professional Engineer.
- D. Samples: Submit the following material samples for verification:
 - 1. Framing: V- Girts or H-Girts: Two (2) 14-inch-long samples.
 - 2. Framing Fasteners: Two (2) per Insulation depth
 - 3. Locking Pins: Two (2)
 - 4. W-Girt Wires: (2) per insulation depth
 - 5. Insulation Stiches (2) per insulation depth
- E. Test Reports:
 - 1. Test to the following standards and provide written test reports.
 - a. Gravity load test report, performed by IAS accredited third party
 - b. Load Chart
 - 2. Comprehensive three-dimensional thermal modeling report indicating framing systems impact on exterior insulation rated R-value.
 - a. Thermal Chart

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Minimum 5 years' experience specializing in the manufacturing and design of façade/rainscreen systems
 - 2. Ability to demonstrate conformance to testing requirements.
- B. Installer Qualifications:
 - 1. Minimum of 3 years' documented experience or minimum of 5 completed projects of equivalent scope and quality and recommended by manufacturer to perform work of this Section.
 - 2. Onsite superintendent or foreman overseeing installation on site during entire work of this Section with experience equivalent to installer and in good standing with the manufacturer.
- C. Engineer Qualifications: Registered professional engineer experienced in the design of curtain wall systems, anchors, fasteners and licensed to practice engineering in the jurisdiction where Project is located.
- D. Pre-Installation Meeting:
 - 1. Discuss sequence and scheduling of work and interface with other trades.

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2. Review metal wall framing assemblies for potential interference and conflicts and coordinate layout and support provisions for interfacing work.
 3. Review and document methods, procedures and manufacturer's installation guidelines and safety procedures for exterior wall assembly.
- E. Mock-Ups: Coordinate mock-up materials and requirements with mock-up specified in Division 01 [and exterior cladding specification].

1.5 QUALITY CONTROL

- A. Single source responsibility:
1. Furnish engineered rainscreen attachment system components under direct responsibility of single manufacturer.
- B. Field Measurements: Verify actual supporting and adjoining construction before fabrication.
- C. Record field measurements on project record shop drawings.
- D. Established Dimensions: Where field measurements cannot be made without delaying work, guarantee dimensions and proceed with fabrication of rainscreen attachment system corresponding to established dimensions.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials and components in manufacturers' original, unopened and undamaged containers or bundles, fully identified. Exercise care to avoid damage during unloading, storing and installation.
- B. Store, protect and handle materials and components in accordance with manufacturer recommendations to prevent damage, contamination and deterioration. Keep materials clean, dry, and free of dirt and other foreign matter, and protect from damage due to weather or construction activities.

1.7 SEQUENCING

- A. Ordering: Comply with manufacturers' ordering instructions and lead time requirements to avoid construction delays.
- B. Coordinate construction to ensure that assemblies fit properly to supporting and adjoining construction; coordinate schedule with construction in progress to avoid delaying work.

1.8 WARRANTY

- A. Manufacturer Warranties:
1. Attachment System: Ten (10) year Limited Warranty.
 - a. Covers components of the attachment system, including structural failure of components when all the materials and components are supplied and installed per manufacturer's requirements.
- B. Contractor's Warranties: 2-year labor warranty, starting from (date of Owner acceptance of completed work) (Substantial Completion), to cover repair of materials found to be defective as a result of installation errors.
- C. Limitation of Warranties: Exclude repairs, removal, replacement, and corrective work to the substrate, primary structure, finish panels, insulation and/or property – unless otherwise noted above. Warranties exclude mechanical damage due to abuse, neglect, primary structure failure, or forces of nature greater than normal weather conditions.

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1.9 MAINTENANCE

- A. Extra Materials: For use by Owner in building maintenance and repair, provide (x percent) additional rainscreen attachment components in new, unopened cartons, packaged with protective covering for storage and identified with appropriate labels.

PART 2 - PRODUCTS

2.1 SEMI RIGID OR RIGID INSULATION

- A. Refer to Section 07 21 00 – Thermal Insulation.

2.2 RAINSCREEN ATTACHMENT/SUPPORT FRAMING SYSTEM

- A. Comply with ANSI/ASHRAE 90.1-2019 definition of continuous insulation (CI)
- B. Coating Material: Galvanized CS-B G90 CHEM TREAT DRY
- C. Steel Classification: 18 Gage Carbon Steel.
- D. Spacing: Comply with Professional Engineer's calculations.
- E. Vertical Girt or Horizontal Girt: Girts with pre-punched attachment holes, indirectly attached over semi-rigid or rigid insulation directly to structural substrate or solid wall at the engineered spacing provided, with engineered Locking Pins and ¼" through fasteners.
1. Steel Thickness: Minimum ~~0.0460~~ 0.048-inch thick (18 gauge).
 2. Profile Depth: 0.875 inches.
 3. Girt Fastening Face: Width = H-Girt .625-inches/ V-girt .625-inches
 4. [Finish: Galvanized G90]
 5. Attachment Framing system can be use with High-Density or Low-Density insulation
 6. System must have outboard Insulation attachment pinning (Insulation Girt Wires) that do not penetrate or adhere to the Weather Barrier.
 7. System must have self-planning/leveling capabilities.
 8. System must have a **tri-point connection** to stabilize the fasteners that attach to wall.
 9. Basis of Design: (True CI) V- Girt or H-Girt as provided by True Blue Products.
 10. Or approved equal.
 11. Secondary Horizontal Rails can attach to primary V-Girts to provide additional support or panel layout design if required.
 12. Secondary Vertical Rails can attach to primary H-Girts to provide additional support or panel layout design if required.
- F. Fasteners:
1. Sufficient length to provide solid attachment through rigid insulation to structure as required by manufacturer.
 2. For steel stud framing substrate: Self-drill hex-washer-head
 - a. Embedment depth: **0.250** inches minimum
 - b. Minimum ultimate pull-out capacity from 18-gauge steel: 450 pounds.
 3. For Concrete and concrete masonry unit's substrate:
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- a. Embedment depth: 1.25 inches minimum.
 - b. Minimum ultimate pull-out capacity from substrate material: 450 pounds.
- G. Accessories:
1. Galvanic Protection: Utilize tapes and other methods as necessary to separate and prevent contact between dissimilar metals.
 2. Insulation Girt Wires: Stainless steel fully hardened spring wires are fastened to the H-Girt or V-Girt to assist in holding the insulation in place without penetrating the weather barrier.
 3. Insulation Stiches: Stainless steel fully hardened spring wires to help close gaps within joints of the insulation.

2.3 SIDING/CLADDING PANEL

Refer to Division 07 Section 07 4X XX.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine substrates and conditions for compliance with manufacturer requirements for installation conditions affecting performance of the work.

1. Verify that metal wall studs, opening framing, bridging, bracing and other framing support members and anchorage have been installed within acceptable tolerances and requirements. (Preferably before sheathing is in place.)
 2. Do not proceed with installation until unsatisfactory conditions have been corrected.
 3. Ensure weather barrier is installed prior to installing rainscreen attachment system. Rigid insulation is to be installed during the installment of the rainscreen attachment system utilizing Insulation Girt Wires to assist in holding and pinning the rigid insulation in place without penetrating the weather barrier.
 4. Ensure fenestration, transitions, discontinuities, sills, and ledgers are flashed and sealed to move moisture to the exterior of the building.
- B. Field verify architectural details and mechanical and electrical requirements prior to commencing installation.
- C. Commencement of installation constitutes acceptance of existing conditions and acceptance of responsibility for satisfactory performance.

3.2 SPRAY INSULATION

- A. Fully secure exterior insulation prior to spray foam (SPF) if required within stud cavity to prevent deformation of exterior insulation due to expansion of SPF.

3.3 SIDING/CLADDING PANEL INSTALLATION – REFER TO SECTION 07 4X XX.

- A. The cladding cavity must be clear and free from air flow and drainage obstructions.

END OF SECTION 07 48 xx

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