

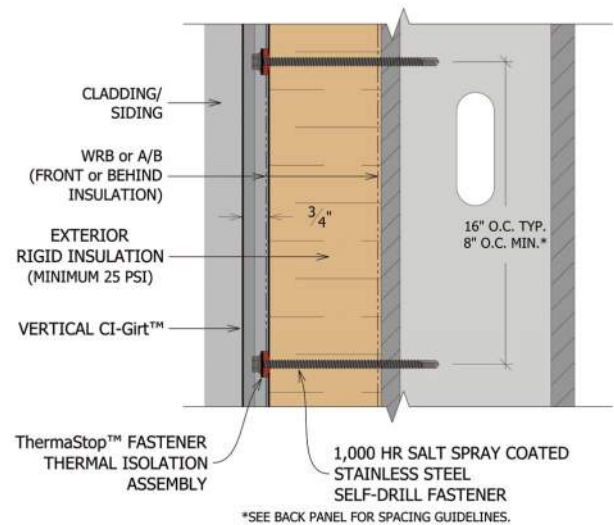
CI-System™ (using Vertical CI-Girt™)

Design & Installation Recommendations

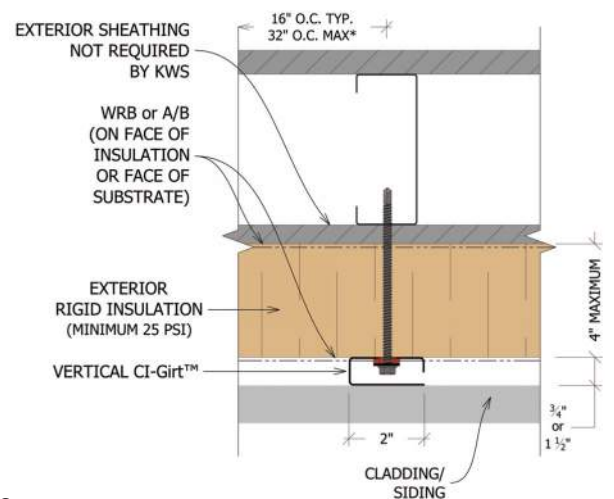
Product Use & Description

- The vertical CI-Girt™ is a rain screen attachment system component used to support exterior cladding/panels over thick foam plastic insulation. It may also be attached directly to substrate without exterior insulation.
- This drop-in cladding attachment solution delivers true continuous insulation across all structural members, per the definition, to meet and exceed the requirements of ASHRAE 90.1 and local energy codes.
- No components penetrate the exterior insulation—except thermally isolated wall anchors—to dramatically decrease the amount of thermal bridging and thermal loss through the wall assembly.
- A wide array of cladding may be supported and include, but is not limited to, fiber cement, metal panels, aluminum composite material (ACM), terra cotta, stone and stucco.
- Typically, if a cladding/panel product has the ability or approval to be attached over vertical Z-girts and/or hat channels, it can be installed over and supported by the vertical CI-Girt.
- The vertical CI-Girt may be attached to varying substrates including steel studs (18 gauge min.), wood studs, concrete masonry units (CMU) or concrete.
- The vertical CI-Girt can be used on buildings of any height. The primary restriction of use is high wind pressures or heavy cladding. See back panel for loading limitations.

Vertical CI-Girt™ Only



Section View



Plan View



ALL KNIGHT WALL SYSTEMS
COMPONENTS ARE MANUFACTURED
IN THE USA.

CI-Girt, CI-System, CI, ThermaStop and PanelRail are trademarks of Knight Wall Systems
Patent US 8,429,866 B2 and others pending

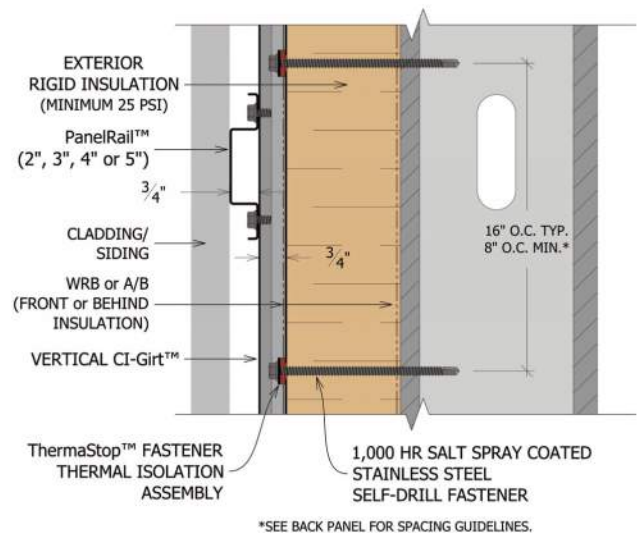
www.knightwallsystems.com
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28308 N Cedar Road
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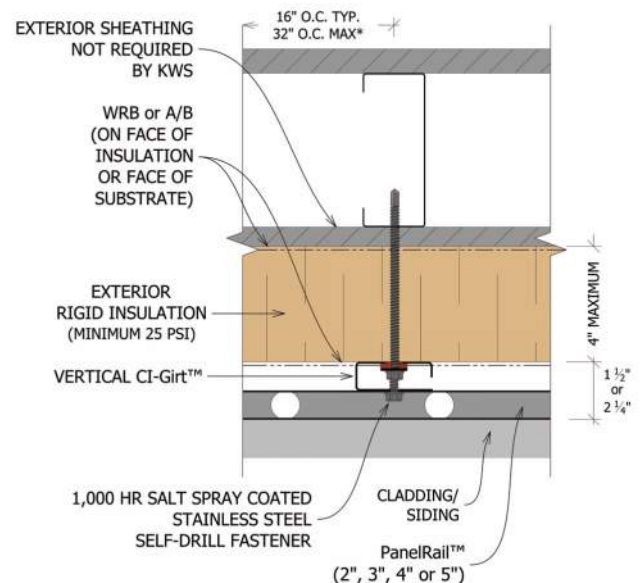
Design & Detailing

- A minimum 0.75" gap at the base of the wall is required for proper drainage and ventilation.
- Ventilated coping detail and window heads are also required for drainage and ventilation.
- Depending upon the height of the project, ventilation may be required at certain floor line breaks and easily incorporated at through-wall flashing details.
- The cavity must be clear and free from air flow and drainage obstructions.
- The cavity must not be sealed off due to the rain screen design. Ventilation of the rain screen cavity is required.
- Flashing details should be designed to direct water out of the rain screen cavity and deflect away from the building.
- The vertical CI-Girt must be oriented vertically. If horizontal orientation is desired, either a horizontal rail may be attached to the vertical rail (by KWS or by others) or a horizontal CI-Girt (HCI-Girt) can be used directly over the rigid foam plastic insulation in place of the vertical CI-Girt. Contact KWS for more information.
- The minimum steel stud gauge allowed is 18 gauge, with 16 gauge preferred for heavy claddings (over 15 PSF) and high wind pressures (+/-70 PSF).
- The rigid foam plastic insulation used in conjunction with the vertical CI-Girt must have a compression strength of 25 PSI per ASTM D1621 for long term structural stability and durability. All code requirements of foam plastic, including fire, should be reviewed and within compliance.
- Gypsum sheathing, or similar, is not required by KWS to be used in the wall assembly unless a fire rating is required.
- TEK screws typically require a three thread minimum penetration into steel studs. Wood screws typically require a minimum one-inch embedment. CMU and concrete anchors typically require a 1.00 – 1.25-inch embedment, depending upon exact substrate and anchor used. Embedment depths are verified with project specific engineering.
- The vertical CI-Girt must not cantilever past the rigid insulation. This could crush the edge of the insulation and potentially lead to a weak spot.
- Vertical CI-Girts must be located at all jamb conditions and at all outside corner conditions (one CI-Girt attached to the web and one attached to the flange of the outside corner stud).
- The vertical CI-Girt can be made of 16 or 18 gauge steel with a highly corrosive-resistant coating or stainless steel. 18 gauge steel is standard and typically acceptable for most projects. Contact KWS if your

Vertical CI-Girt + Horizontal PanelRail



Section View



Plan View

project has high wind pressures or other material concerns.

- For Knight's 10 year limited warranty to be issued, project specific engineering calculations and hardware must be purchased through Knight Wall Systems. This is for quality assurance and general product oversight.
- Black painted components are available for open-joint panel assemblies. Black components may increase lead times.

Installation

- Installer should verify the back-up wall is free of defects and conforms to tolerance suitable for installation of the attachment system component(s).
- Installer should verify the air/water barrier is complete, cured and conforms to the manufacturer's instructions and project specific details. All fenestration, transitions, discontinuities, sills and ledgers should be flashed and sealed to move moisture to the exterior of the building.
- When fastening the system components, do not over-torque the fasteners beyond the fastener manufacturer recommendations. Fasteners should be snug-tight for expansion/contraction and not stripped. Stripped holes and fasteners must not be used.
- Screws should not be drilled into place, backed out then re-drilled into place more than once. This weakens the pull-out strength of the fastener and the system overall. The piece drilled into needs to be replaced, a new location used or a larger diameter fastener needs to be used.
- Insulation will not compress or deform with use of typical TEK screws. TEK screws drilling into 18 or 16 gauge steel studs will likely strip out prior to the insulation compressing.
- Do not use wedge or sleeve anchors for concrete or CMU substrates. The torque required to set anchors cannot be achieved without risk of damage to the girt and/or insulation.
- The vertical CI-Girts can be produced in various lengths from 48" to 192". Additional charges may apply.
- Use shearing instruments (i.e. snips, nibbler, etc.) for cutting metal framing components. Saws are not recommended, as the sparks produced during cutting will damage the anti-corrosion coating. If sparks are generated during cutting, be sure the portion of the component to be installed on the building is protected from sparks and that any stockpile near the cutting station is also protected.
- The system's components must not be cut while installed on the building, unless using a shearing instrument.
- Any plastic isolating pieces/parts that break during installation must be replaced with new pieces/parts.
- Stainless steel washers and thermal isolating washers (ThermaStop™) supplied by KWS must be used with every wall anchor's fastener and installed directly under the head of the wall anchor and oriented correctly.
- When multiple stacks of vertical CI-Girts are installed, a 3/8"-1/2" gap must occur between girts for expansion.
- All girts and rails, including vertical CI-Girt, must be installed straight and square. The "box-shaped" vertical CI-Girt must be oriented vertically and never installed horizontally over rigid insulation. Contact KWS for horizontal application options.
- When butting ends of secondary rails (e.g., PanelRail™, etc), a 3/8"-1/2" gap must be maintained for expansion. The same gap must be maintained at outside and inside corners to ensure rails do not touch.
- Shims may not be used to plumb wall between vertical CI-Girt and insulation. Standard shims (min. 1.5" x 2" horseshoe) can be used between vertical CI-Girt and horizontal rail (if used) to a maximum of 1/2" and must have 100% bearing area between the horizontal rail and vertical CI-Girt. Shims should be installed facing downward to limit water collection & movement over time.

- The minimum length of installed vertical CI-Girt is 24 inches and must be fastened to the substrate with a minimum of two wall anchors. Contact KWS if shorter lengths are required.
- The ends of each vertical CI-Girt must be fastened no greater than half the approved vertical fastening pattern (i.e. 16 inch on center vertical fastening pattern = 8 inch max end distance fastening).
- A 3/8" minimum edge distance is required when screw attaching to the face of the vertical CI-Girt.
- Exterior insulation does not need to be fully fastened to substrate if a vertical CI-Girt will be installed over top of all rows of insulation fasteners. Limited insulation fasteners may be used to hold insulation in place while installing vertical CI-Girts. A minimum of at least one screw fastener per stud is recommended to hold insulation in place so stud layout is telegraphed through insulation for easier vertical CI-Girt installation. DO NOT leave insulation fastened to the wall with minimal fasteners if conditions are windy or for prolonged periods (such as overnight). Only install enough insulation with minimal fasteners as you can install vertical CI-Girts in one day. If any excess installed insulation remains on the wall, it should be fully fastened to the insulation manufactures recommendations if left unattended.
- Exterior insulation must be fully secured per manufacturer's recommendation, or Knight's vertical CI-Girts are fully installed, prior to spray foam application within the stud cavity (if applicable). If not properly fastened, the exterior insulation may become deformed and/or out-of-plane on the wall due to expanding SPF.

Availability & Support

All of Knight Wall Systems' components are purchased directly from Knight Wall Systems. Customer service and ordering assistance is available through an extensive network of local sales representatives. Knight Wall Systems will provide technical information and support during design, development and construction. For assistance please call 1.855.KWS.WALL or email info@knightwallsystems.com

- Typical standard lead time for material once project specific engineering is complete (should engineering be supplied) is 1-2 weeks depending upon order quantities and material type. Contact KWS for current inventory levels. Custom parts/profiles may extend lead time.
- System mock-up support and product orientation can be supplied to each new installing contractor for a high comfort level upon request. This can be done onsite or at a third party location. Contact KWS for more information.

Product Delivery & Storage

- Crated components should be stored and stacked in a flat, level, dry location. Cover crated components with a waterproof covering if storing outdoors.
- Uncrated, loose components should be elevated and covered if stored outdoors. Avoid stacking or storing components in standing water. Do not reseal crate if contents are wet.
- Components typically arrive on site fully crated. Banded pallets are only used for small order quantities (~100 pieces or less). Full crates can weight +/- 4,000 lbs. each.

Limited Warranty

Knight Wall Systems can provide a limited warranty for all components supplied by Knight Wall Systems. Certain requirements must be met, including project specific engineering performed by Knight Wall Systems, for a limited warranty to be issued. Limited warranties will cover defective material and KWS component failure, including the labor to remedy the defect. A limited warranty up to 10 years is available when specified. Contact KWS for full sample warranties.