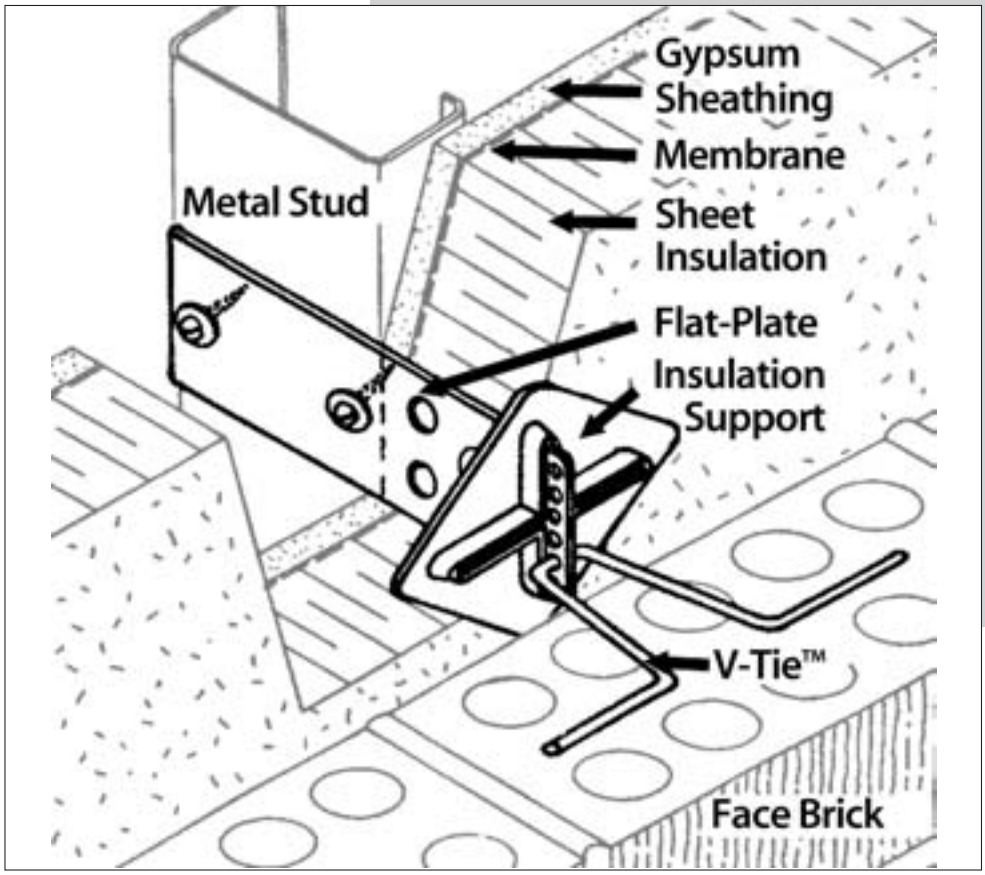
SIDE MOUNTING

RAP-TIE

SIDE MOUNTING
RAP-TIE
APPLICATION



Side Mounting Rap-Tie System

The Side Mounting Rap-Tie System consists of a Flat-Plate, a V-Tie™, and an Insulation Support (optional), as shown in *Figures 1, 2 and 3*.

Lateral loads applied to the brick veneer are transferred through the V-Tie™ to the Flat-Plate, which is attached to the backup wall studs with two fasteners (see *Figure 4*). The fasteners transfer the load from the tie to the stud in shear. Note that this shear mode connection is much more desirable than the highly corrosion susceptible tension mode connection.

The vertical orientation of the Flat-Plate, in conjunction with the positive connections between the Flat-Plate and the V-Tie™, and between the Flat-Plate and the stud, results in the ability of the Side Mounting Rap-Tie to transfer vertical shear forces from the masonry veneer to the structural backup stud wall system. This shear transfer capability results in an increased stiffness of the wall system, thereby reducing the horizontal deflection of the wall.

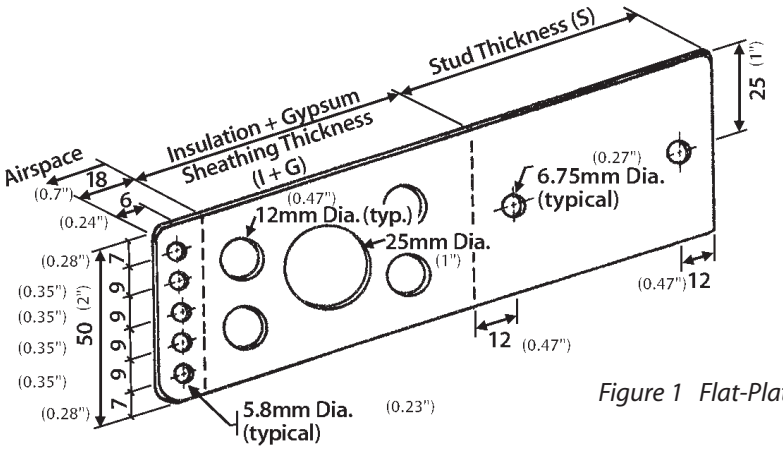


Figure 1 Flat-Plate

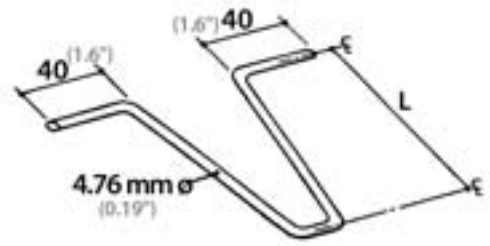


Figure 2 V-Tie™

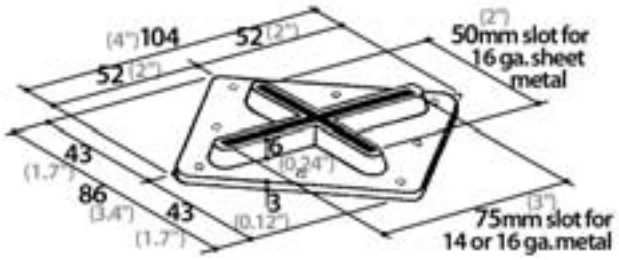


Figure 3 Insulation Support

The holes in the exterior end of the Flat-Plate, through which the V-Tie™ is placed, provide a positive connection while allowing for up to 36 mm (1.4") of vertical adjustability of the V-Tie™ placement during construction.

The incorporation of the voids in the Flat-Plate minimizes thermal conductivity through the tie system.

The Insulation Support is optionally used to securely fix the insulation in place (see *Figure 3*).

Side Mounting Rap-Tie Description

Flat-Plate: The Flat Plate component is manufactured from 16 gauge (1.61 mm [0.063"] thick) sheet metal conforming to ASTM A570, and is available in hot dipped galvanized finish (conforming to CSA CAN3-A370 and ASTM A123 requirement of 401 g/m²/side [1.31 oz/ft²/side] of zinc coating), and stainless steel.

The length of the Flat-Plate can vary to accommodate stud widths (S), of 92 (3.6"), 102 (4"), 152 (6") and 203 mm (8"), and insulation plus gypsum sheathing thickness, (I + G), of 0 (0") to 127 mm (5").

The stud width dimension (S), should be the same as the actual stud width for easy and proper Flat-Plate placement; i.e., install the end of the Flat-Plate flush with the interior face of the stud.

Side Mounting Rap-Tie Description

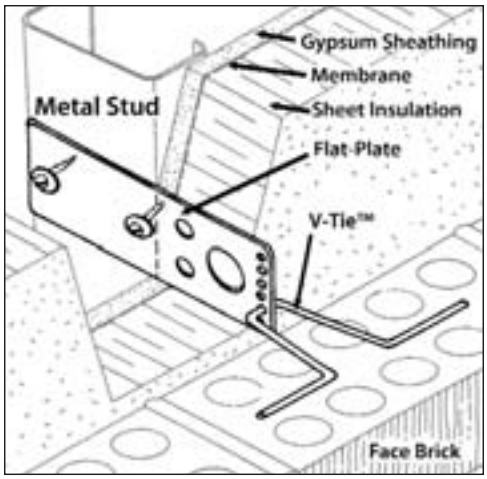


Figure 4 Side Mounting Rap-Tie™ System without insulation support

Thermal bridging reducing holes are incorporated within the insulation thickness portion of the Flat-Plate.

A series of five 5.8 mm (0.23") diameter holes are utilized to attach the V-Tie™ component to the Flat-Plate component.

V-Tie™: The V-Tie™ is manufactured from 4.76 mm (0.19") diameter wire conforming to CSA Standard G30.3, and is available in hot dipped galvanized finish (conforming to CSA CAN3-A370 and ASTM A153 requirements of 458 g/m^2/side [1.5 oz/ft^2/side] of zinc coating), and stainless steel. The legs of the V-Tie™ are mortared into place at the centerline of the brick veneer. V-Tie™ sizes of 60 (2.4"), 80 (3.1"), 100 (3.9"), 120 (4.7"), 140 (5.5"), 160 (6.3"), 180 (7.1"), 200 (7.9"), 225 (8.9") and 250 mm (9.8") lengths are available.

Insulation Support: The Insulation Support is manufactured from polyethylene, and is optionally used to secure the sheet insulation in place.

Rap-Tie Recommended Design Loads and Deflections

1. Free Play (maximum):	0.80 mm (0.031")	
2. 0.45 kN (100 lbs) Deflection - free play not included: - including free play:	 0.11 mm (0.043") 0.91 mm (max) (0.036")	
3. Recommended Design Load:	1.55 kN (348 lbs)	
4. Recommended Design Load Deflection - free play not included:	 0.39 mm (0.015")	
5. Maximum Recommended Spacing:	Horizontal:	Vertical:
	800 mm (32")	600 mm (24")

Notes

(i) The design values reflect both the windward and leeward capacity of the Side Mounting Rap-Tie system, with the governing values listed.

(ii) The tie system recommended design load value was formulated using working stress design following the procedures of CSA CAN3-A370-M94 "Connectors for Masonry", ACI/ASCE/TMS/518 and U.B.C. The value has been reduced to account for test result variation, and reflect a factor of safety of 2.25 (i.e., 75% of 3.0), as per Table 3 (A370).

(iii) The allowable mortar pull-out or push-out design load for the V-Tie™ embedded at the centerline of 90 mm (3.5") brick veneer utilizing Type M, S or N mortar, exceeds or equals the recommended design load listed above.

(iv) The above design values relate to the capacity of the FERO tie components. Compatible fasteners capable of resisting the design load must be selected.

(v) The above design values are based on test results utilizing a 76 mm (3") cavity (25 mm [1"] air apace). No insulation or drywall was used. Note that for smaller cavity widths and/or with the addition of insulation sheathing providing lateral tie support, increased tie system design loads and reduced tie system deflections may be realized.

(vi) Maximum recommended spacing reflects the maximum allowable by CSA-A370-94, ACI/ASCE/TMS/518 and U.B.C. For stud construction, every vertical stud should contain ties. Design will ultimately govern spacing.

Side Mounting Rap-Tie Specification Guidelines

Flat-Plate: The specification length (I + G), refers to the actual thickness of the insulation plus gypsum sheathing, while the specification length (S), refers to the actual thickness of the stud.

For utilization of the Insulation Support, the Flat-Plate will project 18 mm (0.7") into the airspace to enable the V-Tie™ to mechanically secure the Insulation Support snug against the insulation sheathing.

V-Tie™: The 60 mm (2.4") V-Tie™ is utilized in the Side Mounting Rap-Tie system consisting of 25 mm (1") air space and 90 mm (3.5") brick veneer. Other available V-Tie™ sizes are: 80 (3.1"), 100 (3.9"), 120 (4.7"), 140 (5.5"), 160 (6.3"), 180 (7.1"), 200 (7.9"), 225 (8.9") and 250 mm (9.8").

Insulation Support: The insulation support is standard.

Fero Corporation

15305 - 117 Avenue, Edmonton, Alberta T5M 3X4
Phone: (780) 455-5098 Fax: (780) 452-5969
www.ferocorp.com info@ferocorp.com