2.1 MASONRY CONNECTORS

.1 Design Criteria:

.1 Masonry connectors: Includes masonry anchors, ties, and fasteners.

.2 Connector design: In accordance with CSA A370-14, “Connectors for Masonry”.

.1 Serviceability:

.1 Mechanical free play: For single- and multi-component ties, not to exceed 1.2 mm when assembled in any possible configuration and position of adjustment, including any mechanical free play between a tie component and the structural backing.

.2 Displacement: For single- and multi-component ties, not to exceed 2.0 mm under a compressive or tensile load of 0.45 kN (100 lbs.), when assembled in any possible configuration and position of adjustment, including free play; displacement includes all secondary deformations of the structural backing.

.3 Positive restraint: For adjustable ties, provide positive restraint to prevent disengagement at all positions of adjustment including that of maximum adjustment.

.2 Materials and manufacturing processes: In accordance with CSA A370, “Connectors for Masonry”.

.3 Corrosion protection and material compatibility: In accordance with CSA A370, “Connectors for Masonry”.

.4 Structural integrity: In accordance with CSA A370, “Connectors for Masonry”.

.3 Connector load determination: In accordance with CSA S304.1-14, “Design of Masonry Structures”.

.4 Connector installation: In accordance with CSA A371, “Masonry Construction for Buildings”.

.2 Adjustable BVTS (Brick Veneer Tie Support):

.1 Component Sizing:

.1 BVTS: Length to suit total thickness of structural sheathing, plus sheathing membrane, plus insulation where applicable.

.2 AB Clip: Standard, as manufactured.

.3 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.

.2 Component Finish:

.1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.

.3 Connector Spacing:

.1 Typical: Provide BVTS at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.

.2 Openings: Provide BVTS at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.

.3 Wall Ends: Provide BVTS at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.

.4 Wall Top: Provide BVTS at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.

.5 Wall Base: Provide BVTS at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.4 Fasteners:

.1 Provide 1 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per BVTS.

.3 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.

.2 Corrugated Strip Tie: Prescriptive Corrugated Strip Tie, in accordance with CSA A370-14:

.1 minimum thickness: 0.80 mm base metal;

.2 width: 22 ± 2 mm;

.3 wavelength of corrugations: 10 ± 1 mm;

.4 depth of corrugation from crest to trough: 2 to 3 mm;

.5 pre-bent during manufacture to a right angle within 6 mm of the pre-drilled or pre-punched hole intended to receive fastener;

.6 where hot-dip galvanized: hot-dip galvanize after cutting, shearing, embossing, bending, drilling or punching.

.2 Component Finish:

.1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.

.3 Connector Spacing:

.1 Typical: Provide BVTS at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.

.2 Openings: Provide BVTS at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.

.3 Wall Ends: Provide BVTS at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.

.4 Wall Top: Provide BVTS at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.

.5 Wall Base: Provide BVTS at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.4 Fasteners:

.1 Provide 1 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per BVTS.

.4 Cat-Tie (Column Adjustable Tie):

.1 Component Sizing:

.1 AB-Clip: Standard, as manufactured.

.2 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.

.2 Component Finish:

.1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.

.3 Connector Spacing:

.1 Typical: Provide Cat-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.

.2 Openings: Provide Cat-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.

.3 Wall Ends: Provide Cat-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.

.4 Wall Top: Provide Cat-Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.

.5 Wall Base: Provide Cat-Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.4 Fasteners:

.1 Provide 1 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Cat-Tie.

.5 Lateral Tie Clip:

.1 Component Sizing:

.1 Lateral Tie Clip: Standard, as manufactured.

.2 Component Finish:

.1 [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.


.6 Pac-Tie (Plate Adjustable Connector Tie):

.1 Component Sizing:

.1 Backer Plate: Standard, as manufactured.

.2 AB-Clip: Standard, as manufactured.

.3 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.

.2 Component Finish:

.1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.

.3 Connector Spacing:

.1 Typical: Provide Pac-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.

.2 Openings: Provide Pac-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
.7 Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - L-Plate: Length to suit thickness of insulation; holes along leading edge to receive V-Tie.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.

3. Connector Spacing:
   - 1 Typical: Provide Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
   - 2 Openings: Provide Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
   - 3 Wall Ends: Provide Rap-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
   - 4 Wall Top: Provide Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall top.
   - 5 Wall Base: Provide Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall base.

4. Fasteners:
   - 1 Provide 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Rap-Tie L-Plate.

.8 Heavy Duty Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - Heavy Duty L-Plate: Length to suit thickness of insulation; holes along leading edge to receive V-Tie.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.

3. Connector Spacing:
   - 1 Typical: Provide Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
   - 2 Openings: Provide Heavy Duty Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
   - 3 Wall Ends: Provide Heavy Duty Rap-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
   - 4 Wall Top: Provide Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall top.
   - 5 Wall Base: Provide Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall base.

4. Fasteners:
   - 1 Provide [1] 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Heavy Duty Rap-Tie L-Plate.

.9 Slotted Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - Slotted L-Plate: Length to suit thickness of insulation.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.

3. Connector Spacing:
   - 1 Typical: Provide Slotted Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
   - 2 Openings: Provide Slotted Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.

4. Fasteners:
   - 1 Provide 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Slotted Rap-Tie L-Plate.

.10 Slotted Heavy Duty Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - Slotted Heavy Duty L-Plate: Length to suit thickness of insulation.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.

3. Connector Spacing:
   - 1 Typical: Provide Slotted Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
   - 2 Openings: Provide Slotted Heavy Duty Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
   - 3 Wall Ends: Provide Slotted Heavy Duty Rap-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
   - 4 Wall Top: Provide Slotted Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall top.
   - 5 Wall Base: Provide Slotted Heavy Duty Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall base.

4. Fasteners:
   - 1 Provide [1] 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Slotted Heavy Duty Rap-Tie L-Plate.

.11 Side Mounting Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - Flat Plate: Plate length to suit total thickness of steel stud depth, plus thickness of structural sheathing, plus sheathing membrane, plus insulation where applicable; holes along leading edge to receive V-Tie.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.

3. Connector Spacing:
   - 1 Typical: Provide Side Mounting Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
   - 2 Openings: Provide Side Mounting Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
   - 3 Wall Ends: Provide Side Mounting Rap-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
   - 4 Wall Top: Provide Side Mounting Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall top.
   - 5 Wall Base: Provide Side Mounting Rap-Tie at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall base.

4. Fasteners:
   - 1 Provide 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Side Mounting Rap-Tie L-Plate.

.12 Slotted Side Mounting Rap-Tie (Rod Adjustable Plate Tie):

1. Component Sizing:
   - Slotted Flat Plate: Plate length to suit total thickness of steel stud depth, plus thickness of structural sheathing, plus sheathing membrane, plus insulation where applicable.
   - V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
   - Insulation Support: Standard, as manufactured.

2. Component Finish:
   - All components (hot dipped galvanized) [stainless steel Type (304) (316)], in accordance with CSA A370.
.3 Connector Spacing:
  .1 Typical: Provide Slotted Stud Mounting Rap-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
  .2 Openings: Provide Slotted Stud Mounting Rap-Tie at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
  .3 Wall Ends: Provide Slotted Stud Mounting Rap-Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
  .4 Wall Top: Provide Slotted Stud Mounting Rap-Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.
  .5 Wall Base: Provide Slotted Stud Mounting Rap-Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.4 Fasteners:
  .1 Provide 2 – [fastener description, including type, diameter, length, material, finish, and as applicable, head style, drill point, installation hole diameter, depth of embedment, installation torque], per Slotted Stud Mounting Rap-Tie Plate.

.16 Slotted Block Tie (Type I [II] III):
  .1 Component Sizing:
    .1 Slotted Stud Plate (Type I [II] III): Plate length to suit total thickness of steel stud depth, plus thickness of structural sheathing, plus sheathing membrane, plus insulation where applicable.
    .2 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
    .3 Wall Base: Provide Slotted Block Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.
    .4 Openings: Provide Slotted Block Tie at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
    .5 Wall Top: Provide Slotted Block Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall top.
    .6 Wall Base: Provide Slotted Block Tie at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.17 ICF Masonry Veneer Tie System
  .1 Component Sizing:
    .1 Slotted Flat Plate: Length to suit 50 mm embedment into ICF; plus thickness of insulation.
    .2 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of unit masonry veneer of solid, semi-solid, or cored units.
    .3 Tie Spacer: Standard, as manufactured.
  .2 Component Finish:
    .1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.
  .3 Connector Spacing:
    .1 Typical: Provide Stud Shear Connector at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
    .2 Openings: Provide Slotted Stud Tie (Type I [II] III) at maximum [ ] mm o.c. around opening, at maximum [ ] mm from the edge of opening.
    .3 Wall Ends: Provide Slotted Stud Tie (Type I [II] III) at maximum [ ] mm o.c. vertically, at maximum [ ] mm from wall end.
    .4 Wall Top: Provide Slotted Stud Tie (Type I [II] III) at maximum [ ] mm o.c. horizontally at maximum [ ] mm from wall top.
    .5 Wall Base: Provide Stud Shear Connector at maximum [ ] mm o.c. horizontal at maximum [ ] mm from wall base.

.18 Rubble Masonry Connector; Metal Stud Structural Backing, Side Mounting Tie
  .1 Component Sizing:
    .1 Stud Shear Connector Plate: Plate length to suit total thickness of steel stud depth, plus thickness of structural sheathing, plus sheathing membrane, plus insulation where applicable; holes along leading edge to receive Slotted Strip Plate.
    .2 Slotted Plate: Length to accommodate spacing of Stud Shear Connector Plate.
    .3 V-Tie: Length to suit placement of V-Tie legs coincident with centreline (± 12 mm) of rubble masonry.
  .4 Insulation Support: Standard, as manufactured.
  .2 Component Finish:
    .1 All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370.
  .3 V-Tie Spacing:
    .1 Typical: Provide V-Tie at maximum [ ] mm o.c. horizontal x maximum [ ] mm o.c. vertical.
Specifications (CSA A370-14)

.20 Rubble Masonry Connector; Concrete Masonry Structural Backing

.1 Component Sizing:
 1. Block Shear Connector Plate: Length to suit concrete block width, plus thickness of membrane plus insulation where applicable.
 2. Slotted Plate: Length to accommodate spacing of L-Plate.
 3. V-Tie: Length to suit placement of V-Tie legs coincident with centreline of rubble masonry.
 4. Insulation Support: Standard, as manufactured.

.20 Rubble Masonry Connector; Metal Stud Structural Backing

.1 Component Sizing:
 1. L-Plate: Length to suit thickness of insulation; holes along leading edge to receive Slotted Strip Plate.
 2. Slotted Plate: Length to accommodate spacing of L-Plate.
 3. V-Tie: Length to suit placement of V-Tie legs coincident with centreline of rubble masonry.
 4. Insulation Support: Standard, as manufactured.

.19 Rubble Masonry Connector; Metal Stud Structural Backing, Surface Mounting Tie

.1 Component Sizing:
 1. L-Plate: Length to suit thickness of insulation; holes along leading edge to receive Slotted Strip Plate.
 2. Slotted Plate: Length to accommodate spacing of L-Plate.
 3. V-Tie: Length to suit placement of V-Tie legs coincident with centreline of rubble masonry.
 4. Insulation Support: Standard, as manufactured.

.2 Component Finish:
 1. All components [hot dipped galvanized] [stainless steel Type (304) (316)], in accordance with CSA A370-14:
 2. Prescriptive Bar Anchor: In accordance with CSA A370-14:
 3. Bar Anchor Spacing:
 4. Fast Angle Support:
 5. Masonry Bar Anchors:
 6. Rack Angle Support Technology

.21 Masonry Bar Anchors

.1 Component Sizing:
 1. Fero FAST Bracket:
 2. Fero Shim Plate: Standard, as manufactured (5 mm thick).
 3. Fero Rectangular Washer: Standard, as manufactured (5 mm thick).
 4. Fero Wedge Shims: Standard, as manufactured.
 5. Shelf Angle: 100 mm x 100 mm x 6 mm (4” x 4” x 1/4”)

.2 Fast Angle Support:

.1 Component Sizing:
 1. Fero FAST Bracket:
 2. Fero Shim Plate: Standard, as manufactured (5 mm thick).
 3. Fero Rectangular Washer: Standard, as manufactured (5 mm thick).
 4. Fero Wedge Shims: Standard, as manufactured.
 5. Shelf Angle: 100 mm x 100 mm x 6 mm (4” x 4” x 1/4”)

.2 Component Finish:
 1. All Fero steel components [hot dip galvanized] after fabrication as per CSA A370-14.

.23 Spacing:
 1. FAST Bracket:
 2. Fast Angle Support Technology

.24 Edge Distance:
 1. Installation:
 2. In accordance with Fero literature, “FAST Fero Angle Support Technology”.

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