Z-Ventilation Solutions
Design Number ZS/FMF 30-01
FIRE RESISTANT GREASE DUCT
Non-Welded Grease Duct Model No. ZVS-DW
UL 1978 - Pass
CAN/ULC S662 - Pass
Clearance to Combustibles: Not Reduced

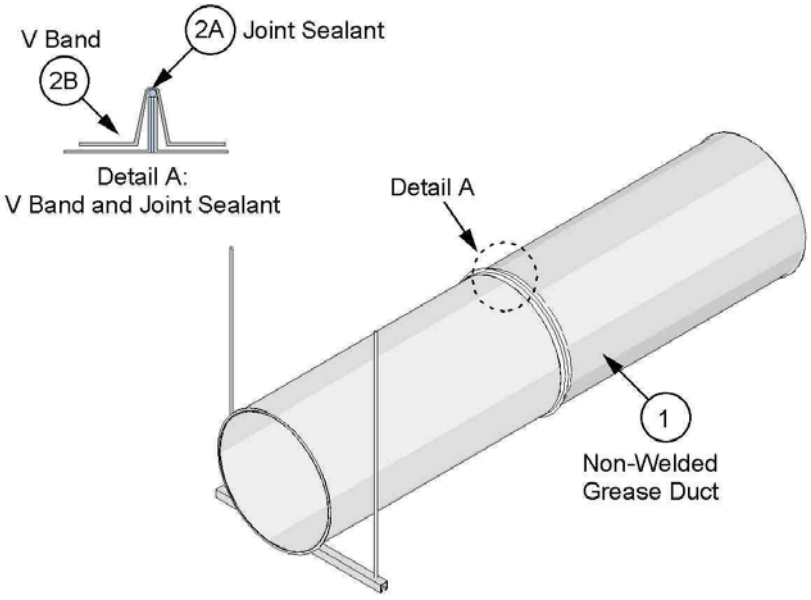


Figure 1. Non-Welded Grease Duct Model No. ZVS-DW

1. **CERTIFIED MANUFACTURER:**
Z-Ventilation Solutions

CERTIFIED PRODUCT: Pre-Fabricated Grease Duct

MODEL: Non-Welded Grease Duct
Model No. ZVS-DW

PRE-FABRICATED GREASE DUCT: Install grease ducts in compliance with the requirements of NFPA 96, the International Mechanical Code (IMC), or the National Building Code of Canada (NBCC), as applicable. With regard to UL 1978 compliance, install at a slope of not less than 1/16 (0.0625) unit vertical in 12 units horizontal toward the hood or toward a grease reservoir. Where horizontal ducts exceed 75 ft. in length, the slope shall be not less than 3/16 (0.1875) unit vertical in 12 units horizontal. Obtain AHJ approval for these alternate methods. Use the Intertek Certified pre-fabricated grease duct identified above and having the following features and/or specifications:

A. DUCT SIZE (Nominal Inside Diameter) – Up to 36 in.

B. ACCESS DOOR – When required, use the duct manufacturer's manifold tee and access door (tee cap) assembly (see Figure 2). Apply a 1/4 in. continuous bead of sealant (Item 2A) to the flange of the tee on the side where access door is to be located. Center the supplied grease dam over the opening of the tee. Verify that the grease dam is sealed to the tee flange by applying pressure. Remove excess sealant (Item 2A). Apply

supplied Garlock Blue-Gard® 3000 gasket to grease dam with a 1/4 in. continuous bead of sealant (Item 2A) applied to the grease dam 1 in. from the outside edge. When the sealant (Item 2A) is dry attach the supplied access door using a V band (Item 2B). Tighten 1/4-20 hardware to 40-60 in.lbs.

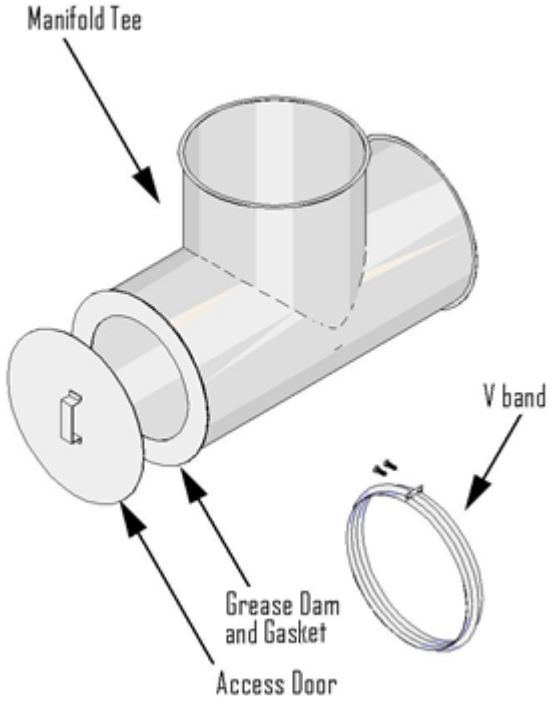


Figure 2. Access Door Assembly

C. Rigidly support the pre-fabricated grease duct (Item 1) as specified below in Item 3 or in accordance with IMC, NBCC, or NFPA 96 requirements, as applicable, when not specified herein or when those requirements are greater.

D. Use a compatible, certified firestop system when passing through a fire-rated floor/ceiling assembly or a fire-rated wall assembly. The firestop system and installation are not covered by this design listing.

2. STANDARD JOINTS: Join the pre-fabricated grease duct (Item 1) sections using the following components and methods:

A. CERTIFIED MANUFACTURER:
3M Company

CERTIFIED PRODUCT: Sealant

MODEL: 3M Fire Barrier™ 2000+

JOINT SEALANT – Fill the V band (Item 2B) with a continuous bead of sealant. Apply a continuous 1/4 in. bead of sealant to one of the duct flanges to be joined.

B. V BAND – Use the supplied V band (see Figure 1). Place the loose V band, filled with sealant (Item 2A), over one of the duct flanges. Join to the other duct flange with the continuous bead of sealant (Item 2A) and rotate slightly to

ensure complete coverage of sealant (Item 2A) on flanges. Ensure that the flanges are located within the V band and that the V band hardware is not at the bottom side of a horizontal duct. Tap the V band while tightening the integral 1/4-20 hardware to ensure flanges are aligned and pulled together. Tighten to 40-60 in.lbs.

3. **ADJUSTABLE LENGTH JOINTS:** Join the pre-fabricated grease duct (Item 1) adjustable length section to standard duct section using the following components and methods, and as shown in Figure 3:

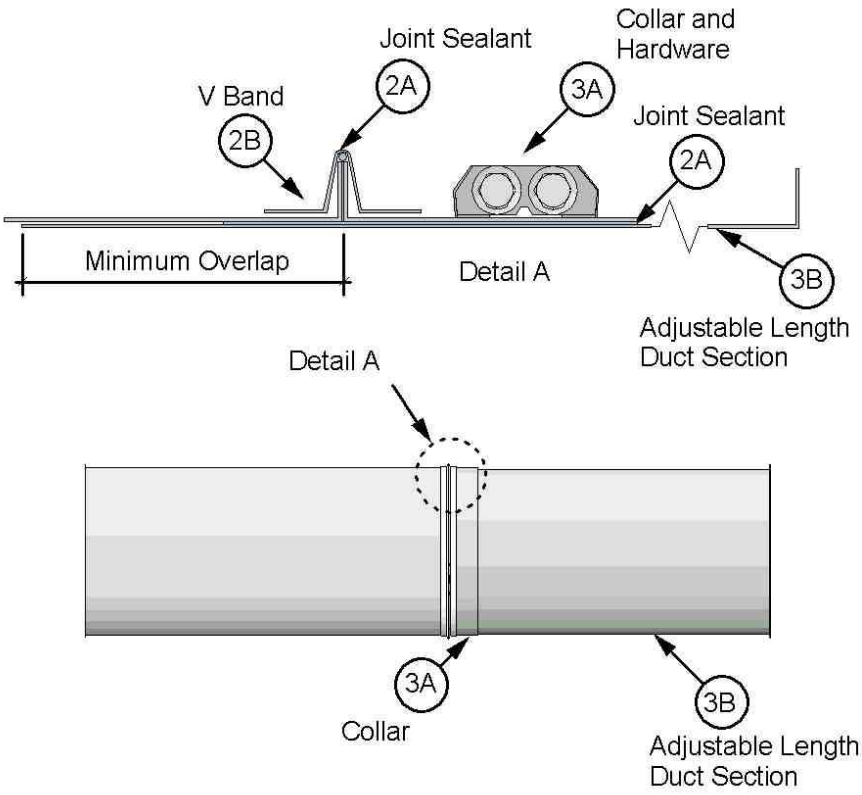


Figure 3. Adjustable Length Joint

A. COLLAR – Join the flange of the supplied min. 20 GA steel collar to the flange of the standard duct section. Apply a continuous 1/4 in. bead of sealant (Item 2A) to one of the flanges to be joined. Fill the V band (Item 2B) with a continuous bead of sealant (Item 2A). Place the loose V band (Item 2B), filled with sealant (Item 2A), over the joined flanges and rotate slightly to ensure complete coverage of sealant (Item 2A) on flanges. Ensure that the flanges are located within the V band (Item 2B) and that the hardware is not at the bottom of a horizontal duct. Tighten the supplied 1/4-20 hardware to 40-60 in.lbs and ensure flanges are aligned and pulled together.

B. ADJUSTABLE LENGTH DUCT SECTION – Always install the adjustable length duct section such that residual grease does not build up at the joint. For this, a min. slope of 1 in. (25.4 mm) per 10 ft. (3.05 m) of duct is required with the straight

side of the adjustable duct section sliding into a standard duct section that is at lower elevation. Slide the straight side (no flange) of the adjustable length duct section into the collar (Item 3A) until the end of the adjustable length duct section is aligned with the flanged connection. Apply two 1/4 in. beads of sealant (Item 2A) around the adjustable length duct section, spaced approximately 3 in. apart and located so that the sealant (Item 2A) will be drawn fully into the space between the adjustable length duct section and the collar (Item 3A) when the adjustable length duct section is set to the required length. Continue by sliding the adjustable length duct section into the standard duct section to achieve the desired length. Ensure that the min. overlap is maintained: 4 in. for nominal diameter ducts ≤ 8 in., 5 in. for nominal 10 in. diameter ducts, and 6 in. for larger ducts up to nominal 24 in. diameter. Tighten the supplied 1/4-20 hardware for collar (Item 2A) to 40-60 in.lbs.

4. **PIPE FITTINGS:** Use only compatible pipe fittings that are listed by a recognized agency to UL 1978 or CAN/ULC-S662 for the required operating pressure rating.

5. **SUPPORTS:** Follow the requirements for horizontal and vertical supports in Items 5A, 5B, and 5C below. When applicable, ensure that the max. unsupported inclined length of duct does not exceed the max. horizontal support spacing specified in Item 5A.

   A. HORIZONTAL SUPPORTS – Support the pre-fabricated grease duct (Item 1) per the manufacturer's installation instructions; and, in accordance with IMC, NBCC, or NFPA 96 requirements, as applicable, when those requirements are greater. Max. support spacing is 10 ft.

   B. VERTICAL SUPPORTS (Wall) – Refer to Figure 4 for depiction of Method 1 and Method 2 installations. Use the vertical support assemblies supplied by the duct manufacturer and consisting of the following 12 GA steel components:

      a. Wall-Plates:
      - Method 1: For ≤ 24 in. diameter ducts, use four 12 GA steel, 8 in. x 8 in. wall plates
      - Method 2: For > 24 in. diameter ducts, use two 12 GA steel, 8 in. x 8 in. wall plates; and two 12 GA steel, 8-1/2 in. x 48 in. wall plates

      b. Support Ring: Methods 1 and 2, Two half-rings required; 1 in. wide support ring for ducts with nominal diameter ≤ 24 in., and 1-1/2 in. wide support ring for ducts with nominal diameter > 24 in.

      c. Angle Struts:
      - Method 1: For ≤ 24 in. diameter ducts use four angle struts
      - Method 2: For > 24 in. diameter ducts, use six angle struts

      d. Angle Brackets:
      - Method 1: For ≤ 24 in. diameter ducts, use six angle brackets
      - Method 2: For > 24 in. diameter ducts, use ten angle brackets

      Where the pre-fabricated grease duct (Item 1) is installed vertically along a wall as depicted in Figure 4 below, provide supports spaced as follows:
      - Duct Diameter ≤ 24 in.: Max. 12 ft. spacing
      - Duct Diameter 30 in.: Max. 17 ft. spacing
      - Duct Diameter 36 in.: Max. 14 ft. spacing

In addition, comply with the following requirements:

e. General:

- Fasten support ring (two half-rings) around pre-fabricated grease duct (Item 1) using supplied 5/16-18 hardware (two sets of serrated hex-washer-head nut, bolt, and spacer nut). Install such that the V band (Item 2B) rests on the support ring.
- Determine location of angle strut attachment points on support ring and wall assembly such that the required duct-to-wall assembly clearance is maintained.
- Fasten two horizontal angle struts directly to support ring using supplied 5/16-18 hardware (serrated hex-washer-head nuts and bolts).
- Use angle brackets and supplied 5/16-18 hardware (serrated hex-washer-head nuts and bolts) to fasten angle struts to sides of support ring and angled towards wall assembly. Use two struts angled downward for Method 1 installation and an additional two struts angled upward for Method 2 installation.

f. Steel Stud/Gypsum Wall Installation:

- Ensure that each angle strut is installed into a double stud for Method 1 installation.
- Position the wall-plates between the angle brackets at the end of the angle struts and the wall. For Method 2 installation, ensure that the 8-1/2 in. x 48 in. wall-plates span and fasten to at least two steel studs; if necessary, drill additional holes in wall-plate to accommodate irregular stud spacing.
- Pre-drill the fastening points for the angle struts on the wall, creating two 7/8 in. holes through the double studs for each angle strut. Use the corresponding 7/8 in. diameter wall plate holes as templates.
- Use two 4 in. long, 5/16-18 toggle bolts per angle strut-to-wall attachment. Attach angle struts to wall through the angle bracket at the end of each angle strut using the toggle bolts.

g. Wood Stud/Gypsum Wall Installation:

- Comply with the same installation requirements as for steel stud wall installation, except use 5/16 in. x 3-1/2 in. long lag bolts.

h. Concrete or Masonry Wall Installation:

- Fasten struts to wall assembly using angle brackets and appropriate type and size concrete anchors but having min. 5/16 in. diameter and min. 2-1/4 in. length.

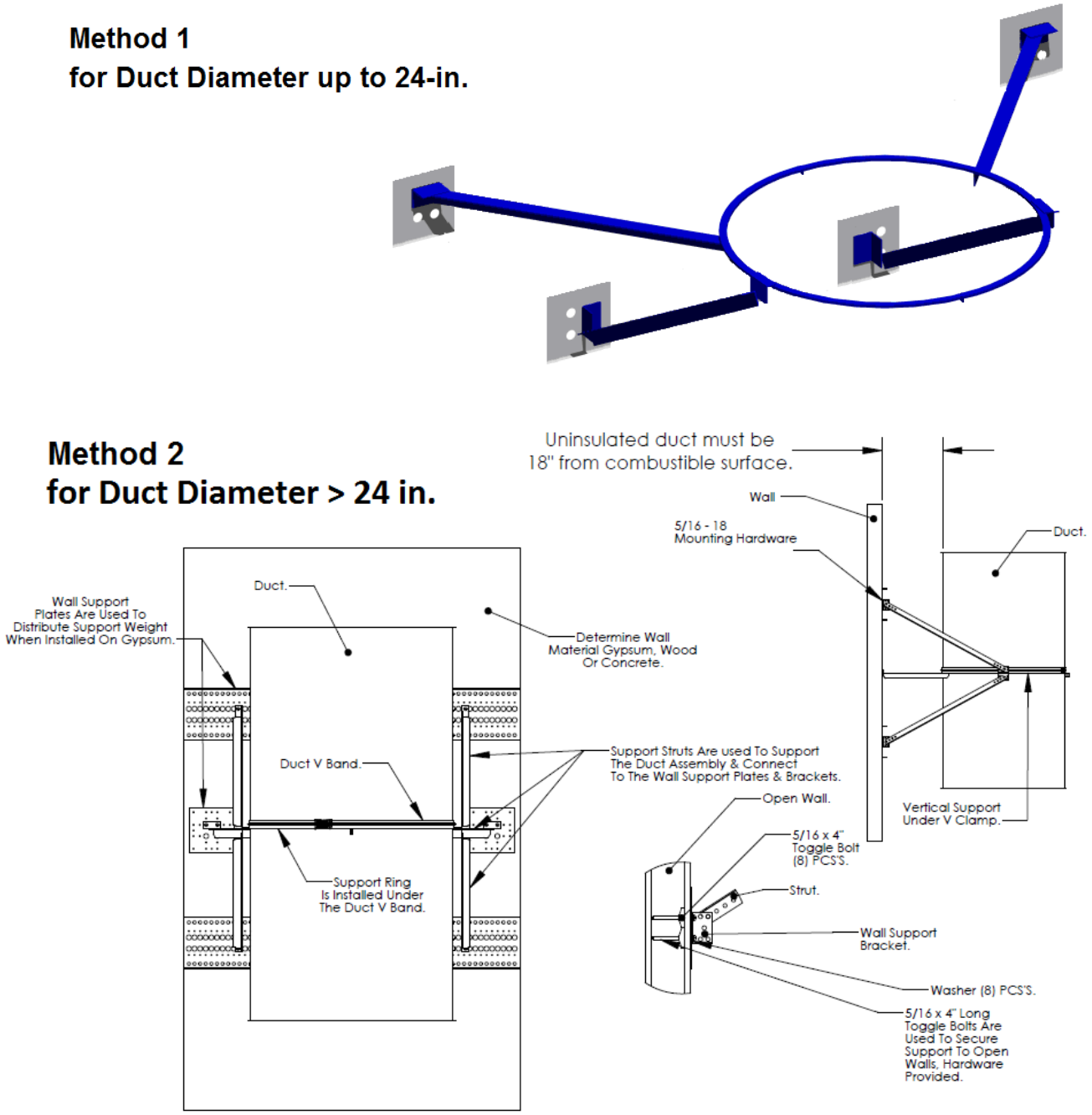


Figure 4. Vertical Wall Supports

C. CURB VERTICAL SUPPORTS – Use the curb vertical support assembly (see Figure 5) supplied by the duct manufacturer and consisting of a min. 20 GA aluminized steel welded curb and a duct section with welded min. 16 GA aluminized steel transition plate. Secure the curb to supporting floor/ceiling or roof/ceiling construction consisting of min. 2 x 8 lumber and min. 1/2 in. wood

structural panels and designed by the responsible design professional to support all applicable load conditions. Use oversized, zinc plated, steel flat washers for 3/8 in. screws and 3/8 in. diameter, min. 1-1/2 in. long, zinc-plated steel lag screws to secure the curb through supporting construction with max. 12 in. on center (oc) fastener spacing. Ensure the opening is framed with min. 2 x 8 lumber such that all four sides of the curb are supported. Drop the duct section with welded transition plate through the curb and secure the transition plate to the curb with 2 in. long, 1/4-14, stainless steel, hex-washer-head, self-drilling screws spaced max. 12 in. oc. Ensure the max. unsupported length of grease duct (Item 1) does not exceed the following requirements:

- Duct Diameter ≤ 24 in.: Max. 116 ft. spacing
- Duct Diameter 30 in.: Max. 131 ft. spacing
- Duct Diameter 36 in.: Max. 109 ft. spacing

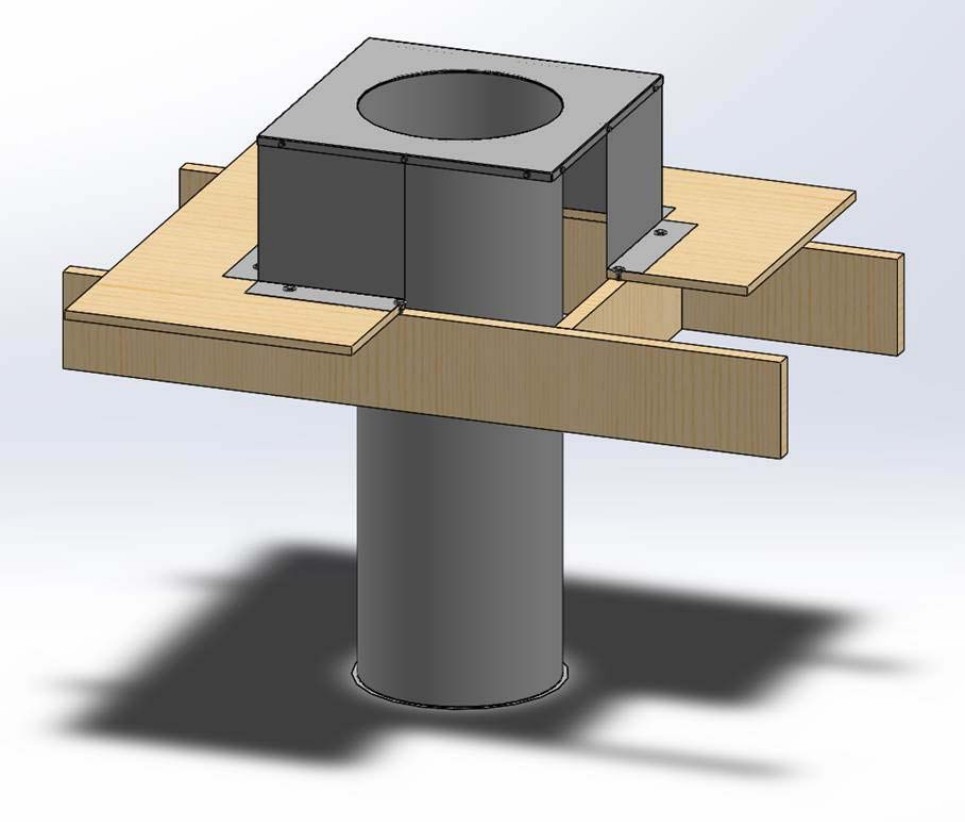


Figure 5. Curb Vertical Supports

D. FLOOR/CEILING VERTICAL SUPPORT ASSEMBLY – Use the floor or ceiling support assembly (refer to Figures 6 and 7) supplied by the duct manufacturer and consisting of two 12 GA galvanized steel vertical support half-plates and B12 Unistrut sections. Also use 1/2 in. steel threaded rod hangars for ceiling support assembly as shown in Figure 6. Assemble the supports as shown in Figures 6 and 7 using supplied 3/8 in. hardware. Ensure the max.

unsupported length of grease duct (Item 1) does not exceed the following requirements:

- Duct Diameter ≤ 24 in.: Max. 57 ft. spacing
- Duct Diameter 30 in.: Max. 45 ft. spacing
- Duct Diameter 36 in.: Max. 38 ft. spacing

Supporting construction and anchoring method for threaded rod to ceiling shall be designed and approved by the responsible structural design professional to support all applicable load conditions.

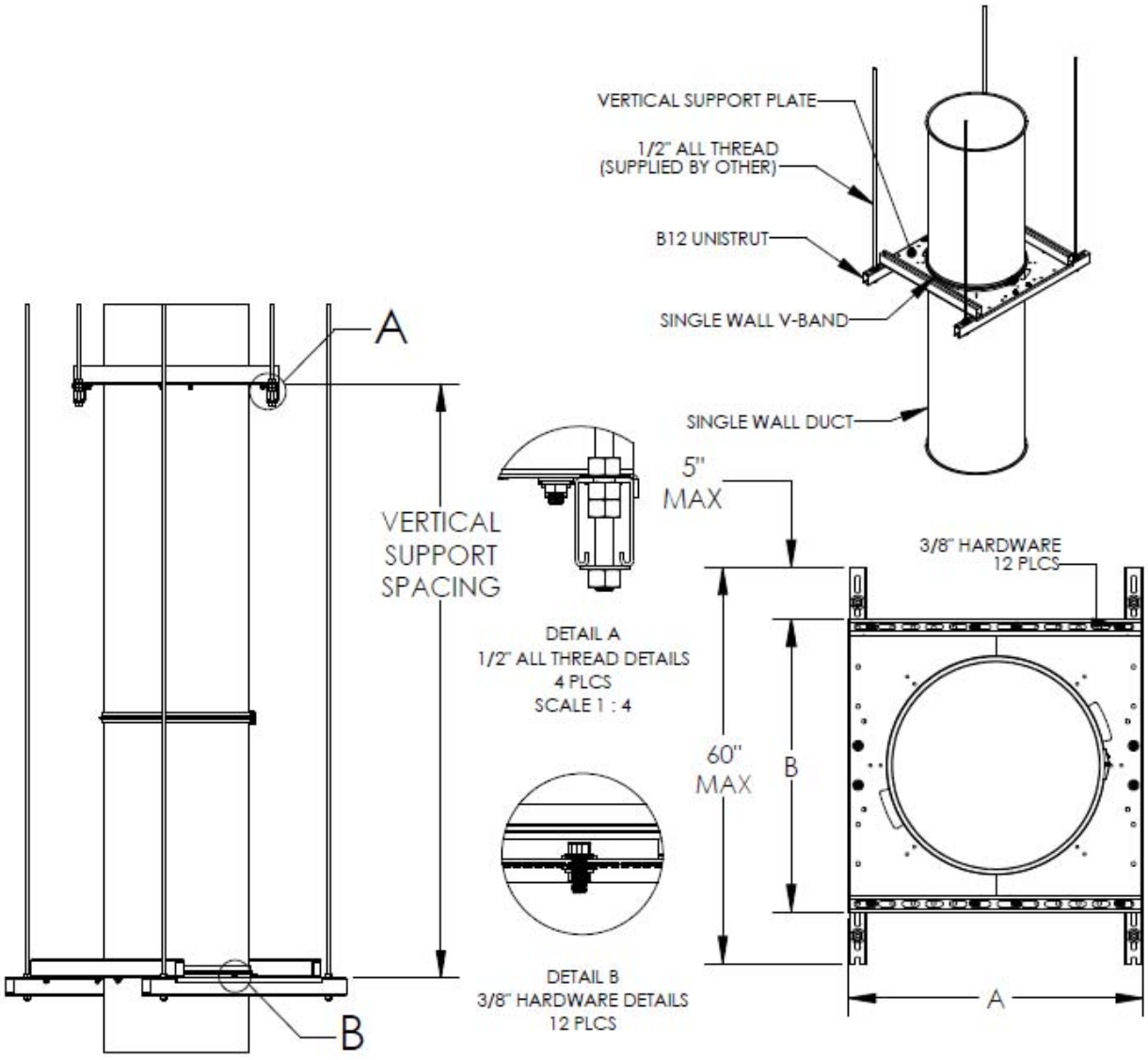


Figure 6. Ceiling Vertical Support Assembly

INSTALLATION FASTENER TYPES		
	Wood (SG = 0.42 Min.)	Concrete (2500 psi Min. Cracked Concrete)
Fastener	3/8" Dia. Zinc Plated Lag Bolt	3/8" Dia. SS Hilti Kwik Bolt TZ Expansion Anchor
Minimum Thread Penetration	2"	2-5/16"
Minimum Edge Distance	1-1/2"	3"

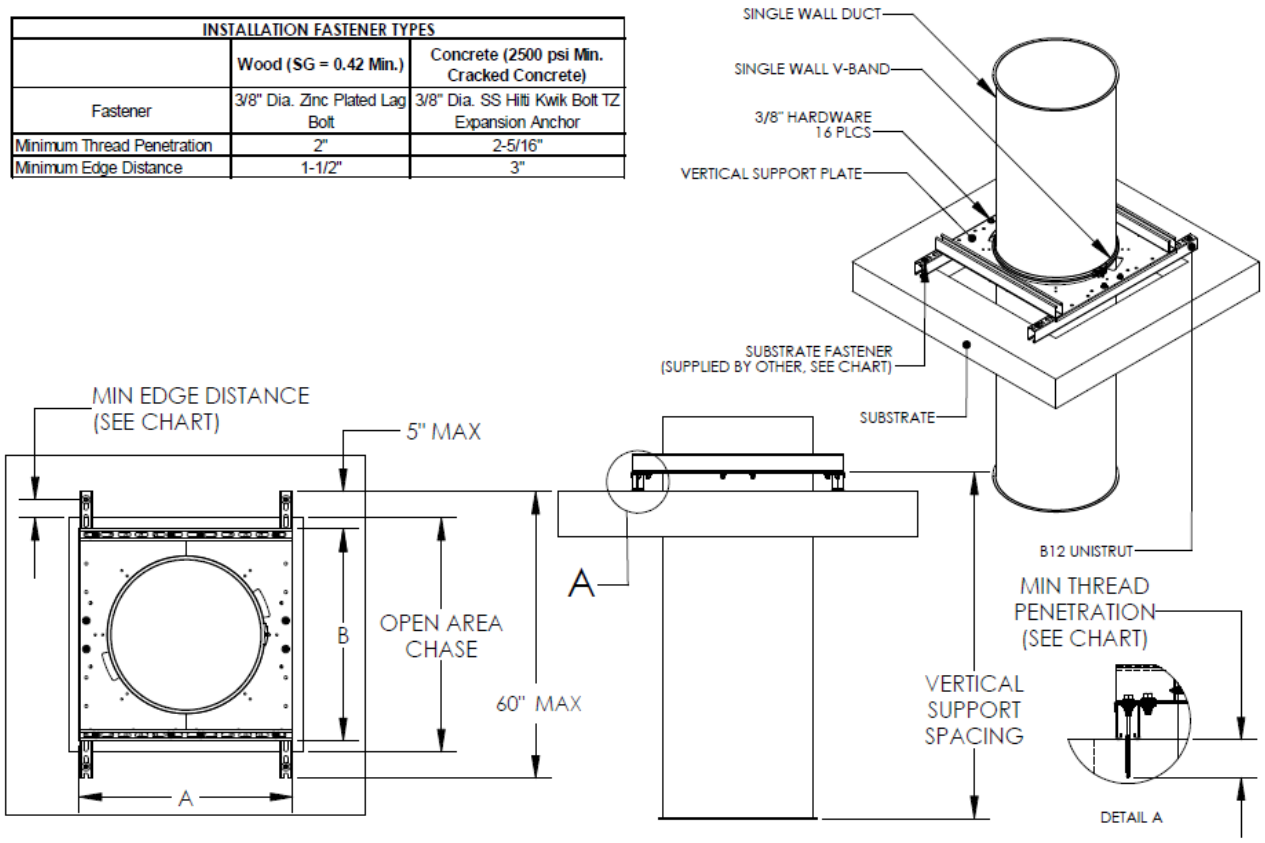


Figure 7. Floor Vertical Support Assembly

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.