

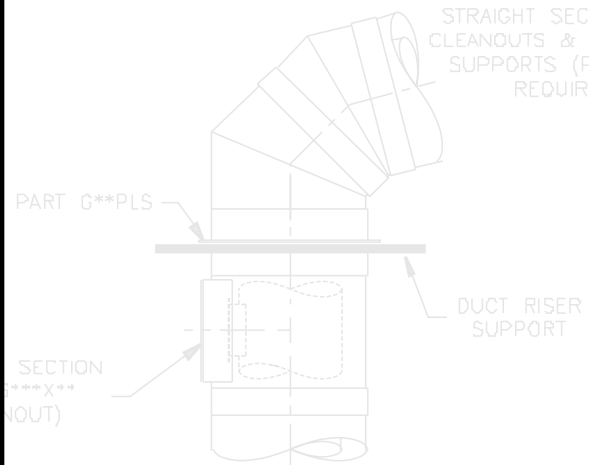
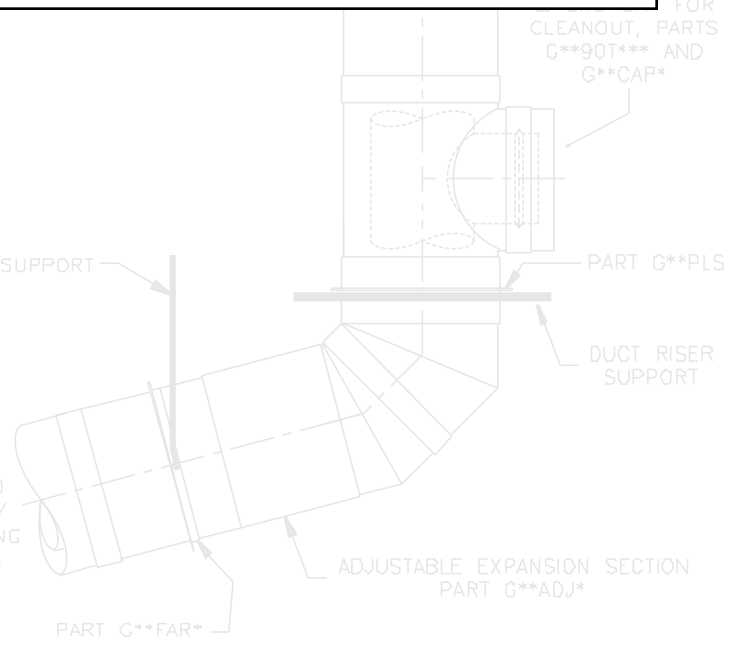
MODEL GZ

Zero Clearance Grease Duct Installation Instructions

Tested to UL 1978/ULC S662, UL 2221/ULC S144, ASTM E814

SERIES OF ASSEMBLED STRAIGHT SECTIONS BETWEEN (2) RISER SUPPORTS TO HAVE (1) ADJUSTABLE EXPANSION SECTION & LATERAL BRACES (FAR'S) AS REQUIRED.

SERIES OF ASSEMBLED STRAIGHT SECTIONS W/ CLEANOUTS & BREECHING SUPPORTS (FAR'S) AS REQUIRED.



SERIES OF ASSEMBLED STRAIGHT SECTIONS BETWEEN (2) RISER SUPPORTS TO HAVE (1) ADJUSTABLE



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LISTING & CODE COMPLIANCE

Van-Packer's Model GZ grease ducts are listed by Intertek files; VPC/FMF 120-01 US, VPC/FMF 120-02 CANADA, as a "two hour fire rated, zero clearance grease duct enclosure assembly" and as "Grease Ducts for Restaurant Cooking Appliances" when installed in accordance with these instructions and the National Fire Protection Association's standard NFPA 96 "Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations," International Mechanical Code, Uniform Mechanical Code, or other local codes.

TESTING, RATING, & APPLICATIONS

Model GZ has been tested in accordance with the procedures and methods as set forth in UL 2221/ULC S144 (Tests of Fire Resistive Grease Duct Enclosure Assemblies) and UL 1978/ULC S662 (Grease Ducts). Model GZ is listed for a maximum 2 hour fire resistance rating per UL 2221/ULC S144 and may be installed at zero clearance to combustibles. This rating qualifies Model GZ grease duct as an alternate to a specified hourly rated fire resistive shaft enclosure; effectively eliminating the requirement for a separate fire resistive enclosure. Model GZ grease ducts are suitable for the removal of smoke and grease effluent from commercial, industrial, institutional, and similar cooking applications where continuous operating temperatures are 500° F (260° C) or less and for intermittent temperatures not exceeding 2000° F (1093° C). Model GZ grease ducts are intended to be part of a complete grease duct system which connects to the exhaust fan.

PART IDENTIFICATION & MATERIAL CODES

Model GZ part numbers will typically have the letter "G" prefix, followed by the duct size inside diameter (I.D.), then the part description code, next the liner/shell designation, and last by special qualifier code(s). Part description codes are generally three characters and are either alpha or alpha numeric. Qualifier codes are most often used to designate section lengths, tee projection diameters, and the large I.D. end of increasers. The following are a couple examples of part numbers with their associated description and part number breakdown. Refer to the Model GZ brochure for additional part number designations.

G10STRA30

Refers to a **Model GZ** 10" I.D., 30" long straight section constructed with a 304 S.S. liner and an aluminized steel shell.

G = Model GZ Product Code

10 = Section I.D.

STR = Part Code (Straight Section)

A = Liner/Shell Code (304 S.S. Liner/ALZ Steel Shell)

30 = Qualifier Code (30" Long)

LINER/SHELL MATERIAL CODES

A = 304 S.S. Liner/ALZ Steel Shell

C = 316 S.S. Liner/316 S.S. Shell

E = 316 S.S. Liner/304 S.S. Shell

H = 304 S.S. Liner/430 S.S. Shell

G12BTTJ08

Refers to a **Model GZ** 12" I.D. bodied boot tee section with an 08" I.D. projection constructed with a 316 S.S. liner and a 430 S.S. shell.

G = Model GZ Product Code

12 = Tee Body I.D.

BTT = Part Code (Boot Tee Section)

J = Liner/Shell Code (316 S.S. Liner/430 S.S. Shell)

08 = Qualifier Code (08" I.D. Projection)

LINER/SHELL MATERIAL CODES

B = 316 S.S. Liner/ALZ Steel Shell

D = 304 S.S. Liner/304 S.S. Shell

F = 304 S.S. Liner/316 S.S. Shell

J = 316 S.S. Liner/430 S.S. Shell

GENERAL INFORMATION

CODES & AUTHORITIES

Installation must be made in accordance with local and national code requirements. Follow these instructions carefully and contact local building and fire officials about restrictions and installation inspection in your area. Refer to NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations) and additional NFPA standards as required. Consult authorities having jurisdiction to determine the need to obtain any required permits.

INSTALLATION CONSIDERATIONS

Follow Van-Packer's written installation instructions carefully. Each part of the grease duct system must be assembled and installed correctly. Improper or lack of installation of required parts may result in the improper function of the grease duct system.

The grease duct layout should be carefully planned to allow adequate space for assembly, installation of supports, connection of support framing, access for cleanouts, accommodate standard fitting dimensions, rough openings for penetrations, etc. Do not assume all equipment producing smoke or grease effluent within a facility can be exhausted with a single grease duct system. Before multiple hoods, collectors, etc. are manifolded together verify compatibility of the equipment, fan requirements, etc. with their respective providers. Consult a grease duct design professional as required.

One prime coat and finish coat of appropriate heat resistant paint is recommended on exposed installations which are subject to routine cleaning (e.g. kitchen area) and wherever exposed to the weather when the outer shell of components or accessories is constructed from aluminized steel.

Sealing of draw bands, overlapped or butted seams, etc. with an appropriate sealant is recommended on exposed installations which are subject to routine cleaning (e.g. kitchen area) and wherever exposed to the weather in order to avoid moisture from entering the space between the grease duct shell and liner.

MIXING SYSTEMS & PARTS

Do not interconnect a grease duct system with any other building ventilation or exhaust system.

Do not interconnect parts from other prefabricated grease duct manufacturers with Model GZ components without the expressed consent of Van-Packer.

Components from other Van-Packer product lines which are listed for use as a grease duct may be intermixed with Model GZ components to complete a grease duct system as long as: clearances, limitations, applicable installation instructions, codes, etc. are followed. For example; Van-Packer Model DW could be used inside an area where a fire rating is not required and/or there is adequate space to accommodate that particular model types listing/code compliant clearances and then the grease duct system could transition to Model GZ prior to entering areas where a fire rating or greater reduced clearances are required. Contact Van-Packer for more information concerning compatible product lines which are listed for use as grease ducts.

Typically, Van-Packer grease duct components are intended to comprise the complete system. However, we realize conditions occur where a portion of an existing grease duct system may need to be replaced or due to space constraints a system may need rectangular portions. In these cases, it is permissible to transition to/from a code compliant grease duct system by others to/from Van-Packer grease duct components when; final connections to the Van-Packer duct are in accordance with an approved joint assembly method as described within applicable installation instructions, the transition piece is connected to duct by others in accordance with applicable codes and construction methods, and the transition/duct by others maintains the proper airspace clearances or is protected with a fire rated enclosure as described by applicable codes. **WARNING:** Listings/warranties may be affected when transitioning grease ducts by others; consult Van-Packer technical service department for additional information.

CLEARANCES & ADDITIONAL ENCLOSURES

The clearance to non-combustible materials is zero inches.

Where a component or assembled components are insulated and enclosed by their respective shell, cover, or draw band for all installations except within a completely enclosed non-ventilated combustible enclosure the clearance to combustible materials is zero inches.

For installations within a completely enclosed non-ventilated combustible enclosure (UL 2221/ULC S144 condition B), the required minimum clearance to the duct shell is ¼" (combustible materials may be at zero clearance to draw bands and covers only for this installation condition).

GENERAL INFORMATION *(contd.)*

CLEARANCES & ADDITIONAL ENCLOSURES (continued)

Code compliant clearances must be observed for a component or assembled components which are not insulated and enclosed by a shell, cover, or draw band. Code compliant clearances must also be observed where components or portions of components are in direct contact with the liner (I.D.) and protrude past the duct shell, cover, or draw band; e.g., plate support assemblies, drain nipples, etc.

When installed in accordance with these instructions and applicable codes, Model GZ grease ducts are equivalent to field fabricated two hour fire rated grease duct enclosure systems. If a greater than two hour fire rating is required for the grease duct system, an additional enclosure (properly fire stopped) may be required. Do not apply wraps or enclosure materials in direct contact with Model GZ components in a manner as to have the Model GZ duct act as the supporting member or structure for the supplemental wrap or enclosure. Model GZ has not been tested, listed, designed, etc. to carry additional weight from such materials. Consult the appropriate authorities and codes to determine the need and construction methods for any additional fire rated enclosures and fire stops.

DUCT SIZE & SLOPE

When determining duct sizes for duct systems and duct velocities refer to the "ASHRAE" applications handbook. Specifications are found in the chapter pertaining to "Kitchen Ventilation". Refer to the Model GZ product brochure for additional product descriptions and section/fitting static pressure loss factors.

Model GZ grease ducts must be installed accordingly to comply with the requirements as described by UL in order to maintain a listed installation. The UL 2221/ULC S144 standard (Tests of Resistive Grease Duct Enclosure Assemblies) states that these grease ducts must comply with requirements as set forth by UL 1978/ULC S662 (Grease Ducts), NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations), and the International Mechanical Code.

DUCT SLOPE: The applicable codes require horizontal ducts less than 75 feet in length to slope at a minimum of 1/4 unit vertical in 12 units of horizontal toward the hood or a grease reservoir; and for ducts exceeding 75 feet the slope shall not be less than 1 unit vertical in 12 units horizontal. In general, these slope requirements are based on, and intended for rectangular field-installed grease ducts which are not listed by a certification agency. Factory-built round grease ducts that are listed to UL 1978 and have proven through testing and/or analysis to provide better flow characteristics as compared to the rectangular duct may be installed at reduced slopes in accordance with their listing and when these alternate slopes/methods are allowed by the AHJ.

In accordance with their listing, Van-Packer grease ducts listed to UL 1978 are to be installed 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. This slope may also be used for horizontal grease ducts where the duct length exceeds 75 feet under two conditions: (1) For ducts sloped continually in the same direction (e.g., all uphill from a hood or reservoir), additional grease drainage points not exceeding 75 feet spacing are required, and (2) For ducts that are stagger sloped (e.g., uphill to a peak point then downhill to a valley point), the distance between a valley point and peak point shall not exceed 75 feet and every valley must allow for grease drainage (i.e., a hood or reservoir). When grease ducts are not sloped as described above, and the ducts exceed 75 feet in horizontal length, Van-Packer grease ducts listed to UL 1978 are to be installed at a slope of not less than 3/16 (0.1875) unit vertical in 12 units horizontal toward the hood or toward a grease reservoir. Obtain AHJ approval for these alternate methods.

Most Model GZ components will permit a small amount of slope as the system is being installed. However, some installations may require elbow/transition type pieces to allow for proper orientation of fittings at the vertical risers prior to and after long horizontal runs. Contact Van-Packer for additional information.

THERMAL EXPANSION

Model GZ grease duct lengths between two fixed points which are subject to more than ¼" expansion must have an adjustable expansion section (part ADJ). The assembled length of grease duct components between two fixed points must also have adequate intermittent guide type braces (e.g. full angle rings part FAR) to prevent the binding or excessive bending of the assembled duct.

The system designer must be aware that the inner joints have negligible flexing capability and that tee sections, elbows, etc. have not been designed to withstand excessive bending forces. The liners and shells are held together with clips; and while the liners and shells will move at slightly different rates, the shells will still move. Guides and breeching supports must be placed far enough away from draw bands, adjustable expansion joint covers, etc. in order to prevent binding or excessive bending of the assembled duct.

<p>The total linear expansion between two fixed points can be calculated according to the following:</p> $\begin{aligned} &\text{Length Between (2) Fixed Points in inches.} \\ &\quad \times \\ &\quad \text{S.S. Linear Expansion Coefficient.} \\ &\quad \text{(0.0000089 inch/inch/°F)} \\ &\quad \times \\ &\quad \text{Exhaust Temperature. (degrees °F)} \\ &\quad = \\ &\quad \text{Linear Expansion. (Length in inches)} \end{aligned}$
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GENERAL INFORMATION *(contd.)*

CLEANOUTS, DRAINS, & GREASE TRAPS

Many Model GZ sections, accessories, and combinations can be used for cleanout and inspection access of the grease duct system. Access panel sections, 90° tee sections with end caps, and many other combinations of components can serve as cleanout doors or openings as described by NFPA 96.

Grease ducts must be provided with adequate cleanout doors or openings to allow for the inspection and cleaning of the entire grease duct system. Grease ducts are to be provided with cleanouts at changes in direction and, when grease ducts are not large enough for entry of personnel for cleaning and inspection, at maximum 12' intervals in horizontal ducts, and on every floor for vertical ducts. Refer to NFPA 96 for requirements accordingly. Cleanout openings in horizontal ducts must be located at the sides or at the top of the duct. When cleanout openings are located at the sides, the lower edge of the cleanout opening is a minimum of 1-1/2" above the bottom edge of the horizontal duct.

WARNING: Cleanout doors or openings must be completely comprised of Model GZ grease duct components. Do not field install clean out doors or openings by means of drilling, cutting, puncturing, etc. through the outer shell/cover or into the liner of any Model GZ component. Such modifications will void the grease duct listing, warranty, and may cause failure of the grease duct system with respect to its fire containment and liquid tight integrity.

Cleanouts should be located near drain sections with internal dams to allow for the inspection and cleaning of the dam area and initial drain pipe piece as it leaves the grease duct. It is recommended that all drains for a manually cleaned grease duct be fitted with a grease trap to allow for grease, which flows into a drain as part of normal operation, to be contained outside of the duct. Grease traps should be mounted as close as possible to drains in an attempt to have the grease flow into the trap while it is still warm rather than cooling and solidifying in a long pipe length (causing an obstruction) prior to the trap. Remove grease traps prior to cleaning the grease duct system. Van-Packer does not provide or size grease traps. Please refer to NFPA 96 as required.

Cleanout, drain, and grease trap requirements may change when grease duct systems are equipped with automatic cleaning and/or some types of fire suppression equipment. Refer to NFPA 96 and consult with authorities having jurisdiction for specific duct system requirements.

CLEANING & FIRE SUPPRESSION

Automatic hot water/detergent cleaning and fire suppression systems can be integrated into a Model GZ grease duct system by using various Model GZ components which are readily available (or by request sections can be factory fit) with threaded pipe nipples, couplings, etc. Van-Packer does not provide, design, specify, etc. wash down and fire suppression equipment or systems.

Automatic cleaning systems typically provide hot water (approx. 160° F) and detergent injected by conventional hardware utilizing "jet spray" characteristics in a fashion such that the entire grease duct system can be cleaned daily in order to remove grease and oily residues. Due to the frequency of cleaning cycles and the volume of hot water/detergent mixture, automatic cleaning implies that the grease duct system's drains may need to be piped to a properly equipped facility drain rather than individual grease traps of a fixed bucket size which are typically used for manually cleaned grease duct systems. Reference NFPA 96 for additional cleaning system requirements and check with local codes and authorities having jurisdiction for requirements governing the plumbing of and draining of waste waters containing cleaning agents, grease, etc. Cleaning systems must be installed in accordance with the terms of their listing and according to the manufacturer's instructions.

GENERAL INFORMATION *(contd.)*

CLEANING & FIRE SUPPRESSION - CONTINUED

Refer to NFPA 96, local codes and consult with authorities having jurisdiction for specific fire suppression system requirements.

WARNING: The initial pipe nipples, etc. connected to the Model GZ grease duct liner and protruding through the outer shell/cover must be factory installed by Van-Packer company. Field installation of pipes, nipples, etc., by means of drilling, cutting, puncturing, etc. through the outer shell/cover or into the liner of any Model GZ component will void the grease duct listing, warranty, and may cause failure of the grease duct system with respect to its fire containment and liquid tight integrity.

RECEIVING INSPECTION

Compare the packing list items and quantities with the contents of the containers to ensure completeness of the shipment. If the shipment is missing components, please contact Van-Packer's order entry department at 888 877 8225.

TYPICAL COMPONENT LOCATIONS

Plate support assemblies and other flat metal items will often be located in the bottom of shipping containers with an additional cardboard sheet (false bottom) over the top of them.

Straight sections, fittings, etc. will be positioned and stacked accordingly to fill the shipping container. Sections of smaller diameter may be slipped into sections of larger diameter. Vee bands, bags of fasteners, etc. may also be located inside the liner diameter of the various pieces.

Variable and adjustable slip liners will often be inserted into the liner of standard straight sections. The standard straight section containing a slip liner will have a sticker stating "VARIABLE/ADJUSTABLE LINERS ARE BEING SHIPPED INSIDE STRAIGHT LINERS."

Variable and adjustable covers will often be placed around the shell of standard straight sections. These should be easily noticed since they have a draw-up tab spanning the length of the cover.

FREIGHT DAMAGE

Inspect each shipping container as it is unloaded from the carrier for damage which may have occurred during transit. Should there be any damaged components, contact the shipping company immediately to file a claim.

STORAGE PRIOR TO INSTALLATION

All shipping containers or un-packed components must be stored in areas protected from the weather. Areas of low relative humidity and that are not subject to excessive temperature changes are recommended.

JOINT ASSEMBLY

According to NFPA 96, all grease ducts are to be liquid tight. The following steps are to be used to ensure this requirement is met.

Use high temperature silicone sealant, Van-Packer part number 101087A. **WARNING:** Do not substitute any type of water soluble sealants in the flange area.

Always follow job site safety requirements and MSDS (Material Safety Data Sheets) with respect to obtaining all proper attire and safe handling instructions for the work to be completed. The metal edges of grease duct parts may be razor sharp; extreme care and cut resistant gloves/sleeves should be used while handling.

The following tools are recommended: Philips screwdriver, vice grip pliers (D-shape), hammer/mallet, and a caulking gun (manual, power, or pneumatic screwdrivers and caulking guns are acceptable).

STEP 1

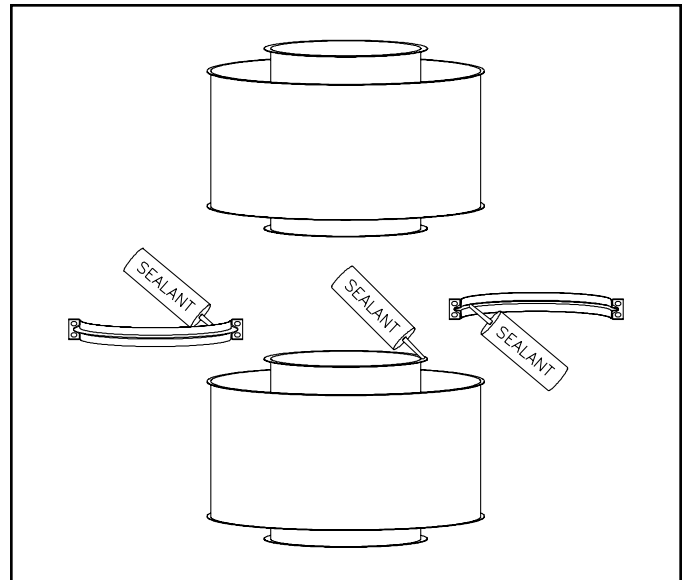
Inspect all liner flanges, vee bands, and draw bands and straighten any mild deformations that may have occurred during shipping.

STEP 2

To ensure sealant adhesion, degrease and remove any dirt and debris from the liner flanges and inside faces of the vee band halves. Use a mild degreasing water/detergent mix or an appropriate solvent (follow degreasing agent label accordingly).

STEP 3

Apply a continuous bead of sealant to one of the liner flanges to be joined and into the grooves of each vee band half.



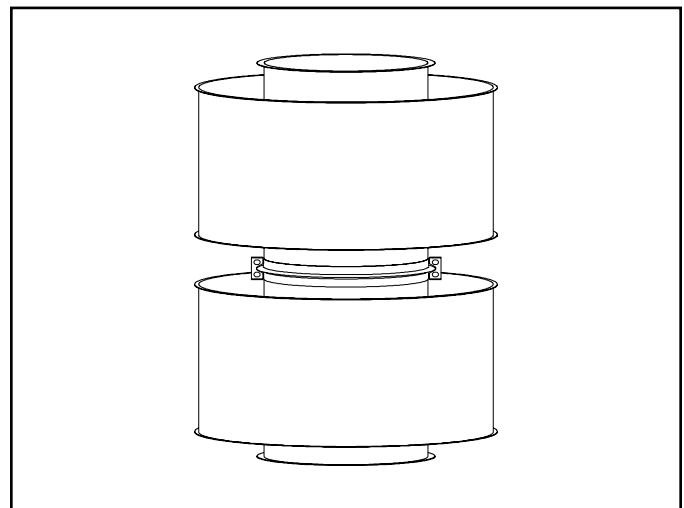
STEP 4

Butt the flanged ends of the components being joined and rotate slightly to ensure sealant coverage.

Place the vee band halves around the joined component flanges. To help prevent any potential leaks, the vee band should be rotated in a fashion such that the draw-up tabs are above the expected grease or cleaning solution level inside the duct.

With the provided fasteners and appropriate tools, draw the vee band halves together. Intermittently tap the vee band in place as the halves are drawn together. This will reduce the risk of stripping screw heads or damaging the draw-up tabs and will help ensure the assembled vee band is properly seated.

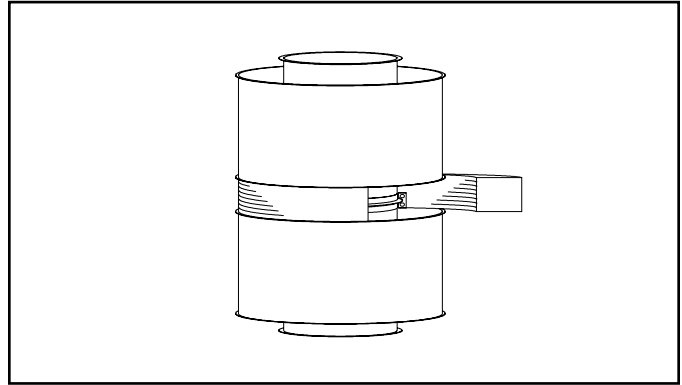
Remove/wipe smooth any excess sealant on the inside of the assembled duct.



JOINT ASSEMBLY *(contd.)*

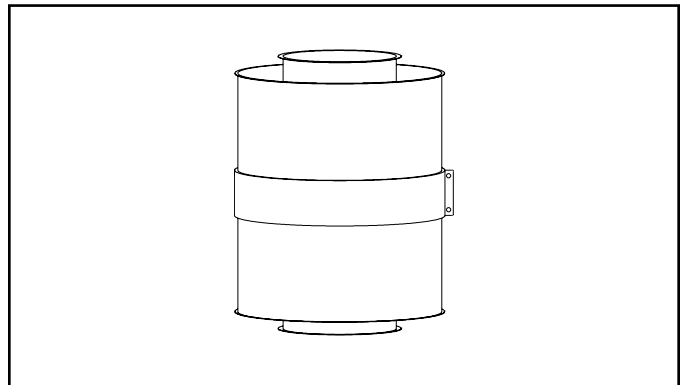
STEP 5

With the provided insulation strip, wrap the assembled vee band joint (3) times completely with a 2" overlap at the end of the last wrap. If more than one strip is required, overlap 2" before beginning to wrap with the additional strip(s). Wrap the joint tight enough for the insulation to fit in the space between the liner & shell. (This method applies wherever a joint requires to be wrapped prior to installing a draw band or cover.)



STEP 6

Complete the grease duct enclosure by placing the draw band around and overlapping the shell flanges of the assembled components. With the provided fasteners and appropriate tools draw up the band accordingly. Apply sealant (provided by others) to the draw band edges as may be required.



SEALANT USAGE

Inside Diameter	Joints Per Tube
06"	12
07"	10
08"	9
09"	8
10"	7
12"	6
14"	5
16"	5
18"	4

Inside Diameter	Joints Per Tube
20"	4
22"	3
24"	3
26"	2
28"	2
30"	2
32"	2
34"	2
36"	2

Joints per tube is based on the sealant required to join (2) components with a vee band (includes a continuous bead of sealant on the rolled flange and in the vee band groove). This chart is for estimating purposes only.

VEE BAND/DRAW BAND FASTENERS

The fasteners provided with vee bands and draw bands are 1/4" – 20 philips pan head screws with square nuts. Where components come standard with both a vee band and draw band/cover, the fasteners provided for the vee band will be plated steel; and, depending on the shell material, the provided fasteners for draw band/cover will be plated steel (where the shell is aluminized steel) or stainless steel (where the shell is stainless steel). Screw material types can easily be identified by length; plated screws will be 2" long and stainless steel screws will be 1-1/2" long.

INSULATION - Strip Widths & Fire Stop Packing

Where the finished assembly uses a half draw band (part G**HDB*) a 2" wide strip is provided (the factory may provide a 4" wide strip as an alternate which will require field cutting). Half draw bands are typically used as part of plate support assemblies, wall support assemblies & guy attachment rings.

Where the finished duct assembly uses a draw band (part G**DRW*) a 4" wide strip is provided. Draw bands are typically used wherever standard components are assembled in series (most components are provided with this draw band and insulation strip).

Where the finished duct assembly uses a wide draw band/cover a 6" wide strip is provided. Wide draw bands/covers are typically used where a 3" long starter section (part G**S/S) is used with supports or in some instances as part of a connection to hoods/transitions (see system installation examples).

Where the finished duct assembly uses a variable length or adjustable expansion cover (cover is part G**VAS* but is included with parts G**VLS* & G**ADJ*) a 24" wide strip is provided. Width to be field cut as required.

Where the finished duct assembly uses a fire stop band (part G**FSB* but comes standard with parts G**FPA* & G**WPA*) a 4" wide strip is provided.

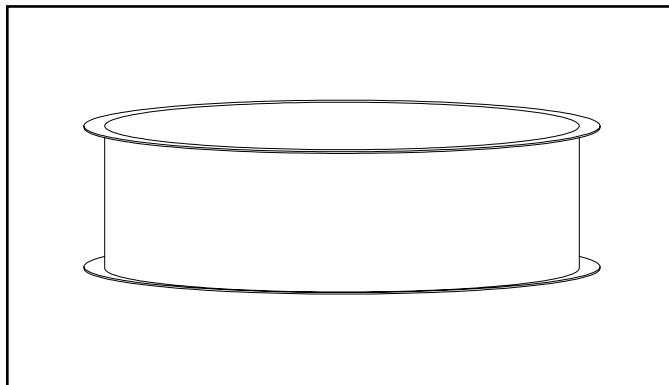
Where the floor or wall through penetration fire stops are used (parts G**FPA* & G**WPA*) the insulation for packing the opening is provided in 48" wide strips (the factory may provide 24" wide strips, or a package/container of insulation marked as "Fire Stop Packing Material" or "Fire Stop Insulation" as an alternate).

DUCT SECTIONS & FITTINGS

ADAPTERS

STARTER SECTION – PART S/S

The starter section is a short liner piece flanged on each end. This part when used as an adapter is intended to have one end connected to a hood, duct/transition by others, fan unit, etc. according to applicable methods as described by NFPA and then allow for a regular connection of a Model GZ component to the other flanged end. This part may also be used to ease the assembly & installation of supports (PLS, WSA, GAR) See installation examples. In some instances an additional wrap and banding (to be by others) at the final connection area may be required to complete a fire rated duct enclosure (refer to applicable codes).

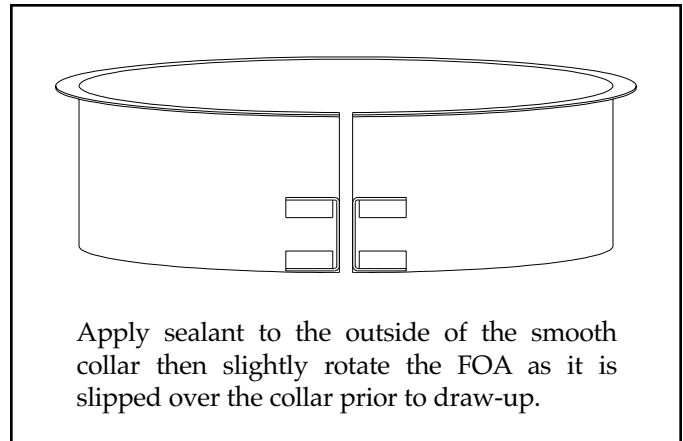


DUCT SECTIONS & FITTINGS

ADAPTERS (contd.)

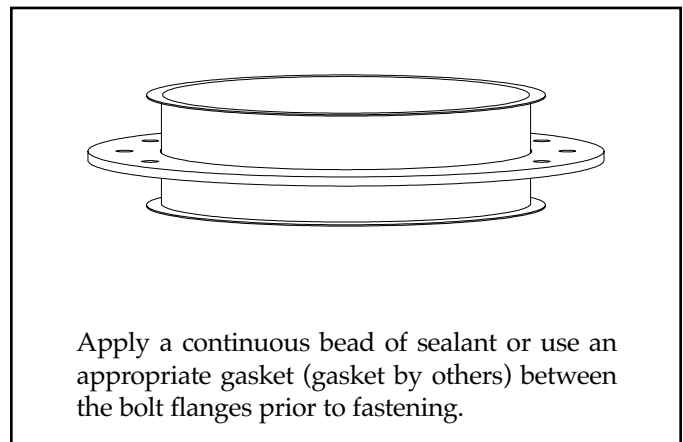
FLANGELESS OUTLET ADAPTER – PART FOA

The flangeless outlet adapter is a split liner piece with draw-up tabs and has a flange on one end. This adapter is intended to be slipped over a smooth collar, then drawn tight with the included fasteners, and allows for vee band connection of a Model GZ component to the flanged end. The smooth collar diameter must be within $+1/4"$ & $-1/8"$ of the liner I.D. of the adjoining Model GZ component. This adapter is non-load bearing and is not considered to add effective duct length.



BOLT FLANGE ADAPTER – PART BFA

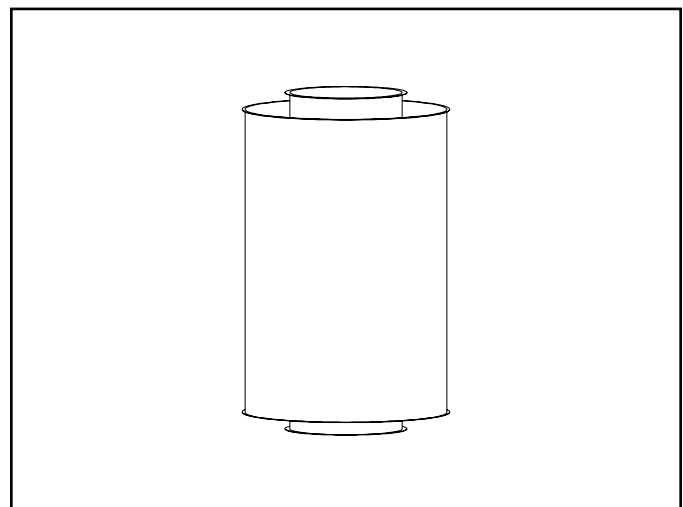
The bolt flange adapter is a short liner piece flanged on each end and is preassembled with a $1/4"$ thick van-stone (free floating) type bolt flange. This adapter is intended to be connected to a companion flange with appropriate fasteners (fasteners by others), and then allows for regular connection of a Model GZ component to the other flanged end. The I.D. of the pipe with companion flange being connected to cannot exceed the Model GZ liner I.D. $+1/4"$. Bolt flange size & hole pattern are to be specified at the time of purchase.



STRAIGHTS, VARIABLES & EXPANSION SECTIONS

STRAIGHT SECTIONS – PART STR

Straight sections are fixed lengths joined together to comprise desired grease duct runs. These sections may also be equipped (must be factory installed, contact Van-Packer for additional information) with nipples or couplings to accommodate test probes, fire suppression nozzles, etc...



DUCT SECTIONS & FITTINGS

STRAIGHTS, VARIABLES & EXPANSION SECTIONS (contd.)

VARIABLE LENGTH SECTION – PART VLS

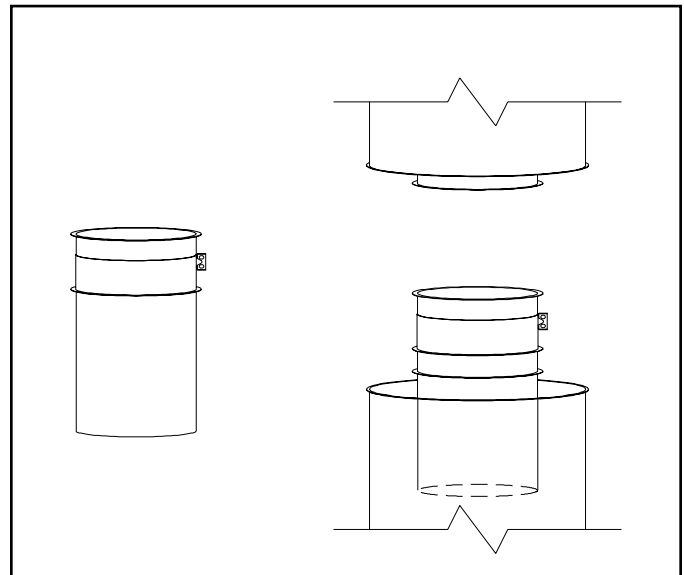
Variable length sections are intended to be used as a fixed length for spanning distances between 04-1/2" and 19-1/2". These components are comprised of a slip liner, locking collar, insulation sheet, and cover. These components can not be installed in series. If the provided cover does not overlap the shells of the components joined, then the maximum allowable installed length has been exceeded and an additional short straight section (part STR) may be required.

For some installations, field cutting of the slip liner, insulation sheet, and cover may be required. The raw end of the slip liner must slide into the initial component of the two which the variable is spanning between a minimum of 2". With regard to slope, the raw end must always be down-hill from the rolled flange end. Do not cut slip liners to the exact "flange to flange" distance of the components being joined. Carefully cut and position slip liners when they are intended to be inserted into tee sections, elbows, etc. as to not restrict or obstruct the laden vapor flow of the grease duct system.

Since the variable length section relies on clamping force to maintain its installed length, it should not be subject to heavy loads which may cause it to collapse.

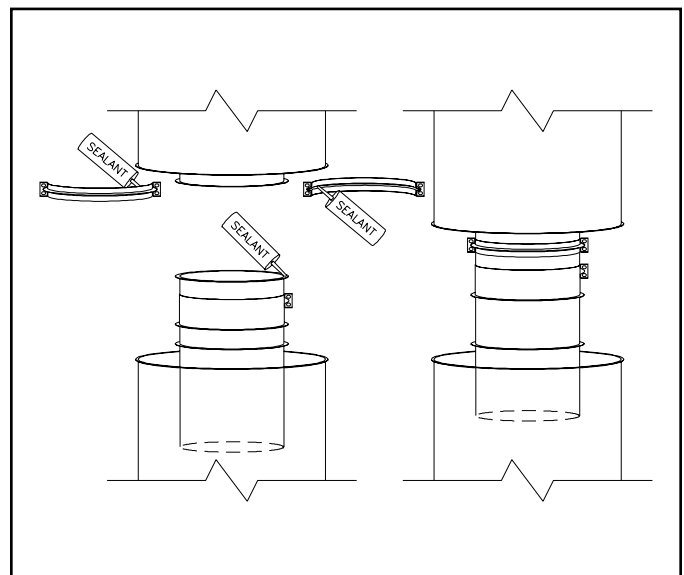
STEP 1

With the draw-up tab end towards the slip liner flange, slide the locking collar over the slip liner. Next, slide this assembly into the initial component of the two being joined. The raw end of the slip liner must be "down-hill" with respect to duct slope.



STEP 2

Apply a continuous bead of sealant to the flange of the slip liner and into the groove of a vee band. Next, slide the assembly and seat it against the liner flange of the secondary component being joined to. Install the vee band over the butted flanges.

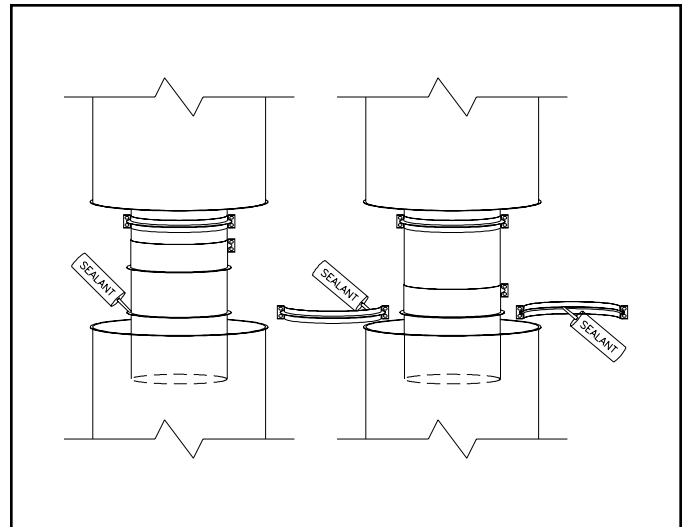


DUCT SECTIONS & FITTINGS

STRAIGHTS, VARIABLES & EXPANSION SECTIONS (contd.)

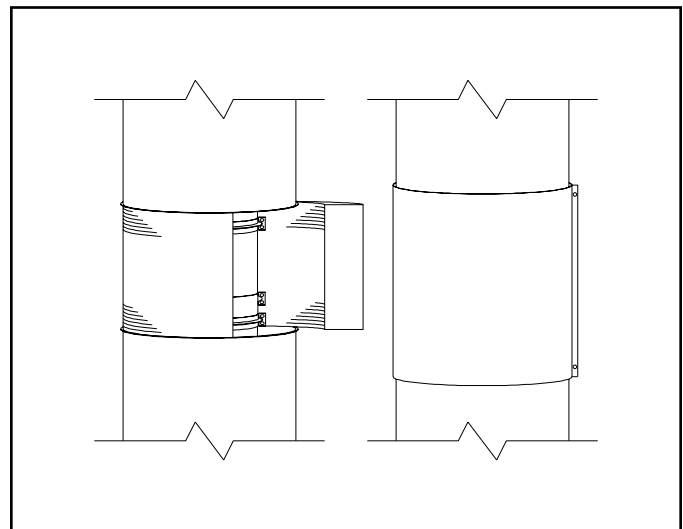
STEP 3

Apply a continuous bead of sealant at the insertion seam of the slip liner and rolled flange of the initial component. Next, slide the locking collar until it seats against the liner flange of the initial component. Then, using the provided fasteners, draw-up the locking collar. Last, apply sealant into the groove of a vee band and install over the butted flanges.



STEP 4

Wrap the assembly with the provided insulation (Typically a 24" wide strip is provided refer to STEP 5 of JOINT ASSEMBLY). Complete the duct enclosure by positioning the cover so that it overlaps the shells of the adjoining components and draw-up with the provided fasteners.



ADJUSTABLE EXPANSION SECTION – PART ADJ

Adjustable expansion sections are intended to be used to span distances between 01-1/2" to 19-1/2" and compensates for thermal expansion. These components are comprised of a slip liner, rope gasket, insulation sheet, and cover. These components cannot be installed in series. If the provided cover does not overlap the shells of the components joined, then the maximum allowable installed length has been exceeded and an additional short straight section (part STR) may be required. Adjustable expansion sections are non-load bearing.

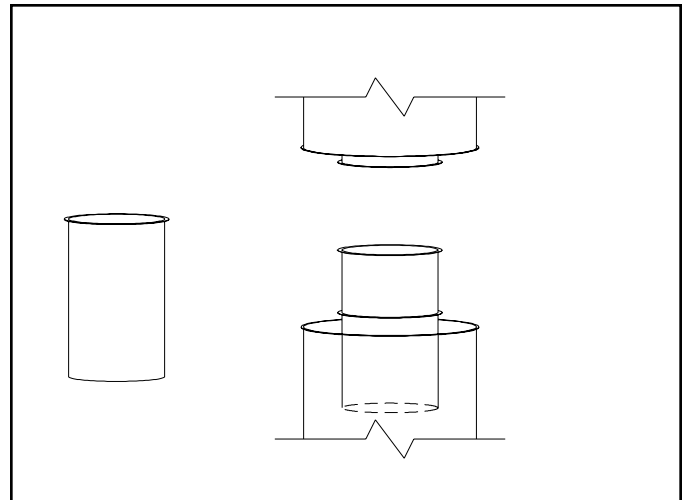
For some installations, field cutting of the slip liner, insulation sheet, and cover may be required. The raw end of the slip liner must slide into the initial component of the two which the adjustable is spanning a minimum of 6". With regard to slope, the raw end must always be down-hill from the rolled flange end. Do not cut slip liners to the exact "flange to flange" distance of the components being joined. Carefully cut and position slip liners accordingly when installed near tee sections, elbows, etc. as to not restrict/obstruct the flow of the duct system. The "flange to flange" distance between the components being joined must be far enough apart to accommodate the expansion of the duct run. For example, if a particular duct run is expected to have 04" of expansion then the minimum "flange to flange" distance would be 05-1/2" [(01-1/2" + 04") minimum installed length + expansion]. See THERMAL EXPANSION section of these instructions as required.

DUCT SECTIONS & FITTINGS

STRAIGHTS, VARIABLES & EXPANSION SECTIONS (contd.)

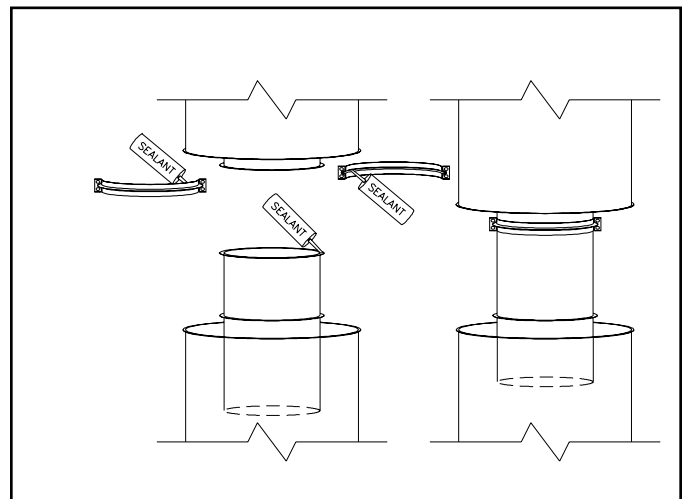
STEP 1

Slide the slip liner into the initial component of the two being joined. The raw end of the slip liner must be “down-hill” with respect to duct slope.



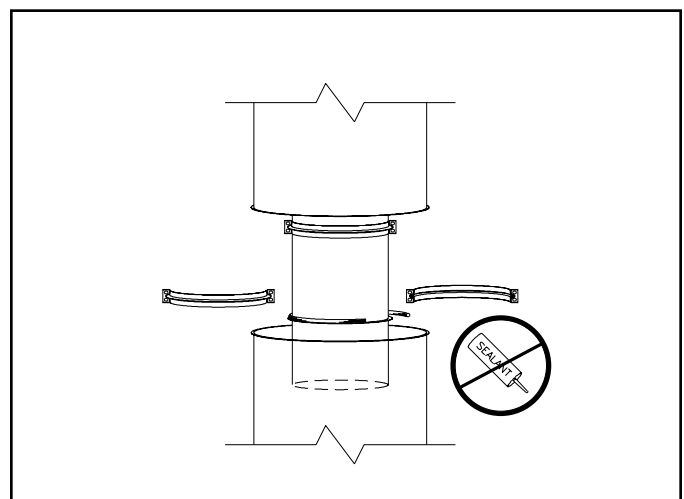
STEP 2

Apply a continuous bead of sealant to the flange of the slip liner and into the groove of a vee band. Next, slide the slip liner and seat it against the liner flange of the secondary component being joined to. Install the vee band over the butted flanges.



STEP 3

IMPORTANT: Do not use any sealant for the instructions in step 3. Wrap the rope gasket around the slip liner at the insertion seam of the slip liner and rolled flange of the initial component. Last, install a vee band over the flange and rope gasket. Draw-up the vee band enough to firmly hold the gasket in place.

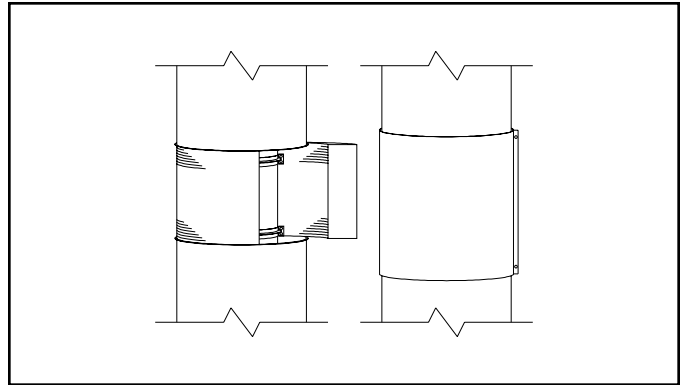


DUCT SECTIONS & FITTINGS

STRAIGHTS, VARIABLES & EXPANSION SECTIONS (contd.)

STEP 4

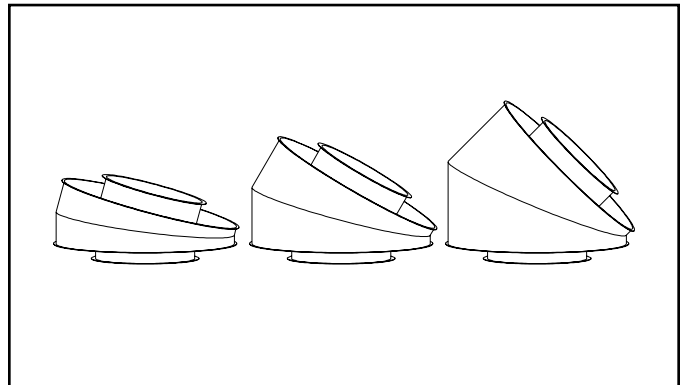
Wrap the assembly with the provided insulation (Typically a 24" wide strip is provided refer to STEP 5 of JOINT ASSEMBLY). Complete the duct enclosure by positioning the cover so that it overlaps the shells of the adjoining components and draw-up with the provided fasteners.



ELBOWS, TEES & TRANSITIONS

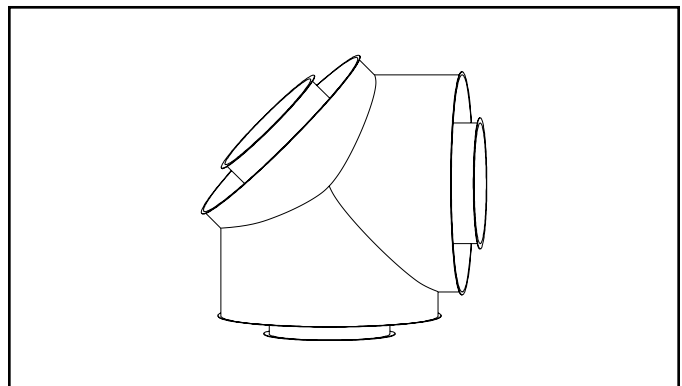
ELBOWS – PART **E

Individual elbows and assembled combinations of elbows can be used for changes in duct direction. Elbows must be isolated from the effects of thermal expansion and excessive bending loads.



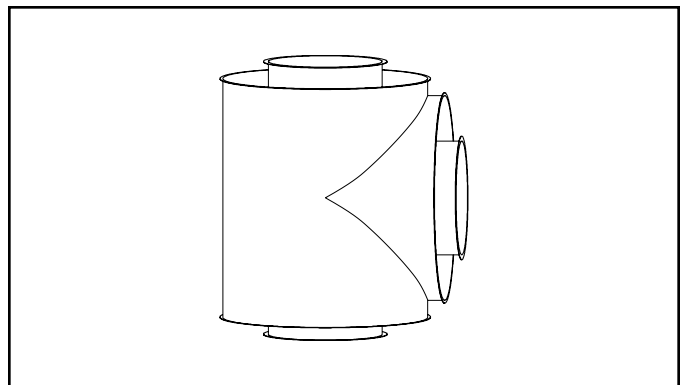
90° WYE SECTION – PART WYE

The 90° WYE section can be used for joining duct runs together or to provide cleanout access at a 90° change in direction. 90° WYE sections must be isolated from the effects of thermal expansion and excessive bending loads.



90° CENTERED TEE SECTION – PART 90T

The 90° tee section can be used for joining duct runs together, making 90° changes in direction, and to provide cleanout access. 90° tee sections must be isolated from the effects of thermal expansion and excessive bending loads.

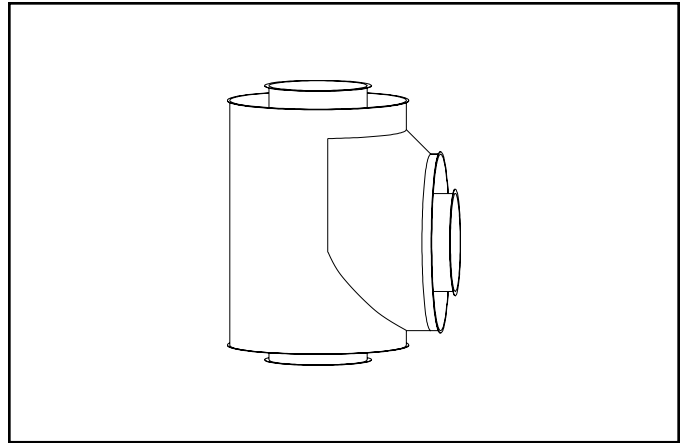


DUCT SECTIONS & FITTINGS

ELBOWS, TEES & TRANSITIONS (contd.)

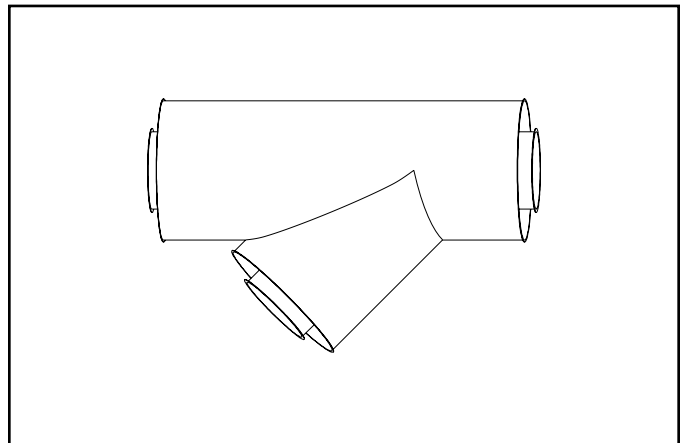
90° BOOT TEE SECTION – PART BTT

The 90° boot tee section can be used for joining duct runs together, making low resistance 90° changes in direction, and to provide cleanout access. 90° boot tee sections must be isolated from the effects of thermal expansion and excessive bending loads.



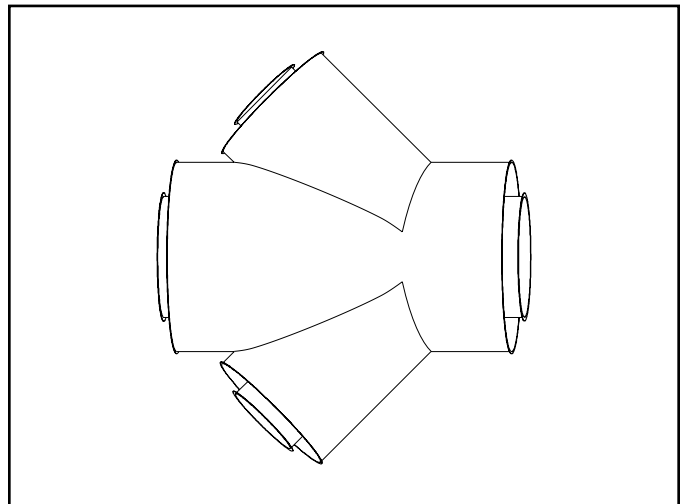
45° TEE SECTION – PART 45T

The 45° tee section can be used for joining duct runs together, making 45° changes in direction, and the projection is often joined with a 45° elbow to make a low resistance 90° change in direction. 45° tee sections must be isolated from the effects of thermal expansion and excessive bending loads.



DOUBLE 45° TEE SECTION – PART 45T**/**

The double 45° tee section can be used for joining duct runs together, making (2) 45° changes in direction, and the projections are often joined with 45° elbows to make (2) low resistance 90° changes in direction without having opposing inlets. Double 45° tee sections must be isolated from the effects of thermal expansion and excessive bending loads.

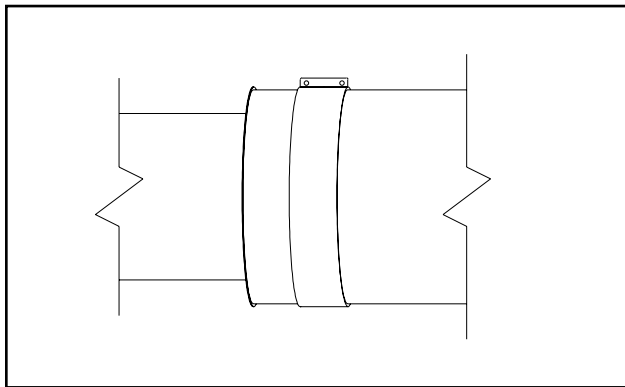


DUCT SECTIONS & FITTINGS

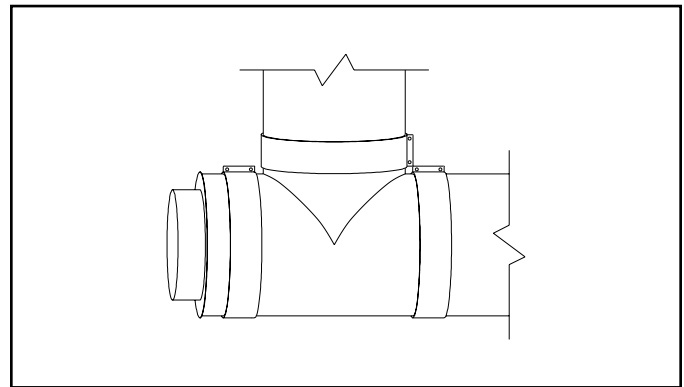
ELBOWS, TEES & TRANSITIONS (contd.)

ABRUPT TRANSITION – PART ATS

This part is used to transition to a different diameter within a short distance. This component used in conjunction with an end cap can be used to reduce the end of a horizontal run (sized to provide 02" between the bottom of the duct and the bottom of the opening) and provide cleanout access. The abrupt transition is comprised of a short transition, insulation strip, and cover. Extreme care should be taken when reducing duct size as the resultant duct resistance may increase. This component is non-load bearing and must be isolated from the effects of thermal expansion and excessive bending loads.



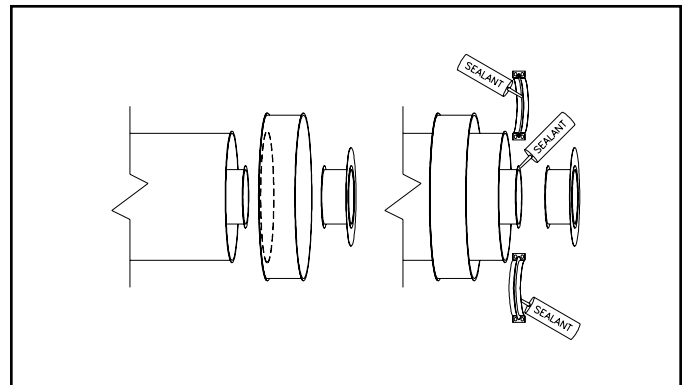
INCREASE DUCT SIZE



REDUCE FOR CLEANOUT

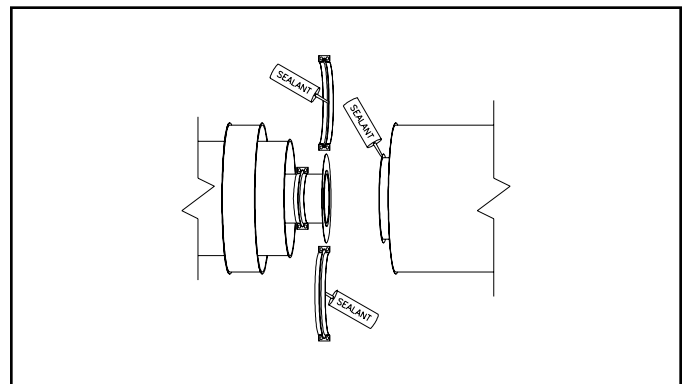
STEP 1

Slide the cover over the shell of the small diameter duct. Next, Apply a continuous bead of sealant to the flange of the small diameter duct and into the groove of a small diameter vee band. Last, seat the transition and install the vee band over the butted flanges.



STEP 2

Apply a continuous bead of sealant to the flange of the large diameter duct being joined and into the groove of a large diameter vee band. Next, seat the duct piece against the large diameter of the transition and install the vee band over the butted flanges. Support the duct being joined accordingly before seating it against the large diameter of the transition.

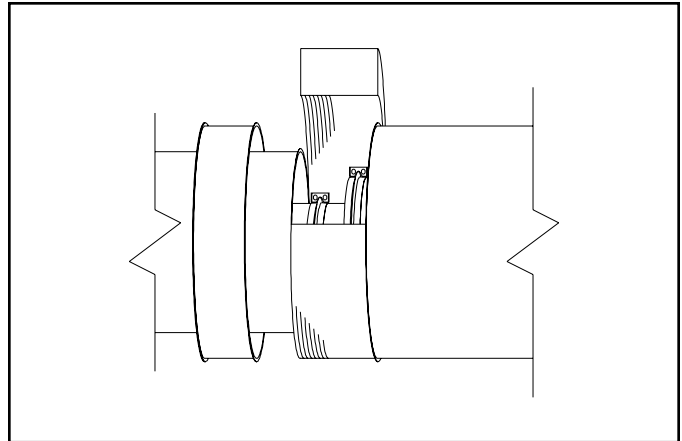


DUCT SECTIONS & FITTINGS

ELBOWS, TEES & TRANSITIONS (contd.)

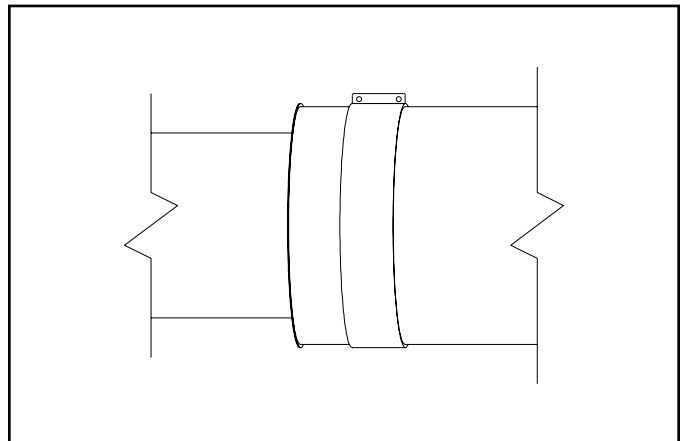
STEP 3

Wrap the assembly with the provided insulation (Typically a 4" wide strip is provided refer to STEP 5 of JOINT ASSEMBLY).



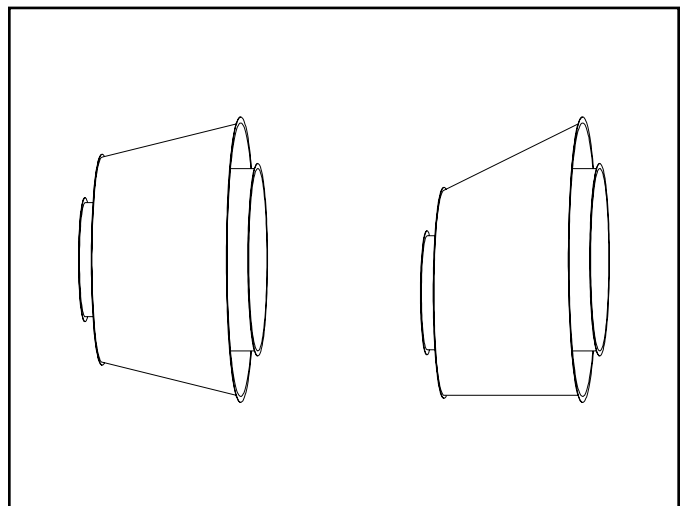
STEP 4

Slide the cover over the insulated space (the cover is not long enough to enclose the entire insulated area). Complete the duct enclosure (additional 4" wide insulation strip may be required) by positioning a large diameter draw band to overlap the shell flanges of the cover and joined duct section and draw-up accordingly.



INCREASERS – PARTS INC & ECC

These parts are used to transition to different diameters. The standard increaser section, part INC, is a cone shaped design and the eccentric increaser section, part ECC, has been designed to allow for one duct side to remain in line. The eccentric increaser is typically preferred in horizontal installations where the bottom of the duct needs to remain in line to allow for drainage. Extreme care should be taken when reducing duct size as the resultant duct resistance may increase. These components are not intended to be subject to heavy loads.

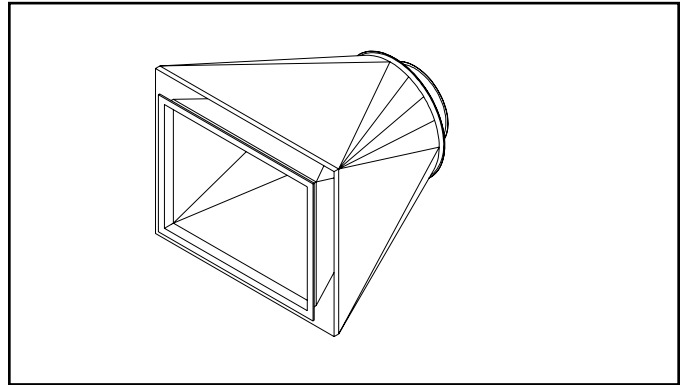


DUCT SECTIONS & FITTINGS

ELBOWS, TEES & TRANSITIONS (contd.)

RECTANGULAR TO ROUND TRANS. – PART STS

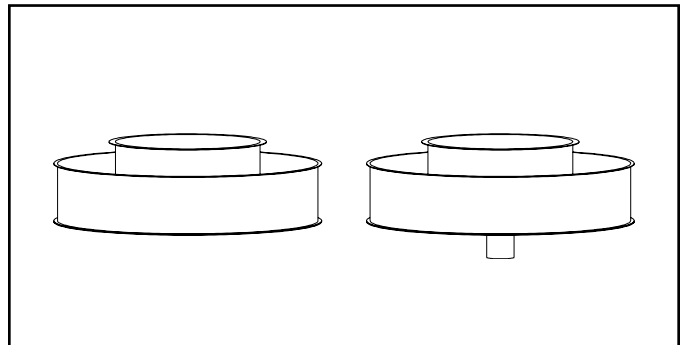
This part is intended to transition from round Model GZ duct to rectangular duct by others. The round end readily connects with other Model GZ components. The rectangular end is intended to be connected to a hood or duct by others according to applicable methods as described by NFPA. An additional wrap and banding (to be by others) at the final connection area of the rectangular end may be required to complete a fire rated duct enclosure (refer to applicable codes). This part can be provided with a male or female square end depending on application.



ACCESSORIES

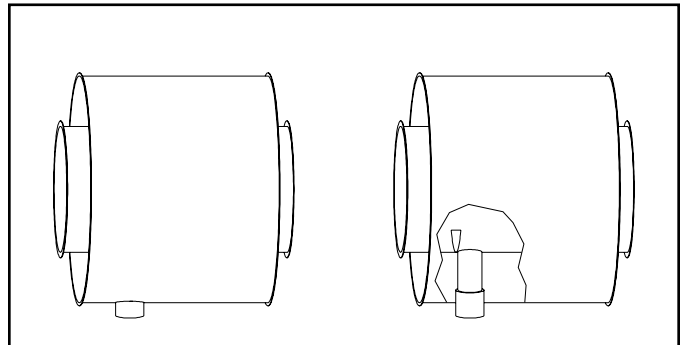
END CAPS – PARTS CAP & C/D

These parts are used to close off ends of breeching runs, stack risers, and to provide cleanout and inspection access. The end cap with drain (part C/D) may be used at the base of a tee section to provide drainage of a vertical riser and may also be used on tee section projections in horizontal runs for use as access ports for supplemental equipment; e.g., sprinkler heads, etc.



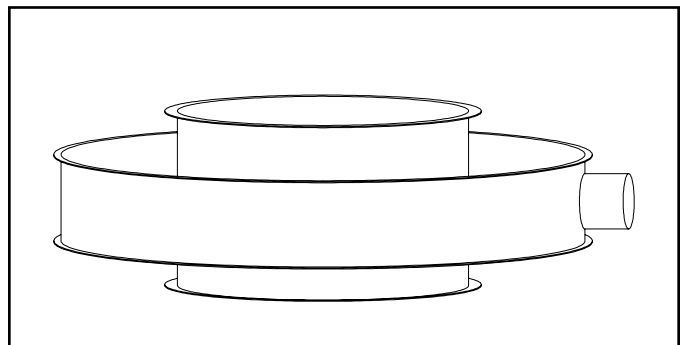
DUCT COUPLING AND DRAIN SECTIONS PARTS DCS & DDS

The duct coupling section (part DCS) may be used to provide necessary access ports for supplemental equipment; e.g., sprinkler heads, etc. The duct drain section (part DDS) is intended for use as a horizontal drain section. Part DDS is equipped with an internal dam near the drain coupling.



IN-LINE DRAIN – PART D/S

The in-line drain section is intended for use as a vertical drain section. This component is equipped with an internal conical dam. The in-line drain section should not be used as an access port for supplemental equipment; e.g., sprinkler heads, etc.

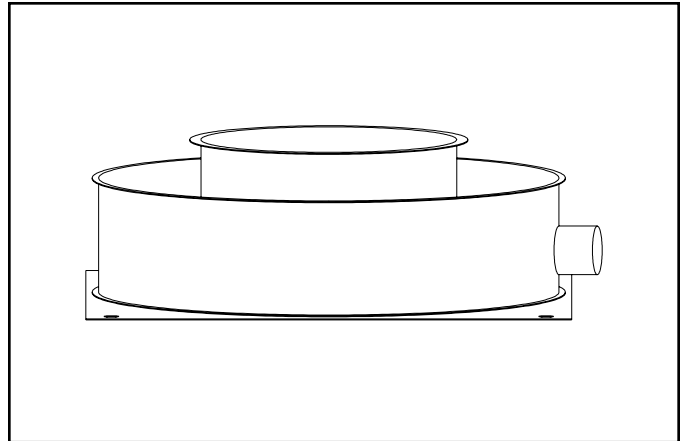


DUCT SECTIONS & FITTINGS

ACCESSORIES (contd.)

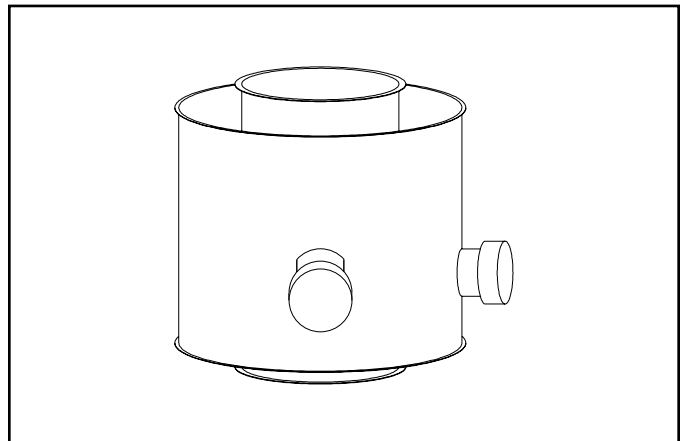
BASE DRAIN – PART BDS

The base drain section is intended for use as a base support and vertical drain section for duct risers. The base drain section should not be used as an access port for supplemental equipment; e.g., sprinkler heads, etc. Observe code compliant clearances with respect to the base plate.



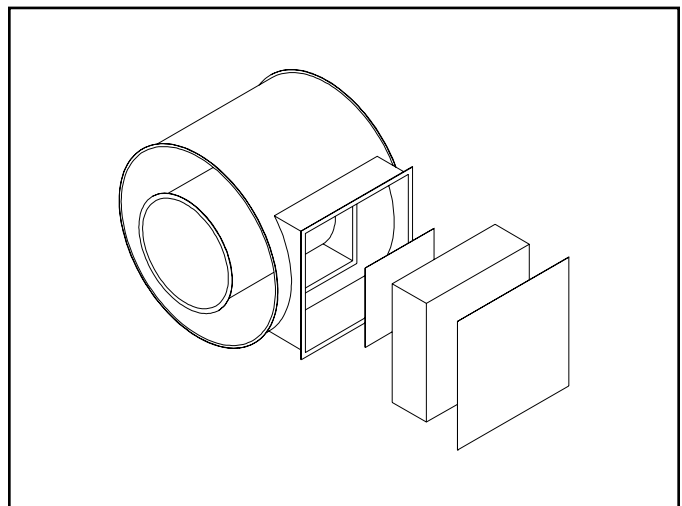
TEST PORT SECTION – PART TPS

The test port section may be used to provide necessary access ports for supplemental equipment; e.g., exhaust gas sampling, sprinkler heads, etc. This part is standard with (2) pipes w/ caps rotated 90° apart for use as access ports.



ACCESS PANEL SECTION – PART APS

This part is intended to be used for clean out access. When the access panel section is installed in a horizontal position, it must be orientated in accordance with applicable codes. Using the included fasteners, secure the liner door. Next, set the insulation sheet against the liner door. Last, using the included fasteners secure the shell door.

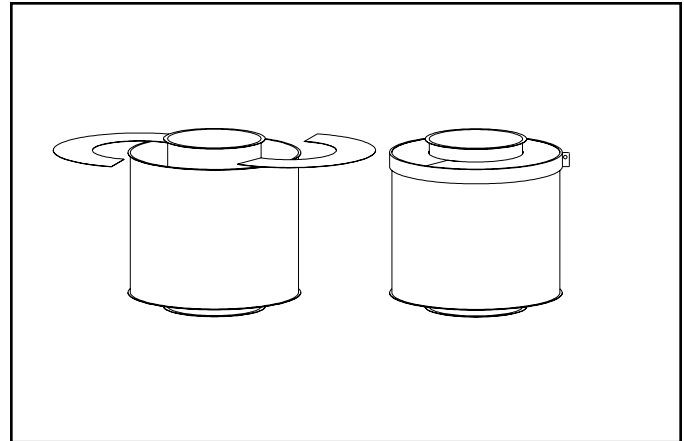


DUCT SECTIONS & FITTINGS

ACCESSORIES (contd.)

COVER PLATE – PART CVR

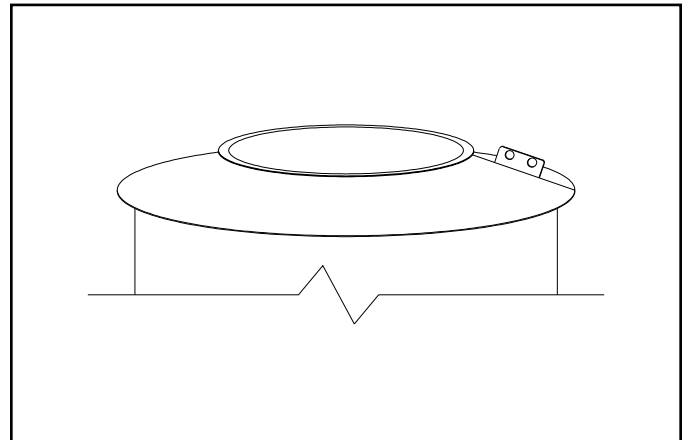
This part is intended to be used to close off the space between the liner and the shell. Use the cover plate for a uniform shell appearance. The cover plate is comprised of (2) half rings and can be held in place against the rolled flange of a component shell using a half draw band.



TERMINATIONS

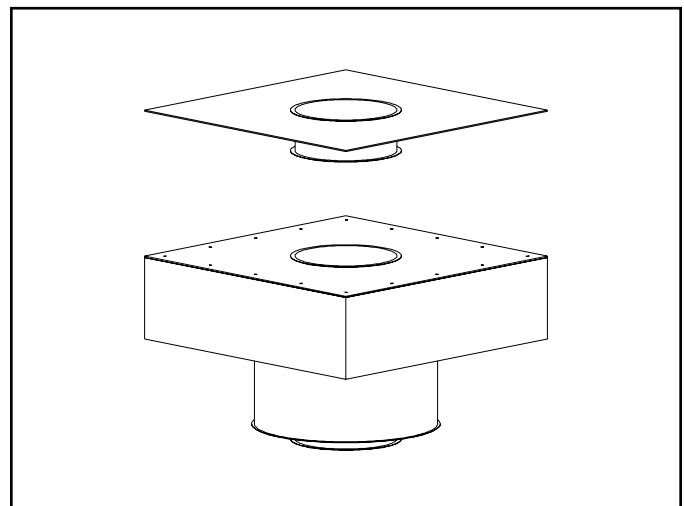
OPEN TOP CLOSURE – PART OTC

The open top closure closes the space between the liner and shell. First, position the OTC around the liner. Next, butt the OTC up against the rolled flange of the liner and using the provided fasteners draw up the OTC. Last, apply a bead of sealant at the seam formed between OTC and the liner to form a weather tight seal.



FAN ADAPTER SECTION – PART FAS

The fan adapter section is intended to be used with a “traditional” roof curb (provided by others) and a hinged up-blast type exhaust fan. Consult codes accordingly for penetration/curb requirements. The FAS is comprised of a fan adapter plate (specify plate size at time of purchase) with a factory installed starter section, insulation strip and wide draw band/cover. The curb must be the load bearing structure for the fan unit. Assemble with a standard straight section & pass down through the curb opening until the plate butts against the top of the curb. Next, field connect the plate to the curb (drilling/fasteners & sealant by others as required). Install the fan unit per manufacturer’s requirements.

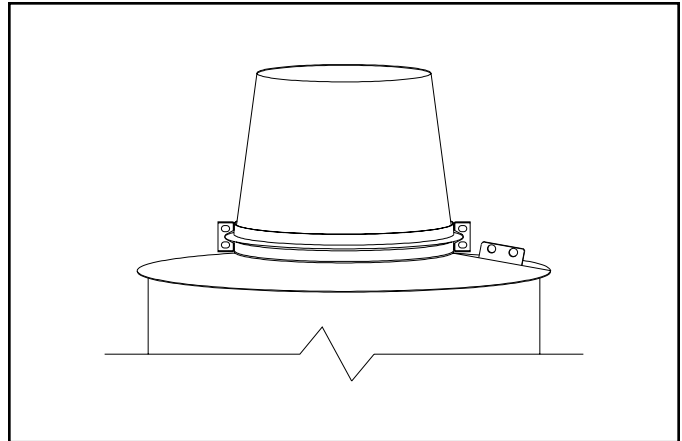


DUCT SECTIONS & FITTINGS

TERMINATIONS (contd.)

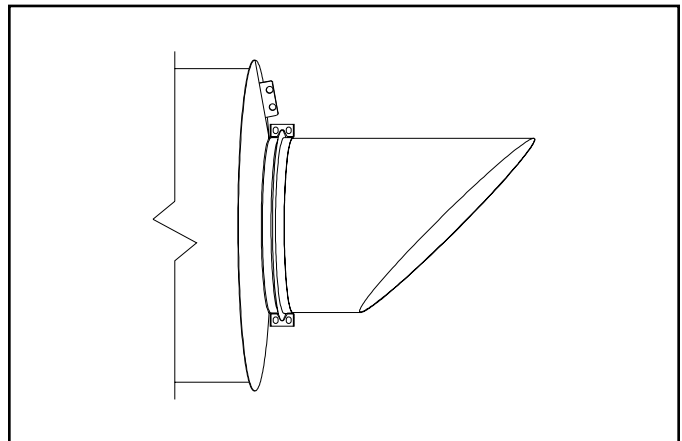
VELOCITY CONE – PART CON

The velocity cone is used to increase velocity of exiting gases. The CON connects to the liner flange with a vee band per the joint assembly instructions. The space between the liner and shell is then closed off using a rain skirt. The rain skirt is installed by positioning the rain skirt around the liner just below the previously installed vee band. Next, using the provided fasteners draw up the rain skirt (the rain skirt should be overlapping and in contact with the top of the shell). Last, apply a bead of sealant at the seam formed between rain skirt and the liner to form a weather tight seal.



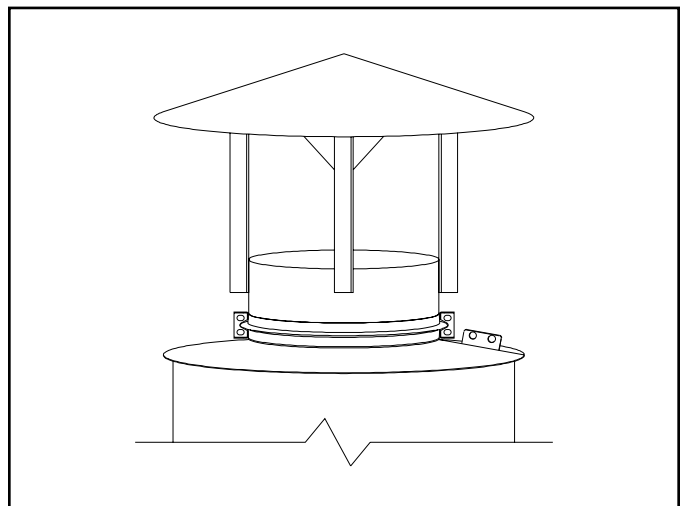
SIDE DISCHARGE – PART SDS

Typically used as a horizontal termination. The SDS connects to the liner flange with a vee band per the joint assembly instructions. The space between the liner and shell is then closed off using a rain skirt. The rain skirt is installed by positioning the rain skirt around the liner just below the previously installed vee band. Next, using the provided fasteners draw up the rain skirt (the rain skirt should be overlapping and in contact with the top of the shell). Last, apply a bead of sealant at the seam formed between rain skirt and the liner to form a weather tight seal.



DOUBLE CONE RAIN CAP – PARTS DCR & RCS

Rain caps connect to the liner flange with a vee band per the joint assembly instructions. The space between the liner and shell is then closed off using a rain skirt. The rain skirt is installed by positioning the rain skirt around the liner just below the previously installed vee band. Next, using the provided fasteners draw up the rain skirt (the rain skirt should be overlapping and in contact with the top of the shell). Last, apply a bead of sealant at the seam formed between rain skirt and the liner to form a weather tight seal. (Part RCS has a screen)



SUPPORTS & GUIDES

NOTE: The structural engineer for the project should select support member channels, beams, rods, wires/cables, etc. and joining methods in accordance with Good Engineering Practices to suite each specific application. Van-Packer accepts no responsibility for the design and/or modification of buildings to accept required support framing, anchoring methods, etc. as a result of load reactions as determined by the structural engineer. If support members, etc. are being welded near the grease duct it is imperative to protect the duct from any welding splatter. Hot weld splatter could burn holes through the grease duct jeopardizing its fire, gas, & liquid containment integrity.

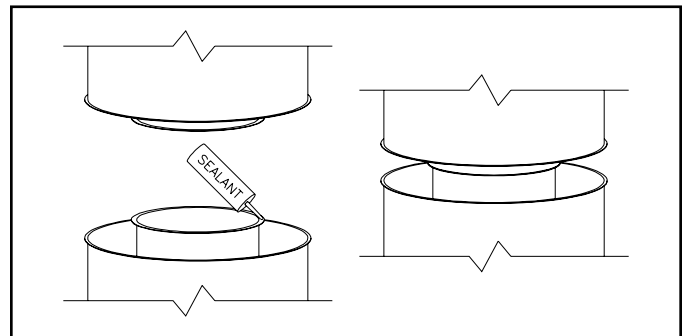
STRUCTURAL SUPPORTS

PLATE SUPPORT ASSEMBLY – PART PLS

Plate support assemblies are used for vertical & horizontal (breeching anchor) structural support applications. The PLS, in conjunction with field fabricated support members from the PLS to the building structure, is intended to provide rigid (static) support locations. These rigid support locations are intended to withstand the weight of duct components, forces from thermal expansion & exhaust velocities, etc. The PLS is comprised of (1) two-piece square support plate and (1) two-piece round clamp flange.

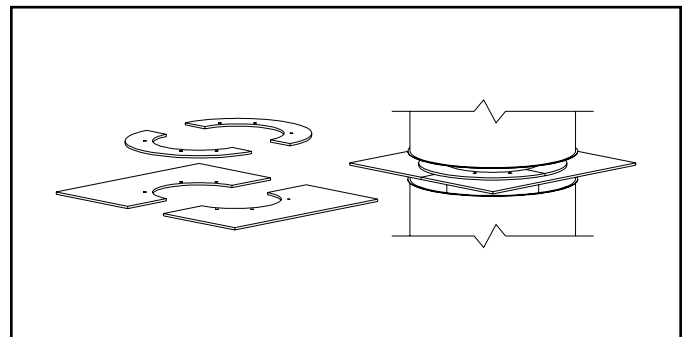
STEP 1

Apply a continuous bead of sealant to one of the liner flanges of the components to be joined then butt the flanged ends of the components being joined and rotate slightly to ensure sealant coverage. Do not use a vee band. The PLS assembly clamps the flanges of the components being joined together replacing the vee band.



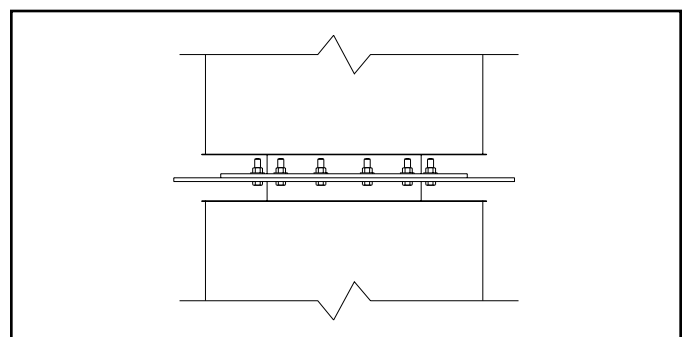
STEP 2

Position the square support plate below the butted liner flanges and the round clamp flange above the butted liner flanges. The seam formed by bringing the round clamp flange halves together must be rotated 90° from the seam similarly formed by the square support plate halves.



STEP 3

Using the provided fasteners, bolt together the square support plate and round clamp flange. Before the bolts are fully tight, from the inside of the joined sections tap the butted flanges outward against the PLS to ensure alignment of the joint. Fully tighten the bolts.

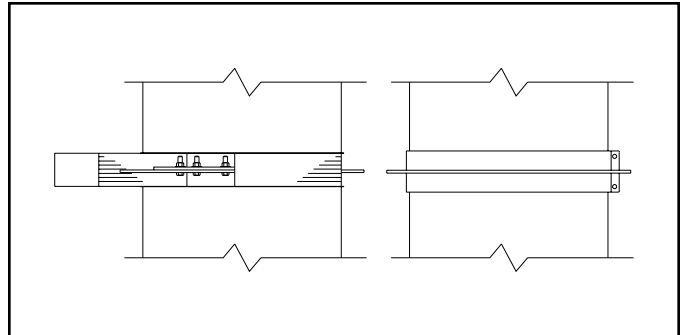


SUPPORTS & GUIDES

STRUCTURAL SUPPORTS (contd.)

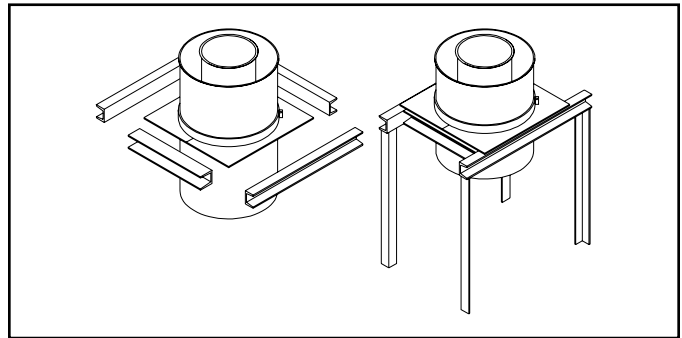
STEP 4

Complete the grease duct enclosure by first wrapping the liner areas above and below the PLS with the provided insulation strips (Refer to STEP 5 of JOINT ASSEMBLY). Then position the appropriate draw bands such that each one overlaps a shell of the joined components and butts against the PLS. Next, with the provided fasteners draw up the draw bands. Apply sealant (provided by others) to the draw band edges as may be required.



STEP 5

The square support plate must be enclosed on all (4) sides with support members (provided by others). The assembled plate support must not be allowed to deflect from loads produced by weight, thermal expansion, etc. Support members may be attached to the plate support with appropriate fasteners or by welding. Do not anchor support members from the PLS into combustible materials of the building structure.

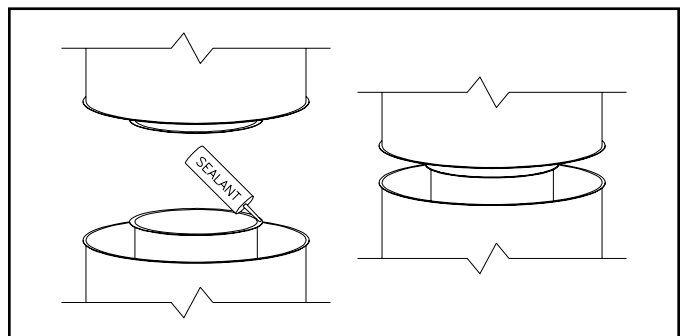


WALL SUPPORT ASSEMBLY – PART WSA

Wall support assemblies are used for vertical structural support applications. The WSA, in conjunction with anchor bolts or in some instances additional field fabricated support members from the wall brackets to the building structure, is intended to provide a rigid (static) support location. This rigid support location is intended to withstand the weight of duct components, forces from thermal expansion & exhaust velocities, etc. The WSA is comprised of (4) square support plates, (1) left wall bracket & (1) right wall bracket.

STEP 1

Apply a continuous bead of sealant to one of the liner flanges of the components to be joined then butt the flanged ends of the components being joined and rotate slightly to ensure sealant coverage. Do not use a vee band. The WSA assembly clamps the flanges of the components being joined together replacing the vee band.

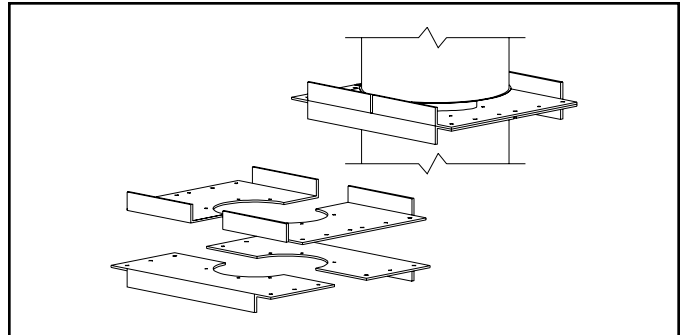


SUPPORTS & GUIDES

STRUCTURAL SUPPORTS (contd.)

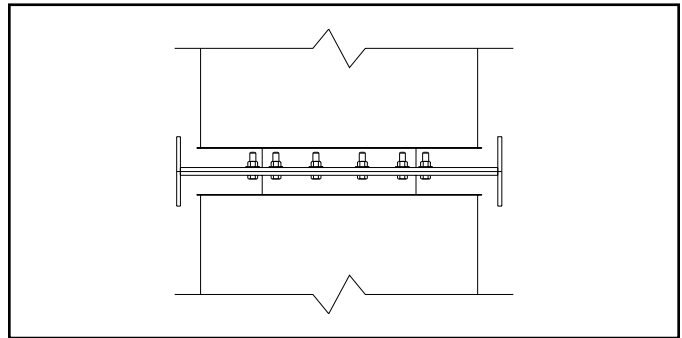
STEP 2

Position the lower square support plate below the butted liner flanges and the upper square support plate above the butted liner flanges. The seam formed by bringing the upper support plate halves together will be rotated 90° from the seam similarly formed by the lower support plate halves.



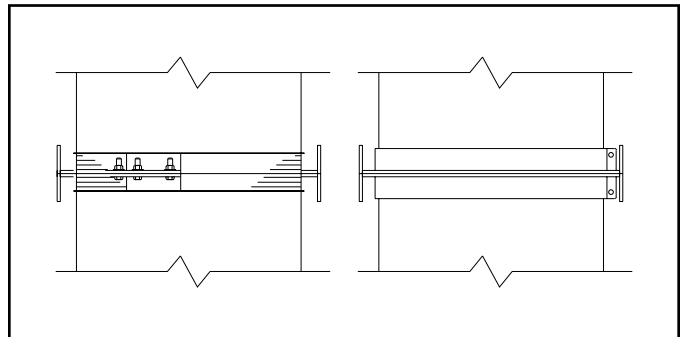
STEP 3

Using the provided fasteners, bolt together the upper and lower support plates. Before the bolts are fully tight, from the inside of the joined sections tap the butted rolled flanges outward against the WSA to ensure alignment of the joint. Fully tighten the bolts.



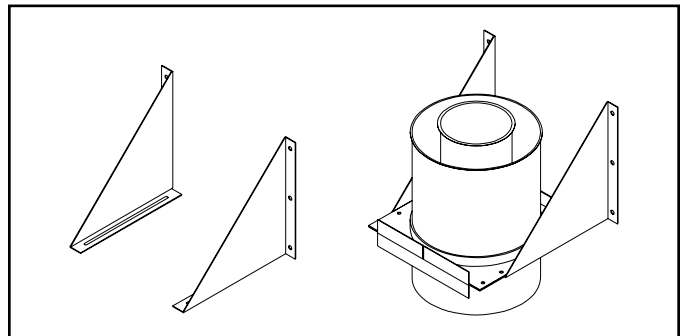
STEP 4

Complete the grease duct enclosure by first wrapping the liner areas above and below the WSA with the provided insulation strips (Refer to STEP 5 of JOINT ASSEMBLY). Then position the appropriate draw bands such that each one overlaps a shell of the joined components and butts against the WSA. Next, with the provided fasteners draw up the draw bands. Apply sealant (provided by others) to the draw band edges as may be required.



STEP 5

Position the wall brackets (slotted leg) under the assembled square support plates such that distance between the anchor legs of the wall brackets (upright holed legs) and the duct O.D. is 6". Then using the provided fasteners secure the wall brackets to the support plates.

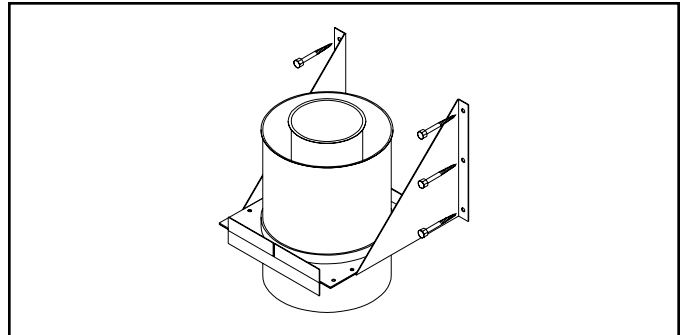


SUPPORTS & GUIDES

STRUCTURAL SUPPORTS (contd.)

STEP 6

Anchor the wall brackets to the wall or additional field fabricated support members accordingly. The wall support assembly must always be installed in the vertical position such that the angle edges of the brackets are rising above the joined sections. Do not install upside down, rotated, or horizontally. Anchor bolts or support members from the WSA must not be anchored into combustible materials of the building structure.

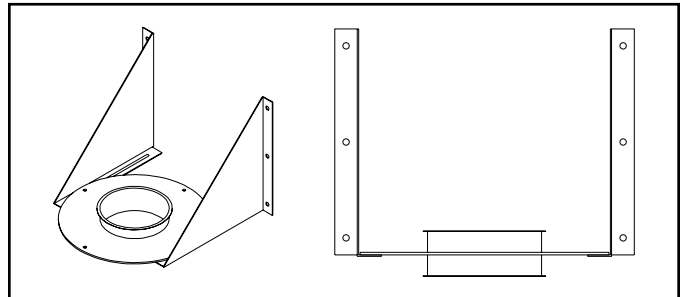


WALL FLANGE ASSEMBLY – PART WFA

Wall flange assemblies are used for vertical structural support applications. The WFA, in conjunction with anchor bolts or in some instances additional field fabricated support members from the wall brackets to the building structure, is intended to provide a rigid (static) support location. This rigid support location is intended to withstand the weight of duct components, forces from thermal expansion & exhaust velocities, etc. The WSA is comprised of (1) flange support, (1) left wall bracket and (1) right wall bracket.

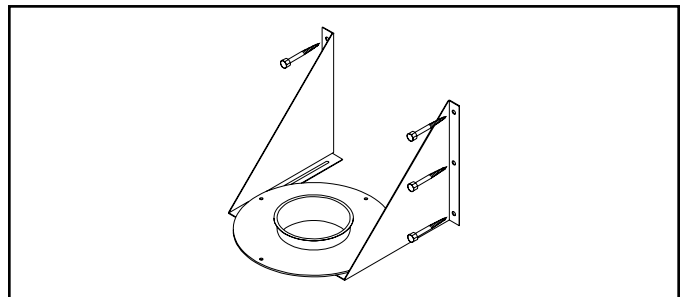
STEP 1

Position the flange support with its bolt holes aligned accordingly on top of the slotted legs of the wall brackets and at a distance of 10" between the flange support liner and the anchor legs (upright holed legs). Then using the provided fasteners secure the support flange to the wall brackets. **Note:** Upon assembly of additional duct components the distance between the duct O.D. and the anchor legs of the wall brackets will be 6"



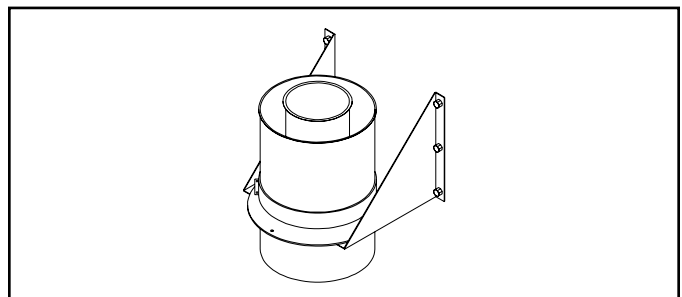
STEP 2

Anchor the wall brackets to the wall or additional field fabricated support members accordingly. The wall flange assembly must always be installed in the vertical position such that the angle edges of the brackets are rising above the flange support. Do not install upside down, rotated, or horizontally. Anchor bolts or support members from the WFA must not be anchored into combustible materials of the building structure.



STEP 3

Follow the joint assembly instructions using sealant, vee bands, insulation strips, and draw bands to attach components to the liner flanges of the flange support.

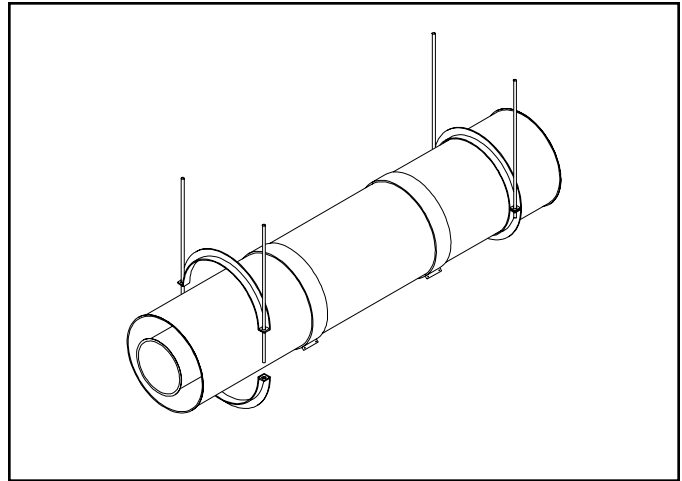


SUPPORTS & GUIDES

BREECHING SUPPORTS

FULL ANGLE RING – PART FAR

Full angle rings, in conjunction with supports rods or other field fabricated support members from the FAR attached to the building structure, are intended to support the weight of horizontal assembled duct lengths and also to maintain alignment as the duct expands and contracts. The FAR is comprised of (2) half rings and when bolted together is a slight clearance fit to the duct. Position the FAR away from draw bands & covers as to allow for the unrestricted expansion and contraction of the duct system. FAR's cannot be installed over draw bands or variable/adjustable expansion section covers.

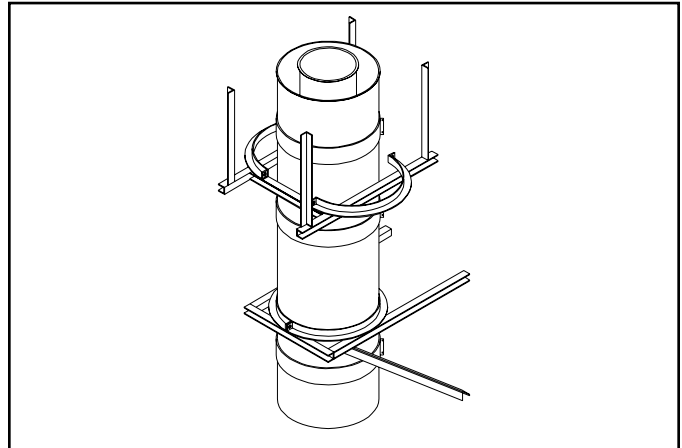


SUPPORTS & GUIDES

LATERAL BRACES & GUIDES

FULL ANGLE RING – PART FAR

Full angle rings, in conjunction with field fabricated support members from the FAR attached to the building structure, are intended to laterally brace the vertical assembled duct lengths from wind loads and also maintain alignment as the duct expands and contracts. The FAR is comprised of (2) half rings and when bolted together is a slight clearance fit to the duct. Position the FAR away from draw bands & covers as to allow for the unrestricted expansion and contraction of the duct system. FAR's cannot be installed over draw bands or variable/adjustable expansion section covers.



SUPPORTS & GUIDES

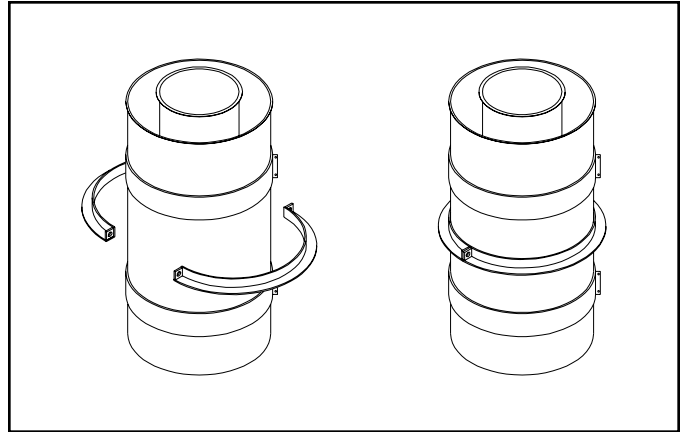
LATERAL BRACES & GUIDES (contd.)

WALL GUIDE ASSEMBLY – PART WGA

Wall guide assemblies, in conjunction with anchor bolts or in some instances additional field fabricated support members from the wall brackets to the building structure, are intended to laterally brace vertical assembled duct lengths from wind loads and to also maintain alignment as the duct expands and contracts. The WGA is comprised of (1) full angle ring, (1) left wall bracket, and (1) right wall bracket.

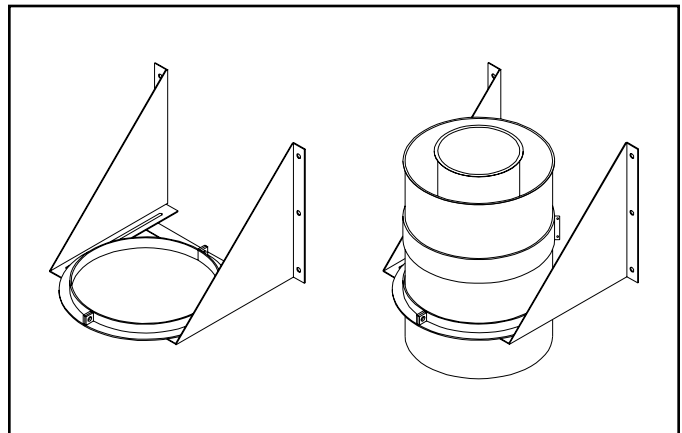
STEP 1

Install the full angle ring around the duct with the provided fasteners. Position the full angle ring away from draw bands & covers as to allow for the unrestricted expansion and contraction of the duct system. Full angle rings cannot be installed over draw bands or variable/adjustable expansion section covers.



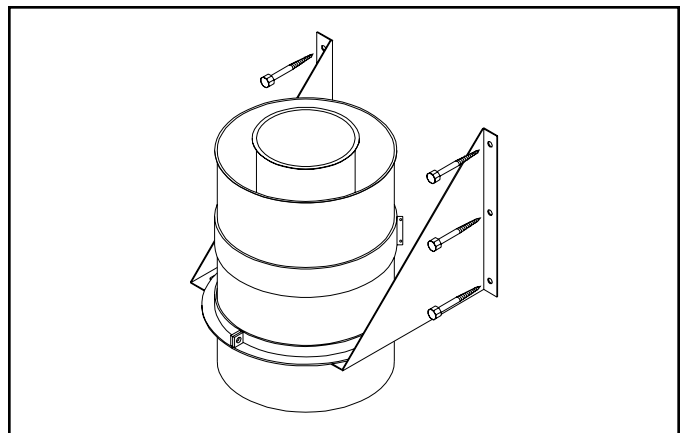
STEP 2

Position the wall brackets (slotted leg) under the web of the assembled full angle ring such that distance between the anchor legs of the wall brackets (upright holed legs) and the duct O.D. is 6". Then using the provided fasteners secure the wall brackets to the full angle ring.



STEP 3

Anchor the wall brackets to the wall or additional field fabricated support members accordingly. The wall guide assembly must be installed in the vertical position such that the angle edges of the brackets are rising above or dropping below the assembled duct. Do not install rotated, or horizontally.



SUPPORTS & GUIDES

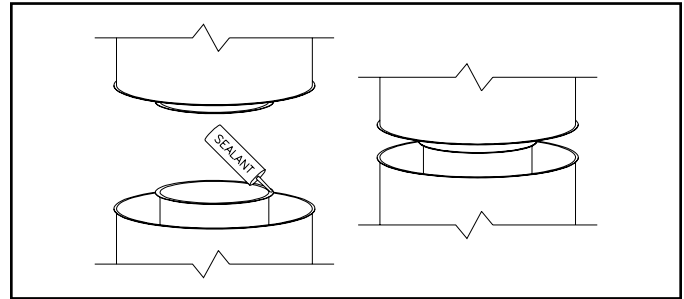
LATERAL BRACES & GUIDES (contd.)

GUY ATTACHMENT RING – PART GAR

Guy attachment rings, in conjunction with wires, tensioners, anchors, and other miscellaneous hardware from the GAR attached to the building structure, are intended to laterally brace the vertical assembled duct lengths from wind loads and to also maintain alignment as the duct expands and contracts. The GAR is comprised of (4) half rings.

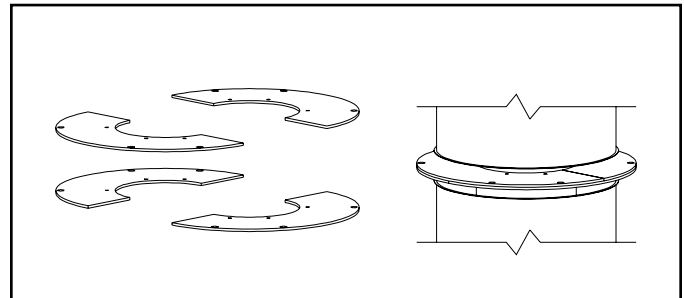
STEP 1

Apply a continuous bead of sealant to one of the liner flanges of the components to be joined then butt the flanged ends of the components being joined and rotate slightly to ensure sealant coverage. Do not use a vee band. The GAR assembly clamps the flanges of the components being joined together replacing the vee band.



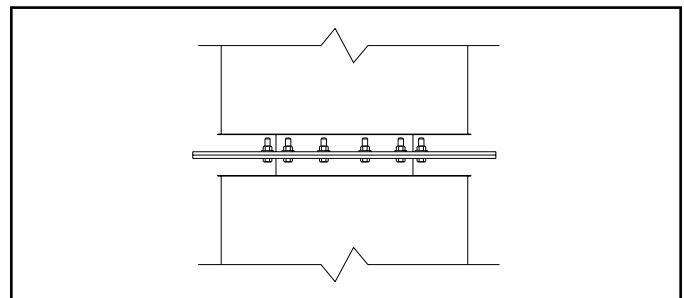
STEP 2

Position one ring below the butted liner flanges and the other above the butted liner flanges. The seams formed by bringing the ring halves together must be rotated 90° apart from each other.



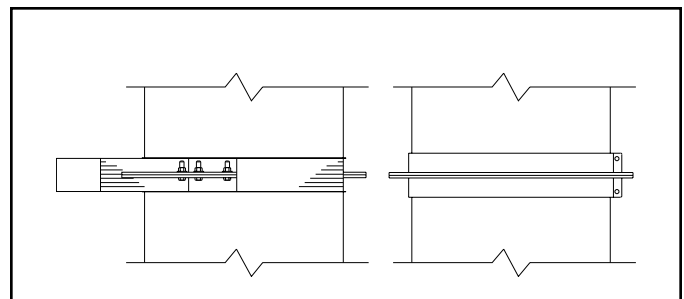
STEP 3

Using the provided fasteners, bolt the rings together. Before the bolts are fully tight, from the inside of the joined sections tap the butted rolled flanges outward against the GAR to ensure alignment of the joint. Fully tighten the bolts.



STEP 4

Complete the grease duct enclosure by first wrapping the liner areas above and below the GAR with the provided insulation strips (Refer to STEP 5 of JOINT ASSEMBLY). Then position the appropriate draw bands such that each one overlaps a shell of the joined components and butts against the GAR. Next, with the provided fasteners draw up the draw bands. Apply sealant (provided by others) to the draw band edges as may be required.

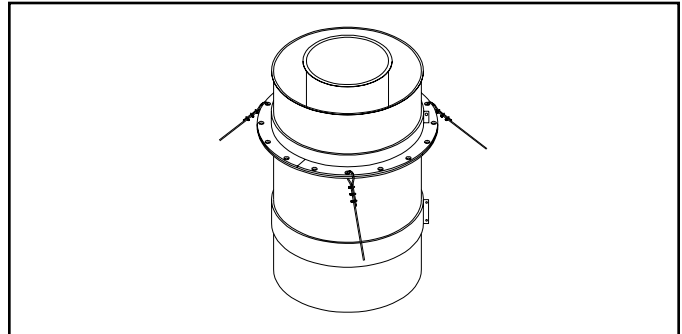


SUPPORTS & GUIDES

LATERAL BRACES & GUIDES (contd.)

STEP 5

Install the necessary wires, tensioners, anchors, miscellaneous hardware, etc. A minimum of (3) wires/cables equally spaced apart with included wire angles of 35° minimum to the stack O.D. is required for (1) GAR assembly.



PENETRATIONS & FIRESTOPS

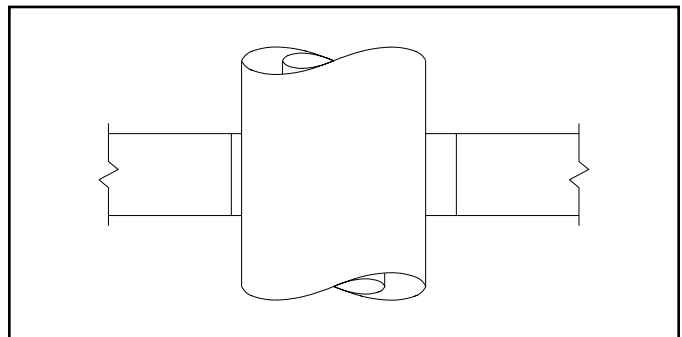
FLOOR THROUGH PENETRATION FIRESTOP

FLOOR THROUGH PENETRATION FIRESTOP - PART FPA

This type of penetration assembly must be used when the duct passes through a fire resistant floor. The duct section passing through the floor must be isolated from the effects of thermal expansion and therefore proper support & expansion joint locations must be considered in the duct layout. **NOTE:** Draw bands & ADJ/VLS covers of adjoining sections cannot fall into the penetration area. The FPA is comprised of (1) Fire stop plate FSP, (1) Finishing Plate FPL [each FSP & FPL is comprised of (2) halves], (1) Cover Plate CVR, (1) Fire Stop Band FSB, insulation sheet(s), and insulation strips.

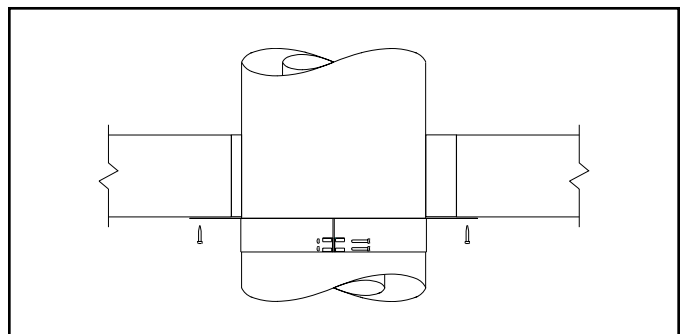
STEP 1

Cut the rough floor opening. The rough opening (square or round opening allowed) can vary between duct O.D. +2" and duct O.D. +4" Assemble the duct through the rough opening such that there is a 1" minimum clearance between any single edge of the opening and the O.D. of the duct.



STEP 2

First, position the halves of the FSP around the duct and against the underside of the floor. With the provided fasteners draw up the FSP. Anchor the FSP to the floor with appropriate fasteners (by others) at all hole locations.

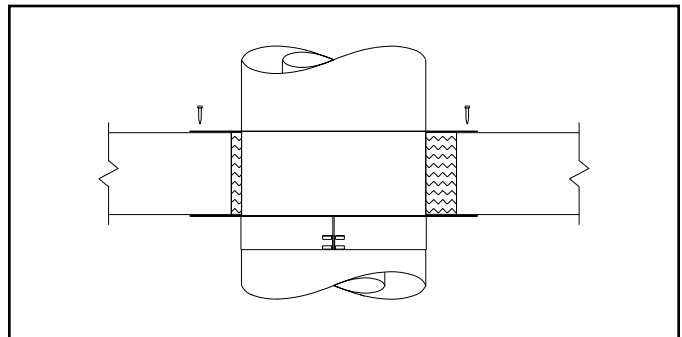


PENETRATIONS & FIRESTOPS

FLOOR THROUGH PENETRATION FIRESTOP (contd.)

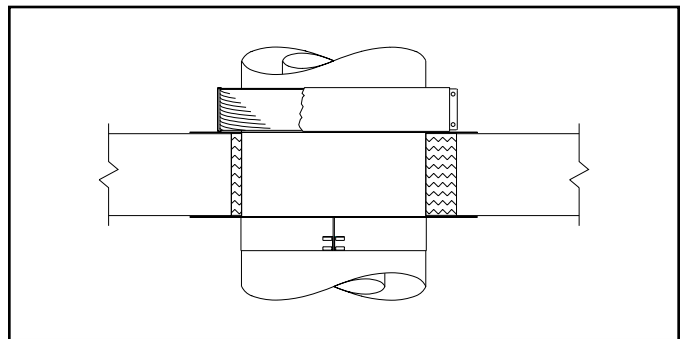
STEP 3

With the provided insulation pack the cavity around the duct. Continue pressing insulation into the cavity until the insulated area is very firm & densely packed. Next, install the FPL similar to the STEP 2 instructions except this part does not have a draw up collar.



STEP 4

With the provided insulation strips, wrap the duct O.D. (2) times (Reference STEP 5 of JOINT ASSEMBLY). Next, position the cover plate (CVR) on the top of the wrapped insulation. Last, position the fire stop band (FSB) such that the rolled flange overlaps the cover plate and seats against the FPL, then with the provided fasteners draw up the FSB.

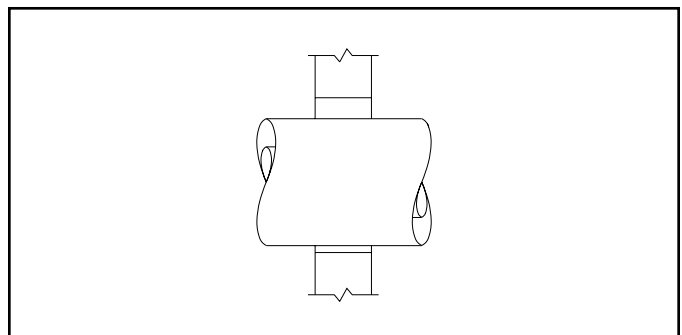


WALL THROUGH PENETRATION FIRESTOP - PART WPA

This type of penetration assembly must be used when the duct passes through an interior fire resistant wall. The duct section passing through the wall must be isolated from the effects of thermal expansion and therefore proper support & expansion joint locations must be considered in the duct layout. If the duct is passing through a gypsum board wall of appropriate construction, the rough opening between the gypsum boards must be completely closed off and reinforced with metal studs. A CMU (hollow block) wall may also be penetrated. The rough opening should be done in a fashion such that the precast edges of the blocks form a continuous solid edge. **NOTE:** Draw bands & ADJ/VLS covers of adjoining sections cannot fall into the penetration area. The WPA is comprised of (2) Fire stop plates FSP [each FSP is comprised of (2) halves], (2) Cover Plates CVR, (2) Fire stop bands FSB, insulation sheet(s), and insulation strips.

STEP 1

Cut the rough wall opening. The rough opening (square or round opening allowed) can vary between duct O.D. +2" and duct O.D. +4" Assemble the duct through the rough opening such that there is a 1" minimum clearance between any single edge of the opening and the O.D. of the duct.

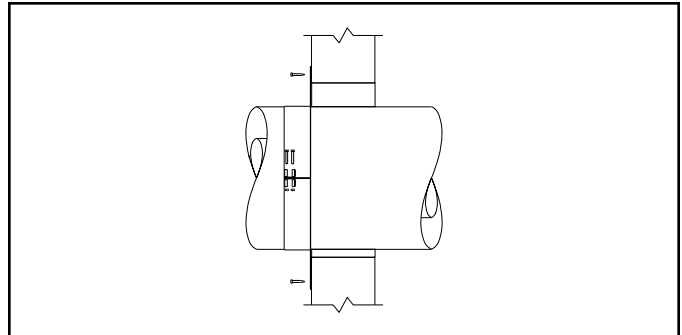


PENETRATIONS & FIRESTOPS

FLOOR THROUGH PENETRATION FIRESTOP (contd.)

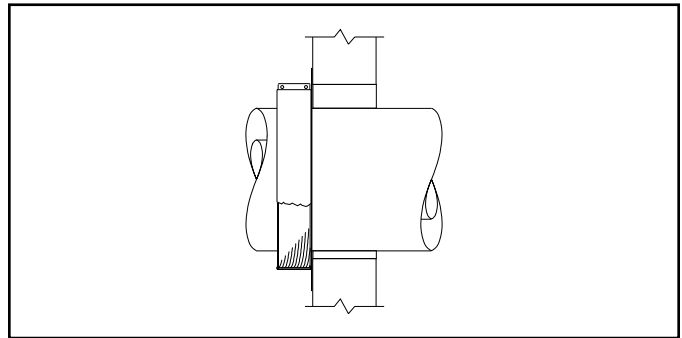
STEP 2

First, position the halves of one of the FSP around the duct and against wall. With the provided fasteners draw up the FSP. Anchor the FSP to the wall with appropriate fasteners (by others) at all hole locations.



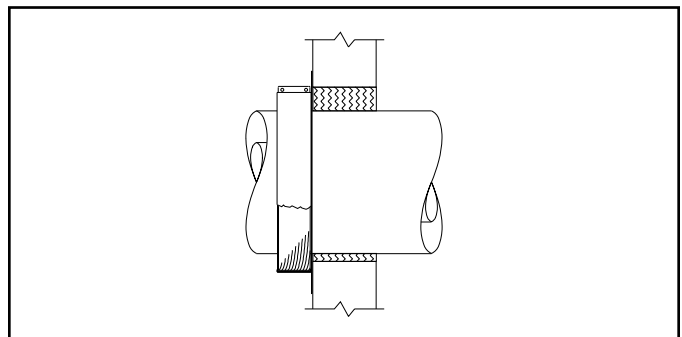
STEP 3

With the provided insulation strips, wrap the draw up collar of the FSP (2) times (Reference STEP 5 of JOINT ASSEMBLY). Next, position the cover plate (CVR) against the face of the wrapped insulation. Last, position the fire stop band (FSB) such that the rolled flange overlaps the cover plate and seats against the FSP, then with the provided fasteners draw up the FSB.



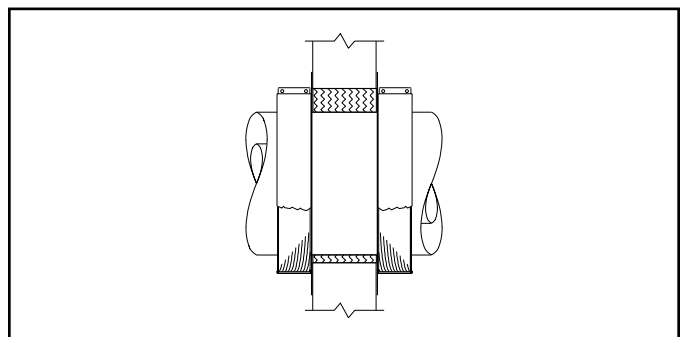
STEP 4

With the provided insulation pack the cavity around the duct. Continue pressing insulation into the cavity until the insulated area is very firm & densely packed.



STEP 5

Install the second FSP, CVR, and FSB on the other side of the wall according to STEP 2 and STEP 3.



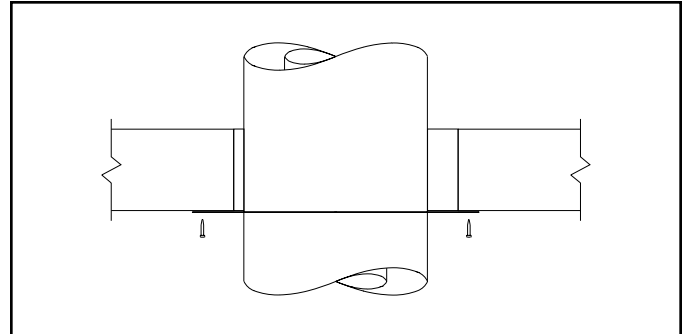
PENETRATIONS & FIRESTOPS

FLOOR/CEILINGS & WALLS - FIRE RATING NOT REQUIRED

FINISHING PLATE - PART FPL

The finishing plate can be used when the duct passes through a floor/ceiling or wall where a fire rating is not required. The minimum rough opening (square or round opening allowed) must be enough to allow the duct to pass through, approximately duct O.D. +2". The maximum rough opening is duct O.D. +8" (Max. opening size when duct is centered through the opening). The FPL is comprised of (2) halves.

Cut the rough opening accordingly and assemble the duct through. Position the plate halves (allow slight clearance to the duct O.D. to accommodate any expansion as needed), Anchor the FPL with appropriate fasteners (by others) at hole locations



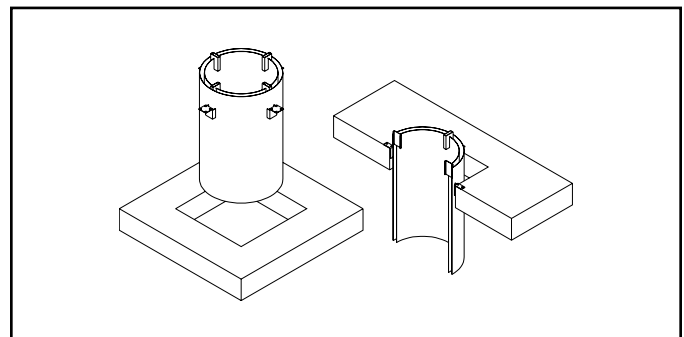
ROOF PENETRATIONS

VENTILATED ROOF PENETRATION ASSEMBLY - PART RPA

The ventilated roof penetration assembly can be used when the duct passes through a flat roof or a pitched roof with a level roof curb. The required rough roof opening is duct O.D. +10". The RPA is comprised of (1) ventilated roof thimble VRT, (1) flashing FLS, and (1) counter flashing CFL.

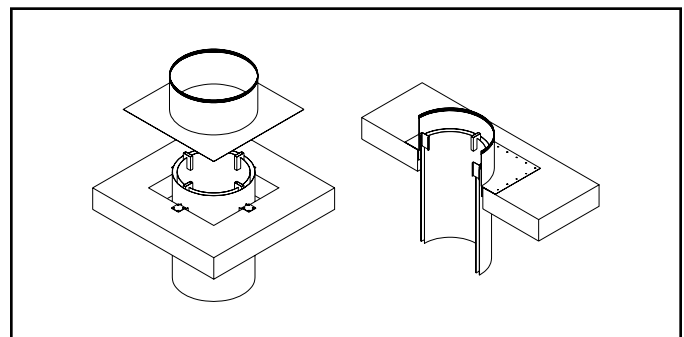
STEP 1

Cut the rough roof opening. With appropriate fasteners (by others) attach the thimble to the roof/curb at all mounting clip holes.



STEP 2

Center the flashing around the thimble and with appropriate fasteners (by others) attach it to the roof/curb. Roofing materials to complete a weather tight seal should be installed over the square base of the flashing.



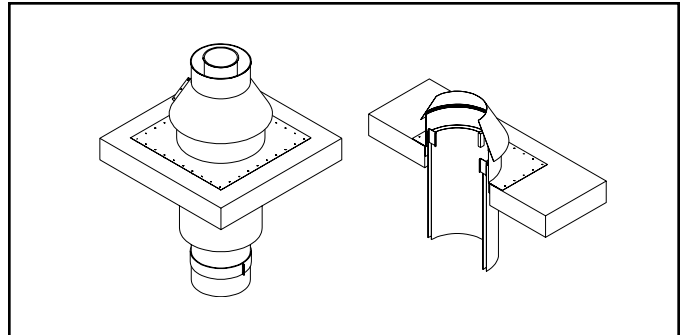
PENETRATIONS & FIRESTOPS

ROOF PENETRATIONS - VENTILATED ROOF PENETRATION ASSEMBLY (contd.)

STEP 3

Assemble the duct through the thimble accordingly. Next, install the counter flashing by positioning it around the duct and against the screen at the top of the flashing. Then, with the provided fasteners draw up the counter flashing. Last, apply a bead of sealant at the seam of the counter flashing and duct.

Note: Roofing materials must not fill the entire space between the roof and the bottom of the counter flashing.



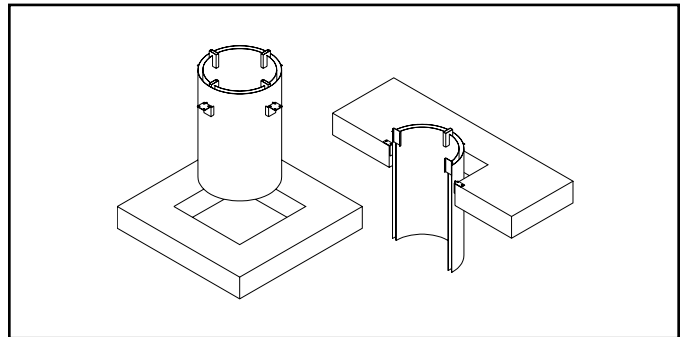
VENTILATED ROOF SUPPORT ASSEMBLY - PART VRS

The ventilated roof support assembly can be used when the duct passes through a flat roof or a pitched roof with a level roof curb. The structural engineer for the project must verify the roof/roof curb are constructed of adequate materials to support the intended loads. The required rough roof opening is duct O.D. +10". The RPA is comprised of (1) ventilated roof thimble VRT, (1) flange support assembly FSA, (1) flashing FLS, and (1) counter flashing CFL.

Note: The VRS supports vertical load only. Duct must be properly laterally braced

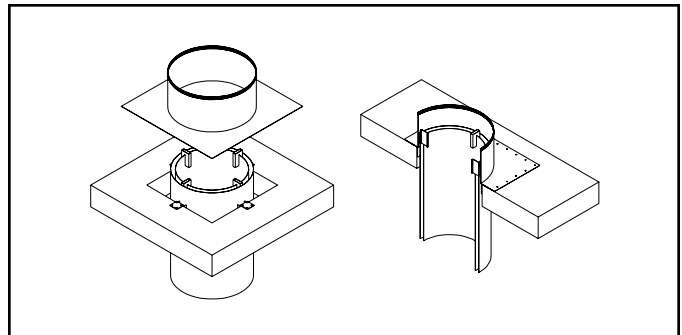
STEP 1

Cut the rough roof opening. With appropriate fasteners (by others) attach the thimble to the roof/curb at all mounting clip holes.



STEP 2

Center the flashing around the thimble and with appropriate fasteners (by others) attach it to the roof/curb. Roofing materials to complete a weather tight seal should be installed over the square base of the flashing.

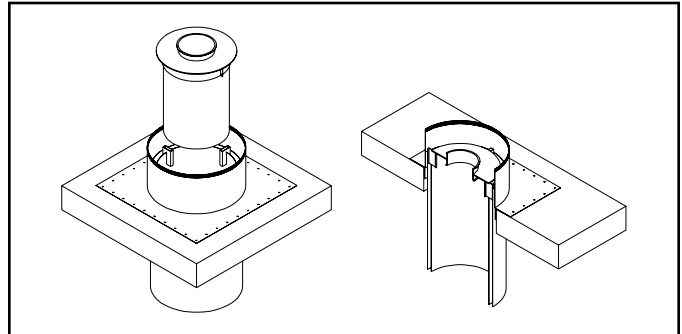


PENETRATIONS & FIRESTOPS

ROOF PENETRATIONS - VENTILATED ROOF SUPPORT ASSEMBLY (contd.)

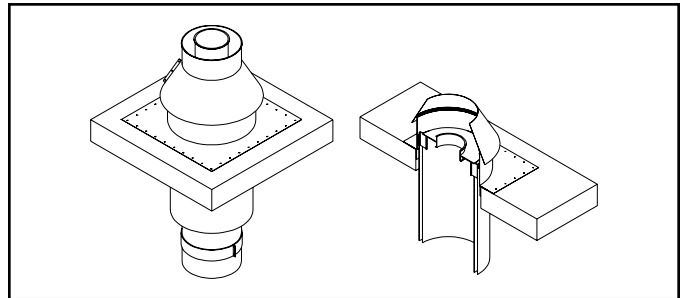
STEP 3

Assemble a duct section to one of the liner flanges of the FSA per the joint assembly instructions. Next, pass the section through the thimble until the FSA rests on top of the thimble. Last, attach a duct to the remaining liner flange of the FSA per the joint assembly instructions.



STEP 4

Install the counter flashing by positioning it around the duct and against the screen at the top of the flashing. Then, with the provided fasteners draw up the counter flashing. Last, apply a bead of sealant at the seam of the counter flashing and duct. **Note:** Roofing materials must not fill the entire space between the roof and the bottom of the counter flashing.

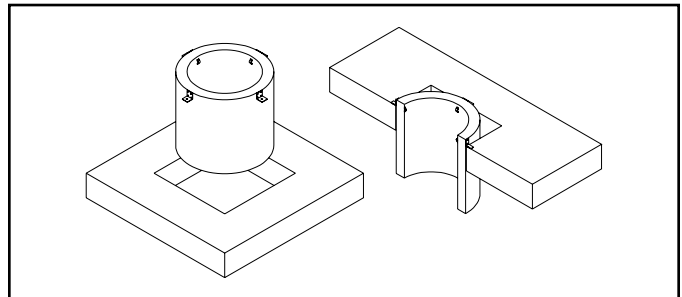


INSULATED THIMBLE, FLASHING, & COUNTER FLASHING - PARTS THM, FLS, & CFL

Insulated thimbles and flashings are available for flat and many pitched roofs; please refer to the model GZ brochure accordingly available pitched components. The roof pitch must be specified at the time of purchase, as these components are NOT adjustable. The required roof opening (square or round opening allowed) for a flat roof is duct O.D. +8 1/2".

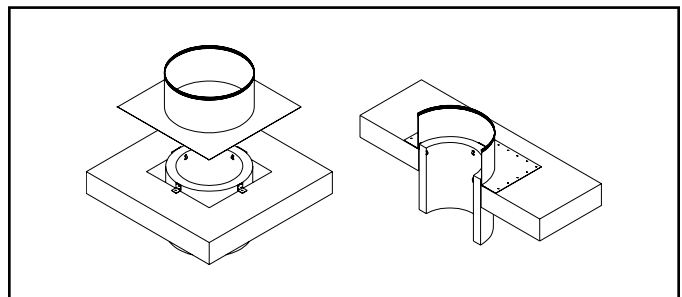
STEP 1

Cut the rough roof opening. With appropriate fasteners attach the thimble to the roof at all mounting clip holes.



STEP 2

Center the flashing around the thimble and with appropriate fasteners (by others) attach it to the roof. Roofing materials to complete a weather tight seal should be installed over the square base of the flashing.



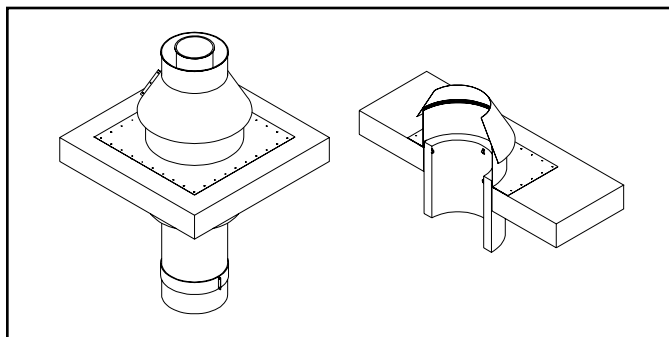
PENETRATIONS & FIRESTOPS

ROOF PENETRATIONS - INSULATED THIMBLE, FLASHING, & COUNTER FLASHING (contd.)

STEP 3

Assemble the duct through the thimble accordingly. Next, install the counter flashing by positioning it around the duct and against the screen at the top of the flashing. Then, with the provided fasteners draw up the counter flashing. Last, apply a bead of sealant at the seam of the counter flashing and duct.

Note: Roofing materials must not fill the entire space between the roof and the bottom of the counter flashing.

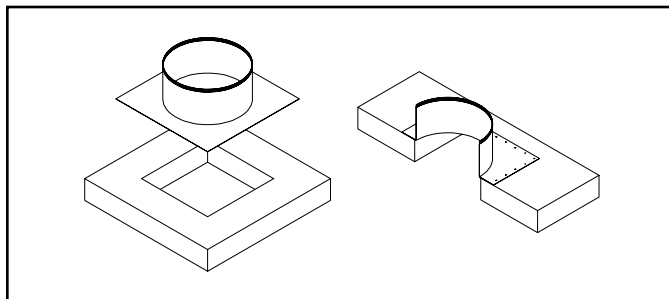


FLASHING & COUNTER FLASHING - PARTS FLS & CFL

The flashing and counter flashing can be used when the duct passes through a roof or curb where a roof penetration thimble is not required. Many pitched flashings are available; please refer to the model GZ brochure accordingly. The minimum rough opening (square or round opening allowed) must be enough to allow the duct to pass through, approximately duct O.D. +2". The maximum recommended rough opening is duct O.D. +8-3/4" (reflects flat roof only and duct centered through opening).

STEP 1

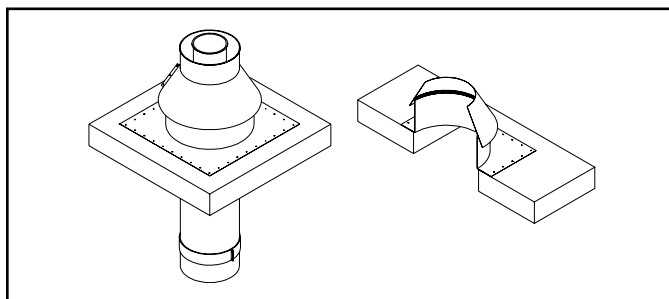
Cut the rough roof opening. Center the flashing around the opening and with appropriate fasteners attach it to the roof. Roofing materials to complete a weather tight seal should be installed over the square base of the flashing.



STEP 2

Assemble the duct through the flashing accordingly. Next, install the counter flashing by positioning it around the duct and against the screen at the top of the flashing. Then, with the provided fasteners draw up the counter flashing. Last, apply a bead of sealant at the seam of the counter flashing and duct.

Note: Roofing materials must not fill the entire space between the roof and the bottom of the counter flashing.

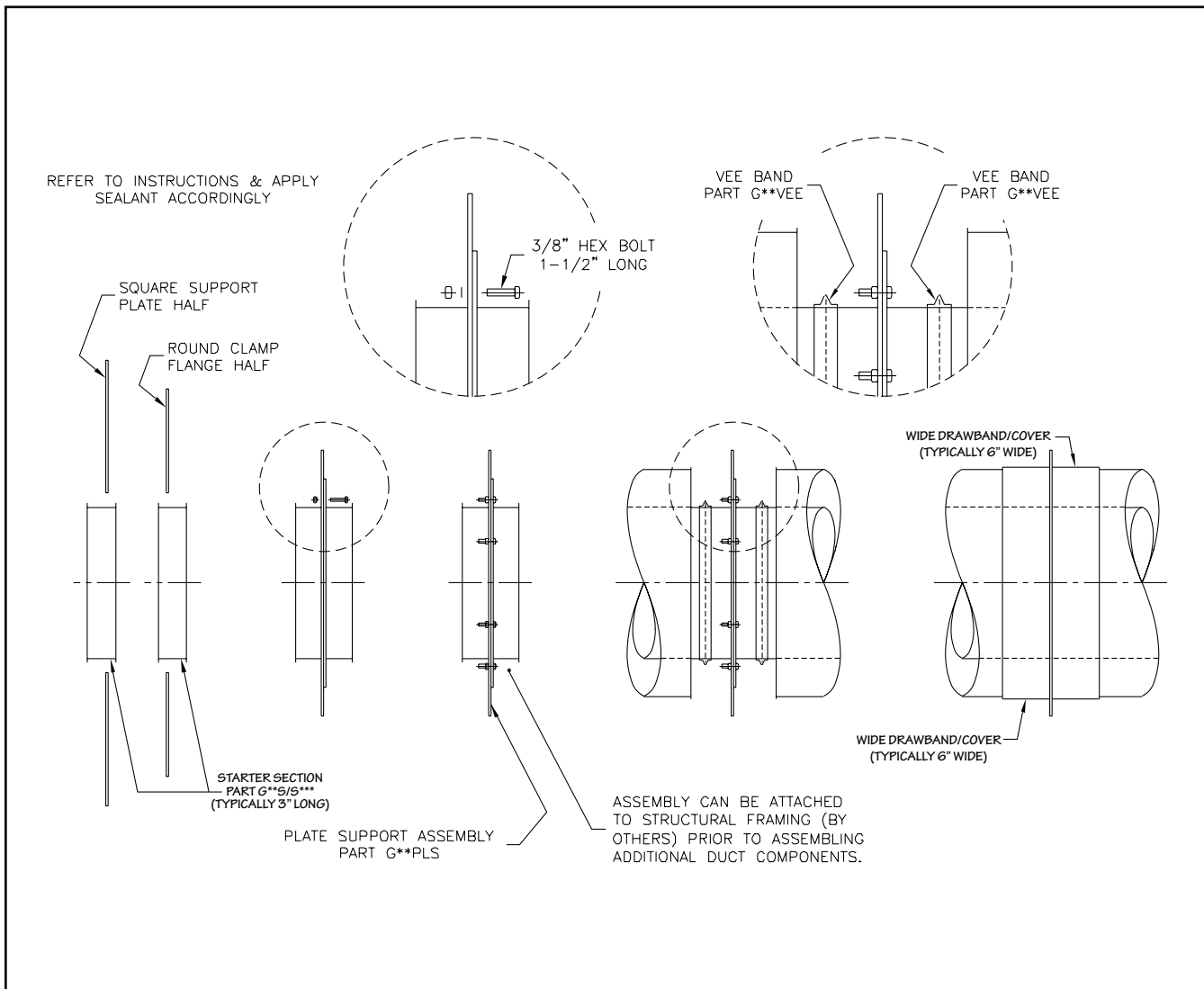


SYSTEM INSTALLATION EXAMPLES

The following pages include several installation examples. These examples are intended to reflect general requirements for support locations, adjustable expansion section locations, etc. with respect to isolating penetrations, fittings, etc. from the effects of thermal expansion and to also express allowable distances between supports for an installation in accordance with design listing. These examples may not reflect all necessary cleanouts, drains, etc. which may be required to meet applicable codes and to help ensure a well functioning grease duct system (refer to applicable codes as required).

The first (3) examples are for plate support assemblies. Similar methods can also be used for wall support assemblies (part G**WSA) and guy attachment rings (part G**GAR*). The first example uses (2) starter sections which offers the greatest space for bolting the assembly together and flexibility for assembly of additional components (most of the installation examples will reflect this method but the other plate support examples may also be used). The other plate support assembly examples offer less space for bolting together, respectively. Refer to the installation instructions for proper assembly of individual components.

Plate Support Assembly w/(2) Starter Sections



SYSTEM INSTALLATION EXAMPLES (contd.)

Plate Support Assembly w/(1) Starter Sections

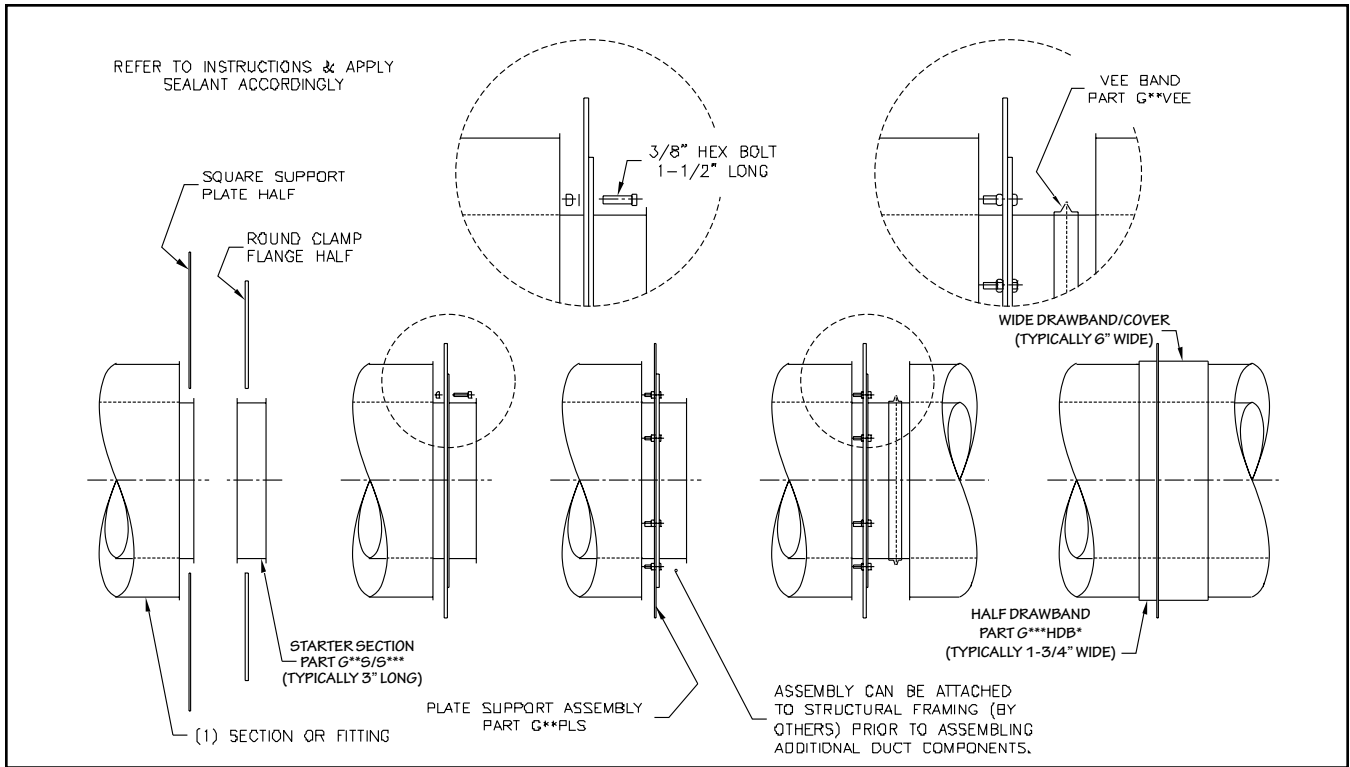
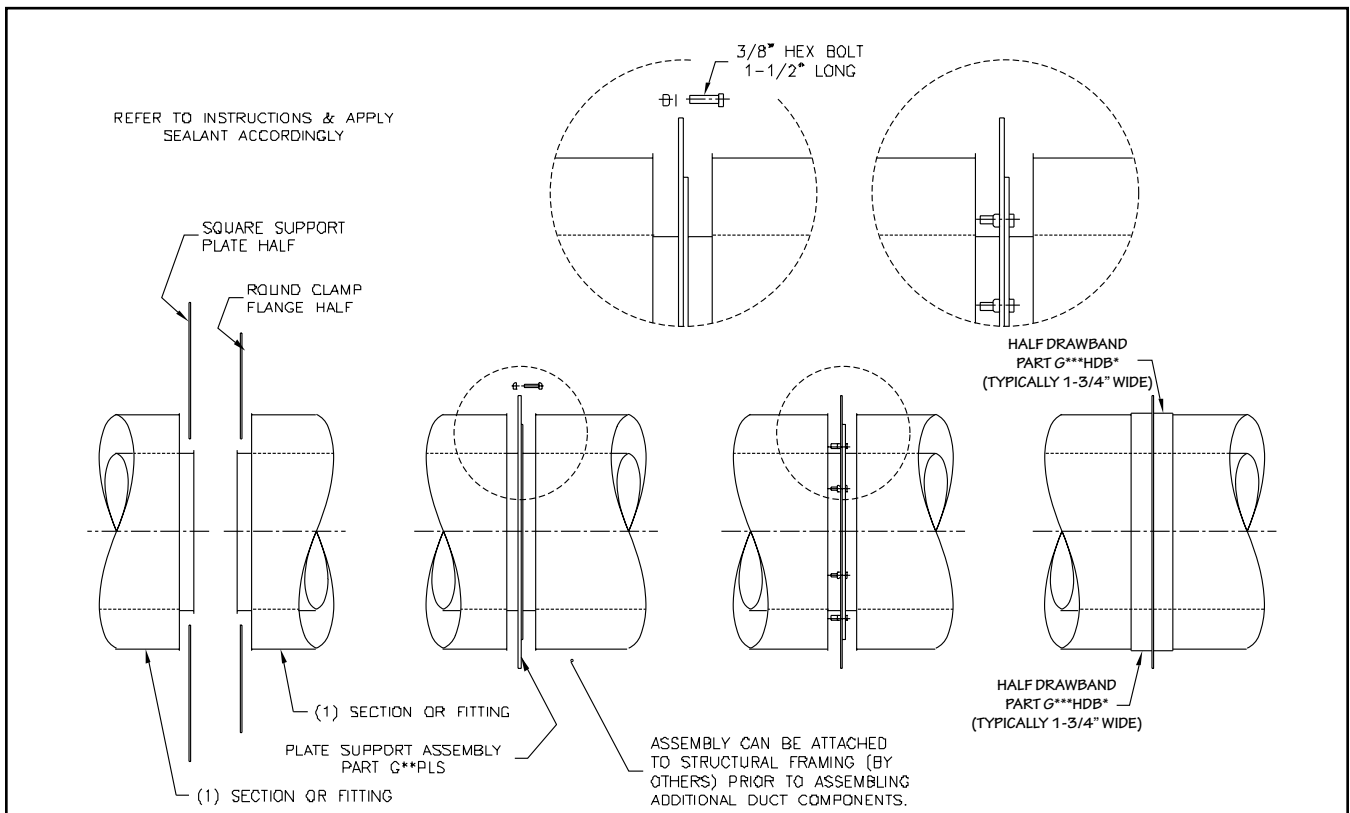
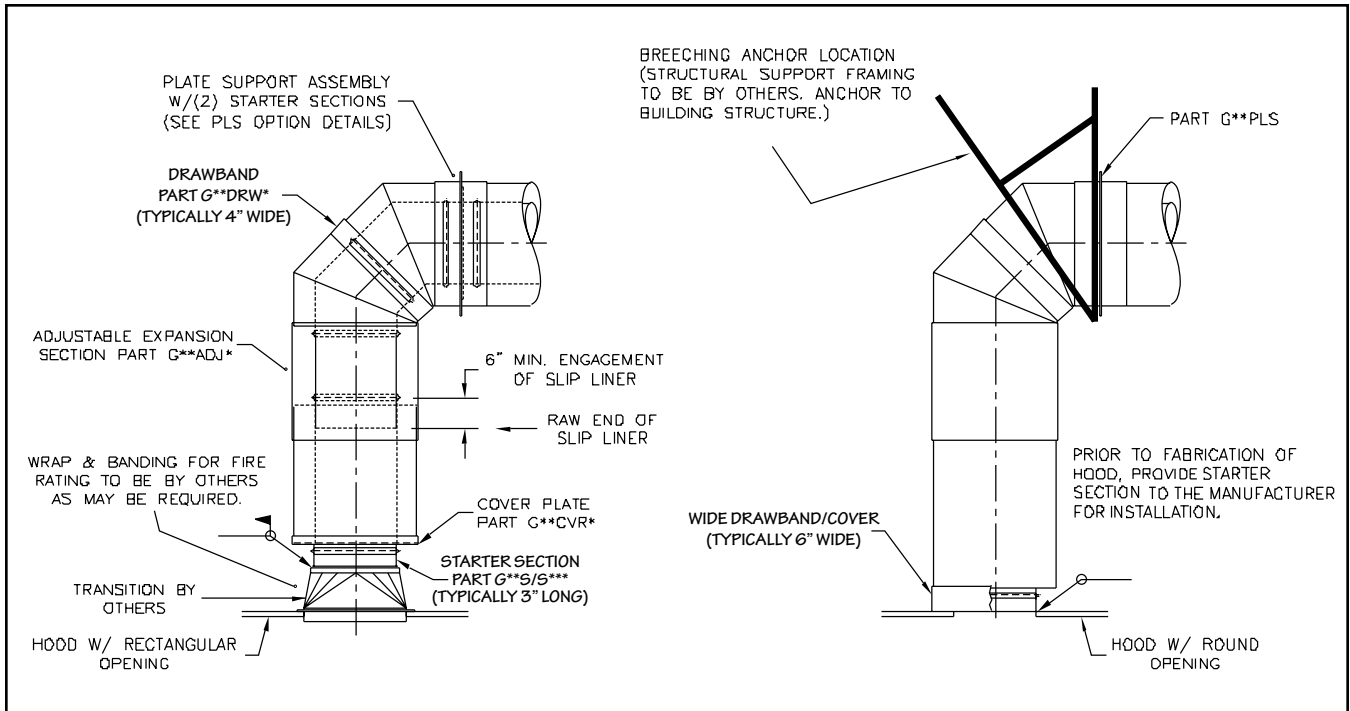


Plate Support Assembly w/out Starter Sections

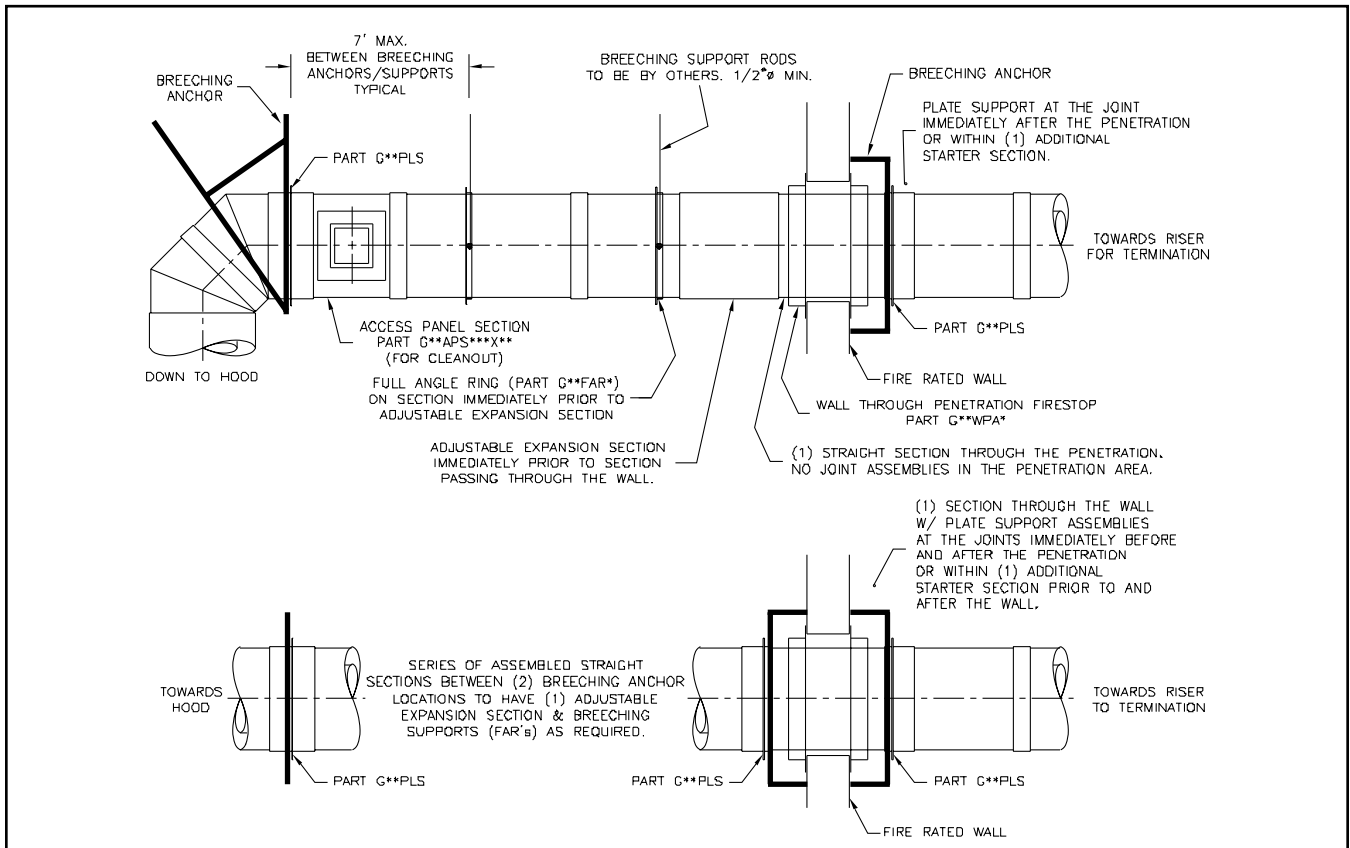


SYSTEM INSTALLATION EXAMPLES (contd.)

Typical Connections to Transitions/Hoods

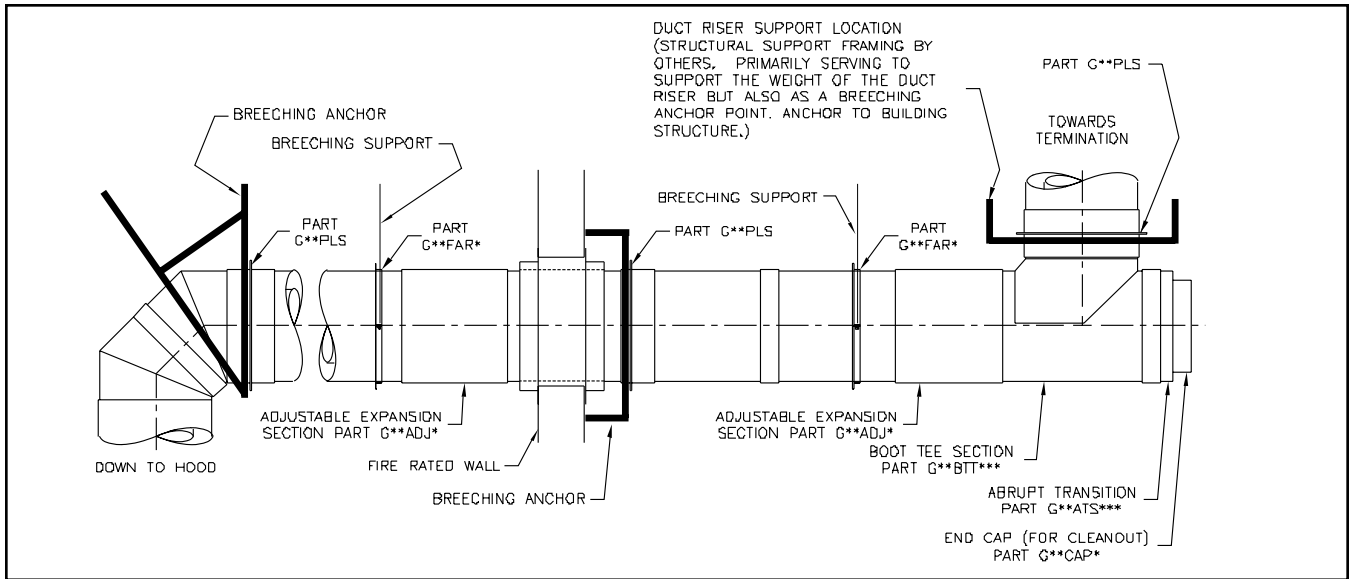


Typical Support Locations For Breaching & Wall Through Penetrations Firestops

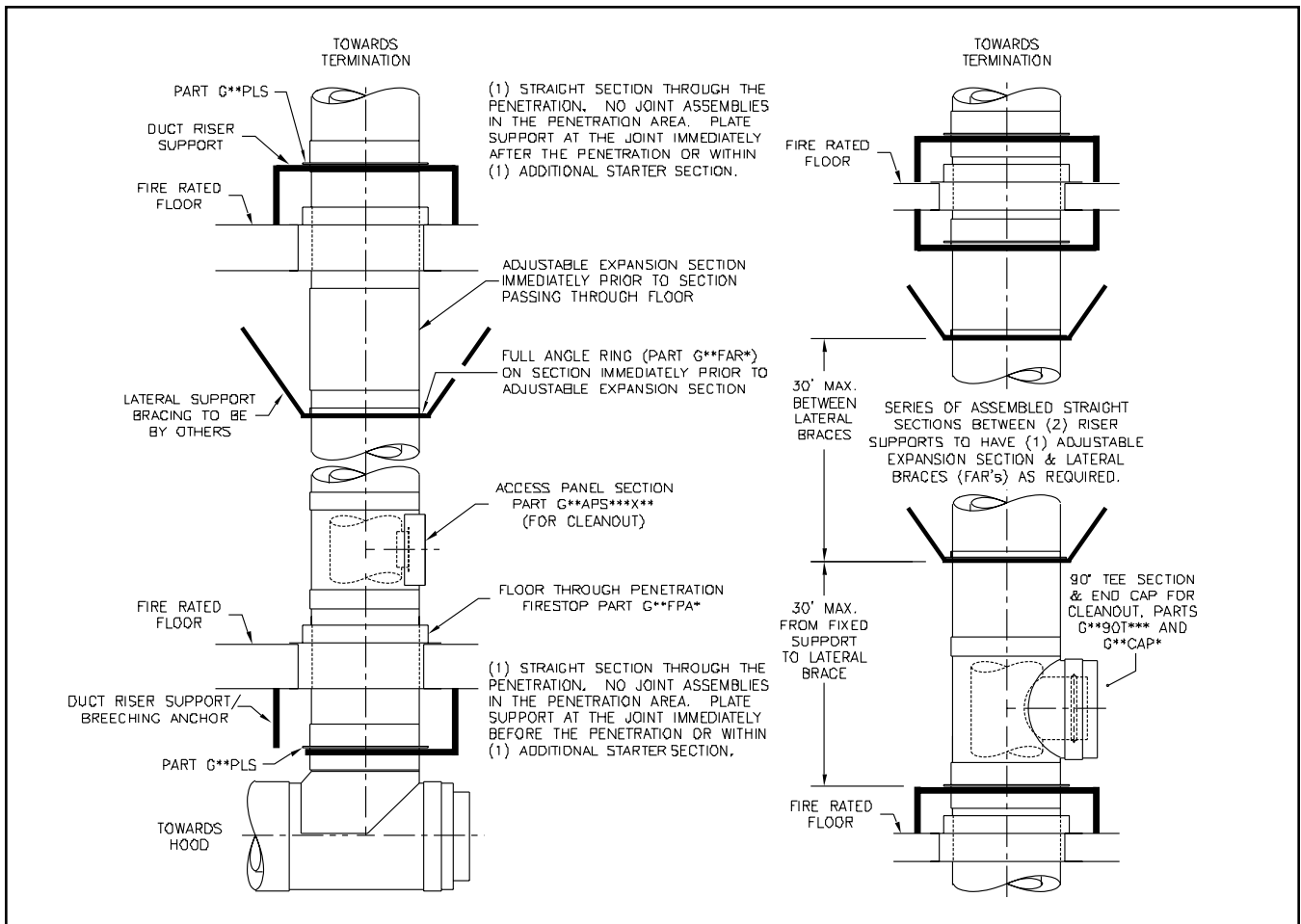


SYSTEM INSTALLATION EXAMPLES (contd.)

Typical Support Locations For Breaching & Wall Through Penetration Firestops (contd.)

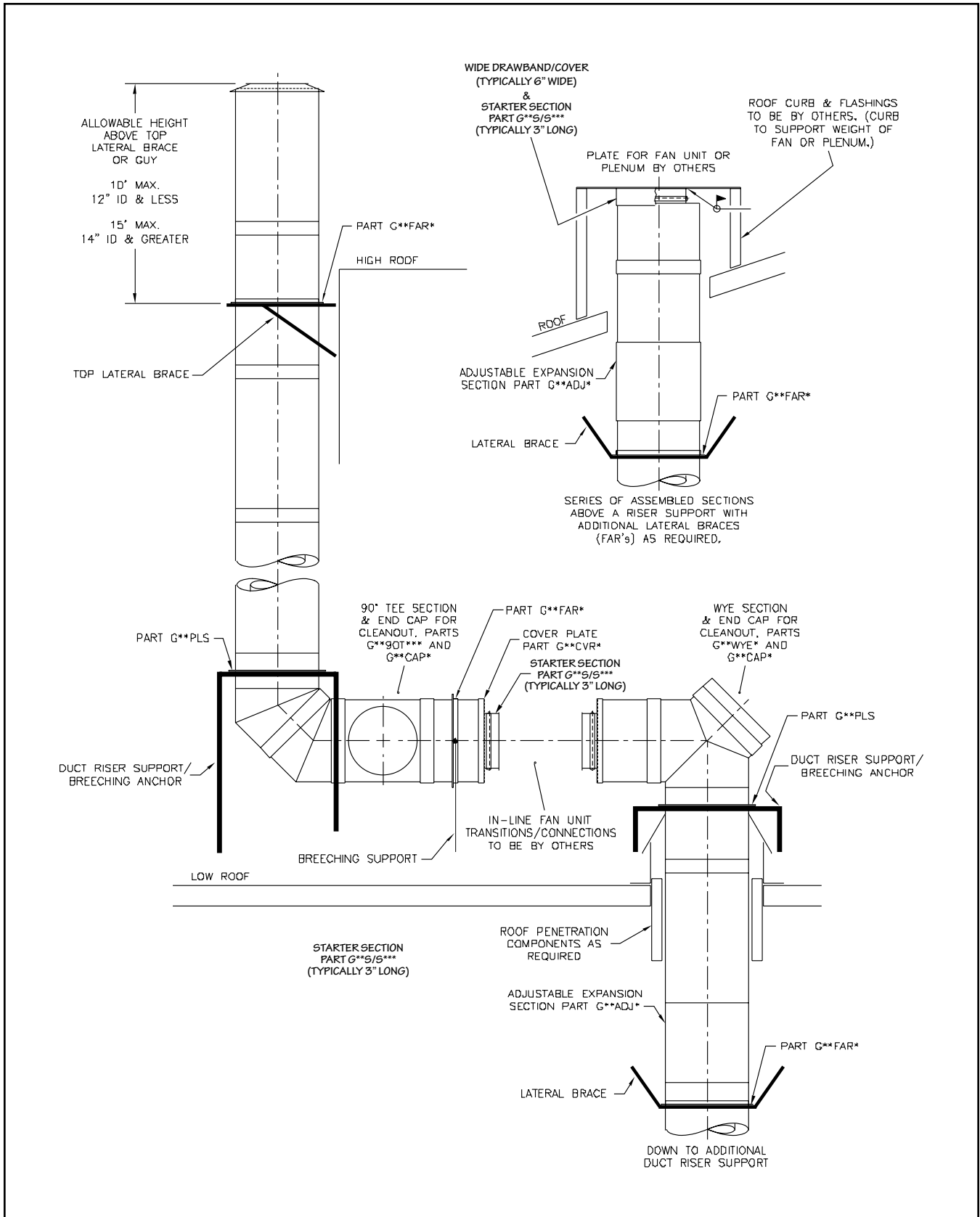


Typical Support Locations For Duct Risers & Floor Through Penetration Firestops



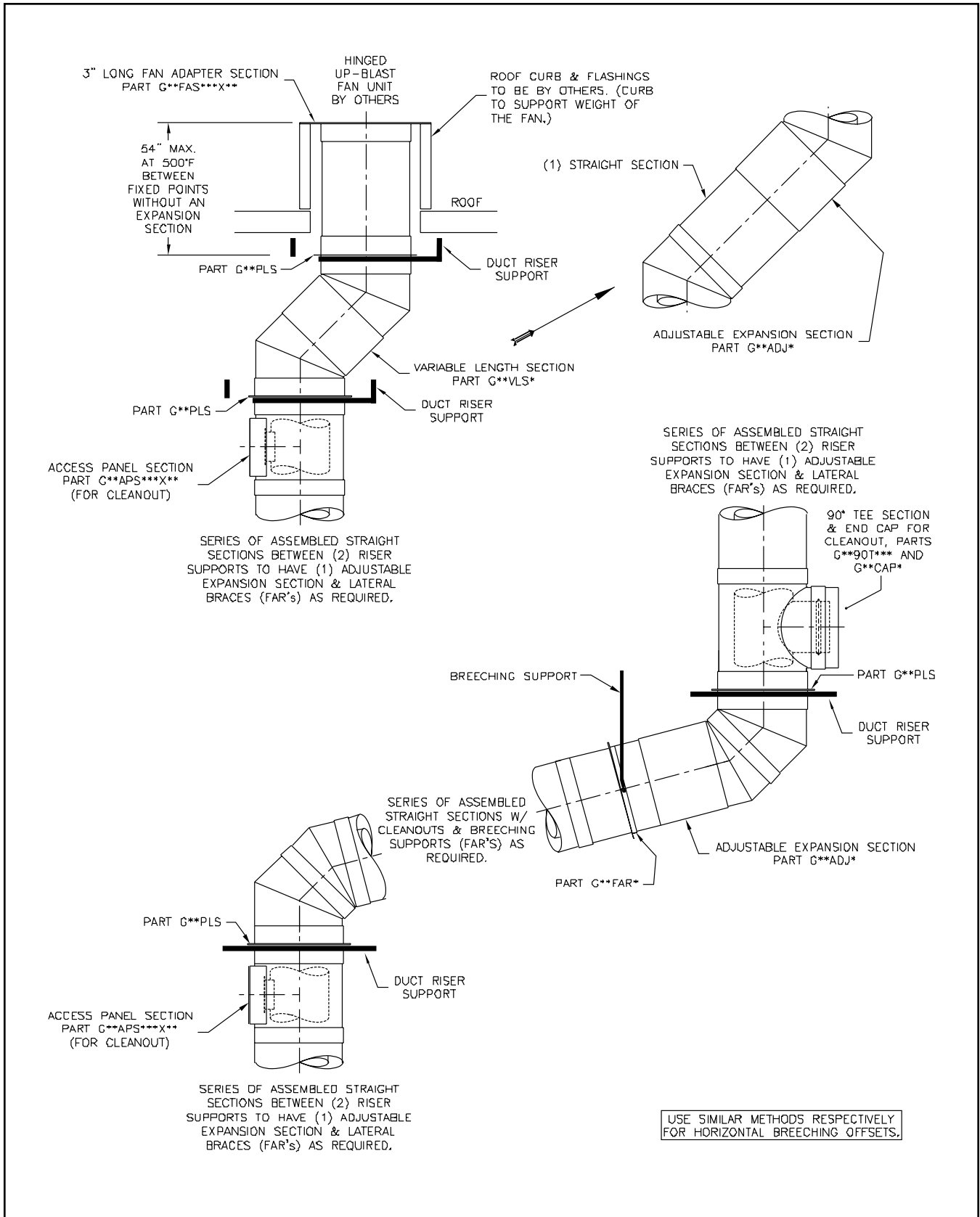
SYSTEM INSTALLATION EXAMPLES (contd.)

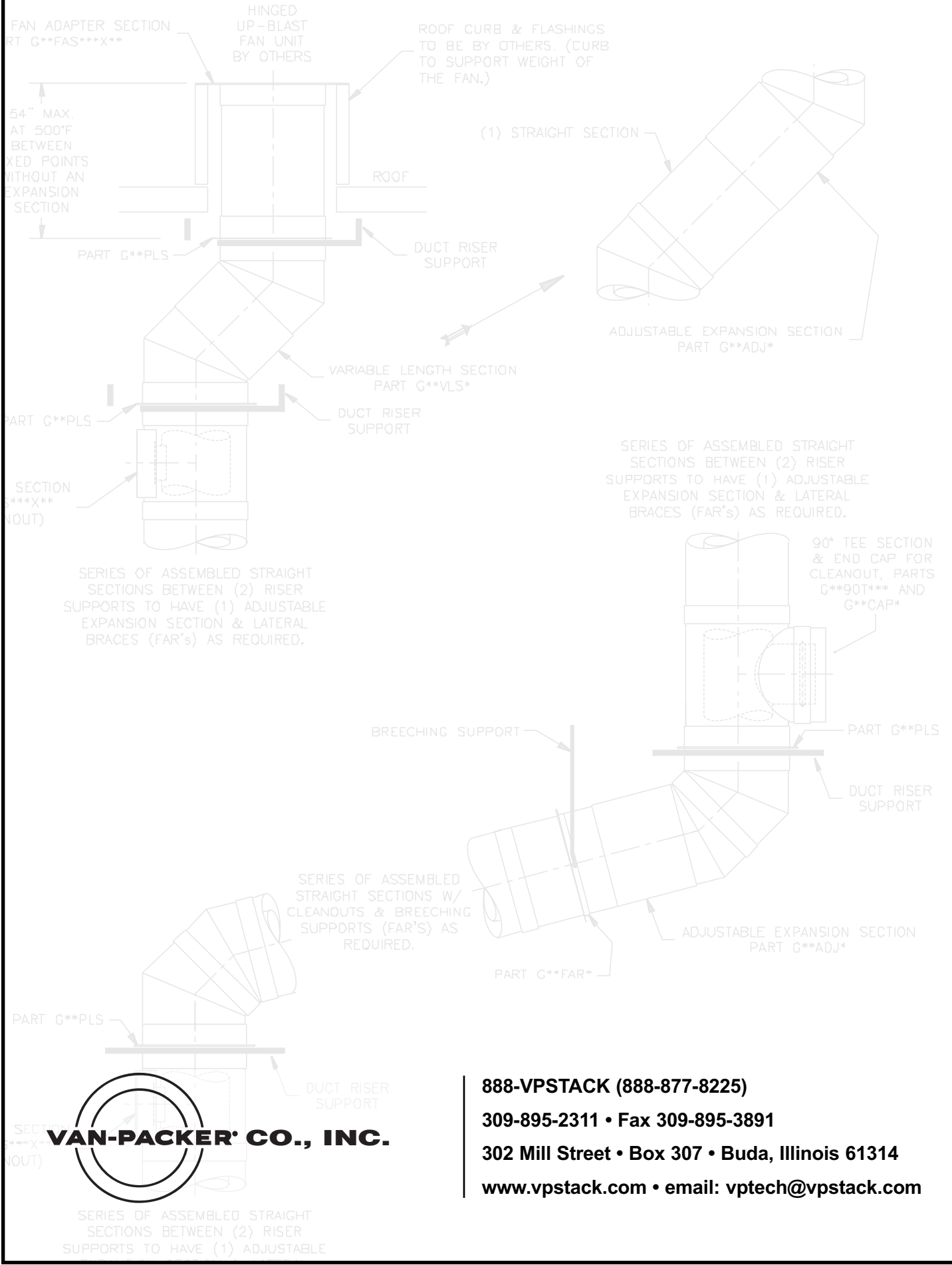
Typical Support Locations For Duct Risers (contd.)



SYSTEM INSTALLATION EXAMPLES (contd.)

Typical Support Locations For Offsets





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