

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.

Fabra Hood Gravity Ventilator

Single section with birdscreen, throat length less than or equal to 72 inches

Fabra hood gravity ventilators are designed for intake (model FGI) or relief (model FGR) applications with natural gravity or negative pressure systems. Units feature a low-silhouette, fabra hood-style housing offering superior load bearing strength, weather-resistance, dimensional flexibility and appearance.



IMPORTANT:

For Standard Assembly, follow instructions on pages 2-5.

For High Wind Assembly, follow instructions on pages 6-12.

For Typical Installation, refer to page 13.

General Safety Information

Only qualified personnel should install this ventilator. Personnel should have a clear understanding of these instructions and should be aware of general safety precautions. Improper installation can result in electric shock, possible injury due to coming in contact with moving parts, as well as other potential hazards. Other considerations may be required if high winds or seismic activity is present. If more information is needed, contact a licensed professional engineer before moving forward.

Receiving

Upon receiving the product check to ensure all items are accounted for by referencing the delivery receipt or packing list. Inspect each crate or carton for shipping damage before accepting delivery. Alert the carrier of any damage detected. The customer will make a notation of damage (or shortage of items) on the delivery receipt and all copies of the bill of lading which is countersigned by the delivering carrier. If damaged, immediately contact your local representative. Any physical damage to the unit after acceptance is not the responsibility of the manufacturer.

Unpacking

Verify that all required parts and the correct quantity of each item have been received. If any items are missing, report shortages to your local representative to arrange for obtaining missing parts. Due to availability of transportation and truck space all items for the unit may not be shipped together. Confirmation of shipment(s) must be limited to only items on the bill of lading.

Handling

Lifting the ventilator must be done with care to avoid damaging the housing. Ventilators are to be rigged and moved by the optional lifting brackets provided or by the skid when a forklift is used. Location of brackets varies by model and size. Handle in such a manner as to keep from scratching or chipping the coating (if applicable). Damaged finish may reduce the ability of the ventilator to resist corrosion.

Standard Assembly

IMPORTANT: For high wind rated hood, follow assembly instructions starting on page 6.

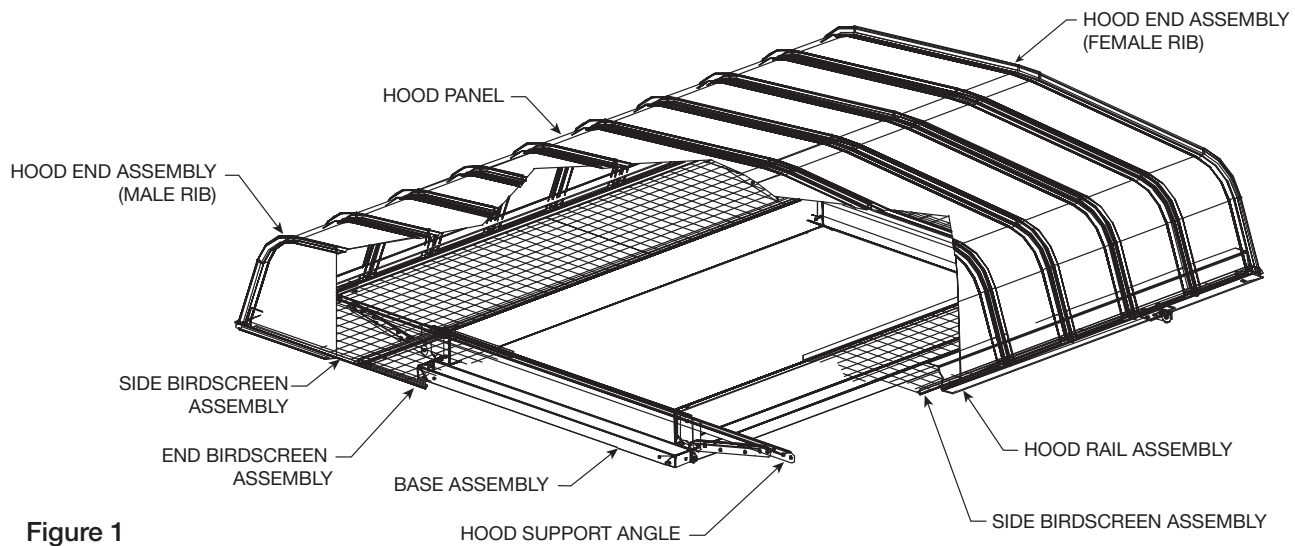


Figure 1

Step 1 – Open crates and separate parts

Open the shipping crates and separate the parts according to the size of the unit, refer to Figure 1.

Step 2 – Place BASE ENDS and BASE SIDES

Place the two base ends and the two base sides in their approximate relationship to each other, see Figure 2. Fasten together using three 1/4-20 fasteners per corner for 5 inch high base and four 1/4-20 fasteners per corner for 12 inch high base.

NOTE: Fasteners should be hand tightened only until Step 4.

On some units where the difference between the hood width and throat width is greater than 32 inches, a reinforcing plate is required in the corners of the base, refer to Figure 2, Detail A.

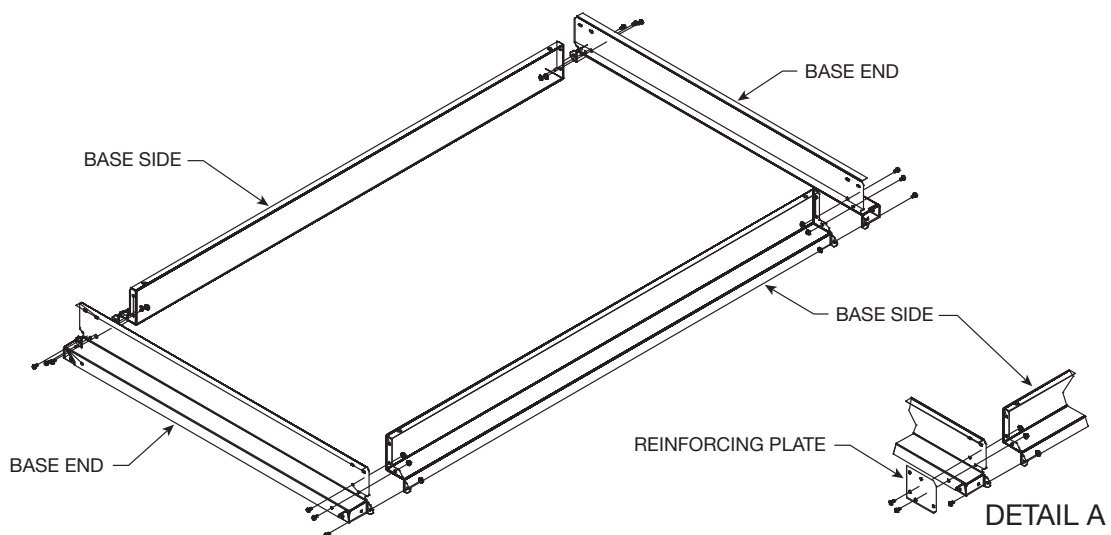


Figure 2

Step 3 – Attach HOOD BASE ENDS to HOOD BASE SIDES

Attach the hood support angle to the base assembly, using four 1/4-20 fasteners per angle, see Figure 3, Detail B. On some units, two diagonal braces come pre-attached to the hood support angle. Fasten the loose end of the diagonal braces to the base assembly, using one 1/4-20 fastener per diagonal brace. See Figure 3, Detail C.

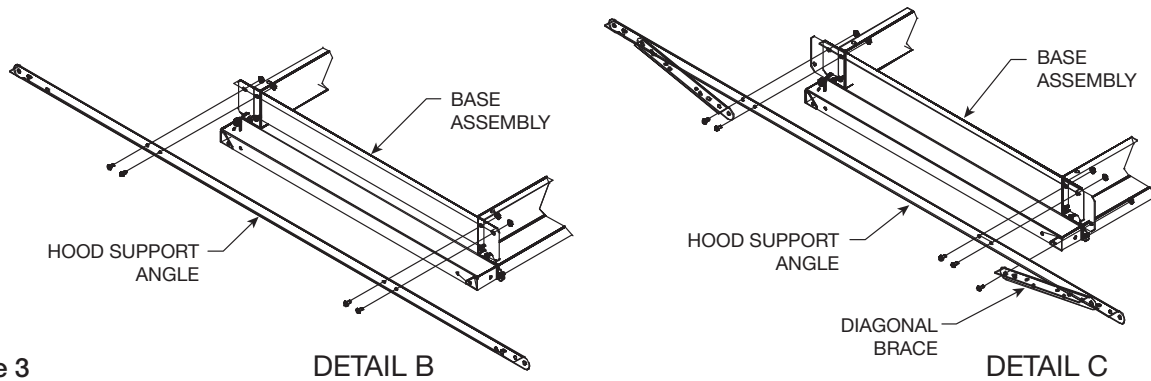


Figure 3

Step 4 – Tighten fasteners and caulk all inside corners

Tighten all fasteners. Caulk all inside corners where the base sections come together. At this point, the base may be lifted onto the roof curb before proceeding with further assembly.

Step 5 – Attach SIDE BIRDSCREEN ASSEMBLY to HOOD SUPPORT ANGLE

Attach the side bird screen assembly to the hood support angle and base assembly using four 1/4-20 x 1 inch fasteners per screen assembly, see Figure 4.

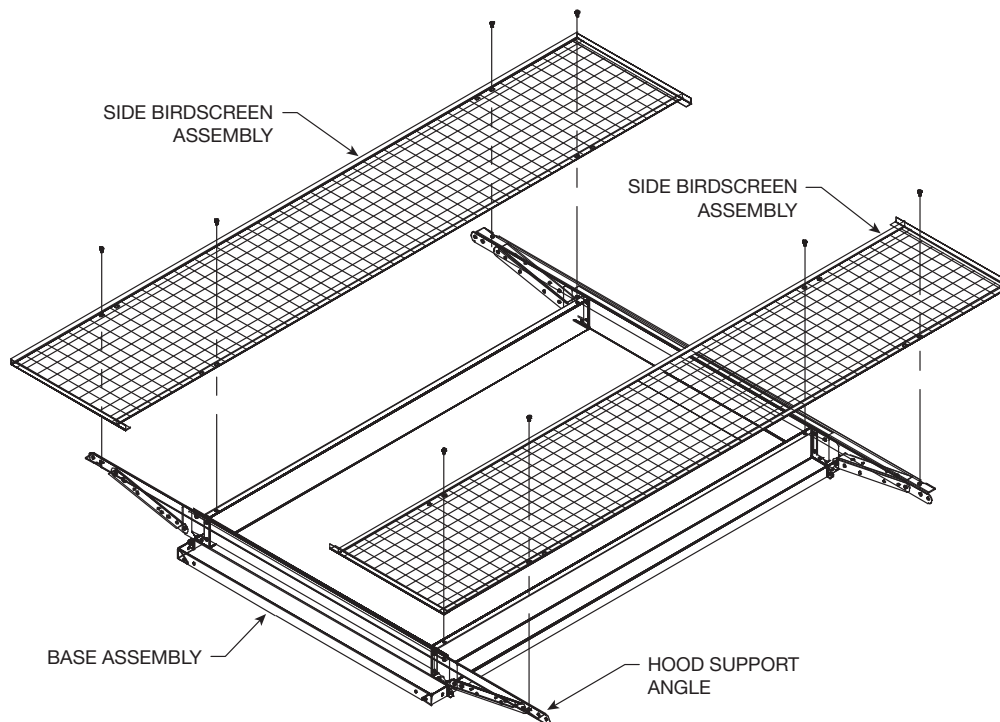


Figure 4

Step 6 – Install END BIRDSCREEN ASSEMBLY

Install the end birdscreen assembly, refer to Figure 5. Turn the birdscreen clips (which are pre-assembled to the end birdscreen assembly) so that two are under the side birdscreen frame extension and the other two are under the hood support angle. See Figure 5, Detail D.

NOTE: Loosen and tighten the birdscreen clip as necessary.

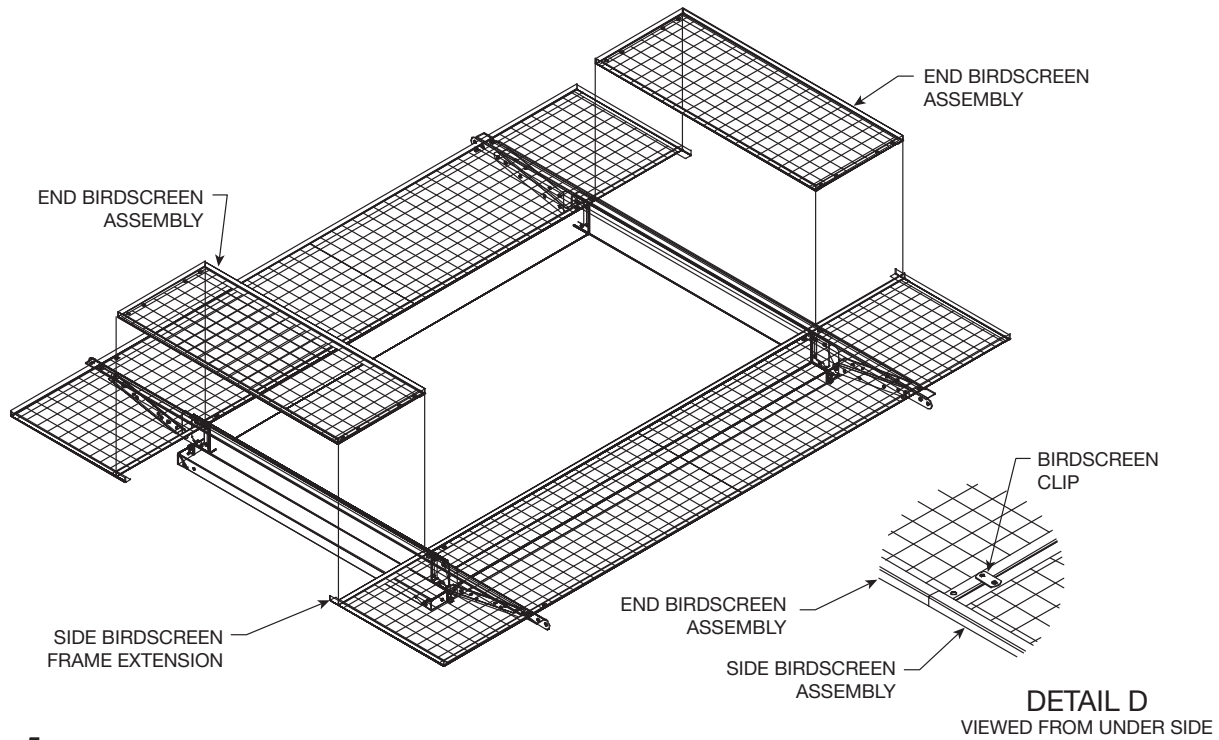


Figure 5

Step 7 – Attach HOOD RAIL ASSEMBLY to HOOD SUPPORT ANGLES

Attach the hood rail assembly to the hood support angles, using 3/8 x 3/4 inch bolt with 3/8 inch Nyloc nut at each attachment point, see Figure 6.

NOTE: Fasteners should be hand tightened only until Step 9.

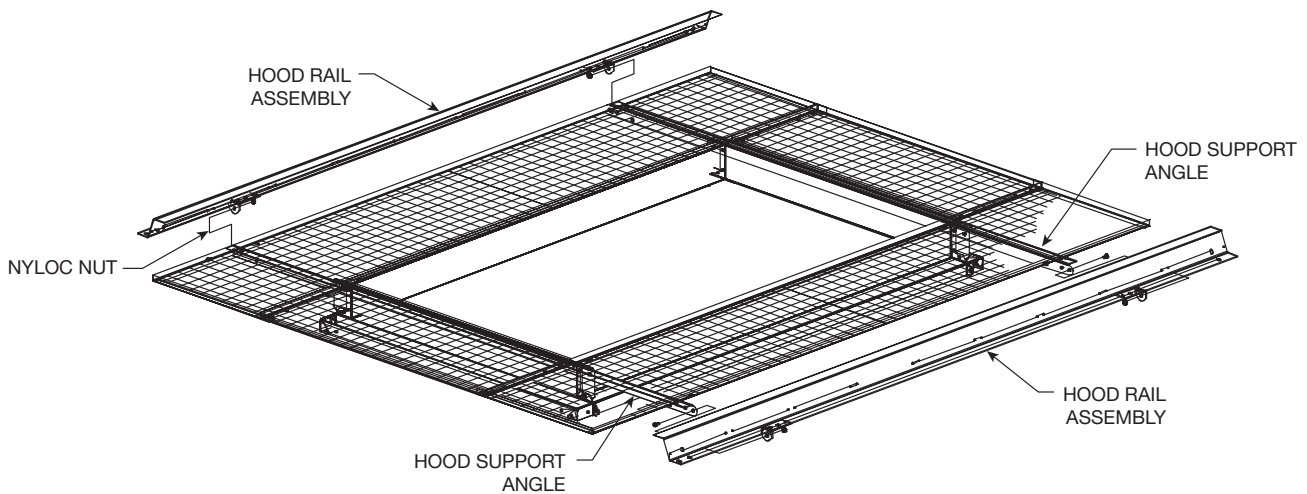


Figure 6

Step 8 – Assemble HOOD PANELS to HOOD RAIL ASSEMBLY

Assemble hood panels to hood rail assembly. The hood end assembly with the “male rib” is to be installed first, see Figure 7, Detail E. Place the remaining hood panels in place, interlocking panels as you go, see Detail E. Secure each hood panel to the hood rail assembly as it is put in place, using four 12 x 3/8 inch sheet metal screws with sealing washers per hood panel. The hood end assembly with the “female rib” is to be installed last.

NOTE: Hoods over 9 feet wide are supplied with special hood clips. See Detail F. Hood panels have predrilled holes for hood clip installation. Install clips as hood panels are being put in place, using one 12 x 5/8 inch sheet metal screw with sealing washer per hood clip. To install clips in the last panel, leave the end birdscreen assembly out to provide access to the underside of the hood. The end birdscreen assembly can be easily replaced after the hood is completely assembled.

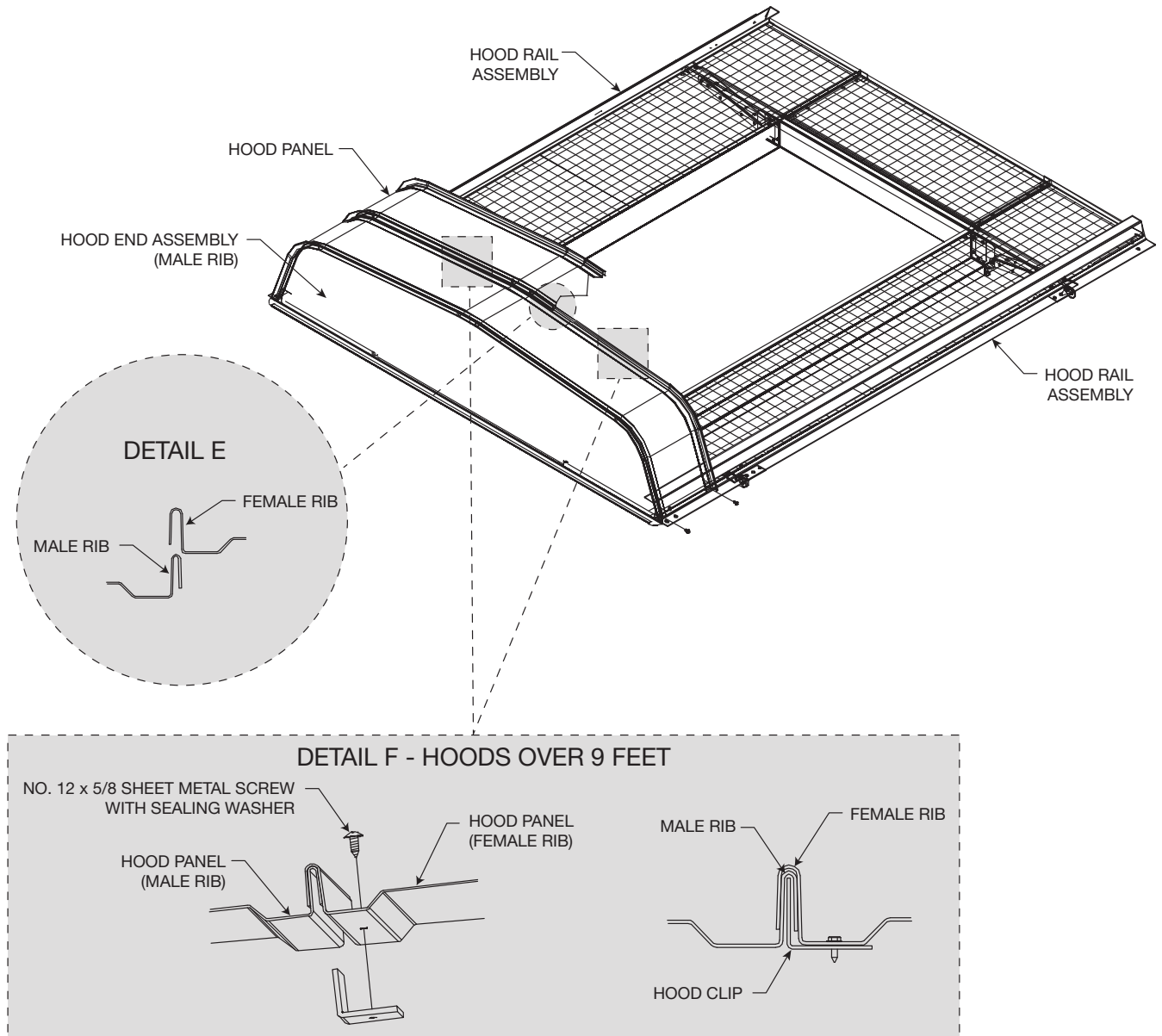


Figure 7

Step 9 – Tighten fasteners

Tighten all pivot bracket fasteners.

NOTE: There may be extra fasteners.

High Wind Assembly

NOTE: Depending on the size of the hood it may be easier to assemble unit on the ground and lift to the roof assembled. This is due to the self tapping screws that need to be fastened down the center of the hood.

IMPORTANT: Do not climb on top of hood to fasten screws in the center of the hood.

Step 1 – Open crates and separate parts

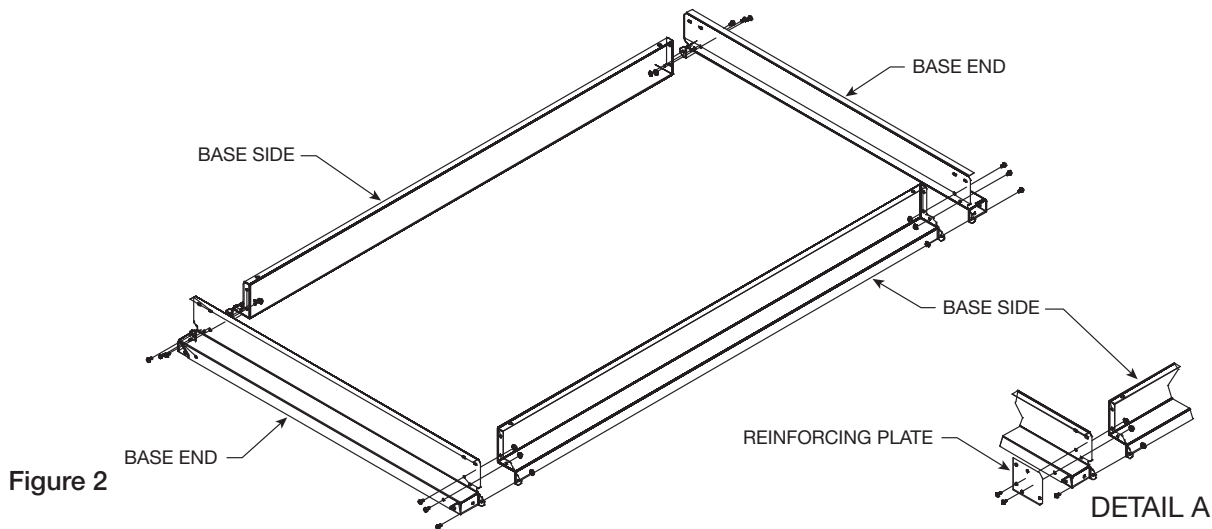
Open the shipping crates and separate the parts according to the size of the unit, refer back to Figure 1, page 2.

Step 2 – Place BASE ENDS and BASE SIDES

Place the two base ends and the two base sides in their approximate relationship to each other, see Figure 2. Fasten together using three 1/4-20 fasteners per corner for 5 inch high base and four 1/4-20 fasteners per corner for 12 inch high base.

NOTE: Fasteners should be hand tightened only until Step 4.

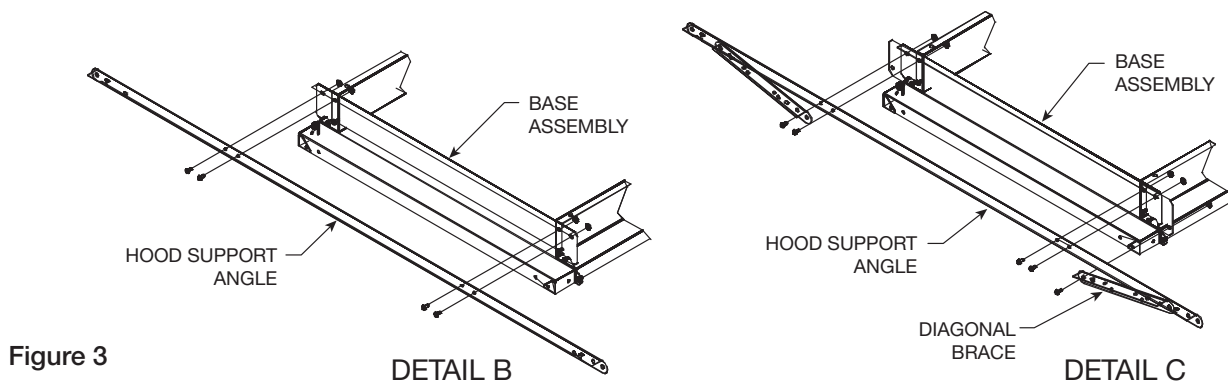
On some units where the difference between the hood width and throat width is greater than 32 inches, a reinforcing plate is required in the corners of the base. Refer to Figure 2, Detail A.



Step 3 – Attach HOOD BASE ENDS to HOOD BASE SIDES

Attach the hood support angle to the base assembly, using four 1/4-20 fasteners per angle, see Figure 3, Detail B.

On some units, two diagonal braces come pre-attached to the hood support angle. Fasten the loose end of the diagonal braces to the base assembly, using one 1/4-20 fastener per diagonal brace. See Figure 3, Detail C.



Step 4 – Tighten fasteners and caulk all inside corners

Tighten all fasteners. Caulk all inside corners where the base sections come together.

Step 5 – Attach SIDE BIRDSCREEN ASSEMBLY TO HOOD SUPPORT ANGLE

Attach the side bird screen assembly to the hood support angle and base assembly using four 1/4-20 x 1 inch fasteners per screen assembly, see Figure 4.

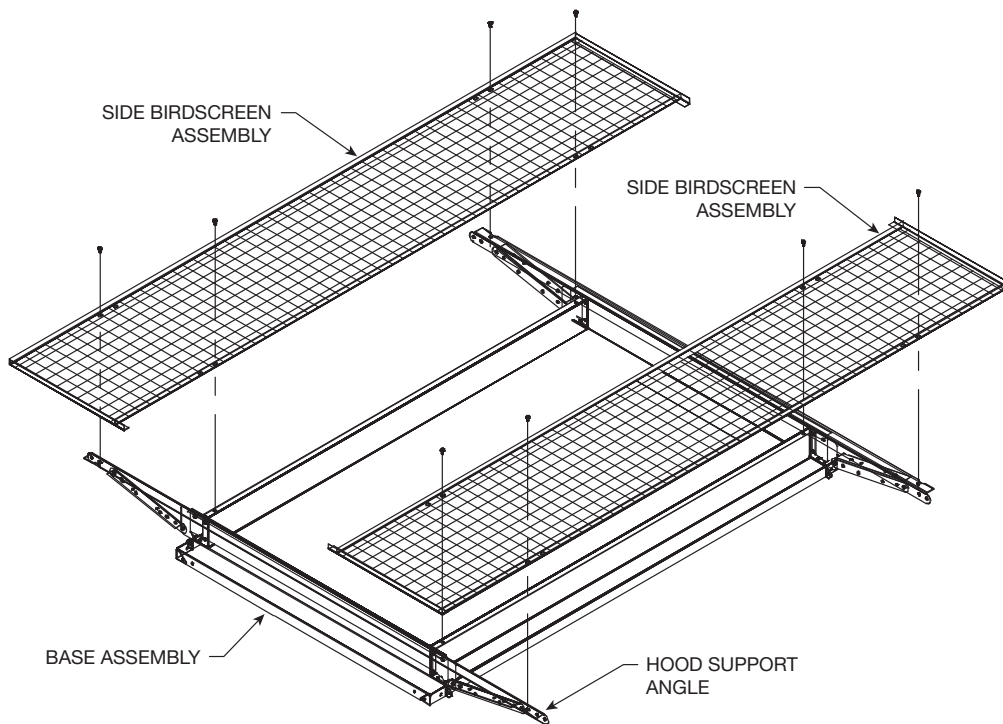


Figure 4

Step – 6 Install END BIRDSCREEN ASSEMBLY

Install the end birdscreen assembly, refer to Figure 5. Turn the birdscreen clips (which are pre-assembled to the end birdscreen assembly) so that two are under the side birdscreen frame extension and the other two are under the hood support angle. See Figure 5, Detail D.

NOTE: Loosen and tighten the birdscreen clip as necessary.

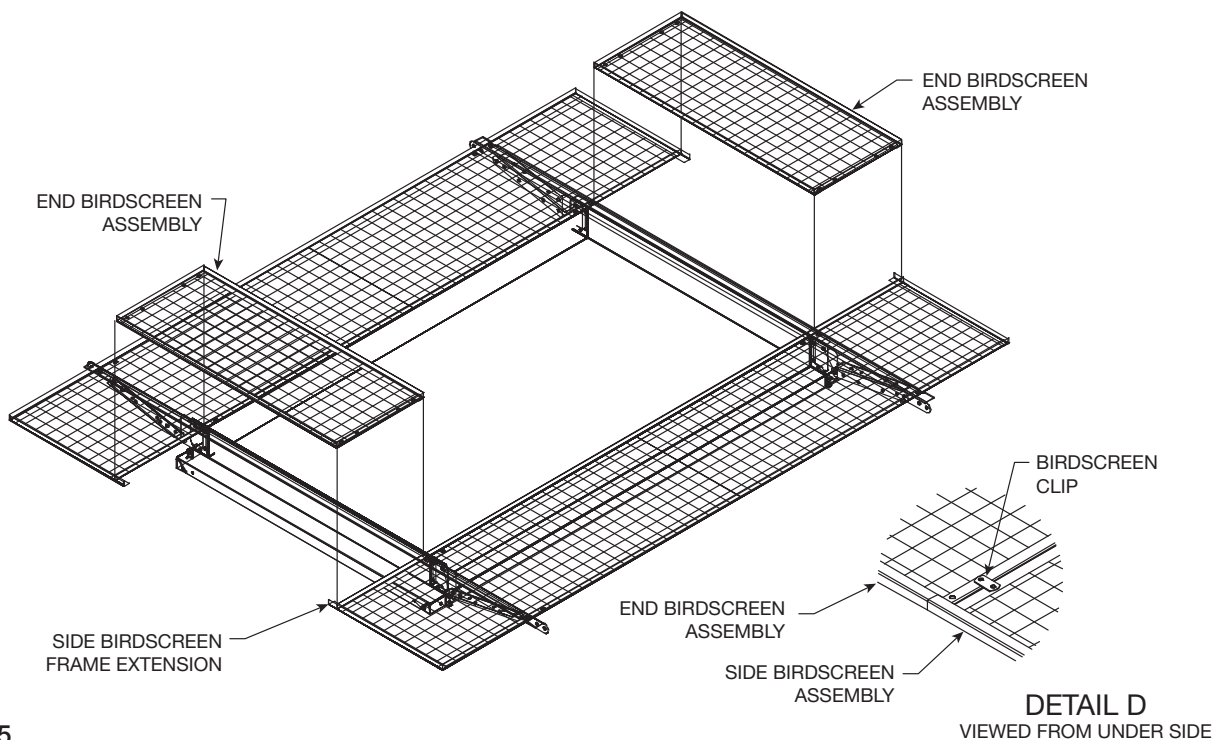


Figure 5

Step – 7 HOOD RAIL ASSEMBLY

NOTE: For easier assembly and lifting elevate hood rail assembly on blocks.

Lay out hood rail assembly and hood end angles, see Figure 6. Install 5/16-18 x 1 inch thread cutters (hardware kit # 916687) from underneath, first through hood end angles and second hood rail assembly.

NOTE: Use a builders square to ensure the corners of the frame are as close to 90° as possible.

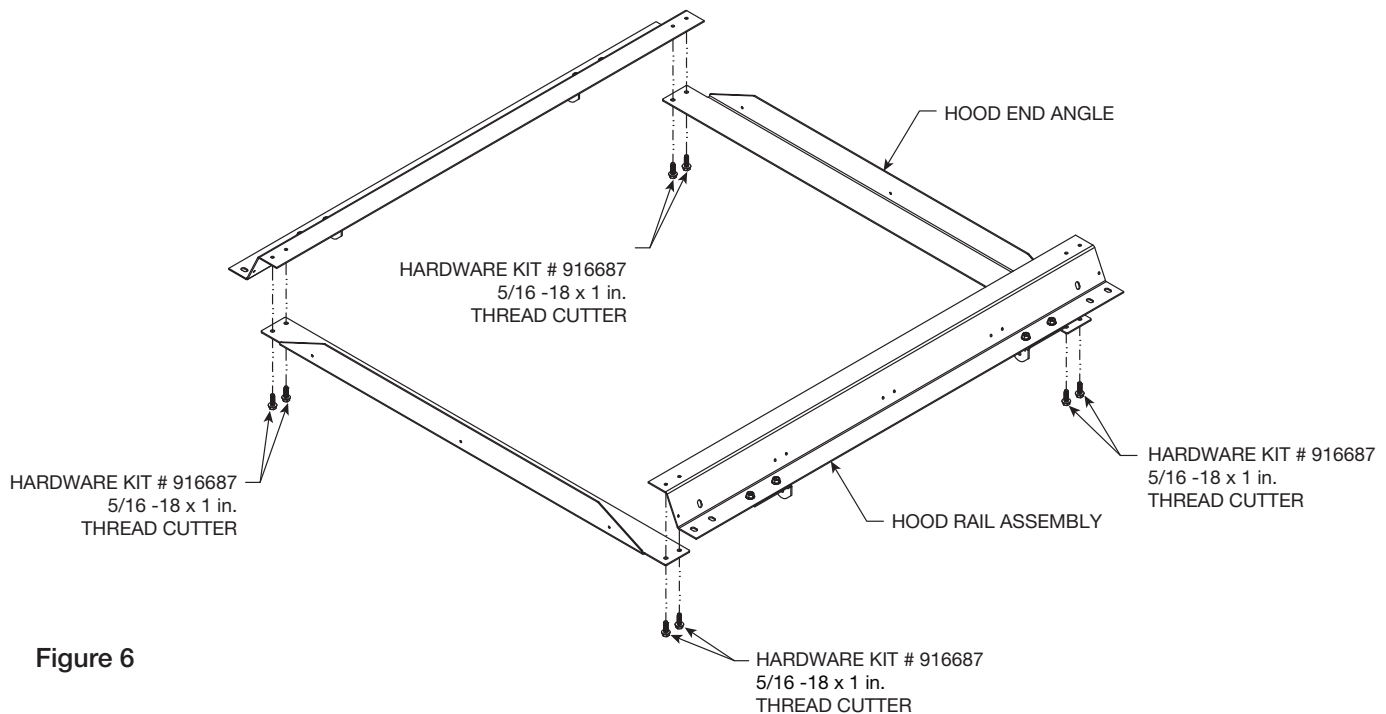


Figure 6

Step 8 – Install HAT CHANNEL

Place diagonal end panel supports with the formed angle running the length of the part facing out and slots next to hat channel. Fasten diagonals with 5/16-18 inch whiz nut (hardware kit # 917544). Leave whiz nuts snug and DO NOT tighten. Lift hat channel into place. The diagonals will support the hat channel as it is being installed. Use 5/16-18 x 1 inch thread cutters (hardware kit # 916687) to attach the hat channel to the diagonal end panel supports. Tighten whiz nuts.

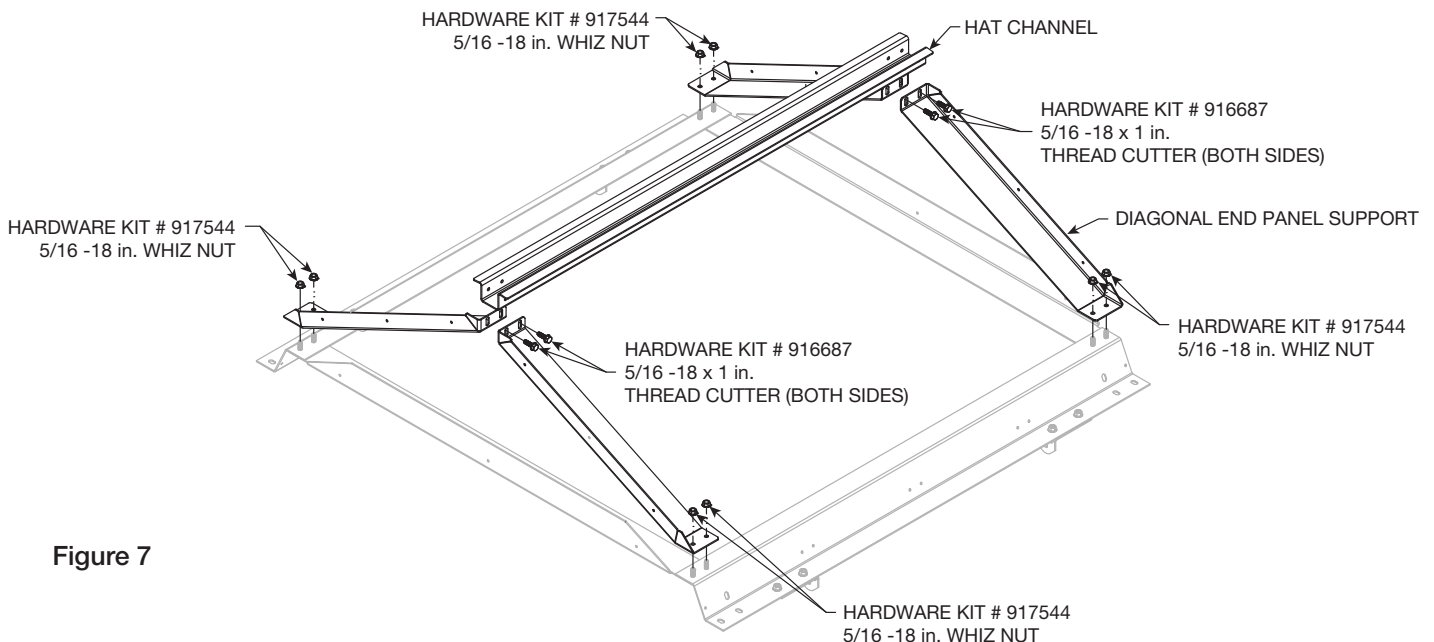


Figure 7

NOTE: Adjustment of the hat channel may be needed. Ensure there is no more than an 1/8 inch gap between the hat channel and hood panel.

Step 9 – Install HOOD END PANEL (MALE RIB)

Lift the hood end panel (male rib) into place. Use the 1/4-20 x 1 inch thread rolling screws with washer (hardware kit # 916688) to attach hood end panel to the diagonal end panel supports using holes in the hood end panel that line up with holes in the diagonal end panel supports.

Use quantity four #12-14 x 1 inch self-tapping screws (hardware kit # 916689) to attach the hood panel to the hat channel. Use quantity four #12-11 x 5/8 inch sheet metal screws (hardware kit # 916691) to attach the hood panel to the hood rail assembly.

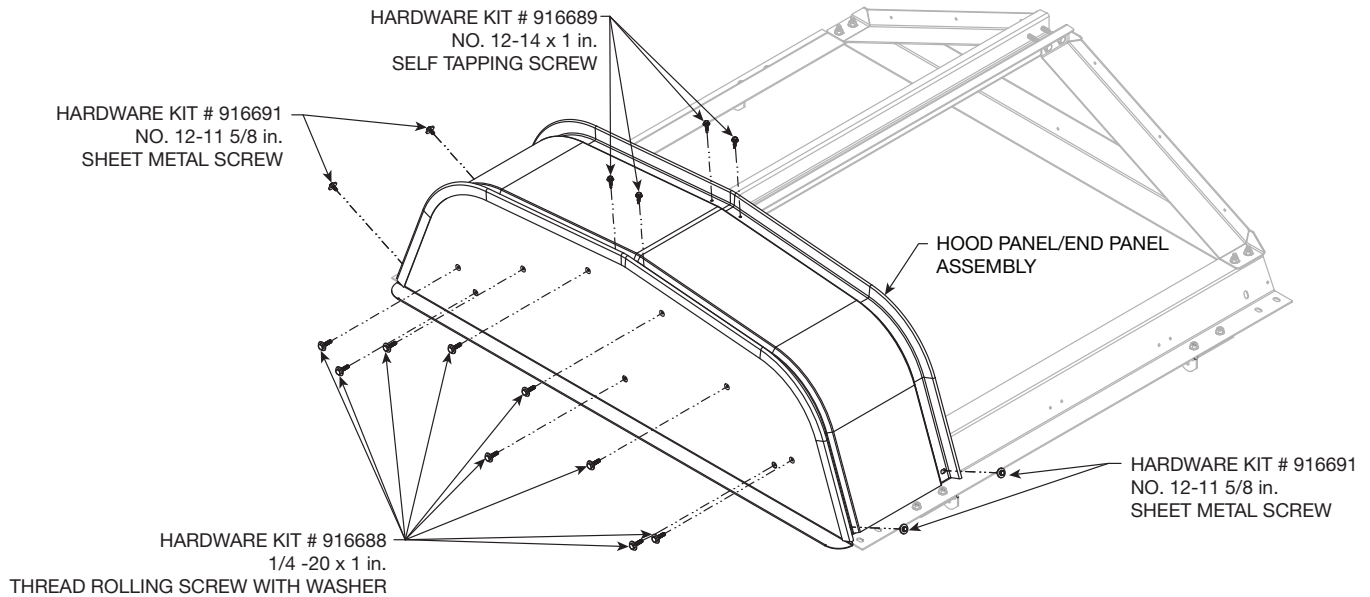


Figure 8

Step 10 – Install HOOD PANELS to HOOD RAIL ASSEMBLY

Place the remaining hood panels by interlocking each panel as shown in Figure 9, Detail E (page 10). Secure each hood panel to the hat channel as it is put in place, using quantity four #12-14 x 1 inch self-tapping screws (hardware kit # 916689). The hood end assembly with the “female rib” is to be installed last.

NOTE: Hoods over 9 feet wide are supplied with special hood clips. See Figure 9, Detail F (page 10). Hood panels have predrilled holes for hood clip installation. Install clips as hood panels are being put in place, using one 12 x 5/8 inch sheet metal screw with sealing washer per hood clip. To install clips in the last panel, leave the end birdscreen assembly out to provide access to the underside of the hood. The end birdscreen assembly can be easily replaced after the hood is completely assembled.

For each hood panel, use quantity four #12-11 x 5/8 inch sheet metal screws (hardware kit # 916691) to attach the hood panel to the hood rail assembly.

Use quantity 10 #12-11 X 3/8 inch sheet metal screw with sealing washer (hardware kit # 916690) to secure each male and female rib joint together.

IMPORTANT: Do not drive sheet metal screws all the way through both sides of the ribs as this could allow water to leak through the hood. Screws are to fasten only the first 2 layers of the rib joint.

Place the remaining hood end panel (female rib) in place. Use the 1/4-20 x 1 inch thread rolling screws with washer (hardware kit # 916688) to attach hood end panel to the diagonal end panel supports using holes in the hood end panel that line up with holes in the diagonal end panel supports.

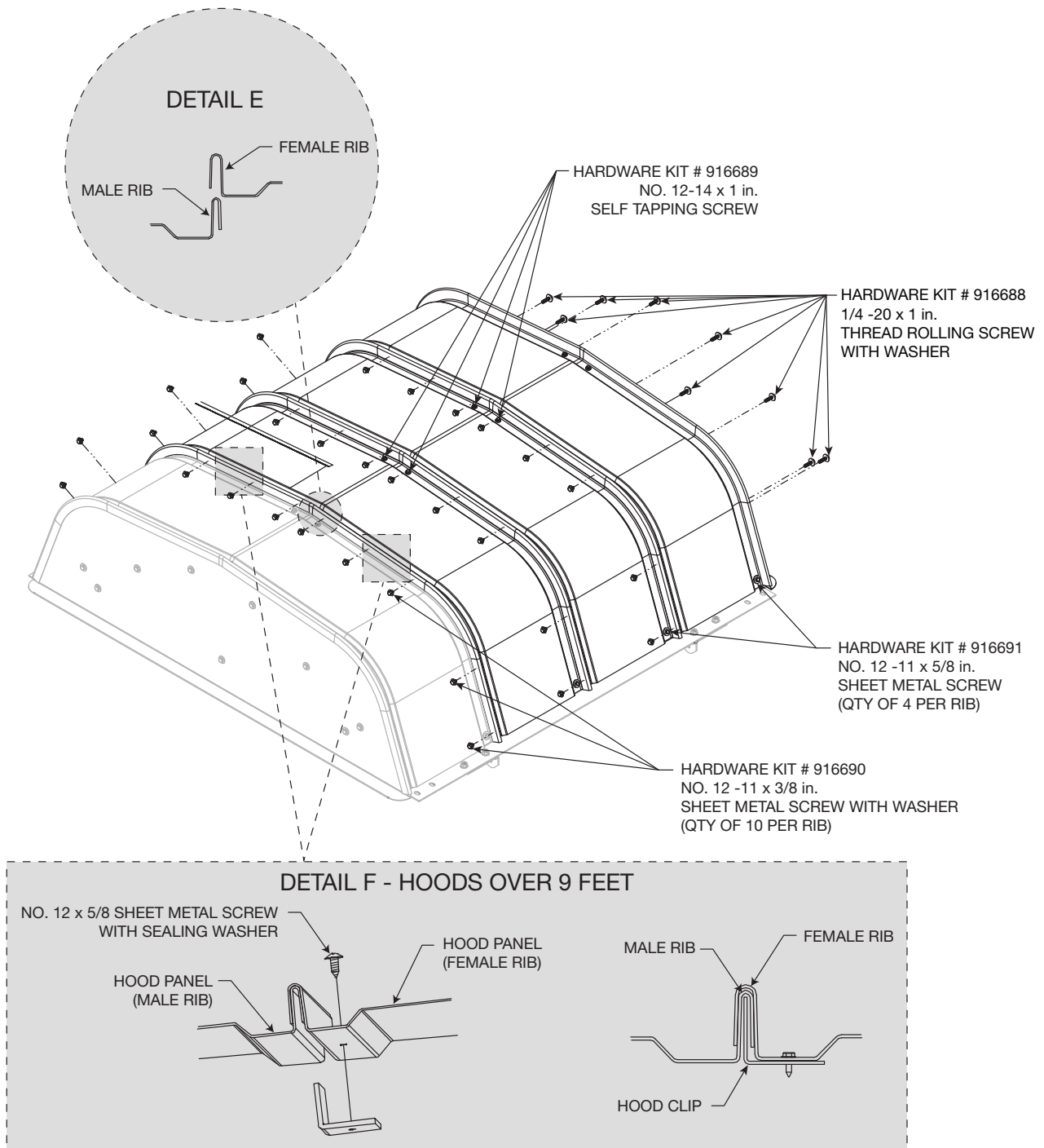


Figure 9

Step 11 – Lift HOOD ASSEMBLY onto HOOD BASE

Lift completed hood assembly onto the hood base and attach the hood assembly to the hood support angles, using 3/8 x 3/4 inch bolt with 3/8 inch Nyloc nut (hardware kit # 809631) at each attachment point.

Step 12 – Tighten fasteners

Tighten all pivot bracket fasteners.

NOTE: There may be extra fasteners.

High Wind Rating Anchoring (Galvanized)

Throat Size (in.) (A Given Side)			Timber Deck				Steel Deck				Concrete Deck			
			Option #1 (Lag Screws)		Option #2 (Thru Bolts)		Option #3 (Self-Drill Screws)		Option #4 (Thru Bolts)		Option #5 (Screw Anchors)		Option #6 (Thru Bolts)	
			Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total
FGR	FGI	≤24	1	8	1	8	1	8	1	8	1	8	1	8
		≤48	2	12	2	12	3	16	2	12	2	12	2	12
		≤54	2	12	3	16	3	16	2	12	2	12	2	12
	≤66	2	12	3	16	4	20	2	12	2	12	2	12	

¹ Unless noted, anchors to be either 300 series stainless steel cond. cw (Fy=65ksi min.) or zinc plated grade 2 steel (Fy=57ksi min.). Zinc plated anchors shall be sealed with liquid proscoco flashing (or equivalent product) unless flashing is provided.

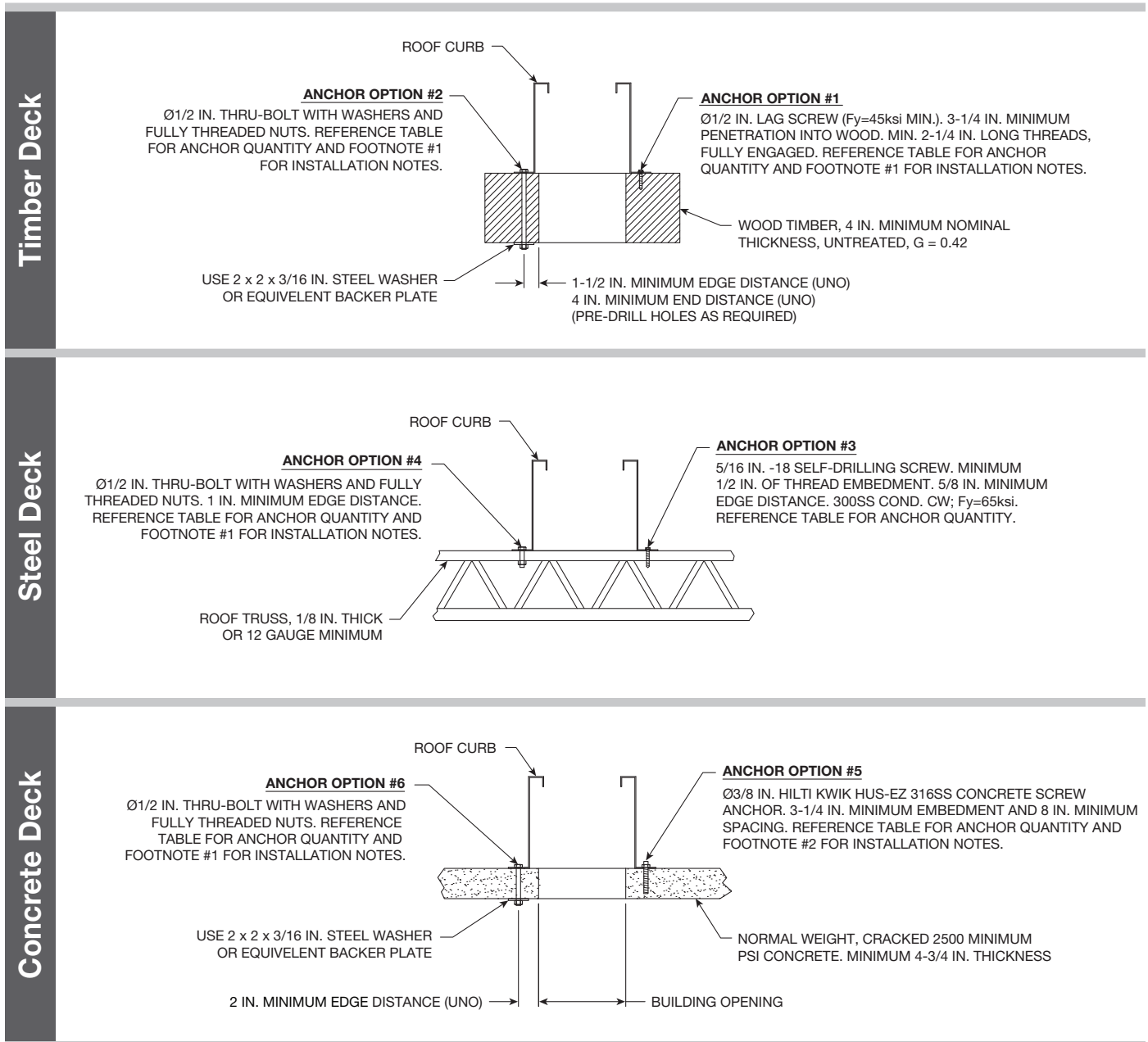
² All anchors to be installed per the manufacturer's recommendations.

³ All anchors and substrates are by others.

⁴ Corner fasteners are not included in the above "per side" quantities. They are included in the "total" quantities.

⁵ Each install is to utilize four (4) corner fasteners. No exceptions.

⁶ Tabulated data generated from 70psf for galvanized units or 40psf for aluminum units. Uplift and lateral loads are applied independently.



High Wind Rating Anchoring (Aluminum)

Throat Size (in.) (A Given Side)		Timber Deck				Steel Deck				Concrete Deck				
		Option #1 (Lag Screws)		Option #2 (Thru Bolts)		Option #3 (Self-Drill Screws)		Option #4 (Thru Bolts)		Option #5 (Screw Anchors)		Option #6 (Thru Bolts)		
		Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total	Per Side	Total	
FGR	FGI	≤24	1	8	1	8	1	8	1	8	1	8	1	8
		≤48	2	12	1	8	2	12	1	8	2	12	1	8
		≤54	2	12	2	12	2	12	2	12	2	12	2	12
		≤66	2	12	2	12	2	12	2	12	2	12	2	12

¹ Unless noted, anchors to be either 300 series stainless steel cond. cw (Fy=65ksi min.) or zinc plated grade 2 steel (Fy=57ksi min.). Zinc plated anchors shall be sealed with liquid proscoco flashing (or equivalent product) unless flashing is provided.

² All anchors to be installed per the manufacturer's recommendations.

³ All anchors and substrates are by others.

⁴ Corner fasteners are not included in the above "per side" quantities. They are included in the "total" quantities.

⁵ Each install is to utilize four (4) corner fasteners. No exceptions.

⁶ Tabulated data generated from 70psf for galvanized units or 40psf for aluminum units. Uplift and lateral loads are applied independently.

Timber Deck

ANCHOR OPTION #2
Ø1/2 IN. THRU-BOLT WITH WASHERS AND FULLY THREADED NUTS. REFERENCE TABLE FOR ANCHOR QUANTITY AND FOOTNOTE #1 FOR INSTALLATION NOTES.

ANCHOR OPTION #1
Ø1/2 IN. LAG SCREW (Fy=45ksi MIN.). 3-1/4 IN. MINIMUM PENETRATION INTO WOOD. MIN. 2-1/4 IN. LONG THREADS, FULLY ENGAGED. REFERENCE TABLE FOR ANCHOR QUANTITY AND FOOTNOTE #1 FOR INSTALLATION NOTES.

WOOD TIMBER, 4 IN. MINIMUM NOMINAL THICKNESS, UNTREATED, G = 0.42

USE 2 x 2 x 3/16 IN. STEEL WASHER OR EQUIVALENT BACKER PLATE

1-1/2 IN. MINIMUM EDGE DISTANCE (UNO)
4 IN. MINIMUM END DISTANCE (UNO)
(PRE-DRILL HOLES AS REQUIRED)

Steel Deck

ANCHOR OPTION #4
Ø1/2 IN. THRU-BOLT WITH WASHERS AND FULLY THREADED NUTS. 1 IN. MINIMUM EDGE DISTANCE. REFERENCE TABLE FOR ANCHOR QUANTITY AND FOOTNOTE #1 FOR INSTALLATION NOTES.

ANCHOR OPTION #3
5/16 IN. -18 SELF-DRILLING SCREW. MINIMUM 1/2 IN. OF THREAD EMBEDMENT. 5/8 IN. MINIMUM EDGE DISTANCE. 300SS COND. CW; Fy=65ksi. REFERENCE TABLE FOR ANCHOR QUANTITY.

ROOF TRUSS, 1/8 IN. THICK OR 12 GAUGE MINIMUM

Concrete Deck

ANCHOR OPTION #6
Ø1/2 IN. THRU-BOLT WITH WASHERS AND FULLY THREADED NUTS. REFERENCE TABLE FOR ANCHOR QUANTITY AND FOOTNOTE #1 FOR INSTALLATION NOTES.

ANCHOR OPTION #5
Ø3/8 IN. HILTI KWIK HUS-EZ 316SS CONCRETE SCREW ANCHOR. 3-1/4 IN. MINIMUM EMBEDMENT AND 8 IN. MINIMUM SPACING. REFERENCE TABLE FOR ANCHOR QUANTITY AND FOOTNOTE #2 FOR INSTALLATION NOTES.

USE 2 x 2 x 3/16 IN. STEEL WASHER OR EQUIVALENT BACKER PLATE

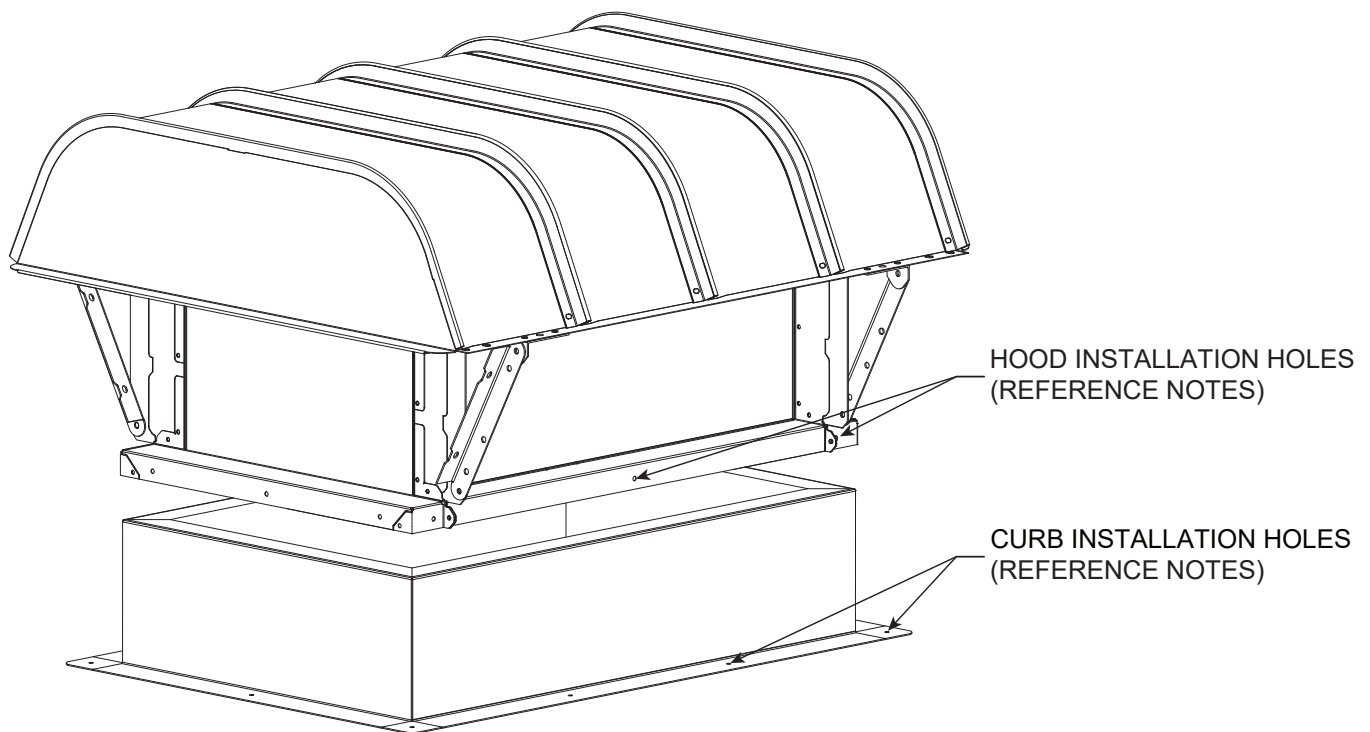
NORMAL WEIGHT, CRACKED 2500 MINIMUM PSI CONCRETE. MINIMUM 4-3/4 IN. THICKNESS

2 IN. MINIMUM EDGE DISTANCE (UNO)

BUILDING OPENING

12 Fabra Hood Gravity Ventilator

Typical Installation



HOOD INSTALLTION NOTES:

- HOOD INSTALLATION HOLES MAY ONLY BE PRESENT AT BASE CORNERS FROM FACTORY.
- INSTALLATION FASTENERS MAY VARY DUE TO PROJECT LOCATION, LOCAL STRUCTURAL CODES, OR ENVIRONMENTAL CONDITIONS (I.E. HIGH WIND).
- CONSULT PROJECT/SITE ENGINEER ON INSTALLATION HARDWARE INFORMATION INCLUDING QUANTITIES, MAXIMUM SPACING, AND HARDWARE TYPE.

CURB INSTALLATION NOTES:

- CURB ANCHOR HOLES PROVIDED BY MANUFACTURER, HOWEVER ADDITIONAL ANCHORS MAY BE REQUIRED DEPENDING ON SITE LOCATION AND LOCAL CODES.
- CONSULT PROJECT/SITE ENGINEER FOR PROJECT-SPECIFIC ANCHOR CALCULATIONS.
- FOR HIGH-WIND RATED HOOD, FOLLOW HIGH-WIND INSTRUCTIONS STARTING ON PAGE 6.

Maintenance Log

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Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.

