

# SA SERIES ENERGY RECOVERY CORE ARRAY

## Installation, Operation and Maintenance Manual

SA-Series



Model SA4H3W Shown

**⚠ CAUTION****RISK OF INJURY FROM FALLING OBJECTS**

Assembly of this unit requires raising and placing heavy objects overhead. The possibility exists of an object falling on workers and severely injuring them. Observe all OSHA-recommended safety practices and wear appropriate safety clothing such as protective work gloves and steel-toed shoes and hard hats.

**⚠ CAUTION****RISK OF DAMAGE TO ENERGY RECOVERY MODULE**

Do not place ladders against the unit or the stacked enthalpic cores, either during or after assembly of the module. Do not place ladders on the unit base during assembly unless the base is covered with plywood or other material to safely distribute the load.

**⚠ CAUTION****RISK OF DAMAGE TO ENERGY RECOVERY MODULE**

The Energy Recovery Core Array is designed to be assembled in its final location. **It is not to be moved after assembly.**

**IMPORTANT**

This equipment is to be installed by following Industry Best Practices and all applicable codes. Any damage to components, assemblies, subassemblies or the cabinet which is caused by improper installation practices will void the warranty.

**IMPORTANT****RISK OF DAMAGE TO ENTHALPIC CORES**

Enthalpic cores must be protected from exposure to water or other liquids at all times. Cores must never be exposed to solvents or fumes from solvents.

**IMPORTANT****RISK OF DAMAGE TO ENTHALPIC CORES**

Enthalpic cores are made of a fibrous material that is easily damaged by impacts or contact with other objects. Protect the core surfaces at all times when working on or near the cores.

**IMPORTANT**

The Energy Recovery Core Array must have a complete set of filters in place at all times, whether the unit is being operated or not. Even if the unit is not being used, dirt and dust can migrate into the unit and contaminate the enthalpic cores.

**IMPORTANT**

Air ducts connecting this Energy Recovery Core Array to the Occupied Space must be installed in accordance with the Standards of the National Fire Protection Agency for the installation of Air-Conditioning and Ventilating Systems (Pamphlet No. 90A) and Warm-Air Heating and Air-Conditioning Systems (Pamphlet No. 90B).

**IMPORTANT**

This unit is intended for general ventilating and heating only. Do not use to exhaust hazardous or explosive materials and vapors. Do not connect this equipment to range hoods, fume hoods or collection systems for toxics.



# SA SERIES

## Energy Recovery Core Array

INDOOR UNIT  
Stackable Array

NEW



### SPECIFICATIONS

**Ventilation Type:**  
Static plate, heat and humidity transfer

**AHRI 1060 Certified Core:**  
L125-G5 (Quantity varies)

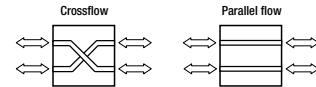
#### Standard Features:

SA-Series units can be configured from 3H3W to 8H8W  
Blower not included and must be specified to meet  
job requirements.  
Choice of airflow configuration: parallel flow, crossflow  
Plenum assembly  
Knockdown shipping only  
Insulated dividers between airstreams

### AIRFLOW ORIENTATION



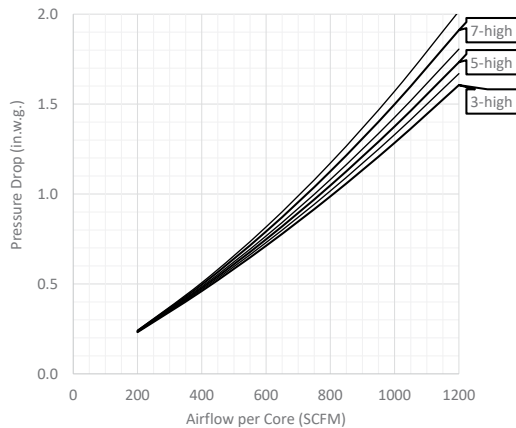
Can be configured on site.  
Available as shown:



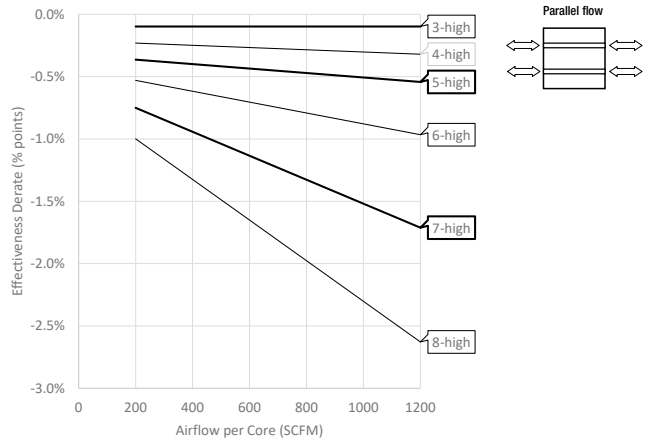
Energy Recovery Core is AHRI Certified®



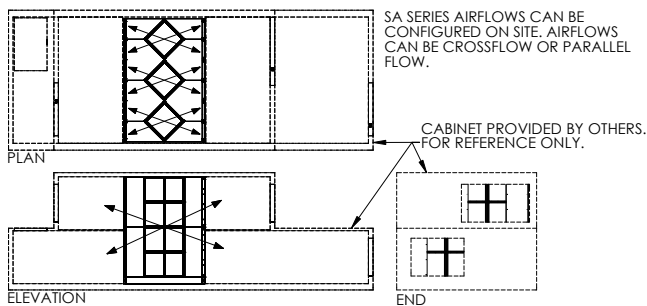
### AIRFLOW PERFORMANCE



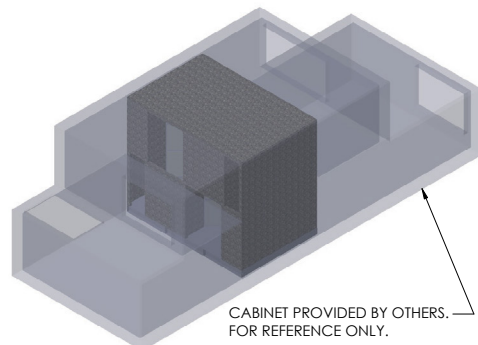
### EFFECTIVENESS SUBTRACTION DERATE FOR PARALLEL FLOW



### APPLICATION



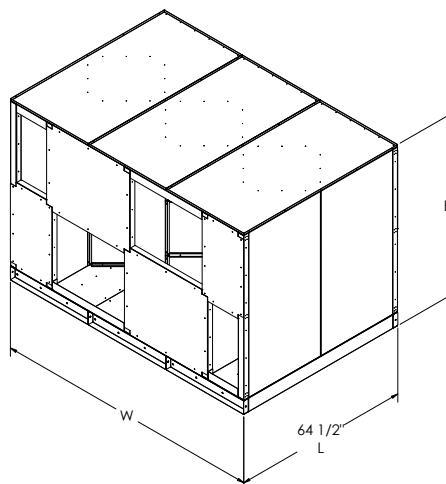
When parallel flow airflow orientation is used, flow is not optimally distributed to every exchanger and performance is slightly reduced. In this case the sensible and latent effectiveness must be derated by the amount shown in the EFFECTIVENESS DERATE chart. This derate is automatically applied by CORES.RenewAire.com (v1.3.0 and after) when parallel flow orientation is selected.



Subject to change without notice: [RENEWAIRE.COM](http://RENEWAIRE.COM) | 1.800.627.4499

### SA SERIES DIMENSIONS

Energy Recovery Core is AHRI Certified®



Unit (Cores High and Wide)	Typical Airflow Range (CFM)	AHRI 1060 Certified Cores (L125-G5)	Unit Dimensions			Weight (lbs.)
			L (Inches)	W (Inches)	H (Inches)	
SA3H3W	2,250–9,900	9	64 1/2	97 3/4	65 5/8	1,300
SA3H4W	3,000–13,200	12		130 1/4	65 5/8	1,675
SA3H5W	3,750–16,500	15		162 7/8	65 5/8	2,049
SA3H6W	4,500–19,800	18		195 3/8	65 5/8	2,424
SA3H7W	5,250–23,100	21		228	65 5/8	2,798
SA3H8W	6,000–26,400	24		260 1/2	65 5/8	3,172
SA4H3W	3,000–13,200	12		97 3/4	85 1/2	1,582
SA4H4W	4,000–17,600	16		130 1/4	85 1/2	2,030
SA4H5W	5,000–22,000	20		162 7/8	85 1/2	2,479
SA4H6W	6,000–26,400	24		195 3/8	85 1/2	2,927
SA4H7W	7,000–30,800	28		228	85 1/2	3,376
SA4H8W	8,000–35,200	32		260 1/2	85 1/2	3,825
SA5H3W	3,750–16,500	15		97 3/4	105 3/8	1,863
SA5H4W	5,000–22,000	20		130 1/4	105 3/8	2,384
SA5H5W	6,250–27,500	25		162 7/8	105 3/8	2,908
SA5H6W	7,500–33,000	30		195 3/8	105 3/8	3,431
SA5H7W	8,750–38,500	35		228	105 3/8	3,954
SA5H8W	10,000–44,400	40		260 1/2	105 3/8	4,477
SA6H3W	4,500–19,800	18		97 3/4	125 1/2	2,203
SA6H4W	6,000–26,400	24		130 1/4	125 1/2	2,819
SA6H5W	7,500–33,000	30		162 7/8	125 1/2	3,435
SA6H6W	9,000–39,600	36		195 3/8	125 1/2	4,051
SA6H7W	10,500–46,200	42		228	125 1/2	4,666
SA6H8W	12,000–52,800	48		260 1/2	125 1/2	5,282
SA7H3W	5,250–23,100	21		97 3/4	145 3/8	2,483
SA7H4W	7,000–30,800	28		130 1/4	145 3/8	3,174
SA7H5W	8,750–38,500	35		162 7/8	145 3/8	3,864
SA7H6W	10,500–46,200	42		195 3/8	145 3/8	4,554
SA7H7W	12,250–53,900	49		228	145 3/8	5,244
SA7H8W	14,000–61,600	56		260 1/2	145 3/8	5,934
SA8H3W	6,000–26,400	24		97 3/4	165 1/4	2,765
SA8H4W	8,000–35,200	32		130 1/4	165 1/4	3,529
SA8H5W	10,000–44,000	40		162 7/8	165 1/4	4,294
SA8H6W	12,000–52,800	48		195 3/8	165 1/4	5,058
SA8H7W	14,000–61,600	56		228	165 1/4	5,822
SA8H8W	16,000–70,400	64		260 1/2	165 1/4	6,587

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# SA MODEL CONFIGURATION GUIDE

Note: Not all options are available on every model.

MODEL NUMBER

S	A					J	I	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N
---	---	--	--	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

DIGIT NUMBER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Digits 1–2:	Series
"SA" = Stackable Array	

<b>Digits 3–4:</b>	Array Core Height
"3H" = 3 Core Height	
"4H" = 4 Core Height	
"5H" = 5 Core Height	
"6H" = 6 Core Height	
"7H" = 7 Core Height	
"8H" = 8 Core Height	

<b>Digits 5-6:</b>	Array Core Width
"3W"	= 3 Core Width
"4W"	= 4 Core Width
"5W"	= 5 Core Width
"6W"	= 6 Core Width
"7W"	= 7 Core Width
"8W"	= 8 Core Width

Digits 8-9:	Location
"IN" = Indoor	

Digits 10–23:	Unused
"-" =	Unused

<b>Digit 24:</b>	Other Options
"K" = Knockdown	
"X" = Custom Unit	

Digit 25:	Safety Listing
"N" = Non-Listed	

**\*NOTES:**

Digit 7 "J" = G5 Core Type.

Restrictions:	
1: None	

## 1.0 OVERVIEW

### 1.1 DESCRIPTION

The RenewAire SA Series Core Array is a stand-alone energy recovery unit that works in conjunction with airflow provided by others. It is intended for use in a weather-tight structure, whether it is within an air handler or simply installed in a mechanical room. It features multiple columns of RenewAire's L125 enthalpic cores. The unit is located where both Exhaust Air (EA) and Outdoor Air (OA) can be directed into one structure from opposite sides.

Return Air (RA) enters into the enthalpic cores from one side and fresh OA air enters in from the other side. The two airstreams never mix, but the energy, both sensible and latent, is transferred from the exhaust air and supplied to the incoming outdoor air.

The enthalpic cores are stacked into columns and then sheet metal panels are installed to form plenums so that Exhaust Air (EA) and Outdoor Air (OA) can be kept separate.

The only maintenance required for the module is annual vacuuming of the inlet sides of the enthalpic cores.

The Core Array is modular and is available in a number of different size combinations. Enthalpic cores are stacked on modular, prefabricated bases and then the superstructure, consisting of pre-formed metal panels, posts, rails and attaching bracketry, are assembled by means of provided hardware.

The Core Array does not require any wiring and has no moving parts. All ductwork is to be supplied and installed by others, in the field.



## 1.2 COMPONENTS

Components of the SA Series are shipped loose for assembly in the field. See Figure 1.2.0 for identification of components.

Parts list will indicate quantities of components shipped with the specific configurations.

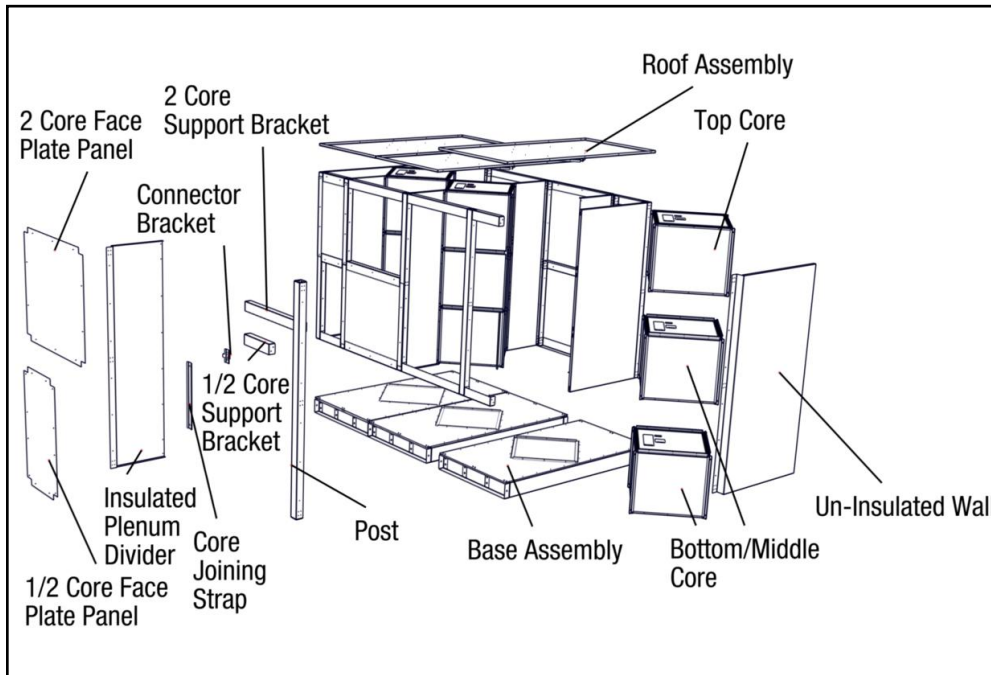


FIGURE 1.2.0 SA SERIES COMPONENTS

### PARTS LIST FOR 3 CORES HIGH

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	6	8	10	12	14	16
Top Core	3	4	5	6	7	8
Connector Bracket	4	6	8	10	12	14
Core Joining Strap	6	9	12	15	18	21
1/2 Core Support Bracket	12	12	12	12	12	12
2 Core Support Bracket	12	18	24	30	36	42
Post	10	12	14	16	18	20
Wall	4	4	4	4	4	4
Insulated Plenum Divider	6	8	10	12	14	16
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**PARTS LIST FOR 4 CORES HIGH**

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	9	12	15	18	21	24
Top Core	3	4	5	6	7	8
Connector Bracket	6	9	12	15	18	21
Core Joining Strap	8	12	16	20	24	28
1/2 Core Support Bracket	12	12	12	12	12	12
2 Core Support Bracket	12	18	24	30	36	42
Post	10	12	14	16	18	20
Wall	4	4	4	4	4	4
Insulated Plenum Divider	6	8	10	12	14	16
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**PARTS LIST FOR 5 CORES HIGH**

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	12	16	20	24	28	32
Top Core	3	4	5	6	7	8
Connector Bracket	8	12	16	20	24	28
Core Joining Strap	10	15	20	25	30	35
1/2 Core Support Bracket	12	12	12	12	12	12
2 Core Support Bracket	12	18	24	30	36	42
Post	10	12	14	16	18	20
Wall	4	4	4	4	4	4
Insulated Plenum Divider	6	8	10	12	14	16
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**PARTS LIST FOR 6 CORES HIGH**

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	15	20	25	30	35	40
Top Core	3	4	5	6	7	8
Connector Bracket	10	15	20	25	30	35
Core Joining Strap	12	18	24	30	36	42
1/2 Core Support Bracket	24	24	24	24	24	24
2 Core Support Bracket	24	36	48	60	72	84
Post	20	24	28	32	36	40
Wall	8	8	8	8	8	8
Insulated Plenum Divider	12	16	20	24	28	32
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**PARTS LIST FOR 7 CORES HIGH**

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	18	24	30	36	42	48
Top Core	3	4	5	6	7	8
Connector Bracket	12	18	24	30	36	42
Core Joining Strap	14	21	28	35	42	49
1/2 Core Support Bracket	24	24	24	24	24	24
2 Core Support Bracket	24	36	48	60	72	84
Post	20	24	28	32	36	40
Wall	8	8	8	8	8	8
Insulated Plenum Divider	12	16	20	24	28	32
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**PARTS LIST FOR 8 CORES HIGH**

DESCRIPTION	3 WIDE	4 WIDE	5 WIDE	6 WIDE	7 WIDE	8 WIDE
Base Assembly	3	4	5	6	7	8
Roof Assembly	3	4	5	6	7	8
Bottom/Middle Core	21	28	35	42	49	56
Top Core	3	4	5	6	7	8
Connector Bracket	14	21	28	35	42	49
Core Joining Strap	16	24	32	40	48	56
1/2 Core Support Bracket	24	24	24	24	24	24
2 Core Support Bracket	24	36	48	60	72	84
Post	20	24	28	32	36	40
Wall	8	8	8	8	8	8
Insulated Plenum Divider	12	16	20	24	28	32
1/2 Core Face Plate Panel	4	4	4	4	4	4
2 Core Face Plate Panel	4	6	8	10	12	14

**2.0 PRINCIPLE OF OPERATION**

Enthalpic cores work most efficiently when the two airstreams are balanced. The cores are stacked on their respective bases and the gaps between the core stacks are sealed. Vertical sheet metal panels are installed to form plenums.

Plenums are either 2 Core or half Core wide. Every Core Array has a pair of half Core wide plenums on each end and all other plenums are 2 Core wide.

All plenums extend full height, from the floor of the Core Array to the ceiling panels. The exterior surface of each plenum has sheet metal panels that cover half the frontal surface of the plenum. These panels provide rigidity to the structure and provide a means of access to perform annual maintenance of the cores.

Every adjoining plenum has an opposite-direction airflow. In other words, if a plenum is used for entering air, the adjacent two plenums are used for leaving air. The installer must select which plenums are to be used for entering air or leaving air.

The two frontal elevations of the Core Array are mirror images of each other. This means that for every opening on one side of the Core Array, the opening straight through the Core Array on the opposite side is in the same position. See the dimension drawing for reference on page 5 and Airflow Arrangements Figures on page 13.

Enthalpic cores work by forcing airflows to follow paths at right angles. This means that air that is entering a plenum is shifted sideways into an adjacent plenum on the downstream side.

Determine the airflow paths for your job. The two airstreams are the Supply Air (air from outside) and Return Air (air from the conditioned space).

If the Supply and Return Air enter the Core Array on OPPOSITE sides, use Arrangements 1 or 3. (See Figures 2.0.0 and 2.0.2)

If the Supply and Return Air enter the Core Array on the SAME side, use Arrangements 2 or 4. (See Figures 2.0.1 and 2.0.3)

If the airstreams enter the Core Array low, and leave the Core Array high (or the other way around), this airflow orientation is called “crossflow.” Use Arrangements 1 or 2.

If one airstream enters the Core Array high and leaves high, and the other enters low and leaves low, this airflow orientation “parallel.” Use Arrangements 3 or 4. This airflow configuration requires a performance derate.



**NOTE:** Filters are required but are supplied by others and must be installed upstream of the core arrays.

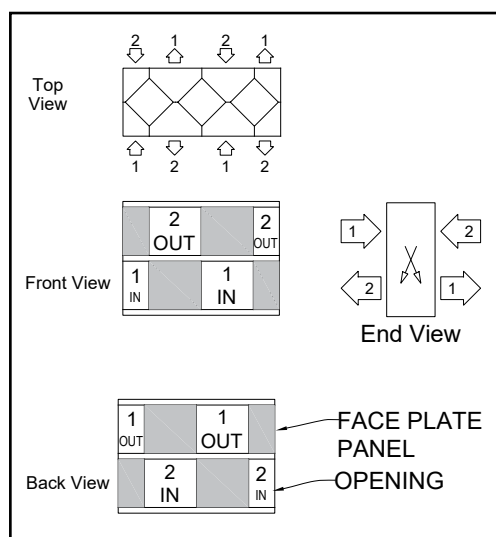


FIGURE 2.0.0 ASSEMBLY ARRANGEMENT 1

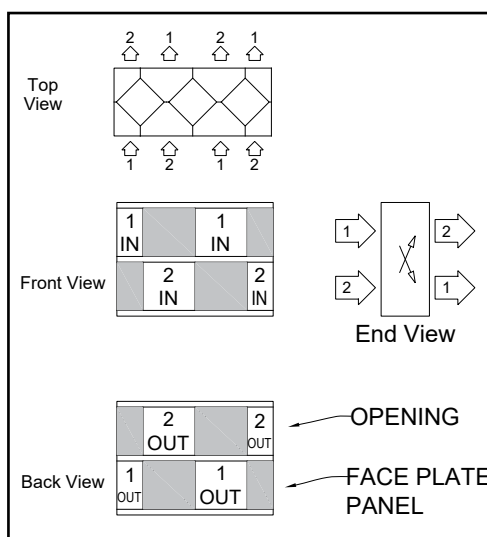


FIGURE 2.0.1 ASSEMBLY ARRANGEMENT 2

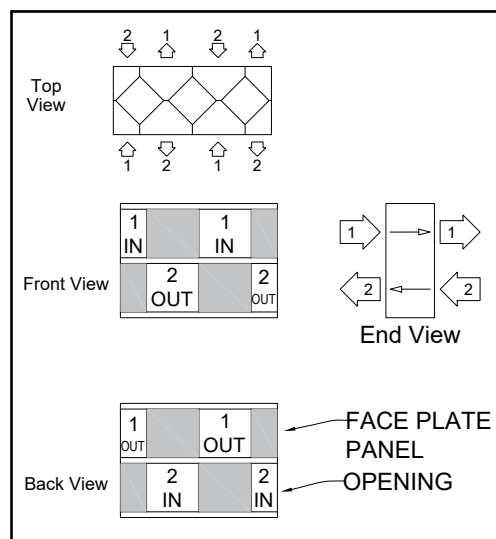


FIGURE 2.0.2 ASSEMBLY ARRANGEMENT 3

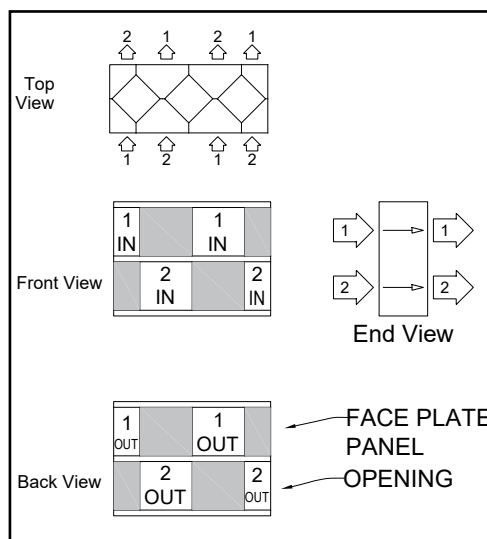
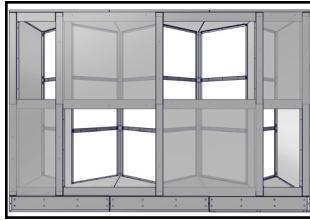
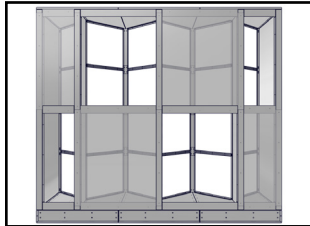


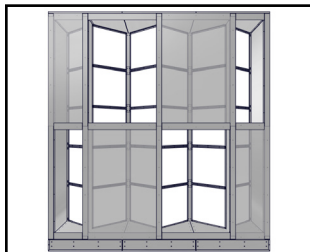
FIGURE 2.0.3 ASSEMBLY ARRANGEMENT 4



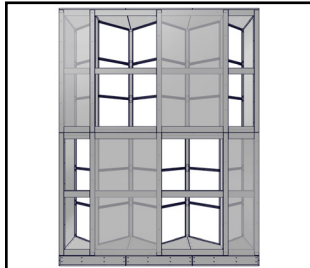
3 high x 3 wide



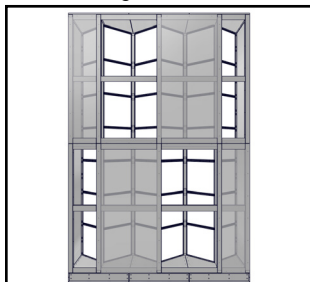
4 high x 3 wide



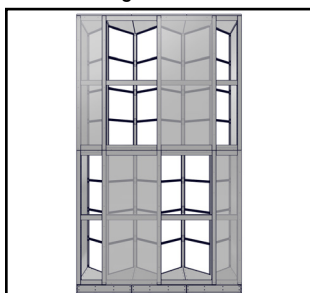
5 high x 3 wide



6 high x 3 wide



7 high x 3 wide



8 high x 3 wide

## 3.0 UNIT SIZES

CORE HEIGHT	CORE WIDTH	ASSEMBLED DIMENSIONS
3	3	65 5/8" H x 97 3/4" W x 64 1/2" D
3	4	65 5/8" H x 130 1/4" W x 64 1/2" D
3	5	65 5/8" H x 162 7/8" W x 64 1/2" D
3	6	65 5/8" H x 195 3/8" W x 64 1/2" D
3	7	65 5/8" H x 228" W x 64 1/2" D
3	8	65 5/8" H x 260 1/2" W x 64 1/2" D
4	3	85 1/2" H x 97 3/4" W x 64 1/2" D
4	4	85 1/2" H x 130 1/4" W x 64 1/2" D
4	5	85 1/2" H x 162 7/8" W x 64 1/2" D
4	6	85 1/2" H x 195 3/8" W x 64 1/2" D
4	7	85 1/2" H x 228" W x 64 1/2" D
4	8	85 1/2" H x 260 1/2" W x 64 1/2" D
5	3	105 3/8" H x 97 3/4" W x 64 1/2" D
5	4	105 3/8" H x 130 1/4" W x 64 1/2" D
5	5	105 3/8" H x 162 7/8" W x 64 1/2" D
5	6	105 3/8" H x 195 3/8" W x 64 1/2" D
5	7	105 3/8" H x 228" W x 64 1/2" D
5	8	105 3/8" H x 260 1/2" W x 64 1/2" D
6	3	125 1/2" H x 97 3/4" W x 64 1/2" D
6	4	125 1/2" H x 130 1/4" W x 64 1/2" D
6	5	125 1/2" H x 162 7/8" W x 64 1/2" D
6	6	125 1/2" H x 195 3/8" W x 64 1/2" D
6	7	125 1/2" H x 228" W x 64 1/2" D
6	8	125 1/2" H x 260 1/2" W x 64 1/2" D
7	3	145 3/8" H x 97 3/4" W x 64 1/2" D
7	4	145 3/8" H x 130 1/4" W x 64 1/2" D
7	5	145 3/8" H x 162 7/8" W x 64 1/2" D
7	6	145 3/8" H x 195 3/8" W x 64 1/2" D
7	7	145 3/8" H x 228" W x 64 1/2" D
7	8	145 3/8" H x 260 1/2" W x 64 1/2" D
8	3	165 1/4" H x 97 3/4" W x 64 1/2" D
8	4	165 1/4" H x 130 1/4" W x 64 1/2" D
8	5	165 1/4" H x 162 7/8" W x 64 1/2" D
8	6	165 1/4" H x 195 3/8" W x 64 1/2" D
8	7	165 1/4" H x 228" W x 64 1/2" D
8	8	165 1/4" H x 260 1/2" W x 64 1/2" D

## 4.0 RECEIVING AND HANDLING

### 4.1 RECEIVING

Components are palletized for efficient and easy transportation. Care should be taken when using forklift to move pallets so to not damage the enthalpic cores or sheet metal assemblies. See parts lists on pages 9–12 and 16 to confirm quantities needed to build the unit size ordered.

### 4.2 HANDLING AND STORAGE

Palletized, can be handled with a forklift.

Cores must be protected and stored indoors.



NOTE: Cores must be protected from weather and other damage until they are installed.



NOTE: Ladders **MUST NOT** be leaned against the core assemblies nor against the Core Array structure, either during or after assembly of the Core Array.

## 5.0 INSTALLATION

### 5.1 FASTENERS PROVIDED FOR ASSEMBLY

MODEL	3/8" BOLT	3/8" NUT	3/8" WASHER	1/4"-20 BOLT	1/4"-20 NUT	1/4" WASHER	#8 X 1/2" SCREW
SA3H3WJIN	4	4	8	68	68	88	615
SA3H4WJIN	6	6	12	84	84	96	772
SA3H5WJIN	8	8	16	100	100	104	929
SA3H6WJIN	10	10	20	116	116	112	1086
SA3H7WJIN	12	12	24	132	132	120	1243
SA3H8WJIN	14	14	28	148	148	128	1400
SA4H3WJIN	4	4	8	84	84	104	673
SA4H4WJIN	6	6	12	104	104	112	852
SA4H5WJIN	8	8	16	124	124	120	1031
SA4H6WJIN	10	10	20	144	144	128	1210
SA4H7WJIN	12	12	24	164	164	136	1389
SA4H8WJIN	14	14	28	184	184	144	1568
SA5H3WJIN	4	4	8	100	100	120	729
SA5H4WJIN	6	6	12	124	124	128	924
SA5H5WJIN	8	8	16	148	148	136	1119
SA5H6WJIN	10	10	20	172	172	144	1314
SA5H7WJIN	12	12	24	196	196	152	1509
SA5H8WJIN	14	14	28	220	220	160	1704
SA6H3WJIN	4	4	8	184	184	272	1123
SA6H4WJIN	6	6	12	216	216	288	1408
SA6H5WJIN	8	8	16	248	248	304	1693
SA6H6WJIN	10	10	20	280	280	320	1978
SA6H7WJIN	12	12	24	312	312	336	2263
SA6H8WJIN	14	14	28	344	344	352	2548
SA7H3WJIN	4	4	8	208	208	304	1187
SA7H4WJIN	6	6	12	244	244	320	1496
SA7H5WJIN	8	8	16	280	280	336	1805
SA7H6WJIN	10	10	20	316	316	352	2114
SA7H7WJIN	12	12	24	352	352	368	2423
SA7H8WJIN	14	14	28	360	360	384	2732
SA8H3WJIN	4	4	8	232	232	336	1239
SA8H4WJIN	6	6	12	272	272	352	1560
SA8H5WJIN	8	8	16	312	312	368	1881
SA8H6WJIN	10	10	20	352	352	384	2202
SA8H7WJIN	12	12	24	388	388	400	2523
SA8H8WJIN	14	14	28	432	432	416	2884



## 5.2 TOOLS NEEDED FOR ASSEMBLY

Battery Drill/Driver, #2 Phillips or Square Drive  
 Drift Pins and C-clamp Pliers (2)  
 Dead Blow Hammer, 4' Level  
 7/16" and 9/16" Wrenches/Sockets  
 Step Ladders, Multiple Heights

## 5.3 SA SERIES ASSEMBLY PARTS

The parts needed to assemble the SA Series are depicted below for reference in the assembly process. Please see charts on page 9–12 for quantities provided for specific models.

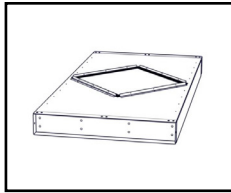


FIGURE 5.3.0 BASE  
ASSEMBLY

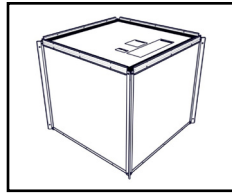


FIGURE 5.3.1 BOTTOM/  
MIDDLE CORE

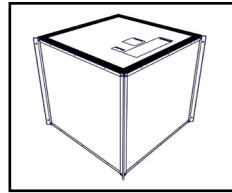


FIGURE 5.3.2 TOP CORE

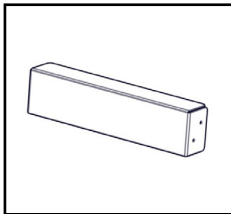


FIGURE 5.3.3 1/2 CORE  
SUPPORT BRACKET

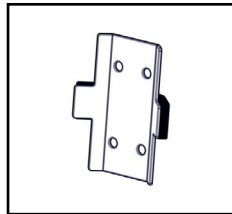


FIGURE 5.3.4 CONNECTOR  
BRACKET

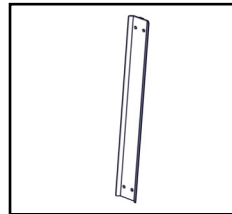


FIGURE 5.3.5 CORE JOINING  
STRAP

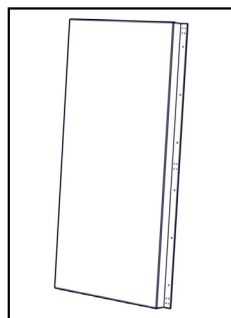


FIGURE 5.3.6 WALL

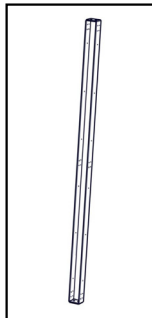


FIGURE 5.3.7 POST

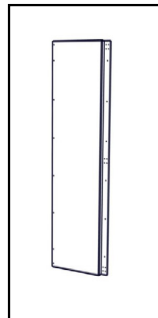


FIGURE 5.3.8  
INSULATED  
PLENUM DIVIDER

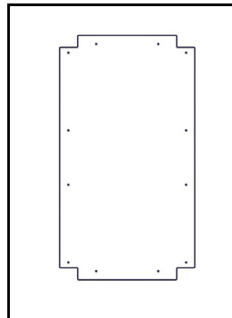


FIGURE 5.3.9 1/2 CORE FACE  
PLATE PANEL

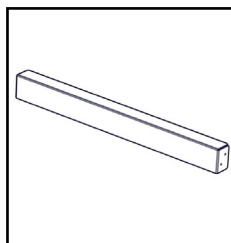


FIGURE 5.3.10 2 CORE  
SUPPORT BRACKET

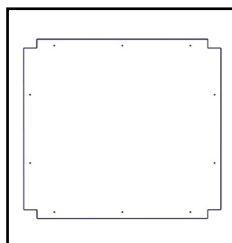


FIGURE 5.3.11 2 CORE FACE  
PLATE PANEL

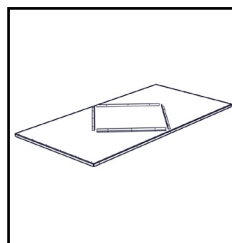


FIGURE 5.3.12 ROOF  
ASSEMBLY

## 5.4 SA SERIES UNIT ASSEMBLY

### ⚠ CAUTION

Do not lean ladders or other objects against the cores or the completed assembly, either during assembly or when the unit is completed. Do not place ladders on the unit base assemblies.

All base modules are identical in construction. Place them in their final location and bolt the modules together using the 3/8" Bolts, two Washers and Nuts. See Figure 5.4.0.

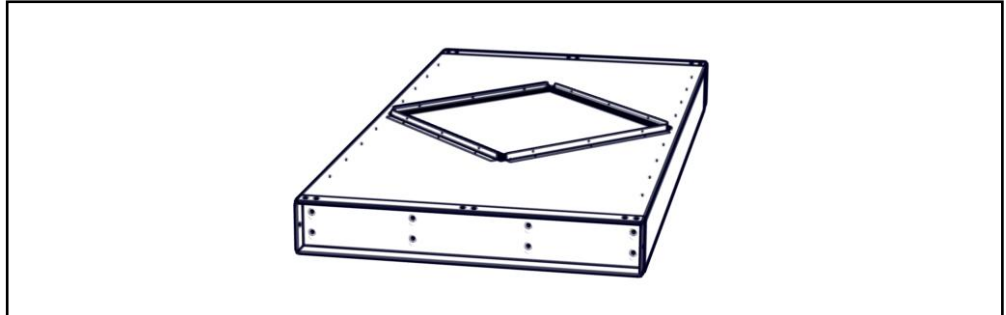


FIGURE 5.4.0 BASE ASSEMBLY

Adjust the location of the assembled base modules, as needed.

Use a 4' level and carefully check the assembled base modules for level. Use galvanized sheet metal shims under the joining bolt locations and all four corners to level the base assembly.

**The base assembly must be within 1/16" of level in 4' in any direction. Check to make sure there is not a high spot in the floor beneath the modules which may cause the base modules to rock.**

Begin stacking the Bottom/Middle Cores on the base modules. These cores have horizontal joining straps installed on the top of the cores. All cores are omni-directional and may be turned any direction. Stack two cores that have the horizontal joining straps on them on each base module. See Figure 5.4.1.

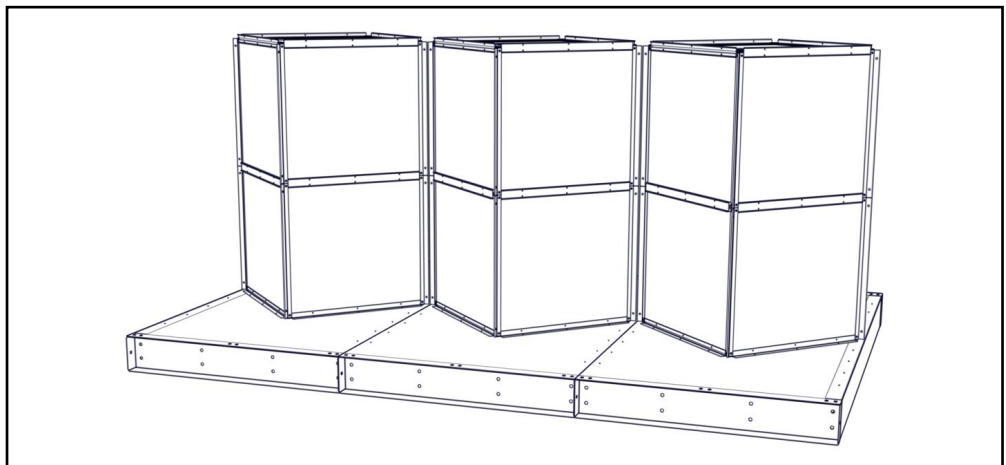


FIGURE 5.4.1 CORE STACKING

### NOTICE

Use extreme care when handling the cores. Apply protective cardboard to the faces of the cores as soon as they are installed.

When the cores are stacked 2 rows high, install #8 x 1/2" Screws through the alignment angles on the floor of the Base Assemblies into the cores themselves. Secure all 4 bottom edges of all installed cores. Install #8 x 1/2" screws through Horizontal Core Brackets to secure stacked cores. See Figure 5.4.2.

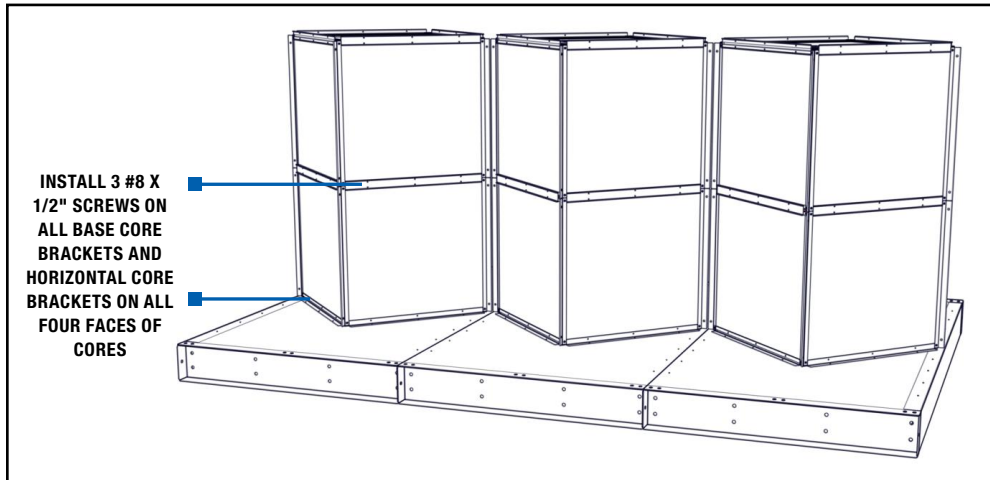


FIGURE 5.4.2 ATTACH CORES TO BASES

When the cores are stacked two rows high, install Core Joining Straps and Connector Brackets on adjoining cores to stabilize the assembly as it goes forward. Use drift pins and C-clamp pliers as needed to align and hold Core Joining Straps in position and then bolt the pieces together with 1/4"-20 Bolts with Nuts (no washers). Core Joining Straps and Connector Brackets are installed on one face (elevation) only. See Figure 5.4.3.

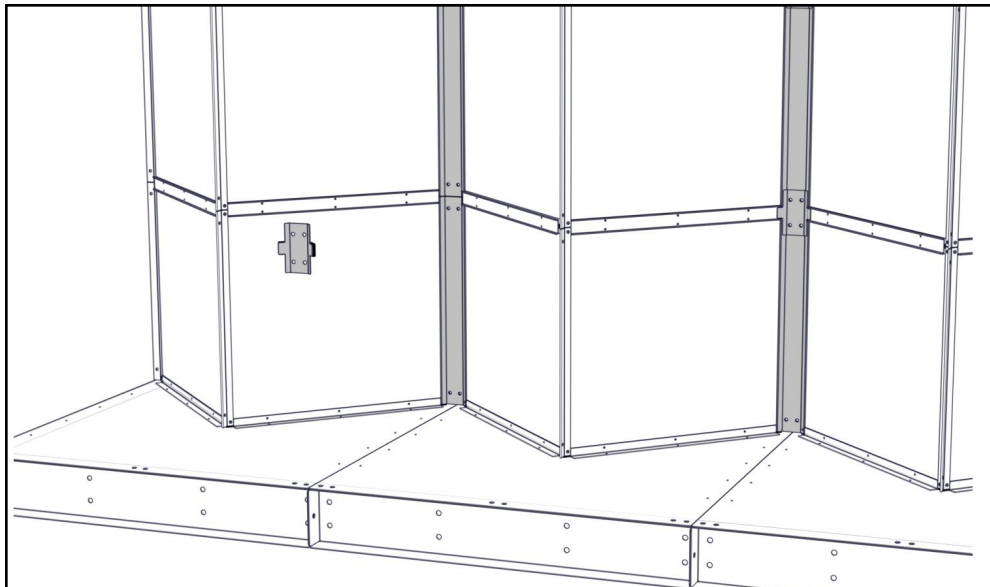


FIGURE 5.4.3 INSTALL CORE JOINING STRAPS AND CONNECTOR BRACKETS



**NOTE:** If a ladder must be placed on the base modules, protect the modules by placing a piece of plywood or cardboard on the floor, under the ladder legs.

Continue stacking and joining cores, two core levels at a time until all cores are installed for SA Series unit heights 3H, 4H and 5H. Top cores will not have attaching flanges. Refer to Figure 5.3.2 on page 17. For SA Series unit heights 6H, 7H and 8H you will continue stacking the cores later in the assembly process.

Install Posts at all four corners and at the centerline of each base module, where the Insulated Plenum Divider will be located. Posts are installed with two 1/4"-20 Bolts and Nuts; and four Flat Washers. See Figure 5.4.4.

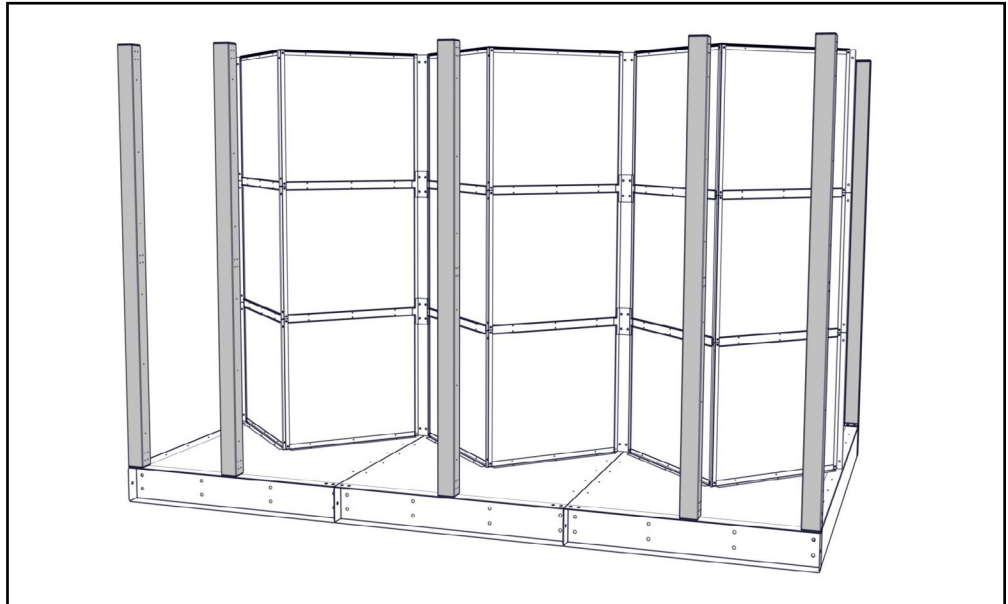


FIGURE 5.4.4 INSTALL POSTS

Install Insulated Plenum Divider panels. Insulated Plenum Dividers are attached to the leading edges of the cores with 1/4"-20 Bolts and Nuts (no washers) and fastened to the support posts with #8 x 1/2" Screws. See Figure 5.4.5.

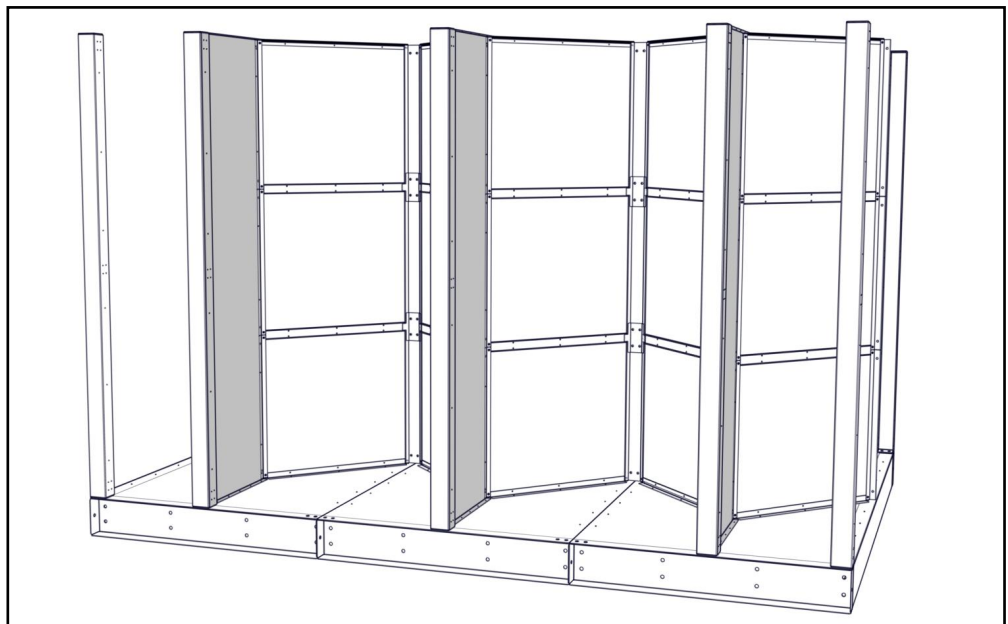


FIGURE 5.4.5 INSTALL INSULATED PLENUM DIVIDERS

Install Walls using #8 x 1/2" Screws to secure them to the base and corner posts.  
Use 1/4"-20 Bolts, two Washers and Nut to secure walls through the cores and second wall.  
See Figure 5.4.6.

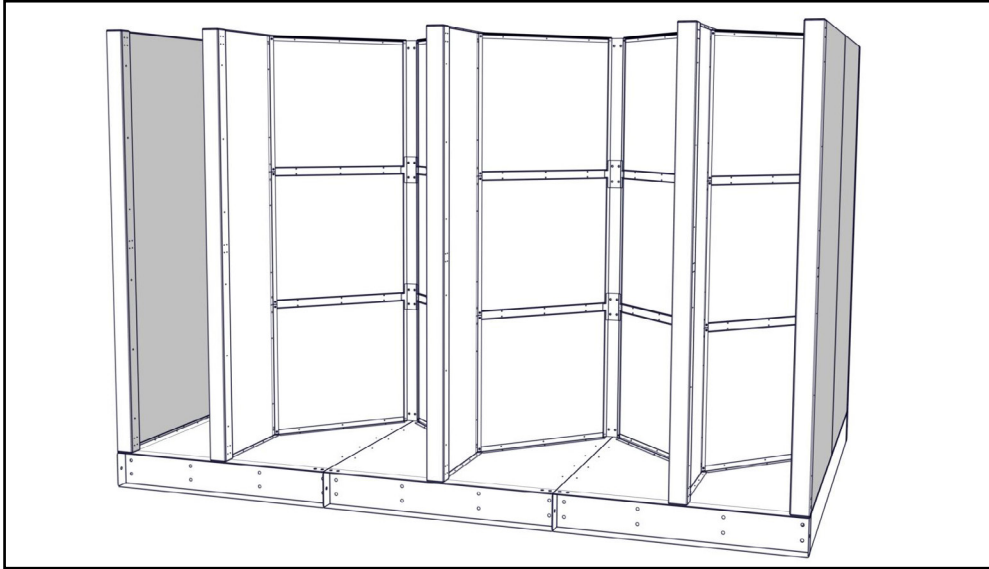


FIGURE 5.4.6 INSTALL WALLS

Install 1/2 Core Support Brackets using #8 x 1/2" Screws. See Figure 5.4.7.

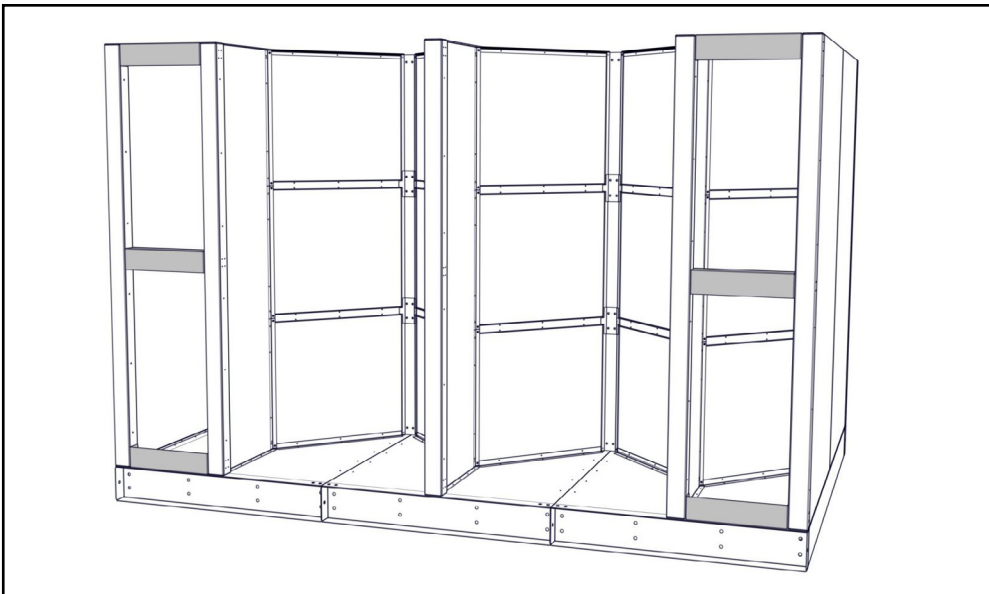
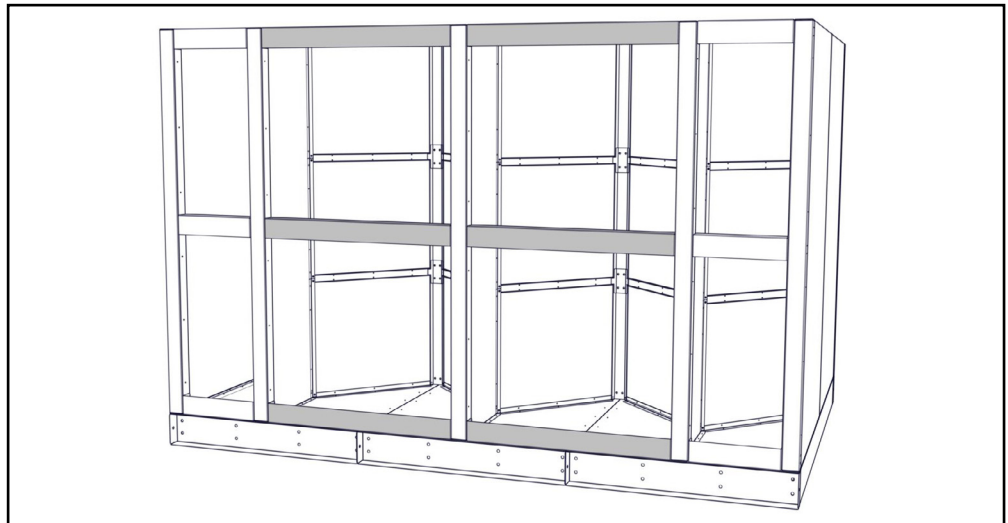


FIGURE 5.4.7 INSTALL 1/2 CORE SUPPORT BRACKETS

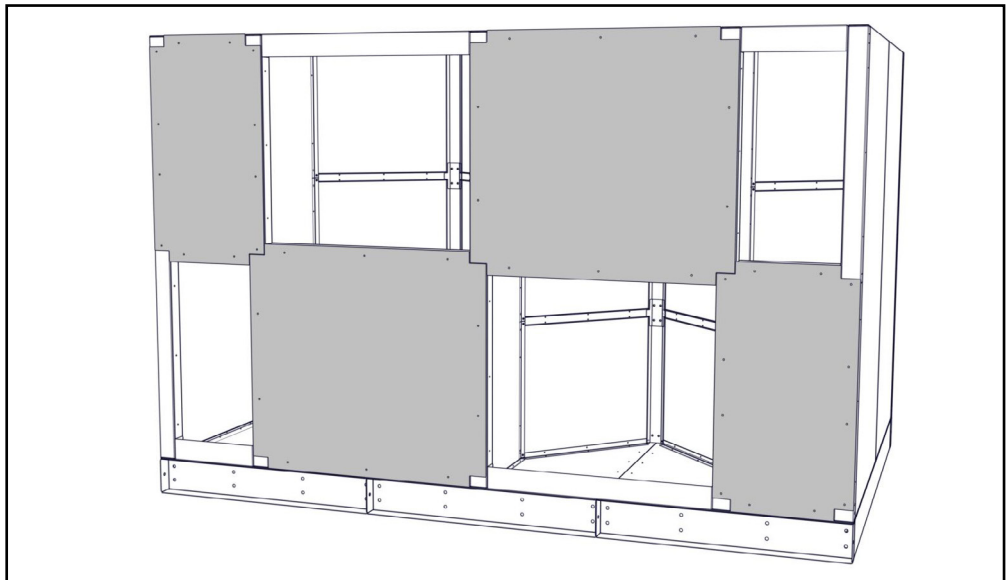
Install 2 Core Support Brackets using #8 x 1/2" Screws. See Figure 5.4.8.



**FIGURE 5.4.8 INSTALL 2 CORE SUPPORT BRACKETS**

At this point in the assembly, if the model core height is 6, 7, or 8 high, continue to stack the cores and repeat the steps shown in Figures 5.4.3 through 5.4.8 before attaching Core Face Plate Panels.

See the dimension drawing for reference on page 5 and Airflow Arrangements Figures on page 13. The correct layout and locations of Core Face Plate Panels is shown there. Select layout of Core Face Plate Panels. Begin on one side and install the bottom row of panels. Install the bottom row of panels on the second side. Panels are secured to the rails and posts with #8 x 1/2" Screws. See Figure 5.4.9.



**FIGURE 5.4.9 INSTALL FACE PLATE PANELS**

Install roof panels using #8 x 1/2" Screws. See Figure 5.4.10.

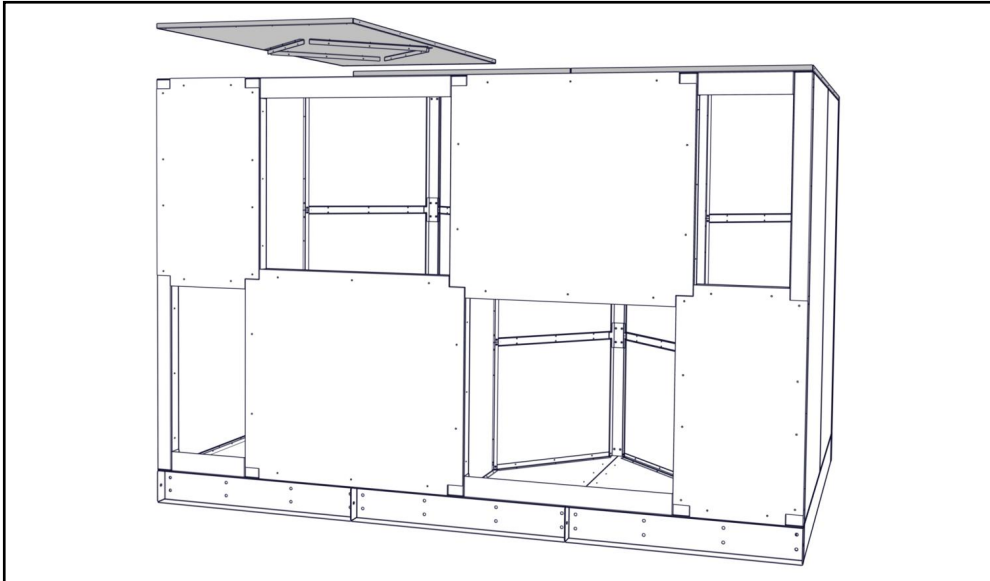


FIGURE 5.4.10 INSTALL ROOF ASSEMBLIES

Use silicone caulk on all seams.

## 6.0 DUCTWORK

It is the installer's responsibility to provide and install all ductwork. **Provision must be made for annual access to the inlet side of all cores for vacuuming. Access must permit a worker to go into the plenums.** All ductwork is to be fabricated and installed in accordance with SMACNA guidelines.

RenewAire suggests that all plenums or their ducts be labeled to indicate which ones are for entering air, and therefore require annual servicing.

### 6.1 AIR PRESSURE MONITORS

RenewAire does not make any recommendations regarding installation of air pressure/air quality monitors.

## 7.0 MAINTENANCE

There are only two maintenance issues that are of concern. The first is that clean air filters are always in place, whether the unit is being operated or not. Even if there is no airflow through the unit, filters must be kept in place to avoid dust, dirt and debris from entering the structure. A need for filter changes is generally discovered by an automated monitoring system that is part of either a Direct Digital Controller (DDC) or a Building Management System (BMS). If there is no pressure drop data that can be used to indicate dirty filters, the filters should be inspected monthly. If filters look dirty, replace them! Scheduling of filter replacement is part of the facility maintenance program and filter replacement records should be maintained elsewhere.

The second issue is annual vacuuming of the face of the enthalpic cores. The leading surfaces of the cores that are exposed to an incoming airstream must be vacuumed annually. This applies only to the inlet side of the cores, not the outlet side. Any dirt buildup that occurs on the cores will be in the front 1"-2" of the leading surface. Careful vacuuming with a powerful shop vacuum, using a head with soft bristles, will normally remove the dust and dirt that otherwise reduce airflow and efficiency. Do not use compressed air on the cores nor any liquids.

**DO NOT USE FILTER SPRAYS ON THE FILTERS.** Oily residue can migrate to the cores, permanently reducing their efficiency.





## About RenewAire

For over 30 years, **RenewAire** has been a pioneer in enhancing indoor air quality (IAQ) in commercial and residential buildings of every size. This is achieved while maximizing sustainability through our fifth-generation, static-plate, enthalpic-core **Energy Recovery Ventilators (ERVs)** that optimize energy efficiency, lower capital costs via load reduction and decrease operational expenses by minimizing equipment needs, resulting in significant energy savings. Our ERVs are competitively priced, simple to install, easy to use and maintain and have a quick payback. They also enjoy the industry's best warranty with the lowest claims due to long-term reliability derived from innovative design practices, expert workmanship and **Quick Response Manufacturing (QRM)**.

As the pioneer of static-plate core technology in North America, RenewAire is the largest ERV producer in the USA. We're **committed to sustainable manufacturing** and lessening our environmental footprint, and to that end our Waunakee, WI plant is 100% powered by wind turbines. The facility is also one of the few buildings worldwide to be LEED® Gold and Green Globes certified, as well as having achieved ENERGY STAR Building status. In 2010, RenewAire joined the Soler & Palau (S&P) Ventilation Group in order to provide direct access to the latest in energy-efficient air-moving technologies. For more information, visit: [renewaire.com](http://renewaire.com)

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