AIR SOURCE HEAT PUMP SYSTEM SELECTION AND OPTIMIZATION GUIDE

Fresh Access™ Pro

http://freshaccesspro.com/eRep/
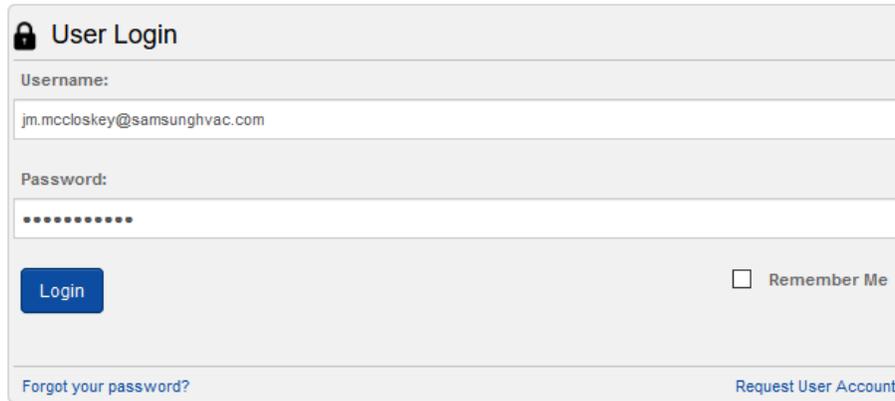
This guide is intended for use by qualified professionals to assist in properly selecting various configurations within the Fresh Access™ Pro selection software. Some specifications and options may not be available for the Fresh Access™ SR Series units. Information and options detailed in this selection guide are subject to change without notice.
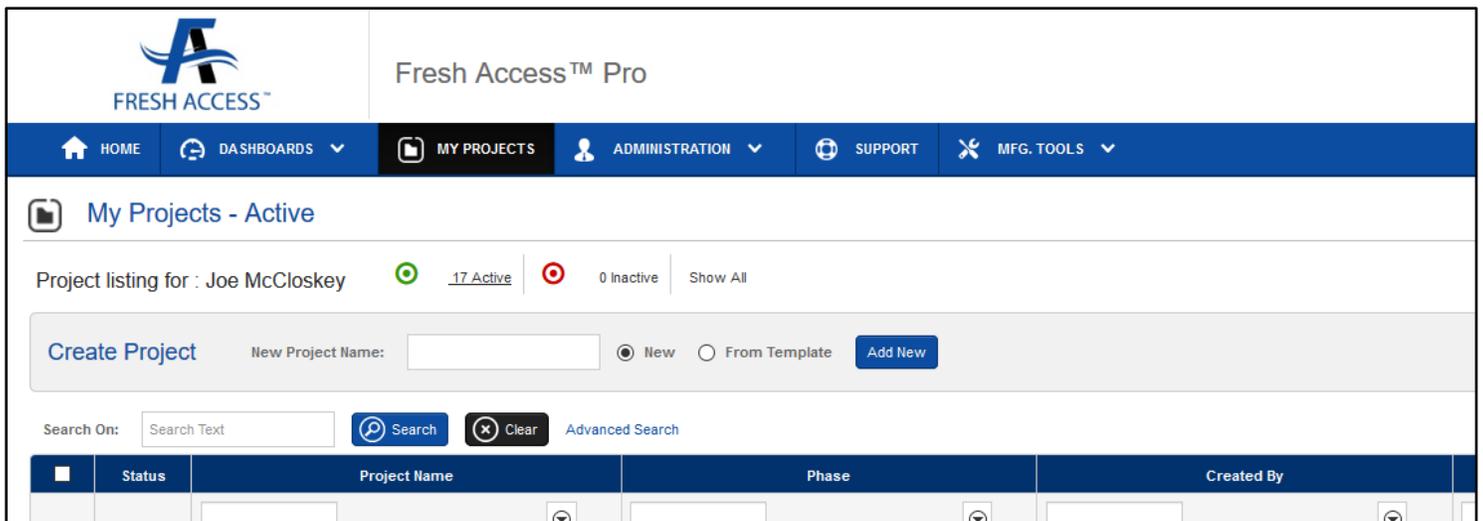
Creating a New Project

1.   Open Fresh Access™ Pro within a web browser. Fresh Access™ Pro performs best using Google Chrome or Mozilla Firefox web browsers. Do not use Internet Explorer.
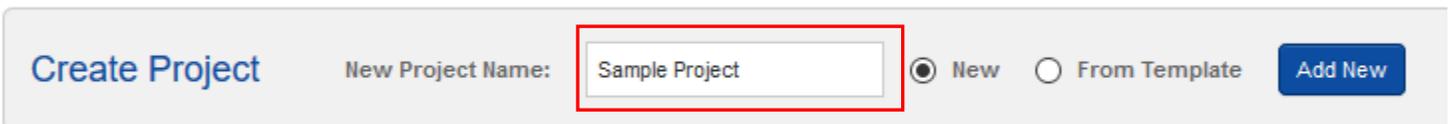
2.   Click on the **My Projects** tab at the top of the screen.

3.   Enter the **Project Name** in the dialog box, click **New** and then click **Add New** button to the right.

4. On the **Project Information** screen, confirm the **Project Name** and select the appropriate information for all required fields identified with a red asterisk.

5. After completing the **Project Information** section, click the **Save** button at the bottom of the screen.

6. Fresh Access™ Pro will then move to the **Project Schedule** screen. The top box includes details to select the primary criteria for the unit(s) that will be added to the job. An empty grid schedule is displayed below.

Adding a Unit to the Project Schedule - Air Source Heat Pump

1.   Select the **Product Category** from the drop-down menus.

   Air Source Heat Pumps
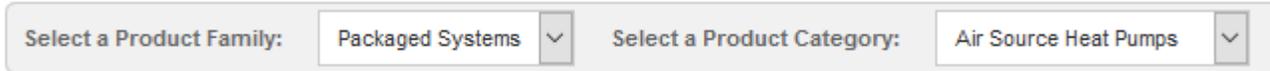
Select a Product Family:	Packaged Systems ∨	Select a Product Category:	Air Source Heat Pumps ∨

2.   Select the model family from the **Select a Model** menu.

   SROH - DOAS model

3.   Choose the quantity of this model required for the application.

   **Quantity can be changed later in the selection process.

4.   Click the **Add** button.

Selecting the Unit

The preferred method for unit selection uses the **Optimize for Price** function of the Fresh Access™ Pro interface. This method provides a snap-shot of potential cabinet, fan, subcooling and reheat options that can provide the required leaving air temperatures and capacity.

For some applications, greater user control is required to match specific requirements on the schedule or within the job specifications report. In these situations the **Optimize for Price** button is deselected and manual unit selection is performed. Details on manual unit selection are included in the **Manual Unit Selection** section at the end of this guide.

1.   Confirm the **Optimize for Price** check box is selected in the **Heat Pump** section.
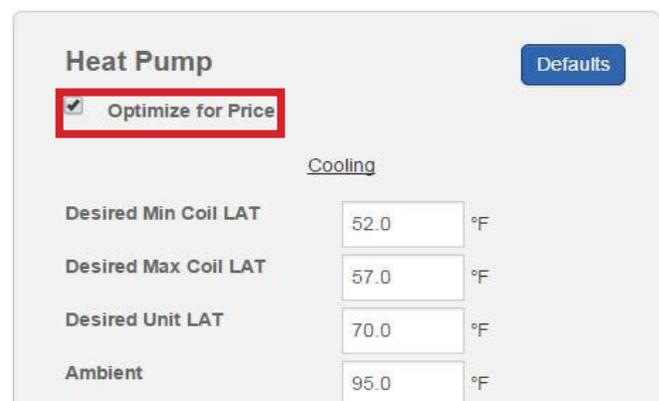
Heat Pump		Defaults
☑ Optimize for Price		
	Cooling	
Desired Min Coil LAT	52.0	°F
Desired Max Coil LAT	57.0	°F
Desired Unit LAT	70.0	°F
Ambient	95.0	°F

2.   Enter the unit tag referenced in the equipment schedule in the **Tagging** box within the **Design Inputs** section.

3.   Leave the **Unit Size** set to **Auto**. This will allow the selection tool to provide potential configurations that will meet the application criteria.

4.   Select the **Unit Voltage**.

5.   Select the **Air Volume Application**.

6   Select the **Cabinet options**.

7.   Select the **Heating Type** from the drop-down menu. Additional information is provided in the Heat Selections section of this guide.

8.   Choose whether the unit will be equipped with an Energy Conservation Wheel (ECW) in the **Heat Recovery** menu. If equipped, choose **Total Energy Wheel** from the menu.

| Heat Recovery | Total Energy Whee ▼ | ... |

One of the most common errors made in unit selection is the use of incorrect data in the Energy Conservation Wheel (ECW) performance screen. The data entered for the ECW has a direct impact on cooling and heating capacity calculations made by Fresh Access™ Pro. In many instances, the information is not complete in the equipment schedule and incorrect assumptions are made. If ECW information is incomplete or out-of-range, a conversation with the engineer is advised.

9.   Enter the design CFM in the **Total Airflow** box.

Energy Conservation Wheel (ECW) Performance Data

If an ECW is selected, click on the box with three dots to the right of the **Heat Recovery** menu to enter performance data for the ECW device. If this option is not required, skip to step 13.

| Heat Recovery | Total Energy Whee ▼ | ... |
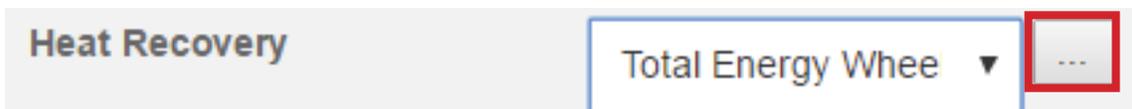
10. Enter the **Exhaust Flow thru ECW**, **Return ESP**, summer and winter conditions in the ECW performance screen based on data in the equipment schedule.

10.1 Leave the **Preferred ECW Size** drop-down menu selection set to **Auto**.

11. Select any required ECW accessory options from the drop-down menu in the top-right corner of the **Energy Conservation Wheel** screen.

12. Click **OK**

> *Energy Conservation Wheel (ECW) performance will override the entering air conditions information at the Heat Pump box.*

13. Enter the design external static pressure in the **External SP** box.

External SP	1	in.wg

14. If a specific fan type is specified, choose the fan from the drop-down menu. If a specific fan is not required, keep the **Fan Type** set to **Auto**.

Fan Type	Auto ▼

15. If a specific motor type is specified, choose the motor from the drop-down menu. If a specific motor is not required, keep the **Motor Type** set to **Auto**.

Motor Type	Auto ▼

16. Leave the **Max HP** selection set to **None**. The motor horsepower for potential unit matches will be checked later in the selection process.

Max HP	None ▼

17. Enter the altitude of the equipment application in the **Altitude** box.

18. Enter the desired minimum and maximum coil leaving air temperatures. In many cases these boxes can be left at defaults.

> *Do not be too restrictive with preliminary search criteria such as Max HP (maximum horsepower), Desired Min Coil LAT (minimum coil leaving air temperature) and Desired Max Coil LAT (maximum coil leaving air temperature). For example, if the desired leaving air temperature (LAT) is 55°F and the minimum/maximum range is set to 56-60°F, potential equipment solutions will not be provided. It is a best practice to leave at least four degrees of separation and later review whether the additional matches meet the application requirements.*

19. Enter the **Desired Unit LAT**, **Ambient** (cooling), **EAT DB** and **EAT WB** temperatures in the appropriate box based on the unit schedule. The **Desired Unit LAT** is the reheat temperature which is normally between 70-75°F. If the unit is equipped with an energy conservation wheel (ECW), the DB and WB entering air temperatures are overwritten within the selection program. In the absence of an ECW, the **Ambient** temperature and **EAT- DB** would be the same.

Heat Pump   Defaults

☑ Optimize for Price

Cooling

Desired Min Coil LAT	52.0	°F
Desired Max Coil LAT	57.0	°F
Desired Unit LAT	70.0	°F
Ambient	95.0	°F
EAT DB	85.0	°F
EAT WB	71.0	°F
Reheat Type	On/Off ▼	

20. Select the **Reheat Type** required for the application. This information is normally found in schedule notes or within the equipment specifications document. **Modulating** reheat is the most common selection.

Reheat Type	On/Off ▼

21. Enter the **Ambient** (heating) design temperature and the **EAT DB** temperature during mechanical heat operation.

Heating

Ambient	40.0	°F
EAT DB	70.0	°F

7

Heat Selections

The heat criteria box displayed is dependent on the **Heating Type** selection in the **Design Inputs** box.

- Electric Heat – continue to step 22
- Gas Furnace - skip to step 24

Supplemental and Auxiliary Heat

When selecting additional heat sources on air source heat pumps, an understanding of the difference between supplemental and auxiliary heat is necessary.

Supplemental heat is used when the mechanical heat available from the heat pump system is not sufficient to reach the desired leaving unit air temperature. In these situations, additional heat is added after the primary DX coil through the use of electric heat strips or gas heat.

On supplemental heat applications, the capacity of the additional heat source adds to the heat capacity available from the heat pump system at design conditions.

> ***When selecting a DOAS unit with supplemental heat only, leave the** Auxiliary **button unchecked in the selection tool** Electric Heat **or** Gas Furnace **heat box. The** EAT DB **for additional heat will auto calculate based on the heat pump output within the software.***

On auxiliary heat applications, the capacity of the additional heat source can support the entire heating load without heat from the heat pump system. This can serve as a redundant heat system in case of heat pump system failure or emergency heat in situations where the outdoor ambient temperature is too low for efficient heat pump heating operation.

Systems equipped for auxiliary heat operation are also capable of providing supplemental heat. This is accomplished by a control defined balance point or **Compressor Disable** temperature.

> ***When selecting a DOAS unit with auxiliary heat, select the** Auxiliary **button in the selection tool** Electric Heat **or** Gas Furnace **heat box. The** EAT DB **box must be changed to the design condition for auxiliary heat operation.***

> ***On auxiliary heat applications, the heating design OA temperature will be below the specified unit balance point or** Compressor Disable **temperature. This information is often located in the equipment specifications report.***

Electric Heat

22. If **Auxiliary** heat is selected, enter the **EAT DB** and **LAT DB** from the equipment schedule. If **Auxiliary** heat is not required, the **EAT DB** temperature will autofill from the heat pump heating output.

The applied voltage is non-adjustable and auto-filled from the **Unit Voltage** box in the **Design Inputs** section.

23. Select the **kW** rating and the required number of heat stages in the **Stages** box for the required electric heat.

Gas Furnace

24. If **Auxiliary** heat is selected, enter the **EAT DB** from the equipment schedule. If **Auxiliary** heat is not required, the **EAT DB** temperature will autofill from the heat pump heating output.

25. Select either the desired **LAT DB** temperature or the required **Furnace Capacity**. If the **Furnace Capacity** is selected, the **LAT DB** will auto-fill based on the capacity of the heat section.

26. Select the required **Fuel Type** based on the equipment schedule.

27. Click on the **Edit** button in the **Features and Options** screen on the right side.

28. When using the **Optimize for Price** feature of the selection tool, two selections must be made in the **Features and Options** section. These include:

- Ventilation & Controls
- Filters

> *When using the Optimize for Price feature, do not select additional features until the preliminary unit selection is complete.*

29. After selecting the appropriate ventilation and filters options, click **OK** to exit the screen.

Final Selection and Comparison

After making preliminary selections, Fresh Access™ Pro will provide potential units that fit the basic criteria in a Packaged Possible Selections screen. The initial selection criteria, airflow, cooling capacity, efficiency, and heat section will determine what unit options are provided.

Packaged Systems Possible Selections

Select your desired unit by clicking on the model size.

	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 360	SROH 360	SROH 360	SROH 360
Unverified Price										
Cabinet	C4XL	C4XL	D4	D4	D6	D6	D4	D4	D6	D6
SUPPLY FAN										
Total Airflow (CFM)	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
Outside Air CFM (CFM)	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
ESP (in.wg)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TSP (in.wg)	3.13	3.30	3.10	3.16	3.10	3.17	2.90	2.97	2.90	2.97
Fan Motor BHP	4.59	4.75	4.56	4.61	4.56	4.63	4.37	4.44	4.37	4.44
Fan Motor HP	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
COOLING PERFORMANCE										
Total MBH Gross (MBH)	300.80	319.70	319.10	324.30	329.50	335.40	346.20	350.20	358.30	363.30
Sensible MBH Gross (MBH)	193.40	201.30	200.70	203.20	205.00	208.00	212.00	214.10	216.70	219.40
Entering Air Coil DB / WB	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3
Leaving Air Coil DB / WB	56.2/56.2	55.1/55.1	55.2/55.2	54.9/54.9	54.6/54.6	54.2/54.2	53.7/53.6	53.3/53.3	53.0/52.9	52.6/52.6
Leaving Air Unit DB / WB	70.3/61.5	70/60.8	70.1/60.9	70/60.7	69.9/60.5	69.7/60.2	69.6/59.9	69.4/59.7	69.4/59.4	69.2/59.2
Face Velocity	406	406	224	224	224	224	224	224	224	224
Evaporator Face Area	16	16	28.89	28.89	28.89	28.89	28.89	28.89	28.89	28.89
Evaporator Rows	4	6	4	6	4	6	4	6	4	6
Evaporator FPI	12	12	12	12	12	12	12	12	12	12
EER @ Operating Conditions	14.8	15.1	15.2	15.3	15.6	15.7	14.6	14.7	15.2	15.3
Watts	33312	33762	33606	33740	33436	33570	36724	36866	36154	36274

1. Compare the following information to the specified values on the equipment schedule and select the best match.

- **LAT DB/WB**
- **LAT DB** for heating
- **LAT Unit**
- Total Cooling Capacity
- Sensible Capacity
- MCA/MFS
- Cabinet size - consider options to move to a smaller cabinet that will still meet performance requirements.

2. Select the unit by clicking on the model button at the top of the grid.

Select your desired unit by clicking on the model size.

	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 360	SROH 360	SROH 360	SROH 360
Unverified Price										
Cabinet	C4XL	C4XL	D4	D4	D6	D6	D4	D4	D6	D6
SUPPLY FAN										
Total Airflow (CFM)	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500

3. Fresh Access™ Pro will output a selection summary based on the model chosen.

Selection Summary

Back to Schedule   Re-Select   Create Duplicate

|◄ ◄ 1 of 2 ► ►| Find | Next

FRESH ACCESS™

Tag: **AHU-01**
Project Number: 251
Project Name: **Sample Project**
Representative: Joe McCloskey
Location: Roanoke, TX

Unit Information   Package Unit - DOAS Heat Pump

Model:	SROH	Unit Length:	237.875	in	Altitude:	0 ft
Size:	300 D4	Unit Width:	87.125	in		
Quantity:	1	Unit Height:	90.75	in		

Design Conditions

Supply Airflow:	6500 CFM	Ambient Air DB:	95.0 F	
Outside Airflow:	6500 CFM	Ambient Air DB (Htg):	40.0 F	

Cooling Performance

Gross Total Capacity:	324.3	MBh	Evaporator Face Area:	28.89	sq ft
Gross Sensible Capacity:	203.2	MBh	Evaporator Rows:	6	
Net Total Capacity:	312.6	MBh	Evaporator FPI:	12	
Net Sensible Capacity:	191.5	MBh	Condenser Face Area:	54	sq ft
Entering Air DB / WB (Coil):	83.1 / 70.3	F	Condenser Rows:	3	
Leaving Air DB / WB (Coil):	54.9 / 54.9	F	Condenser FPI:	12	
Leaving Air DB / WB (Subcooling):	/	F			
Leaving Air DB / WB (Max. Reheat):	68.31 / 60.09	F			
Leaving Air DB / WB (Unit):	70 / 60.7	F	Air Velocity:	224	fpm
EER:	15.3		Cooling Coil Air PD:	0.21	in H2O
Watts:	33740				

4. Click **Back to Schedule** to add the unit to the project grid.

5. To change the selection, click **Re-Select**.

6. In the **Project Schedule** menu, select the **Price** icon.

Select	Price	Selection	Summary	Qty	Primary Tag	Model	Desc
☐	$			1	AHU-01	SROH	Package Unit -

7. Select the final features and options by clicking the **Edit** button.

SROH
Package Unit - DOAS Heat Pump

Pricing Summary

Unit Nomenclature:	SROH300D4_4BAAF0F_B00AKB00020FACBF0E00000000000C00000
Unit Net Price:	0
Number of Units:	1
Total Net Price:	0

[Update and Save Price] [Back to Schedule]

Selection Information

Unit MOCP:	80 Amps

Features and Options   [✏ Edit]

Option Name	
Motorized 2-Position OA Damper with 2-Position Actuator (ALC, Field DDC, EM)	✖
4in. -MERV11 Pleated	✖
CAV - Constant Air Volume	✖
Vertical Supply/Vertical Return	✖
2 Stage	✖
Natural Gas Heat	✖

Options

ALC Ship With Options	⊕
Control Options	⊕
Disconnect	⊕
Maintenance Options	⊕
Safety Controls	⊕
Corrosion Protection - Package	⊕
Curbs	⊕

OK

ALC Ship With Options ⊖

Order Code	Option	Selected	
00	None	☐	
AA	Equipment Touch	☑	❶
AB	ZS "Standard" Zone Sensor	☐	
AC	ZS "Standard" Zone Sensor With Humidity	☐	❶
AD	ZS "Standard" Zone Sensor With CO2	☐	
AE	ZS "Standard" Zone Sensor With Humidity and CO2	☐	
AF	ZS "Plus" Zone Sensor	☐	
AG	ZS "Plus" Zone Sensor With Humidity	☐	
AH	ZS "Plus" Zone Sensor With CO2	☐	
AJ	ZS "Plus" Zone Sensor With Humidity and CO2	☐	
AK	ZS "Pro" Zone Sensor	☐	
AL	ZS "Pro" Zone Sensor With Humidity	☐	
AM	ZS "Pro" Zone Sensor With CO2	☐	
AN	ZS "Pro" Zone Sensor With Humidity and CO2	☐	
AP	Smoke Detector Field Installed	☐	❶

Maintenance Options ⊖

Order Code	Option	Selected
00	None	☐
A1	115v Convenience Outlet (Field Wired)	☐
B1	115V Convenience Outlet	☑
C1	Magnehelic Gauge (One) for filters ahead of the cooling coil	☐
D1	Magnehelic Gauge (Two) for the return air and outside air	☐
E1	Magnehelic Gauge (Three) the cooling coil, outside air and return air.	☐
F1	Clogged Filter Indicator	☐
G1	Condensate Overflow Switch	☐

Curbs ⊖

Order Code	Option	Selected
00	None	○
DB	D Cab Roof Curb 14"with 4 Cond fan With Exhaust	◉

16

8.   After selecting the final features and options, click the **Update Price** and **Save** buttons in the **Pricing Summary** box above.

9.   Click **Back to Schedule** to add additional units to the project.

Manual Unit Selection

The process for creating a project and adding units to the project is the same when preparing for manual selection. After a unit has been added to the project and the **Design Inputs** section has been completed, the process for manual selection diverges.

As previously covered, the **Optimize for Price** option sets up a general set of guidelines that Fresh Access™ Pro uses to provide a suitable match. When manually selecting a unit, there are important unit criteria that must be hand selected in the absence of **Optimize for Price** logic. These include:

- Number of DX coil rows
- Refrigeration options
  - Single circuit reheat (On/Off or Modulating)
  - Dual circuit reheat (On/Off or Modulating)
  - Subcooling coil
- Filters (similar to the requirement for Optimize for Price selections)
- Ventilation (similar to the requirement for Optimize for Price selections)

Due to the large number of potential selections within this product line, it is often a best practice to run an **Optimize for Price** selection as a guide to potential cabinets, condenser fan configurations and reheat/subcooling combinations.

When reviewing the output from the initial **Optimize for Price** selection, note the various unit criteria used to provide the desired LAT DB/WB from the DX coil and unit. This will help save it backtracking to make the selection manually.

Packaged Systems Possible Selections

Select your desired unit by clicking on the model size.

	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 300	SROH 360	SROH 360	SROH 360	SROH 360
Unverified Price										
Cabinet	C4XL	C4XL	D4	D4	D6	D6	D4	D4	D6	D6
SUPPLY FAN										
Total Airflow (CFM)	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
Outside Air CFM (CFM)	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
ESP (in.wg)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TSP (in.wg)	3.13	3.30	3.10	3.16	3.10	3.17	2.90	2.97	2.90	2.97
Fan Motor BHP	4.59	4.75	4.56	4.61	4.56	4.63	4.37	4.44	4.37	4.44
Fan Motor HP	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
COOLING PERFORMANCE										
Total MBH Gross (MBH)	300.80	319.70	319.10	324.30	329.50	335.40	346.20	350.20	358.30	363.30
Sensible MBH Gross (MBH)	193.40	201.30	200.70	203.20	205.00	208.00	212.00	214.10	216.70	219.40
Entering Air Coil DB / WB	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3	83.1/70.3
Leaving Air Coil DB / WB	56.2/56.2	55.1/55.1	55.2/55.2	54.9/54.9	54.6/54.6	54.2/54.2	53.7/53.6	53.3/53.3	53.0/52.9	52.6/52.6
Leaving Air Unit DB / WB	70.3/61.5	70/60.8	70.1/60.9	70/60.7	69.9/60.5	69.7/60.2	69.6/59.9	69.4/59.7	69.4/59.4	69.2/59.2
Face Velocity	406	406	224	224	224	224	224	224	224	224
Evaporator Face Area	16	16	28.89	28.89	28.89	28.89	28.89	28.89	28.89	28.89
Evaporator Rows	4	6	4	6	4	6	4	6	4	6
Evaporator FPI	12	12	12	12	12	12	12	12	12	12
EER @ Operating Conditions	14.8	15.1	15.2	15.3	15.6	15.7	14.6	14.7	15.2	15.3
Watts	33312	33762	33606	33740	33436	33570	36724	36866	36154	36274

- Desired Unit LAT
- Reheat Type

Heat Pump   Defaults

☐ Optimize for Price   ⓘ

Cooling

Ambient   95 ⬍ °F

EAT DB   83.1 ⬍ °F

EAT WB   70.3 ⬍ °F

Rows   4 ⌄

Heating

Ambient   40 ⬍ °F

EAT DB   54.2 ⬍ °F

2. If an **Optimize for Price** selection was previously completed, enter noted unit specifications in the **Design Inputs** section. Manual selection of all values within the **Design Inputs** section is not required. The **Auto** feature of many values can remain even during the manual selection process.

Design Inputs

Tagging & Quantity	AHU-01 [☰] 1 [⬍]
Product Category	Air Source Heat Pumps [⌄]
Model	SROH [⌄]
Unit Size	300 [⌄]
Unit Voltage	460-3-60 [⌄]
Air Volume Application	CAV - Constant Air Volume [⌄] ⓘ
Cabinet Options	Vertical Supply/Vertical Return [⌄] ⓘ
Cooling Type	Heat Pump - Cooling [⌄]
Heating Type	Gas Furnace [⌄]
Heat Recovery	Total Energy Wheel [⌄] [...] ⓘ
Total Airflow	6500 [⬍] CFM
Outside Airflow	6500 [⬍] CFM
External SP	1 [⬍] in.wg
Fan Type	Auto [⌄]
HP Heating	Heat Pump - Heating [⌄]
Motor Type	Auto [⌄]
Max HP	None [⌄]
Altitude	0 [⬍] Ft.

3. Enter the outdoor **Ambient** temperature and the **EAT DB** and **EAT WB** in the **DX - Air Cooled** box.

**Heat Pump**   [Defaults]

☐ Optimize for Price

Cooling

Ambient	95.0	°F
EAT DB	80.0	°F
EAT WB	67.0	°F
Rows	6 ▼	

Heating

Ambient	70.0	°F
EAT DB	70.0	°F

4.   The number of DX coil **Rows** must be selected in the **DX - Air Cooled** menu. The information from an **Optimize for Price** selection can be used if run previously. If not, select **4** rows from the dropdown menu and return to this selection screen after calculating performance if the leaving air temperature is not within range.
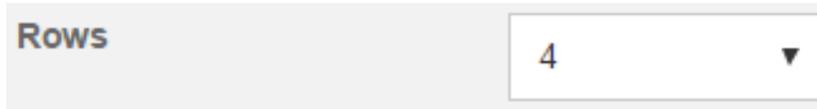
Rows	4 ▼

5.   Three baseline selections must be made in the **Features and Options** section. These include:

-       **Ventilation & Controls**
-       **Filters**
-       **Refrigeration Controls**

Ventilation & Controls	⊕
Filters	⊕
Refrigeration Controls	⊕

The Refrigeration Controls selection has a large impact on the overall unit. Reheat and sub cooling coil combinations directly affect the Unit LAT and can only be combined in specific configurations. When selecting the combination, keep in mind that only three coil slots are available.

Slot 1 = DX coil - this is non-selectable.
Slot 2 = Reheat coil or sub cooling coil.
Slot 3 = Reheat coil or empty.

For example, a unit is configured with reheat + sub cooling.

Slot 1 would be the standard DX coil
Slot 2 would be the sub cooling coil
Slot 3 would be the single circuit reheat coil (On/Off or Modulating)

6.   After the baseline selections are made, click the **Calculate** button at the bottom of the screen.

7.   Compare the selection results to find a unit that meets the required specifications and select by clicking the model button at the top of the **Packaged Systems Possible Selections** menu.

8.   If a suitable unit configuration is not found, return to the previous selection screen by clicking the **Cancel** button. Then make adjustments to the unit criteria and recalculate.

Appendix

Table 1: SR CABINET RULES

Cabinet	Max CFM	Horizontal Discharge Limitation*	MAX Blower Size	MAX ECW	Max Furnace Capacity	Max Furnace XL Cabinet
A Cabinet	SRO:2,230	SA:3,300 RA:2,700	ECM355 (ECM Only)	ECW364	100 MBH Furnace (30 kW Electric)	N/A
B Cabinet	SRO:4,750	SA:5,200 RA:3,300	ECM450 BI16	ECW424	200 MBH Furnace (100 kW Electric)	(2)200 MBH
C Cabinet	SRO:7,600	SA:7,000 RA:3,000	GHKM450 BI20	ECW486	300 MBH Furnace (100 kW Electric)	(2)400 MBH
D Cabinet	SRO:13,500	SA:10,000 RA:5,500	2-ECM450 BI25	ECW706	400 MBH Furnace (150 kW Electric)	(2)600 MBH
E Cabinet	SRO:20,000	XL Cabinet Only SA:15,500 RA: Not available	(2) AF20 (1) BI25 (2)ECM450	ECW8412	600 MBH Furnace (150 kW Electric)	Vertical Supply (4)400 MBH Horizontal Supply (EXLOnly) (2)600 MBH

Table 2: Furnace Control

Furnace MBH Input	Furnace MBH Output	Heaters	Stages	Modulation
75	60	(1) 75	2	5:1
100	80	(1)100	2	5:1,10:1
150	120	(1)150	2	5:1,10:1
200	160	(1)200	2	5:1,10:1
250	200	(1)250	2	5:1,10:1
300	240	(1)300	2	5:1,10:1
350	280	(1)350	2	5:1,10:1
400	320	(1)400	2	5:1,10:1
500	400	(1)500	2	5:1,10:1
600	480	(1)600	2	5:1,10:1
200	160	(2)100	4	10:1
300	240	(2)150	4	10:1
400	320	(2)200	4	10:1
500	400	(2)250	4	10:1
600	480	(2)300	4	10:1
700	560	(2)350	4	10:1
800	640	(2)400	4	10:1
1000	800	(2)500	4	10:1
1200	960	(2)600	4	10:1
800	640	(4)200	8	20:1
1000	800	(4)250	8	20:1
1200	960	(4)300	8	20:1
1400	1120	(4)350	8	20:1
1600	1280	(4)400	8	20:1

Table 3: SR Refrigeration Control Rules

Compressor Type	How to Implement HGRH	How to Implement HGBP	Notes	How to Implement Liquid Subcooling
Standard Scroll/Single Circuit	Single Circuit	Required 100% OA applications. HGBP on the Lead circuit	SRO*096 and smaller	
Dual Scroll/ Dual Circuit	Dual Circuit Single Circuit	Dual Circuit HGBP	SRO*120 and larger	
Digital Scroll/Single Circuit	Single Circuit	No HGBP with Digital Scrolls.	SRO*096 and smaller Required on SROH/SROW	-Single Circuit HGRH (single circuit units can have reheat and subcooling coil) -Not recommended to select without reheat -Only available up to 300 MBH nominal cooling
Single Digital and Single Scroll (Dual Circuit)	Dual Circuit Single Circuit	Required 100% OA applications. HGBP on the Lag circuit	SRO*120 and larger	
Dual Digital Scroll (Dual Circuit)	Dual Circuit Single Circuit	No HGBP with Digital Scrolls.	SRO*120 and larger Required on SROH/SROW	