

# Equipment Selection

Avoiding the Pitfalls of the Replacement Business

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## Replacing Equipment

- Replacing heating and cooling equipment can be more challenging than a new installation
- It is critical the new equipment will operate correctly with an existing system before installation
- A vital part of equipment performance is having the correct airflow

## Airflow

- Without the correct airflow the equipment will not be able to perform up to it's rated efficiency
  - Causing comfort problems, premature failure and increased operating costs
- ***Even the best technician cannot make an air conditioner operate correctly when there is only 200 cfm per ton***
- The airflow requirements of the new equipment are probably different than the airflow needed by the old equipment-especially true with condensing furnaces
- Condensing Furnaces require 50% - 100% more airflow than the induced or natural draft furnace that is being replaced

## Airflow Measurements

- By using static pressure and airflow measurements from the existing system, along with manufacturer specs of the new equipment, filter and any additional ductwork will enable us to predict if the new equipment is capable of moving the correct amount of air
- This can be done prior to installing the new equipment! It's like knowing the lottery numbers before they are drawn
- ***We can stop gambling and hoping that everything will work after the new equipment is installed***
- This process will also identify problems with the existing system before the sale is finalized. That way we do not own existing problems. Existing problems can be addressed with the customer prior to the sale. Now fixing them can be part of the sale, instead of getting blamed for them after the installation



## Let's Get Started

1. Create a Customer
2. Start a New Job
  - Name the Job
  - Choose "Existing Specs" Job Type
  - Click "Save Job"



## Estimated Specs Tab

Choose the type of heating equipment of the new equipment and click “Next Page”

**Estimated Specs** **Reports** **Comments**

Heating Equipment Type..

Furnace

Next Page

Choose the type of cooling equipment of the new equipment and click “Next Page”

**Estimated Specs** **Reports** **Comments**

Cooling Equipment Type..

Air Conditioner

Next Page

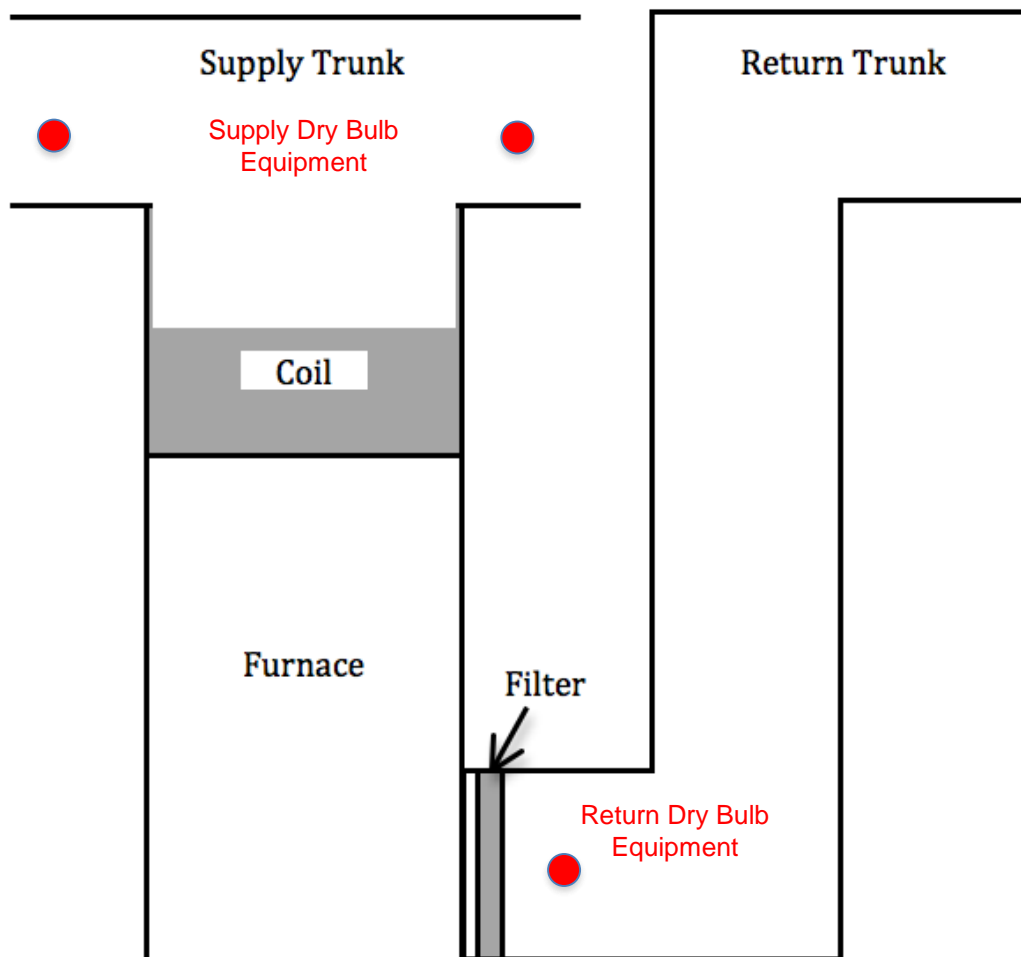
## Estimated Specs Tab

### Duct Temps

Estimated Specs	Reports	Comments
<b>Return Dry Bulb Equipment.. ?</b> <input type="text" value="0"/>	<p>To determine the existing duct temp loss, take these temps with the existing equipment running. If you decide not to take the temps or the existing equipment is not operating enter 0 for these questions.</p>	
<b>Supply Dry Bulb Equipment.. ?</b> <input type="text" value="0"/>		
<b>Return Grille Dry Bulb Average.. ?</b> <input type="text" value="0"/>		
<b>Supply Register Dry Bulb Average.. ?</b> <input type="text" value="0"/>		

## Estimated Specs Tab

### Duct Temps



Don't take the **Supply Dry Bulb Equipment** directly above the coil. Take temps in trunk 1'-2' off the plenum. If there is more than one trunk average the temps. If there is no access to trunk then take temp at the closest supply register.

**Return Grille Dry Bulb Average**, choose the return grille that with the greatest airflow or take multiple grille temps and average them.

**Supply Register Dry Bulb Average**, choose a register that represents the average register in regards to duct length or take multiple register temps and average them. If averaging, it is recommended to take 1 reading per floor.



## Estimated Specs Tab

### Existing Duct Pressures and CFM

Return Duct Existing Pressure ?

Return Duct Existing CFM at Pressure ?

Supply Duct Existing Pressure ?

Supply Duct Existing CFM at Pressure ?

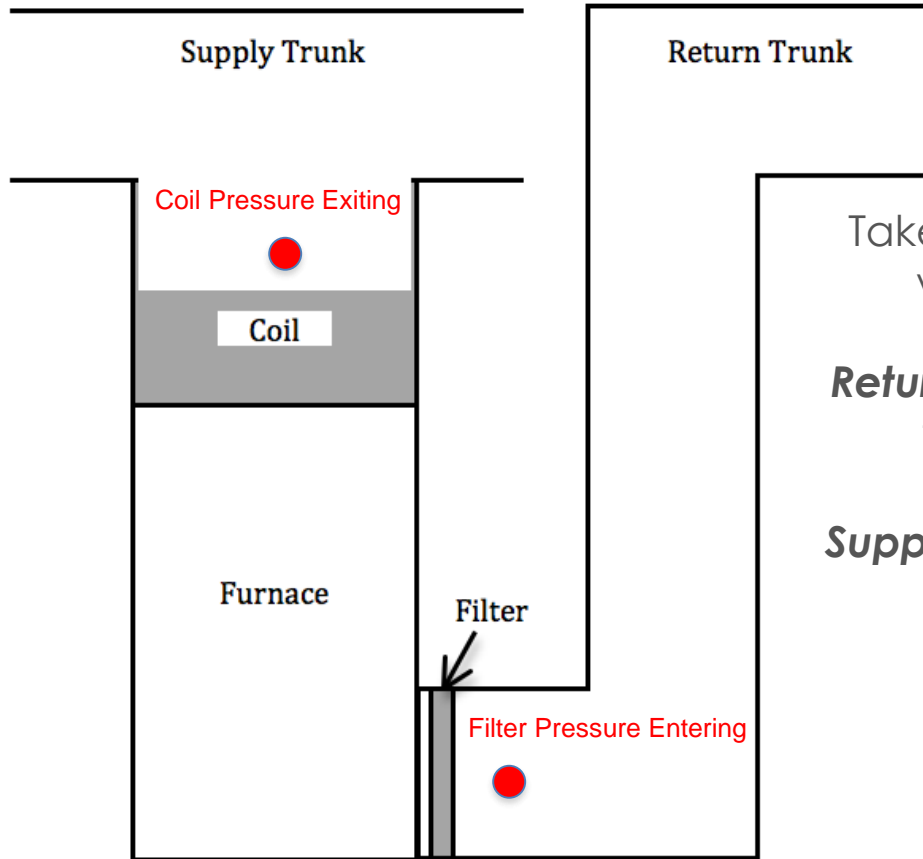
The existing duct pressures and CFM are taken with the existing equipment operating.

The CFM is amount of air that the equipment is moving when you are measuring the static pressure. Use the OEM fan tables, anemometer or flow plate to determine the equipment CFM.

## Estimated Specs Tab

### Existing Duct Pressures and CFM

*In this example all of the existing duct will be used.*



Take the pressures of the existing duct that will be used by the new equipment.

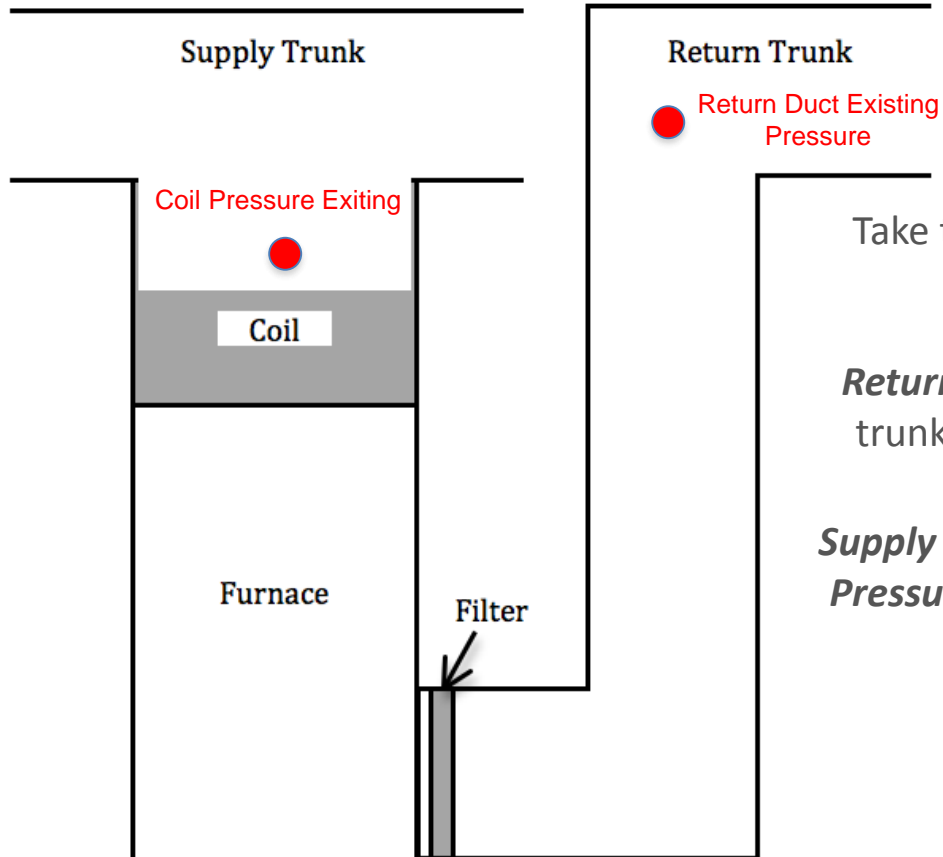
**Return Duct Existing Pressure** will be taken at the **Filter Pressure Entering** location.

**Supply Duct Existing Pressure** will be taken at the **Coil Pressure Exiting** location.

## Estimated Specs Tab

Existing Duct Pressures and CFM

*In this example a new return drop will be installed.*



Take the pressures of the existing duct that will be used by the new equipment.

***Return Duct Existing Pressure*** is taken in the return trunk because a new return drop will be installed.

***Supply Duct Existing Pressure*** will be taken at the ***Coil Pressure Exiting*** location because new supply duct is not being installed.

## Estimated Specs Tab

### New Duct Pressures and CFM

**New Return Duct Rated Pressure Drop** ?

**New Return Duct CFM at Rated Pressure Drop** ?

**New Supply Duct Rated Pressure Drop** ?

**New Supply Duct CFM at Rated Pressure Drop** ?

If new ductwork is not being added to the system enter 0 for all of these questions.

If new duct is being added or replacing existing ductwork enter the rated pressure drop and rated CFM of the new ductwork.

Return Drops are the most common new ductwork that is installed on a replacement. If you have standard return drops that you use, measure the pressure drop and CFM of one that you have installed in the past. You can use those numbers instead of the rated specs.

## Estimated Specs Tab

### Filter Specs

#### New Filter Rated Pressure Drop ?

#### New Filter Rated Velocity ?

#### New Filter Dimension 1 (inches) ?

Every filter will have a rated pressure drop. Get this number from the filter manufacturer.

Every filter will have a rated velocity or CFM. If the filter manufacturer gives you CFM instead of velocity use this formula to get the velocity.  $\text{Rated CFM} / \text{Square Feet of Filter} = \text{Velocity}$

We will calculate the size of the filter needed to maintain the rated filter pressure drop and velocity. Choose one dimension of the filter that you want to use. Typically the depth of the furnace or air handler.

## Estimated Specs Tab

## Filter Specs

### Air Bear® Supreme, Right Angle, and Cub Filters:

<b>Nominal Size (HxWxD)*</b>	20x25x5	16x25x5	20x20x5	16x25x3
<b>Actual Size (HxWxD)*</b>	19.75x24.25x4.94	15.75x24.25x4.94	19.75x20.75x4.94	15.75x24.25x3.06
<b>Part No. MERV 8</b>	255649-102	255649-105	255649-103	255649-101
<b>Part No. MERV 11</b>	259112-102	259112-105	259112-103	259112-101
<b>Part No. MERV 13</b>	266649-102	266649-105	266649-103	266649-101

\* Dimensions do not include 0.25 inch gasket located along the top and bottom edges of the filter.

### Air Bear® Accu-Fit Filters:

<b>Nominal Size (HxWxD)*</b>	17x21x5	21x21x5	24x21x5	17x28x5	21x28x5	24x28x5
<b>Actual Size (HxWxD)*</b>	17.25x20.75x5	20.75x20.75x5	24.25x20.75x5	17.25x27.75x5	20.75x27.75x5	24.16x27.75x5
<b>Part No. MERV 8</b>	266944-12117	266944-12121	266944-12124	266944-12817	266944-12821	266944-12824

### Initial Resistance to Airflow (300 FPM):

<b>MERV 8</b>	<b>MERV 11</b>	<b>MERV 13</b>
0.07	0.11	0.15

**New Filter Rated  
Pressure Drop = 0.11**

**New Filter Rated  
Velocity = 300**



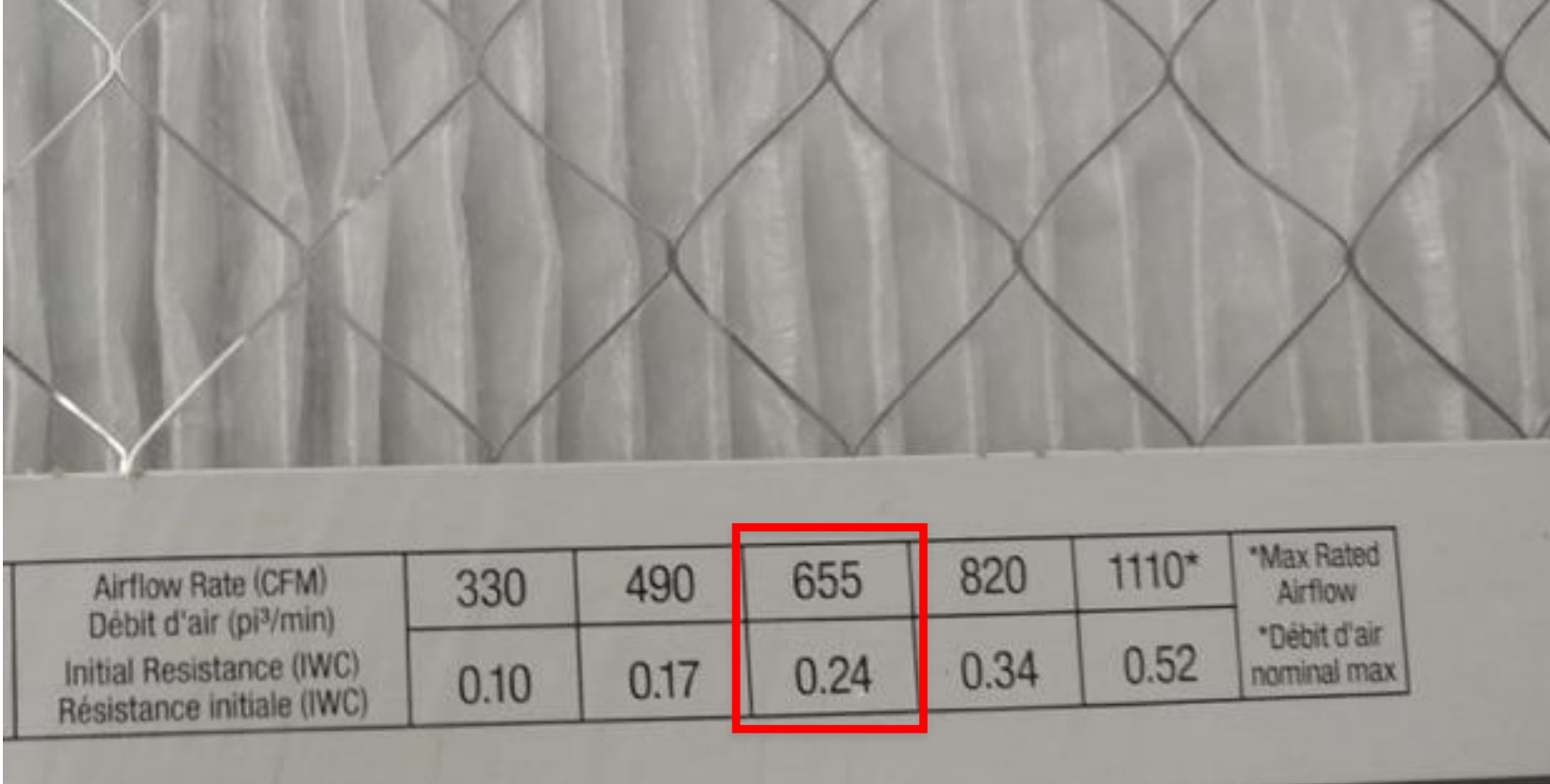
## Estimated Specs Tab

Determine Filter Velocity Based Upon CFM

This filter manufacture did not list the rated velocity. It is a 16" x 25" filter.

1. Determine filter area in square feet.  $16 \times 25 / 144 = 2.78$  square feet.
2. Choose a set of specs.
3. Velocity Formula  $CFM / Area = Velocity$   $655 / 2.78 = 236$  fpm Velocity

**If the velocity of the new filter is the same as the rated velocity the pressure drop will be the same. If the velocity is higher, the pressure drop will be higher. If the velocity is lower, the pressure will be lower.**



Airflow Rate (CFM) Débit d'air (pi <sup>3</sup> /min)	330	490	655	820	1110*	*Max Rated Airflow
Initial Resistance (IWC) Résistance initiale (IWC)	0.10	0.17	0.24	0.34	0.52	*Débit d'air nominal max

## Estimated Specs Tab

### New Furnace Specs

*Get the furnace specs of the new furnace that you are intending on installing.*

#### Furnace Input

#### Furnace Output ?

#### Furnace Target Temp Rise ?



## Estimated Specs Tab

### New Furnace Specs

**Furnace Input**

**Furnace Output**

**Furnace Target Temp Rise**

**Choose a target temp rise from the OEM temp rise range.**

*Remember that a lower the temp rise will require more CFM than a higher temp rise.*

	GMEC96 0303ANA	GMEC96 0403ANA	GMEC96 0603ANA	GMEC96 0302BNA	GMEC96 0402BNA	GMEC96 0603BNA	GMEC96 0803BNA	GMEC96 0804CNA	GMEC96 1004CNA	GMEC96 1005CNA	GMEC96 1205DNA
<b>HEATING DATA</b>											
High Fire Input <sup>1</sup>	30,000	40,000	60,000	30,000	40,000	60,000	80,000	80,000	100,000	100,000	120,000
High Fire Output <sup>1</sup>	28,800	38,400	57,600	28,800	38,400	57,600	76,800	76,800	96,000	96,000	115,200
Low-Fire Input <sup>1</sup>	21,000	28,000	42,000	21,000	28,000	42,000	56,000	56,000	70,000	70,000	84,000
Low-Fire Output <sup>1</sup>	20,160	26,880	40,320	20,160	26,880	40,320	53,760	53,760	67,200	67,200	80,640
AFUE <sup>2</sup>	96	96	96	96	96	96	96	96	96	96	96
Temp. Rise Range (°F)	20 - 50	20 - 50	30 - 60	20 - 50	20 - 50	20 - 50	35 - 65	25 - 55	35 - 65	35 - 65	35 - 65

## Estimated Specs Tab

### Evaporator Coil

*If a new coil is being installed get the specs from the manufacturer. Typically found in the coil book.*

*If the existing coil is being used, measure the pressure drop of the existing coil and use the existing equipment CFM.*

**Evaporator Coil Rated Pressure Drop ?**

**Evaporator Coil CFM at Rated Pressure Drop ?**

## Estimated Specs Tab

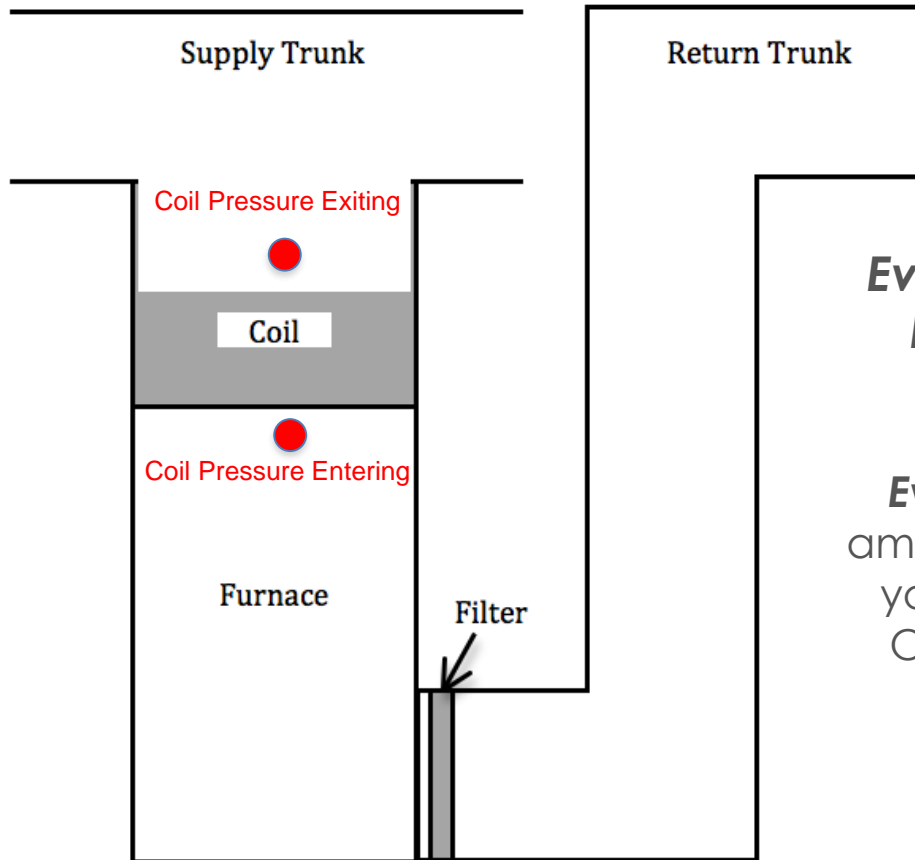
### New Evaporator Coil

1. Choose a coil.
2. Choose a set of specs.
3. **Evaporator Coil Rated Pressure Drop** (use wet specs) = 0.22
4. **Evaporator Coil CFM at Rated Pressure Drop** = 1000

	SCFM	600	700	800	900	1000	1100	1200
<b>CA*F3636A6*</b>	Wet	0.135	0.170	0.220	0.280	0.310	0.380	0.450
	Dry	0.130	0.160	0.200	0.230	0.280	0.320	0.380
<b>CA*F3636B6*</b>	Wet	0.115	0.135	0.170	0.180	0.220	0.260	0.300
	Dry	0.110	0.130	0.160	0.170	0.210	0.240	0.270

## Estimated Specs Tab

Using Existing Evaporator Coil



***Evaporator Coil Rated Pressure Drop = Coil Pressure Entering – Coil Pressure Exiting***

***Evaporator Coil CFM at Rated Pressure Drop =***  
amount of air that the equipment is moving when you are measuring the static pressure. Use the OEM fan tables, anemometer or flow plate to determine the equipment CFM.

## **Estimated Specs** Tab

### Condenser Specs

**Condenser Tons** = Tons of the new condenser or if existing condenser is being used tons of the existing condenser.

**CFM per Ton Target** = CFM per ton recommended by manufacturer.

**Condenser Tons..**

**CFM per Ton Target**

## Estimated Specs

Reports Tab

### *Reports* Tab

Click the circle beside the report and click "View"

Estimated Specs	Reports	Comments
Report Package	Report Name	
Estimated Specs	<input checked="" type="radio"/> Estimated Specs	
	<a href="#">View</a>	

# Estimated Specs Report

## Heating Equipment

Equipment Type: Furnace  
Target CFM: 1396

Size: 76800  
Gas Meter Target: 23 Half Foot, 47 1 Foot, 94 2 Feet

## Cooling Equipment

Equipment Type: Air Conditioner  
Target CFM: 1200

Size: 3

## Duct Temperature Loss

Return Duct Temp Loss: 6  
Target CFM: 11%

Supply Duct Temp Loss: 11  
Supply Duct % Loss: 20%

## Filter

Rated Pressure Drop: .11  
Square Inches Target: 670

Rated Velocity: 300  
Size: 25" x 27"

Filter size is based upon the maximum airflow that is required by the HVAC system. If the recommended size is not available use the next larger size. If a filter with less square inches than the target is used, the filter pressure drop will increase.

## Heating Pressure Drops

Return Duct Existing PD: .06  
Return Duct New PD: .04  
Return Duct Total PD: .1

Supply Duct Existing PD: .21  
Supply Duct New PD: 0  
Supply Duct Total PD: .21

Filter PD: .11

Evaporator Coil PD: .43

Estimated Total ESP: .85

Target CFM: 1396

Use the OEM fan table and the Estimated Total ESP to verify that the Target CFM can be achieved. This will also provide you with the estimated fan speed setting.

## Cooling Pressure Drops

Return Duct Existing PD: .04  
Return Duct New PD: .03  
Return Duct Total PD: .07

Supply Duct Existing PD: .16  
Supply Duct New PD: 0  
Supply Duct Total PD: .16

Filter PD: .08

Evaporator Coil PD: .32

Estimated Total ESP: .63

Target CFM: 1200

Use the OEM fan table and the Estimated Total ESP to verify that the Target CFM can be achieved. This will also provide you with the estimated fan speed setting.

## Trouble Shooting

If the Estimated Total ESP is higher than listed on the OEM Fan Table or the Target CFM cannot be achieved, then you should make changes to lower the pressure drops or choose equipment that has a blower that can operate at the Estimated Total ESP and deliver the Target CFM.

If the Estimated Total ESP is higher than listed on the OEM Fan Table or the Target CFM cannot be achieved, then you should make changes to lower the pressure drops or choose equipment that has a blower that can operate at the Estimated Total ESP and deliver the Target CFM.

If the Return or Supply Duct Total PD is higher than 0.15 consider measures that will reduce the pressure drop; increase size, change fittings, change register/grilles, ...

If Evaporator Coil PD is higher than 0.25 consider using a coil that is less restrictive. Another option is increasing the size of the coil if the OEM offers that option. Make sure that the evaporator and condenser are a matched pair.

If duct temp loss is above 10% consider insulating the duct even if it is in conditioned space. Hotter or colder air at the registers will increase comfort, save energy, and increase customer satisfaction.



## Estimated Specs Report

### Heating Equipment Section

**Target CFM:** This is the CFM needed in heating mode. It is based upon the **Furnace Output** and the **Furnace Target Temp Rise**.

**Gas Meter Target:** This is the target seconds per revolution when clocking the gas meter. Three options are given depending upon which dial you are clocking. This is based upon the **Furnace Input**.

#### Heating Equipment

Equipment Type: Furnace  
**Target CFM: 1396**

Size: 76800  
**Gas Meter Target: 23 Half Foot, 45 1 Foot, 90 2 Feet**

### Cooling Equipment Section

**Target CFM:** This is the CFM needed in cooling mode. It is based upon the **Condenser Tons** and the **CFM per Ton Target**.

#### Cooling Equipment

Equipment Type: Air Conditioner  
**Target CFM: 1200**

Size: 3



## Estimated Specs Report

### Duct Temperature Loss Section

**Return Duct Temp Loss:** Degrees of loss between the **Return Dry Bulb Equipment** and the **Return Grille Dry Bulb Average**.

**Return Duct % Loss:** Percent return duct loss compared to equipment delta t.

**Supply Duct Temp Loss:** Degrees of loss between the **Supply Dry Bulb Equipment** and the **Supply Register Dry Bulb Average**.

**Supply Duct % Loss:** Percent supply duct loss compared to equipment delta t.

#### Duct Temperature Loss

Return Duct Temp Loss: 6  
**Return Duct % Loss: 11%**

Supply Duct Temp Loss: 11  
**Supply Duct % Loss: 20%**

### Filter Section

**Size:** This is the minimum recommended filter size. It is based upon the **New Filter Rated Pressure Drop, New Filter Rated Velocity, New Filter Dimension 1** and the maximum **Target CFM**.

#### Filter

Rated Pressure Drop: .11  
Square Inches Target: 670

Rated Velocity: 300  
**Size: 25" x 27"**

Filter size is based upon the maximum airflow that is required by the HVAC system. If the recommended size is not available use the next larger size. If a filter with less square inches than the target is used, the filter pressure drop will increase.

# Estimated Specs Report

## Heating Pressure Drops Section

**Return Duct Total PD:** This is the estimated return duct pressure drop at the heating **Target CFM**. It is based upon the **Return Duct Existing Pressure, Return Duct Existing CFM at Pressure, New Return Duct Rated Pressure Drop and New Return Duct CFM at Rated Pressure Drop**.

**Supply Duct Total PD:** This is the estimated supply duct pressure drop at the heating **Target CFM**. It is based upon the **Supply Duct Existing Pressure, Supply Duct Existing CFM at Pressure, New Supply Duct Rated Pressure Drop and New Supply Duct CFM at Rated Pressure Drop**.

**Filter PD:** This is the estimated filter pressure drop at the heating **Target CFM**. It is based upon the **New Filter Rated Pressure Drop, New Filter Rated Velocity and Filter Size**.

**Evaporator Coil PD:** This is the estimated coil pressure drop at the heating **Target CFM**. It is based upon the **Evaporator Rated Pressure Drop, and Evaporator Coil CFM at Rated Pressure Drop**.

**Estimated Total ESP:** This is total of all of the heating pressured drops at the heating **Target CFM**. It is based upon the **Evaporator Rated Pressure Drop, and Evaporator Coil CFM at Rated Pressure Drop**.

### Heating Pressure Drops

Return Duct Existing PD: .06  
Return Duct New PD: .04  
**Return Duct Total PD: .1**

Supply Duct Existing PD: .21  
Supply Duct New PD: 0  
**Supply Duct Total PD: .21**

**Filter PD: .11**

**Evaporator Coil PD: .43**

**Estimated Total ESP: .85**

**Target CFM: 1396**

Use the OEM fan table and the Estimated Total ESP to verify that the Target CFM can be achieved. This will also provide you with the estimated fan speed setting.



## Estimated Specs Report

### Cooling Pressure Drops Section

**Return Duct Total PD:** This is the estimated return duct pressure drop at the cooling **Target CFM**. It is based upon the **Return Duct Existing Pressure, Return Duct Existing CFM at Pressure, New Return Duct Rated Pressure Drop and New Return Duct CFM at Rated Pressure Drop**.

**Supply Duct Total PD:** This is the estimated supply duct pressure drop at the cooling **Target CFM**. It is based upon the **Supply Duct Existing Pressure, Supply Duct Existing CFM at Pressure, New Supply Duct Rated Pressure Drop and New Supply Duct CFM at Rated Pressure Drop**.

**Filter PD:** This is the estimated filter pressure drop at the cooling **Target CFM**. It is based upon the **New Filter Rated Pressure Drop, New Filter Rated Velocity and Filter Size**.

**Evaporator Coil PD:** This is the estimated coil pressure drop at the cooling **Target CFM**. It is based upon the **Evaporator Rated Pressure Drop, and Evaporator Coil CFM at Rated Pressure Drop**.

**Estimated Total ESP:** This is total of all of the cooling pressured drops at the cooling **Target CFM**. It is based upon the **Evaporator Rated Pressure Drop, and Evaporator Coil CFM at Rated Pressure Drop**.

#### Cooling Pressure Drops

Return Duct Existing PD: .04  
Return Duct New PD: .03  
**Return Duct Total PD: .07**

Supply Duct Existing PD: .16  
Supply Duct New PD: 0  
**Supply Duct Total PD: .16**

**Filter PD: .08**

**Evaporator Coil PD: .32**

**Estimated Total ESP: .63**

**Target CFM: 1200**

Use the OEM fan table and the Estimated Total ESP to verify that the Target CFM can be achieved. This will also provide you with the estimated fan speed setting.



## *Estimated Specs Report*

### *Trouble Shooting Section*

*Use this section if you are not able to achieve the target CFM. It will give you guidance about which pressure drops could be causing high Total ESP.*

#### **Trouble Shooting**

**If the Estimated Total ESP is higher than listed on the OEM Fan Table or the Target CFM cannot be achieved, than you should make changes to lower the pressure drops or choose equipment that has a blower that can operate at the Estimated Total ESP and deliver the Target CFM.**

**If the Estimated Total ESP is higher than listed on the OEM Fan Table or the Target CFM cannot be achieved, than you should make changes to lower the pressure drops or choose equipment that has a blower that can operate at the Estimated Total ESP and deliver the Target CFM.**

**If the Return or Supply Duct Total PD is higher than 0.15 consider measures that will reduce the pressure drop; increase size, change fittings, change register/grilles, ...**

**If Evaporator Coil PD is higher than 0.25 consider using a coil that is less restrictive. Another option is increasing the size of the coil if the OEM offers that option. Make sure that the evaporator and condenser are a matched pair.**

**If duct temp loss is above 10% consider insulating the duct even if it is in conditioned space. Hotter or colder air at the registers will increase comfort, save energy, and increase customer satisfaction.**

## Estimated Specs Report

Verify that the equipment can achieve the target airflow.

This is the fan table for an 80,000 Btu furnace with a 3 ton blower.

The Target CFM in heating mode is 1396 CFM and the Estimated Total ESP in heating mode is 0.85”.

1. Go to the column that matches the estimated Total ESP.
2. Find the fan speed that will achieve the Target CFM.
3. This furnace cannot achieve the Target CFM at that pressure.
4. If the Target CFM cannot be achieved look for a different furnace or address high pressure drops.

### HEATING

DIPSWITCH SETTING: SWITCH BANK 3 SWITCH 1 2	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	1221	40	1172	42	1128	44	1087	45	1049	47	1005	959	922
	W2	1311	54	1293	54	1249	56	1203	58	1172	60	1122	1088	1041
ON OFF*	W1	750	66	644	N/A	569	N/A	507	N/A	442	N/A	388	328	N/A
	W2	1311	54	1293	54	1249	56	1203	58	1172	60	1122	1088	1041
ON ON*	W1	750	66	644	N/A	569	N/A	507	N/A	442	N/A	388	328	N/A
	W2	894	N/A	842	N/A	784	N/A	726	N/A	682	N/A	618	562	519
OFF ON	W1	894	55	842	59	784	63	726	68	682	N/A	618	562	519
	W2	1111	63	1068	66	1025	69	984	72	941	75	885	N/A	801

\* NOT RECOMMENDED

\*\* Factory Default



# Estimated Specs Report

## Identify High Pressure Drops

1. The Supply Duct Total PD is above 0.15" consider making changes to the supply duct to lower the pressure drop.
2. The Evaporator Coil PD is above 0.25" consider using a different coil if one is available. This example has a 3 ton coil. Most manufacturers will have a matched coil that is larger than a 3 ton coil. A larger coil will usually have a lower pressure drop.

### Heating Pressure Drops

Return Duct Existing PD: .06  
Return Duct New PD: .04  
**Return Duct Total PD: .1**

**Filter PD: .11**

**Estimated Total ESP: .85**

Supply Duct Existing PD: .21  
Supply Duct New PD: 0  
**Supply Duct Total PD: .21**

**Evaporator Coil PD: .43**

**Target CFM: 1396**

Use the OEM fan table and the Estimated Total ESP to verify that the Target CFM can be achieved. This will also provide you with the estimated fan speed setting.

## Estimated Specs Report

Choose a different furnace or air handler.

This manufacturer offers an 80,000 Btu furnace with a 4 ton blower.

The Target CFM in heating mode is 1396 CFM and the Estimated Total ESP in heating mode is 0.85”.

1. Go to the column that matches the estimated Total ESP.
2. Find the fan speed that will achieve the Target CFM.
3. This furnace can achieve the Target CFM at that pressure.
4. Set the fan to OFF ON.

### HEATING

DIPSWITCH SETTING: SWITCH BANK 3 SWITCH 1 2	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	1281	38	1220	40	1152	43	1096	45	1031	48	978	914	856
	W2	1839	38	1790	39	1757	40	1699	41	1665	42	1615	1568	1527
ON OFF	W1	1408	35	1337	37	1279	39	1218	40	1167	42	1112	1062	999
	W2	1839	38	1790	39	1757	40	1699	41	1665	42	1615	1568	1527
ON ON*	W1	1408	35	1337	37	1279	39	1218	40	1167	42	1112	1062	999
	W2	1185	N/A	1121	N/A	1058	N/A	992	N/A	933	N/A	868	808	750
OFF ON	W1	1185	42	1121	44	1058	47	992	50	933	53	868	808	519
	W2	1727	41	1691	42	1642	43	1600	44	1545	46	1504	1449	1410

\* NOT RECOMMENDED

\*\* Factory Default

## Ameren Illinois Residential EE CONTACTS

- Robert Rusteberg, Field Energy Specialist  
224.315.0644 – [Robert.H.Rusteberg@Leidos.com](mailto:Robert.H.Rusteberg@Leidos.com)
- Scott Marner, Residential Field Operations Lead  
309.335.0262 – [SMarner@Ameren.com](mailto:SMarner@Ameren.com)

### HVAC Toolkit Contact

- Tim Hanes [amil@wiswise.com](mailto:amil@wiswise.com)
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