

# **LIFEBREATH<sup>®</sup>**

*CLEAN • FRESH • AIR*

## Air Handler Manual

AH40DHW  
AH60DHW  
AH40BHW  
AH60BHW  
AH80BHW



LR56295-52



AH-01  
0003

# Table of Contents

Topics	Page
Introduction	3
Description and Specifications	4-7
Water Heater/Boiler and Furnace Model Selection	8-27
Installation	28-31
Wiring Diagram	32
Start-up Procedure	33
Operation	34
Troubleshooting	35

# Introduction

Congratulations on your selection of the Lifebreath Air Handler. This is a very advanced unit that features the outstanding efficiency and economy of a combo type heating system.

You will notice that the heated air in your home feels more comfortable than air heated by a conventional furnace. One reason for this is that Lifebreath's hydronically heated air is uniform and temperate... no short blasts of hot air or hot and cold temperature spikes. In this regard, the air flowing from your hot air vents will not feel as hot to the touch as air from a conventional furnace.

With a high efficiency, adequately sized hot water heater or boiler, you will always have plenty of hot water for showers and baths, washing dishes and clothes, and all other normal domestic hot water needs. If there is an unusually high demand for hot water, such as filling a large hot tub, than all you need to do is allow more time for the task so the heater can keep up to its job of providing hot water for the heating system as well as other household uses.

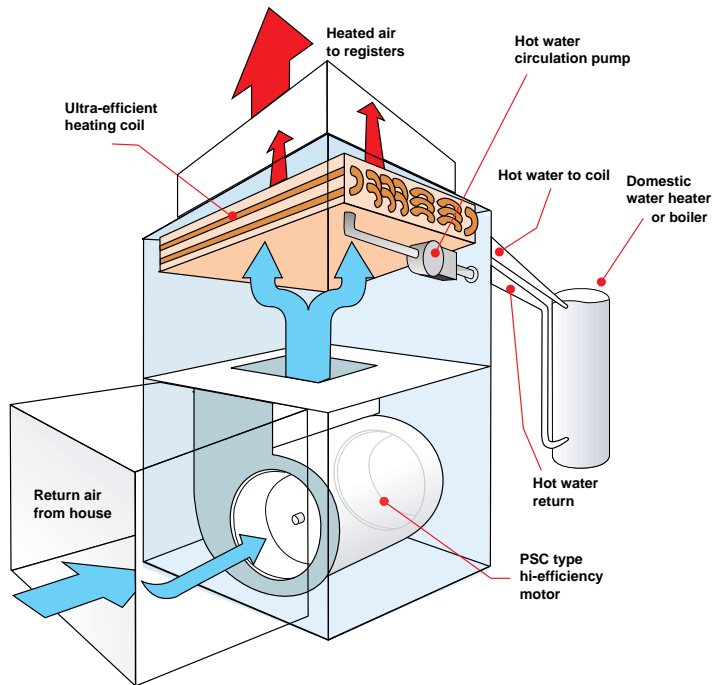
Once it is correctly installed, safety will never be an issue with your Lifebreath furnace. No flames, fumes or flue gases to be concerned about. Your domestic hot water heater or boiler now provides the heat source for your furnace.

This Operating and Installation Guide will help you learn about your Lifebreath Air Handler quickly and easily. The table of contents will show you where to find information on every feature of this unit along with easy to understand operating instructions. If, however, you do encounter a question that is not covered in this Guide you should call the Lifebreath dealer who installed your furnace. Chances are that he will be able to give you a satisfactory answer but if he is unable to do so then we invite you to contact us directly.

*With the addition of Lifebreath T.F.P. Air Cleaner (optional) you will have the ultimate in comfort and healthy indoor air quality. (See back cover of this manual)*

*Nutech Energy Systems Inc.*

# Description and Specifications



## IMPORTANT NOTE

The purpose of this manual is to act as an installation guide only for the Lifebreath Air Handler. Manufacturers' instructions for other components, such as the water heater or boiler, must be followed.

All national and local code requirements must be met when installing a Lifebreath Air Handler. Be sure to consult the proper authorities.

*Note: Temperatures greater than 130 °F (54°C) pose a serious risk of scalding individuals running domestic hot water for potable use.*

This appliance complies with CSA Requirement CR95-003, Additional Requirements for Fan Coil Units for use with Potable Water Heaters.

All piping and components connected to this appliance shall be suitable for use with potable water.

Toxic chemicals, such as used for boiler treatment, shall not be introduced into the potable water heater system.

When using this system, and water for space heating is required to be at a higher temperature than for other uses, an anti-scald valve shall be used to ensure water for other uses is reduced in temperature to minimize a scald hazard potential.

TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION AND LEFT WITH HOME OWNER.

\_\_\_\_\_  
Installing Contractor

\_\_\_\_\_  
Telephone / Contractor

\_\_\_\_\_  
Serial Number

\_\_\_\_\_  
Installation Date

\_\_\_\_\_  
Model

*Note: All technical specifications are subject to change without notice.*

# Domestic Hot Water Heater Model

## Specifications Model AH40DHW & AH60DHW

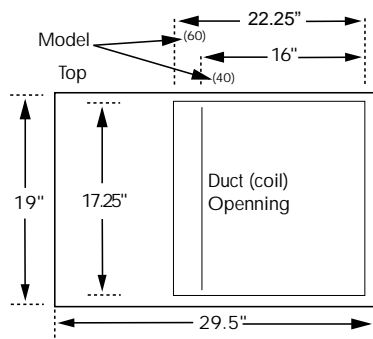
### Case

Prepainted galvanized steel for superior corrosion resistance.

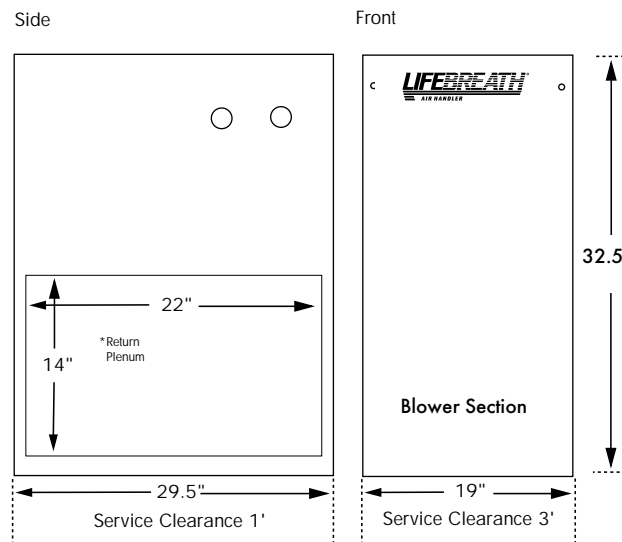
Model	AH40DHW	AH60DHW
Output	30 - 75 MBH	50 - 110 MBH
Voltage	120 VAC 60 Hz	120 VAC 60 Hz
Hp	1/3	1/2
Amps (total)	7	8.7
Water Connections	1/2" Copper Soldered Connection	3/4" Copper Soldered Connection
Return Plenum	14" x 22"	14" x 22"
Supply	17.25" x 16"	17.25" x 22.25"
Airflow	1030 CFM @ .25 ESP 890 CFM @ .5 ESP	1350 CFM @ .25 ESP 1180 CFM @ .5 ESP

**Note:** All connections to be made by qualified contractors.

## Dimensions & Clearances



*Note: return plenum opening is available off either side of cabinet. All units conform to CSA and UL Standards*



# Boiler Models

## Specifications Model AH40BHW & AH60BHW

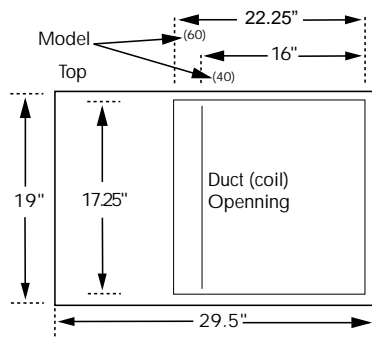
### Case

Prepainted galvanized steel for superior corrosion resistance.

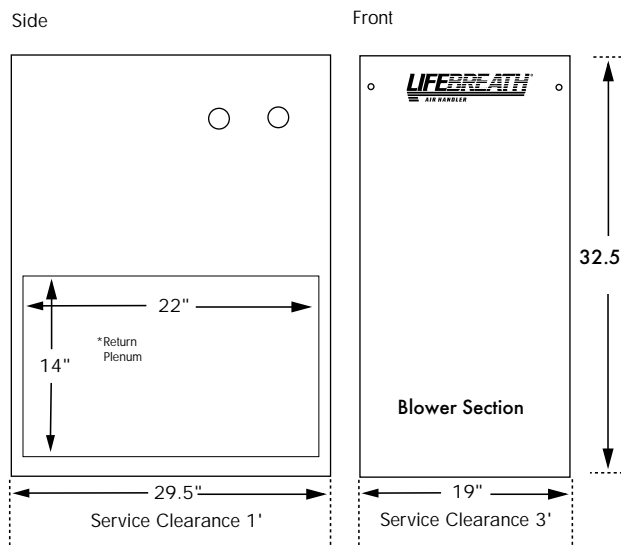
Model	AH40BHW	AH60BHW
Output	22 - 62 MBH	40 - 73 MBH
Voltage	120 VAC 60 Hz	120 VAC 60 Hz
Hp	1/3	1/2
Amps (total)	7	8.7
Water Connections	1/2" Copper Soldered Connection	1/2" Copper Soldered Connection
Return Plenum	14" x 22"	14" x 22"
Supply	17.25" x 16"	17.25" x 22.25"
Airflow	1280 CFM @ .25 ESP 1075 CFM @ .5 ESP	1402 CFM @ .25 ESP 1220 CFM @ .5 ESP

*Note: All connections to be made by qualified contractors.*

## Dimensions & Clearances



*Note: return plenum opening is available off either side of cabinet. All units conform to CSA and UL Standards*



# High CFM Model

## Specifications

## Model AH80BHW

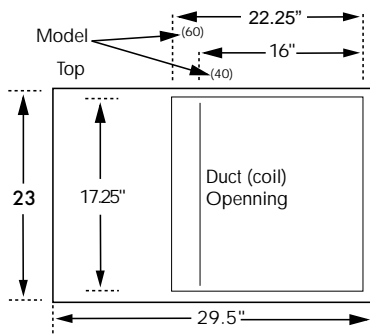
### Case

Prepainted galvanized steel for superior corrosion resistance.

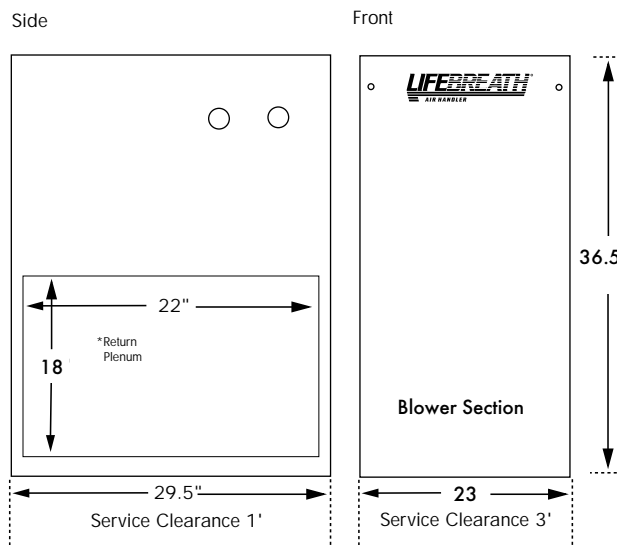
Model	AH80BHW
Output	32 - 89 MBH
Voltage	120 VAC 60 Hz
Hp	3/4
Amps (total)	10.3
Water Connections	1/2" Copper Soldered Connection
Return Plenum	18" x 22"
Supply	17.25" x 22.25"
Airflow	1967 CFM @ .25 ESP 1639 CFM @ .5 ESP

*Note: All connections to be made by qualified contractors.*

## Dimensions & Clearances



*Note: return plenum opening is available off either side of cabinet. All units conform to CSA and UL Standards*



# Water Heater/Boiler & Furnace Model Selection

## General Information

The LIFE BREATH Air Handler, is referred to as a "Combo Unit", meaning it uses a forced air furnace, in combination with a domestic hot water tank or boiler. There are several models available, two for use with a domestic water heater, two for use with a boiler, and one for use where there is higher CFM/Air Conditioning demands. Since the water heater (or boiler), will be the source of heat for the home, it is critical that it is sized large enough to handle both the heating load, and hot water demands.

*NOTE: When sizing a hot water heater or boiler for both potable water and heat for the space, special care and attention must be given to ensure the water temperature for domestic use does not exceed 130°F (54°C).*

Temperatures greater than 130°F (54°C), pose a serious risk of scalding individuals running domestic hot water for potable use.

## Calculating Heat Loss/Heat Gain

The design heat loss/heat gain of the home can be determined using ACCA Manual J, HRAI Residential Heat Loss and Heat Gain Manual or any other manual recognized by the HVAC industry, for this purpose.

## Choosing Air Handler Model

Once the heat loss and gain is known, the model of furnace can be selected by choosing the smallest one, which has a greater BTUH output, than that required to heat the home, and also satisfies the maximum flow (ie. CFM) required for either heating or cooling. The following house example can be used as a guide:

*NOTE: The following example will refer to the domestic water heater model. The same steps must be taken when sizing the boiler model.*

### EXAMPLE:

HEAT LOSS	= 54,000 BTUH
HEAT GAIN	= 2.8 TONS (400cfm/ton)
Required airflow	= 1120 CFM
*EWT	= 130F

\*EWT (Entering water temperature)



## Step #1

First, examine the performance specifications from the model selection charts in Fig. 1 & 2, to find the unit that provides the desired blower capacity of 1120cfm (house example requires 2.8 tons of cooling). Typically with the added resistance of an "A" coil for air-conditioning, the ductwork is designed around 0.5 total esp using a 60/40 shift for supply and return air respectively. Next, find the unit that provides the desired output (at least 54,000BTU) at EWT (entering water temperature) of 130°F (54°C). For the example the model 60, 5gpm chart should be used.

**Note figures 1 & 2 refer to the AH40DHW & AH60DHW (for use with a water heater). See figures 1B & 2B for Boiler model specs, and 2C for high CFM Model.**

Figure 1 (for domestic hot water heater model)

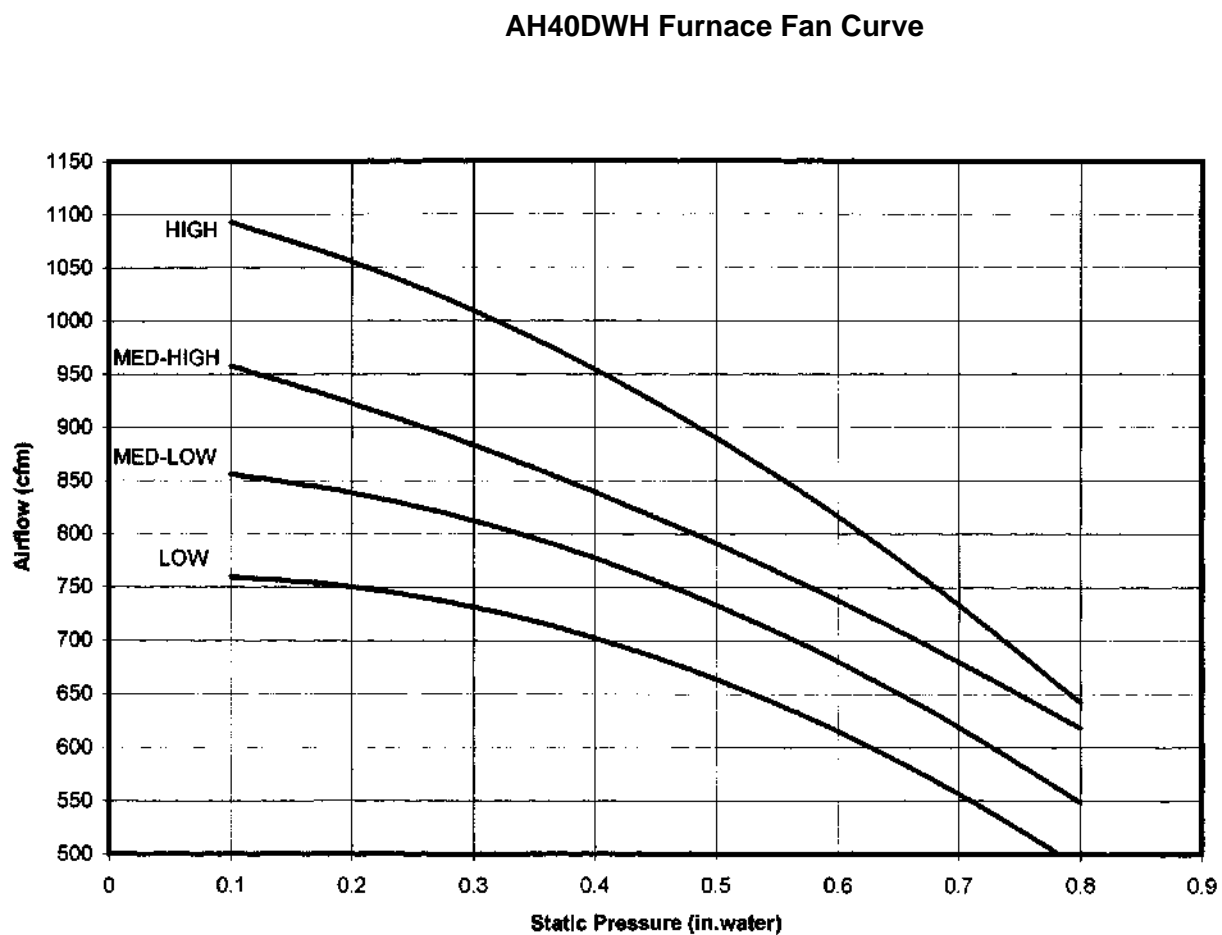
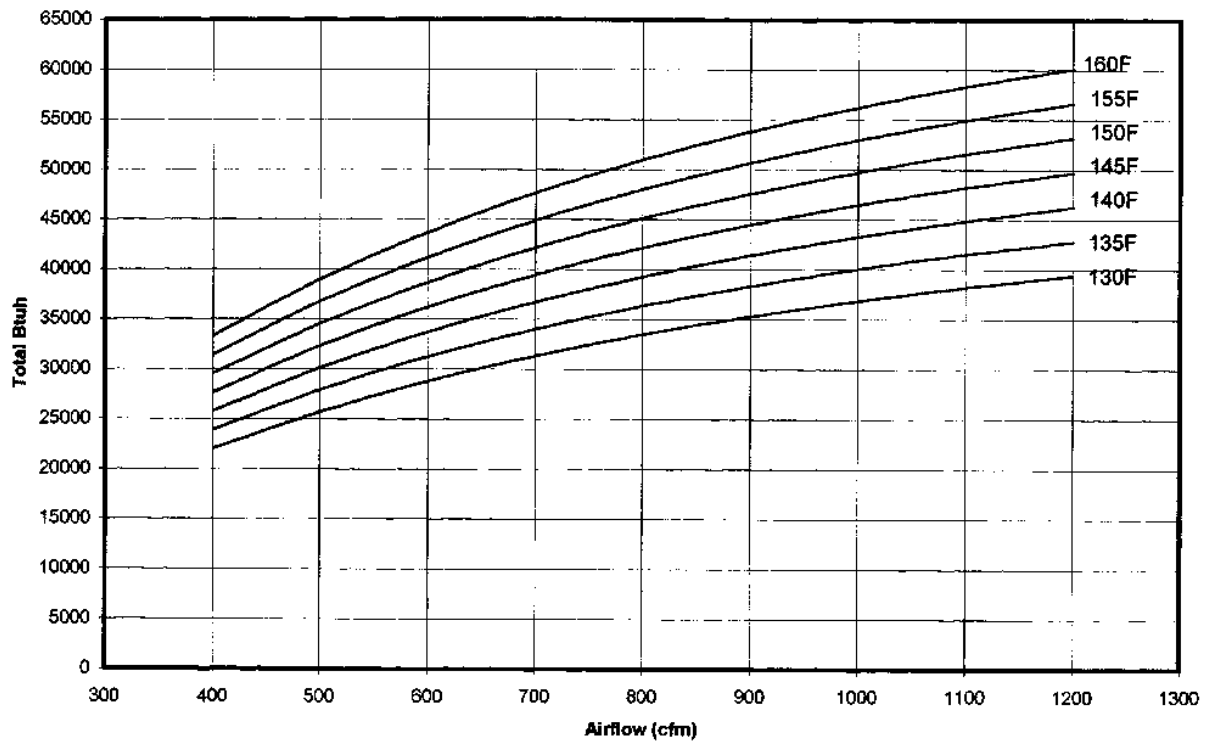


Figure 1 continued

2gpm Chart (Small Coil) AH40DWH



3gpm Chart (Small Coil) AH40DWH

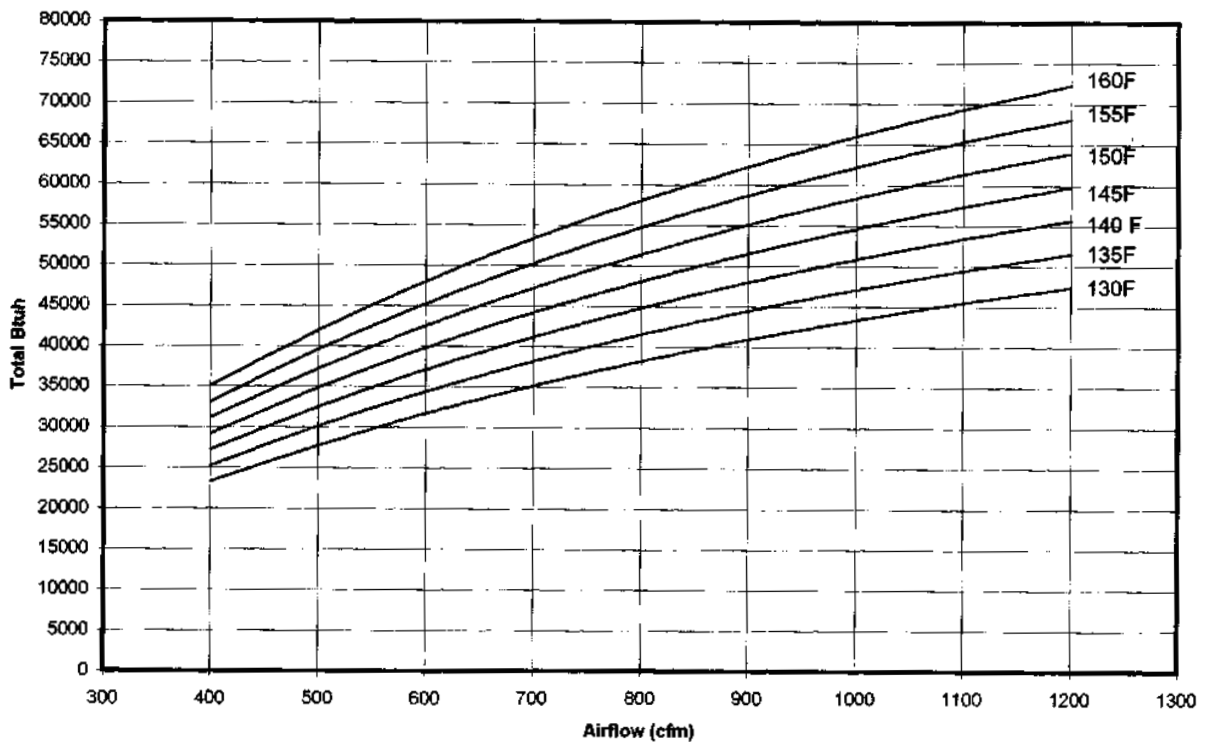
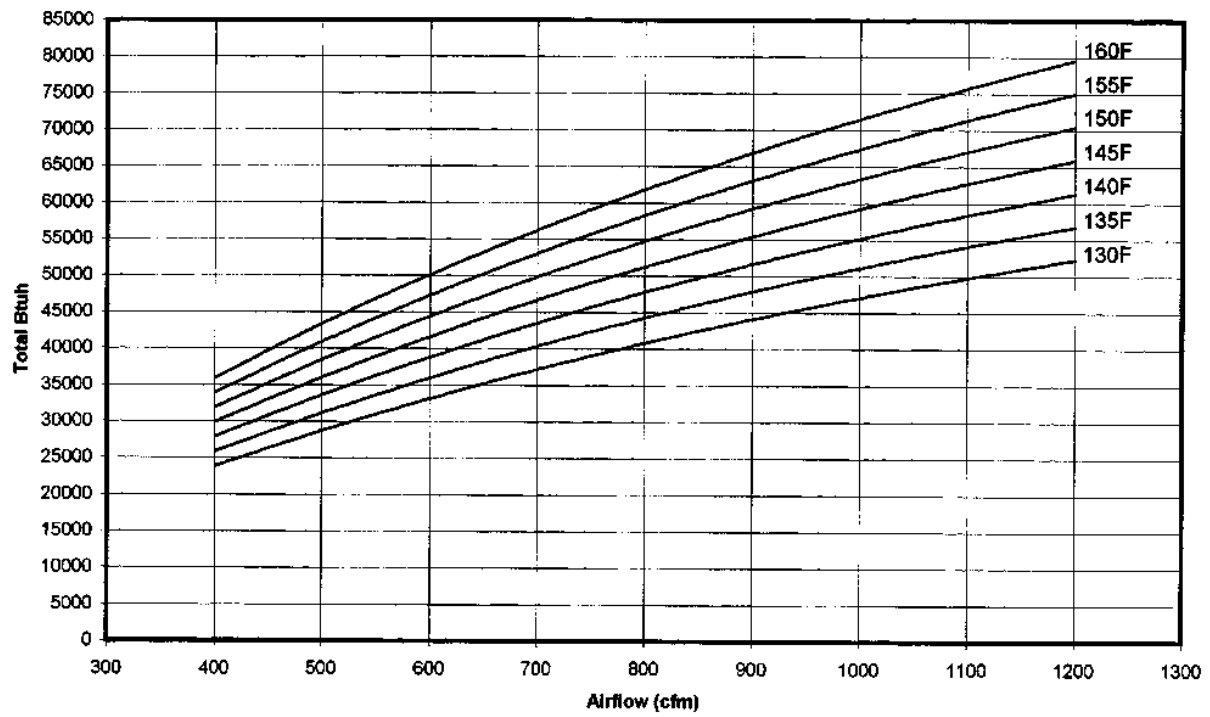


Figure 1 continued

4gpm Chart (Small Coil) AH40DWH



5gpm Chart (Small Coil) AH40DWH

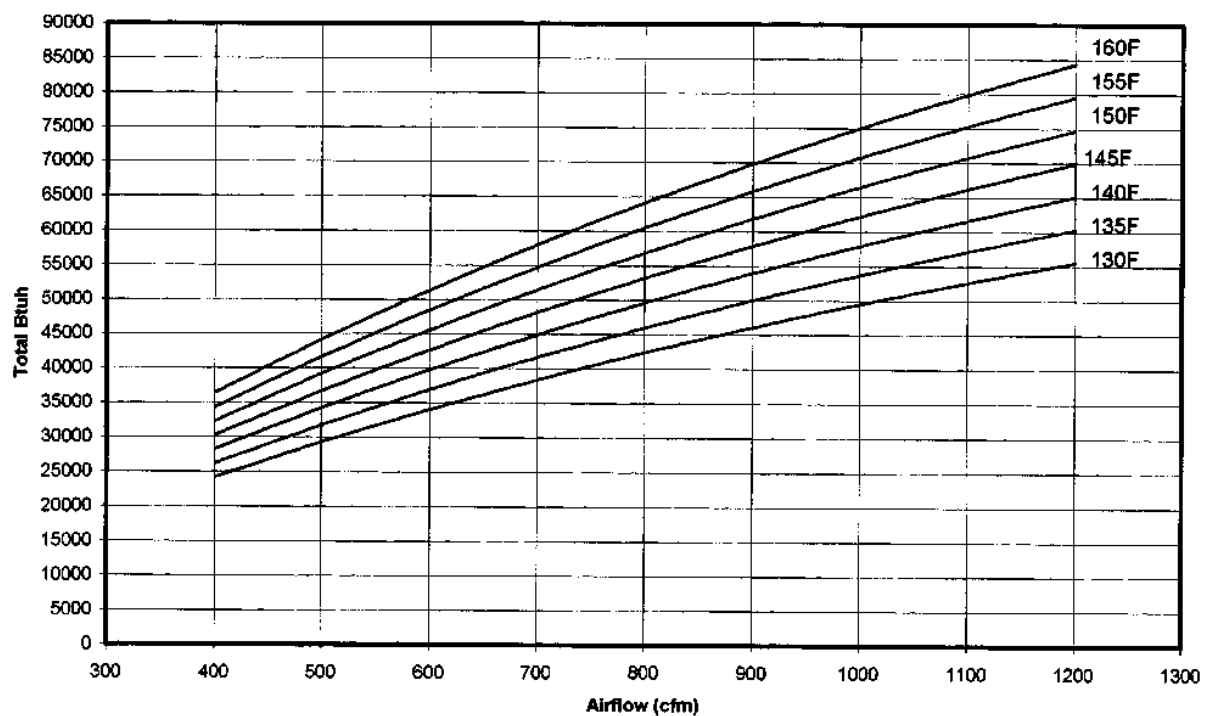
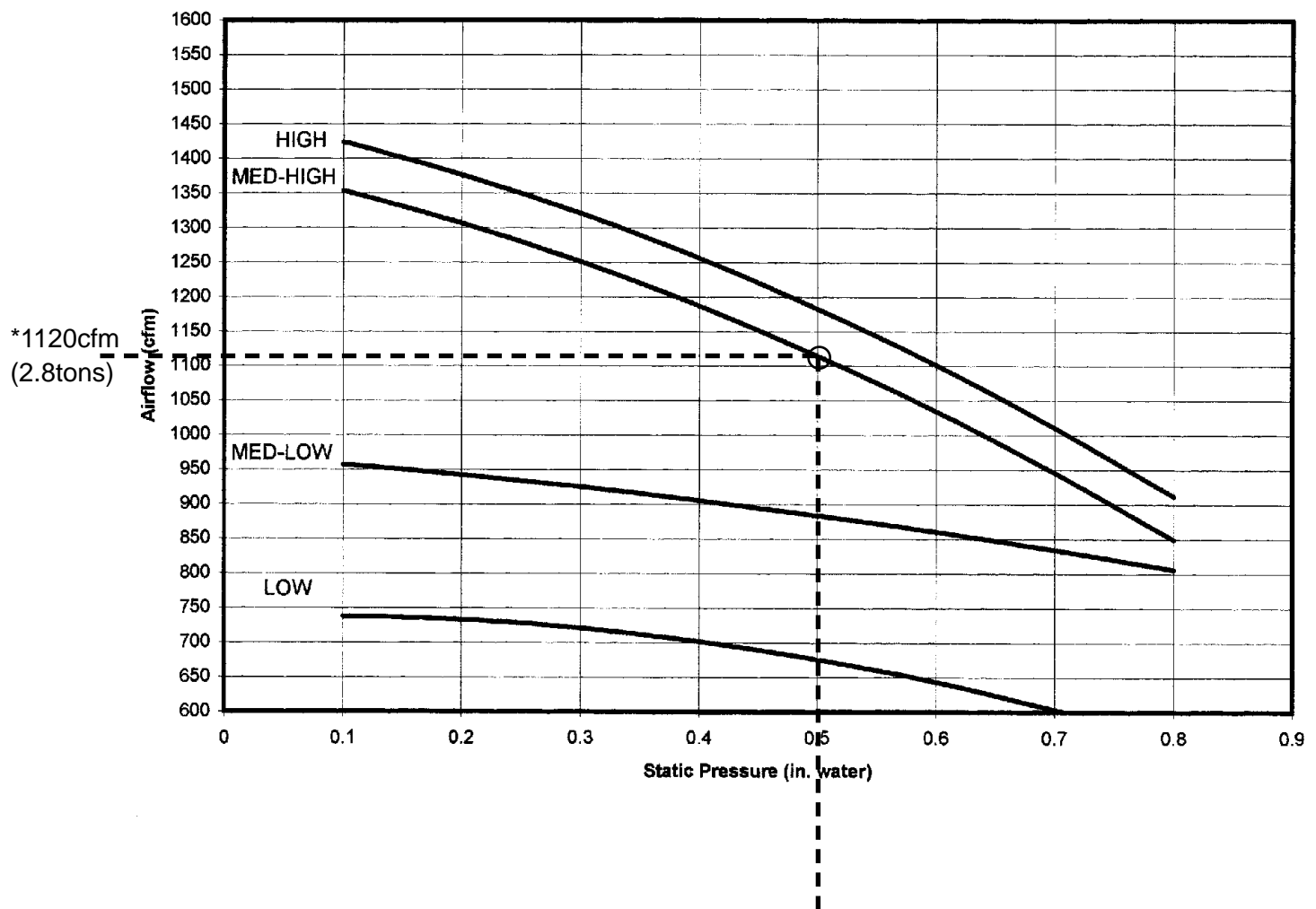


Figure 2

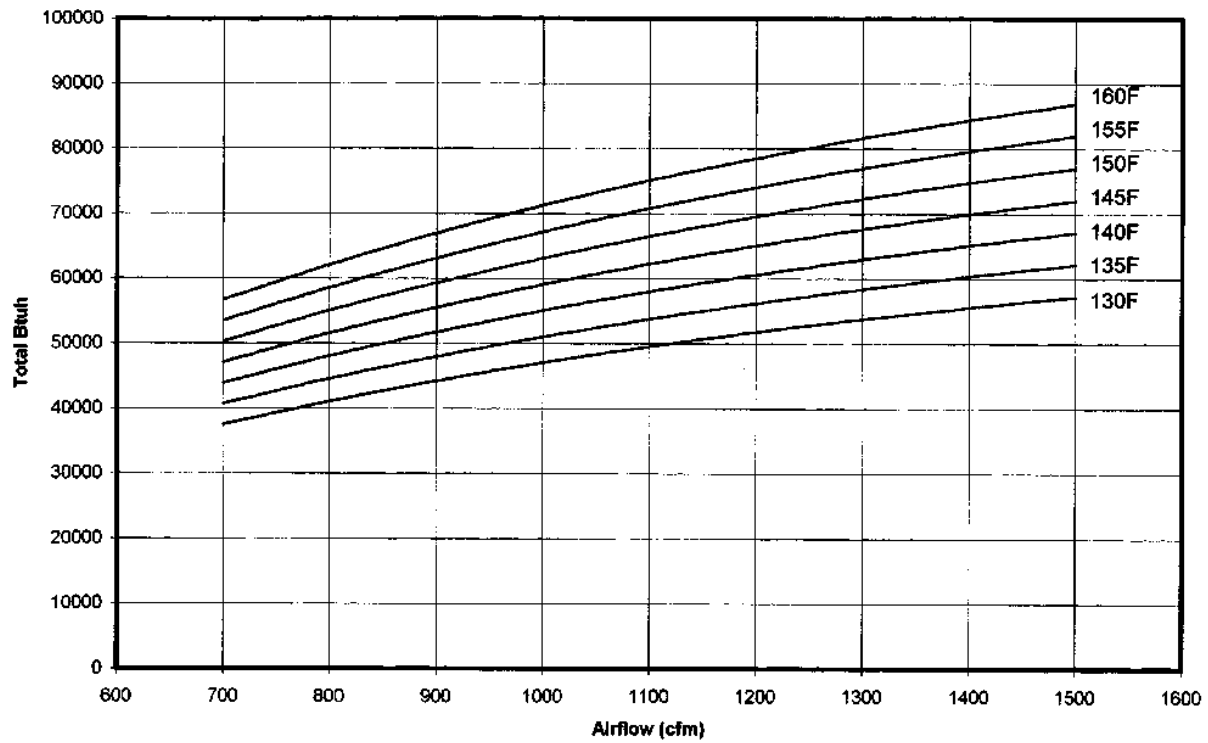
AH60DWH Furnace Fan Curve



\*House example requires  
 $2.8 \text{ tons} \times 400 \text{ cfm} = 1120 \text{ cfm}$  at 0.5 esp

Figure 2 continued

3gpm Chart (Large Coil) AH60DWH



4gpm Chart (Large Coil) AH60DWH

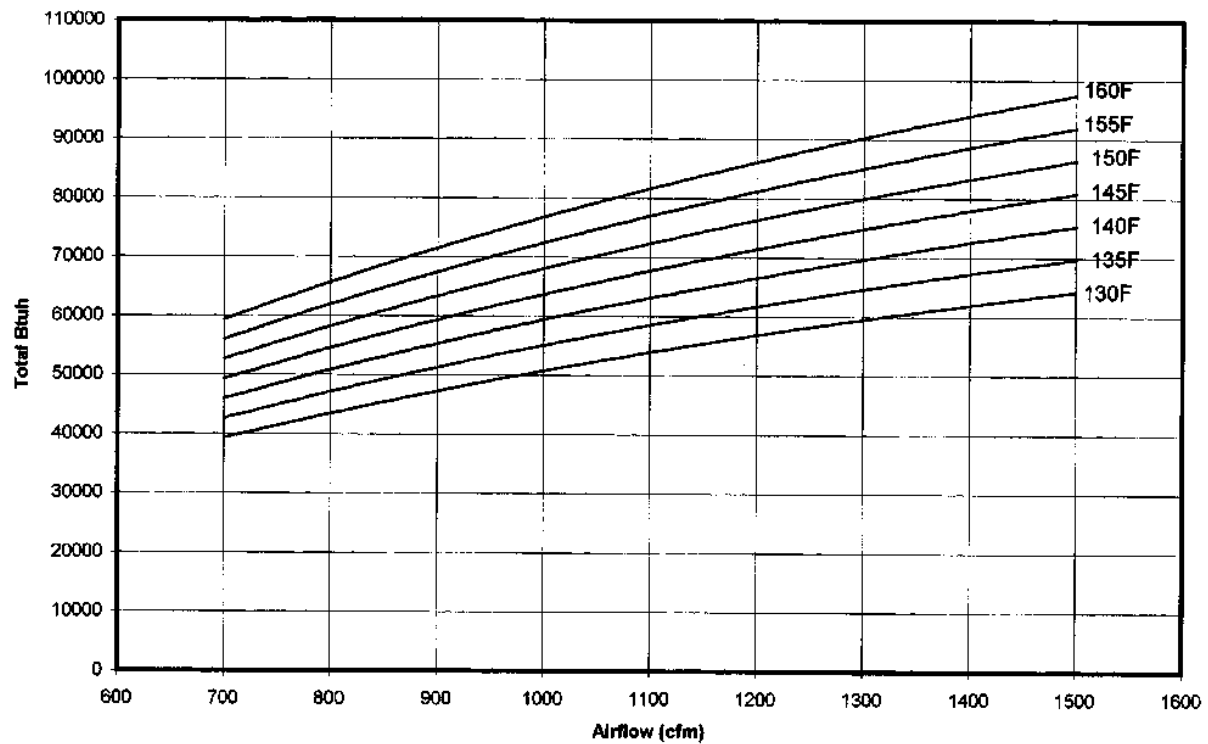
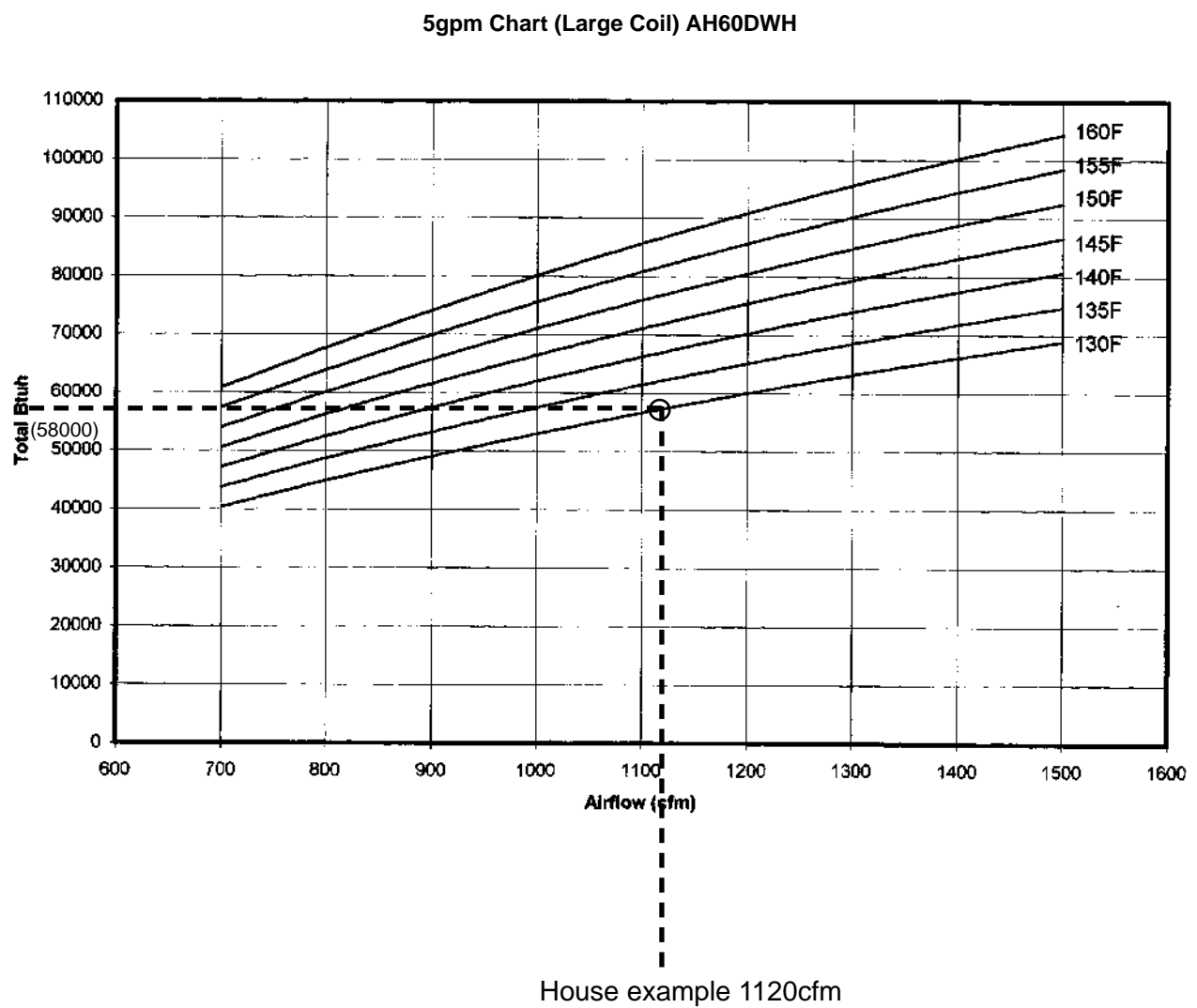
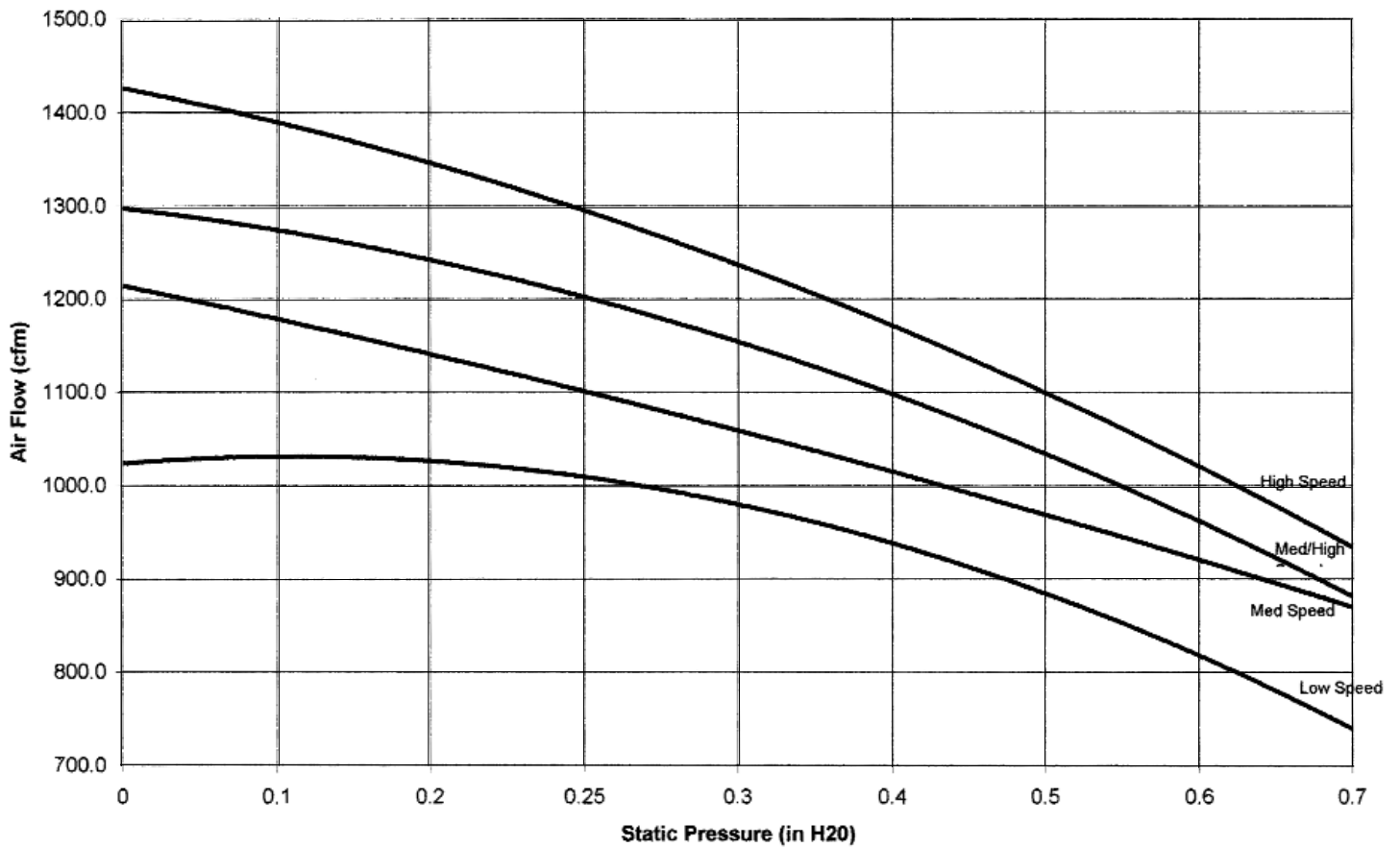


Figure 2 continued



# Figure 1B (boiler models)

## AH40BWH Air Handler Fan Curve



## 2gpm Chart (Small Coil) AH40BWH

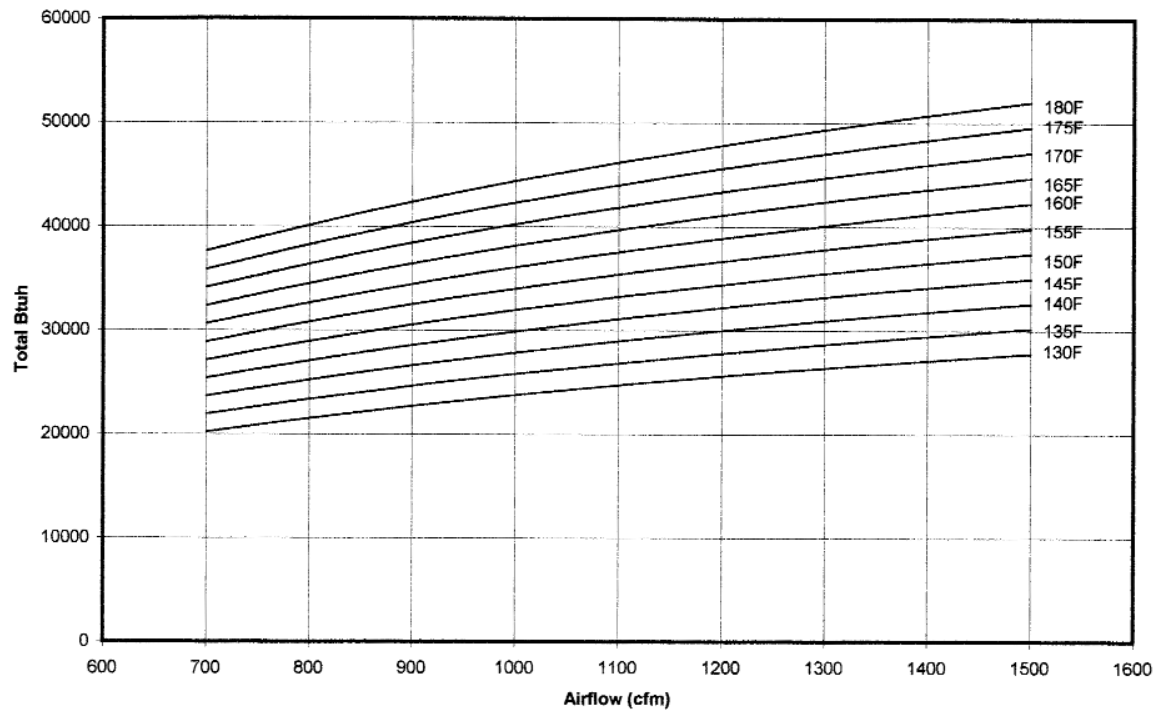
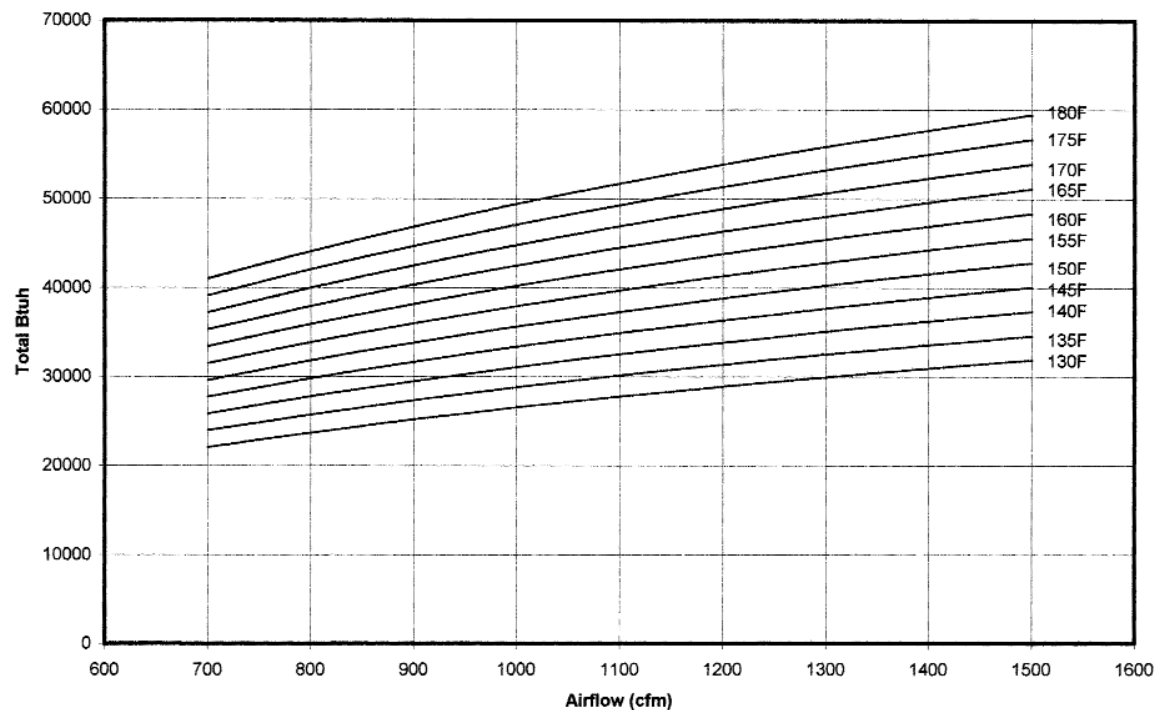


Figure 1B continued

3gpm Chart (Small Coil) AH40BWH



4gpm Chart (Small Coil) AH40BWH

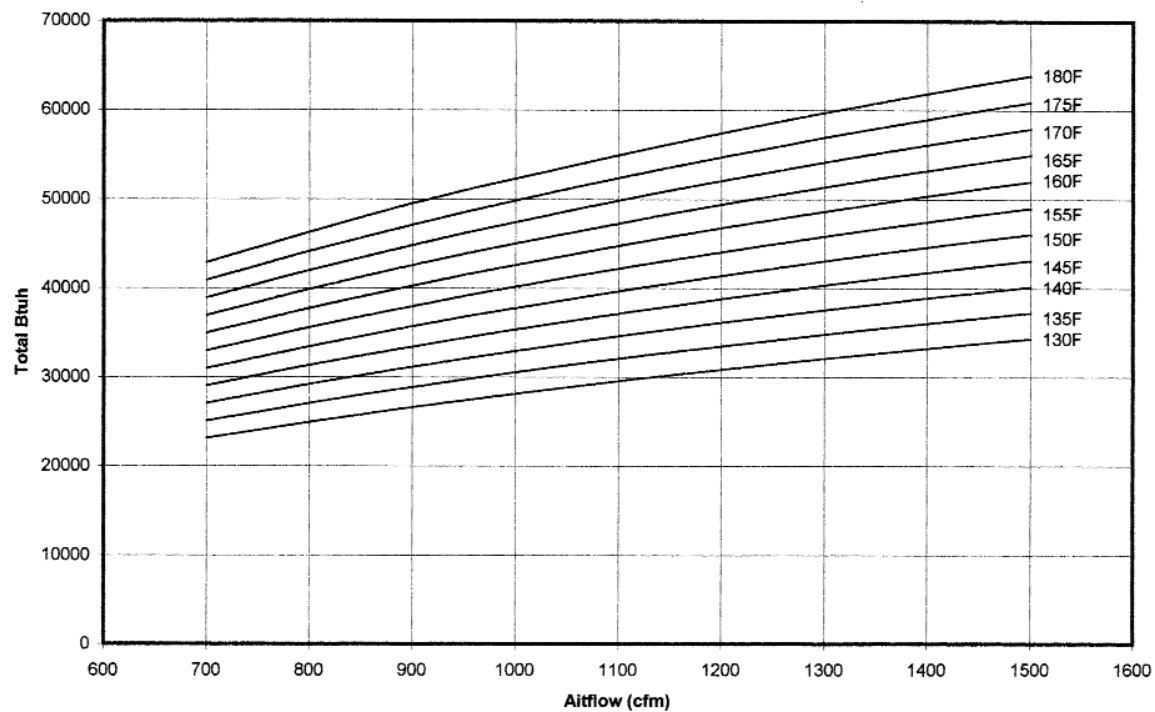




Figure 1B continued

5gpm Chart (Small Coil) AH40BWH

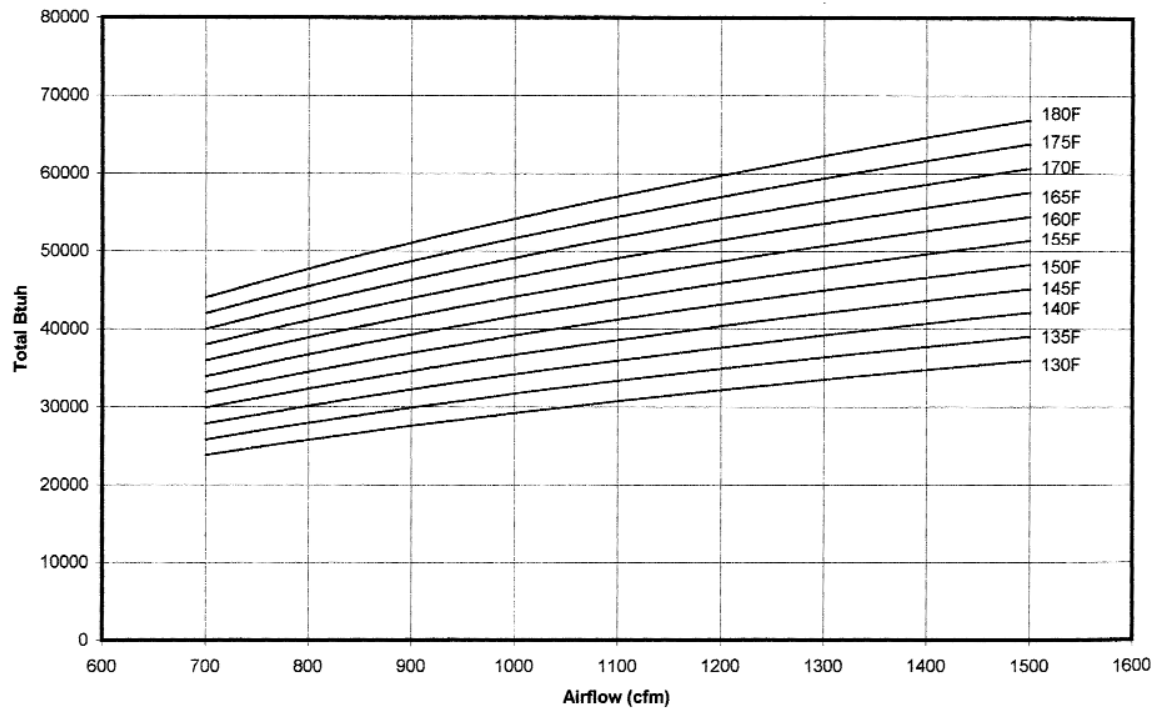


Figure 2B

AH60BWH Air Handler Fan Curve

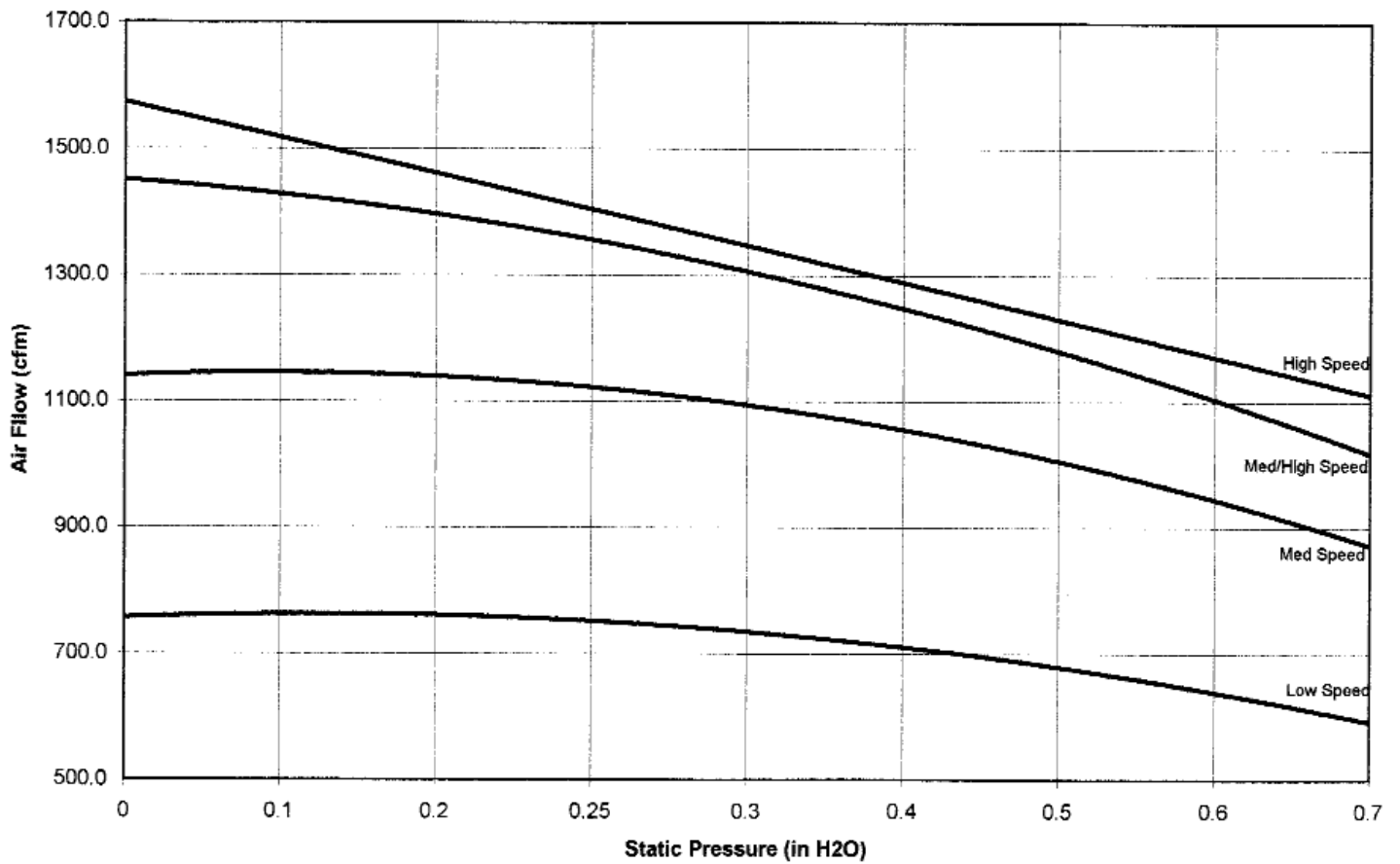
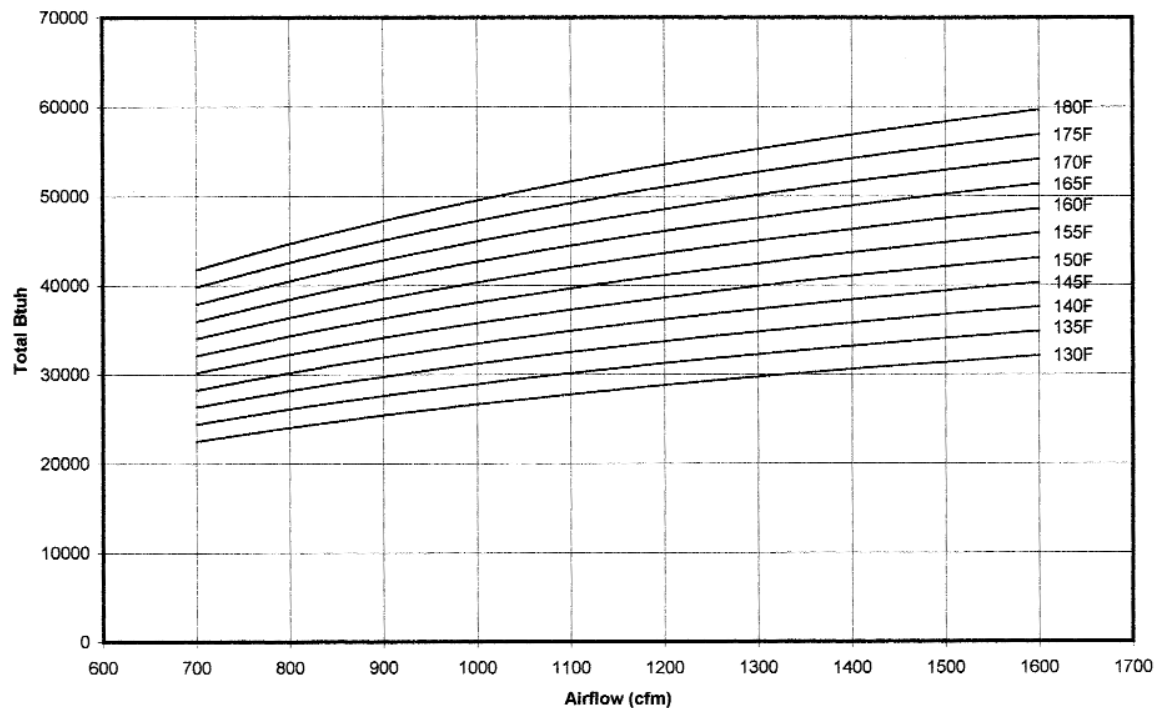


Figure 2B continued

2gpm Chart (Large Coil) AH60BWH



3gpm Chart (Large Coil) AH60BWH

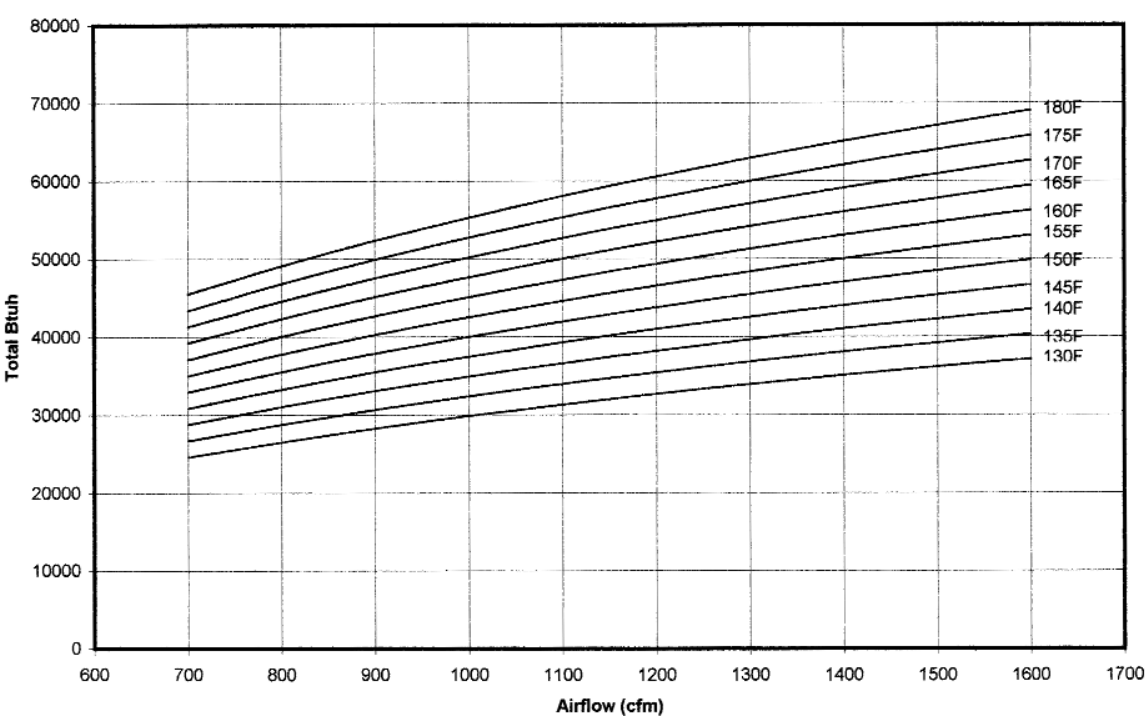
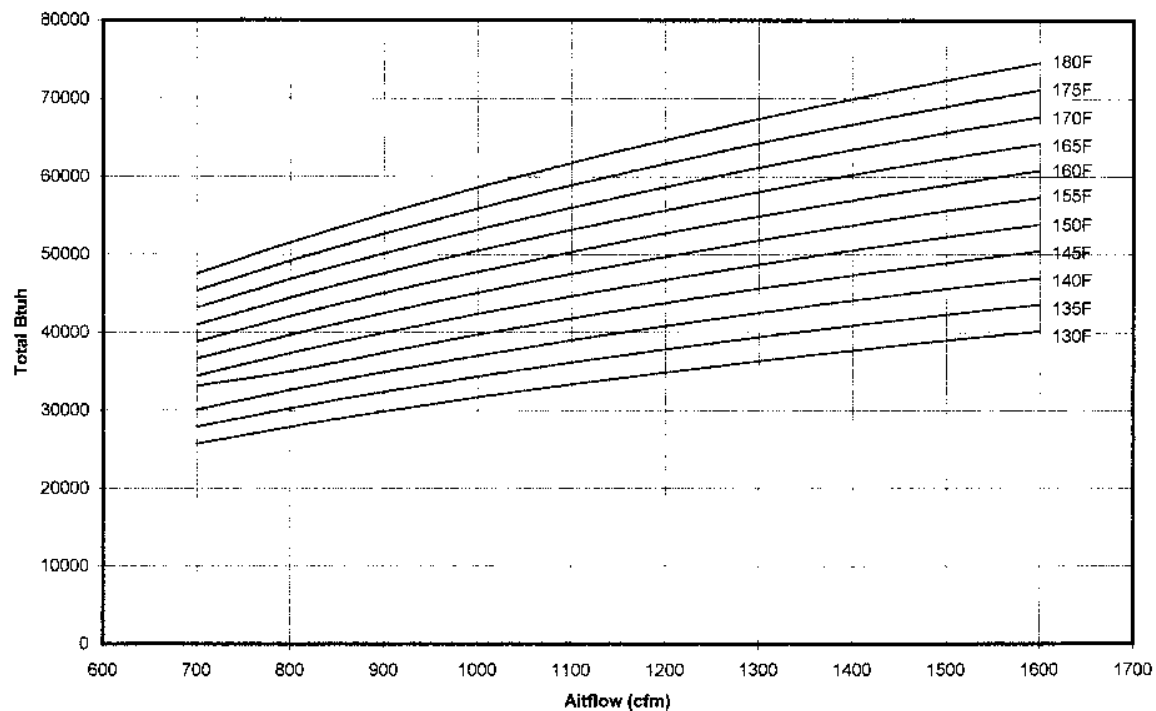


Figure 2B continued

4gpm Chart (Large Coil) AH60BWH



5gpm Chart (Large Coil) AH60BWH

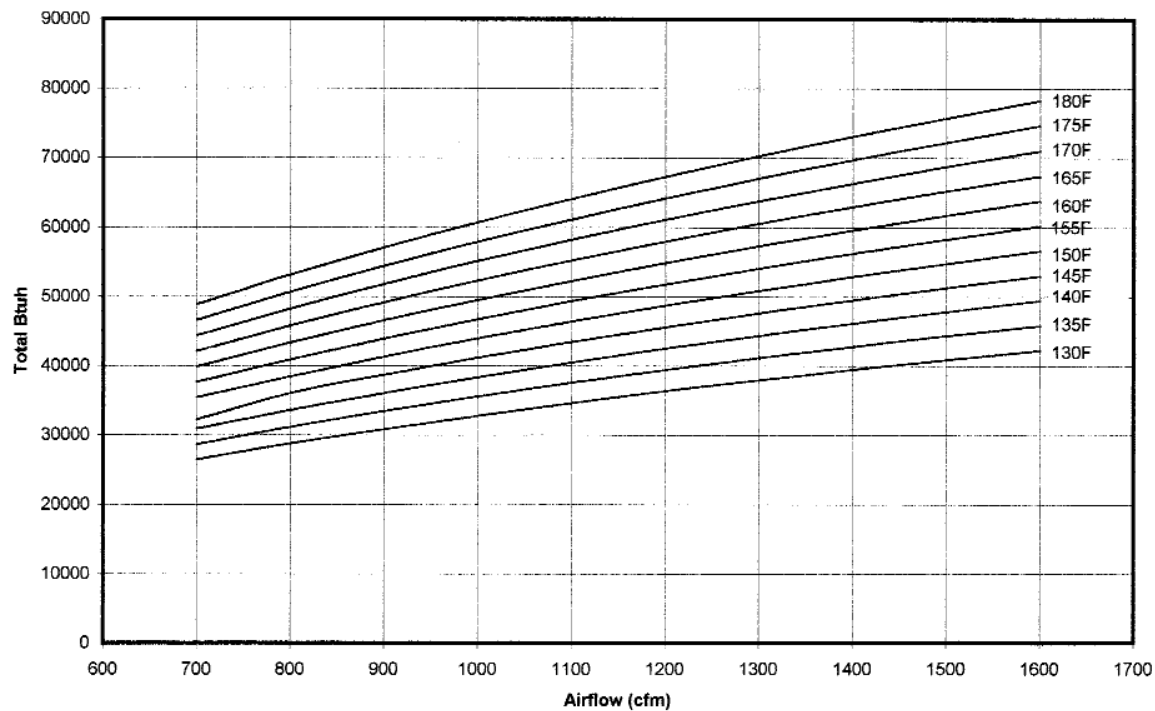


Figure 2C - High CFM Model

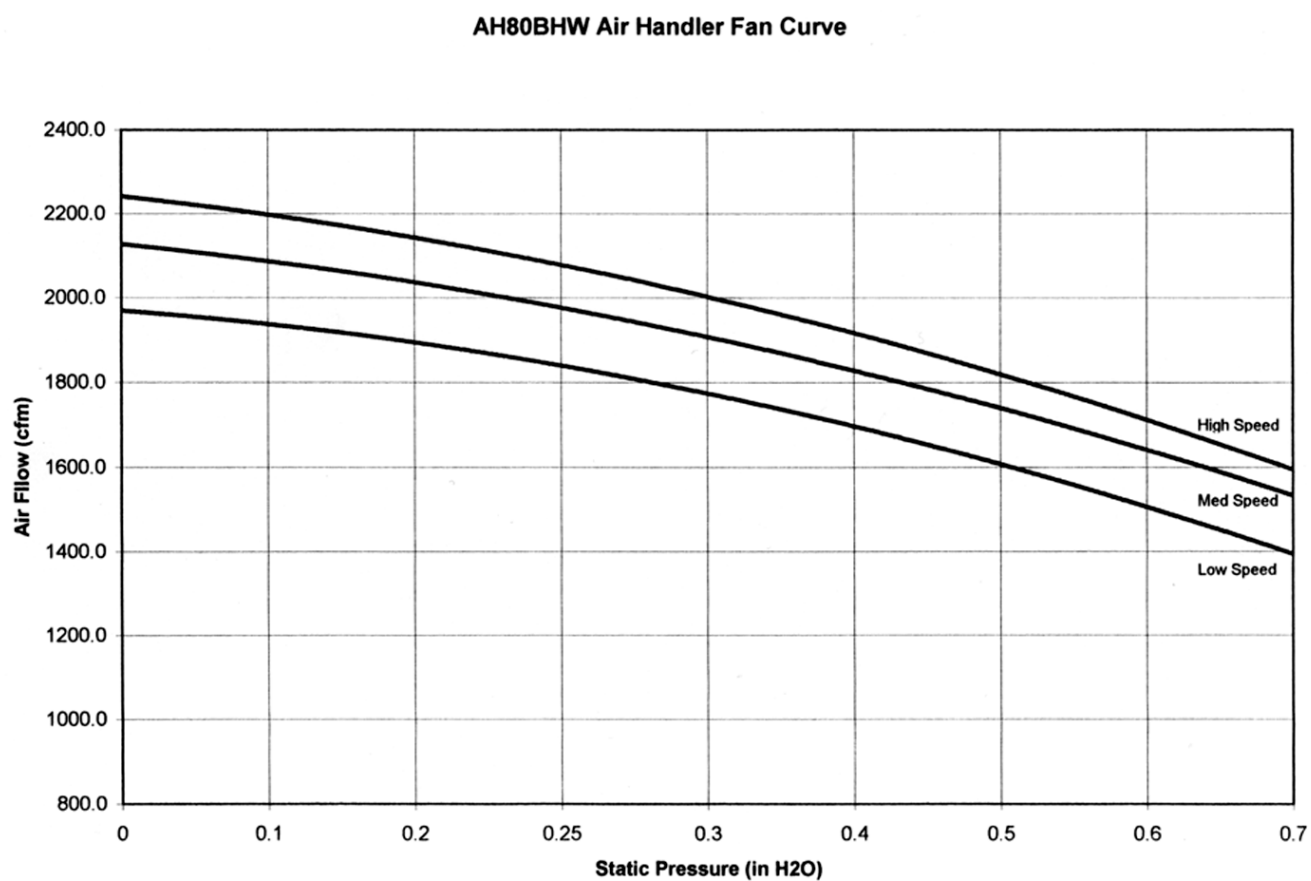
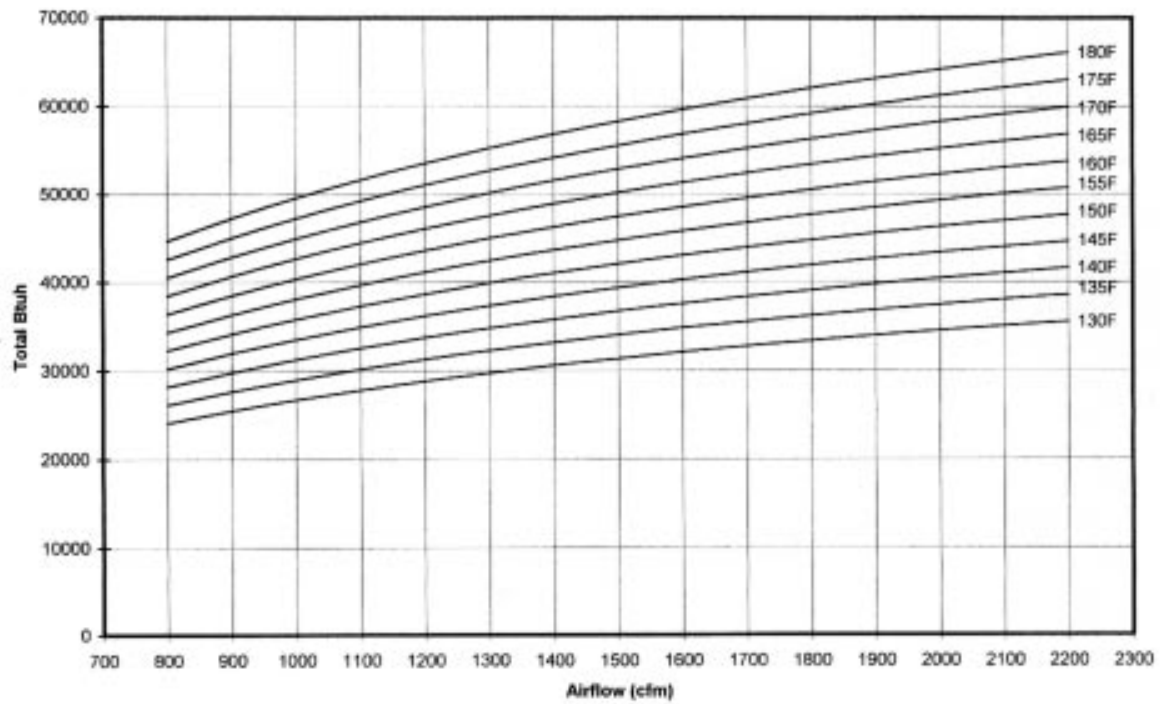


Figure 2C continued

2gpm Chart (Large Boiler Coil) AH80BWH



3gpm Chart (Large Boiler Coil) AH80BWH

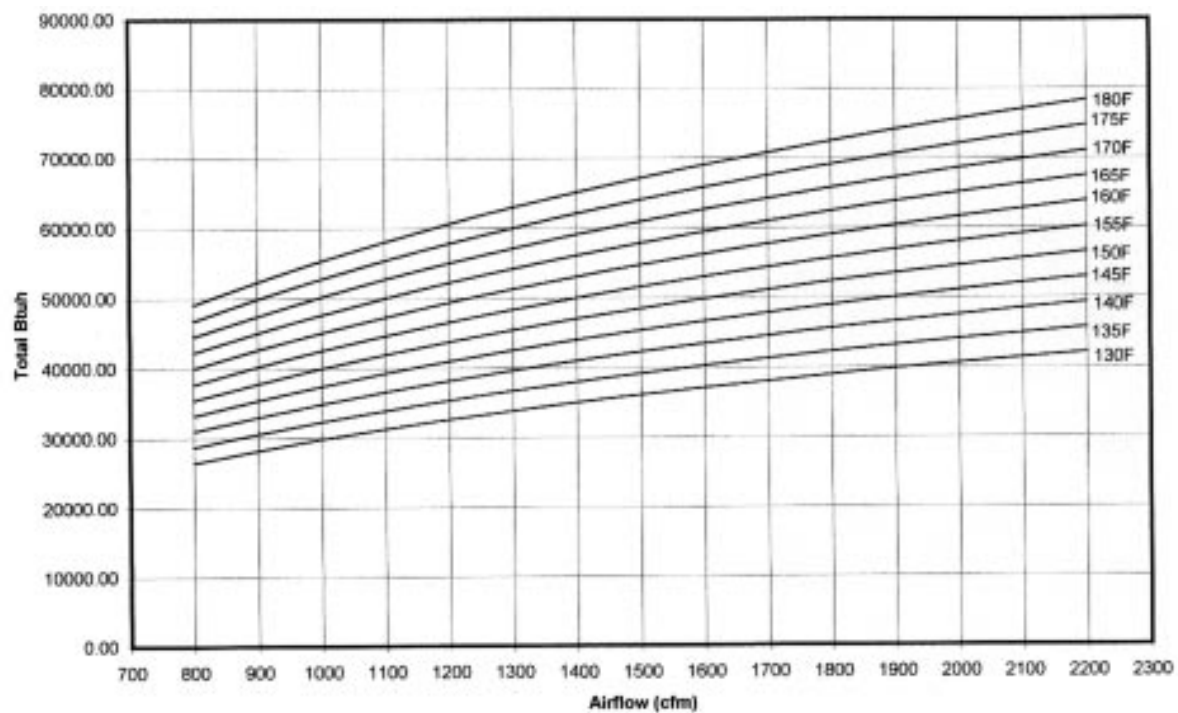
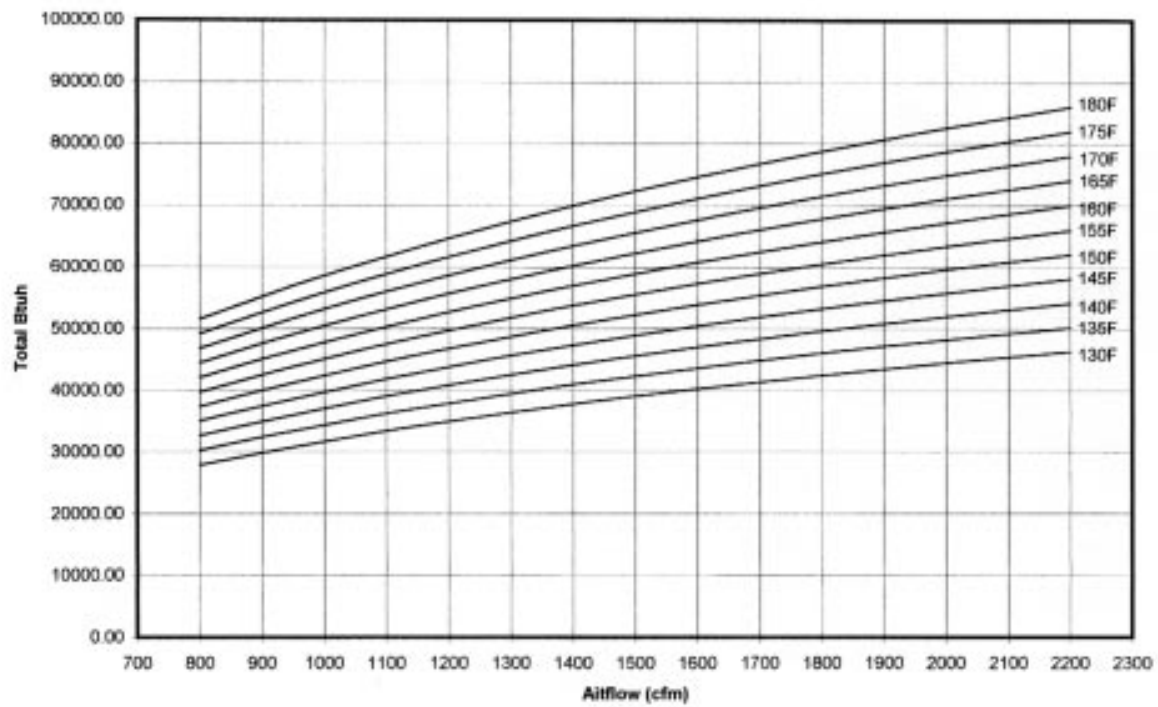
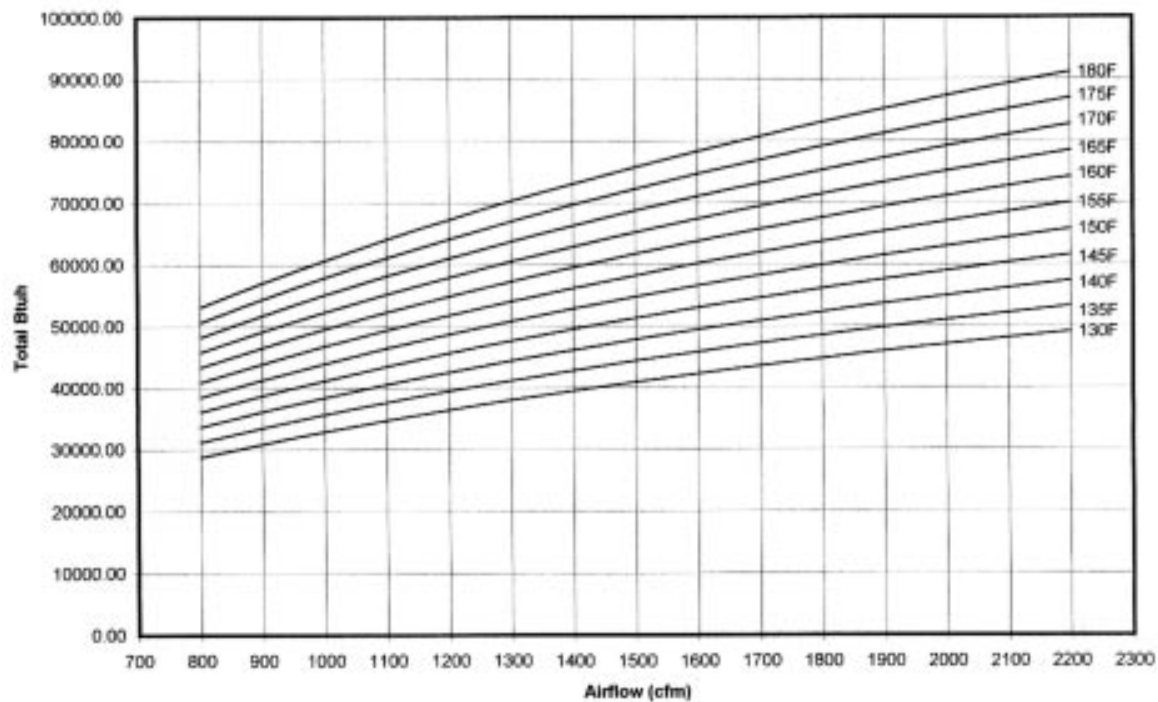


Figure 2C continued

4gpm Chart (Large Boiler Coil) AH80BWH



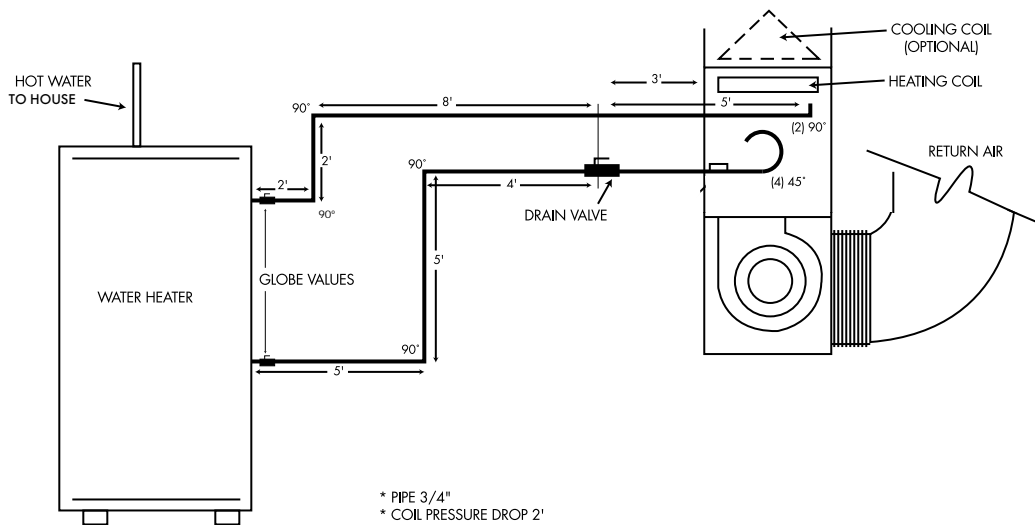
5gpm Chart (Large Boiler Coil) AH80BWH



## Step #2

Now that the model 60 was selected at 5gpm, you must confirm the piping between the water heater and the Air Handler can handle that amount of water. The second step is to calculate the total pressure drop through the piping, by laying it out on paper, Fig. 3. Each fitting and piece of pipe has an "equivalent length" of pressure drop, which can be calculated using the charts, Fig. 4.

Figure 3  
Water Heater-Furnace Piping Diagram



Note: Only the piping between the Air Handler and the water heater need be calculated. In above example there is:

34'	(3/4") Pipe	x 1.0 = 34'
6	90° Elbows (3/4")	x 2.3 = 13.8
4	45° Elbows (3/4" )	x 1.0 = 4.0
2	Globe Valves (3/4")	x 23 = 46
1	Heating Coil	x 2.0 = 2.0
1	Drain Valve	x 0.46 = 0.46

---

100.26 Total Equivalent Length.

Figure 4  
Equivalent Length Chart

Fitting or Valve	Copper Tube	
	1/2"	3/4 "
90 degree elbow	1.6	2.3
45 degree elbow	.8	1.0
Tee (straight run)	1.1	1.5
Tee (side port)	4	5
Reducer coupling	.9	1.4
Gate valve	.33	.46
Globe valve	18	23
Angle valve	9	12
Ball valve	.2	.3

Note: If the total equivalent length is less than 200ft go to step #4

### Step #3

- a) Having calculated the total equivalent feet, determine the head loss per 100 feet of tubing from the head loss chart, Fig. 5.

Figure 5  
Head Loss (per 100') Chart

Flow (U.S. GPM)	Head Loss	
	1/2"	3/4"
1.0	2.87	.056
2.0	9.52	1.84
3.0	19.34	3.73
4.0	32.09	6.16
5.0	47.61	9.12
6.0	65.79	12.57

- b) Next calculate the total head pressure using the following formula:

EXAMPLE:

$$\frac{\text{Equivalent Feet}}{100} \times \text{Head Loss} = \text{Total Head Pressure}$$

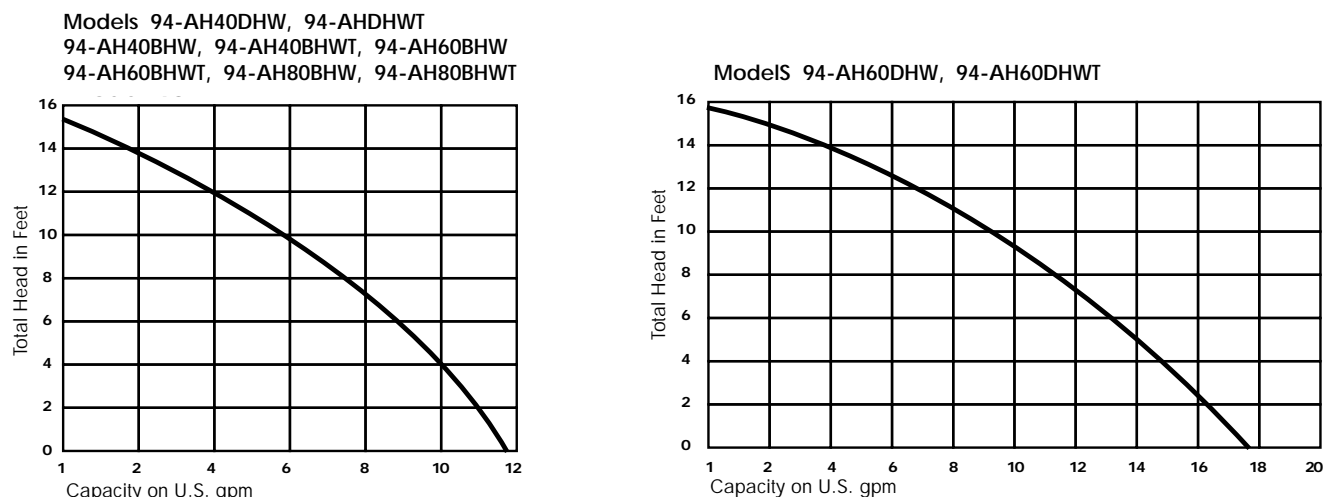
EXAMPLE:

$$\frac{100.26}{100} \times 9.12 = 9.14 \text{ feet of pressure}$$

- c) The next step in determining that the selected model will deliver the required water flow rate, is to refer to the following Pump Flow Rate Chart.



Figure 6



According to the chart Fig. 6, the pump used in the Air Handler is able to provide up to 10gpm of water, at 9ft of head. Since in this example we require 5gpm, the pump will easily deliver enough water for the piping system design in Fig. 3.

If the designer chooses to reduce the water flow to get close to the 5gpm, then a flow control valve can be installed in the field, and adjusted to the desired setting.

## Step #4

### Selecting Hot Water Heater

There are two steps in selecting a water heater.

- The first step is to determine the BTU input required to get the needed BTU output. When sizing a hot water tank, it must not only exceed the design heat loss of the home, it must also provide enough hot water for normal daily use. A rule of thumb is to add a minimum of 20% to the heat loss calculation, when sizing the tank for both loads.

### EXAMPLE:

$$\begin{aligned}
 \text{Design heat loss} &= 54,000\text{BTU} \\
 &\times 1.2 \text{ (20\% added for domestic hot water use)} \\
 &64,800\text{BTU (Minimum output required by tank)}
 \end{aligned}$$

The hot water tank, which is normally gas or oil fired, (electric tanks are not recommended due to their slow recovery time) should be of the energy efficient type (recovery efficiency 75% and up), as referenced by ASHRAE 90A - 1980. Water heaters must be approved for potable water and for space heating. The Gama directory (607) 758-6331 lists such units under "Combination water heater/space heaters," in its "Consumers Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment".

## EXAMPLE:

$$\begin{aligned}
 \text{Water heater input} &= 80,000\text{BTU} \\
 &\times .82 \text{ (recovery efficiency)} \\
 &65,600\text{BTU (output)}
 \end{aligned}$$

Once the BTU output (input X recovery efficiency) is determined, the size of the hot water tank can be estimated. The normal tank size used in conjunction with the Air Handler excluding heating requirements can be estimated using the following guideline forms.

- b) The second step is to determine the ability of the water heater to satisfy the domestic hot water requirements.

The first hour rating (from the GAMA directory) must be equal to or greater than the first hour demand.

Figure 7  
Hot Water Usage Calculation Guide (Litres)

	A			B		C
Activity	Avg. Hot Water per Usage (litres)			Times used in Peak Hour		Litres Used in Peak Hour
	Hi-flow (old)	Low-flow (new)				
Shower ~5 min	54	15	x		=	
~10 min	110	27	x		=	
~15 min	160	40	x		=	
Reg. Bath ~1/2 full	76		x		=	
Whirlpool ~Sm.	*		x		=	
~Med.	*		x		=	
~Lge.	*		x		=	
Personal Use	10		x		=	
Shampooing Hair	15		x		=	
Clothes Washing ~Hot/Warm	121		x		=	
~Warm/Warm	90		x		=	
~Warm/Cold	60		x		=	
~Cold/Cold	Nil		x		=	
Hand Dishwashing	15		x		=	
Automatic Dishwasher	53		x		=	
Food Preparation	19		x		=	
				Total	=	

**Figure 7**  
**Hot Water Usage Calculation Guide (U.S. Gallons)**

	A			B		C
Activity	Avg. Hot Water per Usage (gallons)			Times used in Peak Hour		Gallons Used in Peak Hour
	Hi-flow (old)	Low-flow (new)				
Shower~5 min	11.88	3.3	X		=	
~10 min	24.2	5.9	X		=	
~15 min	35.2	8.8	X		=	
Reg, Bath~1/2 full	16.7		X		=	
Whirlpool~Sm.	*		X		=	
~Med.	*		X		=	
~Lge.	*		X		=	
Personal Use	2.2		X		=	
Shampooing Hair	3.3		X		=	
Clothes Washing						
~Hot/Warm	26.62		X		=	
~Warm/Warm	19.8		X		=	
~Warm/Cold	13.2		X		=	
~Cold/Cold	Nil		X		=	
Hand Dishwashing	3.3		X		=	
Automatic Dishwasher	11.7		X		=	
Food Preparation	4.18		X		=	
				Total	=	

*Note: Not all water heaters are certified for both potable water and for use as a heating system (combo system use.) Consult manufactures of these appliances for details.*

When sizing a hot water heater for both potable water and heat for the space, special care and attention must be given to ensure the water temperature does not exceed 130°F (54°C).

*NOTE: Temperatures greater than 130°F (54°C), pose a serious risk of scalding individuals running domestic hot water for potable use.*

If a water heater is designed to run at a higher temperature, higher than 130°F (54°C) then an Anti-Scald Valve must be installed. The reliability of this type of valve is the responsibility of the installing contractor, and the manufacturer of that device.

# Installation

The purpose of this manual is to give the contractor guidelines for installing the Lifebreath Air Handler. All national and local codes relating to this type of equipment must be followed.

## Locating The Unit

The Air Handler is designed to be installed vertically, in a conditioned space, where the surrounding temperature does not fall below 50°F (10°C). Attic installations are not recommended. Typically the unit is installed in a mechanical area of the basement, or other partitioned mechanical room, elsewhere in the home.

Sufficient clearance around the unit is required for service of the filter and components. As a rule this unit should be installed adjacent to the hot water heater. If this is not possible, or if the piping layout is complex, the total head pressure on the pump should be calculated. (See Step 3 under "Equipment Sizing".)

## Duct Connections

To accommodate various installations, the Air Handler has knockouts for the return air plenum on both sides of the cabinet. Special care and attention should be given to determining which knock-outs are to be removed.

Penetrations from sheet metal screws used to fasten the ductwork to the cabinet of the unit should only be placed into the duct flange provided. This is to avoid contact and damage of the heating/air conditioning coils and internal wiring.

## Ducting

The duct sizing for the furnace section can be determined using HRAI Residential Air System Design Manual, SMACNA, or any other industry-recognized manuals.

*Note: "Combo units" normally deliver air at approximately 110°F (43°C), and therefore may require larger than normal ductwork. When installing the Air Handler as a replacement unit on a retrofit application, always calculate the size of duct that is there.*

Any ductwork running through unconditioned space must be sealed properly and insulated to prevent heat loss. All local codes must be followed in determining the amount of insulation needed.

## Piping

The hot water piping between the hot water tank/boiler and the Air Handler should be new copper type, and should not be treated with chemicals, sealant or anything else, that will interfere with the purity of the potable water. Only non-lead, low temperature solder is permitted for sealing copper joints. The copper soldered pipe size for each model is:

Model	AH40DHW	1/2" nominal
	AH60DHW	3/4" nominal
	AH40BHW	1/2" nominal
	AH60BHW	1/2" nominal
	AH80BHW	1/2" nominal

Where possible the length of pipe should not exceed 200' total equivalent length. Any piping running through unconditioned space must be insulated to prevent heat loss, and possible freezing of the line.

Stickers indicating direction of flow, (Supply to furnace, and Return to water heater) are labeled on the outside of the cabinet. Do not reverse these lines, as this will cause the unit to malfunction.

For piping to water heaters or boilers, (Fig. 11) connections to and from the Air Handler to the heater should be made at the point where the pipes leave the heater vertically. A "T" fitting used in each vertical line, with the Air Handler piping connected to the horizontal side of this fitting, will work best in avoiding air locks in the circulation pump of the furnace.

See installation diagrams, Fig. 11-14, for this and other approved piping arrangements.

*\*Note: remove all shipping packaging and discard.*

Figure 11  
Conventional Piping Diagram - Horizontal Hot to House

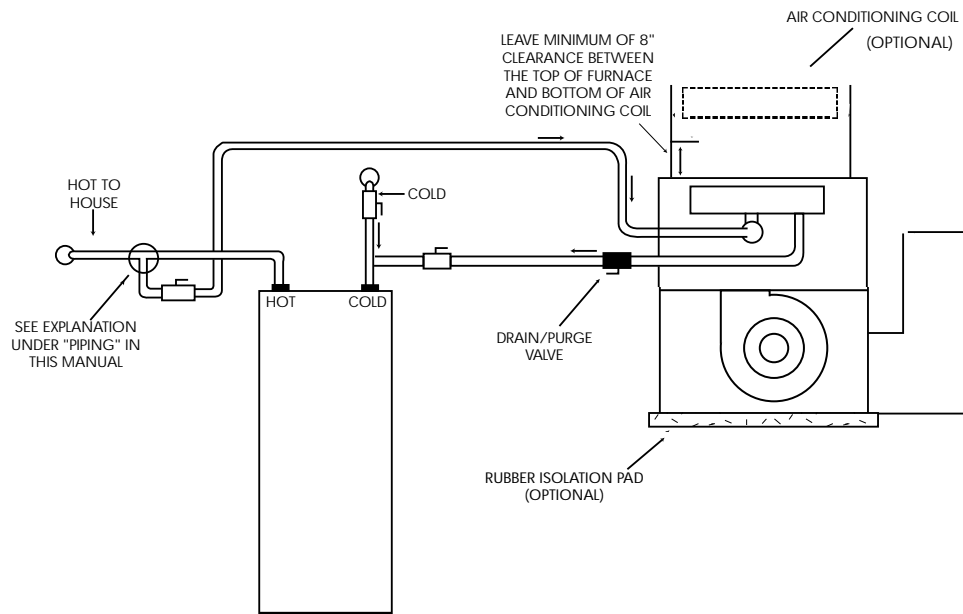


Figure 12  
Conventional Piping Diagram - Vertical Hot to House

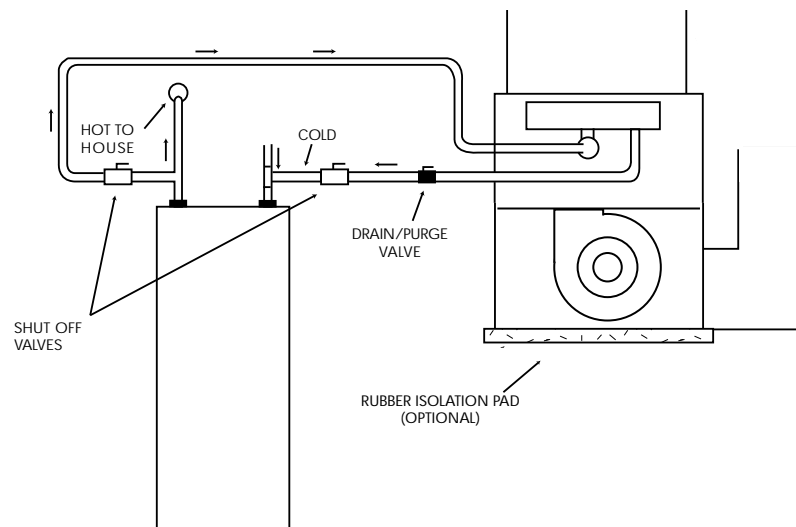


Figure 13  
Sidetap Piping Diagram

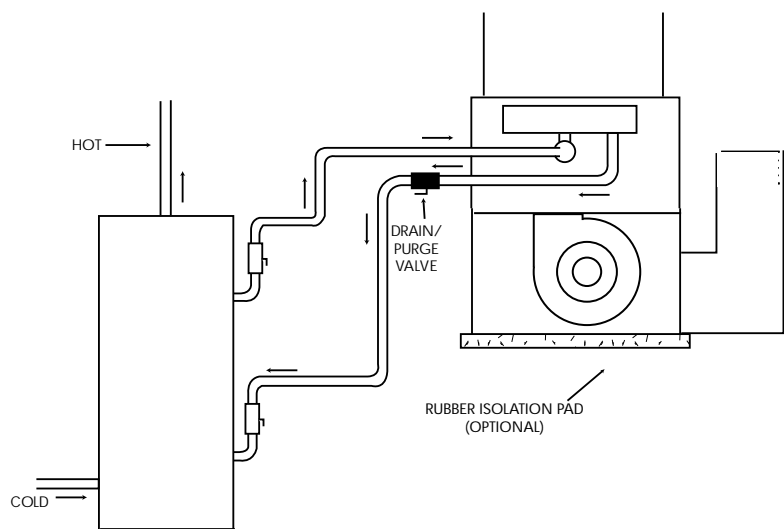
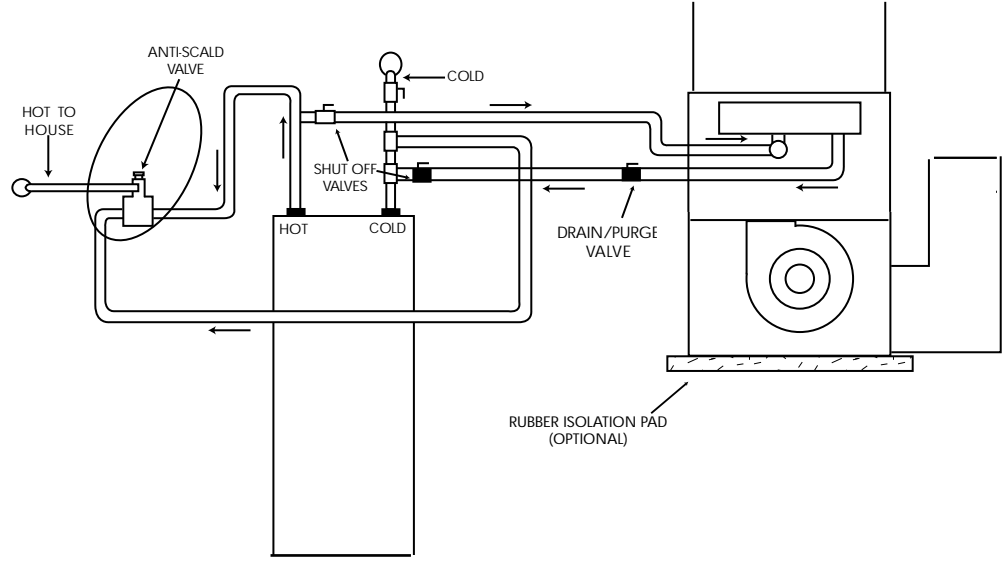


Figure 14  
Piping Diagram with Anti-Scald Valve



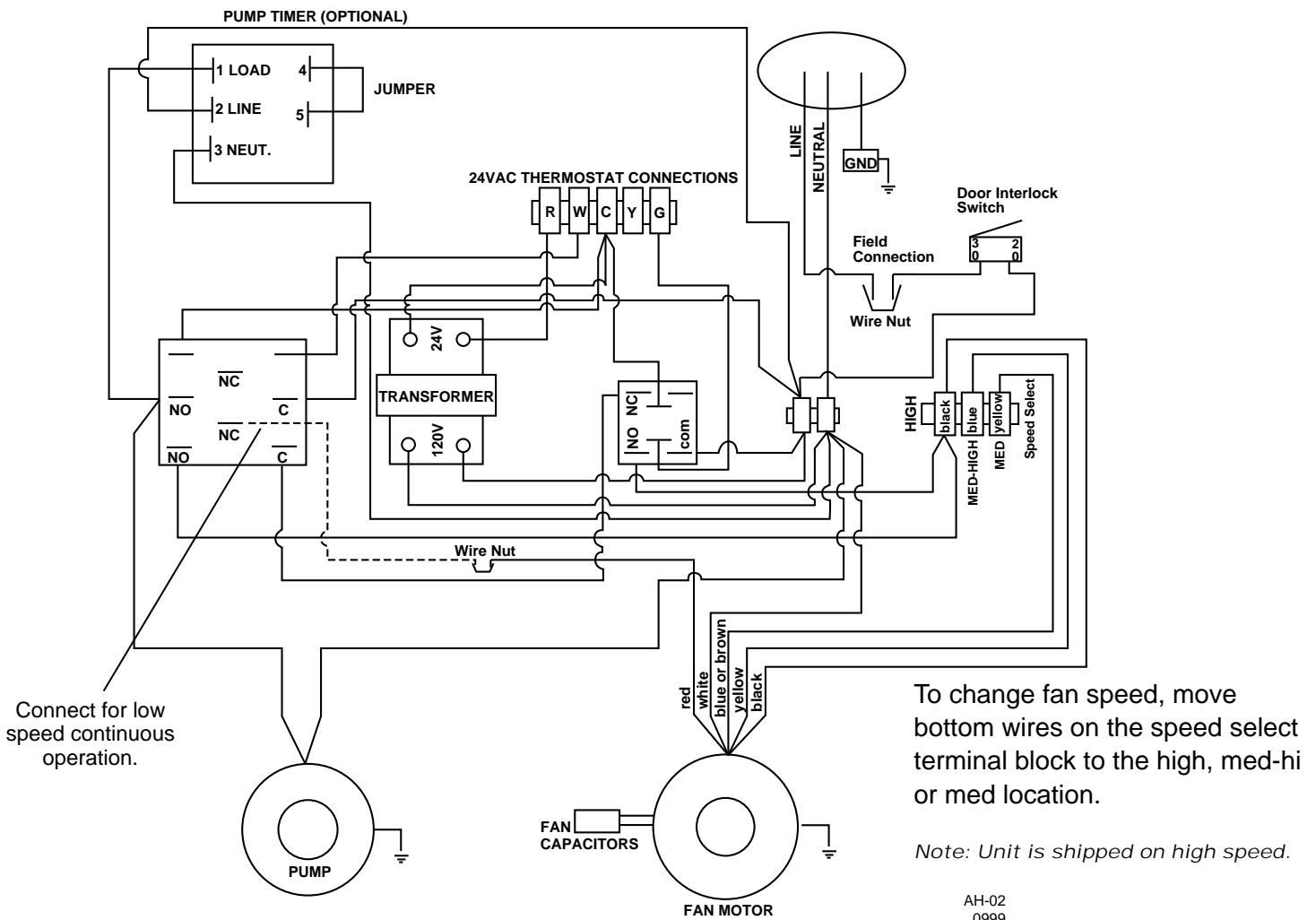
## Electrical

The Air Handler operates at 120V, singles phase and draws anywhere from 2-10.3 amps, depending on fan speed.

The low voltage thermostat (not provided) connects to the R & W terminals for heating and the R & Y & C terminals when calling for cooling. Caution should be used if installing a setback thermostat to control the system. If the thermostat is set back too far, and, for example, is set to call for a lot of heat when you get out of bed, at which time showering and general water use is at its peak, then the hot water heater/boiler may not keep up.

Figure 18  
Air Handler - Wiring Diagram

R - W = Heat  
R - G = Fan Only (optional dehumidistat)  
G - R - Y - C = A/C





# Start-Up Procedure

In order for any appliance to work properly it must be set up and tested by a trained technician.

The following conditions must be met prior to start-up

1. Ensure that connecting water lines are purged and free of debris.  
Caution: solder or other debris may cause the furnace pump or check valve to malfunction.
2. Blower wheel rotates freely inside its housing.
3. Wiring connections are tight.
4. All duct and pipe connections are sealed.
5. Check that all packaging is removed.
6. Front access door is on tight.
7. Fan speed selection:
  - a) Heating/Cooling - factory setting is at high speed and can be changed in the electrical box to medium-high or medium if required.

Once all of the necessary connections have been made, the Air Handler Start-Up Procedure is as follows:

1. Close shut-off valves separating the Air Handler from the water heater/boiler.
2. Set up water heater/boiler according to manufacturer's instructions.
3. Purge air from unit. To do so, open the supply shut-off valve to the furnace. Attach a garden hose to drain valve, and drain water until you get a continuous flow. Close the drain valve and purge the pump. To purge the air from the pump, turn the large screw on the face of the pump counterclockwise until water leaks out, then tighten. Open the supply shut-off valve.
4. Turn on power supply to Air Handler. Caution: blower may start to operate.
5. Switch the room thermostat to heat. The thermostat should be set higher than the current room temperature in order to energize the pump and commence the heating cycle. (If the pump does not start, or the Air Handler is not producing heat, refer to the Troubleshooting Section on page 25).
6. Set room thermostat at desired temperature setting.

# Operation

## Heating/Cooling

When the room thermostat calls for heat from the water heater, it activates a circulation pump located inside the Air Handler. This pump delivers hot water through the furnace coil and back to the water tank/boiler. Simultaneously, the furnace blower switches on to high speed and will start circulating air across the coil, which picks up heat and delivers it to the rest of your home.

Once the thermostat's temperature is reached the pump will shut off, and the blower will return to its pre-set speed or off.

*Note: When the furnace blower is left running on low speed the air in the home circulates continuously. When the heat is called for the blower will automatically switch to a higher speed. After the required hot air has been delivered the blower will switch back to low speed.*

When the thermostat calls for cooling (optional A coil and condensing unit required) the furnace blower activates to high speed and the outdoor condenser unit is energized. After the thermostat temperature is reached the condensing unit will shut off, and the blower will return to its continuous setting. Continuous low speed can be selected by a qualified electrician.

## Optional Circulation Timer Models

Some models are equipped with a circulation timer. It is normal operation for these models to automatically run the circulation pump for a short period of time intermittently.

## Continuous Low Speed Hook Up

Continuous low speed can be selected by connecting the red wire from the blower motor to the N/C contact on the relay as indicated in figure 18.

# Troubleshooting

## Lack of heat

1. Check that the room thermostat is set to the desired temperature.
2. Confirm the units have power and the shut-off valves are open.
3. Ensure there is power to the unit and that the pump is working. If the pump is not working properly it may be stuck. Disconnect power and remove screw in center face of the pump. Using a screwdriver, turn the pump shaft several times to free it from sticking. Replace center-screw and re-connect power. If pump still fails to start, it may require replacement.
4. Confirm that the hot water heater/boiler is working and that hot water is entering the Air Handler.
5. Verify that the airflow in and out of the system matches designed specs. If airflow is low, check for blockage in the filter or some other obstruction.
6. Make sure your water heater/boiler is sized large enough for heat load of house and for domestic hot water use.
7. Air may still be in the water lines. If so, re-purge the system according to the start up procedure.
8. Confirm that the inlet and outlet pipe connections are not reversed.
9. Ensure that there are no other restrictions in the water lines, such as faulty valves, or debris.

## Pump is noisy

Pumps can become noisy when air remaining in the lines interfere with their operation. If this occurs re-purge the system as indicated in the Start-Up Procedure.

## During cooling cycle, hot water circulates through the coil

If the check valve inside the cabinet is stuck in the open position, hot water may infiltrate the heating coil. This occurs when the hot pipes are not capped-off during installation or service and foreign debris enters the piping. This debris can settle under the check valve seat and permit hot water to flow into the coil. The problem can be corrected by repeatedly flushing the heating loop until it is clean.

**New  
Lifebreath  
Air Cleaner  
provides  
continuous  
protection  
from airbourne  
pollutants**



*Cleans all  
the air in an average  
house at least 9 times per day.  
Now available in a portable  
model.*

Nutech is also the originator of a revolutionary new whole-house air cleaner — The Lifebreath Turbulent Flow Precipitator (TFP). This remarkable air cleaner:

1. Removes health-threatening particles from the air far more effectively than other residential air cleaners.
2. Unlike electronic air cleaners, Lifebreath does not generate any poisonous ozone which can attack your lungs.
3. Cleans the air throughout your home, benefitting all the family, all the time.
4. Operates continuously at maximum efficiency, without need for constant adjustment or clean out.
5. Allows air to circulate freely without putting any extra load on your air distribution system.

***NUTECH***  
**ENERGY SYSTEMS INC.**

511 McCormick Blvd. • London ON. N5W 4C8  
Tel: 519-457-1904 • Fax: 519-457-1676

270 Regency Ridge, Suite 210 • Dayton, OH 45459  
Tel: 937-439-6676 • Fax: 937-439-6685

Email: [nutech@lifebreath.com](mailto:nutech@lifebreath.com) • Website: [www.lifebreath.com](http://www.lifebreath.com)