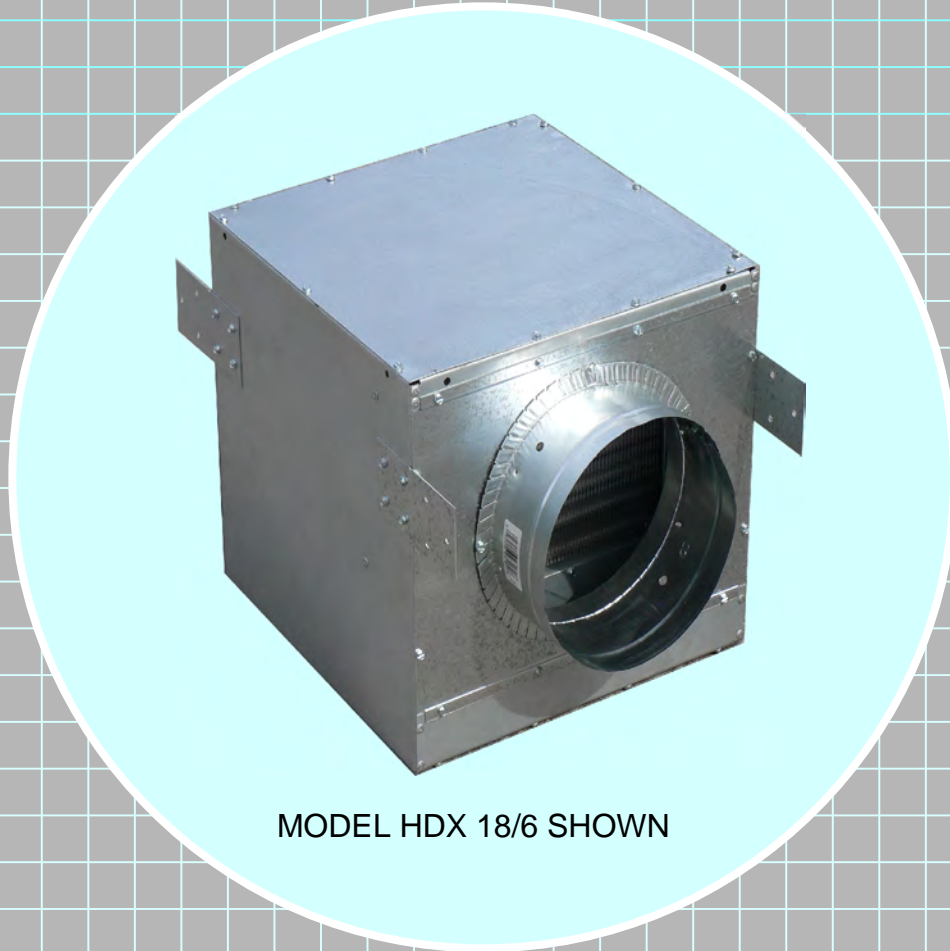


TURBONICS, INC.

MANUFACTURER OF HYDRONIC FAN COILS

HYDRO-DUCT™ HYDRONIC FAN COILS



MODEL HDX 18/6 SHOWN

INSTALLATION & APPLICATION MANUAL

HYDRO-DUCT™ 5K and 10K Hydronic Fan Coils
Model HDX 18/6 H, HDX 18/6 HC, HDX 36/12 H, HDX 36/12 HC
ALL UNITS COME HEAT/COOL READY



HYDRO-DUCT™ SERIES HYDRONIC FAN COILS ARE CSA LISTED
IN ACCORDANCE WITH CURRENT US & CANADIAN STANDARDS
ASSEMBLED IN THE USA TO ORDER FOR COMPETITIVE DELIVERY.

INTRODUCING HYDRO-DUCT™, ANOTHER BRILLIANT INNOVATION FROM TURBONICS, INC. A LEADING MANUFACTURER OF HYDRONIC FAN COILS.

1. Coils are constructed of 1/2" copper tube-aluminum fin material.
2. Sloped, easy to clean, full bottom, insulated, plastic drain pan with with easy service removal.
3. Flexible Stainless Steel connectors with unions and ball valves for easy connection (optional).
4. Cabinets are fabricated out of heavy gauge galvanized steel, and insulated for cooling ready operation.
5. Closed-cell insulation absorbs operating sound and eliminates fiberglass from air stream.
6. Construction ensures vibration-free operation at all fan speeds. Uses 4-pole shaded motor.
7. Installs with virtually any type of alternative energy system including solar, geothermal & bio-fuels.
8. Connects to standard or custom ducting systems using flexible ducts.
9. Can be combined with other hydronic systems including radiant floor, baseboard and wall radiators.
10. Factory supplied air filters are easy to inspect and replace.

HYDRO-DUCT™ FAN COILS, BASED ON CAPACITY ARE THE MOST COMPACT HYDRONIC AIR HANDLERS IN THE BUSINESS. THEY CAN BE USED WITH HEATED OR CHILLED FLUID AND ARE EXTREMELY VERSITIAL. THEY CAN BE CONNECTED TO MULTIPLE KINDS OF DUCTING. SQUARE, ROUND OR EVEN 4" FLEXIBLE DUCTING.



HYDRO-DUCT™

HDX 18/6 H, HDX 18/6 HC, HDX 36/12 H, HDX 36/12 HC

Product Description HDX - 18/6 - H-C

SERIES MODEL

HDX HYDRO-DUCT™

NOMINAL CAPACITY

18/6 NOMINAL 5000 BTU

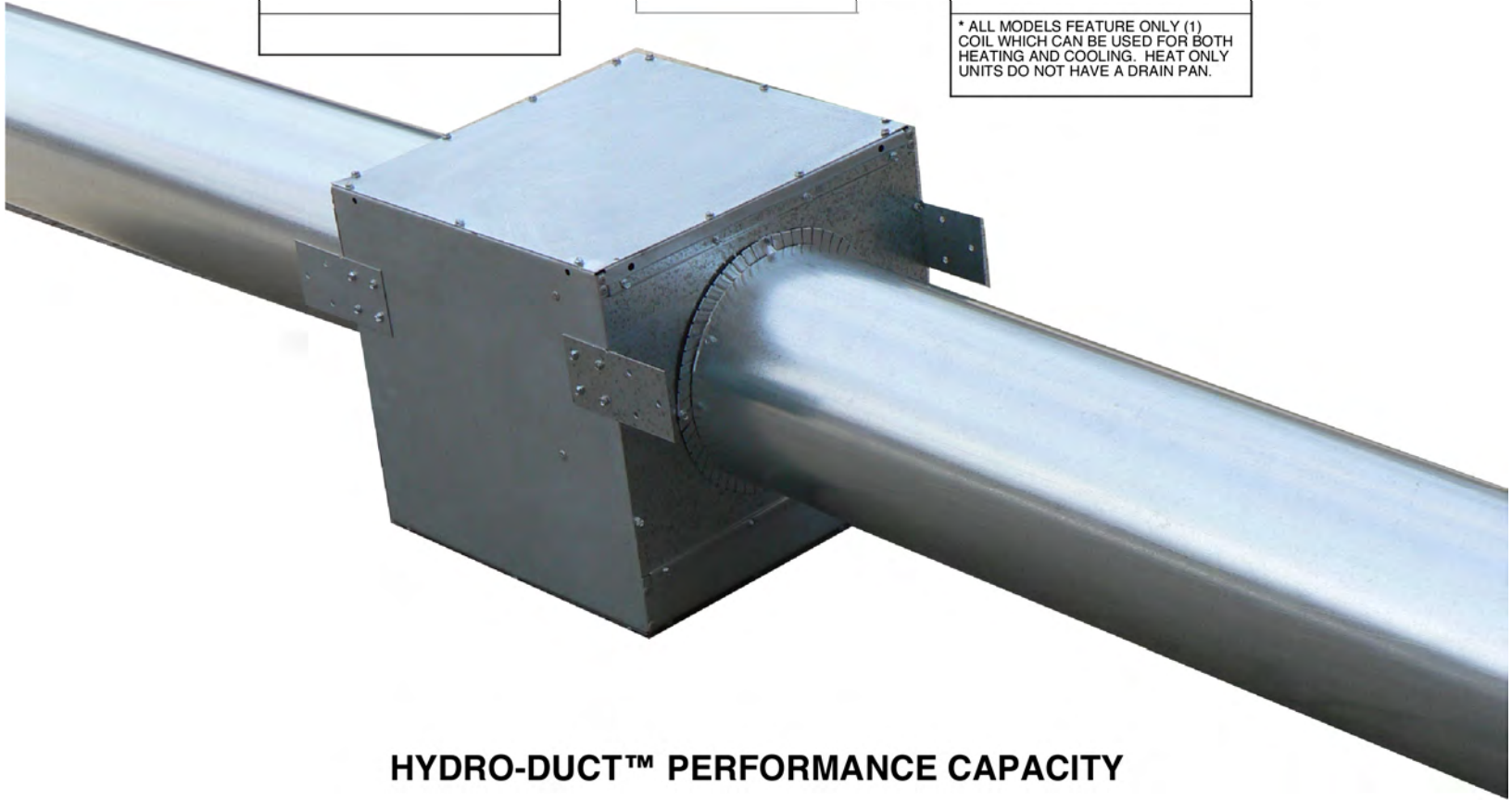
36/12 NOMINAL 10000 BTU

UNIT TYPE

H - HEATING ONLY

HC - HEATING/COOLING

* ALL MODELS FEATURE ONLY (1) COIL WHICH CAN BE USED FOR BOTH HEATING AND COOLING. HEAT ONLY UNITS DO NOT HAVE A DRAIN PAN.



HYDRO-DUCT™ PERFORMANCE CAPACITY

*Ratings and Motor Data		Pressure Drop - Ft. Wtr			Heating Output Ratings**			Cooling Output Ratings**		
Model #	Fan Spd/Amps	CFM	2 GPM	3 GPM	120 Deg	160 Deg	200 Deg	45 Deg	42 Deg	40 Deg
HDX 18/6 H	Lo .5 Amp	120	.9'	2.4'	4800	8200	12000	3600	4200	4500
HDX 18/6 HC	Med .65 Amp	170	.9'	2.4'	6000	10900	15000	4200	4800	5100
	Hi 1.0 Amp	230	.9'	2.4'	7200	12900	18100	5000	5700	6000
HDX 36/12 H	Lo 1.0 Amp	240	1.5'	3.7'	9600	16400	24000	7200	8400	9600
HDX 36/12 HC	Med 1.35 Amp	350	1.5'	3.7'	12000	21800	30000	8400	9600	10400
	Hi 2.0 Amp	460	1.5'	3.7'	14400	25800	36000	10000	11200	12000

* Heat Ratings based on 2GPM and 65°F Entering Air

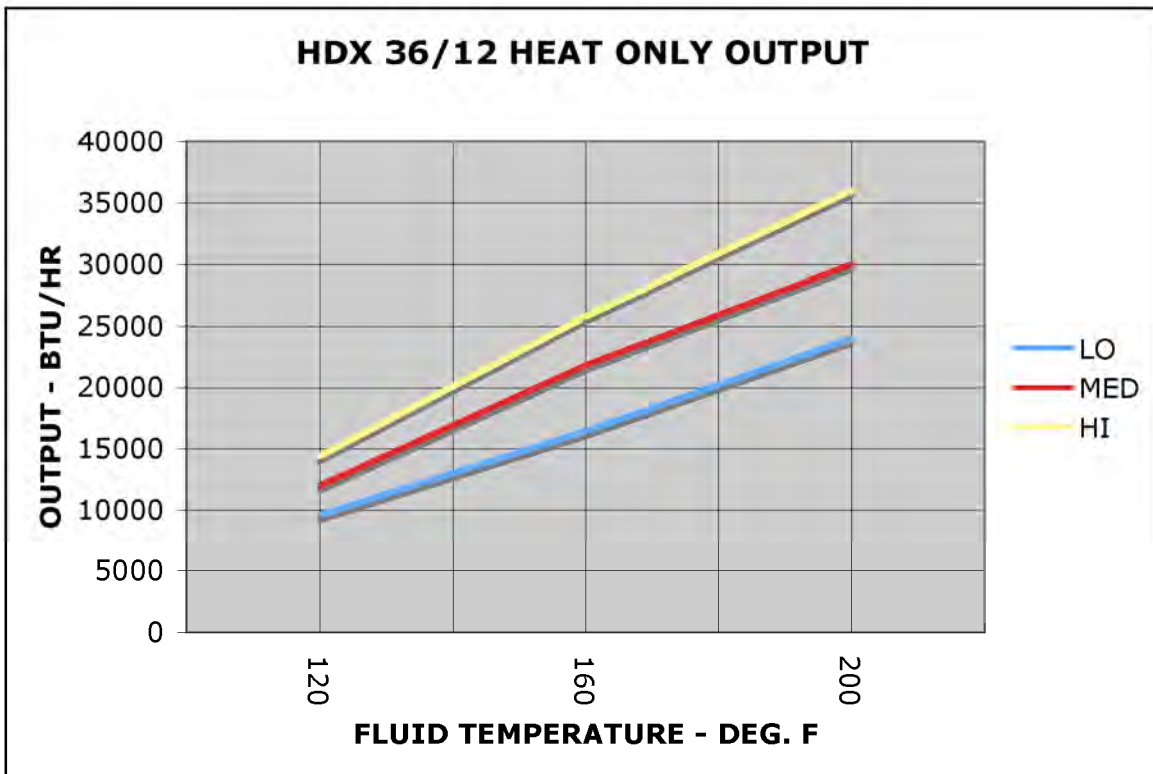
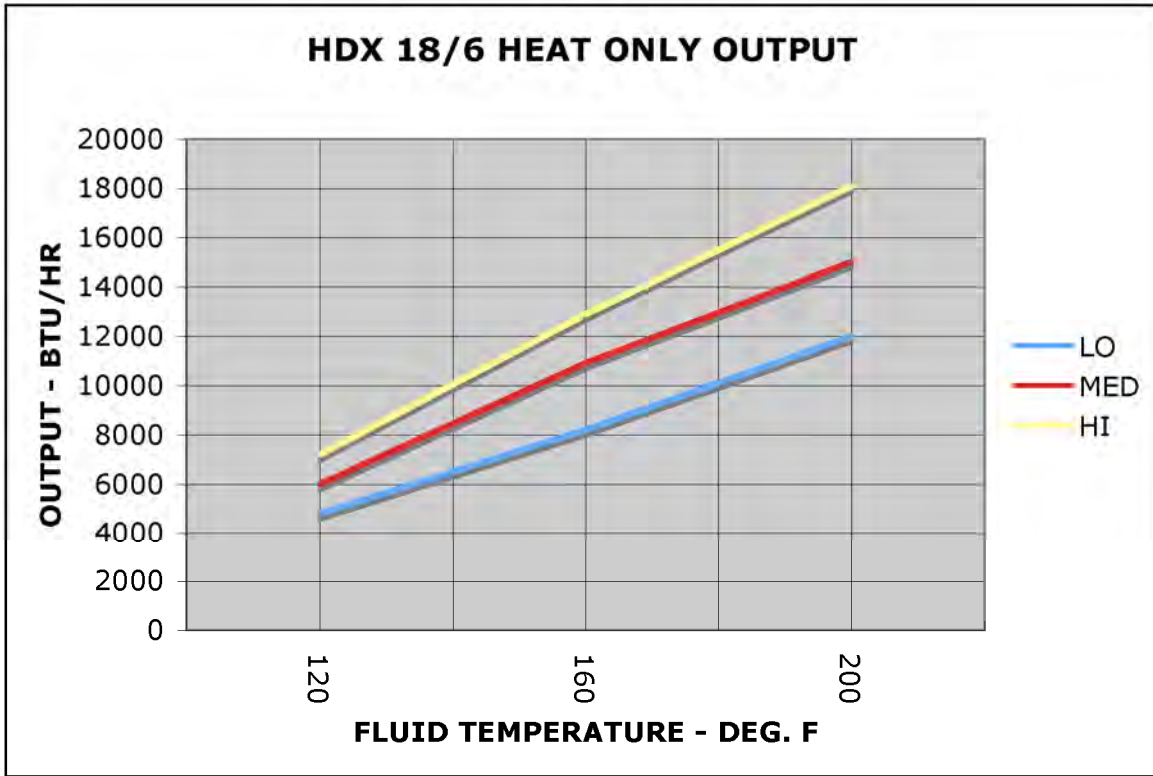
* Cool Ratings based on 3GPM and 80/67°F Entering Air

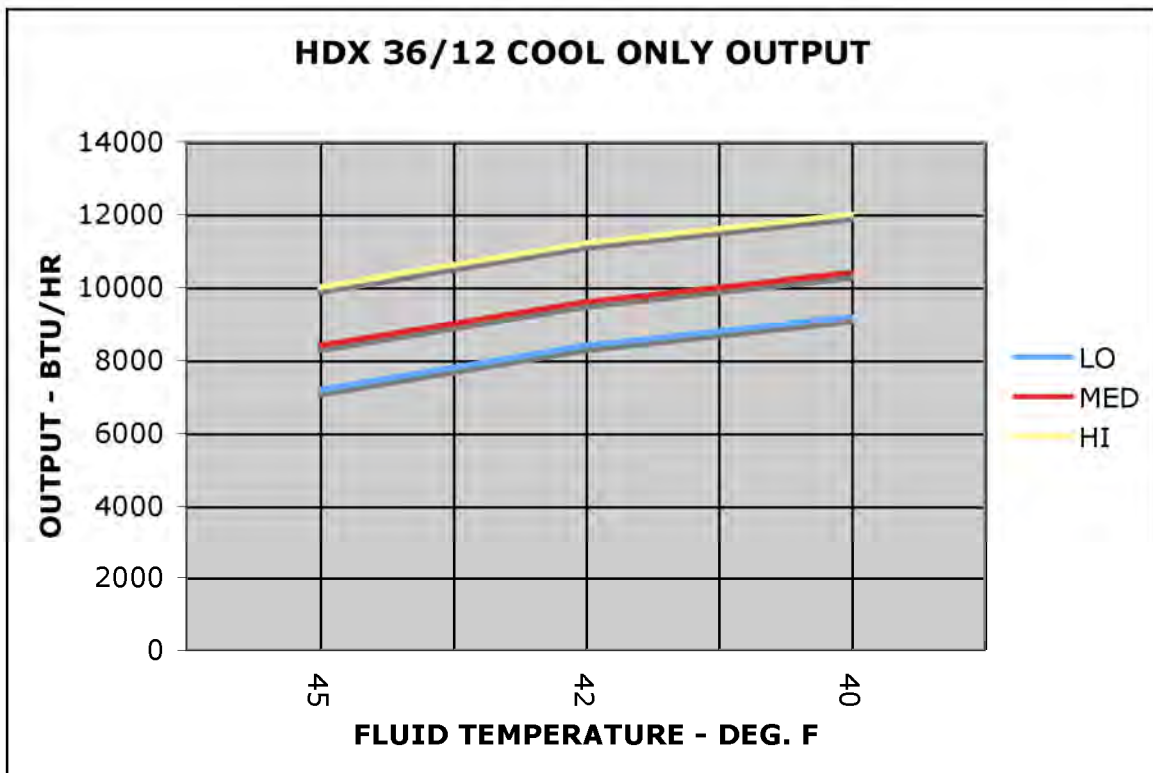
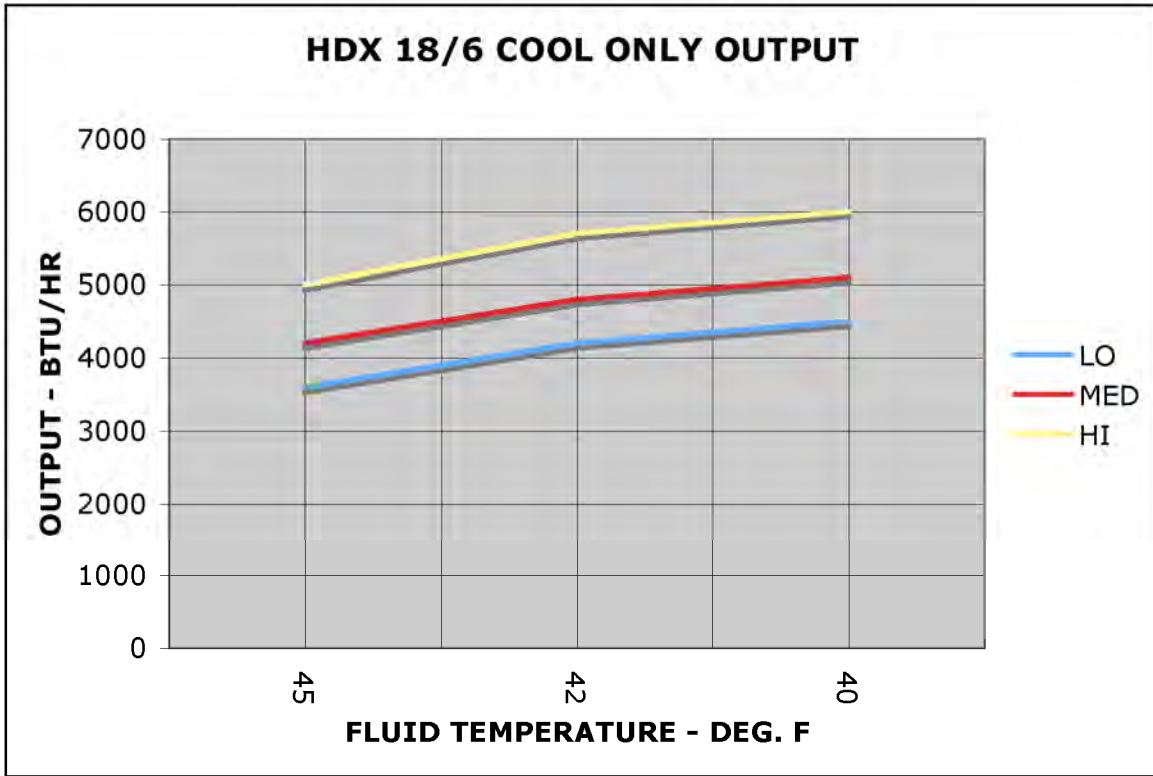
Duct Runs of over 20ft will cause reduction in performance

**System should be designed on Medium Speed as outputs on Hi Speed may be associated with fan noise

**40% Glycol reduces output by as much as 15%

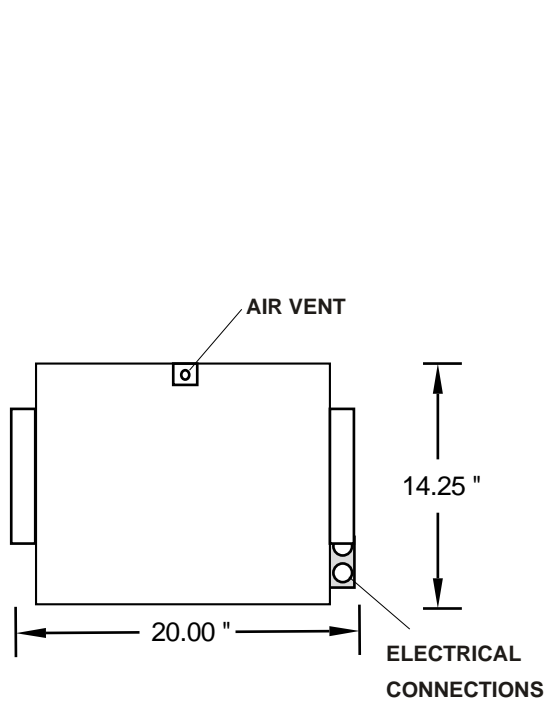
Filter in place Pressure Drop readings + or - 5%		
Pressure Drop - Inch WC	HDX 18/6	HDX 36/12
.00" WC	300 cfm	600 cfm
.02" WC	280 cfm	560 cfm
.06" WC	260 cfm	520 cfm
.10" WC	220 cfm	440 cfm
.14" WC	200 cfm	400 cfm
.18" WC	160 cfm	320 cfm
.22" WC	80 cfm	160 cfm
.28" WC	shut down	shut down



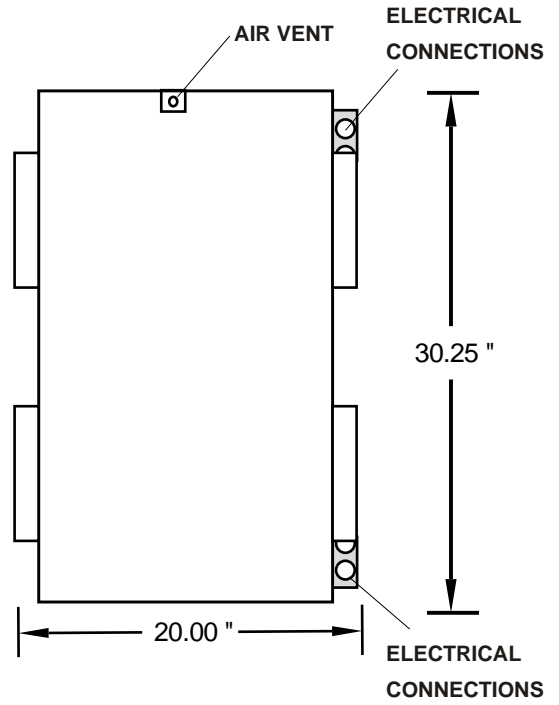


HYDRO-DUCT™

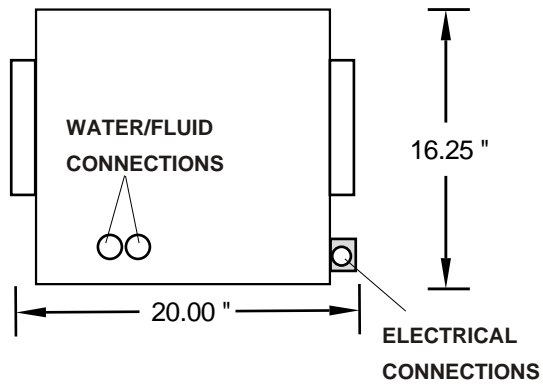
DIMENSIONAL DATA



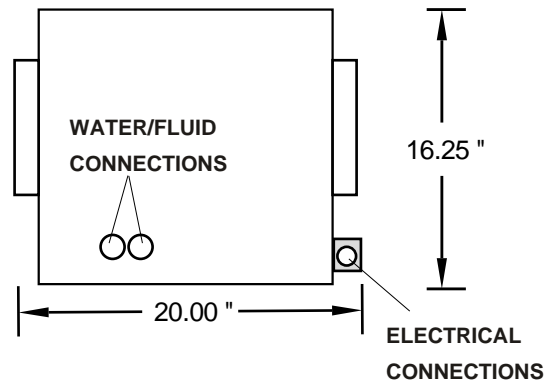
TOP VIEW
HDX 18/6 H & HC



TOP VIEW
HDX 36/12 H & HC



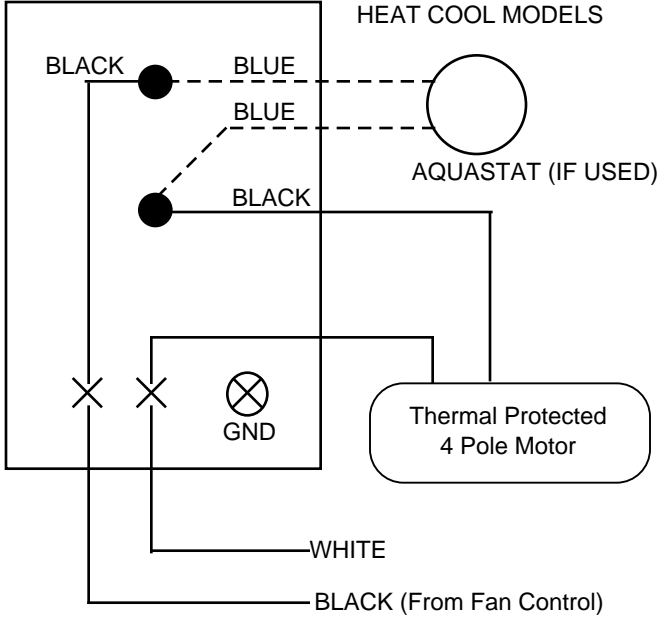
SIDE VIEW
HDX 18/6 H & HC



SIDE VIEW
HDX 36/12 H & HC

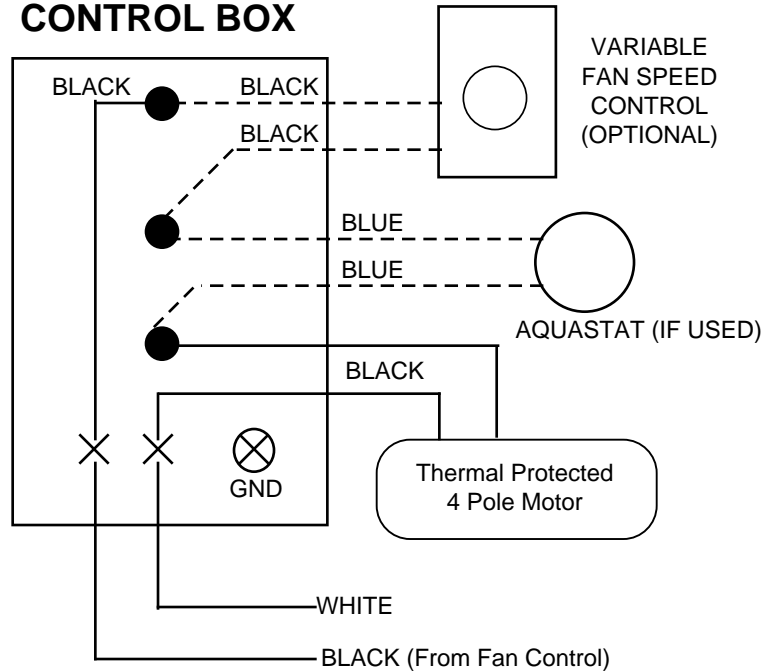
CONTROL BOX

NOTE: DO NOT USE
AQUASTAT WITH
HEAT COOL MODELS



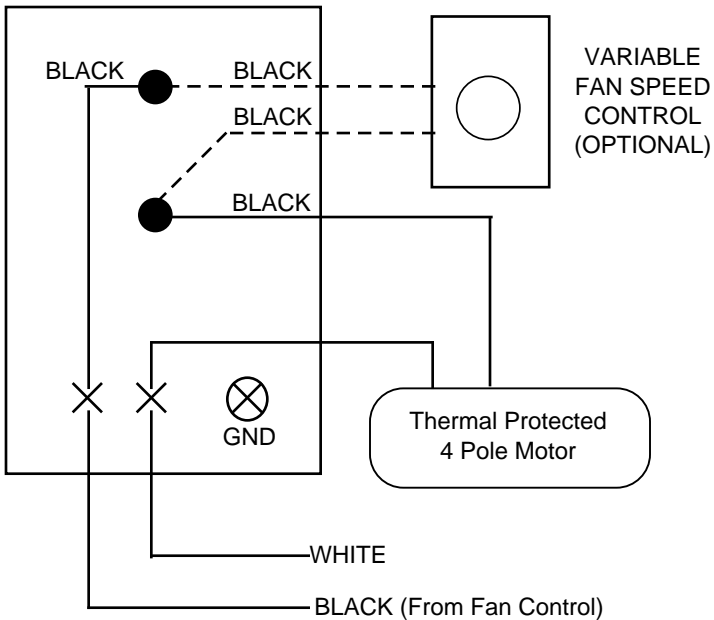
HDX 18/6 H AND HDX 36/12 H WITH OPTIONAL AQUASTAT

CONTROL BOX



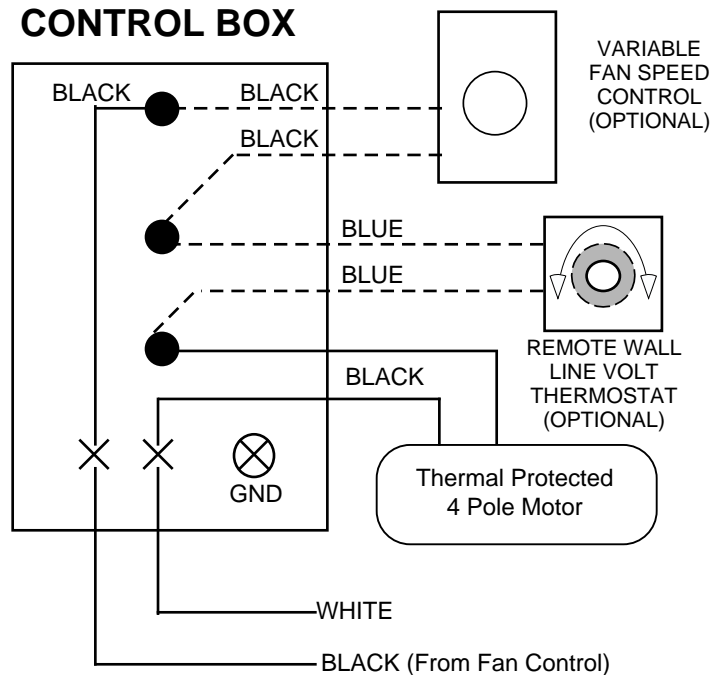
HDX 18/6 H AND HDX 36/12 H WITH OPTIONAL AQUASTAT
AND VARIABLE SPEED FAN CONTROL (HEATING MODELS ONLY)

CONTROL BOX

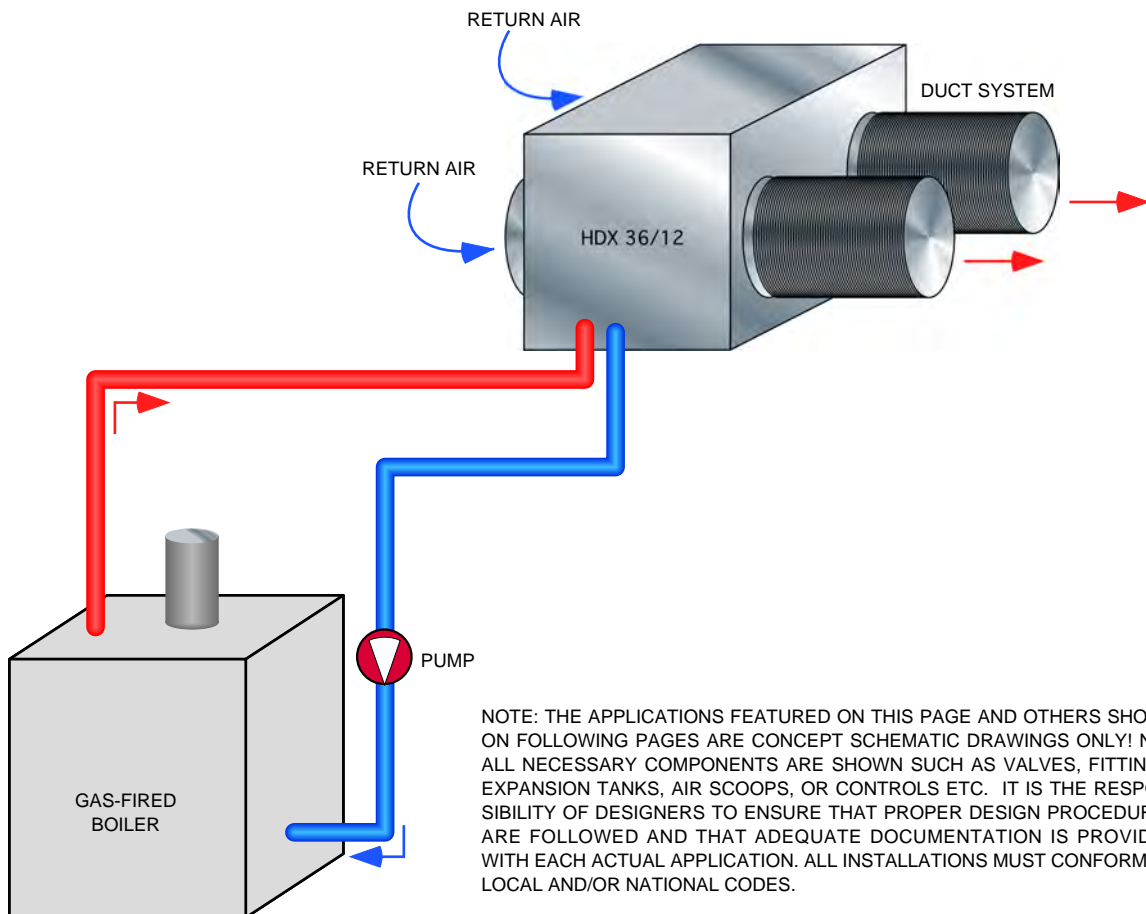
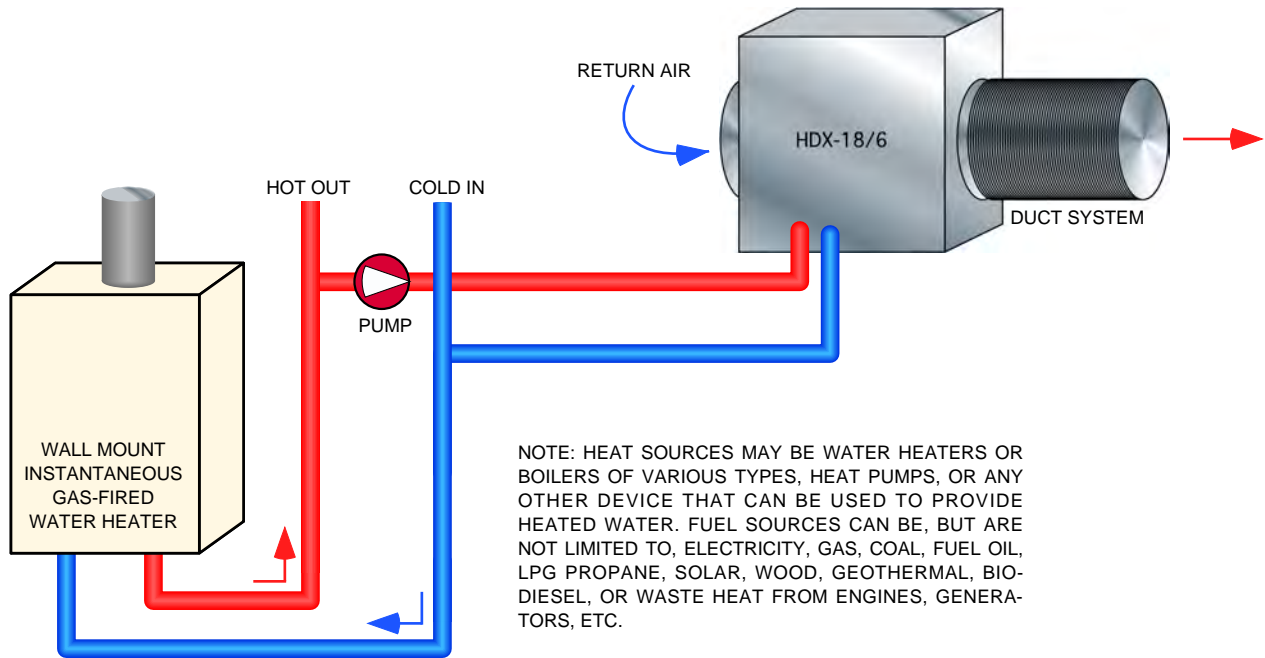


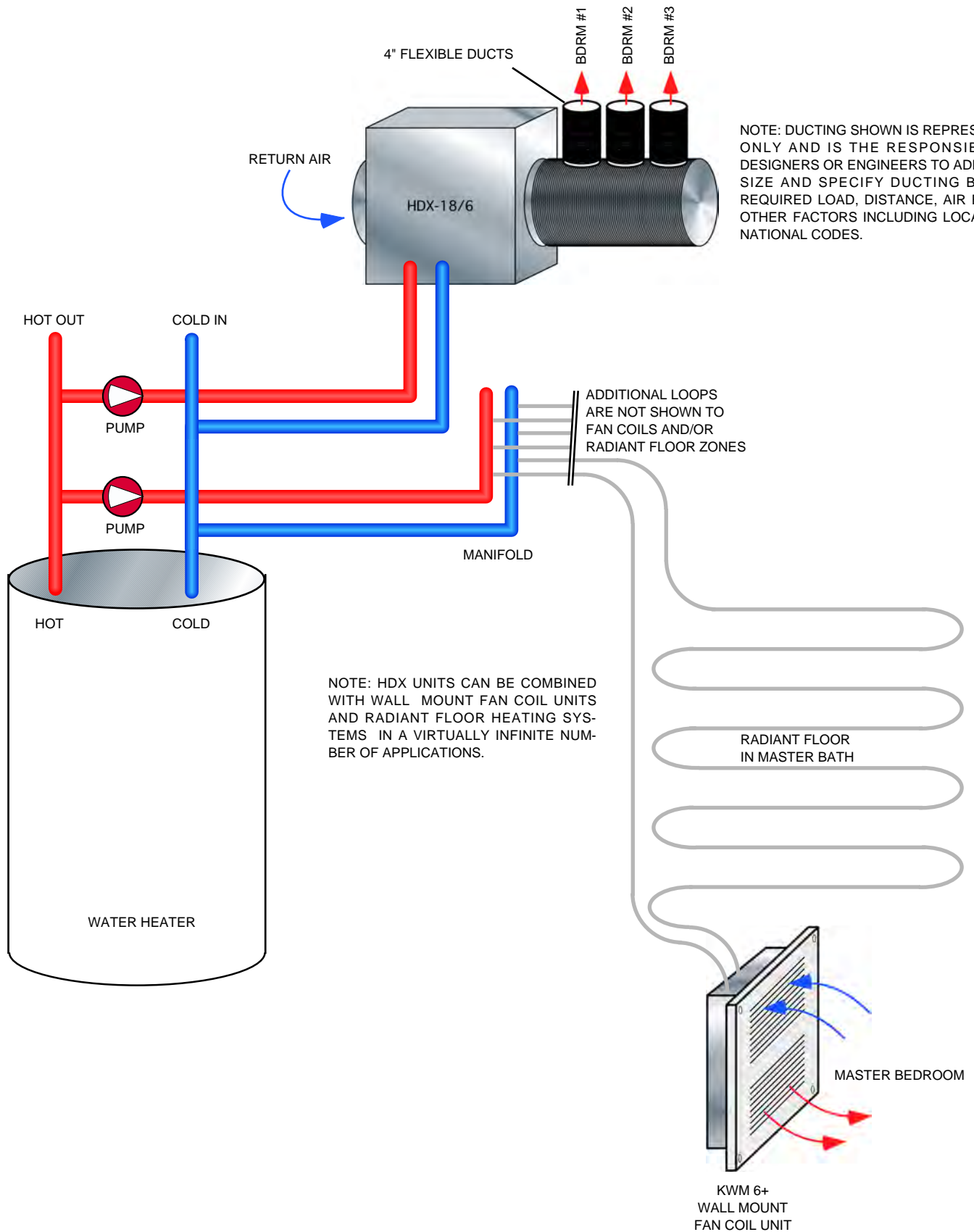
HDX 18/6 H & HC AND HDX 36/12 H & HC WITH
OPTIONAL VARIABLE SPEED FAN CONTROL

CONTROL BOX



HDX 18/6 H & HC AND HDX 36/12 H & HC WITH OPTIONAL REMOTE WALL
LINE VOLTAGE THERMOSTAT AND VARIABLE SPEED FAN CONTROL

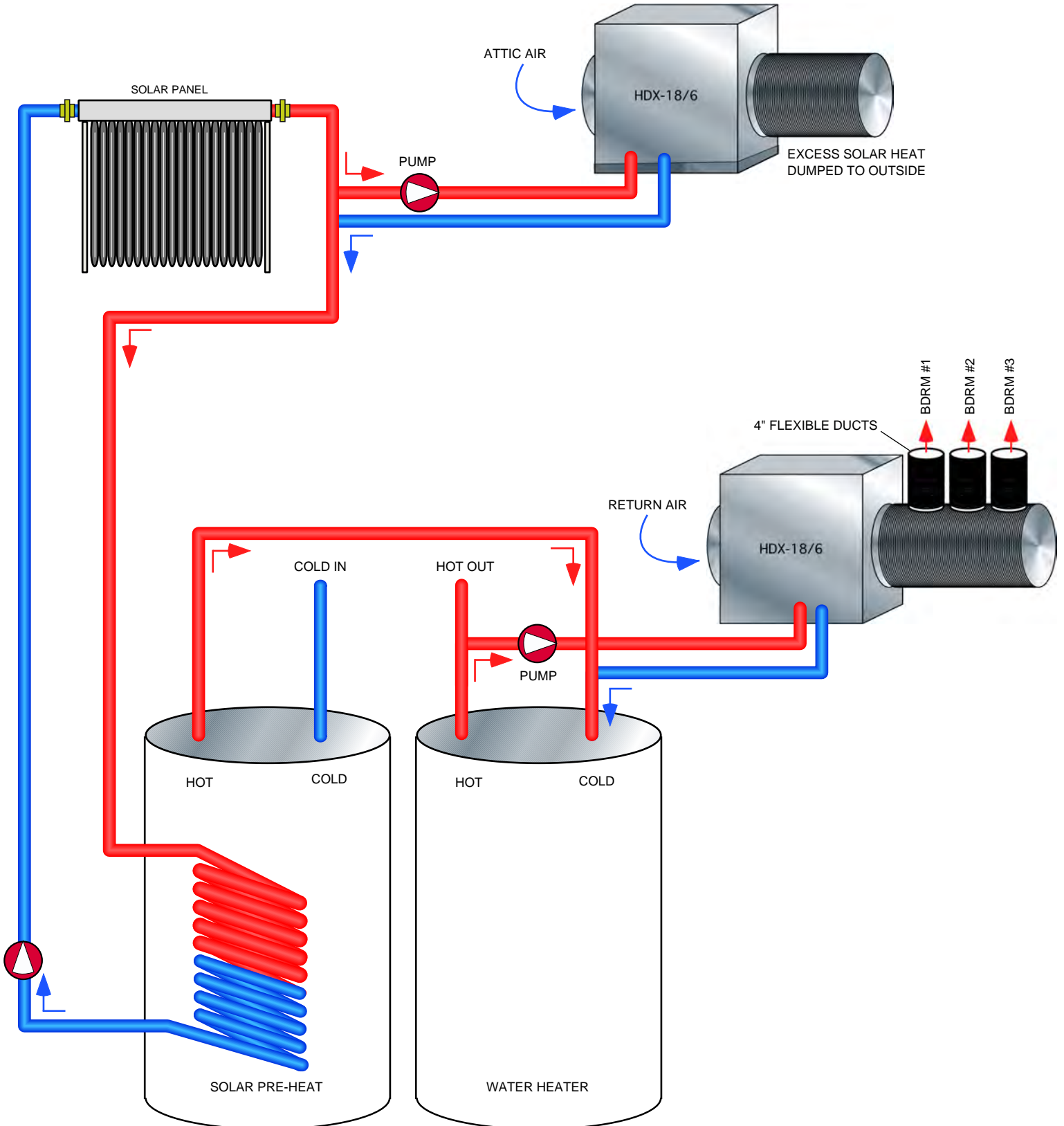


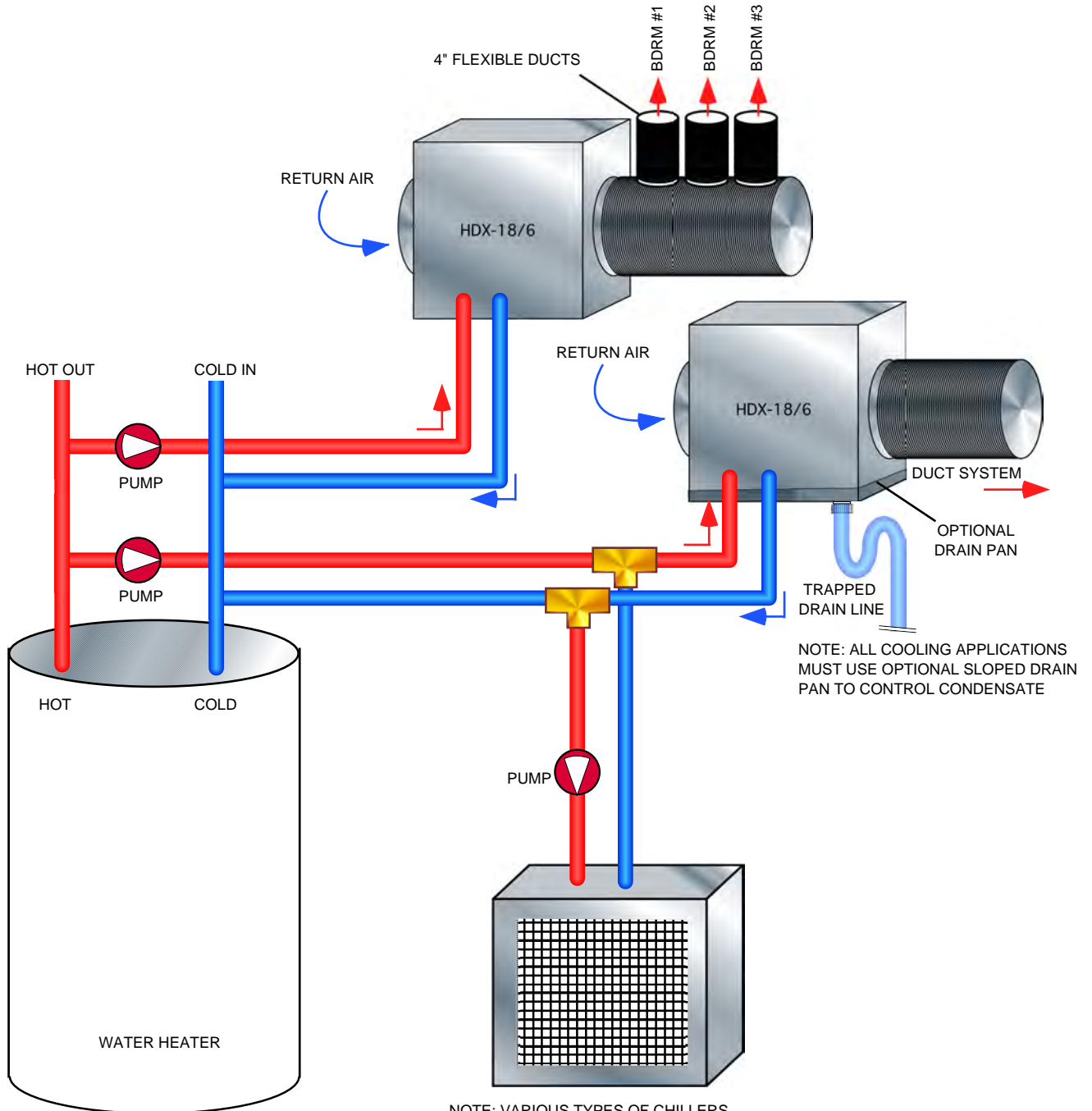


HYDRO-DUCT™

SOLAR SPACE HEATING & DHW

NOTE: HDX UNIT MAY BE USED AS ATTIC VENTILATOR & COST EFFECTIVE SOLAR HEAT DUMP

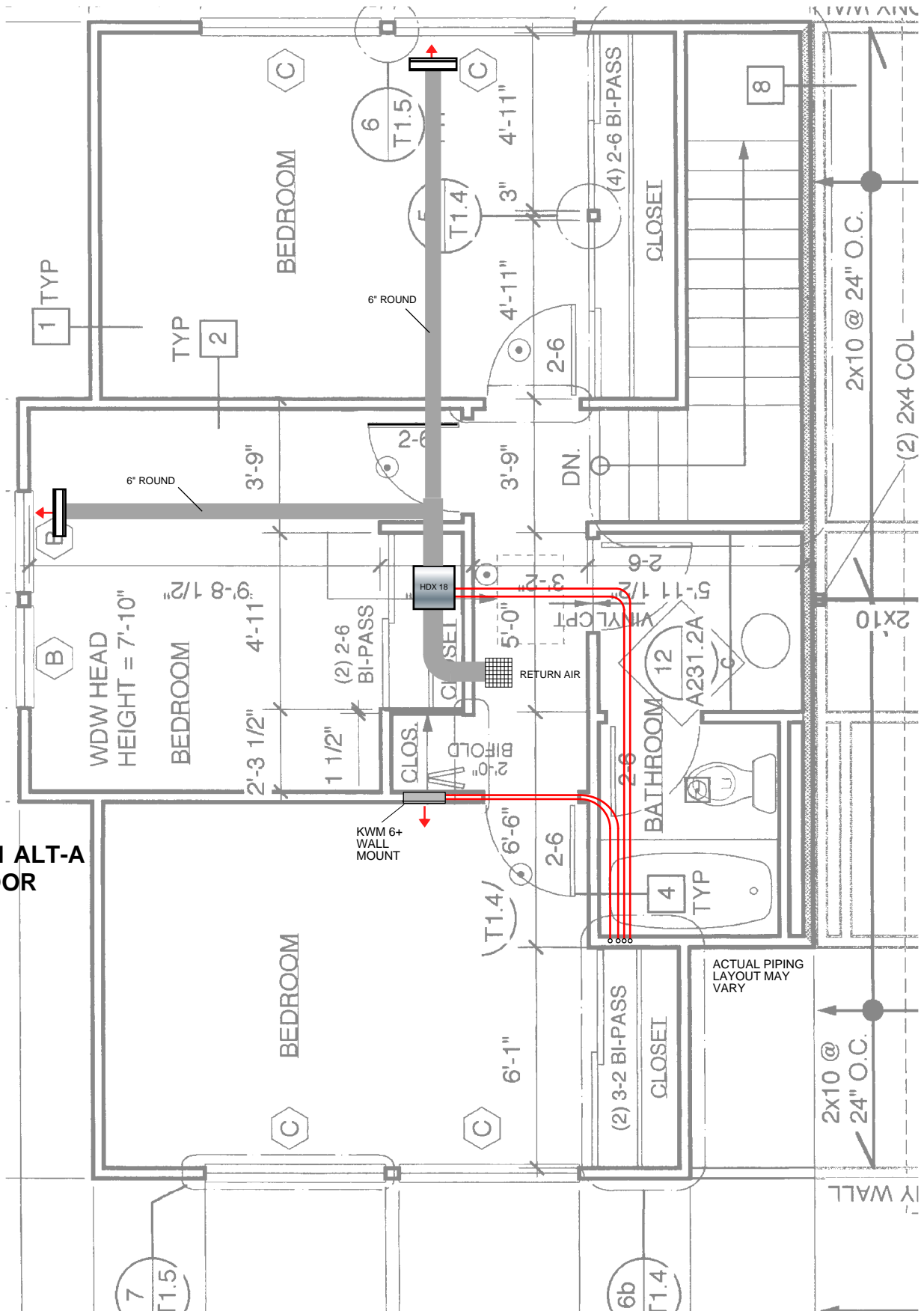




NOTE: HEAT SOURCES MAY BE WATER HEATERS OR BOILERS OF VARIOUS TYPES, HEAT PUMPS, OR ANY OTHER DEVICE THAT CAN BE USED TO PROVIDE HEATED WATER. FUEL SOURCES CAN BE, BUT ARE NOT LIMITED TO, ELECTRICITY, GAS, COAL, FUEL OIL, LPG PROPANE, SOLAR, WOOD, GEOTHERMAL, BIO-DIESEL, OR WASTE HEAT FROM ENGINES, GENERATORS, ETC.

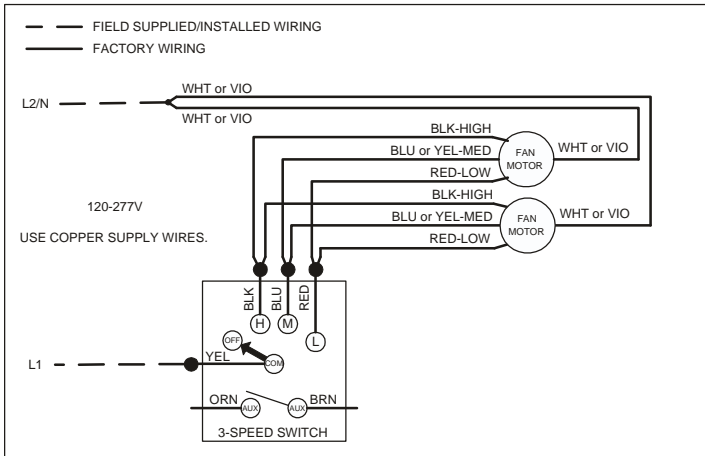
NOTE: VARIOUS TYPES OF CHILLERS CAN BE USED SUCH AS AIR TO WATER, GEOTHERMAL WATER TO WATER OR EVEN COMMERCIAL DRINKING WATER CHILLERS

**UNIT 231 ALT-A
2nd FLOOR**

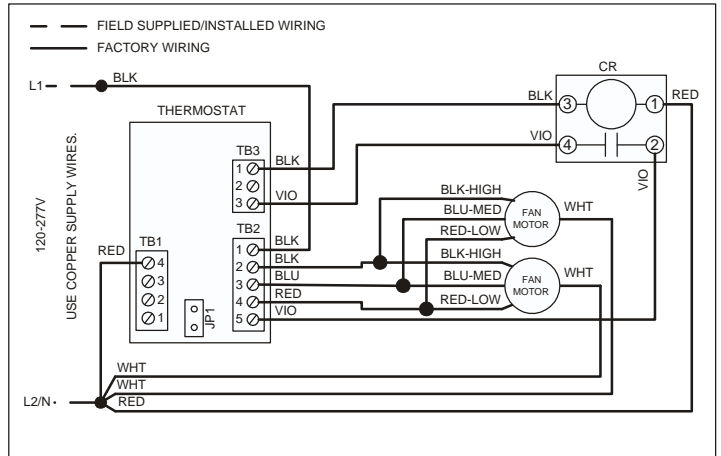


HYDRO-DUCT™

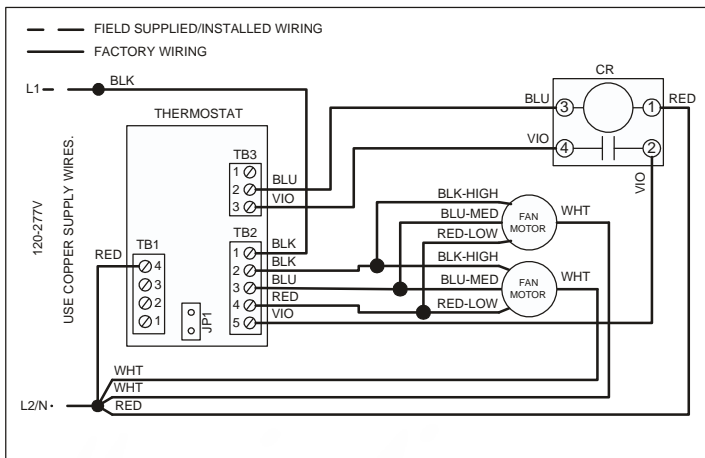
CONTROL OPTIONS



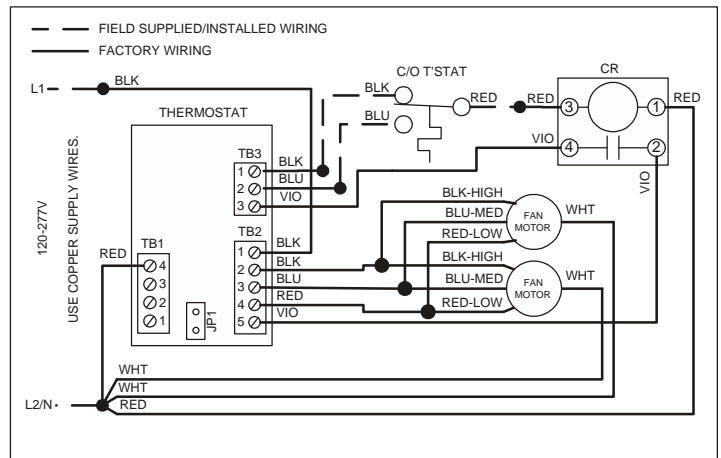
(A) Manual Fan Operation – Fan Cycle Operation



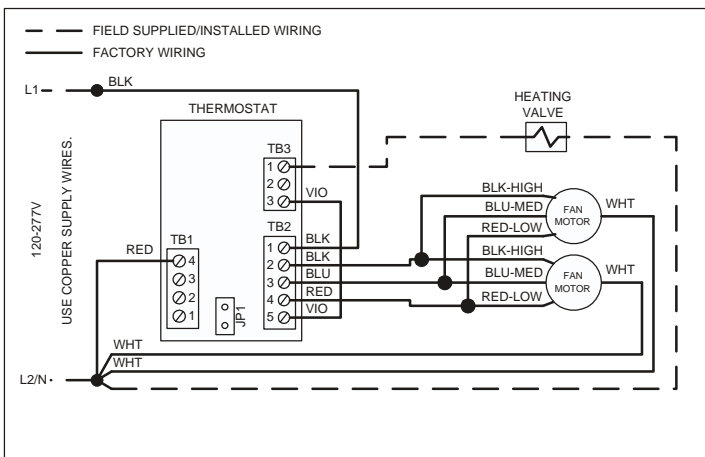
(B) 2 Pipe Heat Only – Fan Cycle Operation



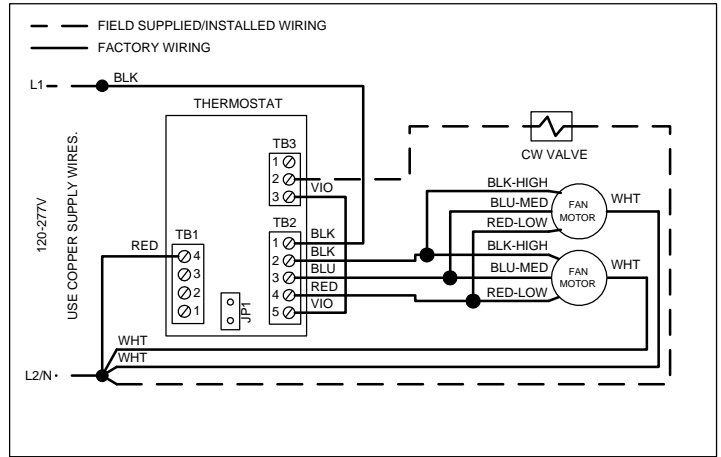
(C) 2 Pipe Cool Only – Fan Cycle Operation



(E) 2 Pipe Heat & Cool (Auto c/o) – Fan Cycle Operation
(D) (Manual c/o) not shown



(G) 2 Pipe Heat Only Valve Cycle Operation



(H) 2 Pipe Cool Only Valve Cycle Operation

INSTALLATION INSTRUCTIONS

HYDRO-DUCT™ HYDRONIC FAN COIL UNITS

GENERAL NOTES

The following reference instructions are available to help the installer as well as a reference source for the service technician. Installer should pay careful attention to the words: **NOTE**, **CAUTION**, and **WARNING** Notes are intended to make installation easier. **CAUTIONS** are given to prevent equipment damage. **WARNINGS** are given to alert the installer that personal injury and/or equipment damage may result if installation procedure is not followed.

1. Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type equipment. **CAUTION: Sharp edges, coil surfaces and rotating fans are a potential injury hazard. Avoid contact.**
2. Maximum entering water temperature is 200 ° F.
3. Completed installation of units must comply with the requirements of NFPA 90B with regard to the use of concealed ceiling spaces as return air plenums.

INSTALLATION

1. Examine unit for shipping damage.
2. Rotate fan wheels by hand to make sure the wheels rotate freely. Be careful not to hold the unit by its blower deck. The aluminum fins are very delicate and can be easily bent. Once bent, they are almost impossible to fix. Bent or flattened fins may cause excessive vibration or noise and can affect airflow.
3. Secure unit in proper position. Unit must be level to assure proper drainage and operation. Leveling is done with mount brackets (Refer to "A" in diagram on page 2).
NOTE: Drain pan is designed with a built-in slope.
Violent bending or sideways pressure when installing the drain lines can cause leaking drain pans. If a leak develops in the drain pan, it is usually best to remove the entire drain pan assembly and have a new one fabricated. Consult the factory or your local representative for replacement part pricing and availability.

4. Piping must be installed in accordance with local codes and regulations.
5. Vent the coils when first filling coil with water.
6. All water and drain lines should be well insulated to prevent sweating and heat loss. Coil connection nearest to front of unit is always supply.
7. Electrical connections can now be made to the electrical box. Access to the box can be obtained by removing the sheet metal cover plate on the back of the unit. For power supply connection, remove plastic grommet and replace with conduit and connector. Refer to nameplate FLA, maximum fuse size and minimum circuit ampacity. Also see wiring diagram affixed to the unit to make control and power wiring connections.
8. If the unit is equipped with a disconnect switch, the conduit and connector should be attached to the junction box containing the switch. Note: The wires hanging from the disconnect switch are for factory testing purposes.
9. The installer shall provide power to the unit, branch circuit overcurrent protection, any valve actuators, and disconnect means to conform with the applicable electrical code. Motor is "thermally protected".
10. All windows and doors should be in and closed before starting up the unit.
11. During summer construction, there is an unusually high amount of moisture in the air; therefore, the initial pulldown should be very gradual (high speed for maximum airflow with reduced gpm and elevated chilled water temperature for reduced capacity). If this is done, it will reduce the possibility of the unit sweating.
12. Connect trapped drain line to condensate drain pan if used.

TURBONICS, INC.

MANUFACTURER OF HYDRONIC FAN COILS

HDX 18/6 FILTER AIR FLOW TEST

Air measurement in **FPS**.



Open Air

17.8 FPS in Open Air off of our meter

After attaching a 6 foot lead tube and a

MERV 12 20" x 20" x 4" Honeywell filter,

clear taping edges of filter to box and joints

17.2 FPS readings with filter in place

Merv 12, at that size, caused less than a 5% reduction in CFM



Filter in place readings +or- 5%

.00" WC	300cfm
.02" WC	280cfm
.06" WC	260cfm
.10" WC	220cfm
.14" WC	200cfm
.18" WC	160cfm
.22" WC	80cfm
.28" WC	shut down



Filtered Air




TURBONICS, INC.

MANUFACTURER OF HYDRONIC FAN COILS

ENGINEERING SPECIFICATIONS

HDX series fan coils are designed to be mounted anywhere there is access and where Ducts can be run to and from... These areas include but are not limited to basements, attics, crawl spaces, closets, etc. They are suitable for connection to hot or chilled water supplies at any pressure up to 125 psi. Maximum water temperature should not exceed 200°F. The amount and temperature of water flowing through the coil, and air flow determines output capacities.

Turbonics, Inc. Designs and Builds it's Fan Coil Products to Comply and Perform to the following standards:

Hydronic Coil	Copper with Aluminum fin	HDX units use L/ASTM B75Copper and have been IAPMO tested and passed ANSI/NSF 61 Section 4 percolation test and are therefore suitable for use with potable water systems
Unit Assembly		
<p>Sample Specification:</p> <p>Unit(s) with the necessary output to supply the load in each installed area shall be mounted within a suitable location that provides access for servicing and may be connected to a properly designed and balanced ducting system. Includes closed cell Insulated cabinet & optional Condensate Drain Pan (cooling applications only), copper coil with L/ASTM B75Copper and aluminum fins (or comparable material) tested in accordance with ANSI/NSF 61 Section 4 percolation test and suitable for use with potable water systems. Maximum water temperature of 200°F, and a pressure rating up to 125 psi. Propeller style fan is desired to provide quiet operation and easy cleaning, service or replacement. Unit must include thermally protected 3-speed shaded 4 pole motor(s) and may be controlled with remote wall mounted thermostat and/or variable speed fan control. Unit(s) to have minimum of CSA approval. 5 year limited manufacturers warranty. Locking screws for cover if required are supplied by others.</p>		