



# SOLARSHEAT FURNACE RETROFIT Installation Manual

By  
Your Solar Home, Inc.

Version 1.0  
May 9, 2008

*All building, plumbing, electrical and safety codes supersede the instructions in this manual.  
The manufacturer assumes no liability for improper installation. Use this manual at your own risk.*

## 1.0 Introduction

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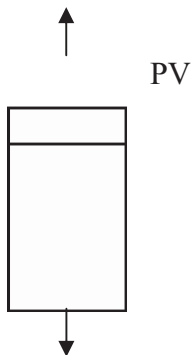
The SolarSheat Furnace Retrofit system provides an economical and environmentally friendly way to provide solar heated air to your home using your existing furnace and ducting. In addition, the retrofit can be used to preheat the cold return air for your furnace to reduce energy costs and greatly increase the life of your forced air furnace.

This manual offers an overview of the SolarSheat Furnace Retrofit installation. Refer to the specific Your Solar Home installation manual for detailed instructions on installing the SolarSheat solar collector model that is to be used.

## 1.1 Installation orientation

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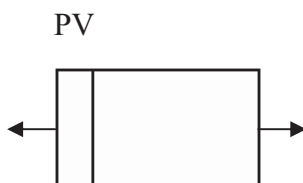
For optimum efficiency the SolarSheat Furnace Retrofit system requires multiple (at least 4) SolarSheat solar collectors to be installed. These can be wall mounted or roof mounted. The collector panels can be mounted to the building wall or roof in "Portrait" style or "Landscape" style orientations as shown below:



"Portrait" style  
PV on top if using  
DC powered  
installation



"Portrait" style Furnace Retrofit installation  
Roof mount



"Landscape" style  
PV on left or right  
side if using  
DC powered  
installation



"Landscape" style Furnace Retrofit installation  
Wall mount

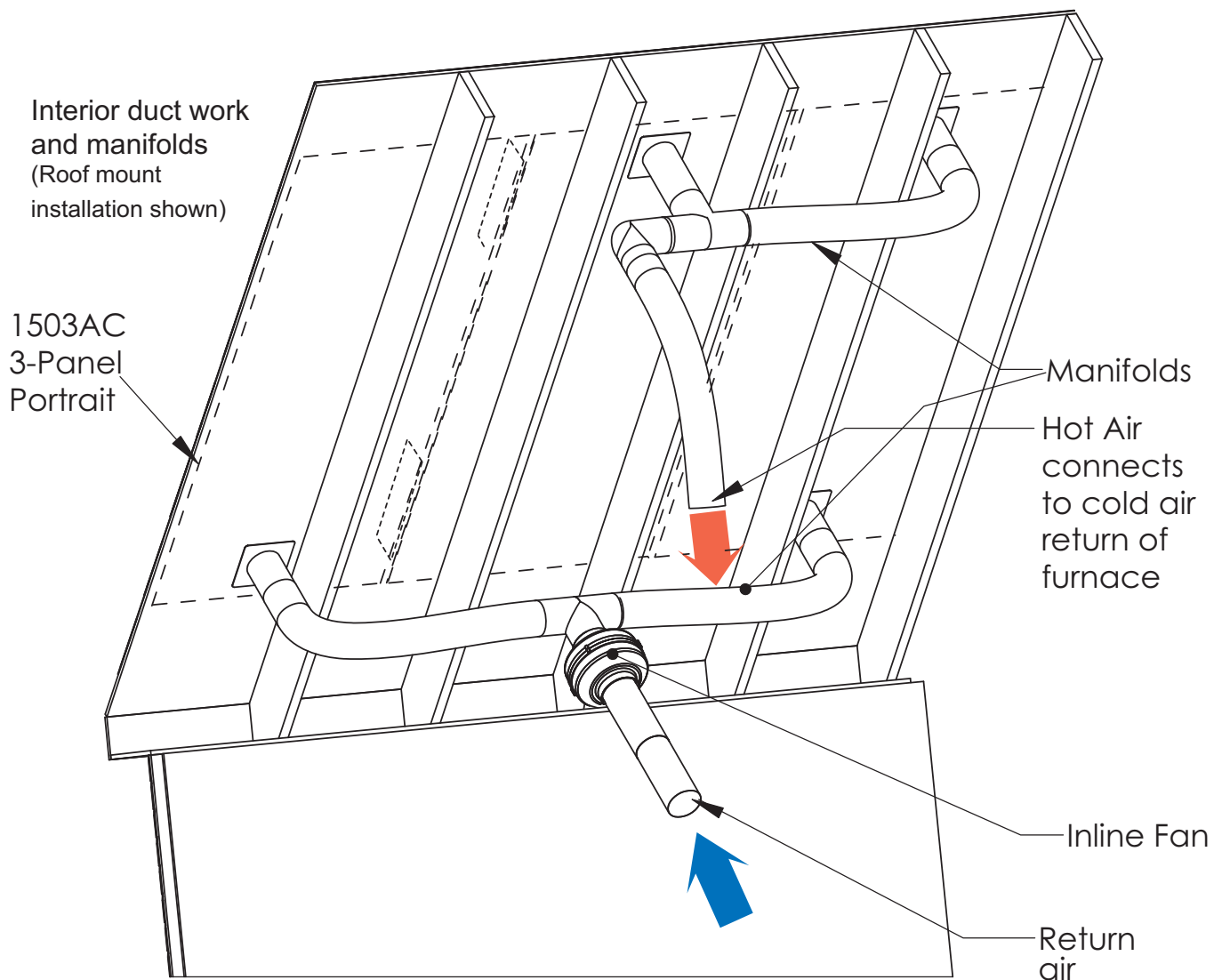
## 2.0 General installation

Multiple SolarSheats are required for proper installation of the SolarSheat Furnace Retrofit. Please refer to the SolarSheat Multi-room heating system installation manual prior to installation of the Furnace Retrofit. Insure that there is enough space for the multi-room SolarSheat configuration that is to be used and that there is adequate access to existing furnace ducting prior to installation.

### 2.1 SolarSheat Furnace Retrofit layout

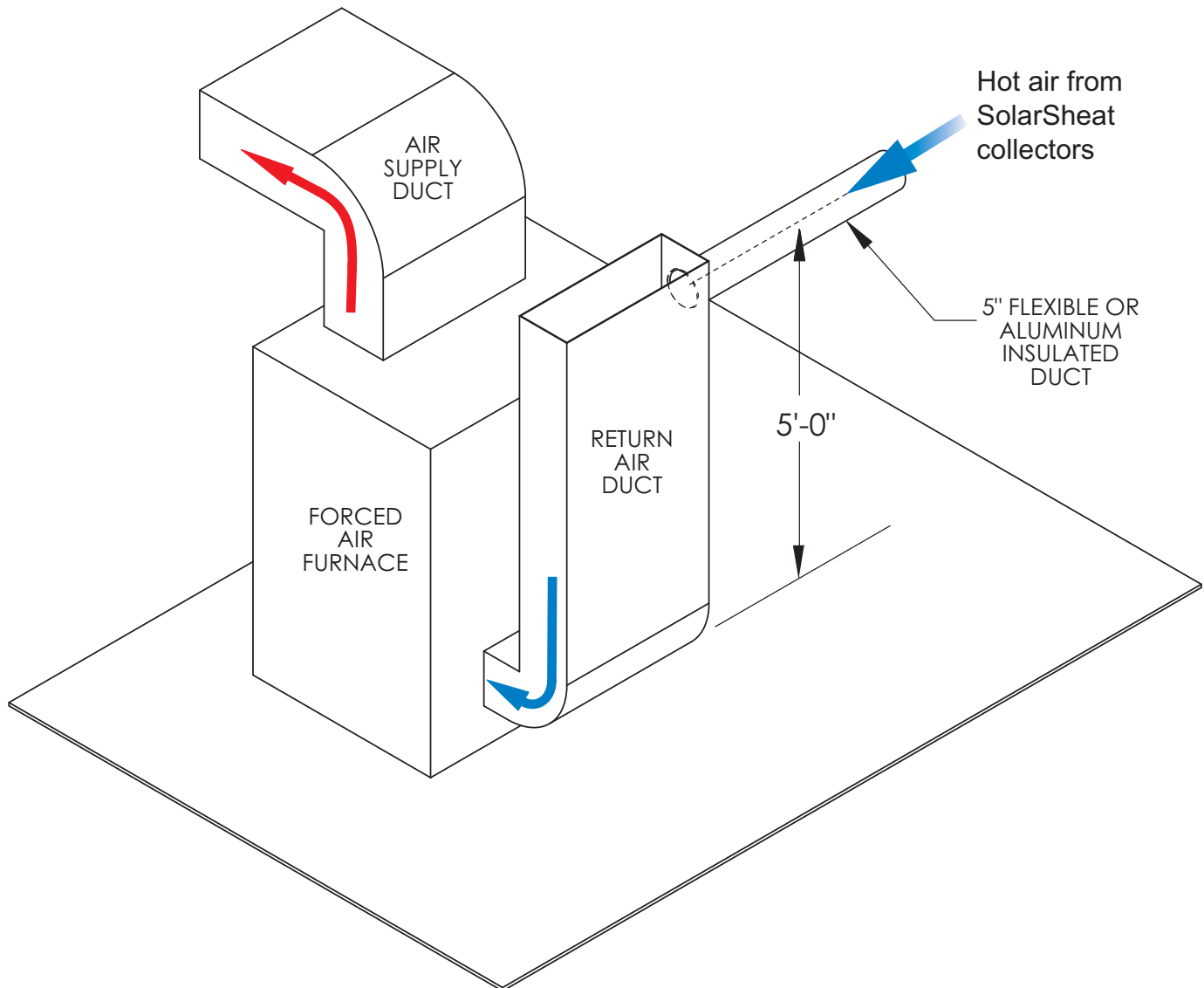
The SolarSheat Furnace Retrofit system connects the hot air output from multiple SolarSheat collectors into the cold air return of your forced air furnace. A separate thermostat controls the home furnace's fan and the solar collector's inline fan to distribute solar heated air into the home using the existing ductwork.

1. As detailed in the SolarSheat Multi-room heating system installation manual mount SolarSheat array to roof or wall of building. Manifold hot air ducts together. Manifold return air ducts together.



## 2.2 Furnace duct connection

Connect the hot air supply from the multi-room SolarSheat collectors to the cold air return of the furnace.

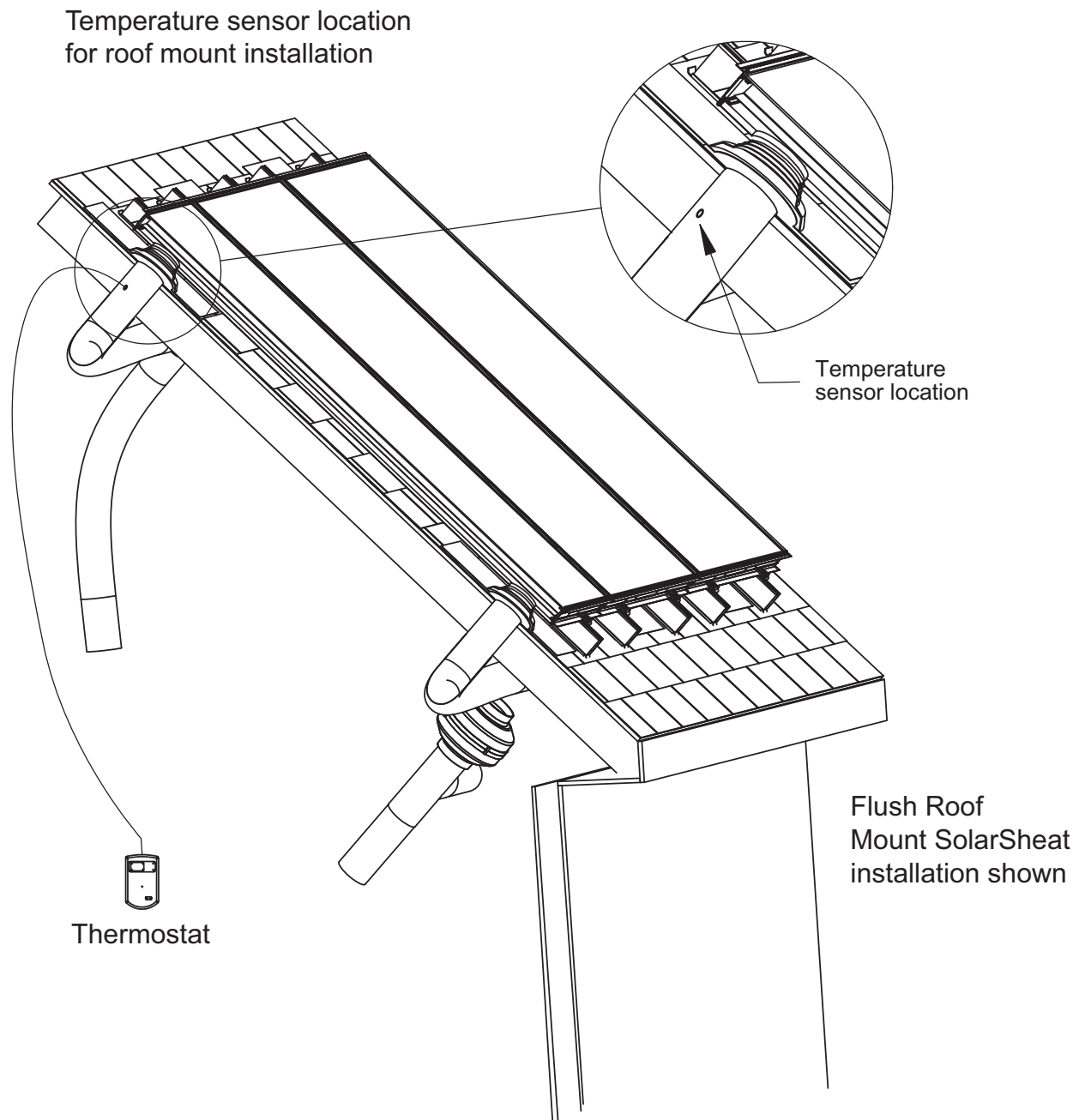


2. For new construction SolarSheat Furnace Retrofits, connect the hot air supply from SolarSheat collector array to the furnace cold air return duct as shown above. Attach hot air supply to return air duct of furnace at a location 5' above floor level. For renovations, locate the closest cold air return and connect the hot air supply from SolarSheat collector array.
3. For new SolarSheat Furnace Retrofits insure the the connection to the return air duct is at least 12-18" below the cold air return ducts for the house.
4. Insulate the hot air supply duct with R12 insulation to insure optimum performance.
5. Once all ductwork is complete connect the wiring as shown in Section 2.3.

## 2.3 Solar thermostat wiring connections

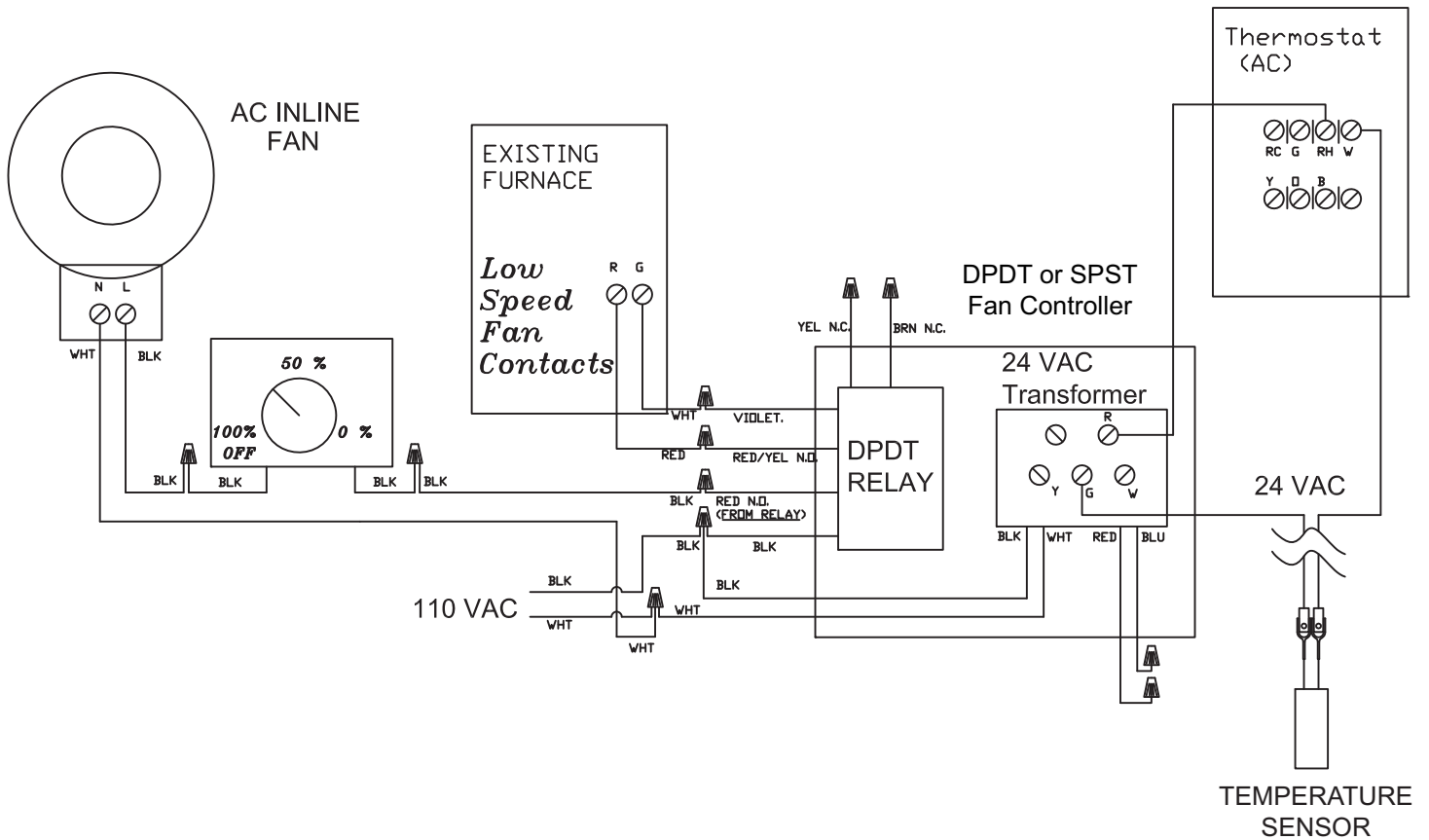
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6. Install the Solar thermostat on the wall
7. Drill a 1/4" hole into the upper collar/manifold of the SolarSheat array. Insert the temperature sensor for thermostat and seal using silicone sealant. The temperature sensor should be placed inside the upper most duct collar just inside the roof or wall as shown.



- Connect wires as indicated below to the inline fan and the furnace fan. Connect the temperature sensor to thermostat.

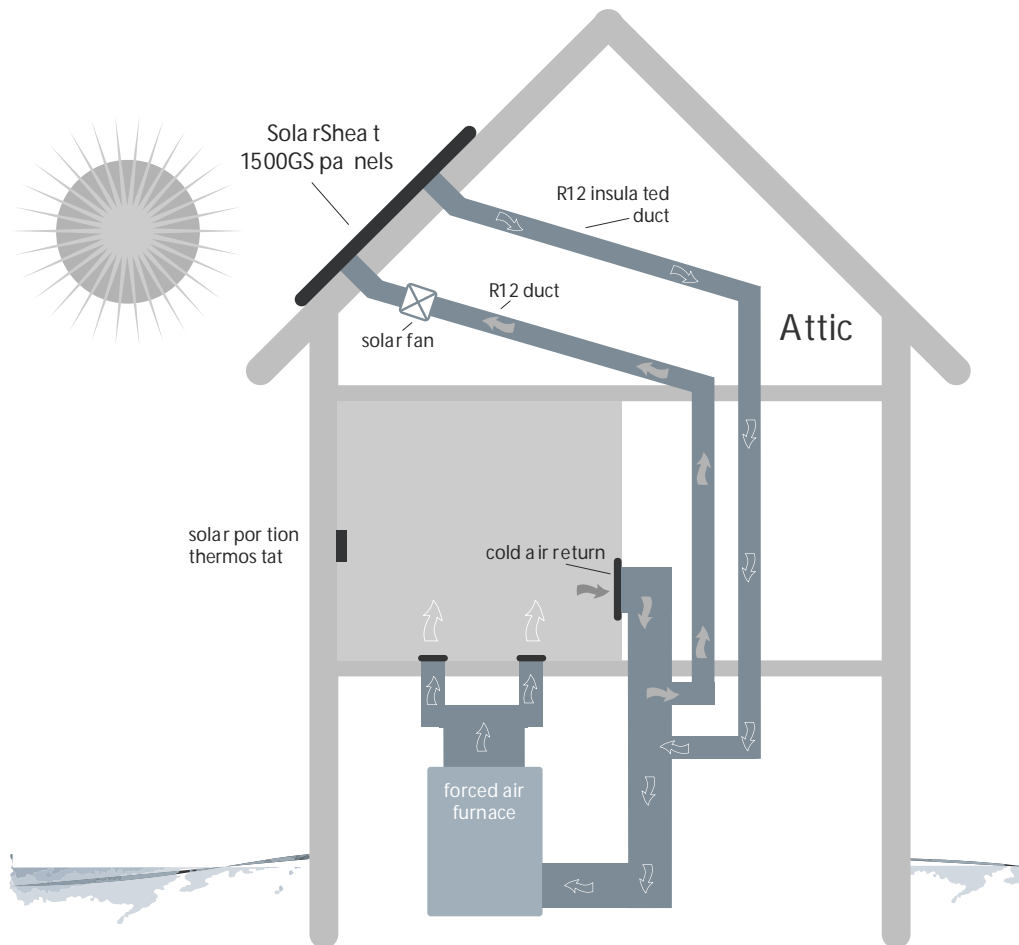
### AC Fan & Double pole Control Electrical schematic



It should be noted that when the collector is cooler than the sensor's calibration temperature the fan will not turn on.

For installations where separate control of the furnace fan is desired a SPST controller can be used in place of the DPDT controller. This will allow the furnace fan to remain on and the SolarSheat inline fan to turn on only when there is a signal for heat. When a SPST controller is used the connections to the furnace fan are not required.

9. Test all connections to insure that the inline fan and furnace fan are working properly.
10. Enjoy your new SolarSheat Furnace Retrofit heating system.



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