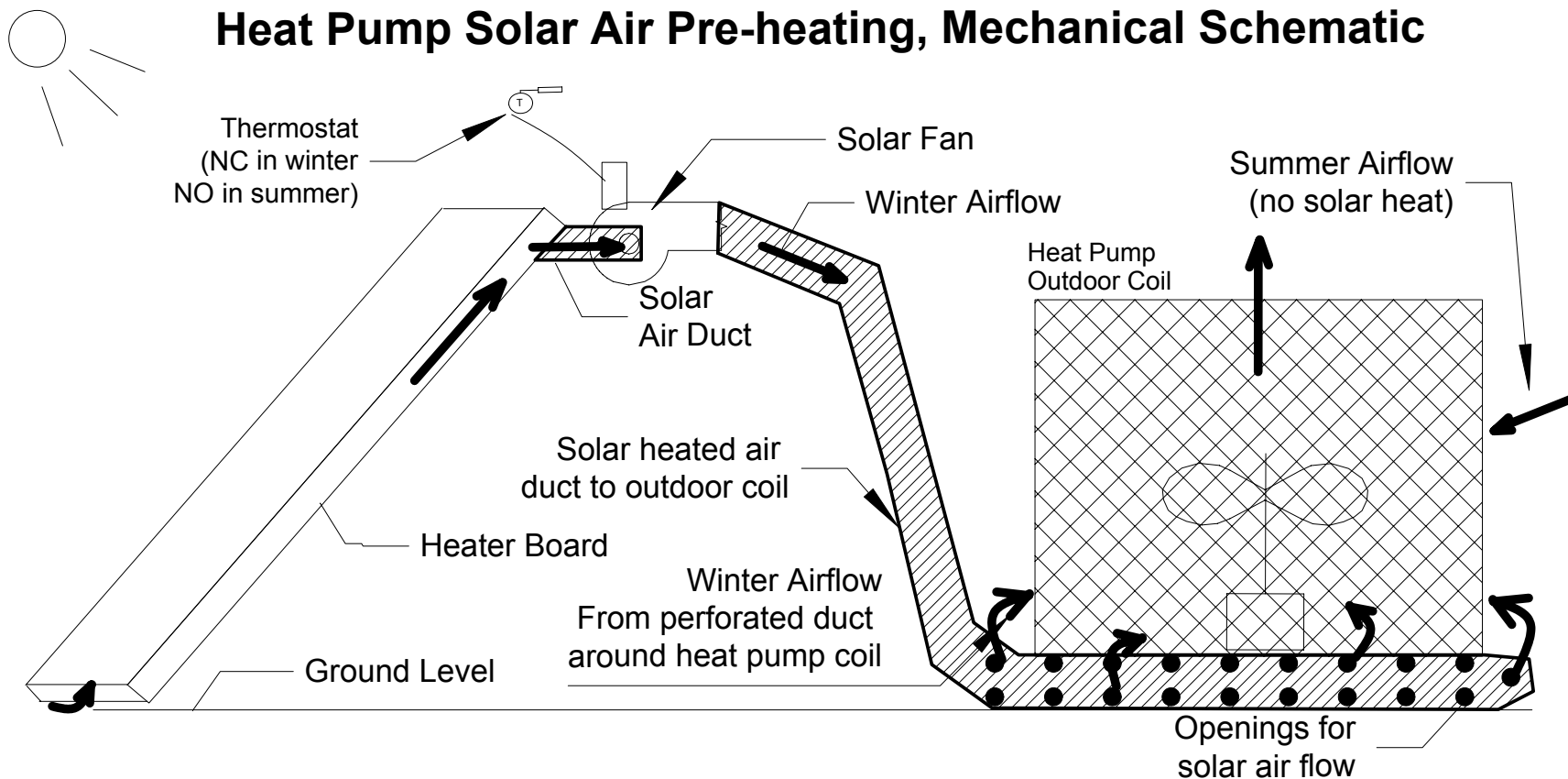


Heat Pump Solar Air Pre-heating, Mechanical Schematic



This stylized illustration of a solar air heat pump pre-heating system shows the major components and intended operation. Numerous variations are possible, For example, Heater Board fans can be placed on the ground near the heat pump and the Heater Boards can be placed over one hundred feet from the heat pump with optional insulated ducts and extended air distribution systems.

Operation:

When the heat pump runs, the fan in the outdoor coil operates, drawing air across the coil. If outside temperatures are cold (heating season) the solar thermostat will be closed, which activates the solar fan. Solar heated air is drawn from the solar roof and floods the area around the outdoor coil. Heated air improves heat pump efficiency and can reduce the use of expensive electric resistance heaters by the heat pump. By delivering relatively low temperature solar heated air (~50-80 deg F), the Heater Boards operates at high efficiency. In summer, the thermostat will be open and the solar fan will not operate. Outside air flows around the "fence" posts to cool the outdoor coil in air conditioning mode.

Heater Board Heat Pump Solar Air
Pre-heating Schematic

TITLE

DWG NO

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SHEET

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