



absolute comfort

# BLUEPRINT

**Project:** Sycamore Farm Cottage

**Location:** Harding Township, NJ

*"Installation was a breeze and the system does exactly what it is designed to do...  
The system operates perfectly"*

*Antonio Poccia  
Perfection Contracting*



Cottage with Solar array on roof



## Challenge:

**Design and install an HVAC system that rivals the efficiency of a geothermal system without the costly earth loop.**

## The Solution:

**The Daikin Altherma system with solar thermal integration.**

The 1,321 sq. ft. cottage is a second structure for the Sycamore Farm property. The main house, built prior to the cottage, was heated and cooled using a number of geothermal heat pumps and achieves a high level of efficiency and extremely low energy costs. When the decision was made to build the cottage, the owners wanted a similar level of efficiency but did not want the cost of drilling an earth loop as would be required for geothermal. In addition, there were multiple heat loads that needed to be accommodated for including radiant, domestic hot water, and pool heating, and multiple zones of cooling on top of that.

Typically, each of these would be handled by devoted systems which would have called for a boiler for the radiant, a hot water heater for domestic hot water, a separate pool heater, and a separate air conditioning system with its own air handler and outdoor condensing unit. An added complexity was the owners desire to incorporate a solar component. Perfection Contracting spec'd and installed an evacuated tube solar array with 3 collectors consisting of a total of 90 highly efficient vacuum tubes. All these components needed to be assembled in such a way that they would complement each other to deliver the desired results. Perfection Contracting owner and president, Antonio Poccia stated "The cottage is a small structure with a lot going on", "We needed a heating and cooling unit that was flexible with its installation options and sophisticated enough to handle all the demands".

After careful consideration, the Daikin Altherma Monobloc was selected for reasons including: Its ability to provide heating, cooling, domestic hot water production, and space heating water production all in one appliance. It is also able to work with the solar thermal array to back up the solar when needed or take over completely and provide all the heating needs. The Daikin control system is state of the art and is able to "throttle" the unit in order to give the proper amount of

heating and cooling as indoor and outdoor conditions change. The basement was small and the owners hoped for the maximum amount of storage space, so only one corner was taken up with the fan coil (for cooling), pumping system and thermal storage tank for the solar.

Because of the sophisticated control system within the Daikin system and the control system within the solar thermal system, standard thermostats could be used to operate the entire system. Antonio Poccia is an expert at designing what he calls "elegant" systems which do a lot with a-little, and he insists on a "no compromise" philosophy which means it has to be simpler to install, use less materials, deliver superior performance, take up less space, and cost less to operate. The Daikin Altherma system met all of the criteria for the owners and Perfection Contracting.

The installation was smooth and InCliCo, who stocks the Daikin product, is well prepared and willing to assist in any way.

## Project information

Contractor: Antonio Poccia  
Perfection Contracting  
Newton, NJ

Stocking  
Representative: InCliCo  
West Caldwell, NJ



Daikin Altherma Monobloc



Indoor Fan Coil and Pump station

## Daikin AC Equipment

- 1 (Model # EBLQ048BA6VJU) Monobloc Outdoor Unit
- 1 (Model # EFWT048) Hydronic Fan Coil Unit