

PASSIVE SOLAR RESIDENCE

Moorestown Township, Burlington County, New Jersey

Building Type: Passive Solar Residence, designed in 1981

Overview: Design of 3,800 SF single family residence



Role: Architect of Record

Built in 1982, this is one of the first passive solar houses constructed in southern New Jersey. It was featured in the September 2010 SJ Magazine.

The house is located on a 1 ½ acre rural site in the New Jersey suburbs outside of Philadelphia. It was designed for a young and growing family. The owners, aware of the growing body of knowledge regarding our culture's negative impact on the environment, and sensitive to the long-term effects of the 1973 Arab oil embargo, wanted a house that would exist in harmony with its environment and with minimal dependence on fossil fuels.

The design is a combination of direct gain and indirect gain passive solar heating. Primary rooms are arranged as distinct spaces which flow into one another and open to the outside. Secondary spaces – the stair, entry vestibule, a storage/laundry room, a connecting hall and the garage – are arranged across the north side of the structure to help insulate the primary spaces on the south side. The structure has an airfoil profile facing into the prevailing southwest winds. The shape, combined with wide eaves, enhances natural ventilation in warm months by increasing air pressure on the side of the primary rooms and creating a low pressure area on the opposite side.

The structure is traditional wood stud balloon framing with a stucco facing. Balloon framing, as opposed to more conventional platform framing, creates a continuous insulation layer and minimizes the risk of age, temperature and humidity-related cracking in the stucco. Interior concrete masonry finished with plaster provides heat storage and attenuates day/night temperature swings. Propane fuel provides back-up space heating, cooking and domestic hot water.

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