Solar Houses at MIT

Solar IV

Solar IV, located in Lexington, was completed in 1959 after the MIT Architecture Department held a contest on solar house architectural design and a SCD thesis in chemical Engineering. The architectural details were designed by Professor Lawrence B. Anderson; the engineering design was done by Dr Austin Whillier. A 640-square foot collector tilted at a 60 degree angle provided for 57% of the building’s heat during winter. Heat was stored in two basement water tanks of 1500 and 275 gallons: during the winter, the larger tank was heated by the circulation of solar heated water from the roof collectors. Water from the tank circulated through the coil of a heat exchanger to warm air blown through the house. Water from the smaller tank was heated by an oil burner and used for supplementary heat on extra cold or cloudy days. When summer came, the smaller tank was connected to the roof collectors to provide hot water for domestic use, and a low capacity refrigerator cooled the water in the larger tank to provide air conditioning. After collecting data for three heating seasons, MIT decided to sell the house to a private owner in 1962. Since no knowledgeable service organization existed to maintain the unique solar heating system, the unit was removed, and a conventional heating unit was installed.

Bibliography:

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