



Dana Thomas House, Springfield, Illinois

Architectural Consulting Engineers (ACE) was the mechanical engineering consultant for the Dana Thomas House for a project that included improvements to the protective glazing, masonry repairs, an updated fire alarm & security system, and a modernization of the mechanical system to improve the environmental management of the building. This house, located in Springfield, Illinois, built in 1902-1904 and designed by Frank Lloyd Wright, was purchased in 1981 by the State of Illinois and is listed as an Illinois historic site and is now operated as a house museum. The original commission by Frank Lloyd Wright was to remodel the existing Italianate Mansion on the site. The “remodeling” essentially wrapped a new house fully around the existing building and all but eliminated any trace of the original building visually. The building was extensively restored in the late 1980’s to its appearance in 1910.

ACE was responsible for a comprehensive review of the building mechanical, fire alarm and security system. The building was served by a central plant chilled and hot water system that is located in the adjacent Coach House. Single-coil fan coil units were located throughout the house in crawlspaces and other concealed locations to provide either heating or cooling but could not provide simultaneous temperature and humidity control which was needed to prevent biological degradation of the building fabric. The system was improved by adding an additional set of pipes and replacing all of the fan coil units so that humidity and temperature could be simultaneously controlled. A new DDC control system was also installed to monitor and control all of the equipment to ensure that proper conditions are maintained throughout the structure. To supplement the system improvements, the roof was thermally insulated which greatly helps control excess air infiltration and thermal losses through the structure. This is particularly important since there is mechanical equipment and ductwork in the attic areas.

The existing combination security and fire alarm system was upgraded to enhance protection and improve reliability. A new security camera system was put in place to monitor the outside of the building to deter vandalism, petty theft and enhance security for visitors and staff.

The renovation is complete and the building is now fully operational.