Architectural Consulting Engineers

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Glessner House, Chicago, Illinois

Architectural Consulting Engineers (ACE) was the mechanical engineering consultant to the Glessner House Museum for a Building Systems Condition Assessment at this historic building in Chicago, Illinois. The house was built in 1887 and was designed by H. H. Richardson. The building was declared a National Historic Landmark in 1976.

ACE was responsible for a comprehensive review of the building mechanical, electrical and plumbing (MEP) systems. ACE performed an extensive field survey of the existing conditions of these systems, reviewed available documentation of the original and current systems and identified system deficiencies that needed remediation on a prioritized basis. Additionally, ACE developed strategies for improvements in building systems to meet the future uses of the building and spaces including a review of possibly air conditioning the building. This work included identifying reasonable methods to implement this system upgrade while minimizing the disruption to the historic fabric of the building. One important aspect of adding air conditioning to structures which were never intended to have this technology is to implement a system that can assist in simultaneously controlling temperature and relative humidity at levels appropriate to the historic nature of the building and the collections displayed and stored on site.

As a follow-up study, ACE performed a feasibility study that looked at adding a ground-source heat pumps system to provide the required conditioning of the building spaces. The result of the feasibility study determined that a new ground-source heat pump system was not only feasible, but after energy savings were taken into account, this system would pay for the increased installation cost within a very reasonable timeframe and could then offer the Glessner House Museum an economical system to operate throughout the balance of the system life. Construction Documents have been completed to implement the recommended ground-source heat pump based HVAC system for this building. A partial system installation is now complete and operating and includes one-half of the designed loop field and one heat pump system – with expansion of interior systems planned as funds become available.