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Henry Ford Estate Powerhouse Heating System Replacement

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Henry Ford Estate Powerhouse Heating System Replacement Project

Henry Ford Estate, a National Historic Landmark, received a We the People Grant of $350,000 in the category, Sustaining Cultural Heritage Collections. This grant provided the financial support to improve and stabilize the environmental conditions of the Estate's 1914 Powerhouse and its collections. The activities of this project were part of a long-term effort to provide suitable collection environments at the Estate.

The Power House was, to Henry Ford, the center and heart of the Estate. Uniquely, it housed a water-powered electrical plant, sophisticated mechanical systems for the entire Estate, a working garage, and a private research lab (now used as Archives). This project focused on reducing adverse winter conditions in the Power House collection environment by replacing the outdated, deteriorated, and dangerous steam-heating system, and equipping the many large windows with UV filters. This project's intent was to preserve and sustain the Power House collections by 1) eliminating detrimental temperature and humidity spikes caused by the old system's frequent malfunctions, 2) remove the annual risk of direct water damage from steam leaks, and 3) substantially reduce potential harm from UV light. With the introduction of new, more efficient heating equipment and UV filters, we anticipated a decrease in fossil fuel and water. (A new heating system installed in the House on the Estate, funded by a Save America's Treasures grant in 2008, had realized a 30% decrease in annual fuel consumption and a 20% in water usage.)

The Power House exhibits the most significant parts of the collection. A snapshot includes:
· the original 1914-15 generators, pumps, gauges, etc—partially restored, and operational for demonstration and small amount of power generation;
· the original equipment for the Estate's mechanical systems – heating, refrigeration, water-softening, ice-making, vacuum, hair drying
· personal artifacts, automobiles, and related items on exhibit (some long-term loan from The Henry Ford and Ford Motor Company),
· archival collections that include photographs, videos, plans and documents.

For the past 54 years, Henry Ford Estate has been owned by the University of Michigan. The gift by Ford Motor Company in 1957 gave the Ford's home, ancillary buildings, and surrounding acres to the University to form the Dearborn campus. In 2010, a tentative agreement was reached between the University of Michigan and the Edsel & Eleanor Ford House to transfer ownership of the Estate at the close of 2011. The grant application had been made prior to the agreement and the award and subsequent project fell within the time period prior to the transfer; and so, the project continued as originally planned. Because of the impending transfer, all project details were shared with Edsel and Eleanor Ford House. As an interested party, Ford House was invited to provide a designated representative to be involved in all phases of the project.

The total project cost included the $350,000 grant award with $98,600 additional funds provided by the University. The project's primary goal was the replacement of the original steam heating system

throughout all levels of the building. In addition, UV filters were to be installed on the windows to help filter the light and conserve energy. The project also covered all costs associated with the moving and storage of collections necessitated by the construction work. We anticipated a schedule that would be phased-in, moving from floor-to floor, towards completion. Initial plans had the vehicle collections in the garage being moved from one side of the garage to the other, to allow for the new heating units' installation along the room's perimeter.

Initial changes to the original plans were made by the project team as the architects and engineers located a different heating unit that would replicate the look of the original radiators and achieve the desired energy efficiency. This was more desirable than the original plan, of mounting wall heating units behind the original radiators, compromising their efficiency. The units selected were Burnham cast iron Slenderized Radiators, which combined radiant heat with convected heat. Although not reproductions, they present the same general look, at a much greater energy- efficiency rate. Although the original steam radiators were removed completely, representative radiators from each room were kept for the collection, serving as sources for future paint analysis.

The original project schedule planned to move the work from one floor to the next, allowing us to section off the building as we continued to operate tours. This schedule was altered to better coordinate the system installation and services of the various sub-contracted trades. Because work that involved drilling plaster and tile was being conducted in all areas simultaneously, it necessitated the removal of some collections from the building, and totally encasing other artifacts. (i.e. all vehicles were moved to the center and sealed under visqueen.) This approach to protect the collections was required for a longer period than originally scheduled.

Because of the dusty and loud work going on throughout the building, it drove the decision to close the powerhouse to the public, two months into the project. The work continued in this fashion until it was completed in December. Because of the impending change in ownership, the University elected to close the buildings to the public during 2011.

Unfortunately, the last component of the proposed project, installation of UV-filters, was not completed due to increased costs associated with work order changes, which were required by the University electrical inspector. Although final engineering plans were previously approved by the University staff and the State Historic Preservation Officer, the university electrical inspector, upon reviewing the completed work, required changes to be made to units installed on the fourth floor. This directive required a change order that depleted the remaining funds, previously earmarked for the U-V filters. No additional funding resources were available for this portion of the project; therefore this phase was not completed.

Despite these challenges, we did reach out to our on-site and virtual audiences during and after the project. Throughout the initial two-month time period of the project, visitors on all tours were informed

of the NEH grant, learning about the focus of the project and the work to date. Interpretation in the Power House hydro-electric generating room traditionally focused on sustainable energy and conservation; but during the project, we were able to connect to our current efforts in conserving energy. Information about the project was placed on our website and released through the University public relations office to internal and external media.

During 2011, we have had limited, but more focused experiences on the property, allowing us to share in-depth information about the grant project. In May, several school classes visited outside the Power House as part of a Rouge River Water Festival. Students learned about the Power House sustainable-energy hydro-electric system and our current efforts to conserve energy. Various private tour groups and consultants have visited the Power House over the past year and have learned of the project. We anticipate re-opening the site with new on-site and virtual programming in the upcoming year. Our current web site had to have a variety of information removed during this transition period; but our new web-site will include further information about the project.

We are grateful for the support we received to implement this heating system replacement project. In summary, we accomplished the goal of creating a better environment in Henry Ford's Power House for the good of the collection, archives and the significant building features, using a more efficient system, and replacing an antiquated system that threatened the collection and building.