

Enfield Shaker Museum

Quarterly Report July – September 2010

1. *Program Title:* Weatherization, Thermal and Electric Energy Efficiency Improvements, and an Energy Educational Exhibit at the Great Stone Dwelling of the Enfield Shaker Museum.
2. *Program Type:* Type 2, 8 and 10.
3. *Summary of Work:* The goal of the grant was not only to increase energy efficiency, but also to make the project a model for other historic structures.

**We will not be requesting additional funds this quarter, as no bills were incurred, and the majority of the work and payments will be in October, November, January and February.**

**Task 1:** 50% complete to install the alternate heating system. **The HVAC Guru** installed an alternate heating system to heat essential spaces (staff office and Museum Store) of the Great Stone Dwelling during the winter, thus reducing the load on the larger boiler. This task allows us to turn down the larger boiler to 55° for the rest of the six-story building and save greenhouse gases. We paid the contractor \$7,500 (50% of his bill) on Aug. 2, 2010. (This was paid by the advance money received from the NHPUC grant.) Paul Rocheleau of The HVAC Guru stayed five days in September to begin the installation work, but no bill was received from The HVAC Guru during this quarter.

We also paid **Hayward** \$20,325 for ductwork and re-design, in three payments: \$6,707 (June 17), \$6,707 (July 6) and \$6,911 (Aug. 2.) The Museum is covering this total expense of \$20,325.

We also paid **Don Roberts** \$777 (July 26) for related carpentry work and **Carter Sprinkler System** \$560 (Aug. 19) to move a sprinkler head as required by building code related to the ductwork. The advance check we received from the NHPUC grant paid for Roberts' and Carter's two bills. These invoices were sent to the NHPUC as part of the first quarterly report. These two bills were paid with the advance check from the NHPUC.

**Tom Boswell** reviewed the schedules with the contractors and worked with the staff to avoid conflicts in schedules and Museum activities. He documented the work with images and reports. He reviewed the scope of the work with the Museum's Building Committee and Preservation Planning Committee, which is chaired by Paul Mirski. He also assisted John Rocheleau (HVAC Guru) in the installation of the heating system.

As an advisor (architect and historic preservationist), **Paul Mirski** reviewed the contracts, advised on details and reported to the Museum's board of trustees.

**Task 2:** We scheduled the **insulation** work for January 2011, the slowest time of year for the Museum. We did not schedule any overnight programs at that time to allow for this work.

**Task 3:** 100% complete. The energy efficient lights were purchased and installed in the prior quarter.

**Task 4:** 51% complete. Two **clothes washers** were purchased and installed in the prior quarter. Purchase of additional appliances are scheduled for February.

**Task 5:** The **exhibit** will be done after the completion of the activities to document the work and the rationale behind it. Colin High is prepared to advise on this.

**Task 6:** The Thermo IR Scan will be done at the end of the project to test the efficiency of the project. Howard Shaffer is prepared to work on this with Tom Boswell.

**Task 7:** The measurement and verification will be done at the end of the project to test the efficiency of the project. Colin High is prepared to advise on this.

4. *Summary of Work July 1, 2010 – September 30, 2010:*

HVAC Guru installed an alternate heating unit, to heat essential spaces (the staff office and Museum Store), reduce the load on the larger boiler, and save on heat and greenhouse gases. He will return in October, in the next quarter to complete the installation.

M. J. Hayward worked in June - August 2010 to design and install the ductwork for the ventilation system. The key concern was to install the ductwork without damaging the original construction in the Great Stone Dwelling, which is listed on the National Register of Historic Places. James Garvin, NH State Architectural Historian, believes the Great Stone Dwelling is worthy of designation as a National Historic Landmark. Hayward and Museum Property Manager Tom Boswell took care to avoid any change to the historic building. The vents in the windows are not visible to our visitors, and they were installed in such a way that they can be removed without any change to the original structure. This helps with our goal to have the project be a model for other historic buildings. The Museum paid for this work. This work is paid by the Museum.

As part of the insulation preparations, Carter Sprinkler System moved a sprinkler head. Don Roberts did preliminary cabinetry work associated with the preparations. Both jobs were paid with the advance check from the NHPUC grant.

Tom Boswell served as supervisor and oversaw all phases. Architect and historic preservationist Paul Mirski served as advisor. Colin High served as advisor on the energy-saving details.

5. *Jobs created.* No new jobs were created.

6. *Obstacles encountered:* No obstacles were encountered this quarter.

7. *Beyond the contract:* One of our goals is to balance the need for energy efficiency with the need to follow the Secretary of the Interior's Guidelines for Historic Preservation. Often these are at odds. Historic buildings need to breathe, and since preservation is our mandate, we are required to make changes that can be reversed. Many historic sites (Historic New England and Strawberry Banke, for example) are publishing their mistakes in these efforts. Our delays in the first quarter of this grant allowed us to avoid their mistakes and meet that balance. Our main concern this quarter was to install ductwork in the Great Stone Dwelling, a nationally significant historic building, without damaging original material. Tom Boswell and M.J. Hayward worked many hours with the Museum's Buildings and Preservation Planning Committee to create an energy-efficient system that would not

damage the original structure. We are very pleased that we have taken many steps to accomplish that goal. The vents in the windows are not visible to our visitors, and they can be removed without any change to the original structure. This helps with our goal to have the project be a model for other historic buildings. The NHPUC will be pleased to be able to use this as a model for other museums and historic sites.

8. Photos will be emailed separately, showing samples of the ductwork and different parts of the alternate heating unit as installed in the basement, office and store.
9. *Budget vs. Actual Expenditures.* Our expenditures this quarter: We spent \$23,325 on the ductwork and ventilation – this is not be part of the NHPUC expenses and have been paid by the Museum. The total expense for The HVAC Guru's alternate heating unit will be less than the original estimate of \$16,550. Bills for this work will be received in October, which is in the next quarter.
10. *Additional Steps.* We can now keep the Great Stone Dwelling heated at 55° and can afford to heat the office and Museum Store at 62° if we had not received the grant.
11. We will have press activities upon completion of the project, and we definitely will invite the NHPUC staff to attend the functions. We are very grateful to the NHPUC for funding these projects, which were needed and are saving us utilities costs as well as greenhouse gases.