

TOWN HALL BUILDING COMMITTEE WORKING GROUP  
NOTES FROM MEETING ON ENERGY MANAGEMENT ISSUES

August 29, 2019

Members Present: Jay Butler, Mike Twomey, Patrick Reffett, Jack Lawrence, Tim Olson

Members Absent: Not applicable

Others Present: Owner Project Manager (OPM), Lee Sollenberger of Design Technique (DTI); Designer/Architect, Drayton Fair and Mallory Demty of Lerner, Ladds, Bartels (LLB); Victoria Masone (Hamilton Energy Manager); Scott Clements, Jack Hauck, and Ed Howard (Historical District Commission Members); John Rodenhizer (ZBA member and Principal of JSR Adaptive Energy Systems)

Patrick Reffett opened the energy management working group meeting at 10:31 AM in the Memorial Room at Town Hall. He then introduced John Rodenhizer, Victoria Masone, and Scott Clements who were specifically invited to this discussion of town hall energy management issues.

**John Rodenhizer Comments**

John spoke extensively about his 35 years of building experience and specifically of his expertise in the area of energy management and that of his company, JSR Adaptive Energy Systems, having worked on many buildings including historic ones of the Town Hall vintage. His expertise included his role as a passive house builder and verifier. He stated that his primary focus was on building envelope insulation. In his remarks he said that every modern entity having to do with energy management could be used in an historic building. He would like to help the committee moving forward and asked to be copied on emails. He commented briefly on the state of the building including what he termed an “ugly” collection of HVAC equipment. He also noticed the windows which he understood were meant to be retained but he commented negatively on the storm windows. He asked that he be given copies of the most recent gas, electrical, and water bills for study. Jack L. offered that he could provide that data to John. He then offered that the committee should be planning out well into the future for such things as charging stations for electric cars. John then pivoted into a specific question of the area adjacent to the window where the sash weights were and the fact that this area offers substantial air leakage. Thus, they should be sealed

Patrick commented at this point that he wanted an interactive meeting and that all should participate, especially those with experience in the area, e.g., Mike, Victoria, John, Mallory, Drayton, Mike, Scott, and any others with experience. (Secretary’s Note: Patrick was kind enough not to name everyone in attendance except the secretary.) Patrick suggested that we divide the discussion into elements of efficiency, starting with a discussion on insulation.

## **Drayton Fair Comments**

Drayton started off by mentioning all of the limitations that were put in place on the project and all of the design features that have been developed as follows: keep all staff in building; keep existing building functions in building and place no offices in the basement; upgrade to current building codes; structure of building is sound; second floor stage will be removed and new floor installed; the grand stairs will be removed but two new sets of fire resistant stairs will be added; most walls will be reconfigured except first floor main hallway; Memorial Room will be moved upstairs; all of the office assignments require that the entire interior will be changed; new lightning and HVAC will be installed; fire protection system to be installed; new or upgraded toilets on all floors; exterior trim repairs. cupola replacement; septic system upgrade; removal of ramp on side of building; windows to be retained; two new rear entries to building; blown in cellulose insulation of walls by removal of interior walls and installation of vapor barrier and installation of new gypsum; all at a total estimated project cost of \$8.5M.

Mallory commented that installation of insulation via the internal walls was in deference to the Historic District Commission concern over preserving the exterior of the building.

Drayton continued to list other items by making a power point presentation to the group: long history of re-painting; past roof damage repair; and noted that the HDC did not like the storm windows in 2009; and in 2011 the existing windows were repaired and refinished, and the storm windows were replaced, but the cost was unavailable. Jack Hauck though the cost data might be available. It was noted that planning to replace windows at this stage when they were repaired and refinished in 2011, might not be acceptable to some voters. The comment by Drayton on the wall insulation caused John R to ask if a wall had been opened up to look at the current insulation. It had not. Drayton commented that the HDC wants the wainscoting and interior trim preserved. John R. noted that current code requires installing insulation if a wall is opened up and none is found. Mallory chimed in that it would be nice to have a net zero energy costs but that compromise is needed. John R. continued saying that incremental costs would be 10% with a 7 year payback. He also mentioned that he thought funds were available for energy saving incentives and the committee should take the time to do the project correctly. He pointed out that current maintenance practices are not sufficient, especially as regards the continuous repainting. He then mentioned that all water in the building needed to be managed. Jack Hauck mentioned that the basement flooded every year and Drayton countered with the fact that he had never heard that. Jack then backed down and noted that flooding may have happened once but that moisture was present much of the time. Jack H. maintained that the French drain was not working and suggested we ask someone from the Historical Society whose offices had been in the basement. He suggested asking Historical Society member, Annette Janes, for her opinion on the moisture problem. John R. then insisted that dealing with water issues in the building needed to be the number one priority before anything else. The basement needed to be conditioned and dry. Drayton said that they could excavate and put in a new slab with a moisture barrier but he was told the French drain system worked and the committee did not support the new slab approach. Jack H. suggested that a rock face in the ground in front of the building funneled the water from in front. Patrick mentioned that he was probably the biggest user of the basement amongst employees and that he only noticed flooding in the basement

several years ago when his home and others flooded during the 100 year storm. He suggested further that there was enough space between the front of the building and Rte. 1A to do some landscape grading to reduce the problem. John R. said maybe but he felt the high water table was the culprit and 100 year storms will be the norm in the future. Jack H. wondered how much time should be allotted to this discussion considering other priorities. Patrick felt we needed a balance amongst all possible solutions.

Drayton mentioned the historical significance of Town Hall and the fact that it is listed in the National Listing of Historical Places, and thus the need to follow US Secretary of the Interior guidelines for historical preservation. We then need to address the repair, restoration, or reconstruction of historical features. Insulating from the inside of the building is done for this reason. He mentioned that spray foam is not recommended because of air flow restriction, hydrophobic performance, expansion, sticking to everything, long term outgassing, and potentially tendency to burn. Drayton then presented a chart showing the pros and cons of several types of insulation installation options. The chart not only described the details and materials but graded them as regards price, building health, and historic preservation. The chart also notes the recommendations by LLB to use blown in cellulose or do nothing. John R. felt that the chart did not address energy usage or air quality. Drayton showed a second chart comparing and contrasting insulation options, i.e., dense pack cellulose, spray foam – closed cell, and fiberglass.

John R. said that we needed to look at energy savings grants to reduce costs and that Drayton's chart did not address energy usage or air quality parameters. Drayton said that in his experience that he had never seen any rebates that could pay for more than a fraction of the energy savings costs. John R. then asked what type of HVAC system we would be using. Drayton said we would use Variable Refrigerant Flow (VRF) HVAC and John R. thought that it was a very good system.

Drayton then mentioned that he would love to be able to bring the building down to the studs and start fresh but obviously the budget will not allow this. The HDC would not support that plan and the voters would not support the dollars required.

John R. interjected at this point and asked for a material usage list for the project.

### **Ed Howard Comments**

Ed Howard introduced himself as the chair of the HDC and mentioned that they not only had jurisdiction over the exterior look of the building but general responsibility for historic buildings in town and was the committee responsible for the Demolition Delay Bylaw which allows for a one year delay of demolition of historic structures. Ed also mentioned that the HDC had been looking into the acceptability of solar panels. At this juncture, John R. asked Victoria if the Chebacco Road ex dump site was up and operational with solar panels. Victoria said that it was not yet hooked into the system. Ed commented further that we should not be making the building too tight as it must be allowed to breath. He also said the French drains need maintenance. When asked by Mallory, Tim did not think there were places to allow for maintenance. Jack L. thought

Buster of the DPW Water Dept. was part of the French drain original installation and thus may know something. Ed felt the basement would always have moisture. Ed also mentioned the Wenham Town Hall that had vinyl windows installed to seal it up and yet found they leaked. John R. felt Ed was thinking “old school” and that new materials and techniques had changed things.

### **Victoria Masone Comments**

Victoria mentioned that she had been looking into potential funding sources and incentives. She mentioned some Green Community activities but it was required to track all energy use and the maximum grant would be \$250k. We will be under the required square footage of the building for National Grid incentives. However, John R. said he could help with that.

John R. said that we needed to develop energy models for the building so we can evaluate different energy saving proposals and evaluate available incentives for everything. For instance the VRF HVAC systems were very efficient He also mentioned that leverage over 30 years (potential life of a municipal bond) would be helpful. Drayton wondered what the baseline might be, especially since no exterior changes are planned.

Mallory mentioned the suggested use of four inch foam in the roof will be evident but John R. felt it could be minimized.

### **Scott Clements Comments**

Scott started by recognizing the issue of trying to balance the independent parameters of cost, historic preservation, energy management, along with usability of the building and noted that we need to achieve consensus on all four issues. We cannot have an either/or discussion. We obviously need to do some insulation as best as we can. He offered that we cannot replace old growth wood with the exact replacement where it is rotted but we can use currently available wood of the same type. However, we also cannot use PVC in place of wood. John R. said that we could do some tradeoffs. He pointed out one problem with paint peeling on the building but Scott readily explained that there may be many other reasons for paint peeling beyond insulation, e.g., type of paint, primer, etc. Scott wondered what the key targeted issues were that can be done. He suggested better storm windows, but noted they were likely not in the budget. John R. mentioned removing the sash weights and sealing the area where they were located. He also mentioned using PVC pipes to enclose the weights and insulating around them. Scott asked John R. to make a list of recommendations. John R. mentioned again that he needed the current plans to review. Scott asked what LLB needed and Mallory answered that LLB needs direction on what to do, especially since the design info was due to their cost estimator next Friday, September 6<sup>th</sup>. Ed chimed in that he was concerned over the building exterior. Jack expressed similar concerns over what do we need to maintain on the exterior. He wondered if we can use modern materials such as PVC and Azek or can we use a rain screen even if the exterior looked a little different. Scott said that PVC or Azek cannot be used in place of wood on the exterior because while it is designed to look like wood, one can tell the difference. Scott also said that the HDC did not want to change anything on the exterior even minor dimensional changes. John R. asked about using burel in place of wood and Jack Hauck said that the HDC has approved the

use of this composite material as it is made with fly ash that helps control and match shrinkage to wood.

Mallory mentioned that the September 6<sup>th</sup> date won't change and therefore LLB would welcome some suggestions. She wondered about placing higher than normal contingencies on the cost estimate in case of future recommendations. Jack said that we need some ground rules. Mallory said that we will need to send Scott and John R. the cost estimate for review. John R. wondered about doing an energy assessment on a Saturday to get a baseline. He also mentioned a Mass Save renovation program. He mentioned going back to old thermopane wooden storm windows. John also estimated that sealing around the windows where the sash weights were located would increase the energy insulation value from R-2 to R-14. Mallory felt the windows contributed only 10% of the building energy loss.

Patrick interjected and asked what LLB needed at this point. Did they want a hole cut in an exterior wall to see if there was any insulation. Drayton said yes. Mallory asked to establish a baseline model.

### **Mike Twomey Comments**

Mike reiterated many of the reasons for starting the renovation of Town Hall along with some of the constraints on the effort: provide handicapped access; fire protection; do project at the lowest possible cost; add meeting space; add parking; manage energy; meet all building codes; preserve historical features; keep all employees in building; place no offices in basement; solve noise issues on second floor; repair roof leaks; and solve basement water issues. He noted that the detailed cost estimate was due out soon while insulation questions remain. With a short timeline until Spring, the committee will need to tell the voters what they will get for their money.

Drayton reiterated the wall insulation plan of opening up the interior walls and installing a vapor barrier and blown in cellulose, installing new gypsum, while preserving existing trim and wainscoting. John R. suggested using rock wool instead so as to up the R rating, offer fire resistance, and prevent settling of the insulation. Going back to the windows he suggested using a thermal camera to look at energy leaks. He said we should seal up the windows and replace the storm windows. Ed cautioned everyone about the existence of knob and tube wiring in the building. Several noted that while most of that type of wiring will be removed, none of it will be live.

Patrick asked, and Lee agreed to get an evaluation of the basement moisture problem.

Meeting was adjourned at 12:30 PM.

### **Action Items Status:**

- Tim - Send latest design and layout info to Scott and John R. or provide them access to committee Dropbox
- Lee – Look into getting an analysis of moisture ingress into the basement.
- John R. – Develop specific list of energy management suggestions for the committee

- Jack – Provide town hall energy use data to the committee and John R.
- THBC – cut hole in an exterior wall to see if there is any insulation

Meeting was adjourned at 12:30 PM.

Secretary

Jay Butler

Attested 8/30/19