

Woodstock Town Hall

Woodstock, VT

Request for Proposals- Energy Efficiency Improvements

April 16, 2018

Schedule:

RFP out	April 16, 2018
Mandatory Prebid meeting on site	April 23, 2018 10am-12pm
Bids due	May 7, 2018 4 pm
Bid selection announced	May 16, 2018
Work commence	June 1, 2018
Work completed	August 30, 2018

The Town of Woodstock is requesting proposals for energy efficiency and related improvements to the town hall. Email a written proposal with the attached Bid Form at the end of this packet to phil@townofwoodstock.org and jh@zerobydegrees.com by 4 pm May 7, 2018. Exclusions or proposed deviations in the scope must be highlighted in yellow in your proposal.

The work must be bid and managed as a single project by a general contractor or construction manager. The scope of work is outlined below.

Measure 1: Air Sealing in Attic and Other Locations

Part 1 – General

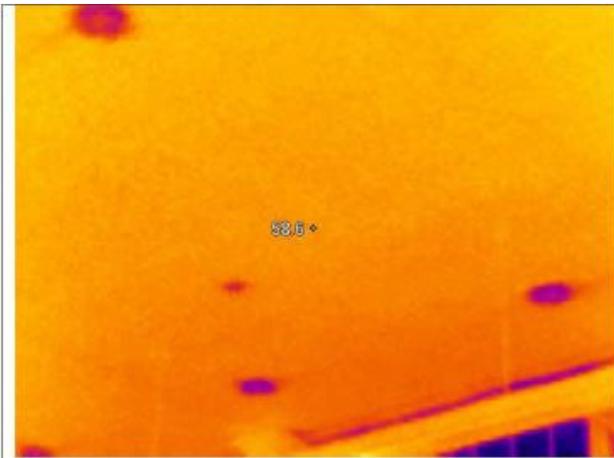
1.01 Description of Work

The following locations require air sealing:

1. Seal the large air leak through the basement conduit with duct putty.



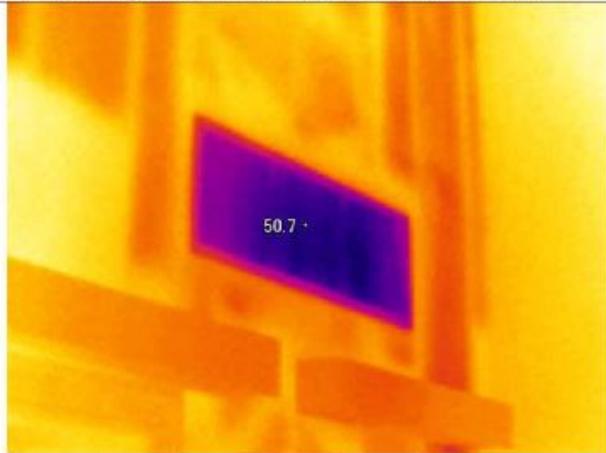
2. Install an insulated and weather-stripped hatch at the plane of the ceiling in the hallway that goes to the attic. Currently the hallway is treated like cold space but it is not insulated in the walls or floor so as to separate it from the rest of the building. The best compromise is to make this hallway a semi conditioned space by separating it from the cold attic with a hatch or by adding an insulated shed with a door at the top of the stairs. At the same time insulate and air seal over and around the elevator shaft in the attic with spray foam and cellulose.
3. Add manual dampers to the supply and return ducts so they are closed when not in use. This can be done by adding in a straight section of ductwork to the flex ductwork in the attic. The straight section of ductwork should have a manual damper pre-installed. There are AC ducts upstairs that do not see use all winter but allow warm air to escape to the attic. In winter the manual dampers should be closed.



AC openings that are cold under depressurization.



Visual reference for the IR picture



This return grows cold under depressurization because air is being drawn in from the cold attic. Under normal conditions warm air would exit through this path when the system is off. Note also the cold interior wall bays around the return. This is an air pathway to the attic above.



Visual reference for the IR picture

4. Air seal electrical and HVAC penetrations and the tops of interior walls inside the main attic with spray foam. Seal around and insulate heating and ventilation ducts by pulling back the insulation, and foaming around the ventilation penetration. In addition, We found several large openings that connect conditioned areas to the cold attic:



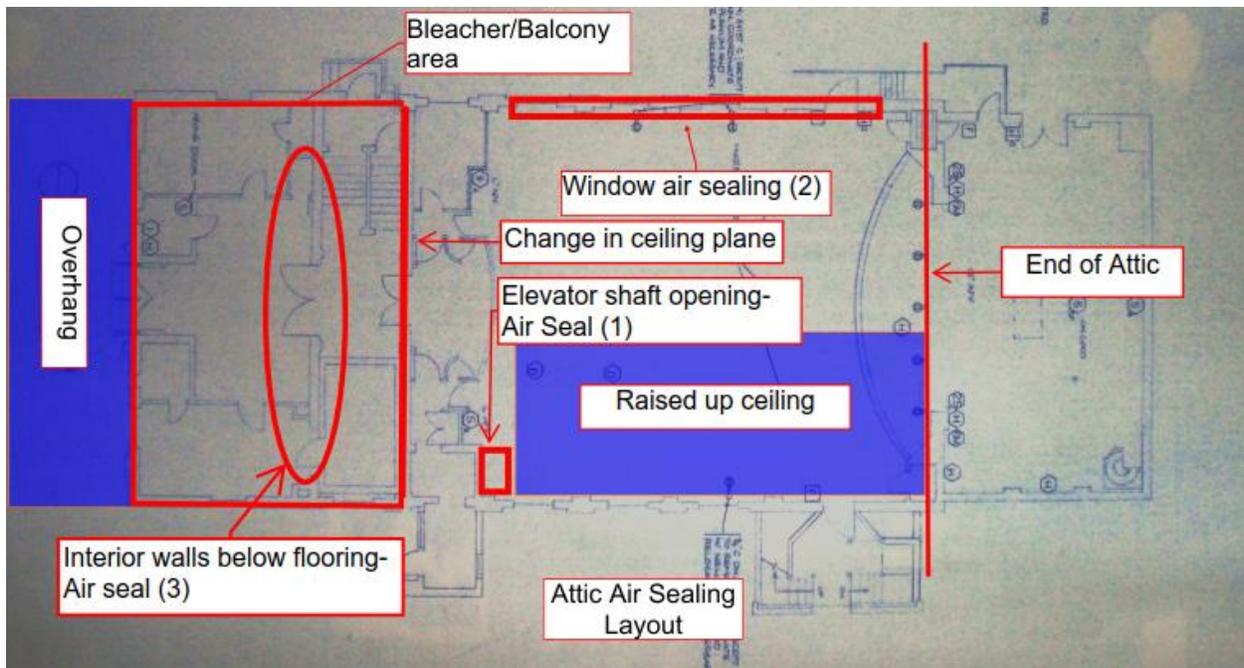
At the elevator shaft (1)



At the windows (2)



Above interior walls downstairs (3)



*Note-The layout above is not 100% accurate due to insufficient drawings. A site visit to inspect conditions is required.

To seal the large holes, clear the existing insulation in the immediate area and cover holes with plywood covers. Then use closed-cell spray foam to insulate and air seal the plywood and its perimeter. The spray foam should either tie onto the masonry or the plaster ceiling.

Windows in the second floor offices need to remain operable so windows that protrude into the attic will need a “box” in the attic to allow the lower sash top remain operable. The box will need to be

painted black to the exterior side, be air sealed, and insulated. Before any changes are made to the windows, the contractor installing the interior storms will need to be consulted on the air sealing measure as changes might need to be made for the interior storms to fit.

5. The attic needs to be separated from the heated space below it. The easiest way to do this may be to install an insulated and weather-stripped door where the stairs pass through the flat ceiling rather than to try to insulate the walls and stairs that lead to the attic.



A mandatory pre-bid site visit will be held April 23, 2018 10:00 am to 12:00 pm to inspect site conditions and answer questions about the scope of work. Your bid must account for the existing site conditions.

1.02 Submittals

- A. Manufacturer's technical data sheets including specified physical properties for every product being installed on site. This includes sealants, insulation, and plywood.
- B. SDS sheets for each product being used or installed on site.
- C. Certification that product complies with specification requirements and is suitable for the use indicated.

Part 2 – Products

2.01 Insulation

- A. Material Properties:
 1. Closed cell spray foam as kit foam or delivered by proportioner.
 2. Thermal resistance: Aged R-Values of 6.0 minimum, °F-ft²-h/Btu²/inch at 40°F and 75°F respectively.
 3. Core Density at least 1.9 lb/cubic ft.

4. 15-minute thermal barrier coating. Recommended by the spray foam contractor but approved by the local fire code official.

B. Sealants

1. Duct putty or other approved equal reversible sealant for sealing inside conduit.
2. Silicone or urethane caulk as needed for miscellaneous sealing with closed cell backer rod as needed.
3. One-part, closed-cell can foam as needed for miscellaneous sealing

Part 3 – Execution

3.01 Surface Conditions

- A. Remove any existing insulation, floor boards, etc. in the way of air sealing locations.

3.02 Installation

A. Air Sealing

1. Seal the large air leak through the basement conduit and other similar conduit with duct putty or similar reversible sealant use for electrical applications.
2. Separate the attic from conditioned space at the top of the stairs to the attic. There are multiple ways this can be done such as by installing an insulated shed with a door above the stairs, or by installing door flat in plane with the ceiling at the top of the stairs. Other options may also be considered.
3. Add manual dampers to the AC ducts in the attic space.
4. From inside the attic, seal heating and ventilation duct penetrations, and electrical penetrations that go through the attic floor.
5. From inside the attic, air seal large openings that lead down into the conditioned space with a combination of plywood, spray foam, and caulk.
6. See description of work above.
7. Reinstall any insulation that was removed or disturbed for air sealing work.

3.03 Clean Up

- A. Remove and properly dispose of any wrappings, debris, and other waste materials. The site must be clean when the work is complete.

END OF SECTION

Measure 2: Add or Replace Interior Storm Windows

Part 1 – General

1.01 Description of Work

A. The windows on this building are large, single pane, wood framed windows with an R-value of about 1. About half of them have no storm windows and most with storm windows need new ones as they leak heavily. Add or replace storm windows with single pane compression fit interior storm windows to increase the R-value to about 2.5. There are 21 windows that will need interior storms for a combined surface area of approximately 675 square feet. Note that there are 3 existing interior storm windows in the main conference room on the second floor that do not need to be replaced but will need a perimeter caulk seal.

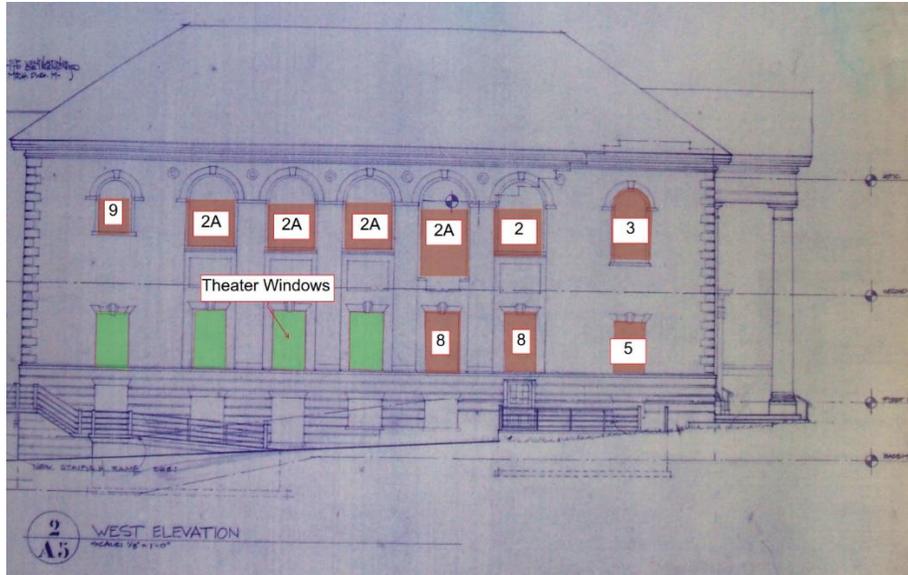
In addition, scrape, prime, and paint white exterior trim in 2 coats exterior paint at all the windows and doors. Scrape, prime, and paint all green exterior doors with exterior paint on the WEST ELEVATION ONLY.

Interior storm windows in office areas will need to be operable or easily removable so windows can be opened in summer. CLEARLY describe your approach to the office windows in your proposal.

Type	Type	Number of windows	Estimated area (ft^2) per window*
1	Curved head only	3	10
2**	rectangle	2	25
2A**	rectangle	4	25
3	Curved head	2	25
4	Curved head	1	84
5	rectangle	3	25
6	rectangle	2	4.3
7	Curved head only	1	12
8	Rectangle	2	40
9	Rectangle	1	20

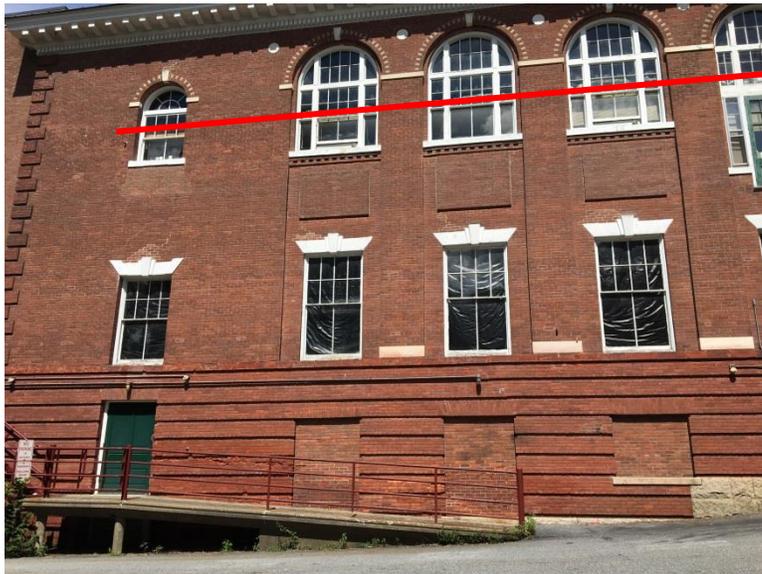
* The exact dimensions will need to be measured on site.

**2A and 2 are the same window dimensions, but windows 2A continue into the attic, so they will require different style/dimension interior storms. See images below.

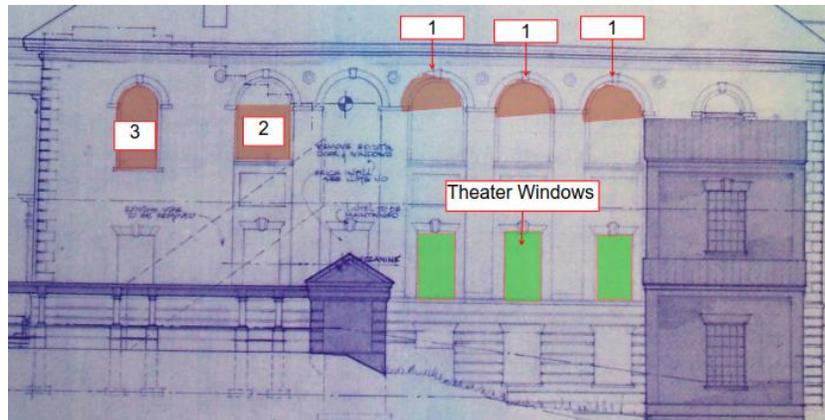


West Elevation

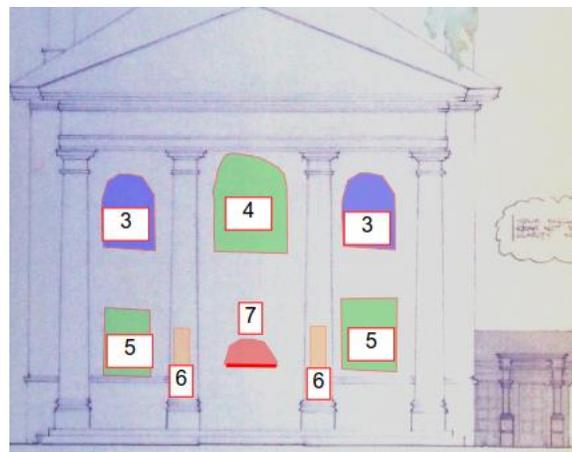
Windows type 2A and 9 on the west elevation should be measured and purchased after the attic space has been air sealed since the dimensions might change.



The red line in the photo above represents the plane of the attic on the west elevation.



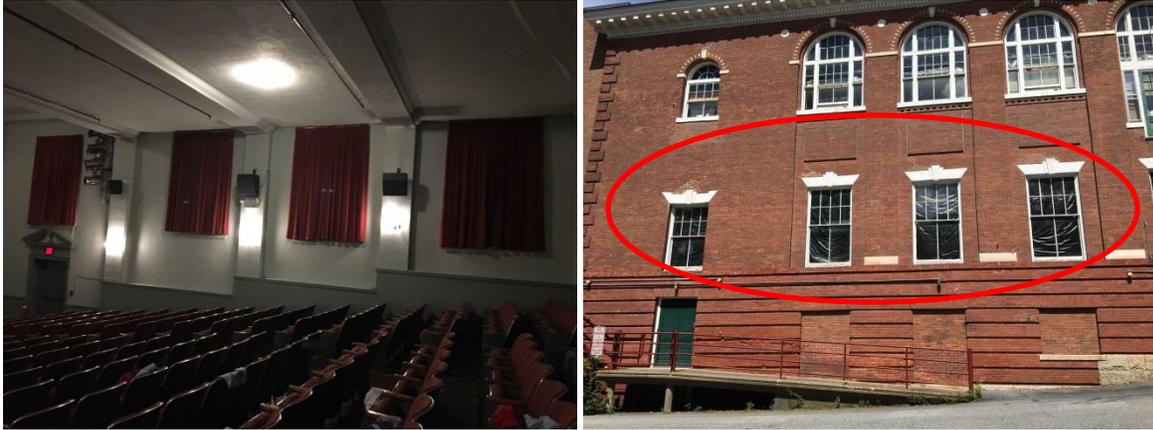
East Elevation



South Elevation (Front of the building)

The theatre windows are also single pane but are covered in black plastic to keep the theatre dark. For those we recommend making tight fitting “plugs” out of plywood and 2” rigid foam board. The plywood can be thin, it is only used to protect the foam board on both sides and it should be painted black. Put the plugs in place over the windows and then seal them in place with backer rod and caulking so they are airtight. The total surface area of the theatre windows is approximately 275 square feet for a total of 7 windows.

ALTERNATE: In order to keep the exterior side of the west side theatre windows from getting too hot a reflective film installed on the interior face of the glass is being considered. Provide an alternate in your proposal for the addition of reflective window film.



The theater windows are shown above from inside and outside the building.

A mandatory pre-bid site visit will be held April 23, 2018 10:00 am to 12:00 pm to inspect site conditions and answer questions about the scope of work. Your bid must account for the existing site conditions.

1.02 Submittals

- A. Storm window manufacturer's technical data sheets including specified physical properties for every product being installed on site. This includes sealants, insulation, and plywood.
- B. SDS sheets for each product being used or installed on site.
- C. Certification that product complies with specification requirements and is suitable for the use indicated.
- D. Paint technical data sheets and color samples.

Part 2 – Products

2.01 Interior Storms

- A. Material Properties:
 - 1. Compression fit interior storms with integral gasketing and weather-stripping
 - 2. R-value of at least 1.0.

2.02 Rigid Foam Board

- A. Material Properties:
 - 1. Extruded polystyrene (XPS) foam board
 - 2. Thermal resistance: Aged R-Values of 5.0 minimum, °F-ft²-h/Btu²/inch at 40°F and 75°F respectively.

2.03 Adhesive

- A. Glue that is compatible with rigid insulation to adhere to plywood.

2.04 Caulking

- A. Silicone or urethane caulk as needed for sealing with closed cell backer rod as needed.

2.05 ALTERNATE: Heat Reflective window film

A. Solyx: UltraCool-S3560 Silver with 65% solar heat rejection or equivalent.

2.06 Paint

A. Oil based Exterior white and green paint to match existing window trim and doors

B. Exterior oil based primer

Part 3 – Execution

3.01 Surface Conditions/preparations

A. Interior Storms

1. Remove existing interior storms where indicated above.

2. Measure the height and width of window trim inside the opening. Ensure that a compression fit interior storm will be able to fit air tight in each opening. Coordinate measurements with air sealing work being done in the attic for window types 2, 2A, and 9 as the dimensions might change at the head after air sealing work is complete.

B. Theater Windows

1. Measure the height and width of the window opening.

2. Cut Rigid foam and plywood to size.

3. Clean the interior surface of the glass on existing windows

3.02 Installation

A. Theater Windows

1. Install reflective film to existing window panes on the interior side on the west windows (see ALTERNATE above).

2. Build insulation plugs of plywood, 2" rigid XPS foam board, and plywood. Be sure to use a compatible glue. Plywood must be painted matte black on both sides.

3. Use backer rod and black caulk to seal the plugs into the window openings from the interior. Properly tool the caulk for a clean finish.

B. Interior Storms

1. Install interior storms per manufacture's guidelines and seal each sufficient to be air tight.

2. Caulk seal the 3 existing interior storm windows in the main conference room on the second floor that are not being replaced. Seal between the storm window and the surrounding window trim.

C. Paint exterior trim and doors on west elevation

1. Provide all masking to protect windows and walls and collect paint chips
2. Scrape and remove all loose paint
3. Prime
4. Repaint

3.03 Clean Up

A. Remove and properly dispose of the existing interior storm windows that were replaced, wrappings, debris, paint chips, and other waste materials. The site must be clean when the work is complete.

END OF SECTION

Measure 3: Weather-strip Doors

Part 1 – General

1.01 Description of Work

A. There are 11 exterior doors and 2 interior doors each needing differing levels of weather stripping and repairs. The 2 interior doors open into cold spaces such as the emergency stairs. Not all of the weather stripping will need to be replaced, some doors will need only the sweep and threshold replaced, others will need just weather stripping along the jambs. For example, the main entrance will need weather stripping where the two doors meet and at the threshold and one of the theater doors has a crack in the wood which will need to be caulked with clear silicone caulk. Check all panel doors for panel gaps to seal. Check the weather-strip at the head, jambs and especially at the threshold. Install new weather-stripping and adjust it until, looking at the perimeter of the doors from inside, you cannot see daylight.



# Doors	Elevation	Description
1	East	1 leading into the dressing room.
5	West	Boiler room, theater, theater lift, stage, and side entrances.
2	South	The main entrance and the handicapped entrance.
3	North	2 on the emergency stair case and 1 leading into the dressing room.
2	Interior	Open into the cold emergency stair case.

A mandatory pre-bid site visit will be held April 23, 2018 10:00 am to 12:00 pm to inspect site conditions and answer questions about the scope of work. Your bid must account for the existing site conditions.

1.02 Submittals

- A. Weather-stripping manufacturer’s technical data sheets including specified physical properties for every product being installed on site. This includes caulk and sealants.
- B. SDS sheets for each product being used or installed on site.

- C. Certification that product complies with specification requirements and is suitable for the use indicated.

Part 2 – Products

2.01 Weather-stripping

- A. Commercial grade weather-stripping
- B. Sweeps
- C. Replacement thresholds

2.02 Caulking

- A. Clear Silicone caulk as needed for sealing door panels or weather-stripping.

Part 3 – Execution

3.01 Installation

A. Weather-Stripping

1. Remove the old weather-stripping, sweeps, thresholds as needed.
2. Install commercial grade weather-stripping, sweeps, thresholds etc. with the correct thickness so that the doors are still easy to close and will make contact with the frame and threshold. Install weather-strip to fit tightly around door handles, latches, closers and other hardware. If done correctly, when the door is closed you should not be able to see daylight at the perimeter of the door.
3. Caulk seal any gaps in the door or in door panels with clear silicone caulk. Properly tool caulk into the gaps for a clean finish.

3.02 Clean Up

- A. Remove and properly dispose of any excess or damaged weather-stripping. The site must be clean when the work is complete.

END OF SECTION

**Measure 4: Add Spray Foam in Stage Walls and Roof and Crawlspace under the Seats.
Includes repairs to existing masonry on west wall.**

Part 1 – General

1.01 Description of Work

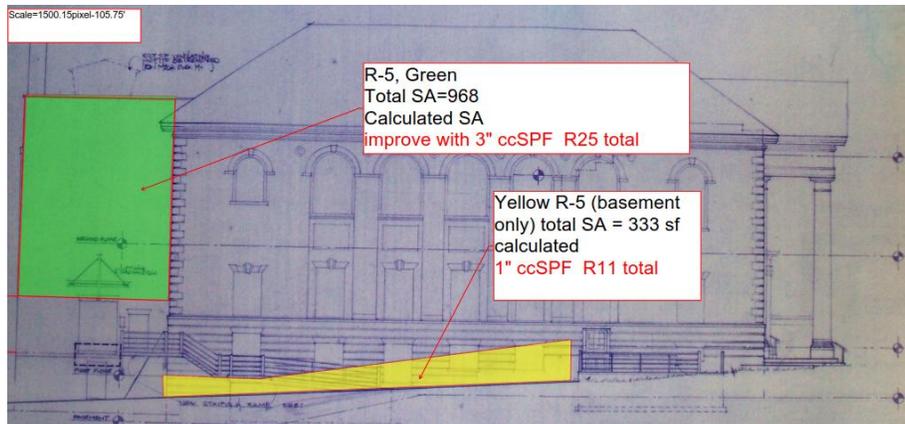
The ceiling above the stage has no insulation. Insulate it with 7" closed-cell spray foam (R45) installed in 2" passes at a time, approximately 1325 square feet. At the same time, weather-strip and insulate the attic hatch above the stage with rigid foam board that is at least 4" thick. Carry an allowance of \$2000 for an evaluation of the roof by a structural engineer before work begins. Miles Stetson of Engineering Ventures in Lebanon, NH ((603) 442-9333) is available to do the evaluation.



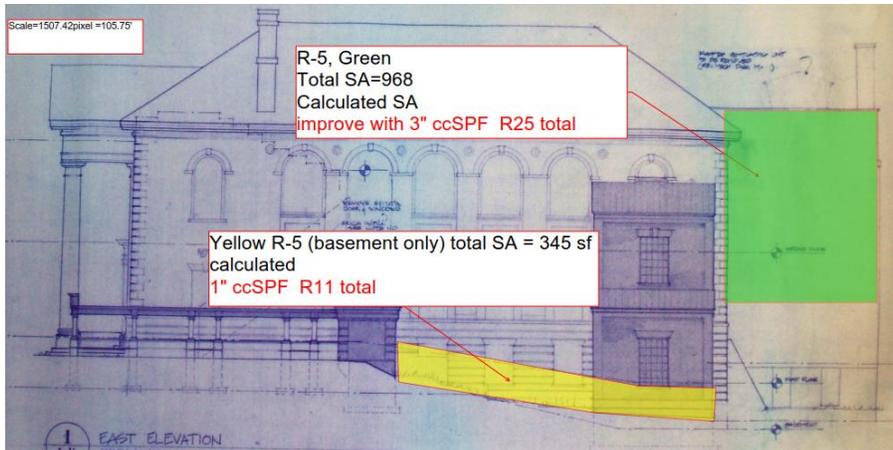
Insulate down the side walls of the stage where the brick is exposed with 3" closed-cell spray foam (R19). The foam will transition from the ceiling down to about 10 feet above the stage on the north, east, and west walls, approximately 3745 square feet. The south wall above the stage borders the cold attic, noted as "interior" south, will also be insulated with 3" closed cell spray foam, approximately 422 square feet. For maximum air sealing, connect the spray foam on the stage walls to the walls of the original town hall, there is a gap in the exterior walls between the 2 buildings (see image below).



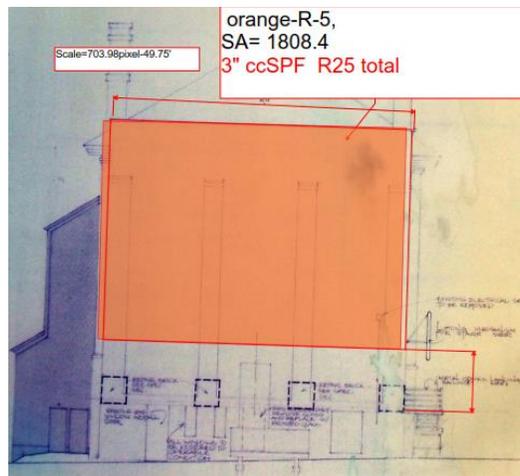
Also, insulate the exterior brick crawlspace walls under the theatre seats with 1" closed-cell spray foam (R6.4). The combined square footage of the east and west crawl space walls is approximately 680 square feet. The dirt floor will need to be covered with a vapor barrier in order to control the amount of moisture/vapor in the crawlspace. The vapor barrier will need to be installed first and lap up onto the walls 6" so the spray foam can come down and lap over it.



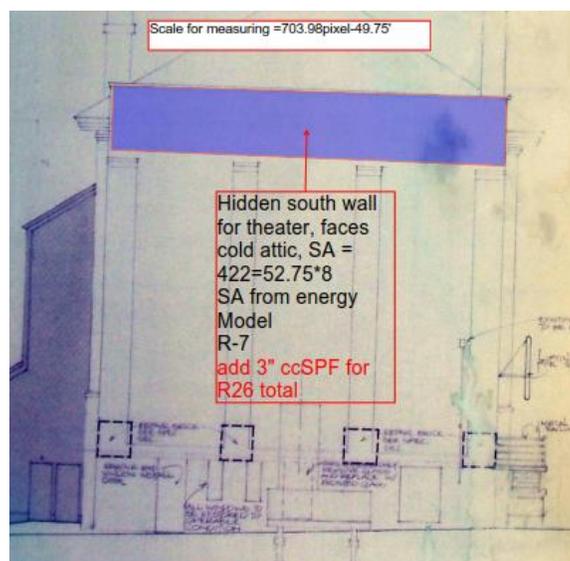
West Elevation



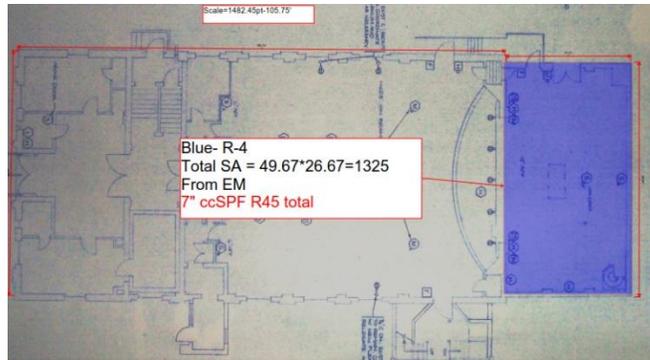
East elevation



North Elevation



“Interior” wall on south elevation



Roof above stage

The insulation on all walls and roofs will need a fire protective coating (15 minute thermal barrier) to meet local fire code. The spray foam contractor will recommend an appropriate fire protective coating for approval by the local code official.

Implementation of this measure will include plans to repair some of the existing brick and strategies to reduce water loading in the brick. The brick repair will be focused on the west wall for this RFP and is part of the base scope.

Theater ramp on west: The outer wythe of brick must be rebuilt in this area to a height 7' from grade at the door landing (23'x 7' then reduce down to 18'x 3' traveling from the door toward the green). The side walk should be separated from the brick to prevent trapping of moisture. Cutting the ramp will allow the masonry to remain correct to the building. The door and window at the extremes of the ramp could be good breaking points for this new plane of brick. A half inch will be sufficient separation. The lintel at the louver under the ramp should be replaced with a galvanized lintel.

A complete masonry wash should be performed prior to and after repairs.





Close ups of the existing brick



Outline of the brick area that needs repair for this RFP

ALTERNATE: There is second ramp on the west elevation. Please provide a price to demolish and remove this ramp and railing and replace with a concrete step.



The ramp proposed for removal

A mandatory pre-bid site visit will be held April 23, 2018 10:00 am to 12:00 pm to inspect site conditions and answer questions about the scope of work. Your bid must account for the existing site conditions.

1.02 Submittals

- A. Insulation manufacturer's product literature including specified physical properties.
- B. SDS sheets for each product being used or installed on site.
- C. Technical data sheets for each mortar type and replacement brick being installed.
- D. Mortar and brick samples for matching to existing.
- E. 15-minute thermal barrier coating tech data sheet and laboratory test results showing product is a code compliant thermal barrier when applied over closed-cell foam.
- F. Certification that product complies with specification requirements and is suitable for the use indicated.

Part 2 – Products

2.01 Insulation

1. Closed cell spray foam - Material Properties:
2. Thermal resistance: Aged R-Values of 6.0 minimum, °F-ft²-h/Btu²/inch at 40°F and 75°F respectively.
3. Core Density at least 2.0 lb/cubic ft.
4. 15-minute thermal barrier coating. Recommended by the spray foam contractor but approved by the local fire code official.

2.02 Vapor Barrier

1. Tu-Tuf – Material Properties:
2. Thickness-4 mil
3. Vapor Permeance – 0.039 Perms or less

Part 3 – Execution

3.01 Site Conditions

- A. Remove or mask over theater equipment including lights and curtains
- B. Provide floor protection for any staging or ladders
- C. Protect walls, floors, windows, doors, all adjacent surfaces, from foam overspray
- D. Verify stored items in crawlspace under theater seats have been removed by others

3.02 Installation

- A. Masonry: Repair all the masonry areas in the description above first.
- B. Insulation:
 - 1. This is an occupied building. Prior to foam installation, masking and ventilation will need to be set up along with scheduling with the occupants of the building.
 - 2. Insulate the North, South, East, and West walls above the stage with 3" continuous closed cell spray foam.
 - 3. Insulate the roof above the stage with 7" of closed cell spray foam in 2" passes at a time.
 - 4. Install Tu-Tuff vapor barrier across dirt floor of crawlspace and lap up onto all 4 walls minimum 6". Overlap seams at least 6" and tape seams with Tu-Tuff tape. Install vapor barrier tightly around support columns.
 - 5. Insulate the East and West brick crawlspace walls with 1" of closed cell spray foam. Foam must lap down onto vapor barrier. On north and south walls of crawlspace spray enough foam to seal and secure the Tu-Tuff.
 - 6. Staging or ladders will be needed to access the walls of the stage area. Protect stage floor for duration of work.

3.03 Clean Up

- A. Remove and properly dispose of any excess insulation, wrappings, debris, and other waste materials. The site must be clean when the work is complete.

END OF SECTION

END OF RFP

Bid Form

Company	
Address	
Primary contact	
Phone number	
Email	

	Price
Measure 1	
Measure 2	
ALTERNATE- Reflective film	
Measure 3	
Measure 4	
Allowance for Roof inspection	\$2000
ALTERNATE- Remove ramp	
TOTAL	