Building Envelope Specialists
SPECIALIZED BUILDING CONSULTANTS

Stan Harmon
Town of Bar Harbor
93 Cottage St
Bar Harbor, Maine 04609

April 8, 2014

RE: Bar Harbor Town Hall Window Evaluation

Dear Stan,

Thank you for including Building Envelope Specialists in your window evaluation. We are always happy to help the town in any capacity we can. The following is a summation of today's site visit where we did a visual inspection of the buildings existing windows inside and out. The exterior inspection was done from the ground. If you have any questions about the content of this report or comments please feel free to contact us.

Background:

The building is the former school and current town offices for Bar Harbor Maine. The building is one of the last remaining Fred Savage historic structures still occupied built circa 1907. The site visit was done Wednesday morning at 7:30 am. Sunny, no wind 25 degrees. The purpose of the site visit was to visually inspect all of the building's windows and speak to staff about their experiences with the windows in the building.

The current windows are aluminum extruded double hung style with top sash locks and ¾" or 1" insulated glass. These windows were installed in January 1994 at a price of $66,000 (according to the town).

Prior to the site visit BES has reviewed other parts of this building including the masonry façade and roof assembly.

At the site:

I met Tim Porter at the site. We walked the interior of the building and he shared with me people's experiences with the windows. He gave examples of many window related events from drafts to sashes coming loose and breaking. He was able to show me many locations that have historic and existing problems. I then moved on to the exterior where I inspected each elevation and photographed the façade. I followed up with an inspection of selected interior conditions and photographs as well. At the site I also spoke to town staff about their experiences with the windows.

Observations

- The windows are extremely hard to open and close.
- Many of the window lifts at the bottom are bent from people trying to pry the windows open, this has led to damage.
- Because the windows are difficult to operate many of them remain in a partially open state and unlocked. Many of the windows I observed that appeared locked were not closed all the way and the lock was not engaged. This leads to drafts because of a lack of proper seal and drafts.
- Even locked these windows are drafty; air movement can be felt at the base.
- All of the window locks are above the reach of staff. Even with a chair they are hard to lock if the window can be shut all the way providing a positive lock.
- Windows do not meet current ADA guidelines for locking and operation.
- None of the windows appear to be leaking during rain or snow events.

- The code enforcement officer has stated that her hair blows when the wind blows on the west side of the building.
- A third floor window measuring 5'x10' with sashes of 5'x5' came loose and tipped in on the person trying to open it. The person was not hurt and the window was put back in place. A sash this large can weigh upwards of 130 lbs. At a later date the sash did blow inward and broke. It was repaired and screwed into place. This unit is no longer operable. It is unclear why this sash came loose. It could have been installed incorrectly or the plastic retaining clips may have broken. Regardless, any failure of a sash to remain in place can cause injury or death to building occupants.
- The condition of the window surrounds is not clear. The windows appear to be set in the original exterior surround and break metal applied over it. There does not seem to be excessive cold at the head jams and sill leading me to believe the weight pockets are insulated and low expansion spray foam may have been installed at the perimeter. This has not been verified.
- At the exterior there are signs of corrosion. In some areas the finish is pealing from the aluminum.
- The exterior sealant is failing in many locations.
- There is some staining on the exterior break metal from rusting relieving angles.
- These windows are at the 20 year mark in their life cycle, expect seal failures to increase, glass to fog and retainer clips to continue to deteriorate and possibly break.
- A window, on the lower floor, is being used for mechanical ventilation. This is not an appropriate installation as it allows for infiltration of rain and snow. This can be remedied by replacing the upper sash with a fixed panel and a proper HVAC exhaust connection.

Recommendations:

- Recommend the windows in the building be replaced with easy to operate efficient units that match the design intent of the historic building. ADA operation is also possible with new windows bringing the public building into compliance.
- An awning-hopper style window setup may also improve comfort in the building by allowing cool air in from the outside at the bottom and also allow warm air at the ceiling line to escape.

Photos and observation:

East facade

Typical Large double hung window.

Typical Lower level windows.

Recommend a solid panel be installed in the upper sash for proper HVAC venting.

Typical deteriorated sealant

Rust stained and failing sealant

Standing Snow and damp, notice algae on sill and deteriorated sealant.

Finish failure, pealing from aluminum.

Typical interior sill, this window is not closed properly or locked. I could not close or lock it by myself.

Window at Code enforcement office. Notice acrylic sheet and tape used to stop draft.

Top of failed window that remains screwed shut.


Bottom of failed window screwed shut

Conclusions:

Overall these windows are performing properly keeping weather from infiltrating the building. They are not performing properly by allowing air in and out of the building. They are unmanageable to operate which makes them dangerous and less efficient due to people's inability to close and lock them properly. It is BES's opinion that they are at the end of their usable life and will continue to fail leading to a less efficient envelope and more discomfort for the occupants of the building. A new window configuration that is sympathetic to the historic nature of the building is recommended. Efficiency usability and ADA compliance should be factors in the design and implementation of a new fenestration system for the building. BES has already provided the town with a roof and façade package and can help you with the next steps to complete your building envelope restoration. The next recommended step would be a window selection and layout sketches to assist you in a new configuration. We are happy to help you with this.

If you have any questions or need anything further please contact us.

Warmest Regards,

Dave Douglass AIA
Building Envelope Specialists, Inc.