

KEEFE & WESNER ARCHITECTS, P.C.

ARCHITECTURE & PLANNING

This is a preliminary diagnostic report on conditions available to visual inspection at the time of our site visit; it is not a specification, and should not be used as a basis for contractor bids. Bid Documents contain substantially more information on quantities, standards, schedules, details and conditions of the work, which guide and protect both the Owner and the Contractor.

This assessment was partially funded by a grant from the Preservation Trust of Vermont and by the author.

June 29, 2016

Chad Roy, Town of Wolcott
28 Railroad Street
Wolcott, VT 05680

chadaroy.vt@gmail.com 802-279-6587

Dear Chad,

As requested we visited the Wolcott Schoolhouse on June 28, 2016 to examine and document existing conditions of the building, and to prepare this diagnostic report. Our findings are summarized below; conditions reported are those available to visual inspection at the time of our visit. Please note that while this report contains recommendations for repairs, it is not a specification for bidding; specifications contain substantially more information on quantity, quality and materials that both assist and protect you and potential bidders in carrying out repairs to your historic building.

The Schoolhouse is listed on the State Register as a contributing structure (#0810-01) in the Wolcott School Street Historic District, and dated c.1855; the banks of large windows on the gables were added later, and a belfry near the east end has been removed. The arrival of the railroad in 1872 stimulated development of this section of town.

EXTERIOR

Roof

Both sides of the gabled roof are covered in modern asphalt shingles. The south roof slope is in better condition than the north, with newer shingles that appear to be about halfway through a typical 25-year service life. The roof plane is flat, and eaves and ridge are both straight, indicating that the roof structure, walls and sills are all in generally sound condition. Four or five asphalt shingles on the south appear to have been loosened/displaced by wind and need replacing. The ridge has a somewhat irregular galvanized steel wrap-over flashing that is rusty, and should be replaced – preferably with something that does not need paint maintenance.

The asphalt shingles on the north roof slope are considerably older, and in much worse condition; lichen growth is widespread, many shingles at the eaves are broken or missing, revealing rusty galvanized steel drip flashing, and many shingles are curling. The roofing on the north has exceeded its service life and needs replacement. The small open-sided timber bell house cupola in the center has a low-slope pyramidal roof covered with asphalt shingles of the same age and condition as the north slope; these also need replacement.

Asphalt shingles are considered a temporary stabilization measure on historic buildings of this age, which originally would likely have had wood shingles or metal roofing. Standing seam Galvalume (steel/aluminum alloy) roofing is likely the best replacement choice for both historical compatibility and long-term economy, and will reduce live snow loading, which may be desirable given the irregular state of the roof framing.

The shed roof on the north addition (once woodshed; now kitchen) is covered with utility metal roofing that is very rusty; if the addition is determined to be useful in a future renovation project, it should also have standing seam Galvalume roofing, which will be more likely to shed snow coming off the main roof. If needed, a short-term repair to stop the leaks could employ a liquid membrane (e.g. Acrylabs) or even a tarp securely fastened.

A small roof over the north entry to the east classroom has deteriorated asphalt shingles that will need replacement. There appears to have been a similar roof, now removed, over the western north door. The south entry has deteriorated asphalt shingles that need replacing; step flashing here also needs complete replacement.

Chimney

There is currently no chimney above the roof line, but a 27" x 27" brick chimney rises through the attic near the center of the building, and has been rebuilt recently with ordinary Portland cement mortar, stopping beneath the roof deck. If it is to be used, this chimney will need to be extended. Historic photos show two chimneys. Reconstruction of the chimney is not a requirement for HP funding, and not listed or priced as a needed repair; if this chimney were finished through the roof, it might cost in the neighborhood of \$8,000-12,000.

Woodwork

The hybrid wood-framed building has charming Greek Revival details including a crown cornice with returns, a broad upper frieze divided by a shadow molding and another smaller lower frieze, wide (16") corner pilasters with simple flat trim used to evoke fluted shafts, flat trim at windows and doors, a 6" water table and tightly-spaced (2 ½") clapboard siding. A very minimal bell house on the roof has painted untrimmed corner posts; this does not appear to be an original feature, and may be missing some wood details. A set of utility stairs built of dimensional lumber in the recent past provides access at the south entry.

Grade is high at the NW corner, with resulting damage to the water table, siding, pilaster base and probably the wooden sills; once grading has re-established proper clearances from wood elements to grade, these will need repairs. Siding around the NW exterior door, where it appears there was once a shed roof covering, is damaged and sections have been removed and/or wrapped in plastic. Woodwork and trim in the splash zone above the small shed roof at the northeast exterior door is deteriorated and will need repairs.

Most outside mitered corners at cornices and trim have open joints, as do the bases of pilasters, and trim around the cornice returns. These will need to be filled in (carpentry + caulk, maybe some epoxy). Siding at the bottom of the north wall on the north shed addition is deteriorated; this area is somewhat obscured by bushes and weed growth. The south top section (~8') of the raking cornice on the east gable is displaced and needs repair. Siding and trim in the splash zone above the south entry roof is deteriorated and will need selective repair/replacement.

Reconstruction of the original bell tower on the east end is not a requirement by Historic Preservation standards; it would likely add something like \$10,000-15,000 to the budget.

Doors and Windows

On the north, a flush metal door (NE) is rusty and needs replacement; the NW door appears to be an older 2-panel door, with plywood now installed over the panels, and needs utility maintenance, or replacement. In the shed addition are an 8/8 c. 1970 wood double-hung with aluminum storm and a newer vinyl 2/2 double-hung. The 8/8 window needs sash conservation or replacement; the vinyl window would likely be replaced in a renovation, but appears sound.

On the west, (5) 12/12 large wood double-hung windows with aluminum storms need sash conservation. A square louvered opening in the attic and a smaller HVAC louvered opening appear sound.

On the south, a new paneled vinyl door at the entry appears sound. (1) 1/1 wood double-hung window to the left of the entry is a hybrid of new vinyl and older wood; this will likely be replaced in a renovation, but could likely be repaired as a utility window in the meantime. On the opposite side of the entry (1) 1/2 wood double-hung window is deteriorated and needs replacement. (4) 8-light wood fixed sash with no storms need sash conservation. (2) basement windows have rusty steel frames but no sash.

On the east, (5) 12/12 wood double hung windows with aluminum storms need sash conservation. A rectangular attic vent rotated 45° appears sound.

Not all of the windows are historic, and those that are not will need evaluation in the context of any planned renovations to determine if it makes sense to repair or replace.

The historic, character-defining windows (e.g. the 2 banks of 5 large double-hungs on each gable end) should without question be conserved and maintained in place.

Sash conservation typically consists of removal of sash to a shop for complete disassembly and repair/re-glazing/re-painting, and prep/re-painting of the sill, jambs and casings before the sash is re-installed. It also includes provision of a secure security panel in the opening while the window is being repaired. Maintenance repairs can typically be done in place and involve less-extensive repairs to glazing, woodwork and finishes.

Paint

All paint on this building is far past service life, and much of it shows signs of alligatoring (square cracking) that indicates paint layers are too thick to accept additional paint without first removing old, failed paint down to sound layers or bare wood. Paint is missing in splash zones, on window sills and horizontal surfaces, and is peeling in many locations. Nails are rusting as well; these need to be sanded and primed with a rust-inhibiting primer as part of the re-painting work. The building needs a major (once every 50+ years) prep, with all bare wood primed, and then everything re-painted.

Paint maintenance, often deferred on historic buildings, is an important first line of defense against incessant weather and climate-related deterioration; staying ahead of paint repairs not only protects the historic fabric of the building, but is almost always less expensive than waiting until deterioration to the painted substrates requires more invasive repair work.

Getting painters who are capable of the kind of careful and thorough preparation necessary to ensure good paint performance is difficult; *Preservation Brief #10: Exterior Paint Problems on Historic Woodwork* should be used as a guideline, and painters pre-qualified by their familiarity with these guidelines and a willingness to follow them.

Paint failure, especially with newer paints lacking the VOCs that older paints had, is a common problem, underscoring the need for careful preparation and use of the best possible materials, including caulks, primers and finish coats. The stages, causes and responses to paint failure are well-described in *Preservation Brief #10: Exterior Paint Problems on Historic Woodwork*, which should be used as a guideline in addressing paint repairs.

Prep work is 90% of the success of a paint job, and is skilled work that should not be left to amateurs. Although good-quality paint may appear expensive, most of the cost of painting is in labor, so that extending the cycle quickly becomes a substantial net gain. New lead-paint regulations will need to be followed; they should not increase the cost significantly.

Foundation

The original stone foundation has been replaced with an un-reinforced board-formed concrete foundation, which is substantially sound despite several large vertical cracks in the south wall. Ridge and eave lines are remarkably straight, indicating that settlement and substantial deterioration at the foundation and sills has not occurred. There may be some rotten sills to replace, but the foundation does not appear to be frost heaving, settling or otherwise failing, other than the cracks between unreinforced sections of wall. Concrete in a small area at the SE corner is exfoliating; this may be caused by a vehicle (plow?) striking the foundation, but is confined mainly to the outer layers at the corner, and can be patched with new concrete and an appropriate binder. Epoxy-modified concrete can be injected into the vertical cracks, since the wall sections do not appear to have displaced; this will need evaluation by a structural engineer to determine effective repairs – one of several places the engineer will need to examine.

Site

The Schoolhouse sits ~40' back from the town road with the long axis running east west perpendicular to the road; it is separated from the much newer Town Offices by only 7 ½ feet, creating both a potential fire hazard and restricting drainage around the building on the south. This will need to be addressed in a renovation project, and may invoke additional fire-resistance measures in order to get a State Construction Permit from the Fire Marshal. A preliminary review by the FM is strongly advised early in the planning process.

The land around the schoolhouse slopes to the east and slightly to the south; grade rises fairly steeply directly to the north, and is nearly flat on the south. The building is surrounded by lawn on the east and west and small sections of lawn extend along the south on either side of the entry bay. On the north, brush and small trees are growing against the building and this area needs to be cut back, and the grade re-worked to allow good drainage around the building to the east. Grade is too high at the NW corner, and has been for some time, resulting in damage to sills, wood trim and siding; re-grading should lower this to allow a minimum of 6-8" clearance between grade and any wooden elements. There is a small ditch scoured into the lawn under the eaves on both north and south sides; a gravel 'splash' pitched away from the building at the drip line should be established once grade is corrected. Negative drainage (towards the foundation) occurs on either side of the front/south entry bay, and should be re-graded in conjunction with establishing a gravel 'splash'. Careful planning will be needed to handle water drainage on the south where there is constricted space between the Schoolhouse and the Town Offices; a yard drain and sub-surface drainage may be required.

INTERIOR

Interior repairs are generally of a lower priority than exterior ones, since they have less impact on the building's condition and are not as vulnerable to weather-related

accelerated deterioration. We note conditions here for the record, and urge the owners to prepare a comprehensive preservation and maintenance plan in connection with renovation planning that will address ongoing cyclical maintenance of all interior and exterior elements.

ATTIC

The unfinished attic has constricted access, which should be re-designed to allow inspection, maintenance and repairs. Utility lighting would also be useful. The building is constructed of circular-sawn lumber, with dimensions that suggest it was built in a transitional period from timber framing to construction with sawn, dimensional lumber in the latter half of the 19th century. The State Register lists the date as 'c.1855'. There is evidence that the building was added onto (vertical joint in south cornice; changes in framing details), and there has been much reworking of the framing in the attic, removal of chimneys, adding of mechanical ducting, etc.

The roof is framed with 4x5 rafters @ 29" o.c at a 9 in 12 pitch; rafters are opposed and connected in the west half, and frame into an 8x8 sawn timber ridge rotated 45° on much of the east half. The ridge beam stops about 8' short of the east end, where a former belfry structure rose above the roof (as shown in historic photo provided by Owners). A minimal amount of 6x6 braced framing that appears to be contemporary with the rest of the original framing remains just inside the east gable. Skip-sheathing boards on the roof reveal a plywood layer under both newer (south) and older (north) asphalt shingles. Sawn cross ties ~ 8' above the floor occur on some of the rafter pairs, and some vertical boards acting as hangers for the ceiling/attic floor remain. An older wood truss composed of 7 1/2" x 3" A-frame beams with a center 1" diameter iron rod supporting the floor framing is positioned inside the rafters and approximately over the center of the west classroom running north-south; this is a fairly standard method to eliminate columns in the room below. Two newer framed trusses using modern dimensional lumber are located over the center rooms and the middle of the east classroom. A smaller and much lower truss of smaller sawn dimensional lumber runs perpendicular to the others near the center of the building; it is casually framed and does not appear to have any thrust resistance where framed into the floor, making its effectiveness dubious.

The floor has 8x8 transverse carrying beams at roughly 10'; framed between them are 3" x 8" joists at 19" o.c. with 4-6" of cellulose insulation mostly below this original framing, presumably resting on a newer suspended or framed ceiling. Gable walls are framed with 2 x 4 @ 19"; there is a rebuilt 27" x 27" chimney in the center that stops below the roof sheathing. There has been new wiring, both BX and Romex, but much of it is not Code-compliant, lacking any backing and in some places split to expose strands of the wire. You are strongly urged to have a licensed electrician inspect this and repair any unsafe conditions; an electrical fire here is one of the biggest threats to the building, and would quickly spread in the dry framing, endangering the adjacent Town Offices as well. While power is currently turned off, this is still a very high priority to avoid accidental energization that could result in a fire.

FIRST FLOOR

The entry, which is not original (c.1970) has vinyl flooring, gypsum walls and acoustic tile on the ceiling. Finishes generally need maintenance repairs.

The middle section has vinyl flooring, gypsum walls and batten and homasote ceiling, with 2-panel wood doors to classrooms. The north half of the floor has failed structurally and sags dangerously. A kitchen in the north shed addition has vinyl flooring, gypsum walls and batten and homasote ceiling finish –all in fair to poor condition. The floors here and throughout most of the building deflect when walked on indicating structural failure. A small south room and another small room with electrical panels have typical finishes, as does a small janitor's closet.

The east classroom has strip maple flooring with a deteriorated t&g wood floor beneath it; maple flooring is water-stained, and humped up from moisture-related expansion near the north door. The flooring is repairable, but will need substantial work, after structural and moisture issues are addressed. Walls and ceiling are covered with utilitarian homasote and batten painted finishes. A small bathroom has vinyl flooring and gypsum walls and ceiling.

The west classroom has oak thresholds and severely water-damaged and buckled strip maple flooring; where a section has been removed we could observe a small portion of the floor structure, consisting of pairs of 3" x 8" joists @ ~ 18" framing into 8 x 8 carrying beams. All of the floor framing has decayed wood on the surfaces, but may have enough redundancy to remain with some sistering and reinforcement. Flooring in this room and in the center section will need to be completely removed to allow access to the tight crawl space - generally <18" – and to evaluate all framing, supports and footings, as well as to install a thorough vapor barrier on the dirt floor of the crawl space. Walls and ceiling in the west classroom are finished with painted batten and homasote coverings.

CRAWL SPACE

This very tight space was accessible from the exterior only via two foundation window openings (sash was missing); from the very limited amount visible we noted that the muddy dirt floor has no vapor barrier, and clearance was typically 18" or less. Sawn 8" wood joists frame into 8x8 transverse wood carrying beams, and the floor structure has been reinforced with additional wood beams underneath supported on rocks, p.t. posts, cinder blocks on their sides and occasional concrete footings. We noted what appears to be a granite transverse support beam under the west side of the middle section; the south half of the floor above this is exceptionally solid, unlike the floor structure in the north half of this room, suggesting that the granite beam extends only halfway across the building. White fungus growth is apparent on stones, blocks, and some wood members, supported by the high moisture levels and lack of ventilation. There appears to be more reinforcing – and generally less moisture – under the eastern classroom, at least on the south side.

A complete vapor barrier – hopefully something more substantial than 6-mil plastic – should be installed over the entire crawl space floor, and will probably require access from above, particularly on the north and west. This should be coordinated with repairs to foundations, framing and grading.

PRESERVATION STRATEGIES AND COSTS

Estimating costs that are meaningful will depend heavily on a number of planning decisions that have yet to be made, but will almost certainly address a new use for this building other than its historic use as a schoolhouse. Change-of-use strategies involve Code, structural and mechanical issues, and decisions about whether to remove or re-use additions or past renovations. Any re-use plan will involve repairing to sound condition the foundation, main floor, and ceiling/roof framing, as well as re-roofing, window and door repairs and some replacement, painting, and finishes, as well as insulation and other improvements to the thermal envelope, and choices about interior finishes. They may involve decisions on whether to restore the belfry, whether to create a functioning masonry chimney, and how much additional site work and landscaping is needed. We include below order-of-magnitude costs repairing the existing building to sound condition, and a general square-foot cost for an as-yet-to-be designed interior renovation. As more information becomes available, and decisions are made, these assumptions and costs will undoubtedly be revised, but this will give a general feel for the scale of work and costs that will be needed in any renovation project for the Schoolhouse. Separating these costs into high, medium and low priority is not relevant to this assessment; if anything beyond stabilization is undertaken then all of these tasks will need to be included. Priorities and a phased approach, if desirable, can be addressed in the next phase of planning.

Repairs are ranked below in order of priority. It is also strongly recommended that you carry at least a 20% contingency for conditions that cannot be seen in a non-destructive investigation such as this one. Use of contractors skilled and experienced in preservation work will help to manage discovered conditions and insure that proper consideration is given to materials, practices and preservation concerns; this is usually the most cost-effective approach and protects the integrity of the building, including its eligibility for funding. Stabilization measures will likely be identified in the next phase of planning, to curtail on-going deterioration while fundraising and planning are carried out.

This opinion of probable cost addresses historic preservation issues; it is not based on full research, specifications or details, and should be considered advisory only. Our estimates are explicitly "Order of Magnitude" preliminary opinions of probable cost, exclusive of any Div. 1 (General Conditions) costs, any specific costs associated with choice of materials and methods, any scale of work issues (small projects are more expensive per unit than larger ones), any project-specific conditions, any discovered conditions or additional information that a bidding contractor may well uncover, and that a specification can address but this brief report does not.

Costs are based on hired labor and new materials, both at market rates in a recovering economy, taking into account special contractor expertise as required.

High Priority

Re-grading and new gravel 'splash' @ all eaves	Allow	\$5,000 – 10,000.
New metal roofing @ all roofs	"	45,000 – 55,000.
Foundation and 1 st floor structural repairs; new flooring*	"	90,000 – 115,000.
Woodwork repairs	"	25,000 – 35,000.
Sash conservation + select replacement (incl. doors)	"	30,000 – 32,000.
Full prep and re-painting of exterior	"	30,000 – 40,000.
Roof and attic floor structural repair/reinforcement	"	20,000 – 30,000.
Immediate electrical safety inspection + repairs	"	<u>500 – 1,000.</u>
Subtotal:		245,500 – 318,000.

Interior General repairs all finishes, systems, etc. 2100sf @ \$75 157,500.

TOTAL

\$403,000 – 475,000.

* Foundation repairs; new VB	15-20,000
Remove exist'g flooring; discard	10,000.
Test/replace structural framing (~50%?)	15-20,000.
Reinforce where needed	10-15,000.
2100sf new subfloor and flooring	40-50,000.

CONCLUSION

This is a building worth saving; with roughly 2,100 sf of enclosed, finished high-ceiling space, the value of the current building (i.e. the cost to replace with new construction what is there now – discounted 50% to allow for the deterioration) is roughly \$262,500-315,000. Demolishing this building would discard that amount (not including demolition and disposal costs), and new construction of a similar size building would cost about \$250-300/sf or \$525,000 – 630,000. If rehabilitation cost \$200/sf – allowing something for making an Assembly Occupancy meet modern Codes and requirements – the rehab cost would be about \$420,000.

A rehabilitated building may not have to meet as stringent requirements as a new building, and would retain the value of its historic contributions to the community, and the unique characteristics that make it specific to Wolcott and unlike other rather character-less modern municipal buildings.

Repairs now will return a number of deferred maintenance details to a condition requiring only routine maintenance; conversely, these problems will accelerate if not addressed. Employment of tradesmen with demonstrated expertise in historic building repairs - even though they appear more expensive than others - can avoid most maintenance problems created by unskilled repairs. Some repairs benefit greatly from using specifications for bidding (e.g. masonry; window restoration; painting) to guide the contractor and ensure that unqualified contractors are not selected based solely on a lower price; there is nothing more expensive than poorly-done work that has to be re-done.

A comprehensive plan for the use and periodic maintenance of the building should be developed to organize records, avoid costly repairs, anticipate cyclical replacement of materials, and utilize the best methods and materials from a growing body of research and experience with historic building maintenance, which often differs significantly from maintenance of newer buildings.

We are pleased to have had this opportunity to assist you in the on-going stewardship of this significant historic resource. Please don't hesitate to call if you have questions on any of the above, or need additional information or assistance in continuing restoration work on the building.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas F. Keefe", with a long horizontal flourish extending to the right.

Thomas F. Keefe, Architect
Keefe & Wesner Architects, P.C.
TFK/hos
Encl./