



CONDITIONS ASSESSMENT REPORT

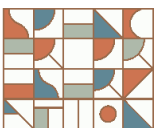
FINAL v2

SOUTHBOROUGH MUSEUM

This Report was funded by the citizens of Southborough through the Community Preservation Act

SOUTHBOROUGH, MA

MARCH 2022 revised JULY 2022



Spencer Preservation Group

PRESERVATION ARCHITECTS

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Community Preservation Act

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

We are pleased to have had the opportunity to prepare an exterior conditions assessment report for the Southborough Historical Museum, which is operated by the Southborough Historical Society and owned by the Town of Southborough. Built in 1859, this schoolhouse served the Town in many capacities, from schoolhouse to fire station to office and now, museum.

This study provides an assessment of the exterior conditions of the building and comments on the adjacent walkway and parking. Essentially we find that this charming building is in need of some cosmetic and mechanical repair in order to maintain the integrity of its exterior and we suggest some improvements to the site. The first task is to repair the double-hung windows and replace deteriorated window sills and door thresholds. Next, the largest job is to remove all the peeling paint, seal the gaps in the exterior envelope, re-nail raised nail heads and reattach loose building elements, and repaint all the wood surfaces. At the level of the foundation, we recommend patching the delaminated and missing parging on the foundation wall. Last, we suggest some site improvements including removing the asphalt around the foundation and adding a stone apron to reduce splashing of rain on to the foundation wall, and redesigning the accessible walkway and granite steps to include granite steps with equal rise and the addition of handrails. Our preliminary cost estimate, which includes window restoration, carpentry repairs, painting and site modifications is estimated at \$178,000.

THE REPORT

PART ONE of the report provides a brief history of the building's use and locations over time.

PART TWO provides observations and conditions of the building's architectural features and, most importantly, provides recommendations for improving areas of concern. Additionally, a paint analysis performed by Finch & Rose Historic Finishes Consultant, provides a history of the paint finishes along with their colors and material properties.

THE APPENDIX The MACRIS report for the Flagg School is also included.

METHODOLOGY

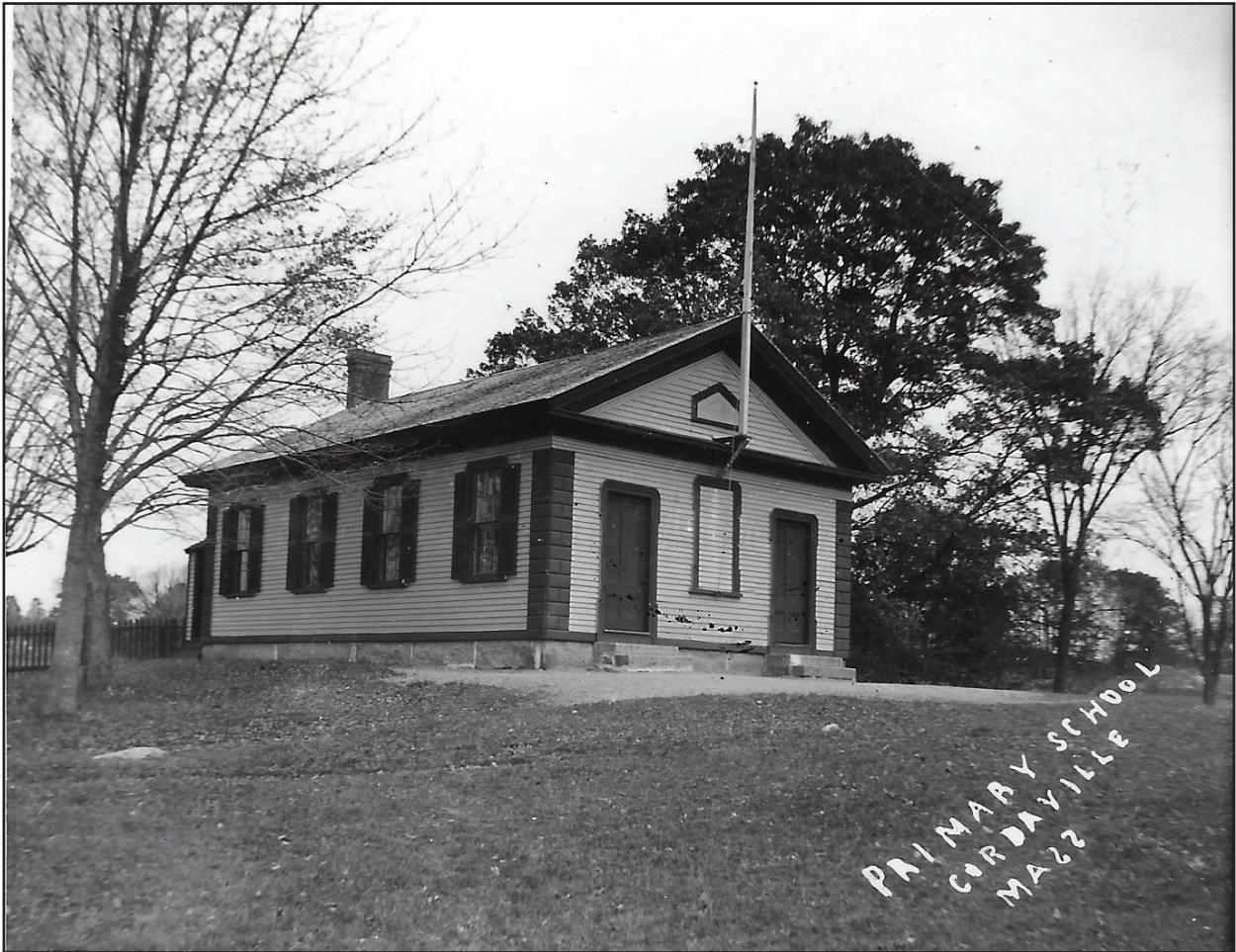
The Conditions Assessment Report represents an evaluation of exterior conditions by SPG and its consultant Finch & Rose, a historic finishes consultant. The Southborough Historical Museum was represented by Michael Weishan, the President of the Historical Society.

The project team was assembled and directed by Lynne Spencer, Preservation Principal and Doug Manley AIA, Architecture Principal. Doug Manley directed on-site building documentation carried out by architectural designer, Amy Jamison. Lynne Spencer directed the historic research portion of the report carried out by Amy Jamison.

SPG assessed conditions at the building envelope and documented them with narrative and photographs and architectural drawings. The paint consultant analyzed the layers of paint on the building, providing a history of the paint finishes and colors over the life (1860-present) of the Flagg Schoolhouse.

All photographs were taken by Spencer Preservation Group unless otherwise indicated. The final report was issued in electronic format as a portable document format (PDF) file.

PART 1: HISTORY



Brief History of the Building Use



Image 1 : Southborough District 5 Schoolhouse, Cordaville (1880s) Courtesy of Southborough Historical Society.

DISTRICT 5 SHOOLHOUSE

The Flagg Schoolhouse, which currently houses the Southborough Museum, was built in 1859-60 and was originally located in the southwest area of town called Cordaville, at the corner of Flagg and Deerfoot Roads. District Schoolhouse 5, later known as the Flagg School, is one of two remaining 19th century schoolhouses in the Town of Southborough. A sister school, the Woodland School, is a near-twin (Image 1). It is a Greek Revival style one room school, representative of the design promoted in school architecture literature of the mid-nineteenth century.

In 1860, it was known as the District 5 Schoolhouse or more familiarly, the Cordaville School. Built by Dana Flagg, the building was one of six schoolhouses in the Town of Southborough, which were built at that time as a second round of school buildings to replace aging schoolhouses in the outlying districts of Southborough. It had separate entrances at the front for boys and girls, and four bays of windows on each side. The paint analysis from Finch & Rose confirms that the building was painted with a sand paint to imitate buff sandstone in both texture and color. The photograph shows contrasting colors between the trim and clapboard.

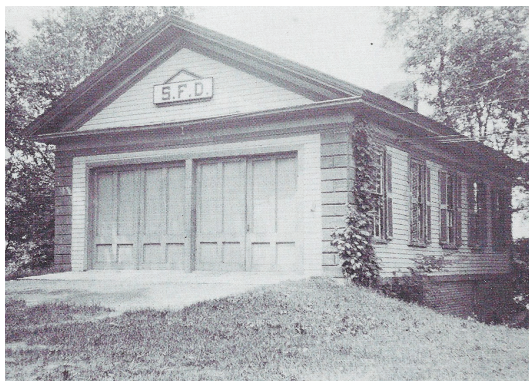


Image 2: Southborough Fire Department Building (1906)
Courtesy of Southborough Historical Society.

FLAGG SHOOL

In 1894, the schoolhouse was moved to Southborough Center to replace another schoolhouse that had fallen into disrepair on the same site. The building then became know as the Flagg School. It was enlarged by ten feet at the rear of the building and another bay of windows was added. It served as a schoolhouse until about 1900, when the new Peters High School was built.

TOWN FIRE HOUSE

In 1906, the building went into service for the fire department and was converted into a fire station (Image 2). Initially, two wide double leaf paneled doors were installed on the south facade to accommodate the fire apparatus. Later these doors were replaced with overhead garage doors. The building served as the Fire House until 1928.

TOWN BUILDING

After the fire department moved out, the schoolhouse served as the office for the the Town’s Tree Department and then the Water Department until 1998 (Image 3).

SOUTHBOROUGH MUSEUM

In 1998, the Southborough Historical Society signed a lease with the Town of Southborough to rent the Flagg School to serve as its headquarters and museum. The Historical Society returned the south facade to its original arrangement of two six-panel doors with a six-over-six double-hung sash window between them. After two years of renovations, the Southborough Historical Museum opened its doors to the public (Image 4).

Since that time, the Historic Society has performed work on the building twice, in 2007 and 2017.

As of December 29, 2021, the Flagg Schoolhouse has been designated as a contributing structure to the Southborough Town Center, now a National Register Historic District.



Image 3: Southborough Town Building (c.1970)

Courtesy of MACRIS



Image 4: Southborough Historical Museum (2022)

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PART 2: CONDITIONS ASSESSMENT AND RECOMMENDATIONS



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Condition Assessment of Building Exterior

ROOF AND WATER MANAGEMENT

OBSERVATIONS AND CONDITIONS

The roof of the Flagg Schoolhouse was observed from the ground level. It is a simple gabled roof with two slopes facing east (Image 6) and west (Image 8). There is a small shed roof over the rear entrance to the building on the west side. Last, the bottom of the pediment at the front creates an overhang (Image 5). All the roof surfaces are covered in three tab asphalt shingles. The shingles appear to be in fair condition, but at 25 years old, the roof is due for replacement - preferably with wood shingles. No shingles are missing and there is no organic growth on the surface of the shingles that would cause moisture to be held on their surfaces. The only roof penetrations are at the chimney and plumbing vent (Images 7 & 8), both penetrations are flashed and appear to be in good condition. Currently the only water management system in place is a gutter and downspout at the shed roof over the west entrance (Image 8). Around the building, there is no water management system to direct water away from the building. Discoloration from splashback can be seen on the parging on the foundation wall.

RECOMMENDATIONS

We observe the aluminum drip edge at the front overhang is uneven and has been face nailed, which may lead to water reaching the fascia. We recommend replacing the aluminum flashing with copper and creating a drip edge to direct water away from the building. Additionally, replacement of the aging asphalt roof with wood shingles is recommended.



Image 5: South Elevation--Pediment with roof shingles and aluminum flashing at pediment overhang.

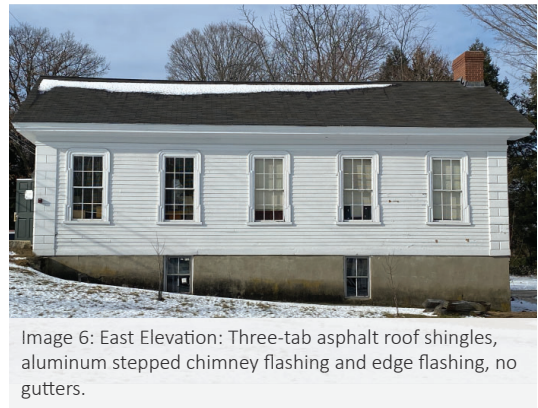


Image 6: East Elevation: Three-tab asphalt roof shingles, aluminum stepped chimney flashing and edge flashing, no gutters.



Image 7; North Elevation: Chimney penetrates the roof at the gable on the north side.



Image 8: West Elevation: The same as east elevation with plumbing vent at right and awning roof over door..



Image 9: Brick chimney on North facade

CHIMNEY

OBSERVATIONS AND CONDITIONS

The chimney on the north facade of the building is red brick, laid in a running bond. The chimney is seven bricks wide and three bricks deep. It is exposed on the north facade of the schoolhouse and penetrates the roof at the overhang of the gable. Three courses of corbelling ornament the top of the chimney--with a mortar wash on top. From the ground, we cannot discern whether a chimney cap covers the opening or not.



Image 10: View of South side of brick at chimney No more than two lines of text (meaning this is the last line!).

RECOMMENDATIONS

Through a visual inspection from the ground, the bricks and mortar appear to be in good condition throughout.

At this time we do not recommend any interventions to the masonry.



Image 11: Close up of masonry at chimney.

SIDING AND TRIM

OBSERVATIONS AND CONDITION

The exterior walls of the Flagg School are clad with wood cladboard siding and wood trim. All four sides are composed the same way: a seven inch watertable (Image 12: East Elevation-1) sits above the foundation, (Image 12: East Elevation--2) wood cladding covers the body of the walls and a 1 ft 7 inch entablature sits at the top of the wall (Image 12: East Elevation--3). The entablature is composed of a 7 1/2 inch architrave, a 7 inch frieze and a 4 1/2 inch cornice. Three of the four sides of the building have wood quoins at the corners (Image 12: East Elevation--4) and the north elevation has 12 in wide wood corner boards (Image 13: Northwest corner--1).

The two front doors, front window and eight side windows are trimmed with eared architraves and side trim (Image 14A: Example of Eared Architrave Trim--1) --features which evoke the Italianate Style, which followed the Greek Revival style. The north facing basement service door and side door on the west have plain trim. The remaining north windows and the small window on the west elevation also have plain trim (Image 14B).



Image 12: East Elevation: Labeled exterior facade showing Greek Revival elements.



Image 13: Northwest corner: Cornerboards on north side and quoins on west side.



Image 14B: Example of plain trim at rear windows, small western window and basement service doors.



Image 14A: Example of Eared Architrave Trim: Found on the front doors and double hung windows. South facade window shown above.



Image 15: Note the pediment featured on the main facade of the schoolhouse.

The main facade of the building is the south facade. It features a clapboard pediment over the entrance with the entablature underneath it (Image 15). In the center is a trapezoidal sign for the Flagg School. The missing, historic flagpole is missing and candidate for restoration/recreation.



Image 16: The side cornices return to the rear facade. .

On the north side, the chimney rises from the ground through the gable, and so there is no pediment (Image 16). Instead the cornice on the side elevations wraps around the corners to the rear elevation and then stops (Image 17). On this side, the wood clapboards extend from the water table to the gable.



Image 17: Soffit of cornice return from west to north facade..

The clapboard and the trim are currently painted white. On all four sides of the building there are places where the paint finish shows alligatoring; places where it has delaminated from the wood clapboards (Image 18); other places where several layers are peeling (Images 19, 20, 21). The condition of the painted surfaces is equally poor on all sides.

RECOMMENDATIONS

We recommend scraping, priming and painting all wood surfaces. At the joints between the trim and clapboard, we recommend sealing these gaps (Image 22) with a paintable caulk. All nailheads that have surfaced should be hammered flush with the wood surfaces along with loose building elements (Image 20). Recreating/restoring the historic flagpole would be a worthy addition to scope.

The paint analysis prepared by Finch & Rose and historic photos both confirm that the original paint scheme for the building was not the monochromatic white scheme that we see today. In repainting, there is the opportunity to return the building to its original, historically appropriate color scheme



Image 18: Exterior Siding: Delaminating paint on clapboard. Alligatoring on clapboard below.



Image 19: Siding and Window Trim: Evidence of peeling paint on both..



Image 20: Loose quoins.



Image 21: Evidence of peeling paint at soffit.



Image 22: Clapboard/Quoin Joint: Separation between quoins and clapboard in need of sealant.

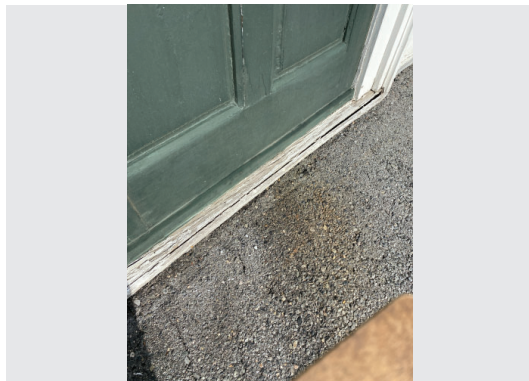


Image 23: Sill of Front Door--The sills at both front doors are deteriorating and should be replaced.

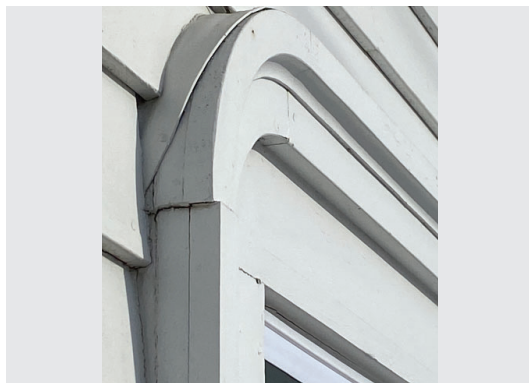


Image 24: Lead flashing over front door trim.

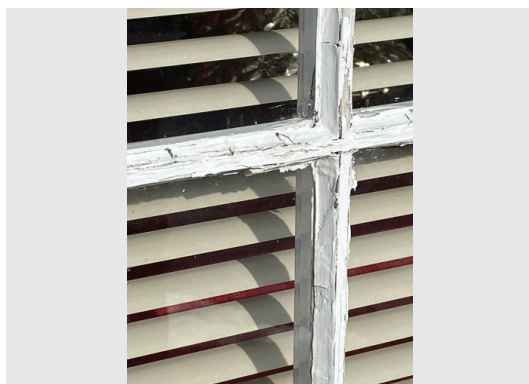


Image 25: Muntin on front window: Example of putty In need of stripping, reglazing and repainting, a common condition.

OPENINGS: WINDOWS AND DOORS

OBSERVATIONS AND CONDITIONS

Each facade of the building has openings on the main floor and three facades have openings on the lower basement level.

The south facade is the main facade where the primary entrance to the building is located. There are two doors and one window on this side. This facade is a reproduction of the original facade. The original facade was removed and replaced with garage doors for several decades when the building served as the fire department and garaged the fire trucks.

With the exception of peeling paint, the two doors are in good condition. The lead flashing over each door is also in good condition (Image 24). However, the threshold of each door is worn and deteriorated (Image 23). The six-over-six lite window has also suffered from deterioration. The putty at the muntins needs to be stripped, reglazed and repainted along with the sashes and trim (Image 25).

On the east elevation, five six-over-six double hung windows let the light inside. The condition of all the windows is similar. Reglazing is needed at all the muntins. The sash cords and balances are broken on several windows. The stop and casings are broken at the bottom right on one window (Image 26). We also note that no storm windows were attached to the outside of the building on the east elevation, although evidence that they once existed was apparent from screw holes in the casings.

The two basement windows, not original to the building, are in fair condition. Some storm windows are attached to these windows. Their sills have deteriorated (Image 27).

On the north elevation, the service door to the basement level is in good condition. The windows on the main level are generally in good condition, though paint is peeling on the muntins, sashes and trim. (Image 28).

On the west elevation, there are three six-over-six double hung sash windows, one door, and two basement windows. These windows share the same deteriorating conditions as the others. The door is in good condition.

RECOMMENDATIONS

Doors:

Replace thresholds on south facade.

Windows:

Replace sills at basement windows

Restore windows to operable condition by:

- Replacing stops and broken window casings at original windows where needed on main level
- Replacing sash cords and balances where needed
- Replacing the parting beads
- Replacing sash locks across all windows to match and lock the sashes and to reduce infiltration of outside air

Add storm windows to all windows for protection of the primary sash and for thermal comfort. : Storm windows should be a low-profile design that minimizes the frame size and attachment detail, such as those from the Historic line by Allied Windows. UV ray reduction glazing can be specified for the storm window glazing to protect museum artifacts from UV damage

Regrade the ground at the basement windows to insure that water runs away from the building, preventing window sills from becoming saturated.

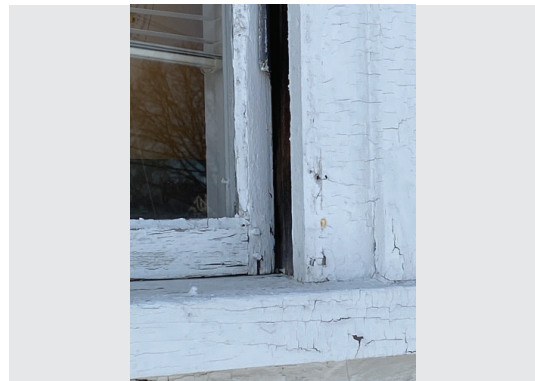


Image 26: Example of broken stop at the bottom sash at one of the six-over-six double hung windows. .



Image 27: East Elevation Basement Window--Sill is deteriorated. Storm window missing.



Image 28: Basement Service doors.



Image 29: Foundation Wall--Stains from splashing at the drip line are evident on foundation wall. Delamination at window.



Image 30: Asphalt walkway at front facade is touching the wood clapboards.



Image 31: Delamination of parging over brick foundation: Deteriorating wire mesh is visible.

FOUNDATION

OBSERVATIONS AND CONDITIONS

The foundation is visible on three sides of the building. The cementitious parging applied to the brick foundation is delaminating in various places on all three sides. Additionally the bottom foot of the foundation is discolored from the splashing caused by dripping of rainwater from the edge of the roof on to the asphalt surrounding the foundation wall.

RECOMMENDATIONS

We recommend patching the parging on the brick foundation wall. Further, we recommend removing the asphalt paving and laying a crushed stone apron extending from the foundation away from the building to beyond the drip line in order to eliminate splashing dirt onto the foundation wall.

On the south facade, where the asphalt walkways meets the clapboard, we recommend addressing the problem of the asphalt touching the bare wood clapboard in a redesign of this walkway discussed in the recommendations of the next section.

WALKWAY AND ACCESSIBLE PARKING

OBSERVATIONS AND CONDITIONS

The asphalt walkway for the accessible path is in good condition at the moment, though it should be monitored for changes in its surface. The granite steps and asphalt step leading to the main entrance are of uneven rise. The granite block to the right of the asphalt is beginning to tip. Last, there are no handrails (Image 32).

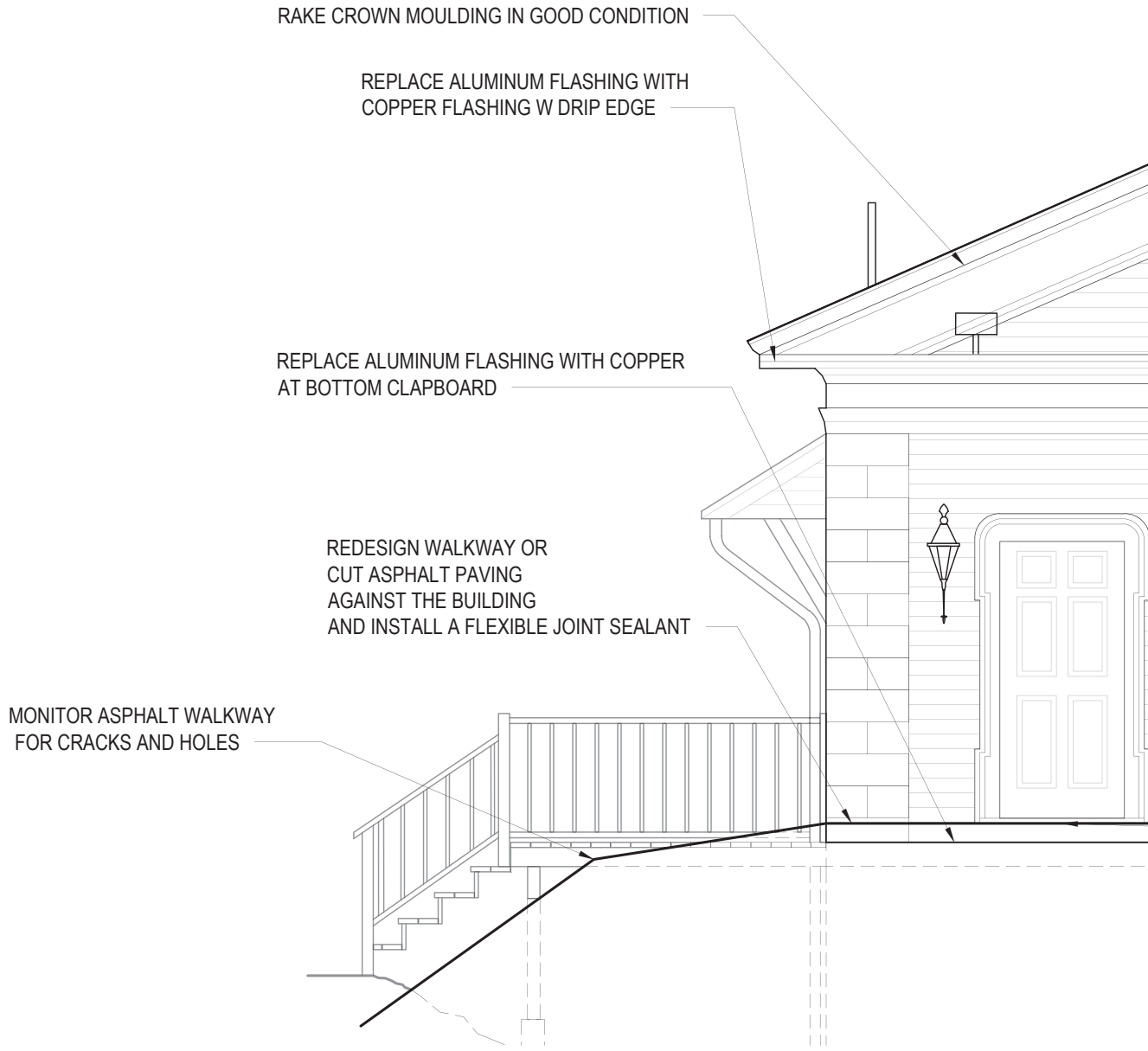
RECOMMENDATIONS

We recommend a redesign of the accessible entrance and the granite steps. This redesign would include granite slabs that rise evenly, a handrail at the steps and railing at the entrance and a walkway that does not touch the clapboard on the front facade.



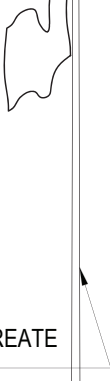
Image 32: Granite steps to main entrance: Step are of unequal rise, and pose a tripping risk. Granite block at door is tipping..

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MARK PARKING SPACES AT FRONT OF BUILDING AS ACCESSIBLE WITH SIGNAGE OR PAINTED MARKINGS





RESTORE/RECREATE FLAG POLE

FIVE SIX-OVER-SIX WINDOWS TO BE RE-GLAZED AND REPAIRED

REPLACE ASPHALT SHINGLE ROOF WITH

NOTE: NO STORM WINDOWS ARE INSTALLED ON THIS SIDE ON MAIN FLOOR; CONSIDER ADDING STORMS FOR EXTERIOR PROTECTION AND ADDED THERMAL COMFORT

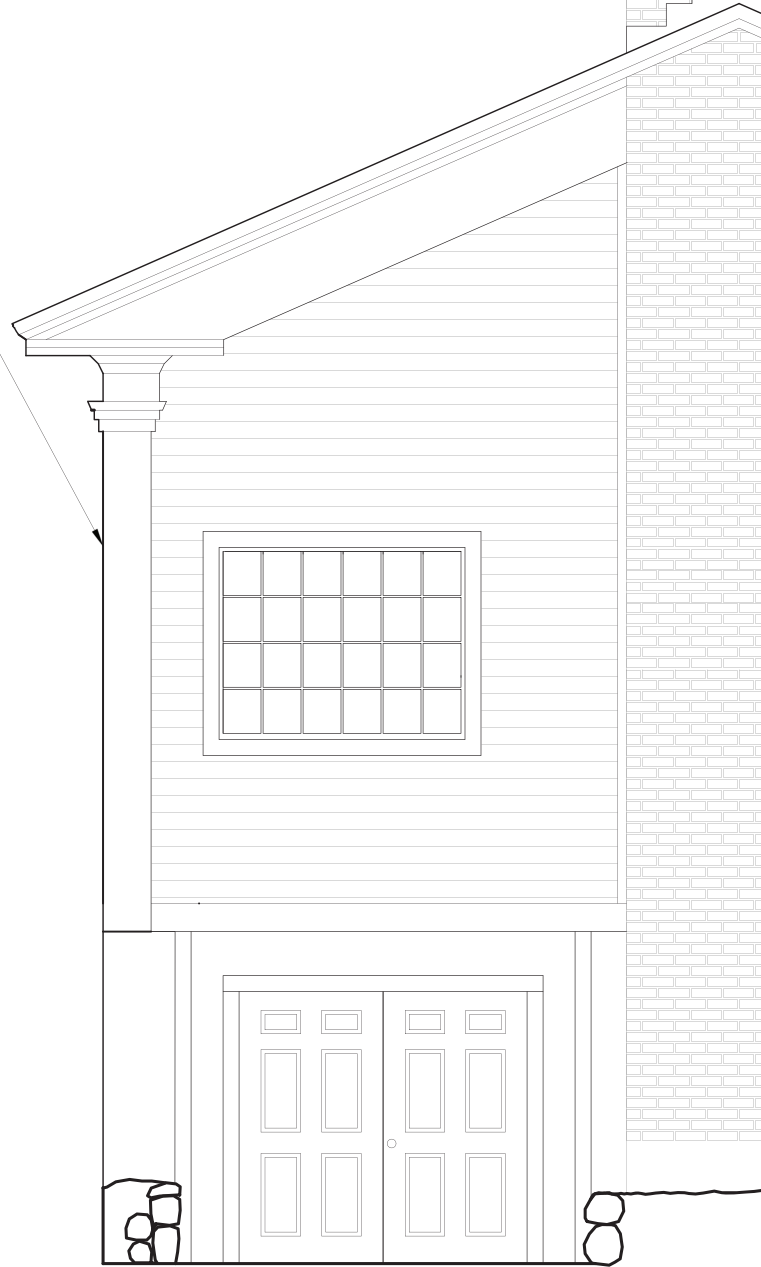
STOP AND CASING ARE BROKEN PERFORM DUTCHMAN REPAIR WHERE NEEDED

PARGING IS DELAMINATING OR MISSING; PATCH WHERE NEEDED



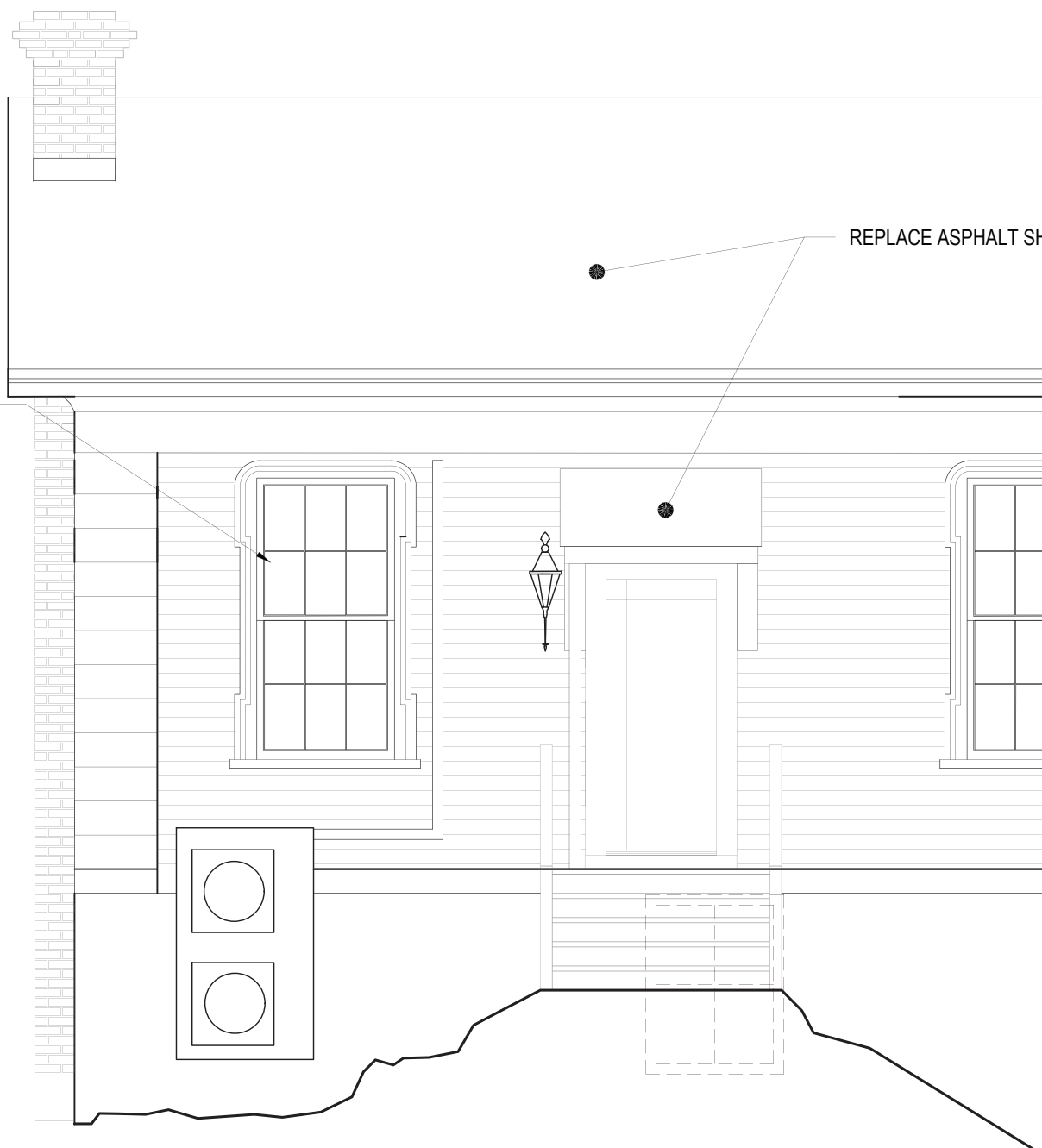


NOTE CORNERBOARDS ON THIS SIDE
OF BUILDING HAVE NOT BEEN
REPLACED WITH QUOINS



THREE ORIGINAL SIDE WINDOWS TO BE RE-GLAZED AND REPAIRED

REPLACE ASPHALT SH



COST ESTIMATE



Southborough Historical Society
 Southborough Museum
 Exterior Conditions Assessment



Spencer Preservation Group
 PRESERVATION ARCHITECTS

February 21, 2022 rev. July 2022

PROJECT DESCRIPTION: Window restoration including new storm windows, preparation and painting of building, flashing replacement, removal and replacement of attic insulation, new accessible entry improvements and perimeter drip edge.

DIV. 01 - GENERAL REQUIREMENTS	TOTALS	REMARKS
Access, disposal, etc.	\$25,000	
<i>SUBTOTAL</i>	\$25,000	

DIV. 04 - MASONRY	TOTALS	REMARKS
Patch missing and delaminated parging at foundation wall	\$2,000	
<i>SUBTOTAL</i>	\$2,000	

DIV. 06 - WOOD, PLASTICS, AND COMPOSITES	TOTALS	REMARKS
Miscellaneous carpentry repairs to siding and trim	\$8,000	
Restore flagpole	\$1,000	
<i>SUBTOTAL</i>	\$9,000	

DIV. 07 - THERMAL AND MOISTURE PROTECTION	TOTALS	REMARKS
Replace asphalt shingles with new asphalt shingles	\$23,240	<i>Alternate - not included in subtotal!</i>
Replace asphalt shingles with new wood shingles	\$29,880	<i>Base - included in subtotal</i>
Remove insulation in attic	\$12,000	
Install new insulation at attic	\$5,000	
Replace aluminum flashing with copper flashing at horizontal cornice at front elevation	\$2,500	
<i>SUBTOTAL</i>	\$49,380	

DIV. 08 - OPENINGS	TOTALS	REMARKS
Restore existing windows	\$45,000	
Replace exterior trim where broken (Dutchman repair)	\$500	
Replace thresholds at front doors	\$2,000	
Replace basement window sills	\$6,000	
Add storm windows to windows at main floor	\$12,000	
Add storm windows to windows at basement	\$4,800	
<i>SUBTOTAL</i>	\$70,300	

DIV. 09 - FINISHES	TOTALS	REMARKS
Exterior painting - Prepare and paint all wood rakes, soffits, trim, clapboard and doors, based on the paint analysis	\$23,772	
<i>SUBTOTAL</i>	\$23,772	

DIV. 32 - EXTERIOR IMPROVEMENTS	TOTALS	REMARKS
Remove asphalt at foundation, regrade, and add crushed stone apron to ground at foundation	\$4,000	
Rebuild steps and ramp access including handrails, new paving, granite	\$8,000	
<i>SUBTOTAL</i>	\$12,000	

<i>SUBTOTAL</i>	\$191,452	
DIV. 01 - GENERAL REQUIREMENTS + General Conditions: @ 10%	+ \$19,145	
<i>HARD COST SUBTOTAL</i>	\$210,597	
Overhead + Profit: @ 10%	+ \$21,060	
<i>SUBTOTAL</i>	\$231,657	
Payment + Performance Bonds: @ 1%	+ \$2,317	
<i>CONSTRUCTION COST SUBTOTAL</i>	\$233,973	
Contingency: @ 10%	+ \$23,397	
Architecture/Engineering Fees: @ 15%	+ \$35,096	
<i>PROJECT COST TOTAL</i>	\$292,467	

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EXTERIOR PAINT ANALYSIS REPORT
FLAGG SCHOOL
SOUTHBOROUGH, MASSACHUSETTS
Prepared by Finch&Rose
December 8, 2021

1. INTRODUCTION

The purpose of this report is to document the findings of our investigation of the exterior painted finishes on the former Flagg School in Southborough, MA. The primary objective of the study was to identify and match the original treatments on the clapboards and trim applied ca. 1859 when building was built in the Cordaville section of Southborough.

The building was moved to its current location in 1894, and was converted to use as a fire station in the 1930s at which time the lower front facade was replaced with garage doors and an additional bay was added to the rear. In 2000 it was restored for its current use as a museum for the Southborough Historical Society. At that time the front facade was reconstructed.

Extant historical photographs of the building were reviewed that show the building in the later 19th and early 20th centuries. Unfortunately, none of the photographs show the building shortly after its 1859 construction. The period photographs were poor copies with minimal detail, but the earliest one shows the trim painted in very dark tones with dark toned windows and louvered shutters and likely dates to the 1880s. The one taken after it was converted to a fire station (probably the late 1930s) shows the trim as being a somewhat darker tone than the clapboards, lighter toned windows, and still retaining its shutters. Microscope photographs of sample cross sections are included at the end of this report with annotations and detailed captions to illustrate our findings. Note that many colors appear lighter in cross section photographs than they actually are.

2. METHODOLOGY

William Finch of Finch&Rose visited the building on November 11 to examine the paint in situ using a scalpel and a 10x "Dermlite" with cross-polarized LED illumination, and to take physical samples for further processing and examination. Ford Ogden of Lancaster MA assisted us during site visit with ladders and took a number of the samples from the cornice. Most of the samples were taken from the east facade and the cornice of the front facade.

The samples were initially examined and later the target layers color matched in our office using a Bosch & Lomb zoom binocular microscope. As the fiber optics light source for the microscope is tungsten, a blue 81A filter was used to simulate daylight. Small pieces from the samples were cast in cold molding resin, polished to expose their cross section, and photographed using an Olympus BH2 microscope at 100x magnification in both visible and ultraviolet(UV) light for further examination and comparison on a computer screen. The UV light causes various pigments and mediums to fluoresce in different ways making it easier to track particular layers across multiple samples.

The photographs of paint samples were not rigorously color corrected (the same layer may have substantially different color casts in different photographs), and should not be used as a basis for color matching. Likewise, the reproduction of paint swatches in this report may not be visually accurate as to the exact colors due to computer variations.

The verbal color descriptions of paint layers in this report are approximate and intended only to convey a general sense of the colors as they appeared in the samples. Except where it is obvious, the descriptions do not distinguish between priming layers and finish layers. The paint sequences are usually described as “generations” rather than individual layers. A “generation” defines a full finish treatment including all the individual layers that make it up including any priming layers. Thus some “generations” are composed of only a single layer, and others may include two or three layers comprising both primers and finish layers. In some samples from the Flagg School some of the finish layers have layers of dirt and soot on them confirming they were finish layers. Note that a given sample may not include a full sequence of all the layers due to both weathering and past scapping to prepare for repainting. The generations are numbered on the cross section photographs.

More rigorous study, such as pigment identification, and sophisticated vehicle identification analysis of the samples, was beyond the scope of this report and was not performed. The color match was made visually to commercial paint swatches using the Bosch & Lomb zoom binocular microscope using the back side of samples as the target layer (i.e., not using cross sections).

3. FINDINGS

In taking samples it quickly became apparent that the building was initially painted with a treatment known as sand painting in which fine sand is added to the paint to give it the texture and appearance of stone. The perceived color of the paint is from a combination of the color of the paint and the sand particles. Usually sand paints were made to imitate either buff sandstone or brownstone (also a sandstone). Although never common, sand paints were typically used from the mid-18th century through most of the 19th century. Two different methods were used. The easiest was to mix sand in with the paint before it was applied to the building. The other method was to use a blower to blow sand from a pan onto the surface of the wet paint shortly after it was applied to the building. That method resulted in the color and sparkle of the sand being more visible as in actual stone. Sometimes both methods were used.

Looking at cross sections of the paint from the school with a microscope, it was obvious that the sand had been mixed with the paint before applying it to the school building. The resulting paint layer was very thick and quite tough to cut into. Subsequent coats of paint were not sanded, and filled in the surface texture of the sand so that after a few coats the surface became smooth.

We have not provided a match for the color of the window sash because no early paint was found on the sash. The earliest layer observed was a black that was likely 20th century. The sash are dark in the ca. 1880s photograph; some spillover paint on a window sill indicates they were then green.

Generation #1 - The initial treatment started with a transparent oil application to seal the wood followed by a thin grayish tan primer. A tan oil paint with sand mixed in was applied over the primer. The tone of the oil paint varied somewhat between samples (some seemed lighter), but not consistently enough to indicate that the trim was intended to be a lighter tone than the clapboards. Most likely it was simply different aging and/or different batches of the paint. The sand particles vary from buff to dark gray with some transparent quartz. In combination with the base oil paint, the surface appearance of the paint was darker and possibly grayer than the tan of the base paint. The sand also probably overwhelmed any minor differences in the tone of the base paint.

Generation #2 - The next layer of paint has a slightly translucent brown character (a little like honey) in cross section. That it fluoresced strongly in UV light suggests that it was a spirit resin rather than oil paint (i.e., copal or damar in alcohol). It also had tiny visible particles of yellow ochre pigment in it). Whether this was the next generation of finish paint, or was the final layer of the first generation is not clear. Whether it has darkened and become less transparent with age is also not clear. If it is part of the first generation it may have been applied to give a glossier appearance to the paint. In the cross sections of the paint we have marked it as “generation 2”. Better understanding the character and appearance of this layer would require sending a sample to a lab having the instrumentation required identify its components, which is beyond the scope of this report.

Generation #3 - The next generation (generation 3) consists of a tan paint that grades into a top component with the similar characteristics to generation 2. Although not sanded, it was intended to continue the color of sandstone. Like the previous treatments it was applied uniformly on both the clapboards and trim.

Generation #4 - Generation 4 consists of yellow ocher used as a primer with a gray finish coat on the clapboards and an extremely dark green (almost black) on the trim. It likely was applied in the early 1880s. The earliest historic photograph shows this treatment.

Generation #5 - Generation 5 consists of a light gray primer with a gray finish coat on the clapboards and another extremely dark green (almost black) on the trim. It likely was applied in the early 1890s.

Generation #6 and later - The paint treatments following #5 were not reviewed in detail as they were not focus of the investigation. In general, the samples showing the full sequence show all the later treatments to be a uniform off-white on both clapboards and trim. We did not see a layer with the darker tone trim that is visible in the photo taken after it was converted to a fire station.

RECOMMENDED COLOR MATCH

Because of the rough surface texture of the sand paint, it was very problematic to cut away the later layers of paint to reveal the original finished surface of the sand paint for an accurate color match. Matching the color of the base paint to which the sand was added would not be accurate, as the addition of sand strongly changed and probably darkened the finished appearance of the treatment. We found that the best sense of the treatment was to look at the underside of the paint

after scrapping away the primer revealing the sand in combination with the base tan paint. That many of the samples readily delaminated from the wood substrate and most of the primer facilitated that approach. The match is thus to the aggregate appearance of the visible sand particles in combination with the base paint. It does not factor in the affect of generation #2 on the surface appearance of the sand paint, if that was actually a part of the initial paint treatment, as we do not know the extent that layer has darkened over time. As the obvious intent of the initial treatment was to look like the sandstone typically used in many buildings at this time (tan stone from Berea Ohio, and greenish gray stone from Nova Scotia), modifying the recommended color to more closely look like actual samples of sandstone would be a reasonable approach.

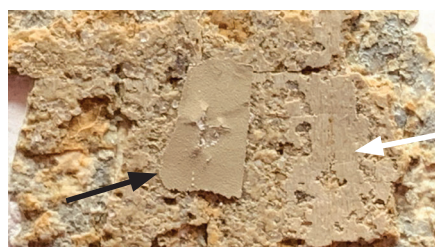
A chart of paint colors that included six versions of sanded paint was published in the 1880s by Harrison Bros. & Co. paint manufacturers. The chart was reproduced in a 1976 book on Victorian paint colors by the Athenaeum of Philadelphia and is included in this report as Photo XCX.

RECOMMENDED MATCH:

“Britches” from California Paints “Historic Colors of America” on the clapboards and all trim.



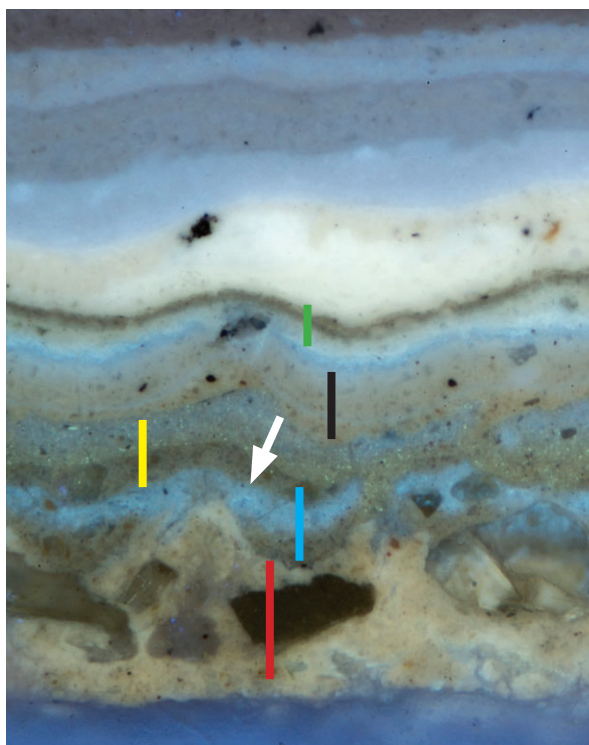
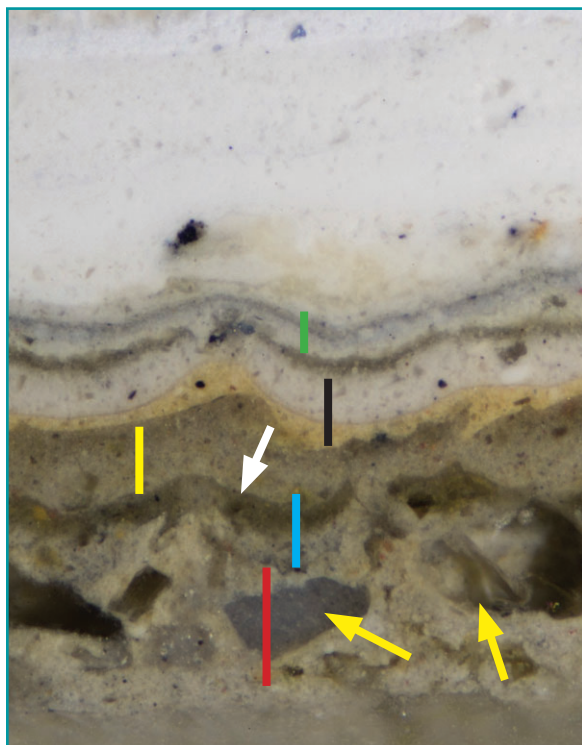
Britches



Back side of paint sample used to make the match. The black arrow points to a sample of “Britches”. The white arrow points to the original primer.



1880s color chart by Harrison Bros. & Co. with sanded paint samples on the right and left sides. The labels above the samples include the type of sandstone being imitated.



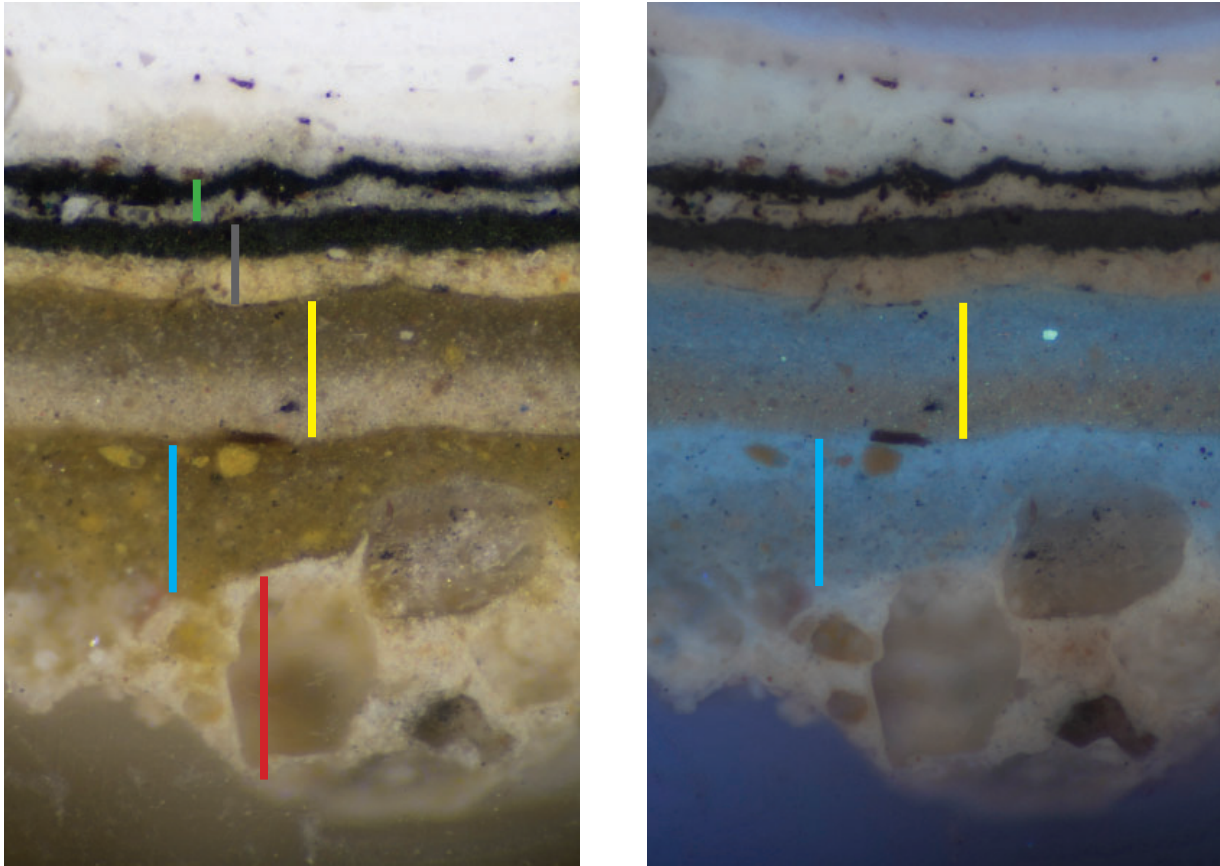
Microscope photos 1A and 1B - Cross sections of sample from the horizontal cornice frieze board on the front facade with the first five generations of paint marked by the color bars. The left photo (1A) is in visible light, the right photo (1B) is in ultraviolet (UV) light. The yellow arrows point to grains of sand in the paint. The white arrow points the darker top of generation #2 that fluoresces blue in UV and may be an application of a spirit varnish as discussed in the report text. Whether #2 is actually part of generation #1 or was applied some years later is unclear. It also occurs on the top of layer 3, but is not as strong in this sample.

- █ Generation #1 sand paint - buff sandstone over light warm gray prime
- █ Generation #2 - buff sandstone
- █ Generation #3 - dark buff sandstone
- █ Generation #4 - light gray over an ochre primer
- █ Generation #5 - Slightly darker gray than #4

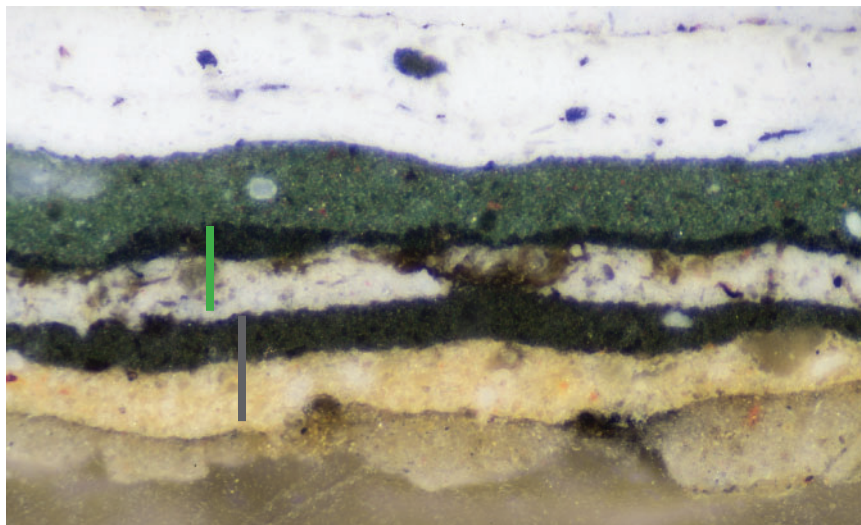


Microscope photo 2 - Cross section in visible light of a sample from the face of the fillet molding just below the horizontal cornice frieze showing the sanded paint on sitting on the wood substrate.

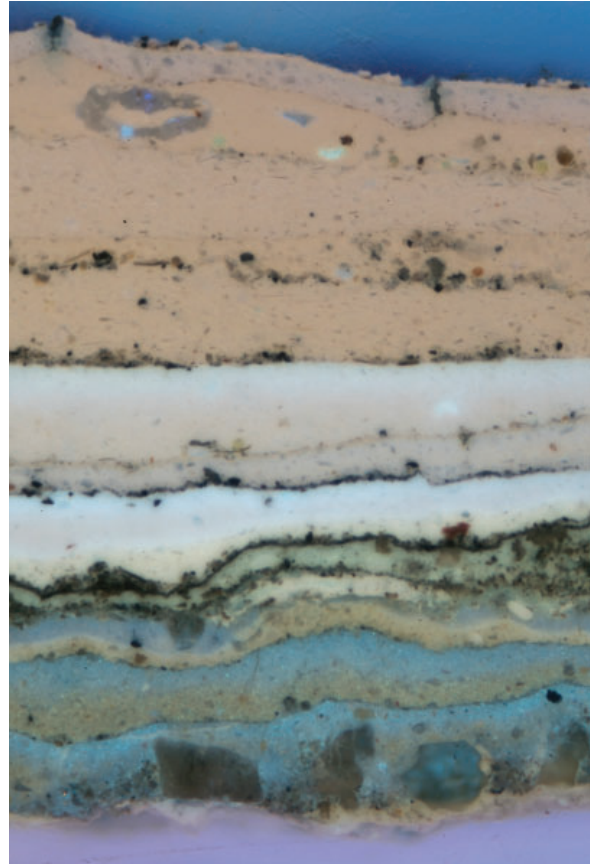
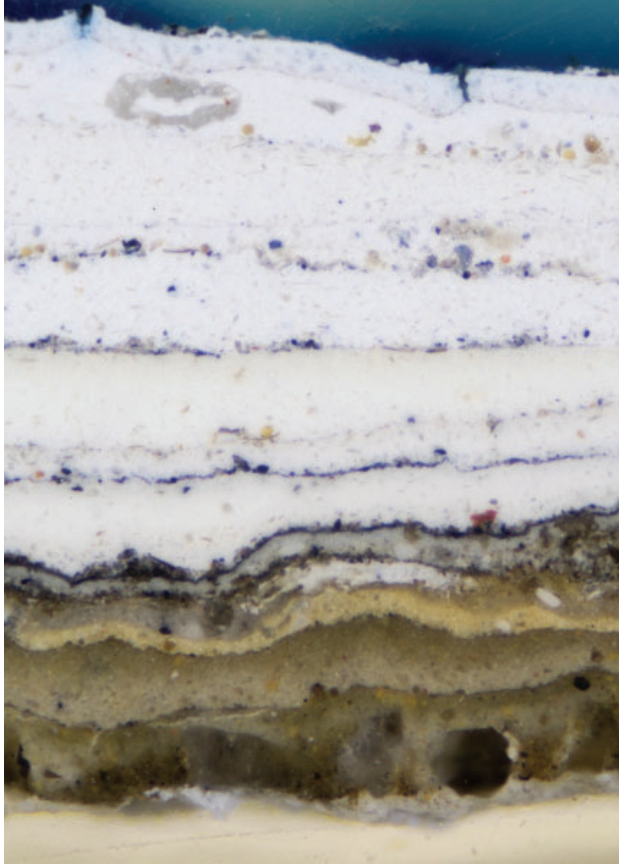
Wood Substrate



Microscope photos 3A and 3B - Cross sections of sample from the underside of the cornice soffit of the front facade. The left photo (3A) is in visible light, the right photo (3B) is in ultraviolet (UV) light. The yellow arrows point to grains of sand in the paint. The same color bars used in photo 1A indicate the various paint generations. Note that bits of yellow pigment are visible generation #2 and it has a somewhat translucent appearance. The similarity of generations #3 and #2 are more apparent in this photo than in photo #1A. The finish layers of generations #4 and #5 are almost black.



Microscope photo 4 - Cross section of a sample from the top of a window sill near the left corner with the very dark green trim layers of generations #4 and #5 marked. The lighter green on top of #5 is likely spillover from painting the window sash, suggesting that the sash at this time were green.



Microscope photos 5A and 5B - Cross sections of sample from Cross section in visible light of a sample from the top face of the fillet molding just below the horizontal cornice frieze. The dirt collecting on the upward facing top of the fillet is apparent as the black stuff between the layers. The presence of dirt on top of a layer indicates that it is a finish layer rather than a primer. The lack of dirt between generation #1 and #2 suggests that #2 may be part of the first generation.



Historic Photo 1: - Probably taken in the 1880s before the building was moved to its current location showing the very dark trim paint shown in microscope photo 3A. Note the window sashes are also dark and may be the green shown in microscope photo 4. They also might be black, which was a common 19th century sash color.



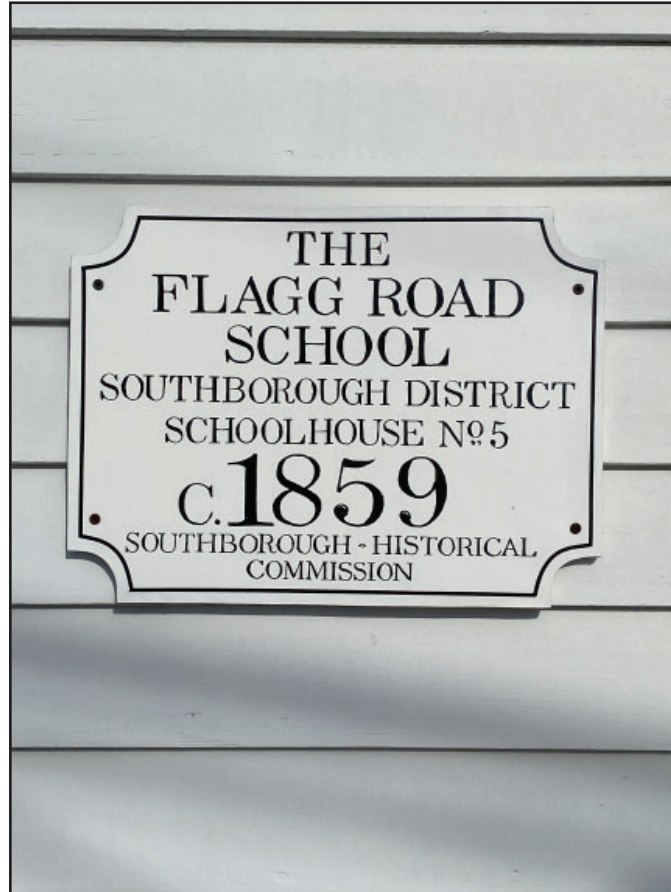
Historic Photo 2:
Photo from the early 1930s before it was converted to a fire station.



Historic Photo 3: - Post 1930s photo showing its conversion to a fire station.

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APPENDIX



Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	SBR.32
Historic Name:	Southborough District Schoolhouse #5
Common Name:	Southborough Water Department Bldg - Flagg School
Address:	25 Common St
City/Town:	Southborough
Village/Neighborhood:	Southborough
Local No:	54-4
Year Constructed:	
Architect(s):	Flagg, Dana
Architectural Style(s):	Greek Revival
Use(s):	Fire House; Museum; Other Governmental or Civic; Public School; Warehouse
Significance:	Architecture; Community Planning; Education; Politics Government
Area(s):	SBR.AG: Southborough Town Center SBR.A: Main Street Area
Designation(s):	
Building Materials(s):	Roof: Asphalt Shingle Wall: Wood Clapboard; Wood Foundation: Brick; Stone, Uncut; Concrete Unspecified



The Massachusetts Historical Commission (MHC) has converted this paper record to digital format as part of ongoing projects to scan records of the Inventory of Historic Assets of the Commonwealth and National Register of Historic Places nominations for Massachusetts. Efforts are ongoing and not all inventory or National Register records related to this resource may be available in digital format at this time.

The MACRIS database and scanned files are highly dynamic; new information is added daily and both database records and related scanned files may be updated as new information is incorporated into MHC files. Users should note that there may be a considerable lag time between the receipt of new or updated records by MHC and the appearance of related information in MACRIS. Users should also note that not all source materials for the MACRIS database are made available as scanned images. Users may consult the records, files and maps available in MHC's public research area at its offices at the State Archives Building, 220 Morrissey Boulevard, Boston, open M-F, 9-5.

Users of this digital material acknowledge that they have read and understood the MACRIS Information and Disclaimer (<http://mhc-macris.net/macrisdisclaimer.htm>)

Data available via the MACRIS web interface, and associated scanned files are for information purposes only. THE ACT OF CHECKING THIS DATABASE AND ASSOCIATED SCANNED FILES DOES NOT SUBSTITUTE FOR COMPLIANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL LAWS AND REGULATIONS. IF YOU ARE REPRESENTING A DEVELOPER AND/OR A PROPOSED PROJECT THAT WILL REQUIRE A PERMIT, LICENSE OR FUNDING FROM ANY STATE OR FEDERAL AGENCY YOU MUST SUBMIT A PROJECT NOTIFICATION FORM TO MHC FOR MHC'S REVIEW AND COMMENT. You can obtain a copy of a PNF through the MHC web site (www.sec.state.ma.us/mhc) under the subject heading "MHC Forms."

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on:

Thursday, July 07, 2016 at 5:33: PM

FORM B - BUILDING

Assessor's number

USGS Quad

Area(s)

Form Number

Massachusetts Historical Commission
 Massachusetts Archives Building
 220 Morrissey Boulevard
 Boston, MA 02125

54-4

Marlborough

A

32

Town Southborough

Place (neighborhood or village) _____

Southborough center

Address 25 Common Street

Historic Name Flagg School

(District School #5)

Status: Present museum and town offices

Original district school

Date of Construction 1859-60

Source Town Reports

Style/Form Greek Revival

Architect/Builder Builder: Dana Flagg



Exterior Material:

Foundation concrete

Wall/Trim wood clapboard

Roof asphalt

Outbuildings/Secondary Structures none

(on same parcel as Town House and Town Pound)

Major Alterations (with dates) building lengthened

and converted to equipment storage--1894; converted to museum and offices--1999 (see text)

Condition fair

Moved [] no [x] yes Date 1894

Acreage 1.99 acres

Setting At northeast corner of Town House

parking lot, behind Pilgrim Church. Ground drops

to playing fields at rear.

Sketch Map

Draw a map of the area indicating properties within it. Number each property for which individual inventory forms have been completed. Label streets, including route numbers, if any. Attach a separate sheet if space is not sufficient here. Indicate north.



Recorded by Folger/Schuler, consultants

Organization Southborough Historical Commission

Date April, 2000

MASS. HIST. COMM

RECEIVED
 JUN 03 2000

ARCHITECTURAL DESCRIPTION [] *see continuation sheet*

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

This little building has survived both hard use as a one-room district schoolhouse and three conversions in its 140-year-old existence. It is a one-story schoolhouse of a design typical of its era. A gable-roofed building, it was built with five window bays down each long side, and a gable-front facade marked by a prominent wall pediment and several other features of the Greek Revival style, such as the large quoins at the front building corners. A trapezoidal wooden panel reading "Flagg School, Built c. 1860" is centered in the pediment in the position that was probably originally occupied by a lunette, a signboard, or a triangular window. Today, while there are still five large 6-over-6-sash windows on the east side of the building, the first bay of the west side has a small 4-over-4-sash, and the fourth bay has recently been fitted with a glass-and-steel door. All the window sash are modern replacements, and the louvered shutters shown in some ca. 1900 photos are gone, but what appear to be the original heavy drip moldings remain at the window openings.

The lower part of the main south facade of the building has undergone the most alteration over time. What would have been two entrances (one for boys and one for girls) were replaced in 1906 by two wide double-leaf panel doors for the town center fire apparatus. Those doors were in turn replaced by overhead panel-and-glass garage doors in the mid-twentieth-century, when the building was used by the town water department. In 1999 the garage doors were removed, and the facade was returned to a schoolhouse-like arrangement of two 6-panel walk-in doors (these are 6-panel stained and varnished wood doors), with a large 6-over-6-sash window between them. For the surrounds of both the doors and window, the distinctive moldings of the side-wall windows were copied.

The rear of the building, which represents a ten-foot section that was added when the building was moved, has two large multi-light windows at the main story, and in the east part of the exposed basement story, a modern metal overhead garage door. The large exterior chimney that rises up the center rear of the building is in about the same position that a single rear end-wall chimney would have occupied. In the basement story of both long sides of the building are two 4-over-4-sash windows.

HISTORICAL NARRATIVE [x] *see continuation sheet*

Explain history of the building. Explain its associations with local (or state) history. Include uses of the building and the role(s) the owners/occupants played within the community.

The Flagg School is one of two surviving nineteenth-century schoolhouses in Southborough, and is still owned by the Town. The other, the former Southville Grammar School at 28 Highland Street, has been converted to a house. The building was constructed in 1859-60 as part of a town-wide campaign to replace the six small, aging one-room schoolhouses in the outlying districts of Southborough. Popularly called the Flagg School, as it was located in the angle of Flagg and Deerfoot Roads in an area of southwest Southborough long occupied by several branches of the Flagg family, this schoolhouse was officially the District (or Ward) #5 Schoolhouse. According to Town Reports, plans for the new schools were drawn up by an architect (his name is unknown), and built by local residents. Both the #5 (Flagg) and #6 (West End) Schools were built primarily by Dana Flagg, who was paid \$925 for this one. E. D. Rockwood, a Flagg Road neighbor, was paid \$100 in that year for part of the construction.

Over the years, the Flagg School consistently had the smallest enrollment of all the schools in Southborough's farm districts, averaging sixteen and eighteen enrolled pupils in the 1860s, while often having only twelve or thirteen in attendance. The 1861 School Committee Report called the Flagg "a backward school," and in the words of the 1864 School Report, "the want of numbers is still a crying evil in this school, and one for which we see no present remedy." As at the other schools, the annual school term for the Flagg School after the Civil War was usually thirty weeks, divided into three terms of about 45 to 50 days each.

[x] Recommended for listing in the National Register of Historic Places. *If checked, a completed National Register Criteria statement form is attached.*

INVENTORY FORM CONTINUATION SHEET

Community	Property
Southborough	Flagg School

Massachusetts Historical Commission
 Massachusetts Archives Building
 220 Morrissey Boulevard
 Boston, Massachusetts 02125

Area(s)	Form No.
A	32

HISTORICAL SIGNIFICANCE, cont.

In 1894, as part of a centralizing of the public school system, the Town decommissioned the Flagg School, and moved the building to the center, to its present location behind the Pilgrim Church. There it apparently continued as a school for a short time, at least until the new Peters High School was opened in 1900. In 1906 it was converted to use by the Centre Fire Company, which stored fire apparatus in it for many years. After the town's first true firehouse was built in 1926 at 5 Main Street, the Fire Department moved out, and the building was occupied by the Tree Warden for a while. It was subsequently used for general storage until the late 1950s, when it was fitted up for use by the town Water Department.

The Flagg School was not the only old schoolhouse to be converted to other uses by the town. Another, probably very similar school building behind the Town House (apparently the District #1 School), was converted in 1901-02 for the storage of equipment by the town Highway Department. Either that one, or a third schoolhouse on the Town House property, was used for a time as a parish house by St. Mark's Church.

In 1999, at a cost of approximately \$45,000, half paid by the Town, half contributed by the Southborough Historical Society, and with work contributed by students at the Assabet Valley Regional Vocational High School, the little building was again converted to new uses. The building is now leased by the Southborough Historical Society, with one room occupied by the town Recreation Department. The basement is divided between a utility area at the rear, and storage and library space for the Historical Society archives at the front.

BIBLIOGRAPHY and/or REFERENCES [] *see continuation sheet*

Maps and Atlases: 1831; 1856, 1857 (former Flagg School); 1870 (present building, shown at former location); 1898 (shown at present location).

The Marlborough Directory. Various dates and publishers.

Noble, Richard. Fences of Stone: a History of Southborough, MA. Portsmouth, NH: Peter Randall, 1990.

Town of Southborough: Annual Reports--1860, 1894, 1906, 1927. School Committee Reports--various dates.

Research by local residents.

Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Community
Southborough

Property Address
Flagg School

Area(s)
A

Form No(s).
32

National Register of Historic Places Criteria Statement Form

Check all that apply:

- Individually eligible Eligible only in a historic district
 Contributing to a potential historic district Potential historic district

Criteria: A B C D

Criteria Considerations: A B C D E F G

Statement of Significance by Forbes/Schuler, Consultants
The criteria that are checked in the above sections must be justified here.

The old Flagg School is eligible for the National Register at the local level under Criterion A for its association with Southborough's community and educational life. Built in 1859-60, it is one of only two surviving nineteenth-century district schoolhouses in Southborough.

It also fulfills Criterion C as a well preserved example of pre-Civil War local school architecture, still retaining the general form and detail of a typical one-room schoolhouse design of the era.

For all the above reasons it is also eligible as a contributing property in a National Register district encompassing the historic residential and institutional meetinghouse center of the town.

The property retains integrity of location (since 1894), design, materials, workmanship, feeling, setting and association.



A B SOUTH
 n Southborough
 et address Common St.
 e Water Dept Bldg
 ginal use School House
 sent use Water Dept Bldg
 sent owner town of Southborough
 n to public Yes
 Date 1859 Style N.R. mbr.

- Art/sculpture
- Education
- Government
- Literature
- Music
- Travel/communication
- Military affairs
- Religion/philosophy
- Indians
- Development of town/city

Source of date town report 1859
 Architect _____

3. CONDITION: Excellent Good Fair Deteriorated Moved Altered Added garage in cellar

4. DESCRIPTION

FOUNDATION/BASEMENT: High Regular Low Material: 1/2 stone 1/2 brick
 WALL COVER: Wood clapboard Brick Stone Other _____
 ROOF: Ridge Gambrel Flat Hip Mansard
 Tower Cupola Dormer windows Balustrade Grillwork _____
 CHIMNEYS: 1 2 3 4 Center End Interior Irregular Cluster Elaborate
 STORIES: 1 2 3 4 ATTACHMENTS: Wings Ell Shed _____
 PORCHES: 1 2 3 4 _____ PORTICO _____ Balcony _____
 FACADE: Gable end: Front Side Ornament: _____
 Entrance: Side Front: Center/Side Details: _____
 Windows: Spacing: Regular Irregular Identical Varied _____
 Corners: Plain Pilasters Quoins Cornerboards _____

5. Indicate location of structure in relation to nearest cross streets and other buildings

6. Footage of structure from street
Property has _____ feet footage on street



Recorder _____
 For _____
 Photo 1-26A Date 1971

SEE REVERSE

RELATION OF SURROUNDING TO STRUCTURE

SBR.32

1. Outbuildings

2. Landscape Features: Agriculture Open Wooded Garden: Formal/Informal
Predominant features
Landscape architect

3. Neighboring Structures

Style: Colonial Federal Greek Revival Gothic Revival Italian Villa Lombard Rom.
Venetian Gothic Mansard Richardsonian Modern

Use: Residential Commercial Religious Conditions: Excellent Good Fair Deteriorated

GIVE A BRIEF DESCRIPTION OF HISTORIC IMPORTANCE OF SITE (Refer and elaborate on theme circled on front of form)

Originally built as a school house in 1859, the building was moved from its location on Flagg Road. It has been somewhat remodelled but is instantly recognizable as one of the old school houses.

BIBLIOGRAPHY AND/OR REFERENCE

① HDSC Report 1972

1898 Atlas - School house - original location

RESTRICTIONS

Original Owner:

Deed Information: Book Number Page, Registry of Deeds