Condition Report

ST. MICHAEL'S EPISCOPAL CHURCH

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Geneseo, New York

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St. Michael's Episcopal Church
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CONDITION REPORT

St. Michael's Church

23 MAIN STREET
GENESEO, NEW YORK

OCTOBER 2020

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 7
INTRODUCTION 8
GENERAL INFORMATION 8
1.1 Purpose 8
1.2 Method 8
1.3 Limitations 8
1.4 Organization of the Report 8
1.5 Construction Quality 9
1.6 Durability vs. Historic Authenticity 10
1.7 Building Codes 10
1.8 Funding for Maintenance 13
1.9 Building Description 13
OBSERVATIONS 15
2 SITEWORK 15
2.1 General 15
2.2 Grade 15
2.3 Site Paving 16
2.4 Window Wells 16
2.5 Plantings and Vegetation 17
3 ROOFING AND SHEETMETAL 18
3.1 General Comments 18
3.2 Slate Roofing, Church 19
3.3 Asphalt Shingle Roofing, Parish House and Chapel 22
3.4 Built-up Membrane Roofing, Education Wing 24
3.5 EPDM Membrane Roofing, East elevation exits 25
3.6 Attic Ventilation 26
4 STORMWATER MANAGEMENT 27
4.1 General Gutters & Downspouts 27
4.2 Church Gutters and Downspouts 27
4.3 Parish House, Chapel, and Education Wing Gutters and Downspouts 29
4.4 Underground Stormwater System 30
5 MASONRY 30
5.1 Past Repairs 30
5.2 Repointing and Cleaning, General 30
5.3 Church Masonry 32
5.4 Parish House and Education Wing Masonry 34
5.5 Chapel Masonry 35
6 METALS 36
6.1 Parish House Fire Escape 36
7 CARPENTRY 36
7.1 Standing Trim (Eave and Rake Moldings) 36
7.2 Parish House - Exterior Stairs at South Entrance 37
8 OPENINGS 38
8.1 Leaded Glass Windows 38
8.2 Wood Windows 41
8.3 Replacement Windows 42
8.4 Exterior Wood Doors 42
9 FINISHES 43
9.1 Paint 43
9.2 Interior Repairs 46

9.3 Flooring 47
10 OTHER 48
10.1 Guard Heights and Baluster Spacing 48
10.2 Interior Stair Railings 48
10.3 Pests and Hazardous Materials 49
10.4 Mechanical, Plumbing, and Electrical Report 50
11 MECHANICAL, PLUMBING, ELECTRICAL REPORT - EXISTING CONDITIONS 51
11.1 HVAC 51
11.2 PLUMBING 52
11.3 ELECTRICAL 53
11.4 DISCUSSION 55
11.5 NOTES 56
12 OPINION OF PROBABLE CONSTRUCTION COSTS 57
12.1 General 57
12.3 Accuracy 58
12.2 Markup 58
13 WORKLIST AND ESTIMATE 59

ATTACHMENTS:

1. "Roof Plan – Existing Conditions," Bero Architecture, PLLC dated October 2020.
2. "Chronology of Construction," Bero Architecture PLLC dated October 2020.
3. Secretary of the Interior's Standards for Rehabiliation, National Park Service, Department of the Interior.
4. "Some Thoughts on Preservation Funding," Bero Architecture PLLC, 2020.
5. "De-icing Stoops and Sidewalks," Technical Preservation Services, New York Landmarks Conservancy, Common Bond, December 1994.
6. "The Repair and Replacement of Historic Slate Roofing" – Preservation Brief #29, National Park Service, United States Department of the Interior – Spring 1993.
7. "Slate Repairs," *The Slate Roof Bible*, Joseph Jenkins, 1997, Chapter 13, pages 223-224 and 234-235.
8. "Flashings," *Copper & Common Sense, Sheet Copper Desin Principles and Construction Technique*, Revere Copper Products, Inc., 7th Ed, 1982, pages 44-45, 66-67.
9. "Repointing Mortar Joints in Historic Masonry Buildings" - Preservation Briefs #2, National Park Service, United States Departement of the Interior - October, 1998.
10. "Keeping it Clean, Removing Exterior Dirt, Paint, Stains, and Graffiti from Historic Masonry Buildings" – Anne E. Grimmer, U.S. Department of the Interior National Park Service, Historic Preservation Services, 1988.
11. "Terra-Cotta: Characteristics, Uses and Problems," U.S. General Services Administration, Historic Preservation Technical Documents, Procedure Code: 421403G, December 26, 2017.
12. "Legend of Stained Glass Windows, St. Michael's Church, 23 Main Street, Geneseo, New York," unknown (found in Church's documents).
13. "The Preservation and Repair of Historic Stained and Leaded Glass Windows," - Preservation Brief #33, National Park Service, United States Departement of the Interior - October, June 1979.
14. "Asbestos in Buildings," Naval Facilities Engineering Service Center, December 2005.

EXECUTIVE SUMMARY

This report provides documentation of the existing exterior and interior conditions of Epworth Hall, one of the original remaining associated outbuildings of the Silver Lake Institute, located near the mid-point along the eastern shoreline of Silver Lake.

The report identifies areas of concern and proposes remedies (where appropriate) or further study required. It targets general conditions causing & accelerating decay, and identifies areas of general deterioration. An "Opinion of Probable Construction Costs" (OPCC) is provided for the identified work items and is intended to provide the Owner an initial budgetary assessment of probable construction costs.

Any work item(s) deferred beyond the end of 2020 will generally require:

- Monitoring for change affecting a work item's condition
- Interim maintenance not discussed in this report or included in the worklist and estimates.
- Re-evaluation of the scope of work and estimated costs.

The building was originally constructed with good quality, long lasting materials. It has been subject to extreme weather conditions, seasonal use, minimal upgrades, and limited maintenance. Replacement building materials from various eras of repairs and upgrades are of lesser quality than the original materials.

Report highlights include the following:

- The exterior of the structure is in fair condition, with the most noticeable deficiencies in failing flashing details, poor stormwater management, and masonry issues. The following are the more problematic areas requiring attention:
  - Slate shingle roofing - plan for replacement
  - North Entrance - roofing and flashing deficiencies
  - South Transept stormwater overflow causing masonry deficiencies
  - Parish House dormer and parapet flashings and masonry deficiences

- The interior of the structure is in fair-to- good condition, with the most noticeable deficiencies in the finishes due to previous and ongoing stormwater management and flashing failures and dated mechanical, plumbing, and electrical systems. The following are the more problematic concerns requiring attention:
  - Interior guards at interior Parish House stair (guard height and baluster spacing)
  - Electrical systems updates and code requirements

Estimate Summary (all numbers rounded)	**Essential**	**Preservation**	**Optional**
Totals by Priority	$ 214,250	$ 548,750	$ 5,100
Total Essential + Preservation Work		$ 763,000	
Total of all worklist priorities		$ 768,100	

INTRODUCTION

1 GENERAL INFORMATION

1.1 Purpose

This report was requested by the Vestry of St. Michael's Episcopal Church. Its purpose is to provide a comprehensive review of the Parish buildings and site in order to understand existing conditions and formulate a plan for moving forward in the maintenance and repair of the campus.

1.2 Method

This report is based on observations made by Jennifer Ahrens, Bero Architecture, and Chuck White, CW Engineering, during site visits on April 16 and July 28, 2020. Observations were made from accessible floors of interior spaces, and from the exterior on the ground using binoculars. Digital photographs were taken to document observations, with some included in the report as representative examples of the existing conditions.

We surveyed the Church, Chapel, Education Wing, and Parish House *(Attachment 1)*, including the mechanical, electrical, and plumbing systems. We studied archival reports and construction drawings and developed a chronology of previous building work *(Attachment 2)*. All recommendations for maintenance, repairs, or restoration listed in the report will conform to The Secretary of Interior's Standards for Rehabilitation. This standard allows for alterations and improvements to the building that are compatible with the original historic design *(Attachment 3)*.

1.3 Limitations

This report details our observations of the Church campus of connected buildings, but does not include the Rectory building to the north. No finishes or trim were removed from the building, and no concealed spaces were opened for investigation of potential damage, etc.

The report does not include in-depth observations on your leaded glass windows. We recommend the windows be evaluated by specialists who design and/or repair them; Pike Stained Glass Studios has designed and executed some of the original leaded glass windows, and has performed repairs in the recent past. Remedial issues requiring window repair, that were easily observed during the site visits, are included for the general knowledge of the Owner.

Also, the report does not include any indication or laboratory analysis of potential hazardous materials found on the site or within building materials. Bero Architecture PLLC has no expertise in the identification, treatment, repair, or removal of lead- or asbestos- or pcb-containing products; mold, mildew, fungi, or other biological dangers; or other hazardous or toxic materials.

Please note that New York State labor laws require a hazardous materials survey be conducted, and an abatement plan instituted (if warranted), as a part of any construction project affecting an existing building. We recommend you retain an independent expert consultant to confirm the presence of hazardous materials, review abatement options, and provide estimated costs prior to construction work being done. If requested we can provide you with the name of a qualified testing agency.

Survey and test existing materials for asbestos and PCBs.....$ 1,600 [E]

1.4 Organization of the Report

This report is divided into the following five (5) sections:

Executive Summary

- Brief overview of the report findings.

Introduction

- Information about the scope and organization of this report.

Observations

- Descriptions of existing conditions and suggestions for maintenance, repairs, and preservation. Observations are arranged by construction trade.

Worklist & Opinion of Probable Construction Costs

- Worklist of repair or upgrade items, and a three-level priority categorization. Priorities are assigned on the basis of an item's importance as it relates to occupancy and preservation of the property, and without knowledge of available funds.

  1. Essential [E]: Life safety and immediate stabilization
  2. Preservation [P]: Work which can be deferred, but required for long-term stabilization & longevity of building / collections
  3. Optional [O]: Restoration of historic detail(s), optional improvements/upgrading, and future planning

  In the text of the report, the preferred repairs (and/or options) are included at the end of each section paragraph with an Opinion of Probable Construction Cost & associated priority level -
  (i.e. "*Suggested repair procedure - $ 5,000 [P]*").

Attachments

- Supplementary technical information to augment report recommendations.

1.5 Construction Quality

Building construction varies in quality from low to high standards: i.e. - residential, commercial, institutional, and museum. The lowest level, residential, is also the least expensive, the least durable, and the most susceptible to destruction by natural forces. The quality of the construction your building is institutional-level, and we generally recommend that you consider the highest quality level possible for construction and repairs.

Highly-skilled and appropriately-trained tradesmen are important members of a preservation team, and we are fortunate to have many such craftspeople in our region. We recommend you seek them out to do any work you require on these buildings. Historic materials are easily and irreversibly damaged by the use of inappropriate repair techniques and materials by tradesmen who claim to have worked on "old, historic" buildings, but are not truly familiar with proper treatments and repair of historic materials.

As day-to-day decisions are made regarding how to repair your buildings, beware of conventional wisdom. Conventional wisdom


Fig 1 - West elevation

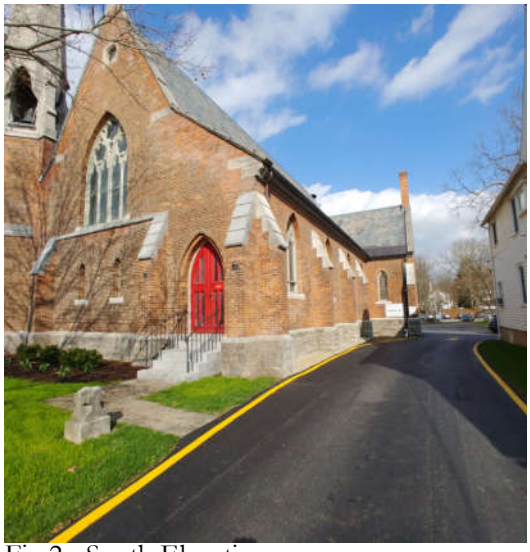
Fig 2 - South Elevation


Fig 3 - Southeast elevation

is the basis of advice promulgated by suppliers and contractors who are engaged in conventional construction, most of which is residential or light commercial. The fundamental premise is that cost is of utmost importance and durability is secondary. Since average home ownership is reputed to last only seven years, conventional wisdom may be appropriate for many homeowners. But for an institution that has owned, and will continue to own, a building for a long period, replacing sound original materials with short-lived modern materials is almost always a bad idea. Similarly, use of temporary materials like aluminum flashing and pressure-treated wood is ultimately more expensive over the long-term than the use of more durable materials from the onset.

Recommendations in this report are generally for long-term repairs. Often the reaction of contractors to this type of recommendation is: "We don't do it that way," or "It's not done that way," or "Nobody does it that way anymore." Interpret these comments as the contractor's way of telling you they either don't know how to follow the recommendations or they won't make enough money if they follow the recommendations. Contractors are generally under pressure to reduce first costs as much as possible. They are most comfortable with conventional materials and techniques they are used to, because for many, their greatest profit comes from low first cost, low life expectancy solutions. You are not a conventional client so if you get the "Nobody does it that way anymore." response from a contractor, continue searching for contractors who are comfortable with the recommendations and are used to high-quality work.

Also be aware that contractors usually recommend repairs using tools and materials they are used to. For example, a roofer who doesn't normally repair mortar joints will recommend patching a leaking parapet with roofing cement and roofing, where mortar and a flashing system are warranted. A roofer who doesn't have mechanics skilled in flat-seam metal roofing will never think of recommending flat-seam metal roofing, even though it may be the most cost-effective roofing. Many similar examples can be given for any number of situations you may encounter.

1.6 Durability vs. Historic Authenticity

Choices often must be made between the most cost-effective solutions to a problem versus the most authentic solutions. Each decision must be approached on its own merits but it is important to state our bias so that this report can be properly interpreted. Because funds for preservation are limited and the needs are great, we sometimes recommend what we believe to be the most cost-effective solution to a problem, rather than the most authentic.

The position taken in this report is that money should be spent carefully, occasionally at the expense of authenticity, particularly when the repair is obscured or concealed from view.

1.7 Building Codes

In May 2020, New York State adopted a family of codes which regulate the operation and construction of buildings; the Uniform Fire Prevention and Building Code (Uniform Code) and State Energy Conservation Construction Code (Energy Code).

The Uniform Code incorporates the following publications by reference:

- *2020 Building Code of New York State*
- *2020 Residential Code of New York State*
- *2020 Existing Building Code of New York State*
- *2020 Fire Code of New York State*
- *2020 Plumbing Code of New York State*
- *2020 Mechanical Code of New York State*
- *2020 Fuel Gas Code of New York State*
- *2020 Property Maintenance Code of New York State*
- *ICC A117.1-2009 Standard and Commentary - Accessible and Usable Buildings and Facilities*

- All the Codes incorporate by reference the National Electrical Code (NEC) which governs the installation of electrical equipment in buildings. It has evolved outside the normal governmental code development process due to property insurers' need for confidence that buildings they insure are reasonably safe from fires caused by faulty electrical installations.

The Energy Code incorporates the following publications by reference:

- *2020 Energy Conservation Code of New York State*
- *2016 ASHRAE 90.1*

1.7.1 Building Operation

Within the Uniform Code, sub-parts applicable to all nonresidential existing buildings include:

- *2020 Property Maintenance Code of New York State* [1]
- *2020 Fire Code of New York State* [2]
- *2020 Fuel Gas Code of New York State*
- *2020 Mechanical Code of New York State*
- *2020 Plumbing Code of New York State*
- *ICC A117.1-2009 Standard and Commentary - Accessible and Usable Buildings and Facilities*

Bero Architecture PLLC recommends operators of buildings obtain printed copies of these codes or access the codes online, review their provisions, and comply with their requirements. The Property Maintenance Code and the Fire Code are written for the average building operator and do not require the specialized knowledge assumed by the writers of the Fuel Gas, Mechanical, and Plumbing Codes.


Fig 4 - North Entrance elevation

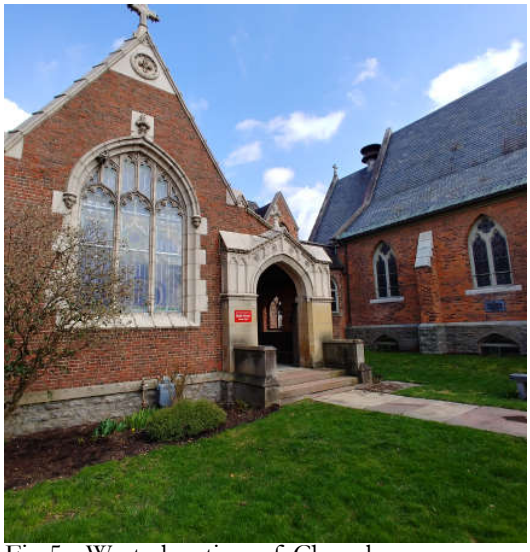
Fig 5 - West elevation of Chapel

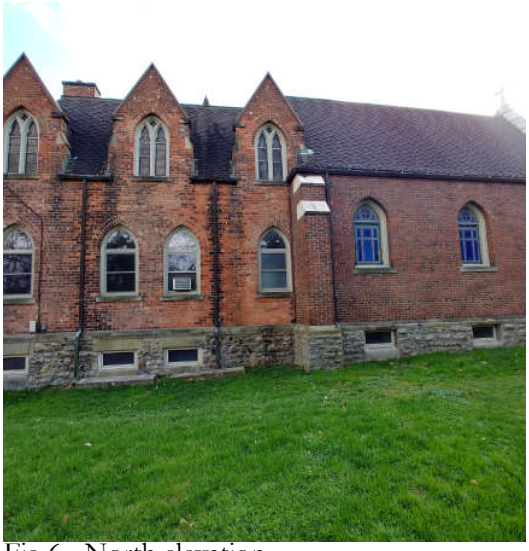
Fig 6 - North elevation

1 The Property Maintenance Code of New York State "… is intended to provide minimum requirements to safeguard public safety, health and general welfare insofar as they are affected by the occupancy and maintenance of structures and premises." It requires all sites and buildings be kept in good repair; and all systems (heating, plumbing, electrical, fire suppression, etc.) be kept in good working order. Exterior wood must be painted; windows must be operable, etc. This code applies to all existing buildings, whenever built.

2 The Fire Code of New York State "…is intended to provide minimum requirements consistent with nationally recognized good practices that offer a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises." This Code also applies to all buildings, whenever built. It focuses on, among other things, fire safety of flammable materials, system maintenance (particularly fire protection systems), access for fire-fighting, and maintenance of egress from buildings.


Fig 7 - Northeast elevation


Fig 8 - East elevation

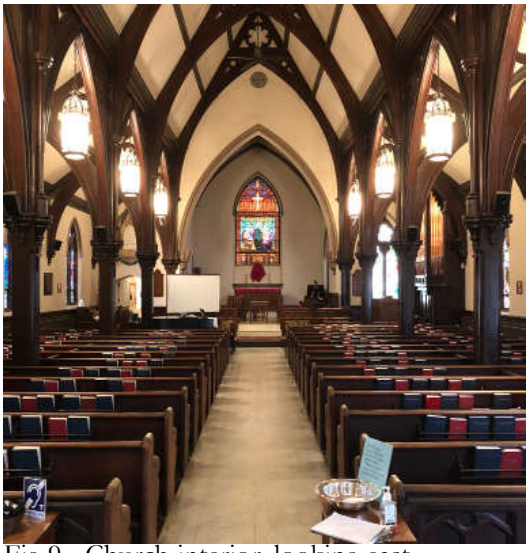
Fig 9 - Church interior, looking east

This report does not include a comprehensive survey of these codes (this is a major task well beyond the scope of this report) but where violations were observed we have attempted to point them out and, in some cases, to cite the applicable code.

1.7.2 Building Changes

Codes applicable to new and alterations to existing buildings include the operational codes discussed above plus:

- *2020 Building Code of New York State*
- *2020 Existing Building Code of New York State*
- *2020 Energy Conservation Code of New York State*

The *Building Code* is the code usually referenced by building professionals. It is primarily applicable to new buildings but if the use of an existing building is changed, the *Building Code* applies as if it were a new building.

The *Existing Building Code*, contrary to its name, does not apply to existing buildings, it applies strictly to the "…repair, alteration, change of occupancy, addition and relocation of existing buildings."

The *Building, Existing Building*, and *Energy Conservation Codes* are usually triggered only by change(s); absent changes, there is rarely an obligation to alter your building to comply. If changes are minor, only the changes need to comply with these Codes. If changes are major, the entire building may be required to comply with these Codes.

As your buildings stand today, they are not required to comply with most provisions of the *Building*, the *Existing Building*, or the *Energy Conservation Construction Codes*. Nevertheless, these codes are good standards to use as targets for improvements.

For all future work, including electrical items, we recommend referencing this family of codes to help ensure the buildings are safe and secure.

1.7.3 Historic Buildings and the Existing Building Code

In New York State, historic buildings are defined by the Existing Building Code as "Any building or structure that is one or more of the following: 1.) Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places; 2.) Designated as historic under an applicable state or local or state law; 3.) Certified as a contributing resource within a National Register, state designated or locally designated historic district"

In many circumstances certain onerous Code requirements can be waived for historic buildings by local authorities. When planning for

any change requiring a building permit, you should investigate the potential advantages of being an historic building by reviewing the Codes and meeting with the local Code Enforcement Officer.

1.8 Funding for Maintenance

1.8.1 Cyclical Maintenance

Many owners respond well when faced with undeniable evidence of obvious failing building components and rally to fund large repair and restoration projects. However, routine and unglamorous cyclical maintenance is what helps to preserve valuable buildings with the least amount of damage to historic fabric and lowest cost. Another advantage to doing routine maintenance work in small chunks is that it can be budgeted annually -recognized as an ongoing expense. For those reasons it is important to set up an ongoing cyclical maintenance program. The list of work doesn't have to be complicated or long, but it is necessary to remind staff of routine chores and administrative activities necessary to preserve the building and minimize maintenance costs. We suggest the list include work for each season, as well as tasks, such as roofing and boiler inspection, which have multi-year cycles. An inspection checklist to be used by the staff should be included for each season. These lists, if used properly, will grow and evolve over time to reflect actual experience with the building and the skills of an ever-changing staff.

1.8.2 Historic Preservation

The larger community has an interest in the preservation of an historic building and so funding, generally for larger projects, can sometimes be obtained from public or not-for-profit sources. *Attachment 4* contains information about donors and organizations interested in historic buildings, though they are typically only open to not-for-profits or municipalities. Each organization has eligibility criteria which may or may not be similar to the Code definition, but most at least require eligibility for the National Register of Historic Places.

The campus, including the Rectory, are contributing structures to the National and State Registered Main Street Historic District. Additionally, the campus is locally designated in the Village of Geneseo Main Street Historic District. Modifications and additions to the exterior will require review by the Village's board in order to receive a Certificate of Compliance.

1.9 Building Description

The Parish's first church, consecrated in 1829, was removed for the construction of the existing church building dated to 1866, constructed with money mostly gifted by the Wadsworth family. Designed by Henry Dudley of Draper and Dudley, New York City, the church is a rectangular-shaped plan (100'-0" x 50'-0") with a main gable roof running east to west with a lowered gable to the east over the Chancel. The unique stone belfry and spire rises at the northwest

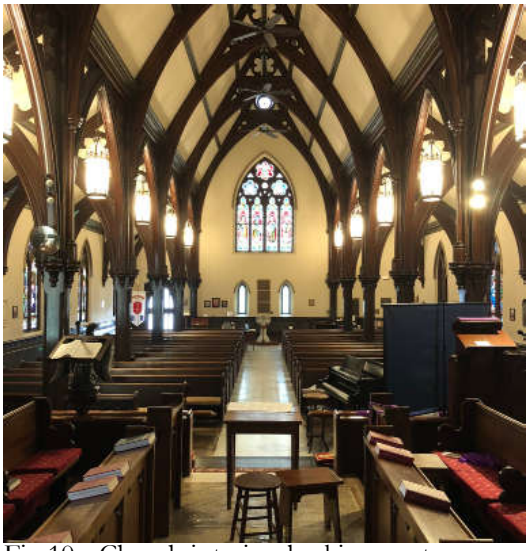
Fig 10 - Church interior, looking west

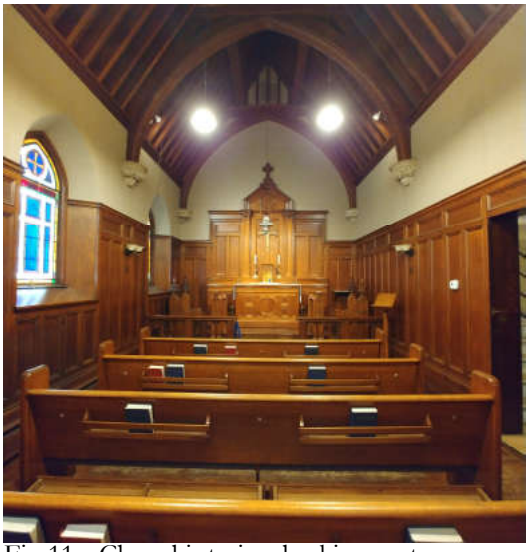
Fig 11 - Chapel interior, looking east

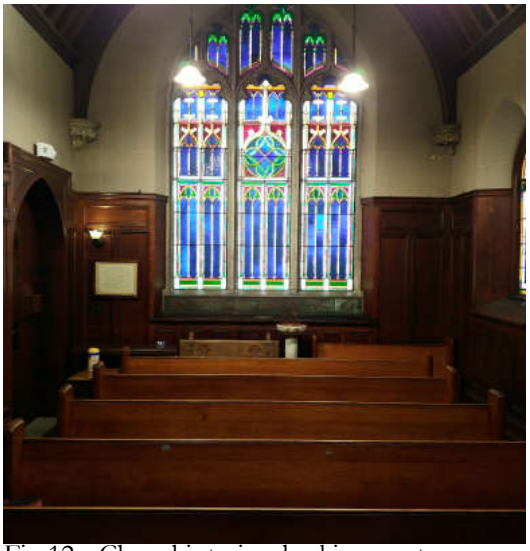
Fig 12 - Chapel interior, looking west

corner of the main façade with a brick masonry walls capped by a slate shingled roof. The interior is decorated with terrazzo tiled flooring, leaded glass windows, and a carved decorative wood brackets, pews, and wainscot. There are two significant stained glass in the Sanctuary executed by Tiffany Studios and William Morris Studios.

Parish House was constructed in 1898 by Heins and LeFarge of New York City patterned after the Gothic style of the Church. Consecrated at the same time is the Rogers Memorial Chapel detailed in a slightly later, higher Gothic style as a gift by Nancy Wadsworth Rogers in memory of her only daughter. The steeply pitched roofs of the Chapel and Parish House, originally covered in slate shingles, are covered in asphalt shingles. Connecting the Parish House to the Church is the Education Wing of an unknown date.

OBSERVATIONS

2 SITEWORK

2.1 General

St. Michael's Church faces west to Main Street with its stone steeple prominently located at the northwest corner. The Church building sets back from the street, its grassy front yard landscaped with a couple specimen trees, a planting bed along the west elevation, and a planting area containing signage. To the north of the Church, the Parish House sits back from the street creating a courtyard space enclosed by the Rectory to the north. The grass courtyard is bisected by a stone walk that leads from the north entrance of the Church to the west entrance of the Parish House. There is a grassy burial ground located between the stone walk and the Church. Planting beds line the Church's north elevation. The asphalt parking lot to the rear of the lot is reached by an asphalt driveway that lines the south elevation of the Church.

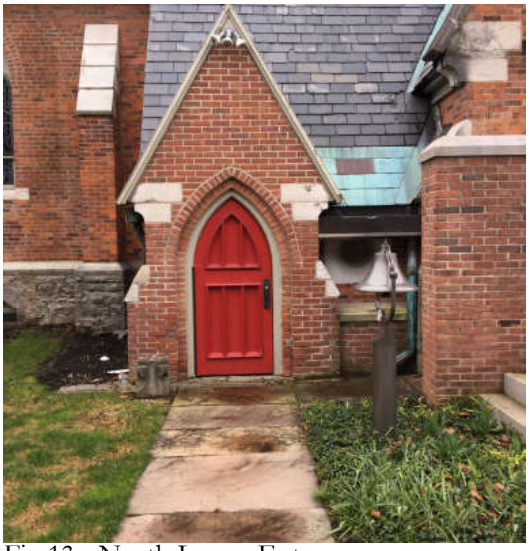
Fig 13 - North Lower Entrance

The Parish House's traditional entrance porch, framed in terracotta stone detailing, sits off the north Church courtyard; planting beds line the west elevation.. The main entrance is located on the south side off the Church's parking lot. The east side is lined with a concrete sidewalk to the Rectory. A grass area without planting beds fills the north lot between the Parish House and Rectory.


Fig 14 - North Lower Entrance looking west

2.2 Grade

Existing grade at the buildings is generally level or slopes gently away from the building. The Church's south elevation has a sloped concrete apron that separates the building from the asphalt drive.

Existing grade at the Church's North Lower Entrance slopes toward the building along the stone sidewalk. There is a linear trench drain at the door's threshold and the brick recessed area (previously an accessible exterior vertical wheelchair lift location) has a floor drain. Both drains had vegetative debris potentially clogging the drain. We recommend re-grading the stone walk to pitch to a lowered swale between the east-west sidewalk and the North Lower Entrance door and providing an improved trench drain at this location.

Existing grade at the north side of the Parish House is level to the eye with a small indented area adjacent to the base of the Chapel's east buttress. Water potentially ponds in this area based on wear in the grass area, and we recommend grade be improved.

The grade around both buildings should be periodically improved over time to ensure the grade does not pitch towards the foundations. Also, maintaining a properly working site stormwater system will control water collection and runoff in a deliberate manner; we recommend periodical cleaning drains, yard inlets, and trench drains, refer to Section 4, **STORMWATER MANAGEMENT.**

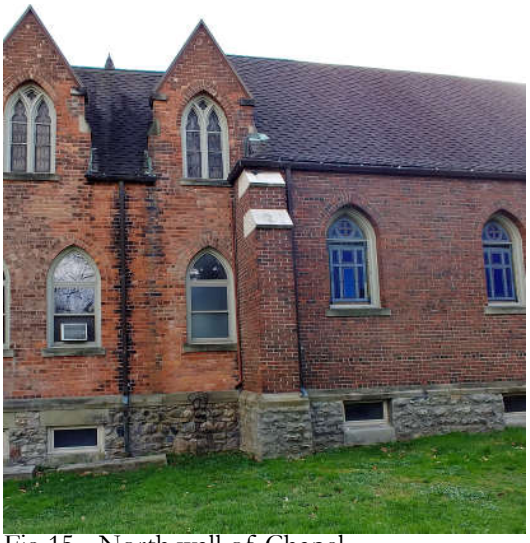
Fig 15 - North wall of Chapel


Fig 16 - North Entrance concrete landing


Fig 17 - Stone paver at West Entrance to Chapel

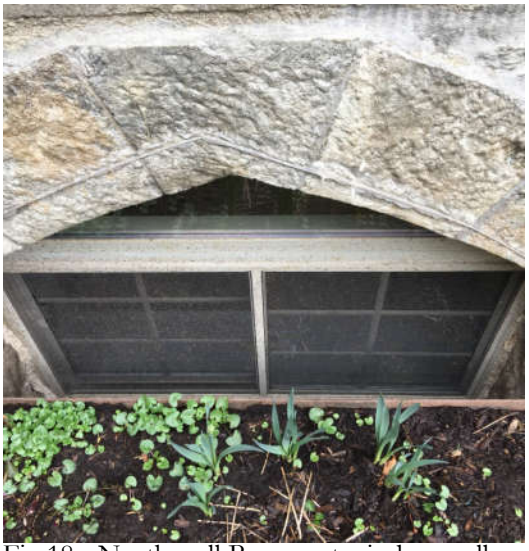
Fig 18 - North wall Basement window well

Regrade at North Lower Entrance sidewalk and door. Provide improved trench drain.....$ 8,000 [P]
Improve grade at north wall of Chapel.....$ 500 [P]
Improve grade at all elevations as maintenance activity .....
.....Periodic maintenance

2.3 Site Paving

Existing concrete sidewalks are generally in good condition. Concrete sidewalks connect the asphalt parking area to the Parish House and wrap the rear of the building to the Rectory. At the West Entrance to the Church there is a recently constructed concrete walk and concrete steps into the Church. At the Church's North Entrance, stone steps and a metal railing were constructed in 1987 and are in good condition except for some concrete spalling at the east side of the landing.

A Medina sandstone walk connects the public sidewalk on Main Street to the Chapel West Entrance. The stone walk, believed to be original, is generally in fair-to-good condition with the stones laid evenly and flush; there is one repair required at the stone steps to the West Entrance portico.

Deicing chemicals negatively impact the environment and their use will destroy your historic sandstone walks and more recently installed concrete flat work. Pedestrian safety is a concern so we suggest you research alternates to deicing salts, refer to Attachment 5.

Repair concrete spalling at North Entrance landing slab.....$ 1,200 [P]
Replace stone paver at Chapel West Entrance steps.....$ 600 [P]

2.4 Window Wells

The Church basement windows lining the north and south walls of the Lower Hall gathering space are located within deep window wells. Exterior window sills are located below the finish grade, along the north elevation, and below the concrete apron along the south elevation. Although the grade generally slopes away from the building, the relationship of the window sill to finish grade/pavement is not ideal.. Along the north elevation, the window wells are very shallow and we noted landscaping directly against the window sash and debris piling up at the base of the well during our summer site visit. Along the south elevation, the windows are exposed to splash back from rain and are potentially directly impacted by piling snow and ice.

Based on observations, moisture appears to migrate through the porous masonry foundation walls, we recommend improving the window well conditions where feasible. Improvements include enlarging the size of the north window wells and modifying the existing window wells to allow for a minimum of 8" clearance from the window sill to base of the well. We recommend digging to 16" below the sills, installing a galvanized steel formed window well,

and placing 8" of granular material such as gravel or crushed stone in the bottom of each well so water will percolate down. Window wells shall be periodically maintained to ensure adequate drainage and removal of debris.

In general, we find that with improvements to stormwater runoff from roofs and site, basements can dry out on their own accord. The following are simple solutions to avoiding a damp basement:

Correct grade. Divert surface runoff away from the foundation. Basement window sills shall be a minimum of 8" above finish grade.

Control stormwater. Basements stay dry if stormwater is collected and disposed of properly. The gutters drain to downspout to hubs to an underground storm system. This is the best way to control stormwater.

Dry out the basement. In order to help remove moisture, open the windows. We generally recommend windows be left open three seasons of the year. The basement walls are constructed of masonry and as they are not insulated (on the interior or exterior), moisture moves through the wall as masonry is porous. Open windows provide a mechanism to dry the air.

A more comprehensive solution to management of a damp basement is to remove soil along the foundation walls, install dampproofing at the face of exterior masonry, provide a perforated footing drain, provide free-draining gravel against the foundation, and regrade the surface away from the building. The installed footing drain could be tied-in the existing underground storm system. We did not observe conditions existing to warrant undertaking this solution.

North Elevation: Enlarge and provide galvanized wells, and improve sill to window well depth.....$ 3,200 [P]
South Elevation: Improve sill to window well depth.....$ 2,100 [P]
All locations: Periodically clean window wells of debris .....Annual maintenance [E]

2.5 Plantings and Vegetation

Plantings along the north façade of the Church should be thinned and trimmed back as they crowd the stone foundation and window wells. Plantings at the northwest corner of the Chapel are too close to masonry wall and should be trimmed back a few feet, or transplanted further away, or removed entirely. Vegetation too close to a building creates a micro-environment that holds moisture longer against building materials and restrict the sun and wind from naturally drying out the building.

From a maintenance and aesthetic point of view, we prefer foundation plantings be kept low and away from the building. Regarding on-going maintenance, it is best if the building is allowed


Fig 19 - Lower Hall moisture infiltration

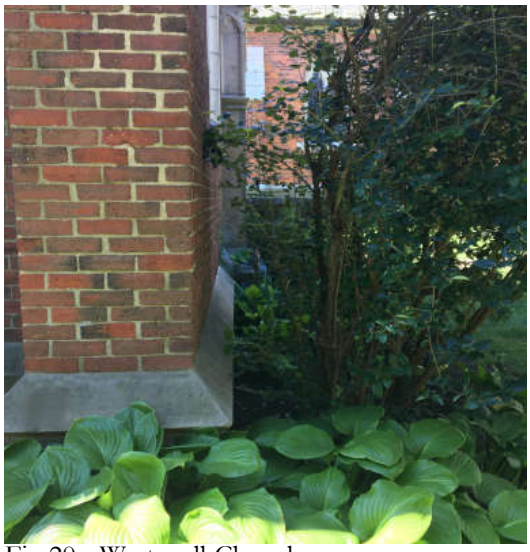
Fig 20 - West wall Chapel


Fig 21 -South wall Basement window well

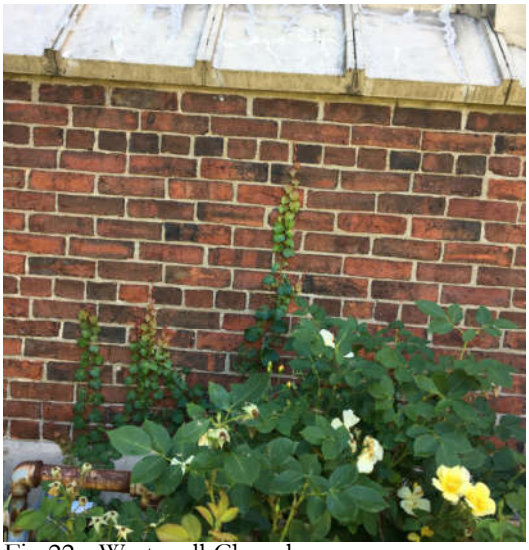
Fig 22 - West wall Chapel

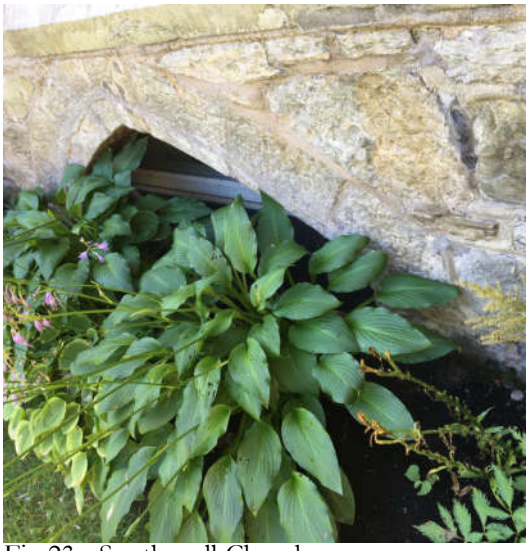
Fig 23 - South wall Church


Fig 24 - South elevation

to dry out as quickly as possible after rains and foundations and grade should be inspected from time to time, preferably seasonably, by walking around, observing the condition of walls and soil. Proper inspection requires a space between plants and building. Soil often becomes dished in the vicinity of old foundation plantings and holds water allowing a potential for it to seep into the basement.

We recommend you consider trimming back and replanting the vegetation along the west Chapel and south Church elevations to help keep your buildings dry.

Trim plantings at west planting bed of Chapel.....$ 200 [P]
Relocate existing plantings at north elevation of Church.....$ 400 [P]
Annual planting maintenance (trimming).....Annual maintenance [E]

3 ROOFING AND SHEETMETAL

3.1 General Comments

The Church campus has multiple roofs with at least 4 types of roofing, each with its own maintenance and replacement requirements. Accordingly, this Section is organized by roofing type, starting with the Church, and moving to the northeast. *Attachment 1* is the campus roof plan showing locations of roofing types.

Roofing is the most expensive regularly replaced building material so a cost/benefit analysis is particularly important when choosing a roofing material. For example, your 50+ year old slate roofing is probably more economical in a life cycle analysis, than your 15+ year EPDM membrane roofing. We do not have documentation of the manufacturer, age, or quality of your roofing installations. We recommend you search your files to try to determine existing roofing specified as an aid to planning for replacement.

Flashing is the material used to join roofs to walls, penetrations such as chimneys and vent pipes, dissimilar roof planes, and any other area that might be difficult to protect with roofing alone. Flashing is usually metal such as galvanized steel, copper, or aluminum and, ideally, should be more durable than the roofing. Whenever roofing is replaced, the flashing should be inspected to determine if it will last the life of the new roofing and one additional roof that might be installed over it. If deteriorated, it should be replaced. Unfortunately, some roofers do not want to replace the flashing because done correctly, the work can be difficult, and expensive. Thus, in many cases, various patching compounds are applied in lieu of the appropriate flashing – a method fully evident in the flashings at the Chapel and Parish House roof areas.

Roofing cement, roofing tar, flashing cement, and black goop are all names for asphalt-based patching compounds which are only suitable for temporary patching. These products contain sulphur which, when exposed to rainwater, becomes sulfuric acid. Tars and asphalt

patching compounds not only hide problems, but may accelerate deterioration of metal flashings. Caulks or sealants are also short-term solutions to flashing problems, as these types of fixes typically only hide problems, and may accelerate deterioration of metal flashings, roofing materials, and surrounding building finishes.


Fig 25 - North elevation

3.2 Slate Roofing, Church

The Church roof is covered with slate shingles in poor-to-fair condition showing signs of wear, algae growth and, delamination. In general, the shingles are quite weathered so it is prudent to plan for replacement. Archival records indicate the roofing was replaced in 1962, but without historic photos or documentation, original shingle color and size dating to time of construction is unknown. Finding records confirming original roofing would be helpful when it is time for replacement.

Slate durability depends on four factors: physical and mineralogical quality of slate, fabrication process of shingles, installation techniques, and regular and timely maintenance. Based on the assumed age of your shingles and their existing worn condition, we are suspecting your shingles are from the Lehigh-Northampton slate region of Pennsylvania. There is a gray/black shingle quarried in Pen Argyl, PA that historically is known to weather to a light brownish surface color and flake and delaminate in layers as it ages similar to the shingles of your roof. The brownish cast (rust or brown in tone) is due to oxidation of iron layered within the slate shingles. This type of slate is known to exude a chalky residue over time (whitish cast) as seen in your shingles. These shingles are not as hard and durable as other slates with an expected lifecycle span of only 50-75 years.

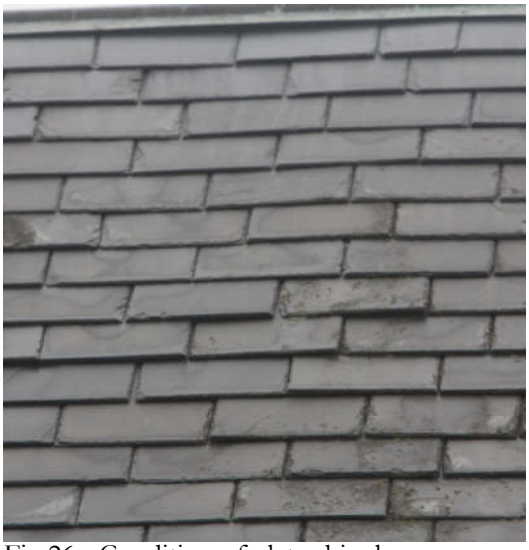
Fig 26 - Condition of slate shingles

Because of the condition or your shingles annual maintenance is required. Each year a few slates will be lost to breakage or failed fasteners and must be replaced. *Attachment 6* provides detailed


Fig 27 - South Transept


Fig 28 - North elevation slate shingles


Fig 29 - Ridge flashings

information on slate shingle roofing maintenance, repairs, and replacement. It also contains guidance on when to consider replacement, but the best guide to replacement is a brief cost/benefit analysis: when the cost of repair exceeds the income from a reserve equal to the roofing replacement cost, it will be time to replace your roofing. In order to make this determination it is necessary to have an easily accessible annual record of roofing maintenance costs.

We recommend you continue to have qualified contractors performing the required inspections and repairs to your building. Repairs and replaced shingles shall match the original in size, color, and thickness. For the estimate for annual repairs below, we assumed a crew of two men for two days with a lift. This is a recurring, annual expense. *Attachment 7* describes appropriate slate roofing repair procedures.

Annual slate roofing inspection and repairs.....$ 9,400 [E]


Fig 30 - Ridge flashings

The main roof of the Church is a sloped gable structure that changes pitch at the side aisles. The slope of the roof impacts the longevity of the shingles as water moves faster along the steeper slope and when the pitch is reduced, water flow is more likely to be disrupted and snow build-up or ice dams are likely to form. Both the north and south aisle eaves have standing seam copper snowslides. Based on what appears to be recently installed sheet metal copper snowslides and snow guards along the south elevation, we suspect that ice damming is an issue. Snow and ice sliding off the roof can be dangerous and damaging and of a particular concern at the south elevation driveway location.

Flashings. *Attachment 8* provides a comprehensive visual description of proper flashing installations that are appropriate for your roofing systems. The slate ridge shingles along the main roof areas are


Fig 31 - South Transept valley


Fig 32 - Slope change at aisles

covered in a sheet metal ridge roll. We noted areas along the ridge where slates are not laid flat, are loose or cracked, or have slid, and areas where the ridge roll is coming loose and bending upward. The ridge shingles at the North Entrance roofs are constructed of lapped sheet metal without the roll and formed drips found at the upper ridge metal; these flashings are in poor condition and we are concerned they are a contributing factor to the apparent water damage to the North Entrance interior plaster surfaces.

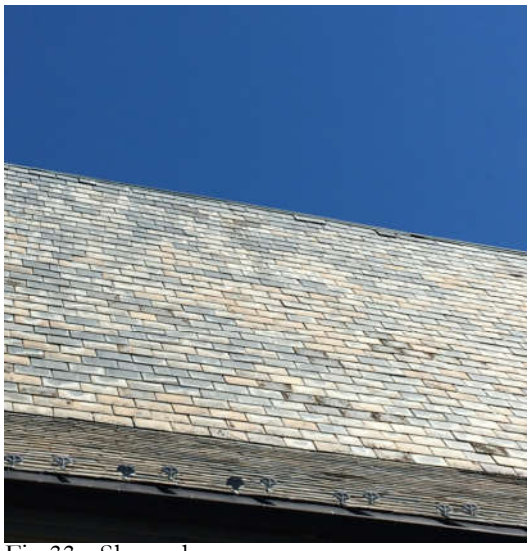
Fig 33 - Slope change

Valley flashings collect and move water down the roof surface to gutters. You have two main valleys at the South Transept Church roof and multiple valleys at the Belfry and North Entrance roof areas. Valleys, particularly at the North Entrance, have loose, cracked, and missing slates. Slate shingles require two fasteners per shingle and due to the configuration of the valley with many shingles being cut for the open valley flashing, the risk of inadequate fastening is increased. We recommend all valleys be regularly maintained. Each side of the South Transept, because of the volume of water collected, have issues requiring repairs, refer to Section 5, **MASONRY** and Section 7, **CARPENTRY.** The Transept sheet metal valleys and eave flashings appear to be more recently installed and well executed, but issues remain that relate to the adjacent, but connected building systems. The South Transept gable end is capped with a brick masonry chimney with failing sheet metal flashings that require replacement including re-laying the adjacent impacted shifting slate shingles.


Fig 34 - North Entrance

Proper flashing at the North Entrance roof area is complicated by the fact there are two cross gables and the Belfry tower. The ridge and valley flashings at the North Entrance are in poor condition and there are many loose or missing slate shingles. The Lower Entrance gable is covered in copper sheet metal coping in poor condition requiring replacement. In general the sheet metal fabrications at this area are

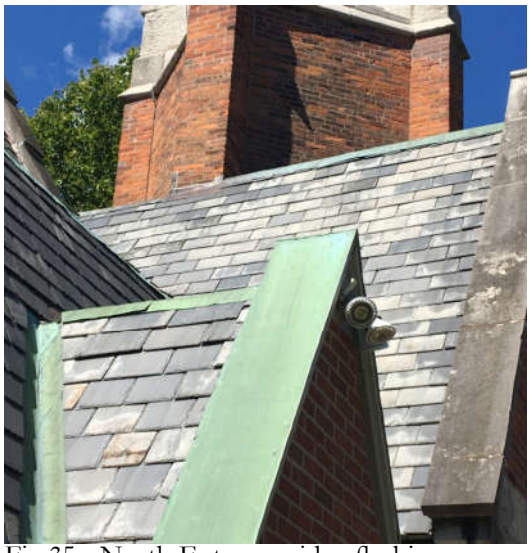
Fig 35 - North Entrance ridge flashings


Fig 36 - North Entrance valley flashings


Fig 37 - North Lower Entrance ridge and, valley flashings


Fig 38 - West elevation

of a poor quality and we believe are attributing to the interior water damage to plaster. We recommend you comprehensively look at a roofing and flashing replacement project in this area in order to make proper and durable improvements.

Replace valley and ridge flashings at North Entrance roof areas; provide slate repairs.....$ 65,400 [P]
Replace sheet metal coping at Lower North Entrance gable ....$ 5,700 [P]

3.3 Asphalt Shingle Roofing, Parish House and Chapel

The Parish House and Chapel roofs are covered with existing asphalt shingle roofing. Based on review of Church records, we believe the roofing was installed after 1990, replacing the original slate shingles. The asphalt shingles are an architectural-grade shingle and are in serviceable condition. Asphalt shingles are durable and inexpensive; they are often a good choice for pitched roofs. Although slate shingles are historically accurate and more durable, modern architectural grade asphalt shingles, from a reliable manufacturer and with a warranty of 40-to-50 years is a less expensive, easier to install option.

In configuration, the Chapel roof is a simple gable and the Parish House roof is part gable and part sloped mansard, both interrupted by multiple brick gable dormers along the eaves. It's configuration - with multiple roof intersections, parapets, and dormers, along with what we assume is inadequate roof insulation and attic ventilation – makes us suspicious that water issues from ice damming and snow collecting may be reoccurring problems. We noted many areas of bent gutters, indicating ice damming and snow slides. We observed that asphalt shingles were replaced along the west elevation of the Education Wing and we are assuming this was done when the gutter

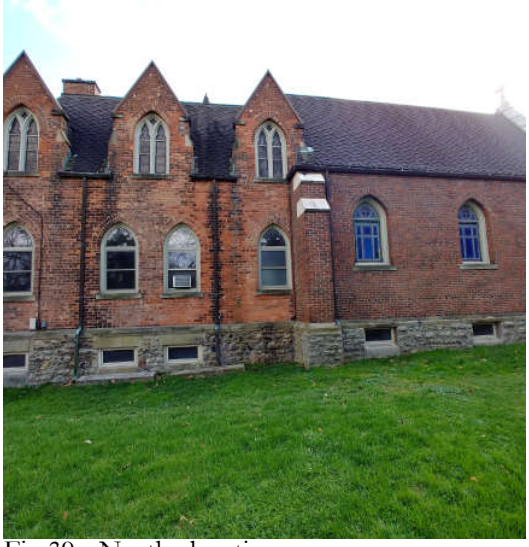
Fig 39 - North elevation


Fig 40 - West Entrance roofing

was repaired or replaced. This repair is another clue to potential ice damming issues.

We assume that when the asphalt shingles were installed, the original flashings remained in place – except at the west wall of the Parish House over the West Entrance. The flashings are failing; they are covered in tar and sealant, and there are some exposed, rusting fasteners. We noted the poor condition of the flashings at the dormers and significant movement in masonry parapets of the dormers, refer to Section 5, **MASONRY.**

The gable dormer side walls are covered with the asphalt shingles roofing. Aside from the aesthetics, we recommend when you replace the roofing you consider increasing the exposed sheet metal flashing to include the dormer side walls, gable coping covers, open valleys, and eaves. The existing aluminum gable coping covers are in poor condition - exposed fasteners and lapped, open joints. Aluminum copings are not appropriate for this application and are not durable. Aluminum is a residential-grade flashing material – it can only be lapped, sealed, and mechanically fastened; aluminum is not able to be soldered or welded, and expands and contracts greatly when exposed to varied temperature conditions.

We recommend full dormer roofing and flashing replacement at the (2) East elevation gable parapet and (1) East elevation dormer, along with the adjacent dormers at the South and North. We recommend the coping be replaced, the roofing and sidewalls of the dormers be replaced with standing seam copper, and an open valley be provided at the dormer valleys to connect to the gutters. At the East elevation gable parapet, we recommend replacing the base and counterflashings and coping. The chimney flashings should also be replaced when access to these upper roof areas and a qualified sheet metal contractor is on-site.

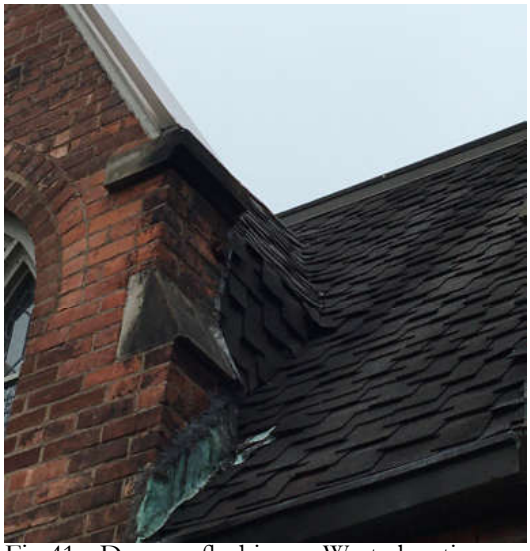
Fig 41 - Dormer flashings - West elevation


Fig 42 - Dormer flashings - South elevation

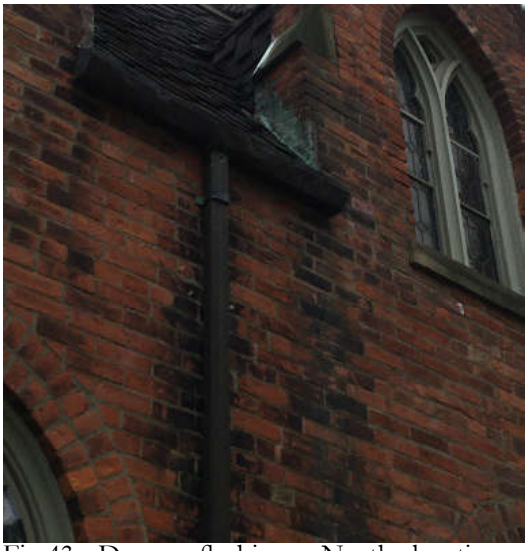
Fig 43 - Dormer flashings - North elevation


Fig 44 - Flashing at West Entrance coping

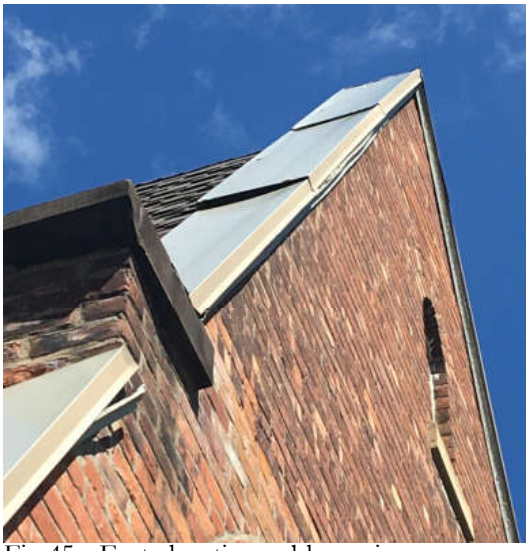
Fig 45 - East elevation gable coping

In planning for the future roofing replacement, we would recommend full tear-off of shingles and a full sheet metal flashing replacement. An asphalt shingle roof will look best and perform best when applied directly over the roof sheathing rather than over multiple layers of old roofs. While it is common practice to apply two or three roofing layers back to back, we recommend when it is time for replacement you perform a complete tear-off to allow for inspection of the sheathing and possible repairs, and replacement of the flashings. *Attachment 8* shows appropriate and durable detailing for flashing replacements. If ice damming is a serious issue, we recommend you consider improving the attic ventilation and insulation, and the application of snow guards at the eaves.

Replace dormer roofing, sidewall flashings, copings, and valleys – (1) East + (1) South + (1) North and Replace East gable parapet base and counterflashings, and copings .....$ 88,700 [E]
Replace dormer roofing, sidewall flashings, copings, and valleys – (2) West + (1) South + (2) North.....$ 64,400 [P]
Replace chimney step flashing.....$ 9,000 [P]


Fig 46 - Replaced shingles at gutter

3.4 Built-up Membrane Roofing, Education Wing

The Education Wing roof is covered with a modified bitumen low-slope membrane roofing. The roofing membrane, a built-up bitumen membrane appears to be in fair condition. It has been coated with a reflective aluminum coating that extends its service life by reducing the membrane's surface temperature and protecting the membrane from UV radiation and degradation. Coatings are inexpensive, but need to be refreshed frequently, as often as once every 3 years.

Roof inspection, provide minor repairs, and re-coat.....$ 4,300 [P]


Fig 47 - Education Wing roofing

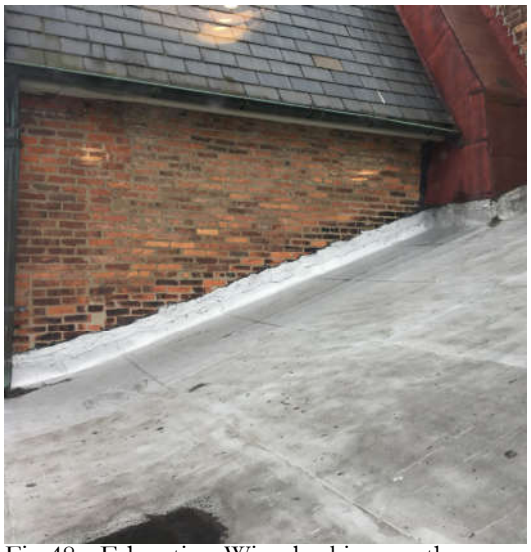
Fig 48 - Education Wing looking south

3.5 EPDM Membrane Roofing, East elevation exits

EPDM roofing, an acronym for Ethylene Propylene Diene Monomer, is a single-ply, artificial rubber membrane used on low-slope roof areas over the two East elevation exits from the basement. This type of membrane roofing is a conventional commercial roofing system with an expected normal service life of 15 years if properly maintained. EPDM has good resistance to weathering, and to high and low temperatures, but is dissolved in oil and animal fat, so it is incompatible with conventional roofing cement, so repairs shall be performed by a qualified roofer. We recommend you understand the date of installation, the warranty and conditions.

Low-slope membrane roofing such as a modified bitumen or EPDM typically fail at terminations, seams, areas where water ponds (if not appropriately pitched), or if punctured by falling ice or debris. Roof areas, particularly at the flashings and seams shall be regularly inspected and cleared of debris and ponding water. We recommend you annually inspect the applied metal sill flashing at the Parish House east exit roof as it is surface applied to the stone sill with exposed fasteners and lots of sealants. This is a tentative detail that could develop into a future leak. Luckily these roofs are easily accessible by a small ladder and can be inspected by staff annually to be clear of debris and free of punctures.

The upper roof portion of the Parish House was not accessible nor visible on our site visits and therefore we are not able to comment on its condition. Based on the roof edge, visible from the ground, of the transition from asphalt shingle roofing to the upper low-slope membrane, it appears to be an EPDM membrane.

Inspect sill flashing at East exit roof; replace sealant at fastener locations as required.....$ 600 [P]
Inspect roofing areas, clear of debris, inspect for punctures .....
.....Annual maintenance [E]


Fig 49 - Education Wing looking southeast

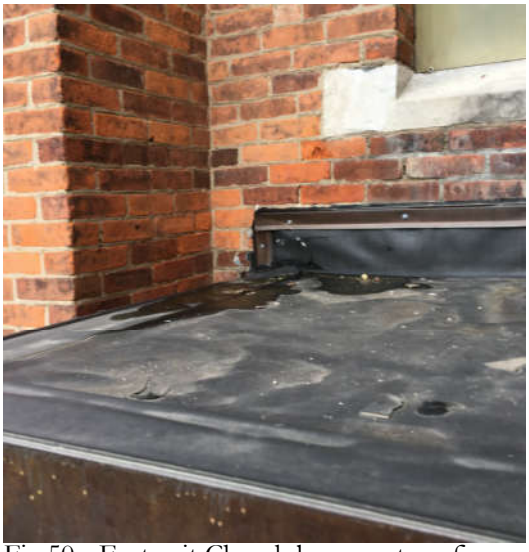
Fig 50 - East exit Church basement roofing

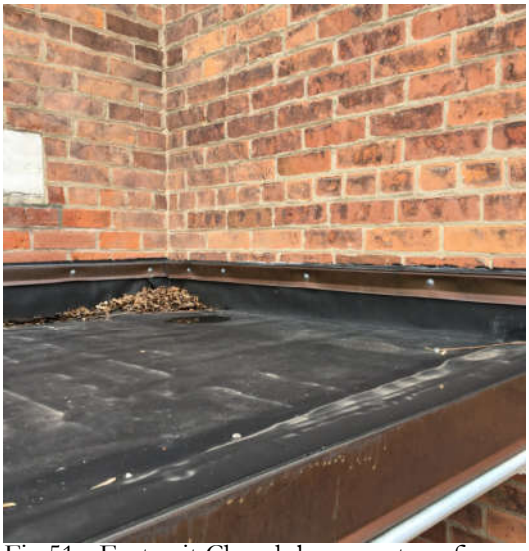
Fig 51 - East exit Church basement roofing


Fig 52 - East exit Parish House basment roofing


Fig 53 - East exit Parish House basement sill flashing


Fig 54 - Church gravity ventilator

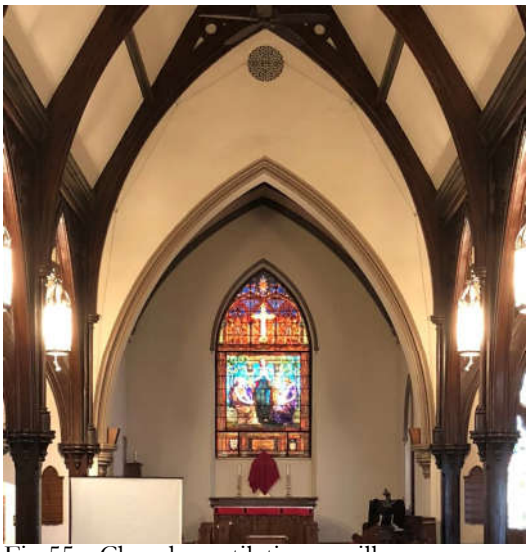
Fig 55 - Church ventilation - grille

3.6 Attic Ventilation

Since warm air rises and contains water vapor, attic ventilation is important as condensation often occurs in cold attic spaces. For the health of the wood framing as well as general reduction of moisture you should provide fresh air ventilation of the attic space. Rules of thumb suggest one square foot of free ventilating area for each 150 square foot of floor area as a conservative calculation. Ventilation in the attic prevents ice dams; ice dams often occur when warm days follow cold nights that lead to melting of the snow and freezing at the eaves. Symptoms of having ice dams is water damage at the roof edges and leaking at the top of wall.

The Church roof does not appear to have ventilation except the portion over the Chancel. There is an existing older-style gravity vent mounted at the ridge of the Chancel roof area and an interior grille at the top of the Church wall adjacent to the Chancel lowered ceiling area. When replacing the roofing, we recommend incorporating ventilation to the ceiling/attic area - ideally air would enter at the eaves, flow up underneath the roof deck, and out at a continuous ridge vent. The Parish House roof appears to be ventilated only by the monitor at the ridge above the south entry. The Chapel roof does not appear to be ventilated.

In general, the simple and most cost-effective way to prevent ice dams is to provide lots of ventilation in the attic. If you can provide that ventilation by admitting air at the eaves and exhausting it at the ridge, natural convection currents help to keep the roof deck cold. After you get ventilation under control, consider reducing the heat flow into the attic by improving the insulation in the ceiling and, in particular, by stopping heat flow up out of the wall cavities with wood blocking or cardboard or anything that will stop the air. A potential solution for your buildings is to consider, at time of roofing replacement, install a cold roof system to allow for increase ventilation in order to reduce ice damming issues.


Fig 56 - Parish House ventilator

4 STORMWATER MANAGEMENT

4.1 General Gutters & Downspouts

Collection and proper disposal of water is one of the most important aspects of the care of your building. Proper management extends the life of the building's protective umbrella from foundation to roof eaves. Stormwater management has three aspects: collection, disposal, and site grading. Collection and disposal are discussed in this section, site grading in Section 2, **SITEWORK**.

Gutters and downspouts should be properly sized for the area of roof they drain, constructed of the same metal, and (if exterior to the structure,) secured to the building in such a way they are free of to expand and contract in the horizontal (gutter) and vertical (downspout) directions. For the purpose of this report, we assume the existing gutters and downspouts have been sized per industry design guidelines and the NYS Building Code to be large enough to accommodate the stormwater loads.


Fig 57 - Gutter showing leaking

Maintenance is an important aspect of each component of the stormwater management system. All gutters, downspouts and leader extensions need to be inspected and cleaned frequently as nearby trees, vegetation, animals, and/or wind-blown debris will fill them quickly. Frequent inspection and maintenance will prevent debris from becoming a problem deeper within the stormwater system, or overflowing the gutter and damaging exterior building materials, framing, and/or foundations.


Fig 58 - Lower Entrance gutter

We recommend building owners inspect and/or clean the gutters and roof drains at least twice a year (spring and fall), and provide metal strainers (to match the gutter material) at all downspout drops. The addition of strainers at all downspout drops will help catch some larger debris before entering the downspout and stormwater piping system. Annual maintenance shall include verifying secure brackets hold the downspouts in-place.

Inspect gutter and downspouts; clean gutters of debris ....Annual (2x) maintenance [E]

4.2 Church Gutters and Downspouts

Custom fabricated copper gutters collect water at the eaves of the Church's main sloped roof and North Entrance roof. The roof area over the Chancel has half-round copper hung gutters. We assume the south elevation gutter was replaced when the standing seam snow slides were installed – and wood fascia board was installed over the historic profiled wood eave molding.

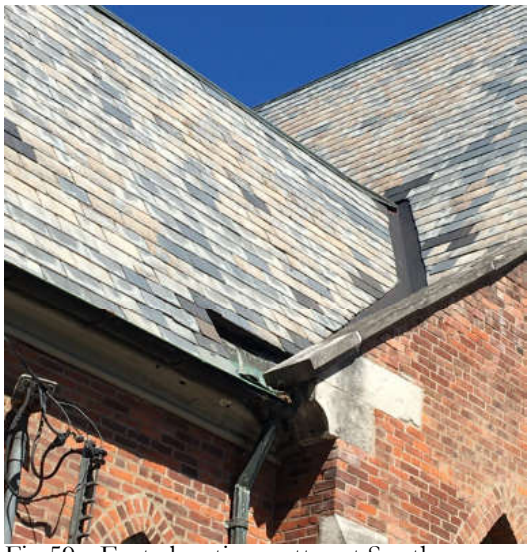
Fig 59 - East elevation gutter at South Transept

The gutters are bent and distorted in some areas potentially due to ice slides and inadequate allowance for temperature expansion and contraction. The south gutter needs as expansion joint at the middle to allow for proper movement as there appears to be a hole in a center joint that drips water. Gutters should be straightened and


Fig 60 - West elevation downspout at South Transept


Fig 61 - Typical hub connection


Fig 62 - East elevation - (2) downspouts to connect

evaluated to ensure proper attachment.. The North Entrance has two trough gutters, the one at the northeast valley at the Lower Entrance is in poor condition – bent, caulked, and has many exposed fasteners – and should be replaced.

As noted previously roof valleys collect and move a great deal of water during rain events. Each side of the South Transept has stormwater issues – the east side has a large built-in gutter area at the base of the valley that connects to a short gutter. Below at the gutter along the wood eave molding there is a sheet metal patch repair that indicates previous water damage was an issue, refer to Section 7, **CARPENTRY**. Currently there does not appear to be a water infiltration or leaking issue at this location so we recommend maintaining the valley and gutter flashings to be sure water flows and exits the building surfaces.

At the west side of the South Transept, water repeatedly spills over the gutter at the downspout connection location. We were there after a rain storm and observed water continuously dripping from the downspout location, along the masonry buttress, and down to the asphalt driveway. We are not sure if the issue is based on a clogged downspout connection, debris built-up in the gutter, or a poorly detailed downspout to gutter connection. We recommend that gutters and downspouts be cleaned and the connection evaluated to understand if it continues to be an issue. If the downspout continues to be an issue, replacement and reconfiguration is a priority; we provided a price for this repair. Refer to Section 5, **MASONRY** for stormwater issues impacting masonry systems at this location.

Provide expansion joint at center of north and south elevation gutter lengths .....$ 16,300 [P]
Replace gutter at northeast valley of Lower Entrance .....$ 2,700 [P]
Reconfigure and replace the gutter to downspout connection at the west side of South Transept .....$ 13,800 [E]

The Church has corrugated round copper downspouts that drain into hubs. The hubs do not have cleanouts and some portions are constructed of plastic piping. We recommend you plan to replace all hubs to be of cast iron material with a cleanout installed for durability and to ensure the ability to maintain the underground system. One east elevation downspout (Fig 62) hovers over a vertical downspout that empties into an open hub. We recommend you tie these two downspouts together. Three north elevation downspouts (Fig 63) appear to be directly buried underground and we recommend you dig up these locations to understand if they are tied into an existing system or empty into the ground and correct the connection appropriately with cast iron hubs and at least one cleanout. One downspout is located along the West elevation below the Belfry.

Connect two East elevation downspouts to one hub connection ....$ 2,500 [P]
Evaluate (dig up) the tie-in of (2) Lower North Entrance downspouts and Provide cast iron cleanout and exposed hub connections for (3) downspouts.....$11,500 [P]

4.3 Parish House, Chapel, and Education Wing Gutters and Downspouts

Parish House and the Chapel roofs have custom-fabricated copper gutters assumed date to the installation of the asphalt shingle roofing. Due to the lack of overhang and parapets and dormers punctuating the eave line, stormwater management is complicated. Many gutters are bent and require straightening. Fabrication of the gutters and downspouts is poorly detailed. Gutters should be soldered watertight, but the gutters appear to be folded and riveted. The downspouts should be loosely connected to the gutters to allow for movement; your downspouts are soldered tight to the gutters causing the potential for tearing/breaking when moving due to expansion and contraction. We recommend repairing these connections when performing work at the dormer and parapet flashings, copings, and roofing.

At the Education Wing east elevation, streaks on brick masonry directly below the downspout connection to the gutter makes us suspicious that water overflows at this location. Providing a metal strainer at the downspout drop and repairing the drop to eliminate the soldered connection to the gutter should improve the situation.

All downspouts except for one at the east elevation drain into hubs without cleanouts. We recommend you plan to install cleanouts at the hubs and straighten downspouts damaged by lawn equipment.


Fig 63 - Lower North Entrance (2) downspouts to grade


Fig 64 - Parish House gutter, typical


Fig 65 - Parish House downspout, typical


Fig 66 - Education Wing gutter and downspout


Fig 67 - Bent downspout

Straighten bent gutters; Repair gutter to downspout connections .....$ 18,400 [P]
Provide cast iron cleanouts at hub locations .....$ 13,200 [P]
Straighten downspouts damaged by lawn equipment .....$ 700 [P]

4.4 Underground Stormwater System

Your campus buildings are connected into an underground stormwater system and stormwater collected is disposed of off-site. This is a superior system which should be carefully maintained. In order to properly maintain the system, it is necessary to know where the lines run and to keep them free and clear. We recommend the storm lines be snaked and mapped in order to understand and record their draining. Cleanouts should be provided at hub locations to allow an easier mechanism to maintain and clean the system on a regular basis.

Snake existing underground stormwater disposal lines and map for documentation.....$ 2,200 [E]


Fig 68 - Church spire and belfry

5 MASONRY

5.1 Past Repairs

Based on our review of a 1987 archival Church document seeking funding for historic preservation work for slate shingle roofing replacement of the Parish House and Chapel, we understand the Church worked with Crawford & Stearns Architects in the 1980s on a multi-phase masonry restoration project. And during our first site visits we were told brick masonry repointing of the West elevation and stone coping repairs were addressed recently. *Attachment 2* shows locations with adescription and date of those masonry repairs projects.

5.2 Repointing and Cleaning, General

Repointing.
The repair of cracks and deterioration in masonry joints should be considered normal maintenance, however replacement of masonry units is not. Typically, we recommend masonry repointing be done as part of a larger project wherever possible to take advantage of consolidated soft costs


Fig 69 - Spire

Repointing is a tedious process, but when done well lasts many decades. Masonry units vary in density and porosity and are subject to different exposures, and so each project requires custom mortar mixes. Repointing masonry should be done with mortars that are softer than the adjacent masonry units. Mortar joints are intended to be sacrificial joints to absorb thermal movement and transmit moisture from the masonry unit system. It is important that building owners hire contractors who are knowledgeable about historic masonry when repointing or making repairs. The masonry contractor should understand the type of stone or masonry unit being repaired

and the appropriate mortar formulae that will be durable yet not harm the surrounding masonry (units). Soft mortar is easy to make and is not any more expensive than Portland cement mortar. Please refer to *Attachment 9* for information regarding general maintenance of masonry repointing. A regular schedule of repointing is recommended using skilled masons. After an initial repointing, repointing projects should be scheduled every 5 years with annual inspections recommended to identify problems and develop interim projects.

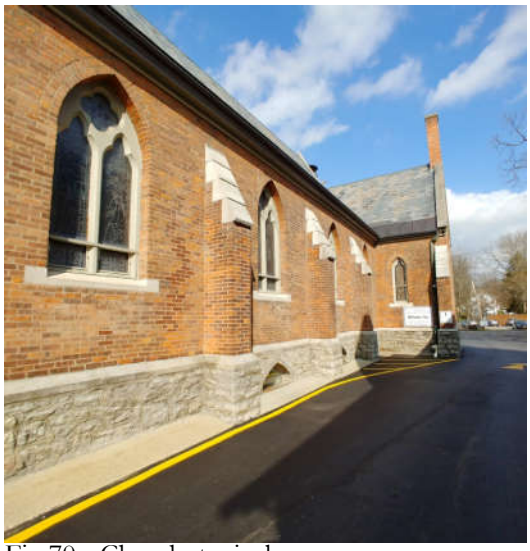
Fig 70 - Church, typical masonry

The use of caulk or sealant in a joint, rather than mortar, should be carefully reviewed before acceptance. More often than not, a caulk or sealant is an inappropriate material for a high-quality repair as: 1.) sealant can trap moisture in the masonry rather than letting it permeate out at the mortar joint, and 2.) as sealant dries out it becomes brittle (in a relatively short period of time), allowing for rain and melting snow to enter the weathered and exposed joint.

Cleaning.
The Parish House brick masonry is discolored with streaks of black soiling at dormer and downspout locations. The dirt or soiling consists of particles of dust, sand or grit, or air pollutants. We assume the discoloration of masonry typically located at downspouts is due to the collection and frequent exposure to ice and water from overspilling gutters or split downspouts.

Fig 71 - South Transept buttress

There are two primary reasons for cleaning an historic masonry building: improve the appearance and remove dirt, stains, coatings, efflorescence (salts), and pollutants that may be causing damage to the masonry. Before starting any cleaning program, the most important factor to consider is the building's patina – the color and surface texture, or appearance which only time and weathering can create. As long as the patina does not contribute to or conceal deterioration, careful consideration should be given to its preservation. Determining if the patina is harmful to a building depends on the


Fig 72 - South Transept


Fig 73 - South Transept chimney


Fig 74 - Church wall at slope change


Fig 75 - North Entrance site wall

type of masonry, the extent of soiling, and how much the soiling conceals damage to the masonry and/or mortar joints.

We generally do not recommend cleaning as part of a restoration project due to the concern of the negative impacts to the historic material and underlying building systems. If soiling and discoloration becomes an issue that causes increased deterioration of the historic materials or their underlying building system, we recommend that the cleaning project be carried out under the supervision and guidance of a preservation or conservation specialist – and methods specified shall be the gentlest method possible. *Attachment 10* is a resource for cleaning of historic masonry buildings.

5.3 Church Masonry

The Church is constructed of a combination of stone masonry - foundations and watertable, Belfry and spire, gable copings, gable and parapet kneestones - and brick masonry walls in fair-to-good condition.. The gray stone spire is set with smoothly dressed blocks of stone coursed up to a carved stone steeple cross. The stone foundation at the west elevation and the watertable consist of rubbed (smooth)-finish cut coursed stone; the remaining foundation wall (north, east, and south) elevations are rock-finish random range coursed ashlar masonry. Most stone joints are in relatively good condition but maintenance repointing and repairs should be planned.

The brick masonry walls are mostly in good condition except at the west side of the South Transept where water repeatedly spills over the gutter at the downspout connection location. Evidence of the repeated water problem was noted by the open joints in the brick masonry buttress and efflorescence at the brick surfaces and spalling brick on the south elevation of the South Transept wall. Exterior masonry surfaces dry by evaporation. When water evaporates from the face of masonry it carries soluble salts which are deposited as


Fig 76 - Masonry deterioration


Fig 77 - Parish House basement windows

crystals just beneath the surface. These salt crystals grow and blow the face off the masonry. In order to limit the damage, joints should be more porous than the brick (or stone) so that most evaporation will take place at the joints. It is important to understand that mortar joints are sacrificial, the masonry is not. We recommend you wait till the stormwater issue is repaired before you repair the masonry. Brick masonry joints should be repointed with an appropriate mortar, efflorescence residue be removed, and bricks replaced that have significantly spalled.

There are open joints at the upper portion of the South Transept chimney that need to be addressed; masonry cap to the chimney should be inspected and repaired when access is provided to perform repointing work. There is efflorescence and open joints along the stone copings and brick masonry at the top of wall where the gable end slope changes along the East elevation. Repair should include coping flashing replacement, removal of efflorescence residue, and repointing of open joints. Typically, deterioration is related to former or current roof or gutter leaks; we recommend the roofing or flashing repairs be completed first and then the masonry repointing be addressed.

The North Entrance exterior site wall adjacent to the limestone steps is in poor condition. Moisture is moving through the masonry based on efflorescence and failing mortar joints. Located directly next to the North Entrance to the Church, this is unsightly and will continue to deteriorate until addressed with proper repairs. As this brick masonry wall does not have a purpose (constructed to conceal a wheelchair lift that was removed), we recommend you consider a holistic solution to this area – a solution that addresses site stormwater issues and improves site grading and drainage. We have provided a price to remove the brick site wall and provide repairs to the stone steps and brick landing wall.


Fig 78 - Gable dormer deterioration


Fig 79 - Gable dormer deterioration


Fig 80 - Gable parapet deterioration

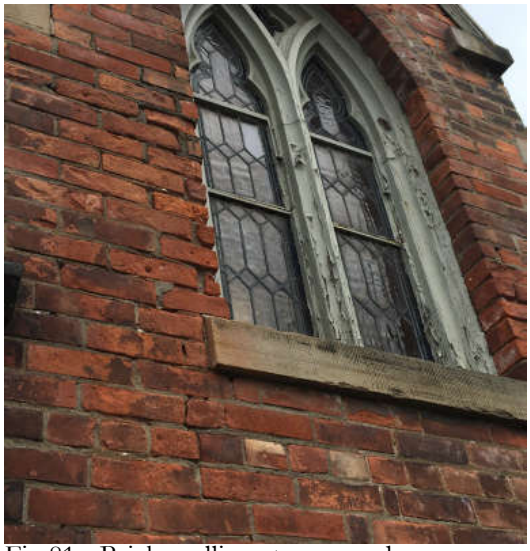
Fig 81 - Brick spalling at surrounds


Fig 82 - Chimney flashings

Repoint West butress and South elevation of South Transept, replace spalled bricks, and clean efflorescence .....$ 27,700 [E]
Repoint at East elevation gable copings at slope changes .....$ 14,400 [P]
Remove North Entrance site wall, repair stone steps, and repoint brick masonry landing wall.....$ 16,700 [P]

5.4 Parish House and Education Wing Masonry

The Parish House and Education Wing stone masonry consists of a coursed rubble stone masonry foundation wall in a blend of colors and gray stone trim elements – watertable, basement lintels, and gable shoulders - in fair-to-good condition. The brick masonry walls are in poor condition in locations and require repair.

Basement windows have parged stone sills that are failing. Moisture enters cracks in the parging, is subject to freeze/thaw cycles, and continues to crack and spall. We recommend replacing parging where compromised and prior to replacing, verifying underlying stone joints are repointed as needed.

Brick masonry - gable dormers, parapets, and arched window surround locations - is in poor condition – brick is spalling and there are lots of open joints. The masonry joints at the dormer shoulders have deteriorated so much we assume the flashing at the back of the dormer has failed. Due to extreme water infiltration, brick masonry has moved out of plane in two locations at the East elevation. For the purposes of this report, we recommend flashings be replaced and brick masonry rebuilt at dormer locations. We believe it is only time before other dormers get to this point of joint deterioration and therefore a roofing and flashing replacement project at all dormers should be planned.


Fig 83 - Chapel, West Entrance


Fig 84 - Terracotta arch detail

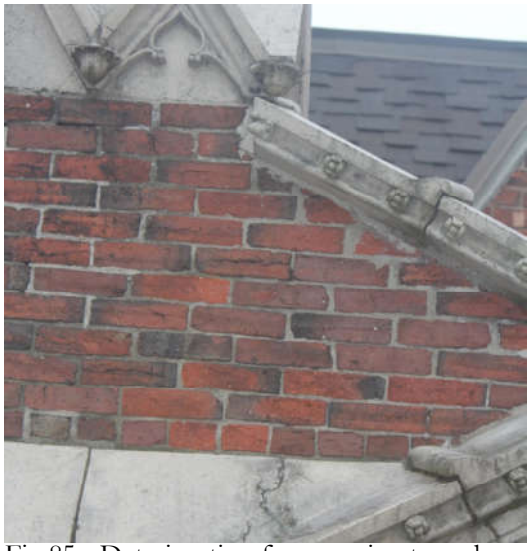
Fig 85 - Deterioration from coping to arch

Replace stone parging at basement openigns.....$ 6,000 [P]
Rebuild brick masonry dormer and parapet walls (following roofing and flashing work) (1) East + (1) South + (1) North and (1) East gable ....$ 44,000 [E]
Repoint brick masonry at dormer and parapet walls and arched window surrounds.....$ 42,8500 [P]

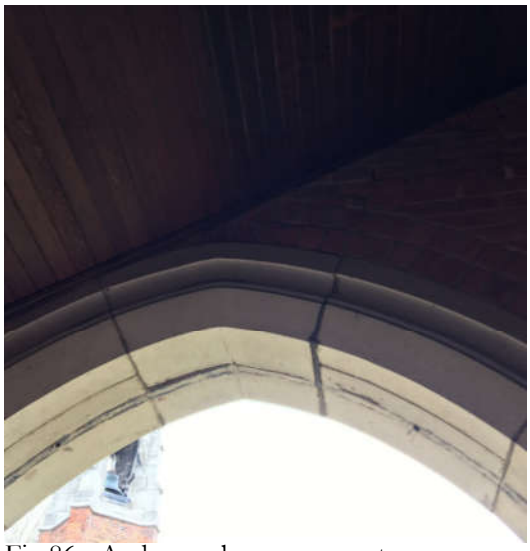
Fig 86 - Arch member movement

5.5 Chapel Masonry

The masonry at the Chapel is different from the other Parish buildings: brick masonry is thinner in dimension with deeper colorations and stone masonry at the foundation is set in regular coursing with buff-colored stone topped by a smooth-finished sandstone watertable. The west window and West Entrance canopy are trimmed in brown decorative terra cotta members. The brick and stone masonry are in good condition; the terra cotta masonry is in poor condition and requires repairs.

"Brownstone" architectural terra cotta, popular from 1880-1930, is manufactured from ceramic materials to produce a fired product that has been historically used for decorative trim elements or panels to mimic stone masonry. Deficiencies are most often traced to original manufacturing and detailing, or open joints that cause spalling, cracking, and rust-jacking of concealed steel anchors. *Attachment 11* is a resource for typical characteristics and addressing failures with terra cotta units.

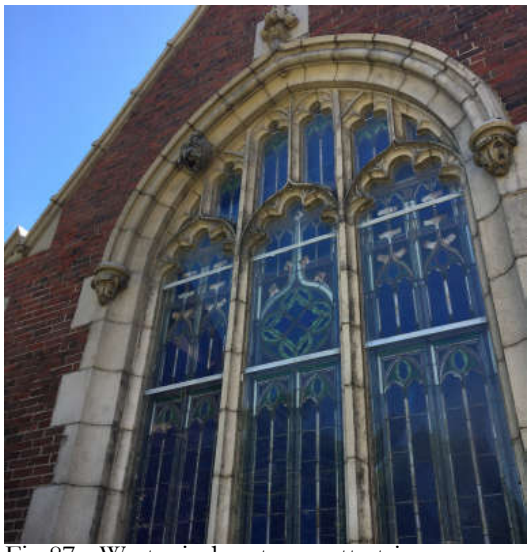
Fig 87 - West window terracotta trim

The terra cotta at the West Entrance copings have open joints. There is a vertical crack from the upper coping, through brick masonry, and into the Entrance arch members. One arch stone appears to have an open joint and have slightly slipped. We recommend repointing all open joints and observe the arch members for future movement.

The West window terra cotta sill members are in poor condition and have been repaired over the years with sealant-filled cracks. Although the repairs to the terra cotta are unsightly, when properly maintained,

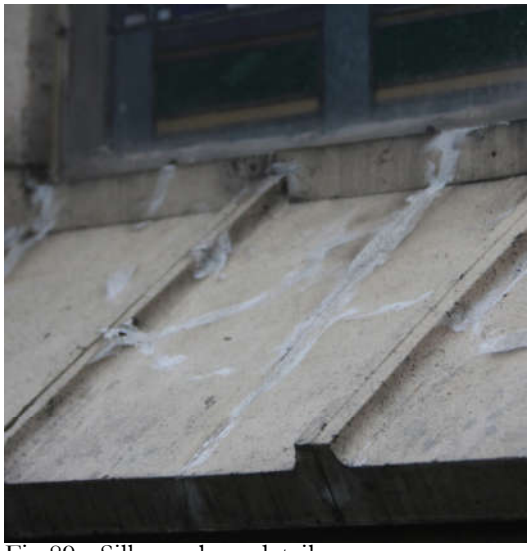
Fig 89 - Sill members detail


Fig 90 - Sill members detail


Fig 91 - West Entnrace steps

these members can remain in-place and be serviceable. It appears water enters at the cracks along the horizontal joint at the sill and the entrapped moisture causes additional cracking or the terracotta. We recommend you replace the joint sealant with an appropriate mortar and carefully attend to and maintain any horizontal-facing joints to keep watertight.

Joints between the Medina sandstone steps and stone cheek (side) walls are open and the stones have shifted. Maintenance of exterior masonry steps is often an ongoing issue and we recommend joints are raked and repointed with an appropriate mortar. We recommend using mortar over caulk because caulk does not provide structural support and obscures the condition of joints.

Repoint terra cotta copings.and Repoint brick masonry at crack and repoint arch terra cotta member; evaluate over time.....$ 33,100 [P]
Replace sealant with appropriate mortar at terra cotta sill members and repoint.....$ 2,500 [P]
Repoint joints at exterior steps.....$ 1,200 [P]


Fig 92 - Parish House fire escape

6 METALS

6.1 Parish House Fire Escape

The exterior metal stairs from the 2nd floor Parish House offices are a continual maintenance issue – requiring frequent inspection and finishing. Exterior fire escape stairs are subject to special code restrictions based on structural loading capacity and may require annual inspection by a licensed structural engineer. As code requirements vary based on jurisdiction, we recommend you confer directly with your local code enforcement official to determine viability of use of these stairs in the future.

Evaluate use of and condition of exterior fire escape stairs with code official .....Staff [E]
Hire a qualified structural engineer to inspect stairs for capacity and develop a list of repairs.....$ 1,600 [E]

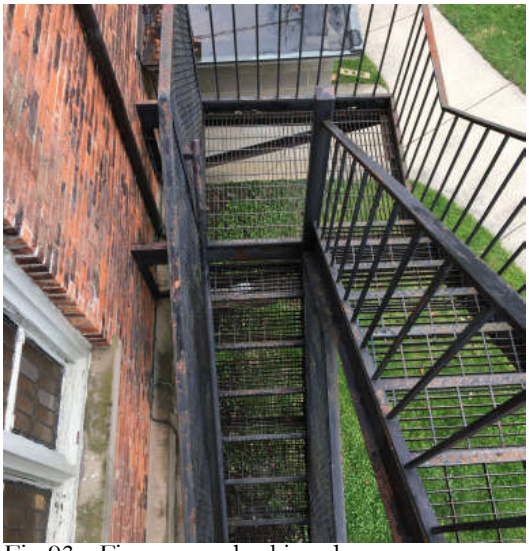
Fig 93 - Fire escape looking down

7 CARPENTRY

7.1 Standing Trim (Eave and Rake Moldings)

In general, the standing trim along the roof eaves is in poor-to-fair condition due to exposure from lack of an overhang, weathering, and lack of maintenance (periodic painting). The eave molding at the South Transept is covered in sheet metal and it appears the original profiled wood was removed. We recommend eventual replacement (when access is provided for a roofing or flashing replacement project) with wood molding profiled to match existing. Rake moldings at North Entrance and Parish House are weathered and in need of painting.

For the purposes of the report, we have included limited replacement of the Church's eave molding at the east elevation of the South Transept and limited repairs to all locations of eave and rake moldings that would be performed during the next exterior painting campaign.

Replace deteriorated eave molding at East elevation South Transept ....$1,200 [P]
Provide limited carpentry repairs to rake and eave moldings ....$3,000 [P]


Fig 94 - South elevation eave molding

7.2 Parish House - Exterior Stairs at South Entrance

The exterior wood stair at the South Entrance to the Parish House is constructed of pressure-treated and plastic lumber components of a recent vintage and is in poor condition. The composite lumber treads are warping, the guard is failing at the lower rails, and the posts appear to have moisture damage. The fasteners are ferrous and rusting – mostly an aesthetic issue that could be fixed by replacing with hot-dip galvanized fasteners and wood elements painted.

These stairs are of residential quality; based on the location and function for the Parish, we recommend replacing these stairs with higher quality materials, proper handrails with extensions, and more durable framing connections, detailing, and proper foundations.

Replace exterior stairs, guard, and provide handrails.....$22,000 [P]


Fig 95 - South Transept eave molding


Fig 96 - Parish House exterior stairs


Fig 97 - Bottom rail detail


Fig 98 - North elevation


Fig 99 - South elevation

8 OPENINGS

8.1 Leaded Glass Windows

Your leaded glass is valuable. *Attachment 12* is a diagram of the Church windows and the studios responsible for their execution. The South Transept, east elevation window, *St. Gabriel & St. Michael,* a memorial to Livingston Wadsworth, was executed by William Morris & Company, one of the only three leaded glass windows in the United States by William Morris. The Chancel window over the altar, *Faith, Hope, Charity*, a memorial to Emmeline Austin Wadsworth, was executed by the Louis Comfort Tiffany Studio dating to 1889.

Your leaded glass is valuable and, like all glass, vulnerable. We assume it is insured. In the event of loss of a portion, you should be prepared to reconstruct any section and for that purpose it is recommended you document your windows. The simplest documentation is overall measurements and photographs of each window in both reflected and transmitted light from both inside and out. More detailed documentation includes recording the configuration of each window. This is done by attaching full-sized sheets of paper over each window and tracing the cames. These tracing s are called "cartoons." Photographs and "cartoons" are often made by interested members of a congregation.

Repair.
Attachment 13 contains valuable information about the repair and maintenance of your leaded glass windows. Bero Architecture has no experience in analysis or maintenance of leaded glass, this work requires a specialist. In order to determine the proper maintenance for your leaded glass, a condition reports should be completed by an expert. The report should outline the condition of each window, list recommended maintenance work, and include an estimate for repair costs. The condition report should include all buildings on your campus. There are several local leaded glass studios that are


Fig 100 - South elevation detail

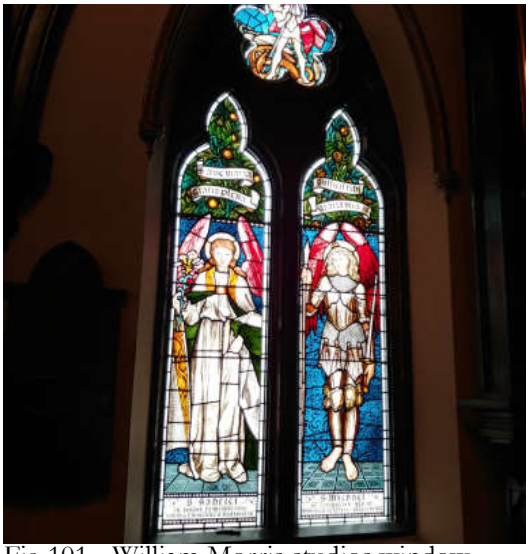
Fig 101 - William Morris studios window.

qualified, and I recommend you contact Valerie O'Hara from Pike Stained Glass Studios Inc. Pike Stained Glass Studios is responsible for the design and construction of three of your North Aisle Church windows dating to the 1940's. Based on Church records, Pike has been involved with repair on the campus's windows since the 1980's when exterior protective paneling was installed. Then, Valerie was engaged in the 1990's to re-lead two sections of the William Morris window and repair 8 ventilators.

Leaded glass can be maintained with minimal expenditures if repairs are made in a timely manner and if a little maintenance is scheduled each year. For example, the ventilator sash, the operable portion of the window, have steel frames. Steel is durable when routinely maintained with repair of operating hardware and periodic painting. Typical repair of steel ventilators includes removing rust and loose putty, prime and paint metal frame, and replace glass clips and putty (DAP 1012). After the windows are puttied, the frames can be painted and when done properly this is a durable repair.

Protective Panels.
Protective panels are often installed over leaded glass to protect valuable windows from vandalism, to increase energy efficiency, or to protect the window from weather. Recent experience has revealed that installing protective glazing often creates a problem with setting up a micro-climate between the prime window and its protective panel. Overheating of the leaded glass caused by the greenhouse effect within the space is one of the primary reasons for deterioration and buckling of leaded glass cames. Condensation trapped between the leaded glass and the protective panel further deteriorates the window framing and lead cames. It has been found that in order to truly protect leaded glass, protective glazing must be well-ventilated, spaced appropriately away from the prime sash, and frequently inspected for problems at the framing that may be hidden by the panels.


Fig 102 - East elevation - Protective panel

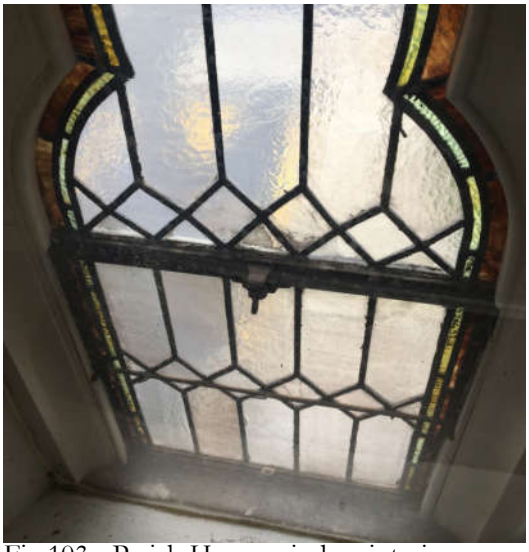
Fig 103 - Parish House window interior

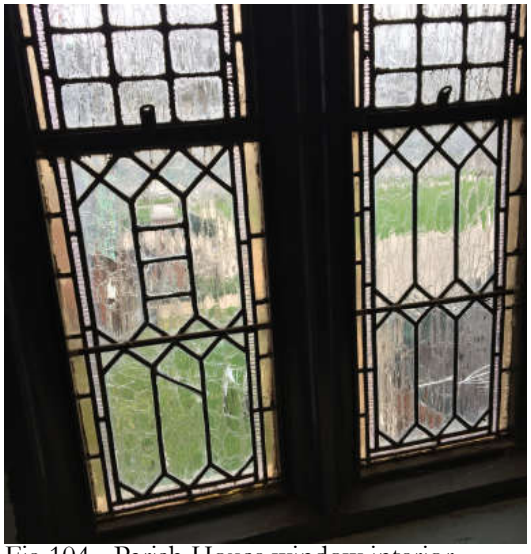
Fig 104 - Parish House window interior


Fig 105 - Parish House window exterior


Fig 106 - Parish House window exterior


Fig 107 - Chapel - West window.


Fig 108 - Chapel window.

You have limited locations of existing protective acrylic glazing panels – the William Morris and Tiffany Studios windows at the Church and the West window at the Chapel. These panels should be checked to ensure proper ventilation is achieved and fasteners are not negatively impacting the prime sash's framing.

Have a qualified studio perform a leaded glass condition report ....$3,200 [P]
Have a qualified studio evaluate (3) existing protective panels and revise installation for ventilation .....$12,200 [P]

8.1.1 Church Leaded Glass Wood Windows

The Church windows vary in construction detailing by elevation due to the fact they were performed by different glass studios. The window at the South elevation are double-glazed within the frame with an exterior clear textured glass panel. The windows along the North elevation are not double-glazed and the visible caming in the ventilator section appears greatly oxidized (lead cames are whitened) with little remaining cement at the caming members.

Windows which hold leaded glass are constructed of wood. Paint is peeling in locations. We recommend you perform minor carpentry repairs, re-putty, prepare and paint. At the windows covered with the yellowed acrylic panels, the panels should be removed to repair, re-putty, and paint the wood frame, and then reinstalled to ensure proper ventilation around the perimeter of the windows.

Provide limited carpentry repairs when preparing to paint windows (allowance) .....$2,300 [P]

8.1.2 Parish House Leaded Glass Wood Windows

There are two-story lancet-arched leaded glass windows at the Parish House's east and south elevations and smaller lancet arched leaded glass windows along the 2nd floor east, north, and west elevations. Although a detailed condition report on the leaded glass is not part of the scope of work of this report (and outside of our area of expertise), we did note locations of bulging of the leaded cames, broken and dirty glazing, and poor condition of the steel ventilator sash. We did not try to open the windows due to their somewhat fragile appearance.

Windows which hold leaded glass are constructed of wood and the finish is in poor condition. Paint is peeling exposing bare wood to the weather. We recommend you perform minor carpentry repairs, prepare and paint. With the lack of overhang and depth of the wood framing profiles, we recommend you take care of this issue but wait on perform extensive repairs to the leaded glass until water issues are repaired for the roofing, flashing, and masonry.

Provide limited carpentry repairs when preparing to paint windows (allowance) .....$4,700 [P]

8.1.3 Chapel Leaded Glass Windows

Th West elevation leaded glass window is covered with clear acrylic protective panel. We did not observe any mechanism for ventilation and recommend these panels be removed, the window inspected, and panels reinstalled with allowance for proper ventilation. The north elevation windows are lancet-arched leaded glass windows without protective panels. The lower sash is a pivot hinged operable sash set within a metal frame. It appears the metal and wood framing elements have recently been finished and do not require attention at this time.

8.2 Wood Windows

In historic preservation work, windows are usually repaired or restored in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. "Repairs" include any items necessary to maintain the windows in good working order, and may include the replacement of putty, broken glass, broken cords or chains or locking hardware, carpentry items, and touch-up re-painting or re-staining. "Restoration" returns a window to a "like new" condition, and may include stripping of the sash and stops, removal and resetting of the glass, new putty, new cords or chains, installation or adjustment of weatherstripping, refurbishing hardware, refitting of the sash, and complete re-painting or re-staining.

We noted only a few remaining wood windows potentially original to the buildings. There is one Church basement window on the north side and one wood window at the West Entrance to the Chapel. Both wood framing and sash require routine painting.


Fig 109 - Church basement wood window

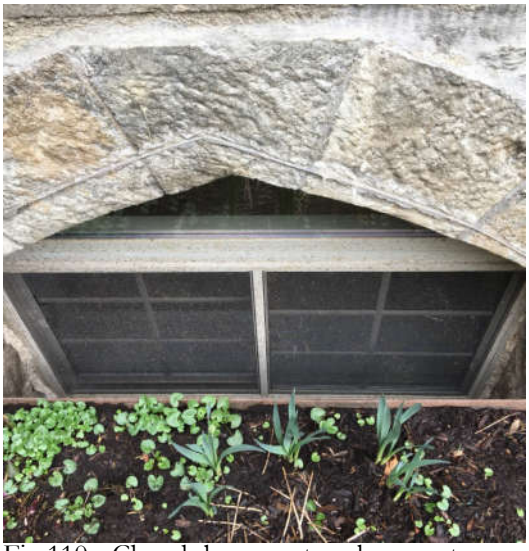
Fig 110 - Church basement replacement window


Fig 111 - Education Wing replacement window


Fig 112 - Parish House basement replacement window

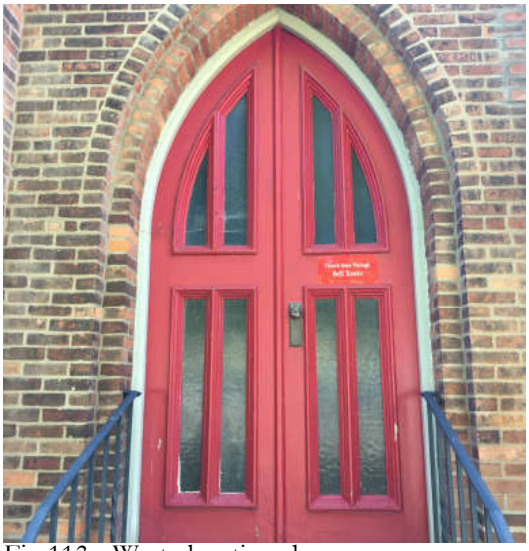
Fig 113 - West elevation door


Fig 114 - West door detail

8.3 Replacement Windows

Windows have been replaced in the Education Wing, Parish House 1st floor, and Church, Parish House, and Chapel basements. Windows appear to be "maintenance-free" clad windows. Routine maintenance is still required for the sealant at each masonry opening and the routine finishing of exposed wood frames of the 1st floor windows.

8.4 Exterior Wood Doors

Similar to windows, exterior doors are usually repaired or restored in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. "Repairs" include any items necessary to maintain the doors in good working order, and may include the replacement of putty, broken glass, broken or missing hardware, carpentry items (panels/rails/stiles), and touch-up re-painting or re-staining. "Restoration" returns a door to a "like new" condition, and may include stripping of the door, removal and resetting of the glass, new putty, installation or adjustment of weatherstripping, refurbishing existing hardware, refurbishing stiles/rails/panels and wood veneers, refitting of the door, and complete re-painting or re-staining. In general, we recommend the restoration of original doors. This level of work will ensure the original doors are preserved, and will be in good operating condition for a significant period of time.

The three exterior doors of the Church (West elevation, and North, and Lower North Entrance) are rail and stile wood doors with lancet-arched upper panels and textured glass set in deep panel moldings. We observed one cracked glazing panel and one unfinished lower wood panel at the North Entrance double doors indicating a potential recent repair, and peeling, flaky paint. These doors also have a rusting threshold that should be replaced with a higher-quality bronze threshold.


Fig 115 - North Entrance doors

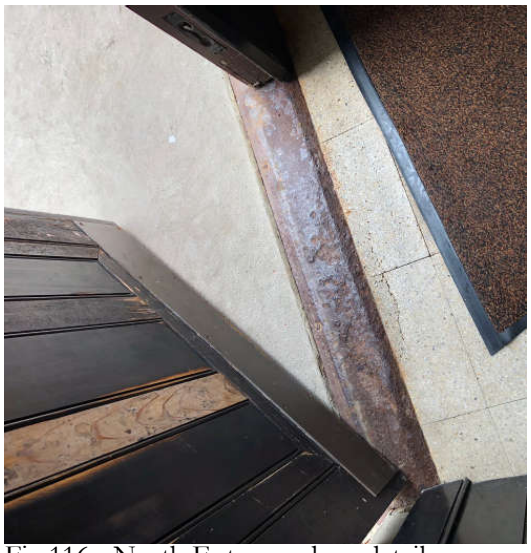
Fig 116 - North Entrance door detail

At all door locations, the lower rail is the most vulnerable to deterioration based on their proximity to ice and snow build up and exposure to de-icing salts; we recommend you maintain the paint finish on this portion at all locations. The exterior doors will require restoration of deteriorated wood panels/stiles/rails, replacement of deteriorated glazing putty, installation of weatherstripping, and replacement of broken glass panes. The report provides a budget allowance amount for typical restoration work to the exterior doors in order to extend the service life of these doors.


Fig 117 - Lower North Entrance door

The 2nd floor Parish House exterior door at the fire escape is in poor condition, including its casings, due to exposure and lack of maintenance. The door construction and its hardware are of residential quality. We recommend you consider replacement for the long term, but address immediate need for minor carpentry repairs, preparation and finishing, and door hardware replacement.

Restore existing exterior wood doors (allowance).....$ 17,200 [P]
Repair existing North Entrance double door.....$ 3,900 [P]
Replace 2nd floor Parish House exit door and hardware.....$ 5,100 [O]


Fig 118 - Existing window

9 FINISHES

9.1 Paint

Paint protects the underlying material to which it is applied. It can sometimes be difficult to balance the need to keep paint film intact while minimizing paint thickness. Multiple, thick paint layers become brittle, unable to expand and contract with temperature fluctuation, and fail – cracking and exposing the original material's surface.


Fig 119 - Existing wood window


Fig 120 - Existing wood window

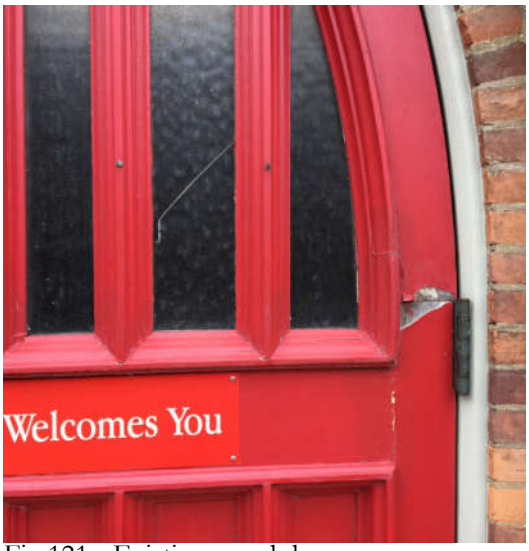

Fig 121 - Existing wood door


Fig 122 - Existing wood door

A good paint job is dependent on good substrate preparation and the highest quality materials. Preparation of wood surfaces should include inspection prior to painting to correct causes of paint failure, repair or replacement of substrates, removal of loose and flaking paint with hand tools only, and hand sanding old paint to create a feathered transition to bare wood. .

All paint materials should be of the highest quality; no "builder's lines" or lower tier paints should be considered acceptable. All paint materials should be compatible and from the same manufacturer (i.e. - a Benjamin Moore primer must be coated with the appropriate Benjamin Moore paint, and not another manufacturer's paint). Manufacturer's written instruction regarding substrate, application, and weather conditions must be followed (ie. clean dry surfaces, appropriate temperatures, etc.

Due to the age of the building, we recommend all existing paint layers be treated as lead-based paint, as it is likely present in underlying layers. Lead safe-handling practices per NYS requirements, including the removal of existing paint, should be adhered to during the rehabilitation work, and is a well-understood practice among quality painting contractors.

9.1.1 Exterior Paint

Exposed exterior wood elements require preparation and painting: eave and rake moldings, window sash and framing, and the exterior stair as these elements show evidence of deteriorated paint from weathering and lack of maintenance. In many locations, the paint is cracked and checked, alligatored, or peeling, and exposing bare wood. Areas of bare wood should be addressed as soon as possible to prevent rot and loss of original material. We recommend all exterior wood trim that has cracked peeling paint be prepared by removing paint to bare wood, primed and re-painted.


Fig 123 - Existing rake molding


Fig 124 - Existing wood ventilator

All metal elements require preparation and painting: fire escape stair components, guard at North Entrance, and the exposed steel lintel at the lift entrance door.

Prepare and paint exterior wood and metal elements.....$ 63,100 [P]

9.1.2 Exterior Stained Finishing

The Chapel exterior doors at the West Entrance are finished in a transparent (stained) finish. Transparent finishes are not as durable as paint finishes and require frequent refreshing. The doors require refinishing; the existing wood surface appears to lack any finish application and when the wood substrate starts to darken to black, that is an indication the wood substrate will not hold a finish. We recommend when refinished, the process includes removing any remaining finish, sanding to bright wood, and priming and finishing with a high-quality exterior finish. This will provide a durable, long lasting finish and protect the original doors and frames.

Prepare and stain exterior wood at Chapel doos.....$3,200 [P]

9.1.3 Interior Paint

The interior spaces are painted throughout all buildings. In general, the paint is in fair condition with the most noticeable deterioration at locations of plaster damage and previous water infiltration and leaking.

As a point of interest to the Church, in your archival files there is a paint study "Observations and Recommendations, Paint Seriation Study – Interior" developed in 1984 to understand the history of decorative painting in the Church worship space.

Refurbish interior paint finishes (following plaster repairs).....$5,300 [P]


Fig 125 - Existing metal lintel

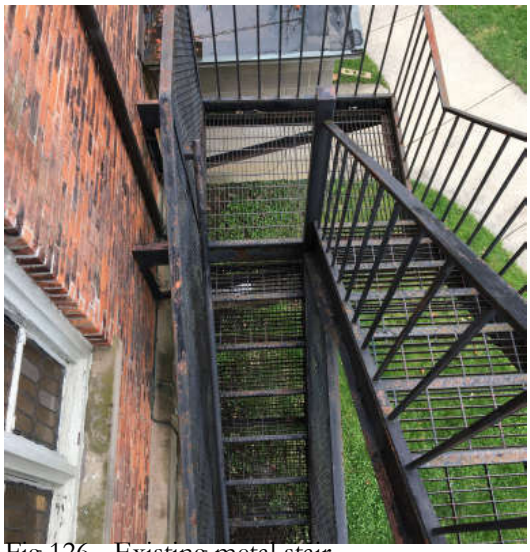
Fig 126 - Existing metal stair.


Fig 127 - West Entrance door


Fig 128 - West Entrance door detail


Fig 129 - North Entrance plaster damage


Fig 130 - Plaster damage

9.2 Interior Repairs

9.2.1 Plaster Repairs

Deterioration of interior plaster and paint is occurring in two locations – the North Entrance stair to the lower level and the 2nd floor ceiling in the Parish House. At our site visit we were told the leaking at the Parish House roofing had been repaired. The type of plaster deterioration observed at both locations is generally caused by water penetration through the structure. As water evaporates off the interior surface, small crystals of soluble salts crystallize just beneath the surface, destroying the face of the plaster as they grow.

Water causing plaster damage typically comes from one of the following sources: leaking roofs, leaking gutters, open masonry joints, and/or moisture trapped in the wall prior to plaster and paint repairs. We understand that it can take up to two years for a saturated wall or ceiling to dry out. We recommend you wait till leaking roofs or gutters are repaired or open masonry joints are repaired, then you verify up to two years of allowing plaster substrates to dry, and then plaster repairs and finishing can commence.

Provide repairs to North Entrance interior stair plaster ceilings and walls ....$ 4,300 [P]
Provide repairs to 2nd floor ceiling and walls in east office spaces ....$ 5,300 [P]

9.2.2 Ceiling Tile Repairs

Stained and missing suspended ceiling tile in the Parish House and Church was noted on both the 1st floor and in the basement. The Church should maintain an attic stock of tiles and replace soiled tiles


Fig 131 - Plaster damage


Fig 132 - 2nd floor Parish House damage

after a leak is repaired. When tile is replaced then it will be more obvious when additional issues occur in the future.

Replace stained ceiling tile; provide ceiling tile where missing.....$ 2,200 [P]

9.3 Flooring

9.3.1 Tile Flooring

The existing 9x9 tile flooring and mastic located in several areas throughout the buildings (Church's North Entrance, Lower Hall stage, Education Wing basement hallway and restrooms, and the Parish House 2nd floor offices) are suspected to be asbestos-containing. The tiles are cracked and loose at the 2nd floor east exit. There is missing tile and subfloor in the Men's Restroom; this floor area should be infilled and tile flooring installed to finish. To understand if the work requires abatement, we recommend a survey be conducted in order to set a plan for future maintenance and building projects. Abatement has an impact on project budget and planning so understanding general locations of asbestos is important for any long-range building project planning.

Provide floor substrate infill and finish tile floor at Men's Restroom..... ....$ 2,200 [E]

9.3.2 Terrazzo Flooring

The Church's terrazzo flooring is cracking in locations. The terrazzo, a poured cementitious mix, is set on the 1st floor framing over the Basement Lower Hall. Cracking may be original to construction if an allowance for movement was not detailed appropriately in the installation. We noted several locations of cracking near entrance doors and have concern that cracking may be impacted by foot traffic


Fig 133 - Plaster damage


Fig 134 - Ceiling tile damage

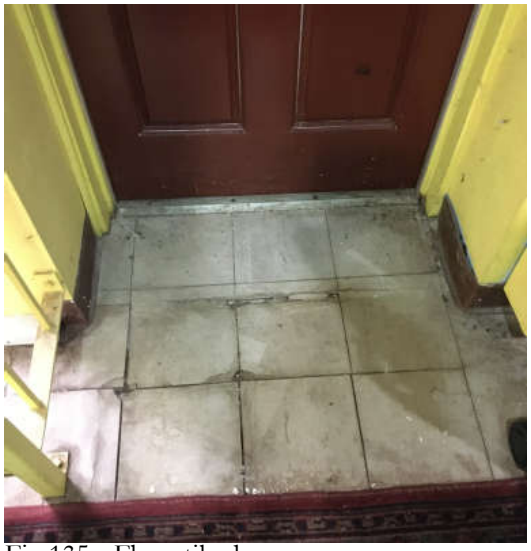
Fig 135 - Floor tile damage


Fig 136 - Floor tile damage


Fig 137 - Terrazzo flooring cracks

carrying snow and de-icing salts. We recommend you place walk-off mats to decrease water collecting at this areas and you monitor cracks to ensure they do not enlarge and become a tripping hazard.

10 OTHER

10.1 Guard Heights and Baluster Spacing

The metal guard at the North Entrance landing does not meet guard requirements for height. The landing is located over 30-inches above grade and therefore a 42" high guard is required – 36" high for existing construction is allowed. We recommend you modify this guard to meet height requirements.

The Parish House interior stairs does not meet guard requirements for height nor for baluster spacing. Aside from the height deficiency, guards shall have balusters spaced per code. We recommend you infill this rail with balusters or netting to meet code.

Modify guard at North Entrance exterior steps to meet guard height requirements .....$5,900 [E]
Modify guard at Parish House interior stairs to meet guard height requirements and baluster spacing.....$4,000 [E]

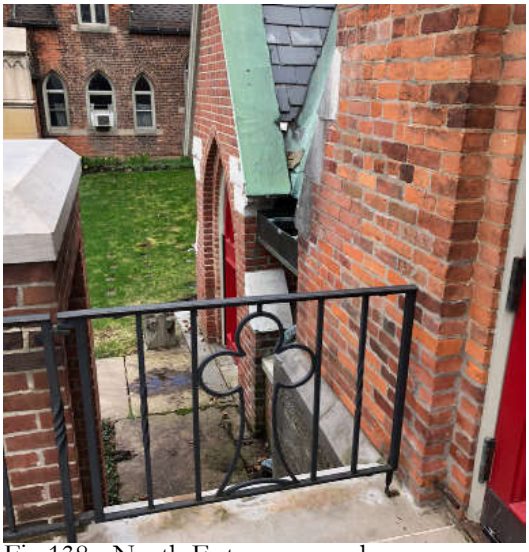
Fig 138 - North Entrance guard

10.2 Interior Stair Railings

Interior spaces within the Church, Education Wing, and Parish House are set at a variety of floor elevations or levels; and there are many set of interior stairs to connect each floor level. Handrails at the basement interior steps in the Parish House hallway, and handrails at the (3) exit locations from the basement are not to current code requirements for continuity, location at each side of stair, or handrail extension. While these handrails may have been legal per the code in effect at the time of installation, we recommend that handrails along

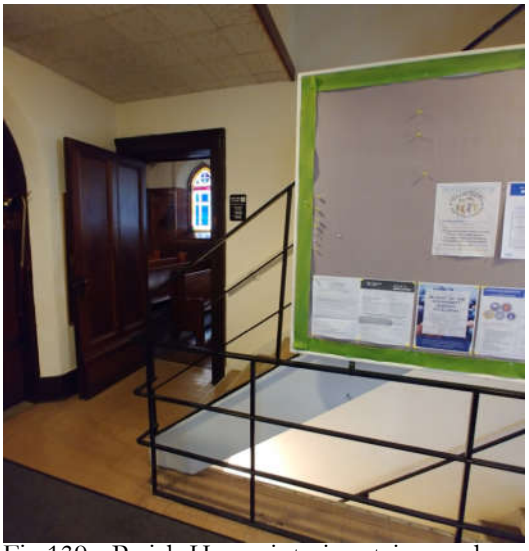
Fig 139 - Parish House interior stair guard

Fig 140 - Parish House basement exit stairs

egress routes from occupied assembly spaces (Lower Hall and the Sanctuary) be replaced to meet current code requirements.

Replace handrails at interior stairs (allowance).....$1,800 [E]

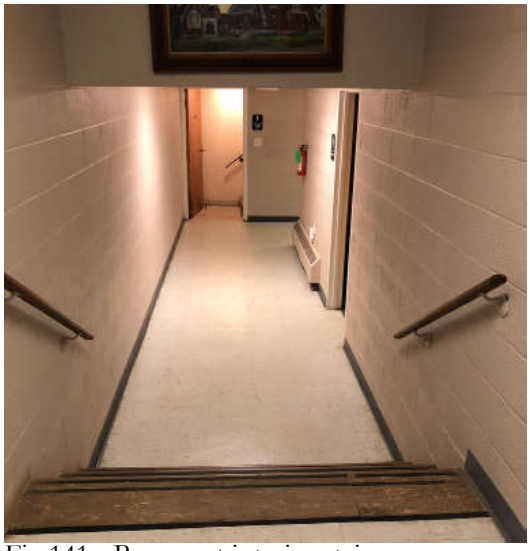
Fig 141 - Basement interior stairs

10.3 Pests and Hazardous Materials

We noted several locations of wasps/insect nests at the building face – a common occurrence for all buildings. We recommend you maintain a pest control agency to regularly inspect and/or treat for insect and rodent infestations.

We also observed bird droppings at the bell within the Belfry tower. Bird droppings are considered hazardous materials and require careful removal due to their caustic nature. Netting of the Belfry openings is an option to keep out birds from the Belfry, but has impacts on the historic character of an important feature of the Church. Bird control spikes or wires are an option to provide at the Belfry openings; we included a budget for bird control in our estimate.

Aside from the tile flooring, we observed pipe insulation suspect to contain asbestos. If visible, this should be surveyed and abated. *Attachment 14* is a reference for determining which building materials are suspect to contain asbestos.

Hire a pest control company to perform inspections .....
.....Annual maintenance [P]
Provide bird control spikes at the Belfry (allowance).....$8,400 [P]
Abate pipe insulation if found to be asbestos-containing (allowance) .....
.....$7,300 [E]

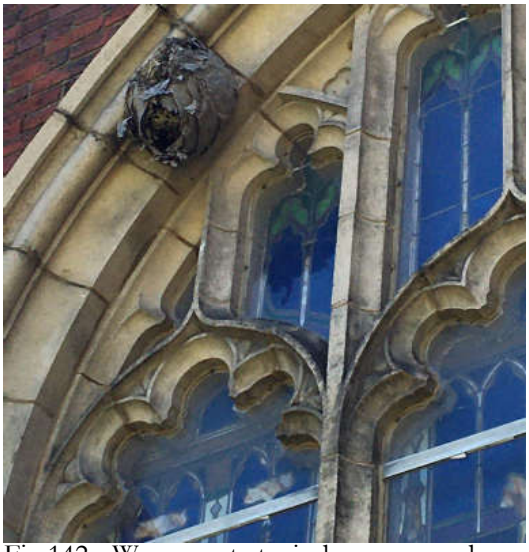
Fig 142 - Wasps nest at window surround


Fig 143 - Bird droppings in Belfry


Fig 144 - Potential asbestos pipe insulation


Fig 145 - Restroom fixtures


Fig 146 - Storage in mechanical space

10.4 Mechanical, Plumbing, and Electrical Report

Aesthetic and/or historic value of building systems like plumbing and lighting fixtures was not evaluated nor prioritized in this report. The following Mechanical, Plumbing, and Electrical report, conducted by Chuck White, CW Engineering, discusses lighting and plumbing fixtures with an "engineers" eye – and does not address the aesthetic implications of the fixtures.

We noted dated plumbing fixtures and suggest when you undertake an accessibility project that accessibility-compliant and water-saving fixtures replace existing.

We observed that the Lower Hall mechanical space and stage area were used for storage. We recommend all mechanical and electrical rooms be cleared of storage of miscellaneous items to ensure proper clearances to equipment. The stage does not appear to be used, but if regularly used for occupancy, we recommend the storage materials be moved to an alternate location.

Clear mechanical and electrical spaces of storage to allow for equipment access .....*Staff [E]*

11 MECHANICAL, PLUMBING, ELECTRICAL REPORT - EXISTING CONDITIONS

11.1 HVAC

11.1.1 Heating

The building has a hot water heating system.

The boilers are two gas fired direct vent 373 MBH boiler installed recently. Lochinvar KBN. The boilers also heats a domestic water heater.

There are five zone pumps. In addition there is some valve control (sub-zones).

Heaters include:
Church – fintube and a cabinet unit heater
Parish Hall – fintube and cabinet unit heater
Kitchen – unit heater
Parish House – fintube and convectors
Parish House Chapel - baseboard and a cabinet unit heater

There is electric heat in the church northwest entry, church basement hall stage, and in the space under the church northwest exterior exit stairs.

There is a dehumidifier operating and serving the church basement (hall and stage).


Fig 147 - Boilers


Fig 148 - Fintube

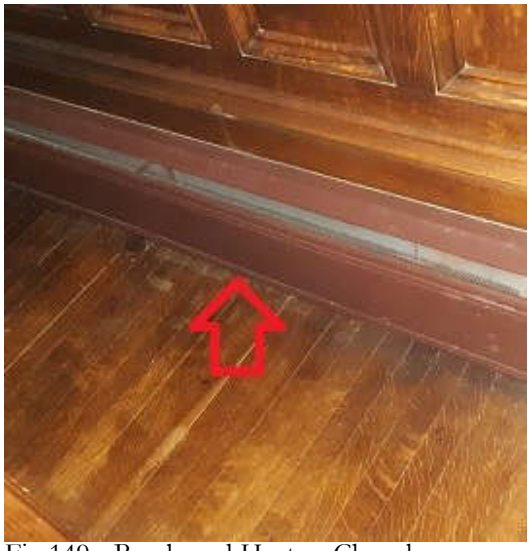
Fig 149 - Baseboard Heater- Chapel


Fig 150 - Cabinet Unit Heater


Fig 151 - Convector


Fig 152 - Ranges with No Exhaust Unit Heater (above left)

11.1.2 Ventilation

The main toilet rooms (in basement) do have exhaust fans. The fans are controlled by a manual wall switch. The men's room fan does not appear to be working.

The first floor toilet room does not have an exhaust fan (though it does have a window).
The second floor toilet room has an exhaust fan controlled by the light switch.

Church – operable windows and an old gravity vent
Parish Hall – operable windows
Parish House – some operable windows (some stained glass windows are not operable)
Parish House Chapel – operable windows

The kitchen ranges (two residential gas ranges) do not have range hoods. The kitchen does have operable windows. There is an old wall exhaust fan above the ranges above the ceiling.

Repair/ replace exhaust in Men's Restroom (basement) .....$300 [E]
Install residential hoods with fire suppression over ranges in Kitchen .....$18,000 [E]

11.2 PLUMBING

11.2.1 Water Service

The building has a 1" water service located in the church south service room. There is no backflow preventer.

Visible water piping appears to be copper.


Fig 153 - Exhaust Fan above Ceiling – Above Ranges


Fig 154 - Water Service

11.2.2 Water Heater

The water heater is located adjacent to the boiler. It is an indirect water heater connected to the heating boilers. It was likely installed recently with the boilers.

Fig 155 - Indirect Water Heater

11.2.3 Plumbing Fixtures

The water closets in the toilet rooms are flush tank type. There are reports of insufficient flushing.

There are two urinals in the men's room. One is out of order and the other has been removed.

The kitchen (residential type) sink trap is not vented properly.

Replace two urinals in Men's Restroom (basement) .....$5,000 [E]
Provide proper vent in kitchen sink (Lower Hall, Church basement) .....$250 [E]

Fig 156 - Men's Room - Urinals

11.2.4 Natural Gas Service

The natural gas service/meter is located outside the parish house west wall. The gas serves the boilers and the kitchen ranges.

11.3 ELECTRICAL

11.3.1 Distribution

The building has a 200 amp 120/240 volt (unconfirmed), one phase electric service. The meter and distribution are located in the church south service room. The service is overhead.

Fig 157 - Kitchen Sink Waste Piping

Fig 158 - Electric Service Main Distribution


Fig 159 - Boiler Room Panelboard

The main distribution panelboard is labeled 200A, 208V with a 225A main circuit breaker. It is relatively old.
Sub-panelboard – 60A, loadcenter relatively new.
Boiler Room Panelboard – 100A older
Church 1st floor Panelboard – 100A older

11.3.2 Lighting

The church basement lighting is generally fluorescent.

The church main light fixtures are generally incandescent type fixtures. The spot/flood lighting at the altar is incandescent. Some lamps have been replaced with LED.

The parish house has fluorescent and incandescent light fixtures. The light fixtures in the chapel are incandescent.

The exterior lights are generally incandescent in varying condition. There is a HID flood light for the parking lot. The wall light at the lift exterior door is missing a lens.


Fig 160 - Church Panelboard

The building has some emergency lighting.
There are some exit signs but they are not lit.

If none, install carbon monoxide alarm in kitchen (Lower Hall, Church basement) .....$ 50 [E]
Install emergency lighting in exit pathways.Replace exit signs with LED fixtures .....$ 2,500 [E]
Install heat detector in Kitchen (Lower Hall, Church basement) ....$ 1,500 [E]
Test circuit breakers or replace panelboards .....$ 15,000 [E]
Replace broken exterior light fixtures.....$ 500 [E]
General: Continue replacing lamps with LED replacement lamps ....Annual maintenance [P]


Fig 161 - Church Altar Flood Lights

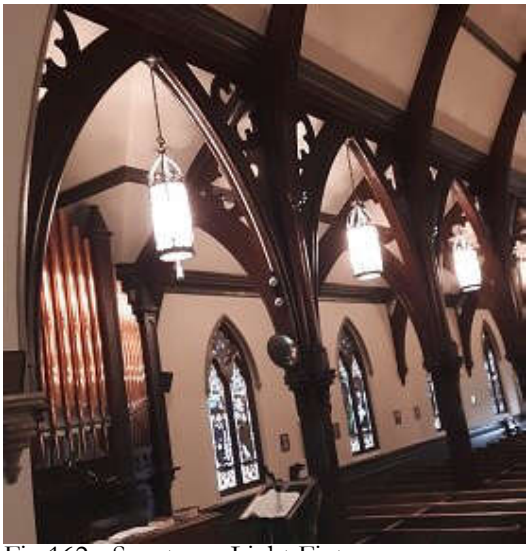
Fig 162 - Sanctuary Light Fixtures

11.3.3 Fire Protection

The building does have a fire alarm system. There are pull stations and older style audio/visual alarms. There are smoke detectors in the sanctuary, and in the hallways. There are heat detectors in many, but not all, of the remaining rooms. There appears to be an old style heat detector in the kitchen.

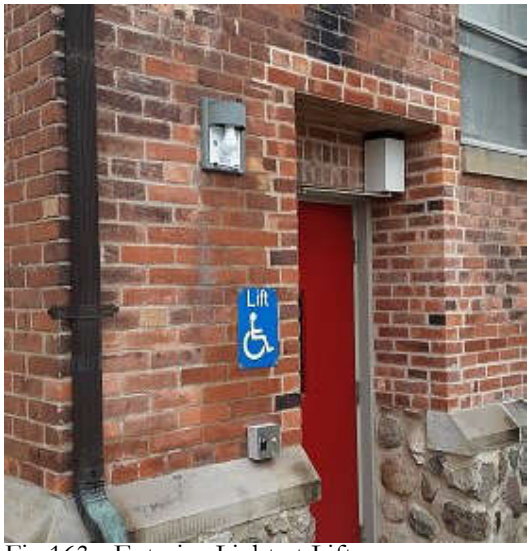

Fig 163 - Exterior Light at Lift

11.4 DISCUSSION

11.4.1 HVAC

The heating system appears to be in working condition.

The electric heater in the stage could indicate insufficient or inoperable heating by the hot water system.

If a new range hood is installed, it will ultimately be the local code official's determination whether the use is domestic (permits domestic range hood) or commercial (requiring a type 1 grease exhaust hood). Residential type hoods with built-in fire suppression systems are available.


Fig 164 - Typical Exit Sign

11.4.2 PLUMBING

The plumbing fixtures appear to be in varying condition of disrepair.

The kitchen sink can be properly vented by adding an air admittance valve (there is one on the adjacent sink).

The water utility may require a backflow preventer to be installed on water service.

The water heater appears to be in operating condition.

11.4.3 ELECTRICAL

Panelboards - The replacement/rebuilding of the panelboards should be considered due to age (greater than 50 years). This includes the main panelboard, boiler room panelboard, and church first floor panelboard. Many of the branch circuit breakers may have been replaced. Minimally all the circuit breakers can be tested.

Any exit signs that are not lit should be replaced with LED exit signs with back-up battery.

Emergency lighting should be added for all exit paths.

Carbon Monoxide Alarm – Required in kitchen (ranges) and lower level of the parish hall (boilers). There is currently a plug-in type carbon monoxide alarm in the lower level hallway around the corner from the boiler room.

Fig 165 - Fire Alarm Panel

11.5 NOTES

The existing systems were reviewed to consider current use. The systems and equipment were not inspected for deficiencies or for actual operation. Code issues were considered but renovations could require further consideration depending on the extent of the renovation.

Existing Building Requirements - 2020 Fire Code of New York State, Chapter 11

Carbon Monoxide Alarm Requirements – Title 19 NYCRR – 1228.4

It is assumed that the fire alarm system is operating and is periodically tested.

12 OPINION OF PROBABLE CONSTRUCTION COSTS

12.1 General

The "Opinion of Probable Construction Costs" should be used with considerable caution since it is based on limited visits and preliminary information available in our office: estimating handbooks, limited contact with a supplier or trade contractor, and past experience.

We provide costs in a three-level priority categorization. Priorities are assigned on the basis of an item's importance as it relates to occupancy and preservation of the property, and without knowledge of available funds.

1. Essential: Life safety and immediate stabilization
2. Preservation: Work which can be deferred, but required for long-term stabilization & longevity of building / collections
3. Optional: Restoration of historic detail(s), optional improvements/upgrading, and future planning.

In the text of the report, the preferred repairs (and/or options) are included at the end of each section paragraph with an Opinion of Probable Construction Cost & associated priority level *(i.e. - $ 5,000 [P])*.

In most cases, any work items deferred beyond one year will require:
- Monitoring for change affecting a work item's priority
- Interim maintenance not discussed in this report or included in the worklist and estimates.
- Re-evaluation of the scope of work and estimated costs.

12.1.1 Prevailing Wages

Prevailing wages are used for the "Opinion of Probable Construction Costs" in this report. Prevailing wages are determined by the NYS Department of Labor and closely approximate union wages; the overhead and profit percentages are from *RS Means - Commercial Renovation Cost Data 2018*.

Prevailing Wage Rates - Livingston County - 7/1/2020 until 06/30/2021					
Trade		Hourly Wage	OH & P*	Billing Rate	Crew Rate
Asbestos Laborer		$ 49.65	54.40%	$ 77	-
Carpenter - Building		$ 52.55	51.30%	$ 80	-
	5th year apprentice	$ 38.49	51.30%	$ 58	$ 138
Electrician		$ 60.63	49.20%	$ 90	-
	6th year apprentice	$ 53.33	49.20%	$ 80	$ 170
Elevator Constructor		$ 88.52	48.70%	$ 132	-
	4th year apprentice	$77.77	48.70%	$ 116	$ 247
Glazier		$ 52.25	50.60%	$ 79	-
Ironworker		$ 58.69	59.50%	$ 94	-
Laborer - Building (basic)		$ 48.65	51.30%	$ 72	-
Mason - Building		$ 55.69	52.70%	$ 85	-
	4th year apprentice	$ 46.32	52.70%	$ 71	$ 152
Operating Eng - Building (master mechanic)		$ 69.22	50.10%	$ 104	-
Painter		$ 48.35	49.70%	$ 72	-
Plumber		$ 60.41	50.10%	$ 91	-
	5th year apprentice	$ 40.97	50.10%	$ 61	$ 152

Roofer		$ 51.37	66.60%	$ 86	-
	4th year apprentice	$ 37.66	66.60%	$ 63	$ 148
Sheet Metal worker		$ 61.54	51.90%	$ 93	-
	5th year apprentice	$ 50.46	51.90%	$ 76	$ 169
Sprinkler Fitter		$ 61.63	50.40%	$ 93	-
	10th year apprentice	$ 50.46	50.40%	$ 76	$ 169
Tile Setter		$56.50	47.40%	$ 83	-

* OH & P percentages obtained from: RS Means - Commercial Renovation Cost Data 2018.

12.2 Markup

Included in the estimated costs for general construction work is a markup of 1.8. For work by a "prime," a contractor who contracts directly with the owner, the markup is 1.5. When estimating professional services (engineering, etc.) a markup of 1.2, which includes only the contingency, is used. See the table below for the process by which we arrived at these markups.

Markups	GC	PRIME	PS
General conditions	10.00%	10.00%	
General contractor's overhead	10.00%		
General contractor's profit	10.00%		
Contingency	20.00%	20.00%	
Professional fees	15.00%	15.00%	15.00%
Compounded and rounded	1.84	1.52	1.15

12.3 Accuracy

Cost estimates should be used with considerable caution since they are based on limited visits and information available in our office: estimating handbooks and past experience. No contractors were consulted. Prices are also highly dependent on the size of the project and the construction environment at the time of bidding. A more elaborate planning process is required to determine the actual costs you can expect; prices included in this report are, at best, guesses based on limited time and budget. Accordingly, Bero Architecture cannot warrant or represent that bids or negotiated prices will not vary from the prices shown.

Please note that contractor pricing is of course the most accurate as they are asked to provide such information more often, and form a direct line from materials to labor to finished product.

Prices are also highly dependent on the size of the project and the construction environment at the time of bidding, and are, at best, guesses based on limited time and budget. Accordingly, Bero Architecture PLLC cannot warrant or represent that bids or negotiated prices will not vary from the prices shown

Estimated Costs between $1 and $99,999 are rounded off to the nearest $100, between $100,000 and $999,999 to the nearest $1,000, between $1,000,000 and $999,999 to the nearest $10,000, etc.

CR Div	Work Item	Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
1	**GENERAL**									
1.3	Survey and test existing materials for asbestos and PCBs	1	allow	$ 1,380	$ 1,380	1.15	$ 1,600	$ 1,600		
2	**SITEWORK**									
2.2	Grading									
	Regrade at North Lower Entrance sidewalk and door. Provide improved trench drain								$ 8,000	
	Equipment rental (1) weeks	1	wk	$ 1,000	$ 1,000	1.84	$ 1,800			
	Labor (2 @ 1 week)	40	hrs	$ 72	$ 2,884	1.84	$ 5,300			
	Materials (stone, pipe, etc.)	1	allow	$ 500	$ 500	1.84	$ 900			
	Improve grade at north wall of Chapel	1	allow	$ 250	$ 250	1.84	$ 500		$ 500	
	Improve grade at all elevations as maintenance activity	*Periodic Maintenance*								
2.3	Site Paving									
	Repair concrete spalling at North Entrance landing slab	8	hrs	$ 85	$ 680	1.84	$ 1,200		$ 1,200	
	Replace stone paver at Chapel West Entrance steps	4	hrs	$ 85	$ 340	1.84	$ 600		$ 600	
2.4	Window Wells									
	North: Enlarge and provide galvanized window wells and improve sill to well depth	24	hrs	$ 72	$ 1,730	1.84	$ 3,200		$ 3,200	
	South: Improve sill to well depth	16	hrs	$ 72	$ 1,154	1.84	$ 2,100		$ 2,100	
	All locations: Periodically clean wells of debris	*Annual Maintenance*								
2.5	Plantings and Vegetation									
	Trim plantings at west planting bed of Chapel	2	hrs	$ 72	$ 144	1.52	$ 200		$ 200	
	Relocate existing plantings at north elevation of Church to increase distance from wall	4	hrs	$ 72	$ 288	1.52	$ 400		$ 400	
	Trim plantings annually	*Annual Maintenance*								
3	**ROOFING AND FLASHINGS**									
3.2	Slate Shingle Roofing, Church									
	Annual slate roofing inspection and repairs							$ 9,400		
	Access by lift	1	ls	$ 2,000	$ 2,000	1.84	$ 3,700			
	Crew to inspect and perform repairs	16	hrs	$ 169	$ 2,711	1.84	$ 5,000			
	Materials	1	ls	$ 400	$ 400	1.84	$ 700			
	Replace valley and ridge flashings at North Entrance roof areas								$ 65,400	
	Access	1	ls	$ 12,000	$ 12,000	1.84	$ 22,000			
	Salvage slate shingles; replace valley flashings, reinstall slate, provide ridge flashing	80	hrs	$ 169	$ 13,557	1.84	$ 25,000			
	Materials and Perform carpentry repairs as required to deck	1	ls	$ 10,000	$ 10,000	1.84	$ 18,400			

CR Div	Work Item	Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
	Replace sheet metal coping at Lower North Entrance gable								$ 5,700	
	Replace sheet metal coping	16	hrs	$ 93	$ 1,496	1.84	$ 2,700			
	Materials and Provide carpentry repairs as required	1	ls	$ 1,800	$ 1,800	1.84	$ 3,000			
3.3	Asphalt Shingle Roofing, Parish House and Chapel									
	Replace dormer roofing, sidewall flashings, copings, and valleys – (1) E + (1) S + (1) N							$ 88,700		
	Access	1	ls	$ 14,000	$ 14,000	1.84	$ 25,700			
	Provide standing seam roofing, open valley, and replace copings	48	hrs	$ 169	$ 8,134	1.84	$ 15,000			
	Materials and Repairs to sheathing	1	ls	$ 12,000	$ 12,000	1.84	$ 22,000			
	Replace East gable parapet base and counterflashings, and copings									
	Provide standing seam roofing, open valley, and replace coping	56	hrs	$ 169	$ 9,490	1.84	$ 17,000			
	Materials and Repairs to sheathing	1	hrs	$ 5,000	$ 5,000	1.84	$ 9,000			
	Replace dormer roofing, sidewall flashings, copings, and valleys - (2) W + (1) S + (2) N								$ 64,400	
	Access	1	ls	$ 10,000	$ 10,000	1.84	$ 18,400			
	Provide standing seam roofing, open valley, and replace copings	64	hrs	$ 169	$ 10,845	1.84	$ 20,000			
	Materials and Repairs to sheathing	1	ls	$ 14,000	$ 14,000	1.84	$ 26,000			
									$ 9,000	
	Replace chimney step flashings (Access included above)	24	hrs	$ 169	$ 4,067	1.84	$ 7,000			
	Materials and Repairs to sheathing	1	ls	$ 1,200	$ 1,200	1.84	$ 2,000			
3.4	Built-up Membrane Roofing								$ 4,300	
	Inspect roofing, perform repairs, and re-coat with aluminized coating	12	hrs	$ 148	$ 1,780	1.84	$ 3,300			
	Materials	1	ls	$ 600	$ 600	1.84	$ 1,000			
3.5	EPDM Membrane Roofing, East elevation exits									
	Inspect sill flashing at East exit roof from Parish Hall basement; replace sealant	4	hrs	$ 86	$ 342	1.84	$ 600		$ 600	
	Inspect roofing areas, clear of debris, inspect for punctures	*Annual Maintenance*								
4	**STORMWATER MANAGEMENT**									
4.1	Stormwater Management, General									
	Inspect gutter and downspouts; clean gutters of debris	*Annual (2x) Maintenance*								
4.2	Church, Gutters and Downspouts									
	Provide expansion joint at center of north and south elevation gutter lengths								$ 16,300	
	Provide expansion joint	24	hrs	$ 169	$ 4,067	1.84	$ 7,500			
	Access	1	ls	$ 4,800	$ 4,800	1.84	$ 8,800			
	Replace gutter at northeast valley of Lower Entrance	16	hrs	$ 93	$ 1,496	1.84	$ 2,700		$ 2,700	

CR Div	Work Item	Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
	Reconfigure/replace the gutter to downspout connection at the west side of S Transept							$ 13,800		
	Reconfigure/replace downspout connection	16	hrs	$ 169	$ 2,711	1.84	$ 5,000			
	Access	1	ls	$ 4,800	$ 4,800	1.84	$ 8,800			
	Connect two East elevation downspouts to one hub connection	8	hrs	$ 169	$ 1,356	1.84	$ 2,500		$ 2,500	
	Evaluate (dig up) the tie-in of (3) Lower North Entrance downspouts								$ 11,500	
	Dig up to expose (3) downspouts to find tie-in to existing system	4	hrs	$ 72	$ 288	1.84	$ 500			
	Provide cast iron cleanout and exposed hub connections for (3) downspouts	3	ea	$ 2,000	$ 6,000	1.84	$ 11,000			
4.3	Parish House, Gutters and Downspouts									
	Straighten bent gutters; Repair gutter to downspout connections (incl Access)	10	ea	$ 1,000	$ 10,000	1.84	$ 18,400		$ 18,400	
	Provide cast iron cleanout at exposed hub connections	9	ea	$ 800	$ 7,200	1.84	$ 13,200		$ 13,200	
	Straighten downspouts damaged by lawn equipment	4	hrs	$ 93	$ 374	1.84	$ 700		$ 700	
4.4	Disposal									
	Snake existing underground stormwater disposal lines and map for documentation	8	hrs	$ 152	$ 1,217	1.84	$ 2,200	$ 2,200		
5	**MASONRY**									
5.2	Church, Masonry									
	Repoint South elevation and buttress at South Transept							$ 27,700		
	Repoint South Transept buttress and surrounding area	32	hrs	$ 156	$ 4,985	1.84	$ 9,200			
	Repoint South Transept south wall	24	hrs	$ 156	$ 3,738	1.84	$ 6,900			
	Replace spalled bricks	8	hs	$ 156	$ 1,246	1.84	$ 2,300			
	Clean efflorescence	4	hrs	$ 72	$ 288	1.84	$ 500			
	Access by scaffold or lift	1	ls	$ 4,800	$ 4,800	1.84	$ 8,800			
	Repoint at East elevation gable copings at slope changes								$ 14,400	
	Repoint brick masonry and stone coping	12	hrs	$ 156	$ 1,869	1.84	$ 3,400			
	Access by lift	1	ls	$ 6,000	$ 6,000	1.84	$ 11,000			
	Remove North Entrance site wall, repair stone steps, and repoint brick masonry landing wall								$ 16,700	
	Remove existing construction	8	hrs	$ 72	$ 577	1.84	$ 1,100			
	Provide brick side wall to steps	24	hrs	$ 156	$ 3,738	1.84	$ 6,900			
	Repoint brick masonry at landing wall, clean efflorescence	16	hrs	$ 85	$ 1,361	1.84	$ 2,500			
	Materials	1	ls	$ 3,400	$ 3,400	1.84	$ 6,200			
5.3	Parish House, Masonry									
	Replace stone parging on basement openings	10	ea	$ 360	$ 3,600	1.84	$ 6,600		$ 6,600	

CR Div	Work Item	Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
	Rebuild brick masonry dormer and parapet walls (following roofing work							$ 44,000		
	(1) East + (1) South + (1) North and (1) East gable									
	Repoint brick masonry / reset brick as needed	64	hrs	$ 156	$ 9,969	1.84	$ 18,300			
	Access	1	ls	$ 14,000	$ 14,000	1.84	$ 25,700			
	Repoint brick masonry at dormer and parapet walls and arched surrounds								$ 42,800	
	(2) West + (1) South + (2) North	80	hrs	$ 156	$ 12,462	1.84	$ 22,900			
	Replace spalled brick (allowance)	1	ls	$ 800	$ 800	1.84	$ 1,500			
	Access	1	ls	$ 10,000	$ 10,000	1.84	$ 18,400			
5.4	Chapel, Masonry									
	Repoint terra cotta copings								$ 33,100	
	Repoint terra cotta copings	32	hrs	$ 156	$ 4,985	1.84	$ 9,200			
	Access by lift or scaffold	1	ls	$ 8,000	$ 8,000	1.84	$ 14,700			
	Repoint brick masonry at crack and arch terra cotta member; evaluate over time	32	hrs	$ 156	$ 4,985	1.84	$ 9,200			
	Replace sealant with appropriate mortar at terra cotta sill members and repoint									
	Rake out sealant and repoint with mortar; provide mortar wash at sill	16	hrs	$ 85	$ 1,361	1.84	$ 2,500		$ 2,500	
	Repoint joints at exterior steps	8	hrs	$ 85	$ 680	1.84	$ 1,200		$ 1,200	
6	**METALS**									
6.1	Parish House, Fire Escape									
	Evaluate use of and condition of exterior fire escape stairs with code official	*Staff*								
	Hire a qualified structural engineer to inspect stairs and develop a list of repairs	8	hrs	$ 175	$ 1,400	1.15	$ 1,600	$ 1,600		
7	**CARPENTRY**									
7.1	Standing trim (Eave and rake moldings)								$ 4,200	
	Replace deteriorated eave molding at East elevation South Transept	8	hs	$ 80	$ 636	1.84	$ 1,200			
	Provide limited carpentry repairs to rake and eave moldings	12	hrs	$ 80	$ 954	1.84	$ 1,800			
	Materials	1	allow	$ 650	$ 650	1.84	$ 1,200			
	(Access included in **FINISHES**)									
7.2	Parish House, Exterior Stair at South Entrance									
	Replace exterior stairs, guard, and provide handrails	1	ls	$ 12,000	$ 12,000	1.84	$ 22,000		$ 22,000	
8	**OPENINGS**									
8.1	Leaded Glass Windows									
	Have a qualified studio perform a leaded glass condition report	1	ls	$ 2,800	$ 2,800	1.15	$ 3,200		$ 3,200	
	Have a qualified studio evaluate (3) existing protective panels								$ 12,200	
	Revise installation to provide for ventilation	16	hrs	$ 80	$ 1,272	1.84	$ 2,300			
	Access	1	ls	$ 5,400	$ 5,400	1.84	$ 9,900			

CR Div	Work Item			Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
	8.1.1	Church, Leaded Glass Wood Windows										
			Provide limited carpentry repairs when preparing to paint windows (allowance)	16	hrs	$ 80	$ 1,272	1.84	$ 2,300		$ 2,300	
	8.1.2	Parish House, Leaded Glass Wood Windows										
			Provide limited carpentry repairs when preparing to paint windows (allowance)	32	hrs	$ 80	$ 2,544	1.84	$ 4,700		$ 4,700	
8.4	Exterior Wood Doors											
		Restore existing exterior wood doors (allowance)									$ 17,200	
			Replace putty, minor carpentry repairs, adjust hinges and hardware	7	ea	$ 1,200	$ 8,400	1.84	$ 15,400			
			Materials	1	ls	$ 1,000	$ 1,000	1.84	$ 1,800			
		Repair existing North Entrance double door									$ 3,900	
			Replace broken glazing, replace putty, minor carpentry repairs, adjust hinges	16	hrs	$ 80	$ 1,272	1.84	$ 2,300			
			Replace threshold	1	ls	$ 850	$ 850	1.84	$ 1,600			
		Replace 2nd floor Parish House exit door and hardware		1	ea	$ 2,800	$ 2,800	1.84	$ 5,100			$ 5,100
9	**FINISHES**											
9.1	Paint, General											
	9.1.1	Exterior Painting									$ 63,100	
		Prepare and paint exterior wood elements (eave and rake moldings)		24	hrs	$ 72	$ 1,737	1.84	$ 3,200			
		Prepare and paint wood window elements		80	hrs	$ 72	$ 5,790	1.84	$ 10,600			
		Prepare and paint wood door, frames, and casings		32	hrs	$ 72	$ 2,316	1.84	$ 4,300			
		Prepare and paint exterior metal paint finishes		40	hrs	$ 72	$ 2,895	1.84	$ 5,300			
			Materials	1	ls	$ 1,200	$ 1,200	1.84	$ 2,200			
			Access - lift	6	wks	$ 3,400	$ 20,400	1.84	$ 37,500			
	9.1.1	Exterior Stained Finish										
		Prepare and stain exterior wood Chapel doors		24	hrs	$ 72	$ 1,737	1.84	$ 3,200		$ 3,200	
	9.1.3	Interior Painting										
		Refurbish interior paint finishes (following plaster repairs)		40	hrs	$ 72	$ 2,895	1.84	$ 5,300		$ 5,300	
9.2	Interior Repairs											
	9.2.1	Plaster Repairs									$ 9,600	
		Provide repairs to North Entrance interior stair plaster ceilings and walls		32	hrs	$ 72	$ 2,316	1.84	$ 4,300			
		Provide repairs to 2nd floor ceiling and walls in east office spaces		40	hrs	$ 72	$ 2,895	1.84	$ 5,300			
	9.2.2	Ceiling Tile Repairs										
		Replace stained ceiling tile; provide ceiling tile where missing		1	ls	$ 1,200	$ 1,200	1.84	$ 2,200		$ 2,200	
	9.3.1	Tile Flooring										
		Provide floor substrate infill and finish tile floor at Men's Restroom		1	ls	$ 1,200	$ 1,200	1.84	$ 2,200	$ 2,200		

CR Div	Work Item	Qty	Units	Unit Cost	Sub-total	Markup	Work Item Total	Essential	Preservation	Optional
10	**OTHER**									
10.1	Guard Height and Baluster Spacing							$ 9,900		
	Modify guard at North Entrance exterior stairs to meet guard height requirements	1	ls	$ 3,200	$ 3,200	1.84	$ 5,900			
	Modify guard at Parish House interior stairs to meet guard height requirements	16	hrs	$ 80	$ 1,272	1.84	$ 2,300			
	Infill guard to meet baluster spacing requirements	1	ls	$ 900	$ 900	1.84	$ 1,700			
10.2	Interior Stair Railings									
	Replace handrails at interior stairs (allowance)	1	ls	$ 1,000	$ 1,000	1.84	$ 1,800	$ 1,800		
10.3	Pests and Hazardous Materials									
	Hire a pest control company to perform inspections	*Annual Maintenance*								
	Provide bird control spikes at the Belfry (allowance includes lift for access)	1	ls	$ 4,600	$ 4,600	1.84	$ 8,400		$ 8,400	
	Abate pipe insulation if found to be asbestos-containing (allowance)	1	ls	$ 4,000	$ 4,000	1.84	$ 7,300	$ 7,300		
10.4	Mechanical, Plumbing, and Electrical Report									
	Clear mechanical and electrical spaces of storage to allow for equipment access	*Staff*								
11	**MECHANICAL, PLUMBING, AND ELECTRICAL**									
11.1	Mechanical (HVAC)									
	Repair/replace exhaust in Men's Restroom (basement)	1	allow						$ 300	
	Install residential hoods with fire suppression over the ranges in Kitchen	1	allow						$ 18,000	
11.2	Plumbing									
	Replace two urinals in Men's Restroom (basement)	1	allow						$ 5,000	
	Provide proper vent in kitchen sink (Lower Hall, Church basement)	1	allow						$ 250	
11.3	Electrical									
	If none, install carbon monoxide alarm in kitchen (Lower Hall, Church basement)	1	allow					$ 50		
	Install emergency lighting in exit pathways. Replace exit signs with LED exit fixtures	1	allow					$ 2,500		
	Install heat detector in kitchen (Lower Hall, Church basement)	1	allow					$ 1,500		
	Text circuit breakers or replace panelboards	1	allow	replacement					$ 15,000	
	Replace broken exterior light fixtures	1	allow						$ 500	
	General: Continue replacing lamps with LED replacement lamps	*Annual Maintenance*								
TOTAL IDENTIFIED WORK AREAS								$ 214,250	$ 548,750	$ 5,100

Estimate Summary (all numbers rounded)	Essential	Preservation	Optional
Totals by Priority	$ 214,250	$ 548,750	$ 5,100
Total Essential + Preservation Work		$ 763,000	
Total of all worklist priorities			$ 768,100