

## EXECUTIVE SUMMARY

The First Congregational Church was organized in 1765 and the current layout of the building developed after a fire in 1913, and an addition was added in 1960. The church serves not only the spiritual needs of its community but is considered, by many, a hub for the Town of Williamstown. The building's location is at the center of Williamstown and the center of Williams College. The colonial architecture and central meeting house layout, along with the church's presence along Route 2, makes the church an extremely important building for the Williamstown community.

During the winter of 2019, members of the Building Assessment Committee (the "Committee") commissioned Centerline Architects to assist with identifying deficiencies of the historic church. The building currently suffers from a number of significant problems. There is a lack of fully accessible compliant facilities, an incomplete fire suppression system, a steeple that is degrading due to water infiltration, a main roof that leaks, poor site drainage and a lack of proper control of the interior environmental conditions. A number of other building elements were uncovered during this study that are less critical, but equally important to the longevity and safety of the building. The study has identified two major categories of elements that compete for attention: first the items that affect life safety and occupant safety in the building (like proper exits), second the items that affect building integrity and longevity (like holes in the roof). These are not mutually exclusive, for instance, the sprinkler system will protect the occupants of the building in a fire as well as the building itself. The purpose of this report is to identify items that require some form of replacement, repair, code compliance, or other intervention. The study identifies the scale of the issue, assigns a cost, and then prioritizes a scope of work for building renewal.

### Costs

The total estimated project cost for all of the identified elements is roughly \$2 million. This report can be used as a guideline to create documents to address all deficiencies at once and as such would likely be the lowest cost scenario. This document can also be used as a guideline for phased construction where updates occur as funding becomes available. This document is expected to be used as a tool in a capital campaign for identification and funding of projects. The costs noted in this report are generated using current estimate numbers and projects identified for future time periods will require escalation. These numbers are also affected by the amount of construction activity in the surrounding area. Projects may be completed with a general contractor and many of the smaller projects, if completed by themselves, can be done without general contractor.

The non-construction costs or 'soft' costs, some of which remain undefined, including items like permitting, construction or owner contingency, hazardous materials abatement, and architectural/engineering fees have been included as part of the cost estimate.

### Conclusion

The master planning study was completed with the intention to provide the First Congregational Church with a starting point for identification and prioritization of code and maintenance issues that currently affect the existing facility. The expectation is that these projects will be addressed in a comprehensive

way either through a major renovation project or by a phased approach. Each item identified will require further design and engineering as the next step in this process.

## **UNDERLYING OBSERVATIONS**

### **Water Infiltration**

Water infiltration is a major problem for any building. Water can penetrate a building in many different ways: leaking of the roof, seepage through foundations, condensation in walls, and leaks in pipes are all potential contributors. This building suffers from many of these. Structural failures in parts of the building are likely to occur if water-related items are not addressed. Currently, evidence of water damage is seen by peeling paint, deformed plaster, and active water in attic areas. The first goal is to make sure the building is watertight. Roof: There are three different roofing systems found at the church: slate shingles from various time periods, rubber membrane roof from 1980, and smaller portions of standing and flat seam copper roofing at the steeple. All of these materials are failing in some form or another and require repairs or replacement. Walls: The exterior walls do not exhibit severe signs of moisture penetration. There are single pane glass windows in the historic section that are subject to condensation in cold winter months. Some peeling paint at the main entry area was observed, which is often a direct result of moisture movement through the walls. Much of the existing siding has been covered with metal siding which, though not peeling, can conceal moisture problems.

### **Foundation:**

The foundation of the church was observed to be in good shape. There were reported areas of previous infiltration, but no major issues were observed. Emergency Egress from the Building The church is frequently used by members and by others not as familiar with the building layout. The pathway in a few places is not currently code compliant. The deficient items are mainly doors and door hardware, emergency lights, as well as stair rails. To get people safely out of the building in the case of a fire or emergency event, the building code requires a safe passage along an egress path.

### **General Building Construction Components**

The update of this facility should address various components of the building. A sprinkler system has been installed in portions of the building and should be completed for full protection. As projects move forward each one should look closely at the impact of sustainability and energy efficiency. The building insulation, LED lighting and controls, HVAC upgrades and control, fire-rated and protected construction should be incorporated into every activity where appropriate

### **Accessibility**

The church is not properly accessible. There is a ramp, and restrooms that allow for wheelchair access, but neither of these are in compliance with the Massachusetts Architectural Access Board code and need to be reconstructed. In addition, an elevator to provide full access to the building should be considered, although is not required until the building upgrades exceed \$500,000 or one third of the building value threshold in a three year period. Accessible access to all portions of the building should be a consideration of all work plans.

### Building Construction and Phasing

The building deficiencies fall into two categories: life safety and building integrity. These items could conceivably be completed in a single large project. A phased approach is also a logical path to full building upgrades. A sequence of operations is required such that work does not need to be redone due to future upgrades. This study suggests a prioritization of elements and scope of work to facilitate a logical sequence. This study also acknowledges the cost Page 6 of 183 BENNINGTON & BURLINGTON, VT WWW.CLARCH.COM MAIL@CLARCH.COM 802.447.8609 implication of these projects and seeks to balance the cost of the projects with the ability for raising funds via a capital campaign.

### Surveys

The report's observations and conclusions are generated from site visits by the architect, structural engineer, civil engineer, mechanical engineer, and electrical engineer. The observations were all non-destructive in nature and all from visual observation. Material testing was not part of this work. Proper testing should be part of all remediation work.

Photographic documentation of the building including a drone-driven photographic survey of the steeple, has created a comprehensive, close-up, view of the current conditions including the steeple and roofs. Other images supplied by Keith Davis were included as base material for the work

## **ARCHITECTURAL SUMMARY**

### Building Deficiency Analysis

During three separate site visits, Centerline Architects examined the interior and exterior of the church and identified the following areas requiring repair or replacement. The main areas of concern center around water penetration into the building. Water is entering the building and is affecting interior finishes. The main roof, meaning the area that covers the Sanctuary, is subject to two separate areas of leaking. The first area seems to be around the chimney penetrations. Normal leaking in these areas is an indication that the flashing around the chimney has failed. In this case, no flashing has been installed or has been covered up. Next, the transitions between different aged shingles are an area where leaks can occur. Normally there is not enough material lapping over from one system onto another. The next area of a failed roof system is at the steeple. The steeple shows multiple areas of failure, which are identified within this report. The water penetrating the steeple roof is migrating down to the main sanctuary and affecting finishes in this area. Additionally, the steeple shows considerable wear, especially at exposed wood areas, and one can surmise that these areas are in part a cause of leaking. In addition to roof concerns, the thermal envelope in some areas is not consistent, additional insulation is needed in the unfinished attic space and offices, and the windows at the Sanctuary require additional weather-stripping. Egress and code deficiencies are addressed in later sections of this report

## Visual Structural Assessment

Dear Kevin, On February 20th, 2019 we joined you and Gary Corey and you for a walk-through of the First Congregational Church in Williamstown, Massachusetts. We viewed all portions of the building including the basement, lower and upper levels, attic above the north end of the structure and the steeple. We were specifically directed to view certain locations in the basement and the steeple. We did not perform any destructive or non-destructive testing or exploration. We viewed only what was possible from our general walkthrough.

### Basement and Foundations:

In the basement, towards the south-west corner, there is a location where the concrete slab on grade has buckled several inches. In an adjacent room there is an old coal chute with a framed steel lintel supported an elevated floor. It is our opinion that the floor cracks are due to settlement caused by localized failure in the framed slab and supporting lintel. We do not see indications that this is a global issue or has impact on the building structure in general. We did not note meaningful floor cracking or water access elsewhere in the basement. Page 28 of 183

Page:2

### First and Second Floor:

We viewed most of the rooms in the building and looked for signs of wall crack or ceiling deflections and found only very minor signs or wear or water staining. We did not note any conditions of structural concern.

### Steeple:

We climbed the steeple to nearly the very top level however, due to the cold and difficulty in accessing the highest cone shaped level, we did not go further. Also, we had been provided photographs of the structure at this level and did not feel the risk was warranted. The large majority of the steel framing is in very good shape with no visible rust and intact primer. There is some minor surface rust on the rafter members of the highest level and there is one significantly rusted beam that supports the base of the spire bar. It appears that water runs through the tip of the structure and rusts the horizontal member.

Based on these pictures and our observations of the framing below this level, we believe that if water can be stopped from passing through the tip of the steeple, then no repair is needed. While integrity of the beam supporting the spire is not yet compromised, cleaning would remove the rust and expose sound steel framing. It may not be possible to completely eliminate water penetration as for the weather vane to pivot a somewhat open hole is needed at the peak. If water will continue to run down the weather vane in to the space we recommend: A) the rafter members (supporting the exterior decking) be cleaned of rust and painted with epoxy paint. B) the beam supporting the spire be replaced with a stainless-steel beam and detailed to drip water before it can run to the roof framing members. At the level where 8-sided tier is supported by the square tier there is significant water access. It appears water runs towards the building at this level, not away from it, and enters the space and runs down the walls and steel framing. We did not observe significantly rotted wood, however if this condition is not addressed it will lead to more substantial and costly damage to the wood and steel framing. We recommend that the roof at this level be repaired or replaced.

### Summary and Recommendations:

We recommend:

1.The square level at the steeple should be re-roofed soon. 2.The spire support and highest-level steel framing should be protected from further water contact. OR3.The highest-level steeple steel framing should be cleaned of rust and painted, and the spire support beam should be replaced with a stainless-steel member. Thank you for the opportunity to be of service and please let us know if we can develop this report further or provide cleaning and/or reinforcing details for the steeple steel framing.

Respectfully, Engineering Ventures, PC

## **Steeplejack Summary**

Centerline Architects and their consultant, Jay Southgate Steeplejack, were called to investigate water infiltration into the body of the steeple. Through the use of drone photography and onsite inspections, serious leaks were discovered, some of which have been occurring for some time. Each component that forms the steeple appears to contribute in some way to water infiltration. The metal roofs at the spire, lantern, and belfry are each deficient and allow leaking into the building. For instance, the individual roof pans that comprise the lead coated copper roofing are larger than industry standard span standards and thus are subject to atypical amount of expansion and contraction. This pan movement has cracked the seams that bind the pans, allowing water to enter the steeple. These seams are currently hand patched with solder and it appears that many fixes have failed. According to the Steeplejack, a cost effective fix to large pan size is the addition of rubber cover tape over these joints. Replacement of each of these metal roof decks is a more permanent solution and is recommended. The greatest amount of leaking into the steeple, and most noticeable when driving rains occur, is water getting in behind the spire's aluminum siding. Aluminum siding is an exterior wall siding material and is an inappropriate choice as a roofing application. The spire's aluminum siding panels are not a continuous water barrier, as they are held together with interlocking battens that do not repel water. As a result, water is allowed to get behind these panels and run into the building to the base of the spire. At the spire's base, behind the balustrades, no flashing is present to redirect the water away from the building. The conclusion of the Steeplejack is the aluminum siding and balustrade are to be removed and base flashing is to be added to the spire. Reintroducing or repairing the spire's original wood clapboard siding will help provide a continuous weather barrier. The restored balustrade is to then be reinstalled. The woodwork that includes the steeple's decorative features such as the pilasters, louvers, and columns, suffer from a lack of regular maintenance. As a result, these wood components exhibit sizable cracking and splitting including wood rot at the decorative pilasters. According to the Steeplejack, aggressive scrapping, epoxy filler, and woodwork repair will be required as part of any fix. The weathervane at the top of the steeple leaks and will need to be removed, repaired, and reinstalled

## **Building Code Summary**

### **ACCESSIBILITY:**

All remodeling, renovation or construction work performed on any public existing building in the state of Massachusetts is governed by the accessibility code 521 CMR. Renovation work at the First Congregational Church will require building accessibility upgrades. The level of upgrade is based upon the cost of the renovation work, if the costs are over \$100,000, the overall value of the building, and the duration of the renovation. There are cost and time thresholds for making a building fully accessible. For instance, if the work being performed amounts to less than 30% of the full and fair cash value of the building and if the work costs less than \$100,000, then only the work being performed is required to comply with 521 CMR. For instance, if the kitchen renovation cost only \$80,000, then only the kitchen renovation work would be required to be made accessible. For renovation work that costs \$100,000 or more, but still less than 30% of the full and fair cash value of the building, the work being performed is required to be accessible. However, in addition to the renovation work, work is required by 521 CMR to make other areas of the building accessible, with the priority being an accessible public entrance, accessible toilet rooms, and drinking fountain. Not all renovation work is viewed by 521CMR as triggering overall building accessibility renovations. General maintenance is defined by work on electrical, mechanical, plumbing systems, abatement of hazardous materials, retrofit of automatic sprinkler, roof repair or replacement, window repair or replacement, and repointing and masonry repair work. The costs of these items if addressed separately will not count towards making the overall building accessible. However, in the case of the First Congregational Church, the amount and cost of these deficiencies will cause the Committee to address the entrance, toilet, and drinking fountain accessibility issues identified in this report. 521 CMR notes that whether these general maintenance items are performed alone or in combination with each other, if the works exceeds \$500,000, then the entrance, toilet, and drinking fountain will need to be addressed as well as an elevator. If renovation costs are greater than 30% or more of the full and fair cash value of the building or over \$500,000, then the entire building is required to be accessible. This cost threshold also triggers the installation of an elevator, and basement accessible restrooms. So, if the Committee decided to perform all of the renovation work including the exempted work, all of these total costs are greater than 30% of the cash value of the building. Since the cash value of the building is \$5.5 million dollars, this 30% threshold is \$1.65 million dollars.

If the Committee were to decide to phase the renovation work, the total cost of the work in any 36 month period shall be added together to calculate the level of required accessibility upgrades.

### **Building Compliance to Accessibility Code.**

The primary use of the building is a church and therefore according to 521CMR, the areas that must be accessible are those open to the congregation, such as the sanctuary, offices, halls, kitchen, and classrooms. Per 521CMR, the basement and second floor, minus the mechanical rooms, are also to be made accessible. An elevator would be required to provide an accessible path to these stories. Alterations to Qualified Historic Facilities Per 521 CMR, an historic building or facility that is listed or is eligible for listing in the National or State Register of Historic Places or is designated as historic under appropriate state or local laws may be granted a variance by the Architectural Access Board to allow

alternate accessibility. It could be argued that elevator installation within the original church might qualify for a variance. A modern elevator would degrade the historical significance of the church. In the First Congregational Church's current office configuration, a variance would be required to access the Music Director Office, as well as the second floor public offices. Accessibility to the basement floor within the 1960 addition may also qualify for a variance, however the addition of elevator within this portion of the building would not have as great an impact on the historical significance of the building.

Toilet Rooms Accessible toilet rooms are required to be located on the accessible path. As is noted as part of this report, the current men's and women's restroom on the first floor are located on an accessible path. With minor adjustments to the doorway to the women's restroom, and adjustments to the men's restroom, these two rooms can be made accessible. A unisex restroom is allowed in lieu of fully accessible men's and women's restrooms. Once an accessible path has been established on the basement or second floor, the restrooms at these two stories will need to be made accessible.

Accessible Seating at the Sanctuary Based upon the number of fixed seating in the Sanctuary, 521CMR requires four designated wheelchair spaces that are to be distributed throughout the Sanctuary. In addition, assistive listening devices are required to be within 50 feet of the podium.

#### Drinking Fountains.

On the first floor, along the accessible path, is a drinking fountain. The fountain is not accessible. If only one fountain is provided on a story, then it is to be accessible with 'hi-low' spouts. One additional drinking fountain is required on the basement and second floor.

#### EGRESS

The paths of egress in the building are well established and include two stairwells. Doors and door hardware, emergency lighting, exit signs, handrails, and guardrails at stairs all require attention to bring these items up to current Massachusetts building code.

#### Sprinkler

Sprinkler installation of the entire church facility began in 2017. The first phase included the Community Hall, kitchen, and portions of the basement. The second phase, conducted in 2018, included finishing the entire basement. The third phase of the sprinkler installation will be conducted in the summer of 2019 and will include sprinklers in the offices on the first floor. The final phase will be conducted in 2020 and will include the remaining historical portions of the church including the 1960 attic areas.

Portable Fire Extinguishers Fire extinguishers are required in conspicuous locations. The maximum travel distance to any sprinkler is to be 75 feet. The maximum floor area for any one light extinguisher is 1,500 feet. Fire Alarms Per 907.2.1, IBC 2015, manual fire alarm boxes are required that activates the occupant notification system, where the occupant load is 300 or more. There are no spaces where the occupancy load is greater than 300 people. However, two manual pull boxes are present and located at the exit of the Sanctuary, and West entrance. Initiating Devices Per 907.4.1, IBC 2015, a single smoke detector is to be required in locations not continuously occupied. Smoke detectors are present in rooms. Where conditions prohibit a smoke detector, heat detectors are to be used

## **Building Program Summary**

A new strategy to organize the activity in the building is recommended as there are rooms in the building where space is either underutilized or used inefficiently. If activities and programs were to be bunched together and relocated, portions of the older church could be closed off when not occupied. The result would be heating and cooling throughout the building would be more efficient, security and controlling visitors would be possible, and rented offices could have more independence, increase in number, and provide independent sources of income.

Sanctuary – The Sanctuary, the second floor offices, the choir, and music director's office are all used only one or two times a week and only for a few hours. Removing the offices and placing them in the 1960's portion, would allow the church to reduce the heating/cooling/and electrical usage. In addition, by creating a new accessible entrance at the northwest entry, one that serviced just the 1960s building and Community Hall activities, after hours building entrance and exiting would become centralized thus providing greater security to both portions of the church.

Offices - A number of rooms are rented from persons independent from the congregational community and are spread out throughout the building. By relocating and clustering these offices together, renters and their clients will have greater autonomy from the rest of the facility. These spaces could have their own entrance, possibly their own restrooms, and be on separate mechanical zones.

Elevator and Building Access-The addition of an elevator would provide better access to basement rooms currently underserved. The elevator would allow for greater overall building access to large storage rooms located in the basement. An elevator would also provide greater public access to offices in the basement. The addition of an elevator allows for greater public access to the attic at the 1960s addition. Currently, the attic is unfinished and not programmed. By adding an elevator, in addition to extending the current egress stairs, an additional 3,400 square feet of usable future fit-out office space that could be captured. Storage –There is ample storage throughout the building. Consolidation of the storage areas would free up rooms for other program purposes, such as rentable offices. Centerline has included as part of this report, conceptual plan drawings illustrating these potential changes

## **Construction Priority Summary:**

There are a number of building deficiencies and violations that require attention that can be completed all in one renewal project or in a phased approach. A phased approach allows for funding over time as may be required to raise the required capital. Proper phasing is important to make sure the projects and upgrades occur in an efficient manner and completed in a sequential way. The following list includes the major items identified in the Building Deficiencies and Code Deficiencies section of this report. The phasing of the project is based upon best construction practices, as well as the availability of areas, and workflow sequencing. The list tries to avoid revisiting areas that have been completed under previous tasks. Stabilization of the building is the most important issue but it has to be balanced with the basic life safety of the occupants. The observations do identify some basic code compliance issues but they do not appear to rise to the level of life-threatening. The exterior walls and roof no longer perform the basic task of keeping out the weather. It is important that the building's weathertightness be re-established before code (barring any dangerous items) or accessibility issues are addressed. There are three separate locations where the roof is allowing water to enter the building, and damaging finishes, fixtures, and structure. Addressing these items first prevents the possibility of further degradation,



including the building's structure. The steeple as well as flashing around the roof penetrations currently cause the most issues and should be addressed first. Once the building has been stabilized, then other life safety issues (non-dangerous) in the building should be addressed. In the case of a fire event, the pathway for someone exiting the building is currently not to code regulations. These pathways namely stairs, hall corridors, and doorways require updating. The Town of Williamstown Building Department has required full sprinkler coverage for this building. The first portion of this system has been completed. The second half has not yet been done and is included on this list as a major item to be completed. Informal conversations with the Town Building Commissioner identified the potential for some leniency in the timing if a timeline was clearly identified in a facility master plan of improvements. The next set of priorities are a mixture of building stabilization, accessibility and building efficiency. These scenarios are more flexible and depending on further investigation the priority list might be redefined. The timeline for finalizing all of the tasks should be within a ten-year timeframe. The leaks into the building and the code egress issues should be addressed immediately, within the next year. Accessibility requirements, like the elevator, must be addressed after building stabilization and life-safety issues occur.