Property Condition Assessment

85 Lake Hill Road
Burnt Hills, NY

Inspection Date: April 17, 2013

Prepared exclusively for: Calvary Episcopal Church
85 Lake Hill Rd., Burnt Hills, NY
Contact: Craig Hayden
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foresight
architects

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SECTION 1: EXECUTIVE SUMMARY

1.1. General Description

This is a reasonably well-built and well-maintained building.

Most systems were found to be in satisfactory condition.

No major structural deficiencies were noted.

Most of the asphalt shingle roofs are beyond their useful life.

The plumbing system was generally found to be in satisfactory condition.

The electrical system was generally found to be in satisfactory condition.

The heating and cooling units have reached their useful life.

Localized repairs at various locations would be desirable.

The improvements suggested in this report are not unusual for a building of this age.

1.2. Recommendations and Opinions of Probable Costs

Summary of Immediate Repairs: The following table summarizes the recommendations made in this report that are of an immediate, necessary nature.

Recommendations	Report Reference	Opinion of Probable Cost
1. Replace windows and vents that go below grade with shorter windows and vents.	3.3	< $3,000
2. Caulk cracks in north wing foundation wall and monitor for further movement.	3.3	< $3,000
3. Remove protective glazing from stained glass windows and repair & repaint windows as required	3.3	$8,000-12,000
4. Replace deteriorated windows in bell tower	3.3	$2,500-3,000

Summary of Short-Term Repairs: The following table summarizes the recommendations made in this report that should be addressed within the next 2 years.

Recommendations	**Report Reference**	**Opinion of Probable Cost**
1. Repair and repoint original foundation wall.	3.3	< $3,000
2. Replace wood skirt & sills with cellular PVC	3.3	$9,000-15,000
3. Repair or replace rotted boards & battens	3.3	$1,000
4. Repair damaged stained glass windows	3.3	$15,000-20,000
5. Replace casement windows in Sacristy addition	3.3	$5,000-7,500
6. Repair or replace wood on bell tower	3.3	$12,000-18,000
7. Scrape and paint all exterior wood	3.3	$23,000-28,000
8. Alternatively, replace all wood siding on building and tower with vinyl board & batten siding.	3.3	$25,000-30,000
9. Replace roof areas 1, 2, 3 & 5 with new asphalt shingles. Replace rotted sheathing on roof area 3.	3.4	$35,000-40,000
10. Replace hatch in roof area 7	3.4	$1,000-2,000
11. Provide emergency exit lighting throughout building per code	3.6	$1,500-2,000
12. Provide illuminated exit signs at building exits	3.6	$1,500-2,000

Summary of Unpredictable Repairs: The following table summarizes the recommendations made in this report that are unpredictable by nature, but may require addressing within the next few years.

Recommendations	**Report Reference**	**Opinion of Probable Cost**
1. Replace roof area 4 with new rolled roofing	3.4	$2,000-2,500
2. Replace domestic water heater	3.5	$1,000
3. Replace HVAC equipment	3.5	$15,000-18,000
4. Provide a lightning protection system	3.5	$7,500-15,000

* The timing for replacement of this component is unpredictable. Statistically, it has reached the end of its life expectancy at this time.

SECTION 2: PURPOSE AND SCOPE

2.1. Introduction

At the request of the Trustees of Calvary Episcopal Church, a visual inspection of the property was performed. Our inspection was limited to identifying the existing conditions of the following readily visible building components:

- Structure
- Heating System
- Plumbing System
- Ventilation System
- Insulation
- Fire Protection Systems
- Electrical System
- Air-Conditioning System
- Roofing System
- Exterior Facades
- Interior Finishes

This report provides recommendations, preliminary cost estimates and priorities for:

- Remedying major deficiencies.
- Updating aging major components, and
- Undertaking further detailed investigations.

The recommendations are for remedial actions that are considered to be beyond the normal maintenance of the building. Probable opinions of costs are provided for recommendations expected to exceed $3,000 to remedy. The costs are only intended to provide an order of magnitude. Contractors should be contacted for exact quotations.

This report is intended for the exclusive use of our client. Use of the information contained within the report by any other party is not intended and, therefore, we accept no responsibility for such use. If you are not named above and wish to use this report, we strongly urge that you retain Foresight Architects or another qualified inspection firm for an on-site review of this building and report.

This report does not provide substitute disclosure for any party. Areas obscured by furnishings were not accessible to inspection. These areas should be examined after the furnishings have been removed.

The terms “not accessible” and “inaccessible” when used in this report indicate uninspected components that may have hidden defects not observed or noted in this report. These areas are beyond the scope of this inspection and should be inspected after access is provided.

2.2. Inspection Authorization and Scope

This report is a professional opinion, based on the accessible features of the building. We evaluated the current physical condition; we did not perform a design analysis. We visually reviewed the performance, looking for evidence of distress. It should be understood that there are limitations to such an inspection. Throughout any inspection, inferences are often drawn which cannot be confirmed by direct observation. Therefore, it should be understood that we can reduce the number of unforeseen repairs; however, we cannot eliminate them. Consequently, no guarantee or warranty can be offered of implied. Only the items specifically addressed in this report were examined.

SECTION 3: SYSTEM DESCRIPTION AND OBSERVATIONS

3.1. Overall General Description

The subject of this assessment is the church building. According to church records, the original 28′ x 60′ structure was built in 1849. The transepts were added on the north and south sides nine years later. A fire extensively damaged the interior of the church in 1966. After careful deliberation, a decision was made to restore the building. The goal of the planners was to retain the original charm of the church while improving its overall effectiveness by enlarging the Sanctuary eight feet to the east. The Master Plan envisioned at that time was finally executed twelve years later with the construction of two additions—one in the southeast corner of the building, which houses two sacristies, choir storage space and a toilet room, and an addition of a Narthex to the west. No other major work has been done on the building structure since those additions in 1978. The total area of the single-story structure is approximately 3,500 square feet. There is a partial basement of roughly 500 square feet. For the purpose of this report, the lowest level is referred to as the "Basement" and the next level is "First Floor"

For the purpose of this report, the front of the building is considered to be facing west.

West Building Elevation

North Building Elevation

East Building Elevation

South Building Elevation

3.2. Utilities

- Water: Water is provided by the Town of Ballston.
- Electricity: Electricity is provided by National Grid.
- Natural Gas: Natural gas is provided by National Grid.
- Sanitary Sewer: Sanitary sewer system is on-site.

3.3. Structural Frame and Building Envelope

Foundations/Walls: The foundation walls vary, depending upon the date of construction. The foundation walls of the 19th century construction consist of uncoursed stone walls. On the south and west sides of the building, these foundation walls are not visible for inspection from either the interior or exterior. Only the north side has visible stone foundation walls. There are windows and vents into the crawlspace. Although the exterior grade is generally sloped away from the foundation and the crawlspace is extremely dry with no evidence of moisture infiltration through the ground, in two locations, the grade is above the bottom of the opening. This is the cause of the leaking near the electrical panel in the basement.


Exterior and interior views of a basement window with sill below grade

There has been repair work done on the eastern end of this foundation in the past. It appears that, as part of the repointing, mortar or concrete was placed between the foundation wall and the earth, creating a sort of shelf at that point in the wall. Much of this "shelf" has deteriorated and areas below this shelf are in need of repointing. There is also a large crack in the north wind, along the east wall, which might be due to settlement. There was a crack on the western side, but it was much smaller. The crawlspace under this wing is inaccessible for inspection.


Original foundation wall and crack in repaired original foundation wall

The walls of the 20th century construction are concrete block and are in good condition.

There is a small partial basement under the original building and the north transept. The remainder of the building appears to be built over a crawlspace and has very limited access.

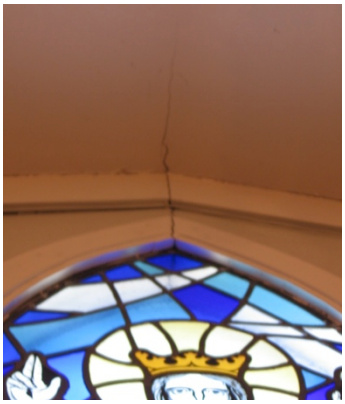
Floors: The floor structure, where visible, consists of wood joists on a substantial wood sill at the top of the foundation walls. We inspected the wood sill where possible from both the interior and the exterior and saw no evidence of failure of

the wood sill, nor did we see any related evidence of failure, such as sagging or out-of-plumb walls.

Roof: Only the roof structures of the sanctuary and the bell tower were visible. Both roofs consist of wood rafters and ceiling joists. The roof structure of the sanctuary extension is wood trusses. Some of the framing of the sanctuary roof is from the 1966 fire restoration while most of it is the original wood framing. All the framing in the bell tower appears to be original. There are some steel hanging rods in the sanctuary roof. Roof sheathing consists of plywood in the newer construction and wood planks in the older construction. It appears that the wood planks are covered with aluminum sheet to bridge the gaps between the planks (approximately 1″ wide).

The structure for the transept roofs was not visible. Both structures showed noticeable sagging of the ridge at the center as well as cracks in the ceiling below. The ceilings in the transepts are pitched, which means that there are no continuous structural members resisting the horizontal thrust of the roof rafters. This condition often results in sagging of the center portion of the roof, especially if the roof had a heavy dead load, such as slate shingles. It is likely that this movement dates from some earlier period of time. To fully assess this situation, access to the roof structure needs to be provided. The easiest way to do this would be to remove some of the sheathing the next time the roof is replaced to inspect the conditions at the ridge and at the eaves.

Sagging Ridge at South Transept



Interior Crack at Ridge of North Transept

Chimneys: There is a metal chimney penetrating the roof of the north transept. Its use is unknown.

Limitations:

- The examination of the structural components was visual only; a design review was not undertaken.

- The evaluation of the building's structure was limited because of the exterior finishes.

- The evaluation of the building's structure was limited because of the interior finishes.

Facades or Curtainwall:

- Sidewall System: The exterior walls consist of a wood board and batten systems throughout. In the later construction, it appears that plywood was used for the boards. The exact nature of the boards on the rest of the building could not be determined without creating an opening in the exterior wall. For reasons unknown, the top of foundation walls of this building are very close to grade on the south side of the building which means that the wood sidewall system ends at or, in some cases, below finished grade. This makes the wood skirt of the building particularly susceptible to deterioration due to excessive moisture. The skirt is capped by a wood sill with minimal pitch, upon which rest the boards and battens. This sill probably collects snow in the winter, either on the sill itself or from buildup of ground snow. This condition causes deterioration in both the sill and the boards and battens. In some locations, the sill and skirt have been covered with aluminum. In some locations, the boards have been covered with sheets of aluminum glued over the deteriorated wood. In other cases, boards or battens have been replaced with new wood pieces.

The detailing for the windowsills is to run them straight into a horizontal batten relying solely on a caulk joint to prevent water from getting behind the batten. As this caulk joint fails, water is able to get into the sill and deteriorate the sill.

Deteriorated Windowsill

We have no indication that the siding of the building was ever replaced. If that is the case, then the siding, with the exception of the 20th century additions, is over 150 years old. For siding that old, it is in very good condition. However, the design detailing of the building creates a condition that is very hard to maintain. As the board and batten siding is an important part of the Carpenter Gothic style of the church (it lends a sense of verticality to a relatively small building), it should be preserved, at least in its appearance. The best long-term solution would be to remove the existing skirt and sill and replace them with a cellular PVC product that could be fabricated and painted to match the existing wood trim. At the same time, deteriorated portions of the existing wood boards and battens could be replaced with new wood. As part of this replacement, we would recommend the use of a taller skirt and a sill with a steeper pitch to minimize the amount of snow accumulation on the sill. This would not substantially change the appearance of the building but would reduce the ongoing deterioration and make the church much easier to maintain. We would also recommend new wood windowsills with proper pitch and drip edges be installed at this time.

- Glazing System: There are two basic types of windows in the church building. With the exception of the windows in the chancel, which are wood double-hung, the windows in the Sanctuary are fixed wood stained glass windows with protective glazing on the exterior. The windows in the Sacristy addition are wood casement windows. There is also a double-hung wood window in the bell tower and an octagonal wood window in the "attic" of the Narthex addition. It is difficult to assess the condition of the stained glass windows with the protective glazing in place. This is one of the disadvantages of using protective glazing – that it makes inspection and maintenance of the prime windows very difficult. Another disadvantage is that unless the protective glazing is ventilated, sunlight on the windows can cause significant heat build

up between the protective glazing and the stained glass window, which often leads to premature failure of the window due to softening lead and sagging glass. This kind of damage is evident in at least one window on the south side of the building.

Deteriorated Tower Window and Windowsill

Bowed Stained Glass Window

The paint on the casement windows is not in very good condition. The window in the tower is severely deteriorated, especially the muntins, and should be restored or replaced.

- Exterior Sealants: As mentioned earlier, the sealant at the bottom of the stained glass window sills has failed in some areas.

- Exterior Doors: All exterior doors are wood. The main entrance door is in good condition. The door to the Sacristy has started to delaminate at the bottom. Since this door is protected from rain and snow by a covered porch, it should be repaired rather than replaced. The door to the basement stair is being held together with metal mending plates and should be replaced.

Door to Basement Stair

- Bell Tower: In addition to the typical board & batten siding, the bell tower also incorporates various wood details, including octagonal columns at each of the four corners of the tower. These columns terminate at the base of the valleys of the tower roof, which consists of two gable roofs intersecting each other, creating four valleys. The tops of these columns are covered in copper. We inspected the northwest column that was accessible from the tower roof hatch and found it to be in good condition. The columns themselves and the walls of the bell tower show various signs of failure, including splitting boards and falling trim. There has been a persistent leak through the ceiling above the interior doors to the Sanctuary. Evidence after a heavy rain event indicates that the water is entering through the deteriorated windowsill and through cracks between the boards. Since both the copper cap and the flashing at the roof at

the bell level both seem to be functioning well, it is likely that water is entering through the boards themselves. As boards get wet and loosen, more water can infiltrate the towers and cause additional damage. Restoration of the tower will prevent further deterioration and water damage.

Copper Cap on Bell Tower Column

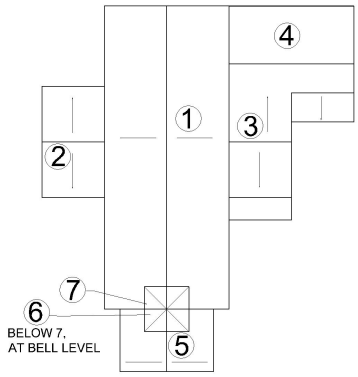
Delaminating Wood Ornament

Close-up of Wood Column on Bell Tower

Recommendations	**Costs**	**Time Frame**
1. Replace windows and vents that go below grade with shorter windows and vents.	< $3,000	Immediate
2. Repair and repoint original foundation wall.	< $3,000	Short term
3. Caulk cracks in north wing foundation wall and monitor for further movement.	< $3,000	Immediate
4. Replace wood skirt & sills with cellular PVC	$9,000-15,000	Short term
5. Repair or replace rotted boards & battens	$1,000	Short term
6. Remove protective glazing from stained glass windows and repair & repaint windows as required	$8,000-12,000	Immediate
7. Repair damaged stained glass windows	$15,000-20,000	Short term
8. Replace deteriorated windows in bell tower	$2,500-3,000	Immediate
9. Replace casement windows in Sacristy addition	$5,000-7,500	Short term
10. Repair or replace wood on bell tower	$12,000-18,000	Short term
11. Scrape and paint all exterior wood.	$23,000-28,000	Short term
12. Alternatively, replace all wood siding on building and tower with vinyl board & batten siding.	$25,000-30,000	Short term

3.4. Roofing:

The roof is comprised of seven distinct roofs:



Roof Plan

Area 1: The largest roof is the roof covering the Sanctuary. Its age is unknown. It consists of asphalt shingles and a residential grade metal ridge vent. Missing shingles indicate the start of failure of this roof.

Area 2: The north transept roof consists of asphalt shingles and a residential grade metal ridge vent. It appears to be of the same age as the Sanctuary roof and should be replaced at the same time as the Sanctuary roof.

Area 3: The south transept roof consists of asphalt shingles and a residential grade metal ridge vent. The west side of the roof has significant vegetation growth on it. It appears to be of the same age as the Sanctuary roof and should be replaced at the same time as the Sanctuary roof. The venting pipes from the furnaces penetrate the lower portion of this roof, near the eave of the roof above. The flashing on these pipes seems to have failed a long time ago and significant damage has occurred to the plywood roof deck. This water eventually finds itself on the basement floor via the basement stair below this roof.

Area 4: On the east side of the south transept is a small area of flat roof, which is covered with rolled roofing. Drainage is off the edge to the east. There was standing water along the east edge but no signs of failure.

Area 5: The Narthex roof consists of asphalt shingles and an asphalt shingle ridge cap. It is penetrated by one ornamental feature and by two light fixtures that illuminate the face of the tower. It is also showing signs of age and replacement should be considered.

Area 6: At the level of the bell in the bell tower is a flat roof, which is covered with rolled roofing and penetrated by a hatch and copper tubes serving as sleeves for the bell ropes. The bell cradle sits on top of this roof. The roof drains to the edges and appears to be in good condition.

Area 7: The roof of the bell tower consists of asphalt shingles with a metal ridge cap. There is a hatch in the northwest quadrant of the roof, from which we could inspect that area of the roof. The roof and ridge cap appeared to be in good condition; however, the wood cap at the edge of the roof was coming loose. The hatch has no permanent attachment to the roof and is difficult to open & close.

Overall View of Roof Area 1

Missing Shingles in Roof Area 1

Overall View of Roof Area 2

Overall View of Roof Areas 3 and 4

Failed Pipe Flashing in Lower Portion of Roof 3

Standing Water on Roof Area 4

Overall View of Roof Area 5

Detail of Roof Area 6 at Corner

Detail of Roof Area 7

Recommendations	Costs	Time Frame
1. Replace roof areas 1, 2, 3 & 5 with new asphalt shingles. Replace rotted sheathing on roof area 3.	$35,000-40,000	Short term
2. Replace roof area 4 with new rolled roofing	$2,000-2,500	Unpredictable
3. Replace hatch in roof area 7	$1,000-2,000	Short term

3.5. Mechanical and Electrical Systems

Plumbing

- Supply and Waste Piping

  Waste Piping: The waste piping material is PVC where visible. The size of the piping is 2 inches.

  Supply Piping: The supply piping material is copper. The size of the piping is 1/2 inch.

- Domestic Hot Water Production: Rheem 2.5 gallon electric water heater, located under the Sacristy sink. A six year warranty is provided; however, date of installation is unknown but is assumed to be within the past ten years. While it is impossible to predict with certainty when a domestic water heater will fail, these units typically last 10 years so it may soon exceed its useful life.

Domestic Water Heater

- Fixtures

  The plumbing fixtures that were tested operated satisfactorily.

- Special or Unusual Systems: The sacristy includes a sacrarium, a special sink that drains to the earth rather than to the sanitary sewer system.

- Summary of Plumbing Fixtures

Location	Floor Level	# Lavs	# Toilets	# Urinals	# Kitchen Sinks	# Jan. Sinks
Sacristy	1				2	
Toilet Room	1	1	1			

- Active Leaks: No active leaks were observed at the time of inspection.

- Evidence of Past Leakage: There is no other evidence of past plumbing leakage.

- Water Pressure: Adequate water pressure appears to be available.

- Plumbing Venting: Venting could be observed at roof level.

- Sump Pump: No sump pumps were observed at the time of inspection.

Heat Generating Equipment/ Air Conditioning and Ventilation:

- Type: There are two gas-fired ThermoPride condensing furnaces located in the basement that provide both heating and cooling to the building.

Equipment

- Distribution System: Forced air, sheet metal ductwork, not insulated.

- Age: The units were installed in 1997, which would make both the furnaces and condensing units sixteen years old. While it is impossible to predict with certainty when these units will fail, the average life for this type of system is 15-20 years.

- Past Inspections & Repairs: According to labels on the furnaces, they were last inspected in October 2007 and last repaired in October 2009, when a blocked intake was cleared of leaves.

- Furnace Controls: A programmable thermostat is located in the Sanctuary, near the chancel.

- Operating/Shutdown: During our inspection the heating equipment appeared to be operating.

Electrical

- Service and Metering: The electric service is 200 amps. The capacity was determined by the rating of the main disconnect switch in the crawlspace near the basement. This service should be adequate for the present usage.

Main Service Panel

- Distribution Panels: There are two circuit breaker panels located on the first floor. One is located near the thermostat and the other is located in the Narthex.

Distribution Panel and Programmable Thermostat

- Meters: The electrical meter is located on the north side of the building.
- Emergency Generators: No emergency generators were observed at the time of inspection.
- Interior Lighting: There are incandescent chandeliers and track light fixtures in the Sanctuary and lay-in fluorescent fixtures in the Sacristy addition.
- Exterior Lighting: The exterior lighting is building mounted to light the clock on the bell tower.
- Emergency Power: No emergency power was observed at the time of inspection.
- Lightning Protection: No lightning protection was observed at the time of inspection.

Recommendations	**Costs**	**Time Frame**
1. Replace domestic water heater	$1,000	Unpredictable
2. Replace HVAC equipment	$15,000-18,000	Unpredictable
3. Provide a lightning protection system	$7,500-15,000	Unpredictable

3.6. Life Safety/ Fire Protection

Sprinklers and Standpipes: No sprinklers or standpipes were observed at the time of inspection.

Fire Alarm Systems: There is a fire alarm panel located near the door to the basement stair.

Fire Alarm Panel

Smoke Detectors: Smoke detectors were observed in the basement, the Sanctuary and in the bell tower at the time of inspection.

Fire Extinguishers: Fire extinguishers were observed at the time of inspection.

Emergency Lighting: One emergency lighting fixture was observed in the Sanctuary.

Emergency Light in Sanctuary

Exit Signage: No illuminated exit signage was observed at the time of inspection.

Recommendations	Costs	Time Frame
1. Provide emergency exit lighting throughout building per code	$1,500-2,000	Short term
2. Provide illuminated exit signs at building exits	$1,500-2,000	Short term

3.7. Interior Elements

Public Areas: Includes Sanctuary & Narthex

- Floor Coverings: Carpet in Narthex and in aisles of Sanctuary; wood flooring elsewhere.
- Ceiling Finishes: Drywall, painted.
- Wall Finishes: Drywall, painted.

Sanctuary Viewed from the Chancel

Support Spaces: Sacristies and Choir Storage

- Floor Coverings: Carpet.
- Ceiling Finishes: Drywall, painted.
- Wall Finishes: Drywall, painted.
- Toilet Room Floor Finish: Vinyl flooring.
- Interior Doors: The interior doors are painted wood and in good condition.

SECTION 4: QUALIFICATIONS

4.1. James Hundt, RA

James Hundt, RA, the founding principal of Foresight Architects, served as field observer. Mr. Hundt graduated from the McGill University School of Architecture in Montreal in 1980 and has over 30 years of experience. He started his career working in Danvers, MA. He subsequently moved to the Capital District, where he worked for C.T. Male Associates, P.C. for nine years. In 1993, he started his own firm, working primarily with religious institutions. He is licensed to practice architecture in DE, NY, NJ, MI and MA, and holds a certificate from the National Council of Architectural Registration Boards.

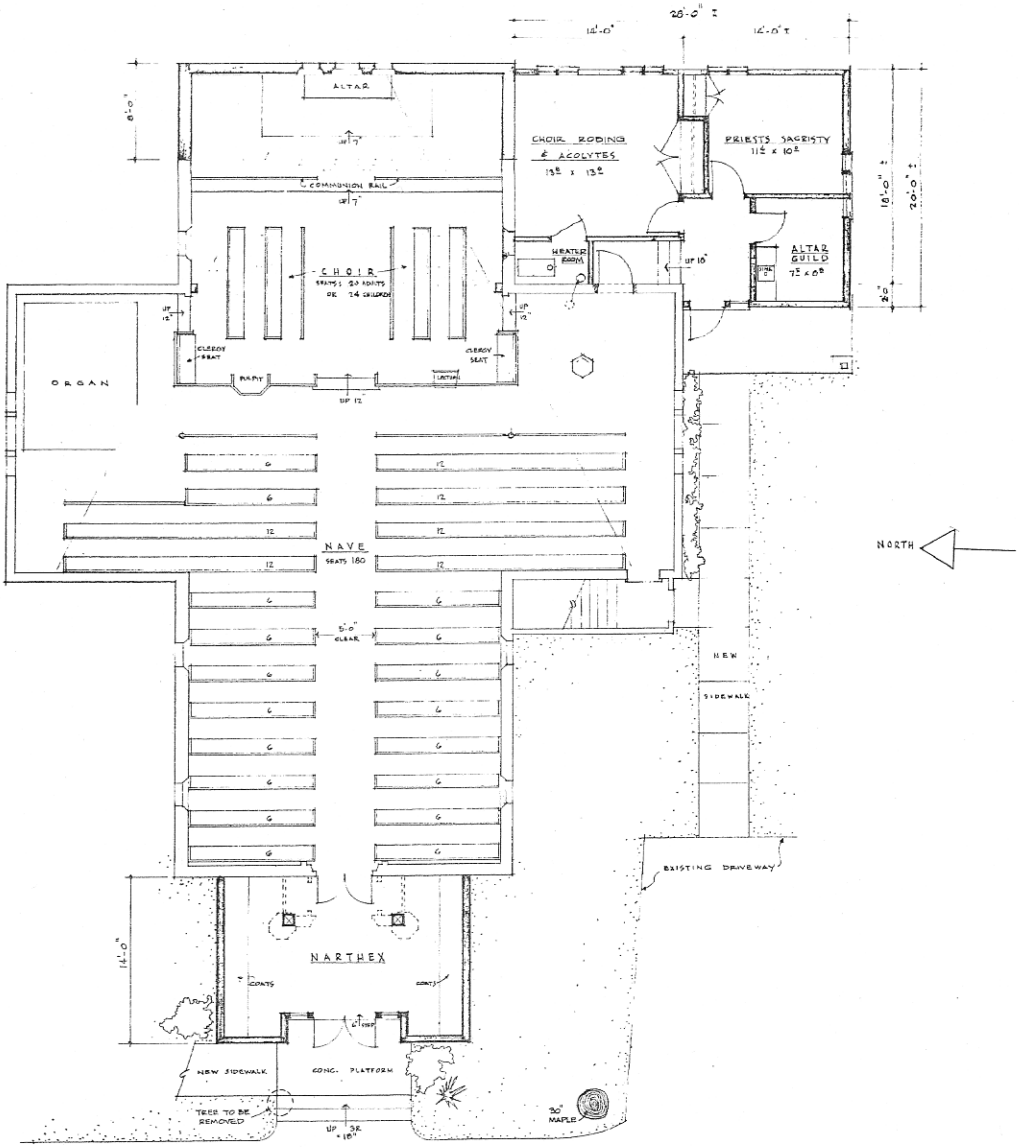
4.2. Ted Lutz, RA

Ted Lutz, RA also served a field observer. Mr. Lutz has been with Foresight Architects since receiving his Master of Architecture degree from the University at Buffalo in 2002. Mr. Lutz is licensed to practice architecture in NY and holds a certificate from the National Council of Architectural Registration Boards. Mr. Lutz has completed many building evaluations and was responsible for coordinating the evaluation work of 21 separate buildings at Immaculate Heart of Mary Parish in Watervliet, NY, among others.

SECTION 5: DRAWINGS

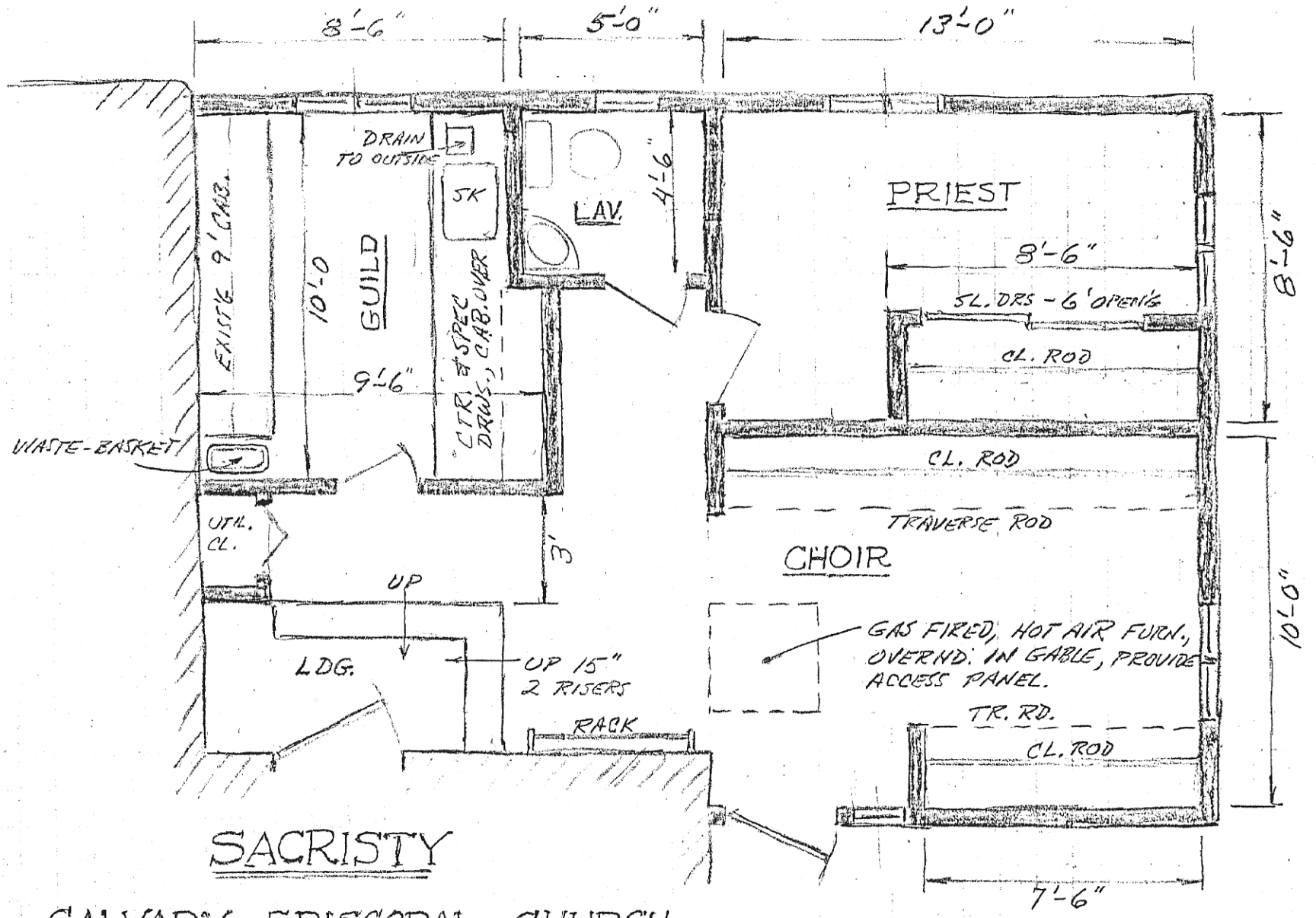
5.1. Drawings of Existing Building

The following drawings came from the church files and show the initial design of the 1966 Master Plan and the revised layout for the Sacristy addition. Note that the Sanctuary layout does not reflect the current arrangement of the Sanctuary.



FLOOR PLAN

WEST ELEVATION



SACRISTY

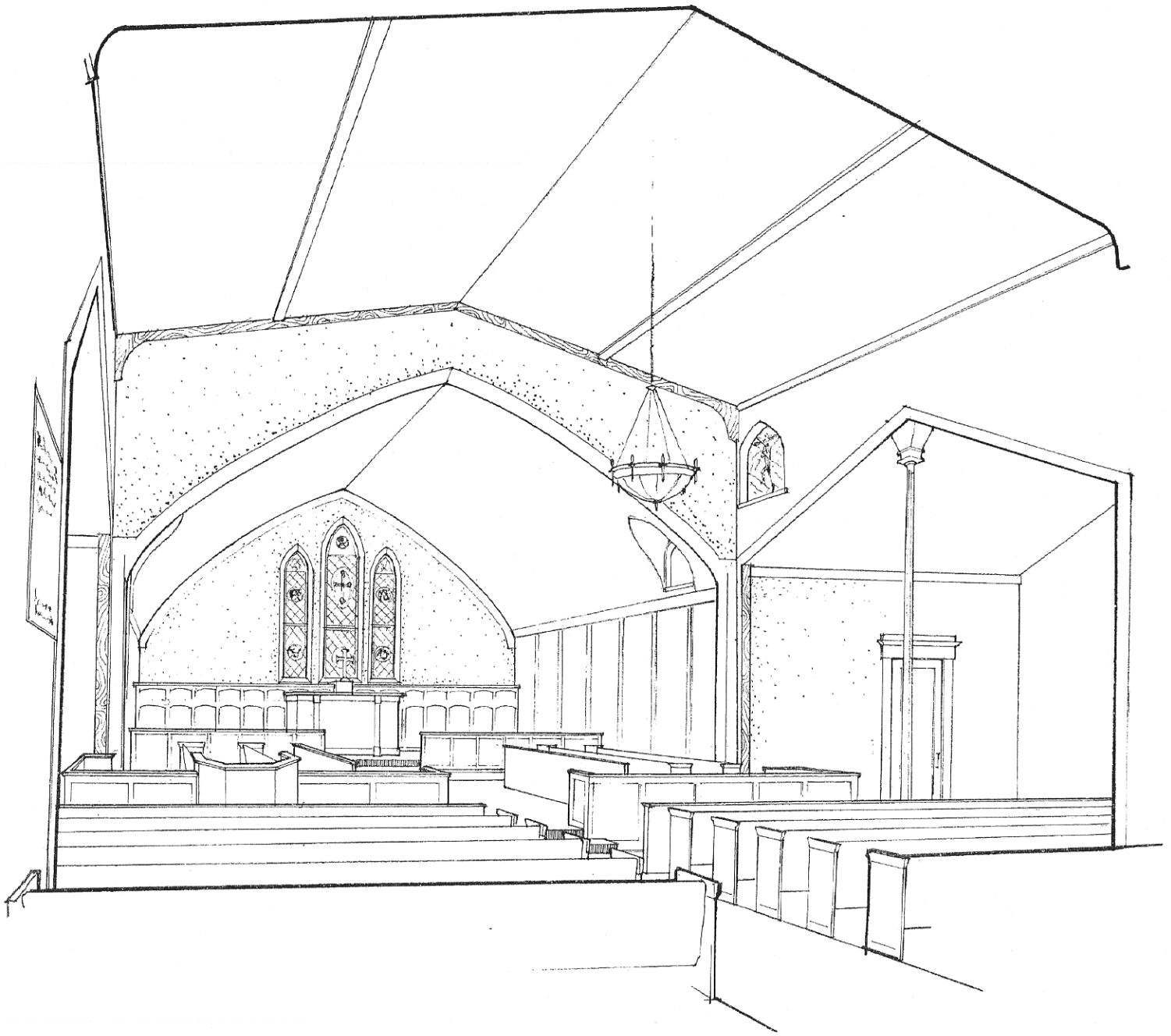
CALVARY EPISCOPAL CHURCH

BURNT HILLS, N.Y.

SCALE: $\frac{1}{4}'' = 1'$

EHF
11/4/77

VIEW FROM LAKEHILL ROAD



LOOKING EAST FROM NAVE