

Building Evaluation Study

North Haven Congregational Church
28 Church Street
North Haven, Connecticut

Project No. 08-08



Architect:

Martin A. Benassi, AIA
Architect
Two Broadway
Hamden, CT 06518

Mechanical + Electrical:

General Drafting +
Design
140 Washington Avenue
North Haven, CT 06473

Structural Engineer:

John Smolen &
Associates LLC
50 Divine Street, Unit A
North Haven, CT 06473

Date:
November 14, 2008

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**ARCHITECT'S
FIELD REPORT**

XX OWNER XX ARCHITECT ___ CONSULTANT ___ FIELD

PROJECT: Building Evaluation Study FIELD REPORT NO: 1
North Haven Congregational Church
North Haven, Connecticut DATE: November 14, 2008

CLIENT: North Haven Congregational Church PROJECT NO: 08-08
North Haven, Connecticut

VISITS: September 22, 2008 TIME: 8:30 A.M. WEATHER: partly cloudy TEMP RANGE: 50's°F
October 22, 2008 TIME: 9:00 A.M. WEATHER: sunny TEMP RANGE: 30's°F

EST. % OF COMPLETION: n/a CONFORMANCE WITH SCHEDULE (±) n/a

WORK IN PROGRESS: none PRESENT AT SITE:
Marguerite E Petersen, AIA Architect
Dennis Bro Architect
John Smolen Structural Engineer
Gary DeFillipo Mechanical and Electrical Engineer

INTRODUCTION

Preamble:

1. At the request of Tom Woodruff, chairperson of the Building and Grounds Committee, a proposal was sent on April 25, 2008 regarding performing a building evaluation study of the church. The proposal was accepted, and a Small Project Contract Agreement Form, dated August 28, 2008, was signed and returned authorizing us to proceed with the project.
2. The intent of this study was to evaluate the existing conditions of the church, including architectural, mechanical, electrical, and structural. This was to be a visual, non-destructive type of investigation. Therefore, no cuts or exploratory cores were made. Martin A. Benassi, AIA - Architect, LLC will act as the prime and retained the services of the following consultants:

Mechanical & Electrical Engineering: General Drafting + Design
140 Washington Avenue
North Haven, CT

Structural Engineering: John Smolen & Associates
50 Divine Street, Unit A
North Haven, CT

Building History:

3. The project site fronts Church Street and extends north to Linsley Street (See Drawing A-1). It is located directly across from the town green. Contiguous properties include the Town Annex located at 18 Church Street, the Masonic Temple at 30 Church Street to the south, and the town field on the south. It is located in an R-20 zone.
4. Original granite corner stone is dated 1716, 1739, 1834, and 1911. The original structure (church, offices, library, and lower level classrooms) was built 66 years ago (circa 1942) with a 2-level brick addition (hall, kitchen, classroom wing) added to the rear in 1955. In 1994, the altar area and electrical system was upgraded. In 1998, the facility was upgraded to make it ADA accessible (elevator, office lobby and lower level unisex bathroom). The most recent alteration completed in 2006 included the removal of the original wood steeple and replacement with a new aluminum structure housing a telecommunication tower.
5. The facility has four distinct levels - the lower level, lobby/entrance level, upper level (which includes the church sanctuary), and the choir/loft or balcony. The church offices are located on the upper level under roof E and roof B (See drawing A-2). Access to the church is from Church Street (Photo 1). Access to the church offices is from the parking lot through the lobby/entrance level (Photo 2), which houses the elevator. The lower level contains a large kitchen, assembly area, classrooms, boiler room, pantry, various storage spaces, male and female restrooms, and one unisex accessible bathroom per ADA requirements. The upper level contains the church offices, chapel, sanctuary, music room, library, children's reading rooms, male and female restrooms, deacon's prep-room, storage spaces, and one small unisex restroom. The balcony or choir loft (see drawing A-4) is accessed through the church narthex. It contains 8 pews, a small storage closet, and access to the steeple/bell tower.

Data Collection:

6. Site visits were made, separately or in combination, by the architect, mechanical/electrical consultant and structural consultant, on September 22, 2008, and October 22, 2008, to take field measurements and document existing conditions using photographs and sketches, several of which are included in this study under the appropriate Appendix.
7. A separate site visit was made on October 30, 2008 by Martin A. Benassi to evaluate the thermal resistance of the wall and roof construction using an infrared scanner. A copy of this report is included under Appendix C. See drawings A-3 and A-4 for the locations where the scans were taken (i.e., T1, T2, etc.).
8. There were some original working drawings for the Church and addition. Some of the existing conditions were field measured and verified. The following Documents were specifically used as reference:

<u>Drawing Title</u>	<u>Date</u>	<u>By</u>
Basement Plan	1941	Allen & Williams Architects
Drawings 1-7	1955	Carl R. Blanchard, Jr. Architect
Existing Floor Plan A-1	1994	Noyes Vogt Architects
A-1 Lower Level Plans...	1998	Martin A Benassi, AIA Architect
A-2 Upper Level Plans...	1998	Martin A Benassi, AIA Architect
A-3 Partial Floor Plans	1998	Martin A Benassi, AIA Architect
A-4 Elevations & Sections	1998	Martin A Benassi, AIA Architect

Code:

9. A cursory review of current code related items include ADA (Americans with Disabilities Act) and the Connecticut State building code.
10. The Americans with Disabilities Act was created to allow people in wheelchairs and those of limited mobility to have greater access to public places. In general, the building is in compliance with both ADA and Code requirements with the exception of two specific items:
 - A. Proper ADA compliant signage throughout the building is lacking, including those locating the area of refuge, wheelchair access to elevator, and handicapped restroom.
 - B. Area in nave is limited due to piano.

Format:

11. The survey is organized into four sections: Introduction, Observations, Evaluations, and Recommendations. Each section is broken down into divisions based on the CSI MasterFormat™. Appendixes attached include photos, thermal imaging report, schematic drawings, mechanical, electrical, and structural conditions.
12. This report is **not for construction** and was prepared for the sole use by our client - North Haven Congregational Church.

OBSERVATIONS (See Appendix A for photos and drawings A-1 to A-4 for photo locations)

01 General

- A. The entrance to the church offices (Photo 2) has a low door threshold and is accessible by wheelchair. Currently, access to the church for wheelchairs must be through the office entrance (Photo 2), then through the church office area (Photo 3), and then through the doors on either side of the altar (see drawing A-4). Access to the church is further restricted along the side aisles. The clearance between the sides aisles and the cast iron radiators under each window (Photo 4) is only 27 inches. There is also no place to park a wheelchair upon entering the church (an ADA requirement).
- B. The single restroom next to the kitchen on the upper level is too small for wheelchair accessibility (Photo 5). The area of the room would have to be increased in order to make it accessible. The other bathrooms on the upper level,

rooms 101 and 102, must be accessed by going through a stair area. The door next to the stair area has a closer on it. The railing at the top of the stairs does not extend 1 foot beyond the top tread. Both male and female bathroom doors have door closers on them.

- C. There are currently large items which prevent a person in a wheelchair from accessing the Area of refuge on the upper level (Photo 39).

02 Site

- A. The drain under the grating at the exit on the south side of the building is clogged (Photo 10).
- B. The church sign located on the front lawn has spalling on the masonry, faded lexan cover, and small lettering (Photo 13, see drawing A-1 for photo location).
- C. The drain directly behind the building has no grate and is clogged (Photo 11). See drawing A-3 for photo location.
- D. The curb behind the church has deteriorated (Photo 12).

03 Concrete

- A. There were no signs of structural deficiencies in the foundation walls. Only the retaining wall at the lower level exit door from Carroll Hall has severe cracking with efflorescence (Photo 27).

04 Masonry

- A. The exterior walls are constructed using a standard, severe weather type brick veneer set in a common bond pattern with 6th course headers and cove mortar joints. In general, the masonry is in good condition. There are select areas of defective mortar observed, such as at the chimneys and under defective gutters or down spouts.
- B. The brick on the chimney at the roof A/B interface is spalling, and the flue is damaged (Photo 35).
- C. Wall under roof A where excess water from gutter has stained the brick (Photos 8 and 8A).
- D. There is exposed concrete masonry block in the rear stairwell, storage room, and miscellaneous other utility rooms.

05 Metal

- A. There is one set of metal pan stairs at the rear exit stairwell. There was some minor rusting observed on the nosing of each steel tread. Concrete fill appears to be in good condition.
- B. Handrails and guard rails are made of painted steel pipe. Rails return at the top and bottom into the wall and terminate at the riser. Guard rail at the landing is low.

06 Wood and Plastic

- A. The existing wood railing and posts around the bell tower are rotted. (Photo 34).
- B. Access to the bell tower/steeple is via a small hatch opening and a wooden ladder (Photo 30).
- C. Added wood 2x4 framing restricts an already limited access to the steeple (Photo 32).

07 Thermal and Moisture Protection

- A. Roofs: There were several types of roofing systems observed on the building, see drawing A-2 Roof Plan for location:
 - 1) Asphalt shingle - A, B, D, E, H, I, K, L, and O

- a) The pitched roof areas have a double layer of asphalt shingles.
 - b) Roofs E, A, I and B show significant deterioration of the asphalt shingles (Photo 18). The underside of roof E shows pans that were placed there by maintenance staff because of leaks (Photo 29). Photo 16 shows the valley that is at the roof I/J interface.
 - c) Roof A is showing signs of excessive deterioration (Photo 14). Note that the roof has decayed to the point where the roofing has separated from the wood (Photo 31).
 - d) Missing shingles were observed on roof K (Photo 19). There is also a vent stack on roof K that does not have a rubber boot (Photo 25).
 - e) No defects were observed on roofs C, D, G and H which require any attention.
- 2) Flat seam lead coated copper - G, C
- a) There were no defects noted in the copper roofing with the exception of one pinhole in the valley flashing. Seams in the copper gutter were cracked (Photo 26).
- 3) Modified Bitumen Membrane Roofing - J and N (including internal of bell tower)
- a) Roof J has extensive deterioration including splits, tears and blisters. (Photo 17)
 - b) The floor/roof of the bell tower is covered with a membrane applied of sheet metal roofing. Wooden columns in bell tower have been covered with thick asphaltic membrane. A small area of membrane was previously cut and not patched (Photo 33).
- 4) Metal - F, M (steeple roof)
- a) Roof F is part of the Nextel's private facility, installed as part of the new antenna installation, and therefore, not inspected.
 - b) The steeple roof M is clad in aluminum sheets stamped in a shingle pattern and installed as part of the new antenna installation. There was limited access to the steeple; however, no defects were observed.
- B. Ventilation:
- 1) Ventilation to roof B, D, E, L and O through wooden painted circular vents in the gabled ends.
 - 2) There are no ridge vents on any of the pitched roof areas.
- C. Insulation:
- 1) There is limited fiberglass batt insulation in the attic space.
 - 2) There is very little insulation within the wall cavity based on the thermal imaging.
- D. Access:
- 1) Access to the underside of roofs B/E is via a ladder in the chapel closet (Photo 28).
 - 2) Access to the interior of the attic space of roof K is via an opening accessible from the bell tower.
- E. Sealant:
- 1) The roof J/K interface has significant degradation of the siding/trim around the window (Photo 20) and missing siding (Photo 21). The corner between roof H/I/K has cracks in existing sealant (Photo 22), separation between mortar and brick (Photo 23) and missing sealant at the cornice (Photo 24).

F. Sheet metal / Gutters and Down Spouts

- 1) DS=Down Spout; See drawing A-2 for locations of down spouts.
- 2) The gutter which feeds into DS3 (Photos 8 and 8A) has detached from the building and twisted. The gutter pours water directly onto the adjacent wall.

<p><u>DS1</u>-discharge to ground <u>DS3</u>-discharge to black flexible pipe T-tied to DS2, discharge clogged, (Photo 6) <u>DS4</u>-discharge into ground <u>DS6</u>-discharge into ground <u>DS8</u>-discharge to grade (Photo 12) <u>DS10</u>-discharge to grade, (Photo 37) <u>DS12</u>-discharge to grade <u>DS14</u>-discharge into ground <u>DS16</u>-discharge to ground</p>	<p><u>DS2</u>-discharge to grade <u>DS5</u>-discharge to gutter to DS5 <u>DS7</u>-clogged; bird, discharge into ground <u>DS9</u>-black flexible pipe, discharge into ground <u>DS11</u>-T connector black snake w/DS10 <u>DS13</u>-discharge to grade, abandoned black flexible pipe <u>DS15</u>-discharge from upper roof to gutter to <u>DS16</u>, clogged see (Photo 7) <u>DS17</u>-discharge to upper roof gutter to DS16</p>
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- 3) All down spouts are missing baskets. All discharges to grade are missing cages.
- 4) The DS7 down spout is not properly attached to the boot (Photo 38).
- 5) DS10 is not attached to the existing cast iron pipe, but is instead attached to a black flexible pipe (Photo 37).
- 6) The cladding next to DS1 is missing (Photo 15).

G. Siding:

- 1) The gable end wall of roof K/L is covered in vinyl which has numerous defects including loose or missing pieces (Photos 20-24).
- 2) The back wall of the elevator tower is clad in standing seam lead coated copper and appears to be in good condition.

08 Windows and Doors

- A. A large number of the original wooden double hung windows have been replaced with vinyl type insulated units. Those that remain to be changed have aluminum storms.
- B. The nave windows are double hung, wooden, single glazed units with an arched top. Units are eight over eight with true divided lights. Windows have a lexan panel exterior storm on the top portion with an aluminum storm unit below.
- C. Entrance doors are wooden raised panel with panic hardware, closer and kick plates. Doors are fully weatherstripped, however, gaps were noted.
- D. Interior classroom and office doors are a solid core wood with vision panels of various sizes. All other doors are solid core wood. Stairwell doors are metal clad fire-rated with closer. The door at the rear stairwell has a thumb latch locking device.
- E. See Appendix C for information with regard to air infiltration around windows and doors based on thermal scan.
- F. There is one set of folding partitions in the lower level classroom, used to subdivide the space into two.
- G. There are a variety of other types of doors, including bi-fold and sliding, on closets and storage rooms throughout the building, all with a variety of lock sets and hardware.

09 Finishes

- A. Peeling paint was observed on various parts of the wood bell tower, steeple, railing and trim. This relates to the rotted and defective wood noted under section 06 above.
- B. Interior finishes, in general, are in good condition for their age. See drawing A-5 for material finishes. There are a variety of materials used throughout the church including:
 - 1) Ceilings - plaster, hung acoustical tile, acoustical tile applied directly to the plaster ceiling.
 - 2) Flooring - exposed concrete, hardwood, carpet, sheet and vinyl tile, ceramic and quarry tile and asbestos tile.
 - 3) Walls - concrete masonry units, plaster, wood paneling, and gypsum board.
- C. Painted interior spaces appear to be in good condition with the exception of the balcony storage room and some water damage to the interior surface of Room 104 (see Photo 9).

10 Specialties

- A. There is limited signage throughout the building, especially related to ADA compliance. There is no directory in the building providing specific information related to activities.
- B. Some of the classrooms have older slate type chalkboards which are in fair condition.
- C. See Section 02 Site regarding street signage. There is one free-standing handicapped parking sign. No other parking or exterior access signage exists.
- D. Toilet room partitions and accessories are in fair condition. Soap dispenser is mounted at a height of 41 inches above finished floor. Mirror height from floor is 40 inches. The width of the bathroom stalls are 2'-9" and the width of the stall door is 23-½ inches.

11 Equipment

- A. Adjacent to the Fellowship Hall is a kitchen with an outdated commercial range, dishwashing station, and sink. (See Appendix D for additional comments on the kitchen.)
- B. There is new audio equipment throughout the church mounted in the corner of the choir area. Cable lines are exposed when passing through the wall.
- C. There is a pipe organ which was recently refurbished. However, it has been noted that several low pedal keys do not work.
- D. There is limited storage area for ecclesiastical equipment, such as paraments (which are stored in the hall closet) and baptismal plates (which are stored in cabinets in the deacon's equipment closet).

12 Furnishings

- A. There are limited window treatments throughout the building. Shades are limited to the offices, library, chapel, restrooms, and some classrooms.
- B. Pews in the nave, choir, and balcony area are in good condition, and all have new cushions.
- C. Various rooms have rugs and mats that are old and need cleaning.
- D. Cabinets and storage shelving throughout the church are mostly wood and in fair condition.
- E. There is one large safe located in the lower level exit lobby.

13 Special Construction

- A. Only the steeple has lightning protection. The remainder of the church does not.
- B. A telecommunication tower is located within the steeple with wires running through the attic space, exiting the building through conduit pipes within the dormer on the west elevation, and into the building.

14 Conveying Equipment

- A. The hydraulic elevator was added as part of the 1998 upgrade to make the facility ADA compliant. The elevator connects the entry lobby with the lower and upper levels, making the entire building accessible. There is no signage related to the elevator location.

15 Mechanical (See mechanical engineer's report attached.)

- A. The pipes under the sinks are not wrapped or insulated. The faucets on the sinks have dual controls. The sink height is 31 inches and has a depth of 17 inches.
- B. The lavatory in the small restroom adjacent to the deacon's closet has only cold water.

16 Electrical (See electrical engineer's report attached.)

- A. Exposed light bulbs were observed at various locations.
- B. New fluorescent energy saving light bulbs were installed in the narthex ceiling light fixtures which have dimmers, causing them to function improperly.

EVALUATIONS AND RECOMMENDATIONS

1. GENERAL

The church building is an important element of North Haven's town, architectural, and ecclesiastical history having been the first church and founding foundation of the Town itself. Therefore, there is a need to preserve and maintain the building to the best of our ability by being good stewards.

Format of this Section will be by material. This is due to the fact that the same material is used throughout the building, and most have the same issues or concerns.

This report is not intended to identify any hazardous materials within the building or site. Any reference to such is only an opinion. Materials will need to be tested prior to any actual work. Should a hazardous material be detected, proper handling, containment, and disposal should be executed by qualified personnel. Anything constructed prior to 1976 will most likely have lead paint, which also needs to be handled and disposed of according to state and federal requirements.

2. CODE

Our study does not incorporate a comprehensive building code review; but, throughout this report, issues related to a cursory review of the current Connecticut State Building Code^① are noted. In general, there are few architectural code related issues in the building. The recent upgrades, including the installation of an elevator and handicapped accessible restroom, satisfies most of the ADA requirements.

Recommendation: Additional ADA signage throughout the building with regards to elevator access, restroom and area of refuge.

Neither of the Areas of Refuge on the lower level or upper level (See drawing A-3 Lower Level Plan and A-4 Upper Level Plan) have call boxes where a handicapped person could call for help in the event of an emergency. It is recommended that call boxes be added to these areas in order to be ADA compliant.

Hallway 108 should be kept clear of items currently stored in the hallway to allow easier access to the egress/area of refuge.

3. SITE

A drain without a cover in a walkway and floor drain in Room 003 (See Appendix D) not only provide the potential for personal injury, but are an eyesore as well.

An asphalt curb in the parking lot is damaged and crumbling, creating a potential hazard.

The street sign is in poor condition. The masonry is spalling and needs repair. The plexiglass panel is faded to the point that the letters inside cannot be read. The electricity is out, so the sign doesn't light up. The street sign acts like the greeter, carrying forth the image and story of our church to the public. It acts as the first impression people see as they enter the church. Therefore, the sign should be of great importance.

Recommendation: The missing drain covers should be replaced immediately.

The damaged asphalt curb should be replaced. It will only get worse over time and will eventually cause damage to the driveway.

Replace the street sign with a new updated unit, one that faces perpendicular to the street so it can be viewed from both directions. Consideration to automatic lighting and text revisions are possible.

As part of the street appeal of the church, consideration should be given to lighting of the steeple. Both the sign and steeple lighting require city approvals.

4. CONCRETE

The retaining wall outside of Carroll Hall has cracked, spalled, and deteriorated to the point that pieces have started to fall off. Efflorescence is a sign of water infiltration.

Recommendation: Remove the damaged areas and cast-in-place new concrete to level off the wall top. Coat the wall with a cementitious coating such as Thorocoat to protect it from the elements. Repair the metal railing as needed.

5. MASONRY

In general, the masonry is in good condition with only minor defects noted. The brick on the chimney above roof area A/B is spalling (Photo 13) and may be allowing water to enter the building.

Recommendation: The chimney at the Roof A/B interface should be repointed and the terra cotta flue tiles replaced. The wall surface below should be cleaned, inspected and repointed as needed.

6. ROOFING

Over the years, maintenance and repairs have been made to the building. Some of these repairs, although they may have temporarily stopped leaks, did not correct the problems. For this reason, deterioration and leakage will inevitably continue until the source has been properly repaired. To do this may require more severe measures than what can be accomplished with regular maintenance.

The current State Building Code restricts the total number of roof assemblies on any building to two. For this reason, any roofing work (other than repairs of up to 25% of the total roof area) will require the complete removal of the existing membrane assembly down to the original decking.

1510.3 Recovering versus Replacement. *New roof covering shall not be installed without first removing all existing roof or roof covering where any of the following conditions occur:*

1. *Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.*

2. *Where the existing covering is wood shakes, slate, clay, cement or asbestos tile.*
3. **Where the existing roof has two or more applications of any type of roof covering ①.**

MBR Membrane Roofing:

An economical roofing material used today is a modified bitumen roofing membrane (MBR). The membranes come in 36-inch wide rolls that are factory fabricated by coating a reinforcing sheet of polyester or fiberglass with asphalt. Modifiers are added to the asphalt to provide durability and flexibility to the waterproofing membrane. The membranes are rolled out on the roof and attached by melting the asphalt with a torch or embedding the roll in hot asphalt. Two layers are the typical roofing application.

The MBR membrane was most likely applied over the original built-up roofing system, or possible sheet metal in the bell tower. The contractor would apply a layer of insulation board directly over the old roofing surface and secure it with mechanical fasteners such as screws. The new membrane is then applied directly to the board. However, roof cuts would need to be made to verify the actual installation method.

Mechanical termination bars are required to properly anchor and secure the flashing edges. The membrane cannot be terminated directly against wood surfaces without properly detailed counter flashing. The base flashing terminates behind or under the vinyl wall system. The lack of a counter flashing creates problems with future roof repairs. The base flashing has totally deteriorated and needs to be replaced.

Membrane flashing requires a continuous metal termination bar to secure the edges of the MBR flashing against surfaces where exposed. The bar secures and holds the membrane tight against the wall with even pressure. The top edge of the bar is caulked watertight. Although the bar can be left exposed when applied to masonry, manufacturers recommend the bar be covered and overlapped with metal counter flashing wherever possible and is required when applied to wood surfaces.

All roofing manufacturers recommend getting water off of the roof. In most cases, ponding will void the manufacturer's warranty. This is based on the fact that asphalt deteriorates under water. For this reason, it is important to correct any drainage problem and properly pitch the deck to the roof edge. When reroofing a building, the most cost-effective method to create an adequate slope (1/4" per foot) is with a tapered rigid insulation system.

The life expectancy of a well designed, installed, and maintained MBR membrane roof is approximately 15 to 20 years. This roof area has far exceeded its useful life expectancy and should be totally replaced.

Recommendation: Remove existing roofing down to wood decking, mechanically attach rigid polyisocyanurate tapered insulation boards (1/4" per foot) and 60 mill EPDM rubber membrane and related flashings.

Asphalt Shingle

Asphalt shingles are the most popular residential roofing material used in the United States today. The standard size shingle is 12" x 36" with typically three or four tabs, although there are shingles with no tabs or random tabs. Manufacturers laminate an additional tab onto the shingles, giving a textured appearance, and are often referred to as "architectural grade" shingles. A self-sealing adhesive strip bonds the overlaying shingles, resulting in a monolithic system. Asphalt shingles are designed as a multi-layer waterproofing system which needs a slope to shed the water, usually a minimum pitch of 4:12 is specified. Each shingle is set with approximately 5" exposure. The first course of shingles along the eave is called a starter course, which can be field fabricated by cutting off the tab ends of a regular shingle or prefabricated by the shingle manufacturer.

All asphalt shingle manufacturers and code require a continuous underlayment of minimum 15# felt covering the entire roof deck. To decrease damage, should ice damming occur along the eave, a layer of self sealing waterproofing membrane should be installed. Waterproofing membrane is also typically installed at ridges, valleys, rakes, and around penetrations. It is unknown if either of these products exist.

Recommendation: Asphalt shingles on roofs A, B, E, and I should be replaced as soon as possible because of their very poor condition. (See Roof Plan A-2.) The existing shingles should be removed down to the original wood decking; a layer of waterproofing membrane should be installed around all penetrations, eave, valleys and transitions; and felt underlayment throughout the roof area and new asphalt shingles installed. The remaining pitched roof areas noted as being in good condition can remain with only minor repairs.

All stack vents should have pre-fabricated boots installed. A metal drip edge should be installed along all eaves and rakes to protect the underlayment material.

Sheet Metal

All of the lead coated copper roof areas appear to be in good condition.

Recommendation: Lead coated copper roof areas should be inspected, and any defects such as pinholes or open seams, should be soldered watertight.

7. INSULATION

There are limited amounts of insulation within the walls and roof of the building. One of the best paybacks for the money spent would be to increase the amount of insulation in any building. Care must be taken when installing insulation to keep any vapor barrier on the warm side of the assembly and to keep the insulation away from light fixtures not designed to be in contact with insulation. You should not seal any openings used to ventilate the attic space.

Recommendation: Install additional 12" of un-faced fiberglass batt insulation throughout the attic space.

8. DOWN SPOUTS / GUTTERS

Between DS2 and DS3, water is running directly off of the roof, spilling down the brick wall and creating algae growth. The water has seeped into the interior of the building and has created moisture problems in Room 104 and the ladies' room (Room 101).

A thorough, more in-depth detailed inspection should be done in the area under Roof A/B interface, specifically in Rooms 101, 102, 103 and 104, to check for structural damage and to determine exactly how much damage to the wood framing has occurred. A contingency should be allowed for replacement of rotted decking when reroofing a building where there are known leaks.

Baskets prevent debris from clogging the down spouts. Cages prevent animals from crawling into the discharge areas and nesting and causing clogs.

It is not clear why DS10 does not drain into the provided boot. It could be because of a clogged drain line. The existing black flexible drain pipe flows back toward the building. All drain lines should flow away from the building. Floor drains in Room 003 are clearly clogged and should be cleaned out to prevent flooding.

Recommendation: All gutters should have baskets installed and cages should be added to all of the down spout discharges. The gutter on the south facing side of Roof A that feeds into DS3 should be repaired immediately to prevent further water damage. All gutters and down spouts should be cleaned on a regular basis.

A thorough investigation/cleaning of the underground/site drainage system should be performed. All down spouts and leaders should be properly connected to boots. All floor drains should be cleaned out and grates installed.

9. FINISHES

Most of the interior finishes are in good condition for their age and use. Some minor painting and general upkeep is required to maintain the finishes at a satisfactory level. Some of the rooms have asbestos tile flooring which, if not disturbed, can remain. However, if removed or damaged, they should be replaced by a contractor licensed in asbestos abatement. This also applies to where the acoustical tiles are adhesively attached directly to the plaster ceiling. Often the adhesives contain asbestos. Interior walls damaged by moisture migration or roof leaks should be scraped, primed, and fully painted after the source of the leak has been rectified.

When painting, if the wood is properly scraped, primed, and painted with a commercial grade latex enamel type paint such as that made by Benjamin Moore, the project should last 10 years. Any replacement wood should be fully primed on all sides prior to installation to prevent rotting from the back side.

Recommendation: The plaster walls and ceiling tiles in Room 102 should be repaired and replaced respectively. The ceiling tiles in the ladies' room, Room 101, should be replaced.

Exterior wood on the steeple/bell tower should be scraped, primed and painted. Any rotted wood should be replaced.

Vinyl siding should be inspected and any deficiencies repaired.

10. EQUIPMENT

The kitchen equipment is outdated and in need of replacement based on current usage and code requirements. See also the mechanical engineer's report for additional information.

Recommendation: Replace all kitchen equipment with new stainless steel units including gas stove, hood, dishwasher, sink, and counter tops. The hood should be properly sized, vented, and equipped with a fire suppression system.

11. MISCELLANEOUS

The following recommendations, although not required by code, would help in the overall appearance and usefulness of the church.

Recommendation: Install lightning protection throughout the building, not only the steeple.

12. WINDOWS AND DOORS

Most of the windows have been replaced with new insulated double hung vinyl units. The thermal scan indicates that there is some air leakage around the sash and frame, more than what is typical of a new unit.

The exterior doors are wood and should be checked seasonally for proper fit. Wood swells in the summer and shrinks in the winter, so the weatherstripping needs to be adjusted accordingly. Some of the lower level exterior doors lack weatherstripping.

Hardware should be adjusted to ensure proper function. This is especially true of closers which need to be adjusted on a regular basis. Emergency exit doors can not be locked to prevent egress.

Recommendation: Hardware on the rear exit door leading to the stair well needs to be changed to a panic type which permits egress, but limits entry into the church.

COST ESTIMATE:

See attached sheet.

ATTACHMENTS:

Appendix A: Photos
Appendix B: A-1 Site Plan
A-2 Roof Plan
A-3 Lower Level Floor Plan
A-4 Upper Level Floor Plan
A-5 Materials Plan
Appendix C: Thermal Report
Appendix D: Mechanical/Electrical Report
Appendix E: Structural Report
Appendix F: Cost Estimate

by: Dennis Bro, Intern Architect
