Property Condition Report

ST. CATHERINE OF SIENA PARISH CENTER AND CHURCH

302 St. Catherine's Circle
Ithaca, New York

October 31, 2007

Kingsbury Architecture LLC
202 East State Street, Suite 401
Ithaca, New York 14850

Charles R. Wilson Engineering, P.C.
412 West State Street
Ithaca, New York 14850

Dende Engineering
40 Ridge Road
Lansing, New York 14882

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1 EXECUTIVE SUMMARY

1.1 Introduction

In September 2007, St. Catherine of Siena Roman Catholic Church in Ithaca, NY (the Owner) retained a Consultant Team led by Architect Pamela J. Kingsbury of Kingsbury Architecture, Ithaca, New York to perform a Property Condition Assessment (PCA) of its church and parish center buildings located at 302 St. Catherine's Circle in the Town of Ithaca. The team included Charles R. Wilson Engineering of Ithaca, New York the MEP Consultant; and Dende Engineering of Lansing, New York, the Structural Consultant.

This Property Condition Report (PCR) documents the Consultant Team's findings; identifies materials, assemblies and systems in need of immediate or short-term correction, repair, or replacement; and provides opinions of probable cost for each item so identified.

1.2 General Descriptions

1.2.1 Church

The church was designed and built around 1961 and can be categorized as a subtype of the "Modern" style typical of its era. It combines a heavy timber roof, non-combustible exterior masonry walls, and wood-framed interior construction with high-quality finishes. Its footprint is about 7,300 square feet. Now forty-six years old, it continues to serve its original congregation as its primary worship space.

1.2.2 Parish Center

The parish center was designed and built around 1964 to provide assembly and office spaces and a church rectory. The building is of wood-framed construction with residential quality finishes, fixtures and appliances. Its footprint is about 9,100 square feet. Its style is also a subtype of "Modern." The original rectory area now houses office space, and the structure continues to be used actively by the congregation and the surrounding community.

1.3 General Physical Condition

Both structures are generally in good condition inside and out, displaying an adequate level of preventative maintenance. However, there are exceptions. Aging or deteriorating conditions on the roofs of both buildings indicate significant deferred maintenance, and evidence of previous roof leaks can be found in portions of the parish center. Windows on the parish center's west wall are generally in poor condition, and some are unable to be closed and locked shut.

More critical for long-term planning is the issue of obsolescence. Much of the original 1960s construction of each building remains intact today. While this shows a history of excellent stewardship of resources, it also means that the buildings have slipped behind with respect to evolving building practices. Several portions of the parish center have not kept up with the evolving uses within; neither building meets current energy standards; and a large portion of the HVAC systems and some of the telecommunications systems, although still functional and showing neither signs of excessive wear nor of imminent failure, are many years out of step with the latest technologies. The HVAC systems in particular are now aging to the point where replacement of individual parts or components is not recommended and perhaps, in some cases, not even possible.

1.4 Opinions of Probable Costs

The opinions tabulated below should be considered magnitudes of cost only. They are not based on a design and are not intended to represent true construction costs. In practice, these corrections would be combined with other work in the execution of a comprehensive construction plan; such a plan would reveal complications inherent in the existing conditions of aging structures on the one hand, and would identify opportunities to maximize cost effectiveness on the other. Therefore, actual costs may vary substantially.

1.4.1 Summary

	Church	Parish Center	TOTALS
Immediate Costs	$2,000	$369,200	$371,200
Short-Term Costs	$599,000	$154,500	$753,500
TOTALS	$601,000	$523,700	$1,124,700

1.4.2 Immediate Costs

1.4.2.1 CHURCH

Item	Cost
Monitor occupiable spaces for carbon monoxide and heat exchangers for cracks	$2,000
TOTAL Church Immediate Costs	$2,000

1.4.2.2 PARISH CENTER

Item	Cost
Repair lounge ceiling	By Owner
Isolate assembly boiler room with fire-rated construction	$5,000
Separate boiler room from garage with fire-rated construction	$10,000
Provide boiler room combustion air	$3,000
Replace worn control motor	$1,200
Replace Roof	$350,000
TOTAL Parish Center Immediate Costs	$369,200

1.4.3 Short-Term Costs

1.4.3.1 CHURCH

Item	Cost
Replace roof	$444,000
Asbestos Survey Study	$5,000
Replace church heating system, relocate gas fired equipment out of existing basement	$150,000
TOTAL Church Short-Term Costs	$599,000

1.4.3.2 PARISH CENTER

Item	Cost
Correct assembly room egress	$78,000
Replace windows	$9,000
Asbestos Survey Study	$7,500
Replace electric service, panels and distribution	$30,000
Replace parish house boiler system	$30,000
TOTAL Parish Center Short-Term Costs	$154,500

1.5 Use of ASTM E2018-01

ASTM Standard E2018-01, *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* (hereinafter "the Guide"), is a document that provides guidelines for the conduct of PCAs, including the Consultant Team's scope of work and for exclusions thereto; and for the formatting and content of the resultant PCRs. The Consultant Team's services have

been provided in general conformance with the Guide's recommendations as modified by the Owner and the Architect in accordance with the consulting agreement between the two parties.

However, the Guide is formatted primarily to support due diligence investigations pursuant, for instance, to potential real estate transactions. As such, it does not provide for the long-term capital planning issues at the heart of the Owner's interest in the PCR. Therefore, the team departed from the Guide where doing so would clearly be a better use of the time allotted to meet that interest.

Specifically, this PCR addresses the following topics not recommended by the Guide:

- functional disparities between original spaces and systems and their present-day uses;
- the obsolescence of some systems otherwise presently in working order;
- the absence of some systems, such as fire protection systems, that are recommended for compliance with best practices;
- possible lines of action to pursue in addressing the above concerns.

Conversely, the PCA omitted the following steps recommended by the Guide:

- searches for public documents, such as original building permits.
- interviews with parish associates regarding current or planned capital improvement projects.

Finally, in reviewing existing utility systems, the Consultant team chose to focus primarily on those known to be nearing obsolescence. These include all systems in the parish center and the mechanical systems in the church. As a result, the church electrical and plumbing systems are not discussed.

1.6 Recommendations and Discussions

1.6.1 Recommendations for Immediate Action

1.6.1.1 Church Carbon Monoxide Monitoring

Although the church's heat exchangers show no signs of imminent failure, their age warrants constant carbon monoxide monitoring in the church's occupiable and mechanical spaces.

1.6.1.2 Parish Center Lounge Ceiling Repair

The central lounge/meeting space ceiling has suffered water damage in one area, and is visibly deflecting as if pulled away from its supporting structure. This section of ceiling should be investigated to determine whether or not it is secure, and any remediation work required should be undertaken immediately. After the roof is replaced, consideration may be given to a partial or full ceiling replacement.

1.6.2 Recommendations for Short-Term Action

The parish center issues described below are outside the scope of the PCR, but were noted by the Consultant Team as worthy of further investigation.

1.6.2.1 Assembly Room Egress

Based on current codes, the assembly room has an occupant load greater than fifty people both as a single unified space and, when the partitions are closed, in each of its subdivided spaces. Current codes require that such spaces have two means of egress, and that any doors from them swing out to keep from interfering with the flow of emergency traffic. Unfortunately, three of the four doors on the wall adjacent the corridor swing into the room. Furthermore, when the partitions are closed, two of the subdivided spaces have only one door out of them. The Consultant Team recommends that alterations to correct these conditions be made a priority in any capital planning.

1.6.2.2 Hazardous Materials Survey

Buildings of the parish center's age typically have asbestos or lead in many of their components, including sealants, mastics, mortars, insulation and some building finishes. A hazardous materials survey should be included in any capital planning process.

1.6.2.3 Soffit Movement

The exterior soffits over the parish center's former rectory wing have a history of movement as evidenced in some open miters at the fascia corners, in several nails that have worked loose at certain places along the fascia, and in the maintenance staff person's report that these nails have been hammered back into place several times in the past. To identify the movement's causes accurately and alleviate them effectively would require commissioning an analysis of the roof's structural and ventilation capacities and of the forces acting on it.

1.6.2.4 Accessibility

Accessibility codes and standards generally prescribe a path to bring existing facilities into compliance with the Americans with Disabilities Act (ADA). The church appears to have been brought into ADA compliance with the 1990 renewal project; but the parish center still exhibits, at minimum, the following non-compliant elements.

- The ADA requires clear floor areas at doors and fixtures that cannot be met in the restrooms near the parish center's assembly room.
- The ADA requires that the handles on door hardware, lavatory faucets, and similar items of public access do not require their users to employ grasping or twisting motions to operate them. Several doors have round knobs that do not comply with this requirement.

Any capital plan should include a complete assessment of the building's remaining accessibility issues and a plan to move it further along the path to full compliance.

1.6.2.5 Change of Occupancy Code Review

The parish center was originally designed as a mixed-use building, supporting both a rectory on one hand and office and assembly spaces on the other. The conversion of the rectory to office space constitutes a change from a residential to a business occupancy. It is not clear that this change was supported by a code review demonstrating compliance with the new occupancy's egress and fire separation requirements.

If the Owner intends to continue the business occupancy, and such a review has not already been performed, one should be considered as part of the capital planning process.

1.6.3 Observed Deviations from Reported Conditions

The original church drawings used in the PCA show designs for a full basement and mechanical systems that were never built, and therefore do not provide relevant information regarding the mechanical systems actually installed.

2 PURPOSE AND SCOPE

2.1 Purpose of PCR

The Owner intends to use the information in this PCR for planning capital improvement projects for the property.

2.2 Scope

2.2.1 General Description of Property Improvements

The property contains the church and parish center buildings, a network of sidewalks and staircases supporting pedestrian circulation around each, and two lighted parking lots connected by front and rear interior drives. This PCR focuses primarily on the buildings.

2.2.2 Consultant's Scope of Work

2.2.2.1 DESCRIPTION

The Consultant Team's scope was to assess the conditions of the visually accessible building elements both outside and inside the church and parish center, to identify deficiencies requiring work beyond preventive maintenance or cosmetic renewal, to recommend and prioritize corrective actions; and, in the case of high-priority items, to provide opinions of probable cost for the corrections.

The exterior areas include the exterior walls and doors, windows, roof, sealants, and any special or notable features. The interiors include each occupiable room and mechanical room, and any readily accessible service area including the entire parish center crawl space.

The team's scope also included a general description and evaluation of the site.

2.2.2.2 METHODOLOGY

2.2.2.2.1 Property Conditions Assessment (PCA)

The PCA consisted of three main parts: a review of relevant documents made available by the Owner; and conversations with some of the property's staff, and an assessment survey walkthrough.

2.2.2.2.1.1 Available Documents

The Consultant Team reviewed the following documents:

- Drawing set, "St. Catherine of Siena Church, Ithaca, New York," May 10, 1961 (hereinafter "original church drawings");
- Drawing set, "Parish Center, St. Catherine of Siena Church, Ithaca, New York," sheets variously dated ca. 1964 (hereinafter "original parish center drawings");

- Drawing, "St. Catherine Rectory Entrance," undated;
- Drawing set, "St. Catherine of Siena Church Renewal," November 30, 1999 (hereinafter the "renewal drawings").

The Consultant Team used the documents to clarify its field observations, and to identify significant areas in which the field observations differ from the documents.

2.2.2.2.1.2 Conversations with Parish Staff

In addition to the above, individual members of the Consultant Team discussed the parish center with Ms. Pat Coté, the parish's office manager; Mr. Jerome Srb, the maintenance staff person; and Mr. Earl Rose, the parish's mechanical services contractor. Topics included the former and current uses of the building, the fit of the existing facilities to those uses, and the conditions of the existing parish center roof and utility systems.

2.2.2.2.1.3 Assessment Survey Walkthrough

The Consultant Team conducted its assessment survey walkthrough on October 19, 2007.

The team observed the exterior conditions of both buildings by walking their perimeters and the parish center roof. The church roof, however, was observed solely from the ground. The team also performed a cursory observation of site conditions. The team also walked each accessible interior space.

Throughout, the team identified, examined and assessed the physical condition of the materials and assemblies encountered. The team photographed both buildings, including general conditions and those indicative of representative deterioration and deficiencies.

2.2.2.2.2 Development of Opinions of Probable Cost

In accordance with the Guide, the Consultant Team categorized representative deficiencies according to the time frame in which the Owner should incur costs to correct them, and have prepared opinions of probable cost for those items that will incur immediate or short-term costs.

Immediate costs are those required to correct:

- material existing or potential unsafe conditions;
- material building or fire code violations;
- conditions that will fail or lead others to fail in a year or less;
- conditions that will significantly drive up remedial costs if not immediately fixed.

Short term costs are those required:

- for items to be taken on as a priority in one to two years;
- for testing, probing and analysis of conditions if deemed warranted by the consultant.

Data supporting the opinions of probable cost was obtained from RS Means and other standard cost estimating reference materials. Where practical, unit cost numbers for certain systems, such as the church roof shakes, were reviewed by industry consultants. As explained earlier, however, the PCR contains only magnitudes of costs, reported as lump sums to avoid a misleading appearance of accuracy in the face of unknown circumstances best explored during a capital planning process.

2.2.3 Constraints on ASTM E2018-01 Guide Compliance

The following conditions placed limits on the Consultant Team's observations:

- The walkthrough date was characterized by an brightly backlit overcast sky that interfered with the team's ability to observe or take quality photographs of building elements seen against it, such as the church's roof lines and the parish center's exterior soffits.
- The church basement is almost completely filled with mechanical equipment, making observation of the entire space impractical.

3 SYSTEM DESCRIPTIONS AND OBSERVATIONS

3.1 Overall General Descriptions

3.1.1 Church

The church is a spacious building, consisting of two main volumes that intersect at the altar platform to form a cross-shaped nave-and-transept plan traditional to Roman Catholic churches. Its structure of massive, exposed glued-laminated A-frames rises over its stone-clad base to support a large, simple wood roof reaching toward heaven and form a soaring, transcendent worship space underneath it. The steep roof angle apparently was carefully chosen to make equilateral triangles of its window walls, an appropriate reference to the Christian concept of the Trinity at one of the church's signature features.

The north church's wing is occupied mostly by the sacristy and custodial spaces, and provides space for the choir and pipe organ immediately north of the altar platform. Congregational seating occupies most of the floor area in the sanctuary wings to the west, south and east. Around 2000, the church and site underwent a renewal project to renovate the vestibules and service spaces in the ends of the sanctuary wings, and the altar platform and south wing restroom were reconstructed for ADA compliance. The renewal project also included the renovation or replacement of finishes throughout the sanctuary.

The church's existing heating system is a gas furnace type which typically fails at an age of twenty years. Due to its advanced age and obsolete system configuration, it would be prudent to carefully monitor for carbon monoxide until the heating system can be upgraded. Ventilation should be carefully maintained as well. When the system is upgraded, existing gas furnaces should be removed from the church to eliminate the possibility of furnace combustion gasses entering the sanctuary. The replacement system will provide new boilers outside the sanctuary envelope.

The church's air conditioning at the church is aging but functional. Planning should include replacement of significant components upon failure.

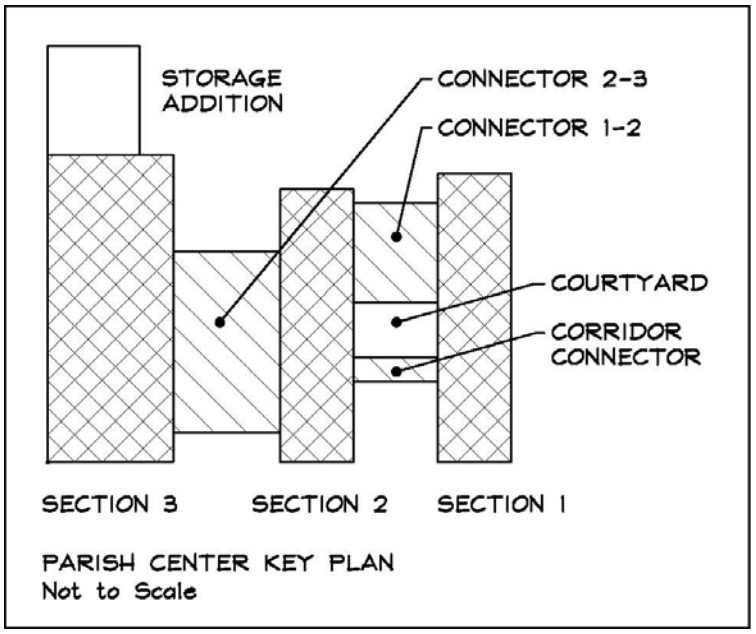
3.1.2 Parish Center

Originally conceived to provide a mix of residential, reception, and assembly program spaces, the parish center's modest height, its interplay of distinct but connected parts, and its diverse but coordinated palette of exterior materials aptly symbolize the earthly congregation's community life and neatly complement the church nearby.

The building consists of three stone-clad main sections running north to south. Lower sections featuring glazed facades at the front and utilitarian wood siding products at the rear provide connections between them. All roofs are flat, and those of the main sections overhang the exterior walls to form tall wood-clad fascias that look like inverted mansards.

The east and center sections, labeled Sections 1 and 2 respectively in the key plan to the right, originally housed the rectory. Two connectors join them to form a small exterior courtyard within the complex. Over the years, these areas were converted from residential to office, conference and semi-public use. The west section, labeled Section 3, is occupied primarily by an assembly room that can be subdivided into three smaller spaces by folding partitions.

The connectors are functional and provide auxiliary program space. An unheated, wood-framed, vinyl-clad gabled addition was added to the back of the west section at some point and is now used for storage.



Most of the parish center's mechanical and electrical systems are obsolete. Typical practice has changed sufficiently in the last forty years that the existing systems are no longer appropriate, even where they are still functional. From a utility systems viewpoint, the building needs to be substantially upgraded by installing new systems appropriate for space as it is used today.

3.2 Site

3.2.1 Access

Primary access to the site is by car. The church is flanked by a smaller asphalt-paved parking lot to the east, and a larger one to the west. The west lot also serves the parish center which is sited on its north edge. The lots are connected to each other and to the surrounding streets by asphalt-paved interior drives at the front and rear of the church. The renewal drawings indicate that the west parking lot was extended by about fifty spaces and that all asphalt-paved areas were re-topped and re-striped. They are in excellent condition.

3.2.2 Flatwork

The church is surrounded by concrete sidewalks on the west, south and east sides. From these sidewalks, concrete stairs and accessible ramps provide access to the church's exterior doors. The renewal drawings indicate that all these are replacements of the previously existing concrete work. They are all in very good condition. On the west side, the sidewalk from the staircase to the door passes through a plaza of slate pavers, indicated by the renewal drawings to be three inches thick and also in good condition.

The parish center is fronted by a ribbon of sidewalk that connects to a staircase and an accessible ramp, each of which lead over a small plaza to the main door. Other sidewalks and pads can be found outside exit doors at the rear of the facility and the connector between the center's assembly wing and storage addition. All these walking surfaces are concrete and in good condition.

3.2.3 Site Utilities

3.2.3.1 WATER

The existing 2” domestic water service serving the church is taken from a 6” main located in St. Catherine Circle south of the site, and is original to the church construction in the early 1960s.

3.2.3.2 ELECTRICITY

The electric services to each building run underground from poles north of each building on St. Catherine Circle.

3.2.3.3 NATURAL GAS

The NYSEG gas service to the church is believed to be a 3” line on the north side of the building, fed from the main service on St. Catherine Circle. The gas service to the parish center is also fed from St. Catherine Circle on the north side of the building. Both services are original at the time of building construction.

3.2.3.4 SANITARY SEWER

Original drawings indicate separate 3” and 4” cast iron lines from each building to the existing manhole located at the south side of the site.

3.2.3.5 STORM SEWER

A 6” storm sewer is located on the north side of the parish center. Roof and perimeter drains connect to this line.

3.3 Church

3.3.1 Exterior

3.3.1.1 STRUCTURE

3.3.1.1.1 Foundation

The church's roof and its exterior walls are carried on two separate foundation systems.

The roof's rafter beams are carried directly on individual concrete piers, including four inside corner piers supporting the valley rafter beams. The corner of one pier shows surface deterioration; but this condition is neither a short-term threat, nor is it representative of all the piers.

The exterior walls are supported by a continuous foundation made of cast-in-place concrete and shown in the original church drawings to be twelve inches thick. The portions of the foundation visible from the outside are in good condition.

The church has a small partial basement at its rear filled with mechanical equipment, accessible from the first floor interior by means of a steep metal stair. Visible parts of the concrete walls are in good condition, and there is no evidence of water penetration or flooding in this area.

3.3.1.1.2 Superstructure

3.3.1.1.2.1 Floor Framing Systems

The church floor is a concrete slab on grade; original church drawings indicate a thickness of four inches. Over the partial basement, this slab is supported by shallow, integral concrete beams. The visible portions are in good condition.

3.3.1.1.2.2 Wall Systems

Characteristic of A-framed structures, the exterior walls are non-bearing.

3.3.1.1.2.3 Roof Systems

The church roof structure consists of a deck of 3x6 tongue-and-groove spruce planking spanning between A-frames of large, exposed glue-laminated rafter beams. Fourteen A-frames support the gables of the four wings, and two support the valleys. The bases of the beams feature beveled upper and lower corners, and are connected to the concrete piers through steel saddles shaped to their beveled profile.

Beam bases.

At the bottoms of the valley frames, large voids marking a history of moisture-related decay are visible to an extent not seen in the gable frames. This is probably a result of their historical exposure to large amounts of runoff funneled down their

tops by the valleys above them. Steel saddle extensions have been installed on the valley piers as corrective measures to make up for the loss of wood structure at these locations. The conditions appear stable, but should be checked regularly for changes.

Decay at valley rafter bases and structural reinforcement.

To prevent further moisture damage, the top face of every beam has been retrofitted with a sheet metal cap from eave to pier, and the resultant joint between pier and cap treated with sealant. The valley frames have been further protected by the addition of a sheet of plywood on each side. The additions of these items created semi-concealed spaces that have been protected by screening to prevent insects or small animals from moving in.

3.3.1.2 BUILDING ENVELOPE

The church's exterior walls consist of an exterior veneer of Llenroc stone over a structural core of non-bearing concrete masonry units. Drawings indicate a drainage cavity between the exterior veneer and the core; this is confirmed by the Consultant Team's observation of weepholes along the wall bases. Although there are a few occurrences of damaged stone and occasional voids in head joints near the bottom of the wall, the veneer is generally in very good condition.

3.3.1.2.1 Facades and Curtain Wall Systems

The church features four window walls, one in the end of each wing. The original church drawings describe a system of acrylic fiberglass cellular core and color accent panels inset into a redwood frame, with the verticals sized more heavily than the horizontals to resist wind loading. The renewal drawings suggest that extensive structural reinforcement work has been done at each window. The Consultant Team could not get close enough to the windows to verify or observe this work.

The center of the east window wall appears to be slightly out of plane. This condition may have been the original impetus for the structural reinforcement project, and no sign of active movement or imminent failure is now visible from the church floor. Nonetheless, all windows should be monitored regularly for movement.

The stained glass window inset into the south gable is not referenced in the drawings and is apparently a later addition.

3.3.1.2.2 Insulation and Moisture Control

The church is almost completely devoid of insulation. There is also no indication in the original church drawings of any insulation in the exterior walls, and field observations confirm none on the roof deck. The drawings indicate fiberglass batt insulation in the voids of exterior door and window frames and along the exterior soffits at the eaves only.

3.3.1.2.3 Openings

The sanctuary's exterior doors are fully glazed, factory finished aluminum doors in aluminum frames, equipped with deadbolts, closers and push-pull hardware. They were reconditioned as part of the 2000 renewal project and are in very good condition. One other exterior door into the north wing is a wood raised panel door similarly equipped and is in fair condition.

The church's only exterior glazing systems are the window walls described above.

The original church drawings show louvers set into the north foundation walls in the below-grade areaways to serve the church's mechanical room. The Consultant Team was not able to observe their condition.

3.3.1.2.4 Exterior Sealants

Sealants replaced at the exterior door assemblies during the renewal project are in good condition. Elsewhere, the existing sealants are typically brittle, shrinking, and in several places pulling away from the joints. They should be tested for asbestos and replaced soon.

3.3.1.3 ROOFING SYSTEM

The roof consists of split cedar shakes original to the building, except in the valleys where newer wood shingles and new sheet metal flashings indicate a relatively recent renovation.

Along the wings, the roof overhangs the exterior side walls by three feet. At the end of each wing, the eave overhangs the exterior end walls by two feet. This overhang increases as the roof rises along its fascia line, terminating over eight feet past the end walls at the ridge. The "footprint" of the roof, therefore, exceeds the building footprint significantly: its plan area is about 9,400 square feet. With its slope of approximately 21:12, the actual area of the roof deck is about 18,800 square feet or 188 squares.

The roof is crowned with a fleche, or spire, whose four legs are anchored to the roof in the valleys. Due to the concentration of runoff in valleys, roof penetrations within them are

generally much more vulnerable to leaks; but the short distance from these anchor points to the ridge precludes them from exposure to excess water, and there is no evidence of leakage in the church.

The shakes, however, are overgrown with moss, several are curling, and a few are missing. At about forty-six years old, they are at the end of their service life. The Consultant Team recommends short-term replacement.

Closeup of church cedar shakes.

3.3.2 Interior

3.3.2.1 FLOORS

The church sanctuary floors are a light-colored ceramic tile that replaced previously existing carpeting in the 2000 renewal project. They are in good condition.

3.3.2.2 WALLS

Interior cladding of the church's exterior walls varies according to the space. Llenroc stone veneer characterizes the church sanctuary, cry room and other public spaces, while the original church drawings show concrete block lining the walls of the sacristy and other limited access areas.

Interior partitions and surfaces also vary. Wood-framed glazed assemblies are used in the sanctuary as described below. At service spaces such as the cry room and restroom, the lobby sides of the partitions are clad in 1/4" veneer plywood, while the service sides are clad in gypsum wall board.

Surfaces are in generally good condition.

3.3.2.3 CEILINGS

The main ceiling of the entire structure is the exposed, finished underside of the spruce roof deck visibly supported by the structural A-frames. In the rooms underneath, other materials abound. Vestibule ceilings are described below, and service spaces such as the restroom have gypsum board ceilings supported on framed platforms of wood joists. The renewal drawings show birch plywood sealing these platforms from above.

3.3.2.4 GLAZED ASSEMBLIES

Other than the window walls described earlier, all the glazing systems in the church are interior assemblies newly installed in the renewal project to replace previously existing elements in the ends of the sanctuary wings.

The glazed wall systems consist of fixed interior floor-to-ceiling windows of tempered glass running in oak frames from floor to ceiling, set into. The vestibule glazing is clear, while at the reconciliation room, a sanded finish allows the silhouettes, but not the faces, of the occupants inside to be seen from without.

The glazed vestibule ceilings consist of clear plastic panels set on frames of oak joists, allowing the exterior window walls above to be seen from below.

All these systems are in good condition. The relative lack of accumulated dust on the glazed ceilings is evidence of conscientious maintenance of these features.

3.3.3 Utilities

3.3.3.1 FIRE PROTECTION

The church is equipped neither with an automatic fire detection system nor with a sprinkler system.

A utility hydrant is located on the east side of Blackstone Avenue east of the Church. The hydrant is not hidden by brush or blocked by structures, and appears to be easily accessible. The hydrant is within five hundred feet of the church.

3.3.3.2 MECHANICAL

Air Conditioning

The existing air conditioning system includes two rugged Carrier condensing units. The condensing units are well beyond their expected service life. Existing two-stage cooling should be continued.

Heat Exchangers

About five years ago, Earl Rose disassembled the church's forty-five-year-old aluminized steel gas heat exchanger units to look for signs of failure and found nothing. For this report, the Consultant Team checked the exposed surfaces of the units, which continue to show no signs of obvious failure.

Although no one has found failures in the heat exchangers so far, they are well beyond their maximum expected service life. Until they can be replaced, it is recommended that carbon monoxide sensors be installed to monitor for carbon monoxide in occupiable spaces and mechanical areas.

3.4 Parish Center

3.4.1 Exterior

3.4.1.1 STRUCTURE

3.4.1.1.1 Foundation

The Parish Center foundation consists of concrete masonry units on concrete footings. There are no cellars or basements. Section 3, the adjacent corridor, and the toilet room floors are slab on grade, while the remainder of the structure is framed over crawl spaces. The crawl spaces have what appears to be the original vapor barrier over soil substrate. Its condition is deteriorated. Nevertheless, there are no notable signs of moisture; soil substrate, masonry and concrete, and wood framing appear dry.

Perimeter foundation walls are insulated with 1" rigid board. Floors are insulated between the floor joists with batt insulation. The crawlspace is not ventilated to the exterior air.

3.4.1.1.2 Superstructure

Floor framing systems consist predominantly of 2x8 and 2x12 floor joists bearing on foundation walls, and on steel beams on masonry and concrete piers. Portions of the floor are concrete slabs on grade. Exterior walls are framed with 2x4 wood studs. Roof system framing consists of flat wood trusses fabricated with metal bolts.

There have been reports that under snow loading, the deflection of the trusses over the Section 3 assembly room is enough to cause the folding partitions to bind in their tracks. This deflection is not necessarily indicative of imminent failure, but analysis would be required to determine if it can be relieved enough to avoid future interference with operation of the partitions.

3.4.1.2 BUILDING ENVELOPE

3.4.1.2.1 Facades and Curtain Wall Systems

Exterior walls, according to the original building drawings, are constructed of 2x4 wood framing with, predominantly, Llenroc stone veneer on the main sections. The north wall of Connector 2-3 is finished with vertical redwood siding. Walls are presumably insulated with 2" batts.

The main entry has a newer aluminum entrance and window wall system which replaced most of the wood window wall system.

Façade materials are in good condition, although there are minor cracks in the mortar at the upper outer corners where the walls meet the roof soffits. There is one noticeably loose stone on the north side, and very minor pointing is needed in the southwesternmost corner.

3.4.1.2.2 Insulation and Moisture Control

The taller portions of the building include overhanging fascia/soffit assemblies approximately the height of the roof trusses. Insulation in the concealed spaces of these assemblies is 4" batt insulation laid over the ceilings. The truss spaces appear to be ventilated by continuous soffit vents protected with insect screening, although it is likely the ventilation is insufficient. One indication of rotted wood in the fascia system indicates further exploration of the space within the roof framing area should be further investigated. See paragraph 3.4.1.3.2.3 below.

Exterior walls have 2" batt insulation; foundation walls 1" rigid insulation on the interior side. Presence and locations of vapor barriers is not known, with exception of a craft faced batt insulation between roof trusses, noted above the suspended ceiling in the assembly space. The kraft paper facing is on the warm side. It is probable that batts between wood wall studs have a similar kraft paper facing on the warm side.

The original vapor barrier installed in the crawl space is no longer effective. However, no moisture concerns were noted.

3.4.1.2.3 Openings

3.4.1.2.3.1 Doors

Interior doors are hollow core wood and exterior doors are solid core wood. Jambs are wood. Doors and frames are generally in good condition, although one south-facing exterior door is showing wear from weathering. Hardware is non-ADA compliant.

The main entry doors are aluminum and appear to be somewhat newer.

The garage door is wood and plywood and is deteriorated from weathering. Even so, with continued maintenance, it could continue to be used for many years.

The folding doors in the assembly spaces appear to be original and are in poor condition, although they are still operable. It was reported the doors cannot be opened when there is a snow load on the roof. Structural calculations will be needed to analyze deflection.

3.4.1.2.3.2 Glazing Systems

Glazing systems include the original wood casement and awning windows, and fixed insulated glass windows at the upper levels of the assembly spaces and at the connecting link between the east and center wings.

Sash detail of west facadecasement showing aging and repair.

Windows are generally in good, operable condition, with exception of casements on the west façade of the assembly wing. Windows there have been subject to weathering and a few sashes have been replaced.

3.4.1.2.3.3 Louvers

Louvers are limited to small circular vents on the fascias, and linear screened vents in the soffits. Louvers appear to be in reasonable condition.

3.4.1.2.4 Exterior Sealants

Exterior sealants appear to be original and require replacement. Exterior sealants should be tested for asbestos containing materials. Accordingly, costs for their replacement are not included pending further study.

3.4.1.2.5 Stairways

Two very short sets of wood framed steps exist between the garage floor slab on grade and the floors of Sections 1 and 2. The steps are in reasonably good condition.

3.4.1.3 ROOFING SYSTEM

The roofing system is the original ballasted roof consisting of built-up plies of roofing over 1/2" sheathing. Installed in 1964 and now forty-three years old, it has served more than twice the life span of most built-up roof systems. The exact contents of the membrane are not known but could be determined through analysis. There is no warranty or bond in place.

The roofs are essentially flat, although there visually appear to be high points in the centers of each of the largest roofs. Cants at the perimeter edges provide sloped drainage away from the roof edges toward the drains. Perimeter drains are located on each roof, near the perimeter edges and at the base of the cants. There visually appears to be a high point in the center of each main roof, which might be a result of a camber in the roof framing members. Although the roof was nearly dry at the time of the survey, some ponding was described by the Owner's representative to occur over a section of the center wing, near the connecting link to the east wing.

Ponding at roof edges.

The roofs are in poor condition. Leaks have occurred repeatedly over all areas except the assembly wing roof. The membrane has blisters in many areas indicating probable moisture in the system. Metal roof edges have come off in some areas. Membrane flashings terminate roofing at vertical surfaces, redwood fascias and windows. Flashings are coated and show signs of failure such as alligatoring and tearing.

Blistering and patching near roof edges.

Three skylights provide natural illumination to interior offices. Each is a double plastic dome and appears to be in good condition.

The 30” to 40” tall slanted fascias are constructed of 1x6 redwood over sheathing and the wood truss framing. Additionally, a metal gravel stop caps the fascia and terminates the roofing. The soffits behind the fascia are constructed of the same materials as the fascias.

At many locations around the building, and particularly at the corners, nails have backed out of the fascia boards as a result of movement.

Opening miter joints and nail pops at fascia corner.

Fascias on the south side of the building show signs of possible insect damage and bees were seen entering the small holes.

Bee.

One small area of wood, somewhat close to the area of roof leaks, is rotted. Further investigation is needed to ascertain extent of rot present and whether or not other system components are affected, including framing.

Rot.

3.4.2 Interior

3.4.2.1 FINISHES

3.4.2.1.1 Floors

Flooring materials vary throughout the parish center. Typically, vinyl composite tile is found in corridors, bathrooms, kitchens, and the large assembly rooms to the west. Offices and lounges are carpeted. Floor finishes are generally in good condition. It is not know if any floor finishes, including mastics, contain asbestos.

The floor of the mechanical room next to the kitchen is wooden parquet flooring in badly deteriorated condition. This is possibly a remnant of an original floor that covered the assembly rooms.

3.4.2.1.2 Walls

Walls are predominantly finished with painted gypsum board and are in good condition.

3.4.2.1.3 Ceilings

Ceilings are predominantly painted gypsum board and acoustic plaster with exception of the assembly spaces, which are suspended 2' x 2' acoustic tile. Ceilings are generally in good condition, however, the central lounge/meeting space ceiling has suffered considerable water damage in one area. This ceiling should be investigated to determine whether or not it is secure, and any remediation work required should be undertaken immediately.

3.4.3 Utilities

3.4.3.1 Fire Protection

The facility is vulnerable to fire damage due to its combustible construction and lack of compartmentalization. There is no comprehensive fire or smoke detection system.

The facility has a few isolated battery smoke detectors to provide local notification for occupant escape, but these will not alert responders at night when there is no one to hear them. The detectors are not interlocked; so even if a detector activates when the building is occupied, it might not be heard over the ambient sound level in adjacent spaces. By that time a fire is noticed and a manual call is placed, the fire may have grown substantially, complicating fire department efforts to put it out.

3.4.3.2 Plumbing

Section 1 Bathrooms

The existing bathrooms were intended for the 1964 private residential occupancy. Although perfectly functional, they are inefficient for the present office use. The bathrooms are oversized for an office, and so prevent better organization and use of the Section space.

A better solution might be to provide two larger bathrooms to serve both Sections 1 and 2. These could be located either in the existing garage space, or in Section 2. If the bathrooms can be removed, the East office spaces might be improved substantially by a larger space with windows and a view of the interior garden.

This shower is no longer used, wasting space and making reorganization of Section 1 difficult.

Section 3 Bathrooms

The existing bathrooms do not comply with ADA requirements. The existing fixtures are functional, but cramped.

Section 3 bathroom. ADA compliance is not really practical in this small space.

Section 2 Laundry

The laundry seems to be functional and useful. The original residential use has been discontinued, but other uses make it desirable to retain.

Water Softener

The water softener in the garage mechanical room is not operational. Due to salt intolerance, it might be better not to reconnect the softener unless necessary for a local use.

Water softener. Existing domestic water meter is to the right near the floor.

Water Heater

The seventy-five gallon natural gas-fired tank-type water heater has a 75,000 btu/hr input firing rate and is sized for roughly two family service. It is likely adequate for the typically light service in the parish house. However, the system does not provide high temperature water for sanitization and has no standby energy loss limitation features.

Water heater.

Hot Water Recirculation

A recirculation pump is installed to provide hot water at remote fixtures. The recirculation system, however, is not effective.

Section 1 Crawlspace

Hub-and-spigot joints on the sanitary lines near the south wall of the crawl space under Section 1 were observed leaking.

Leaking joint.

3.4.3.3 MECHANICAL

3.4.3.3.1 Heating, Ventilation and Air Conditioning

Crawl Space

The crawl space is used as a return air plenum. Dust and friable material in the crawl space plenum appear to be ingested by air conditioning units which are open to it. Minimal local air filters will not control small particles. The return air path is not cleanable, and is subject to mold, and other contaminants.

Parish center crawl space.

Air Filtration

Air is filtered as it passes through air conditioning fan coils. The existing air filters on the coils have a very low air cleaning efficiency. Better filters could be helpful in reducing recirculating dust.

To be effective, filters and fan coils must be coordinated. Fans, filters, and special filter frames can be arranged to operate as a coordinated system for dust reduction.

Outdoor Air and Ventilation

Outdoor (fresh) air is not properly introduced to any of the three main sections.

Today, all three sections of the parish center are heavily occupied at times. Stale air allows contaminants and sometimes organisms to build up, especially when many occupants share the same air mass.

Good practice would provide adequate fresh air for occupied spaces when people are present. Ventilation airflows should be controlled to deliver fresh air in proportion to the expected occupant density.

Air Conditioning

All three parish center main sections were air conditioned in 1964. Presently, however, the air conditioning system serving the assembly space in Section 3 is not operational and may not have operated for fifteen years or so.

Section 3 air conditioning condensing unit (not operational).

Air Conditioning Zones

Zoning is used to subdivide larger air conditioning systems into manageable pieces. In this way, smaller spaces can be isolated. Cooling can then be applied as necessary, instead of cooling the whole building.

The existing zoning is not appropriate to present use. The assembly room in Section 3, for instance, must be air conditioned as a single space, even though it is often divided into three smaller spaces and as little as one third of the space is being used.

Heating Zones

Heating zones and air conditioning zones operate similarly. Good zone layout can increase comfort, and reduce wasteful overheating or overcooling of unoccupied spaces.

The existing heating zone layout does not function very well, except possibly for the assembly space, which, unlike the air conditioning system, is zoned to provide separate service to each of the three subdivided spaces.

Usually, heating and cooling zones are coordinated to operate more efficiently.

Make-up Air Handler

There is no make-up air handler anywhere in the parish center to provide fresh, preconditioned air for the three parish center sections.

No existing mechanical space is available for a new make-up air system.

New systems will require either roof space or a dedicated inside mechanical space. Mechanical space is usually developed within a programming or schematic design process.

The existing garage might be converted to mechanical use. These and similar options can be considered in a program design effort.

3.4.3.3.2 Main Boiler

Type	Peerless Cast Iron Sectional Atmospheric gas fired. Input rating: 400,000 btu/hr Age: approximately 43 years	
Safety Controls	Manual reset high limit	Yes
	Main flame safety control	Flame rod
	Main Flame safety controller	Honeywell R890
	Pilot safety	None
	Redundant gas valves	None
	Interrupted pilot	None
	Direct Outside Combustion Air	None
	Vehicle fuel vapor separation	None
	Standby energy loss control	None
	Seasonal efficiency	Poor
	Outdoor temperature reset	Electronic
	Low Water Cutoff	None
	Boiler Room Fire Separation	None
	High Room Temp Cutout	None
	Alarm	None
	Emergency Boiler Cutoff Switch	None
Gas Vent	Asbestos Cement Stack	
	Draft Control	Diverter
Hydronic Circuiting	Primary circuit	
Pumping	Wet Rotor primary pumps Pump Motor should not be mounted vertically up	
Zoning	Only one zone serves each Section. Individual rooms such as the chapel and conference room are connected together on the same zone. As a result, some spaces are too cold in winter.	

3.4.3.4 ELECTRICAL

Electrical Service

The Parish House is served by two electrical systems. A three-phase system serves air conditioning systems, and a separate single-phase lighting and receptacle system serves everything else. The three phase system is almost out of service due to faulty breakers, which are no longer easily available. It no longer serves any three phase loads. The only load served is the Section 2 air conditioner, which uses only one of the three available power phases.

Three-phase panel.

In the photo above, the right meter to the right of the panel serves the panel itself. The meter to the left serves everything else as a 208 -volt single-phase three-wire panel.

Lighting and Receptacle Panel Boards

The existing single phase bolt-on panelboards are no longer in popular use. Although significant power is available, spare breaker space is quite limited. Since construction, many small receptacle loads have been added to the Parish House. Additional circuits would be helpful to safely handle the new equipment.

Main distribution panelboard at left.serving three subpanels, one of which is at right..

Assembly Lighting Fixtures

Lighting in the assembly space has been upgraded to parabolic fixtures with type T8 fluorescent lamps. A second, incandescent system is also provided in each of three rooms. The incandescent system is dimmable. It does not cover the entire space, but does provide lighting for presentations.

The existing fluorescent lighting appears quite functional, especially for reading tasks when

seated at tables. Efficiency is reasonable with high efficiency electronic ballasts. This system works well with traditional computer screens because it tends to limit glare. The fixtures tend to provide a sharp cutoff low on the sidewalls, with no ceiling coverage.

Many people find that indirect or partially indirect lighting systems which provide more illumination on sidewalls and ceiling are more comfortable for general use. It is, however, a matter of preference.

18 cell parabolic lighting fixture, typical of office lighting a few years ago.

Office Lighting:

The lighting in office spaces is relatively poor, although functional. The Section 1 offices and small lounge do not have overhead lighting because they were designed for residential use which relies on table lamps or floor lamps. These are not really effective for sustained office occupancy. Lighting on the desk is lumpy and shadowy.

Task lamps compensating for lack of overhead lighting. In 1964, this space was appropriately served by table lamps, but these are not really effective for sustained use.

Network and Telecommunications

The existing telephone and local network systems are now a bit haphazard, although functional.

An aging two line digital telephone system is near the end of its expected service life. The system does not provide enough capacity to serve office workers during periods of

moderate activity.

The telephone system also includes a separate fax line and a DSL broadband line. Since the DSL line is capable of supporting both voice and data at the same time, combining both fax and voice over this line would be a better use of existing resources. It is likely that the system can then be expanded to four outside lines.

The network hub system in Pat's office in Section 1 is functional for light use, but appears overworked by the existing application. A more organized system would provide a simple patch panel and an adjacent network switch to serve all three parish house sections.

It would probably be effective to replace both telephone and data systems with upgraded equipment, which would be wired on a common open basket tray in the existing crawl space.

Assembly Space Audio/Video Equipment

Section 3 has an audio system which was inherited from the church several years ago for temporary use while the sanctuary was out of service. The system has microphone mixing capability, which can combine multiple microphone inputs in a single, balanced output. A tape cassette can provide program sound. Six speakers are attached to the main system amplifiers. A transmitter provides program output for hearing impaired persons with individual receivers.

The audio system is aging and is not configured to serve present day assembly space programs appropriately. The speakers are installed with the intention of providing a single sound program for all three rooms within Section 3. Sound programming for individually subdivided spaces is not supported.

Most often, a single room within Section 3 will be used for a small presentation. Therefore, a small, flexible system to serve one or two rooms would be more useful than a single large system. It would be helpful to minimize sound transmission between adjacent spaces which may have different programs running.

The video system consists of a fixed CRT television mounted on a cabinet. The television can receive inputs from DVD players and VCRs, but not from laptops. The display screen is portable, but the system as a whole is not.

The assembly space does not have a digital projector; this lack precludes laptop-based presentations. The space also lack lighting controls and room darkening capabilities that could enhance video presentations.

It might be useful to have at least one part of Section 3 equipped to present small laptop presentations, or DVD based program through a fixed overhead projector. Overhead room lighting could be arranged to provide enough light for note taking or discussion without spilling too much on the screen. Lighting controls would provide more light for reading tasks via dimmable ballasts. West windows, including the clerestory windows, would be darkened via deployable screens to allow daytime presentation.

3.4.3.5 COMMERCIAL KITCHENS

Kitchen Health and Safety

The existing assembly area kitchen shown here is typical of a family single residence kitchen and is not equipped with features essential to commercial kitchens. The exhaust hood over the stove is not vented to the outside or provided with fire suppression. Food preparation space is too small for large volume preparation. No space or equipment is provided for holding food at safe temperatures, or for safe serving practices. Food storage facilities are also minimal, consisting of one residential refrigerator/freezer.

The existing stove is not large enough or powerful enough for commercial size pots.

Today, many church kitchens are equipped to safely handle large group cooking and serving with respect to health and fire. Commercial dishwashers automate safe handling of dishes, utensils, and small food containers. Commercial dishwashers typically employ special water heaters to heat rinse water to 180 F in order to improve sanitization.

The existing sink is much smaller than the usual three bay sink required to sanitize pots and large sheets.

Some of the features of a typical commercial church kitchen are detailed below.

Health

- Commercial dishwasher with high-temperature rinse
- Hand washing sink
- Three-bay pot washing sink
- Hot and cold food temperature controls
- Food storage

Kitchen Fire Safety

- Kitchen fire separation from assembly space
- Exhaust hood and dedicated fire suppression system at range
- Energy cutoff
- Fire alarm interlock

4 APPENDICES

4.1 Parish Center Use Summary

4.1.1 Intended Parish Center Use, 1964

Section 1 (East)

Residential living spaces
Residential bathrooms
Residential garage (Connector between Modules 1 and 2)

Section 2 (Center)

Living room, dining room, kitchen, laundry (Section 2)
Assembly entry and office space (Section 2 connector)

Section 3 (West)

Assembly space
Auxiliary Kitchen to serve assembly space
Auxiliary mechanical space to serve Section 3
Auxiliary storage space for Section 3

4.1.2 Current Parish Center Use, 2007

Section 1 (East)

Office suites.

Tractor storage (Connector between Modules 1 and 2)

Section 2 (Center) Chapel

Conference Room

Office Spaces

Laundry

Kitchen auxiliary to office space

Assembly entry and office space (Section 2 connector)

Section 3 (West) Assembly space

Auxiliary Kitchen to serve assembly space

Auxiliary mechanical space to serve Section 3

Auxiliary storage space for Section 3

4.1.3 Significant Parish Center Deficiencies

Ventilation

No ventilation in Modules 1 and 2, the garage, or the connectors.

Poor assembly area ventilation

Air Conditioning

Poor air conditioning in all spaces

The air conditioning in assembly Section 3 and the connectors has been out of service for some time.

Crawl Space Returns

Crawl space inappropriately used to return environmental air to Modules 1 and 2

Bathrooms

Under-capacity bathrooms

Poor ADA compliance

Assembly Kitchen

Residential-grade cabinetry, fixtures and equipment

Lack of commercial sanitization equipment

No commercial hood or fire suppression

Office Kitchen

Inefficient layout

Cabinet spaces and circulation inappropriate for office use

4.2 Parish Center Utility System Data and Diagrams

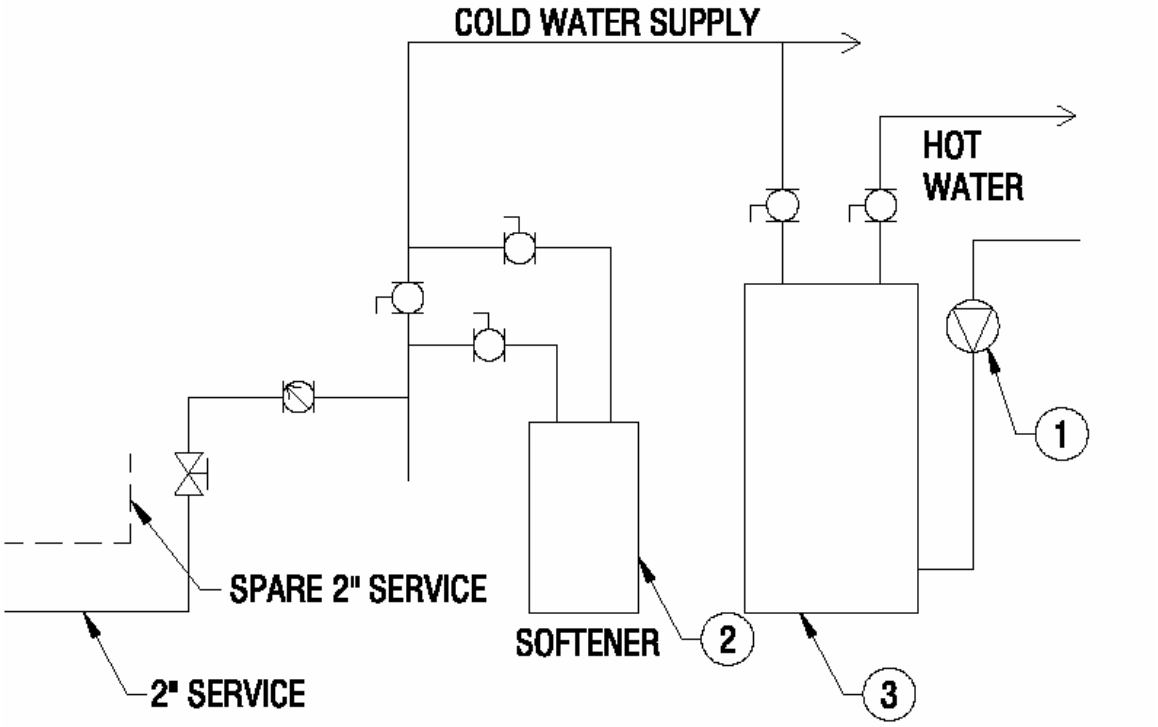
4.2.1 Air Conditioning Tag Data

Ducane
Model AC10B36-B
Serial No. 1372739944
208/230 1Ph 60 cy
Comp. 208/230 16.1 RLA
Fan motors 208/230 1/5 HP 1.4 Amps

Lennox
Model HS16-511V-5P
Serial No. 5186F18496 06/86
208/230 1Ph 60 cy
Comp. 208/230 23.7 RLA
Fan motors 208/230 1/6 HP

Module #3 Lennox Unit
Model HSA2-753-5-FW
Serial No 64.3
Comp. 208/220 VOLT 3PH 60 cy
31.2 FLA
Fan motors 3/4 HP 2.6 Amps

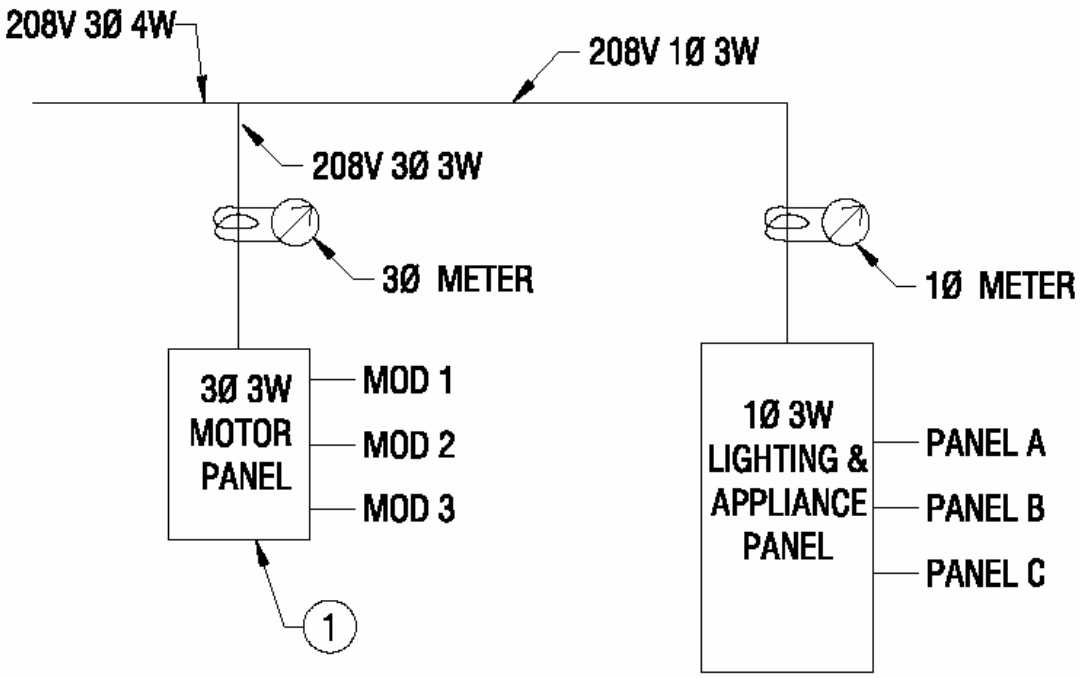
4.2.2 Plumbing Water Distribution



Numbered Notes

1. Recirculation pump.
2. Softener not operational.
3. 75 Gallon gas fired tank type water heater.

4.2.3 Electrical Distribution



Numbered Notes

1. Only Section 1 condenser is connected to this panel board. No other loads are still connected.

4.3 Utility Upgrade Recommendations

The following list of recommendations describes items are recommended to bring utility systems up to current standards. Priority items are included in the appropriate tables of the Opinion of Probable Costs section above. The rest should be considered during the Owner's capital improvement planning process.

4.3.1 Church Heating Ventilating and Air Conditioning

- Check for carbon monoxide and install carbon monoxide sensor.
- Remove gas-fired gear out of boiler room to a concrete boiler enclosure near the existing stack with a flat roof to match the rectory.
- Provide occupancy-based ventilation system.
- Replace air conditioning system.
- Update existing digital controls with better sensors, centralized logic, minimum outside airflow damper control and flow metering.

4.3.2 Parish Center

4.3.2.1 HEATING VENTILATING AND AIR CONDITIONING

- Provide roof-mounted make-up air handler or convert existing program space for new mechanical space. Supply consistent fresh air in measurable quantities to all occupied spaces.
- Provide BACnet-compatible temperature control system, including central building controller with Ethernet router and web interface and controls for make-up air handler.
- Replace air conditioning systems for all Sections, with systems providing year-round ventilation, energy recovery, and controls to match ventilation to building occupancy.
- Improve zoning by installing a digital boiler controller and zone supervisor to monitor and match usage. Include primary and secondary circulation and preheat capability for winter ventilation.
- Provide ducted returns for each system.
- Provide pleated air filters at heat pump returns.
- Provide a comprehensive service overhaul for pumps and evaporative cooler.
- In Section 1, remove existing sealed fireplace and stack to reclaim program space.
- Upgrade assembly kitchen to code or add new kitchen addition north of Section 3.
- Add exhaust fan at Section 2 bathrooms and light-duty kitchen exhaust fan in connector between Modules 2 and 3.

4.3.2.2 NETWORK/TELEPHONE INFRASTRUCTURE

- Provide utility demark locations at service entrance to coordinate with new telecommunications system layout. Test existing lines to verify they can be activated if required.

- Provide a network closet for better organized head and for phone, fire alarm, and network. The wiring tray can be shared by all services.
- Provide new telecommunications system with new patch panel. Coordinate switch rack space and cable management with IT system designer.
- Provide new telephone PBX switch and station cabling to telephone instruments.
- Secure leased line for fire alarm automatic dialer output.
- Provide cable trays or basket trays for major cable routes. Coordinate cable trays, conduits, and the physical cable layout with the overall security designer.
- Install a simple wiring system such as an open wing tray with runouts supported on D-rings.
- Provide color coded cabling to distinguish phone, network, fire and control communications systems. Number cables, patch panels, jacks, etc to facilitate future service operations. Bundle fire alarm system wiring separately in specially marked cables.
- Organize IT room for efficient expansion. Provide space for UPS power supply to bridge power during generator start-up.
- Provide appropriate grounding.

4.3.2.3 ELECTRICAL SYSTEM

4.3.2.3.1 Power

- Reorganize existing single phase and three phase services from the existing 208-volt three-phase electric distribution system. Provide a single integrated service to serve all loads.
- Replace existing bolt-on circuit breaker panels. Provide spare capacity to coordinate with program needs.

4.3.2.3.2 Lighting

Where parabolic lighting photometrics are acceptable, existing fixtures may be retained, or converted to electronic dimming by providing dimmable ballasts and dimming controls similar to Lutron equipment.

- Replace existing T8 parabolic lighting fixtures with indirect or semi-indirect fixtures where a more comfortable scheme would be helpful.
- Circuit lighting to coordinate with video program presentation.

4.3.2.3.3 Lighting Control

- Where multi-level lighting would be useful, provide dual ballasts in new or renovated fixtures to allow light level reduction without turning the lights completely off.

4.3.2.3.4 Emergency Power

- Provide emergency lighting fixtures with integrated battery packs wired into lighting systems for activation by power failures.

4.3.2.3.5 Fire Alarm System

- Provide addressable fire detection and alarm system.
- Provide fire detection devices for all spaces. Smoke detectors are typically used in most office, corridor, and support spaces. Heat detectors are typically used in spaces subject to temperature extremes or high levels of airborne particulates, such as boiler rooms, cold spaces, and kitchen areas. Provide annunciator to allow responders to pinpoint the location of activated detectors.
- Horn/strobe alarm devices shall be provided to comply with current code.
- Interconnect fire alarm system to third-party monitoring system to alert fire response agency.

4.3.2.4 PLUMBING SYSTEM

- Replace Section 1 bathrooms with a pair of bathrooms serving both Sections 1 and 2.
- Expand and renovate Section 3 bathrooms to suit assembly use.
- Achieve fullest ADA compliance possible in assembly and office bathroom renovations.

4.3.2.5 UTILITY UPGRADE SPACE SUPPORT

The existing garage could be converted to utility space to accommodate the following improvements:

- Heating and air conditioning systems for Modules 1 and 2.
- Make-up air handler and heat recovery unit.
- Boiler room with proper ventilation, and isolation from gasoline fumes.
- Improved electric service equipment and electric distribution.
- Telecommunications room for telephone PBX and network closet.
- Restrooms to serve Section 1 and 2 program needs.

4.3.3 Sprinkler Systems

A conventional sprinkler system can be provided to serve the whole building. A sprinkler system can substantially enhance the effectiveness of the local fire department by applying water very early in the fire growth process, often long before the fire department can arrive to begin fire fighting operations. Many fires are extinguished in this way by the action of only one or two sprinklers.

Sprinkler systems have been very effective in suppressing fire, limiting the extent of fire, and limiting fire damage to building contents. Accordingly, the Consultant Team makes the following recommendations.

- Provide a building-wide fire sprinkler system in the parish center with coverage for each space.
- Verify that the existing fire protection water supply is sufficient to serve the new sprinkler system.

- Provide water flow detection and interlock with fire alarm system.
- Provide post indicator valve and fire department connection to allow fire pumper to connect to the sprinkler system.

4.3.4 Security Systems

There are no existing security systems for the St. Catherine of Siena complex, and staff interviews report neither severe security problems in the buildings nor concerns with security lighting in the site. However, the Consultant Team recommends consideration of the following:

- Provide an infrared intrustion detection system. Due to the size of the facility some infrared intrusion detection could be advisable.
- Provide a panic alarm interconnected with a central monitoring facility.
- Provide zoning of Intrusion and panic activation can be zoned to provide emergency responders to pinpoint the location of alarms within the buildings.
- Review outdoor security lighting. The existing parking lot fixtures seems to provide reasonable lighting for the main parking lot. The complex perimeter, however, is a warren of unlit spaces which might be more systematically illuminated and coordinated with landscaping to limit hiding places somewhat.