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Dewberry

Executive Summary

The facility assessment process has led to the following conclusions and recommendations.

Overall the building is in fair condition.
The building is approaching 50 years old and most of the mechanical, electrical and plumbing equipment is original. Those that have been replaced are fast approaching the end of their useful life.

The asphalt paving and concrete sidewalks need replacement.
Aging, cracking and non-ADA compliant, complete replacement is necessary for public safety and code compliance.

Interior finishes need updating.
Ceilings and walls need painting and while suspended ceilings need replacement. Flooring in the fellowship hall needs replacement.

Restrooms need remodeling for ADA compliance.
The men and women restrooms need to be reconfigured to provide the required accessibility as per the Illinois Accessibility Code.

Project Description

Dewberry Architects Inc. (DAI) were commissioned on June 17, 2019, by the Elmhurst Park District to complete a facility assessment for the Redeemer Center at 345 Kenilworth Avenue in Elmhurst, Illinois. The facility assessment serves as a roadmap that establishes a direction for the facility's future, while maintaining the flexibility needed to respond to changing needs, conditions and resources.

The following individuals participated in the facility assessment process:

Elmhurst Park District:
Jim Rogers, Executive Director
Angela Ferrentino, Director of Parks & Facilities

Dewberry Team:

Daniel Atilano, Principal, Architect	Dewberry Architects Inc., Elgin, IL
Robert St. Mary, MEP/FP	Elara Energy Services, Inc., Hillside, IL
Nathan Bossenga, Structural	Johnson Wilbur Adams, Inc., Wheaton, IL
Ben Ahring, Civil	Erikson Engineering Associates, Ltd., Chicago, IL
Jack Hayes, Cost Estimating	Fredrick Quinn Corporation, Addison, IL

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Site + Facility Audit

On June 17, 2019, Jim Rogers, Angela Ferrentino, Daniel Atilano, Nathan Bossenga, Bob St. Mary, Ben Ahring and Jack Hayes toured the site and the facility. The purpose of the on-site audit was to document the existing conditions. The facility assessment is based on a limited visual inspections. The following is an overview of the facility's existing condition along with recommendations.

Civil / Site

Site Evaluation / Review of Existing Utilities

The site was evaluated using the DuPage County GIS Map Data, USDA Web Soil Survey, City of Elmhurst utility atlases, IDNR Ecological Compliance Assessment Tool (EcoCAT), Aerial Imagery, City of Elmhurst Zoning Map, City of Elmhurst Code of Ordinances from www.elmhurst.org, the DuPage County Stormwater Ordinance, and observations obtained during a June 17, 2019 site visit.

Location

The site is located at 345 S Kenilworth Drive and is bound by two single family residential homes to the north, S. Arlington Avenue to the east, E. St. Charles Road to the south, and Kenilworth Avenue to the west. The site has a Property Index Number 0612101001. The site is approximately 2.92 (±) acres in size.

Existing Conditions

The Redeemer Church Center is located on the southwestern portion of the site. A parking lot occupies the north portion of the site and an open space exists in the southeastern portion of the site. Sidewalks run along the southern edge of the parking lot and connect the parking lot to the building entrances. In total, there are three sidewalks, two from the parking lot and one from Kenilworth Avenue that connect the building to other paved surfaces. The building also has at least 3 doors that open onto a raised concrete platform with steps down to a grass area. These doors and raised platform are all located in the northeast corner of the building. There is a garden in the grass area located east of the existing building.

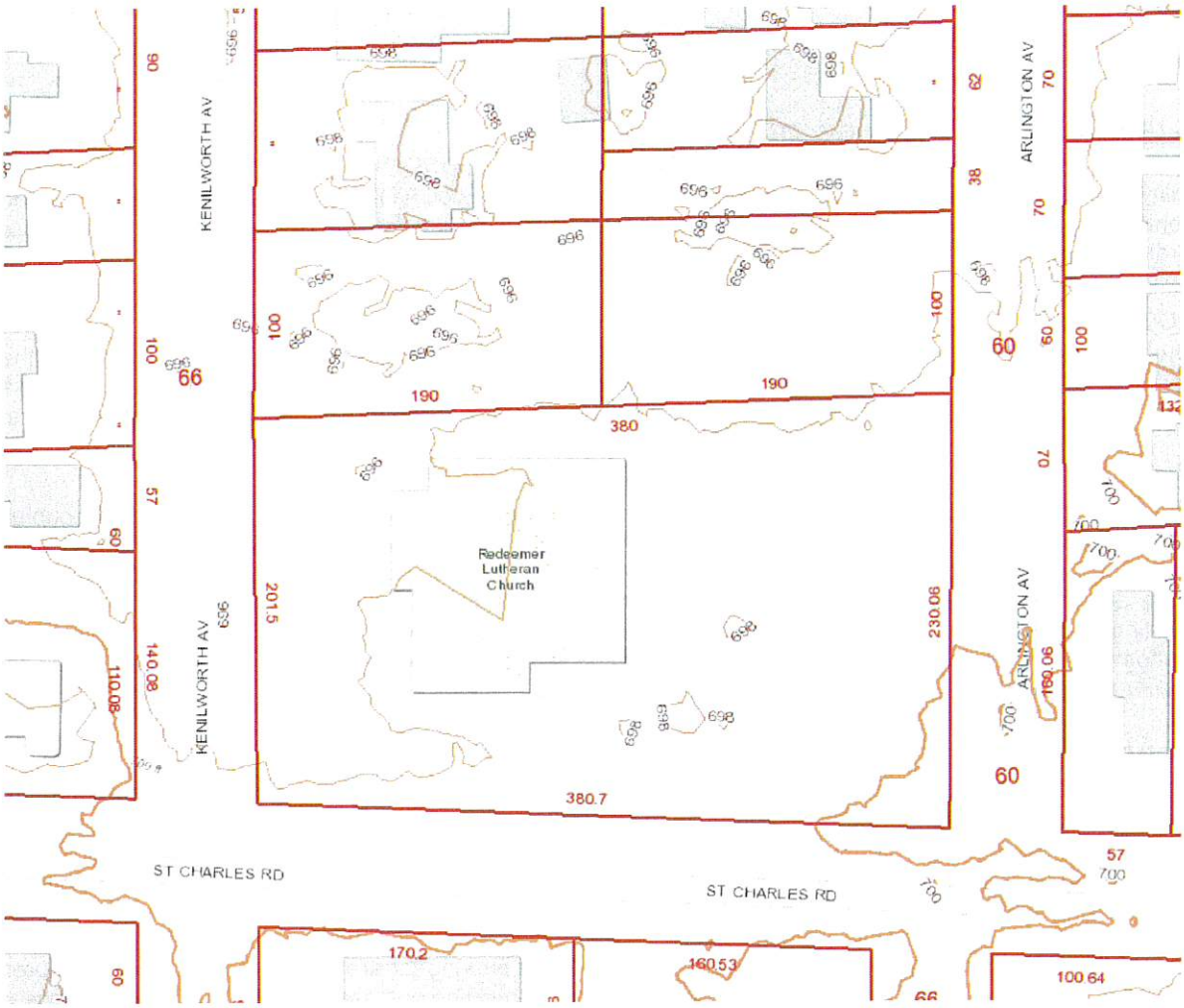
Topography/ Drainage

In general, the site slopes south to north and east to west. The highest point on the site appears to be to the southeastern corner of the property. The grass area east of the building drains to a low spot in the ground where it appears that the water settles and infiltrates into the ground over time. Rainwater that falls on the grass south of the building is carried in a wide grass swale west to Kenilworth Avenue. Rainwater west of the existing building sheet flows to Kenilworth Avenue.

The grass area drains separately from the parking lot. The parking lot area drains toward two structures placed in the parking lot. The larger parking area east of the building has one structure. The slopes appear to be adequate, ranging from 1% to 3% (±). The parking area directly north and east of the building also drains to one structure, which is located in the drive isle, east of the building. The parking stalls on the south side have very steep slopes, ranging from 5% to 7% (±).

The roof is flat and has roof drains that collect the water. There are no gutters around the building and storm water drips down the edge of the angled roof, splashing down onto a maintenance strip that goes around the building.

Additional structures would be needed to eliminate the water ponding issues in the grass area. Additionally, structure(s) would be needed in the parking lot to eliminate an existing low spot in the western entrance drive.



Site Contours

ADA Compliance

The site is not currently in compliance with ADA requirements. However, most of these issues stem from the age of the existing concrete walks. The existing concrete walks have multiple gaps and bumps between sections that exceed ADA thresholds. With new sidewalks, these walks will be in compliance. The current ADA parking stalls are in the wrong location and do not provide a proper ADA path to the building. Relocating the handicap stalls to the southern portion of the eastern parking lot should bring the ADA stalls and route in compliance with the requirements. It is also noted that based on the number of parking stalls, a third Handicap stall will be required.

Parking Lot Layout

There are 65 regular parking stalls and 2 accessible stalls on site. The parking lot should have 3 accessible spaces for a 65-stall parking lot. The handicap parking stalls are striped and signed. The parking stalls are all 90° parking. The stalls were measured as 18'x 9' and the drive isles were larger than 24' which would allow for 2-way traffic.

There was no directional traffic signage. Bollards on each side of every entrance and in-between the east and west parking areas allow for street access to be denied or for the two parking areas to be chained off from each other. No signage such as one-way, entrance only, or do not enter/exit only signs are not present. There is an 8" (±) tall timber retaining well on the north side of the eastern parking area.

Ingress/Egress

There are three vehicular ingress and egress points to the site. One off of Kenilworth and two off of Arlington Avenue. Both of these roads are 2-lane local road. There is no parking allowed along S Prospect Avenue. The curb between the aprons and the roadways is depressed but shows signs of aging with multiple chips.

Site Lighting

There are 6 (±) light poles on the site used to light the pavement areas. The poles are 10'-12' high. The bases for the poles extend a couple inches above the surrounding ground.

Wetlands / Bodies of Water / Floodplain

There are no wetlands, bodies of water or Floodplain found on the site. Based on available maps.

Endangered Species

Based on an Illinois Department of Natural Resources search, there is no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Trees

There are two memorial trees on the site. Both memorial trees on site appear to have a trunk less than 6" in diameter. There are many large trees scattered throughout site. Two of the trees, both immediately north of the building, lean toward the building. One of the trees is an evergreen while the other is a deciduous tree with large branches hanging over the roof. There is another larger tree that leans over the drive western drive isle to the parking lots.

Detention

The building was built in 1970 the impervious area of the site impervious area hasn't changed since then. This is before February 15, 1992, the date the DuPage County Stormwater Ordinance went into effect. If any redevelopment of the site includes a net new impervious area less than 25,000 sq. ft., detention will not be required. If any redevelopment of the site included a net new impervious area greater than or equal to 2,500 sq. ft.; therefore, no post construction best management practices (PCBMP's) are expected to be required.

Storm Sewer

There are two drainage structures on the site. Both are in the parking area. At the time of the site visit, the water level in the structures was high. After analyzing the connection structures in Kenilworth and Arlington Avenue, it seems that water most likely stays in the structures and the pipe cover is fairly shallow. In large rain events, if the public sewers become full with storm water, it is possible that storm water could pond in the parking area.

Sanitary Sewer

Based on the original 1970 drawings, the sanitary service exists out the western side of the building, in the middle, and makes a connection to the Kenilworth Avenue sanitary sewer.

Water Main

Based on the original 1970 drawings, the water service exists the out the southern side of the building, near the eastern corner, and connects to a 12" main in E. St. Charles Road.

Gas Service

Based on the original 1970 drawings, the gas service exists the out the eastern side of the building, in the middle, and connects to a 2" gas main in E. St. Charles Road.

Ameritech Vaults

Along East St. Charles Road, on the eastern portion of the property, there are 7 Ameritech manhole frame and grates in the public parkway. The area around these grates is concrete. This could imply that there is a large Ameritech vault in this location. This item should be investigated further.

Power Poles

There is one power pole that was noticed on the property. This pole in along the N/S property line, located on the north part of the property in the middle. There are also guy wires anchoring the pole.

Asphalt Paving

The parking lot is in poor condition. Small block cracking and alligator cracking are found throughout the pavement. There are multiple potholes located in the paved area. Pavement warping implies that the sub-base has settled over time causing an uneven surface. The entrance aprons are also made of asphalt and show signs of aging and pavement sub-base failure. All of the striping is white in color.

Concrete Paving

Curb for the parking lot is located on the south side parking lots. The curb height for the southern curb line has 1"-3" of height and the concrete has aged, with cracks and chips in the curb. There are multiple curb stops at the ends of the parking stalls around the perimeter of the parking area, but no curb stops on the interior stalls. The sidewalks on site are discolored or stained with numerous cracks, gaps and have changes in elevation.

Soil Analysis

Based on the USDA Soil Survey website, the site is solely on soil type "854B-Markham-Ashkum Beecher complex." Typical profiles for this soil are a silty clay loam composite. Silty clays are commonly found and do not typically raise concerns about structural stability. The fact that the building and parking lot have been there since 1970 implies that most settlement on the site should have occurred. Soil borings and analysis should be done to confirm these assumptions.

Zoning Regulations

The following zoning regulations are as per review of the City of Elmhurst Code of Ordinances from the City's website.

- Single Family Residence - R1
- The Single Family Residence District setbacks are as follows:
  - Minimum Depth Front Yard: 30 feet
  - Minimum Width Corner Side Yard: 15 feet
  - Minimum Width Interior Side Yard: 5'/10%
  - Minimum Depth Rear Yard: 20 feet
- Height Regulations:

  Max building height is 35' or 2.5 stories.

- Parking requirement:

  The parking lot will depend on the building use. Below is a list of various site uses and their parking requirements:

  1) Government Administration Building: 3 Stalls / 1000 SF of gross floor area
  2) Recreation and Communication Building 3 Stalls / 1000 SF of gross floor area
  3) Physical Fitness/ Health Club/ Dance Hall 10 Stalls / 1000 SF of gross floor area
  4) Public Park/ Playground/ Tennis Courts 1 Stall / 5000 SF of land area and 1 Stall / 75 SF of water area.

Building Codes

The following is a list of codes and ordinance adopted by the City of Elmhurst.

- 2012 International Building Code w/amendments
- 2014 Illinois Plumbing Code w/ amendments
- 2014 National Electrical Code w/amendments
- 2012 International Mechanical Code w/amendments
- 2012 ICC Energy Conservation Code w/amendments
- 2012 NFPA 101 Life Safety Code w/amendments
- 2012 ICC International Fire Code w/amendments
- 2012 ICC Fire Code w/amendments
- 2009 Accessible and Usable Buildings and Facilities w/amendments

Architectural

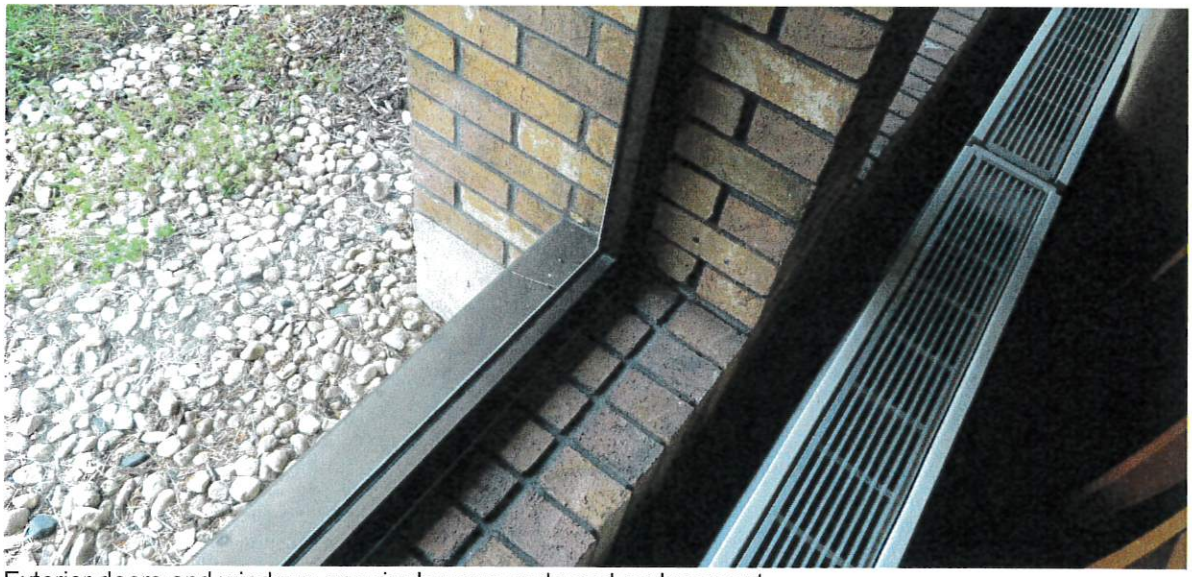
Building Entrances

The concrete entrances are decaying and need replacement.

Floor deterioration at exterior door threshold.

Building Exterior

The perimeter soffits need repair and or replacement.



Exterior doors and windows are single pane and need replacement.

Exterior asphalt shingles on the north and east elevations are stained and deteriorating.

Perimeter concrete foundation is decaying in areas and needs repair.

Roof

The ten year old roof is in good condition and well maintained. One roof drain cover was missing during the inspection. Roof slopes are adequate to avoid ponding. The higher roof lacked a ladder for access.

The antenna connected to the chimney is not in use. The roof ladder lacks the proper number of rungs to safely access the roof through the hatch.

Interior

The main entrance lacks a vestibule. Interior lighting and door hardware throughout the building require replacement for ADA and code compliance.

Fellowship Hall / Multipurpose Room floating flooring system needs replacement.

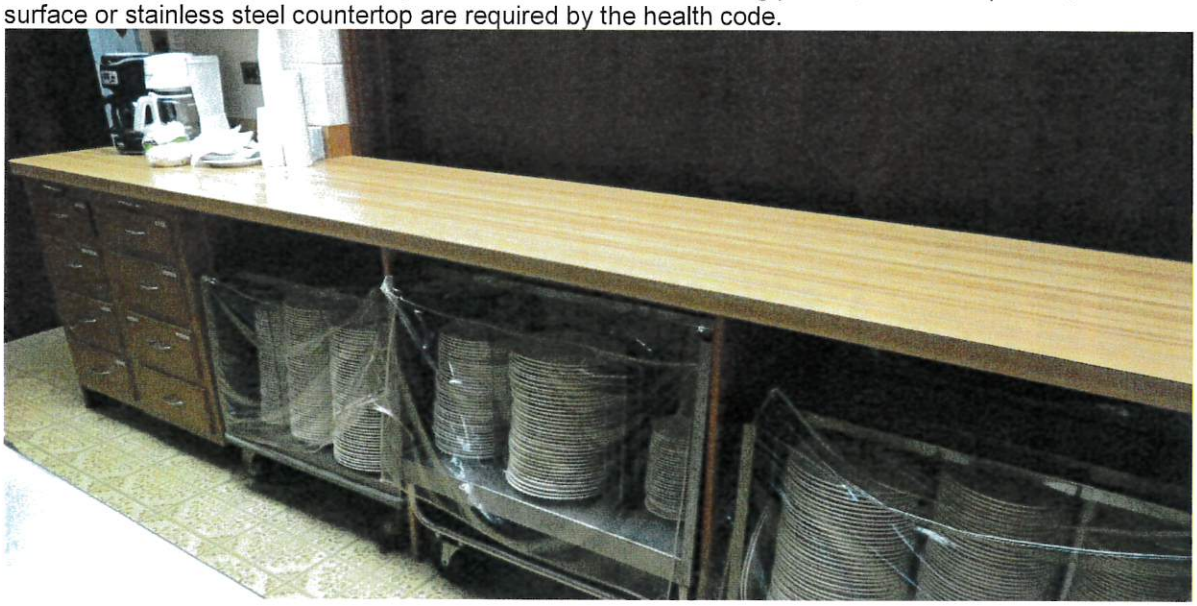
Public Restrooms are not ADA compliant and require a room reconfiguration for required clearances and dimensions.

Top of seat required 17" – 19" above floor.

Front approach requires min.18" at side of door pull.

Kitchen | Food Preparation

A triple basin sink, seamless floor system, food service rated ceiling panels, and a non-porous, solid surface or stainless steel countertop are required by the health code.



Interior Finishes

Acoustical lay-in ceiling panels and suspended grid system need replacement.

Walls, flooring and window treatment may need attention as per owner's preferences.

Existing Space square footage

Lobby		572
Coat Area	17'-0" x 15'-10"	269
Reception	12'-6" x 18'-2"	218
Office	12'-0" x 13'-4"	160
Office	12'-0" x 18'-2"	218
Work Room	12'-6" x 13'-4"	167
Conference Room	12'-10" x 25'-0"	321
Music Room/Closet/Table/Chair Storage	18'-0" x 37'-0"	666
Lounge	40'-0" x 37'-0"	1,480
Men's Restroom	12'-0" x 14'-6"	174
Women's Restroom	12'-0" x 14'-6"	174
Fellowship Hall / Multipurpose	49'-6" x 95'-0"	4,702
Table + Chair Storage	18'-0" x 14'-10"	267
Youth Center	25'-4" x 21'-0"	531
Kitchen	17'-0" x 18'-6"	315
Utility Room	14'-6" x 10'-4"	149
Total Net Assignable Square Footage		**10,383**
Unassignable Square Footage (Wall Thickness + Circulation)		1,417
Total Gross Square Footage		**11,800**

Structural

Structural Building Description

The church center building is a single story structure. The one-story, slab-on-grade building has a series of meeting rooms, offices and a kitchen, with associated support spaces, as well as a fellowship hall. Construction drawings, including structural drawings were available for the building as prepared by Balluff & Balluff Architects and Engineers dated November 20, 1970.

The structural system for the majority of the building is unreinforced load bearing masonry walls supporting the roof structure. The typical exterior wall is a 12" thick composite wall, consisting of a 4" brick veneer and an 8" CMU backup. In select areas, the section changes to a 4" brick veneer on each face with a 4" CMU interior wythe. On the interior, bearing walls are 12" thick, constructed of either 4" brick and 8" CMU or 12" CMU. Non-load bearing walls are 8" thick, constructed of either 4" brick and 4" CMU or 8" CMU. Steel lintels are indicated at interior and exterior doors and windows. In locations where larger openings in the interior masonry walls are required, steel beams are used to span the opening width and support the roof joists.

The typical roof structure consists of steel bar joists spaced approximately 4'-0" on center. The bars joist support a poured gypsum and bulb tee roof deck. The roof structure is sloped, which directs water to the internal roof drains. A different structural system is used at the gymnasium; the roof system consists of glu-laminated beams and purlins supporting the roof deck. The main beams span the short width of the gym and are spaced at 16 feet on center. The top of the beams are tapered to each end, with a high point at the center. Each end of the beams is supported by a steel column, which is encased in the masonry walls. Purlins span from beam to beam and are spaced at 8'-3". An acoustic (perforated) metal deck is supported by the purlins. The roof of the gym drains to the perimeter from a high point along the centerline.

The foundation system for the building is a shallow system consisting of pad and wall footings. Based on the existing drawings, there are individual concrete pad footings at each column or masonry pier and a continuous concrete foundation wall and strip footing under the perimeter of the exterior walls and the interior bearing walls. A thickened slab is indicated at non-load bearing interior masonry walls. It appears that the area at the north-west corner was designed to allow for a sunken patio or courtyard. The bottom of the footings which border this area are indicated to be deeper than the rest of the building foundation.

The floor throughout the building is a cast-in-place concrete slab-on-grade. On the north-west corner of the building are three exterior suspended slabs. They are above the depressed exterior grade, with stairs leading down to the lower ground level.

The exterior cladding of the building is brick masonry and a shingled mansard roof. The mansard roof is constructed from wood framing. The drawings indicate the wood framing is attached to the exterior masonry wall. The drawings indicate the brick stops and the wall construction switches to full width concrete masonry units (CMU) in the areas of the mansard framing. In the main roof areas, the roof framing, either the joist top chords or the roof bulb tees, extend beyond the outside face of the masonry wall and are used to support the top of the mansard roof truss. At the gymnasium, the glu-laminated beam and purlin framing stops at the exterior face of the wall and the top of the mansard framing is attached directly to the masonry.

Structural Assessment

Overall the building structure appears in good condition and has been well maintained. There are minimal areas that have visible damage or areas with excessive movement or deflections. The exterior brick work does not have significant cracking or mortar deterioration. The foundations and floor slabs did not show signs of cracking due to local settlement.

There are a few noticeable items that would require further investigation or repair:

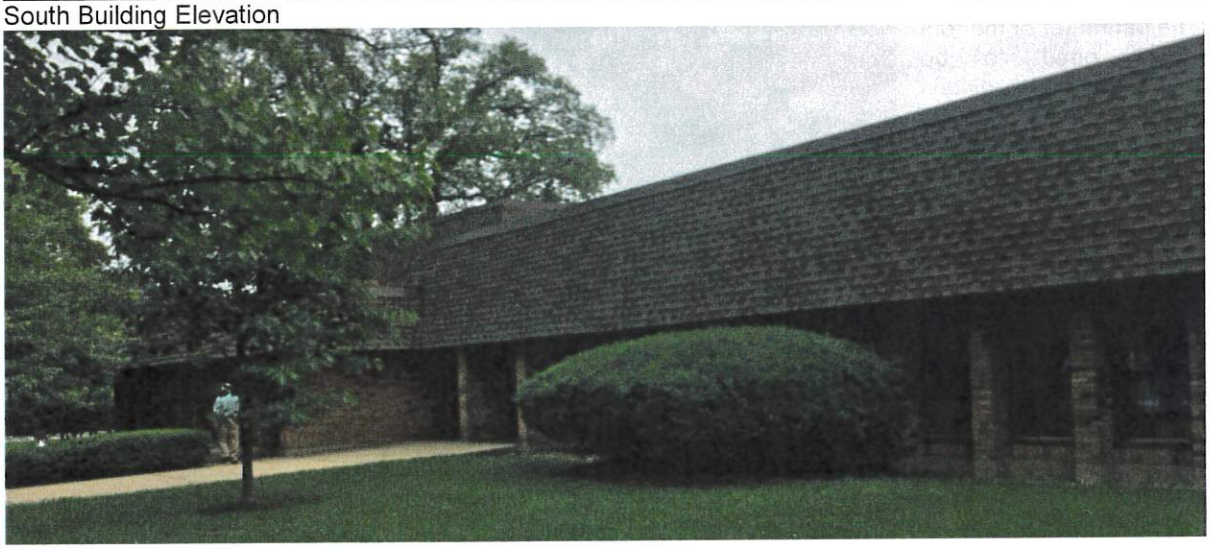
- The interior CMU on the long walls of the gymnasium have some vertical cracking above the windows at several of the CMU piers. The masonry piers encase the steel columns supporting the roof beams. The cracking appears to be cosmetic and as a result of shrinkage of the CMU. There are no control joints in the gymnasium walls, typical practice at the time of construction. The length of the wall exceeds the current recommended spacing to minimize the potential of cracking. The cracks do not affect the structure of the building and could be tuck-pointed to reduce their visibility.

- The exterior stair on the west side, closest to the kitchen, has partially fallen and stair treads are not level. The stringer is a steel tube that was originally welded to a plate in the masonry wall. The weld of the southern stair stringer to the masonry wall has failed. The stringer tube should be evaluated to see if it could be reattached to the wall plate or if a new connection will need to be provided.

One revision that was discussed was the potential of removing the mansard roofs from part or all of the building. The drawings indicate the mansard roofs are not an integral part of the building structure and could be removed without adversely affecting the structure. The perimeter of the roof would need to be reworked to maintain water tightness. Also, as noted earlier, the exterior brick veneer does not extend the full height of the exterior walls. The portion of the wall covered by the mansard is indicated to be CMU.

East Building Elevation

South Building Elevation



West Building Elevation

Roof looking north @ lower section

Damaged stair stringer

Exposed wood beam framing

Cracking at interior masonry piers

Mechanical / Electrical / Plumbing

General

In review, the existing facility was constructed around 1971. The construction is a brick exterior with concrete block backup and steel roof structure. The building has multiple rooms including a large foyer area, gather room, commercial grade kitchen, two larger meeting rooms/classrooms, offices, gymnasium, and men's and women's washrooms.

Mechanical

The building's existing heating, ventilating, and air conditioning (HVAC) systems consist of cabinet unit heaters (CUH's), fin tube radiators (FTR's), a cast iron heating hot water boiler, a cooling only roof-top unit (RTU), and exhaust fans. The CUH's and FTR's provide space heating and are located around the perimeter of the building. Cooling is supplied by an RTU. The bathrooms and kitchen have dedicated exhaust fans for their spaces. Below is a detailed description of the equipment observed as part of our on-site visit. Each piece of equipment will be defined as to its use and observed condition.

Rooftop Units

There is (1) one RTU that serves the air conditioning and ventilation needs of the building in the summer months. This unit is not original to the building; the existing unit is cooling only installed in approximately 2003. This makes the existing RTU approximately 16 years old. It is equipped with an adaptor curb to transition from the original RTU curbs to the new roof curbs. Below is a brief description of the existing RTU:

Manufacturer: York
Area Served: Entire facility with the exception of the main office area.
Model: Y13AC02Q1KANBAF
Serial Number: (S)NKNM124947
Manufactured: 2003
Nominal Cooling Capacity: 30 tons
Heating Capacity: None
Electrical: 208/230V-3ph-60hz

Figure 1: Motorized zone dampers

Figure 2: Cooling only RTU on adaptor curb

The original design of the HVAC system consisted of a natural gas heating, direct expansion cooling multi-zone rooftop air handler with five (5) zones of control. In approximately 2003 the existing multi-zone unit was removed and replaced with a cooling only packaged rooftop unit. The new unit is not equipped with a means of providing space heating. Therefore, all heating in the winter months is produced by the boiler system, which heats the facility by means of perimeter radiation (fin tube or cabinet unit heaters). The existing RTU only operates in the summer months, which means that ventilation air is only available when then the rooftop unit is operational. To control the original five (5) zones, the new rooftop unit was retrofitted with motorized dampers on the discharge at each original zone. The supply fan has a variable frequency drive that allows the fan to modulate speed as it reacts to the opening and closing of each zone, essentially acting as a VAV system with no reheat.


Figure 3: Blocked access door

The American Society of Heating, Refrigeration and Air Condition Engineers (ASHRAE) defines mean useful life of equipment as the point at which the probability of failure exceeds 50%. For a packaged rooftop unit, depending on size, the mean useful life is 15 to 20 years of service. The existing unit is approximately 16 years old and should be considered for replacement within the next 5 years. During our observation it was noted that the unit is in fair condition with clean filters. The condensate drain piping, seen in Figure 3, is inhibiting the ability to open the access door to the cooling coil.

Fan Coil Split System

A single fan coil unit located above the hallway ceiling outside the main office serves the (5) office spaces on the south-east part of the building. The fan coil is equipped with a direct expansion cooling coil and a hot water heating coil. The unit appears to have an outside air connection to a gooseneck on the roof above, delivering some percentage of outside air. It's unknow if the dampers serving the outside air and return air are operational and if so, what percentage of outside air is being introduced. The unit was installed around the year 2000 and is approximately 19 years old. Under the fan coil is a separate drain pan to protect the ceiling below. It has a moisture indicator in the pan to detect water, but it is unclear if a dedicated alarm sounds if water is detected. The nameplate information taken on site is as follows:


Figure 4: Fan coil unit

Manufacturer: Advanced Distributor Products
Area Served: Office spaces
Model: BAC9260B00M0R30293
Serial Number: 6000H47208
Manufactured: 2000
Cooling Capacity: 60 MBH
Heating Capacity: None
Motor: 3/4 HP
Electrical: 120V-1ph-60hz

The cooling side of the fan coil is served by a roof mounted air-cooled condenser, which appears to be original to the date of the fan coil installation. The unit is located on 4 x 4 wood rails. The disconnect switch for the unit is rusted and the supports removed so that only the conduit is supporting the disconnect (see Figure 5). Refrigerant piping (suction and liquid) is routed between the indoor evaporator and exterior condenser. The nameplate information taken on site is as follows:

Manufacturer: Bryant
Area Served: Office spaces
Model: 561CP060-E
Serial Number: 1500E17101
Manufactured: 2000
Cooling Capacity: 5 tons
Electrical: 208/230V-3ph-60hz

The overall the condition of the fan coil system (evaporator and condenser) is poor. Both the evaporator and condenser units have reached the end of their useful life and should be considered for replacement.

Figure 5: Condensing unit on roof

Boiler System

Heating hot water for space heating is provided by an atmospheric, cast iron, gas fired, hot water boiler located in the Utility Room on the east side of the building. The nameplate information taken on site is as follows:

Manufacturer: Weil-McLain
Area Served: Entire building
Model: LGB-6
Input: 656 MBH
Output: 526.5 MBH
Gas: Natural gas

The boiler system is a simple one pass through piping design with a single inline Taco circulation pump. The system includes an air separator, expansion tank and make up water connection.

Figure 6: Gas fired boiler

The age of the boiler is unknown although not believed to be original. The boiler was 80% efficient when new. The cast iron design is susceptible to thermal shock (large temperature difference between supply and return) which, if encountered, will crack the cast iron. This type of boiler is inexpensive for the most part and popular for facilities of this size. Boiler technology has made large advancements in the past ten years with the development of condensing boilers that operate at a much higher efficiency (95% +), although there is a cost increase for this efficiency. To truly know the operation of the boiler, a maintenance should be performed by a company that services these types of boilers. They can inspect the interior of the boiler to determine if damage has occurred and the current efficiency of the system, along with performing a general cleaning. This should take place every year as the facility goes into the heating season.

Heating System

The building utilizes heating hot water provided by the boiler system to serve recessed and semi-recessed cabinet unit heaters and perimeter fin tube radiators (pedestal mount and slope top). In the office spaces, the fin tube radiators have a Danfoss valve to provide occupants temperature control. Piping is routed above ground.

Figure 7: Recessed cabinet unit heater

Figure 8: Above ground piping in Music Room

Exhaust System

There are (2) two exhaust fans serving the building. One is dedicated to the kitchen hood, and the other is for the bathrooms. The following is information on the exhaust fans:

Kitchen Exhaust Fan

The kitchen hood is served by a single, down-blast exhaust fan controlled by a wall switch with an indicator light in the kitchen. The ductwork between the kitchen hood and the fan should be black iron and wrapped in two layers of fire wrap insulation. In addition, cleanouts should be included in every change of direction. During our site visit we could not determine if these conditions exist. The ductwork should be professionally cleaned to prevent grease fires in the duct every few years depending on how often the hood is used and what food is being prepared. The fan being utilized for the hood exhaust is not suitable for this type of application. The fan should be an up-blast type with a grease trough and hinged base for cleaning.

Figure 9: Kitchen exhaust fan

Bathroom Exhaust Fan

The bathrooms are served by a single, down-blast exhaust fan, which was not running during our site visit. The fan appears original and should be considered for replacement. Any new fan should be sized to meet the code required airflow for the number of bathroom fixtures being served. Based on age and condition this fan should be replaced and exhaust ductwork should be professionally cleaned.

Figure 10: Bath exhaust fan

Natural Gas Piping

The natural gas meter is located on the east side of the facility and enters the building outside of the boiler room. Natural gas piping is routed to serve the heating hot water boiler as well as the gas fired domestic water heater. A separate gas main is routed up through the ceiling of the boiler room, which is believed to serve the original multi-zone unit on the roof. At some location above the ceiling this pipe was capped.

The existing service appears to be low (residential) pressure (5" to 7" WC) and no pressure regulators were observed to indicate pressure being reduced from the incoming service.

Note: the equipment in the kitchen is all electrical; no natural gas fired appliances exist.

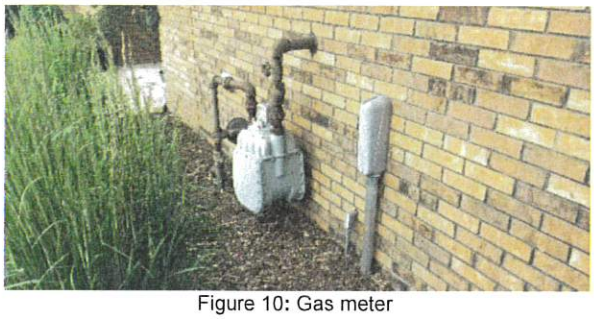


Figure 10: Gas meter

Figure 11: Roof drain

Temperature Controls

The mechanical system in the building is served primarily by standalone thermostats. The rooftop unit along with the five individual zones are served by space mounted standalone thermostats as well the fan coil system. These thermostats are 7-day programmable type, which are typical to what would be found in a residential home. No building automation system exists.

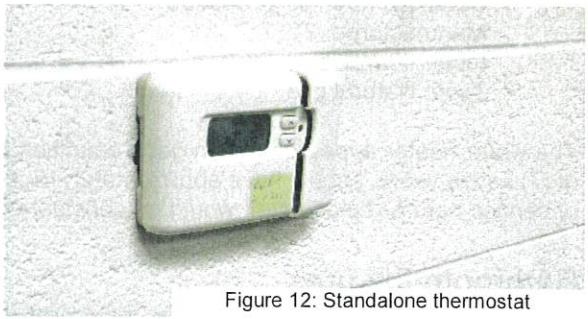


Figure 12: Standalone thermostat

Cabinet heaters and fin tube radiation is controlled by point of source Danfoss control valves or pneumatic thermostats from the original construction, although no air compressor was observed.

If energy conservation is a goal of any renovation, consideration should be given to install a building automation system that can control all aspects of the HVAC system in the building. A web based open protocol system will allow the end user to control the building's operation and time and day function from any location.

Figure 13: Danfoss valve on FTR in office

Plumbing

Roof Drains

There are (3) main roof drains on the roof. All appear to be clear and operational. The gym roof is sloped to allow for drainage to the south to discharge to the lower flat roof and storm water removed by the roof drains.

On the north side of the gym the storm water appears to run over the edge, down the mansard roof to grade. No gutters were observed.

Domestic Water Heater

Domestic hot water for the building is produced by a gas-fired water heater also located in the Utility Room. The heater utilizes natural gas and is vented out the roof. The domestic heating system utilizes a hot water re-circulation pump to continually move hot water through the system to reduce the delay in delivering hot water. The following is information on the water heater:

Manufacturer: Bradford White
Area Served: Entire building
Model: MI 5036 FBN
Serial Number: JH17049796
Manufactured: 2012
Input: 40 MBH
Type: Natural gas

The water heater appears to be in good condition and at the age of (7) seven years, should have approximately (5) five more years of service before replacement would be considered.

Figure 14: Domestic water heater

Bathroom Fixtures

There is a set of men's and women's bathrooms in the center of the building. These have been renovated recently and appear to comply with ADA accessibility requirements. The men's bathroom has (3) three urinals and (1) one handicapped accessible toilet. The women's bathroom has (4) four toilets, (1) one of which is handicapped accessible. There is a single urinal flush tank in the wet wall. The toilets are wall-mounted and have automatic flush valves. Each bathroom has (2) two under-mount sinks with thermostatic mixing valves (TMV's) and electric sensor faucets.

The wet wall tank serving the men's urinals flushes 24/7/365 days a week regardless if the space is occupied. The tank is equipped with a float valve that fills the tank. Once the tanks fill height is achieved the water is release and the urinals flush. Consideration should be given to installing flush valves on each urinal to reduce water usage.

Figure 15: Typical toilet fixture

City Water Service

The city water service enters the building in the boiler room and is 2". It reduces in size to 1" as it goes through the meter then increases again back to 2". There are two takeoffs after the meter. The first, goes through a reduced pressure back flow preventer and serves the boiler make up as well as other devices in the building. A second riser, which has no back-flow device goes to additional fixtures.

Depending on the Authority Having Jurisdiction (AHJ), the entire city water service may be required to be protected by a means of back flow prevention. This would require the unprotected riser to be connected to the downstream side of the existing back flow preventer or a new back flow device installed.

Domestic Water Piping

City water, hot water and hot water recirculation piping within the boiler room and above ceilings appears to be primarily copper and has likely been replaced since the facility was originally built. The piping within the wet wall of the toilet rooms remains galvanized and appears original. Piping within the wet walls is uninsulated.

Galvanized piping, over time, is likely to develop pin hole leaks which will require patches or full replacement. When the toilet room was remodeled it appears the piping within the wall remained and was reused.

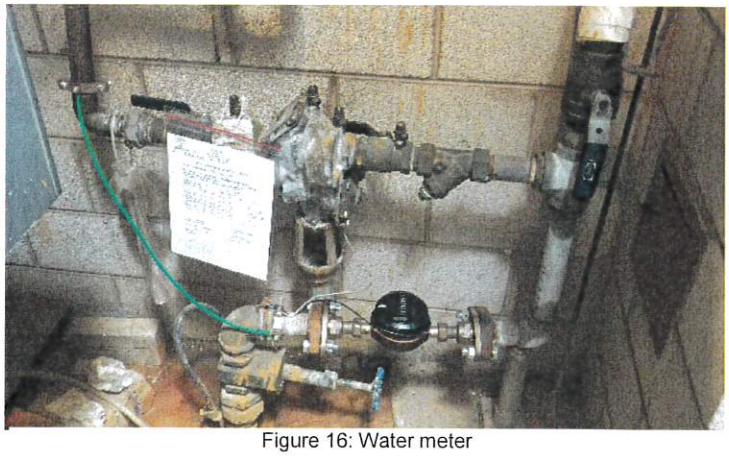


Figure 16: Water meter

Kitchen

The kitchen has a two-compartment sink which should be a three-compartment sink for dish and utensil cleaning; however, verification by the AHJ is recommended. The discharge from the two-compartment sink is not indirect and is connected to the hand sink discharge and then routed underground to a floor mounted grease trap.

The hand sink is covered and indicated not to be used for reasons unknown. The Illinois Department of Public Health (IDPH) requires an operation hand sink. In addition to the hand sink a standard kitchen sink also exists.

There is not a dedicated water heater for the two-compartment sink. The water temperature is as discharged from the domestic water heater and assumed to be as low as 120 degrees F. This is insufficient to sanitize utensils. Again, IDPH should be the AHJ for all commercial kitchens.

Figure 18: Dishwasher

Figure 17: Two-compartment sink

The kitchen is equipped with a residential under-counter dishwasher, which is also indicated to not run for unknown reasons.

Electrical

There is a pad mounted utility transformer located on the east side of the building. Below is a detailed description of the electrical systems observed during our site investigation.

Power

The service enters the building underground and rises up into a main distribution panel in the boiler room. The panel consists of a circuit transformer and six (6) three phase breakers that serve the air conditioning, kitchen, lighting and power panels. The main service is sized for 400 amps at 120 / 208V – 3 phase- 4 wire.

The main panel serves two (2) additional lighting / power panels labeled LPA and LPB. Each panel is 200-amp, 42 circuit. Panel LPA serves lighting while panel LPB serves receptacle and power loads. There is also an emergency lighting and exit sign load center panel which has twelve (12) single phase circuits

The panels appear to be in good condition. There is lack of additional available circuit spaces, which may require an additional distribution panel if additional circuits are required. Panel LPA has 10 blank spaces for expansion.

If the Park District provides a years' worth of electrical bills we will be able to define the peak load of the building as it relates to the service size to give an understanding of what additional power is available.

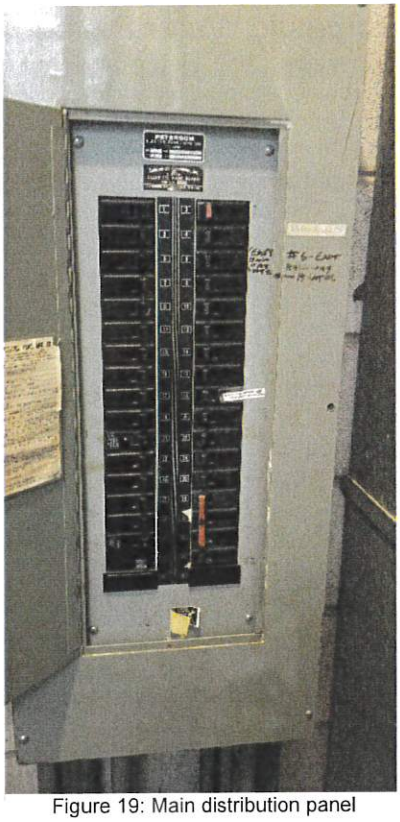


Figure 19: Main distribution panel

Lighting

Lighting for the building is mainly a mix of recessed troffers and can lights. The gym has mercury vapor lights and the bathrooms are equipped with LED lighting that was installed recently. The troffers throughout the building are using T12 bulbs. These lamps are no longer manufactured and will / have become difficult to obtain. Consideration should be given to replacing the lay-in troffer fixtures with T-8, T-5, or LED fixtures. There are incentives available through Commonwealth Edson that can greatly offset the cost of lighting replacement. The remainder of the cost is generally offset by the operational savings.

Figure 20: Transformer on east side of building

Figure 21: Fellowship Hall lighting

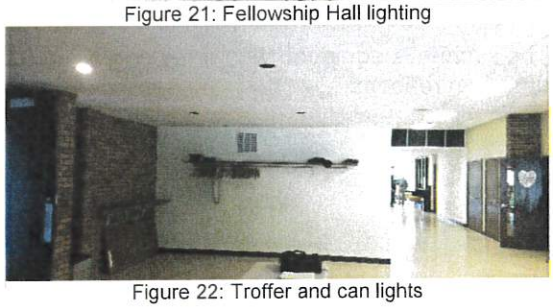


Figure 22: Troffer and can lights

Exit and Emergency Lighting

The main entrance/exit of the building and the Fellowship Hall have battery pack exit signs installed above the door. Side doors in rooms such as the kitchen and youth center do not have exit signs. The gym also has battery pack emergency lighting installed throughout the space. By the west exit, there are emergency light switches.

The building should upgrade its life safety system to meet the current code standards including supplementing the existing emergency lighting and replacing exit signs with non-incandescent type.

Figure 23: Exist light in Fellowship Hall

Figure 24: Locked, emergency light switches

Fire Alarm

The building has a Tyco Firelite fire alarm panel, model MS-5024UD, located in the boiler room. The system is zone based and not addressable. The devices through the building appear original with the exception of a few locations where strobes were added. The building has smoke detection in most locations. Horns and manual pull stations were also observed.

Under a renovation to the facility the fire alarm devices should be replaced to bring the facility up to current code standards.

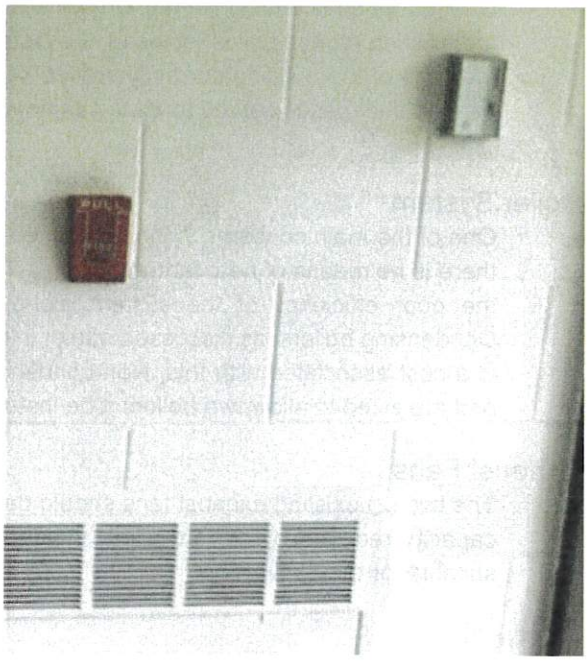


Figure 25: Fire alarm pull device

Fire Protection

There is no fire sprinkler system currently in the building. A new water service (3" or 4") would be required to facilitate the installation of a new sprinkler system.

MEP Summary

HVAC

Rooftop System

- The building relies solely on perimeter heat to heat the building during the winter months, since the existing RTU is a cooling only unit. Therefore, there is no ventilation provided to the building during the winter, which is not in compliance with current applicable codes.
- To allow the RTU to operate in the winter months, each zone of control would need to have a hot water duct coil to raise the temperature from mixed air conditions to 90°F discharge.
- The other option is to remove the existing zone control and add VAV boxes on each zone duct. Each VAV box would require a hot water reheat. With this option a separate duct coil to temper the incoming supply air would be required.
- Due to the age of the rooftop unit, if consideration is to install a new unit, a gas heat option should be reviewed. Even if a new unit is installed, it is recommended to include VAV boxes with reheat for each zone.

Fan Coil System

- Due to age and condition of the fan coil system, replacement of the existing system is warranted. If the existing rooftop unit is replaced, the installation of a new unit with sufficient capacity to take over the area of the building currently served by the fan coil system should be considered. This would convert the spaces served to VAV with hot water reheat.

Boiler System

- One of the main concerns is the lack of redundancy in the existing boiler system. If the boiler fails, there is no means of heat for the building. The boiler as it exists may have life remaining, although the poor efficiency of the system along with its lack of redundancy warrants replacement. Condensing boilers, as discussed earlier in this report, offer much higher efficiencies although there is a cost associated with this. Non-condensing boilers provide efficiencies in the high 80% range and are sized to allow two boilers it be installed in the space occupied by the single boiler today.

Exhaust Fans

- The two (2) existing exhaust fans should be replaced. The toilet fan will be like-for-like meeting the capacity required by current code. The kitchen hood fan should be replaced with a fan that is suitable for the application.

Ductwork

- All ductwork in the building should be professionally cleaned and sealed. This should include the black iron ductwork if applicable to serve the kitchen hood.

Terminal Heat Units

- Equipment such as fin tube and cabinet heaters can remain and be re-used. Other than wear and tear over the years there is low risk for failure with the exception of a fan motor or leak in a coil. This equipment is mostly original (approaching 50 years old). Based on age and condition, if elected to replace, similar equipment would be reinstalled in the same location as the existing.

Temperature Controls

- A building automation system allows the end user to program occupied and unoccupied times, provide setback and space temperatures and issues alarms. Web based systems provide access to the facilities HVAC system remotely from any location. If utilized properly, a new building automation system can save energy and offer improved comfort/control.

Plumbing

Fixtures

- Install flush valves on each individual urinal within the men's toilet room.
- Review with IDPH if a three-compartment sink is required in the kitchen and if a dedicated domestic water heater would be required to provide hotter water temperatures.
- Make the hand sink in the kitchen operational.

Piping

- Replace the existing galvanized domestic water piping in the wet wall with copper piping. Insulate all new and existing piping.

Water Service

- Install a single reducing pressure backflow device on the incoming water service to protect the city water for the entire facility. Consult with village if required prior to implementing.

Electrical

Lighting

- Future electrical modifications should consider replacement of the existing lighting and conversion to LED, which will allow for a reduction in energy cost, as well as realize potential incentive dollars to assist in funding the project.

Power

- There are no major concerns regarding power. If additional circuit space is required, a new panel could be added. As mentioned, if electric utility bills are provided, we can determine the peak load and define available additional power from the existing service.

Fire Alarm

- All existing fire alarm devices in the building should be replaced and upgraded to meet current code including horns, strobes, CO sensors, smoke and heat detectors. The existing fire alarm panel should be expandable to serve any additional devices.

Emergency Fixtures

- Replace and add additional emergency lights and exit signs throughout the building.

Fire Protection

- As indicated earlier within this report, the building is currently not equipped with a wet sprinkler system. Under any renovation to the facility, a wet fire protection system may be required by the authority having jurisdiction if the renovation is equal to or exceeds 50% or the replacement value. Therefore, a new water service would need to be installed to facilitate the installation.

Improvement Recommendations

The following site and facility issues were identified as items that need to be addressed independent of any future improvements.

Remove all hazardous material prior to any demolition or improvements.
Complete an Asbestos Materials Survey Report to identify any assumed ACMS that need to be removed by an Illinois Department of Public Health licensed asbestos contractor, using methods in accordance with current applicable state and federal regulations, prior to any demolition or renovation work.

Remove and replace all paving asphalt and stone full depth. The 3 entrance aprons shall be replaced with concrete instead of asphalt.

Remove all sidewalks and replace. The public walk at the entrance aprons shall be removed and replaced. For the parking area north of the building, some regrading would lower the steep parking slope. Curbs, while not necessary, would be a nice addition to the parking area.

Raise storm sewer structures. There is standing water close to the rim in the storm structures in the parking area. Slight regrading, raising the structures would create a more space between the top of rim and the top of water. This is useful if the Village's sewer is at capacity. A storm structure should be added along the northern side of the western entrance. Televising the sewers, given their age, is also recommended. On the south side of the property, Storm sewers should be added. East of the building, structures should be added to relieve the low lying area that currently doesn't drain. The number of drains will depend on what is done with the space. South and west of the building a structure should be added to help with the water flow. This was in the original design, but based on visual inspection, does not appear to have been installed.

Remove trees on the site that appear to have died over the harsh winter. Trees that are leaning toward the building should be removed. Trees overhanging the building shall be reviewed by an arborist and limbed up as recommended.

Replace all interior room signage.
Install new interior room signage with raised characters and Braille throughout the building.

Reconfigure restrooms to be ADA compliant.
The existing restrooms need to be redesigned to comply with current 2018 Illinois Accessibility Code.

Replace all interior and exterior door hardware.
Replace inaccessible door knobs with lever, loop or push hardware. Add push button automatic door opener at primary exterior entrance(s).

Update kitchen equipment, materials and layout to meet current building and ADA code.
Remodel the kitchen as required to provide code compliant accessibility, surfaces and equipment.

Replace the HVAC.
Overall, the existing building HVAC systems are in very poor condition. The mechanical system is only partially operational and most of the major equipment has exceeded its anticipated useful service life. There is no major mechanical equipment that should be considered for reuse in a renovation of the building. It is recommended that the building be provided with a completely new mechanical system as part of a future renovation. Based on the limited floor to floor heights presented by the building, the HVAC system options are somewhat limited. We recommend that a variable refrigerate Flow (VRF) system be installed for space conditioning with a dedicated outside air system (DOAS) to serve the ventilation needs of the building. The overall estimated cost to replace the existing mechanical system including demolition cost would be in the range of $40.00 to $45.00 per square foot.

Replace the building plumbing system and components.
Due to the building's floor plan and the assumption that the building would be reconfigured as part of a renovation, full replacement of the plumbing system in the building is recommended. The budget price to install new domestic water, sanitary and storm water is estimated in the range of $10.00 to $12.00 per square foot.

Install new lighting, power distribution and fire alarm system.
Due to the building being subdivided by tenant, the existing individual tenant electrical meters should be removed if the building is to be renovated and repurposed. The building spaces would require new lighting, power distribution and a new fire alarm system. The existing electrical service could remain and be reused. The estimated electrical budget as part of a building renovation is estimated in the range of $30.00 to $35.00 per square foot.

2

Improvement Options + Costs

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Summary

Options	Improvement Description	Total Project Budget	Cost / Square Foot
1	Renovate to comply with ADA/Life Safety/Code requirements	**$626,400**	$53 / SF
2	Renovate to comply with ADA/Life Safety/Code requirements, replace MEP systems and remodel interior	**$2,574,000**	$218 / SF
3	Demolish existing facility and construct new slab-on-grade, one-story recreation building with site improvements. Footprint shall be approximately equal to the existing building perimeter.	**$5,580,000**	$473 / SF

Option 1

Abate the existing building and comply with current ADA/Life Safety/Code requirements.

Preliminary Cost Analysis

A.	Building Abatement	Allowance	$35,000
	Remodel restrooms for ADA compliance		100,000
	Add fire protection system		$50,000
B.	Site Improvements (paving, sidewalks + landscape)		$250,000
	Sub-Total A + B		**$435,000**
C.	Design Contingency / General Conditions / OH&P	20% of A + B	$87,000
D.	**Total Construction Cost**		**$522,000**
E.	Project Soft Costs	20% of D	$104,400
F.	**Total Project Budget**		**$626,400**

All construction costs are expressed in 2019 dollars.

Preliminary Cost Analysis Definitions

A. **Building Abatement:** Includes removal of the identified/assumed ACMs by an Illinois Department of Public Health licensed asbestos contractor using methods in accordance with current applicable state and federal regulations.
Building Costs / Fixed Equipment: Gross Area x Unit Cost = Building Costs. Includes all costs of construction within five feet of the building line. Includes all equipment items which may be installed before completion of the building and which are a part of the construction contract, such as fixed seating, countertops, etc. Includes demolition work cost.

B. **Site Improvements:** includes all work required which lies within the construction limit boundary and five feet from the edge of the building. Cost includes new sidewalks, curbs, site graphics, site lighting, landscaping, and parking improvements.

C. **Design Contingency:** A percentage of the total construction cost is included to serve as a design contingency.

D. **Total Construction Cost:** This represents the total budget for construction.

E. **Project Soft Costs:** Costs of architectural / engineering services. Includes all moveable furniture and the related design fee. It does not include office equipment such as computers, fax machines, printers, copiers, telephones, etc. A percentage of the total construction cost is included to serve as a construction reserve for change orders. Also includes items the Owner is responsible for during the planning process, i.e. legal fees, site survey, soil testing, insurance, material testing, etc.

F. **Total Project Budget:** This represents the total project budget required to occupy the proposed facility and site improvements.

Option 2

Renovate to comply with ADA/Life Safety/Code requirements, replace MEP systems and remodel interior.

Preliminary Cost Analysis

A.	Building Abatement	Allowance	$35,000
	Remodel restrooms for ADA compliance		$100,000
	Add fire protection system		$50,000
	Upgrade electrical lighting/fire alarm/power/data		$410,000
	Exterior Stair Repair		$15,000
	Paint interior		$25,000
	Install new ceiling grid and acoustic panels		$65,000
	New sports flooring in Fellowship Hall / Multipurpose		$72,500
	Tree removal (2)		$4,000
	Repair perimeter building soffits		$7,500
	Replace exterior windows		$70,000
	Replace exterior doors		$55,000
	Replace exterior + interior door hardware		$25,000
	Kitchen improvements (triple basin ,flooring, ceiling, counters)		$30,500
	Replace HVAC		$413,000
	Replace galvanized plumbing		$110,000
	Miscellaneous (shingle repair/clean, roof ladder, signage, etc.)		$50,000
B.	Site Improvements (paving, sidewalks + landscape)		$250,000
	Sub-total A + B		**$1,787,500**
C.	Design Contingency / General Conditions / OH&P	20% of A + B	$357,500
D.	**Total Construction Cost**		**$2,145,000**
E.	Project Soft Costs	20% of D	$42,900
F.	**Total Project Budget**		**$2,574,000**

All construction costs are expressed in 2019 dollars.

Preliminary Cost Analysis Definitions

A. **Building Abatement:** Includes removal of the identified/assumed ACMs by an Illinois Department of Public Health licensed asbestos contractor using methods in accordance with current applicable state and federal regulations.
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B. **Site Improvements:** includes all work required which lies within the construction limit boundary and five feet from the edge of the building. Cost includes new sidewalks, curbs, site graphics, site lighting, landscaping, and parking improvements.

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D. **Total Construction Cost:** This represents the total budget for construction.

E. **Project Soft Costs:** Costs of architectural / engineering services. Includes all moveable furniture and the related design fee. It does not include office equipment such as computers, fax machines, printers, copiers, telephones, etc. A percentage of the total construction cost is included to serve as a construction reserve for change orders. Also includes items the Owner is responsible for during the planning process, i.e. legal fees, site survey, soil testing, insurance, material testing, etc.

F. **Total Project Budget:** This represents the total project budget required to occupy the proposed facility and site improvements.

Option 3

Demolish existing facility and construct a new slab-on-grade, one-story recreation building with site improvements. Footprint shall be approximately equal to the existing building perimeter.

Preliminary Cost Analysis

A.	Building Abatement	Allowance	$35,000
	New Building Construction	11,800sf x $300/sf	$3,540,000
B.	Site Improvements (paving, sidewalks + landscape)	Allowance	$300,000
	Sub-Total A + B		**$3,875,000**
C.	Design Contingency / General Conditions / OH&P	20% of A + B	$775,000
D.	**Total Construction Cost**		**$4,650,000**
E.	Project Soft Costs	20% of D	$930,000
F.	**Total Project Budget**		**$5,580,000**

All construction costs are expressed in 2019 dollars.

Preliminary Cost Analysis Definitions

A. **Building Abatement:** Includes removal of the identified/assumed ACMs by an Illinois Department of Public Health licensed asbestos contractor using methods in accordance with current applicable state and federal regulations.
Building Costs / Fixed Equipment: Gross Area x Unit Cost = Building Costs. Includes all costs of construction within five feet of the building line. Includes all equipment items which may be installed before completion of the building and which are a part of the construction contract, such as fixed seating, countertops, etc. Includes demolition work cost.

B. **Site Improvements:** includes all work required which lies within the construction limit boundary and five feet from the edge of the building. Cost includes new sidewalks, curbs, site graphics, site lighting, landscaping, and parking improvements.

C. **Design Contingency:** A percentage of the total construction cost is included to serve as a design contingency.

D. **Total Construction Cost:** This represents the total budget for construction.

E. **Project Soft Costs:** Costs of architectural / engineering services. Includes all moveable furniture and the related design fee. It does not include office equipment such as computers, fax machines, printers, copiers, telephones, etc. A percentage of the total construction cost is included to serve as a construction reserve for change orders. Also includes items the Owner is responsible for during the planning process, i.e. legal fees, site survey, soil testing, insurance, material testing, etc.

F. **Total Project Budget:** This represents the total project budget required to occupy the proposed facility and site improvements.

3

Existing Drawings

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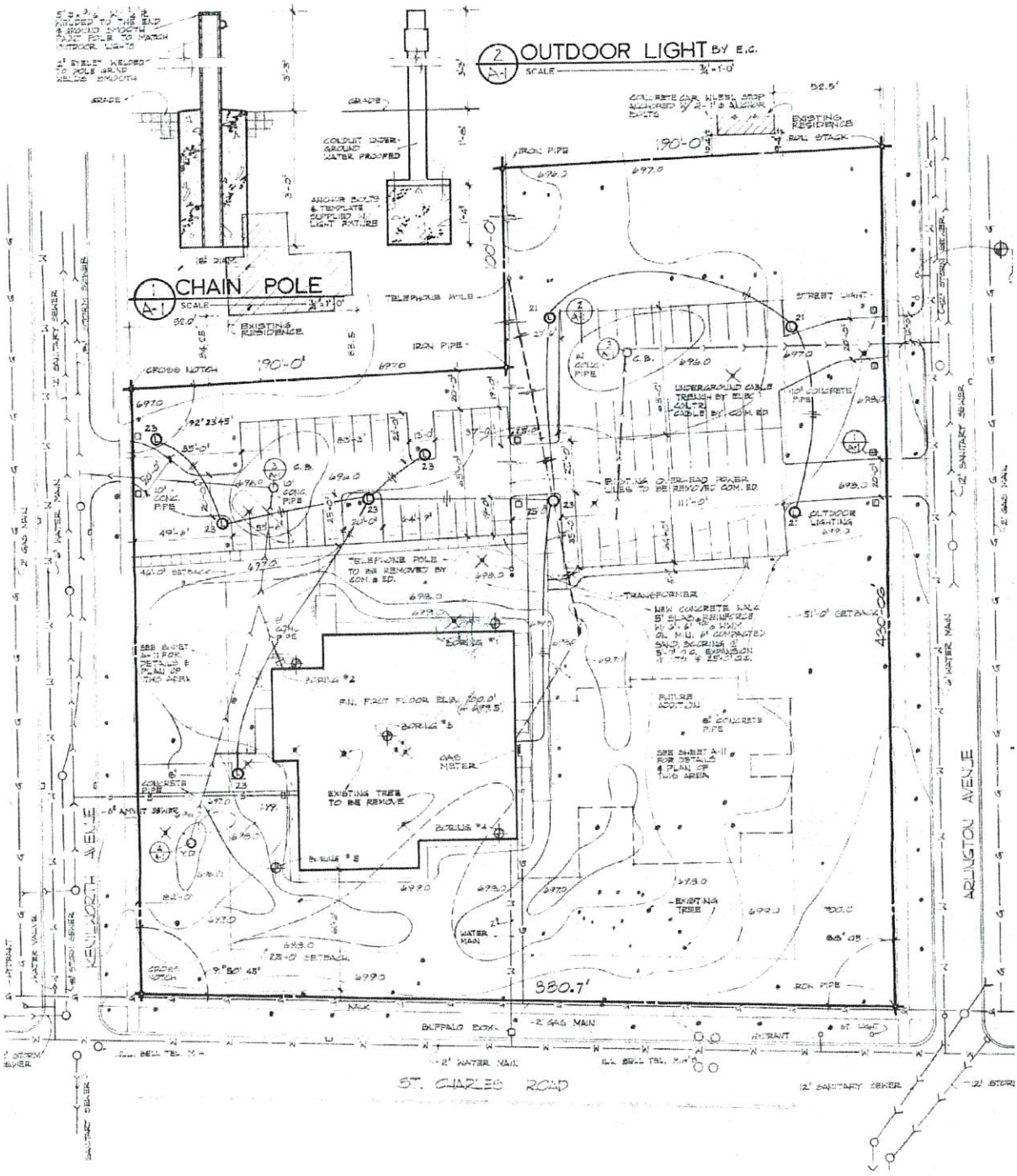

Site Plan

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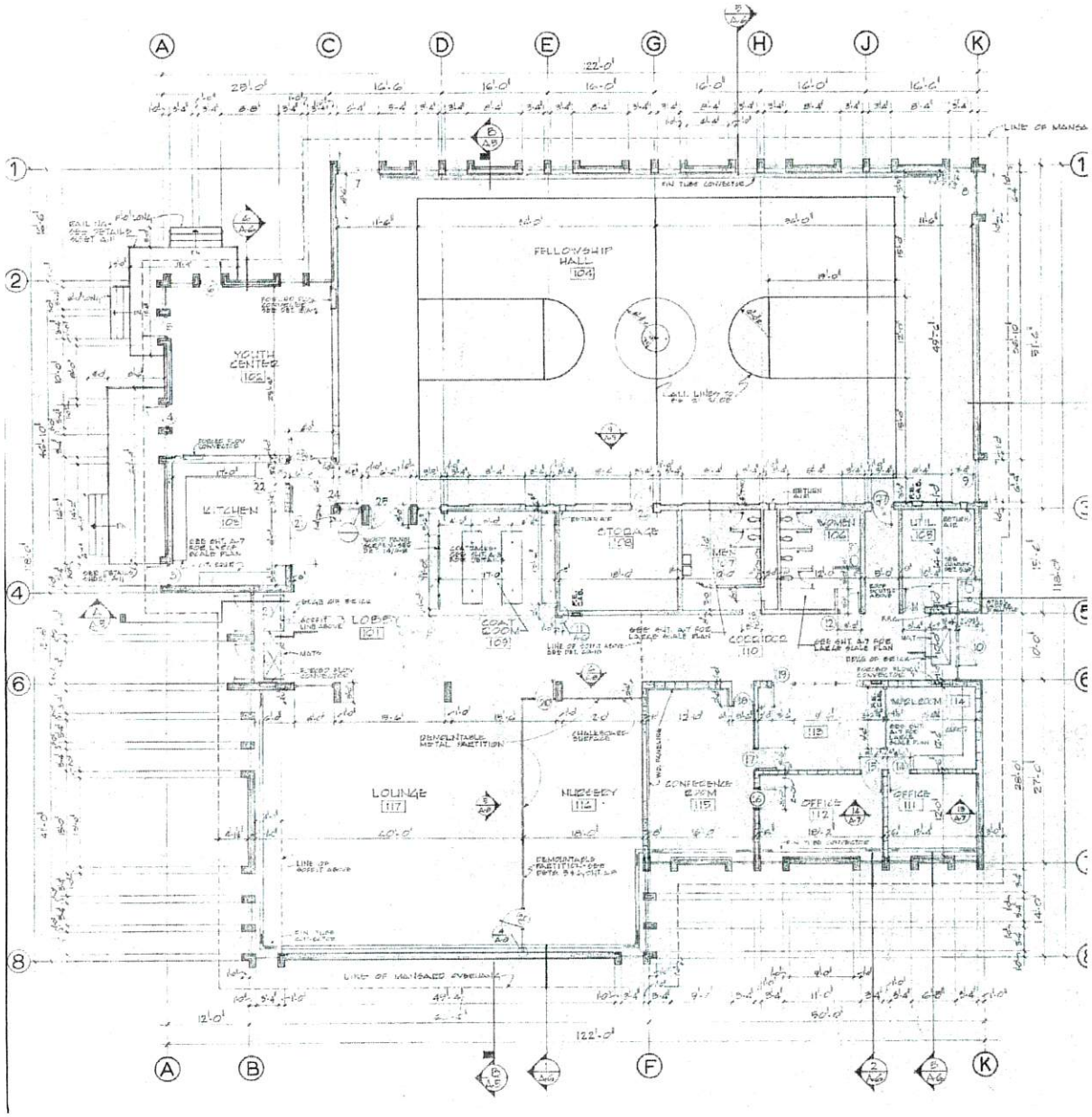
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104
YOUTH CENTER
102
KITCHEN
105
LOBBY
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COAT ROOM
109
LOUNGE
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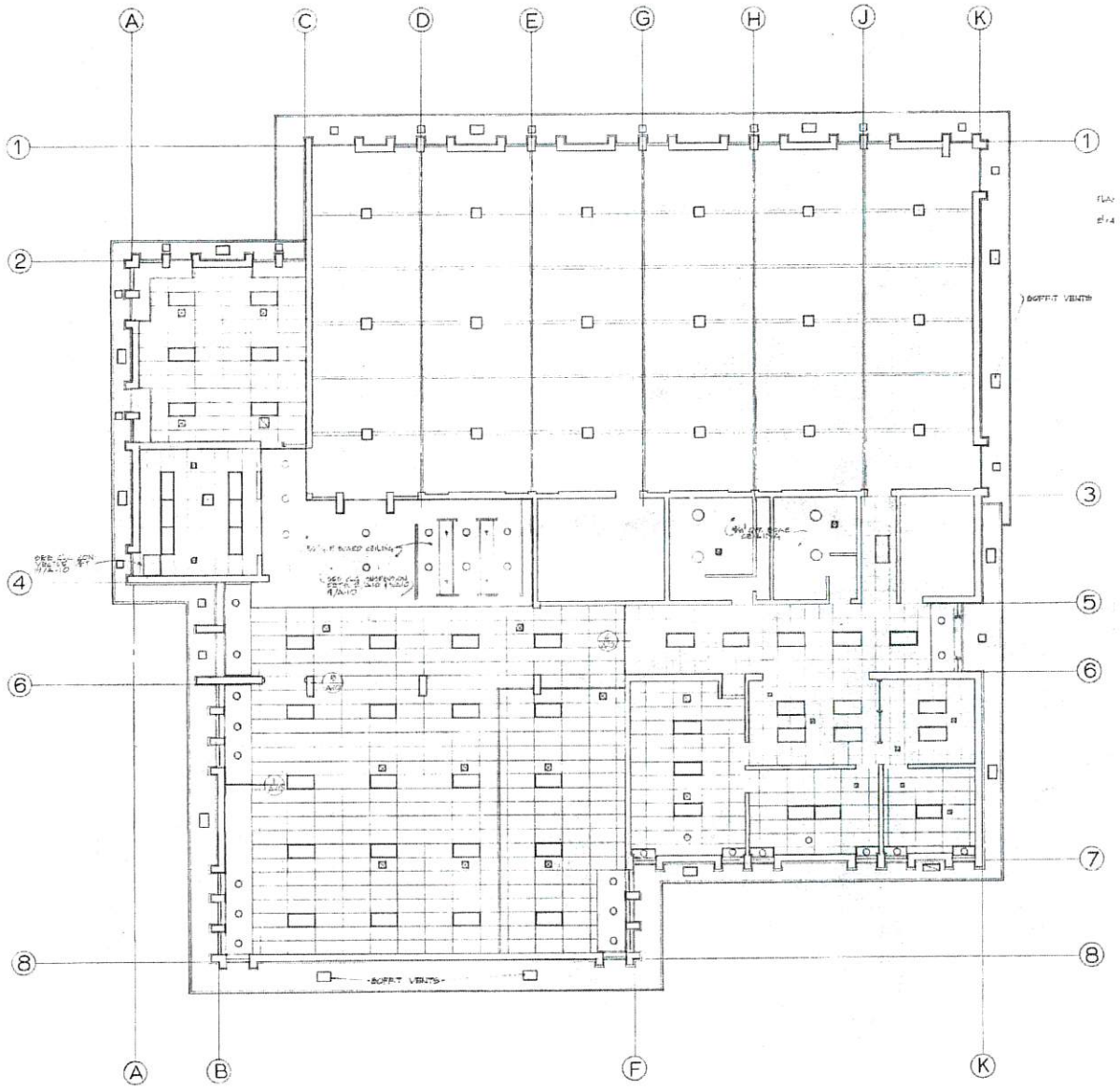
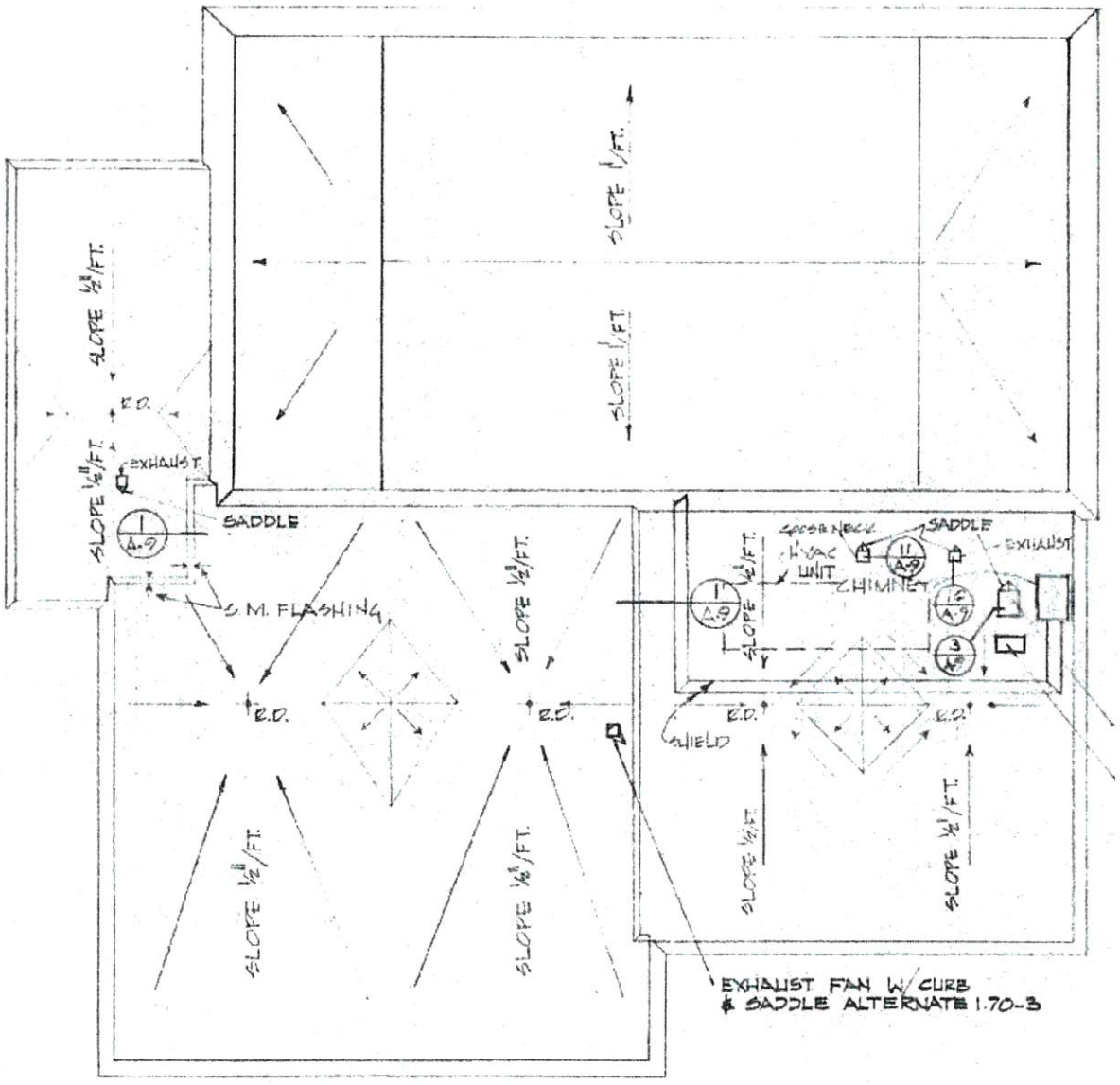
NURSERY
112
CONFERENCE ROOM
115
OFFICE
112
OFFICE
111
WELCOME
114
WOMEN
102
MEN
103
LIFE COACH
110
DEMOUNTABLE METAL PARTITION
LINE OF MANSARD OVERHANG
122'-0"

Floor Plan



Reflected Ceiling Plan



Roof Plan

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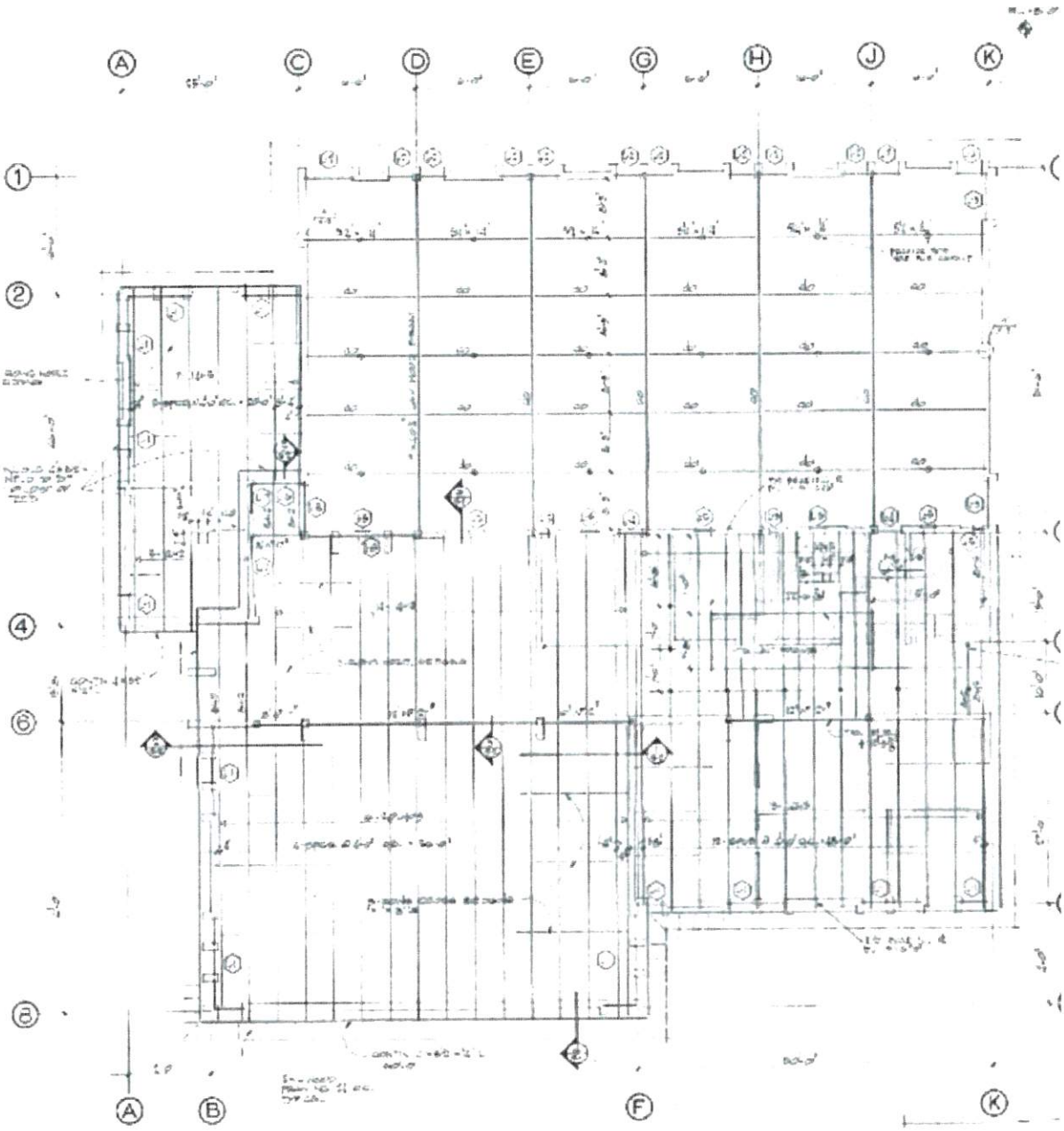
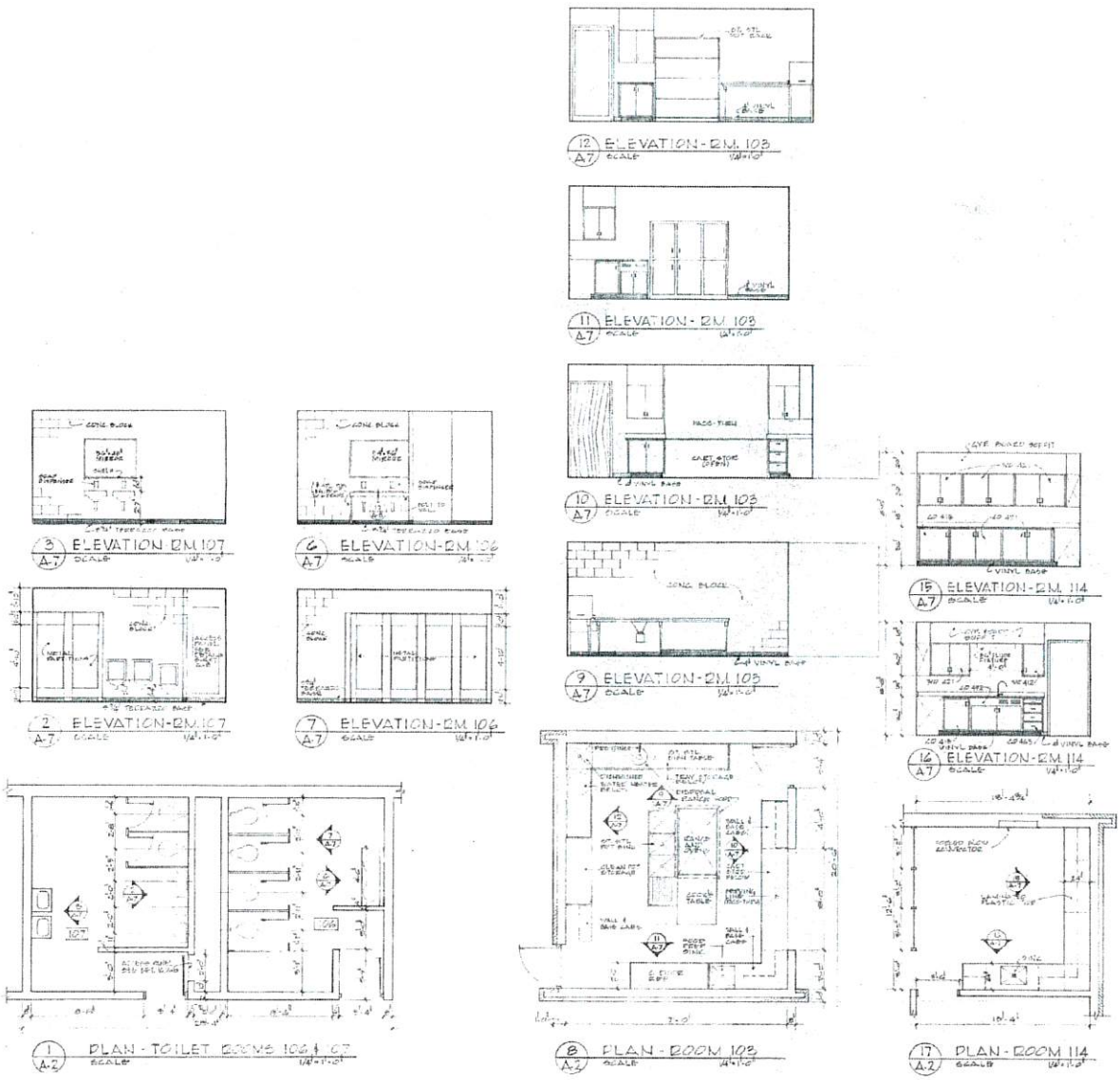
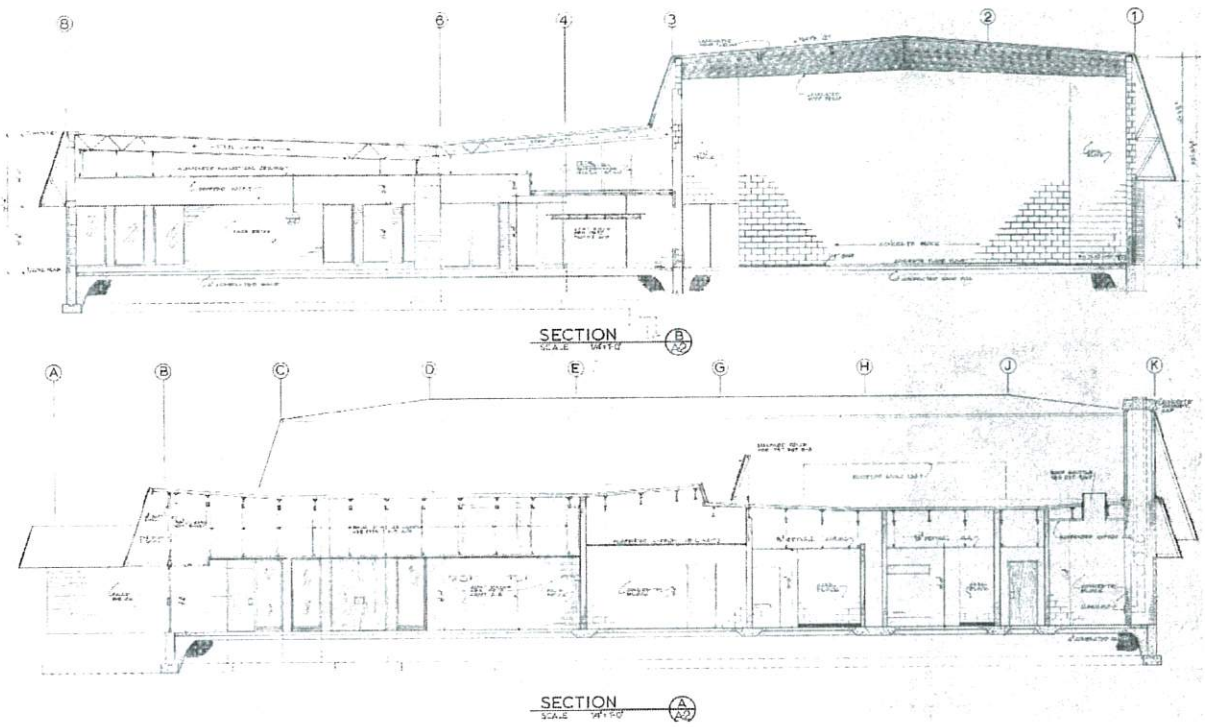


Roof Framing Plan



Enlarged Floor Plans + Interior Elevations

Dewberry



Building Sections

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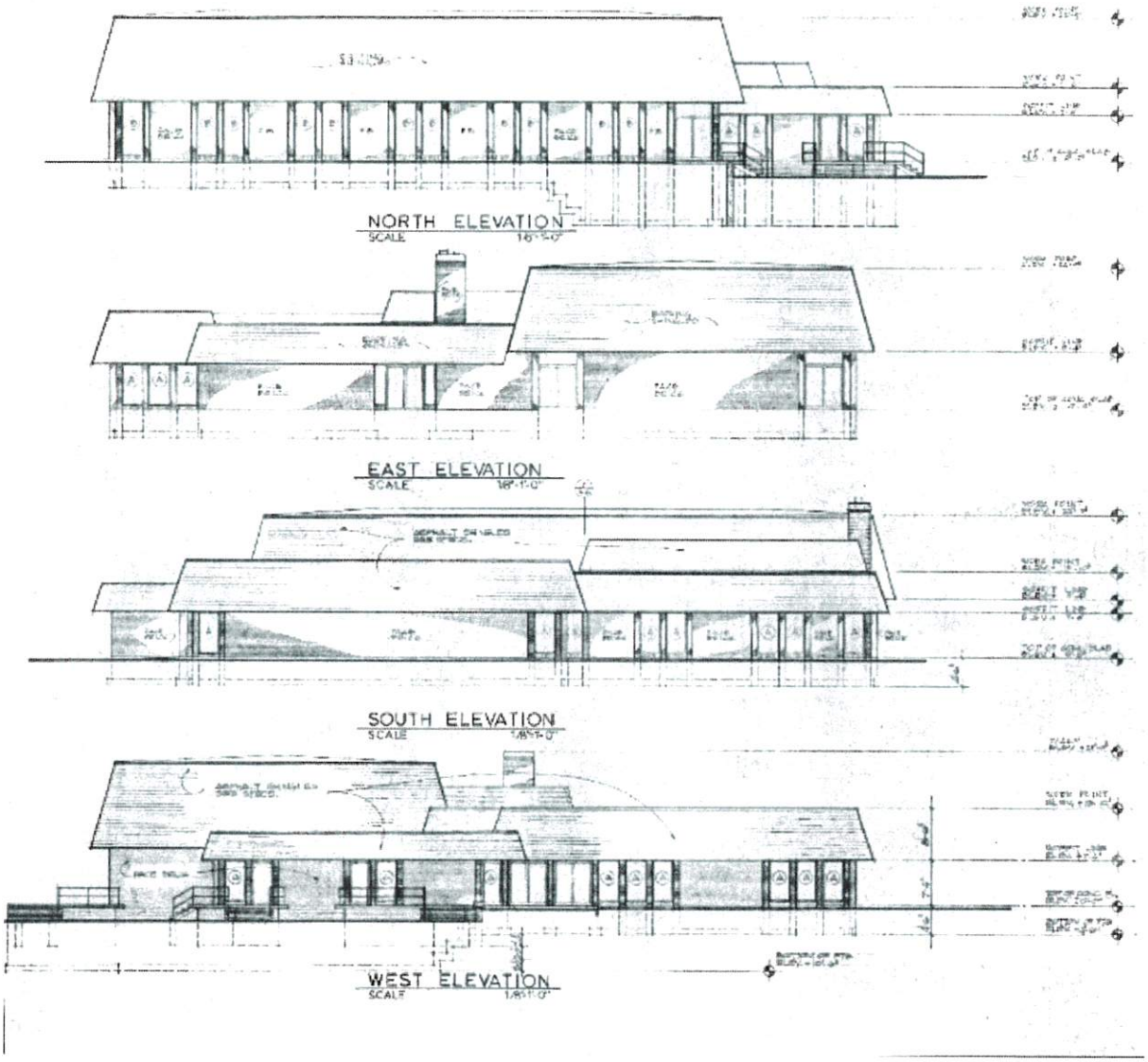
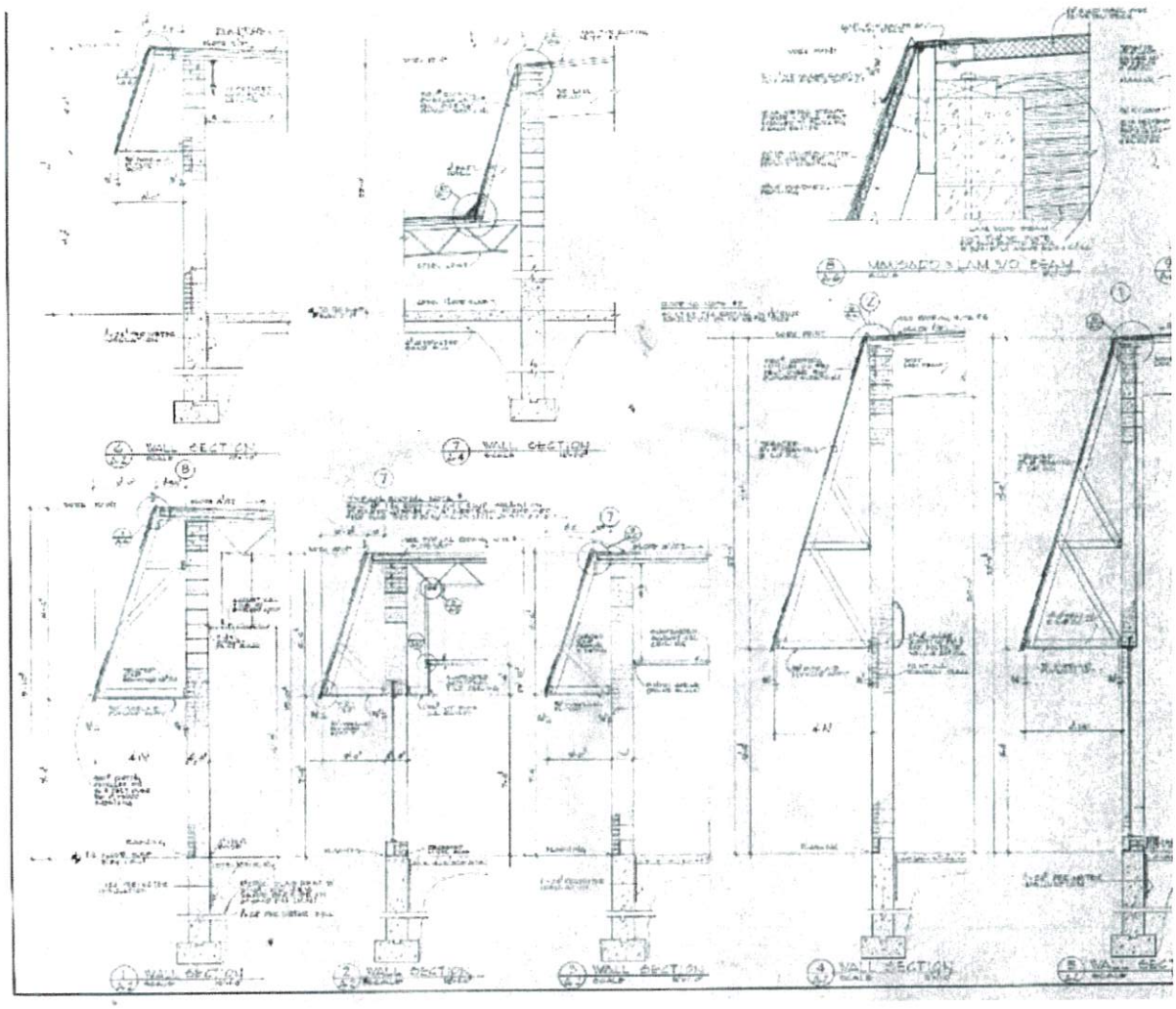


Exterior Building Elevations



Wall Sections / Details