



YOUR GOALS. OUR MISSION.

**FIRST UNITED METHODIST CHURCH
319 LAREINE AVE, BOROUGH OF BRADLEY BEACH, NJ
INITIAL DUE DILIGENCE FACILITY EVALUATION
MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL**



Prepared for:
Borough of Bradley Beach
701 Main Street
Bradley Beach, NJ 07720-1089

Prepared by:
T&M Associates
1144 Hooper Avenue
Suite 202
Toms River, NJ 08753

M. Elaine Dasti, PE
Professional Engineer
New Jersey License Number 24GE05120300

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I. PURPOSE, LIMITATIONS AND PROCESS

Intent

The Borough of Bradley Beach engaged T&M Associates (T&M) to provide pre-development, pre-schematic planning, schematic design, and cost estimating services for the potential redevelopment of the First United Methodist Church Building and Gymnasium located at 319 Lareine Ave, Borough of Bradley Beach, NJ. As part of the pre-schematic planning effort T&M has assessed the condition of the MEP equipment and services at the building.

This building study is intended to provide a general review of existing conditions at the Church. The Rectory was not included in the review. The following systems were reviewed for the church building and gymnasium:

- Mechanical Systems
- Electrical Systems
- Plumbing systems

The general site review and the general building / structure / roofing were performed separately and are not included in this review.

Scope

This report is based on information obtained through architectural plans provided by the Borough and a site visit conducted on October 22, 2021. T&M visited the site to do an inspection of the equipment. This included a visual inspection of all equipment that could not be directly accessed. All findings are listed below, with recommendations on what needs to be replaced.

Our review was limited to the major building systems and does not include recommendations or budget cost estimates for furniture/equipment, finishes, telephone/computer systems, food equipment, elevator equipment, Church organ, handicapped accessibility or the detection or removal of hazardous materials. The building has not been reviewed for compliance with current codes.

Our site visit was limited to visual observations of portions of the referenced building and as such, this report is not intended to identify any other structural, mechanical, or electrical deficiencies of any kind that were not observed at the time of our visit.

II. EXISTING CONDITIONS

The existing church is a multi-story structure with a basement, sanctuary level and upper level spaces totaling over 10,000 square feet in area.



It has been noted that the existing gymnasium space, which is approximately 3,000 sf in area, is not part of the original construct and may be considered for demolition in order to comply with Borough parking requirements. The gymnasium is also being considered for renovation.

A. Heating, Ventilation and Air Conditioning Systems

First United Methodist Church

The building HVAC services only include heating. The building is not served by any mechanical cooling or ventilation except for a small number of ceiling fans and plug-in fans in the sanctuary and surrounding rooms.

Building heating is provided by four (4) Weil-McLain, oil-fired, steam boilers located in a basement boiler room below the Sanctuary Level nave. These boilers were manufactured in 2004. They are in fair condition however much of the connected steam piping is severely rusted and corroded. The boiler exhaust air is expelled out through a combined flue with a power ventilator at the street level.

The boilers are supplied with #1 or #2 fuel oil from a 400-gallon tank, pump, and filters within the room. The Roth tank was manufactured in 2004 and is in fair condition. The other parts of the fuel oil system appear to be around the same age and condition.

The steam condensate tank and pumps are disconnected from the system and are in complete disrepair.

The steam system serves various radiators throughout the building. The radiators appear to be older than the boilers and in fair condition. Steam piping is generally in poor condition with visible rust and severe insulation tearing.

There is a blower unit below the organ that we assume serves the organ.

Gymnasium

The gym is served by two (2) steam fan-coil units in the Madison Ave stairwell and steam radiators in the entrances. All gym equipment is in poor condition.

B. Plumbing Systems

First United Methodist Church

Water Distribution Systems:

The domestic water service piping in the building is mixed type 'L' copper with soldered joints and cast iron with threaded fittings. The main enters the building in the



basement. There is a main shut-off valve, but no meter or backflow preventer. The domestic water piping appears to be original and there are no signs of leaks or breaks. At the time of our site visit the water service water turned off. There is one (1) electric water heater located in the basement.

The water heater is an AO Smith, 50-gallon with a 4500-watt upper/lower element. The water heater was manufactured in 2013 and appears to be in fair condition. The only temperature control for the hot water is from the water heater aquastat. The water heater can be set aside for future use.

Sanitary Systems:

The sanitary, waste and vent system is mixed cast iron with hub and fittings and type 'L' copper with soldered joints. A portion of the piping is accessible in the basement ceiling and above the basement slab. There was no sign of leaks or cracks in the piping; however, the exterior condition of the piping is unknown. Most of the sanitary and vent piping appeared to be original.

The storm water is collected through gutters and downspouts and is routed to PVC piping at grade. The PVC piping discharges at various location around the building. Several pipes discharge in locations that may cause flooding/water intrusion issues.

Natural Gas Systems:

The natural gas system in the building supplies kitchen equipment in the basement. The service has been disconnected and the gas meter has been removed and capped at the exterior of the building.

C. Fire Protection Systems

First United Methodist Church

The building is not equipped with a wet sprinkler system.

Gymnasium

The building is not equipped with a wet sprinkler system.



D. Electrical Systems

First United Methodist Church

The building electrical system is fed via an overhead pole on Madison Avenue that feeds a 200A 120/240V panel in the basement closet near the gymnasium via an exterior utility meter.

There are multiple small recessed electrical panels with glass fuse breakers in different locations in the church that are likely over 50 years old. These panels feed area lighting and receptacles.

The building has a Notifier fire alarm system with the central panel located in the basement boiler room.

Gymnasium

The gym is served by the main electrical panel.

III. RECOMMENDATIONS

A. Heating, Ventilation and Air Conditioning Systems

First United Methodist Church

Since there are no existing mechanical cooling or ventilation systems, we recommend designing and adding new HVAC units to serve the renovated spaces.

The boiler and fuel oil system were in fair condition and could be set aside to be reused, which would require inspection before using; however, at 17 years old the boilers and fuel oil system are nearing the end of their median life expectancy. We recommend using a new heating system for any building renovations.

The steam piping would require ultrasonic pipe thickness testing, destructive sample testing, or a combination of these test methods to determine if the piping system can be reused. Based on our visual inspection of the condition of the pipe exterior, we recommend installing new steam piping for any building renovations.

Gymnasium

The gym HVAC systems should not be reused for renovations. Any gym renovations should be provided with new systems.



B. Plumbing Systems

First United Methodist Church

Water Distribution Systems:

We recommend a new domestic water service to the building be provided with main shutoff valve, meter, and backflow preventor. Piping 3-inches and smaller shall be type L copper tube with wrought copper fittings. Solder will be lead-free, 95-5 type solder. Prior to use, the distribution system will be sterilized with hypochlorite solution. We also recommend full port ball valves and shock absorbers as required. All domestic water piping shall be insulated back to service shut-off valve.

The water heater can be reused and shall produce hot water at 140 degrees F that will be reduced to 120 degrees F, by a central thermostatic mixing valve station located at the water heater for circulation. Hot water at 120 degrees F will be provided to mop receptors, service sinks and lavatories in the toilet rooms. Lavatories will incorporate separate thermostatic mixing valves for reducing the supply temperature to 110 degrees F. Each thermostatic valve will meet ASSE 1070 Code Standards.

Sanitary Systems:

Sanitary laterals below basement slab and gymnasium ceiling shall be scoped and flushed. Laterals to be determined if they can be utilized for future use. If laterals are found to have cracks or dips, we recommend replace each main back to street.

Route storm piping discharge away from building.

Natural Gas Systems:

If natural gas is to be used, a gas load letter would need to be provided to the local gas company. All piping in the building to be schedule 40 black steel. Each equipment connection to have shutoff valve and dirt leg.

C. Fire Protection Systems:

First United Methodist Church and Gymnasium

If the Building use and occupancy classification is to change, the building would be required to be fully sprinklered in accordance with 2018 International Building Code (IBC), Chapter 9 Section 903.

“Fully sprinklered” means that all spaces of the building will be provided with automatic sprinklers, including, mechanical equipment rooms, electrical equipment rooms, elevator shafts, elevator machine rooms and telecommunications equipment rooms.



Additional spaces to include all assessable combustable spaces throughout the building.

Safety Factor: The hydraulic design of all sprinkler systems will include a minimum ten (10) percent or 10 psi safety factor (whichever is greater) over and above the system demand including hose stream allowance.

Inspectors Test and/or Drain Connections shall be piped to a safe location outside so that test/drain valve may be fully opened for a sufficient amount of time without causing water damage. Concrete splash blocks will be provided at all test connection/drain discharge points.

Piping for the wet-pipe sprinkler systems will be black steel, Schedule 40 (2" and smaller) or Schedule 10 (2½" and larger).

New fire service to the building would be required to handle the sprinkler system demand. The service shall be located in the basement and include a one (1) double detector check valve and wet system alarm valve. All valves and flow switches shall be connected to the building fire alarm system.

D. Electrical Systems

First United Methodist Church

The main electrical panel in the basement will likely need to be replaced because the existing 200A service will likely not be sufficient to meet the needs of the new HVAC system and any new elevators added. If the existing panel is able to remain, all electrical equipment will likely need to be demolished back to the panel. New local panels should be added to support the new space.

The fire alarm system should be replaced with a new fire alarm panel to support the new building space. All existing devices should be removed and replaced with new devices that are supported by the new system.

Gymnasium

The gym electrical system will be fed from a new panel fed from the main electrical panel. The fire alarm devices shall be supported from the main church fire alarm panel.

APPENDIX A

MECHANICAL PHOTOGRAPHS



Image 1. Front view of boilers in basement boiler room

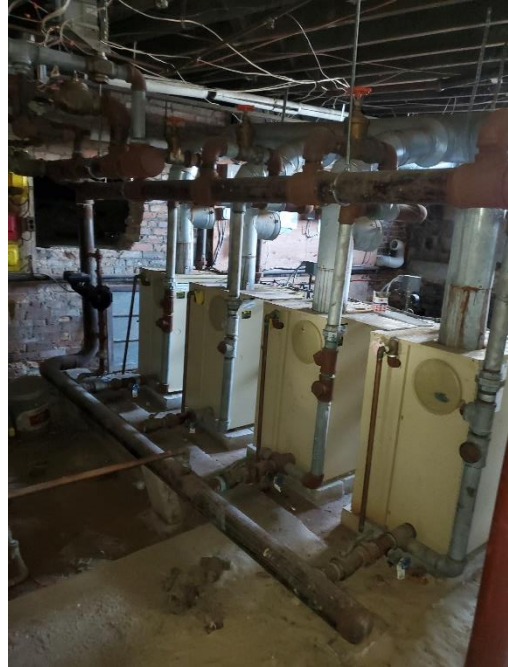


Image 2. Back view of boilers in basement boiler room



Image 3. Fuel oil tank, pump, and filter system in the basement boiler room



Image 4. Steam Condensate System in the basement boiler room



Image 5. Steam Condensate System in the basement boiler room



Image 6. Boiler Room steam pipe

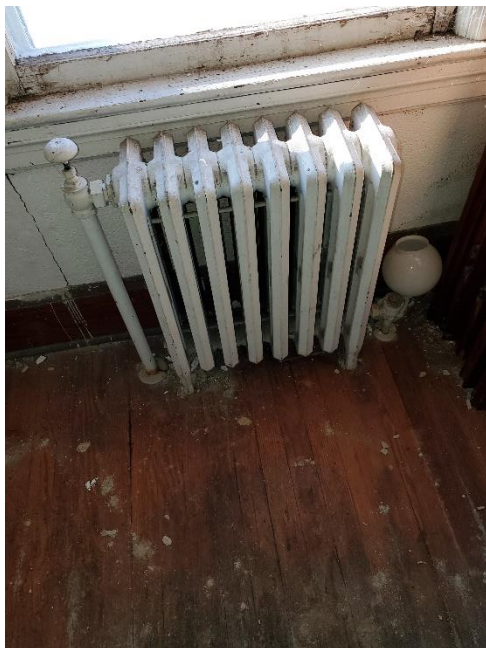


Image 7. Typical Building Steam Radiator



Image 8. Typical Sanctuary Decorative Radiator



Image 9. Gymnasium fan coil blower



Image 10. Blower unit below the organ