

W-T MECHANICAL / ELECTRICAL ENGINEERING, LLC

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December 31, 2008

**Jaeger, Nickola & Associates, Ltd.
350 S. Northwest Hwy.
Suite 106
Park Ridge, Illinois 60068**

Attn: Mr. Douglas Lasch, AIA

Dear Doug,

Pursuant to your request the following is an existing conditions building report for mechanical, electrical and plumbing systems at St. Gregory Episcopal Church.

MECHANICAL

Basement Boiler Room Condition

This space contains two Weil-McClain hot water boilers, 816 Mbh output each. The boilers are approximately 50 years old and in fair condition, however, they are at the end of there expected life and increasing repairs and maintenance can be expected. The boilers serve seven (7) zones, 1-parish hall/ kitchen, 2-west wing & south, 3-offices/ guild room/ toilets/ hall, 4-Father office, 5-second floor office, 6-church, 7-acolyte room/ sacristy. Each zone has an inline pump that is controlled by a wall-mounted thermostat in the zone. Four of the pumps appear to be relatively new and in fair condition, the remaining three are in poor condition, one pump was severely leaking at the time of the survey. It appears that the zones were once controlled by timeclocks, these would allow the pumps to operate only during certain periods of the day the timeclocks have since been abandoned. The boilers have controls to adjust the supply water temperature based on the outside air temperature. At the time of the survey, some of the zones were not heating properly reportedly due to excessive air in the system. Service personnel were working on the problem. No chemical feed or filter systems were observed. There is little to no insulation on the hot water piping.

Code Violations

Combustion air openings were not observed near the boiler and the combustion air opening in the mechanical room to the north is not large enough to serve the boilers and furnaces.

Recommendations

Replace existing boilers with high efficiency boilers with sealed combustion. Provide a primary-secondary piping arrangement with an air separator; side stream filters and chemical feed

system. Provide dual secondary pumps with variable speed drives, provide individual zone valves controlled by the zone thermostats. Provide insulation on all hot water piping.

The payback for the new boilers should be relatively short due to the greater efficiency. Other advantages are better temperature control, much smaller footprint, and sealed combustion would eliminate the need for combustion air intakes



Basement Mechanical Room Condition

This space contains two York gas fired furnaces with refrigerant cooling coils. The associated 3.5-ton condensing units are located on grade north of the Chapel. Furnaces serve the west half of the Sanctuary and Bride's Room. 30"x8" combustion air opening above exterior door with manual damper. The furnaces and condensing units are approximately 10 years old and in fair condition, the condensing units have some corrosion damage at the bases.



Code Violations
None

Recommendations
Provide automatic damper on combustion air opening to open when furnaces are operating, this will reduce the heating and cooling load to the building.

Bride's Room
Condition

Supply and return registers in soffit and bathroom ceiling. Cool in Bride's Room, hot in bathroom

Code Violations
None

Recommendations
Rebalance airflow between the two rooms.

First Floor

Chapel

Condition

This room contains baseboard heaters, wall mounted supply and return grilles from furnaces in basement, and a wall mounted zone thermostat. Baseboard is in fair condition.



Code Violations

None

Recommendations

None

Coats

Condition

This room contains baseboard heater, ductwork from basement furnaces routed up walls. Baseboard is in fair condition.



Code Violations

None

Recommendations

None

Narthex

Condition

This room contains a cabinet heater. Cabinet heater is in fair condition.

Code Violations

None

Recommendations

None

Nave
Condition

This room contains cabinet heaters, wall mounted supply and return grilles from furnaces in basement, wall mounted thermostat. Wall grilles are in good condition. Cabinet heaters are in fair condition.



Code Violations

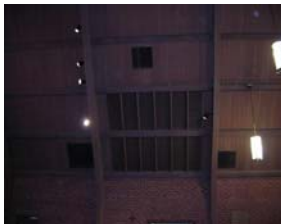
None

Recommendations

None

Sanctuary
Condition

This room contains cabinet heaters, ceiling mounted supply and return grilles from fan coil unit in attic. Ceiling grilles are in good condition. Cabinet heaters are in fair condition.



Code Volitions

None

Recommendations

None

Chancel
Condition

This room contains baseboard heaters. Baseboard is in fair condition.

Code Violations

None

Recommendations

None

**Working Sacristy
Condition**

This room contains a cabinet heater. Heater is in fair condition.

Code Violations
None

Recommendations
None

**Sacristy
Condition**

This room contains a cabinet heater. Heater is in fair condition.

Code Violations
None

Recommendations
None

**Acolyte
Condition**

This room contains a cabinet heater and a wall mounted zone thermostat. Heater is in fair condition.

Code Violations
None

Recommendations
None

**Men's
Condition**

This room contains a cabinet heater and a ceiling exhaust fan controlled by light switch. Heater is in fair condition. Exhaust fan is noisy

Code Violations
None

Recommendations
Replace noisy exhaust fan.

**Women's
Condition**

This room contains a ceiling exhaust fan controlled by light switch. Exhaust fan is in fair condition. No heater in room, however the room is warm due to the boiler and piping directly below.

Code Violations

None

Recommendations

This room may need a heater if the boilers are replaced and the hot water piping is insulated.

Many of the following rooms have removable window mounted air conditioning units. These units are removed during the heating season and stored in the basement.



Youth Minister Office

Condition

This room contains a cabinet heater. Heater is in fair condition.

Code Violations

None

Recommendations

None

Rector

Condition

This room contains cabinet heaters and a wall mounted zone thermostat. Heaters are in fair condition.

Code Violations

None

Recommendations

None

Library

Condition

This room contains a cabinet heater. Heater is in fair condition.

Code Violations

None

Recommendations

None

Classrooms at Southwest Wing
Condition

These rooms contain cabinet heaters. Heaters are in fair condition. Two wall mounted thermostat, one for daytime heating and one for nighttime heating.



Code Violations
None

Recommendations
None

Pre-School Office
Condition

This room contains a cabinet heater. Heater is in fair condition.

Code Violations
None

Recommendations
None

Jr. Nursery, Sr. Nursery, Parker Room
Condition

These rooms contain cabinet heaters. Heaters are in fair condition.

Code Violations
None

Recommendations
None

Boys and Girls Bathrooms
Condition

These rooms contain wall mounted exhaust grilles. Grilles appear to be dirty and partially clogged.

Code Violations
None

Recommendations

None

Parish Office

Condition

This room contains a cabinet heater. Heater is in fair condition.

Code Violations

None

Recommendations

None

Work Room

Condition

This room contains a cabinet heater and a wall mounted zone thermostat. Heater is in fair condition.

Code Violations

None

Recommendations

None

Founders Hall

Condition

This room contains cabinet heaters, ceiling mounted diffusers and grilles and wall-mounted thermostats. Heaters are in fair condition. Ceiling diffusers and grilles are in good condition. This space is heated by the hot water cabinet heaters and cooled by two (2) fan coil units located above the ceiling. These fan coil units (fcus) are cooling only with a refrigerant coil and associated 5 ton condensing units on grade east of the kitchen. Access to the fcus is thru the second floor apartment. The fcus are approximately 10 years old and in fair condition, the condensing units were replace approximately 2 years ago and are in good condition.



Code Violations

None

Recommendations

None

Kitchen

Condition

This room contains a ceiling mounted supply diffuser, cabinet heater, ceiling exhaust grille connected to exterior wall mounted exhaust fan. Cabinet heater mounted behind sink cabinets with grille openings on counter. A wall switch controls the exhaust fan, fan is noisy. Supply diffuser provides cooling, connected to fan coil unit.



Code Violations

Commercial cooking equipment requires commercial grease exhaust hood with fire suppression system.

Recommendations

Provide commercial exhaust hood and wall mounted exhaust fan.

Coats

Condition

This room contains a ceiling mounted supply diffuser and cabinet heaters. Supply diffuser provides cooling, connected to fan coil unit. Cabinet heaters are in fair condition.

Code Violations

None

Recommendations

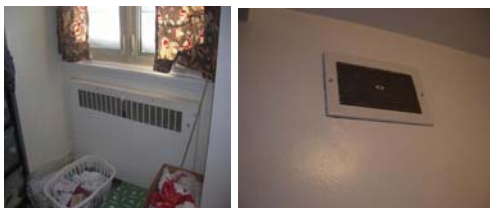
None

Second Floor

Sexton Apartment

Condition

The apartment contains baseboard heaters, wall mounted exhaust grille in kitchen, ceiling mounted exhaust fan in bathroom, and a wall mounted zone thermostat. The apartment has removable window mounted air conditioners; these are removed during the heating season. Baseboard is in fair condition, however, due to air in the hot water system some heaters were not operating. Exhaust grille in kitchen clogged with grease.



Code Violations

None

Recommendations

None

Mechanical room

Condition

This room contains a York fan coil unit, cooling only refrigerant coil. Associated 7.5 ton condensing unit is located on grade east of Chancel. This unit serves the Sanctuary. FCU and condensing unit are approximately 10 years old and in fair condition.



Code Violations

None

Recommendations

None

Furnace room

Condition

This room contains a gas fired York furnace with a refrigerant cooling coil. The associated 5-ton condensing unit is located on grade east of Chancel. This unit serves the second floor (except Sexton Apt). Furnace and condensing unit are approximately 10 years old and in fair condition. Combustion air is ducted into room from roof intake hood.



Code Violations

None

Recommendations

None

Youth Room

Condition

This room contains ceiling mounted supply diffusers and wall mounted return grilles. Wall mounted thermostat. Room is heated and cooled by furnace. Diffusers and grilles are in fair condition.

Code Violations

None

Recommendations

None

Classrooms on Southeast

Condition

These rooms contain ceiling mounted supply diffusers and wall mounted return grilles. Rooms are heated and cooled by furnace. Diffusers and grilles are in fair condition. South classrooms were very hot.

Code Violations

None

Recommendations

Overheated classrooms may need air balancing to move more air into the Youth Room.

Storage Rooms on Southwest

Condition

These rooms contain ceiling mounted supply diffusers and ceiling mounted return grilles. Rooms are heated and cooled by furnace. Diffusers and grilles are in good condition.

Code Violations

None

Recommendations

None

Storage Room on Northwest

Condition

This room has no supply or return. Exposed ductwork at ceiling.



Code Violations

None

Recommendations

None

Choir Loft

Condition

This room contains baseboard heaters. Heaters are in fair condition.

Code Violations

None

Recommendations

None

Plumbing

First Floor

Sacristy

Condition

One (1) wall hung corner lavatory with dual handle faucet. The fixture appears to be in good condition.



Code Violations

None

Recommendations

Maintain fixture as required.

Men's Toilet

Condition

One (1) set tank type water closet, one (1) wall hung lavatory with dual handle faucet. Fixtures appear to be in good condition.



Code Violations

No floor drain, no temperature mixing valve on lavatory, no pipe insulation on lavatory, no offset waste on lavatory.

Recommendations

Correct code violations and maintain fixtures as required.

Women's Toilet

Condition

One (1) set tank type water closet, one (1) wall hung lavatory with dual handle faucet. Fixtures appear to be in good condition.



Code Violations

No floor drain, no temperature mixing valve on lavatory, no pipe insulation on lavatory, no offset waste on lavatory.

Recommendations

Correct code violations and maintain fixtures as required.

Corridor

Condition

One (1) single bowl sink with single handle faucet, one (1) china drinking fountain.



Code Violations

Drinking fountain not ADA compliant.

Recommendations

Correct code violations and maintain fixtures as required.

Janitor Closets

Condition

One (1) service sink with dual handle faucet. Fixture appears to be in fair condition.



Code Violations

No vacuum breaker on faucets.

Recommendations

Correct code violations and maintain fixtures as required.

Boy's Toilet

Condition

Two (2) floor set water closets, one (1) urinal, two (2) wall hung pedestal lavatories with dual handle faucets. Fixtures appear to be in fair condition.



Code Violations

No ADA compliant fixtures, no floor drain.

Recommendations

Correct code violations and maintain fixtures as required.

Girls Toilet

Condition

Two (2) floor set tank type water closets, one (1) floor set tank type baby bowl water closet, two (2) wall hung pedestal lavatories with dual handle faucets. Fixtures appear to be in fair condition.



Code Violations

No ADA compliant fixtures.

Recommendations

Correct code violations and maintain fixtures as required.

Kitchen

Condition

One (1) double bowl stainless steel sink with single handle faucet, spray and garbage disposer, one (1) dishwasher, one (1) single bowl stainless steel prep sink with dual handle spray hose. Fixtures appear to be in good condition.

Code Violations

None observed.

Recommendations

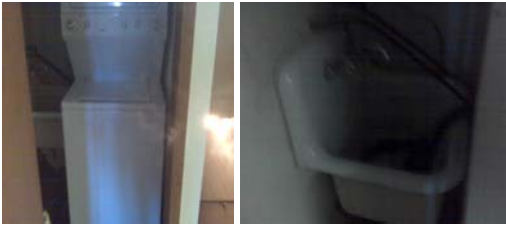
Maintain fixtures as required.

Second Floor

Janitor Closet

Condition

One (1) service sink with dual handle faucet, one (1) washing machine. Fixtures appear to be in fair condition.



Code Violations

None observed.

Recommendations

Maintain fixtures as required.

Sexton Apartment

Condition

One (1) floor set tank type water closet, one (1) wall hung lavatory with dual handle faucet, one (1) bathtub with dual handle valve, spout and head, one (1) double bowl stainless steel sink with single handle faucet and spray, One (1) dishwasher. Fixtures appear to be in fair / poor condition.



Code Violations

None observed.

Recommendations

Maintain fixtures as required.

Basement

Boy Scouts

Condition

One (1) concrete laundry tub with dual handle faucet, one (1) simplex sump pump. Fixture and equipment appear to be in fair condition.



Code Violations

Laundry tub drains into sump pump, no vent pipe for laundry tub.

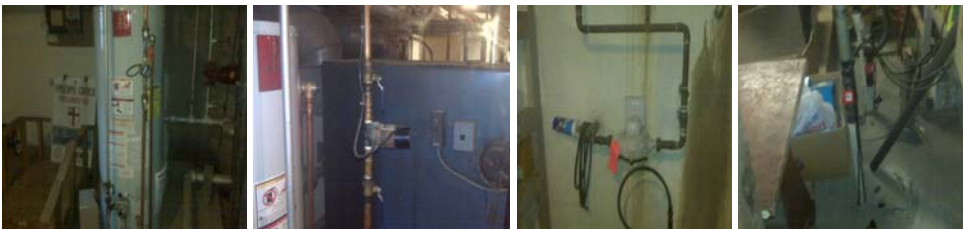
Recommendations

Correct code violations and maintain fixtures / equipment as required.

Boiler Room

Condition

One (1) 1 1/4" domestic water service, one (1) 1" water meter, one (1) 50 gallon 40,000 BTU water heater, one (1) cold water boiler feed, one (1) hot water recirculation pump, two (2) simplex sump pumps, one (1) floor drain. Equipment appears to be in good condition.





Code Violations

No reduced pressure backflow preventer on water service, no expansion tank on water heater, no backflow preventer on boiler feed.

Recommendations

Correct code violations and maintain equipment as required.

Mechanical / Electrical Room

Condition

One (1) simplex sewage ejector, one (1) simplex sump pump, one (1) floor drain. Equipment appears to be in good condition.



Code Violations

None observed.

Recommendations

Maintain equipment as required.

Brides Room

Condition

One (1) floor set tank type water closet, one (1) countertop lavatory with single handle faucet. Fixtures appear to be in good condition.



Code Violations

No ADA compliant fixtures.

Recommendations

Correct code violations and maintain equipment as required.

Building Exterior

Condition

Four (4) hose bibbs, drains in stairwells and area wells. Fixtures appear to be in good condition.

Code Violations

None observed

Recommendations

Maintain equipment as required.

Building Systems

Condition

The roof drains to exterior gutters and downspouts that connect to a underground storm sewer. The waste and vent system is constructed with cast-iron and galvanized piping. The water distribution system is constructed with galvanized and copper piping. The exterior storm sewer system appears to working correctly and is in good condition. The water distribution system mains have been replaced with copper piping, branch piping in plumbing wall is galvanized. This system is in poor condition.

Electrical

Basement Floor

North Electrical Mechanical Room

Main switchboard Manufacturer: Siemens
Rating: 400AMPS 120/240V 3-phase, 4 wire
Age of equipment: 1998
The equipment is in good condition.



Recommendations

None

Electrical Mechanical Room

Small single phase panel "PP-2A" on south toilet room wall. Feeds furnaces and bride's room. The equipment is in poor condition.



Recommendations

Replace 50 year old panel "PP-2A".

Bride's Room Toilet

The equipment condition is good

Recommendations

Provide GFCI type receptacle and emergency lighting.

Boiler Room

North wall panel "PP-3" 120/240V 3-phase 4 wire, 200 AMP feeder from main switchboard.
The equipment is in good condition.



Recommendations

None

North wall panel "PP-3" 120/240V 3-phase 4 wire, 125 feeder from main switchboard.
The equipment is in good condition.



Recommendations

None

Boiler Room West Wall

Main telephone services: Ameritech
The equipment is in good condition.



Recommendations

None

Boy Scouts

Five (5) rows of continuous 4 foot long, 2 lamp, florescent wraparounds with T12 lamps controlled by three (3) wall switches, two (2) receptacles on east wall, one (1) receptacle on west wall.

The equipment is in good condition.

Recommendations

Clean and relamp.

Basement

Recommendations

Exit signs "Leed" type with arrows as required, add emergency lighting units thru-out basement and extend fire alarm system to include basement.

First Floor Plan

Kitchen

Four (4) 4 foot 4 lamp T12 wraparound fluorescents receptacles, three (3) GFCI type, One (1) duplex receptacle on south wall. Fire alarm pull station, horn/strobe at door, heat detector on ceiling and electrical panel on west wall.

The equipment is in fair condition.

Recommendations

Replace electrical panel with more branch circuits to handle kitchen equipment 100Amp 120/240V.1 Φ 3 wire. Add exit sign over entry door #6 and add emergency lighting. Replace standard duplex receptacle with new GFCI type.

Code Violations

Add additional GFCI type receptacles.

Founders Hall

Recessed square fixtures with drop opal lenses, three (3) wall switches, two (2) receptacles on north and south walls, four (4) fire alarm smoke detectors with one (1) pull station and horn/strobe. Two exit signs over exit #4 and double doors to coat room.

The equipment is in very good condition.

Recommendations

Add pull station and horn/strobe at double doors leading to coat room and entry #5. Add emergency lighting.

Main Office Area

Janitor closet between boys and girls toilets; electrical panel on east wall 50 years old push-a-matic type circuit breakers.

The equipment is in poor condition.

Recommendations

Parts for push-a-matic type circuit breakers are difficult to find replace with new panel.

Parish Office

Three (3) ceiling light sconces, two (2) wall switches at entry #10, fire alarm pull station horn/strobe, ceiling fan with duplex receptacles on three walls.

Corridors

4 foot 4 lamp T12 wraparound fluorescent fixtures, smoke detectors, visuals.

Rector and Liberty

2' x 4' recessed 4 lamp T12 fluorescent, one (1) switch at door, duplex receptacle on each wall.

Parker Room

Four (4) ceiling sconces, duplex receptacles on each wall, two (2) wall switches.

Senior Nursery

Provide blank caps on east wall receptacle.

Four Classrooms

4 foot 4 lamp T12 surface mounted fluorescent wraparounds, capped receptacles in each room, smoke detectors in each room, horn/visuals in corridor, pull station at entry #3 and exit sign over door.

Men and Women's Toilets

Lighting and exhaust fans controlled by motion sensors.

Sacristy

Fire alarm control panel located in south wall at entry door #8, smoke detector located above FACP. Lighting 4 foot 4 lamp T12 fluorescent wraparound, leviton lighting controls for sanctuary located in corridor next to sacristy door.

The equipment is in good condition.



Recommendations

Add exit signs, emergency lighting, smoke detectors in offices, add visuals in men and women's toilets.

Sanctuary; Chancel and Chapel

Recessed and surface mounded incandescent fixtures. Sanctuary stem-mounted incandescent luminaires with bottom flood lights, exit sign at entry #9.



Coat area lighting has two (2) 4 foot light tracks with two (2) heads each. One (1) surface incandescent over stairs and one (1) over coats. The equipment is in excellent condition.

Recommendations

Add exit sign at chapel entry #9, exit sign at double doors to coats, exit sign at entry #1 and emergency lighting.

Second Floor Plan

Sexton Apartment

Bathroom - One (1) GFCI receptacle and combination light switch.



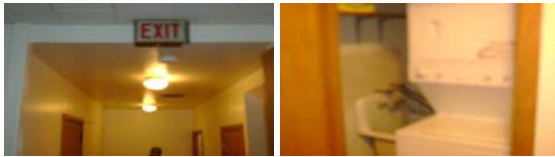
Kitchen – One (1) GFCI receptacle.
Apartment – Receptacles on each wall and light in kitchen and dining areas.
The equipment in the apartment is in good condition.

Recommendations

Add smoke detectors in bedroom.

Sexton Corridor

Two (2) surface mounted incandescent down-lights, one (1) battery smoke detector, one (1) exit sign over step.



First Classroom

Two (2) 4 foot 4 lamp fluorescent wraparounds with T12 lamps, duplex receptacles on each wall, access to attic thru closet wall.



Second Classroom

Two (2) 4 foot 4 lamp fluorescent wraparounds with T12 lamps, duplex receptacles on each wall, one (1) wall switch.



Third Classroom

Two (2) 2' x 4' recessed 4 lamp, T12 fluorescent troffer, two (2) duplex receptacles, one (1) wall switch.

Code Violations

No emergency lighting, no visual strobes.

First Storage Room

Two (2) 4 foot 4 lamp wraparounds T12 Fluorescent, one (1) wall switch at door, three (3) duplex receptacles.



Second Storage Room

Two (2) 4 foot 4 lamp wraparounds T12 Fluorescent, one (1) wall switch at door, three (3) duplex receptacles.



North Large Storage Room

Two (2) 4 foot 4 lamp fluorescent strips, one (1) wall switch at door, one (1) receptacle at door.

Code Violations

no smoke detectors.

Corridor

Two (2) 4 foot 4 lamp fluorescent wraparounds with two (2) 3 way switches, two (2) duplex receptacles on south wall, one (1) duplex receptacle on west wall, one (1) exit sign with battery back up, one (1) battery smoke detector, one (1) emergency lighting unit on north wall.



Youth Room

Six (6) 2' x 4' recessed 4 lamp T12 fluorescent troffers, two (2) wall switches at door, two (2) one foot square recessed incandescent fixtures at closet doors with one (1) wall switch, two (2) exit signs over doors, one (1) foot square recessed incandescent fixture with wall switch at entrance to Archive room. Three (3) duplex receptacles on west wall, two (2) duplex receptacles on north wall, two (2) duplex receptacles on east wall.



Recommendations

Replace exit sign with Led type with built in 90 minute battery back up thru out space.

Should you have any questions please call.

Respectfully Submitted,

W – T MECHANICAL / ELECTRICAL ENGINEERING, LLC

**JNA Architects
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**Mark Ventrelli, P.E.
Vice President**