Appendix E
Building Inspection Reports

CBRE PRESENTS A FINAL REPORT

COMPREHENSIVE FACILITIES PLAN CONSULTING REPORT

Prepared for: Milwaukee County

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Building Inspections Approach

The Milwaukee County Portfolio ("the Portfolio") assessment is based on a multi-faceted approach that included a physical property inspection of key properties (25 "walk-throughs"), an operations assessment of current real estate practices, an operating expense review and a strategic analysis of options based on the information gathered and interviews with key stakeholders. The space surveyed includes 50% of the non-special use space (over 3.6M SF; excludes museum, corrections, parks (except senior centers & the Wil-O-Ways) airport and zoo). It represents a variety of office, mental health, food service, elderly services and judicial space.

This Appendix is a compilation of the notes and observations from the 25 walk-throughs.

Milwaukee County Comprehensive Facillities Plan Building List & Contacts				
Asset ID	**Site Name**	**Asset Name**	**Address**	**Square Feet**
76	Courthouse Complex	Criminal Justice Facility	949 N. 9th Street	475,000
10	Courthouse Complex	Courthouse	901 N. 9th Street	1,021,000
30	Courthouse Complex	Safety Building	821 W. State Street	296,000
35	Community Correction	Community Correctional Center	1004 N. 10th Street	75,544
37	Community Correction	Medical Examiner	1004 N. 10th Street	73,830
1435	McGovern Park	McGovern Park Senior Center	5400 N 51st Blvd.	12,983
1830	Rose Park	Rose Park Senior Center	3045 N. MLK Drive	39,474
1990	Washington Park	Washington Park Senior Center	4420 W. Vliet Street	30,092
2680	Underwood Parkway	Wil-O-Way "U" Recreation Center	10602 W. Underwood Creek Parkway	8,975
2681	Underwood Parkway	Wil-O-Way "U" Wading Pool	10602 W. Underwood Creek Parkway	1,808
2950	Grant Park	Wil-O-Way "G" Recreation Center South	207 S. Lake Drive	10,509
3125	Warnimont Park	Kelly Nutrition Building	5400 S. Lake Drive	4,290
3130	Warnimont Park	Kelly Senior Center	5400 S. Lake Drive	10,300
3845	Wilson Park	Wilson Park Senior Center	2601 W. Howard Avenue	38,458
5000	Children's Court	Phillips Juvenile Justice Center	10201 Watertown Plank Road	219,539
5040	Mke. Regional Medical Center	D-16 Mental Health Center	9455 Watertown Plank Road	425,400
5060	Mke. Regional Medical Center	D-18 Food Service building	9150 Watertown Plank Road	35,028
5070	Mke. Regional Medical Center	D-19 Day Hospital	9201 Watertown Plank Road	129,433
5080	Mke. Regional Medical Center	D-20 Child and Adolescent Treatment Ctr	9501 Watertown Plank Road	182,787
5290	Research Park	M-01 Technology Innovation Center	10437 Innovation Drive	137,247
5600	Marcia Coggs Human Services	Marcia P. Coggs Human Service Center	1220 W. Vliet Street	222,482
5605	City Campus	City Campus Office Complex 9 Story	2711 W. Wells Street	129,989
5605	City Campus	City Campus Office 5 Story	2711 W. Wells Street	28,025
	City Campus	27th Street Store Front		19,366
	City Campus	Theater		9,116
Total Square Footage				**3,636,675**

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Courthouse – Courthouse Complex (ID: 10) – 901 North 9th Street

EUA Architects

- Generally the basement walls and ceilings are in good condition, though there are some areas with salt damage from sidewalks above.
- Lots of old equipment, office furniture, etc. is stored in the basement corridors.
- When the courthouse annex was demolished, the maintenance shops and storage items were moved into the basement of the courthouse.
- Some areas on the façade have rust and dirt stains under windows, louvers, etc.
- Many of the exterior windows have been replaced, some original windows still exist.
- Some of the courtrooms have been maintained in good condition, others have worn carpet, wall paneling, lighting, and ceiling tiles beyond their useful life.
- The jury rooms are not handicap accessible. Stairs are the only means of access to the rooms.

Basement in generally good shape, some areas have salt, water damage

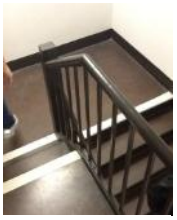
Basement corridors used as storage

Floor and wall stone panels worn and dirty in a few high-traffic areas

Typical upper floor corridor. Floor, walls, ceiling generally in good condition, wear and tear evident in a few areas

Many windows have been replaced, some steel frame single pane windows remain

Parapets in good condition, some caulking needed



A typical stairwell

Most courtrooms have been remodeled, interior finishes are in good condition

Roofs generally in good condition, some caulking needed at parapets

7th floor children's courtroom ceiling tile, wall panels, and carpet are aged

Stairwell door. Many of the building's doors do not have ADA-compliant hardware.

Carpet in the 7th and 8th floor corridors is worn, stained

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Singh Inspections

Mechanical:

- Year Built:
  - 1928–1932 — Original building mechanical systems.
  - 1969 — 8th floor built-up air handling unit replacement, first chiller/cooling tower installation.
  - 1970 — Second chiller/cooling tower installation.
  - 1980 — Third chiller/cooling tower installation.
  - 1984 — Ground floor built-up air handling units replacement. Exterior ductwork installation.
  - 1986 — Fourth chiller/cooling tower installation.
  - 1989 — Steam valve replacement at air handling units AHU-3 and AHU-4.
  - 1990 — Computer room/film vault self-contained air conditioning units installation.
  - 1991 — Cooling tower CT-1 and CT-2 replacement. Cafeteria renovation.
  - 1993 — Temperature control air supply system renovation.
  - 1994 — Shops area renovation: rooftop units, H&V units, dust collector installation.
  - 2001 — Chillers CH-3 & CH-4 replacement (CH-1 & CH-2 deleted from the scope ???).
  - Steam valve replacement at air handling units
  - Various years – partial remodeling throughout the building.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam systems consisting of steam supply/condensate return piping, condensate return pumps, and associated valving, accessories, and controls provides heat to building via perimeter steam radiators, terminal unit heaters, and built-up air handling unit steam heating coils. Hot water systems consisting of steam/condensate to heating hot water heat recovery heat exchangers, hot water pumps with variable frequency drives, hydronic accessories, valving, piping and controls provides


Steam to domestic HW heat exchanger


Steam to domestic HW heat exchanger


Steam to hot water heat exchanger


Wall convector


Cast iron radiator

Built-up AHU steam coil


Condensate return pump

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hot water air handling unit heating coils, finned tube radiation, and various heating terminal units. Two steam to hot water heat exchangers provide domestic hot water.

- Ventilation — Four dual duct air handling systems (110,000 cfm each, 250 HP supply fan motors, 75 HP return fan motors) complete with intake hoods/wall louvers, supply/return/exhaust ductwork, dual duct mixing boxes, supply/return/exhaust inlets/outlets, separate return/relief fans, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Two of the units are located on the ground floor and the other two are in the penthouses on the 8th floor. Entrances are served by individual air handling units. The shop area is served by heating and ventilating only indoor air handling units. The shop area lunch room and offices are served by heating and cooling rooftop units.
- Air-conditioning — Four 325 tons water chillers/cooling towers complete with associated pumps, hydronic accessories, piping, valving, and controls generate chilled water to serve the building. Chilled water system distributes chilled water to building air handling unit cooling coils. Cooling tower/chiller/chilled water pumps range from 10 HP to 20 HP each. The shop area lunch room and offices are served by DX cooling rooftop units.
- Humidification — Building air handling units are provided with humidification control.
- Dust collector — Woodwork shop is provided with dust collector and air filtration unit.
- Kitchen exhaust — Kitchen includes kitchen exhaust hood/fan.
- Variable frequency drives (VFDs) — Air handling units supply and return fans have had VFDs installed within the last two years.


Cast iron radiator


Thermostat


Thermostat

Convector


Dust collecting system


Air filtration unit


Condensate return pump

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- Data room — space is served by self-contained temperature/humidity control Liebert unit.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.


Vacuum condensate return pump

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end of their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Cooling towers — 20 years (100%)
    - Rooftop units — 15 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Duct mounted coils — 20 years (100%)
    - Air compressors — 25 years (100%)


Entrance air handling unit


Built-up air handling unit


Return fan variable frequency drive

- Operational issues:
  - Heating
    - Air handling unit (six) heating coils and steam valves are in need of replacement.
    - Cooling coils are shut and should be replaced, condensate pans leak.
  - Ventilation
    - No major issues.
  - Air-conditioning
    - No major issues.


Wall louvers


Built-up air handling unit hot/cold decks


Light court exterior ductwork

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- Major capital requirements:
  - Heating— establish time schedule and appropriate funds for gradual replacement of outdated heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of outdated ventilation system and equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of outdated air conditioning system and equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Air intake/relief hood


Inline toilet exhaust fan

Electrical:

- Existing 13kV electrical service equipment is approximately 47 years old per the 1965 record drawings. The two 13kV service feeds come from the local WE Energies power plant to the existing 13kV S&C switchgear, which has two feeds to the Safety Building, USS-12, the Courthouse Annex and 7th floor substations USS-6 and USS-6A. The system also consists of several 13kV double-ended substations (USS-1, USS-2, USS-3, USS-4, USS-5) with tie breakers. Given the age of the system, it is approaching or beyond its life expectancy and should be upgraded in the next 5 years.
- The existing emergency service is provided by a 175kW generator located in the basement. The generator is 24 years old per the 1988 record drawings.
- The existing fire alarm system is by Honeywell. The system underwent maintenance upgrades in 2007 per C023-06432 as-built drawings dated April 2007. Per the 2007 as-built drawings, all of the existing fire alarm initiating devices and control modules were to be replaced with new addressable devices. The system is connected to the Safety Building and the Criminal Justice Facility.
- The PA systems in the first, fourth and seventh floor courtrooms were installed in 2000 per project C006-09681 as-built drawings dated May 2000. However, in some of the courtrooms the cables for the push-to-talk microphones are draped across the floor and are a trip hazard. Recommend re-routing cables.
- The junction box and associated conduits on the ceiling of the tunnel outside of room B-34 in the basement are rusted and should be replaced.
- Steam and condensate piping is routed above the existing substation USS-12. A drain pan should be installed below the


Light court exterior ductwork


Utility set fan


Dual duct mixing box


Kitchen exhaust fan


Data room self-contained air conditioner

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piping to protect the substation. In addition, the substation USS-12 is located next to a corridor turned into a paint shop where there are paint fumes that are hazardous. Recommend ventilation or some form of separation of the two areas.

- The existing SquareD panel located inside of room MU8-4A is very old and should be replaced.
- The lighting in courtrooms 702 and 712 are recessed downlights with incandescent bulbs. Recommend replacement of light fixtures with more energy efficient fixtures such as fluorescents.
- Lighting in the majority of the corridors throughout the building consists of ornate fixtures, which are likely to be the incandescent type. Recommend upgrade of these fixtures.
- Several of the branch power panels are original to the building and should be replaced when the main substations are replaced.
- Security cameras appear to be in good shape.

Chiller/cooling tower/chilled water pumps

Centrifugal chiller

Cooling towers

Plumbing:

- Year Built:
  - 1927–1932 — Original building plumbing systems.
- Plumbing System Description:
  - Two mains provide water to the building. The domestic water service enters in the east side of the building and main enters the west side of the building into the utility service room. Domestic water booster pumps located in the basement mechanical room boost the city water pressure for the building.
  - One 12” steam main serves this building. It enters the building in the corner of the south west utility tunnel. The system consists of steam to water heat exchangers/converters with circulating pumps. Domestic hot water is generated using tube in shell heat exchangers with associated hot water storage tanks. A 225 gallon PVI steam water heater is used for the dishwasher.
  - Domestic water piping in the building appears to be a combination of galvanized steel, brass, and copper for the domestic water supply. Generally, the piping appeared to be old and in fair condition for its age with no observed leaks. There could be blockages or restrictions in flow due to the buildup of deposits on the inside walls of the piping. Most of the piping has asbestos insulation.
  - Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to

Cooling towers/exterior ductwork

Light court exterior ductwork

Pneumatic temperature control panel

Pneumatic temperature control panel

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be in fair condition for its age with no apparent leaks. Two City sewer mains serve this building (size is estimated at 12" for each). They exit at the east side of the building.

- Overall building plumbing system condition:
  - A new reduced pressure type backflow preventer should be provided on the building water service to protect the public water main.
  - The majority of plumbing fixtures and related trim in the building appears to be in good to fair condition and in general need of partial replacement.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- Operational issues:
  - Existing plumbing fixtures cause energy loss year round.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions. When the piping system no longer serves the building's demands, or there are multiple failures, the system should be considered for replacement. There is evidence of pipe leaks (stained ceiling tile) and basement flooding (storm water back-up). For a localized failure, simply replace the section that failed.
- Major Capital Requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.
  - Some of the domestic water piping may be able to be reused, along with some of the drain piping. Drains should be rodded out, and new plumbing fixtures provided to respond to the proposed plan.
- Safety:
  - From a safety and efficiency perspective, these plumbing systems should be upgraded or changed in a thoughtful manner that provides required functionality.
- Summary:
  - All water, sanitary and storm plumbing systems are currently adequate to serve the building, as are the proposed new plumbing fixtures located in renovated areas.


BAS workstation


S&C 13.2kV Switchgear


S&C 13.2kV Switchgear


S&C 13.2kV Switchgear


Substation


Substation USS-2


Substation

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Fire Protection:

- Year Built:
  - 1927–1932 — Original building fire protection systems.
- Fire Protection System Description:
  - Fire suppression for this building consists of standpipe risers and fire hose cabinets. There is no sprinkler system for this building.
- Overall building fire protection system condition:
  - Building has hand held ABC fire extinguishers that have been tagged and inspected on a regular schedule.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time - lack of sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for all buildings.


Substation USS-12


Substation USS-3


ATS for Emergency Generator


Emergency Generator


Fire Alarm Strob and Smoke Detector in Elevator Lobby


Fire Alarm Manual Pull Station

Exit Sign and Fire Alarm Strobe


Fire Alarm Speaker and Strobe


Fire Alarm Strobe and Speaker


Smoke Detectors in Elevator Lobby


Fire Alarm System Junction Box


Smoke Detector


Fire Alarm Panel


SquareD Branch Panel


Panel LC #83A Should be Replaced


Fire Alarm Control Panels

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Branch Circuit Panel LC/88


Steam Piping Over Electrical Gear


Condensate and Steam Piping Over Electrical Gear


Fluorescent Lighting

Decorative Lighting and Exit Sign


Fluorescent Light in Basement


Light Fixture In Jury Room Restroom


Recessed Light Fixtures

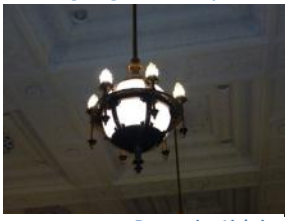

Pendant Mount Fixture


Office Lighting and Security Camera


Fluorescent Lighting in Toilet Room


Corridor Lighting


Elevator Equipment Room

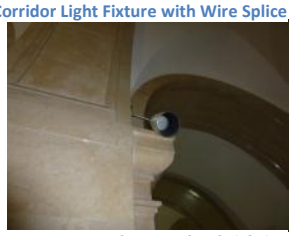

Decorative Lighting


Corridor Light Fixture with Wire Splice


Incandescent Courtroom Lighting


Courtroom Lighting


Security Camera, Exit Sign and Lighting


Incandescent Flood Lighting

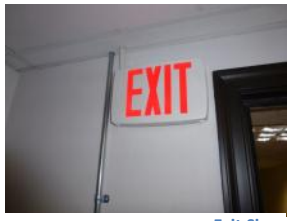

Office Lighting


Broken Fluorescent Light Bulb


Panel EDP


Microphone Wiring in Courtroom


Basement Light Switches and Receptacles



Exit Signs

Exit Sign


Data Cabling


Corroded Ceiling Mounted Junction Box and Conduit

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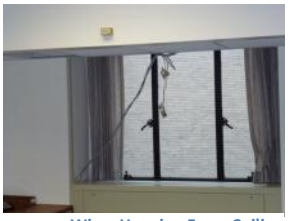


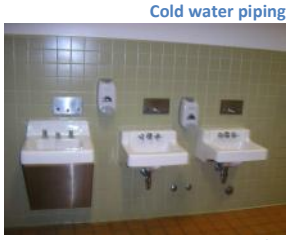
Wires Hanging From Ceiling

Cold water piping

Plumbing chase

Domestic water heater

Floor mounted urinals



Lavatories

Water closet with flush valve

Wall mounted fire extinguisher

Fire hose cabinet with fire extinguisher

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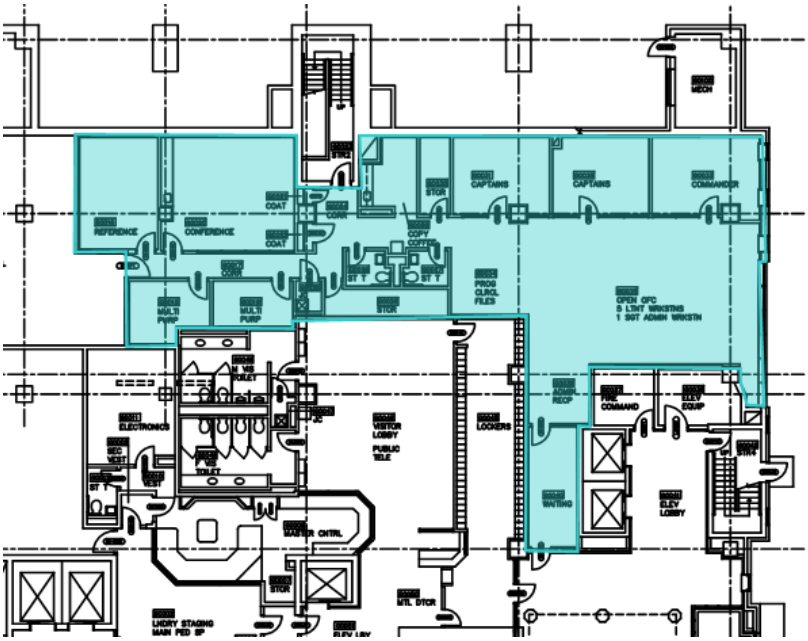
Criminal Justice – Courthouse Complex (ID: 76) – 949 North 9th Street

EUA Architects

- Suite L01 Administrative Offices (color coded blue) appears to be under renovation and is largely unoccupied except for a receptionist and 2 enclosed offices.



Floors, walls in public areas in good condition

Administrative office area under renovation

Typical corridor in lower level: floors & walls worn, old equipment stored in hallways

- It is apparent that general maintenance of equipment and certain finishes have not been routinely replaced or upgraded since the building was built. In talking with maintenance staff there is no running list or check-off of maintenance items that they track for record purposes. Maintenance seems to be reactive instead of proactive.

Some cracks in penthouse precast panels near shelf angles

- Ceiling tiles have been routinely replaced due to leaking valves, dripping pipes, etc. due to lack of maintenance. There is an abundance of ceiling tile stored in the basement for this purpose.

Roof, flashing generally in good condition, coping joints require tuck-pointing, sealant

- Exterior precast panel joints require tuck-pointing and sealant. The sealant used at the time of construction in 1992 is approaching its expected life and is very important to maintain since this is the only barrier at the joint to keep the building weather tight.

Loading dock doors in poor condition

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- There are slight cracks in precast panels near shelf angles in penthouse and this should be referenced in the Façade Study completed by others.

- The joints in parapet coping caps should also be tuck-pointed and sealed.

- Maintenance staff has expressed concern that the elevators need frequent maintenance.

- Built up roof is generally in good condition, however, staff has expressed concern that the roof needs replacement. Visual inspection from our team did not support replacement, however periodic inspection and maintenance is required.

- The finish materials (stone, marble, wood cladding) in public entrance space & hallways are in good condition and have held up well to public abuse.

- The revolving main entrance door is not working and should be replaced with an automated swinging style storefront or sliding mall front retail type.

- The loading dock doors are deteriorating and are in need of replacement. Also there is no separation in the loading dock area to prevent cold air from rushing into the building for the times doors are in use. This wastes energy and causes undue strain on mechanical systems and other building elements.

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Singh Associates

- Year Built:
  - 1992 — Original building mechanical systems.

Mechanical System Description:

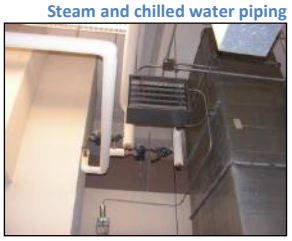
- Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, and associated valving, and accessories provides heat to building air handling units. Steam to hot water heat exchangers provide hot water for domestic hot water heating, perimeter heating, variable air volume box reheat coils and constant air volume zone reheat coils.
- Ventilation — Multiple air handling systems provide supply, return, and exhaust ventilation throughout the building.
- Air-conditioning — Two chillers located at the building ground level with roof mounted cooling tower provide chilled water for the building air handling units. Computer data room is provided with dedicated precision control computer room Liebert unit.
- Humidification — Some of the building air handling units are provided with humidification control.
- Heat recovery — Run around coil loops are provided in the air handling units serving inmate pod areas to recover heat from exhausted air.
- Variable frequency drives — variable air volume air handling systems supply and return fans and chilled water distribution pumps have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)


Steam to hot water heat exchangers


Air handling unit steam coil


Steam and chilled water piping


Steam suspended unit heater


Pneumatic steam control valve


Air handling unit


Inline exhaust fan

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- Heat exchangers — 20 years (100%)
- Heat recovery — 15 years (100%)
- Piping/equipment insulation — 15 years (75-100%)
- Water chillers — 20 years (100%)
- Cooling Towers — 15-20 years (100%)
- Freeze protection — 15 years (100%)
- HVAC piping & fittings — 20 years (40%)
- HVAC valves — 15 years (50%)
- Indoor air handling units — 20 years (100%)
- Exhaust fans — 20 years (100%)
- Finned tube elements — 35 years (100%)
- Duct mounted coils — 20 years (100%)
- Air compressors — 25 years (100%)

- Operational issues:
  - Heating — hot water pumps may need replacement soon.
  - Ventilation — broken duct mounted control dampers.
  - Air-conditioning — chilled water/cooling tower water pumps may need replacement soon.
- Major capital requirements:
  - Heating— establish time schedule and appropriate funds for gradual replacement of heating equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Centrifugal return fan


Centrifugal exhaust fans


Air handling unit (mezzanine)


Centrifugal return fan and VFD drive (mezzanine)


Chilled water chiller pump


Centrifugal water cooled chiller


Cooling tower water pump

Electrical:

- The building was built in 1992. The elevators were recently replaced about 5 years ago.
- There are cooling and electrical upgrades taking place in the data rooms.
- There are two electrical feeds to the facility and the backup generator. The generator is 1500 kVA and is original to the building. The generator is tested monthly.

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- The existing electrical switchboards, panels and motor control centers are all original to the building, so about 20 years old. They are all in good condition. Currently the facility is at 40% of the electrical capacity.
- The existing PA system is not working, but will be replaced as part of the data upgrades.
- The fire alarm system, by Honeywell, is 20 years old and is in good condition. The engineer stated that the courthouse system was recently replaced and is now newer than the criminal justice facility fire alarm system. It is recommended to replace the criminal justice fire alarm system for better coordination with the courthouse system. It is estimated that the fire alarm system has about 5 to 10 years of life left. It is recommended that the system be replaced. The cost to replace this system is roughly $3/sf.
- FA System conduit and junction boxes should be painted red to distinguish between fire alarm components and general wiring.
- The wiring for three of the AHU Honeywell units NCP-11, 12 and 13 used to be connected to a UPS, but are now just plugged into a receptacle instead of being directly wired.
- Security system is currently being replaced with new cameras and controls. Courtroom lighting was upgraded to T-8's. The rooms are very bright. Recommend installing dimmers.

Air handling unit chilled water coil

Hot water pumps

AHU condensate return piping

Duct mounted control damper

Plumbing:

- Year Built and Major Renovations:
  - 1992 — Original building plumbing systems.
- Plumbing System Description:
  - The domestic water service enters the basement into the mechanical room. A water meter is provided.
  - The system consists of 4 steam to water heat exchangers/converters with circulating pumps. There is no storage tank for domestic hot water heater for the dishwasher. The recirculating pumps appear to be in good condition.
  - Domestic water piping in the building appears to be copper with soldered joints. Generally, the piping appeared to be in good condition for its age with no observed leaks.

Heat recovery loop pump

Heat recovery run around coil loop (outdoor air side)

Heat recovery run around coil loop (exhaust air side)

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- Soil, waste and vent piping are cast iron. Most cast iron piping that could be observed appeared to be in good condition for its age with no apparent leaks. The existing sanitary piping collects and extends to the east to the public sewer.
- The gas service enters the east side of the building with the meter located inside the main building entry stairs and is then extended to the mechanical room. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.

- Overall building plumbing system condition:
  - A new reduced pressure type backflow preventer should be provided on the building water service to protect the public water main.
  - The majority of plumbing fixtures and related trim in the building appear to be in fair to poor condition and are in general need of partial replacement.
  - Existing water booster pump shall be replaced with new one including control panel with new sequence of operation based on demand.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- Operational issues:
  - Existing plumbing fixtures cause energy loss year round.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
- Major Capital Requirements:
  - The recommended upgrades include new vertical hot water storage tank as needed pending availability of space.
  - Some of the domestic water piping may be able to be reused, along with some of the drain piping. Drains should be rodded out and new plumbing fixtures provided to respond to the proposed plan.
- Safety:
  - From a safety and efficiency perspective, these plumbing systems should be upgraded or changes performed in a thoughtful manner that provides required functionality.


Computer data room unit


New air compressor (roof penthouse)


Air compressor


Air compressor


Honeywell control panel


Sensor wiring is not in conduit


Hot water storage tank missing

Appendix E – Building Inspection Reports

- Summary:
  - All gas, water, sanitary and storm plumbing systems are currently adequate to serve the building as well as the proposed new plumbing fixtures located in renovated area.
  - Proposed new water booster pump with control package and new vertical storage tank(s) shall be provided.

Existing water booster pump

Fire Protection:

- Year Built and Major Renovations:
  - 1992 — Original building fire protection systems.
- Fire Protection System Description:
  - No major deficiencies were noted in the fire protection system. Fire pump and piping system located at the basement level. The 100 horse power electric motor and fire pump and the small air compressor and 2 HP jockey pump appear to be in good condition.
- Overall building fire protection system condition:
  - The complete fire suppression sprinkler system has 8” size water service with individual control box outside the building.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are no major capital requirements involved at this time. Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to the fire protection system if left unchecked.
- Safety:
  - The building is bounded by fire rated doors, dampers and penetration seals.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in good condition and require proper maintenance.

Performance of better maintenance needed

Maintenance service is required

Routine in-house maintenance

Appendix E – Building Inspection Reports

Safety Building – Courthouse Complex (ID: 30) – 821 West State Street

EUA Architects

- Unoccupied former jail space occupies a significant amount of square footage on each floor. Some of this space is in poor condition. A portion on the third floor is scheduled to be renovated into office space, but the majority is unused.
- The unoccupied jail blocks have flooded before from toilets backing up in the building.
- The main public entrance is not handicap accessible. The skywalk from the courthouse is the closest accessible path.
- The building has window AC units on the second and fourth floors.
- Some offices have been recently remodeled, others have carpet and finishes that are nearing the end of their useful life.
- Most windows have been replaced, some are aging.
- The gymnasium roof is damaged and in poor condition.

Unoccupied former jail space. Walls and windows are damaged, some space used for storage

Typical room within the former jail block

Recently remodeled office space. Worn, stained carpet and outdated lighting in some of the other offices.

Some wood frame, single pane glass windows still in the building

Gymnasium roof in poor condition

Courtroom, furniture in good condition

Public restrooms not fully HC accessible, are in fair condition

Typical corridor. Floor, walls, and ceiling generally in good condition, wear and tear evident in some areas

Corridor used as storage space

Roof penthouse exterior is in poor condition. Damaged windows, loose flashing, and large cracks in the brick wall

Visible staining on stone cladding from windows, retention wall dirty. Window AC units on the 2nd & 4th floors

Appendix E – Building Inspection Reports

Singh Inspections
Mechanical:

- Year Built:
  - 1927–1932 — Original building mechanical systems.
  - 1990 — Air cooled condensing units/cooling coils installation (penthouse AHU).
  - 1993 — Pistol range ventilation system renovation.
  - 1996 — Self-contained air conditioning unit installation (serving Communications Center).
  - 2001 — Centrifugal water chiller replacement (333 tons).
  - Air cooled chiller installation (McQuay)
  - Cooling tower installation.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam supply/condensate return piping, condensate return pumps, and associated valving, accessories, and controls provides heat to building hot water and domestic hot water heat exchangers, perimeter steam radiators, terminal unit heaters, and original built-up air handling unit steam heating coils. Hot water system consisting of steam to hot water heat exchangers, hot water pumps, hydronic accessories, valving, piping and controls provides hot water to modular air handling unit heating coils, finned tube radiation, and various heating terminal units (cabinet unit heaters, suspended unit heaters, convectors). Two steam to hot water heat exchangers provide domestic hot water. Incoming steam service.
  - Ventilation — Multiple dual duct air handling systems and constant air volume air handling systems complete with wall louvers, supply/return/exhaust ductwork, dual duct mixing boxes, supply/return/exhaust inlets/outlets, separate return/relief fans, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Water chiller with cooling tower generates chilled water. Chilled water system consisting of


Built-up AHU heating/cooling coil sections


Hot water pump


Self contained AHU


Steam to heating HW heat exchangers


Steam to domestic HW heat exchanger


Condensate return pump


Steam to domestic HW heat exchanger

Appendix E – Building Inspection Reports

two chilled water pumps with chilled water supply/return piping, hydronic accessories, valving, and controls distribute chilled water to some of the building air handling units. Air cooled condensing units complete with DX cooling coils provide cooling capabilities for the remaining air handling units.

- Humidification — Some of the building air handling units are provided with humidification control.
- Kitchen exhaust — existing, too big for residential range oven currently serving.
- Variable frequency drives — variable air volume air handling systems supply and return fans have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end of their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Cooling towers — 20 years (100%)
    - Air cooled condensing units — 15 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Duct mounted coils — 20 years (100%)
    - Air compressors — 25 years (100%)
- Operational issues
  - Major capital requirements:
    - Heating— establish time schedule and appropriate funds for gradual replacement of outdated heating system and equipment.


Modular AHU cooling coil


Thermostat


Steam radiator


Built-up air handling unit


Built-up air handling unit


Modular air handling unit


Separate return fan

Appendix E – Building Inspection Reports

  - Ventilation — establish time schedule and appropriate funds for gradual replacement of outdated ventilation system and equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of outdated air conditioning system and equipment.
- Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Electrical:

- Existing 13kV electrical service equipment is approximately 47 years old per the 1965 record drawings. The system consists of several 13kV double-ended substations (USS-9, USS-10, USS-11) with tie breakers. The two 13kV service feeds come from the Courthouse S&C switchgear which is fed from the local WE Energies power plant. Given the age of the system, it is approaching or beyond its life expectancy and should be upgraded in the next 5 years. Per 1987 as-built drawings, substations USS-7 and USS-8 also exist and are located in the basement. This was not verified in the field.
- The existing emergency service is provided by an on-site 205kW generator. The generator is original to the building per the building engineer. The generator is located in the basement in Room G-80A. The building engineer stated that there is another generator on the site, but that it isn't working. Location and condition were not observed. Per 1987 as-built drawings, a new


Modular air handling unit with variable frequency drive


Return fan variable frequency drive


Inline fan


Separate return fan


Transfer air wall propeller fan


Oversized kitchen exhaust hood


Gym air handling unit

Appendix E – Building Inspection Reports

150kW diesel generator was installed. Also per the as-built drawings, there was an existing 50kW generator that was called to remain as is. Therefore it is possible that the 205kW generator was installed in 1987 and the generator that is not working is original to the building.

- Verizon has antennas and a small building located on the roof. Cables coming from the building to the antennas are contained in a stainless steel enclosure.
- There is an existing motor control section located in one of the mechanical penthouses on the roof that has an old fluid storage tank mounted above it. Recommend removal of the tank if it is no longer in use. Otherwise, install a drain pan below the tank to keep fluid off the motor control equipment if there is a leak.
- The existing fire alarm system is by Honeywell. The system underwent maintenance upgrades in 2007 per C023-06432 as-built drawings dated April 2007. Per the 2007 as-built drawings, all of the existing fire alarm initiating devices and control modules were to be replaced with new addressable devices. The system is connected to the Courthouse and the Criminal Justice Facility.
- Lighting controls on the 6th floor, especially in office 604, are original to the building. The building engineer stated that they are very old, most of the tenants don't know how to use them and they can be annoying to use. Light switches appear to be original to the building and should be replaced when lighting is replaced.
- There is a wide range of light fixture types installed. Many are mostly likely original to the building. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Some of the building has fluorescent fixtures with T-12 lamps and some of the building has fluorescents with T-8 lamps. The engineer stated that they have replaced the majority of the fixtures, but will replace the remaining T-12 fixtures as they fail. Recommend replacement of all building lighting in the next 5 to 10 years.
- Several of the branch power panels are original to the building and should be replaced when the main substations are replaced. Panel LDP/SB has some wiring that was spliced into the panel and is hanging outside of the panel. The wiring should be re-installed.
- Security cameras appear to be in good shape except for the cameras located in the basement. Recommend replacing these cameras.
- Observed a wet type sprinkler head in the newly remodeled data room next to Room B-10. Recommend verification of type and possible replacement to system more compatible with data equipment.
- Building engineer indicated that the 6th floor courtroom has a bad sound system, which is in the process of being upgraded.


Temperature control air compressor


Air purification unit


Dual duct mixing box


Wall louver


Air cooled condensing unit


Cooling tower


Air cooled condensing units

Appendix E – Building Inspection Reports

- Rooms in 308 were renovated approximately 10 years ago.
- There is a future project to re-run the data cabling throughout the building.

Plumbing:

- Year Built:
  - 1927–1932 — Original building plumbing systems.
- Plumbing System Description:
  - Two mains provide water to the building. The 6“ domestic water service enters the building in the north west corner of the old pistol range and 4” main which enters the north side of the building into the utility service room. Domestic water booster pumps located in the basement mechanical room boost the city water pressure for building.
  - Two 10” steam mains serve this building, one exits from the northeast corner of the building, the other exits from the south east end of the building. The system consists of steam to water heat exchangers/converters with circulating pumps. Domestic hot water is generated using tube in shell heat exchangers with associated hot water storage tanks.
  - Domestic water piping in the building appears to be copper with soldered joints. Generally, the piping appeared to be old and in fair condition for its age with no observed leaks. There could be blockages or restrictions in flow due to the buildup of deposits on the inside walls of the piping.
  - Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks. The existing sanitary piping collects and extends to the public sewer.
  - The 2” gas service enters the northwest corner of the building, at the basement level. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.
- Overall building plumbing system condition:
  - A new reduced pressure type backflow preventer should be provided on the building water service to protect the public water main.


Chilled water pump


Temperature control refrigerated air dryer


Window air conditioner


Centrifugal water chiller


Condenser water pump


Pneumatic damper actuator


AHU humidifier section

Appendix E – Building Inspection Reports

- The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of partial replacement.
- Existing water booster pump shall be replaced with new including control panel with new sequence of operation based on demand.
- The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.

- Operational issues:
  - Existing plumbing fixtures cause energy loss year round.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions. When the piping system no longer serves the building's demands, or there are multiple failures, then the system should be considered for replacement. For a localized failure, simply replace the section that failed.
- Major Capital Requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.
  - Some of the domestic water piping may be able to be reused, along with some of the drain piping. Drains should be rodded out and new plumbing fixtures provided to respond to the proposed plan.
- Safety:
  - From a safety and efficiency perspective, these plumbing systems should be upgraded or changes performed in a thoughtful manner that provides required functionality.
- Summary:
  - All gas, water, sanitary and storm plumbing systems are currently adequate to serve the building as well as the proposed new plumbing fixtures located in renovated area.
  - Proposed new water booster pump with control package and new vertical storage tank(s) shall be provided.


Temperature control air compressor


205kW Generator Nameplate


205kW Emergency Generator


Verizon Antennas and Cabling System


Verizon Building


Disconnect Switches on Mechanical Penthouse


Recessed Fluorescent Fixture and Fire Alarm Strobe and Speaker

Fire Protection:

- Year Built:
  - 1927–1932 — Original building fire protection systems.
- Fire Protection System Description:

Appendix E – Building Inspection Reports

- Fire suppression for this building consists of standpipe risers and fire hose cabinets. Except for the kitchen area, some common areas and offices and prisons, building is not fully sprinklered.

- Overall building fire protection system condition:
  - Building has hand held ABC fire extinguishers that have been tagged and inspected on a regular schedule.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time - lack of sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for all building.
  - Some areas are sprinklered and would increase safety and decrease property damage potential.

Fire Alarm Pull Station

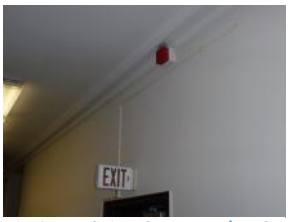

Fire Alarm Strobe

Exit Sign and Fire Alarm Speaker and Strobe


Fire Alarm Horn in Basement


Fire Alarm Pull Station and Exit Sign


Fire Alarm Device



Exit Sign and Fire Alarm Horn/Strobe

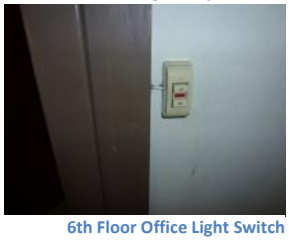

Fourth Floor Fire alarm Devices and Lighting


Fire Alarm and Exit Sign in Gymnasium


Wet Sprinkler Head in Data Room

Pull Station and Exit Sign


6th Floor Lighting Controls


6th Floor Office Light Switch


Wall Plate Not Installed Properly


Lighting on 6th Floor Has T-12 Lamps and T-8 Lamps


Courtroom Lighting


Recessed Fluorescent Lighting


Incandescent Fixture Replaced with Compact Fluorescent Lamp


Third Floor Recessed Downlighting

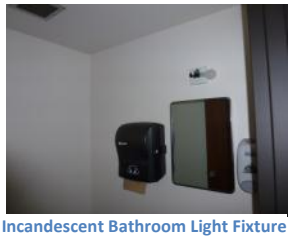
Appendix E – Building Inspection Reports


Security Camera and Lighting


Corridor Lighting


Lighting in Cell Area


Office Lighting


Incandescent Bathroom Light Fixture


Gymnasium Lighting


Panel in Closet MU6-2


Panel LDP/68 Located on the 6th Floor


Original Branch Pan


Panel in Sheriff's Office Need Replacing

Third Floor Branch Circuit Panel


Branch Circuit Panel


Panel EP/1


Panel LDP/SB with Improper Splicing


Panel BE/G is Missing Internal Cover


Substation USS-10


Substation USS-9


Substation USS-11


Security Camera


Security Camera


Security Camera in Basement


Security Camera


Speaker


Closet MU6-8 Converted to Network Closet


FACP by Room G-80B


MCC Section with Tank Above


ADA Chair Lift Not in Service

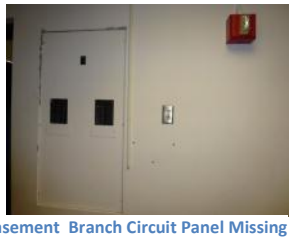
Exit Sign and Cell Area

Appendix E – Building Inspection Reports

Exit Sign


Cell Door Status Panel


Wiremold and Box


Basement Branch Circuit Panel Missing Cover


Flood Lights in Couryard Area


Smoke Detector Near Elevators

Exit Sign and Smoke Detector

Third Floor Exit Sign


Cell Door Status Panel


Recessed Fluorescent Lighting


Incoming cold water service


Plumbing piping


Plumbing chase


Wall mounted drinking fountain


Jail cell: lavatory & hand sink


Floor mounted drinking fountain


Missing drinking fountain


Wall - hung lavatory and sink

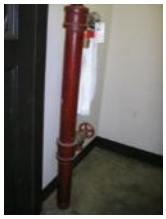

Mount kitchen sinks stainless steel


Prison: lavatories and shower


Steam to domestic hot water heat exch.


Asbestos pipe removal


Partial fire suppression system


Standpipe riser with fire hose


Fire sprinkler (concealed type)


Upright sprinkler head with piping


Fire sprinklers (ceiling mounted)


Fire hose cabinet

Appendix E – Building Inspection Reports

Community Correctional Center (ID: 35) – 1004 North 10th Street
EUA Architects

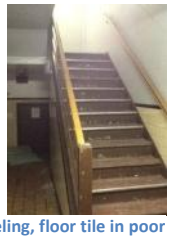
- The building is not occupied. Equipment and furniture are still stored there from its former use.
- The main entry is boarded up, along with some of the exterior windows. Windows are covered with metal screens that have begun to rust. Some of the windows are wood frame with single pane glass.
- Overall, the interior is in poor condition. Carpets, ceiling tile, and paint are all beyond their useful life.
- The exterior concrete stairs are deteriorated. As the concrete continues to crack away, the railing connections may come loose.
- The roof has needed multiple repairs and leaks in various spots

Metal screens over windows rusting, other windows boarded up. Brickwork, window sills stained

Janitors closet, deteriorated floor and wall

Ceiling tiles sagging, carpet worn & in poor condition

Main entry boarded up, vestibule used for storage. Ceiling and carpet are in poor condition



Paint peeling, floor tile in poor condition

Floor, ceiling, and walls deteriorated

Concrete exterior stairs deteriorated, railings potentially unstable

Broken ceiling tile, debris on the floor

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1930 — Original building mechanical systems.
  - 1989 — First floor renovation. Partial renovation of rest of the building.
  - Currently building is abandoned and most of the HVAC systems are not operational.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, and associated valving, accessories and controls provide heat to building's various terminal heating units (convectors, cast iron radiators, cabinet unit heaters, finned tube radiation, suspended unit heaters). Steam condensate return is utilized for domestic water (pre)heating before it is discharged to the sanitary sewer. First floor Administrative Area air handling unit steam heating coils are served by the adjacent Medical Examiner building steam heating system (air handling unit is located in Medical Examiner building basement mechanical room). First floor Administrative Area air handling system zone reheat coils are served with hot water by the Medical Examiner building heating system. Packaged gas fired rooftop unit serves the kitchen. Electric heating only fan coil units provide heating in some of the offices. Ceiling mounted electric radiant panels serve the showers and drying rooms.
  - Ventilation — Central station air handling unit (15 HP supply fan electric motor) with separate return fan (3.0 HP), complete with intake wall louvers, relief hoods, supply/return/exhaust ductwork, supply/return/exhaust inlets/outlets, and dedicated exhaust fans provide supply, return, and exhaust ventilation for the building first floor Administrative Area. Fan coil units provide ventilation in some of the offices. The remaining building is ventilated by means of natural ventilation via operable windows.


Finned tube radiation


Convector


Convector


Finned tube radiation


Condensate return to domestic hot water heat exchanger


Kitchen exhaust hood


Existing Recessed Fluorescent Lighting

Appendix E – Building Inspection Reports

- Air-conditioning — Chilled water is provided by the adjacent Medical Examiner building 225 ton water chiller/cooling tower. Medical Examiner building chilled water system distributes chilled water to first floor Administrative Area air handling unit cooling coils. Packaged DX cooling rooftop unit serves the kitchen. Window air conditioners provide cooling for individual offices on each floor.
- Humidification — First floor Administrative Area air handling unit is provided with steam humidifier.
- Kitchen exhaust — Kitchen exhaust hood is provided in the kitchen.
- Building automation system — Building temperature control system is a combination of pneumatic controls and electro-mechanical controls. Pneumatic control system serves both the Medical Examiner building and Community Correctional Center.


Fluorescent Lighting in Toilet Room


Surface Mounted Fluorescent Lights


Janitor's Closet with Incandescent Lamp

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - Heat exchangers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating coils — 20 years (100%)


Inoperative Emergency Generator


Fire Alarm Strobe, Speaker and Manual Pull Station

- Operational issues:
  - Currently building is abandoned and most of the HVAC systems are not operational.
  - Building is considered for demolition.

Fire Alarm Strobe and Speaker

- Major capital requirements (if building is not demolished):
  - Heating — establish time schedule and appropriate funds for replacement of the entire heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of the entire ventilation system and equipment.


Fire Alarm Panel

Appendix E – Building Inspection Reports

- Air conditioning — establish time schedule and appropriate funds for replacement of the entire air conditioning system and equipment.
- Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Smoke Detector and Disconnected Wires

Electrical:

- Per the building engineer, the building was built in the 1930's. The building was "winterized" in 2008. The electrical equipment and switchboard are original to the building per the building engineer.
- The existing lighting consists of surface and recessed mounted fluorescent fixtures with T-12 lamps and with incandescent light fixtures. These fixtures were installed 20 years ago per the 1992 as-built drawings.
- The existing emergency generator is not functioning and has been abandoned. Unable to verify nameplate ratings.
- The original Johnson Controls fire alarm system was replaced with a Honeywell system at some point. Unable to verify date with engineer or as-built drawings.
- Branch panels throughout the building appear to be original.
- Existing security cameras appear to be in fair shape. As-built drawings show that cameras were installed in 1989.
- Exit signs are approximately 20-25 years old.
- All of the above systems should be replaced if the building comes out of "winterized" mode.


Johnson Controls Fire Alarm Control Panel


Panels PNL-1/N and PNL-1NXA

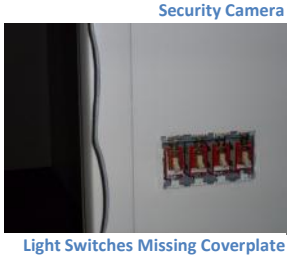
Exit Signs

Plumbing:

- Year Built:
  - 1930 — Original building plumbing systems.
- Plumbing System Description:
  - The 4 " domestic water service enters the west side of the building adjacent to the emergency generator room. There is no protection by a backflow prevention valve.
  - The 6" steam main serves this building and enters the basement at the North 10th Street side of the maintenance room. The system consists of two steam to water heat exchangers/converters with circulating pumps. Domestic hot water is generated using tube in shell heat exchangers with associated two 200 gallon hot water storage tanks.


Wiring


Security Camera


Light Switches Missing Coverplate

Appendix E – Building Inspection Reports

- Domestic water piping in the building appears to be a mix of black steel, galvanized and copper piping. Generally, the piping appeared to be old and in fair condition for its age with observed leaks. Due to the age of the building, asbestos material in contained throughout the piping for plumbing and heating systems.
- The 3" gas service enters at the basement level of the building. All piping is black steel with distribution to kitchen cooking equipment, two rooftop packaged units and emergency generator in the basement.

- Overall building plumbing system condition:
  - The plumbing systems of the building are potentially critical and do not meet current code requirements. All plumbing systems shall be demolished and replaced by new system.

Fire Protection:

- Year Built:
  - 1930 — Original building fire protection systems.
- Fire Protection System Description:
  - Fire suppression for this building consists of standpipe risers and fire hose cabinets. The building is not sprinklered.
- Overall building fire protection system condition:
  - A Siamese fire hose connection is located at the south side of the building. An Ansul fire suppression system is provided for the kitchen exhaust hood.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time - lack of sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for the new building


Junction Box with Exposed Wires


Incoming cold water service


Asbestos piping insulation


Sanitary & vent piping


Indoor grease trap


Domestic storage tanks


Kitchen area


Lavatory in abounded area

Appendix E – Building Inspection Reports

Medical Examiner (ID: 37) – 1004 10th Street

EUA Architects

- The roof over the loading dock area leaks and has caused damage to the concrete, painted surfaces, and entry door.
- The loading dock area is dirty and in poor condition. Large pieces of concrete have cracked off of the stairs, and the entry door to the basement level is rusted and beyond its useful life. Water has leaked from the roof above (now repaired), causing damage to the walls, door, and driveway slab.
- The basement had suffered some water damage from a roof leak (now repaired) during a 100 year rain/flood event. Medical equipment and archived files are stored in the basement near floor level.
- Office and medical equipment is stored in the basement hallways, along with used fluorescent lamps, a few of them broken on the floor.
- Many ceiling tiles are in poor condition, either stained from water damage or dirty.

Loading dock stairs are cracked, large pieces have broken off. Not safe to use

Loading dock area is filled with trash, water damage to concrete in many spots

Loading dock entrance door to the basement. Extensive water damage to the floor slab, wall, and door

Basement storage room with broken ceiling tile, file storage

A typical basement corridor

Broken fluorescent lamps found in a few places in the basement mechanical rooms and hallways

Old office furniture and medical equipment stored in the basement corridors

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1973 — Original building mechanical systems.
  - AHU-2 replacement.
  - Chiller/cooling tower replacement.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, condensate return pumps, and associated valving, and accessories provides heat for building three (3) air handling unit steam heating coils. Steam to hot water heat exchangers provide hot water for zone reheat coils, snow melting system, and various terminal heating units (convectors, cabinet unit heaters, finned tube radiation, suspended unit heaters). Steam to domestic hot water heat exchanger/tank provides domestic hot water for the building.
  - Ventilation — Three (3) central station air handling units (5, 15 and 20 HP supply fan electric motors) with separate return fans (3.0 HP), complete with intake wall louvers, relief hoods, supply/return/exhaust ductwork, supply/return/ exhaust inlets/outlets, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Air handling unit systems are provided with VFDs. Two of the units provide 100% outdoor air. Labs are provided with fume hood and local exhaust. Emergency generator room is provided with make-up air and exhaust ventilation.
  - Air-conditioning — 225 tons indoor water chiller and grade mounted cooling tower complete with associated pumps, hydronic accessories, piping, valving, and controls generate chilled water to serve the building. Chilled water system consisting of chilled water pump, chilled water supply/return piping, hydronic accessories, valving, and controls distribute chilled water to building air handling unit cooling coils.


Finned tube radiation


Thermostat


Convector


Zone reheat coil


Suspended unit heater


Convector


Cabinet unit heater

Appendix E – Building Inspection Reports

- Humidification — Building air handling units are provided with humidification control.
- Building automation system — Building temperature control system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Cooling towers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating coils — 20 years (100%)
    - Air compressors — 25 years (100%)

Central station AHU steam heating coil and condensate return pump

Steam to domestic hot water heater/tank

Steam to heating HW heat exchanger

Lab local exhaust

Humidifier

Snow melting system

Lab fume hood

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of outdated heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation system and equipment.
  - Air conditioning — establish time schedule and appropriate funds for replacement of outdated air conditioning system and equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Emergency generator make-up air/exhaust


Inline return fan


AHU supply fan section


AHU supply fan section

Electrical:

- Per the building engineer, the building was built in the 1970's. The electrical equipment and 2000Amp, 120/208V Westinghouse switchboard are original to the building per the building engineer. The WE Energies room is located inside the mechanical room MUB-1-A.
- The existing lighting consists of surface and recessed mounted fluorescent fixtures with T-8 lamps and with incandescent light fixtures. These fixtures were installed 20 years ago per the 1992 as-built drawings. Recommend upgrading the incandescent lighting to more energy efficient fixtures.
- The PA system works and was installed in 1988 per as-built drawings.
- The existing Chrysler emergency generator is 60kW. The generator is tested on the first Thursday of every month. The automatic transfer switch (ATS) is located in room MUB-2.
- The original Johnson Controls fire alarm system was replaced with a Honeywell system at some point. Unable to verify date with engineer or as-built drawings.
- Branch panels throughout the building appear to be original. The building engineer stated that the Westinghouse panels in the basement are original, but those panels on the upper floors may have been upgraded. Recommend replacement of existing branch panels older than 20 years.
- Existing security cameras appear to be in fair shape. As-built drawings show that cameras were installed in 1988.
- Exit signs are approximately 20-25 years old. Recommend replacement within the next 5 years.
- The existing card access system works with proximity cards and is in good condition.


Outdoor air intake pneumatic control dampers


Temperature control air compressor


Central station air handling unit

Appendix E – Building Inspection Reports

Plumbing:

- Year Built:
  - 1974 — Original building plumbing systems.
- Plumbing System Description:
  - The domestic water service enters the basement mechanical room at the north east corner of the building with service from Highland Avenue.
  - An 8" steam main serves this building and enters the basement mechanical room from State Street. The system consists of multiple steam to water heat exchangers/converters with circulating pumps. Domestic hot water is generated using tube in shell heat exchangers with associated hot water storage tanks and pumps.
  - Water supply piping consists of copper. Generally, the piping appeared to be old and in fair condition for its age with no observed leaks. There could be blockages or restrictions in flow due to the buildup of deposits on the inside walls of the piping.
  - Soil, waste and vent piping consist of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
  - All piping is black steel with welded and threaded joints. Natural gas is piped to the medical exam/autopsy area and to the 60 KW emergency generator located in the basement. The emergency generator utilized domestic cold water for cooling.
  - Compressed air is piped from the duplex control air compressor to the lab equipment.
- Overall building plumbing system condition:
  - The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of partial replacement.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- Operational issues:
  - Existing plumbing fixtures cause energy loss year round.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.


Water chiller


Chilled/condenser water pumps


Cooling tower


Outdoor Lighting


Outdoor Light Fixture

Exterior Light Fixtures


Neon Lighting

Appendix E – Building Inspection Reports

- There is water damage at loading dock and leaking plumbing pipings. For a localized failure, simply replace the section that failed.

- Major Capital Requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.
- Safety:
  - From a safety and efficiency perspective, these plumbing systems should be upgrade or changes performed in a thoughtful manner that provides required functionality.
- Summary:
  - All gas, water, sanitary and storm plumbing systems are currently adequate to serve the building as well as the proposed new plumbing fixtures located in renovated area.

Fire Protection:

- Year Built:
  - 1974 — Original building fire protection systems.
- Fire Protection System Description:
  - Fire suppression for this building consists of standpipe risers and fire hose cabinets. The building is partially sprinklered in storage rooms and basement mechanical rooms.
- Overall building fire protection system condition:
  - Building has hand held ABC fire extinguishers that have been tagged and inspected on a regular schedule.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time - lack of sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for all building.


General Lighting


Recessed Light Fixture with Incandescent Lamp


Recessed Fluorescent Lighting


Fluorescent Light Fixtures


Fluorescent Light Fixtures


Fluorescent Light Fixture


Dock Lighting


Exterior Lighting


Incandescent Light Fixture


60kW Emergency Generator

Appendix E – Building Inspection Reports


Generator ATS


Branch Circuit Panel


2000A Switchboard

Exit Sign


Fire Alarm Control Panel


Fire Alarm Strobe, Speaker and Pull Station


Fire Alarm Strobe, Speaker and Pull Station


Fire Alarm Pull Station


Johnson Controls Fire Alarm Panel


Smoke Detector Detached from Ceiling


Wall Plates with Connectors Removed


Security Camera


Exterior Light Pole


Speaker


Security Camera


Exterior Camera


Domestic hot water heater with storage tank


Drinking fountain


Hi – low drinking fountain


Lavatory


Plumbing check valve in damaged wall


Fire hose cabinet with fire extinguisher


Fire hose cabinet

Appendix E – Building Inspection Reports

McGovern Park Senior Center (ID: 1435) – 5400 North 51st Boulevard
EUA Architects

- Door hardware is not ADA compliant, exit doors are not equipped with panic hardware.
- Flooring, baseboard is nearing the end of its useful life.
- Ceiling tile is in poor condition, tiles in the pool room are damaged.
- The kitchen is at the end of its useful life, has water damage.
- A fence was recently added to keep people off the roof, windows in the back have been broken into before.

Exterior exit doors in poor condition, non-compliant hardware

Floor and baseboard near the end of their useful life

Ceiling tile at the end of its useful life. Tiles in the pool room are damaged and patched

Typical window, hardware broken

Downspouts in poor condition

Wood frame windows, single pane

Roof overhang wood worn, weathered. Some caulking is needed at joint to wall

Exterior wall patched, paint peeling in some areas

Paint peeling off the ceiling in stairwell/janitors closet area

Exterior stone stained in a few areas, generally in good condition

Appendix E – Building Inspection Reports

Singh Associates

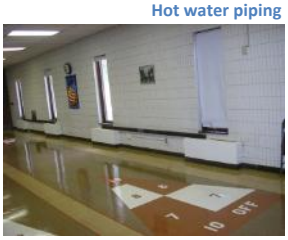
Mechanical:

- Year Built:
  - 1980 — Original building mechanical systems.
  - Chiller, pumps and portion of associated piping have been replaced.
  - Hot water boiler, pumps, and portion of associated piping have been replaced.
- Mechanical System Description:
  - Heating — Building is provided with two gas fired, sealed combustion hot water boilers, hot water pump, and associated piping, valving and hydronic accessories to generate and distribute hot water throughout the building. Floor and ceiling mounted unit vents, and one air handling unit (main hall) with hot water coils complete with associated ductwork, air outlets, and controls provide heat to the building. In addition, perimeter finned tube radiation and convectors serve as first stage of heating. Cabinet unit heaters are provided at entrances to offset heating load when exterior doors are frequently used.
  - Ventilation — Floor and ceiling mounted unit vents, and one air handling unit (main hall) complete with associated ductwork, air outlets, outdoor air intake louvers/hoods, return/exhaust fans, and controls provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Air cooled, grade mounted chiller (30 ton, built 1996) and associated pumps, piping, and controls generate and distribute chilled water throughout the building. Floor and ceiling mounted unit vents, and one air handling unit (main hall) with cooling coils complete with associated ductwork, air outlets, and controls provide cooling to the building.
  - Paint booth is provided with exhaust ventilation.
  - Stained glass grinders — no local exhaust ventilation.
  - Kitchen range — no kitchen exhaust hood.
  - Building automation system — BAS system is a combination of pneumatic and electro-mechanical controls.


Hot water boilers


Hot water piping/pump


Hot water piping


Convectors


Convector


Wall cabinet unit heater

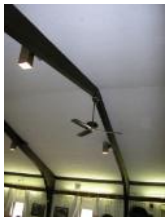

Finned tube radiation

Appendix E – Building Inspection Reports

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Hot water boilers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
- Operational issues:
  - Heating
    - No major issues.
  - Ventilation
    - Kitchen range has no exhaust hood.
    - Paint booth is provided with exhaust ventilation
    - Stained glass grinders — no local exhaust ventilation.
  - Air conditioning
    - No major issues.
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of heating equipment (unit vents, convectors, finned tube radiation).
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation system and equipment.


Return air fan


Floor mounted unit vent (original to building)


Ceiling fans


Unit vents outdoor air intake louvers


Chilled water piping and pumps

Temperature control air compressor (new)


Chilled water piping (outdoor)

Appendix E – Building Inspection Reports

- Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning system and equipment.


Air cooled chiller (built April 1996)

Electrical:

- Building automation system — replace existing controls with new controls along with mechanical system replacement.
- Built Around: 1975
- Existing fire alarm (Johnson Controls and/or Simplex) system in fair condition.
- A couple of existing battery backed exit signs are with side mounted emergency lights look fairly new. Unable to confirm age of devices. Rest of the existing exit signs can be replaced with battery backed exit signs with side mounted emergency lights.
- No existing emergency generator.
- No emergency lighting system inside the building.
- Partial security lighting system around outside building wall, no security lighting at exit doors.
- Security camera system around the building in working condition however observation was that security camera system is not adequate to minimize vandalism due to lack of clarity.
- Security cameras are mounted on outside of the building and on light pole. Security camera system may need to be installed per NEC and state codes for outdoor installation.
- PA system is in place however may not be working adequately.
- Telephone and intercom. system is in working condition but not adequate around the building.
- Over all lighting system is in working condition, however more efficient and energy saving LED lighting may be needed. Especially hall room and where ambient day lighting is not available including bathrooms, lighting is not adequate.
- Motion sensor lighting control may need to be installed for all the bathrooms and utility rooms where possible to minimize power consumption.
- Main Distribution Panel is original dated 1975, 120/208V, 3-Phase 4-Wire, unable to confirm ampere rating.
- There are four sub-panels (A, B, C, and X) each 225Amp., 120/208V, 3-Phase, 4-Wire in working condition.
- No building lightning system found.


Paint booth


Roof insulation


Kitchen range without exhaust hood


Existing Fire Alarm Control Panel


Existing Exterior Light Fixture


Existing Exterior Security Cameras

Appendix E – Building Inspection Reports

- Tapered roof has space available to install at least 30KW PV Solar power system which can roughly produce 38MWh energy units per year. Energy cost saving per year could be around $4200 and installation cost could be around $100,000.

Plumbing:

- Year Built:
  - 1950 — Original building plumbing systems.
- Plumbing System Description:
  - A main water line serves the building and is fed by the water main located in the street. A 2 ½" Dia. domestic water line is tapped off the main and penetrates the exterior wall of the building.
- Overall building plumbing system condition:
  - The domestic water distribution system is original to the building. Sections of the domestic water piping insulation are damaged. No provision for backflow protection between the city and the building domestic water supply.
  - A new 50 gallon gas fired water heater was installed for domestic hot water that serves the building.
  - The existing storm and sanitary piping is original to the building. No leaks were observed in the building drainage systems.
  - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
  - Exposed asbestos piping insulation was observed.
- Operational issues:
  - It appears that plumbing fixtures do not comply with present day barrier free requirements. Majority of the fixtures are more than 10 years old. Existing water closets and urinals are not low consumption type.
- Major capital requirements:
  - Current performance rating procedures for this type of domestic water heating system are inadequate to provide estimated energy savings. The new domestic water distribution system with new water meter shall be provided.
  - Plumbing fixtures shall be removed and replaced with new.
  - Asbestos pipe insulation materials should be removed in the mechanical room.


Existing Dining Hall Lighting


Existing Main Dining Hall Lighting


Existing Recessed Lighting and Exit Sign


Existing Recessed Lighting and Speaker


Existing Parking Lot Fixture


Existing Security System


Existing Branch Circuit Panel

Appendix E – Building Inspection Reports


Existing Electrical Panel


Domestic water heater


Broken vertical rain gutter


Sump pump (replaced April 1996)


Gas meter pressure regulator & piping


Electric water cooler


Lavatories in the toilets

Appendix E – Building Inspection Reports

Rose Park Senior Center (ID: 1830) – 3045 North MLK Drive

EUA Architects

- The sidewalk in front of the main entrance is in poor condition, creates a potential tripping hazard.
- The brick exterior façade appears to be in good condition based on ground level inspection. Some areas require tuckpointing or caulking.
- Ceiling tiles are nearing the end of their useful life, some stained from pipe leaks.
- Exit doors don't have panic hardware.
- The kitchen build-out is nearing the end of its useful life, is not ADA compliant.

Sidewalk in poor condition in front of entrance doors

Kitchen at the end of its useful life, not ADA compliant

Excessive incandescent light fixture. Some fixtures in the building are at the end of their useful life

Worn casework, original floor tile in some rooms. Both at the end of their useful life

Missing soffit tiles on south façade

Typical storefront window, two operable single pane glass panels. Brick sills in good condition

Roof generally in good condition

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1980 — Original building mechanical systems.
  - 2004 — Mechanical equipment replacement (chiller, cooling tower, air handling unit, unit ventilators, hot water/chilled water/condenser water pumps, hydronic accessories, cabinet unit heaters, control valves, BAS system)
  - Hot water boiler replaced.
  - 2007 — Hot water boiler burner replacement.
- Mechanical System Description:
  - Heating — Building is provided with single gas fired natural draft hot water boiler, hot water pumps, and associated piping, valving and hydronic accessories to generate and distribute hot water throughout the building. Floor and ceiling mounted unit ventilators, and one air handling unit (main hall) with hot water coils complete with associated ductwork, air outlets, and controls provide heat to the building. In addition, perimeter finned tube radiation and convectors serve as first stage of heating. Cabinet unit heaters are provided at entrances to offset heating load when exterior doors are frequently used.
  - Ventilation — Floor and ceiling mounted unit vents, and one air handling unit (main hall) complete with associated ductwork, air outlets, outdoor air intake louvers/hoods, return/exhaust fans, and controls provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Indoor chiller complete with roof mounted cooling tower and associated pumps, piping, hydronic accessories, and controls generate and distribute chilled water throughout the building. Floor and ceiling mounted unit vents, and one air handling unit (main hall) with cooling coils complete with associated ductwork, air outlets, and controls provide cooling to the building.
  - Kitchen range oven — no kitchen exhaust hood is provided.
  - Electric kiln — no exhaust hood is provided.
  - Ductless split system — serving elevator machine room.


Hot water boiler


Finned tube radiation (janitors closet)


Ceiling cabinet unit heater (at entrance)


Finned tube radiation


Floor mounted unit ventilator


Ceiling mounted unit ventilator


Return/relief/exhaust opening

Appendix E – Building Inspection Reports

- Building automation system — BAS system is a combination of DDC and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Hot water boilers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Cooling towers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
- Operational issues:
  - Heating
    - No major issues.
  - Ventilation
    - Kitchen range is not provided with exhaust hood.
    - Electric kiln is not provided with exhaust ventilation.
  - Air conditioning
    - No major issues.
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of outdated heating equipment (finned tube radiation).

Unit ventilator supply ductwork

Unit ventilator outdoor air intake louver

Exhaust fans & split system outdoor unit

Intake/relief hood

Cooling tower

Indoor chiller

Chilled/condenser water piping & pumps

Appendix E – Building Inspection Reports

- Ventilation — none at this time.
- Air conditioning — none at this time.
- Building automation system — replace existing controls with new controls along with mechanical equipment replacement (finned tube radiation).

Electrical:

- Built Around: 1981
- Existing fire alarm (Johnson Controls system) in good
- condition.
- Fire alarm conduits should be painted red. Currently only junction box covers are painted red.
- Existing exit signs look fairly new. Unable to confirm age of devices.
- Elevator system is new and in good working condition.
- No existing emergency generator.
- No emergency lighting system inside the building.
- No security lighting system around outside building wall including few exit doors.
- No security camera system around the building.
- Motion sensor security system in place and in working condition.
- Communication antenna system on the roof is in bad to fair condition.
- DUKANE PA system is in working condition.
- The existing motorized shutter system on roof for day light is in working condition.
- Telephone and intercom. system is in working condition but not adequate around the building.
- Overall lighting system is in working condition, however more efficient and energy saving LED lighting may be needed. Especially hall room and where ambient day lighting is not available including bathrooms, lighting is not adequate.
- Motion sensor lighting control may need to be installed for all the bathrooms and utility rooms as possible to minimize power consumption.
- Hall room stage area lighting power system in fair working condition.
- As-built plans show few light fixtures with battery backup system on each floor, however it was not verified.
- Main Distribution Panel is 2000Amp., 120/208V, 3-Phase 4-Wire in fair condition. Existing MDB believed to be original.

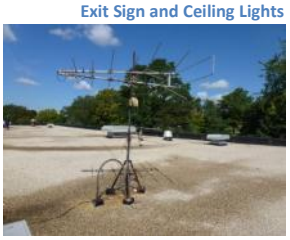

Kitchen range oven without exhaust hood


Hot water pumps


Split system indoor unit


DDC thermostat & CO2 sensor


Exit Sign and Ceiling Lights


Roof Mounted Antenna


PA System Equipment

Appendix E – Building Inspection Reports

- There are five sub-panels (A, B, C, D, and E) each 225Amp., 120/208V, 3-Phase, 4-Wire in fair condition.
- New disconnect switches were installed for HVAC system around 2005.
- Building lightning system may need to be tested for proper grounding.
- Flat roof has space available to install at least 30KW PV Solar power system which can roughly produce 38MWh energy units per year. Energy cost saving per year could be around $4200 and installation cost could be around $100,000.

Plumbing:

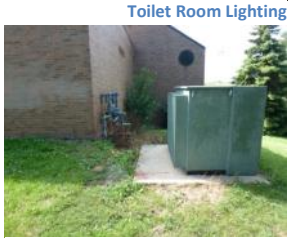
- Year Built:
  - 1980 — Original building plumbing systems.
- Plumbing System Description:
  - There is a copper domestic water supply line to the building. The main shutoff valve is located in the basement. There is a 2" single water meter for the building. All supply piping examined is copper. The visible waste piping is a combination of cast iron and PVC.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with hot water re-circulation pump and pipes.
  - New Rheem "AdvantagePlus" domestic water heater was installed in January 2012. There is self-diagnostic electronic control with digital readout for water temperature, set point and differential. Removable front cover allows easy access to equipment. High impact plastic jacket eliminates dents.
- Operational issues:
  - Washrooms are located on first and second floors of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.


Recessed Light Fixtures

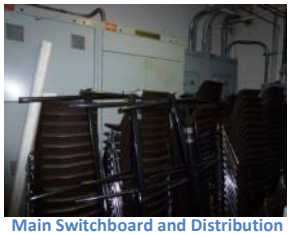

Stage Lighting


Pendant Fluorescent Fixtures


Toilet Room Lighting


Utility Transformer


Branch Circuit Panels


Main Switchboard and Distribution Section

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.

Site Light Pole

Fire Alarm Control Panels

Domestic water heater

Wall mounted water closet

Electric water cooler

Hose bibs connection

Fire extinguisher cabinet (at entrance)

Non potable water

Appendix E – Building Inspection Reports

Washington Park Senior Center (ID: 1990) – 4420 West Vilet Street
EUA Architects

- Part of the roof has recently been replaced, the remainder is nearing the end of its useful life, with water damage in some areas. The entrance canopy is in poor condition as well.
- The exterior stone and brick work are in good condition based on ground level inspection.
- The building's single pane wood windows are inefficient.
- The building's door hardware consists of knobs, which do not comply with the current ADA. The restrooms are also not fully ADA compliant.
- Some landscape grooming around the building's exterior and parking lot is desirable to increase curb appeal.
- The building is rented out oftentimes after hours, over the weekend.

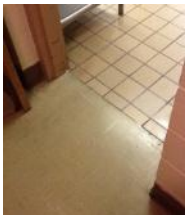
Entrance canopy in poor condition: wood rotting & metal rusting. Canopy scheduled to be replaced

Typical storefront windows looking into the courtyard. Wood frame with single pane glazing

Interior courtyard with landscaping in good condition

Overgrown grass, weeds in parking lot, landscaping on site needs grooming

A typical corridor, doors with non-ADA compliant hardware



Kitchen, hallway floors are worn

Wood plank ceiling is in good condition, some light fixtures are near the end of their useful life

Concealed spline ceiling tile in kitchen and stage area nearing end of useful life

Appendix E – Building Inspection Reports

Singh Inspections

Mechanical:

- Year Built:
  - 1966 — Original building mechanical systems.
  - Cooling tower replacement.
  - Hot water boiler replacement.
  - Gas fired/DX rooftop unit (admin area) installation.
- Mechanical System Description:
  - Heating — Building is provided with two gas fired sealed combustion boilers, hot water pump, and associated piping, valving and hydronic accessories to generate and distribute hot water throughout the building. Floor mounted unit vents, and three (3) air handling units with hot water coils complete with associated ductwork, air baseboard/outlets, and controls provide heat to the building. In addition convectors provide heating in toilet rooms/storages and cabinet unit heaters are provided at entrances to offset heating load when exterior doors are frequently used.
  - Ventilation — Floor mounted unit vents, three (3) air handling units, and a rooftop unit (admin area) complete with associated ductwork, air baseboards/outlets, outdoor air intake louvers/hoods, return/relief/exhaust fans, relief louvers with backdraft dampers, and controls provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Indoor chiller (120 ton, original to the building - 1966), grade mounted cooling tower, and associated pumps, piping, valving, hydronic accessories, and controls generate and distribute chilled water throughout the building. Floor mounted unit vents, three (3) air handling units with cooling coils, and a rooftop unit complete with associated ductwork, air baseboards/ outlets, and controls provide cooling to the building.
  - Dust collection system serves the woodworking shop.
  - Crafts room — no local exhaust ventilation.
  - Kitchen range is served by kitchen exhaust hood in good condition. Kitchen exhaust fan may need replacement.


Hot water boilers


Hot water wall convector


Hot water cabinet unit heater


Air baseboard (corridor)


Main hall air baseboard


Dishwasher exhaust


Kitchen range exhaust hood

Appendix E – Building Inspection Reports

- Dishwasher has been replaced. Dishwasher exhaust needs to be modified.
- Building automation system — BAS system is a combination of pneumatic and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Hot water boilers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Rooftop unit — 15 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of outdated heating equipment (unit vents, convectors, cabinet unit heaters).

Main hall sidewall registers

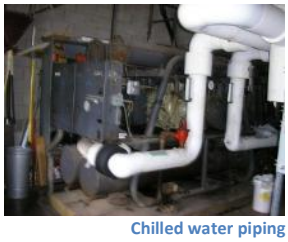
Air handling unit AHU-2 (new unit and HVAC piping)

Air handling unit AHU-1 (new unit and HVAC piping)

Control damper pneumatic actuators

Condenser water piping (not insulated)

Cooling tower condenser water pump



Chilled water piping

Appendix E – Building Inspection Reports

- Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation equipment (unit vents).
- Air conditioning — establish time schedule and appropriate funds for replacement of existing chiller and pumps.
- Building automation system — replace existing controls with new controls along with mechanical system replacement.


Indoor chiller (original to building)


Temperature control air compressor (new)

Electrical:

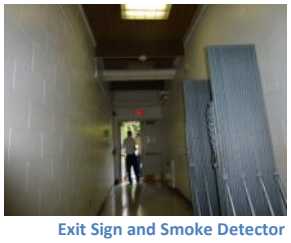
- Built around: 1968
- Existing fire alarm (Johnson Controls system) is in good
- condition.
- Existing lighted exit signs are in working condition, however exit signs can be replaced with battery backed exit signs with side mounted emergency lights.
- Emergency lighting system is in place, however emergency generator is not in working condition.
- Partial security lighting system around outside building wall including few exit doors. Noticed LED light fixtures mounted on outside wall at a couple of exits.
- No existing lighting found in fenced area where emergency generator, utility transformer and cooling tower are located.
- No security camera system around the building.
- Motion sensor security system in place and in working condition inside the building.
- Motion sensor lighting control may need to be installed for all the bathrooms and utility rooms as possible to minimize power consumption.
- PA system is in poor condition, possibly not reaching to all the rooms.
- Telephone and intercom system are in bad condition, no voicemail system.
- Overall lighting system is in working condition, however more efficient and energy saving LED lighting may be needed. Especially hall room and where ambient day lighting is not available including bathrooms, lighting is not adequate.


Dust collection system (woodworking shop)


Cooling tower


Lighting and Fire Alarm Device


Fire Alarm Panel and Incoming Telephone Service Equipment


Exit Sign and Smoke Detector

Appendix E – Building Inspection Reports

- Hall room stage area lighting power system is in fair working condition.
- Main Distribution Panel is 1600Amp., 120/208V, 3-Phase 4-Wire in fair condition. Existing MDB believed to be original.
- There are eight sub-panels (A, B, C, D, F, G, H, and J) each 200Amp., 120/208V, 3-Phase, 4-Wire in fair condition. Sub-panel E, 60Amp., 120/208V, 3-Phase, 4-Wire is connected to generator (which is not working via ATS (Auto Transfer Switch), which is currently fed from Main Distribution Panel. Stage dimmer Sub-panels (K and L) each 100Amp., and sub-panel M, 60Amp., 120/208V, 3-Phase, 4-Wire is in fair condition. Sub-panels K and L are for motorized dimmer.
- Entire parking lot lighting and lighting around the building are fed from Panel H.
- Building lightning system may need to be tested for proper grounding.
- Flat roof has space available to install at least 30KW PV Solar power system which can roughly produce 38MWh energy units per year. Energy cost saving per year could be around $4200 and installation cost could be around $100,000.


Generator Shed


Generator


Exterior Lighting Fixture


Exterior Light Fixture Empty Socket


Speaker


Incoming Telephone Service Equipment


Pendant Mount Fluorescent Fixture

Plumbing:

- Year Built:
  - 1966 — Original building plumbing systems.
  - Glycol solar hot water system
- Plumbing System Description:
  - There is a 4” diameter, copper, domestic water supply line to the building. The main shutoff valve is located on the first floor. There is a 3” single water meter for the building. All supply piping examined is copper. The visible waste piping is a combination of cast iron and pvc.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with a central glycol solar hot water system – solar collectors and storage tank. Domestic hot water systems use solar energy to preheat the water that is incoming to a conventionally fueled heating tank. This system also incorporates an expansion tank to accommodate the fluctuating volume of fluid due to temperature changes in the fluid.

Appendix E – Building Inspection Reports

- Operational issues:
  - Washrooms are located on first floor of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.
- Major capital requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


Incandescent Lighting


Main Hall Lighting


Dining Hall Lighting


Fluorescent Light Fixture


Incandescent Light Fixture


Panel H


Main Switchboard


Incoming Electrical Service


Solar DHW tank


Glycol solar hot water system


Solar panels/collectors


Wall mounted water closet


Drinking fountain (original to building)


Two-compartment kitchen sink

Appendix E – Building Inspection Reports

Wil-O-Way "U" Recreation Center (ID: 2680) – 10602 West Underwood Creek Parkway & Wil-O-Way "U" Wading Pool (ID: 2681) – 10602 West Underwood Creek Parkway

EUA Architects

- A new roof was recently installed and the roof structure is in good condition.
- A storage room was recently added to the west side of the building and a new vestibule / classroom addition is planned to replace the current main entrance. That project is being held up at Plan Commission in Wauwatosa.
- Restrooms and kitchen recently remodeled.
- The Department of Family Care occupies 50% of this building. DFC has a compatible social mission with the Recreation Center and the source of rent makes them a desirable tenant. When asked if DFC needed to remain in this building the answer was, definitely, "we need the revenue to sustain".
- The great room is available to rent out for private events and includes use of the restrooms and kitchen areas.
- Landscape and plantings need grooming; they are overgrown and cause moisture problems against the building.
- The outdoor changing area is an alternating fence board wall structure with no roof but has privacy for boys and girls to change clothes. It is rarely used and deteriorating to the point of disrepair.
- Piping for the filtration system runs underground and the supply and return valves buried with piping system have failed. The water level cannot be maintained without replacing the valves. The concrete bowl structure of the pool is in good condition but has not been used due to the valve failures.

New roof recently installed above main hall

Roof structure/soffits in good condition

Remodeled restrooms

Remodeled kitchen

Dept. of Family Care office crowded, small cubicles

Landscape overgrown, requires grooming

Exterior wood panels, doors worn in some areas, particularly south façade

Wading Pool

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - Original building mechanical (heating/ventilation) systems.
  - 1999 — Added one Trane gas heating/DX cooling furnace.
  - Added three Lennox gas heating/DX cooling furnaces.
  - Added gas heating/DX cooling rooftop unit.
- Mechanical System Description:
  - Heating — Five air handling systems are serving the building. Four of them utilize gas furnaces and one utilizes gas fired rooftop unit. Complete with associated ductwork, air outlets and controls, the air handling systems provide heat to the building.
  - Ventilation — Air handling systems provide minimum code required outdoor air. General exhaust propeller sidewall fans in addition to toilet exhaust ventilation facilitate building exhaust effectively removing code required ventilation air while maintaining positive building air pressure.
  - Air-conditioning —All five air handling systems (four split systems and one rooftop unit) serving the building utilize DX cooling coils, complete with associated ductwork and controls provide cooling to the building. Three of the air cooled condensing units are grade mounted and the fourth is roof mounted. Rooftop unit is serving Main Hall Room only.
  - Kitchen ventilation — Domestic range oven is provided with kitchen range hood.
- Overall building mechanical system condition:
  - Most of the HVAC systems and equipment have been replaced around 2007. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - Gas furnaces — 20 years (100%)
    - Air cooled condensing units — 15 years (100%)
    - Exhaust fans — 20 years (100%)

Lennox gas furnace unit (downflow)

Lennox gas furnace unit (downflow)

Lennox gas furnace unit (upflow)

Trane gas furnace unit

Rooftop unit

Rooftop unit

Trane air cooled condensing unit

Appendix E – Building Inspection Reports

  - Rooftop units — 15 years (100%)
  - Ductwork — Life (100%)
  - Diffuser, registers, grilles, dampers — 25 years (100%)

- Operational issues:
  - Heating — Trane gas furnace is in fair condition and is nearing the end of its service life. Electric wall heaters original to the building are beyond the end of their service life.
  - Ventilation — Gas furnaces and rooftop unit appear to be in good condition. Trane gas furnace unit is in fair condition.
  - Air-conditioning — Gas furnace DX coils, associated air cooled condensing units, and rooftop unit appear to be in good condition. Trane gas furnace unit and associated air cooled condensing unit are in fair condition.
- Major capital requirements:
  - Heating— Establish time schedule and appropriate funds for replacement of heating system components which are already beyond or nearing the end of their service life (Trane gas furnace serving the area of Department of Family Care, number of electric wall heaters).
  - Ventilation — Establish time schedule and appropriate funds for replacement of ventilation system components which are already beyond or nearing the end of their service life (Trane gas furnace unit).
  - Air conditioning — Establish time schedule and appropriate funds for replacement of air conditioning system components which are already beyond or nearing the end of their service life (Trane gas furnace unit and associated air cooled condensing unit).
  - Temperature controls — replace existing electro-mechanical controls with new controls along with mechanical system component replacement.


Outdoor air intake


Sidewall propeller exhaust fan


Supply ductwork (Main Hall Room)


Lennox air cooled condensing units

Return grille


Supply ductwork and registers

Electrical:

- Incoming phone service cables are exposed to the elements on the exterior of the building. Recommend installing in conduit.
- Phone lines and network (Ethernet) cables are running throughout the building and are not in conduit or wiremold. Cables were typically attached to existing ceiling mounted wiremold with zip-


Air vent

Appendix E – Building Inspection Reports

ties. It is recommended that the cables be installed in wiremold or at the very least cable trays.

- The electrical service entrance equipment looks to be in fair condition. The main breaker is 400Amps and looks to be in fair condition.
- The existing electrical sub-panels A and B should be replaced. Panel A was installed in 1991 per the schedule mounted on the panel door. Panel B was installed in 1984 per the schedule mounted on the panel door and per an electrical drawing from 1984.
- The fire alarm system is a Quick Start by Mirtone. It is unclear when the system was installed. No drawings are available. Some of the components, such as heat detectors and smoke detectors were installed in 1984 as part of a renovation project. Some of the components are original. The age of the building is unclear. Recommend updating the fire alarm system (control panel and components) in the next five years.
- Fire alarm conduits are not painted red.
- Fire alarm system is fed from one of the subpanels, but has no emergency backup power.
- Existing emergency lighting units appear to be original to the building and should be replaced. They are long past their life expectancy.
- The wiring to the existing smoke detector in the main hall is exposed and not installed in wiremold. Currently there is blue painter's tape around the wires. Recommend installation in conduit.
- Existing exit signs look to have been replaced at some point, but it is unclear what year this occurred. Some of the exit signs have battery backup, but not all of them. Recommend replacing exit signs with battery backup as there is no emergency system.
- Existing infrared cameras appear to be in good condition and seem fairly new. Unable to verify with drawings.
- Existing security system was installed in 1984 per as-builts and is nearing the end of its life. Recommend replacement system.
- Existing exterior incandescent flood lights are in poor condition. Recommend replacement with new energy efficient fixtures.
- Existing light fixtures in offices were installed in 1984 per as-builts. Fixtures use T-12 lamps. Recommend replacement of light fixtures with energy efficient lighting.
- Existing light fixtures elsewhere in the building appear to be original. Some fixtures are incandescent, while others are fluorescent fixtures with T-12 lamps. Recommend replacement of all fixtures with energy efficient fixtures.

Electric Meter and Telephone Service

Incoming Telephone Lines

Incandescent Light Fixtures and Existing Telephone Cabling

Lighting, Heat Detector and Telecom Cables

Heat Detector and Telecom Cables

Existing Security Alarm Panel

Existing Sub Panel A

Appendix E – Building Inspection Reports

Plumbing:

- Year Built:
  - Original building plumbing systems.
- Plumbing System Description:
  - There is a copper domestic water supply line to the building. The main shutoff valve is located in the mechanical room. There is a 2" single water meter for the building. A reduced pressure type backflow preventer is provided on the building water service to protect the public water main. There is no cross connection between wading pool and any potable water supply, the water circulation system of pool or sewer. All supply piping examined was copper. The visible waste piping is a combination of cast iron and pvc.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with hot water re-circulation pump and pipes.
  - There is a 50-gallon, gas-fired domestic water heater in the mechanical room. The unit efficiency is over 80%.
  - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
  - Wading Pool is not working. Plumbing circulation system is very old. Filter and disinfection equipment should be replaced. Fittings must be secured to provide protection from suction and pressure hazards.
- Operational issues:
  - Washrooms are located on first floor of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.
- Major capital requirements:
  - Cold and hot water piping network should be provided with adequate separation valves for maintenance and repair purposes. Valves shall be easily accessible for handling.


Panel Schedule For Panel A


Sub Panel B


Sub Panel B Panel Schedule


Main Distribution Panel


Main Service Breaker


Fire Alarm Panel


Fire alarm Strobe and Horn

Appendix E – Building Inspection Reports

- Older plumbing system for wading pool may not support the pressure and waste removal requirements. Chemical feeding equipment, recirculation pump and valve replacement is recommended. Inefficient existing equipment should be upgraded or changes performed to provide required functionality.


Smoke Detector Wiring Taped


Fire Alarm Annunciator Panel


Fire alarm Strobe and Horn


Emergency Lighting

Exit Sign/Emergency Light with Battery Backup

Exit Sign without Battery Backup


Flood Light and Existing Speaker


Fluorescent Fixture with T-12 Lamps


Parking Lot Light Pole


Loudspeaker


Fluorescent Lighting with T-12 Lamps


Wading pool


Pool filter system


Recirculation pump


Water meter for the building

Appendix E – Building Inspection Reports

Wil-O-Way "G" Recreation Center South (ID: 22950) – 207 South Lake Drive
EUA Architects

- New 3-season room, entrance corridor and offices are under construction. This exterior area had just a roof covering but has been recently enclosed with windows and low wall, heat, electricity to make it a functional 3 season room.
- A new roof was recently installed and the roof structure is in good condition.
- New kitchen casework with accessible counters, sink.
- The overall exterior of this building is in good condition but suffers from cleaning and minor maintenance items, such as exterior door delamination, eave trim paint or replacement, soffit paint and curb appeal at the main entrance
- The building is frequently used for party rental, weddings, social events, etc. and receives revenue for this.

New 3-season room under construction

New roof recently installed

New kitchen casework with accessible counters, sink

Typical wood window in poor condition

Cleaning and paint needed on exterior, otherwise in good condition

Drinking fountain non-ADA compliant – located too high

Exterior doors are in poor condition

New wood fascia needs painting to match existing

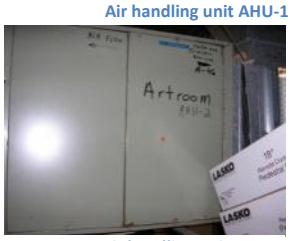
Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1979 — Original building mechanical (heating/ventilation only) systems.
  - Added cooling for the entire building.
  - Added 3-Season Room.
- Mechanical System Description:
  - Heating — Air handling systems consisting of air handling units/gas furnace unit with gas fired heating sections, air floor, perimeter air baseboards, and associated ductwork and controls provide heat to the building.
  - Ventilation — Air handling systems (heating season)/cooling only rooftop unit (cooling season) provide minimum code required outdoor air. Exhaust fans provide toilet exhaust ventilation. Make-up air is transferred from the building, effectively removing code required ventilation air while maintaining positive building air pressure.
  - Air-conditioning — Cooling only grade mounted rooftop unit, and associated ductwork and controls provide cooling to the entire building. The air conditioning system is a VVT (variable volume temperature) system consisting of three zone dampers and a bypass damper. It serves Three-Season Room, Art Room and Kitchen, effectively providing zoning and greater control over cooling of the building.
  - Humidification — All three heating/ventilation only air handling systems have inline humidifiers.
  - Kitchen ventilation — Domestic range oven is provided with kitchen range hood.
- Overall building mechanical system condition:
  - Most of the HVAC systems and equipment are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - Air handling units — 20 years (100%)
    - Gas furnaces — 20 years (100%)
    - Exhaust fans — 20 years (100%)

Air handling unit AHU-1



Air handling unit AHU-2

Gas furnace unit


Grade mounted cooling only rooftop unit


Grade mounted cooling only rooftop unit


Inline humidifier (AHU-1)


Inline humidifier and gas fired section (AHU-2)

Appendix E – Building Inspection Reports

  - Rooftop units — 15 years (100%)
  - Ductwork — Life (100%)
  - Diffuser, registers, grilles, dampers — 25 years (100%)
- Operational issues:
  - Heating — Gas fired sections as part of the air handling units are original to the building and beyond the end of their service life. Humidifiers are original to the building and beyond the end of their service life.
  - Ventilation — Air handling units are original to the building and beyond the end of their service life.
  - Air-conditioning — It appears cooling only rooftop unit has been added in the last 5 to 10 years and is in fair condition.
- Major capital requirements:
  - Heating— Establish time schedule and appropriate funds for replacement of heating system components which are already beyond the end of their service life.
  - Ventilation — Establish time schedule and appropriate funds for replacement of air handling units.
  - Air conditioning — None required.
  - Temperature controls — replace existing electro-mechanical controls with new controls along with mechanical system replacement.


Fabric ductwork (Three-season Room)


Air baseboard


VVT system control transformers


Existing main distribution section


Existing main service disconnect abandoned in 2004

Electrical:

- 1979 Electrical service equipment appears to have been updated. The main service disconnect was abandoned in 2004 per a note on the disconnect switch. A new panel S-1 was installed at one point and looks to be in good condition.
- The conduits feeding panel S-1 have rust on them and are possibly themselves rusted due to a leak from ceiling or wall above. There is also a broken and corroded conduit in the same area. The conduits should be evaluated and replaced as necessary.
- The main water service is next to the electrical service equipment, which is an issue.
- The fire alarm system is by Notifier and the age is unclear. From the appearance, it is nearing its life expectancy and should be replaced in the next few years. Building engineer wasn't able to answer questions about parts and age of the system.
- Much of the decorative lighting is original when compared to the existing 1979 drawings. Some of the light fixtures, such as those in


Corrosion on existing conduits


Corroded existing electrical conduit

Appendix E – Building Inspection Reports

the main hall, have been replaced with more energy efficient fluorescent fixtures. At some point, it is recommended that the1979 light fixtures be upgraded to more energy efficient fixtures.

- Electrical/Mechanical rooms are quite cluttered with many of the electrical panels blocked.

Electrical service equipment and main incoming water line and meter

Plumbing:

- Year Built:
  - 1979 — Original building plumbing systems.
- Plumbing System Description:
  - There is a approx. 3” diameter copper domestic water supply line to the building. The main shutoff valve is located in the basement. There is a 2” single water meter for the building. All supply piping examined is copper. The visible waste piping is a combination of cast iron and PVC.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with hot water re-circulation pump and pipes.
  - There is a 50-gallon, gas-fired domestic water heater in the basement. The unit efficiency is over 80%. Water heater flue tubes show no mineral deposits on the outside perimeter and no rust.
  - Sump pump was observed in the basement.
- Operational issues:
  - Washrooms are located on first floor of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.
- Major capital requirements:
  - Water heater flue duct is air tight and not well sealed to the chimney connection.
  - Valves shall be easily accessible for handling.

Existing fire alarm control panel

Fire alarm horn and strobe

New plumbing fixtures are installed

Gas fired heater is estimated to be 5+ and doesn’t require replacement in the short term

Appendix E – Building Inspection Reports

Kelly Nutrition Center – Warnimont Park (ID: 3125) – 5400 South Lake Drive
EUA Architects

- Originally built on a Nike Missile site, this building was constructed as barrack housing for armed forces and wasn't intended to be a permanent structure. The building is constructed of block walls, wood joist roof, wood doors and windows which are thermally inefficient to meet today's energy standards. It has had minimal maintenance and thermal upgrades and has served its useful life.

- A goal of a county owned senior center is to attract local residents to use the facility as a destination place. There is no curb appeal or amenities that would attract more users given the age and aesthetics of this building.

- The building layout and proportions make it difficult to remodel into larger spaces to meet the needs of the various programs that are offered by the County.

- Wood windows are in need of replacement. Most of them have inefficient glass and are deteriorating beyond their useful life.

- The building has under-utilized and unnecessary large corridors and vestibules. This takes away from useable square footage.

- The building has limited storage space; however, 75% of the building was unoccupied at the time of this tour. Staff expressed the concern for more space but it seems slight modifications to the interior could create more efficient spaces.

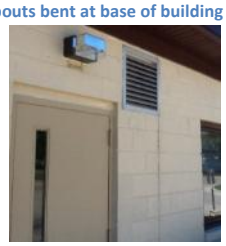
- No door hardware is ADA compliant. This is of particular concern for an elderly facility where conventional door knobs require twisting of the hand and wrist to open. ADA compliant lever hardware makes this easier to open doors.

- Kitchen casework is non-ADA compliant and is past its useful life.

- Staff expressed concern when occupying two buildings is difficult for residents to traverse outside between buildings especially in inclement weather. Two separate kitchens, moving things between buildings, etc. causes inefficiencies with staff and residents.


South entrance in poor shape

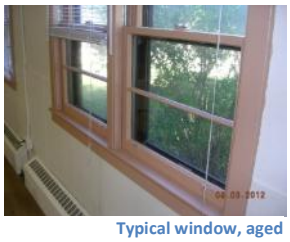

Downspouts bent at base of building


New caulking needed in expansion joints


Kitchen non-ADA compliant, poor condition

Exterior wood siding in poor condition


Columns in main space worn


Typical window, aged

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1955 — Original building mechanical systems.
  - 1991 — Hot water boiler replacement.
  - 1995 — Cooling only rooftop units installation.
- Mechanical System Description:
  - Heating — Heating system consisting of a single hot water boiler, a single hot water in-line pump, perimeter fin tube radiation, and associated piping, valving, and controls provides heat to the building.
  - Ventilation — It is believed that ventilation air is provided through the means of operable windows during the heating season and through rooftop units during cooling season. Wall mounted propeller exhaust fan is used to facilitate the removal of ventilation air.
  - Air-conditioning — Two (2) cooling only rooftop units provide air conditioning for the building during cooling season.
  - Kitchen ventilation — Wall mounted propeller exhaust fan provides kitchen exhaust ventilation when domestic range oven is in use.
- Overall building mechanical system condition:
  - Most of the HVAC systems and equipment are at the end or beyond the end of their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%).
    - Hot water boilers (gas) — 20 years (100%).
    - Piping/equipment insulation — 15 years (75-100%)
    - Freeze protection — 15 years (100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Rooftop units — 15 years (100%)
    - Ductwork — Life (100%)
    - Diffuser, registers, grilles, dampers — 25 years (100%)

Hot water boiler

Cooling only rooftop unit (west)

Cooling only rooftop unit (east)

Supply register

General exhaust

Kitchen exhaust

Hot water in-line pump

Appendix E – Building Inspection Reports

- Operational issues:
  - Heating — Hot water boiler has reached the end of its service life. Hot water in-line pump appears to have been replaced in recent years and is in good condition.
  - Ventilation — Wall mounted propeller exhaust fans appear to be original to the building and are beyond the end of their service life. During heating season, building may lack sufficient outdoor air.
  - Air-conditioning — Rooftop units are beyond the end of their service life.
- Major capital requirements:
  - Heating— Establish time schedule and appropriate funds for replacement of heating system.
  - Ventilation — Verify building is provided with sufficient outdoor air year round. Establish time schedule and appropriate funds for providing year round mechanical ventilation if such is preferred.
  - Air conditioning — Establish time schedule and appropriate funds for replacement of air conditioning equipment.
  - Temperature controls — replace existing electro-mechanical controls with new controls along with mechanical system replacement .

Finned tube radiation

Existing fire alarm control panel

Fire alarm conduits not painted red

Existing exit sign

Electrical:

- Main electrical service equipment was replaced in 1995 per existing drawings. The system is now 17 years old, but is in good shape. There are at least another 13 years of life for this system.
- Fire alarm system was replaced approximately 3-5 years ago. New system is by Johnson Controls.
- Fire alarm conduits should be painted red. Currently only junction box covers are painted red.
- Exit signs and battery backed up emergency lights appear to be in good shape and look to have several years of life left. It is unclear when the system was upgraded.
- Exterior building wall-pack light fixtures appear to be in good shape and fairly new. Drawings not available to verify age.
- Parking lot lighting is in good shape.
- Various interior light fixtures have cracks in the lenses. Lenses should be replaced as part of regular maintenance.

Emergency lighting battery pack

Existing exterior wall-pack lights

Appendix E – Building Inspection Reports

- There are areas where the conduits penetrate the walls and ceilings, but the holes were not sealed. It is recommended that these penetrations be sealed.


Existing parking lot light

Plumbing:

- Year Built:
  - 1955 — Original building plumbing systems.
- Plumbing System Description:
  - A main water line serves the building and is fed by the water main located in the street. A 2 ½" Dia. domestic water line is tapped off the main and penetrates the exterior wall of the building.
- Overall building plumbing system condition:
  - The domestic water distribution system is original to the building. Sections of the domestic water piping insulation are damaged. There is no provision for backflow protection between the city and the building domestic water supply.
  - A new 50 gallon gas water heater installed for domestic hot water that serves the building.
  - The existing storm and sanitary piping are original to the building. No leaks were observed in the building drainage systems.
  - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
  - Natural gas is piped to the kitchen equipment and the domestic water heater.
- Operational issues:
  - It appears that plumbing fixtures do not comply with present day barrier free requirements. Majority of the fixtures are more than 10 years old. Existing water closets and urinals are not low consumption type.
- Major capital requirements:
  - Current performance rating procedures for this type of domestic water heating system are inadequate to provide estimated energy savings. A new domestic water distribution system with new water meter is recommended.
  - Plumbing fixtures should be removed and replaced with new ones.


Existing light fixtures


Cracked light fixture lense


Wall and ceiling pipe penetrations not sealed


Non-compliant water fixture


Piping insulation is damaged

Appendix E – Building Inspection Reports

Kelly Senior Center – Warnimont Park (ID: 3130) – 5400 South Lake Drive
EUA Architects

- Originally built on a Nike Missile site, this building was constructed as barrack housing for the armed forces and wasn't intended to be a long term permanent structure. The building is constructed of block walls, wood joist roof, wood doors and windows which are thermally inefficient to meet today's energy standards. It has had minimal maintenance and thermal upgrades and appears to have served its useful life.

- A goal of a county owned senior center is to attract local residents to use the facility as a destination place. There is no curb appeal or amenities that would attract more users given the age and aesthetics of this building.

- The building layout and proportions make it difficult to remodel into larger spaces to meet the needs of the various programs that are offered by the County.

- Wood windows are in need of replacement. Most of them have inefficient glass and are deteriorating beyond their useful life.

- The building has large corridors and vestibules which are underutilized and not necessary spaces. This takes away from useable square footage.

- The building has limited storage space; however, 75% of the building was unoccupied at the time of this tour. Staff expressed the concern for more space but it seems slight modifications to the interior could create more efficient spaces.

- No door hardware is ADA compliant.

- Kitchen casework is non-ADA compliant and is past its useful life.

- The building is not air conditioned and currently utilizes window air conditioner units.

- Staff expressed concern when occupying two buildings is difficult for residents to traverse outside between buildings especially in


Typical corridor

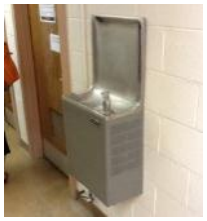

Minimal storage space available, large hall used for extra storage


Kitchen non-ADA compliant, casework worn


Typical window AC unit


Lobby restrooms remodeled, compliant


Craft hall restrooms in poor condition (women's closed), non-ADA compliant


Drinking fountains non-ADA compliant, projecting hazard

Appendix E – Building Inspection Reports

inclement weather. Two separate kitchens, moving things between buildings, etc. causes inefficiencies with staff and residents.

- The interior concrete floor slab is settling and has sunk near some exterior door thresholds and walls. The county Architect has expressed foundation concerns in this building.

- Restrooms on the north end of building have been recently upgraded to meet ADA standards.

- The restrooms in craft hall are non-ADA compliant and are in poor condition (women's closed).

- The local Fire Inspector requested a second means of egress be provided in large hall per building code requirements.

Growing cracks in multiple walls

Floor slab has settled near door, creating lip at threshold

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1955 — Original building mechanical systems.
  - 1974 — Conversion to senior citizen center.
  - 1991 — Hot water boiler replacement.
  - Hot water boiler renovation and gas burner replacement.
- Mechanical System Description:
  - Heating — Heating system consisting of a single hot water boiler, zone hot water in-line pumps/modulating valves, perimeter fin tube radiation/convectors/unit heaters, and associated piping, valving, and controls provide heat to the building.
  - Ventilation — It is believed that ventilation air is provided through the means of operable windows year round. Wall propeller exhaust fans mounted in some of the rooms provide toilet exhaust and intermittent general exhaust (game room, pantry). Ceiling fans mounted in Lounge and Multipurpose Room increase indoor air movement during cooling season. During heating season, if used, ceiling fans help air destratification.
  - Air-conditioning — Window air-conditioners provide air conditioning in most of the occupied rooms.
  - Kitchen ventilation — Wall mounted propeller exhaust fan provides kitchen exhaust ventilation when domestic range oven is in use.
  - Kiln exhaust ventilation — Wall mounted propeller exhaust fan is providing exhaust ventilation for the room. Makeup air is provided through wall louver with backdraft damper. When kilns are on, the room gets quite hot. Occupants tend to use the kiln only in the evening to reduce excess heat.
- Overall building mechanical system condition:
  - Most of the HVAC systems and equipment are at the end or beyond the end of their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%).


Hot water boiler


Zone hot water in-line pumps


General exhaust(wall propeller exhaust fan)


General exhaust (exercise room)


Ceiling fan


Window air conditioner


Window air conditioners

Appendix E – Building Inspection Reports

- Hot water boilers (gas) — 20 years (100%).
- Piping/equipment insulation — 15 years (75-100%)
- Freeze protection — 15 years (100%)
- HVAC piping & fittings — 20 years (40%)
- HVAC valves — 15 years (50%)
- Exhaust fans — 20 years (100%)
- Finned tube elements — 35 years (100%)
- Rooftop units — 15 years (100%)
- Ductwork — Life (100%)
- Diffuser, registers, grilles, dampers — 25 years (100%)
- Window air conditioners — 10 years (100%)


Window air conditioner/finned tube


Kitchen exhaust fan

- Operational issues:
  - Heating — Hot water boiler appears to have been renovated in recent years and is in good condition. Two of the hot water in-line pumps are in poor condition. A third in-line pump appears to have been replaced in recent years and is in good condition.
  - Ventilation — Wall mounted propeller exhaust fans appear to be original to the building conversion to senior citizen center in 1974 and are well beyond the end of their service life. During heating season, building may lack sufficient outdoor air.
  - Air-conditioning — Window air conditioner extension panels cause energy loss year round.


Wall propeller exhaust fan (kiln room)


Makeup air louver (kiln room)

- Major capital requirements:
  - Heating— Establish time schedule and appropriate funds for replacement of heating system components that are already beyond the end of their service life.
  - Ventilation — Verify building is provided with sufficient outdoor air year round. Establish time schedule and appropriate funds for providing year round mechanical ventilation if such is preferred.
  - Air conditioning — Establish time schedule and appropriate funds for providing central air conditioning system if such is preferred.
  - Temperature controls — replace existing electro-mechanical controls with new controls along with mechanical system replacement.


Kilns


Thermostat (in-line pump/valve control)


Thermostat (in-line pump/valve control)

Appendix E – Building Inspection Reports

Electrical:

- Year Built: 1955
- Existing fire alarm system was recently (approximately 3-5 years ago) replaced with a new Johnson Controls system.
- Fire alarm conduits should be painted red. Currently only junction box covers are painted red.
- Existing lighting including surface mounted 2'x4' and 2'x2' fluorescent fixtures is not original to the building, but is older than 10 years according to the administrator. Was unable to confirm with drawings.
- Existing electrical service panel is 400Amps, 120/208V and is in fair condition. Believed to have been replaced in 1974 according to panel schedules.
- Subpanels B (left and right) located in the boiler room are believed to have been installed in 1974. They are in poor to fair condition.
- Existing exit signs look fairly new. Unable to confirm age of devices.
- Existing Bogen intercom system is approximately 6-7 years old. In general the sound quality is poor according to the users and it sounds hollow in the large rooms. In addition, there are areas where the intercom isn't able to be heard. Recommend adding some speakers to improve volume of system.
- Lighting in bathrooms looks to be the same as elsewhere in the building. The bathrooms were made ADA compliant approximately 5 years ago. The lighting for the building could have been replaced at that time. Or the existing lighting in the bathrooms may not have been updated as part of the ADA upgrades.
- Automatic toilet sensors didn't appear to work. It is possible that the batteries need to be replaced. It is believe that the sensors operate on battery power and are not hard wired.
- Parking lot lighting is original, but seems to be in good condition.
- Exterior building wall-pack light fixtures appear to be in good shape and fairly new. Drawings not available to verify age.
- Disconnect switch for existing kilns has a rusty handle. It is recommended that this switch be replaced.

Fire Alarm Control Panel

Lighting Fixtures

Fire Alarm Conduit

Light Fixture with Cracked Lens

Main Electrical Panel

Subpanels B (right and left)

Plumbing:

- Year Built:
  - 1955 — Original building plumbing systems.
- Plumbing System Description:

Subpanel B (left)

Appendix E – Building Inspection Reports

- A main water line serves the building and is fed by the water main located in the street. A 2 ½" Dia domestic water line is tapped off the main and penetrates the exterior wall of the building.

- Overall building plumbing system condition:
  - The domestic water distribution system is original to the building. Sections of the domestic water piping insulation are damaged. No provision for backflow protection between the city and the building domestic water supply.
  - A new 50 gallon electric water heater exists for domestic hot water that serves the building.
  - The existing storm and sanitary piping is original to the building. No leaks were observed in the building drainage systems.
  - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
  - Exposed asbestos pipe insulation was observed.
- Operational issues:
  - It appears that plumbing fixtures do not comply with present day barrier free requirements. Majority of the fixtures are more than 10 years old. Existing water closets and urinals are not low consumption type.
- Major capital requirements:
  - Current performance rating procedures for this type of domestic water heating system are inadequate to provide estimated energy savings. A new domestic water distribution system with new water meter is recommended.
  - Plumbing fixtures should be removed and replaced with new.
  - Asbestos pipe insulation materials should be removed in the mechanical room.

Subpanel B (right)

Main Electrical Panel Schedule

Bogen Intercom System

Parking Lot Light Pole

Disconnect Switch for Kiln

Piping insulation is damaged

Asbestos pipe insulation

Appendix E – Building Inspection Reports

Wilson Park Senior Center – Wilson Park (ID: 3845) – 2601 West Howard Avenue

EUA Architects

- The asphalt parking lot, especially the driveway to the building, is in poor condition. Portions of the sidewalk are also in poor condition.
- Exterior wood siding is warped, peeling away in various locations.
- Suspended ceiling tiles in the dining hall have stains from leaking pipes.
- The wood roof structure and ceiling appear to be in good condition based on ground level inspection.
- Most of the glass panes in the greenhouse are filled with condensate.

Handicap ramp patched over with asphalt, in poor condition

Asphalt pavement near end of useful life. Driveway is in especially poor condition

Wood siding warped, pulling away from building

Some ceiling tile in dining hall beyond useful life, stained from mechanical pipe leaks above

Exposed roof structure appears to be in good condition

Condensate present in many of the greenhouse glass panels

Crack visible in wall

Typical restroom, stall not fully HC accessible

Typical storefront window. Wood frame with integral louvers, hardware on some windows broken

Exit doors do not have panic hardware

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1980 — Original building mechanical systems.
- Mechanical System Description:
  - Heating — Building is provided with electric hot water boiler/storage tank, hot water pumps, and associated piping, valving and hydronic accessories to generate and distribute hot water throughout the building. One constant air volume and one variable air volume air handling units with hot water coils complete with associated ductwork, fan powered boxes with reheat coils, air baseboard/outlets, and controls provide heat to the building. In addition convectors provide heating in toilet/storage rooms and cabinet unit heaters are provided at entrances to offset heating load when exterior doors are frequently used.
  - Ventilation — One constant air volume and one variable air volume air handling unit complete with fan powered boxes, associated ductwork, air baseboards/outlets, outdoor air intake louvers, return/relief/exhaust/transfer fans, relief louvers, and controls provides supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Outdoor grade mounted chiller with remote evaporator (108 tons) and associated pumps, piping, valving, hydronic accessories, and controls generate and distribute chilled water to air handling unit cooling coils. Two (2) air handling units (one constant air volume serving the main hall and one variable air volume serving the rest of the building) with cooling coils, complete with fan powered boxes, associated ductwork, air baseboards/ outlets, and controls provide cooling to the building.
  - A dust collection system serves the woodworking shop.
  - Craft room — local exhaust ventilation is provided for the electric kiln.


Cabinet unit heater


Electric hot water boiler


Hot water wall convector


Air baseboard


Intake/Relief hoods


Transfer grilles


Transfer/exhaust in line fan

Appendix E – Building Inspection Reports

- Kitchen range is served by kitchen exhaust hood in good condition. Another kitchen range has no kitchen exhaust hood.
- Ductless split system provides cooling for elevator machine room.
- Building automation system — BAS system is a combination of DDC, pneumatic and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end of or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Hot water boilers (electric) — 15 years (100%)
    - Chillers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
- Operational issues:
  - Heating
    - Kitchen range has no kitchen exhaust hood.
  - Ventilation
    - No major issues.
  - Air Conditioning
    - No major issues.
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of heating system and equipment.


Kiln exhaust hood


Woodshop dust collection system


Kitchen range oven without kitchen exhaust hood


Ductless split system indoor unit


Kitchen range oven with kitchen exhaust hood


AHU cooling and heating coils


HVAC piping

Appendix E – Building Inspection Reports

- Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation system and equipment.
- Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning system.
- Building automation system — replace existing controls with new controls along with mechanical system replacement.


Temperature control air compressor (new)

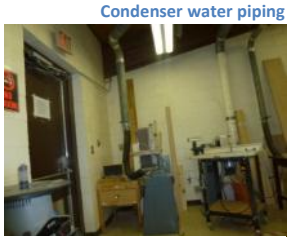

HVAC piping

Electrical:

- Built Around: 1980
- Existing fire alarm system in working condition.
- Existing lighted exit signs are in working condition however exit signs can be replaced with battery backed exit signs with side mounted emergency lights.
- Elevator system is believed to be installed in year 2009 and is in good working condition.
- Partial emergency lighting system is in place which can be operational during day time only in case of utility power outage. Existing On-Grid PV Solar power system may provide power to emergency lighting system.
- The existing On-Grid Solar power system is a set of ten 245W rooftop solar modules connected in a series. Solar power system is connected to main distribution system via SMA 3KW inverter. There is no battery backup system to store generated solar energy. The existing solar power system can generate approximately 2.6MWh energy units per year. Energy cost saving per year could be roughly $300. The solar power system was installed sometime in 2011. Partial security lighting system around outside building wall including few exit doors.
- No security camera system around the building.
- Motion sensor security system in place and in working condition inside the building.
- Motion sensor lighting control may need to be installed for all the bathrooms and utility rooms as possible to minimize power consumption.
- PA system is in poor condition, possibly not reaching all the rooms.


Air cooled chiller with remote evaporator


Condenser water piping


Exit Sign and Lighting


Roof Mounted Solar Panels


Motion Sensors

Appendix E – Building Inspection Reports

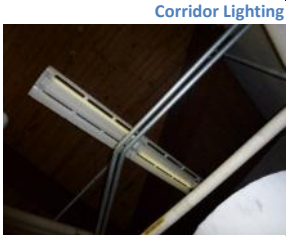
- Telephone and intercom system are in working condition but inadequate.
- Overall lighting system is in working condition, however more efficient and energy saving LED lighting may be needed, especially in main hall room and where ambient day lighting is not available including bathrooms.
- Noticed that few receptacles in bathrooms are ground fault protected. All bathrooms and wet locations need GFCI receptacles.
- Street lighting along access road around the building is fed from panel PA (277/480V) located inside the building.
- Main Distribution Panel is 1200Amp., 277/480V, 3-Phase 4-Wire in fair condition. Existing MDB believed to be original.
- There are five power sub-panels (PA, PB, PC, PD, and PE) each 100Amp., 277/480V, 3-Phase, 4-Wire is in fair condition. Power sub-panels are feeding local sub-panels (A, B, C, D, and E) thru six 30KVA step-down transformers (277/480V to 120/208V).
- All HVAC utility systems are fed at 277/480V 3-phase, 4-wire.
- Building lightning system may need to be tested for proper grounding.
- Flat roof has space available to install at least 30KW PV Solar power system which can roughly produce 38MWh energy units per year. Energy cost saving per year could be around $4200 and installation cost could be around $100,000.


Bathroom Receptacle not GFCI


Telephone Service Equipment


Main Hall Lighting


Corridor Lighting


Light Fixture and Conduits


Fluorescent Light Fixture


Utility Transformer

Plumbing:

- Year Built:
  - 1980 — Original building plumbing systems.
- Plumbing System Description:
  - There is a copper domestic water supply line to the building. The main shutoff valve is located in the basement. There is a 2” single water meter for the building. All supply piping examined was copper. The visible waste piping is a combination of cast iron and pvc.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with a hot water heater – sealed combustion with circulation booster pump and pipes.
  - New high-efficiency, gas-fired hot water heater “AERCO – KC Series” was installed in April 2011. The condensing heat

Appendix E – Building Inspection Reports

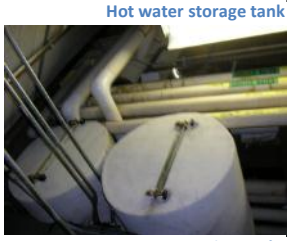
exchanger design is built to withstand thermal shock. The forced draft, modulating burner operates with 20:1 turndown to achieve 93%-99% thermal efficiency under variable flow conditions yet maintains precise +/-4°F temperature control.

- New hot water storage tank with Honeywell Aquastat controller was installed in April 2011.

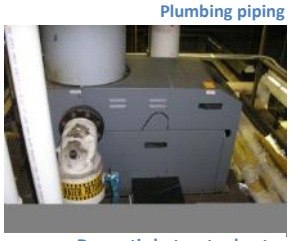
- Operational issues:
  - Washrooms are located on first floor of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.
- Major capital requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


Main Distribution Panel


Hot water storage tank


Expansion tanks


Plumbing piping


Domestic hot water heater


Drain tile & elevator sump pump


Hand sink in the pantry

Appendix E – Building Inspection Reports

Phillips Juvenile Justice Center - Children's Court Center– County Grounds (ID: 5000) – 10201 Watertown Plank Road

EUA Architects

- The brick veneers on the additions are in good condition. The original building is in need of some tuck-pointing, and the walkway brick walls outside of the main entry are visibly damaged from freeze/thaw cycles.
- The exposed exterior concrete overhangs are visibly worn from water damage. Cracks and peeled paint run along the underside of the overhangs. The 2nd floor concrete balcony by the loading dock is also in poor condition.
- The main building roofs are in good condition. The roof over the circular entry piece has been patched in areas, and the edge of the overhang needs maintenance to prevent further water damage.
- Most of the rooms within the building are in good condition. Carpet, ceiling tiles, and finishes in a few places are nearing the end of their useful life.
- The jail portion of the building is generally in good condition, given the wear and tear incurred daily.
- A translucent film on the windows at the center of the circular entry piece blocks the courtyard from view. With a little maintenance, this courtyard could become a visible light court within the building as originally designed.
- The parking lot is in fair condition. It was near capacity at the time of the visit. Pedestrians in the parking lot crosswalks can be tough to see with parked cars and traffic present.

Concrete overhangs cracked, paint peeled on the underside

Circular roof is patched in various areas

Interior courtyard of circular entry piece. Windows currently have translucent film blocking views into court

Pedestrian path through the parking lot

Brick walkway walls have incurred water damage

Door frames, loading dock equipment rusting

Hot water tanks for roof-mounted solar hot water system

Water hasn't dripped properly off the edge of the concrete roof overhang, causing damage

2nd floor concrete balcony by the loading dock is in poor condition

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - Original building mechanical systems.
  - 1997 — Building mechanical system renovation.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam supply/condensate return piping, condensate return pumps, and associated valving, accessories, and controls provides heat to building heating hot water and domestic hot water heat exchangers. Hot water system consisting of steam to hot water heat exchangers, hot water pumps (15 HP with variable frequency drives), hydronic accessories, valving, piping and controls provides heating hot water for air handling unit heating coils, perimeter finned tube radiation, fan powered box/variable air volume (VAV) box reheat coils, and various heating terminal units (cabinet unit heaters, suspended unit heaters, convectors). Most of the air handling unit heating coils are provided with coil booster pumps. Two steam to hot water heat exchangers provide domestic hot water.
  - Ventilation — Eight (8) variable air volume air handling systems and seven (7) constant air volume multizone/single zone air handling systems complete with wall louvers, supply/return/exhaust ductwork, fan powered and VAV boxes, supply/return/exhaust inlets/outlets, separate return/relief fans, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Air handling unit supply fan motors range from 5.0 to 40 HP, and return fan motors range from 1.5 to 25 HP.
  - Air-conditioning — Building is supplied with chilled water through district cooling plant chilled water mains. Chilled water system consisting of two chilled water pumps (40 HP each with variable frequency drives), chilled water


Steam to heating HW heat exchangers


Hot water pumps


Condensate return pump


Steam to domestic HW heat exchangers


Air handling unit heating/cooling coils


Heating coil booster pump

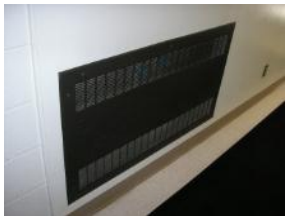

Wall convector

Appendix E – Building Inspection Reports

supply/return piping, hydronic accessories, valving, and controls distribute chilled water to building air handling units.

- Humidification — Some of the building air handling units are provided with humidification control.
- Variable frequency drives — variable air volume air handling systems supply and return fans and chilled water/hot water distribution pumps have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end of their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Heat recovery — 15 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Duct mounted coils — 20 years (100%)
    - Air compressors — 25 years (100%)



Cabinet unit heater

Suspended unit heater

Variable air volume box with reheat coil

Finned tube radiation

DDC thermostat

Return air fan

Hot water piping

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Heating— establish time schedule and appropriate funds for gradual replacement of heating equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement .

Electrical:

- The Electrical system renovation was done in 1994.
- Existing fire alarm (FA) system is original. The FA system wiring has a routing problem. The FA panel has a heat problem. We recommend replacement of entire FA system for building.
- The existing emergency service is provided by a diesel generator on the site. The building engineer stated that the emergency generator is serviced yearly.
- Exit signs are in working order.
- The existing keyless entry system doesn't always work. We recommend replacing the keyless entry system.
- The existing lighting consists of many types of fixtures. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Some of the building has fluorescent fixtures with T-12 lamps and some of the building has fluorescents with T-8 lamps. The engineer stated that they have replaced all fixtures as part of a Johnson Control grant. Due to the more efficient new fixtures, the building has too high of a lighting level. The build electrician stated that they are taking a few fixtures out because of the lighting level.
- Existing public address (PA) system is original. They are slowly upgrading pieces of it due to complaints of inability to hear the messages.

Plumbing:

- Year Built:
  - Original building plumbing systems.


Wall louver


Duct smoke detector


Dishwasher exhaust hood


Kitchen exhaust hood


Temperature control air compressor


Chilled water incoming service


Chilled water pumps

Appendix E – Building Inspection Reports

- Glycol solar hot water system.

- Plumbing System Description:
  - Steam to domestic hot water (DHW) heat exchanger provides domestic hot water. The location of the main water line to the property was not determined.
  - There is a copper domestic water supply line to the building. The main shutoff valve is located in the basement. There is a single water meter for a building. The domestic water piping is a mixture of galvanized and copper piping. The visible waste piping is a combination of cast iron and pvc. The plumbing piping in various locations could not be evaluated due to lack of access.
  - The main domestic water piping is fiberglass material. The visible waste piping is a combination of cast iron and PVC. The plumbing piping in various locations could not be evaluated due to lack of access.
- Overall building plumbing system condition:
  - Water pressure observed at the fixtures is average to good. Water flows clear at the fixtures.
  - Insulation on all cold and hot water piping is in good condition.
  - The entire building is equipped with stacked washroom groups. The domestic water risers in chases are located between the washrooms and extend from level 1 to the top of the building.
  - The existing plumbing fixtures appear to be original to the building.
    - Water closets are wall & floor mounted, flush tank type.
    - Urinals are floor mounted and wall hung complete with flush valves recessed in wall.
    - Lavatories in main washrooms consist of porcelain, vanity type complete with manual faucets and exposed chrome plated waste piping.
    - Lunch rooms throughout the building are equipped with stainless steel kitchen sinks.

Air handling unit variable frequency drive

Return air fan variable frequency drive

DDC/pneumatic control panel and VFD

Control damper pneumatic actuators

DDC/pneumatic temperature control panel

Control damper electric actuators

Control valve pneumatic actuator

Appendix E – Building Inspection Reports

- The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- The system is provided with a central glycol solar hot water system – solar collectors and storage tank. Domestic hot water system uses solar energy to preheat the water that is incoming to a conventionally fueled heating tank. This system also incorporates an expansion tank to accommodate the fluctuating volume of fluid due to temperature changes in the fluid.
- No major deficiencies were noted in the plumbing system during the assessment.


Multizone unit zone damper actuators


Pneumatic temperature control panel

- Operational issues:
  - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping shall be insulated and heat traced.
- Major capital requirements:
  - Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


Fire Alarm Panel


Emergency Generator

Fire Protection:

- Year Built:
  - Original building fire protection systems.
- Fire Protection System Description:
  - The system consists of wet-pipe fire suppression sprinklers. The sprinklers in the system are attached to pipes containing pressurized water at all times. Wet-pipe system is used in the building wherever temperatures are high enough to prevent freezing.
  - Automatic fire protection system with flow and tamper alarms is installed in the building. No major deficiencies were noted in the system.
- Overall building fire protection system condition:
  - Due to overall simplicity, wet pipe sprinklers requires the least amount of installation time in renovated areas and capital. The system is pressure tested and restored.

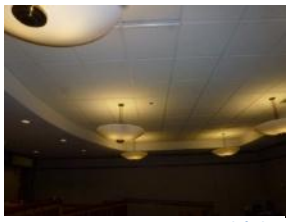
Exit Sign


Recessed Fluorescent Lighting


Incandescent Recessed Downlight

Appendix E – Building Inspection Reports

- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are no major capital requirements involved at this time. Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection systems if left unchecked.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in good condition and requires proper maintenance.


Courtroom Lighting


GYM Lighting


Electrical Room Lighting


Parking Lot LED Lighting


PA system


Substation


Prison Control Cabinet


Floor Data and communication


Step Down Transformer


UPS system for Comm. System


Communication room


Class room communication


Courtroom Control

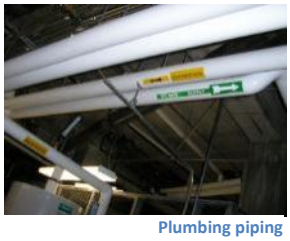

Emergency Control Panel and Transfer Switch


Steam to heating HW heat exchangers


Incoming steam service


Solar DHW tanks


Glycol solar hot water system


Plumbing piping


Wall cleanout cover plate


Floor mounted urinals


Prison: Lavatory and sink

Appendix E – Building Inspection Reports

ADA approved lavatory

Overmount bathroom sinks

Drinking fountain

Duplex sump pump

Sprinkler heads with vandal proof caps

Upright sprinkler heads and piping

Incoming fire protection cold water line

Fire protection piping

Sprinkler head in the kitchen area

Fire extinguisher with cabinet

Appendix E – Building Inspection Reports

D-16 Mental Health Center – Regional Medical Ctr. (ID: 5040) – 9455 Watertown Plank Rd.

EUA Architects

- Asphalt parking lots and drive lanes are in poor condition. There is an ADA accessible loading area at the main entrance, however, there is no accessible route from the HC parking spaces to the main entry. The grass island between the main entrance and parking lot does not contain any sidewalks to connect the parking to the building.

- Original concealed spline ceiling tile system exists throughout the building and some tiles have been replaced, but they don't match the original tiles. This ceiling system has caused difficulties for staff and contractors doing rework in the building for systems that are above the ceiling.

- Some hallways and offices still have original carpet, which is in poor condition.

- Fire stairway doors have non-ADA compliant hardware.

- Some corridors and vestibules are too narrow for wheelchair access.

- Wauwatosa school district uses a few classrooms & offices in one of the children's wards (also occupies space in the Child & Adolescent Treatment Center).

- Hallways and offices often have a mix of various types of light fixtures, some original, others that have been replaced. Light levels are generally low throughout the building.

- Overall, the roof appears to be in good condition.

- Most public restrooms are in good condition, but are not HC accessible.

- The exterior façade based on ground level visual inspection appears to be in good condition.

Ceiling tile in poor condition, replaced tiles do not match the original

Corridor brick floors in good condition, carpet in poor condition

Office corridor with worn carpet and a few replaced ceiling tiles

Typical corridor in a patient wing

Fire hose cabinets converted to house extinguishers, fire stair door hardware non-ADA compliant, original signage

Original glass in skylight, some panes have filled with moisture

Appendix E – Building Inspection Reports

- Most windows and brick sills are in good condition.

Asphalt shingles approx. 25 years old, generally in good condition

Restroom floor and wall tile typically in good condition, HC stall, vestibule non-ADA compliant

Façade appears to be in good condition, along with the windows and brick sills

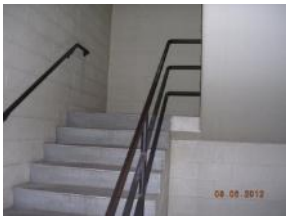
Lawn, landscaping in fair condition, patches of dead grass and bare spots in some areas

Asphalt drive to loading dock in poor condition, dock doors worn

Some exterior door frames are worn or corroded, main entrance doors to be replaced

Original control desks in patient units, door lock control system outdated, new paint desirable

Door and frame in poor condition, non-ADA compliant door hardware



Typical stairwell

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1978 — Original building mechanical systems.
  - 1996 — Fire damper replacement.
  - 1999 — VFDs (variable frequency drives) added to air handling unit supply and return fans, and chilled water and hot water pumps. Air flow measuring stations installed at each air handling unit.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, condensate/vacuum return pumps, and associated valving and accessories provides heat to some of building's eighteen (18) air handling units. Steam to hot water heat exchanger provides heating hot water for the building. Hot water is used for supplemental heating (perimeter finned tube radiation, convectors, and cabinet unit heaters) and to provide heat for reheat coils. Two (2) hot water pumps (30 HP each) circulate hot water throughout the building. Steam to hot water heat exchangers provide domestic hot water. Incoming steam service is located in the north part of Building 5.
  - Ventilation — Eighteen (18) air handling systems (5 to 50 HP supply fan electric motors) with separate return/relief fans and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Airflow measuring stations at air handling units ensure code required ventilation air is brought in on a constant basis.
  - Air-conditioning — Building is supplied with chilled water through district cooling plant chilled water mains. Chilled water system consisting of chilled water supply and return piping, two (2) chilled water pumps (40 HP each), and associated valving and accessories provides chilled water to building air handling units. Incoming chilled water service is located in the northeast corner of Building 4.


Perimeter finned tube radiation


Return grille


Condensate return pump (original)


Condensate return pump (recently replaced)


Steam to hot water heat exchanger


Hot water cabinet unit heater


Hot water pump

Appendix E – Building Inspection Reports

- Humidification — Some of the building air handling units are provided with humidification control.
- Variable frequency drives —air handling systems supply and return fans, chilled water pumps, and hot water pumps have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

Hot water suspended unit heater (mechanical room)

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Duct mounted coils — 20 years (100%)
    - Air compressors — 25 years (100%)

AHU steam coil section

Wall hot water convector

Supply diffuser

- Operational issues:
  - Heating
    - Hot water pumps appear to have been replaced in the last 5 to 10 years and are in fair to good condition.
    - Original condensate return pumps are in poor condition and in need of replacement.
  - Ventilation
    - Air handling units outdoor air (OA) and return air (RA) control dampers are original to the building and in need of replacement.
    - Portions of air handling system AHU-3-2 ductwork system duct lining have deteriorated to the point where some of the zone reheat coils get constantly clogged despite their regular cleaning, leaving some of the spaces underventilated (not sufficient heating/cooling) while other spaces are being overventilated.

Chilled water pump

Fan coil unit

Chilled water cooling coil

Appendix E – Building Inspection Reports

        - Mechanical Room 2218 has no ventilation.
    - Air-conditioning
        - Chilled water pumps are in poor condition and in need of replacement.
- Major capital requirements:
    - Heating — establish time schedule and appropriate funds for gradual replacement of heating system equipment.
    - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation system equipment.
    - Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning system equipment.
    - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement .


Variable frequency drives


Airflow measuring station control panel


Pneumatic control damper actuator

Electrical:

- Lighting in Room 1071 is excessive. There are 6 lights in a 36 square foot area. Recommend removing several of the fixtures to reduce the light levels.
- Computer Lab 2102-13: Currently there are several power strips with wiring all over the floor. Recommend additional electrical outlets, possibly floor mounted, to eliminate the hazard.
- Second Floor Storage Room: Recommend occupancy sensors should be installed as the lights are on all of the time.
- Existing security cameras are monitored by Orion Security. The cameras in the public areas record incoming data. The cameras in the patient areas are only monitored, not recorded. The cameras on the exterior of the building produce poor quality video. The building engineer stated that images of cars in the parking lot are barely recognizable. Currently the camera monitors are located in the emergency area (PCS), but they will be moved to the security office.
- The fire alarm system was replaced in 2006 and is approximately 6 years old. The system is expandable and addressable. System is tied to the fire alarm system at Day Hospital.
- One of the fire alarm junction boxes in the food service area was connected with wiremold instead of conduit.
- Existing roof snow melt system cables are plugged in to receptacles mounted to the roof fascia. It is recommended that the existing receptacles be replaced with GFCI receptacles.
- Exit signs are approximately 10 years old. The building engineer stated that they switch to photo luminescent (PL) type about 10 years ago. He anticipates upgrading all exit signs to LED type when


AHU supply fan section


AHU return/relief fan


Exhaust fan


Mechanical room propeller exhaust fan

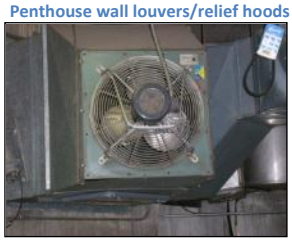
Appendix E – Building Inspection Reports

that technology is less expensive. Recommend replacing in the next 5 years.

- Existing 13kV electrical service equipment is original to the building which was built in 1978. The system consists of three 13kV double-ended substations with tie breakers. The two 13kV service feeds come from the local WE Energies power plant. Various pieces of the equipment have been tested in 2008 and 2009. When breakers are old or broken, the engineer sends them out to be rebuilt. The engineer keeps several of the rebuilt breakers as spares. At this point, they don't have issues with finding replacement parts. Given the age of the system, it is approaching or beyond its life expectancy and should be upgraded in the next 5 to 10 years.
- The existing emergency service is provided by a generator at the power plant and there is no emergency generator on the site. The building engineer stated that the emergency loads are fed normally from the 4160V source from the power plant's generators with the 13kV feed transformed down to 4160V running as standby. It is recommended that an emergency generator be installed on site, rather than rely on the power plant's generators. In addition, the emergency loads should be normally fed from the 13kV:4160V service. The building engineer stated that they will be transferring some of the light fixtures on patient floors from the normal service to the emergency service before servicing the substation (Unit 1.4-2) located on the second floor of building four. The lights that are transferred will remain on the emergency circuits after the substation is serviced.
- The existing clock system is by American Time Signal. All clocks are battery operated and are tied together. There are no issues with the system. When system is upgraded, recommend replacing with a hard-wired system.
- The existing lighting consists of many types of fixtures. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Where there are dimmers controlling the fixtures, the incandescent lamps remain. Some of the building has fluorescent fixtures with T-12 lamps and some of the building has fluorescents with T-8 lamps. The engineer stated that they have replaced fixtures as they fail. They have also been replaced in large groups when energy money is available. The engineer stated that they just bought a very large stock of the T-12 lamps to tie them over until all fixtures are converted to T-8 lamps. Recommend replacement of all building lighting in the next 5 to 10 years.
- Existing public address (PA) system is original. They are slowly upgrading pieces of it due to complaints of inability to hear the messages. They are adding speakers as needed. However, because this facility is now being thought of as a nursing home and

Mechanical room filtered makeup air

Penthouse wall louvers/relief hoods



District heating/cooling plant

Room 1071 Existing Recessed Downlighting

Computer Lab 2102-13 Power Wiring

Security Camera

Fire Alarm Annunciator Panel

Appendix E – Building Inspection Reports

more residential in nature, the number of announcements over the PA system has been reduced drastically.

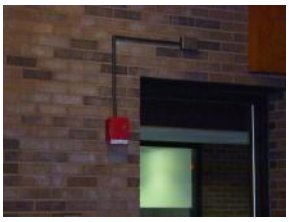
Fire Alarm Annuciator Panel

Plumbing:

- Year Built:
  - 1978 — Original building plumbing systems.
- Plumbing System Description:
  - The building is served by two 12” water lines, one from northeast for domestic water and one from northwest corner for fire protection, both in Building 4 . Steam to hot water heat exchangers provide domestic hot water. A set of pumps circulates hot water from the heat exchangers to the storage tanks and through the building distribution piping. There is a 6” single compound water meter for the building.
  - The main domestic water piping is fiberglass material. All pipe fittings are with asbestos insulation. The visible waste piping is a combination of cast iron and PVC. The plumbing piping in various locations could not be evaluated due to lack of access.
- Overall building plumbing system condition:
  - Water pressure observed at the fixtures is average to good. Water flows clear at the fixtures.
  - Insulation on all cold and hot water piping is in fair condition. At several locations, cold water piping has condensation issues due to lack of insulation.
  - The entire building is equipped with stacked washroom groups. The domestic water risers in chases are located between the washrooms and extend from level 1 to the top of the building.
  - The existing plumbing fixtures appear to be original to the building.
    - Water closets are floor mounted, flush tank type.
    - Urinals are wall hung complete with flush valves recessed in wall.
    - Lavatories in main washrooms consist of porcelain, vanity type complete with manual faucets and exposed chrome plated waste piping.
    - Lunch rooms throughout the building are equipped with stainless steel kitchen sinks.

Fire Alarm Control Panel

Fire Alarm Horn and Strobe with wiremold



Fire Alarm Strobe with wiremold

Snow Melt Cable Receptacles

Exit Sign

13kV Substation

Appendix E – Building Inspection Reports

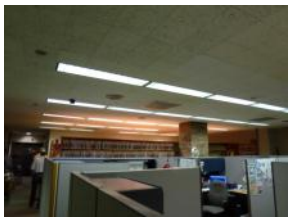
- A storm sewer line and a sanitary sewer line leave through the side of the building and connect to the combined sewer in the street.

- Operational issues:
  - Water temperature control — Building design has provided for eleven (11) thermostatic mixing valve assemblies . Only three (3) thermostatic mixing valve assemblies with packaged components have been installed in existing pumped recirculating hot water systems. Additional eight (8) thermostatic mixing valve assemblies are required to accommodate mixed water temperature control of hot and cold water flow for the building.
  - Majority of plumbing fixtures are more than 10 years old and not low consumption type. Plumbing fixtures shall be replaced with new low consumption fixtures.
  - The existing storm and sanitary piping systems are original to the building and are in fair condition.
  - Drain sump pumps are not fully automatic control.
- Major capital requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


13kV Main Electrical Service


13kV Substation


13kV Substation


Recessed Fluorescent Lighting


Incandescent Recessed Downlight


Recessed Fluorescent Fixtures


Recessed Downlight with Compact Fluorescent

Fire Protection:

- Year Built:
  - 1978 — Original building fire protection system.
- Overall building fire protection system description:
  - The complete fire suppression sprinkler system is wet type.
  - 12” water service with individual control box is located inside the building.
  - A 75 HP fire pump and 2 HP jockey pump are located in the mechanical room.
- Safety:
  - The building is bounded by fire rated doors, dampers and penetration seals.
- Overall building fire protection system condition:
  - The 75 HP fire pump and motor and 2 HP jockey pump and motors all appear to be in good condition.

Appendix E – Building Inspection Reports

- No major deficiencies were noted in the fire protection system.
- Existing automatic fire suppression system is in good condition.

- Operational issues:
  - The system was observed in a visual review only.
- Major capital requirements:
  - There are no major capital requirements needed at this time.

Corrosion monitoring system is recommended. It can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked. Establish time schedule and appropriate funds if such system is preferred.

Breaker with Tested Sticker

Emergency Lighting Fixture

Emergency Panels

Storage tanks with circulation pumps

Shell and tube heat exchanger

Trapped drain tile receiver (original to building)

6" water meter on concrete base

Circulation pumps

Concealed type sprinkler head

Fire pump

Fire extinguisher cabinet

Electrical room Halon system

Pendant type sprinkler head

Appendix E – Building Inspection Reports

D-18 Food Service Bldg. – Regional Medical Ctr. (ID: 5060) – 9150 Watertown Plank Rd.

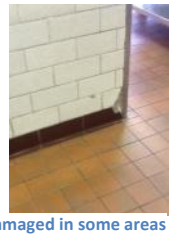
EUA Architects

- The food prepared in this facility serves only the CATC, Mental Health Complex, Day Hospital and various Senior Centers. This equates to less than 200 meals every day.
- The food service building once served the entire medical complex, but when the medical complex and services were downsized fewer meals were required. The building in its current state is very large for the amount of meals it needs to produce. The second level is used for dry goods storage which is not only inefficient to move product from storage into production, but the storage required only consumes half of the overall floor.
- There are many refrigerators and freezers which are original to the building and are presumably inefficient.
- The building is not air conditioned.
- Exterior windows are single pane glass in steel frames which are not energy efficient.
- What was the main entry vestibule and loading area on the east side is no longer used as an entry and is filled with unused carts.
- Various portions of flooring have been replaced over time, epoxy flooring has been applied to one area in the kitchen to keep water from leaking below into basement.
- A few cracks are visible in the penthouse CMU wall and first floor structural slab.
- The building's main entrance is not handicap accessible, exit doors do not have panic hardware.
- The asphalt parking lot is beyond its useful life and the exterior of the loading dock is worn.
- A large amount of old furniture equipment is stored in the basement.
- The food service operation is contracted out, no county employees work in the building.

Operable windows, typical. Most are single pane glass windows

Floor is generally in good condition, tile has been replaced in various areas over time

A few visible cracks in the building's structure



Walls worn, damaged in some areas

The main entrance is in poor condition: concrete steps damaged and railings rusting. The entry is not HC accessible

Asphalt drives and parking lot are beyond their useful life

Bathrooms not HC accessible. Bathrooms, locker rooms in fair condition

Stairwell handrails only on one side, paint worn off the wall in a couple areas

Most doors are worn, do not have non-ADA compliant hardware

Appendix E – Building Inspection Reports

Roof appears to be in good condition

Typical corridor in basement

Brick work in fair condition, tuck pointing needed in some areas

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1955 — Original building mechanical systems
  - 1980 — Kitchen hoods/fans replacement
  - 1999 — BAS work
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, condensate/vacuum return pumps, and associated valving and accessories provides heat to building's three (3) air handling units. Steam to hot water heat exchanger provides heating hot water for the building. Hot water is used for supplemental heating (perimeter convectors, cabinet unit heaters, and suspended unit heaters). Steam to hot water heat exchanger provides domestic hot water. Some of the kitchen equipment operates on steam and some on natural gas.
  - Ventilation — Three (3) air handling systems (1.5, 5 and 15 HP supply fan electric motors) with dining room return air plenum/duct, and dedicated general and kitchen exhaust fans provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Building is heating/ventilation only system. Cooling is not provided.
  - Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.
- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end of or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)


Ceiling cabinet unit heater


Wall convectors


Pneumatic steam valve actuators


Steam piping and valving


Steam to hot water heat exchanger


Steam to hot water heat exchanger


Condensate return pump

Appendix E – Building Inspection Reports

- Exhaust fans — 20 years (100%)
- Finned tube elements — 35 years (100%)
- Heating coils — 20 years (100%)
- Air compressors — 25 years (100%)

- Operational issues:
  - Heating
    - No major issues.
  - Ventilation
    - Added kitchen sidewall general exhaust fans and dishwasher fan may attribute to exhausted air reentering the building when second floor windows are open.
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of heating system equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of ventilation system equipment.
  - Air conditioning — establish time schedule and appropriate funds for provision of air conditioning system if such is preferred.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Hot water pumps


Steam to hot water heat exchangers


Steam, condensate, and hot water piping


Steam to domestic HW heat exchangers

Electrical:

- Existing 480V electrical service equipment (installed in 1956) appears to have been updated between 1997 and present. Existing drawings show incoming and emergency service from existing substation north of building D-7. Per the 1997 elevator upgrade as-built drawing set, the main 480V panel has a normal feed from Substation USS2A and an emergency feed from Substation USS2B. However, during the site visit, it was noted that the building has a dedicated transformer from the utility company with a utility meter on the outside of the building. Per the 1997 set of drawings, the elevator and other 480V equipment were fed via a wireway


Condensate return pump


Steam piping


Suspended steam unit heaters

Appendix E – Building Inspection Reports

and tap into the load side of the transfer switch ahead of the main 480V disconnect switch. During the site visit, it was apparent that the main disconnect switch was replaced with a 480V, 800Amp main distribution panel, which has breakers for the elevator and other 480V loads. The panel feeds the original 480V to 120/208V transformer, which then feeds the 600Amp main panel MD/PL. Panel MD/PL is original to the building per the as-built drawings dated 1955. Panel MD/PL is main lug only and the main bus bar with lugs is exposed. Recommend replacement of the original panel with a new 120/208V, 600Amp panel.

- Branch panels throughout the building appear to be original. Recommend replacement and possibly relocation of the panel on the first floor centrally located. Panel is in poor condition, is mounted low to the ground and is covered in food particles. Recommend replacement of panel B/P in the basement by the compressors. The panel is in poor condition.
- Receptacles in kitchen area are not GFCI and are not protected from being hit by carts and portable racks. Recommend replacement of receptacles with GFCI receptacles. Light switches are also in poor shape and should be replaced.
- Existing security cameras appear to be in good shape. It is unclear when the cameras were installed. As-built drawings for the security cameras were not available.
- The existing fire alarm system was originally replaced in 1990, but appears to have been replaced once again in 2007. The 1990 FBII XL-2 fire alarm panel from Honeywell has a note on it that it is no longer in use and is only a splice box for the new system. The newer fire alarm panel is FireShield Plus by GE and is approximately 5 years old. The system appears to be in good shape. Some of the devices such as the manual pull stations are from the 1990 installation.
- Exit signs are approximately 10 years old. Recommend replacing in the next 5 years.
- Emergency battery pack lights appear to be in good shape. The majority are approximately 10 years old. Some of the fixtures look to be from the 1970's and should be replaced. The battery in one of the older fixtures was replaced in April of 2012.
- The existing lighting consists of many types of fixtures. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Some of the building has fluorescent fixtures with T-12 lamps and some of the building has fluorescents with T-8 lamps. In 1982, the existing light fixtures were replaced with recessed 2'x4' fluorescent light fixtures on the first floor. The basement has fixtures that are broken and with bad ballasts. The penthouse still has incandescent lamps in the light fixtures. Recommend replacement of incandescent lamps with compact fluorescents

Steam powered kitchen equipment

Kitchen exhaust hood (installed most probably 1980)

Dishwasher exhaust

Kitchen exhaust hood (kitchen equipment underneath removed)

Air handling unit (appears original to building)

AHU supply fan section

Return/relief fan

Appendix E – Building Inspection Reports

where possible. Recommend replacement of all building lighting in the next 5 to 10 years.

- Exterior building lighting is in fair condition. Recommend replacing existing rusted conduits feeding existing building light fixtures.

Plumbing:

- Year Built:
  - 1955 — Original building plumbing system.
- Plumbing System Description:
  - Domestic water is original to the building. The system uses a large storage tank with a steam supplied shell and tube heat exchanger.
  - The domestic water service enters the basement in the entry into the mechanical room.
  - The system consists of two steam to water heat exchangers/converters with circulating pumps. The recirculating pumps appear to be in good condition.
  - Domestic water piping in the building appears to be copper with soldered joints. Generally, the piping appeared to be in fair condition for its age with no observed leaks.
  - Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
  - The gas service enters the side of the building with the meter located outside the main building entry the mechanical room. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.
- Overall building plumbing system condition:
  - All main risers are galvanized. For supply lines and smaller drain lines where galvanized pipe is used, pipes rust and corrode over time, leading to low pressure and leaks. Existing plumbing equipment, piping hangers, supports, valves, pumps, and gas piping are original and appeared to be in fair condition.
  - The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of major replacement.

Built-up AHU outdoor air intake section (interior)

Built-up AHU supply fan section (interior)

Pneumatic control damper actuator

New portable TC air compressor

HVAC piping

Kitchen sidewall/dishwasher fans

Window air conditioner

Appendix E – Building Inspection Reports

- The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- The type of piping installed at all areas is not indicated. Temperature mixing valves are not installed.

- Operational issues:
  - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping should be insulated and heat traced.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
  - Provide temperature mixing valves.
  - Install shut-off valves for every water supply to fixtures.
- Major capital requirements:
  - The overall condition of plumbing systems is not operated properly with minimum downtime for repair. All valves need adjustment, O-ring and packing replacement, gasket replacement, filter changes, and gate, globe and seat replacements to prevent leaks.
  - Older fixtures do not have the flow characteristics of newer ones. Older fixtures are likely to have higher flow rates while newer fixtures can save a great deal of water – as much as 50%.
  - Provide new reduced-pressure backflow preventers with upstream and downstream shutoffs and test fittings to protect potable water in continuous-pressure conditions and against high hazard contaminations.

Dining hall used as a storage space now

District power plant

Utility Transformer

Transformer and Panel MD/PL

Panel MD/PL with Exposed Bus and Lugs

Incoming Electrical Service Meter

Panel B/P Located in Basement by Compressors Should Be Replaced

Electrical Branch Panels

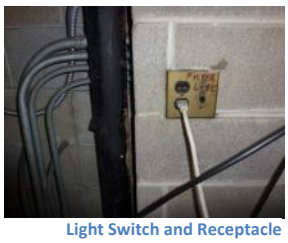
Kitchen Panel

Appendix E – Building Inspection Reports


Receptacles (not GFCI)


Equipment Receptacle and Panel


Light Switches


Light Switch and Receptacle


Light Switches


Security Camera


Lighting and Fire Alarm Device


Fire Alarm Panels

Exit Sign with Emergency Lights


Emergency Battery Pack Light Fixture from 1970's

Existing Porcelain Fixture with Compact Fluorescent Lamp


Recessed Downlight with Compact Fluorescent Lamp


Recessed Fluorescent Hinged Fixtures on Second Floor


Light Fixture with T-8 Lamps


Existing Second Floor Lighting

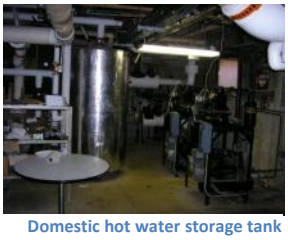

Compact Fluorescent Lamp in Kitchen Hood


Exterior Light Fixture with Rusted Conduits

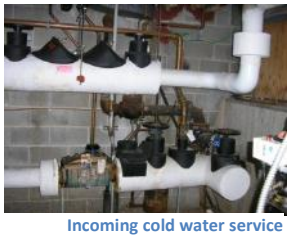

Service sink


Exposed sanitary piping in the bathroom


Wall mounted water closet


Domestic hot water storage tank


Floor mounted urinal (installed probably 1990)


Incoming cold water service


Abounded storage tank

Appendix E – Building Inspection Reports

Galvanized plumbing piping

Original sanitary, vent, cold water piping (interior view)

Sump pump

Fire extinguisher cabinet

Plumbing piping in chase (appears original to building)

Appendix E – Building Inspection Reports

D-19 Day Hospital – Regional Medical Ctr. (ID: 5070) – 9201 Watertown Plank Rd.

EUA Architects

- In addition to offices, the building houses various large assembly spaces including a gymnasium, auditorium and bowling alley.
- A majority of the second floor is leased office space. St. Charles utilizes a portion of the first floor.
- The original locker room finishes - floor tile, wall tile, lockers and benches are all in good condition but the space is no longer used as locker rooms. It currently is utilized as storage.
- The basement is generally in good condition, a few areas show signs of water damage on the floor.
- The basement has a large amount of storage space.
- Second floor bathrooms are in fair condition but are not ADA compliant.
- The wood soffit is generally in good condition, paint has peeled off on some of the fascia. The exterior beams show signs of water damage.
- Roof shingles are in fair condition, show signs of aging.
- Auditorium furnishings, carpet beyond useful life. The ceiling shows signs of a roof leak in one area.
- Much of the interior is still original, shows signs of aging.

Locker room in good condition, currently utilized as storage space

Water damage to basement floor

Basement contains good amount of storage space, cubicle partitions currently stored in corridor

Floor, tile in good condition, restroom non-ADA compliant

Roof shingles in fair condition, show signs of aging

Water damage to exterior wood beam, most beams in similar condition

Appendix E – Building Inspection Reports

Some ceiling tiles in poor condition, replaced tiles do not match the original

Typical window

Typical corridor with storefront window

Fire hose cabinets converted to portable extinguisher cabinets

Exterior door and frame in poor condition, damage to threshold and floor

Drinking fountain non-ADA compliant

Typical interior corridor

Typical stairwell

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1988 — Minimal office renovation.
  - 1999 — VFDs (variable frequency drives) added to air handling unit supply and return fans, and chilled water pumps. Air flow measuring stations installed at each air handling unit.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, condensate/vacuum return pumps, and associated valving and accessories provides heat to building eleven (11) air handling units. Heated air is delivered through floor/sill mounted air cabinets (air baseboards) along the perimeter of the building and in some spaces through ceiling mounted diffusers/registers. Steam to hot water heat exchanger provides heating hot water for a snow melting system. Steam to domestic hot water (DHW) heat exchanger provides domestic hot water.
  - Ventilation — Eight (8) heating/cooling dual duct air handling systems (1.5 to 30 HP supply fan electric motors) with separate return/relief fans and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Additional three (3) heating/ventilating only units (0.75 to 7.5 HP supply fan electric motors) serve the building. Airflow measuring stations at air handling units ensure code required ventilation air is brought in on a constant basis.
  - Air-conditioning — Building is supplied with chilled water through district cooling plant chilled water mains. Chilled water system consisting of chilled water supply and return piping, two (2) chilled water pumps (20 HP each), and associated valving and accessories provides chilled water to building air handling units.


Steam convector


Steam suspended unit heater


Air handling unit (steam heating coil)


Steam humidifier


Steam/chilled water piping


Dual duct reheat box


Steam to DHW heat exchanger

Appendix E – Building Inspection Reports

- Humidification — Most of the building air handling units are provided with humidification control.
- Snow melting system consisting of steam to hot water heat exchanger, in-line pump, supply/return piping, concrete slab loops, valving, and accessories maintain main entrance sidewalks clear of snow/sleet/ice in winter.
- Variable frequency drives —air handling systems supply and return fans, and chilled water pumps have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

Snow melting heat exchanger

Snow melting inline pump

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
    - Air compressors — 25 years (100%)

Reheat box inlet ductwork

Sill mounted air cabinet (air baseboard)

Air handling unit (supply fan section)

Exhaust/relief fan

Valve

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of heating system equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation system equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning system equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Temperature controls air compressor


In-line pump


Air handling unit valving

Electrical:

- Existing security cameras are monitored by Orion Security. Cameras appear to be in fair condition.
- Per as-built drawings, the fire alarm system was replaced in 2003 and is approximately 9 years old. The system is expandable and addressable. System is tied to the fire alarm system at the Mental Health Facility. Fire alarm conduits are not painted red to distinguish them from other conduits.
- Exit signs are approximately 10 years old. The building engineer stated that they switched to photo luminescent (PL) type about 10 years ago. He anticipates upgrading all exit signs to LED type when that technology is less expensive. There were a variety of types of exit signs installed at various times throughout the facility. Recommend replacing any units older than 10 years in the next 5 years.
- Existing 13kV electrical service equipment is original to the building which was built in 1978. The system consists of one 13kV double-ended substation (USS-22B) with tie breakers. The two 13kV service feeds come from the local WE Energies power plant. When breakers are old or broken, the engineer sends them out to be rebuilt. The engineer keeps several of the rebuilt breakers as spares. At this point, they don't have issues with finding replacement parts. Engineer stated that they will be relabeling panels and will be testing all circuit breakers in the existing substations in the near future. Given the age of the system, it is approaching or beyond its life expectancy and should be upgraded in the next 5 to 10 years.


Airflow measuring station


Variable frequency drive


Abandoned piping and pumps


Air handling unit (cooling coil)

Appendix E – Building Inspection Reports

- In the main substation room, the ground clamp from one of the ground rods to the ground bar is disconnected. Recommend reconnection of clamp to ground bar.
- The existing emergency service is provided by an on-site 30 kW diesel generator. The generator was installed in 2001 per the as-built drawings. The generator is located on the ground floor of building "F".
- Light switches in bowling alley should be replaced. There is duct tape over one of the switches.
- In the electrical closet/storage room in the gym, there are junction boxes and light fixtures attached directly to the ductwork. This is not an acceptable practice. Recommend that fixtures and junction boxes be moved and mounted from the ceiling.
- In the pavilion building (building "F"), the conduits near and above electrical panel BF/G are corroded. There appears to have been a leak in the wall at one point and all of the conduits below the leak have severe corrosion. Recommend replacement of all conduits.
- Also in the pavilion building, there is an electrical device that is sitting on the floor instead of mounted to the wall. Recommend mounting to the wall.
- In Room 127, the snow melting panel is very rusty and should be replaced.
- Also in Room 127, the electrical panel has a waste pipe within 2 inches of the side. In addition, there are steam lines running above the panel and there is a ladder resting against the panel. Recommend relocating the panel or at the very least installing a metal pan under the steam pipe.
- As in the Mental Health Facility, there is a wide range of light fixture types installed. Many are mostly likely original to the building. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Where there are dimmers controlling the fixtures, the incandescent lamps remain. Some of the building has fluorescent fixtures with T-12 lamps and some of the building has fluorescents with T-8 lamps. The engineer stated that they have replaced fixtures as they fail. They have also been replaced in large groups when energy money is available. The engineer stated that they just bought a very large stock of the T-12 lamps to tie them over until all fixtures are converted to T-8 lamps. Recommend replacement of all building lighting in the next 5 to 10 years.


Chilled water piping


Chilled water pumps


Chilled water pump


Security Camera


Fire Alarm Horn and Strobe


Smoke Detector and Network Cabling


Fire Alarm Panel

Plumbing:

- Year Built:
    - 1967 — Original building plumbing systems.

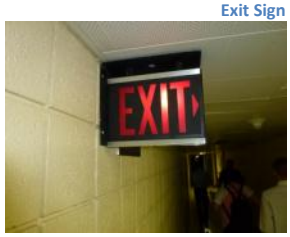
Appendix E – Building Inspection Reports

- Plumbing System Description:
  - Steam to domestic hot water (DHW) heat exchanger provides domestic hot water. The location of the main water line to the property was not determined.
  - The main domestic water piping is fiberglass material. All pipe fittings are with asbestos insulation. The visible waste piping is a combination of cast iron and PVC. The plumbing piping in various locations could not be evaluated due to lack of access.
- Overall building plumbing system condition:
  - Water pressure observed at the fixtures is average to good. Water flows clear at the fixtures.
  - Insulation on all cold and hot water piping is in fair condition. At several locations, cold water piping has condensation issues due to lack of insulation.
  - The entire building is equipped with stacked washroom groups. The domestic water risers in chases are located between the washrooms and extend from level 1 to the top floor of the building.
  - The existing plumbing fixtures appear to be original to the building.
    - Water closets are floor mounted, flush tank type.
    - Urinals are wall hung complete with flush valves recessed in wall.
    - Lavatories in main washrooms consist of porcelain, vanity type complete with manual faucets and exposed chrome plated waste piping.
    - Lunch rooms throughout the building are equipped with stainless steel kitchen sinks.
  - No major deficiencies were noted in the plumbing system during the assessment.
  - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
- Major capital requirements:
  - Majority of plumbing fixtures are less than 10 years old and low consumption type.


Fire Alarm Audio Device


Fire Alarm Annunciator Panel

Exit Sign



Exit Sign

Exit Sign


Exit Sign

Stainless Steel Exit Sign

Appendix E – Building Inspection Reports

- Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.

Fire Protection:

- Year Built:
  - 1967 — Original building fire protection systems.
- Fire Protection System Description:
  - Fire suppression for this building consists of standpipe risers and fire hose cabinets. The building is not sprinklered.
- Overall building fire protection system condition:
  - A Siamese fire hose connection is located at the front of the building.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time - lack of sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for the building.


13kV Substation


13kV Substation


Automatic Transfer Switch


Ground Clamp Not Connected


30kW Diesel Generator


Rusted Conduits in Building F


Rusted Conduits and Area of Leakage


Conduits with Corrosion from Leak


Rusted Panel BF/G


Panel BF/G with Rust


Equipment Not Mounted to Wall


Rusted Snow Melt Panel

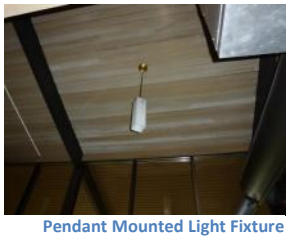

Ladder Resting Against Electrical Equipment


Panel with Waste Pipe and Ladder


Steam Supply Line Over Electrical Panel


Exterior Light Fixtures with Compact Fluorescent Lamps

Appendix E – Building Inspection Reports

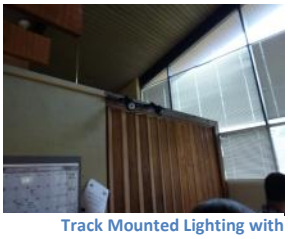

Pendant Mounted Light Fixture


Battery Backup Emergency Light Fixture

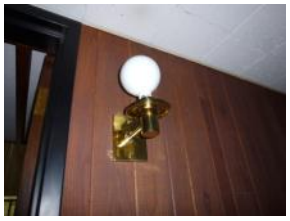

Fluorescent Light Fixture


Fluorescent Light Fixture


Smoke Detector


Track Mounted Lighting with Compact Fluorescent Lamps


Light Fixtures


Wall Mounted Light Fixture


Recessed Light Fixture with Compact Fluorescent Lamp


Recessed Fluorescent Light


Gymnasium Fluorescent Lighting


Gym Life Safety Equipment without Wireguards


Rusted Panel BF/G


Computer and Network Cabling in Dark Room


Recessed Fluorescent Lighting


Emergency Panel


Loudspeaker


Cover is missing for electric water cooler


Sanitary water piping


Electric water cooler


Domestic water storage tank


Water closet is missing


Kitchen sink


Fire Extinguisher with Cabinet

Appendix E – Building Inspection Reports

D-20 Child & Adolescent Treatment Center – Regional Medical Ctr. (ID: 5080) – 9501 Watertown Plank Rd.

EUA Architects

- The exterior sidewalk, parking lot, and driveways are in very poor condition. The numerous cracks and unevenness in sidewalks create a potential tripping hazard and are a safety concern. Curb ramps, loading zone ramps, and handicapped accessibility should be considered when upgraded. Discussions with staff noted that the Watertown Plank Road Freeway exit project may affect a portion of this site and parking lot. A frontage road is planned at the front of the facility in lieu of access from Watertown Plank Road and the entrance will be relocated.
- The indoor pool has been out of operation for more than 10 years due to the high cost of operation and the limited use / revenue it was receiving. Although not in use for this period of time, the pool appears to be in good condition and functional. The adjoining locker rooms are also in good condition and are used for storage presently.
- The basement is very large and not utilized besides minor storage.
- The loading dock on the back side of the building is in very poor condition. Pavement, curbs, driveway and sidewalk are beyond their useful life.
- Each resident wing has occupancy available for 22 people.
- The Wauwatosa School District, UW Extension, and Milwaukee County EMS occupy the building.
- Given its age and lack of upgrades, this building functions for its current use, but its finishes and curb appeal are dated and unappealing.

Cracks and unevenness in sidewalk create a potential tripping hazard

Asphalt drive is beyond useful life, landscaping and overall appearance of loading dock area is poor

Indoor pool and adjoining locker rooms in good condition, pool not currently in operation

Lots of excess space is available in the basement for storage

Exterior door and frame, threshold worn

Typical hallway in Wauwatosa school building

Typical restroom, in fair condition. Not fully HC accessible

Paint on corrugated metal worn throughout the façade

Some floors in poor condition

Non-ADA compliant drinking fountain

Landscape maintenance needed in interior courtyards

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - 1969-1974 — Original building mechanical systems.
  - 1983 — Buildings D, E & F general exhaust remodeling (code violation issues).
  - 1987 — Building E & F remodeling.
  - 1990 - Gym & Pool air conditioning installation (chilled water piping and cooling coils addition, and chilled water pump replacement/installation.
  - 1996 — Fire dampers installation/replacement.
  - 1996 — Building C: Perimeter radiant ceiling panels installation.
  - 1999 — VFDs (variable frequency drives) added to air handling unit supply and return fans, and chilled water and hot water pumps. Air flow measuring stations installed at each air handling unit.
- Mechanical System Description:
  - Heating — Building is supplied with steam through district heating/power plant steam mains. Steam system consisting of steam piping, condensate return piping, condensate/ vacuum return pumps, and associated valving and accessories serve steam to hot water heat exchangers and air handling unit humidifiers. Steam to hot water heat exchanger provides heating hot water for the building. Hot water is used for supplemental heating (perimeter finned tube radiation, perimeter floor radiant heating, convectors, and cabinet unit heaters) and to provide heat for reheat coils and air handling unit heating coils. Two (2) large hot water pumps (75 HP each) and two (2) smaller ones (3.0 HP) circulate hot water throughout the building. Steam to hot water heat exchangers provide domestic hot water.
  - Ventilation — Twelve (12) air handling systems (5 to 75 HP supply fan electric motors) with separate return/relief fans and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. High velocity single duct reheat units (boxes) provide necessary zoning. Airflow measuring stations at air handling units ensure code required ventilation air is brought in on a constant basis.


Perimeter finned tube radiation


HW/CHW pumps


HW/CHW pumps


Air handling unit chilled/hot water piping


Steam to hot water heat exchangers


HW/CHW pumps


HW/CHW pumps and variable frequency drives

Appendix E – Building Inspection Reports

- Air-conditioning — Building is supplied with chilled water through district cooling plant chilled water mains. Chilled water system consisting of chilled water supply and return piping, two (2) chilled water pumps (60 HP each), and associated valving and accessories provides chilled water to building air handling units.
- Humidification — Most of the building air handling units are provided with humidification control.
- Variable frequency drives —air handling systems supply and return fans, chilled water pumps, and hot water pumps have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Duct mounted coils — 20 years (100%)
    - Air compressors — 25 years (100%)


Steam piping


Condensate return pump


Air handling unit heating/cooling coils


Air handling unit filter section


Condensate return pump


District heating/cooling plant


Supply diffuser

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of heating system equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of ventilation system equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of air conditioning system equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Temperature control air compressor


Return/relief/exhaust fan with pneumatic control dampers

Electrical:

- Exit signs are approximately 10 years old. There are a variety of types of exit signs installed at various times throughout the facility. Recommend replacing units older than 10 years in the next 5 years.
- Existing 4160 V electrical service equipment is original to the building, which was built in 1963. The system consists of one 4160V double-ended substation (USS-23A) with tie breaker. The two 4160V service feeds come from the local WE Energies power plant. The substation is located in Room C06 of Building C. Given the age of the system, it is approaching or beyond its life expectancy and should be upgraded in the next 5 years.
- The existing emergency service is provided by an on-site 150 kW diesel generator. It is unclear when the generator was installed, but it appears to be in fair condition. The generator is located in Room C05 of Building C.
- There is a wide range of light fixture types installed. Many are mostly likely original to the building. There are recessed downlights that look to be original. The majority of these fixtures had the incandescent lamps replaced with compact fluorescents. Majority of the building has fluorescent fixtures with T-12 lamps. Recommend replacement of all building lighting with new energy efficient lighting in the next 5 years.
- The age of the existing fire alarm system is unclear. There may have been an upgrade at some point, because one of the panels was converted to a splice box. Could not confirm as building engineer wasn't present at walk-through. The control panel is located in Room C04 of Building C and the model number is 6WAK, F1197G Series. Additionally, there are no audio or visual devices in


Air handling unit supply fan section


Air handling unit and variable frequency drive


HVAC piping


Temperature control air compressor


AHU heating/cooling coil sections

Appendix E – Building Inspection Reports

the corridors and no visual devices in the classrooms in Building C. Pull stations are by Simplex. Recommend replacing and updating the existing fire alarm system in the next 1-3 years. Fire alarm conduits are not painted red.

- Card access system is new as of 2010 drawings.
- Computer Lab Wiring is disorganized. Recommend additional receptacles.
- Auditorium lighting is all incandescent. Recommend upgrading to energy efficient indirect lighting.
- Emergency battery backed-up light fixtures in the gymnasium appear to be old and are in poor condition. Age of the system is unclear. Recommend replacement of all emergency lighting.
- The following are items which need to be verified with the building engineer:
    - Age of security cameras.
    - Age of fire alarm system.
    - Age of exit signs.
    - Age of light fixtures.
    - Age of clock system.

Plumbing:

- Year Built:
    - 1969-1974 — Original building plumbing systems.
- Plumbing System Description:
    - Steam to hot water heat exchangers provide domestic hot water. The location of the main water line to the property was not determined.
- Overall building plumbing system condition:
    - Water pressure observed at the fixtures is average to good. Water flows clear at the fixtures.
    - Insulation on all cold and hot water piping is in fair condition. At several locations, cold water piping has condensation issues due to lack of insulation.
    - The entire building is equipped with stacked washroom groups. The domestic water risers in chases are located between the washrooms and extend from level 1 to the top floor of the building.
    - The existing plumbing fixtures appear to be original to the building.
        - Water closets are floor mounted, flush tank type.
        - Urinals are wall hung complete with flush valves recessed in wall.


Air handling unit


Pool exhaust fans


Return/relief/exhaust fan


4160V Substation USS-23A


150 KW Generator

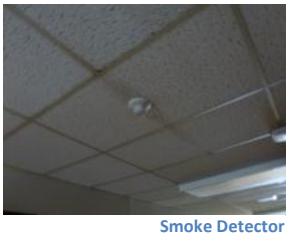

Fluorescent Light Fixture


Incandescent Recessed Light Fixture

Appendix E – Building Inspection Reports

        - Lavatories in main washrooms consist of porcelain, vanity type complete with manual faucets and exposed chrome plated waste piping.
        - Lunch rooms throughout the building are equipped with stainless steel kitchen sinks.
    - No major deficiencies were noted in the plumbing system during the assessment.
    - Fire extinguishers installed throughout the facility in accordance with NFPA 10.
- Major capital requirements:
    - Majority of plumbing fixtures are less than 10 years old and low consumption type.
    - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


T-12 Fluorescent Light Fixture


Smoke Detector


Corridor Lighting

Fire Protection:

- Year Built:
    - 1969-1974 — Original building fire protection system.
    - 1990's —Sprinkler system added to living areas.
- Overall building fire protection system description:
    - Fire suppression for this building consists of standpipe risers and fire hose cabinets. The office areas and classrooms do not have sprinklers. However, there are sprinklers in the living areas. The sprinkler system is wet type.
    - A Siamese fire hose connection is located at the front of the building.
    - Water service with individual control box is located inside the building.
    - No fire pump exists. System relies on pressure of water service per building engineer.
- Overall building fire protection system condition:
    - No major deficiencies were noted in the fire protection system.
    - Existing automatic fire suppression system is in good condition.
- Operational issues:
    - The system was observed in a visual review only.


Emergency Battery Pack in Pool


T-12 Fluorescent Lamp


Workout Room Lighting


Incandescent Lighting in Auditorium

Appendix E – Building Inspection Reports

- Major capital requirements:
  - There are major capital requirements involved at this time - lack of a complete sprinkler system. Building does not meet current codes and standards. Automatic fire protection system with flow and tamper alarms is required for the building.
  - Corrosion monitoring system is recommended. It can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked. Establish time schedule and appropriate funds if such system is preferred.


Pool Lighting


Fire Alarm Control Panel and Splice Box


Exterior Lighting Fixture

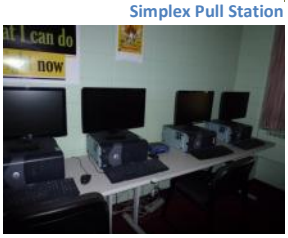

Fire Alarm Panel


Simplex Pull Station


Fire Alarm Panel


Fire Alarm Annunciator Panel


Fire Alarm Control Panel



Computer Lab


Computer Lab Wiring


Disconnect Switch


Distribution Panel


Access Control Panel


Fire extinguisher cabinet

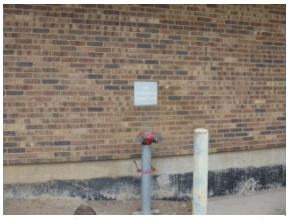

Old plumbing fixtures


Swimming pool not used in 10 years


Plumbing fixture is missing


Water meter


Hot water expansion tanks


Fire Department Connection


Tamper Resistant Sprinkler Head


Concealed Type Sprinkler Head

Appendix E – Building Inspection Reports

M-01 Technology Innovation Center (ID: 5290) – 10437 Innovation Drive
EUA Architects

- Asphalt parking and drive lanes are in poor shape.
- Main exterior entry stairs are in good condition, other entrances that are not used as often are in poor shape. Most entrance/exits are wood doors and deteriorating. Handrails are in need of paint and most are not HC accessible.
- Main entrance has character and curb appeal but is not handicapped accessible.
- There is only one accessible entrance on the north side of the building which is used primarily by staff.
- Wood windows are in need of replacement. Some have been updated to aluminum but most are inefficient glass and deteriorating beyond useful life.
- Window and door replacement in conjunction with mechanical upgrades can greatly improve the energy efficiency of the overall building.
- Window AC units exist throughout the building and should be removed when the windows are replaced. Adding building-wide cooling should eliminate them entirely.
- The first and second floor door handles have been upgraded to lever type in lieu of round knobs to comply with ADA (Americans with Disabilities Act). The door hardware on 1st-3rd floors consist of knobs and do not comply with current ADA.
- Multiple offices in a leased business are only connected via public corridors. While the lease makes this work it is not an ideal situation. Conference spaces are shared as well.
- This building is not readily adaptive to wide open spaces. Most walls are load bearing masonry and are not able to be removed without great expense. The individual rooms are a product of this

Parking lot in poor condition

Wood doorway to exterior worn, water damage

The main public entrance has great architectural character but is not handicapped accessible

Replace exterior wood doors with new energy efficient type

Replace exterior wood doors with new energy efficient type

Air conditioning units are common throughout the building in wood windows that are deteriorating and should be replaced with energy efficient aluminum type

Appendix E – Building Inspection Reports

building type and construction, therefore, its adaptive use should take this into consideration.

- The exterior façade based on ground level visual inspection appears to be in good shape. There are some areas that require attention like tuckpointing or caulk, but there is no evidence of major deterioration.

- The original restrooms that were built in 1915 are still in use but are aged. Upgrade of fixtures and finishes should be considered in the near future. While they remain functional, the visual impact of these facilities should be considered when attracting new tenants.

- One unisex accessible toilet room has been added to each floor to meet accessibility guidelines for HC tenants. When upgrading the original toilet rooms, accessibility should still be considered at the time of renovation.

- Overall the roof appears to be in good condition.

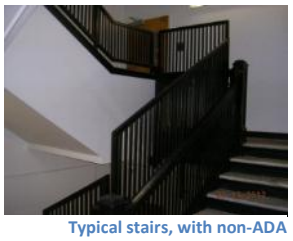
Priority Items to consider upgrading

1. Exterior doors and sidelights
2. Exterior windows
3. Interior restrooms
4. Public Corridor Finishes, i.e. carpet, ceiling tiles, wall paint, trim paint
5. Basement spaces that were not recently upgraded
6. See MEP for priority list

Typical restroom, not handicapped accessible

Drinking fountains non-ADA compliant – projecting hazard

A typical interior office corridor



Typical stairs, with non-ADA compliant handrails

Rolling doors are non-insulated, worn

Roof and flashing generally in good condition

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built and Major Renovations:
  - 1913 — Original building mechanical systems: steam heating and natural ventilation.
  - Addition of 4th and 5th floor: steam heating system extended to accommodate new building floors (Unable to obtain date).
  - 1950 — Truck shelter building mechanical system: suspended steam unit heaters.
  - 1977 — Remodeling for infirmary use: added 100% outdoor air handling units with steam heating and steam horizontal unit ventilators.
  - Added window air conditioners (Unable to obtain date).
  - 2003 — Partial north wing conversation to labs: added 100% outdoor air steam heating/DX cooling air handling unit, air cooled condensing unit, and dedicated roof mounted lab exhaust fan.
- Mechanical System Description:
  - Heating — Steam system consisting of steam piping, condensate return piping, steam radiators, and associated valving provide heat to the building. Building is supplied with steam through steam mains installed in underground tunnel.
  - Ventilation — Natural ventilation provides building ventilation air through the use of operable windows, space relief openings, and roof gravity ventilators, creating a stack effect in the entire building. Under 1977 remodeling, sixteen (16) power roof ventilators have been installed to provide exhaust for toilet rooms, janitor's closets, lockers, and other critical spaces (e.g. smoke rooms at the time). At the same time nine (9) 100% outdoor air handling units have been added to provide the required make-up air.
  - Air-conditioning — The majority of the existing building with the exception of the lab in the north wing is cooled with window air conditioning units.
  - Pneumatic controls - air compressor, refrigerated air dryer, and associated accessories and tubing provide controls for

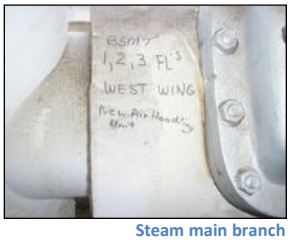

Steam radiator w/ space relief opening (4th and 5th floor)


Steam radiator w/ space relief opening (original builing)


Suspended steam unit heater


Steam mains


Operable window, steam radiator, and window air conditioner



Steam main branch


Steam main branch

Appendix E – Building Inspection Reports

air handling units steam control valves and outdoor air dampers.

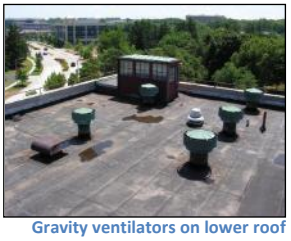
- Overall building mechanical system condition:
  - Systems are beyond their service life with the exception of the 2003 air handling unit, air cooled condensing unit, and roof lab exhaust fan.
- Operational issues:
  - Heating — The plant providing steam for the building is expected to be shut down when the work on the Zoo Interchange begins. At that point, the building will need to have new boiler plant.
  - Ventilation — Since the building is not totally sealed, the stack effect causes air infiltration. During the heating season, the warmer indoor air rises up through the building and escapes at the top either through open windows, ventilation openings, or other forms of leakage. The rising warm air reduces the pressure in the base of the building, drawing cold air in through either open doors, windows, or other openings and leakage. During the cooling season, the stack effect is reversed, but is typically weaker due to lower temperature differences.
  - It appears the addition of the 4th and 5th floor has eliminated the roof gravity ventilators serving the floors below. Further investigation is required to confirm it.
  - Window air conditioner extension panels cause energy loss year round.
  - Steam radiators for the most part don't have steam control valves.
- Major capital requirements:
  - Heating— option (1) provide new steam boilers and keep the existing steam system with danfoss valve (optional) at each radiator; option (2) high efficiency condensing hot water boilers and new hot water system complete with piping and hot water fin radiation/radiators/panels.
  - Ventilation — Provide new make-up air handling units supplying the corridors and spaces which don't meet the code for natural ventilation openings. Replace existing exhaust fans with new. Verify issue with missing gravity roof ventilators and provide mechanical exhaust if required.


2003 Roof lab exhaust fan


1977 power roof ventilators


Steam horizontal unit ventilator


No gravity ventilators on 5th floor roof


Gravity ventilators on lower roof


2003 air handling unit


2003 air cooled condensing unit

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- Air-conditioning — provide VRF/VRV (variable refrigerant flow/volume) systems with refrigerant heat recovery.
- Building automation system — New DDC system to incorporate new equipment.

Electrical:

- Electrical system was recently replaced. No access to drawings to confirm date of installation.
- There is a 19kVA generator for emergency lighting and fire alarm systems.
- The fire alarm system by Faraday is older than 30 years and the building engineer can't find parts. It would be approximately $3/sf to replace.
- The building access system is antiquated (more than 20 years) and the engineer can't get parts for it. The access system consists of card readers at each of three doors. There is no card reader at the entrance.
- The PA system is fairly new and works through the phone. The staff had no complaints on the PA system.
- Lighting in the existing restrooms that haven't been refurbished is quite old and should be replaced.
- Lighting on the exterior consists of at least four types of light fixtures. When the fixtures begin to fail, it is recommended that new fixtures of conforming type be installed. Light fixtures on the roof are quite old and some are missing.

Plumbing:

- Year Built and Major Renovations:
  - 1913 — Original building plumbing systems: Domestic water is supplied by Milwaukee County through the County Grounds system. Domestic water is original to


Lab supply register and exhaust grille


100% O.A. air handling unit


Pneumatic controls air compressor


Gas service


Various exterior lighting fixtures


Light fixture in vacant tenant space with rust on junction box due to leak in ceiling

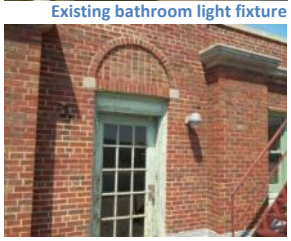

Incandescent roof light fixture

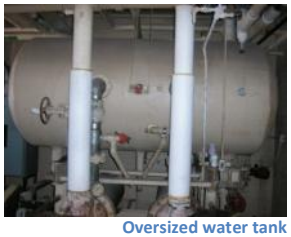
Appendix E – Building Inspection Reports

the building and is substantially oversized for the current use. The system uses a large storage tank with a steam supplied shell and tube heat exchanger.

- Plumbing System Description:
  - The system consists of steam to water heat exchangers/converters with two system circulating pumps. While it is impossible to predict with certainty when the plumbing equipment will fail, hot water systems of this type typically last 20 to 25+ years. There is also an existing approximately 1000 gallon storage tank.
  - There is a copper domestic water supply line to the building. The main shutoff valve is located in the basement room. There is a single water meter for a building. The domestic water piping is mixture of galvanized and copper piping. The visible waste piping is a combination of cast iron and pvc. The plumbing piping in various locations could not be evaluated due to lack of access.
  - Several drinking fountains were missing in the corridors with only piping and valves indicating their original locations.
- Overall building plumbing system condition:
  - Water pressure at the fixtures was average to good. Water flowed clear at the fixtures.
  - The condition of most of the fixtures is average primarily due to worn finishes. Faucets and trim are a mixture of various brands and types due to repairs made over the years.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
  - The system is operational, and could remain so for some time, but has exceeded its service life.
- Operational issues:
  - Existing plumbing fixtures cause energy loss year round.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
- Major Capital Requirements:
  - The upgrades include new plumbing fixtures and a new domestic hot water system.


Existing bathroom light fixture

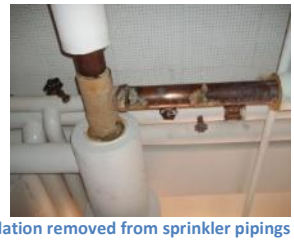

Missing light fixture on roof


Oversized water tank


Pipe cleanout plugs


Missing drinking fountain


Pipe clamp on existing piping, which indicates there was a leak here


Insulation removed from sprinkler pipings maller pipe has pipe clamp

Appendix E – Building Inspection Reports

- Some of the domestic water piping may be able to be reused, along with some of the drain piping. Drains should be rodded out, and new plumbing fixtures provided to respond to the proposed plan.

- Safety:
  - From a safety and efficiency perspective, these plumbing systems should be upgraded or changes should be performed in a thoughtful manner that provides required functionality.
- Summary:
  - There are no material deficiencies requiring repair or replacement at this time. Maintenance representative reports no plumbing problems. The Environmental Protection Agency (EPA) reports that just one leaky faucet can waste more than 3,100 gallons per year. Replacing existing toilets, showerheads and aerators can save as much as 25 - 40% on the water bill. Eco-friendly adjustments, such as new low flow toilet and lavatory fixture, solar hot water, and photovoltaic roof array will translate into considerable savings. Exploring some of the new grey water and solar water devices that will be transformed into sustainable green facility with the context of energy consumption, water use, waste water output, and renewable energy production.


Fire alarm conduits, junction boxes, cable tray in corridors


Water damage

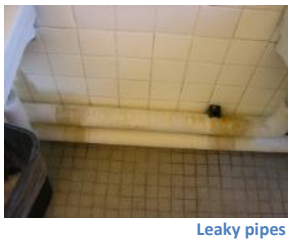

Leaky lavatory


Irrigation system?

Fire Protection:

- Year Built and Major Renovations:
  - 1977 — New building fire protection systems: The system is designed to detect, extinguish, and limit the extent of fire damage or enhance life safety.
- Fire Protection System Description:
  - The system consists of wet-pipe fire suppression sprinklers. The sprinklers in the system are attached to pipes containing pressurized water at all times. A wet-pipe system is used in the building wherever temperatures are high enough to prevent freezing.
  - No major deficiencies were noted in the fire protection system with the exception of some pipes with pipe clamps installed to repair leaks. Fire pump and piping system located in basement room B-3 of the west wing. The 50 horse power electric motor and fire pump, the small air


Fire alarm annunciator panel


Leaky pipes

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compressor and 2 HP jockey pump appear to be in good condition.

- Overall building fire protection system condition:
  - Due to overall simplicity, wet pipe sprinklers require the least amount of installation time in renovated areas and capital. The system is pressure tested and restored. In a few locations sprinkler protection is reinstalled by replacing the fused sprinklers and turning the water supply back on.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are no major capital requirements involved at this time. Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked.
  - Some areas are not sprinklered and would decrease safety and increase property damage potential.
- Safety:
  - The building is bounded by fire rated doors, dampers and penetration seals.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in good condition and requires proper maintenance.

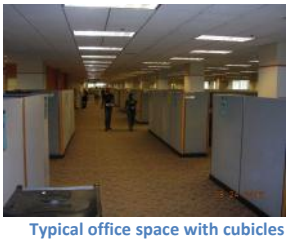
Appendix E – Building Inspection Reports

Marcia Coggs Human Services Center (ID: 5600) –1220 West Vilet Street.

EUA Architects

- The building houses approximately 600 people. The 1st and 2nd floors are leased by the state (these workers became state employees, stayed in the building), while the 3rd floor is county space. The basement has a food pantry and is currently used for storage, could become office space in the future.
- A majority of the 1st-3rd floors are open office space with workstations.
- The county owns the three parking lots north of the building.
- The windows do not provide effective solar control. A film was applied to the glass to remedy this, however, glass has started to crack. Blinds are often drawn over the windows, limiting the amount of daylight admitted in.
- Water has infiltrated the basement below the parking lot, causing steel beams to corrode and damage to the concrete slab. Water is also present in the basement tunnel.
- A new membrane roof was recently installed; the roof is in good condition.
- A recent fire across the street caused smoke damage to the building. Ceiling tiles were replaced, walls painted.

Basement storage area. A large amount of office furniture, workspace partitions, etc. are stored here



Typical office space with cubicles

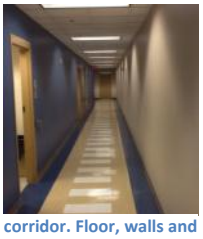
The building's glass doesn't provide effective solar control. Some glass has cracked, this window's weather stripping has started to come loose

Basement structure with parking lot above. Water damage has caused corrosion of steel beams, deterioration of concrete slab

Typical stairwell, carpeted risers and landings in good condition

Roof recently replaced, in good condition

Stone deteriorating, tuck pointing needed on brick work in some spots



A typical corridor. Floor, walls and ceiling generally in good condition

Appendix E – Building Inspection Reports

Singh Associates

Mechanical:

- Year Built:
  - Original building mechanical systems.
  - 1923 — Department store renovations.
  - 1963 — Added eight (8) constant air volume heating/ventilation only AHUs.
  - 1987 — Constant air volume systems converted to variable air volume systems (VAV boxes added).
  - 2004 — partial renovation at each floor (VAV boxes replaced, finned tube radiation replaced).
  - 2005 — DDC controls installation.
  - Steam boilers replaced.
  - Hot water boiler installation.
  - Chiller, cooling tower, condenser water economizer heat exchanger installation.
- Mechanical System Description:
  - Heating — Steam system: Two (2) steam boilers, complete with boiler feed system, and associated condensate return pumps, steam supply, and condensate return piping provide steam to building air handling unit steam coils. Heating hot water system: Three (3) natural draft hot water boilers, complete with primary boiler circulating pumps and secondary distribution hot water pumps, hydronic accessories, hot water supply/return piping, and valving provide hot water to VAV box reheat coils, perimeter finned tube radiation, storage/toilet rooms convectors, and cabinet unit heaters. Heated air is delivered through ceiling mounted diffusers/registers to building spaces.
  - Ventilation — Multiple VAV air handling systems consisting of built-up air handling units, complete with wall louvers, supply/return/exhaust ductwork, VAV boxes, supply/return/exhaust inlets/outlets, separate return/relief fans, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building. Supply, and return/relief fans are equipped with variable frequency drives (VFDs).
  - Air-conditioning — Indoor chiller complete with grade mounted cooling tower and associated pumps,


Finned tube radiation


Ceiling cabinet unit heater


Wall convector


Wall cabinet unit heater


Hot water boilers


Hot water boiler circulating pumps


Steam unit heater

Appendix E – Building Inspection Reports

condenser water economizer, piping, hydronic accessories, and controls generate and distribute chilled water to building air handling units. Multiple VAV air handling systems consisting of built-up air handling units, supply ductwork, VAV boxes, and supply outlets provide cooling throughout the building.

- Computer data room — room is equipped with dedicated chilled water cooling unit.
- Humidification — Most of the building air handling units are provided with humidification control.
- Variable frequency drives — built-up air handling systems supply and return fans have variable frequency drives.
- Building automation system — BAS system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Hot water boilers — 20 years (100%)
    - Steam boilers — 20-25 years (100%)
    - Cooling towers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
    - Air compressors — 25 years (100%)


Built-up AHU steam heating coil


Steam boiler feed system


Steam boilers


Variable frequency drive


Built-up air handling unit (heating/cooling coil section)


Sidewall supply registers


Exhaust fan

Appendix E – Building Inspection Reports

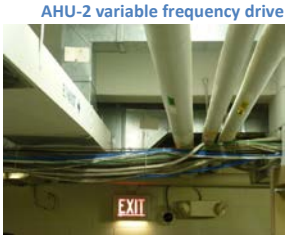
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for gradual replacement of outdated heating equipment.
  - Ventilation — establish time schedule and appropriate funds for gradual replacement of outdated ventilation equipment.
  - Air conditioning — establish time schedule and appropriate funds for gradual replacement of outdated air conditioning equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Electrical:

- The existing building was built in the late 1800's with the newest part installed in 1923. The electrical switchboards and some panelboards were replaced as part of a 2008 project. The existing main switchgear has two feeds from WE Energies with a tie breaker. In the center section of the existing switchgear, there is a WE Energies owned switch that feeds the nearby Pabst Complex. The gear is in good condition as it is only 4 years old. However, there is a concern that there are steam pipes in the ceiling above the existing switchgear. Recommend installing drain pans or something similar below the steam piping to prevent any water leaking onto the switchgear. Where existing panelboards were replaced, the original panels were gutted and used as a splice box for the new panels.
- Existing elevator panel is quite old and has broken breakers. Recommend replacement of panel.


Steam wall convector


AHU-2 variable frequency drive



Existing ductwork and HVAC piping


Existing ductwork and HVAC piping


Existing exhaust fan


Return/exhaust fan


Intake/relief wall louvers

Appendix E – Building Inspection Reports

- The emergency generator was also replaced in 2008. The Kohler generator mainly handles the emergency lighting, fire alarm and the PA system. The generator is located outside the building and is in good condition. The 225Amp emergency panel was installed in 2009.
- The majority of the existing fire alarm system by Johnson Controls was replaced in 2004 with a new Simplex addressable system. The devices in the basement areas, boiler rooms and the elevator were not replaced. The Johnson Controls panel was converted into a slave panel in order to connect the existing devices to the new system. The old Johnson Controls devices that remain are not addressable. If there is an issue with a device, the problem can be narrowed down to which zone is affected, but not which particular device. Recommend replacing the Johnson Controls devices with new addressable Simplex devices. The building engineer stated that there is a request for proposal out to replace the Johnson Controls devices with Simplex devices.
- Existing security cameras appear to be in good shape and are approximately 8 years old. The cameras monitor the corridors and building exterior. The facility employs a security company and they are located in office 100A. There is a Geovision 360 degree camera in the lobby. A glass break system was installed recently, but the building engineer stated that the existing original wiring was reused. Recommend testing the wiring and replacing if necessary.
- Exit signs are approximately 8 years old and were installed as part of the 2004 building remodel project.
- Emergency battery pack lights appear to be in good shape. The majority are approximately 8 years old.
- The existing lighting consists of recessed parabolic fluorescent light fixtures. The majority of the building has T-8 lamps, but there are pockets of T-12's. The engineer stated that the fixtures were converted to T-8 lamps by replacing the ballasts and the tombstones (sockets). The engineer also stated that he stocked up on T-12's. Once those run out, they will need to convert the remaining T-12 fixtures to T-8 fixtures. Recommend replacement of all remaining T-12 fixtures in the next few years.
- The existing building lighting control system is fairly new and is in good condition. The system is by Douglas Lighting Controls and controls the lights on floors one through three. The basement lighting is operated by the eight year old TAC BAS System. Occupancy sensors are installed in most of the restrooms to control the lighting.
- Exterior building lighting is in fair condition.
- The existing PA system was installed in 2004 as part of the building remodel. The system covers 97% of the building.


Ceiling linear slot diffusers


Cooling tower


Data room air conditioning unit


Indoor chiller


Pneumatic temperature controls panel


Temperature control air compressor


DDC temperature controls panel

Appendix E – Building Inspection Reports

- There are some areas where it is difficult to hear announcements. Recommend installing speakers in areas of poor coverage.
- Data cables are run throughout the basement areas. Recommend installation of new cable tray system to organize cables better.


Condenser water pump

Plumbing:

- Year Built:
  - Original building plumbing systems.
- Plumbing System Description:
  - There is a 4" diameter copper domestic water supply line to the building. The incoming line has a backflow prevention device. The main shutoff valve is located in the basement. There is a 3" single water meter for the building. All supply piping examined is copper. The visible waste piping is cast iron and pvc.
  - Natural gas is supplied to the building by a 3" main located outside on the northeast elevation.
- Overall building plumbing system condition:
  - No major deficiencies were noted in the plumbing system during the assessment. The location of the main water line to the property was not determined.
  - The system is provided with hot water re-circulation pump and pipes.
  - There is a gas-fired domestic water heater rated at 800,000 BTUh in the basement. The system uses a large storage tank with a capacity of 125 gallons. Water heater flues show no mineral deposits on the outside perimeter and no rust.
- Operational issues:
  - Washrooms are located on each floor of the building. Majority of plumbing fixtures are less than 10 years old and low consumption type.
  - The plumbing piping in various locations could not be evaluated due to lack of access.
- Major capital requirements:
  - Establish time schedule and appropriate funds for gradual replacement of plumbing system equipment, piping, valving and insulation that have reached the end of their service life.


Condenser water economizer


Condensate return pump


Air handling unit


Chilled water pumps


Chilled/condenser water piping (at indoor chiller)


Elevator machine room air conditioner

Appendix E – Building Inspection Reports

- Water heater flue is air tight and not well sealed to the chimney connection.
- Valves shall be easily accessible for handling.


Chemical feed system

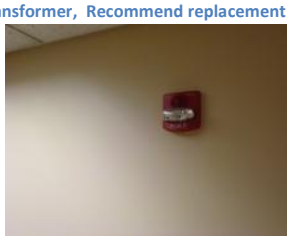
Fire Protection:

- Year Built and Major Renovations:
  - Original building fire protection systems.
  - New building fire protection systems: The system is designed to detect, extinguish, and limit the extent of fire damage or enhance life safety.
- Fire Protection System Description:
  - The system consists of wet-pipe fire suppression sprinklers. The sprinklers in the system are attached to pipes containing pressurized water at all times. Wet-pipe system is used in the building wherever temperatures are high enough to prevent freezing.
  - No major deficiencies were noted in the fire protection system with the exception of some pipes with pipe clamps installed to repair leaks. The fire protection system includes a medium-heavy hazard wet fire sprinkler system with no fire pump.
- Overall building fire protection system condition:
  - Due to overall simplicity, wet pipe sprinklers require the least amount of installation time in renovated areas and capital. The system is pressure tested and restored. In a few locations sprinkler protection was reinstalled by replacing the fused sprinklers and turning the water supply back on.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are no major capital requirements involved at this time. Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked.
  - Some areas are not sprinklered and would decrease safety and increase property damage potential.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in good condition and requires proper maintenance.


Panel Upgrade with Old Panel Converted to Splice Box


Panel Located in Basement Should Be Replaced


Transformer, Recommend replacement


Fire Alarm Horn and Strobe


Johnson Controls Fire Alarm Device


Fire Alarm Panels

Appendix E – Building Inspection Reports

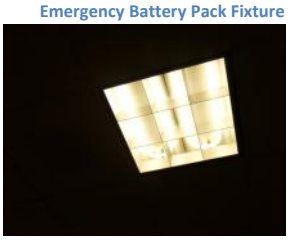

Exterior Security Camera

Exit Sign, Security Camera and Emergency Battery Pack Fixture

Exit Sign

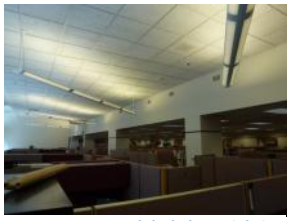

Light Fixtures with T-8 Lamps


Fluorescent Strip Lighting


Parabolic Recessed Fluorescent Light Fixture


Exterior Light Fixture


Exterior Light Fixture


Remodeled Floor Lighting


Corridor Lighting


Existing Racks in Data Room

Data Cables Running Through Basement. Recommend Cable Tray System


Simplex Fire Alarm NAC Panel


Emergency Generator

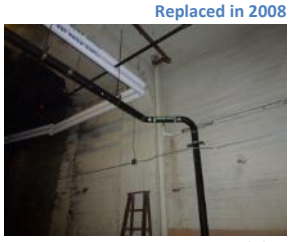

Main Switchgear Replaced in 2008


Electrical Distribution Switchboards Replaced in 2008


AHU Disconnect Switch. Recommend Replacement


Main Switchgear with Steam Piping Overhead


Domestic hot water heater


Sewage piping


Lavatory with flush valve


Service sink


Two sump pumps


Mop basin

Appendix E – Building Inspection Reports

Fire sprinkler (downright)

Upright sprinkler head with piping

Basement is fully sprinkler protected

The sprinkler main, 6" size

Wall damaged/sprinkler line

Hand held ABC type fire extinguisher

Appendix E – Building Inspection Reports

City Campus Office Complex – 9 Story (ID: 5605) – 2711 West Wells Street
EUA Architects

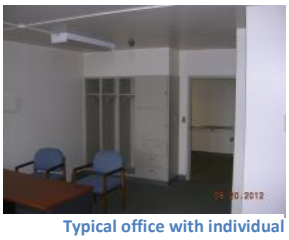
- Various components of the building's exterior are in poor shape. Steel beams over the first floor driveway are heavily rusted, concrete on the façade is spalling, stone panels are damaged, and the glass storefront to the main entrance is beyond its useful life.
- The 6th floor has been vacant for more than a decade and is in very poor condition. It is currently used to store office furniture, equipment, etc.
- The floor plan layout is inefficient for an office space. Individual offices with bathrooms, long corridors, and underutilized spaces exist on each floor.
- Some floors contain a number of vacant rooms.


Steel beams rusting significantly on exterior


Stone panels cracked, bottom row on Wells St. sidewalk shifting from water damage, wear and tear


Storefront entrance beyond useful life, sidewalk is worn


Corridor in the vacant 6th floor. Office furniture, equipment, etc. stored throughout the floor


Typical office with individual bathrooms, non-ADA compliant hardware


Driveway to main entrance, no separate handicap ramp or railings


Typical public restroom on office floors


Stairwell with non-compliant railings and door hardware


Interior room used as storage space


Typical corridor on office floors


Roof generally in good condition

Appendix E – Building Inspection Reports

Singh Associates

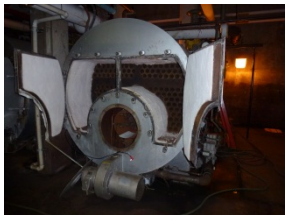
Mechanical:

- Year Built:
  - 1963 —Original building mechanical systems basement through 4th floor.
  - 1964 —Partial revisions throughout the building. Electric steam boiler for sterilizer room installation.
  - 1966 —Original building mechanical systems 5th through 9th floor design.
  - 1991 — Tower – Sub-basement and 9th floor penthouse chillers replacement. Cooling towers have been refurbished. Air handling units have been refurbished and AHU cooling coils have been replaced. First through 6th floor renovations. All HVAC pumps have been refurbished.
  - 1994 — Tower – First floor partial renovation.
- Mechanical System Description:
  - Heating —Total of three (3) hot water boilers (two 5980 MBH, installed around 1963, and one 7490 MBH, installed around 1966 generate heating hot water for the building. Heating hot water system consisting of hot water pumps, hydronic accessories, supply/return piping, valving, and controls distribute heating hot water to building induction units hydronic coils, constant volume box reheat coils, and building multiple air handling units heating coils. Existing steam system appeared to be no longer in use.
  - Ventilation — Multiple central station air handling units (0.5 through 40 HP supply fan electric motors) with separate return/relief/exhaust fans complete with intake/relief wall louvers/hoods, dual duct mixing boxes, supply/return/exhaust ductwork, supply/return/exhaust inlets/outlets, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Total of three (3) chillers complete with associated pumps, hydronic accessories, piping, valving, and controls generate chilled water for the building. First chiller (280 tons, installed 1991) is located


HW pumps (5th floor penthouse)


Hot water pumps (basement)


Hot water boiler (subbasement)


Hot water boiler (subbasement)


AHU heating coil section (basement)


AHU supply fan section (9th floor penth.)


Induction unit

Appendix E – Building Inspection Reports

in the subbasement. Second chiller (264 tons installed 1991) is located in the 9th floor penthouse. Heat from both chillers is rejected by roof mounted cooling towers. The third reciprocating chiller (100 tons, installed around 1965 is located in the 5th floor penthouse mechanical room with the air cooled condenser located on the 5th story building roof. Chilled water system consisting of chilled water pumps, chilled water supply/return piping, hydronic accessories, valving, and controls distribute chilled water to building air handling unit cooling coils and induction units hydronic coils.

- Humidification — Building air handling units are provided with humidification control.
- Building automation system — Building temperature control system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Heat exchangers — 20 years (100%)
    - Chillers — 20 years (100%)
    - Cooling towers — 20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
    - Air compressors — 25 years (100%)
- Operational issues:
  - Heating
    - Most of the steam traps are leaking.
  - Ventilation


Dual duct mixing box


Temperature controls air compressor


Air handling unit (5th floor penthouse)


Air handling unit


Temperature controls air compressor


AHU supply fan section (basement)


Air handling unit (3rd floor mech room)

Appendix E – Building Inspection Reports

        - No major issues.
    - Air conditioning
        - No major issues.
- Major capital requirements:
    - Heating — establish time schedule and appropriate funds for replacement of outdated heating system and equipment.
    - Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation system and equipment.
    - Air conditioning — establish time schedule and appropriate funds for replacement of outdated air conditioning system and equipment.
    - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.


Air handling unit (5th floor mech room)


Chiller (9th floor penthouse)


Cooling towers

Electrical:

- The existing building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building). The first 4 floors of the 9-story building were built in 1964. In 1973, 5 floors were added to the 1964 building in addition to the 5-story building. The Tower Theatre and 2-story retail building were acquired in 1975. The Tower Theatre was built in 1929.
- The electrical substations USS/1 (Room B43) and USS/2 are original to the 1964 building and were originally both located in the basement. USS/1 fed the majority of the 1964 building, which is now the 9-story building. The USS/2 substation is now located on the 10th floor (penthouse) of the 9-story building and feeds the 5-story building. USS/1 and USS/2 substations each have a 13.2 kV feed from WE Energies which transforms to 120/208V. The substations are 48 years old at this point. A third substation USS/3 (located in Room B46) was installed in 1991 per as-built drawings. USS/3 also has a 13.2kV feed from the utility. Per the 1991 drawings, the incoming primary incoming service (PIS)


Chilled water pumps (9th floor penthouse)


Air cooled condenser (5th floor roof)


Chiller (5th floor penthouse)


Chilled/condenser water pumps

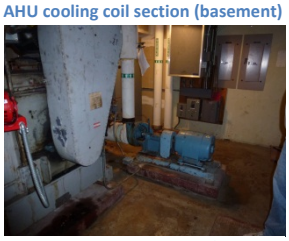
Appendix E – Building Inspection Reports

equipment located in Room B02A in the basement was replaced. It was observed that the pipes in this room were rusted. Recommend replacement of substations USS/1 and USS/2.

- The majority of the existing Federal Pacific and Cutler Hammer branch panelboards are original to the building. Recommend replacement of all panels from 1964 up to 1991. Panels from 1991 are 21 years old and are in good condition.
- There are two existing emergency generators. The 350kW Cummins generator is original and was refurbished in 1991. The 250kW diesel generator located in Room 142 at grade level between the 5 and 9-story buildings is original as well. The 800Amp emergency panel EDP located in room B43 is normally fed from USS/1 with an emergency feed from the 250kW generator. The 1600Amp emergency distribution panel P/EDP located in the 9-story building penthouse is normally fed from USS/2 with an emergency feed from the 350kW generator. The transfer switches for each of the emergency panels are also original to the building. As the 5 and 9-story buildings were used as a hospital, the need for large capacity generators was clear. Now that the buildings are used mostly for office space, it is recommended that the emergency system for the buildings be replaced with something that is more suitable for an office.
- The existing fire alarm system was installed in 1991 per the as-built drawings dated 2/28/1992. The fire alarm system is by Cerberus Pyrotronics. Recommend replacing the 21 year old system with a new addressable system.
- Existing security cameras appear to be in good shape. Unable to verify age of devices.
- Exit signs are approximately 21 years old per the as-built drawings dated 2/28/1992. The exit signs on the 3rd floor were replaced recently due to water damage on that floor.
- The existing lighting consists of recessed fluorescent light fixtures which were installed as part of the 1991 upgrades. The majority of the building has T-12 lamps, but there are pockets of T-8's on the 3rd floor. The engineer also stated that he stocked up on both T-8's and T-12's. Recommend replacement of all remaining T-12 fixtures in the next few years. Recommend replacement of lighting with energy efficient lighting.
- The existing PA system is original to the building. The building engineer stated that there are no issues with it and it is used all of the time, especially when it was a hospital.
- There is no lightning protection for the building installed on the roof.
- There is a light switch and conduit located in the sub-basement, in the boiler room, which are heavily corroded, to the point that the wires are

Water chiller (subbasement)

AHU cooling coil section (basement)



Chilled water pump (5th floor mechanical room)

Substation USS/2

Substation USS/2

Substation USS/3 Installed 1991

Substation USS/3 Installed 1991

Appendix E – Building Inspection Reports

visible. Recommend replacement of the switch and associated conduit and wiring.

Plumbing:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
    - 1929 —The Tower Theatre was built. Original building plumbing system.
    - 1975 —Theatre and 2-story retail building were acquired.
    - 1964 —The first 4 floors of the 9-story building were built.
    - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
- Plumbing System Description:
    - Domestic water is original to the building. The system consists of a pair of 1000 MBH hot water boilers for domestic water with a large storage tank. Gas-fired hot water heater "AERCO" serves kitchen area.
    - The 4" domestic water service enters in the mechanical room. The mechanical room is located on the basement in the nine-story building. A package with dual base-mounted 7.5 horsepower pumps elevate water pressure and flow demand required of their plumbing fixtures and plumbing equipment.
    - Domestic water piping in the building appears to be a mix of black steel, galvanized and copper piping. Generally, the piping appeared to be old and in fair condition for its age with observed leaks. Due to the age of the building, asbestos material contained throughout the piping for plumbing and heating systems.
    - Soil, waste and vent piping consist of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
    - The gas service enters the side of the building with the meter located outside the main building entry to the mechanical room. All piping is black steel with welded


Substation USS/1 Installed 1964


Emergency Distribution Panel P/EDP in penthouse


Fire Alarm Annunciator Panel


Generator Monitoring Panel


Panel B/G. Recommend Replacement


Existing 350 kW Emergency Generator

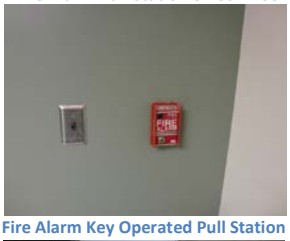

Original 250kW Backup Generator

Appendix E – Building Inspection Reports

and threaded joints. The gas piping appears to be in good condition.

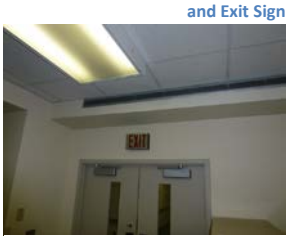
- Overall building plumbing system condition:
  - All main risers are galvanized. For supply lines and smaller drain lines galvanized pipe was used. These pipes rust and corrode over time, leading to low pressure and leaks. Existing plumbing equipment, piping hangers, supports, valves, pumps, and gas piping are original and appeared to be in fair condition.
  - The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of major replacement. Typical restroom consists of wall mounted toilets and sinks with the men's public restrooms containing floor-mounted and wall mounted urinals.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
  - The type of piping installed at all areas is not indicated. Temperature mixing valves are not installed.
  - Drinking fountains are at the end of their useful life and potentially critical.
- Operational issues:
  - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping shall be insulated and heat traced.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
  - Provide temperature mixing valves.
  - Install shut-off valves at water supply to fixtures.
- Major capital requirements:
  - The overall condition of plumbing systems is not good. All valves need adjustment, O-ring and packing replacement, gasket replacement, filter changes, and gate, globe and seat replacements to prevent leaks.
  - Older fixtures do not have the flow characteristics of newer ones. Older fixtures are likely to have higher flow rates while newer fixtures can save a great deal of water – as much as 50%.

Fire Alarm Pull Station on 6th Floor


Fire Alarm Key Operated Pull Station


Exterior Security Camera

Recessed Fluorescent Light Fixture and Exit Sign


Exit Sign, Surface Mounted Fluorescent Fixture on Fourth Floor


Generator Battery Float Charger


ATS-1 in Room 142 for 250kW Generator

Appendix E – Building Inspection Reports

- Provide new reduced-pressure backflow preventers with upstream and downstream shutoffs and test fittings to protect potable water in continuous-pressure conditions and against high hazard contaminations.

Corrosion on WE Energies Switchgear

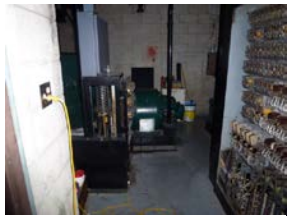
Fire Protection:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
  - 1929 —The Tower Theatre was built.
  - 1975 —Theatre and 2-story retail building were acquired.
  - 1964 — The first 4 floors of the 9-story building were built.
  - 1973 — 5 floors were added to the 9-story building in addition to the 5-story building.
  - 1991 —Original building fire protection system.
- Fire Protection System Description:
  - There are major deficiencies noted in the fire protection system. It is in poor condition with numerous areas of apparent past leakages. Fire pump and piping system located at the basement level. The 30 horsepower electric motor and fire pump, the small air compressor and 1 HP jockey pump appear to be in fair condition.
- Overall building fire protection system condition:
  - The complete fire suppression sprinkler system has 6" size water service with individual control box outside the building. The sprinkler main is complete with alarmed flow station and tamper switches.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time. Valves and piping are covered with oxidation, corrosion and evidence of motor oil leakage.
  - Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked.

Heat Trace Connection and Existing Smoke Detector

Master Clock Panel

WE Energies Switchgear



Elevator Machine Room with Original Equipment

WE Energies Switchgear

Plumbing piping

Appendix E – Building Inspection Reports

- Safety:
  - The building is not bounded by fire rated doors, dampers and penetration seals.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in fair condition and requires proper maintenance.
  - No backflow prevention was observed.

Gas-fired domestic water heater

Hot water boilers for domestic water

Lavatory & water closet in bathroom

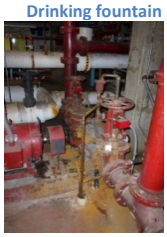
Missing floor drain

Drinking fountain

Fire pump

Fire protection piping

Fire protection system



Fire protection valves/temper switches

Incoming fire protection service

Fire extinguisher

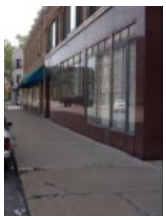
Appendix E – Building Inspection Reports

City Campus Office Complex – 5 Story (ID: 5605) – 2711 West Wells Street

EUA Architects

- The membrane roof has numerous patches and isn't adhered everywhere. Damage to the insulation below has occurred.
- Stone cladding on Wells St. is cracking, has shifted from water damage, wear and tear.
- As in the 9 story building, the floor plan layout is inefficient for an office space. Many individual offices, long corridors, and underutilized spaces exist on each floor.
- Corridor carpets and finishes are generally in fair condition, new carpet has been recently installed in a few areas.
- Most door hardware is non-ADA compliant, bathrooms are not fully ADA compliant.

The roof membrane is patched in many spots, is not adhered everywhere. There is also damage to the roof insulation underneath



Stone panels cracked, shifting from water damage, wear and tear. The sidewalk is also damaged

Parapet stone needs cleaning

Appendix E – Building Inspection Reports

Singh Associates

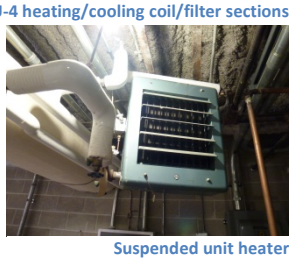
Mechanical:

- Year Built:
  - Original building systems.
  - 1965 — 5th floor penthouse chiller (90 tons)/cooling tower installation. Basement, 1st floor, and 4th floor penthouse air handling unit installations.
  - 1968 — First through fifth floor renovation. Air handling unit installation.
  - 1991 — Fifth floor penthouse chiller replacement. Steam boilers installation.
  - 1991 — First through fifth floor renovation.
  - 1991 — All HVAC pumps have been refurbished.
- Mechanical System Description:
  - Heating — Adjacent 9-story building heating hot water system consisting of hot water pumps, hydronic accessories, supply/return piping, valving, and controls distribute heating hot water to 5-story building constant volume box reheat coils, perimeter finned tube radiation and building air handling units heating coils.
  - Ventilation — Two central station air handling units (20 and 30 HP supply fan electric motors) with separate return/relief/exhaust fans complete with intake/relief wall louvers/hoods, constant volume reheat boxes, supply/return/exhaust ductwork, supply/return/exhaust inlets/outlets, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — Adjacent 9-story building chilled water system consisting of chilled water pumps, chilled water supply/return piping, hydronic accessories, valving, and controls distribute chilled water to 5-story building air handling unit cooling coils providing cooling for the building.
  - Humidification — Building air handling units are provided with humidification control.
  - Building automation system — Building temperature control system is a combination of DDC, pneumatic controls, and electro-mechanical controls.

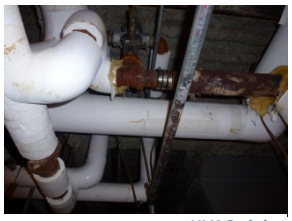

Finned tube radiation

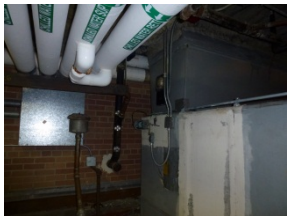

Heating coil booster pump


AHU-4 heating/cooling coil/filter sections


Suspended unit heater


Air handling unit AHU-4


HVAC piping


HVAC piping/outdoor air intake duct

Appendix E – Building Inspection Reports

- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Indoor air handling units — 20 years (100%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)
    - Heating/cooling coils — 20 years (100%)
    - Air compressors — 25 years (100%)
- Operational issues:
  - Heating
    - Most of the steam traps are leaking.
  - Ventilation
    - No major issues.
  - Air conditioning
    - No major issues.
- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of outdated heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation system and equipment.


Outdoor air intake hood


Temperature controls air compressor


Air handling unit AHU-5


Air handling unit AHU-5


Cooling coil pump


Substation USS/2


Generator Disconnect

Appendix E – Building Inspection Reports

- Air conditioning — establish time schedule and appropriate funds for replacement of outdated air conditioning system and equipment.
- Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Substation USS/2

Substation USS/1 Installed in 1964

Electrical:

- The existing building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building). The first 4 floors of the 9-story building were built in 1964. In 1973, 5 floors were added to the 1964 building in addition to the 5-story building. The Tower Theatre and 2-story retail building were acquired in 1975. The Tower Theatre was built in 1929.
- The electrical substations USS/1 (Room B43) and USS/2 are original to the 1964 building and were originally both located in the basement. USS/1 fed the majority of the 1964 building, which is now the 9-story building. The USS/2 substation is now located on the 10th floor (penthouse) of the 9-story building and feeds the 5-story building. USS/1 and USS/2 substations each have a 13.2 kV feed from WE Energies which transforms to 120/208V. The substations are 48 years old at this point. A third substation USS/3 (located in Room B46) was installed in 1991 per as-built drawings. USS/3 also has a 13.2kV feed from the utility. Per the 1991 drawings, the primary incoming service (PIS) equipment located in Room B02A in the basement was replaced. It was observed that the pipes in this room were rusted. Recommend replacement of substations USS/1 and USS/2.
- The majority of the existing Federal Pacific and Cutler Hammer branch panelboards are original to the building. Recommend replacement of all panels from 1964 up to 1991. Panels from 1991 are 21 years old and are in good condition.
- There are two existing emergency generators. The 350kW Cummins generator is original and was refurbished in 1991. The 250kW diesel generator located in Room 142 at grade level between the 5 and 9-story buildings is original as well. The 800Amp emergency panel EDP located in room B43 is normally fed from USS/1 with an emergency feed from the 250kW generator. The 1600Amp emergency distribution panel P/EDP located in the 9-story building penthouse is normally fed from USS/2 with an emergency feed from the 350kW generator. The transfer switches for each of the emergency panels are also original to the building. As the 5 and 9-story buildings were

Substation USS/3 Installed 1991

Substation USS/3 Installed 1991

Emergency Transfer Switch ATS/2

Emergency Distribution Panel P/EDP in penthouse

Emergency Panel. Recommend Replacement

Appendix E – Building Inspection Reports

used as a hospital, the need for large capacity generators was clear. Now that the buildings are used mostly for office space, it is recommended that the emergency system for the buildings be replaced with something that is more suitable for an office.

- The existing fire alarm system was installed in 1991 per the as-built drawings dated 2/28/1992. The fire alarm system is by Cerberus Pyrotronics. Recommend replacing the 21 year old system with a new addressable system.
- Existing security cameras appear to be in good shape. Unable to verify age of devices.
- Exit signs are approximately 21 years old per the as-built drawings dated 2/28/1992. The exit signs on the 3rd floor were replaced recently due to water damage on that floor.
- The existing lighting consists of recessed fluorescent light fixtures which were installed as part of the 1991 upgrades. The majority of the building has T-12 lamps, but there are pockets of T-8's on the 3rd floor. The engineer also stated that he stocked up on both T-8's and T-12's. Recommend replacement of all remaining T-12 fixtures in the next few years.
- The existing PA system is original to the building. The building engineer stated that there are no issues with it and it is used all of the time, especially when it was a hospital.
- There is no lightning protection for the building installed on the roof.


Federal Pacific Branch Panel

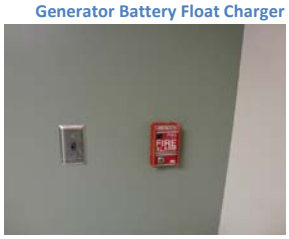

Panel SB/PC


350 kW Emergency Generator

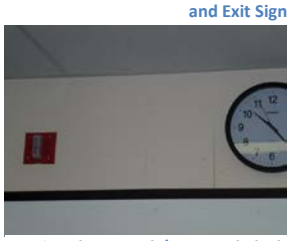

Generator Battery Float Charger

Plumbing:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
  - 1929 —The Tower Theatre was built.
  - 1975 —Theatre and 2-story retail building were acquired. Original building plumbing system.
  - 1964 —The first 4 floors of the 9-story building were built.
  - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
- Plumbing System Description:
  - Domestic water is original to the building. The system consists of a pair of 1000 MBH hot water boilers with a large storage tank. Gas-fired hot water heater "AERCO" serves kitchen area.
  - The 4" domestic water service enters in the mechanical room. The mechanical room is located on the fourth


Fire Alarm Key Operated Pull Station

Recessed Fluorescent Light Fixture and Exit Sign


Fire Alarm Strob/Horn and Clock

Appendix E – Building Inspection Reports

floor of the nine-story building. A package with dual base-mounted 7.5 horse power pumps elevates water pressure and flow demand required of their plumbing fixtures and plumbing equipment.

- Domestic water piping in the building appears to be a mix of black steel, galvanized and copper piping. Generally, the piping appeared to be old and in fair condition for its age with observed leaks. Due to the age of the building, asbestos material is contained throughout the piping for plumbing and heating systems.
- Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
- The gas service enters the building with the meter located outside the main building entry to the mechanical room. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.

- Overall building plumbing system condition:
  - All main risers are galvanized. For supply lines and smaller drain lines, galvanized pipe is used. Pipes can rust and corrode over time, leading to low pressure and leaks. Existing plumbing equipment, piping hangers, supports, valves, pumps, and gas piping are original and appeared to be in fair condition.
  - The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of major replacement. Typical restroom consists of wall mounted toilets and sinks with the men's public restrooms containing floor-mounted and wall mounted urinals.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
  - The type of piping installed at all areas is not indicated. Temperature mixing valves are not installed.
  - Drinking fountains are at the end of useful life and potentially critical.

Corroded Conduit Above Piping in Basement Boiler Room

Corroded Conduit on Roof

Gas fired water heaters for 5-story and 9-story buildings

Plumbing cold water piping

Natural gas service/gas piping

Corroded pipes

Electric water cooler

Appendix E – Building Inspection Reports

- Operational issues:
  - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping shall be insulated and heat traced.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
  - Provide temperature mixing valves.
  - Install shut-off valves for every water supply to fixtures.
- Major capital requirements:
  - The overall condition of plumbing systems is not good. All valves need adjustment, O-ring and packing replacement, gasket replacement, filter changes, and gate, globe and seat replacements to prevent leaks.
  - Older fixtures do not have the flow characteristics of newer ones. Older fixtures are likely to have higher flow rates while newer fixtures can save a great deal of water – as much as 50%.
  - Provide new reduced-pressure backflow preventers with upstream and downstream shutoffs and test fittings to protect potable water in continuous-pressure conditions and against high hazard contaminations.


Abandoned drinking fountain


Pipe leakage


Concealed sprinkler heads


Downright sprinkler heads

Fire Protection:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
  - 1929 —The Tower Theatre was built.
  - 1975 —Theatre and 2-story retail building were acquired.
  - 1964 —The first 4 floors of the 9-story building were built.
  - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
  - 1991 —Original building fire protection system.
- Fire Protection System Description:
  - There are major deficiencies in the fire protection system. It is in poor condition with numerous areas of apparent past leakages. Fire pump and piping system located at the basement level. The 30 horse power


Fire water pipes with sprinkler heads


Upright sprinkler heads


Fire protection: Wet pipe riser

Appendix E – Building Inspection Reports

electric motor and fire pump, the small air compressor and 1 HP jockey pump appear to be in fair condition.

- Overall building fire protection system condition:
  - The complete fire suppression sprinkler system has 6" water service with individual control box outside the building. The sprinkler main is complete with alarmed flow station and tamper switches.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time. Valves and piping are covered with oxidation, corrosion and evidence of motor oil leakage.
  - Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to the fire protection system if left unchecked.
- Safety:
  - The building is not bounded by fire rated doors, dampers and penetration seals.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in fair condition and requires proper maintenance.
  - No backflow prevention was observed.

Appendix E – Building Inspection Reports

City Campus 27th Street Store Front (ID: 5605)

EUA Architects

- Some of the tenant space along the first floor and all of the second floor is vacant.
- The second floor hallway and rooms suffer from a lack of maintenance or repair. Floors, walls, and ceilings are in poor condition.
- The second floor wood windows are in poor condition, some are missing glass.
- The exterior brickwork and parapet need cleaning.

Typical storefront door on 27th street in vacant space. The floor is in poor condition, door does not have panic hardware

Floors, walls, ceilings, and windows in many of the 2nd floor rooms are in poor condition

Crown molding, plaster ceiling details still intact in main corridor between storefront and theater

Restroom, not fully accessible

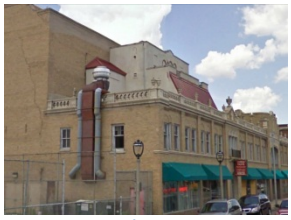
Appendix E – Building Inspection Reports

Singh Associates

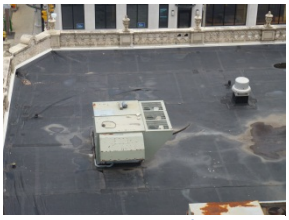
Mechanical:

- Year Built:
  - Original building mechanical systems.
  - Rooftop unit installation.
- Mechanical System Description:
  - Heating — Retail spaces are supplied with steam from City Campus complex steam boiler plant. Steam system consisting of steam piping, condensate return piping, and associated valving and accessories provide heat to terminal heating units (cast iron radiators, convectors). Assume gas fired rooftop units provide additional heat to the respective spaces.
  - Ventilation — Rooftop units and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the retail spaces.
  - Air-conditioning — DX cooling rooftop units provide cooling for the retail spaces.
  - Building automation system — Temperature control system consists of standalone electro-mechanical controls.
- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - Rooftop units — 15 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)
    - HVAC piping & fittings — 20 years (40%)
    - HVAC valves — 15 years (50%)
    - Exhaust fans — 20 years (100%)
    - Finned tube elements — 35 years (100%)

Cast iron radiator (2nd floor)

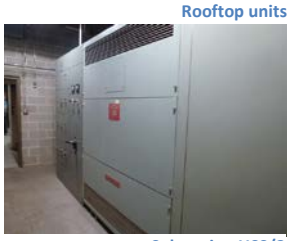


Exterior ductwork/kitchen exhaust fan



Rooftop unit/exhaust fan

Rooftop units



Substation USS/2

Fire Alarm Pull Station

Exterior Canopy Light Fixture

Appendix E – Building Inspection Reports

- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of outdated heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation system and equipment.
  - Air conditioning — establish time schedule and appropriate funds for replacement of outdated air conditioning system and equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

Existing Exterior of 2-Story Store Front

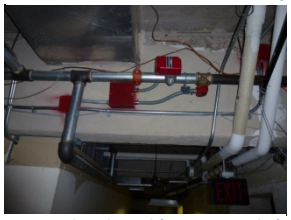
Two-compartment sink in pantry

Wall mounted water closet

Electrical:

- The existing building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building). The first 4 floors of the 9-story building were built in 1964. In 1973, 5 floors were added to the 1964 building in addition to the 5-story building. The Tower Theatre and 2-story retail building (store front) were acquired in 1975. The Tower Theatre was built in 1929.
- The electrical substations USS/1 (Room B43) and USS/2 are original to the 1964 building and were originally both located in the basement. USS/1 fed the majority of the 1964 building, which is now the 9-story building. The USS/2 substation is now located on the 10th floor (penthouse) of the 9-story building and feeds the 5-story building. USS/1 and USS/2 substations each have a 13.2 kV feed from WE Energies which transforms to 120/208V. The substations are 48 years old at this point. A third substation USS/3 (located in Room B46) was installed in 1991 per as-built drawings. USS/3 also has a 13.2kV feed from the utility. Per the

Lavatory



Fire pipe with tamper switch

Upright sprinkler head with cover protection

Hose connection

Appendix E – Building Inspection Reports

1991 drawings, the incoming primary incoming service (PIS) equipment located in Room B02A in the basement was replaced. It was observed that the pipes in this room were rusted. Recommend replacement of substations USS/1 and USS/2.

- The majority of the existing Federal Pacific and Cutler Hammer branch panelboards are original to the building. Recommend replacement of all panels from 1964 up to 1991. Panels from 1991 are 21 years old and are in good condition.
- The existing fire alarm system was installed in 1991 per the as-built drawings dated 2/28/1992. The fire alarm system is by Cerberus Pyrotronics. Recommend replacing the 21 year old system with a new addressable system.
- Exit signs are approximately 21 years old per the as-built drawings dated 2/28/1992.
- The existing lighting consists of recessed fluorescent light fixtures which were installed as part of the 1991 upgrades. The majority of the building has T-12 lamps. Recommend replacement in the next few years.
- There is no lightning protection for the building installed on the roof.
- Existing exterior lighting fixtures appear to be original and should be replaced with new energy efficient fixtures.

Plumbing:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
    - 1929 —The Tower Theatre was built. Original building plumbing system.
    - 1964 —The first 4 floors of the 9-story building were built.
    - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
    - 1975 —Theatre and 2-story retail building were acquired.
- Plumbing System Description:
    - Domestic water is original to the building. The system consists of a pair of 1000 MBH hot water boilers with a large storage tank.
    - The 4“ domestic water service enters in the mechanical room. The mechanical room is located on the fourth floor in nine-story building. A package with dual base-

Appendix E – Building Inspection Reports

mounted 7.5 horsepower pumps elevates water pressure and flow demand required of their plumbing fixtures and plumbing equipment.

- Domestic water piping in the building appears to be a mix of black steel, galvanized and copper piping. Generally, the piping appeared to be old and in fair condition for its age with observed leaks. Due to the age of the building, asbestos material is contained throughout the piping for plumbing and heating systems.
- Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
- The gas service enters the building with the meter located outside the main building entry to the mechanical room. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.

- Overall building plumbing system condition:
  - All main risers are galvanized. For supply lines and smaller drain lines galvanized pipe was used. This pipe can rust and corrode over time, leading to low pressure and leaks. Existing plumbing equipment, piping hangers, supports, valves, pumps, gas piping are original and appeared to be in fair condition.
  - The majority of plumbing fixtures and related trim in the building appears to be in fair to poor condition and in general need of major replacement. Typical restroom consists of wall mounted toilets and sinks with the men's public restrooms containing floor-mounted and wall mounted urinals.
  - The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
  - The type of piping installed at all areas is not indicated. Temperature mixing valves are not installed.
  - Drinking fountains are end of useful life and potentially critical.

Appendix E – Building Inspection Reports

- Operational issues:
    - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping shall be insulated and heat traced.
    - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
    - Provide temperature mixing valves.
    - Install shut-off valves for every water supply to fixtures.
- Major capital requirements:
    - The overall condition of plumbing systems is good. All valves need adjustment, O-ring and packing replacement, gasket replacement, filter changes, and gate, globe and seat replacements to prevent leaks.
    - Older fixtures do not have the flow characteristics of newer ones. Older fixtures are likely to have higher flow rates while newer fixtures can save a great deal of water – as much as 50%.
    - Provide new reduced-pressure backflow preventers with upstream and downstream shutoffs and test fittings to protect potable water in continuous-pressure conditions and against high hazard contaminations.

Fire Protection:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
    - 1929 —The Tower Theatre was built.
    - 1975 —Theatre and 2-story retail building were acquired.
    - 1964 —The first 4 floors of the 9-story building were built.
    - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
    - 1991 —Original building fire protection system.
- Fire Protection System Description:
    - Major deficiencies were noted in the fire protection system. It is in poor condition with numerous areas of apparent past leakages. Fire pump and piping system are located at the basement level. The 30 horse power

Appendix E – Building Inspection Reports

electric motor and fire pump, the small air compressor and 1 HP jockey pump appear to be in fair condition.

- Overall building fire protection system condition:
  - The complete fire suppression sprinkler system has 6" water service with individual control box outside the building. The sprinkler main is complete with alarmed flow station and tamper switches.
- Operational issues:
  - The system was observed in a visual review only.
- Major Capital Requirements:
  - There are major capital requirements involved at this time. Valves and piping are covered with oxidation, corrosion and evidence of motor oil leakage.
  - Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked.
- Safety:
  - The building is not bounded by fire rated doors, dampers and penetration seals.
- Summary:
  - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in fair condition and requires proper maintenance.
  - No backflow prevention was observed.

Appendix E – Building Inspection Reports

City Campus Theater (ID: 5605)

EUA Architects

- The theater and main lobby are unoccupied and in extremely poor condition from lack of maintenance or repair.
- Interior air quality is poor due to the condition of the building.
- Part of the building has been converted to a gym and storage spaces.
- HVAC air handling unit and ductwork occupy part of the theater seating area.

Main stairway in theater lobby. The lack of maintenance and repair has left the theater in poor condition

The former theater stage area has been turned into a gym

Theater seating. HVAC ductwork serving the gym currently occupies part of the seating area

Restrooms in the theater. Peeling paint could contain lead

Appendix E – Building Inspection Reports

Singh Associates

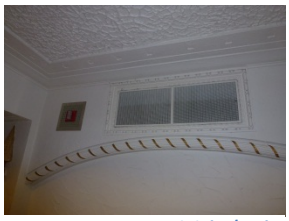
Mechanical:

- Year Built:
  - Original building mechanical systems.
  - 1991 — Air handling unit/condensing unit system installation.
- Mechanical System Description:
  - Heating — Theater is supplied with steam from City Campus complex steam boiler plant. Steam system consisting of steam piping, condensate return piping, condensate return pumps, and associated valving and accessories provides heat to theater air handling unit steam heating coils and various terminal heating units (cast iron radiators, convectors, suspended unit heaters).
  - Ventilation — One central station air handling unit (10 HP supply fan electric motor) complete with intake wall louver, relief hoods, supply/return/exhaust ductwork, supply/return/ exhaust inlets/outlets, and dedicated exhaust fans provide supply, return, and exhaust ventilation throughout the building.
  - Air-conditioning — 30 tons air cooled condensing unit with matching DX cooling coil and associated refrigerant piping, valving and controls provide cooling for the theater.
  - Humidification — Air handling unit is provided with humidification control.
  - Building automation system — Building temperature control system is a combination of pneumatic controls and electro-mechanical controls.
- Overall building mechanical system condition:
  - Most of the HVAC systems are at the end or beyond their service life. The following is a typical mechanical system/equipment service life with percent replaced in parentheses:
    - HVAC pumps — 15-20 years (100%)
    - Air cooled condensing units — 15 years (100%)
    - Piping/equipment insulation — 15 years (75-100%)

Cast iron radiator

Cabinet unit heater

Air handling unit



Air inlet/outlet

HVAC piping

Air cooled condensing unit and wall louver

Substation USS/3 Installed 1991

Appendix E – Building Inspection Reports

- HVAC piping & fittings — 20 years (40%)
- HVAC valves — 15 years (50%)
- Indoor air handling units — 20 years (100%)
- Exhaust fans — 20 years (100%)
- Finned tube elements — 35 years (100%)
- Heating coils — 20 years (100%)

- Major capital requirements:
  - Heating — establish time schedule and appropriate funds for replacement of outdated heating system and equipment.
  - Ventilation — establish time schedule and appropriate funds for replacement of outdated ventilation system and equipment.
  - Air conditioning — establish time schedule and appropriate funds for replacement of outdated air conditioning system and equipment.
  - Building automation system — replace existing pneumatic controls with DDC controls along with mechanical system replacement.

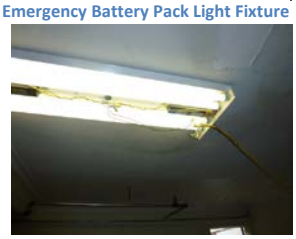
Electrical:

- The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building). The first 4 floors of the 9-


Fire Alarm Junction Box


Fire Alarm Pull Station


Emergency Battery Pack Light Fixture


Light Fixture with Temporary Wiring. Recommend Wiring be Replaced


Light Switches


Lighting Fixtures


Lighting Theatre Converted to Gym

Appendix E – Building Inspection Reports

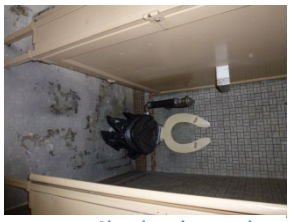
story building were built in 1964. In 1973, 5 floors were added to the 1964 building in addition to the 5-story building. The Tower Theatre and 2-story retail building were acquired in 1975. The Tower Theatre was built in 1929.

- The electrical substations USS/1 (Room B43) and USS/2 are original to the 1964 building and were originally both located in the basement. USS/1 fed the majority of the 1964 building, which is now the 9-story building. The USS/2 substation is now located on the 10th floor (penthouse) of the 9-story building and feeds the 5-story building. USS/1 and USS/2 substations each have a 13.2 kV feed from WE Energies which transforms to 120/208V. The substations are 48 years old at this point. A third substation USS/3 (located in Room B46) was installed in 1991 per as-built drawings. USS/3 also has a 13.2kV feed from the utility. Per the 1991 drawings, the incoming primary incoming service (PIS) equipment located in Room B02A in the basement was replaced. It was observed that the pipes in this room were rusted. Recommend replacement of substations USS/1 and USS/2.
- The majority of the existing branch panelboards are original to the building. Recommend replacement of all panels up to 1991. Panels from 1991 are 21 years old and are in good condition. Panel B/A in the theatre building is fed from USS/3.
- The existing fire alarm system was installed in 1991 per the as-built drawings dated 2/28/1992. The fire alarm system is by Cerberus Pyrotronics. Recommend replacing the 21 year old system with a new addressable system.
- Existing security cameras appear to be in good shape. Unable to verify age of devices.
- Exit signs are approximately 21 years old per the as-built drawings dated 2/28/1992.
- Emergency battery pack lights in the theatre appear to be from the 1970's and should be replaced.
- Some of the lighting in the theatre was replaced in 1991 per the as-builts. Recommend replacement of lighting with energy efficient lighting.
- There is no lightning protection for the building installed on the roof.


Wiring Remaining from Chandelier


Theatre Building Lighting


Recessed Down Lights


Abandoned water closet


Disconnected drinking fountain


Fire piping with sprinkler heads


Stair standpipe with hose connection

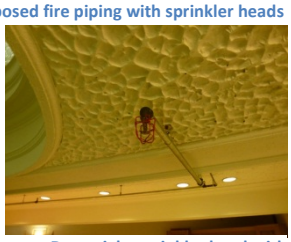
Appendix E – Building Inspection Reports

Plumbing:

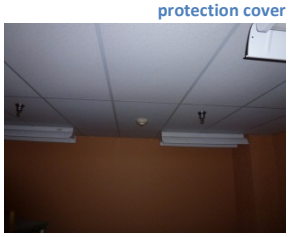
- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
    - 1929 —The Tower Theatre was built. Original building plumbing system.
    - 1975 —Theatre and 2-story retail building were acquired.
    - 1964 —The first 4 floors of the 9-story building were built.
    - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
- Plumbing System Description:
    - Domestic water is original to the building. The system consists of a pair of 1000 MBH hot water boilers with a large storage tank.
    - The 4“ domestic water service enters in the mechanical room. The mechanical room is located on the basement in the nine-story building. A package with dual base-mounted 7.5 horsepower pumps elevate water pressure and flow demand required of their plumbing fixtures and plumbing equipment.
    - Domestic water piping in the building appears to be a mix of black steel, galvanized and copper piping. Generally, the piping appeared to be old and in fair condition for its age with observed leaks. Due to the age of the building, asbestos material contained throughout the piping for plumbing and heating systems.
    - Soil, waste and vent piping consists of cast iron piping. Most cast iron piping that could be observed appeared to be in fair condition for its age with no apparent leaks.
    - The gas service enters the building with the meter located outside the main building entry to the mechanical room. All piping is black steel with welded and threaded joints. The gas piping appears to be in good condition.
- Overall building plumbing system condition:
    - All main risers are galvanized. For supply lines and smaller drain lines galvanized pipe was used. This pipe

Upright sprinkler heads

Exposed fire piping with sprinkler heads



Downright sprinkler head with protection cover



Downright sprinkler head in the ceiling

can rust and corrode over time, leading to low pressure and leaks. Existing plumbing equipment, piping hangers, supports, valves, pumps, and gas piping are original and appeared to be in fair condition.

- The majority of plumbing fixtures and related trim in the building appear to be in fair to poor condition and in general need of major replacement. Typical restroom consists of wall mounted toilets and sinks with the men's public restrooms containing floor-mounted and wall mounted urinals.
- The individual drains appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period.
- The type of piping installed at all areas is not indicated. Temperature mixing valves are not installed.
- Drinking fountains are at the end of their useful life and potentially critical.

- Operational issues:
  - Existing plumbing fixtures cause energy loss year round. Provide new auto-flush valves at new ADA water closet. Plumbing piping shall be insulated and heat traced.
  - Older plumbing system may not support the pressure and waste removal requirements of modern functions.
  - Provide temperature mixing valves.
  - Install shut-off valves for every water supply to fixtures.
- Major capital requirements:
  - The overall condition of the plumbing systems is not good. All valves need adjustment, O-ring and packing replacement, gasket replacement, filter changes, and gate, globe and seat replacements to prevent leaks.
  - Older fixtures do not have the flow characteristics of newer ones. Older fixtures are likely to have higher flow rates while newer fixtures can save a great deal of water – as much as 50%.
  - Provide new reduced-pressure backflow preventers with upstream and downstream shutoffs and test fittings to protect potable water in continuous-pressure conditions and against high hazard contaminations.

Appendix E – Building Inspection Reports

Fire Protection:

- Year Built: The existing City Campus building complex consists of a west section (9-story building) and an east section (theatre, 5-story building and retail 2-story building).
    - 1929 —The Tower Theatre was built.
    - 1975 —Theatre and 2-story retail building were acquired.
    - 1964 —First 4 floors of the 9-story building were built.
    - 1973 —5 floors were added to the 9-story building in addition to the 5-story building.
    - 1991 —Original building fire protection system.
- Fire Protection System Description:
    - There are major deficiencies noted in the fire protection system. It is in poor condition with numerous areas of apparent past leakages. Fire pump and piping system located at the basement level. The 30 horsepower electric motor and fire pump, the small air compressor and 1 HP jockey pump appear to be in fair condition.
- Overall building fire protection system condition:
    - The complete fire suppression sprinkler system has 6" water service with individual control box outside the building. The sprinkler main is complete with alarmed flow station and tamper switches.
- Operational issues:
    - The system was observed in a visual review only.
- Major Capital Requirements:
    - There are major capital requirements involved at this time. Valves and piping are covered with oxidation, corrosion and evidence of motor oil leakage.
    - Corrosion monitoring system can provide early warning of corrosion problems that can do irreparable harm to fire protection system if left unchecked.
- Safety:
    - The building is not bounded by fire rated doors, dampers and penetration seals.
- Summary:
    - Sprinklers are highly desirable for life safety and property protection. Existing automatic fire suppression system is in fair condition and requires proper maintenance. No backflow prevention was observed.

Appendix E – Building Inspection Reports

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Prepared for:

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