



facility survey

draft

Beaver Dam Unified School District

Beaver Dam, WI PRA Project #114442

December 2011

BEAVER DAM UNIFIED SCHOOL DISTRICT

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Beaver Dam Unified School District PRA Project No. 114442

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Existing Facilities Survey

OVERVIEW

This phase of the study is intended to survey the physical characteristics of all of the Beaver Dam Unified School District schools. The survey reviews the appearance, condition and current uses of the building. This data is used to determine the feasibility and cost of space reallocation, remodeling and/or expanding the building.

The process included a review of available existing floor plans and walk-through of all of the buildings. The review makes comments based on exposed conditions.

The elementary schools and Don Smith Learning Academy were toured on October 26, 2011. Those in attendance during those tours were Paul Buchholz, Coordinator of Buildings & Grounds, Paul Brown of PSJ Engineering, James Knoerr of Dolan and Dustin Engineering, and Kim Hassell and Adrian Langhus of Plunkett Raysich Architects.

The Beaver Dam Middle school and Beaver Dam High School were toured on October 27, 2011. Those in attendance during those tours were Paul Buchholz, Coordinator of Buildings & Grounds, Paul Brown of PSJ Engineering, James Knoerr of Dolan and Dustin Engineering, and Adrian Langhus of Plunkett Raysich Architects. Mark DiStefano, Principal of the Beaver Dam High School was present during portions of the Beaver Dam High School tour.

JEFFERSON ELEMENTARY Architectural:

Jefferson Elementary School was built in 1949 and is located at 301 Brook Street, in Beaver Dam, Wisconsin. The approximately 56,000 square foot facility is located on a site of 9.7 acres. The building contains one floor with a small mechanical and storage basement by the original gym. There were additions in 1976, 1992 and 2001.

Visitor and staff parking is located at the northeast and southwest parking lots. It appears that the bus drop off utilizes Brook and Jefferson Streets. There is no site or building signage identifying the building.

The asphalt play area is in very good condition and the parking is in good condition. The play equipment is in good condition. A wooden storage shed is on the northeast side of the building near the loading dock area.

The façade is in generally good condition, but there is a cracked precast concrete window head on the west side of the building.



There are some single glazed windows on the east side of the building which should be replaced with a double glazed window system.

Approximately 30% of the roof is 20 years old or older and should be replaced.

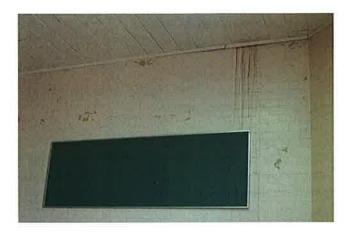
The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces north and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The carpet tile at the entry is worn.

The administrative area has worn carpet and casework. The reception area is cramped. The ceiling is 2x2 acoustical ceiling tile in fair condition. The restroom within the administrative area lacks ADA compliant hardware and is not ADA compliant. There is an ADA compliant restroom within close proximity to the office (next to the multi-purpose room). That restroom needs a new lay-in ceiling.



The main corridors are adequately sized. Student storage is accomplished with student lockers for all grades except Kindergarten which have cubbies in a separate room. The corridor floors are either ceramic tile or vinyl composition tile, all are in good condition with the exception of a section at the intersection of the 1949 to the 2001 section. The ceilings are 2x2 acoustical ceiling tile, all are in good condition with the exception of one small area between the computer lab and room 244 which is damaged. The E2 entrance is rusty and should be repaired and painted.



The old gym has a wood floor which is in good condition. Several of the glass block windows have been broken and should be replaced. There is evidence of water leakage on the west wall. The 1'x1' ceiling tile appear to be original and are in fair/poor condition and should be replaced. The walls have chipped or flaking paint and should be painted. The stage area has been walled off leaving an area only 5'-6' deep that is cur-

rently used for storage.

In general the interior door frames need to be painted and the interior doors need to be repaired and/or refinished. The corridor and restroom walls should be painted.

The multi-purpose room has a wood floor which is in good condition. The serving kitchen has PLAM countertops and casework which is chipped. The loading area adjacent has a door which should receive new weatherstripping (BDUSD Update: complete).

The classrooms have either vinyl composition tile or vinyl asbestos tile. The floor tile is in good condition. There are some limited areas of carpet (such as room 130 that have older carpet).

The classrooms generally have 2x2 acoustical lay-in ceiling tile which is in good condition, but there are areas of water stained ceiling tile that should be replaced as well as areas of active roof leaks that should be repaired, then the ceiling tile replaced (BDUSD Update: roof leaks have been repaired).

Some of the original vinyl asbestos tile which is in good condition is visually distracting, such as the tile located in several kindergarten rooms.



Most of the interior of the building (approximately 95%) is located on an accessible path. Most of the interior door hardware is ADA compliant. Most of the

restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the restrooms are in good repair although many show their age.

The building is not fire sprinklered.

JEFFERSON ELEMENTARY <u>Heating, Ventilation & Air Conditioning:</u>

Heating System:

The building is heated by two natural gas-fired, medium efficiency, vertical copper coil, hot water boilers rated at 1500 MBH input each. Currently one boiler has sufficient heating capacity for the building, leaving the second boiler as standby capacity.

The boilers were installed in 2007. At that time the steam heating boilers were removed and hot water boilers, primary/secondary pumping system and hot water piping system was installed. Hot water supply and return piping is routed above the ceilings to hot water unit ventilators, radiation, heaters, etc.

The obsolete steam and condensate return piping is located in tunnels around the perimeter of the building. The piping is covered with pipe insulation containing asbestos and has been abandoned in place.

Ventilation and Air Conditioning System:

The 1964 Building is heated and ventilated by hot water unit ventilators. The unit ventilators were installed in 2007 when the hot water boilers were installed. Areas of the building served by unit ventilators are not air conditioned.

Four packaged rooftop HVAC units provide heating, ventilation and air conditioning for the areas listed below. These units were installed at the time the building addition was constructed or have been recently replaced and are in good condition.

- 1992 Classroom Addition: Constant Volume Single Zone
- 1992 Multipurpose Room Addition: Constant Volume Single Zone

- 1992 Office Remodeling: Constant Volume Single Zone
- 2001 Classroom Addition: Constant Volume with Zone Dampers

The Multipurpose Room and Office areas roof top units have been replaced within the past two years.

Roof mounted exhaust fans provide toilet/janitor closet exhaust.

Automatic Temperature Controls:

A Direct Digital Controls (DDC) is provided for control of the HVAC systems. DDC controls were installed at the time of the steam to hot water conversion and unit ventilator replacement.

The DDC automatic temperature control system provides for boiler system start/stop and supply water temperature control, unit ventilator start/stop and room temperature control and rooftop unit start/stop control.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

JEFFERSON ELEMENTARY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The basement level consisting of the Boiler Room and Locker/Shower Room area is provided with a duplex sanitary waste pump discharging to the building's gravity sanitary waste piping system.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system.

Domestic Water System:

The building is supplied from a City water service main with water meter.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the building addition.

The domestic hot water for the building is supplied by a high efficiency gas fired, water heater installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets: (1949 Building)

Water closets are wall hung with concealed flush valves. Fixtures are not ADA compliant.

Urinals are floor set, flush valve type. Flush valves are concealed and operated via timer or door switch.

Lavatories are wall hung and appear to be replacements. Two lavatories appear to be mounted at ADA height.

Staff Toilet: (1949 Building)

Water closet is floor set, flush valve type. Fixture appears to be ADA complaint.

Lavatory is wall hung with single lever mixing faucet. Fixture appears to be ADA complaint.

Boy's/Girl's Toilets: (1976 Addition)

Water closets are wall hung, exposed flush valve type. Fixtures do not appear to be ADA complaint.

Urinals are floor set flush valve type. Flush valves are concealed and operated via timer or door switch.

Lavatories are wall hung with faucet and CW/HW handles. Fixtures do not appear to be ADA complaint.

Locker Rooms:

The Locker Rooms are no longer in use. The shower valve handles have been removed and the rooms are currently used for storage.

The Boy' and Girl's Locker rooms are each provided with wall hung flush valve toilet and lavatory with front mounted faucet and CW/HW handles.

Kitchen:

Double compartment stainless steel sink with swing spout faucet with CW/HW handles and chemical sanitizer feed system.

Pre-rinse unit with hand spray and disposal.

Commercial under counter dishwasher.

In-floor grease interceptor adjacent to the double compartment sink.

Classroom Sinks: (1949 Building)

Enamel cast iron drop-in type installed in casework. Faucet and trim varies due to repairs over the years. Sinks were provided with integral drinking fountain. Drinking fountains are disconnected or removed as failures occur.

Classroom Sinks: (1976 Addition)

Enamel cast iron drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles and integral drinking fountain.

Classroom Sinks: (1992 Addition)

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles.

Teachers Lounge:

Water closet is floor set flush valve type. Fixture is not ADA complaint.

Lavatory is wall hung with face mounted faucet and CW/HW handles.

Double compartment stainless steel drop in kitchen sink installed in casework with swing spout and CW/HW handles.

Drinking Fountains: (1949 Building)

Wall hung drinking fountain with chrome spout and valve handle.

Electric Water Coolers:

Dual high/low, ADA complaint refrigerated electric water coolers are installed near the 1976 Addition toilet rooms and in the corridor of the 1992 Addition.

A single standard height electric water cooler is installed in the corridor of the 2001 Addition.

JEFFERSON ELEMENTARY Electrical:

Electrical Service & Distribution:

This building is currently served by two services. A 600 amp, 208Y/120 volt, 3-phase, 4-wire utility service and a 400 amp, 240 volt 3-phase service. The 600 amp service terminates into a Cutler Hammer panel with no main circuit breaker and 4 distribution circuit breakers. The electrical equipment is a mixture of Square D, Cutler Hammer and some old Kinney Electric panels.

Surge Suppression:

No suppressor was noted.

Generator:

A generator, transfer switch and other equipment appears to have been abandoned in place as part of the electric service replacement in 2001.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 1999 and some in 2007. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied. The gymnasium is currently illuminated with metal halide type fixtures. No emergency lighting was observed in the gymnasium.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has an EST fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Some corridors/spaces have smoke detectors but not all corridors. The system is relatively new and appears to be in fairly good condition.

Clock/Bell System:

An existing Lathern system was noted.

Intercom/Paging System:

The building appears to have a Bogen paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.



JEFFERSON ELEMENTARY Architectural Recommendations:

- 1. Replace the single glazed window systems with double glazed systems.
- 2. Patch the broken precast concrete window head trim.
- 3. Replace the oldest sections of the roof.
- 4. Create a direct path from the entry vestibule to the main office. Replace the carpet tile at the main entry.
- 5. Provide new casework/carpet in the administrative area.
- 6. Replace damaged 2x2 and 2x4 ceiling tile throughout the building.
- Repair roof area by old gym. Replace existing ceiling tile with new ceiling system. Paint gym walls.
 Replace broken glass block windows with new windows.
- 8. Paint interior door frames. Repair and refinish interior doors.
- 9. Replace serving kitchen casework/countertops.
- 10. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 11. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 12. Paint corridor and public space walls. Review remaining unpainted areas (classrooms) for worn or dirty paint to be repainted.
- 13. Add an additional staff restroom.
- 14. Add storage for cafe tables and phy-ed equipment.
- 15. Add sound absorptive panels in cafetorium.

HVAC Recommendations:

- The steam heating system and classroom unit ventilators were recently replaced with a hot water heating system. The ATC system was also replaced with DDC control. The systems are in good condition and only require routine maintenance at this time.
- 2. The gas fired rooftop for the 300 Wing Classrooms is in need of replacement. The unit is currently a single zone type serving multiple classrooms. The unit should be replaced with a unit designed to provide individual control for multiple zones.
- The unit ventilators and hot water piping installed was designed for addition of air conditioning via a two pipe heating/cooling system. Installation of air conditioning will include a roof or grade mounted

air cooled chiller, piping, pumps and heating/cooling changeover control.

Plumbing Recommendations:

- 1. The facility has experienced some blockages and back-ups within the building. The blockages should be cleared and repaired as required. The overall sanitary waste/vent piping system is in fair condition
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of portions of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Install energy efficient lighting in cafetorium.
- 3. Complete lighting efficiency upgrades.
- 4. Install additional occupancy sensors for areas not currently covered.
- 5. Emergency lighting should be reviewed as part of any lighting improvement project.
- 6. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 7. Owner identified a need to replace the Master Clock system for the building as part of their future needs.

LINCOLN ELEMENTARY Architectural:

Lincoln Elementary School was built in 1964 and is located at 219 Gould Street, in Beaver Dam, Wisconsin. The approximately 38,000 square foot facility is located on a site of 5.6 acres. The building contains two floors with a small mechanical and storage basement by the original gym. There were additions in 1976 and 1998. There is an elevator that connects the two main floors.

The front of the building faces to the south while parking lot access is to the north. The drive and parking lot asphalt are in fair condition.

There are damaged HVAC vents on the north façade of the building.

Parent drop off and staff parking is on the north side of the building. The bus drop off is on the street on the south side of the building and a distance from the building.

The windows are single glazed and should be replaced. The overhead light fixture on the north side of the building has exposed wire connections that should be repaired.



There are wooden storage sheds on both the north side and south side of the building, which are in poor condition and should be repaired or replaced. Approximately 77% of the roof is 20 years old or older and should be replaced.

The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces south and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The carpet tile at the entry is worn.

The main office area has a 2x2 acoustical ceiling tile in good condition. The restroom within the administrative area lacks ADA compliant hardware and is not ADA compliant. The door to the teacher workroom which is connected to the main office does not have ADA compliant hardware.



The main corridors are adequately sized. Student storage is accomplished with hooks and a shelf. The corridor floors are vinyl composition tile, all are in good condition. The entrances have carpet squares which are worn. The ceilings are 2x2 acoustical ceiling tile, all are in fair condition however the grids are old and are yellowing. There is a small amount of ceiling tile by the north playground entrance which should be replaced. Several of the entrances have rusting frames and/or door leaves and should be repaired and painted.

In general the interior door frames and doors are in good repair. There are areas of the main corridor and restroom walls that should be painted.

The old gym has a wood floor which is in good condition. The stage area is not accessible.

The multi-purpose room has a vinyl composition tile floor which is in good condition. The serving kitchen has PLAM countertops and casework which is chipped.



The classrooms have either vinyl composition tile or vinyl asbestos tile. The floor tile is in good condition. The library and computer lab have older carpet which should be replaced.

The classrooms generally have 2x2 acoustical lay-in ceiling tile which is in fair condition, but there are areas of water stained ceiling tile that should be replaced. The ceiling grid tile is aged and is yellowing.

Most of the interior of the building (approximately 90%) is located on an accessible path. Most of the interior door hardware is ADA compliant. Most of the restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the restrooms are in fair/good condition, however some of the toilet partitions should be replaced as they are rusting.

The building is not fire sprinklered.

LINCOLN ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by a hot water heating system with two gas fired, forced draft, steel fire box, hot water boilers. The boilers are original to the building and were installed in 1964.

Hot water circulating pumps in the Boiler Room supply a hot water piping system routed in tunnels around the perimeter of the building. Hot water supply and return risers are extended up to terminal heating units on the first and second rooms.

The 1998 addition Multipurpose Room, Library and Library Work Room are heated by separate single zone rooftop air handling units with hot water heating coils.

Ventilation and Air Conditioning System:

The Classrooms are ventilated by vertical unit ventilators installed below the windows at the perimeter walls with an outside air duct extended through the wall to a louver. Supply air dispenses from the unit into the room.

The Gymnasium is ventilated by an indoor air handling unit installed in a Mechanical Mezzanine adjacent to the Stage with supply ductwork routed to ceiling outlets in the Gymnasium. Return air is ducted to the perimeter pipe tunnel and up through the floor to the air handling unit.

The Multipurpose Room, Library and Library Work Room are ventilated by separate rooftop air conditioning units. Supply and return ductwork is extended from each unit to ceiling supply and return air outlets.

The 1964 Building and 1976 Addition are not air conditioned. A window air conditioner was noted in the General Office and a package terminal air conditioner is installed in the Office/Classroom adjacent to Classroom 106.

The single zone rooftop units serving the 2001 Addition provide air conditioning to the areas they serve.

Automatic Temperature Controls:

Automatic temperature controls for the 1964 Building and 1976 Addition are pneumatic. Two simplex temperature control compressors and an air dryer supply compressed air to the control system to operate thermostats, controllers, valve/damper actuators, etc. for the unit ventilations, gym air handling unit, radiator and heaters.

The rooftop units are controlled by integral manufacturer supplied electric controls for heating, economizer and cooling control.

DDC controls have been installed to provide start/stop control and monitoring of the boiler system, unit ventilators and rooftop units.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on site computer workstation or the internet.

LINCOLN ELEMENTARY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system.

Domestic Water System:

The building is supplied from a City water service main with water meter.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the later building additions.

The domestic hot water for the building is supplied by an atmospheric gas fired, water heater installed in the Boiler Room. The water heater appears to be 30 years old.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets: (1964 Building)

Water closets are floor set (first floor) and wall hung (second floor) with exposed flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are exposed and operated via timer or door switch.

Lavatories are wall hung with faucet and CW/HW handles. Fixtures are not ADA compliant.

Boy's and Girl's toilets accessible from the playground have had the plumbing fixtures removed and rooms are used for storage.

Staff Toilet: (1964 Building) Water closet has been removed.

Lavatory is wall hung with face mounted faucet and CW/HW handles.

Boy's/Girl's Toilets: (1998 Addition)

Water closets are wall hung, exposed flush valve type. Fixtures appear to be ADA complaint.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung with single lever mixing faucet. Fixtures appear to be ADA complaint.

Locker Rooms:

The Locker Rooms are no longer in use. The shower valve handles have been removed and the rooms are currently used for storage.

The Boy' and Girl's Lounge Rooms are each provided with wall hung flush valve toilet and lavatory with front mounted faucet and CW/HW handles.

Kitchen:

Double compartment stainless steel sink with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

Pre-rinse unit with hand spray and disposal.

In-floor grease interceptor adjacent to the double compartment sink.

Classroom Sinks: (1964 Building)

Enamel cast iron drop-in type installed in casework. Faucet and trim varies due to repairs over the years. Sinks were provided with integral drinking fountain. Drinking fountains are disconnected or removed as failures occur.

Classroom Sinks: (1976 Addition)

Enamel cast iron drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles and integral drinking fountain.

Classroom Sinks: (1998 Addition)

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles.

Teachers Lounge:

Water closet is wall hung flush valve type. Fixture is not ADA complaint. Lavatory is wall hung with face mounted faucet and CW/HW handles.

Double compartment stainless steel drop-in kitchen sink installed in casework with swing spout and CW/HW handles.

Drinking Fountains: (1964 Building)

Wall hung vitreous china drinking fountain with chrome spout and valve handle.

Electric Water Coolers:

Single standard height electric water coolers are installed in the first and second floor corridors.

LINCOLN ELEMENTARY Electrical:

Electrical Service & Distribution:

This main building is currently served by an 800 amp, 208Y/120 volt, 3-phase, 4-wire utility service. The majority of the equipment is Square D, circuit breaker type and was installed in approximately 1995 and is in good condition.

Surge Suppression:

A Current Technology "SF" unit was noted on the electric service.

Generator:

A generator, transfer switch and other equipment appears to have been abandoned in place as part of the electric service replacement in 1995.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 1999. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has a Simplex 4020 fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. The installation does not appear to completely comply with current code requirements. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. The system is relatively close to end of useful life and should be considered for upgrade or replacement.

The elevator did not appear to have control modules or smoke detectors to facilitate elevator recall functions.

Master Clock System:

An existing Simplex 2350 master clock system was noted.

Intercom/Paging System:

The building appears to have a Simplex paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.

LINCOLN ELEMENTARY SCHOOL Architectural Recommendations:

- 1. Replace the single glazed window systems with double glazed systems.
- 2. Repair or replace the wooden sheds.
- 3. Replace the oldest sections of the roof.
- 4. Create a direct path from the entry vestibule to the main office (secure entry concept). Replace the carpet tile at all entries.
- 5. Replace old and/or damaged 2x2 ceiling tile and grid throughout the building.
- 6. Replace serving kitchen casework/countertops.
- 7. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 8. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 9. Paint corridor and public space walls. Review remaining unpainted areas (classrooms) for worn or dirty paint to be repainted.
- 10. Replace rusting toilet partitions.

HVAC Recommendations:

- 1. The hot water boilers are original, have exceeded their expected useful life and are inefficient compared to hew boilers. The unit should be scheduled for replacement.
- The unit ventilators are original and have exceeded their expected useful life. The units have pneumatic controls which are not compatible with DDC controls the District has been installing in their facilities.
- 3. Rooftop units over 10 years old and should be prioritized, scheduled and budgeted for replacement.
- 4. Air conditioning of the building should be considered at the time of the boiler and unit ventilator replacement. Installation of air conditioning may have an impact of the scope and type of boilers and heating system replacement design.

Plumbing Recommendations:

 The facility has experienced some blockages and back-ups within the building. The blockages should be cleared and repaired as required. The

- overall sanitary waste/vent piping system is in fair condition.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of portions of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades in corridors.
- 3. Install additional occupancy sensors for areas not currently covered.
- 4. Emergency lighting should be reviewed as part of any lighting improvement project.
- 5. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 6. It is recommended that the fire alarm system be replaced within the next 5 years.

PRAIRIE VIEW ELEMENTARY Architectural:

Prairie View Elementary School was built in 1998 and is located at 510 N. Crystal Lake Road, in Beaver Dam, Wisconsin. The approximately 72,000 square foot facility is located on a site of 17.5 acres. The building contains one floor,



There is a parking and drop offs on the south and east side of the building. The parking on the east side of the building was recently seal coated. The other asphalt is in fair condition. The play equipment on the north side of the building is in good condition.

Due to the low roof eves, there is a concern over easy access to the roof of the building.

There is a concrete block pulled away from the base of a window at the northwest classroom pod of the building which should be repaired. (BDUSD Update: repaired).

There is a wood shed on the west side of the building which is in fair/poor condition and should be repaired.

None of the roof is 20 years old or older.

The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces south and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras.

The main office area has a 2x4 acoustical ceiling tile in good condition.

The main corridors are adequately sized. Student storage is accomplished with hooks and a shelf. The corridor floors are vinyl composition tile, all are in good condition. The entrances have carpet squares which are worn but in generally good repair (with the exception of the western entrance which is stained). The ceilings are 2x4 acoustical ceiling tile, all are in fair condition due to the fact that they are 'bellied' due to moisture absorption and sagging.

In general the interior door frames and doors are in good repair.



The gym has a wood floor which is in good condition.

The multi-purpose area has a vinyl composition tile floor which is in good condition. The serving kitchen has PLAM countertops and casework which is chipped.

The classrooms have vinyl composition tile or carpet, all of which is in good condition.

The library casework is delaminating and chipping and should be replaced

The classrooms generally have 2x4 acoustical lay-in ceiling tile which is in fair condition due to the fact that they are 'bellied' due to moisture absorption and sagging, but there are areas of water stained ceiling tile that should be replaced. Some of the window stools are delaminating.



The interior of the building is located on an accessible path. The interior door hardware is ADA compliant. Half of the restrooms are ADA compliant. Most of the drinking fountains are ADA compliant.

Most of the restrooms are in fair/good condition, however some of the toilet partitions should be replaced as they are rusting. All of the restrooms should be painted.

The building is not fire sprinklered.

PRAIRIE VIEW ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by three natural gas fired, medium efficiency, vertical copper coil, hot water boilers. The original boilers installed in 1998 when the building was constructed experienced heat exchanger failures and were replaced with boilers of a different manufacturer.

A primary/secondary pumping system with hot water supply and return piping, routed above the ceilings throughout the building, supply air handling unit heating coils, variable volume unit reheat coils, radiation and heaters in the building.

Ventilation and Air Conditioning System:

The building is ventilated and air conditioned by six indoor package air handling units located in Mechanical Mezzanines in the East Classroom Wing, Central Classroom Wing, and between the Multipurpose and Gymnasium. The air handling units are as follows:

- AH-1: East Classroom Wing Variable Volume
- AH-2: Administration Offices Constant Volume
- AH-3: IMC & Core Areas Multi Zone
- AH-4: Center & West Classroom Wing Areas Variable Volume
- AH-5: Multipurpose Room Multi Zone
- AH-6: Gymnasium Single Zone

Air conditioning is provided for areas served by air handling units 1 through 5. Roof mounted air cooled condensing units with refrigerant piping by routed to direct expansion cooling coils in each air handling unit.

Roof mounted exhaust fans are ducted to ceiling outlets in toilet rooms, janitor's closets, kitchen, etc.

Automatic Temperature Controls:

When constructed the building was provided with a DDC automatic temperature control system. Maintenance and upgrade of the system was expensive and the DDC controls have been replaced with new DDC controls consistent with that of other District facilities.

The DDC control system provides for complete control, monitoring, and adjustment of the building HVAC system via on-site computer or over the Internet.

PRAIRIE VIEW ELEMENTARY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The above ground waste and vent piping material is PVC pipe and fittings.

The underground waste and vent piping material is assumed to PVC pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is provided for the flat portions of the roof over the Gym and Multi-Purpose rooms. Downspout piping is routed down through the building and through the exterior wall to discharge on grade. The pitched areas of roof are pro-

vided with gutters and downspouts extended down to discharge on grade.

Domestic Water System:

The building is supplied from a City water service main with water meter.

The existing domestic water distribution system consists of copper pipe and fittings.

The domestic hot water for the building is supplied by high efficiency gas fired, water heater installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in good condition, with the following observations:

Boy's/Girl's Toilets:

Water closets are wall hung with exposed battery operated flush valves.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung with faucet with sensor operated faucets.

Toilets rooms adjacent to the Multi-Purpose room are ADA complaint. Toilet rooms in each classroom wings are not ADA complaint.

Staff And Office Toilets:

Water closet is wall hung with battery operated exposed electric flush valves. Fixtures appear to be ADA complaint.

Lavatory is wall hung with sensor operated faucet. Fixtures appear to be ADA compliant.

Kindergarten/Early Childhood Toilets:

Water closets are floor set flush valve type. Fixtures are child height type.

A wall hung Bradley wash fountain is provided outside each set of Kindergarten/Early Childhood toilets.

Locker Rooms:

Locker rooms are provided for dressing, but do not have showers or toilet fixtures.

Kitchen:

Double compartment stainless steel sink with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

Pre-rinse unit with hand spray and disposal.

Commercial under counter dishwasher with electric booster heater.

In-floor grease interceptor adjacent to the double compartment sink.

Classroom Sinks:

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles.

Electric Water Coolers:

Dual high/low, ADA compliant refrigerated electric water cooler is located by the Multipurpose toilet rooms.

Single standard height electric water coolers are installed in the corridors of the Classroom wings and the Gymnasium.

PRAIRIE VIEW ELEMENTARY Electrical:

Electrical Service & Distribution:

This main building is currently served by an 2000 amp, 208Y/120 volt, 3-phase, 4-wire utility service. The majority of the equipment is Square D, circuit breaker type and was installed in approximately 1998 and is in good condition.

Surge Suppression:

A Current Technology "SF" unit was noted on the electric service.

Generator:

The building does not have a generator.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. Controls in rooms generally appear to be manual controls. Occupancy sensors should be added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units supplied with LED type lamps.

Fire Alarm System:

The building has an EST fire alarm system installed. The system was upgraded to the EST front end in 2005. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes however, it appear to have met the intent of the code at time of installation. Example – current codes would most likely require horns installed in all classrooms to provide the required sound pressure everywhere in the building. Currently classrooms appear to only have visual devices.

Master Clock/Bell System:

An existing master clock/bell system was noted.

Intercom/Paging System:

The building appears to have a intercom/paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.

PRAIRIE VIEW ELEMENTARY SCHOOL

Architectural Recommendations:

- 1. Repair damage to wood shed.
- 2. Replace damaged 2x4 ceiling tile.
- 3. Replace serving kitchen casework/countertops.
- 4. Replace library casework.
- 5. Paint restroom walls.
- 6. Replace rusting toilet partitions.
- 7. Replace warped or delaminating window stools.

HVAC Recommendations:

- 1. The building is 13 years old and the existing HVAC system is in good condition. The systems are in good condition and only require routine maintenance at this time.
- The original boilers which experienced failed heat exchangers have been replaced with boilers as used in the Middle School which have proved to be reliable.
- 3. The roof mounted air cooled condensing units are original and 13 year old. The units have not exceeded their useful life and are not in need of immediate replacement. It should be noted the units utilize Refrigerant 22 which is an HCFC refrigerant and is no longer is production. Replacement of the condensing unit will also likely require replacement of the associated refrigerant piping and air handling unit cooling coil. Replacement compressors and recycled refrigerant is currently available and will be for the foreseeable future. Prior to budgeting and scheduling the unit for replacement the cost should be evaluated vs. repairing and replacing failed components on the existing units.

Plumbing Recommendations:

- 1. The building is 13 years old and the plumbing systems are in good condition. District Maintenance Staff did not indicate any problems with the plumbing systems.
- 2. The building was constructed after 1992 and therefore should meet the requirements of ADA regarding the installed plumbing fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Emergency lighting should be reviewed as part of any lighting improvement project.
- 3. Occupancy sensors for lighting control is recommended for increased energy efficiency.

SOUTH BEAVER DAM ELEMENTARY Architectural:

South Beaver Dam Elementary School was built in 1956 and is located at W9787 County Road D, in Beaver Dam, Wisconsin. The approximately 20,600 square foot facility is located on a site of 5.0 acres. The building contains one floor. There were additions in 1964, 1991 and 1998. Two of the additions were of mobile classrooms.

It appears that the bus drop off and visitor parking occurs at the circle drive off of County Road D on the north side of the building. Some recent asphalt patching has occurred at this drive. The remaining asphalt is in fair condition. Staff parking is located off of County Road DE on the west side.



There are some single glazed windows and some double glazed windows on the building. The single glazed windows should be replaced with double glazed windows.

There is some loose mortar at the two window sills on the north and south sides of the building. The wood fascia on the south side of the building needs to be painted.

The mobile classroom units have painted wood and masonite siding. One mobile classroom unit has single glazed windows.

Approximately 18% of the roof is 20 years old or older and should be replaced.

The structure of the older sections of the building is masonry load bearing with brick exterior. The mobile classrooms are wood stud with clapboard siding. The entrance to the building faces north and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras.

The main office area is extremely small. The health area occurs directly in front of the reception desk. The main office area has a 2x2 acoustical ceiling tile in good condition. The principals office is very small with a small non-ADA compliant restroom adjacent.

The main corridors are adequately sized. Student storage is accomplished with hooks and a shelf. The corridor floors are vinyl composition tile, all are in good condition. The entrances have carpet squares which are worn but serviceable. The ceilings are 2x2 acoustical ceiling tile, all are in good condition.



In general the interior door frames and doors are in good repair. There are areas of the main corridor and restroom walls that should be painted.

The gym has a VCT floor which is in good condition, however the game striping should be redone. The stage area is not accessible. The serving kitchen has PLAM countertops and casework which is chipped.

The classrooms have vinyl composition tile, which is in good condition.

The library and computer lab have older carpet which should be replaced.



Some of the classrooms have 2x2 acoustical lay-in ceiling tile which is in good condition, however some of the classrooms still have the original 1'x1' acoustical tile which should be replaced.

Most of the interior of the building (approximately 95%) is located on an accessible path. Most of the interior door hardware is ADA compliant. The large restrooms are ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

The large restrooms are in fair/good condition.

The teacher workroom has vinyl asbestos tile and a 2x4 lay-in ceiling which is sagging.

The main access to the playground is not flush with grade but requires a step down. This should be made flush both for ADA compliance and to avoid tripping.

The building is not fire sprinklered.

SOUTH BEAVER DAM ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by a natural gas fired, forced draft, sectional cast iron, low pressure steam boiler. The boiler was installed in 2004 to replace the original steam boiler.

Steam and condensate return piping is routed in tunnels around the perimeter of the building with risers up through the floor connected to unit ventilators, radiation, etc.

Steam condensate drains by gravity to a condensate pump in the pipe tunnel and is pumped to the boiler feed water receiver in the Boiler Room and pumped to the boiler to maintain proper boiler water level.

A chemical feed pump controlled with the boiler feed water pump provides boiler chemical treatment.

Heating for each of the two modular classroom buildings is provided by a high efficiency natural gas fired furnace.

Ventilation and Air Conditioning System:

The original building classrooms are ventilated by vertical unit ventilators installed below the windows at the perimeter walls with outside air duct extended through the wall to a louver. Supply air discharges from the unit into the room.

The Gymnasium is ventilated by an indoor air handling unit installed in a Mechanical Mezzanine adjacent to the stage with supply ductwork routed to ceiling outlets in the gymnasium. Return air is ducted from outlets near the floor to the air handling unit inlet.

The modular classroom building is ventilated by a gas fired furnace. Each modular classroom building is a single zone. An outside air damper for each furnace is indexed to supply minimum outside air during the heating season or 100% outside air during spring and fall when outside air temperatures are appropriate.

Air conditioning for each modular classroom is provided by a grade mounted air cooled condensing unit connected to a refrigerant cooling coil at the furnace outlet. The air conditioning unit for Modular Classroom No 1 has failed. District Maintenance Staff indicated the air conditioning would not be repaired or replaced until the future of the building is determined.

Roof mounted exhaust fans are ducted to ceiling outlets in toilet rooms, janitor's closets, kitchen, etc.

Automatic Temperature Controls:

Automatic temperature controls for the building are pneumatic. A simplex temperature control compressor and an air dryer supply compressed air to the control system to operate thermostats, controllers, valve/damper actuators, etc. for the unit ventilations, gym air handling unit, radiation and heaters.

The modular classroom furnaces controlled by low voltage thermostats for heating and cooling control.

DDC controls have been installed to provide start/stop control and monitoring of the boiler system, unit ventilators, gym air handling unit and modular classroom furnaces.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the internet.

SOUTH BEAVER DAM ELEMENTARY Plumbing:

Sanitary Drainage System:

The building is served by an on-site septic system and drainage field. The original steel septic tank was replaced with two (2) concrete tanks and the seepage bed upgraded in 1991. The seepage bed was checked in 1998 and found to be in good condition.

The existing septic system is rated for a maximum of population of 135.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is provided for the roof of the original building. Downspout piping is routed down through the building and through the exterior wall to discharge on grade. The temporary classroom buildings are provided with pitched roofs which drain to exterior gutters with downspouts and discharge to grade.

Domestic Water System:

The building is supplied from an on-site well.

The well is tested per DNR regulations. There have been two instances in the last 8 years when water has tested positive for coli-form bacteria. Following each positive test the well was been taken out of service, disinfected and put back in service. The source of the contamination was not determined, but is attributed to farm field run off.

Beginning in the fall of this year the well has tested high for Thallium. In an attempt to reduce the Thallium level a water softener was installed. All water, except make-up to the steam boiler is softened. Based on the most current test Thallium levels in the water supply have dropped below the permissible exposure levels. The water supply will continue to be tested and monitored over the next four months.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in areas of repairs or new work.

The domestic hot water for the building is supplied by an atmospheric gas fired, water heater installed in the Boiler Room. The water heater appears to be 30 years old.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets:

Water closets are floor set with flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are concealed and operated via timer or door switch.



Lavatories are wall hung with faucet and CW/HW handles. One lavatory by each toilet appears to be mounted at ADA height.

Staff Toilet:

Water closet is floor set flush tank type. Fixture is not ADA compliant.

Lavatory is wall hung with faucet and CW/HW handles. Fixture is not ADA compliant.

Kitchen:

Freestanding three compartment stainless steel sink. The first compartment is provided with a pre-rinse spray and disposal and the remaining two compartments with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

In-floor grease interceptor adjacent to the compartment sink.

Classroom Sinks:

Enamel cast iron drop-in type installed in casework. Faucet and trim varies due to repairs over the years. Sinks were provided with integral drinking fountain. Drinking fountains are disconnected or removed as failures occur.

Classroom Sinks: (Temporary Classroom)

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with single lever mixing valve.

Electric Water Coolers:

Single standard height electric water coolers are installed in the corridors.

SOUTH BEAVER DAM ELEMENTARY <u>Electrical:</u>

Electrical Service & Distribution:

This Main building is currently served by a 400 amp, 120/240 volt, single -phase service. The service equipment appears to be original to the building which was built in 1956. There appears to be a separate services brought in to feed the temporary classroom addition dated 1991 and 1998. Generally the electrical equipment appears to be in fair/poor condition mostly due to age. Expansion or upgrades to the system will be difficult.

Surge Suppression:

No suppressor was noted.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 2002. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures. No emergency lighting was observed in the gymnasium.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has an EST fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Surface raceway and boxes used to install the fire alarm devices are not mechanically attached to the wall surface. Boxes and surface raceway appear to be stuck on the walls with adhesive tape only. Several devices were hanging loose. The installation does not appear to completely comply with current code requirements. The system is relatively new and appears to be in fairly good condition.

Clock/Bell System:

An existing 1460 Master Time Programmer with a Com-Tronics, Inc. Madison, WI sticker was noted.

Intercom/Paging System:

The building appears to have a Bogen paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.

SOUTH BEAVER DAM ELEMENTARY SCHOOL

Architectural Recommendations:

- 1. Replace the single glazed window systems with double glazed systems.
- 2. Repair the loose mortar on the building.
- 3. Replace the oldest sections of the roof.
- 4. Create a direct path from the entry vestibule to the main office (secure entry concept).
- 5. Replace old 1x1 ceiling tile with 2x2 ceiling/grid.
- 6. Replace serving kitchen casework/countertops.
- 7. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 8. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 9. Restripe gym striping.
- 10. Replace carpet in computer lab and library.
- 11. Create flush transition from south entry to playground.

HVAC Recommendations:

- 1. If the building is to remain for the long term the heating system should be replaced with a hot water heating system with high efficiency boilers pumps, piping system and unit ventilators.
- 2. If building heating system conversion from steam to hot water is being considered installation of air conditioning should also be evaluated. Air conditioning of the building may have an impact on the type of heating system installed.
- 3. If the modular classroom buildings are to remain the furnaces should be scheduled and budgeted for replacement and the air conditioning for Modular Classroom should be repaired.
- Installation of DDC controls compatible with the District wide DDC system should be considered in conjunction with anticipated HVAC upgrades at the building.

Plumbing Recommendations:

 The well has tested for coli-form bacteria on two occasions. The well was disinfected and put back into service. A new well to a deeper elevation could be drilled however it is not possible to pre-

- dict if the water quality at the lower elevation would be below the recommended contaminant levels.
- 2. It was indicated that the water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. The water supply to the building is currently softened as described above for removal of Thallium from the water. The District has received the results of the most current water test and Thallium levels are now below the permissible exposure levels. The District will continue to test and monitor Thallium levels over the next four months.
- 4. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 5. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 6. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 7. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades.
- 3. Install additional occupancy sensors for areas not currently covered.
- 4. Emergency lighting should be reviewed as part of any lighting improvement project.
- 5. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 6. If the building is to be used for more than 10 years it is recommended that the electric service be replaced with new circuit breaker equipment.

TRENTON ELEMENTARY Architectural:

Trenton Elementary School was built in 1959 and is located at N8954 County Road W, in Beaver Dam, Wisconsin. The approximately 18,800 square foot facility is located on a site of 5.0 acres. The building contains one floor. There were additions in 1971, 1995 and 1998. Two of the additions were of mobile classrooms.

The only access drive to the building is a circle drive from County Road W. The asphalt approach and parking is in fair/poor condition and should be replaced.

The building is served by overhead electrical wiring on the south side of the building. There is a surface mounted light fixture on the north side with exposed wiring which should be repaired (BDUSD Update: repaired).

There is some cracking of the brick and mortar joints on the north side of the building, which should be repaired (BDUSD Update: repaired).



There are damaged wood window sills/frames which should be replaced. There are damaged wood columns in the front of the building which should be replaced. The two mobile classroom units have wood siding which is in good condition.

Most of the windows on the building are single glazed and should be replaced with double glazed window units.



Approximately 48% of the roof is 20 years old or older and should be replaced.

The structure of the older sections of the building is masonry load bearing with brick exterior. The mobile classrooms are wood stud with clapboard siding.

The entrance to the building faces west and has a lobby adjacent to a conference room. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras.

The main office area is adequately sized. The main office area has a 2x4 acoustical ceiling tile in good condition. The principals office is small, but adequate. There is a small conference room adjacent to the officewith a small non-ADA compliant restroom adjacent. The flooring is VCT which is in good condition.

The main corridors are adequately sized, however there is furniture in some of the hallways, which should be removed to allow safe use of the hallway. Student storage is accomplished with hooks and a shelf. The corridor floors are vinyl composition tile, all are in good condition. The entrances have carpet squares which are worn but serviceable. The ceilings are 2x4 acoustical ceiling tile, most of which are in good condition (need to replace approximately 5% due to damage).

In general the interior door frames and doors are in good repair.



The gym has a vinyl asbestos composition floor which is in good condition. The entry doors to the gym are damaged and should be replaced. The storage area to the east of the gym has a painted floor which is chipped. The serving kitchen has PLAM countertops and casework. The serving kitchen has a VCT floor.

The classrooms have either vinyl composition tile, vinyl asbestos composition tile, or carpet over vinyl asbestos composition tile, most of which are in good condition. The casework is PLAM and is original to the building and most is chipped. Some of the classrooms have 2x4 acoustical lay-in ceiling tile which is in good condition, however some of the classrooms still have the original 1'x1' acoustical tile which should be replaced. There are areas of the ceiling damaged by water from the roof.



The library and computer lab have older carpet which should be replaced. The ceiling is a 2x4 lay in type, some of which has water damage from the roof.

The Art/Music and Title 1 area are housed in one of the movable classrooms. The material conditions are good.

The southern movable classrooms which house classrooms smell musty. The carpet is old, stained and is buckled creating a tripping hazard. The ceilings are 2x4 acoustical lay-in ceiling tile which is in fair/good condition. There is some ceiling tile damaged by water from the roof. The exit doors/frames adjacent to the classrooms are rusty.

The interior of the building is located on an accessible path. Most of the interior door hardware is ADA compliant. The large restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. There are ADA compliant restrooms adjacent to the gym. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

The large restrooms are in fair condition. The ceiling grids are rusty. The original smaller restrooms are in fair/poor condition and should be painted.

There does not appear to be any storage areas for the school.



The building is not fire sprinklered.

TRENTON ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by a natural gas fired, forced draft, sectional cast iron, low pressure steam boiler. The boiler was installed in 1997 to replace the original steam boiler.

Steam and condensate return piping is routed in tunnels around the perimeter of the building with risers up through the floor connected to unit ventilators, radiation etc.

Steam condensate drains by gravity to the boiler feed water unit condensate receiver in the Boiler Room and is pumped to the boiler to maintain proper boiler water level.

A chemical feed pump controlled with the boiler feed water pump provides boiler chemical treatment.

Heating for each of the two temporary classroom modules is provided by two high efficiency natural gas fired furnaces.

Ventilation and Air Conditioning System:

The original building classrooms and gymnasium are ventilated by vertical unit ventilators installed below the windows at the perimeter walls with outside air duct extended through the wall to a louver. Supply air discharges from the unit into the room.

The modular classrooms are each ventilated by two gas fired furnaces. Each furnace serves a single classroom per module. An outside air damper for each furnace is indexed to supply minimum outside air during the heating season or 100% outside air during spring and fall when outside air temperatures are appropriate.

Air conditioning for each modular classroom is provided by a grade mounted air cooled condensing unit connected to a refrigerant cooling coil at the furnace discharge. The heating system in Module No 1 is original and the furnaces in Module No 2 were replaced in 1999.

Roof mounted exhaust fans are ducted to ceiling outlets in toilet rooms, janitor's closets, kitchen, etc.

Automatic Temperature Controls:

Automatic temperature controls for the building are pneumatic. A simplex temperature control compressor and an air dryer supply compressed air to the control system to operate thermostats, controllers, valve/damper actuators, etc. for the unit ventilations, gym air handling unit, radiation and heaters.

The modular classroom furnaces controlled by low voltage thermostats for heating and cooling control.

DDC controls have been installed to provide start/stop control and monitoring of the boiler system, unit ventilators, gym air handling unit and modular classroom furnaces.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

TRENTON ELEMENTARY Plumbing:

Sanitary Drainage System:

The building is served by an on-site septic system and drainage field. The original steel septic tank was replaced with a concrete tank in 1995. The seepage bed was also upgraded at this time. In 1999 a second septic tank was installed and connected to the seepage field when the second set of modular classrooms was installed.

The existing septic system is rated for a maximum of population of 200.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is provided for the roof of the original building. Downspout piping is routed down through the building and through the exterior wall to discharge on grade. The temporary classroom buildings are provided with pitched roofs which drain to exterior gutters with downspouts and discharge to grade.

Domestic Water System:

The building is supplied from an on-site well.

The well is tested per DNR regulations and over the last 30 years has tested high in nitrate levels. The high nitrate levels have required a permanent posting that tested levels exceed safety standards and water is not suitable for consumption by infants.

The District provides bottled drinking water for students and staff.

The existing domestic water distribution system consists of galvanized steel pipe and fittings.

The domestic hot water for the building is supplied by a high efficiency gas fired, water heater installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets:

Water closets are floor set with flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are concealed and operated via timer or door switch.

Lavatories are wall hung with faucet and CW/HW handles. One lavatory by each toilet appears to be mounted at ADA height.

Staff Toilet:

Water closet is floor set flush tank type. Fixture is not ADA compliant.

Lavatory is wall hung with faucet and CW/HW handles. Fixture is not ADA compliant.

Kitchen:

Three compartment stainless steel sink. The first compartment is provided with a pre-rinse spray and disposal and the remaining two compartments with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

In-floor grease interceptor adjacent to the compartment sink.

Classroom Sinks:

Enamel cast iron drop-in type installed in casework. Faucet and trim varies due to repairs over the years. Sinks were provided with integral drinking fountain. Drinking fountains are disconnected or removed as failures occur.

Electric Water Coolers:

Single standard height electric water coolers are installed in the corridors.

TRENTON ELEMENTARY Electrical:

Electrical Service & Distribution:

This main building is currently served by a 120/240 volt, single phase utility service. The service does not have a main service disconnect and it appears the service was installed using the "6 disconnect rule" where the building has (5) separate service disconnects out of an allowed (6). The service equipment is generally Square D equipment and appears to be original to the building which was built in 1959. One fusible panel was noted in the Boiler Room. There appears to be a separate service brought in to feed the temporary classroom addition dated 1995. Generally the electrical equipment appears to be in fair/poor condition mostly due to age. Expansion or upgrades to the system will be difficult.

Surge Suppression:

None noted.

Generator:

None noted.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 1996. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has an EST fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Strobes as installed do not appear to meet the current requirements of the ADA. The installation does not appear to completely comply with current code requirements. The system is relatively new and appears to be in fairly good condition.

Intercom/Paging System:

The building appears to have an older Ducane speakers in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data closet was observed.

TRENTON ELEMENTARY SCHOOL Architectural Recommendations:

- 1. Replace the single glazed windows with double glazed window units.
- 2. Replace the poor condition asphalt.
- 3. Replace the damaged wood window sills.
- 4. Replace the oldest sections of the roof.
- 5. Replace old 2x4 ceiling tile and grid with 2x2 ceiling/grid.
- 6. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 7. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 8. Paint gym storage area.
- 9. Replace carpet in computer lab and library.
- 10. Replace carpet in southerly mobile classroom wing.
- 11. Replace gym interior doors.
- 12. Repair exterior rusty doors/frames.

HVAC Recommendations:

- 1. If the building is to remain for the long term the heating system should be replaced with a hot water heating system with high efficiency boilers pumps, piping system and unit ventilators.
- 2. If building heating system conversion from steam to hot water is being considered installation of air conditioning should also be evaluated. Air conditioning of the building may have an impact on the type of heating system installed.
- If the modular classroom buildings are to remain the furnaces should be scheduled and budgeted for replacement and the air conditioning for Modular Classroom should be repaired.
- Installation of DDC controls compatible with the District wide DDC system should be considered in conjunction with anticipated HVAC upgrades at the building.

Plumbing Recommendations:

 The nitrate levels have tested above safety limits and the building has been posted that water is unsafe for consumption by infants. A new well to a deeper elevation could be drilled however it is not possible to predict if the water quality at the lower

- elevation would be below the recommended contaminant levels.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades.
- 3. Install additional occupancy sensors for areas not currently covered.
- 4. Emergency lighting should be reviewed as part of any lighting improvement project.
- 5. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 6. If the building is to be used for more than 10 years it is recommended that the electric service be replaced with new circuit breaker equipment.
- 7. It is recommended that a surge suppression device be added to the main electric service.
- 8. Owner identified a need to replace the master clock/bell system as part of their future needs plan.

WASHINGTON ELEMENTARY Architectural:

Washington Elementary School was built in 1949 and is located at 600 Grove Street, in Beaver Dam, Wisconsin. The approximately 48,400 square foot facility is located on a site of 4.5 acres. The building contains two floors. There were additions in 1959, 1992 and 1997.

There is a staff parking lot at the northeast corner of the building that is in good condition. It appears that bus drop off occurs on Grove Street at the front of the building.

The west side playground asphalt is in fair condition.

There is a wood storage shed at the west entrance which is in fair/poor condition and should be repaired. A building mounted light fixture on the west side of the building has exposed wiring which should be repaired. There is a crack in the exterior drywall at the east entrance to the building which should be repaired.



The masonry façade is in generally good repair. Approximately 1/3 of the windows are single pane windows which should be replaced with double pane window units.

Approximately 7% of the roof is 20 years old or older and should be replaced.

The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces south. The entry is approximately 75' from the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras.

The main office area is undersized.

The main corridors are adequately sized. Student storage is accomplished with student lockers for all grades except Kindergarten which have cubbies in a separate room. The corridor floors are vinyl composition tile or ceramic tile, all are in good condition. The entrances have carpet squares which are worn but serviceable. The ceilings are 2x2 acoustical ceiling tile, most of which are in good condition.

In general the interior door frames and doors are in good repair.

The gym has a wood floor which is in good condition.

The multi-purpose room is currently used for art, music and the cafeteria. The ceiling is 2x2 acoustic lay-in. Some of the ceiling tiles have water damage. The serving kitchen has PLAM countertops and casework. The serving kitchen has a VCT floor. The loading area door/frame are rusted.

The classrooms have either vinyl composition tile, vinyl asbestos composition tile, or carpet over vinyl asbestos composition tile, most of which are in good condition. Some of the carpet is either torn or buckled (approximately 15%). The casework is PLAM or PLAM/wood and is original to the building. Some of the classrooms have 2x2 acoustical lay-in ceiling tile which is in generally good condition, however some of the classrooms still have the original 1'x1' acoustical tile which should be replaced. There are areas of both the 1'x1' and 2x2 ceiling tile damaged by water from the roof.

Some of the original vinyl asbestos tile which is in good condition is visually distracting, such as the tile located in several kindergarten rooms (visible in photo).



The library and computer lab have older carpet which should be replaced. The ceiling is a 2x2 lay in type, some of which has water damage from the roof.



The old locker rooms are now used as storage. The doors/frames to the rooms are damaged/rusty. The hallway to the area is poorly lit.

The interior of the building is located on an accessible path. Approximately 50% of the interior door hardware is ADA compliant. Most of the large restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. There are ADA compliant restrooms adjacent to the multi-purpose room. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the large restrooms are in fair condition. The ceiling grids are rusty in the lower level restrooms.

The building is not fire sprinklered.

WASHINGTON ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by two natural gas fired, forced draft, sectional cast iron, low pressure steam boilers. The boilers were installed in 1998 to replace the original steam boilers.

Steam and condensate return piping is routed in tunnels around the perimeter of the building with risers up through the floor connected to unit ventilators, radiation, etc.

Steam condensate drains by gravity to separate condensate pumps in the Boiler Room and is pumped to the respective boiler feed water receiver and pumped to each boiler to maintain proper boiler water level.

Separate chemical feed pumps controlled with the respective boiler feed water pump provides boiler chemical treatment.

Ventilation and Air Conditioning System:

The building classrooms are ventilated by vertical unit ventilators installed below the windows at the perimeter walls with outside air duct extended through the wall to a louver. Supply air discharges from the unit into the room.

Several unit ventilators have been replace in recent years due to maintenance issues regarding coil leaks and cost of repairs.

Two unit ventilators serving classrooms in the 1992 Addition are horizontal suspended above the classroom ceiling and ducted to ceiling mounted supply air outlets

Single zone rooftop HVAC units are provided for the following areas:

- RT-1: Multipurpose Room
- RT-2: Entry Lobby and Corridor
- RT-3: Library
- RT-4: Gymnasium

Supply and return ductwork is routed from each rooftop unit at/above the ceilings to supply and return outlets.

Roof mounted exhaust fans are ducted to ceiling outlets in toilet rooms, janitor's closets, kitchen, etc.

Automatic Temperature Controls:

Automatic temperature controls for the building are pneumatic. A simplex temperature control compressor and an air dryer supply compressed air to the control system to operate thermostats, controllers, valve/damper actuators, etc. for the unit ventilations, radiation and heaters.

The rooftop units are controlled by integral manufacturer supplied controls for heating, economizer and cooling control.

DDC controls have been installed to provide start/stop control and monitoring of the boiler system, unit ventilators and rooftop units.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

WASHINGTON ELEMENTARY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system.

Domestic Water System:

The building is supplied from A City water service main with water meter.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the building additions.

The domestic hot water for the building is supplied by a high efficiency gas fired, water heater installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets: (1949 Building)

Water closets are wall hung with concealed flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung appear to be mix of original units and replacements. Lavatories are not ADA compliant.

Boy's/Girl's Toilets: (1959 Addition)

Water closets are wall hung with concealed flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type.

Lavatories in the ground floor are wall hung replacement units with sensor operated faucets. Lavatories on the first floor are original wall hung units with face mounted faucet and CW/HW handles.

Boy's/Girl's Toilets: (1997 Addition)

Water closets are wall hung flush valve type. Fixtures are ADA compliant.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung are ADA compliant.

Staff Toilet: (1997 Addition)

Water closet is wall hung with exposed manual flush

valve. Fixture is ADA compliant.

Lavatory is wall hung and ADA compliant.

Kindergarten Toilets:

Water closets are wall hung with exposed flush valves. Fixtures are not ADA compliant.

Lavatories are wall hung with face mounted faucet and CW/HW handles. Fixtures are not ADA compliant.

Locker Rooms:

The Locker Rooms are no longer in use. The rooms are currently used for storage.

The Boy' and Girl's Lounge Rooms are each provided with wall hung flush valve toilet and lavatory with front mounted faucet and CW/HW handles.

Kitchen:

Two double compartment stainless steel sink with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

Pre-rinse unit with hand spray and disposal.

In-floor grease interceptor adjacent to the double compartment sink.

Classroom Sinks: (1949 and 1959 Buildings)

Enamel cast iron drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles and internal drinking fountain.

Classroom Sinks: (1992 and 1997 Buildings)

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles.

Drink Fountains:

Wall hung vitreous china drinking fountain with chrome spout and valve handle.

Electric Water Coolers:

Dual high/low, ADA compliant refrigerated electric water coolers are installed near the 1976 addition toilet rooms and in the corridor of the 1992 Addition.

WASHINGTON ELEMENTARY Electrical:

Electrical Service & Distribution:

This main building is currently served by a 800 amp, 208Y/120 volt, 3-phase, 4-wire utility service. The majority of the equipment is Square D, circuit breaker type and was installed in approximately 1995 and is in good condition.

Surge Suppression:

A Current Technology "SF" unit was noted on the electric service.

Generator:

None noted.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 1999. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has a Simplex 4020 fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Example – current codes would most likely require horns installed in

all classrooms to provide the required sound pressure everywhere in the building. Currently classrooms appear to only have visual devices. Smoke detector spacing in the corridors appears to exceed recommended spacing. The installation does not appear to completely comply with current code requirements. The system is relatively close to end of useful life and should be considered for upgrade or replacement.

The elevator did not appear to have control modules or smoke detectors to facilitate elevator recall functions.

Clock/Bell System:

An existing Simplex clock/bell system was noted.

Intercom/Paging System:

The building appears to have a Bogen paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.

WASHINGTON ELEMENTARY SCHOOL Architectural Recommendations:

- 1. Replace the single glazed windows with double glazed window units.
- 2. Repair the exposed wiring at the exterior lighting fixture.
- 3. Repair the exterior gypsum sheathing at the east entrance.
- 4. Repair the wooden shed.
- 5. Replace the oldest sections of the roof.
- 6. Replace old 1'x1' ceiling tile with 2x2 ceiling/grid. Replace damaged ACT/lay-in grid.
- 7. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 8. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 9. Remodel or move main office closer to main entry to provide secure entry sequence and larger administrative area.
- 10. Replace carpet in computer lab and library.
- 11. Replace carpet in areas were carpet is worn.
- 12. Provide dedicated music/art room.
- 13. Remodel old locker rooms to be storage.

HVAC Recommendations:

- 1. The heating system should be replaced with a hot water heating system with high efficiency boilers pumps, piping system and unit ventilators. The existing steam and condensate piping system is in poor condition and beginning to develop leaks.
- 2. Unit ventilators in the original building are experiencing coil leaks. Some leaks can be repaired but due to the age and number of repairs coil replacement is necessary. The replacement coils are custom made and very expensive. Some unit ventilators in the 1959 Addition have been replaced.
- 3. If building heating system conversion from steam to hot water is being considered installation of air conditioning should also be evaluated. Air conditioning of the building may have an impact on the type of heating system installed.
- 4. Rooftop units over 10 years old and should be prioritized, scheduled and budgeted for replacement.
- 5. Installation of DDC controls compatible with the District wide DDC system should be considered in conjunction with anticipated HVAC upgrades at the building.

Plumbing Recommendations:

- 1. The facility has experienced some blockages and back-ups within the building. The blockages should be cleared and repaired as required. The overall sanitary waste/vent piping system is in fair condition.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of portions of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades.
- 3. Install additional occupancy sensors for areas not currently covered.
- 4. Emergency lighting should be reviewed as part of any lighting improvement project.
- 5. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 6. It is recommended that the fire alarm system be replaced within the next 5 years.
- 7. Owner identified a need to replace the master clock/bell system as part of their future needs plan.

WILSON ELEMENTARY Architectural:

Wilson Elementary School was built in 1964 and is located at 219 Gould Street, in Beaver Dam, Wisconsin. The approximately 33,000 square foot facility is located on a site of 1.7 acres. The building contains two floors with a small mechanical and storage basement by the original gym. There were additions in 1994 and 1998. There is an elevator that connects the two main floors.

There is a vestibule with handicap accessibility to the building west of the building. The wood sided vestibule is the only wood on a otherwise completely masonry structure.

The building façade is mostly brick with some precast concrete accents, most of which is in good condition. Most of the building has single glazed windows which should be replaced with double glazed window units.

The asphalt play area on the south side of the building is in fair/good condition. It was stated that this playground is used by the adjacent church for parking.



Approximately 99% of the roof is 20 years old or older and should be replaced.

The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces north and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The carpet tile at the entry is worn.

The main office area has a 2x2 acoustical ceiling tile in fair condition. The restroom within the administrative area lacks ADA compliant hardware and is not ADA compliant. The door to the teacher workroom which is connected to the main office does not have ADA compliant hardware. The floor throughout the administrative area is vinyl asbestos composition tile.

The main corridors are adequately sized. Student storage is accomplished with hooks and a shelf. The corridor floors are vinyl composition tile, all are in good condition. The entrances have carpet squares which are worn, those to the playground should be replaced. The ceilings are 2x2 acoustical ceiling tile, all are in fair condition however the grids are old and are yellowing.

In general the interior door frames and doors are in good repair.

The old gym has a wood floor which is in good condition. The gym floor should be re-striped. The stage area is not accessible.

The multi-purpose room has a vinyl composition tile floor which is in good condition. The serving kitchen has PLAM countertops and casework. The loading door/frame are rusty.



The classrooms have either vinyl composition tile, vinyl asbestos composition tile or carpet over vinyl as-

bestos composition tile. The floor tile is in good condition. The library and computer lab have older carpet.

The classrooms generally have 2x2 acoustical lay-in ceiling tile which is in fair condition, but there are areas of water stained ceiling tile that should be replaced. The ceiling grid tile is aged and is yellowing.

Most of the interior of the building (approximately 90%) is located on an accessible path. Most of the interior door hardware is ADA compliant. Most of the restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the restrooms are in fair/good condition.

There is moss growing on a section of roof adjacent to the gym which should be removed.



The building is not fire sprinklered.

WILSON ELEMENTARY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by a hot water heating system with two gas fired, forced draft, steel fire box, hot water boilers. The boilers are original to the building and were installed in 1964.

Hot water circulating pumps in the boiler room supply a hot water piping system routed in tunnels around the perimeter of the building. Hot water supply and return risers are extended up to terminal heating units on the first and second floors.

The 1998 Addition Multipurpose Room, Library and Library Work Room are heated by separate single zone rooftop units.

Ventilation and Air Conditioning System:

The classrooms are ventilated by vertical unit ventilators installed below the windows at the perimeter walls with an outside air duct extended through the wall to a louver. Supply air dispenses from the unit into the room.

The Gymnasium is ventilated by an indoor air handling unit installed in a Mechanical Mezzanine adjacent to the stage with supply ductwork routed to ceiling outlets in the gymnasium. Return air is ducted to the perimeter pipe tunnel and up through the floor to the air handling unit.

The Multipurpose Room, Library and Library Work Room are ventilated by separate rooftop units. Supply and return ductwork is extended from each unit to ceiling supply and return air outlets.

The 1964 Building is not air conditioned. A window air conditioner was noted in the Classroom 103.

The single zone rooftop units serving the 1998 Addition provide air conditioning to the areas they serve.

Automatic Temperature Controls:

Automatic temperature controls for the building are pneumatic. A simplex temperature control compressor and an air dryer supply compressed air to the control system to operate thermostats, controllers, valve/damper actuators, etc. for the unit ventilations, gym air handling unit, radiation and heaters.

The rooftop units are controlled by integral manufacturer supplied controls for heating, economizer and cooling control.

DDC controls have been installed to provide start/stop control and monitoring of the boiler system, unit ventilators and rooftop units.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

WILSON ELEMENTARY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system is provided.

Domestic Water System:

The building is supplied from a City water service main with water meter.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the building additions.

The domestic hot water for the building is supplied by an atmospheric gas fired, water heater installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

Plumbing Fixtures:

In general, the plumbing fixtures are in fair condition, with the following observations:

Boy's/Girl's Toilets: (1964 Building)

Water closets are wall hung with flush valves. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are concealed and operated via timer or door switch.

Lavatories are wall hung with face mounted faucet and CW/HW handles. Lavatories are not ADA compliant.

Boy's/Girl's Toilets: (1998 Addition)

Water closets are wall hung with exposed flush valve type. Fixtures appear to be ADA compliant.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung with faucet and single lever mixing valve. Fixtures appear to be ADA compliant.

Locker Rooms:

The Locker Rooms are no longer in use. The shower rooms are currently used for storage.

The Boy' and Girl's Lounge Rooms are each provided with wall hung flush valve toilet and lavatory with front mounted faucet and CW/HW handles,

Kitchen:

Double compartment stainless steel sink with swing spout faucet and CW/HW handles, and chemical sanitizer feed system.

Pre-rinse unit with hand spray and disposal.

In-floor grease interceptor adjacent to the double compartment sink.

Classroom Sinks:

Stainless steel drop-in type installed in casework. Faucet and trim consists of a gooseneck spout with CW/HW handles.

Teachers Lounge:

Water closet is floor set flush valve type. Fixture is not ADA compliant.

Lavatory is wall hung with face mounted faucet and CW/HW handles.

Double compartment stainless steel drop-in kitchen sink installed in casework with swing spout and CW/HW handles.

Drink Fountains:

Wall hung vitreous china drinking fountain with chrome spout and valve handle at first and second floor corridors adjacent to toilet rooms and outside kindergarten toilets.

Electric Water Coolers:

Single standard height electric water coolers are installed in the first and second floor corridors of the 1992 Addition.

WILSON ELEMENTARY Electrical:

Electrical Service & Distribution:

This main building is currently served by an 800 amp, 208Y/120 volt, 3-phase, 4-wire utility service. The majority of the equipment is Square D, circuit breaker type and was installed in approximately 1995 and is in good condition.

Surge Suppression:

A Current Technology "SF" unit was noted on the electric service.

Generator:

A generator, transfer switch and other equipment appears to have been abandoned in place as part of the electric service replacement in 1995.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts in 2002. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

The gymnasium is currently illuminated with metal halide type fixtures. No emergency lighting was observed in the gymnasium.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has a Simplex 4020 fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Strobes as installed do not appear to meet the current requirements of the ADA. The installation does not appear to completely comply with current code requirements. The system is relatively close to end of useful life and should be considered for upgrade or replacement.

The elevator did not appear to have control modules or smoke detectors to facilitate elevator recall functions.

Clock/Bell System:

An existing Lathem system was noted.

Intercom/Paging System:

The building appears to have a Simplex paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drop per classroom were observed.

WILSON ELEMENTARY SCHOOL Architectural Recommendations:

- 1. Replace the single glazed windows with double glazed window units.
- 2. Replace the oldest sections of the roof.
- 3. Create a direct path from the entry vestibule to the main office (secure entry concept). Replace the carpet tile at half of all entries.
- 4. Replace old and/or damaged 2x2 ceiling tile and grid throughout the building.
- 5. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 6. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 7. Repair rusting doors/frames.
- 8. Treat moss growing on roof sections.
- 9. Re-stripe gym floor.

HVAC Recommendations:

- 1. The hot water boilers are original, have exceeded their expected useful life and are inefficient compared to new boilers. The unit should be scheduled for replacement.
- The unit ventilators are original and have exceeded their expected useful life. The units have pneumatic controls which are not compatible with DDC controls the District has been installing in their facilities.
- 3. Rooftop units over 10 years old and should be prioritized, scheduled and budgeted for replacement.
- 4. Air conditioning of the building should be considered at the time of the boiler and unit ventilator replacement. Installation of air conditioning may have an impact of the scope and type of boilers and heating system replacement design.
- 5. Installation of DDC controls compatible with the District wide DDC system should be considered in conjunction with anticipated HVAC upgrades at the building.

Plumbing Recommendations:

1. The facility has experienced some blockages and back-ups within the building. The blockages

- should be cleared and repaired as required. The overall sanitary waste/vent piping system is in fair condition.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. However due to the age of portions of the building blockages and leaks may begin to develop. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in the gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades.
- 3. Upgrade corridors to energy efficient lights with occupancy sensor control.
- 4. Install additional occupancy sensors for areas not currently covered.
- 5. Emergency lighting should be reviewed as part of any lighting improvement project.
- 6. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 7. It is recommended that the fire alarm system be replaced within the next 5 years.
- 8. Owner identified a need to replace the Master P.A. system for the building as part of their future needs.

BEAVER DAM MIDDLE SCHOOL Architectural:

Beaver Dam Middle School was built in 1922 and is located at 108 4th Street, in Beaver Dam, Wisconsin. The approximately 140,400 square foot facility is located on a site of 4.8 acres. The building contains three floors with a mechanical basement by the northwest entrance. There were additions in 1964, 1989 and 1998. There is an elevator that connects the three main floors.

There is a very small quantity of visitor and staff parking to the west and north of the building. There is a lone, mostly dead tree between the parking area and the school which poses more of a risk than any aesthetic value and should be removed.

Student drop-off and school bus drop-off occurs along the adjacent city streets. Half of the asphalt is in poor/fair condition and should be replaced, the other half is in fair condition. The older site stairrails (those not leading to the main entry) are in fair/poor condition and should be repaired or replaced. The masonry walls that adjoin the stairs to the older section of the building (two of them) are in poor condition and should be replaced or repaired. The seating bench at the south side of the site is in poor condition and should be repaired.



There is a combined hard play area and grassy area to the east of the school on a separate lot accessible by crossing North Spring Street. The asphalt green space and track are in fair/good condition. The fence surrounding this area is in good condition. Overall, the site is too small for a middle school. The building entry systems are in good condition. The building façade is in generally good repair with the exception of the boiler room area to the northwest of the main building. This area requires tuckpointing and façade replacement/repair. The paved areas over the rooms below should be evaluated for structural integrity and water infiltration. The existing smokestack is inactive and should be reviewed for removal.



Approximately 50 percent of the glazing is single glazed and should be replaced with double glazed window units.

Approximately 40% of the roof is 20 years old or older and should be replaced.

The structure of the building is masonry load bearing with brick exterior.

The entrance to the building faces south and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The flooring is terrazzo, which is in good condition. There is a rusty, noisy unit heater at the main entry vestibule.

The main office area has a 2x2 acoustical ceiling tile in good condition. The flooring is carpeting which is in fair/good condition. The casework is in good/fair condition. The teachers workroom next to the administration area has old carpet that should be replaced.

The restrooms between the administration area between the guidance/health area are ADA compliant and are in fair condition. The mens restroom does need some wall repair and paint.

The guidance area has old carpet which should be replaced. The ceiling within the guidance and teachers work area is 2x2 acoustic lay-in and is in good condition. The health area restroom is ADA compliant.

The main corridors are adequately sized. Student storage is accomplished with lockers. The corridor floors are terrazzo, VCT or carpet. The terrazzo and VCT are in good condition, most of the carpet is old (there are some smaller newer sections of carpet in the locker pull -out areas on each east/west wing which are in good condition) and most of the older carpet is in bad condition and should be replaced. The entrance to the north by the new gym has carpet squares which are worn, and should be replaced. The stair treads/nosings in the entry vestibule next to the new gym are damaged and should be replaced. The ceilings are 2x2 acoustical ceiling tile, all are in fair condition however some of the grids are old and are yellowing (approximately 15%). There are areas of the ceiling that are damaged and should be replaced (approximately 5%). The stairwells should be painted. Some of the casework that is located in the corridor break-out areas has delaminated and should be replaced (approximately 50%).



In general the interior door frames and doors are in good repair.

The old gym/cafeteria has a wood floor which is in good condition. The exit stairs should be re-painted. The gym storage area (next to the auditorium) has some

damage to the walls which should be repaired/repainted.

The kitchen has a poured topping floor which is in good condition. The base is a 4" vinyl cove base which will allow water to seep underneath it affecting the adjacent walls and allowing water to pond. The base should be replaced with a ceramic base. The ceiling is a 2x2 vinyl wrapped gypsum lay-in ceiling in good condition.



The general purpose classrooms (math, English and social studies, foreign language, and the smaller third floor computer labs) have either vinyl composition tile, vinyl asbestos composition tile or carpet. The floor tile is in good condition. The carpet is old and should be replaced. The general purpose classrooms have 2x2 acoustical lay-in ceiling tile which is in fair condition, but there are areas of water stained ceiling tile that should be replaced. (approximately 5%). Some of the general purpose classrooms should be painted (approximately 15%). There are three classrooms on the third floor which have noisy, ceiling mounted hvac units which are too loud for proper classroom acoustics. There are three double-pane window units that have failed, allowing water to condense inside of the windows and should be replaced.

The science classrooms have VCT flooring, which is in good condition. The first floor casework is in fair/good condition. The second floor casework is in fair/good condition, but the countertops are in fair/poor condition

and should be repaired or replaced. The third floor science casework and countertops are in fair/poor condition and some should be replaced (approximately 50%). There is a section of wall that requires repair within the third floor science prep area. There are no dedicated ADA compliant science stations in any of the science classrooms.



The orchestra room has vinyl asbestos composition floor tile which is in good condition. The ceiling is 2x2 with a yellowing grid. Some of the ceiling tile are water damaged. The entire ceiling should be replaced. The light levels appear to be dimmer than the band room light levels (which seem appropriate).

The band room has VCT flooring and a 2x2 acoustical lay-in ceiling, both of which are in good condition. The south wall of the band room should be painted.

The choir room (which is the stage of the auditorium) has VCT flooring and a 2x2 acoustical lay-in ceiling, both of which are in good condition. The auditorium has a combination of hard ceilings and 2x2 acoustical lay-in ceilings which are in good condition. The auditorium carpeting and seating are in good condition.

The family and consumer education room has VCT flooring and carpet which are in good condition. The 2x2 acoustical lay-in ceiling is also in good condition. The casework is in fair/poor condition and should be replaced. There is no dedicated ADA compliant work-station.



The newer gym has a wood floor which is in good condition. There is a section of roof drainage piping with wrapped insulation that should receive a PVC protective sleeve. The exit doors to the north are rusted through and should be replaced. The adjacent locker rooms have poured floors, some of which should be repaired (approximately 25%). The ceilings are vinyl wrapped gypsum board lay-in and are in good/fair condition, approximately 10% of the ceiling panels are damaged and should be replaced. Within the boys team locker area approximately 20% of the lockers are damaged and should be replaced. The locker room restrooms are ADA compliant.

The art room has vinyl asbestos composition floor tile which is in good condition. The ceiling is a 2x2 lay-in acoustical ceiling with an old grid and many damaged tiles which should be replaced. There is some damaged casework which should be replaced. The kiln room/storage area has a damaged ceiling which should be replaced. There is no ADA accommodation at the art sinks.

The CDS area is very warm and 'close', there does not seem to be any ventilation. The ceiling is a 2x2 lay-in acoustical ceiling with a yellowing grid and several damaged ceiling tile and should be replaced. The flooring is VCT and is in good condition. The time-out area should be repaired and repainted. The adjacent restroom is ADA compliant and in fair/good condition.

The technical education room has a VCT floor which is in good condition, however the adjacent tool areas have a painted floor which is in poor condition and should be re-painted. The ceiling is a 2x2 lay-in acoustical ceiling which is in fair condition with some water damaged tiles which should be replaced (approximately 10%).

The IMC computer lab has worn carpet which should be replaced. The ceiling is a 2x2 lay-in acoustical ceiling which is in good condition. The casework is in fair condition with the exception of the work surface edges which are in poor condition and should be repaired. There are damaged column surfaces which should be repaired and repainted.



The IMC has old carpet in fair condition. The ceiling is a 2x2 lay-in acoustical ceiling with some water damaged panels which should be replaced (approximately 5%). The casework is in fair/good condition.

Most of the interior of the building (approximately 90%) is located on an accessible path. Most of the interior door hardware is ADA compliant. Most of the restrooms are ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the restrooms are in fair/good condition. There are some missing or damaged ceramic base tiles within the third floor restrooms which should be replaced.

The custodial areas (located at the north ends of the main north/south hallways) have some carpet and some VCT. The carpet is old and should be replaced, the VCT requires some replaced at the intersection of the main hallway and custodial vestibules.



The main boiler and electrical service area is located below the first floor to the northwest of the building. The hallway/stairs leading to this area has damaged walls, damaged stairs and damaged ceilings, all of which should be repaired/replaced. The boiler area is subdivided into three basic rooms, the westernmost room serves no purpose and should be filled in to minimize ongoing maintenance and water infiltration.

The central section of the area is being utilized for the current boilers and is in generally fair condition.



The eastern section of the boiler area houses electrical panels, electrical distribution and an elevator machine room. This area has extensive water infiltration issues. The top of this area is a parking lot. There is evidence of rusting rebar in the roof area and extensive damage to the active electrical conduit running through this area. This area should be further reviewed for struc-

tural safety, electrical safety and functionality as soon as possible.

The building is not fire sprinklered.

BEAVER DAM MIDDLE SCHOOL Heating, Ventilation & Air Conditioning:

Heating System:

The 1922 Building and 1964, 1977 and 1989 Additions are heated by a hot water heating system consisting of two natural gas fired, medium efficiency, sealed combustion, vertical copper coil boilers. One boiler is rated at 2000 MBH input and the second boiler is rated at 1500 MBH input. The boilers were installed in 1998. The 1500 MBH boiler is a replacement unit provided under warranty due to a failure of the original boiler's ceramic gas burner.

The boilers are piped in a primary/secondary hot water pumping system and connected to secondary hot water piping loops serving the 1922 Building and the 1964, 1977 and 1989 Additions. Hot water supply and return mains are routed above the first floor ceiling wall supply and return risers extended up to the upper floors.

Hot water heating units in the building consist of hot water radiation at some outside walls in classrooms, IMC, corridors, toilet rooms, etc. Cabinet heaters and unit heaters are provided in vestibules, stairwells, cafeteria, large storage areas, etc.

Exterior classrooms in the 1922 Building are provided with convector radiators or unit ventilators which have their outside air dampers closed and locked in place. The unit ventilators now function as heating only air recirculating units.

The 1964 Addition consisting of the Cafeteria and Kitchen is heated by unit heaters suspended at the ceiling and two air handling units with hot water heating coils suspended at the ceiling.

The 1977 Addition consists of First Floor Orchestra/ Face Classrooms and adjacent areas and Second Floor Classrooms and Tech Ed areas are heated by vertical floor set and horizontal ceiling hung unit ventilators. The 1989 Addition which consists of Band/Chorus areas is heated by a horizontal suspended air handling unit with ductwork and hot water booster coils. The Auditorium is heated by two horizontal ceiling suspended unit ventilators. The Third Floor Classrooms are heated by the vertical floor set and horizontal ceiling hung unit ventilators.

The 1998 Addition consisting of the Administrative Offices, Gymnasium and Locker rooms are heated by gas fired rooftop HV and HVAC units.

Ventilation and Air Conditioning System:

The building is ventilated by a mix of systems based on the areas of the building served and the time when the area was remodeled or constructed. In general the ventilation and air conditioning systems are as described below:

1922 Building: The building is ventilated and air conditioned by two VAV rooftop HVAC units installed in 1998. One rooftop unit serves the exterior classrooms at the south exposure. The second rooftop unit serves the interior classrooms. Individual room temperature control is provided by variable volume reheat units for each classroom. The exterior classrooms are also provided with hot water radiation and unit ventilators with outside air dampers closed and disabled as previously indicated.

1964 Addition: The Cafeteria is ventilated by two air handling units suspended at the Cafeteria ceiling with supply and return outlets discharging to the space. No air conditioning is provided.

1977 Addition: The Classrooms are ventilated by vertical floor set and horizontal ceiling hung unit ventilators. Outside air intakes for the units were extended to roof hoods where existing intake location conflicted with the building additions. No air conditioning is provided.

1989 Addition: The First Floor Auditorium and Second Floor Classrooms are ventilated by vertical floor set and horizontal hung unit ventilators. The First Floor Band/Chorus area is ventilated a horizontal suspended air handling unit with supply/return duct system and a hot water booster coils. No air conditioning is provided.

1998 Addition: Separate rooftop HVAC units with supply return duct systems provide ventilation and air conditioning for the following areas:

- Administration Offices: Single Zone Rooftop Unit with Bypass VAV
- Computer Room 223: Single Zone Rooftop Unit
- Gymnasium: Single Zone Rooftop Unit
- IMC 221: Single Zone Rooftop Unit
- Tech Ed: Single Zone Rooftop Unit

The Locker/Shower rooms are ventilated by cabinet unit which transfer air from the Gymnasium to heating and make-up air for Locker/Shower room exhaust.

Automatic Temperature Controls:

Automatic temperature controls for the building are a combination of pneumatic, electric and direct digital control (DDC).

Areas of the building constructed or remodeled in 1988 or before are provided with pneumatic controls. A temperature control air compressor and air dryer located in the Boiler Room supply compressed air to the system to operate thermostats, controllers, valve/damper actuators, etc. for unit ventilators, air handling units, booster coils, radiation and heaters.

Rooftop unit and VAV reheat units installed in the 1922 Classroom Building are controlled by DDC controls.

Rooftop units serving the 1998 Addition are controlled by manufacturer supplied integral controls.

DDC controls have been installed to provide "start/stop" control and monitoring of the boiler system, unit ventilators, air handling units and rooftop; units.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

BEAVER DAM MIDDLE SCHOOL Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system. The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new additions PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings in the older areas of the building and PVC in the recent additions.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system.

Domestic Water System:

The building is supplied from a City water service main with water meter.

The domestic hot water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the building addition.

The domestic hot water for the building is supplied by two high efficiency gas fired, water heaters installed in the Boiler Room.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

A dry standpipe system with hose connections at each floor is provided for Fire Department use near the elevator.

Plumbing Fixtures:

In general, the plumbing fixtures are in good condition, with the following observations:

Boy's/Girl's Toilets: (1922 Building)
The toilet rooms have been remodeled recently.
Water closets are wall hung with exposed flush valves.

Fixtures appear to be ADA compliant.

Urinals are floor set flush valve type. Flush valves are exposed and manually operated.

Lavatories are wall hung. One lavatory in each toilet appears to be mounted at ADA height.

Boy's/Girl's Toilets: (1964 Addition)

Water closets are wall hung with exposed flush valves. Fixtures are not ADA compliant.

Urinals are floor set with concealed flush valve. Flush valves are operated via timer or door switch.

Lavatories are wall hung with face mounted spout and CW/HW handles. Fixtures are not ADA compliant.

Single Fixture Toilets:

An ADA compliant toilet room with wall hung flush valve water closet and wall hung lavatory is provided adjacent to the 1964 addition toilets and in the Administration Offices.

An oversized ADA toilet room is provided adjacent to the CDS Classroom. The fixture is wall hung and District Maintenance indicated the wall hung unit has broken due to use by the occupants and that a floor set unit would be preferred. Currently a temporary support is placed under the front of the toilet to prevent breaking the fixture from the carrier.

ADA Toilet Rooms: (1998 Addition)

ADA toilet rooms in the 1998 addition adjacent to the Gym are provided with wall hung toilets with exposed flush valves.

Urinals are floor set with exposed flush valve.

Lavatories are wall hung with ADA compliant faucet and drain piping wrap.

Classroom Wing:

Corridor Sinks:

Stainless steel drop-in type installed in casework. Faucet and trim is gooseneck spout with CW/HW handles.

Science Classroom Sinks:

Stainless steel drop-in type installed by Science Classroom. Faucet hand trim is gooseneck spout with CW/HW handles.

FACE Classroom:

Double compartment stainless steel drop-in type installed in casework. Faucet and trim is gooseneck spout and CW/HW handles.

Kitchen:

Four compartment stainless steel freestanding sink with two swing spout faucets and CW/HW handles and a chemical sanitizer feed system.

Two compartment stainless steel freestanding sink with swing spout faucet and CW/HW handles.

Wall hung hand sink with face mounted faucet and CW/HW handles.

Tray return with pre-rinse spray and disposal.

Overhead commercial dishwasher with floor mounted energy booster heater.

Filtered water spray piping to steamers under kitchen hood.

Locker Rooms:

Water closets are wall hung. Flush valve type with exposed manual flush valve.

Urinals are floor set flush valve type with exposed manual flush valves.

Lavatories are wall hung type with deck mounted single lever mixing faucet.

Showers are either wall mounted or column type stainless steel construction with single shower valve handle. Each Lounge room is provided with a tempering valve to control water supply temperature to the showers.

BEAVER DAM MIDDLE SCHOOL Electrical:

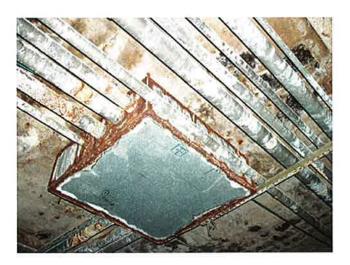
Electrical Service & Distribution:

This main building is currently served by two electric services. One is a newer 3000 amp, 208Y/120 volt, 3-phase 4-wire service that terminates in a Cutler Hammer switchboard. This service is on the north side of the building in the middle. The second service appears to be one of the original services and is a 1600 amp, 208Y/120 volt service. This service equipment is Square D equipment. This service is located in the northwest boiler room and is showing degradation due

to water leakage into the space. Significant rust was noted at the floor of the equipment.



Electrical junction boxes and conduits in the adjacent room show significant rust due to water leakage in the space. This equipment needs to be replaced after the water infiltration problem is resolved. This condition has a high probability of creating an unscheduled outage that could leave a significant portion of the school without power for an extended period of time.



Surge Suppression: Surge suppression was not noted.

Generator:

A generator, transfer switch and other equipment appears to have been abandoned in place as part of the electric newer service installation.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts within the past 10 years. Occupancy sensors were added at that time to ensure lights are off when classrooms are unoccupied.

Both gymnasiums are currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has a Simplex 4020 fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. The installation does not appear to completely comply with current code requirements.



Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights (pull stations are to be no higher than 48" and strobes are to be at 80" - see pictures) as required by current codes. Some areas (common use spaces) that should have visual device coverage are not covered.



The system is relatively close to end of useful life and should be considered for upgrade or replacement.

The elevators did appear to have control modules or smoke detectors to facilitate elevator recall functions.

Master Clock System:

An existing Simplex 2350 master clock system was noted.

Intercom/Paging System:

The building appears to have a Dukane paging system in classrooms and speakers in the corridor ceilings.

Telephone System:

Relatively new VOIP Cisco phone system was noted.

Data Distribution:

A single data drops per classroom were observed.

BEAVER DAM MIDDLE SCHOOL Architectural Recommendations:

- 1. Remove the solitary tree between the parking and the southerly drive. Replace with new landscaping.
- 2. Replace the asphalt in poor condition.
- 3. Replace/repair the existing site stair handrails.
- 4. Replace/repair the existing site masonry walls adjacent to the two southerly entrances.
- 5. Repair the 1929 seating bench.
- 6. Consider additional land for the middle school for parking and physical education areas.
- 7. Repair the facades of the old boiler room, including the paved areas, walls, roofs and access doors. This entire area needs to be evaluated as to the safety of the roof areas and electrical systems contained there-in.
- 8. Consider removal of the large smoke stack which is no longer needed.
- 9. Replace the single pane glazing with double pane glazing and replace the failed double pane glazing.
- 10. Replace the oldest sections of the roof.
- 11. Replace the carpet tile at the northerly gym entry.
- 12. Replace most of the carpet in the building, including hallways, classrooms, guidance, teacher workroom and other areas.
- 13. Replace old and/or damaged 2x2 ceiling tile and grid throughout the building (multiple locations).
- 14. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 15. Paint the stairwells.
- 16. Replace the stair treads/nosings at the north gym entry.
- 17. Repair or replace the damaged casework within the break-out areas.
- 18. Paint the existing stairs at the old gym and repair the damaged wall within the gym storage area.
- 19. Replace the vinyl base within the kitchen area with ceramic tile.
- 20. Repair or replace the noisy HVAC units on the third floor.
- 21. Repair or replace the casework and countertops within the science classrooms and science prep areas that are damaged. Provide ADA compliant science stations.
- 22. Paint the south wall of the band room.
- 23. Repair or replace the casework and countertops within the FACE classroom that are damaged. Provide ADA compliant stations.
- 24. Within the new gym protect the roof drainage pipe insulation and replace the north gym doors.

- Within the locker rooms, repair or replace the damaged floors, damaged ceilings and damaged lockers.
- 26. Replace the damaged art room casework and provide for an ADA accessible sink.
- 27. Review the CDS heating/ventilation system and revise. Repair the time out walls and repaint.
- 28. Repaint the tech ed shop floor.
- 29. Repair the IMC computer lab casework / columns.
- 30. Replace the damaged ceramic tile base within the restrooms.
- 31. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.

HVAC Recommendations:

- 1. The hot water system consisting of boilers and hot water pumps is 13 years old and in good condition. Provide heating system with routine maintenance as required to operation.
- 2. Unit ventilators in the 1922 Building were replaced in 1964. As part of the 1998 Addition and Remodeling the unit ventilators were modified to be heating unit only with the outside air dampers locked closed. Ventilation and air conditioning is provided by rooftop air conditioning units. The unit ventilators should be removed and replaced with perimeter fin tube radiation.
- 3. The 1977 Addition unit ventilators are nearing the end of their expected useful life and the units are provided with pneumatic controls. The units should be budgeted and scheduled for replacement. If air conditioning for the classrooms is to be considered replacement of the units with new unit ventilators should be reviewed to determine if another option is more appropriate.
- The rooftop units for the 1998 Addition and Remodeling are over 10 years old and should be prioritized, scheduled and budgeted for replacement.
- 5. If consideration is being given to the installation of a VFD for the rooftop units should be investigated further. The rooftop may rely on full air flow through the unit during both heating and cooling operation to protect the gas heat exchanger and direct expansion cooling coil/compressors from damage when the supply air volume to the rooms is less than design.
- 6. Installation of DDC controls compatible with the District wide DDC system should be considered in

conjunction with anticipated HVAC upgrades at the building.

Plumbing Recommendations:

- 1. The facility has experienced some blockages and back-ups within the building. The blockages should be cleared and repaired as required. The overall sanitary waste/vent piping system is in fair condition.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves in the 1964 Addition should be replaced with individual manual flush valves.
- 5. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste, vent and water piping in the areas of the remodeling should be replaced to the nearest main.
- 6. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste, vent and water piping be replaced as described above and all plumbing fixtures be replaced with water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in both the gymnasiums should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Complete lighting efficiency upgrades.
- 3. Upgrade corridors to energy efficient lights with occupancy sensor control.
- 4. Install additional occupancy sensors for areas not currently covered.
- 5. Upgrade auditorium lighting.
- 6. Emergency lighting should be reviewed as part of any lighting improvement project.
- 7. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 8. It is recommended that the fire alarm system be replaced within the next 5 years.
- 9. Repair, relocate and replace existing 1600 amp, 208Y/120 volt service equipment located in the boiler room.

DON SMITH LEARNING ACADEMY Architectural:

The Don Smith Learning Academy was built in 1997 and is located at 400 E. Burnett Street, in Beaver Dam, Wisconsin. The approximately 14,800 square foot facility shares a site/structure with the school district maintenance building. The building contains one floor.

The structure of the building is single wythe masonry load bearing CMU with a wood joist roof.

There are several thru-wall cracks evident on the façade which should be repaired.

The parking lot is in fair condition.

The windows in the Don Smith Learning Academy side of the building are double glazed.



The entrance to the building faces south. The entry opens directly to the main office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras.

The main office area is undersized.

The main corridor is adequately sized. Student storage is accomplished with student lockers. The corridor floor is carpet which is in good condition. The entrance has carpet squares which are in good condition. The ceilings are 2x2 acoustical ceiling tile, which are in good condition.

The interior door frames and doors are in good repair.



The classrooms have either vinyl composition tile, or carpet, all of which are in good condition. The casework is PLAM and is in good condition. The classrooms have 2x2 acoustical lay-in ceiling tile which is in generally good condition, however some of the ceiling tile is damaged by water from the roof (approximately 5%).

The main commons area has carpet which is in good condition. The roof structure is exposed.

The interior of the building is located on an accessible path. The interior door hardware is ADA compliant. The restrooms are ADA compliant. The drinking fountains are ADA compliant.

The restrooms are in good condition.

The building is fire sprinklered.

DON SMITH LEARNING ACADEMY Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by a gas fired rooftop HVAC unit. Supplementary heat is provided by electric reheat coils located in variable volume units and electric heaters at entries.

A ceiling hung gas fired unit heater is suspended in the Tech Ed Shop.

Ventilation and Air Conditioning System:

The building is ventilated and air conditioned by a rooftop unit with bypass VAV control. Supply ductwork is routed above the ceiling to supply air outlets. Variable volume reheat units with electric reheat coils are provided for individual room control.

Return air transfers to the ceiling plenum and to the rooftop unit return air inlet.

A roof mounted exhaust fans ducted to ceiling exhaust grilles provide exhaust for toilet rooms, janitor's closet and kitchen.

The Tech Ed Shop is provided with an outdoor centrifugal dust collector and exhaust duct system connected to drops to wood working machines and floor sweeps in the Tech Ed Shop.

Automatic Temperature Controls:

Automatic temperature controls for the HVAC system are rooftop unit manufacturer supplied controls which provide for operation and sequencing of the rooftop unit heating, economizer and cooling modes.

Supplementary electrical heaters are controlled via integral thermostats and the Tech Ed unit heater is controlled from a wall mounted room thermostat.

The rooftop unit manufacturer supplied controls are programmed to provide "Occupied-Unoccupied" and heating/cooling setback/setup control for the rooftop unit and areas of building served by the variable volume reheat units.

DON SMITH LEARNING ACADEMY Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system.

The above ground waste and vent piping material is PVC.

The underground waste and vent piping material is assumed to be PVC.

Storm Drainage System:

Roof drains with interior downspout piping is routed through the building, to below grade and underground to the City storm sewer system.

Domestic Water System:

The building is supplied by a City water service main supplying water for domestic use and for the fire sprinkler system.

The fire sprinkler system serves a single zone. The piping system is back steel piping with mechanical and threaded fittings. Sprinkler heads are chrome plated surface mount type in areas with ceilings and upright type in areas without ceilings.

The existing domestic water distribution system consists of copper pipe and fittings.

The domestic hot water for the building is supplied by individual external tank type water heaters located adjacent to each lavatory or sink.

Plumbing Fixtures:

In general, the plumbing fixtures are in good condition, with the following observations:

Boy's/Girl's Toilets:

Water closets are floor set with flush tank type. Fixtures are ADA compliant.

Urinals are wall hung with exposed manually operated flush valve.

Lavatories are drop-in counter type with deck mounted faucet and CW/HW handles. Lavatories are not ADA compliant.

Day Care Toilet:

Water closet is floor set, flush tank child height fixture.

Lavatories for toilet and changing table are drop-in counter type with deck mounted faucet and CW/HW handles.

Kitchen:

Kitchen is provided with two double compartment stainless steel sink with swing spout faucet and CW/HW handles.

Two under counter residential dishwashers are provided, one at each cooking station.

A clothes washer with wall box hook-up for cold water, hot water and drain is also provided.

Classroom Sinks:

The work room is provided with a single compartment drop-in stainless steel with gooseneck faucet and CW/HW handles.

The Tech Ed Shop is provided with a two compartment fiberglass laundry sink with rough brass faucet and CW/HW handles.

DON SMITH LEARNING ACADEMY **Electrical**:

Electrical Service & Distribution:

This main building is currently served by a 1200 amp, 208Y/120 volt, 3-phase, 4-wire utility service. The main service terminates in a Cutler Hammer fused style switchboard. Square D panels were also observed. The electrical service and panels appear to be in good condition.

Surge Suppression:

No suppression unit was noted.

Generator:

The building does not have a generator.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. Controls in rooms general appear to be manual controls. Occupancy sensors are generally installed to ensure lights are off when classrooms and spaces are unoccupied.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED type lamps.

Fire Alarm System:

The building has an Notifier SFP-1024 fire alarm system installed. The system consisted of manual pull stations and audible and visual devices. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. The installation does not appear to completely comply with current code requirements, however, it appear to have met the intent of the code at time of installation.

Telephone System:

Relatively new VOIP Cisco phone system was noted.



DON SMITH LEARNING ACADEMY Architectural Recommendations:

None

HVAC Recommendations:

- 1. The rooftop unit is over 10 years old and should be prioritized, scheduled and budgeted for replacement.
- 2. Installation of DDC controls compatible with the District wide DDC system should be considered in conjunction with anticipated HVAC upgrades at the building.
- 3. If consideration is being given to the installation of a VFD for the rooftop unit should be investigated further. The rooftop unit is a constant volume unit with manufacturer supplied VVT controls for individual roof control. The unit relies on bypass dampers to provide full air flow through the unit during both heating and cooling operation to protect the gas heat exchanger and direct expansion cooling coil/compressors from damage when the supply air volume to the rooms is less than design.

Plumbing Recommendations:

- 1. The building was completely remodeled with new plumbing 14 years ago and the plumbing systems are in good condition. District Maintenance Staff did not indicate any problems with the plumbing systems.
- 2. The building was constructed after 1992 and therefore should meet the requirements of ADA regarding the installed plumbing fixtures.

Electrical Recommendations:

1. Complete lighting efficiency upgrades.

BEAVER DAM HIGH SCHOOL Architectural:

Beaver Dam High School was built in 1957 and is located at 500 Gould Street, in Beaver Dam, Wisconsin. The approximately 246,000 square foot facility is located on a site of 42.6 acres. The building contains one floor with a mechanical and team locker room basement underneath the chorus and band areas. There were additions in 1964, 1976, 1980, 1989 and 1998. There is no elevator, however there is a lift adjacent to the chorus area.

The bus drop off area and student drop off area and visitor parking are co-mingled, creating a potential pedestrian hazard. The asphalt in this area is in fair/poor condition and should be repaired or replaced. The student parking area appears to be adequately sized and the asphalt is in fair condition. The loading areas to the east of the building by tech education are in poor condition and should be repaired. The loading area for the school cafeteria has no turn-around or pull-out for delivery vehicles forcing the vehicles to back up from McKinley Street to the at-grade loading area, a distance of approximately 240 feet. The loading area asphalt is in poor condition and should be replaced and reconfigured if possible to allow vehicular turn-arounds.



The play fields are in good condition. The track and bleachers are in good condition. The tennis court surface is in good condition with the exception of some expansion cracks which should be filled in. There is an area of asphalt with some old basketball hoops, the asphalt is in poor condition and should be replaced. Adjacent to the basketball hoop area is a shed with some

rusty doors which should be repaired or replaced. There are also several wood storage sheds adjacent to the tech education area that have rotting doors and sagging roofs which should be repaired.



The aluminum entry systems are generally in good condition. The steel exterior doors are generally in poor condition and should be repaired or replaced (approximately 6). The building façade is in generally good repair with the exception of some brick spalling on the south façade, an area of water staining on the north wall by the science wing exit, another area of water staining on the east façade at the auditorium, and several cracks, most notably at the auditorium and east entry by the FACE classrooms adjacent to the boiler room. These areas of water staining and cracks should be further investigated and repaired.



There is some loose fascia along the western façade that should be repaired. There is also a double-pane window section that has a failed seal which should be replaced. The interior courtyard, inclusive of the greenhouse contains single-glazed curtain wall which should be either infilled with a masonry wall and windows or replaced with a more energy efficient system. The greenhouse partial height wall shows extensive water staining and freeze/thaw damage. These walls should be replaced or repaired. The doors to the courtyard should receive new weatherstripping (BDUSD Update: repaired).



Approximately 25 percent of the glazing is single glazed and should be replaced.

Approximately 24% of the roof is 20 years old or older and should be replaced.

The majority of the structure of the building is masonry load bearing with brick exterior. The tech education portion of the building is metal sheeting on metal structure.

The entrance to the building faces south and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The flooring in

the entry vestibule is terrazzo, which is in good condition. The flooring in the lobby is asbestos vinyl composition tile which is in fair condition. The recessed entry mats are in poor condition and should be replaced. Consideration should be given to moving the inner set of doors further inward to the lobby, thus allowing direct access from the entry vestibule into the main office for visitor security.



The main office area has a 2x4 acoustical ceiling tile in fair condition. The flooring is carpeting which is in fair condition. The casework is in fair condition. The offices flanking the main office area have carpet which is in fair/good condition, the ceilings are either 2x2 lay-in acoustical ceilings which are in good condition or 1'x1' acoustical ceilings which are in fair condition. There are restrooms which are not ADA compliant and have finishes which are in fair/poor condition.

The in-school detention area has carpet in fair condition, 2x2 acoustical lay-in ceiling in good condition, however it has an old door opening into an adjacent space that was never properly closed. This opening should be repaired (BDUSD Update: repaired).

The guidance and health area has some newer carpet and a 2x2 acoustical lay-in ceiling in good condition. The adjacent restroom is not ADA compliant.

The IMC and reading area appear to be too small or badly configured. The flooring is carpet and the ceiling is a 2x2 lay-in acoustical ceiling, both of which are in good condition. The casework is in fair/good condition.

The main corridors are adequately sized. Student storage is accomplished with lockers. The corridor floors are asbestos vinyl composition tile or VCT all of which is in fair/poor condition. There are large sections of the VCT which are wavy or buckled and smaller sections of the asbestos vinyl composition tile which have cracked out and are missing. Approximately 50% of the corridors are asbestos vinyl composition tile. Approximately 15% of the corridors are buckled VCT (west corridors). The ceilings are 2x2 lay-in acoustical ceiling (good condition), 2x4 lay-in acoustical ceiling (fair/good condition) or 1'x1' acoustical ceiling (fair/ poor condition). Overall approximately 5% of the 2x2, 10% of the 2x4 and 20% of the 1x1 ceiling tiles should be replaced due to damage or water staining. There are a couple of damaged soffits at the entries to classrooms in the west wing which should be repaired and repainted.

In general the interior door frames and doors are in fair/poor condition and should be repainted/refinished.

The cafeteria area which also serves as a study hall has a ceramic floor in half of the area which is in good condition and a VCT floor in the other half which is in good condition with the exception of the boundary between the two floors which is cracked and chipped out along it's entire length. This transition should be replaced.. The ceilings are either a 2x2 lay-in acoustical ceiling (which is in good condition) or a 2x4 lay-in acoustical ceiling (which is in fair/poor condition, 5% of which is damaged and should be replaced). There is damage to the west wall which should be repaired/ repainted. The food serving and dish return areas are located both in the cafeteria (north wall and within the dining area) and in the corridor to the north of the cafeteria (along the east wall of the kitchen). This makes for difficult traffic flow and difficult supervision. There is an ancillary serving area to the east of the cafeteria which further complicates the traffic flow across the main corridor.

The loading area for the dining service also serves as a general loading area for the building. The exterior door/frame are severely rusted and should be replaced. If possible, the dining loading area and the general purpose area should not be the same. The flooring is sealed concrete.

The kitchen area is adjacent to the loading area across the hall. The high school kitchen prepares meals for the entire district. The kitchen and storage area are undersized for the size of the high school. The kitchen also prepares the meals for the rest of the district. The ceiling in the storage area is a 2x4 lay-in acoustical ceiling which is in poor condition. This ceiling should be washable, it is not. Some of the freezer/refrigerator panels are rusting and should be repaired. There are wall sections missing due to remodeling that should be The flooring throughout the storage and kitchen areas is quarry tile which is in good condition. There is inadequate storage. The entire loading/ unloading/storage/kitchen/serving/dish washing area should be redesigned and remodeled to the correct size and configuration to meet the building and district food service expectations.



The general purpose classrooms (math, English and social studies), the EEN area by the FACE rooms and the business education and health rooms have vinyl composition tile, vinyl asbestos composition tile or carpet all of which are in fair/good condition. These classrooms have either 2x2 acoustical lay-in ceiling tile which is in fair condition or 1x1 acoustical tile which is in fair/poor condition. There are areas of water stained ceiling tile that should be replaced. (approximately 5%).

The science classrooms have either VCT or asbestos vinyl composition tile flooring, which is in good condition. The casework/countertops are in fair/poor condi-

tion. The countertops are in poor condition. Generally the science rooms are configured with the sinks and teaching stations facing toward the walls instead of facing toward an instructional area. The ceilings are either 2x4 lay-in acoustical or 1'x1' acoustical tile. Most of the science ceilings have water damaged tiles (approximately 10%) which should be replaced. Most of the science rooms are undersized to provide a pod type work area and lecture area. The science prep areas have damaged countertops and casework some of which are inappropriate to their current use, which should be reconfigured and replaced.



The cognitively disabled area has VCT and carpet which are in good condition. The ceiling is a 2x2 layin acoustical ceiling in good condition, however about 5% is water damaged. There is some damaged casework in the restroom/cleanup area that should be repaired.

The career center and alternative education area are located on the far west of the building and might be better suited located closer to the library where they could share resources. The area is carpeted which is in good condition. The ceiling is a 2x2 lay-in acoustic ceiling (approximately 5% water damaged).

The family and consumer education rooms have either VCT or vinyl asbestos composition tile flooring which are in good condition. The 2x4 acoustical lay-in ceiling is also in good condition. The casework is in fair/poor condition and should be replaced. There is no dedicated ADA compliant workstation. The cooking teach-

ing station is built on a raised platform and is not accessible.

The orchestra and band rooms have either VCT or vinyl asbestos composition tile which is in good condition. The ceilings are 1'x1' acoustical tile which is in fair condition. The lighting levels within the band room seem dim. The chorus room is the old stage for the south gym. The chorus room has a wood floor and a 2x4 lay-in acoustical ceiling which are in good condition. The music room has VCT flooring and a 2x2 layin acoustical ceiling, both of which are in good condition.

The south gym has a wood floor which is in good condition, however the entry vestibules to the gym from the west (main hallway) are vinyl asbestos composition tile and are in poor condition, with many of the tiles cracked or missing and should be replaced. There is an old fold-out divider for the gym which is in poor condition and reportedly there are no replacement parts available for the divider due to it's age. There are cracks in the masonry walls adjacent to the divider. The locker room to the north of this gym is used as a changing area only. There is an ADA compliant restroom within this locker room. The flooring is terrazzo which is in good condition. The lockers are old but serviceable. The ceiling is in good condition.



Above the gym to the west is an area for aerobic cycling. The area shares the gym ceiling and the floor is painted concrete. This area is not ADA accessible.

The north gym has a wood floor which is in good condition. The adjacent locker rooms have poured floors,

which are in good condition. The ceilings are vinyl wrapped gypsum board lay-in and are in good/fair condition, approximately 30% of the ceiling panels are damaged and should be replaced within the boys locker room. Within the boys team locker area approximately 20% of the lockers are damaged and should be replaced. The locker room restrooms are an older version of ADA compliant. Both locker rooms should be painted.

There is a fitness/weight room adjacent to the north gym which has rubber flooring and an open ceiling. Both the room and the equipment is in good condition. There is an aerobics room south of the north gym which also has a rubber floor and has a 2x4 lay-in acoustical ceiling, both of which are in good condition.

The art rooms have painted concrete floors some of which are worn and should be re-painted. The ceilings are exposed structure, 1'x1' acoustical tile or a 2x4 layin acoustical ceiling some of which should be replaced due to water damage. Most of the casework is damaged and should be replaced.



The auditorium has carpeted aisles which is in good condition. The seating is in good condition. The sealed concrete under the seating is in good condition. There is an orchestra pit that is not accessible. The adjacent scene shop is in good condition, albeit full of non-theatre items. The dressing rooms are in good condition as are the adjacent ADA compliant single occu-

pancy restrooms. The auditorium is fire sprinkler protected.

The tech education wing main hallway ceiling is an aged 2x4 lay-in acoustical ceiling which should be replaced. There is some casework located at the end of the hallway which should be repaired. All of the exterior swing doors/frames are rusty and should be repaired and repainted. The graphic arts classroom has 2x2 lay-in acoustical ceiling tile, some of which is water damaged and should be replaced. The darkroom is no longer used and is slated to be reclaimed for other uses. The areas are in generally good repair. The woods, power and auto mechanics and metal shop all have exposed structural ceilings. Some of the ceiling insulation panels have damage and should be repaired.

The main boiler areas and electrical service are located in an area below the chorus and band areas. The area is not ADA accessible. The area is commonly referred to as 'The Pit'. The area contains mechanical rooms, custodial rooms, storage, team locker rooms, team showers and a team conference room. The floors are painted concrete or ceramic tile for the shower area. The floors are in fair condition. The restroom adjacent to the locker room is in poor condition. The restroom ceiling is severely water damaged, the partitions are rusty and the doors are delaminated. The lockers are in fair condition. The shower ceiling needs to be patched and painted. The doors need to be replaced. The team conference room reportedly has no ventilation. The ceiling within the locker area has exposed piping running through it. This entire area should be remodeled.



Within the boiler area, the old boilers were left in place when the new boilers were installed. Those boilers should be removed.

Most of the interior of the building (approximately 90%) is located on an accessible path. Most of the interior door hardware is ADA compliant (approximately 10% is not). Most of the restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. A complete ADA survey should be completed for the building and an ADA compliance schedule should be identified.

Most of the restrooms are in fair condition. All but the north gym restrooms should be repainted. There are rusty partitions which should be replaced and the existing piping is failing forcing the elimination of in-floor fixtures.



The building is not fire sprinklered other than the auditorium.

BEAVER DAM HIGH SCHOOL Heating, Ventilation & Air Conditioning:

Heating System:

The building is heated by two 300 BHP Cleaver Brooks, steel fire tube, low pressure steam boilers. The boilers were installed in 1988 to replace the original steam boilers which were abandoned in place.

The boilers are primarily fired with natural gas however an indoor oil storage tank is provided by firing on fuel oil. District Maintenance Staff indicated they are billed on based on an interruptible rate by the local gas utility

Steam piping from the boilers is connected to the existing steam piping system supplying steam to radiation, unit ventilators, air handling units in the original areas of the building. Piping is routed at the ceiling of the basement areas and in pipe tunnels at the perimeter of the building.

Steam condensate flows by gravity to the Boiler Room. A condensate pump discharges condensate to the boiler feed water unit and boiler feed water pumps supply the boilers to maintain proper water level.

Two separate steam to water heat exchangers with circulating pumps and hot water supply/return piping loops supply heating equipment for the various building additions. Hot water supply and return piping is routed at the basement ceilings and pipe tunnels. In some areas hot water supply and return piping rises from the tunnels and is routed above the First Floor ceilings.

Unit ventilators, radiation, heaters, air handling unit heating coils to the original building are supplied with steam. Hot water is supplies to unit ventilators, radiation, heater, air handling unit heating coils and hot water booster coils in subsequent building additions.

Separate gas fired rooftop units are provided for the Career Center and CDS areas at the west end of the building.

Ventilation and Air Conditioning System:

The building is ventilated by a mix of systems based on the areas of the building and the time when the area was remodeled or constructed. In general the ventilation systems are as described below:

Original building classrooms ventilation is by vertical floor set and horizontal ceiling hung unit ventilators. Outside air intakes for the units were extended to roof hoods where there was conflict with building additions. No air conditioning is provided.

Several occupied rooms in the portion of the building served by unit ventilators such as interior rooms between classrooms now used as Teacher's Offices and other rooms the such as the AV Storage Room (Copy Room) and the Gym Ticket Booth are not provided with mechanical ventilation as required by current Code.

Indoor air handling units with hot water heating coils and supply/return duct systems and supply/return outlets are installed for ventilation of the following areas:

- South Gym: Two Single Zone Units
- Interior SS Clrms. Multi Zone Unit (9 Zones)
- North Gym: Single Zone Unit
- Graphic Arts: Single Zone Unit
- Wood Shop: Single Zone Unit
- Power/Auto Shop: Single Zone Unit
- Metal Shop: Single Zone Unit
- Auditorium: Single Zone Unit with Booster Coils

Air conditioning is provided for the Auditorium air handling unit by a roof mounted air cooled condensing unit with refrigerant piping connected to a cooling coil in the air handling unit.

Rooftop units provided with supply/return duct systems and supply/return outlets are installed to provide ventilation and air conditioning for the following areas:

- Administration Offices: Single Zone
- English/MAC Clrms.: Single Zone with Bypass VAV
- Career Center: Single Zone with Bypass VAV
- Library/Computer Lab: Single Zone
- Business Ed. Clrms.: Single Zone
- Drama Dressing/Make-up: Single Zone

In addition to the above three mini-split ceiling mounted fan coil unit located in Chorus (south gym stage) with refrigerant piping routed to roof mounted condensing units provides air conditioning for the room.

Roof mounted ventilators or indoor utility exhaust fans ducted to the outside provide exhaust for the following:

- Toilet Rooms and Janitors Closets
- Kitchen and Dishwasher Hoods
- Science Room Fume Hood (One Unit)
- Science Storage/Prep Rooms
- Tech Ed General and Hood Exhausts
- Metal Shop Welding Booths

Odors were noted in some toilet rooms and the Science Storage room indicating inadequate ventilation in those areas.

The Science classrooms are not provided with "purge" exhaust fans which can be manually controlled during and after lab classes to remove odors. Purge fans are most useful in chemistry and biology classrooms where odors from lab experiments are more prevalent.

In addition the Wood Shop is provided with an outdoor dust collector with 10-12 drops to woodworking equipment or floor sweeps.

Automatic Temperature Controls:

Automatic temperature controls for the building are a combination of pneumatic, electric and direct digital control (DDC).

Areas of the building constructed or remodeled in 1988 or before are provided with pneumatic controls. A temperature control air compressor and air dryer located in the Boiler Room supply compressed air to the system to operate thermostats, controllers, valve/damper actuators, etc. for unit ventilators, air handling units, booster coils, radiation and heaters.

Rooftop units serving various areas of the building are controlled by manufacturer supplied integral controls. Rooftop units for the English/MAC Classrooms Career Center and CDS Classroom are controlled by the DDC system.

DDC controls have been installed to provide "start/stop" control and monitoring of the power system, unit ventilators, air handling units and rooftop; units.

The DDC control system resides on the School District technology network and can be accessed, monitored and adjusted via on-site computer workstation or the Internet.

BEAVER DAM HIGH SCHOOL Plumbing:

Sanitary Drainage System:

The building sanitary drain piping flows by gravity to the City sanitary sewer system. The majority of above ground waste and vent piping material is cast iron hub and spigot pipe and fittings and galvanized steel with cast iron drainage fittings. In areas of repairs or new work PVC waste and vent piping was noted.

The underground waste and vent piping material is assumed to be cast iron hub and spigot pipe and fittings. In the building additions PVC pipe and fittings is used.

During our visit District Maintenance pointed out a removed urinal in the Boy's Toilet adjacent to the Social Studies classrooms. The underground drain piping from the urinal had failed. The unit had been removed and the floor patched with concrete as a temporary measure. Per District Maintenance the urinal will be replaced and waste piping repaired next summer.

Waste piping in the older areas of the building is in poor condition. Leaks in the under floor waste piping are expensive and difficult to repair due to the need to remove fixtures and cut floor to access for repair or replacement of the failed piping. This has been a particular problem in the toilets in the 100 and 500 Corridors.

Storm Drainage System:

Roof drains with interior downspout piping routed through the building, to below grade and underground to the City storm sewer system is provided.

Domestic Water System:

The building is supplied from A City water service main with water meter.

The existing domestic water distribution system consists of galvanized steel pipe and fittings copper piping was also noted in the building addition.

The domestic hot water for the building is supplied from a high efficiency gas fired, water heater installed in the Boiler Room and connected to hot water storage tank.

A high efficiency, gas fired sealed combustion water heater installed in the kitchen supplies 140 degree water to the kitchen.

There is a hot water return piping system in the building with a small circulating pump. The pump is scheduled by the District BAS control system to operate when the building is occupied and shut-off when unoccupied.

A separate water service to the building is provided to supply the sprinkler system for the auditorium addition. Standard fire sprinklers are provided for the Stage, Scenery Storage and Dressing/Make-up rooms. A separate deluge system is provided at the stage opening.

Plumbing Fixtures:

We were unable to view all the plumbing fixtures throughout the building. In general the plumbing fixture condition varies widely based on their age and the area of the building located.

Plumbing fixtures appear to be original to the time the specific area was constructed or remodeled. For the most part plumbing fixtures do not appear to be ADA compliant.

Boy's/Girl's Toilets:

Water closets are wall hung with concealed flush valves and push button operated. Fixtures are not ADA compliant.

Urinals are floor set flush valve type. Flush valves are located at the toilet room ceiling and are operated via timer or door switch.

Lavatories are wall hung with face mounted faucet and CW/HW handles. Lavatories are not ADA compliant.

Staff Toilets:

Water closets are floor set, flush valve type. Flush valves are exposed. Fixtures are not ADA compliant.

Lavatories are wall hung with face mounted faucet and CW/HW handles. Fixtures are not ADA compliant.

Building Addition Toilets:

Water closes are wall hung, flush valve type with exposed flush valve. Fixtures are not ADA compliant.

Urinals are floor set flush valve type with exposed flush valve.

CDS Toilet:

Water closet is wall hung flush valve type with exposed flush valve.

Lavatory is wall hung with sensor operated mixing faucet.

A built-up roll in tile shower with floor drain, shower valve and shower head with hose is provided.

Kitchen:

Two compartment free standing stainless steel sink with swing spout faucet, CW/HW handles, and prerinse spray.

Three compartment free standing stainless steel sink with two swing spout faucets each with CW/HW handles and chemical sanitizer feed system.

Above floor grease interceptor adjacent to the 3 compartment sink.

Tray return with pre-rinse spray and disposal at inlet to dishwasher.

Overhead commercial dishwasher with floor mounted electric booster heater.

Science Classrooms:

Science room layouts are not consistent throughout building, however generally include the following:

Student work stations are provided with resin countertops and sinks. Trim consists of gooseneck faucets with serrated outlet and CW/HW handles.

Student work stations in some classrooms are also provided with simplex or duplex gas outlets. Outlets are either deck or backsplash mounted.

The Teacher's Demo table is provided with a resin countertop with sink. Trim consists of a gooseneck spout, serrated outlet and CW/HW handles and deck mounted gas outlet.

Emergency gas shut-off switches and control valves for each classroom was not noted.

Emergency eyewash stations in the Science classrooms are not consistent and appear to have been added as needed. One eyewash/shower was noted in a Science classroom but most appeared to be eyewash only with some attached to plumbing supply piping to Science

room sinks. Some of the eyewash units are not ADA compliant.

District Maintenance Staff indicated that they are planning installation of tempered emergency eye wash/showers for the science rooms.

FACE Classrooms:

Each Student work station and Teacher's Demo table is provided with a two compartment stainless steel dropin sink with swing spout and single lever mixing valve.

A clothes washer with wall box hook-up for cold water, hot water and drain is also provided.

Locker Rooms:

Water closets are wall hung, flush valve type with exposed manual flush valve.

Urinals are floor set flush valve type with exposed manual flush valves.

Lavatories are wall hung type with deck mounted single lever mixing faucet.

Showers are either wall mounted or column type stainless steel construction with single shower valve handle for each shower head. Each Locker Room is provided with a tempering valve to control water supply temperature to the showers.

Miscellaneous:

In Tech ED a darkroom with darkroom sink and thermostatic tempering valve is provided. District Maintenance Staff indicated the Dark Room is not used and will be removed.

In Graphic Arts the following is provided:

- A PVC wash-up spray booth with portable spray nozzle supplied from janitor's sink via hose.
- Bradley wash fountain.
- Electric waiter cooler.
- Free standing wash table with cold water connection and elevated vacuum breaker.
- Two enamel cast iron janitor's sinks.

In Power/Auto Mechanics the following is provided:

• One tank mounted are compressor in Mechanical Mezzanine

- One air compressor with separate receiver and air cooled heat rejection in Mechanical Mezzanine.
- Trench drains with Garage catch basin.

Drinking Fountains:

A wall hung drinking fountain with chrome plated spout and hand valve handle is provided in the corridor of the English classroom wing.

Electric Water Coolers:

Single wall hung refrigerated water coolers are provided throughout the building. Fixtures are not ADA compliant.

BEAVER DAM HIGH SCHOOL Electrical:

Electrical Service & Distribution:

This High School is currently served by several electric Three utility transformers were observed services. The original service is a around the building. 208Y/120 volt service that terminates in a Bulldog Switchboard in the boiler room. This equipment appears to be original to the school construction. The second service is a 2000 amp, 208Y/120 volt service that terminates in a Square D switchboard located in the mezzanine of the Tech Ed wing of the school. This equipment appears to be in good condition. A separate electric service was added for the Career center addition to the school and terminates in panels serving that addition. In general all electric panels appear to be of the vintage of when they were installed. It does not appear that any of the original equipment has been upgraded.

Surge Suppression:

Surge suppression was not noted.

Generator:

The building does not have a generator.

Interior Lighting:

In general classrooms, corridors and offices were illuminated with T8 fluorescent light fixtures. The district indicated these fixtures were upgraded to the T8 technology and electronic ballasts within the past 10 years. Occupancy sensors have been added in some spaces to ensure lights are off when classrooms and corridors are

unoccupied. Sensor installation appears to be an ongoing process.

Both gymnasiums are currently illuminated with metal halide type fixtures.

Illumination levels in general appeared to be in conformance with recommended levels as established by the IESNA.

Emergency lighting in the corridors is accomplished with unit battery equipment and as installed does not appear to meet current code requirements. Units tested did appear to work properly.

Exit lights appeared to be installed appropriately with the majority of the units illuminated with LED retrofit type lamps. Not all exit lights had emergency battery back-up as would be required for new installations.

Fire Alarm System:

The building has an EST fire alarm system installed. The system consisted of corridor smoke detectors, manual pull stations and audible and visual devices. The installation does not appear to completely comply with current code requirements. Fire alarm initiation devices and audible/visual devices are not all installed at spacing and mounting heights as required by current codes. Examples – Film room in pit does not have any audible or visual fire alarm devices, no fire alarm pull stations at stairs from the pit, areas in the school appear to have non-ADA strobes installed, there are areas that should have audible and visual fire alarm devices where nothing appears to be currently installed, horn/strobes are not installed at ADA required heights.

Master Clock System:

An existing Lathern master clock system was noted.

Intercom/Paging System:

The building appears to have a Dukane paging system in classrooms and speakers in the corridor ceilings. Behind the paging rack are 4 large batteries on the carpeted floor.

BEAVER DAM HIGH SCHOOL Architectural Recommendations:

- 1. Redesign the bus drop off and student drop off areas in order to avoid potential pedestrian hazards and to ease congestion.
- 2. Replace the asphalt in poor condition.
- 3. Redesign the loading area to provide for a turn-around.
- 4. Repair the doors, siding, eaves and roofs at the various wood/metal sheds on site.
- 5. Repair/replace the exterior rusty doors/frames.
- 6. Investigate and repair the building façade cracks and water stains.
- 7. Repair the loose fascia and soffit.
- 8. Repair the damaged walls at the greenhouse.
- 9. Replace the single pane glazing with double pane glazing and replace the failed double pane glazing.
- 10. Replace the oldest sections of the roof.
- 11. Provide a secure entry sequence by moving the interior vestibule doors northward, forcing entry to the main office prior to entering the building.
- 12. Replace old and/or damaged ceiling tile and grid throughout the building (multiple locations).
- 13. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- 14. Review the IMC to reconfigure or enlarge in conjunction with the career center.
- 15. Paint the interior door frames and refinish the interior doors.
- 16. Redesign the food loading/food preparation/cafeteria area and remodel.
- 17. Repair or replace the casework and countertops within the science classrooms and science prep areas that are damaged. Provide ADA compliant science stations. Redesign the science rooms to be move compatible with current curricular requirements.
- 18. Repair or replace the casework and countertops within the FACE classroom that are damaged. Provide ADA compliant stations.
- 19. Replace the divider within the south gym, repair the damage to the wall adjacent to the divider.
- 20. Within the locker rooms, repair the damaged ceilings and damaged lockers.
- 21. Replace the damaged art room casework.
- 22. Remove the existing boilers.
- 23. Remodel all of the existing restrooms to be ADA compliant and to replace the damaged toilet partitions and repaint the restrooms. Review the existing plumbing in order to review future failures.

- 24. Remodel the lower level locker rooms, restrooms, showers and team conference area. Consider making this level accessible and the impacts of Title 9.
- 25. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.

HVAC Recommendations:

- Performance of the HVAC system in portions of the building is characterized by inconsistent temperature and humidity control, no or inadequate supply air ventilation in some areas, poor exhaust ventilation in Science classrooms, Toilets, Locker rooms, etc. and poor room temperature control. Most of these issues can be attributed to the age of the HVAC and pneumatic ATC systems. System performance in the newer areas of the building (1988 Addition/Remodeling and later) is satisfactory. Due to the age of the existing systems in the older areas of the building, performance issues and system deficiencies, the HVAC systems in these should be prioritized and scheduled for replacement
- 2. The steam boilers, condensate pumps, boiler feed water unit, etc. are approximately 23 years old and in good condition. Provide steam boilers heating system with routine maintenance as required to operation. Routine boiler maintenance for tube replacements, burner repairs and refractory repairs should be budgeted annually.
- The original steam boilers were disconnected and abandoned in place in the boiler room. They should be demolished and removed from the boiler room to free-up floor space.
- 4. Institute a steam trap maintenance program for annual testing and repair/replacement of leaking steam traps.
- 5. Unit ventilators in the building range in age from the 1950's to 1970's and are nearing the end of their expected useful life. The units are provided with pneumatic controls. The units should be budgeted and scheduled for replacement. If air conditioning for the classrooms is to be considered replacement of the units with new unit ventilators should be reviewed to determine if another option is more appropriate.

- 6. The rooftop units range in age but some are over 10 years old and should be prioritized, scheduled and budgeted for replacement. If a building wide air conditioning system is being considered replacement of individual rooftop units should be evaluated as part of the overall scope of the building air conditioning system to determine if replacement is appropriate.
- Based on scope of any proposed HVAC upgrades installation of DDC controls for individual areas or systems vs. building wide with system compatible with the District wide DDC system should be considered.

Plumbing Recommendations:

- 1. The facility has experienced some blockages and back-ups within the building. The blockages should be cleared and repaired as required. The overall sanitary waste/vent piping system is in fair condition.
- 2. The water piping system is performing satisfactorily. There is adequate pressure in the building at fixtures and no serious or chronic leaks were noted indicating the piping system has not scaled to the point of causing blockages or causing leaks. Piping system should be repaired as leaks occur.
- 3. Provide Code compliant backflow preventers on spout at sinks in Janitor's Closets.
- 4. Existing door switch or timer operated urinal electric flush valves in the older portions of the building should be replaced with individual manual flush valves.
- 5. The basement Locker Shower rooms are original and in the oldest portion of the building. If this area is to remain as Locker/Shower rooms is recommended that the plumbing be replaced as part of any architectural renovation.
- 6. If any ADA or other remodeling affecting the plumbing systems is considered the associated waste and vent piping and water piping in the areas of the remodeling should be replaced to the nearest main.
- 7. If ADA remodeling of toilet rooms requires architectural modifications it is recommended that the waste/vent and water piping be replaced as described above and all plumbing fixtures be replaced with new water conserving ADA compliant fixtures.

Electrical Recommendations:

- 1. Lighting in both the gymnasiums should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 2. Lighting in the south gymnasium should be upgraded to fluorescent guarded, high-bay type fixtures with multi-level switching capability.
- 3. Complete classroom lighting energy efficient lighting upgrades with occupancy sensor controls.
- 4. Complete lighting efficiency upgrades.
- 5. Install additional occupancy sensors for areas not currently covered.
- 6. Upgrade building fire alarm system to be fully ADA compliant.
- 7. Emergency lighting should be reviewed as part of any lighting improvement project.
- 8. Exit lights with integral emergency batteries should be installed as equipment is serviced.
- 9. Exterior building perimeter security lighting should be upgraded/replaced.
- 10. The owner identified the replacement of the paging system in their long term needs list.
- 11. The owner identified the replacement of the Master Clock/Bell System in their long term needs lists.
- 12. Replacement of the original electric service equipment and electrical panels (Boiler Room) is recommended. This equipment will become difficult to repair due to its age.

Educational Space Study

OVERVIEW

Through interviews, existing facility survey and space utilization data, this section provides a quantitative measure of spaces needed in each school for current and future programs. The focus of this study has been limited to the elementary schools and elementary enrollment.

The number of classrooms indicated is projected based on current and future enrollments. We have based our building enrollment current enrollment and enrollment projections on the information contained within the Applied Population Laboratory report, dated November, 2011. Specifically the tables of the APL Report corresponding to the '5 Year "Trend" Projection Model' as the basis of future enrollment. The elementary population is projected to decrease. The middle school and high school populations are projected to increase between 2012 and 2021.

The Beaver Dam Unified School District supplied the following table of maximum classroom enrollments:

	Student/Teacher
Grade	Ratio
4K	18:1
5K-3rd Grade	25:1 Regular 18:1 SAGE
Grades 4-5	28:1
Grades 6-12	30:1

There are three questions that need to be answered in order to discern overall space needs. These questions are:

- 1. Is the existing capacity adequate to service the needs of the district today and in the future? If not, what are the additional space needs required? (Capacity)
- 2. Are there any building space deficiencies that should be addressed immediately? (Deficiency)
- 3. What facilities will be required in order to accommodate visionary programs? (Vision)

All evaluations assume that the district will continue to place students based on available space, does not change the curriculum, will continue to use the rooms as identified, and that the population changes at the expected rate.

Elementary School Capacity

There are several ways to assess the existing elementary schools capacity, three of those methods will be reviewed below starting from the most basic to the most comprehensive in order to give a complete picture of the districts elementary capacity. The Beaver Dam Unified School District also has approximately 220 4 year old kindergarten students that are educated off-site of any of the elementary schools listed. Those enrollment numbers are not reflected in these charts.

Assessing Capacity Based on Building Gross Area

The simplest tool for assessing capacity is comparing the gross building area (in square feet) per student. These factors can be compared to all schools within a district as well as against national norms. The new construction design target would be between 125 to 140 square feet of gross building area per student. Thus, if a school has more area per student available than a comparable school, then the school should have more capacity. The more a building has been remodeled or added to, the more area will be required per student due to inefficiencies that occur out of those remodeling and additions.

	Area per S	Area per Student, based on Building Gross Area per School							
	Jefferson	Lincoln	Prairie View	South BD	Trenton	Washington	Wilson		
Area	55,900	38,100	71,980	20,600	18,800	48,400	33,050		
Current Enrollment	330	250	333	161	119	300	155		
Area/Student (SF)	169	152	216	128	158	161	213		

From the chart above South Beaver Dam appears to be at the limit of its maximum capacity. The remaining schools would appear to have some capacity.

Assessing Capacity Based on the Number of Rooms Needed Versus the Number of Rooms Available

The minimum number of rooms needed can be determined by using the district maximum student teacher ratio and the existing enrollment for the district as a whole. This assumes that the district is willing to shift student populations to achieve the most optimum student distribution, not necessarily the most convenient distribution. This also assumes that all of the rooms can be filled to maximum capacity.

	Number of	Rooms Ne	eded Based on	Maximum S	tudent/Tea	cher Ratios		
	Jefferson	Lincoln	Prairie View	South BD	Trenton	Washington	Wilson	Total
Pre-Kindergarten	0.00	0.00	1.00	0.00	0.00	0.00	0.00	
Kindergarten – K4	0.00	0.00	1.25	0.00	0.00	0.00	0.00	
Kindergarten	3.00	2.00	2.00	1.25	1.00	2.25	1.00	
First Grade	3.75	3.00	2.00	1.25	1.00	2.00	1.25	
Second Grade	2.75	2.00	1.75	1.25	1.00	2.25	1.00	
Third Grade	3.00	2.00	1.75	1.25	1.00	2.25	1.25	
Fourth Grade	2.00	1.75	1.75	1.00	1.00	2.00	1.00	
Fifth Grade	2.00	1.75	1.50	1.00	0.75	1.75	1.00	
Rooms Needed	16.50	12.50	13.00	7.00	5.75	12.50	6.50	73.75
Rooms Available	18.00	13.00	14.00	6.00	6.00	15.00	6.00	78.00
Difference	1.50	0.50	1.00	-1.00	0.25	2.50	-0.50	4.25

From the chart above we can see that there is the necessity for a minimum of 73.75 core curriculum rooms. Between the elementary schools there are currently 78 core curriculum rooms. A small amount of excess capacity is indicated. By this measure South Beaver Dam and Wilson Elementary are over capacity, the other schools are under capacity. These numbers are not tempered by any utilization factor (the difference between maximum class size and the average class size).

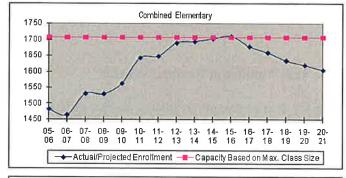
Assessing Capacity Based on the Number of Rooms and the Maximum Class Size

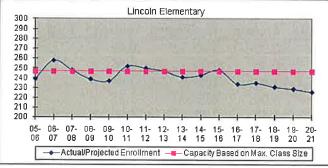
The most accurate measure of capacity can be obtained by multiplying the district maximum student teacher ratio by grade by the number of rooms used (based on the current educational program) multiplied by 90% (which is a planning guideline for the student station utilization factor).

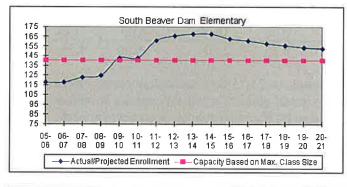
Capacity Based on Maximum Class Size

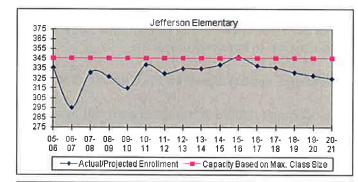
	Jefferson	Lincoln	Prairie View	South BD	Trenton	Washington	Wilson	Total
Capacity @ 90%	346	247	346	140	140	348	140	1707
Current Enrollment	330	250	333	161	119	300	155	1648
Difference	16	-3	13	-21	21	48	-15	59

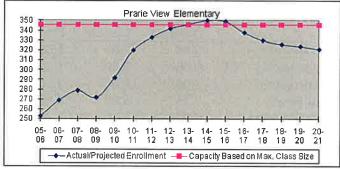
In this case, 1707 students can be accommodated and current enrollment stands at 1648. There is a small amount of excess capacity (59 students, or 3.5% of current enrollment). These values are used in the graphs below. From the graphs below only South Beaver Dam and Wilson Elementary are projected to be over capacity. The remaining elementary schools are projected to be under or at capacity. Overall there is adequate capacity within the Beaver Dam Unified School District to handle the current and projected future elementary enrollment. From the present to the 2016-2017 school year there will be declining excess capacity until the school district will have no excess elementary capacity, after which time it is projected that there will be a decline in student population.

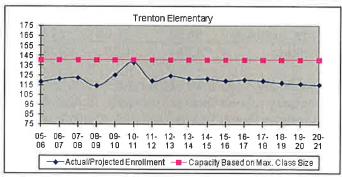


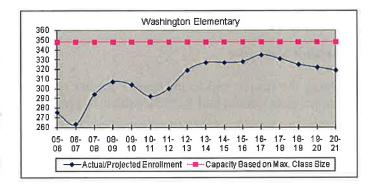


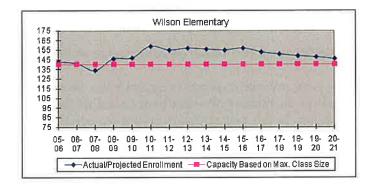












Middle School Capacity

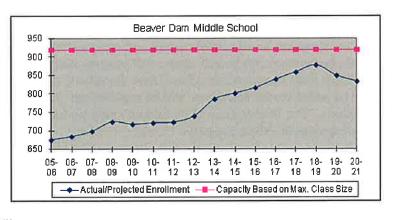
Assessing Capacity Based on Building Gross Area

The simplest tool for assessing capacity is comparing the gross building area (in square feet) per student. These factors can be compared to all schools within a district as well as against national norms. The new construction design target would be between 140 to 160 square feet of gross building area per student. Thus, if a school has more area per student available than a comparable school, then the school should have more capacity. The more a building has been remodeled or added to, the more area will be required per student due to inefficiencies that occur out of those remodeling and additions. The Beaver Dam Middle School currently has 194 square feet per student. This would indicate that there is some excess capacity.

Assessing Capacity Based on the Number of Rooms and the Maximum Class Size

The most accurate measure of capacity can be obtained by multiplying the district maximum student teacher ratio by grade by the number of rooms used (based on the current educational program) multiplied by 85% (which is a planning guideline for the student station utilization factor).

In this case the Beaver Dam Middle School has 18 core curriculum (math, social studies and English) class-rooms, which should provide a capacity of 918 students based on the maximum student to teacher ratio and the utilization factor. The graph to the right represents the past and future enrollment projections overlaid over the capacity number referenced above. By this measure there should be adequate capacity through the planning period. There are 6 science classrooms available which will provide a capacity of 918, if the classrooms are utilized at 30 students per room. Currently the rooms have 6 workstations. Ideally there would only be 4 students per workstation for a capacity of only 24 students per room.



Assessing Capacity Based on the Number of Rooms Required Versus the Number of Rooms Available

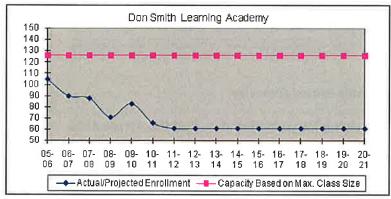
The capacity should also be evaluated based on the number of rooms required versus the number of rooms provided. In this case the Beaver Dam Middle school should require 15 core curriculum (math, social studies and English) class-rooms, there are currently 18 available. This would indicate some excess capacity. The science program requires 5 classrooms, there are currently 6 science classrooms available.

Don Smith Learning Academy Capacity

Assessing Capacity Based on the Number of Rooms and the Maximum Class Size

The most accurate measure of capacity can be obtained by multiplying the district maximum student teacher ratio by grade by the number of rooms used (based on the current educational program) multiplied by 80% (which is a planning guideline for the student station utilization factor).

In this case the Don Smith Learning Academy has 7 core curriculum (math, social studies, English and science) classrooms, which should provide a capacity of 151 students based on the maximum student to teacher ratio and the utilization factor. The graph to the right represents the past and future enrollment projections overlaid over the capacity number referenced above. By this measure there is excess capacity within the facility. There was no future population projections provided for this program.



Assessing Capacity Based on the Number of Rooms Required Versus the Number of Rooms Available

The capacity should also be evaluated based on the number of rooms required versus the number of rooms provided. In this case the Don Smith Learning Academy should require 4 core curriculum (math, social studies, English and science) classrooms, there are currently 7 available. This would indicate excess capacity.

High School Capacity

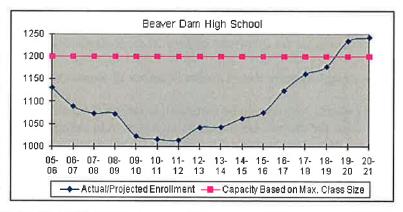
Assessing Capacity Based on Building Gross Area

The simplest tool for assessing capacity is comparing the gross building area (in square feet) per student. These factors can be compared to all schools within a district as well as against national norms. The new construction design target would be between 200 to 220 square feet of gross building area per student. Thus, if a school has more area per student available than a comparable school, then the school should have more capacity. The more a building has been remodeled or added to, the more area will be required per student due to inefficiencies that occur out of those remodeling and additions. The Beaver Dam High School currently has 243 square feet per student. This would indicate that there is a small amount of excess capacity.

Assessing Capacity Based on the Number of Rooms and the Maximum Class Size

The most accurate measure of capacity can be obtained by multiplying the district maximum student teacher ratio by grade by the number of rooms used (based on the current educational program) multiplied by 80% (which is a planning guideline for the student station utilization factor).

In this case the Beaver Dam High School has 25 core curriculum (math, social studies and English) class-rooms, which should provide a capacity of 1200 students based on the maximum student to teacher ratio



and the utilization factor. The graph to the represents the past and future enrollment projections overlaid over the capacity number referenced above. By this measure there should be adequate capacity until 2018 when there is a projected rise in enrollment. However, there are only 7 science classrooms available which will provide a capacity of 806. Depending upon the anticipated enrollment demand for science, there may not be enough science classrooms.

Assessing Capacity Based on the Number of Rooms Required Versus the Number of Rooms Available

The capacity should also be evaluated based on the number of rooms required versus the number of rooms provided. In this case the Beaver Dam High School should require 24 core curriculum (math, social studies and English) classrooms, there are currently 25 available. This would indicate a small amount of excess capacity. The science program requires 8 classrooms, if all students are required to take science for all years, or some students are taking multiple science topics at one time. There are currently 7 science classrooms available.

Space Deficiencies

Are there any building space deficiencies that should be addressed? Based on district information provided, floor plan analysis, staff surveys, and utilizing national room size standards, the following list of space deficiencies have been identified. All evaluations assume that the district will continue to use the rooms as identified.

Jefferson Elementary

				Recommended		
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
Kindergarten	3	1,113	3,340	1,400	4,200	104, 128, 129, K-Coat
						107, 245, 247, 301,
Standard Classrooms	8	832	6,655	900	7,200	302, 303, 204, 306
						120, 122, 123, 124,
Standard Classrooms	7	955	6,685	900	6,300	125, 126, 127

The Kindergarten classrooms are currently undersized. Some of the standard classrooms are undersized, some are oversized. The total area of additional assignable space is 1,020 square feet, requiring an addition of approximately 1,390 square feet. This is such a small adjustment that it would not be an efficient addition, but may warrant remodeling.

Lincoln Elementary

				Recommended		
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
Kindergarten	2	1,045	2,090	1,400	2,800	105, 112
						100, 101, 103, 104
						201, 202, 203, 205
Standard Classrooms	10	889	8,890	900	9,000	206, 208
Art	1	960	960	1,000	1,000	216
Music	1	960	960	1,000	1,000	218

The Kindergarten classrooms are currently undersized. The standard classrooms, art and music rooms are slightly undersized. The total area of additional assignable space is 900 square feet, requiring an addition of approximately 1,240 square feet. This is such a small adjustment that it would not be an efficient addition, but may warrant remodeling.

Prairie View Elementary

				Recommended			
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number	
Kindergarten 4 yr old	1	945	945	1,400	1,400	106	
Kindergarten 5 yr old	2	1,035	2,070	1,400	2,800	112, 114	
						113, 115, 302, 304,	
						305, 307, 402, 404,	
Standard Classrooms	10	1,095	10,950	900	9,000	405, 407	
Comp Lab	1	800	800	1,000	1,000	155	

The 4 year old kindergarten room is undersized if a full class size is anticipated. The 5 year old kindergarten rooms are undersized. The standard classrooms are oversized. The computer lab is undersized. The net result of the additions and deletions is –565 net square feet, thus it would not be worthwhile to reconfigure.





South Beaver Dam Elementary

				Recommended		
Function/Grade	Qty. Rm. Area (SF) Tot. Area (SF	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number	
						100, 102, 107, 108,
Standard Classrooms	5	801	4,003	900	4,500	110
Music / Art	1	783	783	1,000	1,000	104
Kindergarten	1	743	743	1,400	1,400	109
Computer Lab	1	742	742	1,000	1,000	113
Library	1	891	891	1,000	1,000	114
Main Office	1	214	214	450	450	
Guidance	1	44	44	100	100	
Speech	1	44	44	100	100	

The standard classrooms, music/art room, kindergarten classrooms, computer lab, library, main office, guidance and speech offices are all undersized. The total area of additional assignable space is 2,086 square feet, requiring an addition of approximately 3,443 square feet.

Trenton Elementary

				Recommended		
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
Main Office	1	1,130	1,130	800	800	Office/Princ./RR/BR
Wall Office		1,130	1,150			101, 103, 104, 108,
Standard Classrooms	5	868	4,342	900	4,500	109
Kindergarten	1	864	864	1,400	1,400	102
Music / Art	1	772	772	1,000	1,000	107

The main office is oversized. The standard classrooms are slightly undersized. The kindergarten and Music/Art room are undersized. The total area of additional assignable space is 592 square feet, requiring an addition of approximately 906 square feet. This is such a small adjustment that it would not be an efficient addition, but may warrant remodeling.

Washington Elementary

				Recommended		
Function/Grade	Qty.	Rm, Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
Standard Classrooms	12	946	11,352	900	10,800	100, 102, 200, 201, 203, 205, 207, 301, 302, 401, 402, 403
Kindergarten/Coats	3	1,065	3,195	1,400	4,200	204, 204A, 208, 209 211
OT	1	142	142	400	400	205A
Art	1	936	936	1,000	1,000	303

The standard classrooms are oversized,. The kindergarten classrooms, OT and art room are undersized. The total area of additional assignable space is 775 square feet, requiring an addition of approximately 1,231 square feet. This is such a small adjustment that it would not be an efficient addition, but may warrant remodeling.

Wilson Elementary

There were no notable spatial deficiencies at Wilson Elementary.

Beaver Dam Middle School

			l	Recommended			
Function/Grade	Qty.	Qty. Rm. Area (SF) Tot. Area (SF) Area (SI		Area (SF)	Exten. (SF)	Room Number	
	-			Z - Journal		101, 103, 203, 205,	
						211, 213, 215, 301,	
						303, 307, 311, 313,	
Standard Classroom	13	729	9,482	850	11,050	315	
Science (6th Grade)	2	1,019	2,038	1,400	2,800	102, 106	
						104, 110, 304, 305,	
Reading	5	802	4,008	425	2,125	329	
Computer Studies	3	874	2,622	1,000	3,000	223, 323, 325	

The standard classrooms are oversized. The standard classrooms, science rooms and computer studies labs are undersized. The reading rooms are oversized. The total area of additional assignable space is 825 square feet, requiring an addition of approximately 1,376square feet. This is such a small adjustment that it would probably not be an efficient addition, but may warrant remodeling.

Don Smith Learning Academy

There were no notable spatial deficiencies at the Don Smith Learning Academy.

Beaver Dam High School

				Recommended		
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
English	10	778	7,776	800	8,000	
Math	5	813	4,065	800	4,000	
Math	1	1,241	1,241	800	800	
Science/Prep	7	1,572	11,002	1,700	11,900	
Social Studies	4	842	3,367	800	3,200	
Social Studies	2	1,679	3,357	800	1,600	
Foreign Language	3	769	2,307	800	2,400	
Computer Lab	1	758	758	1,000	1,000	
Kitchen	1	1,213	1,213	2,000	2,000	
Health	1	941	941	800	800	

There are some classrooms that are undersized and many that are oversized. The science labs and their associated science prep areas are undersized. Given that there should be an additional science lab and the current configuration, the science area should be redesigned. The kitchen is undersized and misconfigured. The total area of additional assignable space is -327 square feet, which would indicate excessive area for the class space assigned. A redesign of several areas of the school may be warranted after further review.

Vision - Spatial and Non-Spatial Impacts

What facilities will be required in order to accommodate visionary or other programs already in the works? The following items have been identified as potential future programming that will impact the special requirements of the schools.