BACK CREEK ELEMENTARY SCHOOL

ARCHITECTURAL

Back Creek Elementary School was originally built in 1936 and renovated in 1989. The total facility square footage is 48,631 SF. The building is a two story brick and precast structure. It has a flat 60 mil EPDM single-ply membrane roof approximately 6 years old. The building has multiple skylights and aluminum windows throughout. The building front has a two story aluminum frame solarium that constantly leaks. The renovation is unique in design since the original exterior face of the building is now the interior face of the corridor. The interior corridors are two stories and open to upper and lower level by steel rails, stairs and walkways. Natural lighting penetrates this open two story corridor from the skylights above. As a result of the renovations, a reasonably wide range of materials, finish levels, and conditions exist throughout the facility. Each portion of the building loosely complies with the accessibility requirements of the time in which the work was performed; however, some spaces do not comply with current standards. The building is equipped with an automatic fire suppression system.

Exterior Finishes

Exterior Cladding:

Exterior wall material is generally brick with precast concrete. Brick was observed to be in good condition with some areas needing repointing of joints. Pre-finish metal flashings and drip edges occur at wall/roof intersections and are in, generally good condition. Joints at these flashings and drip edges have suffered some degradation. Sealant should be replaced as required.

Roof:

Areas of the building were re-roofed approximately 6 years ago. In general, maintenance activities should be increased on the roof. Several roof drains were observed with debris blocking passage of water; debris should be removed from the roof. Water ponding was detected in many areas of the roof.

The roof is 60 mil black EPDM single-ply membrane, the roof condition appeared to be, generally good, with seams in good condition. While the roof is reasonably new, they should be consistently monitored for issues related to ponding and debris build up.

Skylights were observed to in good condition but needing some repair. The weather seals were pulling away from the glass framing. Skylight maintenance of seals is highly recommended to prevent failure.

Windows:

Windows in the original building and approximately 80% of the windows in the additions were replaced with aluminum storefront window systems. These windows have operable vents with screens, which allow natural ventilation. Glazing consists of tinted, insulated glass, and translucent, insulated panels. These windows are generally in good condition.

The remaining windows in the building have been replaced as the building aged however; the glazing is single pane (non-insulated) glass. These window systems are in poor condition and not energy efficient, and allow significant air infiltration. The oversize wood windows within the gymnasium space should be replaced with new energy efficient windows. It is advisable for the new windows to replicate the existing windows to help maintain the historic look.

Exterior Doors:

Exterior doors have been replaced as the building aged however; the exterior doors are hollow metal. Doors are in good-poor condition. Door hardware is in good-poor condition, and has mostly been replaced since the building was built. Door and door hardware replacement throughout is recommended during renovations.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Vinyl Composition Tile, Quarry Tile and Ceramic Tile are the predominant floor finishes. Other floor finishes include carpet, painted and unpainted concrete, and wood gymnasium flooring. Carpet is present in limited locations.

Interior wall finishes are generally painted concrete block and painted plaster. Walls would be patched and painted during renovations.

Window treatments are typically vinyl roller shades. Most are in poor condition and should be replaced during renovations.

Ceilings are generally plaster on metal lathe, 2'x4' suspended acoustical tile (lay-in) with some gypsum wall board ceilings. Exposed metal roof decking is present in the multi-purpose area. Water damage is present in some of the suspended acoustic tile ceilings. New suspended acoustical tile ceilings are recommended as part of renovations. The acoustical tile ceilings help reduce noise and hide new HVAC, electrical, and data work.

Most interior doors are wood and are original to their respective construction periods. Most doors exhibit wear and do not have handicap accessible door hardware. All interior doors and door hardware would be replaced during a substantial renovation.

Some door frames would be replaced to achieve handicap accessibility, or because of reconfigured spaces. Other door frames may be salvaged, patched, and painted.

Marker boards, chalk boards and tack boards are present in classrooms. Most are in poor condition. All would be replaced during renovations.

Built-in wooden storage units are present in the original building. All are in poor condition and many would be displaced during renovations because of the need to enlarge and reconfigure spaces.

Casework (cabinets) is generally in good-poor condition. Most casework is not handicap accessible. Student storage is accomplished by hooks on the classroom walls. This provides no separation of belongings. General casework storage is not sufficient in most classrooms. Classrooms would benefit from new casework with individual student cubbies, sink with bubbler, and storage to accommodate large format paper, books, manipulatives, etc. All casework should be replaced during any substantial renovation.

Loose furnishings are a mixture of tables and desks of varying ages. The flexibility required of 21st Century classrooms is enabled by flexible, movable furnishings. All furniture and equipment should be replaced during a substantial renovation to provide a uniform appearance, enhance student comfort, and to provide flexibility. Furnishings, fixtures, and equipment design should occur in tandem with building design to achieve proper coordination between building utilities and furniture types and locations. This includes library shelving and furnishings.

Kitchen (food service) equipment is a mixture of equipment original to the building and equipment purchased as the building aged. To ensure maximum efficiency in terms of function and energy, new food service equipment should be provided during a substantial renovation. Significant energy savings can be achieved through more efficient kitchen hoods with energy recovery capabilities, and other equipment. The kitchen should be enlarged and rearranged to increase efficiency of function and serving capacity.

Custodial storage shelving is mostly original to the building. Custodial storage is scattered throughout the building. Consolidated, larger custodial storage is important for efficiency and proper space utilization. Smaller custodial closets throughout the building are also important to efficient custodial function. New metal shelving would be provided in consolidated custodial storage spaces during renovations. Proper floor sink size and locations would be provided during renovations to sufficiently accommodate modern floor machines.

General school storage is scattered throughout the building and consumes spaces intended for other functions. The addition of casework in classrooms will alleviate some of this. But, as part of renovation plans, general school storage should be planned in several strategic areas serving administration, faculty, and staff. Metal shelving units would be provided in dedicated general storage rooms.

Accessibility

At several exterior doors, there are steps up into the building, which are not handicap accessible. Paved play areas, play fields, and play equipment are not handicap accessible. As part of any substantial renovation all elements of the site and building entrances would be renovated to be handicap accessible. Obtaining handicap accessibility to areas behind the school will be difficult because of the grade that must be negotiated by ramps and walks. Handicap accessible play areas would be required as part of any substantial renovation and addition project.

Within the building, few components are handicap accessible simply because of their age. All restrooms are not handicap accessible to the latest ADA standard, and will require substantial renovations to achieve full handicap accessibility. Handicap restrooms near Main Entrance and Elevator was design under the 1989 BOCA accessibility standards, these same restrooms do not meet ICC A117.1-2009 accessibility standards. The stage is currently not handicap accessible without special accommodation. Some doors lack clearances required to be handicap accessible. Handicap accessibility throughout the building would be achieved during any substantial renovation.

Safety and Security

This section addresses passive security measures, such as how entrances function, visibility within the building, etc.

The administration area is the first line of defense in passive school security. Visibility to the exterior and interior of the building are critical to early threat identification and intervention. The administration area at Back Creek Elementary School has almost no visibility to the interior of the building. A more transparent administration area should be considered as part of renovations and additions.

Back Creek Elementary School does have a simple circulation network of main corridors that have relatively long sight lines, which are critical to threat identification. Recent renovation work, undertaken by RCPS in 2014, involved the installation of secure entry vestibules at all schools. The vestibules at Back Creek Elementary School provide visibility from the administration office and control over the main entry. Door position sensors and locks are provided at all other exterior doors. Entry at these points is limited to staff members with appropriate keys/cards. Due to the nature of the renovations to the school, the building is reasonably compartmentalized. Sight lines are poor in most areas of the building. A more transparent administration area should be considered as part of renovations and additions.

End of Back Creek Elementary School Architectural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: The majority of water closets observed were wall mounted vitreous china with manual type flush valves. There were some floor mounted vitreous china water closets with manual type flush valves as well. There was one tank type water closet in the kitchen area. There were some water closets that appeared to be ADA compliant. The condition of the water closets ranged from fair to good.

Urinals: Urinals observed were wall mounted vitreous china with manual type flush valves. There were some ADA compliant urinals observed. The condition of the urinals and flush valves was good.

Lavatories: Lavatories observed were both wall mounted vitreous china and drop in countertop vitreous china with manual or metered type faucets. There were no lavatories that appeared to be ADA compliant by today's standards. Most lavatories observed did have hot water supply, but no ASSE 1970 mixing valves that are required by today's codes. The condition of lavatories and faucets ranged from fair to good.

Sinks: Classroom sinks observed were both stainless steel and porcelain with gooseneck faucets and bubblers. There were stainless steel sinks with kitchen type swing faucets noted in non- classroom areas. The condition of the sinks and fittings ranged from fair to good.

Showers: No showers were observed.

Laboratory Fixtures: No laboratory fixtures observed.

Emergency Fixtures: No emergency fixtures observed.

Electric Water Coolers: There were both floor mounted and wall mounted water coolers noted, wall mounted water cooler may have been handicapped accessible for children, but not for adults. The condition of water coolers was fair.

Water Heaters:

Domestic hot water is generated by a gas fired Lochinvar model CWN0745PM water heater and stored in an approximately 200 gallon storage tank. Hot water system is recirculated through an in-line recirculation pump. Hot water is mixed thru a mixing valve in the ceiling and distributed throughout the building. (Mixing valve is leaking and needs replaced.)

Piping:

Water: Copper, some old galvanized observed from old system, not determined if it is still active.

Sanitary Piping: Cast iron / PVC
Storm Piping: Cast iron / PVC
Gas Piping: Black steel
Sprinkler Piping: Black Steel

Pipe Insulation:

Hot water, cold water, hot water return and horizontal storm drain piping is insulated with fiberglass insulation. Some small sections observed were missing.

Water Entrance:

The building is served by a well and pumped to a 2000 gallon hydro-pneumatic storage tank located within the mechanical room. Air pressure is maintained by a Champion duplex oil less air compressor. Water system components are assumed to be approximately 28 years old.

Kitchen:

Kitchen is old type with direct connected waste connections and no floor sinks. The grease interceptor is a small flush with floor type (assume 100 gallon) located in the kitchen near the dishwasher. All kitchen equipment is electric with no gas fired equipment.

Sprinklers:

The building is fully sprinkled by use of a 30 HP Patterson fire pump that draws from a 20,000 gallon vertical steel tank located outside the building. It was noted that the fire pump is leaking and has been for quite some time, resulting in quite a bit of rust and deterioration to the pump base. Recommend repair or replacement soon before system failure.

Recommendations:

Recommend repair or replacement of the mixing valve for the domestic hot water system located in the mechanical equipment room. Recommend repair or replacement of the fire pump that has rusted due to leaking before system failure and loss of building use.

End of Back Creek Elementary School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

A gas fired boiler provides heat to the building through a hot water circulation system. Hot water is pumped from the boiler with two base mounted pumps to fan powered air terminal units and duct mounted reheat coils. The boiler was manufactured in 1989 and is 27 years old and is expected to have a useful life of 30 years. The pumps are 27 years old and have passed their expected useful life of 25 years. The gym is heated by a Trane DX type unit with a duct mounted hot water reheat coil. This unit was installed in 2012. This rooftop unit has a useful life expectancy of 18 years. There is one DX rooftop unit with gas heat. It was installed in 1994 and has passed its expected useful life of 18 years. The remaining rooftop units were also installed in 1994 per serial numbers. There are also electric wall heaters and finned-tubed radiators that provide heat to corridors and bathrooms that were installed in 1989.

Ventilation:

Ventilation is provided to the building by rooftop air handler units. The kitchen hood and dishwasher each have a dedicated exhaust fan on the roof.

Air Conditioning:

The building is primarily cooled by rooftop units with DX cooling. Majority of the rooftop units were installed in 1994 and have passed their useful life expectancy of 18 years. The gym is cooled by a Trane DX type rooftop unit that is 4 years old. This rooftop unit has a useful life expectancy of 18 years.

Piping:

There is hot water piping, black steel, insulated. The piping is 22 years old and has a useful life expectancy of 30 years.

Controls: Pneumatic controls.

Recommendations:

Based on conversations with the school staff, there seems to be temperature control problems with the building. Sporadic temperature swings have been reported. It is recommended that zoning and controls be examined when the air handler units are replaced. Also, there are a lot of leaks above ceiling either due to the lack of insulation or use of drip pans under the terminal units. The leaks have damaged the ceiling tile on the first and second floor. Some ceiling tiles had to be removed due to the extensive damage.

End of Back Creek Elementary School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The main switchboard is a 1200 Amp, 3 phase, 4 wire, 208Y/120 volt Square D, service entrance rated switchboard. The existing switchboard is new to the building with the 2013 gym AC update and has space and spares available. Old service entrance, 800 Amp GE, is backfed from new switchboard.

Recommendation: In the event of a substantial renovation or addition, existing switchboard can be reused and expanded as necessary.

Panelboards:

Distribution and Branch Circuit Panelboards: All of the panels are GE - A series panelboards that were added or replaced with the 1990 front addition/renovation. Many of the panelboards have few spares/spaces remaining and are nearing the end of their expected useful life.

Recommendation: If renovations and additions occur, replace the existing panelboards. Expand as necessary to accommodate new or modified spaces and locate any new panels in areas to minimize student access and to meet National Electrical Code working clearances.

Cabling:

Cabling: Most of the original building wiring appears to have been updated with the 1990 addition. Not all wiring above ceiling is in conduit. Classrooms in older sections of the building have had new outlets added through the use of surface raceway and conduit. Exposed electrical wiring from various systems (data, telephone, power) can be seen in multiple areas throughout the building.

Recommendation: If renovations and additions occur, inspect and reuse existing wiring as appropriate. Remove and replace any wiring identifiable as having exceeded its useful lifespan. All exposed wiring should be enclosed in conduit or raceway to prevent electrical hazards.

Conduit/Raceway:

Conduit/Raceway: The conduit and raceway above ceiling is still in good condition. Most wiring above ceiling is enclosed in MC cable, though not all. Surface raceway and conduit has been used throughout the building for any new receptacles, fire alarm, and all data to classrooms. Many classrooms and computer labs have a shortage of receptacles and so surge protectors are being utilized. This can lead to tripping, electrical, and fire hazards.

Recommendation: All surface raceway should be evaluated regularly and securely reattached to the wall if it becomes loose. All raceway would be replaced if the building were renovated. Conduit would be salvaged where practical. Additional receptacles should be added to classrooms and computer labs where needed, rather than through the use of surge protector strips.

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily 2x4 flat lens fixtures with T8 lamps, 1x4 fixtures with T8 lamps, fluorescent wall mounted up-lighting, decorative pole lights for the upstairs front addition walkway, and some decorative fluorescent pendants. The T8 lamps are current technology, and meet the current needs of the school. The majority of the fixtures appear to have been added or replaced with the 1990 addition. Various emergency wall pack light fixtures are also utilized, many of which have exceeded their expected useful life. Lamps are likely changed as lamps burn out; however, many of the ballasts and optics have likely not been changed and have exceeded their useful life.

Recommendation: To accommodate a new addition or renovation, provide a new lighting design. Consider LED fixtures where practical.

Lighting Controls:

Lighting Controls: Lighting controls throughout the building consist of toggle switches controlling fixtures within an area and motion controlled switches throughout corridors.

Recommendation: In the event of a renovation or addition, add automatic lighting controls to each room to comply with building energy codes. Consider providing additional control in the classroom areas for multiple scenes for different types of media.

Public Address System:

Public Address System: The public address system is currently a Valcom headend system with speakers located throughout the school. Each classroom has a PA speaker and a push-to-talk button. Teachers and staff use the Cisco phone system to call in to the PA for most communications and announcements.

Recommendation: The PA system is current technology. In the event of a renovation or addition, the system could be reused and expanded as necessary.

Security System:

Security System: Security system consists of electronic locks and motion sensors at exterior doors, keypads, and AI phone/Lobbyguard system at entrance. The current system meets the needs of the school and utilizes current technology.

Recommendation: Upgrade, expand, and reconfigure zones of the system as necessary if renovations and additions are pursued.

Camera System:

Camera System: A building wide IP based camera system is installed. It is current technology that meets the current needs of the school.

Recommendation: In renovations and additions, provide additional cameras and Digital video recorders as required for additional areas with desired coverage.

Data System:

Data System: The Data system consists of newer Category 6 and 5e cable. The building is equipped with wireless internet through Cisco access points throughout. Teacher and student computers are provided with access to a local area network.

Recommendation: The current system meets the needs of the building and switches and patch panels could be reused in any renovation or new construction.

Fire Alarm System:

Fire Alarm System: The fire alarm control panel is a Simplex 4010 fire alarm system that appears to have been added with the 2014 front office renovation. The current system consists of limited area manual pull stations, smoke detectors, and horn/strobe alarms. However, many classrooms and bathrooms do not have alarm devices within. Most of the devices throughout the school have reached or exceeded their expected useful life. There is also a fire pump which is being fed from a secondary service entrance.

Recommendation: If renovations and additions are pursued, reuse fire alarm control panel and replace devices. Expand existing fire alarm system with audible and visual notification devices throughout the school and in classrooms. Reconfigure the existing system as necessary for renovations.

Generator:

Generator: No generator is installed to serve this building. Emergency lighting is provided by emergency battery units in the corridors, large rooms, and at exits.

Recommendation: For any renovations or addition, a new generator should be considered, sized to provide power for life safety features and other equipment that the school would like to operate.

Site Lighting:

Site Lighting: The site lighting consists of wooden pole mounted flood lights for parking areas, wall packs around the building, and canopy lighting at exterior doors. Lamps are likely changed as lamps burn out; however, many of the ballasts and optics have likely not been changed and have exceeded their expected useful life.

Recommendation: To accommodate a new addition or renovations, replace existing lighting fixtures around exit doors and areas of egress. Connect these lights to an emergency circuit. Provide new general site lighting to maximize energy efficiency and minimize light contamination on neighboring properties and to the sky.

Classroom Media (TV, Projector, ETC):

Classroom Media: Classroom media typically consists of an Activeboard with attached projector, a teacher computer, printer, and a wall mounted phone. Laptop and iPad carts are also in use.

Recommendation: Periodic upgrade of equipment will maintain a strong inventory of new equipment and keep students aware of current technology.

Phone System:

Phone System: The phone system consists of a new Cisco IP phone system. Phones are provided in all offices and classrooms as required to access outside lines. Push-to-talk buttons with the PA system are included in all classrooms, but the phone system is used for communication with the front office. The system is operational and meets the current needs of the school.

Recommendation: It is possible to retain and expand the existing phone system through additions and renovations.

End of Back Creek Elementary School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 8 regular buses, 1 special needs bus, and 4 daycare vans.

Morning: The special needs bus and daycare vans drop students off with the car riders on the east side of the building. Regular buses drop off at the west side of the building. Traffic flow around the building is east to west.

Afternoon: Same as morning operation.

Cars: Very poor circulation due to small size of site. Minimal parking is available on site. Route 221 is a very busy road with little shoulders and high speed.

Morning: Parents line up on the east side of the building to drop off students. Traffic will back up into Route 221.

Afternoon: Same as morning operation.

Recommendation: See below.

Parking: 61 striped parking spaces are provided with 3 designated ADA spaces. Day to day parking is adequate for faculty / staff / visitors. Parking quantities meet Roanoke County requirements and State recommendations. Event parking is an issue with parents parking along Route 221 or anywhere they can find a space whether it is marked or not. Field trips where parents are required to attend leave from Cave Spring Baptist Church so that parents can have sufficient parking.

Recommendation: See below.

Service: Service area is located at the rear (south) side of the building. Dumpsters are located in the middle of the parking lot / drive aisle. Poor location. Larger delivery trucks have a difficult time maneuvering due to the tight space.

Recommendation: See below.

Fire Access: Fire apparatus have adequate access around the building. Only issue is during events if cars park in designated fire lanes.

Separation: Very poor. Buses, service, faculty, and parents all share the same areas. There is no separation of vehicles.

Recommendation: Options are limited due to the size of the site and location of the creek and Route 221. Explore the possibility of turn lanes, expanded parking, and drop off lanes around or on the existing play areas.

Adjacent Roadways: Route 221 is a narrow 2 lane rural road with a relatively high speed limit. Play areas are located close to the road due to the small site. A new guardrail was installed adjacent to the play field. Sight distance at the east entrance is poor; however, this is designated as an entrance only so it is not an issue.

Pedestrian: There are no pedestrians walking to the site.

ADA Accessibility

Parking: Three spaces are designated as ADA parking adjacent to the front of the school. One space is designated as van accessible. Pavement markings are faded.

Recommendation: Re-stripe parking spaces and curb.

Signage: Signage meets current code and is in fair condition. Posts are showing signs of rust and signs are beginning to fade.

Recommendation: Monitor condition and replace when necessary.

Ramps: There is a curb ramp on the east side of the building which is in very poor condition. The ramp to the mobile classroom does not have a handrail per code.

Recommendation: Replace curb ramp. Provide code compliant handrail.

Access to all areas: There is ADA access to all areas and activities on site.

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Mostly good condition. Entrances from Route 221 are fair. Recent paving did not extend out to edge of travel lane.

Recommendation: Monitor asphalt condition and replace as necessary.

Asphalt Walks: Asphalt track is in good condition.

Concrete Pavement: Concrete pavement located at the dumpster pad only. Concrete is aged but in good condition.

Concrete Walks: Main entrance concrete is old with spalling and cracking. Concrete curb ramp is in poor condition.

Recommendation: Replace old concrete areas.

Stairs, Ramps, and Railings: Curb ramp in poor condition. Railing at loading dock is damaged. No handrail at mobile unit ramp to meet code. Wooden steps at dumpsters do not have handrails and are in disrepair.

Recommendation: Repair railing at loading dock.

Concrete Curb and Gutter: Concrete curb and gutter is in varying conditions. Older curbs are showing age.

Guardrail, Parking Bumpers, and Miscellaneous: Some parking bumpers have been damaged and displaced.

Recommendation: Repair and replace parking bumpers to their proper locations.

Fire Lane: Paint on curbs and asphalt is faded. Some fire lane signs are faded and illegible. There is an insufficient quantity of fire lane signs. Fire lane signs are not turned toward oncoming traffic.

Recommendation: Re-paint curbs and asphalt at fire lanes. Replace fire lane signs and provide additional signs as necessary. Ensure that fire lane signs are turned toward oncoming traffic.

Utilities

Fire Lines and Hydrants: Sufficient fire coverage, but no fire hydrant on site. There is a 40,000 gallon water tank with a fire department connection at the rear of the school. There is fire truck access around the entire building.

Domestic Water System: The water system is in good condition. Staff indicated no pressure or discoloration issues. Water is provided to school via wet well located in the rear of the building. A domestic water tank is also located at the rear of the school.

Recommendation: Recommend connecting to public water off Route 221.

Sewer System: The sanitary sewer system consists of two septic tanks alongside the Kindergarten playground and a pump station which pumps to drain field under grass play field. System in fair condition and functional.

Natural Gas System: Gas meter is located at the rear of the building and is in fair condition, functional and located in a traffic area. The meter is currently protected by a temporary barn and shows signs of rust and deterioration.

Recommendation: Add bollards to protect meter if storage shed is moved. Contact gas company to inspect condition of meter.

Electric: Electric service to the school is provided via overhead poles to school property at the rear near the creek. Service is taken underground to the building and transformers are mounted on the service pole. Electric service to mobile classrooms at side of the school is provided via overhead poles with pole mounted transformers and meters mounted on the service pole.

Site Lighting: Site lights illuminate parking lot and is considered minimal for safety and security. However, staff indicated lighting is an issue during evenings due to high traffic of pedestrians and possible trespassers after school hours.

Recommendation: Improve and provide additional site lighting.

Grading and Drainage

Storm Water System: Roof drains are daylighted and all runoff designed to sheet flow into ditches along the perimeter of the property and flow into Back Creek. Berms guarding site from the creek cause significant ponding in parking lot. No storm water structures located on site.

Recommendation: Provide a few drop inlets that drain to creek with backflow valves to prevent parking lot from ponding and flooding with a rise in the creek.

Slopes, Ponding, and other Drainage Issues: Possible settlement issues due to septic tanks causing ponding and minor erosion due to concentrated flow from parking lot.

Recommendation: Backfill settled areas at septic tank.

Site Features

Vegetative Landscaping: Vegetation, including trees and shrubs, are healthy. General maintenance needed.

Recommendation: Prune trees over storage structures at grade Prek-1 play ground. Continue general maintenance of pruning and mulching.

Lawns: Generally good condition. Minor areas in need of repair in heavily trafficked areas.

Recommendation: Repair and reseed bare areas. Provide fencing and erosion control mat to protect seed in high traffic areas.

Fencing and Gates: CLF in good condition generally. Minor repairs needed.

Recommendation: Replace gate in CLF at mobile unit.

Signage: Signage is legible. Many posts lack foundations and are leaning. Minimal directional signage on site.

Recommendation: Repair or replace damaged or leaning signs. Future signs should utilize 2"x2" square posts in sleeves with concrete foundations. Provide directional signage.

Flagpoles: Poles are in fair condition. Age is showing.

Recommendation: Monitor condition to replace flag poles in future.

Site Furnishings: Site furnishings limited to wood picnic tables and playground seating.

Recommendation: Clean and treat wood furnishings to extend useful life..

Accessory Structures: CMU storage building will require roof replacement within 5 years, structure is solid. Vinyl coated wood structures show some rot.

Recommendation: Monitor condition of buildings. Repair or replace as necessary.

Play Areas and Physical Education

Play / PE Areas (General):

Playgrounds / Stationary Play Equipment: Two areas of play equipment for grades PreK-5 provided. Single simple PreK playground provided (refer to Paved Play Areas.) All equipment in fair to good condition. Mulch in fair condition.

Recommendation: Monitor grade 2-5 equipment as vinyl coating on one structure is thinning and equipment age is apparent. All areas require fresh mulch.

Paved Play Areas: Paved area for grade PreK-1 is asphalt with significant damage. Suspect cause is nearby sewer utilities. Second paved play area is in fair condition. Paved walking track in good condition.

Recommendation: Replace PreK-1 paved play area.

Play / PE Fields: Multipurpose games field provided by Roanoke County Parks and Recreation adjacent to campus. Infield conditions are good. Outfield/PE field turf condition is poor due to extensive use for youth soccer. Fencing is in good condition. Accessory structures limited to one set of bleachers.

Recommendation: None. The field is for community use and likely not able to be repaired by RCPS. Any improvements will require coordination with their department.

End of Back Creek Elementary School Civil Narrative

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Notes

Project Name: RCPS Facilities Assessment	**Comm. #: 1637**

Subject: Back Creek Elementary School	**Total Pages:**
Date: 9/21/2016	**Location: Roanoke, Virginia**
Copies To:	**Report Prepared By: JFH**

General:

The Facility was constructed in 1936 and Renovated in 1989. The building is Two Story Brick and Precast Concrete Structure with a flat 60 mil EPDM roof (approx 6 years old) and multiple skylights. The building is sprinkled, the heating and air conditioning added and updated during the Renovation period. This building is unique due to the renovation. The original exterior of the building is now part of the interior corridor. The design left in tack the original appearance down to the 1936 cornerstone which is now in the corridor. During the renovation period, the main entrance has been updated and is accessible and secure. Main lobby does have Handicap Accessibility toilet rooms but done by the 1989 building code standards and not considered HC Accessible for today standards. The multiple levels are accessible with an elevator and stairways. The upper level corridor overlooks the lower level corridor. The exterior windows have been replaced during the past several years but the main entrance has a water leak problem from the Aluminum Frame and Glass Solarium that was added to the entrance during the renovation.

Entry Vestibule:

VCT Flooring
SATC
CMU Walls.
The existing Main Entrance Vestibule meets security and accessibility requirements.

Main Office:

VCT Flooring
The walls are painted CMU.
The ceiling is 24x24 SATC.
The Windows are Aluminum Frames w/insulated glazing
Wood Doors and HM frames (Needs new lever handle hardware for doors)

Corridor:

The flooring is VCT
The walls are glazed tile wainscot and CMU block above.
The ceiling is SATC.

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Notes

Mechanical Room:

Outside Access
Painted Concrete floors
CMU Walls
Exposed Ceiling Structure
HM doors and frame (Need all new Hardware throughout)

Kitchen:

Quarry Tile
CMU Walls and Glazed Tile Wainscot
24x24 SATC (Ceiling tiles need to be replaced)
Wood Doors and HM Frames (Wood doors need to be refinished)
HM Frame with Wood Doors (Doors need to be refinished and new hardware)

Cafeteria:

Plaster Walls and Painted CMU Walls between Serving and Cafeteria
VCT flooring
Suspended Acoustic Tile Ceiling
Aluminum Windows
Exterior doors are HM Frame with HM Door

Teacher Lounge:

Exposed Brick and Painted CMU walls
VCT flooring
Suspended Acoustic Tile Ceiling
Plastic Laminate Casework and Countertop
Men and Women Toilet at Teacher Lounge has floor mounted flush valve water closet
Men and Women Toilet had Ceramic Tile flooring with Glazed tile wainscot and Painted CMU walls

Roof:

The existing flat roof is 6 years old 60 mil EPDM
The roof has roof drains and parapet scuppers for overflow drainage.
Maintenance to the rood is required for debris removal and Drain cleaning
The Atrium at entrance is badly leaking due to the design and maintenance.
(Atrium frame butted up to brick and mortar causes voids. Large amount of caulking and sealant has been applied through a period of time but the old sealant was never removed).
The multiple skylights on the roof needs some maintenance work. Weather seals need replacing and some panels need replacing.

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Notes

Gymnasium:
- Wood Windows with wire mesh screen.
- Walls are Glazed brick wainscot and Painted CMU
- Wood flooring
- Exposed Ceiling and Metal Deck
- Stage has wood flooring
- Doors are HM Frame with Wood Doors (Refinish and install new hardware)

Old Classroom 105:
- VCT Flooring
- Suspended Acoustic Tile Ceiling
- Glazed Tile Wainscot, Plaster Wall and
- Wall of wood Windows and Storage
- HM Frame with vintage looking wood door with knob hardware

Boys Toilet Room near Classroom 105:
- Not Handicap Accessible
- Wall MTD Lavatory with trap wrap (black Pipe Insulation)
- Wall MTD Water Closets with Flush valve
- Ceramic Tile flooring
- Glazed Tile Wainscot and Painted CMU Walls
- 24x24 Suspended Acoustic Tile Ceiling

New Classroom 109:
- VCT Flooring
- Painted CMU Walls
- Suspended Acoustic Tile Ceiling
- Plastic Laminate Casework and Countertop
- Small toilet room off of classroom has floor mounted water closet with flush valve, ceramic tile flooring, glazed tile wainscot and painted CMU walls.

Stairs:
- Pre-engineer Stairs
- Rubber Treads
- VCT Landings
- Fire Rated ‘B’ label door
- Painted CMU Walls
- Pipe Railing

Computer Lab:
- VCT Flooring
- Painted CMU walls and GWB
- Suspended Acoustic Tile Ceiling
- Aluminum Windows
- Need Electrical Raceways
- Top floor and bottom floor rooms

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Notes

Conclusion:

The building is in very good shape. The building has been updated throughout the years and some modernization has been provided but also maintaining the historic look of the building.

The current restrooms need to be updated to meet the Handicap Accessibility Requirement of today code. New Signage will need to be provided for each space and the signage needs to meet today Handicap Accessibility code requirements.
The wood doors are in good shape but some will need refinishing. All door knobs need to be replaced with new Lever Handle hardware. The wire glass within the existing doors and sidelights are no longer acceptable by the current building code.

The existing 60 mil EPDM roof is approximately 6 years old. The roof appears to be in good shape but maintenance is needed. Debris must be removed, drains cleaned out and the drains baskets need to be reinstalled and secured at all drain openings. The skylights need some attention such as weather seals replaced, light panels repaired and old caulk and sealant removed and new caulk and sealant provided.

The Aluminum Frame and Glass Atrium require work to prevent leaking. All old caulk and sealant removed in its entirety and all new weather seals flashing and caulk shall be installed. (Aluminum frame attachment to rough texture brick and mortar joints is not an ideal detail to prevent moisture penetration)

Building Entrance meets security requirement and accessibility requirements.

Back Creek Elementary School Architectural Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Architectural					
Brick	5	Life	27 yrs to 80 yrs	Life	
Precast concrete	5	35 years	27 yrs to 80 yrs	8 years	
Wood trim	4	15 years	27 years	12 years	
Interior doors	2	20 years	27 years	0 years	Replace/Refinish
Exterior doors	3	50 years	27 years	23 years	
Door hardware	2	7 years	27 years	0 years	Need replacing
Electronic door hardware, Security entrance	5	5 years	2 years	3 years	
Carpet	4	5 years	2 years	3 years	
Vinyl floor tile	2	12 years	27 years	0 years	
Ceramic/Porcelain floor tile	4	50 years	27 years	23 years	
Wood gym floor	3	10 years	27 years	0 years	Need repair, refinish or replace
Other wood floors	3	10 years	27 years	0 years	Need repair, refinish or replace
Exposed concrete floors	5	50 years	27 years	23 years	
Curtain Wall, Storefront	3	50 years	27 years	23 years	Solarium at Main Entrance Leaks
Exterior windows	3	30 years	27 years	3 years	
Interior windows	3	30 years	27 years	3 years	Replace Wire glass with safety glass as per code
Roof (Including flashings, coping, etc)	5	20 years	6 years	14 years	60 mil EPDM (skylights need maintenance)
Suspended acoustical tile ceilings (lay-in)	3	25 years	27 years	0 years	
Plaster/GWB ceilings	3	30 years	27 years	3 years	
Sound control panels (wall and ceiling)	5	N/A	N/A	N/A	
Ceiling/exposed structure finish (paint)	5	5 years	N/A	N/A	
Interior wall finish (paint)	5	5 years	N/A	N/A	
Marker boards, chalk boards, tack boards, projection screens	5	N/A	N/A	N/A	
Casework	5	N/A	N/A	N/A	
Window treatments	5	N/A	N/A	N/A	
Toilet partitions	2	20 years	27 years	0 years	
Toilet accessories	2	N/A	27 years	N/A	
Exterior railing, Interior railings	5	30 years	27 years	3 years	
School sign	2	25 years	27 years	0 years	Signage needs to meet ADA code ICC A117.1-2009
ADA Code Compliant	2	N/A	27 years	N/A	Bldg ADA Code brought up to ICC A117.1-2009
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

Back Creek Elementary School Mechanical Plumbing Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Mechanical					
Boiler	3	30 years	27 years	3 years	
Chiller or Cooling tower	N/A				
Mechanical piping	4	30 years	22 years	8 years	
Refrigerant piping	4	30 years	22 years	8 years	
Duct	4	30 years	22 years	8 years	Gym ductwork is only 4 years old.
Outdoor air units	N/A				
Terminal units	2	20 years	22 years	0 years	
Package units	2	18 years	22 years	0 years	
Controls	2	20 years	27 years	0 years	
Exhaust fans	2	25 years	27 years	0 years	
Plumbing					
Plumbing fixtures and controls	3	30 years	27 years	3 years	
Floor drains	4	30 years	27 years	3 years	
Water heaters	2	15 years	27 years	0 years	
Pumps	2	15 years	27 years	0 years	
Potable water piping & valves	4	30 years	27 years	3 years	
Sprinkler system	1	25 years	27 years	0 years	Replace fire pump
Back-flow preventer					
Service line & meter (size appropriate)					
Wall and yard hydrants	2	15 years	27 years	0 years	
Eye wash stations					
Emergency showers					
Hot water mixing valve	2	15 years	27 years	0 years	Replace mixing valve
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

Back Creek Elementary School Electrical Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Average Useful Life	Current Age	Expected Life Remaining	Condition Category	Notes
Electrical					
Main switch gear	40	3	37	5	
Panelboards	30	26	4	5	
Cabling	40	12	28	5	
Cabling	40	26	14	5	
Conduit/raceway	40	26	14	5	
Light fixtures	20	26	-6	5	
Lighting controls	30	26	4	5	
Public address system - Headend	30	5	25	5	
Public address system - Devices	30	26	4	5	
Security system	10	2	8	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system - Headend	30	2	28	5	
Fire alarm system - Devices	30	26	4	5	
Site lighting	20	26	-6	2	
Classroom media systems (TV, projector, etc.)	10	5	5	5	
Phone system	10	5	5	5	
Condition Categories					
1 Immediate replacement required, life safety concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

Back Creek Elementary School Civil Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Civil					
Asphalt pavement	4	15 years	Unknown	13 years	
Asphalt walks	5	20 years	Unknown	15 years	
Concrete pavement	5	30 years	27+ years	3 years	
Concrete walks	4	30 years	27-80 years	3 years	
Stairs	5	30 years	27-80 years	3 years	
Ramps	3	30 years	27 years	3 years	
Railings	4	15 years	Varies	0-10 years	
Concrete curb and gutter	5	30 years	27-80 years	3 years	
Concrete / Brick Pavers	N/A	N/A	N/A	N/A	
Guardrail, Parking Bumpers, Misc.	4	Varies	Unknown	15 years	
Fire lane	4	Varies by Material	Unknown	0 years	
Fire lines and hydrants	4	40 years	Unknown	5-10 years	
Domestic Water system	3	40 years	80 years	0 years	
Sewer system	4	40 years	80 years	0 years	
Natural Gas system	4	40 years	27 years	13 years	
Electrical System	4	25 years	Unknown	5-10 years	
Exterior Lighting	2	25 years	Unknown	0-5 years	
Storm water system	3	40 years	80 years	0 years	
Detention / Retention ponds	N/A	N/A	N/A	N/A	
Stormwater Management BMP's	N/A	N/A	N/A	N/A	
Surface drainage and grading	3	N/A	N/A	N/A	
Vegetative landsaping	5	Life	27+ years	Varies	
Lawns	4	Life	27+ years	Life	
Fencing and gates	4	20 years	Unknown	10+ years	
Signage	4	10 years	Unknown	5+ years	
Flagpoles	5	50 years	27 years	23 years	
Site furnishings	3	15 years	Unknown	5+ years	
Awnings / Canopies	N/A	N/A	N/A	N/A	
Site retaining walls	N/A	N/A	N/A	N/A	
Accessory structures	4	50 years	Unknown	5+ years	
Playgrounds	4	10 years	Unknown	8 years	
Paved play areas	4	20 years	Unknown	10-15 years	
Play / PE fields	4	Life	Unknown	Life	
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					