FORT LEWIS ELEMENTARY SCHOOL

ARCHITECTURAL

Fort Lewis Elementary School (FLES) was originally established in 1928. An addition has been placed at the rear of the building that now houses the gymnasium, cafeteria, administration and classrooms, bringing total square footage to 33,903 SF. The addition created an interior courtyard that is rarely used for school functions. This space has corridor access and could be converted to classroom space, as space needs evolve. Staff indicated there would be a growing need for classroom space. There are no mobile units serving as classrooms at the school, but there are storage structures on site.

Exterior Finishes

Exterior Cladding:

Exterior wall material is, generally, brick with decorative block accents, and exterior insulating finish system (EIFS) at window heads and other infill locations. Brick cracking has occurred at the heads and sills of windows in the original portion of the building. Some cracks have been repointed. Joints should be monitored for continued movement. Wood trim and soffit material at the rakes and eaves exhibit discoloration from mold/mildew. Paint has peeled from the wood and some evidence of rotting/degradation was observed at the rakes and eaves of the original clerestory. The EIFS at the entrance has been stained by rust laden water from the roof, and by water seeping through the brick above. The joint between the EIFS and the brick has been sealed, and there are weeps located above the joint. The staining is coming from locations in between the weeps.

A mix of sills and window trims are present. Painted concrete sills are present at the ground level of the original building, while exposed concrete sills dominate the newer addition. Joints in the sills should be monitored for sealant degradation and/or cracking and be resealed as required. Windows at the clerestory are trimmed with painted wood and have painted metal flashings. The paint at both wood and metal is in poor to fair condition and should be scraped and repainted.

Roof:

The roof is accessed via a ladder in the interior courtyard. This ladder is protected by a padlocked gate. Taller individuals can climb the ladder without unlocking the gate.

Roofing over most of the building is an adhered EPDM system. Laps, splices, and patches were observed to be in poor condition with many failing. At the older portion of the facility, the membrane has pulled away from parapet walls and the large cants that are installed. Heavy ponding was observed over the original portion of the facility.

Several inches of water have accumulated near the northeast corner of the clerestory; based on the organism growth in the water, this is a constant pond. There are no overflow drains provided, but features at the front façade have been flashed as if that is their intent. These features are at least 16" above the roof surface. Any accumulation of water that could make use of these would likely cause the roof to collapse. Drains that did have their strainer baskets installed were observed to be obstructed with debris. Other drains have had their strainers completely removed, risking clogging of drain pipes. EPDM flashings have been installed over the original concrete coping at the 1928 building. These are detaching from the coping and should be replaced, or the method of water intrusion prevention re-evaluated.

Standing seam metal roofs at the gymnasium, and over the clerestory at the original building, were observed to be in good condition. Finishes have experienced some chalking but no wear through the finish was observed. Gutter straps have been knocked loose at a few locations, but snow guards have limited damage at most locations. Ice flags have detached from the snow guards at both roofs and should be reinstalled.

Drip edge and prefinished metal copings were observed to be in fair condition. Sealants, at fascia panels on the roof and at roof edges, were failing and should be replaced as required. Several joints have experience sealant degradation and cracking, and should be resealed.

Windows:

Windows at the ground level of the original building have been replaced with hung aluminum windows with insulated glazing. These windows match windows that were installed at the newer addition. The windows at the clerestory were not replaced during the renovation/addition activities. The original windows are in good condition, but finishes are in fair to good condition. Storm windows have been installed at the exterior and are in fair to good condition. A large glazed block opening is present near the main entrance and is in good condition. Steel lintels above the windows should be scraped and repainted. Wood trim, above windows at the original building, needs to be scraped and repainted.

Exterior Doors:

Exterior doors are a mix of hollow metal systems, and wood doors. At main entry points and most egress doors, hollow metal systems are installed. Fit and finish at these locations is good. Glazing condition and door condition at all hollow metal doors should be monitored. Rusting doors and frames should be repaired or replaced as required. Wood doors are located at the two former entrances at the original building (south face). These appeared to be in good condition, but experience minimal use. Condition should be monitored and repairs/repainting performed as required. Exterior door #3 serves as an egress door from a basement classroom. This door is less than 6 feet tall and does not meet requirements for a personnel door.

Courtyard:

The courtyard has three entrances, two from corridors and the third from the computer lab area. These entrances are all located above the finished concrete level in the space. To accommodate access, a composite decking material has been installed over framing. This deck occupies half of the space. A ramp provides access to the lower portion at slab level. The changes in level seriously limit the use of the space. The composite decking material has had surface degradation due to UV damage and wear.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Vinyl Composition Tile, wood, and broadloom carpet are the predominant floor finishes at FLES. Glazed quarry tile was located in the kitchen. Wood floors, original to the 1928 building are in varied condition. The finish is in good condition, but in certain classrooms the wood below is stained and worn. The heaviest wood wear is located at the old entrances to the school. There are several locations where gaps have formed between the boards, but finish fills the gaps. Overall, the board floors are in good condition. Several rooms in the guidance area and the library area have had broadloom carpet installed over the board floors. This carpet has seen significant wear in some locations and should be replaced as required. Vinyl composition tile is present throughout the newer addition, in corridors, classrooms, and in the cafeteria. The VCT is in good condition. The gymnasium has a parquet wood floor that is in good condition with the exception of two cracks that extend the width of the gymnasium, near the free throw line. This crack aligns with saw-cut joints in the exterior concrete masonry unit wall.

Interior wall finishes varied across the facility. Older portions of the building have plaster walls with wooden chair rail and base. The plaster is in, generally, good condition with a few cracks near doors. The building addition has painted block walls at corridors and the exterior, with gypsum wall board partitions erected as dividers within spaces. Both are in good condition. Window treatments are typically vinyl roller shades. The seclusion room is located in the guidance office area. This room is constructed of partial-height gypsum wall board partitions covered in a vinyl clad padding.

The secure vestibule was constructed using an aluminum storefront system that is in good condition.

Ceilings are generally suspended acoustical tile (lay-in) with gypsum wall board at bulkheads and accenting locations. The suspended acoustical tile ceilings have experienced some water staining, at isolated locations throughout the facility. The tile in the library A/V room is stained, which may be the result of condensation on, or leaking from, sprinkler piping in the room. The ceiling near the clerestory is plaster with an accenting wood trim grid. No signs of water damage were observed. Replacement damaged suspended acoustical tile ceilings are recommended as part of any

renovations, but water issues should be rectified before any ceiling work takes place. Ceiling tiles (2'x2') in the gymnasium have sagged significantly. Given the age of the addition, this sagging is unusual. Humidity conditions should be monitored in the space to confirm this is not the cause of the sagging.

Most interior doors are wood in hollow metal frames. Most doors are in good condition with minimal damage to veneers. Frames should be repainted as required.

Marker boards and tack boards are present in classrooms. Most are in fair to good condition, with some exhibiting staining. Stained units would be replaced during renovations. Smart boards have been placed in rooms.

Casework was observed to be in varied condition. Most casework is plastic laminate clad. Several units were damaged, missing edge banding and having broken hardware. Examples of this can be seen at the casework in the computer lab. Sinks with bubblers are provided in classrooms.

The new bathrooms have quarry tile floors and SATC ceilings that are in good condition. The painted steel toilet partitions are rusting. Plastic laminate countertops were installed above accessible heights, as were the mirrors in the space.

Two classrooms with shared bathrooms are configured so that students must pass through two doors to reach a sink for hand washing. This is in violation of the Virginia Uniform Statewide Building Code's (VUSBC) modification of the International Plumbing Code (IPC), allowing an individual to pass through one door. Removal of the corridor doors would open the classrooms to one another, potentially causing acoustic disturbances. A drinking fountain is situated at the center of the corridor, and would have to be relocated if a door were installed between the two rooms. These bathrooms are provided with 12" ceramic floor tile, painted concrete masonry units, and suspended acoustical tile ceilings, all in good condition.

Bathrooms in the original building have quarry tile floors and a 4" glazed ceramic wall tile wainscot. GWB or plaster walls extend to the ceiling. SATC in the boy's room is heavily stained and the painted steel toilet partitions are rusting. One sink in the boy's room was observed producing a loud water hammer noise.

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.

Most classrooms are provided with casework for storage purposes. Additional storage for general school use is provided at several locations throughout the facility, and in

portable units outside. As needs change, additional storage may be incorporated into any renovations or additions.

Accessibility

The newer addition, generally, complies with the accessibility standards in place at the time of construction. As part of any future renovation work, the building should be made to comply with all applicable accessibility standards.

The boiler room has a kiln stored in one corner. This kiln is plugged in and, according to staff, is used by one of the teachers. The access stair to the boiler room does not have a rail, and the room is not an accessible space. If the kiln is being used for teaching purposes, it may have to be relocated. Additionally, there is no exhaust system for this kiln.

There is no directional signage at the former entrances to the building directing visitors to the accessible, secure entry. The front entry is not accessible.

Safety and Security

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

The vestibule at FLES provides visibility from the office and control over the main entry. Door position sensors and locks are provided at all other exterior doors. Exterior doors providing access to corridors and other spaces, not accessed via the vestibule, are equipped with card readers. Sight lines and distance are reasonably long in most areas of the building. The building consists of two main hallways with multiple crossing connectors.

End of Fort Lewis Elementary School Architectural Narrative

STRUCTURAL

During the Architectural investigation of the Fort Lewis Elementary School, an issue was discovered warranting additional investigation from a structural standpoint.

Concrete Spalling from Boiler Room Walls

In the Boiler Room, several areas of concrete spalling from the base of the walls was observed. The remaining concrete appeared to be somewhat deteriorated and could be easily scraped from the face of the wall. The custodial staff member along during the inspection indicated that water / moisture is not normally an issue during wet weather. Therefore, that is not likely the issue. Incidentally, water should not damage concrete that has properly set up. Therefore, it is anticipated that there may have been issues during original placement of the concrete that caused it to be of sub-standard quality. Since the boiler room is only under a small area of the building, the lateral loading resisted by the boiler room walls should be relatively small. Therefore, the deteriorated concrete should not be cause for alarm. However, if the condition of the walls continues to deteriorate, some remedial measures may become necessary. It is recommended that these walls are closely observed and periodically photographed to document their condition for future reference and to determine if their condition worsens.

End of Fort Lewis Elementary School Structural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: Water closets observed were floor mounted vitreous china with manual type flush valves. The water closets are from 1997 and seemed to be in good working condition. The flush valves are expected to have a useful life of 12 years and the water closets are expected to have a useful life of 30 years.

Urinals: Urinals observed were wall mounted vitreous china with manual type flush valves. The urinals are from 1997 and seemed to be in good working condition. The flush valves are expected to have a useful life of 12 years and the urinals are expected to have a useful life of 30 years.

Lavatories: Lavatories observed were wall mounted vitreous china with manual type faucets. The lavatories are from 1997 and seemed to be in good working condition. The lavatories are expected to have a useful life of 30 years.

Sinks: Classroom sinks observed were stainless steel with polished chrome gooseneck faucets and wrist blade handles. The sinks are from 1997 and are expected to have a useful life of 30 years.

Electric Water Coolers: The water coolers are wall mounted, ADA compliant high/low models. The water coolers are from 1997 and seemed to be in good working condition. The water coolers are expected to have a useful life of 15 years.

Water Heaters:

Domestic water heating is done by two gas fired units. Water heater #1 (WH-1) was installed in 2006. WH-2 serves the kitchen with a circulation pump, both installed in 2013. The domestic water heaters are expected to have a useful life of 15 years. Two hot water circulation pumps circulate the hot water loops throughout the building.

Piping:

Water:3” and smaller is Copper with fiberglass insulation
3” and above is ductile iron pipe
Sanitary Piping: Cast iron and PVC
Storm Piping: Cast iron
Gas Piping: Black steel

Domestic Water Entrance:

The building is served by a 2-1/2" cold water line that is assumed to be from a municipal system. There is a backflow preventer which was installed in 1997. The backflow preventer is expected to have a useful life of 30 years.

Fire Protection:

The building is not sprinkled. There is limited coverage in the storage rooms.

Recommendations:

Add a sprinkler system to the school so the building is fully sprinkled.

End of Fort Lewis Elementary School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

The building is primarily heated with water source heat pumps. The heat pumps are from 1997 and have passed their expected useful life of 18 years. Gas fired boilers installed in 1997 provide heat to the building condenser water circulation system. Condenser water is circulated to the building's heating coils with base mounted pumps, which were also installed in 1997. The boilers and pumps are 19 years old and are expected to have a useful life of 25 years and 30 years respectively. The boilers and pumps seemed to be in working condition for their respective ages.

Ventilation:

Ventilation is provided to the building through water source heat pumps and gym rooftop unit.

Air Conditioning:

The building is primarily cooled by water source heat pumps. The heat pumps in this building are from 1997 and have passed their expected useful life of 18 years. There is a cooling tower and plate and frame heat exchanger which is used to reject heat during cooling mode. The cooling tower was installed in 1997, and has a useful life expectancy of 18 years. The cooling tower appeared to be in good working condition for its age. There is a split type DX type air handling unit, serving the gym installed in 2013 and has useful life expectancy of 18 years.

Piping:

There is condenser water piping, insulated black steel and copper. The piping appears to be from 1997 and the average useful life expectancy for an HVAC piping system is 30 years.

Controls:

The building automation controls are digital type (DDC) are by Andover Controls.

Recommendations:

The water source heat pumps and cooling tower have all reached their useful life expectancy and it should be planned to replace them in the near future.

End of Fort Lewis Elementary School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The main switchboard is a 1600 Amp, 3 phase, 4 wire, 208Y/120 volt Cutler Hammer, service entrance rated switchboard. The existing switchboard is new to the building with the 1996 major addition/renovation and has space and spares available.

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

Transformers:

Transformers: None Installed.

Panelboards:

Distribution and Branch Circuit Panelboards: All of the panels are Cutler Hammer that were added or replaced with the 1996 renovation. The panels have space and spares available. Many of the branch circuit panelboards are flush mounted within the corridors.

Recommendation: If renovations and additions occur, reuse the existing panelboards and space available. 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 building wiring is newer with the 1996 renovation. All visible wiring appears to be in conduit. Classrooms in older sections of the building have had original outlets capped off and are now provided power through all new cabling in surface raceway.

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.

Conduit/Raceway:

Conduit/Raceway: The conduit and raceway above ceiling is still in good condition. Classrooms in older sections of the building have had original outlets capped off and are now provided power and data through surface raceway.

Recommendation: All surface raceway should be evaluated regularly and securely reattached to the wall if it becomes loose. All raceway would be reused if the building were renovated. Conduit would be salvaged where practical.

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily 2x4 flat lens fixtures with T8 lamps, 14 fixtures with T8 lamps, fluorescent can lighting, and some decorative fluorescent pendants. The T8 lamps are current technology, and meet the current needs of the school. Various emergency wall pack light fixtures are also utilized. Metal halide lights are installed in the media center. The majority of the fixtures are new to the 1996 renovation.

Recommendation: To accommodate a new addition or renovation, provide a new lighting design and reuse existing fixtures. Consider LED fixtures where practical. Replacement of the metal halide lights with a more energy efficient fluorescent or LED fixture which can utilize instant on is also recommended.

Lighting Controls:

Lighting Controls: Lighting controls throughout the building consist of toggle switches controlling fixtures within an area, most classrooms have zoned switching.

Recommendation: In the event of a renovation or addition, add automatic lighting controls to each room to comply with building energy codes.

Public Address System:

Public Address System: The public address system is currently a Rauland headend system with speakers located throughout the school. Each classroom has a PA speaker and an unused push-to-talk button. Teachers and staff use the newer Cisco phone system tied into the PA for communications. Announcements are given over the PA system.

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 was added during the likely 1996 renovations. The current system consists of limited area manual pull stations, smoke detectors, and horn/strobe alarms. There are also strobes in the classrooms which meets current codes.

Recommendation: If renovations and additions are pursued, 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: None Installed.

Site Lighting:

Site Lighting: The site lighting consists of pole mounted lights for parking areas, wall packs around the building, and wall sconce lighting at exterior doors. The fixtures appear to be new to the 1996 renovation and the front of the building and parking area is well covered. Staff recommendation would be to add additional fixtures towards the back of the building around the ball fields.

Recommendation: To accommodate a new addition or renovations, maintain existing lighting fixtures around exit doors or lighting 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. Most classrooms also contain an older CRT TV that appears to be unused; the Activeboard can be used for most media requirements.

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. Each classroom has a phone connected through the PA system. The system is operational.

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

End of Fort Lewis Elementary School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 4 regular buses, 1 special needs bus, and 5 daycare vans. Although all vehicles share an entrance, it is very wide with good maneuvering. There is a dedicated bus loop on the east side of the school.

Morning: Buses enter the bus loop and drop off students along the sidewalk on the east side of the school.

Afternoon: Buses enter the bus loop and park in diagonal spaces while students load. Once loaded, the buses exit simultaneously. The daycare vans utilize the car loop at the north side of the building

Cars: Cars share the main entrance with the buses, but have a dedicated parking area and drop off / pick up area.

Morning: Some parents will park in the bus loop and walk their children in to the front office. Most parents will utilize the drop off loop on the north side. Cars move smoothly through with little backup.

Afternoon: Cars line up in the pick up loop on the north side. Up to six cars are loaded at one time. Cars move smoothly through with little backup.

Parking: 69 striped parking spaces are provided with 4 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 in the grass, but all parking is contained on site.

Service: The service area is relatively small, but smaller delivery vehicles have no problem maneuvering. Dumpsters are located adjacent to the parking lot and are easily accessible for trash pick up. Larger tractor trailer deliveries utilize the bus loop and drop off at the front door.

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

Separation: Separation works well although some areas are shared. There is adequate space for all vehicular movements.

Adjacent Roadways: Sight distance is good in both directions, and access is not an issue.

Pedestrian: There are no pedestrians walking to the site.

ADA Accessibility

Parking: There are three spaces designated as ADA parking at the front of the school adjacent to the bus loop. There are no signs, so none are designated as van accessible. There is one space on the north side of the parking area which is relatively distant from the front door. This space is designated as van accessible.

Signage: The three spaces at the front of the school do not have signage. The one remote space has a van accessible sign in good condition.

Recommendation: Provide appropriate signage for the three ADA spaces.

Ramps: There are ADA ramps at the east and west sides of the school in good condition.

Access to all areas: There is not continuous access to the picnic shelter or to the walking trail and gardens.

Recommendation: Add paved connections to picnic shelter and walking trail.

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Asphalt of varying ages. Some is relatively new, most is older. Older asphalt has areas of stress and alligator cracking.

Recommendation: Repair areas with alligator cracking (subgrade deficiencies) mill and overlay the parking lot area.

Asphalt Walks: Walking trail to various nature stops is very old and unsafe. Grass and roots have deteriorated asphalt. Walking track is relatively new and in good condition.

Recommendation: Replace asphalt walking trail.

Concrete Pavement: Concrete pavement at dumpster area is in good condition.

Concrete Walks: Older areas of concrete at bus loop have major cracks and spalling, creating potential tripping hazards. Other walks only have minor cracks.

Recommendation: Replace sections as necessary when cracking and deterioration become hazardous.

Stairs, Ramps, and Railings: Stairs, ramps and railings meet code and are in good condition.

Concrete Curb and Gutter: Concrete curbs are in good condition.

Fire Lane: Paint on curbs and asphalt is faded. Fire lane signs are not turned toward oncoming traffic.

Recommendation: Re-paint curbs and asphalt at fire lanes. Turn fire lane signs toward oncoming traffic.

Utilities

Fire Lines and Hydrants: Poor fire hydrant coverage with no spacing. The closest fire hydrant is located a block away from the school site. No paved fire lane around building, but fire truck access is present around half the building.

Recommendation: Consider planning for adding a hydrant for fire protection coverage.

Domestic Water System: The water system is in fair condition. Staff indicated no pressure or water discoloration issues. Water is provided to school via tap into public water main. The water meter is located in a manhole beside Main Street, adjacent to school site.

Sewer System: The sanitary sewer system consists of concrete manholes and pipes in fair condition. System drains towards Main Street and is functional with proper invert shaping. Staff indicated no issues with stoppages, but observations show signs of stagnant waste.

Recommendation: Sewer system should be flushed to clear and prevent blockages.

Natural Gas System: Gas meter is located at the side of the school near the main parking lot and is protected from vehicular traffic. The meter is in fair condition and functional, but shows signs of rust and deterioration.

Recommendation: Contact gas company to inspect condition of meter.

Electric: Electric service to the school is provided via overhead poles to school property. Transformers are mounted on service pole. Service is taken underground into the building.

Site Lighting: Large lights illuminate the parking lots and building mounted lights illuminate sidewalks and entrances. Lighting is minimal for safety and security.

Grading and Drainage

Storm Water System: Majority of site drains to detention pond through bioretention areas, then into City of Salem stormwater network. On site network in good condition, but filled with sediment.

Recommendation: Underground piping system should be flushed and pipe outlets should be cleaned out and inspected for sediment.

Detention / Retention Ponds: Detention pond is in good condition, but trash grate on outlet structure clogged with grass and trash.

Recommendation: Clean out accumulated debris to allow for clear drainage.

Stormwater Management BMPs: Two bioretention areas to treat water before entering detention pond are in good condition.

Slopes, Ponding, and other Drainage Issues: Minor accumulation of sediment along edge of pavement and curbs near drop inlets.

Recommendation: Clean out accumulated sediment to allow for clear drainage.

Site Features

Vegetative Landscaping: Vegetation, including trees and shrubs, are healthy. Some areas need to be cleared to prevent damage to infrastructure.

Recommendation: Trees and invasive vines have covered the western CLF. Recommend removal of trees to avoid damage to chain link fence and neighboring structure. Replace with shrubs to provide privacy from the adjacent business property. Remove trees growing near to the eastern CLF. Continue general maintenance of pruning and mulching.

Lawns: Generally good condition around the building. Islands in parking lot have poor coverage.

Recommendation: Convert islands in parking lot from any grass to include shrubs and mulch for ease of maintenance and aesthetics.

Fencing and Gates: Majority of fencing is in good condition. Refer to Vegetative Landscaping regarding concerns of invasive vegetation. Recommend removing backstop by parking lot for ease of grounds maintenance.

Recommendation: Remove old backstop fencing.

Signage: ADA signage is not code compliant. Sign legibility is good. Minimal directional signage provided. Posts are aging and leaning due to lack of foundations.

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: Limited furnishings. Good condition.

Accessory Structures: Several structures are on site. This includes a CMU block with brick facing chiller enclosure, wood pergola, vinyl coated wood storage sheds, a CMU block storage building, a wood dumpster enclosure, and a new picnic shelter. All are in fair to good condition.

Recommendation: Paint/repair fascia of CMU storage building. Monitor wooden gate of chiller enclosure and replace with composite PVC boards when needed. Monitor wood dumpster enclosure and replace with composite PVC boards when needed. Treat wooden pergola to extend useful life.

Play Areas and Physical Education

Play / PE Areas (General):

Playgrounds / Stationary Play Equipment: One playground area with combined equipment for grades PreK-5 provided. Equipment is in good condition. Mulch is in excellent condition.

Paved Play Areas: Small paved area provided is in fair condition. New small concrete pad provided for basketball. New paved walking track provided.

Recommendation: Paved play area does not meet recommended state standards, but property limits do not allow for expansion in conjunction with providing a Play / PE field.

Play / PE Fields: Small grassed play field provided. Turf condition is good.

Recommendation: Paved play area does not meet recommended state standards, but property limits do not allow for expansion in conjunction with providing a Play / PE field.

End of Fort Lewis Elementary School Civil Narrative

OWPR
ARCHITECTS AND ENGINEERS

Notes

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

Subject: Fort Lewis Elementary School	**Total Pages:**
Date: 9/20/2016	**Location: Salem, VA**
Copies To:	**Report Prepared By: AHW**

General:

School established in 1928. Addition at rear of building.
Principal says there is a real need for additional classroom space.
Windows at ground level have been replaced with insulated, hung units. Windows at the Old building clerestory have been left in place and have had a storm window installed at the exterior of the opening. Windows in the new addition are insulated, hung units to match the older portion of the building.
All door signage complies with 2004 ADA, but not 2010.
Old building has maple board flooring throughout. Some rooms have had carpet installed over the flooring. In general, the floor finish is in good condition. Some areas have separation at the joints between boards. Limited areas have minor damage to the boards. Former front entrances show the most wear.
Most rooms have chalk boards and smartboards.
Most casework is PLAM clad. Some have missing edge banding. Pulls on some have missing screws. Sinks have bubblers.

Boiler Room:

Water damage to lower portions of concrete walls. Faces have spalled off. Are probably still sound, but should be monitored over time.
Surface of concrete floor has popped off in places.
There is a pottery kiln stored in the boiler room area. It is plugged in, and per the custodian, is used by one of the teachers for projects. There is no exhaust system for the kiln.

Roof:

The 60 mil EPDM portions of the roof need to be replaced. Laps have failed. Splices have cracked and have large bubbles.
Large ponding areas have formed over the older building. Some are up to 3 inches deep at time of inspection.
Membrane has pulled away from parapet walls at most places over the original building.
Wood trim and fascia at rakes and eaves has lost most of the paint on the surface. Mold is present over most of the surface of the soffit.
Strainer baskets have been removed for some unknown reason. Some are in place, but have debris on the baskets.

Ice flags have fallen off of the snow guards over the new gymnasium.
There is no over flow protection for the old roof. Some façade features have been flashed to act as an overflow scupper, but these are at least 18" above the main roof surface. Water of sufficient depth to utilize this as an overflow would probably cause the roof to collapse.
Lap sealants have failed in many locations.
Gaps in coping caps have been crudely sealed and painted over. The paint and sealant have both cracked with age.
Concrete coping at the front of the building has had an EPDM flashing installed over it. Could not ascertain condition of coping below flashing. Some flashing is starting to separate from the coping.
Gutter mounting brackets at standing seam roof over older building have detached in several places.
Window trim and flashing at clerestory needs to be scraped and repainted

Courtyard:

Accessible via three doors.
Existing Trex material at door level in fair condition. Surface has degraded somewhat.
The elevated area steps down and has a ramp to a lower concrete area. Usefulness of the courtyard with the two levels is greatly minimized.

Basement Classroom:

Has a dehumidifier running in the space.
Room is accessed via an open stair in the open area of the old building. There is an additional exit door located in the room. It requires climbing 4 steps. No interior landing. Door is less than 6'-8" in height.
VCT in fair to ok condition. Missing tiles in one corner. Painted hard ceiling. Painted concrete walls.
Exposed copper piping runs on the ceiling with vertical penetrations to classrooms above. This is assumed to require some form of insulation.
Storage room in the space has an exposed concrete floor. There is a waste separator of some sort in the space, piped from fixtures above.

Guidance Office area:

Broadloom carpet installed over old maple board flooring. Material is in fair to ok condition. SATC in good condition. GWB in ok to good condition.
Has padded seclusion room. Padding in good condition. Room has an open top. Vision lite is installed on the door. Knob hardware.
Toilet room in this area is small. VCT floor has separating joints. Not an accessible room.

Former Front entrances:

Stamped metal ceilings in good condition. Wood flooring lightly worn. Wood wainscot good in the entry areas.

Open area in older building:

Plaster and wood trim on ceiling appear to be in good condition.
Hi-Lo EWC installed.
Chair Rail in good condition. Plaster walls appear to be in good condition.

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Notes

Library structure:

Built in middle of former open area. Could not access conference room.
Plywood "roof" in good condition.
GWB walls in good condition. Wall mounted camera has been moved leaving hole where it was formerly mounted (on outside of structure).
Broadloom carpet in decent shape. Some wear.

A/V Storage:

Has sprinkler. Appears to have leaked and stained SATC. Broadloom carpet in good condition.

Computer lab:

Connects to outdoor courtyard. Has vertical drops to supply power to computers.
Wood floor in decent condition.
SATC in decent condition. Some stained tiles.
PLAM casework. Missing edge banding. Loss door pulls. Has sink w/bubbler.
Chalk board and smart board.

New Addition:

HM Doors in HM frames at exterior. Standard exit devices. Interior is wood doors in HM frames. Lever hardware. Some doors have minor veneer damage.
New entry vestibule has been built inside from aluminum storefront

Cafeteria:

VCT in good condition. SATC in good condition. GWB in ok condition. Painted block in good condition. Vinyl base good.

Kitchen:

Glazed quarry tile floors. Some cracked and chipped tiles at entry from cafeteria.
Faced SATC tils in ok condition.
No fire suppression system visible under hood.
Serving counter has had a PLAM clad board installed over the stainless tray bars.
Some water staining on light lenses.
Bathroom has mismatched floor tile in fair, heavily stained condition. Not an accessible room.
Door to exterior has a screen door on the inside that swings inward (opposite direction of egress). Top of door has been notched to allow for installation of surface mounted wiring to door position sensor.

Gymnasium:

Parquet floor. Finish good. There are some cracks and low spots in floor. One crack spans the width of the gym and seems to propagate from the same location as a sawn expansion joint in the block at the exterior wall.
SATC tiles are sagging.
Stage has parquet floor. Finish good. There is a ramp at the rear of the stage, accessed via a storage alcove. Exit doors are also located in the alcove. Item storage limits access to ramp and could limit access to exit doors. VCT in this alcove in good condition.

New boys restroom:

Gray quarry tile floors. Painted steel toilet partitions are rusting. PLAM counter tops mounted at 2'11". Mirrors are not accessible. SATC ceilings.

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Notes

Janitor closet:

SATC in poor condition. VCT in ok condition.

116:

Shared toilet w/ 114 has 12" ceramic floor tile. SATC ceiling. There is no lavatory in the room. Students must pass through 2 doors to reach a sink to wash. This is in violation of the VUSBC's modification of the IPC. VUSBC allows for passage through one door.
In classroom: VCT in good condition. SATC in good condition. Painted CMU in good condition.

Resource Room:

VCT, SATC, and Painted CMU in good condition.

Entry Vestibule 6:

Is being used for storage.

117 Computer Lab:

Worn broadloom carpet. SATC in good condition. GWB walls need some patching and painting.

Boys room in older portion of building:

Quarry tile floor. 4" glazed wall tile wainscot. GWB above. SATC heavily stained.
Painted metal toilet partitions are rusting.
Right hand sink, cold water line has very loud water hammer.

108:

Wood heavily stained underneath floor finish.

Exterior:

Staining on EIFS material at covered entry. Appears to be rust staining from brick ties. The joint between the EIFS and brick has been sealed. There are weep openings in the brick. The stains occur in the space between the weeps. Some are soaking through cracks in the sealant. Others are at the edge of the sealant.
Paint at soffit at new gym is worn. Appears to have mold on the surface.
Some efflorescence on brick wall at ramp outside of gym.
Automatic operator buttons are located on the exterior. Not function due to security system.
There is a small picnic shelter on site. The shelter is not accessible.
Near Gymnasium door 8, there is a copper pipe that appears to be consistently running water. This pipe runs vertically alongside a roof leader. The leader is connected to underground drainage, but the condensate pipe is splashing on grade. Not sure of reason for the mix of conditions.
Joints at precast sills need to be raked and resealed/grouted in several locations.
Steel lintels above windows need to be scraped and repainted.
Steel framing around glass block wall infill needs to be treated for surface rust and repainted.
Wood trim above windows on old portion of building needs to be scraped and repainted.
Sills at old portion of building need to be scraped and repainted.
Small cracks propagating from sills have been sloppily repaired. Monitor for movement. Repair as required.

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Notes

No handrail present at stairs to boiler room. If the kiln in the boiler room is being used for classes, recommend installation of hand rails.
Beadboard soffit at old building needs to be scraped and repainted.
There is no directional signage at the former front entrances directing visitors to the secure entry point.

Fort Lewis 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	4	Life	88	Life	
Brick at Addition	5	Life	20	Life	
CMU walls at Addition	5	Life	20	Life	
Poured Concrete walls	3	Life	88	Life	
Wood trim	4	15	88	0	
EIFS	4	10	20	0	
Interior doors	5	20	20		
Interior doors at Addition	5	20	20		
Exterior doors	4	50	88	0	
Exterior doors at Addition	5	50	20	30	
Door hardware	5	7	20	0	
Vinyl floor tile	4	12	20	0	
Ceramic/Porcelain floor tile	5	50	20	30	
Quarry floor tile	5	50	20	30	
Wood gym floor	4	10	20	0	
Other wood floors	4	10	88	0	
Exposed concrete floors	3	50	88	0	
Carpet	2	5	20	0	
Exterior windows	5	30	20	10	
Exterior windows at Clerestory	2	30	88	0	
Interior windows	5	30	20	10	
Membrane Roof (Including flashings, coping, etc.)	1	20	20	0	
Standing Seam Roof (Including flashings, coping, etc.)	5	20	20	0	
Suspended acoustical tile ceilings (lay-in)	4	25	20	5	
Painted Metal pan ceilings (paint)	2	5	20	0	
Plaster/GWB ceilings	4	30	88	0	
Ceiling/exposed structure finish (paint)	2	5	20	0	
Interior wall finishes (paint)	2	5	20	0	
Marker boards or chalk boards		N/A	20		
Tack boards		N/A	20		
Projection screens		N/A	20		
Casework		N/A	20		
Window treatments		N/A	20		
Toilet partitions	2	20	20	0	
Toilet accessories	5	N/A	20		
Interior railings	4	30	20	10	
Exterior railings	5	30	20	10	
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					

Fort Lewis 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	5	30 years	19 years	11 years	
Cooling tower	2	18 years	19 years	0 years	
Mechanical piping	5	30 years	19 years	11 years	
Refrigerant piping	5	30 years	3 years	27 years	
Duct	5	30 years	19 years	11 years	
Outdoor air units	N/A				
Terminal units	N/A				
Package units (DX)	5	18 years	3 years	15 years	
Package units (Heat Pumps)	2	18 years	19 years	0 years	
Controls	2	20 years	19 years	1 year	
Exhaust fans	5	25 years	19 years	6 years	
Plumbing					
Plumbing fixtures and controls	5	30 years	19 years	11 years	
Floor drains	5	30 years	19 years	11 years	
Water heater (2006)	5	15 years	10 years	5 years	
Water heater (2013)	5	15 years	3 years	12 years	
Pumps	2	15 years	19 years	0 years	
Potable water piping & valves	5	30 years	19 years	11 years	
Sprinkler system	N/A				
Back-flow preventer	5	30 years	19 years	11 years	
Service line & meter (size appropriate)	5	30 years	19 years	11 years	
Wall and yard hydrants	2	15 years	19 years	0 years	
Eye wash stations	N/A				
Emergency showers	N/A				
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					

Fort Lewis 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	21	19	5	
Panelboards	30	21	9	5	Some newer panels installed 7 years ago
Cabling	40	21	19	5	Some newer installed 7 years ago
Conduit/raceway	40	21	19	5	
Light fixtures	20	21	-1	5	Fixtures have been updated to T8 Lamps which is current technology and will prolong the life of the fixture.
Lighting controls	30	21	9	5	
Public address system - Headend	30	21	9	5	
Public address system - Devices	30	21	9	5	
Security system	10	5	5	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system - Headend	30	21	9	5	
Fire alarm system - Devices	30	21	9	5	
Site lighting	20	21	-1	2	Fixture are still operating and appear to be in good condition for exterior lights.
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					

Fort Lewis 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	3	15 years	21 years	0 years	
Asphalt walks	2/5	20 years	18+ years	0-2 years	
Concrete pavement	5	30 years	21 years	9 years	
Concrete walks	2/4	30 years	21+ years	0-9 years	
Stairs	5	30 years	21 years	9 years	
Ramps	5	30 years	21 years	9 years	
Railings	5	15 years	21 years	0 years	
Concrete curb and gutter	5	30 years	21 years	9 years	
Concrete / Brick Pavers	N/A	N/A	N/A	N/A	
Guardrail, Parking Bumpers, Misc.	N/A	N/A	N/A	N/A	
Fire lane	4	Varies by Material	Unknown	0 years	
Fire lines and hydrants	3	40 years	Unknown	0 years	
Domestic Water system	4	40 years	21 years	19 years	
Sewer system	4	40 years	21+ years	0-19 years	
Natural Gas system	4	40 years	21 years	19 years	
Electrical System	5	25 years	21 years	19 years	
Exterior Lighting	4	25 years	21 years	19 years	
Storm water system	4	40 years	21 years	19 years	
Detention / Retention ponds	4	Life	21 years	19 years	
Stormwater Management BMP's	5	Varies by BMP	21 years	19 years	
Surface drainage and grading	4	N/A	N/A	N/A	
Vegetative landsaping	3	Life	21+ years	Varies	
Lawns	5	Life	21+ years	Life	
Fencing and gates	5	20 years	Unknown	15+ years	
Signage	3/4	10 years	Unknown	5+ years	
Flagpoles	5	50 years	Unknown	10+ years	
Site furnishings	5	15 years	Unknown	10+ 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	Varies	10+ years	
Playgrounds	5	10 years	Unknown	8 years	
Paved play areas	5	20 years	Unknown	15+ years	
Play / PE fields	5	Life	21+ years	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					

Budgetary Cost Estimate

Estimate Date 12/7/2016
Facility Name **Fort Lewis Elementary School**
Client Name Roanoke County Schools

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Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
21,678	Remove Existing Roof	SF	$2.25	$58,530.60
21,678	Single-ply EPDM Roof membrane	SF	$7.00	$182,095.20
966	Pre-finish aluminum coping and fascia	LF	$26.00	$30,139.20
350	Flashing against existing building	LF	$24.00	$10,080.00
89	New Interior Signage-adhesive back/braille	EA	$42.00	$4,485.60
	ADA Compliant			
130	Windows at Clerestory	SF	$45.00	$7,020.00
10	Toilet Partitions	EA	$1,215.00	$14,580.00
2	Urinal Screen	EA	$515.00	$1,236.00
4,000	Replace Carpet, broadloom 32 oz, glue down	SF	$4.00	$19,200.00
1	Add handrail to Boiler Room	EA	$667.00	$800.40
	CIVIL			
3	ADA signage	EA	$500.00	$1,800.00
4	Directional signage	EA	$1,500.00	$7,200.00
500	Asphalt pavement	SF	$3.00	$1,800.00
5,000	Remove and repair asphalt pavement	SF	$3.00	$18,000.00
70,000	Mill and overlay asphalt pavement	SF	$1.00	$84,000.00
7	Fire lane signage	EA	$500.00	$4,200.00
700	Repaint curbs and fire lanes	LF	$0.10	$84.00
1	6" Sprinkler System	EA	$20,000.00	$24,000.00
1	Clear vegetation on fence lines	LS	$8,000.00	$9,600.00
	MECHANICAL / PLUMBING			
1	Replace cooling tower	EA	$100,000.00	$100,000.00
20	Replace water source heat pumps	EA	$4,000.00	$80,000.00
33,903	Add Sprinkler System - includes ceiling modifications	SF	$6.00	$203,418.00
1	Add exhaust hood for kiln in boiler room	LS	$2,083.00	$2,499.60
1	Replace domestic hot water circulation pumps	EA	$3,000.00	$3,000.00
	ELECTRICAL			
1	Replace cooling tower	EA	$2,000.00	$100,000.00
20	Replace water source heat pumps	EA	$4,000.00	$80,000.00
33,903	Ceiling Modifications	SF	$1.00	$33,903.00
TOTAL Budgetary Cost				**$1,081,672**