GLEN COVE ELEMENTARY SCHOOL

ARCHITECTURAL

Glen Cove Elementary School (GCES) was originally constructed in 1970-1971. An elevator tower was designed in 1994, and toilet room renovations were undertaken in 1996. The total building square footage is 60,010 SF. The administration area and main entrance (both interior and exterior areas) have been recently renovated to provide a secure vestibule and accessible entry. There are two mobile units serving as classrooms at the school, both in poor to fair condition. The facility's original design was based around an open pod concept. Over time, the open areas have been walled off using lauan clad partitions. While most of these partitions are in good condition, they do severely date the facility, and would potentially have to be removed during any renovation to comply with building type classification requirements.

Exterior Finishes

Exterior Cladding:

Exterior wall material is, generally, brick with pre-finished metal panels at the head of all exterior walls. Large cracks, indicating horizontal movement of the wall, were observed in the brick at the loading dock area. Refer to structural reports for information relating to the cracks. Additional cracks were observed in the brick near door 10, extending from the ground up to the lintel, and another from the lintel, downward for approximately 2 feet. Additionally, there is heavy water staining on the brick above door 10. Mortar has fallen out of the joints at the heads of windows, particularly on the building's north face. Brick, over the lintel at door 5 has spalled. Limited options for corrective action exist. If degradation of the brick continues, entire units can be replaced. Mortar joints have started popping out of the walls at the retaining wall near the loading dock, and at the front of the gymnasium. The joints should be raked and repointed. Brick is heavily stained around the entire perimeter of the building, below the metal wall panels installed at the top of the exterior walls. The sealant at building expansion joints has failed in some locations. Condition of the sealant should be monitored, and the sealant replaced as required.

Brick rowlock sills were present at windows. Mortar joints in the sills have degraded and will need to be repointed.

Roof:

Large areas of ponding were observed on the EPDM roof. In several locations, the membrane has separated from the insulation below, after insulation was compressed due to water weight. Sealants are cracked and failing. Drip edge joint covers were loose, and fasteners were backing out at several locations. At spots where the fastener had completely backed out, new fasteners have been installed in a new hole. The

original fastener holes have been left untreated. The drip edge has been installed over the membrane at most of the building perimeter. This would allow water to flow under the drip edge and potentially enter the wall cavity, unless the membrane is wrapped down the face of the wall, behind the drip edge. The elevator tower has its original roof installed. This roof is an asphalt impregnated felt-type material with a small aggregate finish. The material appears to be in fair condition. Sealant at the counterflashing for the roof membrane, below, has been built up and is likely not water tight. The multiple layers should be removed and a new layer of sealant installed. A preferred corrective action would be to install a properly fitting counter flashing.

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.

A concrete entry cover, located at door 14 has been painted. The paint is popping off, and the wall at the rear of the cover has been stained by water. Paint should be scraped, and substrate properly prepped before repainting. Ensure water is allowed to flow, unobstructed, off the cover to avoid any potential infiltration issues at the joint with the wall.

Windows:

Windows around the building were hollow metal units. At the exterior, most have rusted, but not rusted through. The sealant at one window near the northeast corner, on the eastern face, has failed and should be replaced. Windows at the gymnasium have been painted over. This paint is peeling away. It is not known why the windows were painted, but it is recommended to remove to the paint. It is unlikely paint will consistently adhere to glass, as a substrate.

At each of the stair towers, there is a large glazed punch-out that slopes at the top. Major leaks have occurred at these locations. Based on the lack of a thermal break in the framing, non-insulated glazing, and persistent leaks, a replacement would be beneficial.

New, hollow metal framing and windows were installed with the office renovation in 2014. The glazing at this location was the only insulated glazing observed at the facility. These frames and glazing were in good condition, and should be monitored and repainted as required.

Exterior Doors:

At main entry points and egress doors, hollow metal systems are installed. Fit and finish at these locations is good. Glazing is, typically, non-insulated. Glazing condition and door condition at all hollow metal doors should be monitored. Rusting doors and frames should be repaired or replaced as required. Most exterior doors lack

weatherstripping. Double and triple exterior doors are present with crash bars on each door. These can be chained and are a security risk.
The classroom pod on the lower floor is provided with two exterior egress doors. These are not provided with proper signage.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Terrazzo and Vinyl Composition Tile (VCT) were the predominant floor finishes at the facility. Terrazzo in the corridors was in good condition. VCT was in fair condition throughout the facility. At offices and other rooms near the gymnasium, 9" tiles were observed. These are likely asbestos, and were observed to be chipped and peeling from the substrate below. Glazed quarry tile was located in the kitchen. The gymnasium has parquet oak for the gym floor, and oak boards for the flooring at the stage. The parquet gym floor and finish are in good condition. The stage floor finish is in fair condition. The library has broadloom carpet that is in good condition, but has reached the end of its life expectancy. Wear should be monitored. Bathrooms had mosaic floor tile and 6" ceramic tile base that were in good condition. The clinic is provided with a sheet flooring system that is in good condition.

Interior wall finishes varied across the facility. The original interior partitions were painted block and hollow metal systems with both opaque and transparent panels. Openings in these partitions have since been infilled with wood framing with lauan paneling. Window treatments are typically vinyl roller shades. Bathrooms were provided with painted steel toilet partitions. One upstairs bathroom partition has had its overhead brace replace with a homemade welded steel assembly. The remaining partitions in the space were missing overhead braces. All partitions were observed with rusting taking place near plumbing fixtures. The gymnasium area has a tile wainscot that is chipped at one corner.

Ceilings are generally suspended acoustical tile (lay-in) with gypsum wall board at bulkheads. The suspended acoustical tile ceilings have experienced some water staining, at isolated locations, throughout the facility. The cafeteria track system is black colored, dating the system, but is in good condition. The tracks in other spaces are cream colored. Some have twisted or show some deflection, but are in fair to good condition.

Most interior doors are wood in hollow metal or wood frames. Most doors are in good condition with minimal damage to veneers. Hollow metal frames should be repainted as required. Wood frames should be replaced as part of any renovation replacing the lauan partitions in which they've been installed. The downstairs classroom pod bathroom doors have had strips of carpet installed as pinch guards. There are manufactured systems that accomplish this goal, and likely have more longevity than carpet. This pod is provided with two doors connecting to corridors. These appear to have been installed later, in lauan clad infill. One of the doors is blocked by a movable screen. This

provides only one egress point to the corridor for the classroom. The remaining egress is through exterior doors. The upstairs pods do not have these exterior doors. They are provided with the same infilled doors, but lack adequate separation distance between the two.

Chalk boards and tack boards are present in classrooms. Most are in fair to good condition. Any damaged tack boards would be replaced during renovations. Smart boards have been placed in rooms.

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 plastic laminate-clad casework, for storage purposes. Casework appears to be original to the building and is in fair to good condition. Most classrooms are provided with a sink and bubbler mounted in the countertop. Additionally, wooden locker/storage units have been constructed to provide partitions between class spaces in open pods. As needs change, additional storage may be incorporated into any renovations or additions.

Crawlspace

Access to the crawlspace is in the kitchen area. The space has been used for storage for a variety of items. These storage activities, and others in the space, have damaged the vapor barrier. There are multiple holes, and seams no longer lap appropriately.

Accessibility

Few areas of the building are totally accessible to current standards. Building signage is compliant with older ADA standards, but is not compliant with current standards. Knob-type door hardware was present throughout the facility. Pipe wrap kits were not present at all sinks. A flush valve at the unisex bathroom on the ground floor points to the non-open side of the space. Grab bars, in both unisex bathrooms, are non-compliant. Light switches are above the allowable reach ranges. Hi-lo water fountains are installed that do not have roll-under clearance. No roll-under spaces are provided at the casework. Doors are equipped with electric operators, but these are non-functional due to security systems.

Safety and Security

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

The vestibule at GCES 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.

End of Glen Cove Elementary School Architectural Narrative

STRUCTURAL

During the Architectural investigation of the Glen Cove Elementary School, several different issues were observed that warranted further investigation from a structural standpoint.

Cracks in Gym Storage Mezzanine

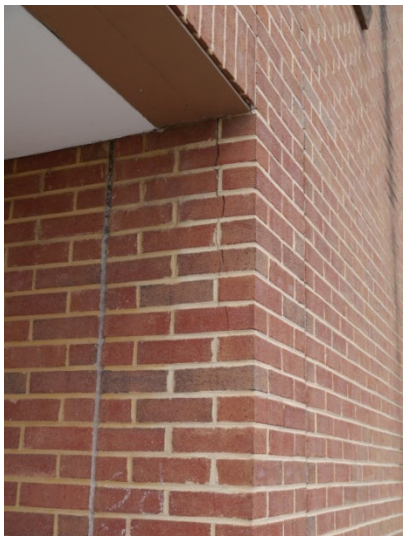
In the mezzanine on the northwest corner of the gym, accessed by ladder and hatch above the stage floor, stairstep cracks were observed in the north wall. The cracks seemed to be limited to the mezzanine area and were not visible from below. These cracks appeared to be minor settlement cracks and are not felt to pose a threat to the structural integrity of the building. It is suggested that the cracks are caulked, painted and then observed for additional movement.

Mortar Being Pushed out of Horizontal Joints

At various locations around the building, brick mortar was observed being pushed out of the horizontal joints. This is likely due to corrosion or rusting of the horizontal joint reinforcing that ties the brick to the concrete masonry portion of the wall. Rusted steel reinforcing has a tendency to "delaminate" and expand and this will push mortar out of the joint. It is suggested that the joints be repointed.

Brick Cracking Below Lintel at Exterior Door No. 10

Minor cracking was observed at the north end of the long opening at Door No. 10. This is potentially due to minor settlement in the area or possibly minor rotation of the lintel above this long opening placing unanticipated stresses on the brick below. These cracks should be sealed and observed for any additional movement.



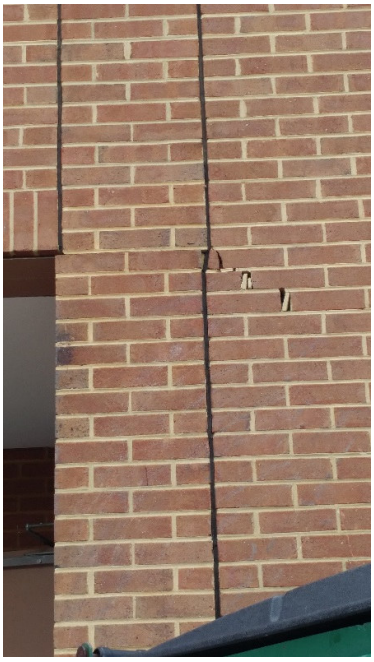
Random Cracks at Window Heads

At the heads of various windows around the perimeter of the building, mortar was observed being pushed out of the joint. This is very similar to the issue described above except at window heads, it is likely rusting of the steel angle lintel supporting the brick above the opening that is pushing the mortar out of the joint. If allowed to progress, this deterioration could lead to localized failure of the brick support and could allow some of the brick face to fall off the wall. Again, repointing of the joint is suggested in these instances along with continued monitoring. If additional brick cracking above the windows if observed, it should be reported to a design professional for remedial actions.

Horizontal Movement at Loading Dock

Several issues were observed at the loading dock area. There is some horizontal movement noted in the middle of the wall behind the chiller area. Likewise, there were cracks observed near the south end of the loading dock, near the top of the wall opening. These cracks are likely due to the same horizontal

movement. It is a bit strange that movement of the magnitude seen in some of the cracking, particularly in the middle of the wall behind the chiller, is isolated to the middle of the wall with no continuity of cracking observed extending to a building corner, base of the wall, etc. Likewise, it would not be unusual that the two locations of cracking would be somewhat connected by a smaller crack. However, these larger cracks seem to be isolated to their own areas of the same wall. Regardless of the cause, these cracks do not appear to be threatening the structural integrity of the building. It is recommended that they are repointed or otherwise sealed to prevent moisture from entering, then observed for additional movement.



Retaining Wall Horizontal Joints

Similar to the joint reinforcing discussed on the main building, the loading dock appears to be experiencing some rusting of joint reinforcement pushing the mortar out of the joints. This deterioration appears to be occurring near the grade elevation on the retained fill side of the wall. The joints should be repointed and a means of draining water from behind the wall should be maintained to insure that surface drainage does not accumulate behind, and then soak into the wall.

End of Glen Cove 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 1971. 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 1971. 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 1971. 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 bubblers. The sinks are from 1971 and are expected to have a useful life of 30 years.

Electric Water Coolers: The water coolers are wall mounted, semi-recessed type. The water coolers are from 197 and are expected to have a useful life of 15 years.

Water Heaters:

Domestic water heating is done by one electric water heater with storage tank which appeared to be 5-10 years old. The domestic water heaters are expected to have a useful life of 15 years. There is a hot water circulation pump installed and believed to be 5-10 years old. In-line circulation pumps are expected to have a useful life of 15 years.

Piping:

Water: Copper with fiberglass insulation
Sanitary Piping: Cast iron and PVC
Storm Piping: Cast iron
Gas Piping: Black steel

Domestic Water Entrance:

The building is served by a 3" cold water line that is assumed to be from a municipal system. There is a duplex pressure booster pumps from 1971. One of these two pumps is not operational. These pumps are expected to have a useful life of 25 years.

Fire Protection:

The building is not sprinkled.

Recommendations:

This school should be considered for a complete plumbing renovation with full replacement of all systems. Adding a fire protection system at that time would also be recommended.

End of Glen Cove Elementary School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

The building is primarily heated with water source heat pumps. Gas fired boilers provide heat to the building condenser water circulation system. Condenser water is circulated to the building's heating coils with two base mounted pumps, which are believed to have been installed around 2008. The boilers and pumps seemed to be in working condition for their respective ages. The pumps are 8 years old and are expected to have a useful life of 25 years.

Ventilation:

Ventilation is provided to the building through water source heat pumps and gym rooftop unit. There is no direct way of balancing outdoor air to individual heat pumps.

Air Conditioning:

The building is primarily cooled by water source heat pumps. The heat pumps in this building are very old and have well passed their useful life expectancy. There is a closed circuit cooler or cooling tower which is used to reject heat during cooling mode. The cooling tower was installed in 2008, 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 packaged DX type rooftop unit, serving the gym and is estimated to be 5-10 years old and has useful life expectancy of 18 years.

Piping:

There is condenser water piping, black steel and copper, both with insulated and non-insulated sections. The piping appears to be original, approximately 1971, and in poor condition due to its age. 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 condenser water piping should be replaced as soon as possible. Many of the heat pump filters are taped onto the units. It is also recommended that the ductwork be added to the return side of each heat pump to allow for balancing and to ensure proper ventilation to classrooms. This may require additional mechanical space.

End of Glen Cove Elementary School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The main switchboard is a 2000 Amp, 3 phase, 4 wire, 480Y/277 volt General Electric (GE), service entrance rated switchboard. The existing switchboard is original to the building from 1970.

Recommendation: In the event of a substantial renovation or addition, replace existing switchboard and expand as necessary.

Transformers:

Transformers: The majority of the transformers are original HT Quiet, 480 Volt primary 208Y/120 volt secondary 3 phase transformers. They are currently in good working condition; however, over time transformers become less energy efficient.

Recommendation: If renovations and additions are pursued, maintain the existing transformers, if possible.

Panelboards:

Distribution and Branch circuit Panelboards: The majority of panelboards are original General Electric. The original panels have exceeded their expected useful life and many have no space or spares.

Recommendation: If renovations and additions occur, replace the panelboards and locate them in areas to minimize student access and to meet National Electrical Code working clearances. Expand as necessary to accommodate new or modified spaces. The newer panelboards may be reused.

Cabling:

Cabling: Much of the building wiring is original. All visible wiring appears to be in conduit. Most of the wiring is past its rated useful life and should be replaced.

Recommendation: During a renovation some new wiring may be salvageable, but because of the tedious process of identifying and preserving this wire, it is recommended that all wiring be replaced during renovations.

Conduit/Raceway:

Conduit/Raceway: The conduit and raceway above ceiling is still in good condition. There is not much surface raceway throughout the building, but it could potentially become dislodged from the wall creating a potential shock hazard.

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.

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily 2x4 flat lens fixtures with T8 lamps, and some fluorescent can lighting. The T8 lamps are current technology, and meet the current needs of the school. Various emergency light fixtures are also utilized and many 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. In open classroom areas light switches have been added.

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 a Bogen Multicom 2000 headend system with older speakers located throughout the school. Some older Rauland equipment still exists within the system. Each classroom has a PA speaker, clock, and an unused push-to-talk switch. Teachers and staff currently use the newer Cisco phone system for communications. The current PA system has reached the end of its expected life and is in need of replacement.

Recommendation: The system headend is in need of replacement to utilize newer technology as typical for other schools. The entire PA system would be replaced if the building were renovated. Speakers could possibly be reused if a similar building layout is utilized.

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 Radionics fire alarm system. It appears to have been updated at some point, although the remainder of the system appears to be original. The current system consists of limited area manual pull stations, smoke detectors, and some horns.

Recommendation: If renovations and additions are pursued, expand existing fire alarm system with audible and visual notification devices throughout the school. 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 only a few pole mounted lights for parking areas, wall packs around the building, and canopy lighting. These lamps are likely changed as lamps burn out; however, the ballasts and optics have likely not been changed and have exceeded their useful life.

Recommendation: To accommodate a new addition or renovations, replace light 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. Some classrooms contain a TV; however, TVs were not consistently present.

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. The classrooms have 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 Glen Cove Elementary School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 9 regular buses, 1 special needs bus, and 3 to 4 daycare vans. There is a dedicated bus loop at the southeast corner of the school. There is only one entrance and exit to the site.

Morning: Buses enter the site from the one entrance and proceed to the bus loop where they drop students off at the gym entrance. Buses mixing with cars dropping off can be an issue as vehicles will back up out onto Cove Road.

Afternoon: Buses enter the site and park in the bus loop to load students. Afternoon pick up works better than the morning as vehicles enter the site at various times instead of all at once in the morning. Cars are held until all buses are loaded and exit the site.

Recommendation: Explore the potential of a secondary entrance / exit from the adjacent neighborhood.

Cars: Car traffic utilizes the same entrance as the buses to enter the site, but utilizes the main entrance for drop off and pick up.

Morning: Cars enter the site, and then weave through the parking lot to allow for maximum queueing room. Students are dropped off at the front doors, and then cars exit the site with the buses.

Afternoon: Cars enter the site and queue in the parking lot waiting for the buses to load and exit. After the buses load and exit the site, the cars proceed into the bus loop and pick up students at the gym entrance.

Recommendation: An additional entrance and longer queueing space would be beneficial.

Parking: 72 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 wherever possible. The bus loop is occasionally used as overflow parking, but since there is no striping, people will park their cars wherever they can and people get blocked in frequently.

Recommendation: Provide proper striping for overflow car parking in bus loop.

Service: The service area is located on the west side of the school. Access is shared with the parking lot and parent drop off area. Maneuvering is difficult for larger delivery vehicles.

Fire Access: Fire apparatus have adequate access around the building.

Separation: Separation is very poor as all vehicles utilize the same entrance and exit which is also rather small.

Adjacent Roadways: Sight distance looking left exiting the site is blocked by a sign adjacent to the entrance. Traffic will back up into the adjacent road at the morning drop off time.

Recommendation: Relocate sign to improve sight distance.

Pedestrian: Generally there are not many pedestrians who access the school. There are no sidewalks adjacent to the school.

ADA Accessibility

Parking: Three spaces are designated as ADA parking. One is located at the first bay of parking, and two are located at the second bay of parking. One space is designated ad van accessible.

Recommendation: Move all three spaces to the front bay of parking for closer access to the front door.

Signage: Signage is good with one space designated as van accessible.

Ramps: There are curb ramps in appropriate locations, a new ADA ramp at the main entrance with handrails, and a ramp at the mobile classroom units.

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

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Poor condition with cracking throughout.

Recommendation: Replace all asphalt pavement.

Asphalt Walks: Asphalt trail to basketball court is poor. Asphalt track is fair condition with grass encroaching on edges and in cracks.

Recommendation: Replace asphalt trail to basketball court. At asphalt track, remove grass from cracks, fill and seal cracks. Trim grass back from edges.

Concrete Pavement: Concrete pavement at dumpster is aged, but functional.

Concrete Walks: Concrete walks are aged, with spalling, cracking, and broken areas throughout.

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

Stairs, Ramps, and Railings: Stairs at loading dock, and front entrance are aged but functional. Wooden ramp at mobile units is beginning to show signs of age. Railing at loading dock area does not meet code, is only on one side of the stairs, and has paint faded.

Recommendation: Replace railing at loading dock stairs with new railing that meets current code.

Concrete Curb and Gutter: Concrete curb is aged, cracked, broken, and settled in some areas.

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

Concrete / Brick Pavers: Some sections are in fair condition, some sections mortar is broken out and bricks are broken.

Recommendation: Repair and replace brick pavers.

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: Poor fire hydrant coverage with no spacing. The closest fire hydrant is located at the end of Tully Drive, adjacent to school site. No paved fire lane around building, but fire truck access is present. No fire department connection or post indicator valve.

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 at the end of a Tully Drive, adjacent to school site.

Sewer System: The sanitary sewer system consists of concrete manholes and pipes in fair condition. System drains east, towards Tully Drive 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 playground and not prone to damage 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. Service is taken underground to a transformer in the loading dock area and then into the building. Transformer protected from traffic, but shows major rust. Electric service to mobile classrooms at rear of the school is provided via overhead poles with pole mounted transformers and meters mounted on the service pole.

Site Lighting: Site lights illuminate school parking lots and bus loop. Building mounted lights illuminate sidewalks and entrances. Lighting is sufficient for safety and security.

Grading and Drainage

Storm Water System: Internal roof drains are piped underground into school storm water network. Runoff from the parking lot and islands sheet flows into curb and drop inlets and conveyed to a roadside swale with rip rap that continues along Cove Road to the southeast. Inlets, manholes and pipes are in fair condition and functional, but full of sediment, leaves and debris. Manholes and inlets are starting to deteriorate inside and outside.

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

Slopes, Ponding, and other Drainage Issues: Minor sediment accumulation in parking lots due to poor positive drainage and low spots. Culvert between the track and the playground is half buried with sediment.

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

Site Features

Vegetative Landscaping: Vegetation, including trees and shrubs, are healthy. Shrubs by flag pole reaching end of life.

Recommendation: Plan for replacing shrubs at flag pole. Continue general maintenance of pruning and mulching.

Lawns: Generally good condition. Minor areas in need of repair in heavily trafficked areas and parking lot islands.

Recommendation: Repair and reseed bare areas. Provide fencing and erosion control mat to protect seed in high traffic areas. Replace grass in parking lot islands with landscaping and mulch.

Fencing and Gates: Limited site fencing. CLF between grade 2-5 playground and bus loop in excellent condition.

Signage: Signage is generally in good condition with minor repairs or additions needed.

Recommendation: Replace fire lane signs. Provide directional signage.

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

Recommendation: Monitor condition to replace flag poles in future.

Site Furnishings: Limited site furnishings in fair condition.

Site Retaining Walls: Short 2' wall near main entrance is solid but showing signs of aging. 10' wall at service dock shows signs of initial failure. 10' wall does not have required railing or block at top to prevent falls.

Recommendation: Structural analysis of large wall and appropriate repairs are recommended. Provide a railing at the top of the high wall.

Accessory Structures: Three storage structures with wood framing and vinyl siding in fair condition. Two mobile classroom units in fair condition. One storage building of CMU construction in fair condition.

Recommendation: Monitor units for minor repairs to extend lifespan.

Play Areas and Physical Education

Play / PE Areas (General):

Playgrounds / Stationary Play Equipment: Two areas of grade PreK-1 equipment provided. Two areas of grade 2-5 equipment provided. All equipment is in fair to good condition. Mulch is in fair condition.

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

Paved Play Areas: Three paved play areas have surface conditions are in poor to fair condition. Largest area is in bus loop for the school which is undesirable. A second play area has nonfunctional basketball goals. Paved walking track is in fair condition.

Recommendation: Useful life can be extended by cleaning and sealing cracks in paved areas. Remove or repair basketball goals.

Play / PE Fields: Large PE field provided. Turf is in fair condition.

End of Glen Cove Elementary School Civil Narrative

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Notes

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

Subject: Glen Cove Elementary School	**Total Pages:**
Date: 9/15/2016	**Location: Roanoke, VA**
Copies To:	**Report Prepared By: AHW**

General:

Building constructed 1970-1971. Has had more recent renovation to office area.
All door signage complies with 2004 ADA, but not 2010.
Knob hardware present throughout facility.
Many exterior doors do not have appropriate weatherstripping.
Crashbars on both leaves of double doors.
School was designed using an open classroom concept. Divisions have been constructed using and are used as storage spaces/lockers. Many locations have been infilled with Lauan covered partitions.
Toilet rooms have painted steel partitions. Most all partitions are rusting near the fixture.
Glazing over stairwells leaks.
The only insulated glazing in the building is at the newly renovated office.

Clinic:

Sheet good flooring in ok shape. Painted CMU. Casework is aging. Solid core, painted doors in hollow metal frame. SATC in good condition.

Office:

Carpet tile that is approximately 2 years old, and is in good shape. HM windows installed with insulated lites. SATC in good condition. Desk has accessible station. Staff says when renovation was performed, the space behind desk was made much tighter. Restricts function a bit.

Cafeteria:

VCT in dining area. STAC on black track in good shape, but looks dated. Some water damage on SATC near exterior wall.

Kitchen:

Glazed quarry tile floors and base in kitchen. Painted CMU walls and Ceramic tile walls. SATC in fair condition.

Corridors:

SATC aged, in fair condition. Terrazzo in ok condition. Painted CMU and rubber base ok.

Accessible restrooms:

HM doors. Flush valve points wrong way in one. Back grab bars are incorrect. Switches at 2004 reach ranges.

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Notes

Crawl Space "Sod room" (at back of kitchen)

Vapor barrier is in poor condition. Has been penetrated in many locations. Staff is storing things in the space. Storage activities have led to the tears and penetrations. Barrier has shifted at some locations creating a gap between sheets.

Cafeteria Staff women's room:

1" mosaic floor. 6" Ceramic tile base. SATC in fair condition. Not an accessible restroom.

Kindergarten classroom pod:

VCT in ok condition. SATC fair to ok condition. Non-insulated glazing in hollow metal frames. No exit signs in the space. Two doors provide ingress/egress to corridors, but one is blocked by a rolling, folding partition. Two other doors, to exterior, have paper signs saying exit.

Casework in fair condition, very dated; PLAM cabinets with recessed metal pulls. Bubblers on sinks in casework.

Lauan covered partitions have been built to create an office space. SATC in office space is in poor condition with large water stains.

A pinch guard has been installed on the bathroom door. This is made of carpet held to the door and frame by strips of metal and screws.

Bathroom: 1" mosaic tile. 6" CT base. Painted GWB. HM frame has knob hardware. Flush valve faces away from open side of room. No pipe wrap kit. Only cold water is supplied. Room is not marked as accessible.

Door from corridor is a wood door, in a wood frame, built into Lauan covered infill. Assuming there was no door to the open space in the original design. No exit sign over door.

Corridor to gymnasium:

One wall has a glazed CT wainscot. Corner is damaged.

Terrazzo in ok condition.

Door to exterior has automatic operator. Non-functional, likely due to security measures.

Gymnasium area offices:

9" floor tile; suspect asbestos. Some tile is chipped. Some is peeling up from floor. SATC in fair condition.

Workout room:

9" floor tile; suspect asbestos. SATC in fair condition.

Bathroom near Gymnasium:

Missing caps on painted steel partition supports. Support pulling out of wall.

Gymnasium:

Parquet oak in good condition.

Tectum ceiling. Good. Some staining, but no evidence of water damage.

Stage, Oak boards in fair condition. Oak stairs lead up to stage from door off of corridor.

Cracks in CMU walls have been repaired at some point.

Storage area at stage has several cracks in CMU.

Roof hatch to gym roof is located at side of stage. One ladder takes you to a mezzanine. Another ladder proceeds from the mezzanine upward, but is 90° rotated from other

ladder, over the same hole. There is a hatch lid at the mezzanine level that could limit fall distance.

Library:

Open space with Lauan partitions constructed to enclose some areas.
Broadloom carpet in good condition.
SATC in fair condition.
Lauan infill has been installed in openings to allow for installation of doors.

Library Bathroom:

Has two toilets in the same stall. Room is not accessible.
SATC in fair condition.
1" floor tile.

Upstairs corridors:

VCT in ok condition.
SATC in fair condition. Mismatched tiles.
Hi-Lo drinking fountains are installed, but none have roll-under space.

Mechanical rooms:

Have duct tape holding filters onto the units.
Some have open, abandoned ductwork in place.
Exposed metal deck has peeling paint in some rooms.
One mechanical room has a full-height vertical crack in CMU.

Upstairs boys room:

SATC in poor condition.
Partition at entry door has a crudely made overhead support system installed.
Partitions rusting.

Teacher's lounge:

SATC in fair condition.
VCT in fair to ok condition.
Has a unit casework system housing a range, oven, sink, dishwasher, and cabinets.
Straight out of the 60's, but in, surprisingly, good condition.

Exit door 8:

Three doors. All three have crash bars in place.

Upstairs classroom pods:

Similar to downstairs but without exterior egress.
SATC is sagging.
Casework is in fair condition. Some broken pieces of PLAM
Heavy staining on VCT around casework.
Chalkboards and smart boards. Ceiling mounted projectors with wall hung, pull down screens.

A/V room:

Casework ok condition. No accessible base cabinets. SATC fair condition. 9" floor tile; suspect asbestos.

Exterior:

Brick stained in multiple places from water dripping.

Row lock sills are stained, appear to be missing mortar.
New ramps installed for access to main entry.
Brick at planters missing and broken in places.
Mortar joints are coming out on the exterior walls of the gym.
Expansion joints have failing sealant in several places. Joints should be raked and resealed as required.
Concrete cover of door 14 has been painted. Paint is popping off. Water staining is present on brick around the concrete cover.
A single enameled cast iron drinking fountain is adjacent to door 14. Does not appear to be functional. Missing bubbler and operator handle.
Windows at the gymnasium have been painted over. Paint has peeled and popped off the windows.
Most of the hollow metal windows are rusting on the exterior. Some have progressed past new paint as a solution.
Heavy staining on brick above door 10. Stains start where metal parapet cover meets brick.
Vertical crack in brick extends from ground up to lintel near door 10. Another crack starts below the lintel and extends downward for 2'.
Mortar has fallen out of joints at window lintels, at various locations.
Window sealant, at corner near mobile units, has failed. The sealant has been painted over.
Mobile unit skirts have been destroyed by mowing activities.
Brick over lintel at door 5 (kitchen loading dock) has spalled.
Large settlement crack in brick where HVAC system piping enters building, near loading dock.
Brick retaining wall at loading dock has mortar joints popping out near top. Heavy staining at top of wall.

Roof:

Large areas of ponding.
Membrane has separated from insulation below in ponding areas. Insulation has compressed due to the water weight. Membrane popped up.
Sealants are cracked and failing.
Drip edge joint cover loose at one location.
Drip edge appears to be on top of the membrane. The drip edge is through-fastened.
Several fasteners have backed out of the drip edge. Most have had a second fastener installed next to it, but no effort to deal with hole has been made.
Paint on window framing system at stairs has peeled at the near horizontal section.
Roof has had a patch installed at one end of the building. New drip edge was installed. Splicing tape was installed over drip edge and membrane.
Tower at connector between main building and gym still has an asphalt sheet type roof installed. Sealants have been installed at the flashings below in gobs.

Glen Cove 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	46	Life	
CMU walls	5	Life	46	Life	
Wood trim	3	15	30	0	
Interior doors	3	20	30	0	
Exterior doors	4	50	46	4	
Door hardware	2	7	46	0	
Electronic door hardware	2	5	10	0	
Terrazzo	4	50	46	4	
Asbestos floor tile	1	12	46	0	
Vinyl floor tile	2	12	30	0	
Ceramic/Porcelain floor tile	5	50	46	4	
Quarry floor tile	4	50	46	4	
Wood gym floor	5	10	30	0	
Other wood floors	4	10	30	0	
Carpet	2	5	20	0	
Exterior windows	3	30	46	0	
Interior windows	5	30	2	28	
Roof (Including flashings, coping, etc.)	2	20	20	0	
Suspended acoustical tile ceilings (lay-in)	4	25	30	0	
Ceiling/exposed structure finish (paint)	2	5	30	0	
Interior wall finishes (paint)	2	5	7	0	
Marker boards or chalk boards	4	N/A	10		
Tack boards	4	N/A	10		
Projection screens	5	N/A	10		
Casework	2	N/A	10	0	
Window treatments	5	N/A	10		
Toilet partitions	2	20	42	0	
Toilet accessories	2	N/A	42	0	
Interior railings	4	30	46	0	
Exterior railings	4	30	46	0	
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					

Glen Cove 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	8 years	22 years	
Chiller or Cooling tower	5	18 years	8 years	10 years	
Mechanical piping	2	30 years	45 years	0 years	
Refrigerant piping	5	30 years	5-10 years	20-25 years	
Duct	3	30 years	8 years	22 years	
Outdoor air units	N/A				
Terminal units	N/A				
Package units (DX unit)	5	18 years	5-10 years	8-13 years	
Package units (Heat Pumps)	2	18 years	18 + years	0 years	
Controls	5	20 years	8 years	12 years	
Exhaust fans	5	25 years	8 years	17 years	
Plumbing					
Plumbing fixtures and controls	2	30 years	45 years	0 years	
Floor drains	2	30 years	45 years	0 years	
Water heaters	2	15 years	5-10 years	5-10 years	
Pumps	2	15 years	45 years	0 years	
Potable water piping & valves	2	30 years	45 years	0 years	
Sprinkler system	N/A				
Back-flow preventer	N/A				
Service line & meter (size appropriate)	2	30 years	45 years	0 years	
Wall and yard hydrants	2	15 years	45 years	0 years	
Eye wash stations	2	20 years	45 years	0 years	
Emergency showers	2	20 years	45 years	0 years	
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					

Glen Cove 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	47	-7	5	Gear is still operating, but should be replaced when building is renovated.
Panelboards	30	47	-17	5	Panelboards are full, but are still operating
Cabling	40	47	-7	5	Some newer installed 7 years ago
Conduit/raceway	40	47	-7	5	
Light fixtures	20	17	3	5	Older light fixtures, but still have T8 lamps which are current technology
Lighting controls	30	17	13	5	
Public address system - Headend	30	17	13	5	
Public address system - Devices	30	17	13	5	
Security system	10	5	5	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system - Headend	30	17	13	5	
Fire alarm system - Devices	30	17	13	5	
Site lighting	20	17	3	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

Glen Cove 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	2	15 years	Unknown	0 years	
Asphalt walks	3/4	20 years	Unknown	5-10 years	
Concrete pavement	4	30 years	46 years	0 years	
Concrete walks	2/3	30 years	46 years	0 years	
Stairs	4	30 years	46 years	0 years	
Ramps	4/5	30 years	Unknown	5-25 years	
Railings	2/5	15 years	46 years	0-15 years	
Concrete curb and gutter	3	30 years	46 years	0 years	
Concrete / Brick Pavers	3	30 years	46 years	0 years	
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	4	40 years	46 years	0 years	
Domestic Water system	4	40 years	46 years	0 years	
Sewer system	4	40 years	46 years	0 years	
Natural Gas system	4	40 years	46 years	0 years	
Electrical System	3	25 years	Varies	5 years	
Exterior Lighting	4	25 years	Unknown	0 years	
Storm water system	3	40 years	46 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	4	N/A	N/A	N/A	
Vegetative landsaping	4	Life	46 years	Varies	
Lawns	4	Life	46 years	Life	
Fencing and gates	5	20 years	Unknown	15+ years	
Signage	4/5	10 years	Unknown	2-10 years	
Flagpoles	5	50 years	46 years	4+ years	
Site furnishings	5	15 years	Unknown	10+ years	
Awnings / Canopies	N/A	N/A	N/A	N/A	
Site retaining walls	3	50 years	46 years	4+ years	
Accessory structures	4	50 years	Unknown	10+ years	
Playgrounds	4	10 years	Unknown	5 years	
Paved play areas	3/4	20 years	Unknown	10+ years	
Play / PE fields	5	Life	46 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 **Glen Cove Elementary School**
Client Name Roanoke County Schools

OWPR ARCHITECTS AND ENGINEERS

Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
56,000	Replace suspended ceiling system	SF	$5.50	$369,600.00
44,000	Remove Existing Roof	SF	$2.25	$118,800.00
44,000	Single-ply EPDM Roof membrane	SF	$7.00	$369,600.00
512	Remove Vinyl Asbestos Tile	SF	$4.00	$2,457.60
512	Vinyl Composition Tile	SF	$2.50	$1,536.00
4,382	Replace Carpet, broadloom, 32 oz, glue down	SF	$4.00	$21,033.60
100	Casework	LF	$425.00	$51,000.00
38	Toilet Partitions	EA	$1,215.00	$55,404.00
15	Urinal Screen	EA	$515.00	$9,270.00
38	Toilet Accessories	EA	$550.00	$25,080.00
2342	Window Replacement	SF	$45.00	$126,468.00
92	New Interior Signage-adhesive back/braille	EA	$42.00	$4,636.80
	ADA Compliant			
4,000	Remove existing wood framed walls and paneling an	SF	$7.50	$36,000.00
	Replace with metals studs and gyp bd			
	CIVIL			
1	New access road	LS	$250,000.00	$300,000.00
4	Directional signage	EA	$1,500.00	$7,200.00
80,000	Mill and overlay asphalt pavement	SF	$1.00	$96,000.00
20	Replace handrails	LF	$50.00	$1,200.00
5	Fire lane signage	EA	$500.00	$3,000.00
500	Repaint curbs and fire lanes	LF	$0.10	$60.00
1	6" Sprinkler System	EA	$20,000.00	$24,000.00
1	Repair island landscaping in parking lots	LS	$4,000.00	$4,800.00
80	Add 4' railing behind 10' retaining wall	LF	$80.00	$7,680.00
2	Repair basketball goals/backboards	EA	$1,000.00	$2,400.00
	MECHANICAL / PLUMBING			
60,010	Replace HVAC systems for building	SF	$35.00	$2,100,350.00
60,010	Replace Plumbing for building	SF	$10.00	$600,100.00
60,010	Add Sprinkler System to building	SF	$3.00	$180,030.00
	ELECTRICAL			
60,010	Replace HVAC systems for building	SF	$1.00	$60,010.00
60,010	Replace Power Distrubtion System	SF	$10.00	$600,100.00
60,010	Ceiling and Lighting Upgrade	SF	$4.00	$240,040.00
	TOTAL Budgetary Cost			**$5,417,856.00**