HERMAN L. HORN ELEMENTARY SCHOOL

ARCHITECTURAL

Herman L. Horn Elementary (HLHES) was originally built in 1961. The building has since been renovated in 1965 and again in 2005 along with the addition of a new classroom wing, bringing total square footage to 47,142 SF. As a result of these additions and renovations, a reasonably wide range of materials, finish levels, and conditions exist throughout the facility. Each portion of the building loosely complies with the accessibility requirements of the time in which the work was performed; however, most spaces do not comply with current standards. The building is equipped with a limited area sprinkler system, located in storage areas. There are no mobile units serving as classrooms at the school. There are portable, wood framed, storage buildings in service at the campus.

Exterior Finishes

Exterior Cladding:

Exterior wall material is, generally, brick with pre-finished metal panels occurring at eaves and other infill locations. Pre-finished metal flashings and drip edges occur at wall/roof intersections, and a pre-finished metal façade panel is present at the top of the gymnasium walls.

Windows have brick rowlock and precast concrete window sills, with brick occurring, primarily, at the new classroom additions. Precast sills at the rear of the building have cracked and will likely crumble away in future years.

Roof:

Areas of the building were re-roofed during the building renovations and/or additions. In general, maintenance activities should be increased on the roof. Several roof drains have had strainer baskets removed. These should be replaced as quickly as possible to avoid accumulation of debris in leader piping. Gutters and drains were observed with debris blocking passage of water; trees are growing in the gutters. Debris should be removed from the roof. Multiple vent-through-roof pipes are broken. Pieces are lying on the roof. Attempts have been made to extend pipes upward and support them on adjacent roofs. Inadequate support and/or fastening has led to these pipes breaking when subjected to loading.

Sealant on the membrane portions of the roof is cracking and can, generally, be described as failing. Most lapped joints appear to be tight. Splice strips and patches show some evidence of separating from the membrane. Ponding is present in several areas. There are multiple anomalous bubbles under the rigid insulation which appear to be caused by air between layers. Copper flashing at the membrane and wall

intersections near the gym is in poor condition. Additional flashings employ a termination bar with no counterflashing. Sealant at these flashings has degraded and, at some locations, the termination bar has separated from the wall. Ponding is common around the cafeteria.

Standing seam metal roofs over the cafeteria, entry, and library are in fair to ok condition. Finishes at these roofs all exhibit wear, with spots extending through to the base metal. At the cafeteria, no snow guards are present. This has resulted in damage to the gutters and straps at this roof.

Standing seam metal roofs over the newer classroom additions is in good shape. There is no access hatch or ladder providing access to these areas. Snow guards and gutter straps appear to be in good condition. Finishes appear to be in good condition.

Windows:

Windows at the exterior of the building are generally aluminum storefront systems with insulated glazing. Limited areas at the exterior have had composite insulated aluminum panels installed to limit direct sunlight.

Exterior Doors:

Exterior doors in the original building, and older addition, are hollow metal doors and frames. These have some rusting, lack weather stripping and have knob type hardware. At locations with double doors, two crash bars are often present. Door and door hardware replacement is recommended during renovations to the older portions of the building. The 2005 addition to the building and new entry vestibule have aluminum doors in aluminum storefront framing.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Terrazzo, Vinyl Composition Tile, Quarry Tile and Ceramic Tile are the predominant floor finishes at HLHES. Other floor finishes include limited applications of carpet in administration, library, and other spaces, sheet vinyl, and wood (parquet and board) in the gym and cafeteria.

Interior wall finishes are generally painted concrete block and structural glazed wall tile. Office areas and built out areas have gypsum wall board partitions. Limited areas have exposed brick, in good condition. Lockers, in older portions of the building, have been removed and the openings covered with a textured, pre-finished, metal panel system.

Window treatments are typically vinyl roller shades.

Ceilings are generally suspended acoustical tile (lay-in) with some gypsum wall board ceilings. Tiles in the bathrooms near the gymnasium are faced with a cloth-type material. This is stained and peeling. Tectum decking is present in the gymnasium area. Welding activities in the gym have stained the Tectum and metal surrounding the welds. Water damage is present in some of the suspended acoustic tile ceilings, other older tiles have begun to sag and deteriorate. New suspended acoustical tile ceilings are recommended as part of any renovations. Ceiling tile at the newer additions has serviceable life remaining.

Most interior doors are wood and are original to their respective construction periods. Some doors exhibit wear and do not have accessible door hardware (older portions of the facility). All non-accessible, interior door hardware would be replaced during a substantial renovation. Some door frames would be replaced to achieve accessibility, or because of reconfigured spaces. Other door frames may be salvaged, patched, and painted.

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

Casework (cabinets) condition varies across the facility. Painted casework, generally, needs to have new finishes applied. Some fixed wooden casework may need to be refinished. Most casework is not accessible. Older classrooms have built in storage units. Other student storage is accomplished by hooks on the classroom walls or by free-standing shelving units. General casework storage is not sufficient in most classrooms. Lockers appear to have been removed from older hallways and filled in with a textured metal panel. Most classrooms would benefit from new casework with individual student cubbies.

Bathroom materials and conditions all vary by construction and renovation date. Older bathrooms have aged suspended acoustical tile ceilings with peeling facings. High pressure laminate toilet partitions have sustained minor damage. In stalls and rooms intended to be accessible, non-compliant grab bars are installed, and mirrors are installed at non-accessible heights. The clinic bathroom has an odor issue that is likely due to traps drying out. Staff routinely pours bleach down the drain. Newer bathrooms have tile floors and suspended acoustical tile ceilings in fair to good condition.

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.

General school storage is scattered throughout the building and consumes spaces intended for other functions. One exit hallway is obstructed by stored items. Outdoor storage buildings have been placed on site. The addition of casework in classrooms will alleviate some of this. But, as part of renovation plans, general school storage should be planned in several strategic areas serving administration, faculty, and staff. Metal shelving units would be provided in dedicated general storage rooms.

Accessibility

At several exterior doors, there are steps up into the building, which are not accessible. While these no longer serve as entrances due to security concerns, they should provide an accessible route for egress. Routes to paved play areas, play fields, and play equipment are not accessible. As part of any substantial renovation all elements of the site and building entrances would be renovated to be accessible. Accessible play areas would be required as part of any substantial renovation and addition project.

Within the building, few components are accessible simply because of their age. All restrooms are not accessible to the latest ADA standard, and some will require substantial renovations to achieve full accessibility. In some instances, lockers and other storage items have been placed in the room, rendering the spaces non-accessible; see toilet room near Library. The stage is currently not accessible without special accommodation. Some doors lack clearances required to be accessible. Signage, throughout the facility, does not comply with the most recent ADA standard. Accessibility throughout the building would be achieved during any substantial renovation.

Safety and Security

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

Recent renovation work, undertaken by RCPS in 2014, involved the installation of secure entry vestibules at all schools. The vestibule at HLHES provides visibility from the office and control over the main entry. Door position sensors and locks are provided at all other exterior doors. Entry at these points is limited to staff members with appropriate keys/cards. Due to the nature of the renovations and additions to the school, the building is reasonably compartmentalized. Sight lines and distance are fairly limited.

End of Herman L. Horn Elementary School Architectural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: Water closets observed were floor mounted vitreous china with manual type flush valves. The majority of water closets appeared to be from the early 1990's and seemed to still be functional. Fixtures located in the South addition are from 2002. 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 majority of urinals appeared to be from the early 1990's and seemed to still be functional. Fixtures located in the South addition are from 2002. 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 1993 and 2002 in the South addition. Larger toilet rooms are the 3 user type, wall mounted, Terreon type with infrared sensors by Bradley. 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 expected to have a useful life of 30 years.

Water Heaters:

Domestic water heating is done a storage tank type gas fired heater by Cemline. The domestic water heater was installed in 2004 and is expected to have a useful life of 15 years. A tempering valve manifold is installed which lowers hot water temperature to allowable temperatures for hand washing. Two hot water circulation pumps circulate the two hot water loops throughout the building. The circulation pumps appear to be from the early 1990's and have passed their useful life expectancy.

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 2" cold water line that is assumed to be from a municipal system. A backflow prevention device was not located.

Fire Protection:

The building is partially sprinkled.

Recommendations:

Replace in-line domestic hot water circulation pumps. Add a sprinkler system to the entire building.

End of Herman L. Horn Elementary School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

Three gas-fired boilers provide heat to the building through a hot water circulation system. Each boiler has an associated boiler circulation pump. Hot water is circulated to the building's heating coils with two base mounted pumps. Coils are located in rooftop air handler units and in terminal units. It is believed that most of the heating equipment was installed in 2004. The boilers and pumps seemed to be in good, working condition for their respective ages. The boilers are 12 years old and are expected to have a useful life expectancy of 30 years. The pumps are 12 years old and are expected to have a useful life expectancy of 25 years.

Ventilation: Ventilation is provided to the building by rooftop air handler units.

Air Conditioning:

The building is primarily cooled by an air cooled chiller located on grade. Chilled water is then pumps to cooling coils located in rooftop air handler units. The chiller and chilled water pumps seeded to be in good condition for their respective ages. The chiller is 12 years old and is expected to have a useful life expectancy of 20 years. The pumps are 12 years old and are expected to have a useful life expectancy of 25 years. There are two packaged DX type rooftop units, one serving the gym and the other serving the cafeteria. The gym unit is 5 years old and cafeteria unit is 12 years old. Each of these DX rooftop units are expected to have a useful life expectancy of 20 years.

Piping:

There is hot water piping, black steel, insulated. The piping appears to be in good working condition.

Controls:

The building automation controls are digital type (DDC) are the Metasys Brand, by Johnson Controls.

Recommendations:

The exterior casing on rooftop unit: RAH-CR2 was very leaky and was blowing conditioned air to the atmosphere. The casing should be repaired or the rooftop unit should be replaced.

End of Herman L. Horn Elementary School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The main switchboard is a 2000 Amp, 3 phase, 4 wire, 480Y/277 volt Square D, service entrance rated switchboard. The existing switchboard is original to the building from 2004.

Recommendation: Retain existing switchboard and maintain breakers as required.

Transformers:

Transformers: A new Square D 300kVA transformer was installed in 2004 to backfeed the existing 208 volt electrical system.

Recommendation: Maintain existing transformer as required.

Panelboards:

Distribution and Branch Circuit Panelboards: The majority of panelboards are newer Square D panelboards. There are some older Square D panelboards that were installed in a previous addition. These panels are in good condition and have adequate spaces for future additional circuits.

Recommendation: If renovations and additions occur, reuse existing panelboards where available and expand from new switchboard.

Cabling:

Cabling: Much of the building wiring appears to have been upgraded in 2004. All visible wiring appears to be in conduit.

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 parabolic or flat lens fixtures with T8 lamps, some fluorescent recessed can lighting, and 1x4 fixtures with T8 lamps. The T8 lamps are current technology, and meet the current needs of the school. Lamps are likely changed as lamps burn out; however, many of the ballasts and optics have likely not been changed and will need to be replaced in the future.

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

Lighting Controls:

Lighting Controls: Lighting controls throughout the building consist of toggle switches controlling fixtures within an area and motion controlled switches throughout corridors. Emergency battery units are installed for egress lighting.

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 Valcom Class Connection headend system with speakers located throughout the school. 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 good condition and appears to be operating properly. If additional controls are needed it is recommended to upgrade the system as required.

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 4100U fire alarm system. It appears to have been updated in 2004. The current system consists of limited area manual pull stations, smoke detectors, and horn/strobe alarms.

Recommendation: If renovations and additions are pursued, expand existing fire alarm system with audible and visual notification devices throughout the school.

Generator: None.

Site Lighting:

Site Lighting: The site lighting consists of only a building mounted full cut off wall packs and pole mounted full cut off fixtures.

Recommendation: Reuse existing full cut off lighting for site lighting. To maximize energy efficiency and minimize light contamination on neighboring properties and to the sky when the fixtures need to be replaced it would be recommended to go with an LED solution.

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 Herman L. Horn Elementary School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 9 regular buses, 3 special needs buses, and daycare vans. There is a dedicated bus loop on the south side of the building.

Morning: Buses utilize the bus loop for drop off by stacking along the sidewalk. There is adequate stacking space with no backups.

Afternoon: Buses utilize the bus loop for pick up by stacking along the sidewalk. There is adequate stacking space with no backups.

Cars: There is a drop off loop around the parking area adjacent to the main entrance.

Morning: Staff blocks off the east entrance and cars enter at the west entrance and loops through the parking lot to drop off at the main entrance. Staff unloads 2 to 3 cars at a time. Cars move smoothly and quickly without backing up into the adjacent street.

Afternoon: Parents must park their cars and enter the school to check out their students. Cars fill up the parking lot and stack along the curb to pick up their students. Some issues with cars parking in the fire lane.

Parking: 97 striped parking spaces are provided with 6 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, including fire lanes. The bus loop is occasionally used as overflow parking.

Service: The service area is on the north side of the building and is accessed through the parking lot. There is adequate maneuvering area.

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

Separation: There is good separation between buses and cars.

Adjacent Roadways: The adjacent roadways are local roads and there is adequate sight distance.

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

ADA Accessibility

Parking: There are 4 spaces at the main entrance, and 2 spaces in the faculty parking lot.

Signage: Signs are in poor condition. Fine is not listed. Spaces designated as van accessible are not van accessible. The spaces adjacent to them are van accessible.

Recommendation: Replace signs with appropriate code compliant signs. Provide van accessible signs at appropriate spaces.

Ramps: Curb ramps are adequate for the 4 spaces at the main entrance. The 2 spaces at the faculty parking area do not have an accessible route to the building.

Recommendation: Provide a curb cut for the 2 ADA spaces.

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

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Poor section at the service area. Minor cracking throughout.

Recommendation: Repair areas with alligator cracking (subgrade deficiencies).

Asphalt Walks: Asphalt track at play area in good condition.

Concrete Walks: Some older concrete areas are deteriorating, cracked and showing age.

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

Stairs, Ramps, and Railings: Wooden steps at dumpster are aged, deteriorated, and do not have railings. Steps at old section of building are aged. Ramp at loading area is showing age. Railings at loading dock are damaged. Railings at the west stairs do not meet current code. Railings at parking area - paint is worn.

Recommendation: Repaint newer railings at parking area. Replace older and damaged railings with code compliant. Remove wooden steps at dumpster.

Concrete Curb and Gutter: Some older concrete curbs are deteriorated, cracked and showing age.

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

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

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

Utilities

Fire Lines and Hydrants: Sufficient fire hydrant coverage and spacing with two fire hydrants located around the school and one fire hydrant along the road. No paved fire lane around building, but fire truck access is present around most of the school.

Domestic Water System: The water system is in good condition. Staff indicated no pressure or water discoloration issues. Water is provided to school via tap into public water main. Water meter is located in the vault in the middle of the bus loop.

Sewer System: The sanitary sewer system consists of manholes and pipes in fair condition. System 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 rear of the building in the loading dock area and is protected from vehicular traffic with bollards. The meter is in fair condition and functional, but shows signs of major rust and deterioration.

Recommendation: Contact gas company to check and service meter.

Electric: Electric service provided via overhead poles to the rear of the school in the loading dock area. Service is taken underground to the transformer in the loading dock area and then into the building. The meter is mounted on the building behind the transformer. The transformer and service pole are prone to damage from vehicular traffic.

Recommendation: Add bollards to protect electric service pole and transformer.

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

Grading and Drainage

Storm Water System: Roof drains and downspouts are piped underground into the school storm water network. Runoff from the parking lots and yard areas are collected in curb and drop inlets and conveyed to the detention pond at the front of the school property. Inlets, manholes and pipes are 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 shape with necessary outlet protection and no signs of scoured earth. Perimeter of pond is not fenced and could pose safety issues to children. Pipes into and out of detention pond are filled with sediment.

Recommendation: Clean pipes free of sediment and provide more general maintenance.

Slopes, Ponding, and other Drainage Issues: Minor ponding at loading dock area due to poor positive drainage. Northeast corner of building has significant drainage and shade problems causing mold and moss.

Recommendation: Recommend an additional drainage inlet on opposite side of the sidewalk from the existing inlet. Also refer to Vegetative Landscaping and Site Retaining Walls regarding removal of trees.

Site Features

Vegetative Landscaping: In general, vegetation is healthy; however, problem areas were noted. Refer to recommendations for more information.

Recommendation: Recommend to remove 4 large deciduous trees next to retaining wall on the northeast corner of the building. The trees are within two feet of a retaining wall and are an issue for potential damage to the wall foundations. In addition, the trees have created undue maintenance in relation to drainage and lawns. Recommend to remove/replace dead tree behind building as soon as possible to match maturity of other new trees. Planter beds require extensive cleaning and mulch. Continue general maintenance of pruning and mulching.

Lawns: In general, lawns are in good condition; however, problem areas were noted. Refer to recommendations for more information.

Recommendation: Lawn at northeast corner of the building needs repair. Refer to Vegetative Landscaping for additional detail. Several areas of top soil sinking below sidewalk grade were noted (refer to library area) that do not allow drainage away from building. Recommend to fill in these areas and seed to prevent water from ponding and running to building foundations.

Fencing and Gates: Limited site fencing. CLF parallel with Gates Lane adjacent to new walking track in good condition.

Signage: Minor damage to some signs. Poles aging. No directional signage.

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 excellent condition.

Site Furnishings: Benches and picnic tables are metal or vinyl coated. All are in excellent condition.

Site Retaining Walls: A large poured concrete retaining wall is located at the northeast corner of the building. The wall appears stable but two items of concern were noted. First, mature trees are within two feet of the concrete retaining wall. Secondly, pea gravel was noted coming out through the above grade weep holes. It was also noted that pea gravel was present at weep holes

Recommendation: Significant vegetation risks undermining of the wall foundation. Recommend to have trees be removed in conjunction with Vegetative Landscaping, Lawn, and Drainage sections. Gravel in the wall weep holes also represents a significant risk. It is not likely not economically feasible to excavate and remedy the problem. Drainage from the weep holes should be monitored to ensure that water is passing through to avoid hydrostatic pressure that the wall may not have been designed for. Future walls should utilize filter fabric coated underdrains to avoid this situation.

Accessory Structures: Structures are vinyl coated wood structures. Roofs are in good condition.

Play Areas and Physical Education

Play / PE Areas (General):

Playgrounds / Stationary Play Equipment: Single play area with combined equipment for grades PreK to 5. Large equipment is in poor condition with signs of vinyl coating wearing down and swing bridge blocked off due to damage. Smaller equipment is in good to excellent condition. Mulch is in good condition.

Recommendation: Plan to replace large play equipment.

Paved Play Areas: Asphalt pavement aging with signs of cracking. Basketball backboards and hoops in need of significant repair. Paved walking track in excellent condition.

Recommendation: Repair or replace basketball goals. Plan for re-paving play area.

Play / PE Fields: Multipurpose games field provided on campus. Turf condition is good. Infield condition is fair. Fencing in good condition. Team benches (wood) in fair condition. Large PE field provided with good turf condition.

Recommendation: Monitor team benches for replacement with aluminum structures.

End of Herman L. Horn Elementary School Civil Narrative

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Notes

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

Subject: Herman L. Horn Elementary School	**Total Pages:**
Date: 9/13/2016	**Location: Vinton, VA**
Copies To:	**Report Prepared By: AHW**

General:

Knob hardware common throughout building.
Accessibility issues common at most toilet rooms, drinking fountains, and signage.
Exterior doors need to be provided with seal kits.
Per staff, HVAC balancing has been an issue.

Entry Vestibule:

VCT floors, Good condition. Perforated linear metal ceilings. Double doors both have pull hardware. Surface mounted metal conduit.

Boiler Room:

Play sand bags are being used at exterior door to prevent water running under the doors. Paint is peeling from the doors and metal is rusting. Butt hinges have been replaced with continuous hinges.

Gymnasium:

Newly welded steel reinforcement at joists has stained the tectum and adjacent painted steel. No seals on exterior door. Exterior door has chainable hardware on both sides. Wood floor is in good condition.

Drinking fountain at Gymnasium:

Shoots water several feet. Pretty impressive.

Boys Restroom near Gym:

Switch mounted at 50” AFF. Mirrors at 42” AFF. Lavs at 27” to top, 23” clear knee space. No Accessible stall. Minor damage to High Pressure Laminate Toilet partitions. Ceiling is an SATC system with a cloth-like facing, Fair condition. The tile facing is experiencing some delamination and discoloration. Entry signage mounted at 57” to lowest tactile character.

Girls Restroom near Gym:

Broken base tile. The room has two built out storage rooms. One is GWB over wood. The other is Lauan paneling over wood. Water damage on ceiling tiles in GWB closet. Other closet locked.

Room 400:

Switches mounted at 44” AFF.

Unisex bathroom at 400 wing:

Non-compliant grab bar at back wall of toilet. Mirror is mounted at 41”. Lockers are obstructing pull-side clearance.

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Notes

400 Wing egress corridor:
There are stored items in the corridor obstructing egress access.

400 wing Janitor closet:
Water damaged SATC.

Cafeteria:
Stage is not accessible. Stage floor, wood, OK/medium condition. Small bits of parquet cafeteria floor are damaged, but otherwise, in OK condition.

Cafeteria lobby:
Small amounts of damage to terrazzo flooring and structural glazed wall tile.

Principal office:
Has a portable A/C unit, ducted through/above the SATC.

Office Bathrooms:
Same issues as other Unisex bathrooms.

Office/Admin Area:
Settlement crack in VCT.

Clinic Bathroom:
Has a shower. Damaged terrazzo at door to hallway from clinic. Has been patched with a gray compound. Clinic drain supposedly emits a sewage smell. Staff pours bleach down drain on occasion. Based on limited use of the toilet, shower, and floor drain in the space, assume trap is going dry.

Exterior Door 13:
Sand bags have been used to prevent water running under the door. There is no site drain in the vicinity of this door and all slopes tend to run in the direction of the door. Could potentially install a trench drain in the area and daylight towards parking area.

Precast Concrete Sills:
Some sills are damaged. Many joints are in need of new sealant.

Exterior Door 11:
Great-foam type material has been installed at the top of the window system framing. Visible from ground level, but unable to view reason for the installation of the material.

Rowlock sills at Gymnasium:
Mortar issues.

Exterior brick:
Mortar joints are popping out at various places, including but not limited to: Gymnasium, chimneys, and Office area.

Roof:
The flat roof areas appear to have been re-roofed in the timeframe of the building additions. Sealant is cracked and would be, generally, described as “failing”. Most laps seem tight. Splice strips, patches, etc. show some evidence of separating from membrane. Evidence of ponding in several areas.

Multiple large humps exist. Application of pressure did not reveal spongy consistencies in the insulation. The humps are springy. It may be the result of trapped air below the upper layers of insulation.

Metal roof over cafeteria is in fair to ok condition. Finish has rusted/worn through in multiple areas. Gutters are broken and straps have come undone in various locations.

No snow guards are present. There is evidence of ponding around the perimeter of the cafeteria. The flashing turn-up of the EPDM is minimal.
Two openings have been infilled with plywood at the cafeteria. Plywood is degrading.
Gutters near trees are filled with leaves. Multiple small trees have sprouted in the gutters.
Multiple VTR pipes are broken. Attempts have been made to extend pipes upward and support them from adjacent roofs and other construction. Not sure of reason. May be a snow drifting issue.
Metal roof over entry area finish is wearing. Small rust spots.
Metal roof over building additions appears to be in good shape. No access hatch or ladder provided. Close inspection was not performed. Snow guards and gutters/straps appear to be in good condition.
Roof drains should be cleaned. Remove debris from roof.
Copper flashing at gym, where membrane turns up wall is in poor condition. Additional flashings employ a termination bar with no counter flashing. Sealant at these locations has degraded. Some portions of termination bar are pulling away from the wall.

Marker Boards:

Observed boards appeared to be in good condition.

Heman L. Horn 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	55	LIfe	
Brick At Addition	5	Life	11	Life	
CMU walls	5	Life	55	Life	
Interior doors	4	20	22	0	
Interior doors at Addition	5	20	11	9	
Exterior doors	4	50	51	0	
Exterior doors at Addition	5	50	11	39	
Door hardware	3	7	11	0	
Electronic door hardware	2	5	11	0	
Terrazzo	4	50	55	0	
Vinyl floor tile	4	12	11	1	
Ceramic/Porcelain floor tile	5	50	11	39	
Quarry floor tile	5	50	51	0	
Wood gym floor	5	10	11	0	
Other wood floors	4	10	51	0	
Carpet	2	5	11	0	
Exterior windows	5	30	11	19	
Interior windows	5	30	11	19	
Membrane Roof (Including flashings, coping, etc.)	3	20	22	0	
Older Standing Seam Roof (Including flashings, coping, etc.)	4	20	22	0	
Standing Seam Roof at Addition(Including flashings, coping, etc.)	5	20	11	9	
Suspended acoustical tile ceilings (lay-in)	4	25	22	3	
Plaster/GWB ceilings	5	30	22	8	
Sound control panels (wall and ceiling)	5	N/A	22		
Ceiling/exposed structure finish (paint)	2	5	11	0	
Interior wall finishes (paint)	2	5	11	0	
Marker boards or chalk boards	4	N/A	11		
Tack boards	5	N/A	11		
Projection screens	5	N/A	11		
Casework	4	N/A	11		
Window treatments	5	N/A	11		
Toilet partitions	2	20	22	0	
Toilet accessories	4	N/A	11		
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					

Herman L. Horn 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	12	18	
Chiller	5	20	12	8	
Mechanical piping	5	30	12	18	
Duct	5	30	12	18	
Pumps	4	25	12	13	
Terminal units	5	17	12	5	
Package units	4	20	12	8	
Controls	5	20	12	8	
Exhaust fans	5	20	12	8	
Kitchen hood				0	
Plumbing					
Plumbing fixtures and controls (1993)		30	23	7	
Plumbing fixtures and controls (2002)		30	14	16	
Floor drains		30	23	7	
Water heaters		15	12	3	
Pumps		15	23	-8	
Potable water piping & valves		30	23	7	
Sprinkler system (Partially)	N/A			0	
Back-flow preventer	N/A			0	
Service line & meter (size appropriate)		30	23	7	
Wall and yard hydrants	N/A			0	
Eye wash stations	N/A			0	
Emergency showers	N/A			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					

Herman L. Horn 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	13	27	5	
Panelboards	30	13	17	5	
Cabling	40	13	27	5	
Conduit/raceway	40	13	27	5	
Light fixtures	20	13	7	5	
Lighting controls	30	13	17	5	
Public address system - Headend	30	13	17	5	
Public address system - Devices	30	13	17	5	
Security system	10	5	5	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system - Headend	30	13	17	5	
Fire alarm system - Devices	30	13	17	5	
Site lighting	20	13	7	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

Heman L. Horn Elementary School Civil Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Civil					
Asphalt pavement	4	15 years	13 years	2 years	
Asphalt walks	5	20 years	13 years	7 years	
Concrete pavement	N/A	N/A	N/A	N/A	
Concrete walks	4/5	30 years	13-56 years	0-17 years	
Stairs	1/4/5	30 years	13-56 years	0-17 years	
Ramps	4	30 years	56 years	0 years	
Railings	1/2/4	15 years	13-56 years	0-17 years	
Concrete curb and gutter	4/5	30 years	13 years	17 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	13 years	0-2 years	
Fire lines and hydrants	5	40 years	Unknown	10-15 years	
Domestic Water system	5	40 years	Unknown	10-15 years	
Sewer system	4	40 years	33-56 years	0-7 years	
Natural Gas system	3	40 years	Unknown	0 years	
Electrical System	4	25 years	Unknown	5-10 years	
Exterior Lighting	4	25 years	Unknown	5-10 years	
Storm water system	4	40 years	33-56 years	0-7 years	
Detention / Retention ponds	4	Life	Unknown	15-20 years	
Stormwater Management BMP's	N/A	N/A	N/A	N/A	
Surface drainage and grading	3	N/A	N/A	N/A	
Vegetative landscaping	3/4	Life	13+ years	Varies	
Lawns	3/4	Life	13+ years	Life	
Fencing and gates	5	20 years	Unknown	10 years	
Signage	4	10 years	13 years	Life	
Flagpoles	5	50 years	13 years	37 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	13 years	37 years	
Accessory structures	5	50 years	Unknown	10 years	
Playgrounds	3	10 years	13 years	3 years	
Paved play areas	4	20 years	13 years	7 years	
Play / PE fields	4/5	Life	13 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 **Herman L. Horn Elementary School**
Client Name Roanoke County Schools

OWPR ARCHITECTS AND ENGINEERS

Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
250	New Interior signage-adhesive back/braille	EA	$42.00	$12,600.00
	ADA compliant			
250	Replace interior door hardware	EA	$800.00	$240,000.00
3,500	Replace Carpet, broadloom 32 oz, glue down	SF	$4.00	$16,800.00
16	Toilet Partitions	EA	$1,215.00	$23,328.00
8	Urinal Partition	EA	$515.00	$4,944.00
	CIVIL			
6	ADA signage	EA	$500.00	$3,600.00
4	Directional signage	EA	$1,500.00	$7,200.00
1	Curb cut	EA	$1,000.00	$1,200.00
5,000	Remove and repair asphalt pavement	SF	$3.00	$18,000.00
1,000	Repaint curbs and fire lanes	LF	$0.10	$120.00
3	Install bollards	EA	$650.00	$2,340.00
1	Install yard drains	EA	$2,500.00	$3,000.00
1	6" Sprinkler System	LS	$20,000.00	$24,000.00
4	Remove trees at bottom of retaining wall	EA	$2,500.00	$12,000.00
1	Replace dead tree	EA	$500.00	$600.00
1	Repair lawn at retaining wall	LS	$1,000.00	$1,200.00
2	Replace basketball goals/backboards	EA	$1,000.00	$2,400.00
1	Replace large play equipment	LS	$120,000.00	$144,000.00
	MECHANICAL / PLUMBING			
1	Repair Rooftop unit RAH-CR2	EA	$5,000.00	$5,000.00
2	Replace domestic water circ. pumps	EA	$3,000.00	$6,000.00
47,142	Add Sprinkler System - includes ceiling modifications	SF	$6.00	$282,852.00
	ELECTRICAL			
1	Repair Rooftop unit RAH-CR2	EA	$500.00	$500.00
2	Replace domestic water circ. pumps	EA	$1,000.00	$2,000.00
47,142	Ceiling Modifications	SF	$1.00	$47,142.00
	TOTAL Budgetary Cost			**$860,826**