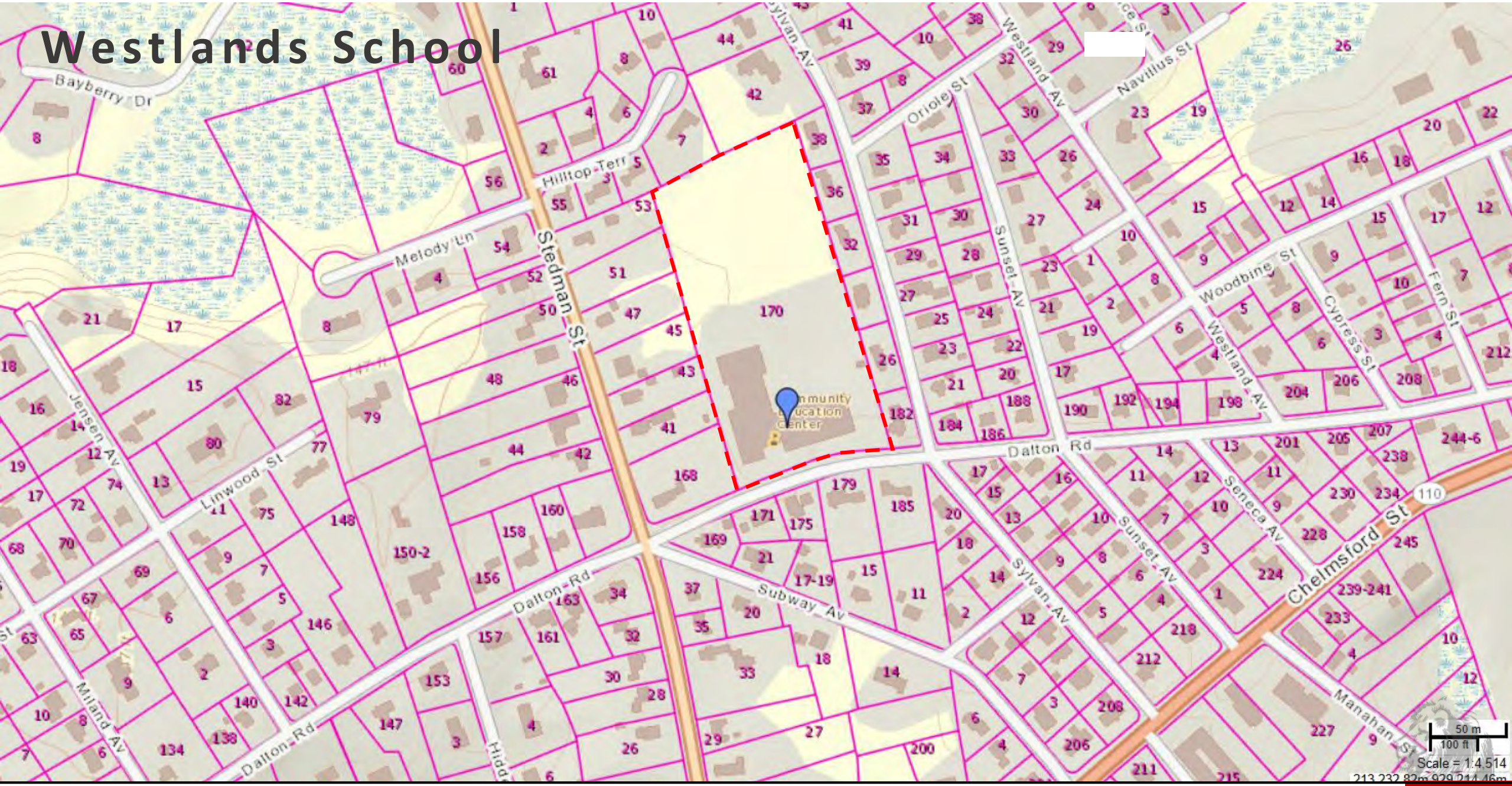
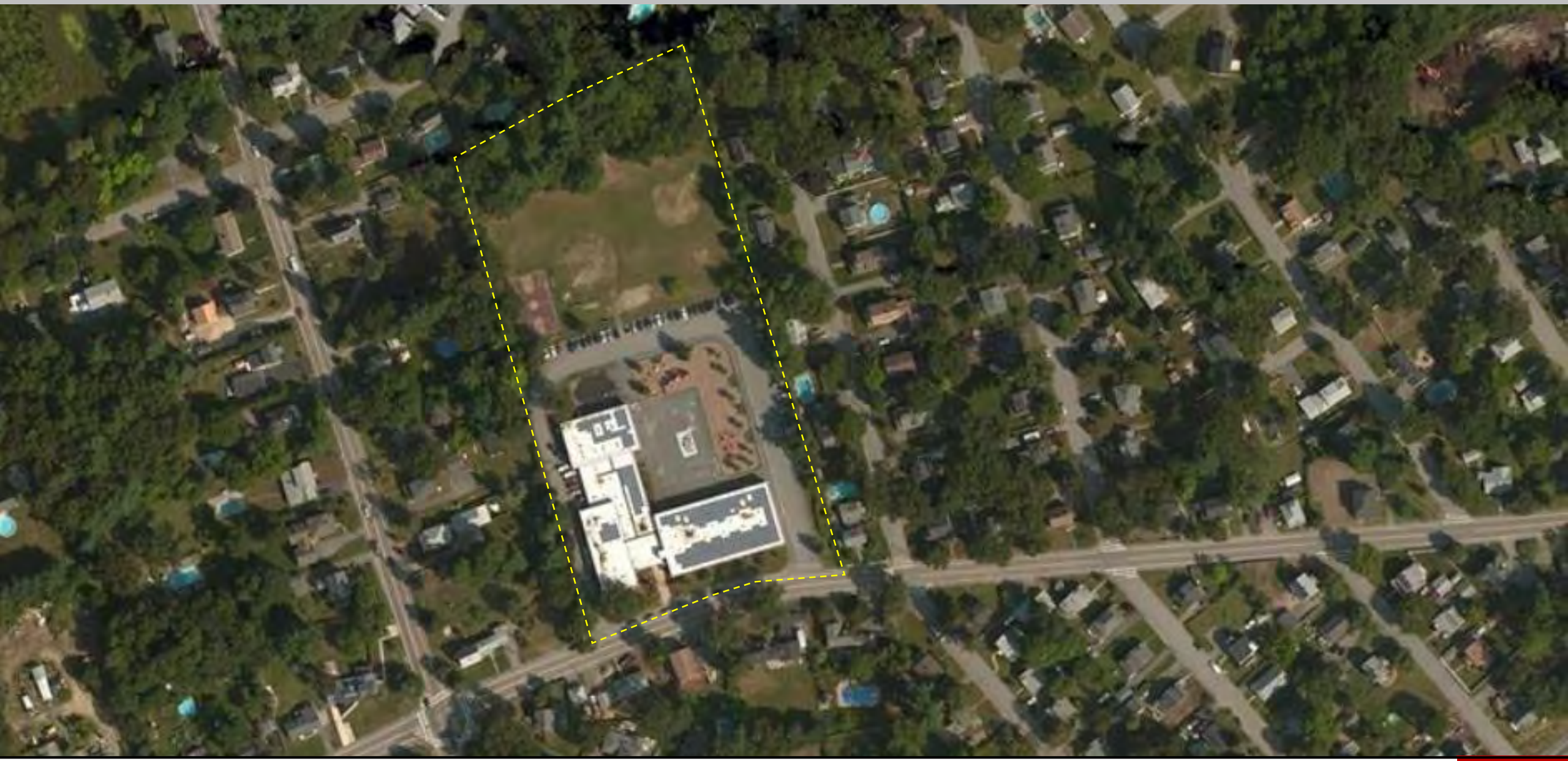
Westlands School



Dore & Whittier Architects Inc.

H1-1

Westlands School



ARCHITECTURAL ASSESSMENT

GENERAL DESCRIPTION

The school was designed by The Architects Collaborative in 1967 and constructed in 1968 (Image 1). The school underwent a window replacement project in 2004 and a complete roof replacement in 2011.

The building is two stories, with a gross floor area of the "at-grade" level of approximately 23,285 SF, and 13,815 gross square feet (approximately) on the second floor.

The building is generally described as a concrete and CMU structure, with load-bearing interior and exterior walls. The structure is not fireproofed, and as such best fits the description of a Type II-B construction, as defined by the current building code. The building does not feature fire suppression sprinklers throughout all areas.

Current enrollment is approximately 100 students. The school is currently used as a community education center, and for after school programs and serves multiple age groups throughout the day.

The building survey for this report was conducted on February 16, 2016.

Image 1

Image 2

Image 3

Image 4

GENERAL CODE CONSIDERATIONS

As an occupied building with approved occupancies, significant code upgrades are not required in order to continue using the building for educational purposes, unless specifically identified issues requiring remediation by the Building Inspector or other Authorities Having Jurisdiction (AHJ) are noted. However, as the building currently stands, any plans for significant renovations or additions should be planned in awareness of the following limitations.

At 37,100 square feet in area, a simple analysis of the building occupancy, construction type, and fire protection features, suggests that the building appears to significantly exceed the maximum allowable area for its construction type and primary use occupancy. As such, it is likely that any planned additions would require the addition of fire

Image 5

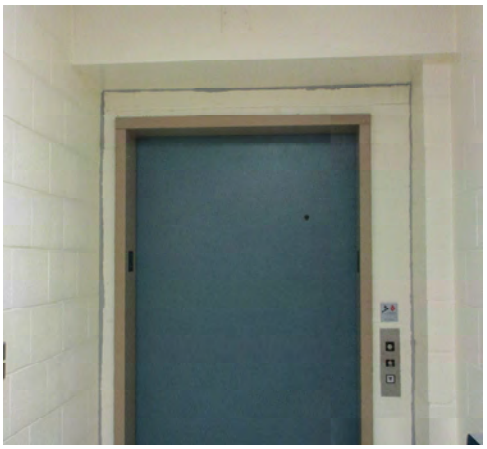


Image 6

Image 7

walls to subdivide the building, or the inclusion of a fire sprinkler system throughout in order to meet current code.

As the building is currently not sprinklered and is in excess of 7500 square feet in gross area, any significant planned renovations or addition would require the inclusion of fire sprinklers throughout the building, per MGL chapter 148. We note that this requirement would also benefit the building height and area limitations mentioned previously

A more in-depth analysis of the building occupancies and strategies to satisfy building height and area limitations would be required to confirm code requirements.

Based on the facility occupancy Use and Construction Type, building area, and lack of sprinkler systems, the current code would require the different occupancy areas such as the gym, cafeteria, and office spaces be separated by fire walls.

ACCESSIBILITY

The building includes multiple conditions that are not accessible. Massachusetts Architectural Access Board Rules and Americans with Disabilities Act (2010) Standards are applicable to the building.

Exterior Site and Building Entrance

Due to the relationship of the front door to the main street it is difficult for accessible parking to be located near the main entrance. However, the entrance doors are accessible and the front lobby is located near the entrance (Image 3). Accessible parking is located at the rear of the building adjacent to an entrance located near the recreation room and accessible to the cafetorium and main office space (image 4).

Interior Spaces

Once inside the front entrance the cafetorium, recreation room, and office spaces are accessible from the main lobby. It is unclear how the check-in process for the different functions works but the main desk facing the lobby does not meet accessibility requirements as there is no lower

portion of the desk for "roll-up service" (Image 5). The main classroom wing is located on different levels than the lobby and require the use of the stair or elevator located adjacent to the main lobby. The elevator does not appear to have all of the proper controls to meet the current accessibility requirements (Image 6). The stair handrail does not extend beyond the lower tread as required (Image 7).

In general, the toilet rooms are not accessible. The spaces do not provide the required turning or maneuvering clearances required to meet ADA or MAAB, and gang toilet rooms do not provide fixtures at the proper height for accessibility for this age group, or controls to meet current ADA or MAAB guidelines. Many of the restrooms are missing grab bars, some have retrofitted grab bars, or grab bars that are not long enough, or are mounted too high (Image 8). The toilet stalls designated for accessible use are too narrow and many fixtures and accessories are not installed at the proper height. Additionally, given the youngest age group that uses the facility, a different set of accessibility standards apply to these restrooms. It is recommended that all restrooms be renovated to meet accessibility requirements and a group of restrooms be renovated specifically for the younger age group.

Some door hardware was observed to have knobs (Image 12) and most doors do not meet the push / pull clearance required for accessibility.

Recommendations for upgrades to meet current accessibility guidelines include the following:

- Provide accessible parking and an accessible path to the main entrance.
- Upgrade elevator controls to meet requirements for accessibility. The door is not wide enough and the cab is too small. Remove the existing elevator in its entirety and install new elevator that will accommodate a full-size gurney. Install new elevator controls
- Review all stair locations for proper rise / run and install compliant handrails in all locations.

Image 8

Image 9

Image 10

Image 11

Image 12

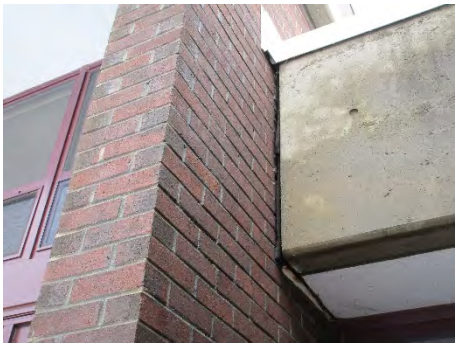


Image 13

Image 14

Image 15

- The stage located in the cafetorium does not provide access from within the performance space. Remove existing stage access stairs on the left side of the stage and install a wheelchair lift.
- Assess each restroom condition for accessibility. Install proper handrails, relocate fixtures to meet age requirements, install proper controls (levers at sinks), install accessories at the proper height for users and provide insulated pipes or shrouds at accessible sinks.
- Install classroom sinks at appropriate height for user group
- Replace door knobs with levers
- Provide proper push / pull clearance at all doors

EXTERIOR

FOUNDATION

Foundations are poured in-place concrete, grade is at the top of the foundation walls. It is assumed the foundation walls are generally in good condition.

Bulleted List of Specific Issues

- No issues were observed.

WALLS

The building has a brick and mortar exterior veneer with CMU backup. The precast concrete floor planks project out to the outside to form cantilevers above the first floor. There are poured concrete finwalls on the right side of the windows.

Bulleted List of Specific Issues

- There several areas of severe cracking on the brick and mortar veneer (Image 14, Image 15, Image 16).
- There are several areas where the precast concrete cantilevers are spalling and in some cases exposing the rebar (Image 17, Image 18).
- At a few areas on the exterior wall the brick control joint caulking is severely deteriorating. (Image 19)

- There are several areas where the paint on the soffits are deteriorating. (Image 20)
- There are several soffits that have moisture along the entire underside. (Image 21)
- In several locations the steel angle holding up the soffit at the building expansion joint is rusting. (Image 22)

Bulleted List of Recommendations

- Further investigation is warranted to determine cause of cracking brick and a permanent fix is required. It is likely that water is finding its way behind the brick. The freezing and thawing is causing brick movement and additional cracking.
- Where the precast cantilevers are spalling remove all the loose concrete and then patch to match profile of the cantilever. Continued rusting of the steel will continue to expand the concrete and cause further damage.
- At areas where the existing control joint caulking is deteriorating remove old caulking in install new caulking in the joint.
- At the areas of deteriorated expansion joints remove the old weathered backing material install new backing material and recaulk the building expansion joint.
- At the soffits scrape the soffits to remove any loose paint then prime and repaint the soffits.
- At the areas of the soffit that have excessive moisture ponding on the underside further investigation is warranted to determine the cause and permanent fix.
- At the steel angle holding up the soffit at the building expansion joint, scrape down angle to remove all loose paint and rust then prime the angle and paint with rust inhibitive paint.

Image 16

Image 17

Image 18

Image 19

WINDOWS

Image 20

Image 21

Image 22

Image 23

The school underwent a window replacement in 2004. The primary exterior window type is aluminum with insulated glazing with operable section. The windows, as a whole, are in good to excellent condition.

Bulleted List of Specific Issues

- At some of the windows the caulking is drying out and becoming hard and checked. (Image 15)

Bulleted List of Recommendations

- At the windows that have dried up and hard caulking, remove the caulking around the entire window system and recaulk with new caulking to match color of the window system.

DOORS

The exterior doors were replaced in 2004. The exterior doors consist of aluminum storefront and curtainwall doors, as well as hollow metal doors with hollow metal frames. The aluminum curtainwall and storefront doors, as well as the hollow metal doors are all in good condition.

Bulleted List of Specific Issues

- On some of the exterior doors the paint is peeling (Image 23, 24, & 25).
- At one of the doors at the back side of the building the door seal strips are damaged and bent (Image 24).
- At the elevator machine room the door is showing signs of surface rust (Image 25).

Bulleted List of Recommendations

- At the doors where the paint is flaking off, or there is rusting, scrape off all loose paint. Prime and repaint the door with rust inhibitive primer and repaint.
- At the doors that have been damaged and have bent door seal strips remove the damaged strips and replace with new door seal strips.

LOUVERS / OTHER OPENINGS

The louvers are a combination of aluminum fin construction and simple steel mesh construction. In general, the louvers appear to be in good condition.

Bulleted List of Specific Issues

- The intake louvers for the unit heaters in the classrooms have no insect screens (Image 24).
- Some of the louvers have dented or missing fins.

Image 24

Bulleted List of Recommendations

- At all of the intake louvers for the unit heaters, remove the louver and install insect screening behind the louver grate.
- At louvers that have missing fins, remove existing louver system and replace with new louver system.
- All of the exterior louver systems should get a good, thorough cleaning.

Image 25

ROOF

The school underwent a complete re-roofing in 2011. The roof was replaced down to the existing concrete roof deck. The roof membrane is .060" thick PVC membrane fully adheared. The roof also has solar PV arrays attached to the roof. Due to adverse weather conditions we can only assume, the recently replaced roof is in good condition.

Image 26

Bulleted List of Specific Issues

- No issues were observed at the time of survey.

Bulleted List of Recommendations

- No recommendations noted

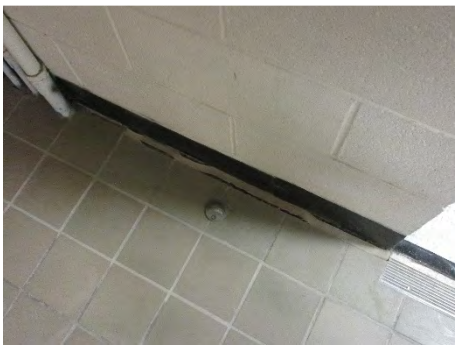


Image 27

Image 28

Image 29

Image 30

INTERIOR

FLOORING

The flooring throughout consists of the following: VCT is the predominate flooring type in all the classrooms, corridors, administration area, and the cafetorium. A combination of VCT and area rugs are used in the library. Restrooms, kitchen and lobby have 6”x6” quarry tile. There is a resilient wood floor system in the gymnasium and a wood floor on the stage. All of the custodial and storage spaces are a combination of exposed concrete, sealed concrete, and epoxy painted concrete.

Bulleted List of Specific Issues

- In the lobby there is an area where five quarry tiles were cut too short and the rest of the space to the wall was filled with sealant (Image 27).
- The topping on the stair treads is completely worn off exposing raw concrete (Image 28).
- The 6”x6” quarry tile in all the bathrooms is very dirty and the grout joints have become stained (Image 29).
- In one of the bathrooms the 6”x6” quarry tiles have become damaged (Image 30).
- In most of the areas of epoxy painted concrete floor the paint is showing severe wear and is exposing the raw concrete (Image 31).
- The wood stage flooring is showing its age; there are several areas of deep gouges, and several areas where the finish is rubbing off exposing raw wood. Additionally, the flooring in some places is loud when walked on and spongy (Image 32).
- In office 137 there is quite a large and severe stain on the VCT floor tile (Image 33).

Bulleted List of Recommendations

- In the lobby remove the five short quarry tiles and replace with new quarry tiles to match existing color and adjacent tiles’ length.
- At the stair treads remove what is left of the existing topping on the stair treads and install raised rubber tile on the stairs.

- The 6”x6” ceramic tile and grout joints in the bathrooms need a thorough scrubbing with a tile cleaner.
- In the bathroom with the broken and damaged quarry tile remove the broken tile and replace with new quarry tile to match existing color.
- In the rooms where the existing epoxy paint is damaged or coming off, strip the remaining paint off the floor slab and repaint with epoxy floor paint.
- At the stage remove existing wood stage floor and replace with resilient wood flooring system.
- In office 137 scrub VCT tile with non-abrasive cleaner. If is in effective, remove the stained tiles and install new VCT tiles to match existing. Repair source of leak.

Image 31

Image 32

WALLS AND PARTITIONS

The interior walls are mainly load bearing CMU walls and some poured in place concrete walls. All interior walls on the first floor terminate at the underside of the second floor precast floor planks, and all the second floor walls terminate at the underside of the precast roof deck planks. In the Gymnasium and the Cafetorium there is wood wainscoting panels on face of CMU walls.

Bulleted List of Specific Issues

- In some of the rooms the CMU walls have severe cracking in the corners of the room (Image 34).
- In some of the rooms throughout the school there are cracks in the face of the CMU walls (Image 35, Image 36).
- The building expansion joint is drying out and shrinking (Image 37, Image 39).
- There are several areas in the building that have old plastic wall anchor sleeves that have never been removed (Image 39).
- There are several areas in the building where the wall paint is scuffed.

Image 33

Image 34

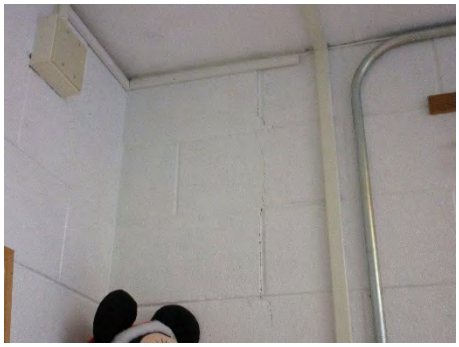


Image 35

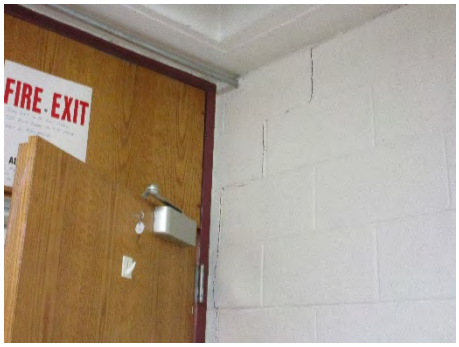


Image 36

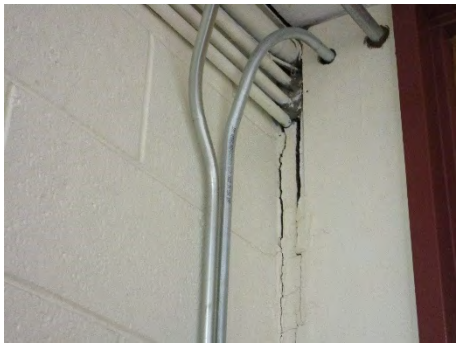


Image 37

Image 38

Bulleted List of Recommendations

- In the rooms where the CMU is cracking in the corners, further investigation is warranted to determine both the cause of the cracking CMU and a permanent fix.
- If CMU cracks around the building, are through the mortar remove the mortar and install new mortar joint. If the block is cracked replace the CMU block.
- At the building expansion joint, remove the old caulking and backer material. Install new backer material, install new sealant, and install metal expansion joint cover.
- At the areas that have the plastic wall anchor sleeves remove the old plastic anchors. Patch holes in the CMU block wall with mortar and touch up paint over the wall patches to match adjacent wall paint.
- At scuffed and damaged wall paint around the building, scrape area to remove any loose paint and then touch up area to match existing paint.

CEILINGS

The primary ceiling type throughout the school is exposed precast concrete planks with acoustic panels adheared to the underside and, in some cases, sides of the troffers. The kitchen and kitchen support spaces are all 9”x9” ceiling tiles.

Bulleted List of Specific Issues

- In the kitchen and kitchen support areas the 9”x9” ceiling tile is in poor condition, the tiles are full of stains and some tiles are missing, or falling (Image 41).

Bulleted List of Recommendations

- In the kitchen and kitchen support areas remove 9”x9” ceiling tile system and replace with new lay in acoustical ceiling tile system.

DOORS

The interior borrowed lights have hollow metal frames and a combination of clear and wired glazing throughout the building. Most of the interior doors are wood with hollow metal frames, a few of the doors are hollow metal with hollow metal frames. Door panel types vary; some are solid, others have different sized vision panels and louvers. Generally, the doors and frames appear to be in good condition.

Bulleted List of Specific Issues

- Some of the wood doors and hollow metal doors, as well as the hollow metal frames, have some scuff marks and fading.
- Some of the door vision panels and transoms have wired glass.
- The Admin. Department's storefront / borrowed lite system has wired glass (Image 42).

Bulleted List of Recommendations

- Where the wood door finish is fading, strip down door to raw wood and refinish to match rest of wood doors. At the hollow metal doors that are scuffed or the paint is fading, scrape doors to remove any loose paint and repaint to match color of other hollow metal doors; the same to be done to the door frames, as needed.
- Remove all wired glass panels from the interior doors and replace with tempered glass during a larger renovation or if the door is otherwise in need of replacement.
- Remove all wired glass panels from the interior Admin. storefront / borrowed lite system and replace with tempered glass during a larger renovation or if the storefront / borrowed lite system is otherwise in need of replacement.

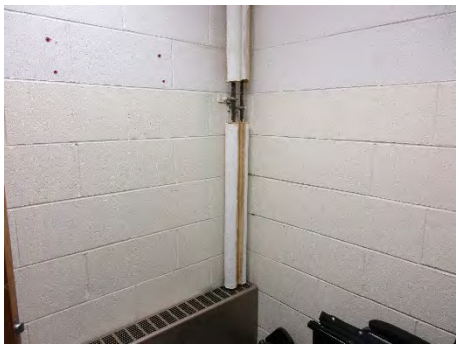


Image 39

Image 40

Image 41

Image 42

Image 43

Image 44

Image 45

Image 46

FIXTURES & FURNITURE (BUILT IN)

Some of the kitchen equipment remains original to the 1968 construction; see the kitchen equipment section for more information regarding equipment in this area. Classrooms have solid wood teacher wardrobes and built-in wood casework base cabinets with sinks. The base cabinets and sinks do not meet accessibility requirements. Some units have sliding door panels that are in poor condition, other units have removed the doors and exposed the shelving units. Built-in storage shelving is located above the sinks. Classrooms have built in shelving along the window area. The teachers work rooms have metal desks / workstations and metal wall cabinets. With only a few exceptions, the toilet rooms have been untouched since the original 1968 construction. A few restrooms have been renovated in an effort to make them accessible.

Bulleted List of Specific Issues

- Much of the fixed furniture appears to be in fair condition but appears tired and dated. This was specifically noted with the classroom casework and the teacher's work room casework (Image 43-46).
- The toilet room fixtures and toilet partition walls are in very poor condition. Most of the fixtures are not accessible and the partitions are rusted, dented and / or broken (Image 47, Image 48).

Bulleted List of Recommendations

- Replace all classroom casework, sinks, teachers' wardrobes, storage shelving, and teachers' work spaces casework. New casework and sinks are to meet MAAB / ADA code requirements.
- All bathroom fixtures and toilet partitions should be removed and replaced with new fixtures and toilet partitions. Fixtures to be located to MAAB / ADA code requirements.

Image 47

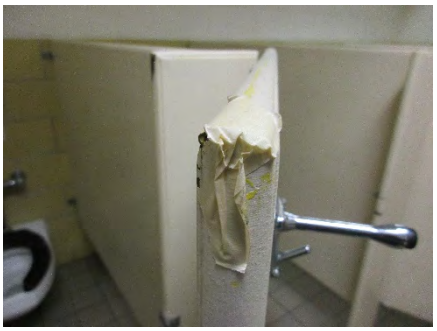


Image 48

CIVIL ENGINEERING ASSESSMENT

Nitsch Engineering has performed research of the existing site conditions at the Westlands Community Education Center located at 170 Dalton Road in Chelmsford, Massachusetts. Nitsch Engineering has used Chelmsford GIS and design drawings provided by the Town. Nitsch Engineering gathered information during a site visit conducted by Brittney Veeck, EIT on February 17, 2016 and a site visit conducted by Dave Conway, PE on March 4, 2016.

Image 1

GENERAL SITE DESCRIPTION

The existing Westlands Center is located at 170 Dalton Road, Chelmsford, Massachusetts. The site is bounded by residential areas to the north, east, and west and Dalton Road to the south.

There is a one-way driveway entrance to the site on Dalton Road that loops behind the building to the north and exits back along Dalton Road.

There are playfields to the north of the building and driveway.

Image 2

EXISTING SITE UTILITIES

STORM DRAINAGE

Chelmsford GIS shows that there is a public closed drainage systems in Dalton Street adjacent to the school site.

Image 2

No downspouts were observed on site. Stormwater runoff from the roof is likely collected through the building and discharged below grade in a closed drainage system.

Catch basins were observed in the parking and driveway areas of the site (Image 1). Catch basins were also observed in the asphalt play area to the north of the school (Image 3).

Image 3

Drain manholes were observed in Dalton Road directly to the south of the existing building (Image 2). Stormwater runoff from the site likely discharges to the town system in Dalton Road.

Image 4

Image 5

Image 6

Image 7

SEWER

According to Chelmford GIS, there is an 8-inch Chelmsford sewer main in Dalton Road.

Sewer manholes were observed on site to the north of the building and to the east of the building (Image 4). Sewer services for the Westlands Community Education Center building likely connect to the town sewer main in Dalton Street from the eastern side.

WATER

The Town of Chelmsford is split up into three separate water districts: the Chelmsford Water District, the North Chelmsford Water District, and the East Chelmsford Water District.

A water valve was observed on site to the south of the building along Dalton Road (Image 5). Water services from the site likely connect into a water main in Dalton Road.

Two fire hydrants were observed on site. One of the hydrants is located along the edge of the driveway to the north of the school building (Image 6) and the other hydrant is located along the front of the building to the south.

NATURAL GAS

There is a gas meter located on the west face of the building near the mechanical and electrical rooms (Image 7). Dig safe markings onsite show the gas service going from the gas meter towards Dalton Road.

A gas valve was observed to the southwest of the building along Dalton Road (Image 8). Gas service to the building is likely provided from a gas main in Dalton Road.

ELECTRICAL

There is a transformer located at the northwest corner of the building (Image 9). Record plans show an underground power source running from Dalton Road to the transformer at the northwest corner of the building.

Image 8

EXISTING SITE CONDITIONS

SOILS

Based on the Natural Resources Conservation Service (NRCS) Middlesex County Soil Survey the site of the Westlands Community Center property is on soil classified as Urban Land.

Image 9

PAVEMENT/CURBING

The asphalt pavement within the site is in generally good condition with some areas of sediment accumulation (Image 3, 4, and 10).

Walkways onsite are asphalt or concrete. The asphalt walkways are generally in good condition. The concrete sidewalks are generally in fair condition with some areas of degradation (Image 11).

Curbing onsite is vertical granite curb. The curb is in generally good condition with some areas that need to be reset (Image 2, 6, and 12).

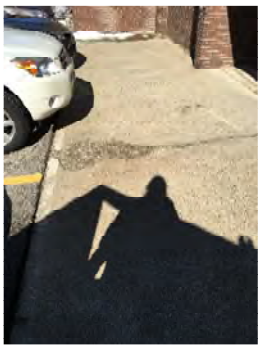


Image 10

PLAYFIELDS

The Westlands School fields are in poor condition. There are two backstops set up in opposite ends of the field. The skinned infields of the two baseball/softball fields remain but are in poor condition. The backstops are very small and the only other infrastructure are four benches, two at each field, along the first and third base paths. On the far field there is no fence to protect anyone sitting on the benches. The basketball court is in decent condition. There appears to be several large cracks in the asphalt that have been repaired. There are some low spots and associated puddling in the court.

Image 11

PERMITTING CONCERNS

The Westlands Community Education Center does not appear to be within a wetlands buffer zone or a FEMA flood zone. The site is within a Zone II Wellhead Protection Area.

RECOMMENDATIONS

- Remove accumulated sediment from areas around catch basins
- Reset vertical granite curb as necessary.
- Clean out existing catch basin.

STRUCTURAL – WESTLANDS SCHOOL COMMUNITY EDUCATION CENTER

The purpose of this report is to assess the structure of the existing building, comment on the existing structure and comment on the structural integrity of the building.

Basis of the Report

This report is based on visual observations during our site visit on February 16, 2016. During the visit we did not remove any finishes or take measurements, so our understanding of the structure is limited.

Existing Conditions

The original building consists of three wings. The east wing consists of a two-story classroom structure consisting of cast in place concrete floors. The southwest wing is home to the Cafeteria and Kitchen. The roof construction consists of precast concrete tees. The northwest gym wing consists of precast concrete tees.

On the roof, we observed photovoltaic panels and snow-cover. We observed roof ladders that were in sound condition for the most part – the anchor bolts into the exterior concrete façade exhibited rusting.

At the roof drains, we observed light debris.

We observed interior concrete masonry block walls and noted various cracks. The smaller cracks appeared to be due to shrinkage. In one of the corridors we measured a step-crack to be 1/16”.

In the boiler room, we observed the concrete floor and noted various hairline cracks.

The wood floor finishes on the stage exhibited some separation in the joints, which is not a structural concern.

There are various utility tunnels below the lowest floors. We observed exposed concrete and noted some cracking.

The exterior façade consists of red brick masonry and concrete. In one location, over an entrance, we observed spalling and exposed rusting reinforcing. We observed moderate cracking in the red brick veneer where support elevations varied and we did not observe vertical control joints.

We observed exterior concrete ramps and metal railings. The base of the railing posts appeared to be rusting and exhibited light deterioration due to moisture. In one location, we observed a spall at the anchorage of a post base.

We observed concrete slabs at door entrances and noted various moderate cracking. We observed 6” thick exterior cast in place concrete site walls and noted various cracks.

HVAC ASSESSMENT

HOT WATER PLANT

The Community Education Center is heated by a hot water boiler plant consisting of two (2) gas fired hot water boilers, hot water pumps, accessories, breeching, combustion air ductwork, neutralization kit, Aerco boiler management system, and controls. The Benchmark 2.0 boilers were manufactured by Aerco, with an estimated heating capacity of 1,706 MBH output, and maximum input of 2,000 MBH each. The boilers were installed in 2006 and appear to be in very good condition.

Boiler flue gases are vented through the use of individual double wall breeching tying into existing Van Packer breeching systems that exit through the roof. The existing stack is still in place but not used due to asbestos. Combustion air for the boilers is provided through the use of existing insulated sheet metal vent ducts which connect to a wall louver. One duct, which the boiler ducts connect to, drops low where another duct runs higher in the space for the two (2) domestic water heaters. Both ducts are provided with pneumatic dampers (Image 1, & 2).

Hot water is distributed from the boilers to the building heating equipment by a pair of Bell & Gossett base mounted end suction hot water pumps with 7.5 HP Baldor motors that are equipped with Schneider VFD drives. One pump (P-1) is leaking at the impeller and both show signs of corrosion. The pumps appear to be nearing the end of their useful service life. Two (2) horizontal non-insulated expansion tanks, air separator, and a new chemical shot feeder are also provided. Piping is schedule 40 black steel and copper with fiberglass insulation and all asbestos elbows have been removed. The hot water piping and insulation located within the main boiler room appear to be in good condition (Image 3, 4, 5, & 6).

Image 1 – Hot Water Boilers

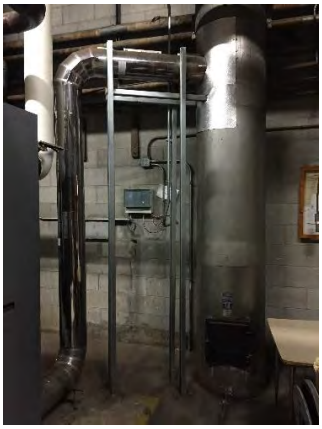


Image 2 – Boiler Flue Vents


Image 3 – Hot Water Pumps


Image 4 – Hot Water Pumps

Image 5 – Existing Hot Water Piping

Image 6 – Hot Water Pump VFD Drives

Image 7 – Administration Office AHU

Image 8 – Uninsulated AHU Piping

Specific Issues:

- One pump (P-1) is leaking at the impeller and both show signs of corrosion and appear to be nearing the end of their useful service life.
- The majority of the hot water distribution piping and insulation is original to the building and in fair to poor condition

Recommendations:

- New hot water pumps should be installed.
- Existing hot water supply and return piping outside of the boiler room should be replaced with new insulated piping.

ADMINISTRATIVE OFFICES

The offices are heated, ventilated and air conditioned by a residential style vertical mounted air handling unit with split system dx cooling and hot water heating coils. The air handling unit is manufactured by Frigidaire. The reception room is heated, ventilated and air conditioned by a ceiling suspended horizontal classroom unit ventilator with split system dx cooling. Perimeter hot water fintube radiation heating is also installed within each space (Image 7, & 8).

Specific Issues:

- The refrigerant and hot water piping to the air handling unit is not insulated.

Recommendations:

- Insulate refrigerant and hot water piping to the air handling unit.
- Existing ductwork and air distribution devices should be cleaned.

CLASSROOMS

Ceiling suspended horizontal classroom unit ventilators are utilized for the heating and ventilation requirements of the majority the classroom spaces. The unit ventilators are manufactured by MagicAire and appear to have been installed in 2014. There are approximately ten (10) unit ventilators located on the first floor and eleven (11) unit ventilators located on the second floor, for a combined total of (21) unit ventilators. Ventilation air is introduced to each of these units through a wall-mounted louver. Some of the louvers appear to be in need of cleaning, repair, and/or replacement. Each unit is equipped with a hot water heating coil, supply fan and filter. The units are in very good condition. The classroom spaces are provided with exhaust systems to remove any outdoor air that is introduced through the unit ventilators which helps maintain a neutral pressure within the space. Most of the classrooms are served by central roof mounted exhaust fan systems. The majority of classrooms with exterior walls also have perimeter hot water fin tube radiation. The fin tube radiation appears to be originally installed equipment and is generally past its expected useful service life. Some of the fin tube radiation enclosure grilles are damaged and dirty (Image 9, and 10).

Image 9 – Classroom Unit Ventilator

Image 10 – Classroom Covered Exhaust Grille

Specific Issues:

- The majority of the exhaust fans do not have dampers installed and as a result, many classrooms have covered up the associated exhaust grilles due to draft concerns.
- Some of the fin tube radiation enclosure grilles are damaged and dirty. The fin tube radiation appears to be originally installed equipment and is generally past its expected useful service life.

Image 11 – Kitchen Hood

Recommendations:

- Install dampers for all exhaust fans.
- Existing ductwork and air distribution devices should be cleaned.

Image 12 – Kitchen Ceiling Diffuser

Image 13 – Cafeteria Sidewall Diffuser

Image 14 – Gym Indoor H&V

- Existing hot water fin tube radiation should be replaced; new hot water branch piping and valves with insulation should be provided.

CAFETERIA AND KITCHEN

The Cafeteria/Stage is heated and ventilated by four (4) suspended horizontal classroom unit ventilators and a roof mounted exhaust fan. The unit ventilators are manufactured by Nesbit and appear to have been installed in 2014. The Kitchen is provided with heating and make-up air ventilation by a roof mounted heating and ventilation unit. The unit is provided with a hot water coil, supply fan and filter section. Galvanized sheet metal ductwork is distributed from the unit ventilators to sidewall diffusers in the Cafeteria. Galvanized sheet metal ductwork is distributed from the air-handling unit to ceiling diffusers in the Kitchen. The Kitchen and Dishwashing room each have exhaust hoods connected to roof mounted exhaust air fans. The exhaust air fans and hoods appear to be in good physical condition (Image 11, 12, and 13).

Specific Issues:

- The Kitchen is over-ventilated and receiving complaints.

Recommendations:

- Rebalance Kitchen make-up air unit so that Kitchen is under slight negative pressure.
- Existing ductwork and air distribution devices should be cleaned.

GYM

The Gym is served by two (2) indoor heating and ventilation units that are located in the adjacent Gym storage room. The H&V units are ceiling suspended units. The units each have a hot water coil, supply fan and filter section; and the manufacture is unknown. Galvanized sheet metal ductwork is distributed from the air-handling units to the Gym. Supply air diffusers are located on the sidewall and low floor return air registers are installed in the gym. The indoor air-handling units and associated ductwork appear to be originally installed equipment that are in poor condition and past their expected useful service life (Image 14).

Specific Issues:

- The indoor air-handling units and associated ductwork appear to be originally installed equipment that are in poor condition and past their expected useful service life.

Recommendations:

- Existing indoor air-handling units should be replaced; new hot water branch piping and valves with insulation, ductwork connections and insulation, and controls should be provided.
- Existing ductwork and air distribution devices should be cleaned.

EXHAUST SYSTEMS

The majority of classroom spaces are exhausted through roof mounted exhaust fans. There are also dedicated exhaust fans which are roof mounted for areas such as the gang toilets, Kitchen hood, storage rooms and the large group spaces such as the Gym and Cafeteria These areas utilize a galvanized sheet metal duct distribution system from the space to the roof mounted exhaust fans. There are approximately 27 roof mounted exhaust fans. The majority of the exhaust fans appear to be in very good condition, with most appearing to have been recently replaced. The majority of exhaust fans were manufactured by Loren Cook or CentriMaster. The majority of the exhaust fans do not have dampers installed, and as a result many classrooms have covered up the associated exhaust grilles due to draft concerns. The majority of the existing exhaust air ductwork appears to be originally installed and past its useful expected service life (Image 15)

Specific Issues:

- The majority of the exhaust fans do not have dampers installed.

Image 15 – Roof Mounted Exhaust Fan

Image 16 – Restroom Convector

Image 17 – Restroom Exhaust Grille

Image 18 – Corridor Unit Heater

Recommendations:

- Install dampers for all exhaust fans.
- Existing ductwork and air distribution devices should be cleaned.

RESTROOMS

The restrooms are heated by hot water convector units that appear to be in fair to poor condition. The restrooms are typically exhausted by ceiling or sidewall exhaust air grilles that are connected to exhaust air fans are located on the roof. Some of the exhaust air grilles were soiled (Image 16, and 17).

Specific Issues:

- Hot water convector units appear to be past their service life.
- Some exhaust grilles appear soiled.

Recommendations:

- Replace hot water convector units.
- Clean or replace dirty exhaust grilles.
- Existing ductwork and air distribution devices should be cleaned.

ENTRYWAYS AND CORRIDORS

The main entryways are heated by hot water convector units that appear to be originally installed equipment; some of the unit heaters show signs of corrosion on the cabinets. The majority of corridors are not provided with code required fresh air ventilation. The corridors are heated by a combination of hot water convectors and fin tube radiation that appear to be in poor to fair condition (Image 18)

Specific Issues:

- Hot water convectors, fin tube radiation, and unit heaters appear to be past their service life.
- Corridors are not provided with required ventilation.

Recommendations:

- Existing cabinet unit heaters, hot water fin tube radiation, and convectors should be replaced; new hot water branch piping and valves with insulation should be provided.
- Ventilation air systems should be provided for the corridors.

Image 19 – DDC Controller

CONTROLS

The majority of the building HVAC systems and the heating plant are controlled by a combination DDC (direct digital control) and pneumatic control system. The ATC control system was upgraded during the 2014 HVAC system renovation project. The DDC/ATC system utilizes Trend controllers manufactured by Niagra and transducers by Mamac Systems that have been installed by FMC Control Technologies. The Control system has a DDC (direct digital control) front-end controller, DDC equipment controllers, and network type thermostats and is tied into a townwide Energy Management System controlled by DPW. The majority of the renovated heating and ventilation system have DDC controls controlling basic equipment functions (ON/OFF, Temperature setpoints, and thermostats of the unit ventilators, air handling units, and baseboard). The pneumatic compressors have been replaced with dual compressors with 1 HP motors manufactured by Jenny and the original refrigerant air dryer is in place (Image 19 and 20).

Image 20 – Pneumatic Control System

Specific Issues:

- None

Recommendations:

- Provide a complete DDC control system for optimal control and comfort and tie it into the townwide building management system.

ELECTRICAL ASSESSMENT

EXISTING SYSTEMS

The existing systems of this facility range from original vintage to upgrades and/or add-ons recently installed; including service equipment, branch circuit panelboards, some lighting, and photovoltaics. Although new devices, equipment, and fixtures were provided, generally the existing wiring, raceways, and boxes were reused. While the facility is well maintained and clean, the systems do not reflect, nor meet the needs of a modern day facility. Code changes over the years have resulted in existing systems that do not meet today's electrical codes. We recommend replacement of some of the electrical systems for this facility under a renovation program; including service and distribution equipment, lighting, and fire alarm panel system.

ELECTRICAL DISTRIBUTION SYSTEM

The service is fed from a utility pole riser to a utility company owned pad mounted transformer adjacent to the building (Image 1, & 2).

A 1,200 ampere, 120/280 volt, 3 phase, 4 wire service serves the building. The main service equipment is located within the boiler room. The service consists of an enclosed main/breaker and a main distribution panel. The equipment is original and manufactured by GE. (Image 3)

Branch circuit panelboards are original and in poor condition (Image 4).

Image 1 – Utility Pole Riser

Image 2 – Pad Mount Transformer

Image 3 – Main Disconnect

Image 4 - Panels

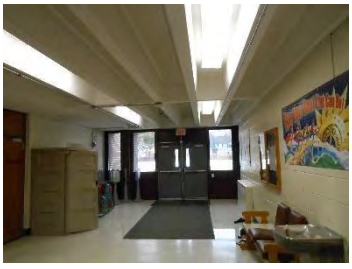


Image 5 Corridor Lighting

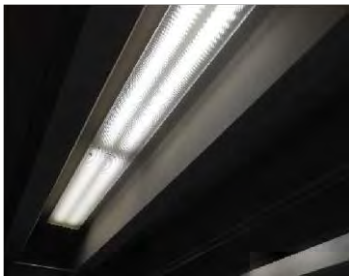


Image 6– Classroom Lighting

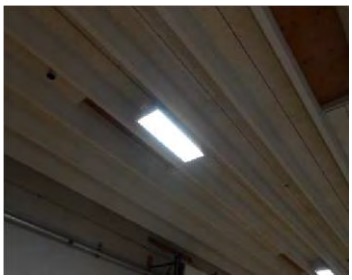


Image 7 – Gym Lighting


Image 8 – Platform Track Lights


Image 9 – Cafetorium Lighting

INTERIOR LIGHTING

Corridor lighting consists of surface mounted wraparound fluorescent fixtures with acrylic lenses and surface cylinders. Corridor lighting is controlled via line voltage switches at the ends of the corridor (Image 5).

Classroom lighting consists of surface mounted wraparound fluorescent fixtures. Light levels appear adequate in the classrooms. Each classroom has been equipped with an occupancy sensor and two switches that control the lights. Wall mounted direct/indirect is also provided at the teacher wall (Image 6).
Restrooms contain surface mounted wraparound fluorescent direct/indirect fixtures.

Gym and Cafetorium lighting consists of high output, 2x4 fluorescent high bays. Light levels seem adequate (Image 7 & 9).

Incandescent track heads are used to light the platform on the stage for performances (Image 8).

Kitchen has surface wraparound fluorescent fixtures (Image 10).

In general, most of the interior lighting is in fair condition. Most switching has been replaced with switch style occupancy sensors. Multiple rooms are noted as not receiving occupancy sensor switch upgrades (Image 11).

EXTERIOR LIGHTING

The site is lit with a combination of recently installed pole and building mounted LED flood lighting. Under the main canopy, existing lighting has been upgraded to LED lighting (Image 12, 13, 14, and 15) Some pole lights with a globe fixture are provided along the pathway.

In general, the exterior lighting is in good condition with the exception of the globe pole fixtures. Exterior lighting is controlled via a time clock.

EMERGENCY STANDBY SYSTEM

A recently upgraded diesel fired Caterpillar P110E 100kw generator, 120/208 volt, in a weather-proof, sound attenuated enclosure is installed adjacent to the building within a fenced in enclosure. The generator feeds one Asco transfer switch and serves emergency lighting, as well as other loads (Image 16 and 17).

FIRE ALARM SYSTEM

The fire alarm system consists of an addressable Gamewell control panel. The control panel is located in the fire alarm room with a remote annunciator at the exit. Horn/strobes are ADA compliant and located throughout the school. Manual pull stations also seem to be compliant. Smoke detectors are provided in corridors and throughout the building (Image 18, 19, 20, 21 and 22).

E-use groups require speaker/strobes, which means this school does not comply with current code.

An exterior master box and knox box are located at the main entrance (Image 23).

Image 10 – Kitchen

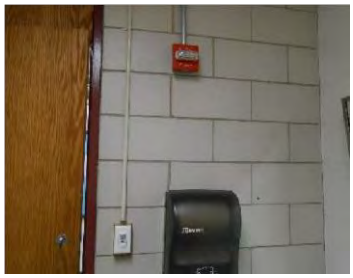


Image 11 – Occupancy Sensor Switch

Image 12 – Pole Mounted LED Flood

Image 13 – Building Mounted LED

Image 14 – Canopy LED Fixture


Image 15 – Wall Pack


Image 16 – Generator


Image 17 – Automatic Transfer Switch


Image 18 – Fire Alarm Control Panel

LIGHTNING PROTECTION SYSTEM

The facility does not have a lightning protection system.

PHOTOVOLTAIC SYSTEM

The facility contains a recently installed roof-mounted photovoltaic system with the inverters located on a pad at the exterior of the building (Image 24 and 25)

DATA / TELEPHONE / CLASSROOM INTERCOM / CLOCK SYSTEM

There are IDF rooms and one MDF room. The MDF room serves each IDF room and is located off of the Library.

In general, data wiring is Cat5 throughout the building. IDF data racks are generally installed in existing storage or janitor closets, emergency branch circuits have been run to each rack (Image 26 & 27)

The school's telephone system is a hosted system. Handsets in the school are manufactured by Polycom.

A Rauland tele-center paging system head-end is located in the MDF room. A Valcom paging interface is used to interface the hosted system to the paging system (Image 28).

Most classrooms are equipped with A/U control systems for projector, document camera, and computer connections. Each contains a sound reinforcement system. Projectors are ceiling mount type.

The cafetorium's existing Dukane local sound system is located at the stage.


Image 19 – Smoke Detector

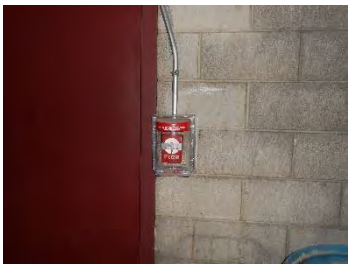


Image 20 – Pull Station


Image 21 – Horn / Strobe


Image 22 – Remote Annunciator


Image 23 – Master Box & Knox


Image 24 – PV disconnect


Image 25 – PV Inverter


Image 26 - IDF

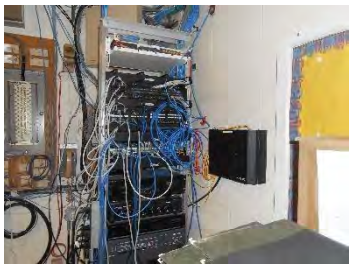


Image 27 – MDF

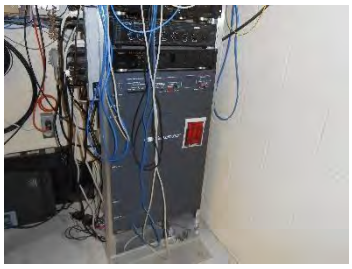


Image 28 – Paging System

SECURITY

The building contains an intrusion system, CCTV cameras, and an access control system.

The intrusion system is a Honeywell system and is operational; however, appears to be in poor condition. The panel is located in the fire alarm room and keypad is at the hallway outside the Custodian's Office (Image 31).

CCTV cameras are located on the exterior covering the building perimeter. They are connected to an S2 video management system; the head-end is located at the MDF room (Image 30).

Access control is manufactured by S2 and there are micro-nodes located in the IDF closets to serve the access controlled doors. The system's head-end is located at the MDF room (Image 29).


Image 29 – Access Controller


Image 30 – CCTV Cameras


Image 31 – Intrusion System Control Panel


Image 32 – Security Keypad

PLUMBING ASSESSMENT

Presently, the plumbing systems serving the building are cold water, hot water, sanitary, waste and vent system, storm drain piping, and natural gas. Municipal sewer and municipal water service the building.

FIXTURES

Water closets are floor mounted vitreous china with manual flush valves (Image 1).

Urinals are wall hung vitreous china with automatic sensor type flush valves (Image 2).

Lavatories are wall hung or counter vitreous china. The lavatories are fitted with metering faucets (Image 3).

Janitors sinks are floor mounted mop receptors. Faucets are equipped with vacuum breakers (Image 4).

Drinking fountains are stainless steel floor mounted or wall mounted with chiller (Image 5).

Staff sinks are stainless steel drop-in type with hot and cold water faucet with gooseneck (Image 6).

Kitchen area fixtures are in fair condition. The pot washing sink is not piped to a grease interceptor (Image 7).

WATER SYSTEM

The domestic water service is located in the Mechanical Room. The service appears to be 3/4" in size and includes a meter, pressure reducing valve and a reduced pressure backflow preventer (Image 8).

Piping is copper tubing with sweat joints. The majority of piping is insulated but not labeled. In general, the original gate valves are in poor condition (Image 9).

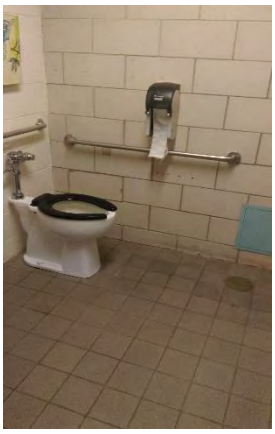


Image 1 – Water Closet

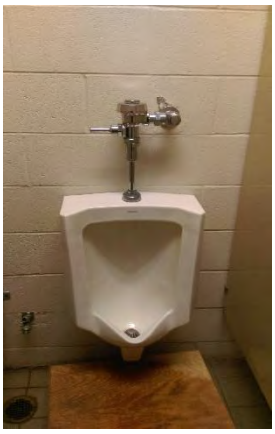


Image 2 – Urinal

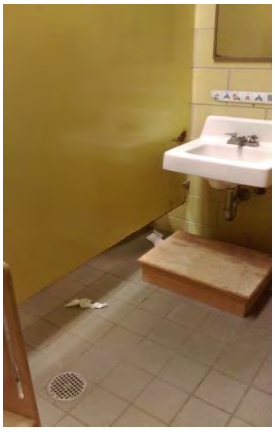


Image 3 - Lavatory

The main building domestic hot water is generated through a pair of gas-fired standard efficiency non-condensing water heaters. The water heaters have a natural gas input of 77,000 BTUH each and a water storage capacity of 100 gallons (Image 10).

A thermostatic mixing valve is not provided for the building domestic hot water system. The domestic hot water system is not recirculated. There is no expansion tank on the cold water make-up to the water heater.

GAS

Building is serviced by an elevated pressure natural gas service. The gas service, regulator and meter are located on the exterior in a caged area. Gas main distribution is 4" in size. A sub-meter is installed is dedicated to an emergency generator (Image 11).

Gas is supplied to heating boilers, water heater, kitchen equipment and emergency generator.

Gas piping is black steel with either welded or threaded joints depending on pipe size.

SANITARY DRAINAGE SYSTEM

In general, cast iron is used for sanitary drainage. Piping and fittings above slab are no-hub with coupling joints and bell and spigot. Where visible, the cast iron pipe appears to be in poor condition. Smaller pipe sizes appear to be copper for waste (Image 12).

ROOF DRAINAGE SYSTEM

The flat roofs are collected by roof drains and interior cast iron rain leaders. The roof and drains are in fair condition. Portions of the horizontal rain leader piping are insulated.

Image 4 – Janitor's Sink

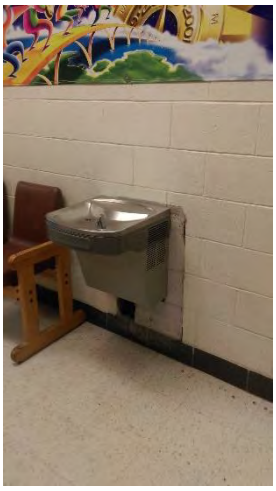


Image 5 – Drinking Fountain

Image 6 – Staff Sink

RECOMMENDATIONS

Plumbing fixtures meet current code for water conservation. However, new high-efficiency low flow fixtures could be installed to reduce water consumption.

In general, existing cast iron drainage piping can be re-used, if sized appropriately. We recommend video inspection of existing drains to confirm integrity.

1. Provide reduced pressure backflow preventers at Janitor's closet soap dispenser.
2. Local sewer may require Kitchen waste be directed to exterior grease trap.
3. Install a high efficiency water heater including master mixing valve, recirculated hot water and expansion tank on cold water make-up line.
4. Sanitary waste, vent and storm drainage piping should be video-taped to determine condition.
5. Original domestic water piping should be replaced. Domestic water piping shall be insulated, labeled and isolated with tagged brass ball valves. The valve tags should be charted for ease of maintenance.

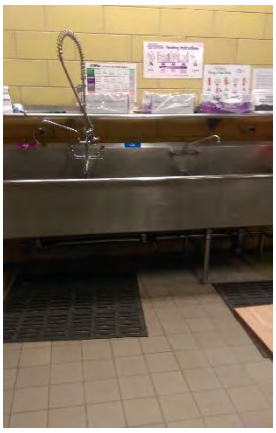


Image 7 – Pot Wash Sink

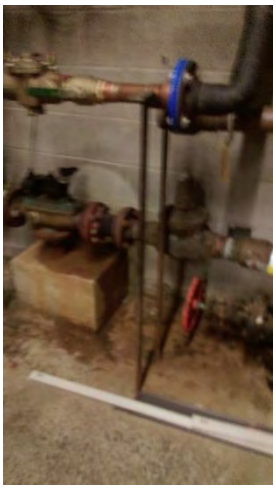


Image 8 – Water Meter

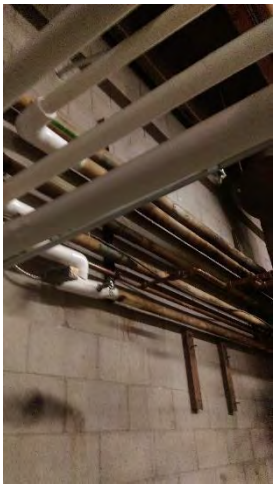


Image 9 – Water Piping

Image 10 – Water Heaters

Image 11 – Gas Meter

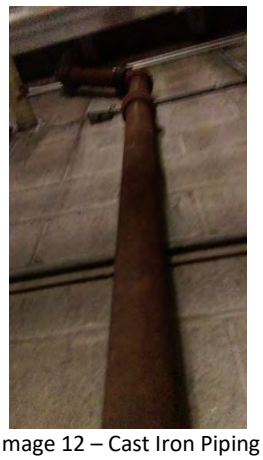


Image 12 – Cast Iron Piping

FOODSERVICE EQUIPMENT ASSESSMENT

The Chelmsford Community Education Center serves many community needs that interact and are serviced by the school foodservice program. In addition to many childcare programs, in which it serves children ages 18 months through eighth grade, the center also serves as the townwide summer school location for grades 7 through 12. Additionally, it serves the Chelmsford's Adult Education needs, as it relates to cooking classes.

The kitchen is spacious but the equipment is antiquated. Some has failed and is no longer used. For example, what was the dish room sits idle and is being used as storage of not only dry goods but for placement of equipment that is broken down and no longer used (image 1).

Image 1

The kitchen is equipped to serve the typical school lunch program in a single serving line configuration. Floors and walls are constructed of the apprpriate materials and have held up well. The ceiling is not of an appropriate material and in some locations is deteriorating (Image 2).

KITCHEN EQUIPMENT

During the site visit we noticed many wood topped tables that were original to the kitchen. The exhaust hood and the walk-in refrigerated rooms are also original. The equipment beneath the hood consists of the original deck oven and two range tops. The number of range tops is not typical for the standard school lunch program, indicating this kitchen is used as the adult teaching facility.

Within the kitchen are many tables that are used for foodservice needs but are not constructed of appropriate materials that deemed commercial foodservice grade. It is clear that additional programming is performed in the kitchen which function must be separate form the traditional foodservice production.

Image 2

General conditions:

- Wood topped work tables (Image 3) and wood surfaces are not allowed in a kitchen unless it is being used for intense scratch baking purposes. Wood surfaces are difficult to maintain. Surfaces must be oiled after each use to prevent the wood from shrinking causing splits that result in a health code violation. The gaps can fill with food debris and become possible to clean and sanitize.

Non-foodservice table Image 4:

- This is an example of a non-foodservice table being used for foodservice related purposes. There are other tables within the kitchen that do not meet the commercial foodservice grade designation. The health code requires that all food contact surfaces such as worktable must be NSF compliant. Conforming tables consist of stainless steel that can be easily cleaned and sanitized.

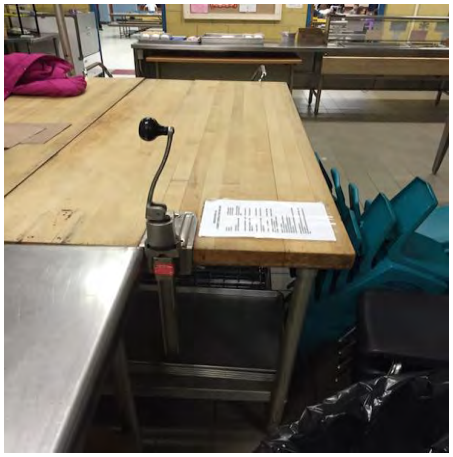


Image 3

Serving line Image 5:

- The serving line is a single serving line. It appears the main purpose is to serve snacks and beverages.
- Note the wood material work board attached to the serving counter. Wood is a restricted material in a commercial kitchen environment, unless specifically related to baking.

Image 4

Recommendations:

1. Eliminate all wood surfaces and non-health code compliant work surfaces.
2. Create a separation between the commercial foodservice related needs of the program and the community based teaching kitchen needs.
3. Remove equipment from the dish room to provide for additional storage.
4. Refit equipment, as needed, to suite the actual uses of this kitchen.
5. Assuming it is used in the traditional sense of providing meals to a school population, a refit of this kitchen as a stand-alone full service kitchen will cost approximately $270,000.

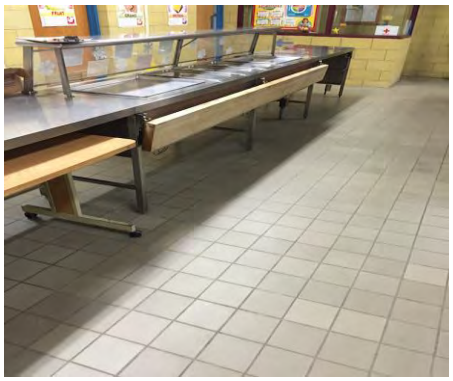


Image 5

1.0 INTRODUCTION:

UEC has been providing comprehensive asbestos services since 2001 and has completed projects throughout New England. We have completed projects for a variety of clients including commercial, industrial, municipal, and public and private schools. We maintain appropriate asbestos licenses and staff with a minimum of twenty years of experience.

As part of the proposed renovation and demolition project, UEC was contracted by Dore & Whittier Architects to conduct the following services at the Westlands School, Chelmsford, MA:

- Inspection and Testing for Asbestos Containing Materials (ACM);
- Inspection for Polychlorinated Biphenyls (PCB's)-Electrical Equipment and Light Fixtures;
- Inspection for Lead Based Paint (LBP).

Information included in this report was based on the AHERA Management Plans and on a determination inspection performed by UEC. Limited testing was performed as part of this study. It is recommended that once a detailed scope of work is identified for a renovation or a demolition project, a comprehensive Environmental Protection Agency (EPA) NESHAP inspection including asbestos testing for all suspect materials and testing for other hazardous materials including, Polychlorinated Biphenyls (PCB's) and Lead Based Paint (LBP) should be performed, which would provide a more accurate hazardous materials abatement costs and scope.

Additional testing and abatement plans for EPA review are required to be performed should PCB's befound in the caulking.

The scope of work included the inspection of accessible ACM, collection of bulk samples from materials suspected to contain asbestos, determination of types of ACM found and cost estimates for remediation. Bulk samples analyses for asbestos were performed using the standard Polarized Light Microscopy (PLM) in accordance with EPA standard. Bulk samples were collected by Massachusetts licensed asbestos inspector Mr. Jason Becotte (AI-034963) and analyzed by a Massachusetts licensed laboratory EMSL, Woburn, MA.

Refer to samples results.

2.0 FINDINGS:

The regulations for asbestos inspection are based on representative sampling. It would be impractical and costly to sample all materials in all areas. Therefore, representative samples of each homogenous area were collected and analyzed or assumed.

All suspect materials were grouped into homogenous areas. By definition a homogenous area is one in which the materials are evenly mixed and similar in appearance and texture throughout. A homogeneous area shall be determined to contain asbestos based on findings that the results of at least one sample collected from that area shows that asbestos is present in an amount >1% in accordance with EPA regulations. All suspect materials that contain any amount of asbestos must be considered asbestos if it is scheduled to be removed per the Department of Environmental Protection (DEP) regulations.

Number of Samples Collected

Four (4) bulk samples were collected from the following materials suspected of containing asbestos:

Type and Location of Material

1. Beige duct sealant at custodian room
2. Interior grey vertical caulking
3. Exterior expansion joint caulking
4. New window framing caulking

Samples Results

Type and Location of Material	Sample Result
1. Beige duct sealant at custodian room	No Asbestos Detected
2. Interior grey vertical caulking	4% Asbestos
3. Exterior expansion joint caulking	2% Asbestos
4. New window framing caulking	No Asbestos Detected

3.0 OBSERVATION AND COST ESTIMATES:

OBSERVATIONS:

All ACM must be removed by a Massachusetts licensed asbestos abatement contractor under the supervision of a Massachusetts licensed project monitor prior to any renovation or demolition activities that might disturb the ACM.

1. 9” x 9” Vinyl floor tile and mastic were either assumed or previously found to contain asbestos. The ACM was mostly found under newer vinyl floor tile and carpet.
2. 12” x 12” Vinyl floor tile and mastic were either assumed or previously found to contain asbestos. The ACM was mostly found under newer vinyl floor tile and carpet.
3. Pipe and hard joint insulation was previously found to contain asbestos.
4. Black duct sealant was previously found to contain asbestos.
5. Interior door framing caulking was previously found to contain asbestos.
6. Grey caulking on columns and beams was previously found to contain asbestos.
7. Black sink coating was previously found to contain asbestos.
8. Grey sink coating was previously found to contain asbestos.
9. Exterior masonry caulking was previously found to contain asbestos.
10. Insulation inside boilers was assumed to contain asbestos.
11. Glue holding blackboard was assumed to contain asbestos.
12. All remaining suspect materials were found not to contain asbestos.
13. Underground sewer pipe was assumed to contain asbestos.
14. Damproofing on exterior and foundation walls was assumed to contain asbestos. The demolition contractor will have to segregate the ACM from non-ACM building surfaces for proper disposal in an EPA approved landfill that does not recycle.
15. Roofing materials were assumed to contain asbestos. The demolition contractor will have to segregate the ACM from non-ACM building surfaces for proper disposal in an EPA approved landfill that does not recycle.
16. Painted surfaces were assumed to be LBP. All LBP activities performed, including waste disposal, should be in accordance with applicable Federal, State, or local laws, ordinances, codes or regulations governing evaluation and hazard reduction. In the event of discrepancies, the most protective requirements prevail. These requirements can be found in OSHA 29 CFR 1926-Construction Industry Standards, 29 CFR 1926.62-Construction Industry Lead Standards, 29 CFR 1910.1200-Hazards Communication, 40 CFR 261-EPA Regulations.
17. Visual inspection of various equipments such as light fixtures, thermostats, exit signs and switches was performed for the presence of PCB’s and mercury. Ballasts in light fixtures were assumed not

to contain PCB's. Tubes, thermostats, exit signs and switches were assumed to contain mercury. It would be very costly to test those equipments and dismantling would be required to access. Therefore, the above mentioned equipments should be disposed in an EPA approved landfill.

18. Caulking materials were assumed to contain PCB's.

COST ESTIMATES:

The cost includes removal and disposal of all accessible ACM and an allowance for removal of inaccessible or hidden ACM that may be found during the demolition or renovation project.

Location	Material	Approximate Quantity	Cost Estimate ($)
Various Locations	Multiple Layers of Vinyl Floor Tile and Mastic	35,000 SF	140,000.00
	Sinks	21 Total	2,100.00
	Grey Caulking on Concrete Columns and Beams	2,000 LF	20,000.00
	Pipe and Hard Joint Insulation	Unknown	25,000.00
	Roof Drain Insulation	50 Total	2,500.00
	Blackboards	Unknown	8,000.00
	Hidden ACM	Unknown	25,000.00
	Miscellaneous Hazardous Materials	Unknown	25,000.00
Rear Entrance	Caulking	26 LF	1,000.00
Janitor Closet	Duct Sealant	10 LF	500.00
Boiler Room	Boilers	3 Total	25,000.00
	Pipe and Hard Joint Insulation	Unknown	2,500.00
Crawl Spaces	Pipe and Hard Joint Insulation	Unknown	25,000.00
Exterior	Masonry Caulking	1,200 LF	12,000.00
	Transite Sewer Pipes	Unknown[1]	50,000.00
	Roofing Materials	37,100 SF	37,100.00
	Damproofing on Exterior/Foundation Walls	Unknown[1]	100,000.00
PCB's Remediation[2]			25,000.00
Estimated costs for ACM Inspection and Testing Services			7,500.00
Estimated costs for PCB's Testing and Abatement Plans Services[2]			25,000.00
Estimated costs for Design, Construction Monitoring and Air Sampling Services			61,800.00
		Total:	**620,000.00**

[1]: Part of Total Demolition and Excavation.
[2]: Should results exceed EPA limit.

4.0 DESCRIPTION OF SURVEY METHODS AND LABORATORY ANALYSES:

Asbestos samples were collected using a method that prevents fiber release. Homogeneous sample areas were determined by criteria outlined in EPA document 560/5-85-030a.

Bulk material samples were analyzed using PLM and dispersion staining techniques with EPA method 600/M4-82-020.

5.0 LIMITATIONS AND CONDITIONS:

This report has been completed based on visual and physical observations made and information available at the time of the site visits, as well as an interview with the Owner's representatives. This report is intended to be used as a summary of available information on existing conditions with conclusions based on a reasonable and knowledgeable review of evidence found in accordance with normally accepted industry standards, state and federal protocols, and within the scope and budget established by the client. Any additional data obtained by further review must be reviewed by UEC and the conclusions presented herein may be modified accordingly.

This report and attachments, prepared for the exclusive use of Owner for use in an environmental evaluation of the subject site, are an integral part of the inspections and opinions should not be formulated without reading the report in its entirety. No part of this report may be altered, used, copied or relied upon without prior written permission from UEC, except that this report may be conveyed in its entirety to parties associated with Owner for this subject study.

Inspected By:

Jason Becotte
Asbestos Inspector (AI-034963)

	WESTLANDS COMMUNITY ED CENTER	Health, Safety & Welfare	Code Compliance	Functional Use of Building or Site	Handicap Accessibility	Extending the Life of the Building (Maintenance)	Energy Efficiency / Energy, Water Saving	Hazardous Material Abatement	Quantity	Cost of Repair / Replacement (5/2016 $)	Designer / pricing Contingency (10%)	Soft Cost (20%)	Estimated Project Cost (5/2016 $)	High Priority (1-3 yrs)	Medium Priority (4-6 yrs)	Low Priority (7-10 yrs) or under full renovation project	On Going Maintenance	Notes / Total
	37,100 GSF																	
1	**Site & Civil**																	
1.01	Remove accumulated sediment from areas around catch basins			x		x			1 ls	$2,300	$230	$506	$3,036	**$3,036**				
1.02	Reset vertical granite curb as necessary.			x		x			1 ls	$5,750	$575	$1,265	$7,590		**$7,590**			
1.03	Clean out existing catch basin.			x		x			1 loc	$2,300	$230	$506	$3,036	**$3,036**				
1.04	Develop accessible parking near the front entrance								1 ls	$11,500	$1,150	$2,530	$15,180			**$15,180**		
	TOTAL													**$6,072**	**7590**	**15180**	**0**	$28,842
2	**Structural Elements**																	
2.01	Strip and paint with exterior grade rust-inhibitive paint, or replace, anchor bolts for the roof ladders that are rusting at the exterior façade.					x			5 loc	$5,750	$575	$1,265	$7,590				**$7,590**	
2.02	Repair and repoint masonry façade.					x			40,000 sf	$1,610,000	$161,000	$354,200	$2,125,200					COMPLETE REFACING OF BUILDING NOT INCL.
2.03	Incorporate vertical control joints in exterior masonry façade wherever possible.					x			1 ls	$57,500	$5,750	$12,650	$75,900	**$75,900**				
2.04	Repair and repaint exterior railings and posts with exterior grade rust-inhibitive paint.					x			1 ls	$5,750	$575	$1,265	$7,590				**$7,590**	
2.05	Repair concrete at railing post bases to ensure stability and structural integrity.			x		x			1 ls	$2,300	$230	$506	$3,036	**$3,036**				
	TOTAL													**$78,936**	**$0**	**$0**	**$15,180**	$94,116
3	**Exterior Architectural Elements**																	
3.01	Investigate reasons for cracking in exterior brick walls and provide permanent repairs through replacement of damaged bricks and repointing as needed	X		X		X			1 ls	$23,000	$2,300	$5,060	$30,360				**$30,360**	
3.02	Patch and replace spalling concrete cantilevers	X		X		X			360 lf	$37,260	$3,726	$8,197	$49,183	**$49,183**				
3.03	Repair exterior control joints					X			150 lf	$4,313	$431	$949	$5,693		**$5,693**			
3.04	Repair exterior expansion joints					X			150 lf	$6,900	$690	$1,518	$9,108		**$9,108**			
3.05	Repaint soffits					X			1 ls	$17,250	$1,725	$3,795	$22,770	**$22,770**				
3.06	Investigate source of water and moisture accumulation of moisture at soffits	X		X		X			1 ls	$5,750	$575	$1,265	$7,590	**$7,590**				
3.07	Repair and repaint rusting steel angles					X			10 lf	$575	$58	$127	$759	**$759**				
3.08	Repaint exterior doors					X			23 loc	$13,225	$1,323	$2,910	$17,457	**$17,457**				
3.09	Repair damaged louvers					X			1 ls	$1,150	$115	$253	$1,518	**$1,518**				
3.10	Add screens to unit ventilator vents	X		X		X			23 ea.	$6,613	$661	$1,455	$8,729	**$8,729**				
	TOTAL													**$108,006**	**$14,801**	**$0**	**$30,360**	$153,166
4	**Interior Architectural Elements**																	
4.01	Replace all wood surfaces and non-health code complaint work surfaces with code compliant stainless steel in the kitchen and food prep areas	x	x						1950 sf	$44,850	$4,485	$9,867	$59,202	**$59,202**				
4.02	Create a separation between the commercial foodservice related program needs and the community based teaching kitchen needs.	x							45 lf	$19,406	$1,941	$4,269	$25,616	**$25,616**				
4.03	Remove equipment from the dish room to provide for additional storage.			x					1 ls	$23,000	$2,300	$5,060	$30,360			**$30,360**		
4.04	Refit equipment, as needed, to suit the actual uses of this kitchen.			x					1 ls	$172,500	$17,250	$37,950	$227,700		**$227,700**			
4.05	Renovate all restrooms, provide handicap accessible fixtures, and new partitions		X	X	X				10 ea.	$345,000	$34,500	$75,900	$455,400	**$455,400**				
4.06	Upgrade elevator controls to meet current elevator codes			X	X				1 loc	$40,250	$4,025	$8,855	$53,130		**$53,130**			
4.07	Install handrails to meet accessibility requirements at all stair locations		X	X	X				2 flt	$6,900	$690	$1,518	$9,108		**$9,108**			
4.08	Install lift at stage to provide access from cafeteria				X				1 loc	$51,750	$5,175	$11,385	$68,310		**$68,310**			

	4.09	Provide new sinks, cabinets, and shelving in all classrooms			X		X			23 ea.	$179,860	$17,986	$39,569	$237,415		**$237,415**			
	4.10	Remove door hardware with knobs and replace with levers		X	X	X				48 ea.	$27,600	$2,760	$6,072	$36,432	**$36,432**				
	4.11	Install door hold-opens to prevent the use of wedges at corridor doors	X	X	X					48 ea.	$110,400	$11,040	$24,288	$145,728	**$145,728**				
	4.12	Revise door areas where push / pulls do not meet accessibility requirements				X				48 ea.	$82,800	$8,280	$18,216	$109,296			**$109,296**		
	4.13	Repair quarry tiles in lobby area			X		X			10 sf	$575	$58	$127	$759	**$759**				
	4.14	Add topping on the stair treads or add raised rubber tile treads	X		X					250 left	$12,938	$1,294	$2,846	$17,078		**$17,078**			
	4.15	Clean all restroom tiles and grout	X		X		X			2250 sf	$25,875	$2,588	$5,693	$34,155				**$34,155**	
	4.16	Replace broken and damaged tiles in restrooms	X				X			50 sf	$2,588	$259	$569	$3,416	**$3,416**				
	4.17	Repaint epoxy floors that are in poor condition					X			850 sf	$3,910	$391	$860	$5,161				**$5,161**	
	4.18	Replace stage floor			X		X			1350 sf	$38,813	$3,881	$8,539	$51,233				**$51,233**	
	4.19	Clean stained floor in office area	X				X			310 sf	$1,070	$107	$235	$1,412				**$1,412**	
	4.20	Repair cracks in cmu walls					X			1 ls	$5,750	$575	$1,265	$7,590		**$7,590**			
	4.21	Repair building expansion joints					X			60 lf	$6,210	$621	$1,366	$8,197		**$8,197**			
	4.22	Remove plastic wall anchor sleeves, patch and repair holes					X			1 ls	$2,300	$230	$506	$3,036				**$3,036**	
	4.23	Repaint corridor walls					X			12,500 sf	$28,750	$2,875	$6,325	$37,950				**$37,950**	
	4.24	Replace kitchen ceiling tiles	X	X	X		X			1,950 sf	$17,940	$1,794	$3,947	$23,681	**$23,681**				
	4.25	Refinish wood doors					X			1 ls	$2,300	$230	$506	$3,036			**$3,036**		
	4.26	Replace wire glazing in doors and sidelights and at the lobby administrations area		X						12 ea.	$20,700	$2,070	$4,554	$27,324			**$27,324**		
		TOTAL													**$750,234**	**$628,528**	**$170,016**	**$132,946**	$1,681,724
5	**Mechanical - HVAC**																		
	5.01	Install new hot water pumps.					x			1 ls	$17,250	$1,725	$3,795	$22,770	**$22,770**				
	5.02	Replace existing hot water supply and return piping outside of the boiler room with insulated piping.					x			1 ls	$11,500	$1,150	$2,530	$15,180	**$15,180**				
	5.03	Insulate refrigerant and hot water piping to the air handling unit.					x			1 ls	$8,625	$863	$1,898	$11,385	**$11,385**				
	5.04	Clean existing ductwork and air distribution devices.					x			1 ls	$63,250	$6,325	$13,915	$83,490	**$83,490**				
	5.05	Install dampers for all exhaust fans.					x			1 ls	$23,000	$2,300	$5,060	$30,360	**$30,360**				
	5.06	Replace existing hot water fin tube radiation with insulated hot water branch piping and valves.					x			1 ls	$57,500	$5,750	$12,650	$75,900	**$75,900**				
	5.07	Rebalance kitchen make-up air unit so that the kitchen is under slight negative pressure.			x		x			1 ls	$3,450	$345	$759	$4,554	**$4,554**				
	5.08	Replace indoor air-handling units, including new insulated hot water branch piping and valves, insulated ductwork connections and controls.					x			1 ls	$143,750	$14,375	$31,625	$189,750	**$189,750**				
	5.09	Replace hot water convector units.					x			1 ls	$11,500	$1,150	$2,530	$15,180	**$15,180**				
	5.10	Clean or replace dirty exhaust grilles.					x			1 ls	$3,450	$345	$759	$4,554				**$4,554**	
	5.11	Replace existing cabinet unit heaters, hot water fin tube radiation and convectors. New insulated hot water branch piping and valves should be provided.					x			1 ls	$40,250	$4,025	$8,855	$53,130	**$53,130**				
	5.12	Install ventilation air systems for the corridors.			x					1 ls	$57,500	$5,750	$12,650	$75,900			**$75,900**		
	5.13	Provide a complete DDC control system for optimal control and comfort. Tie it into the town wide building management system.			x					1 ls	$385,250	$38,525	$84,755	$508,530		**$508,530**			
		TOTAL													**$501,699**	**$508,530**	**$75,900**	**$4,554**	$1,090,683

6	**Electrical**																		
	6.01	Replace service and distribution equipment and the fire alarm panel system.			x		x			**37,100 sf**	$234,658	$23,466	$51,625	$309,748	**$309,748**				
	6.02	Replace circuit panelboards that are original and in poor condition.			x		x			**37,100 sf**	$127,995	$12,800	$28,159	$168,953	**$168,953**				
	6.03	Install occupancy sensor switches to rooms that do not have them.			x			x		**15 ea.**	$4,313	$431	$949	$5,693			**$5,693**		
	6.04	Replace pole lights with globe fixtures with high-efficiency light fixtures.						x		**4 ea.**	$11,500	$1,150	$2,530	$15,180			**$15,180**		
	6.05	Install speaker/ strobes with the fire alarm system to comply with code.		x						**37,100 sf**	$42,665	$4,267	$9,386	$56,318			**$56,318**		
	6.06	Install a lightning protection system.	x							**37,100 sf**	$21,333	$2,133	$4,693	$28,159				**$28,159**	
	6.07	Install a new clock system, current system is obsolete.			x					**37,100 sf**	$42,665	$4,267	$9,386	$56,318			**$56,318**		
	6.08	Install a new intrusion system.	x		x					**37,100 sf**	$191,993	$19,199	$42,238	$253,430			**$253,430**		
		TOTAL													**$478,701**	**$0**	**$386,938**	**$28,159**	$893,798
7	**Plumbing**																		
	7.01	Install new high-efficiency low flow fixtures to reduce water consumption.						x		**1 ls**	$143,750	$14,375	$31,625	$189,750			**$189,750**		
	7.02	Inspect with video to confirm integrity and pitch of waste piping, sanitary, vent and storm drainage.					x			**1 ls**	$3,450	$345	$759	$4,554				**$4,554**	
	7.03	Install reduced pressure backflow preventers at Janitor's closet soap dispenser.			x					**1 ls**	$5,750	$575	$1,265	$7,590	**$7,590**				
	7.04	Redirect kitchen waste to exterior grease trap if required by local sewer.		x	x					**1 ls**	$17,250	$1,725	$3,795	$22,770				**$22,770**	
	7.05	Install a high-efficiency water heater, including master mixing valve, recirculated hot water and expansion tank on cold water make-up line.						x		**1 ls**	$34,500	$3,450	$7,590	$45,540		**$45,540**			
	7.06	Replace original domestic water piping with insulated, labeled and isolated piping with tagged brass ball valves.			x		x			**1 ls**	$172,500	$17,250	$37,950	$227,700			**$227,700**		
		TOTAL													**$7,590**	**$45,540**	**$417,450**	**$27,324**	$497,904
8	**Fire Protection**																		
	8.01	Install fire sprinklers throughout facility	x	x						**37100**	$278,250	$27,825	$61,215	$367,290			**$367,290**		
		TOTAL													**$0**	**$0**	**$367,290**	**$0**	$367,290
9	**Hazardous Material**																		
	9.01	Replace 9" x 9" Vinyl floor tile and mastic that were either assumed or previously found to contain asbestos. The ACM was mostly found under newer vinyl floor tile and carpet.							x	**35,000 sf**	**Incl Below**							**$0**	
	9.02	Replace 12" x 12" Vinyl floor tile and mastic that were either assumed or previously found to contain asbestos. The ACM was mostly found under newer vinyl floor tile and carpet.							x									**$0**	
	9.03	Replace pipe and hard joint insulation that was previously found to contain asbestos.							x									**$0**	
	9.04	Replace black duct sealant that was previously found to contain asbestos.							x	**10 lf**	**Incl Below**							**$0**	
	9.05	Replace interior door framing caulking that was previously found to contain asbestos.							x	**26 lf**	**Incl Below**							**$0**	
	9.06	Replace grey caulking on columns and beams that was previously found to contain asbestos.							x	**2000 lf**	**Incl Below**							**$0**	
	9.07	Replace black sink coating that was previously found to contain asbestos.							x	**21 ea.**	**Incl Below**							**$0**	
	9.08	Replace grey sink coating that was previously found to contain asbestos.							x	**21 ea.**	**Incl Below**							**$0**	
	9.09	Replace exterior masonry caulking that was previously found to contain asbestos.							x	**1200 lf**	**Incl Below**							**$0**	
	9.10	Replace insulation inside boilers that was assumed to contain asbestos.							x	**3 ea.**	**Incl Below**							**$0**	

	9.11	Replace glue holding blackboard that was assumed to contain asbestos.							x	**1 ls**	**Incl Below**							**$0**	
	9.12	Replace underground sewer pipe that was assumed to contain asbestos.							x	**1 ls**	**Incl Below**							**$0**	
	9.13	Replace damproofing on exterior and foundation walls that was assumed to contain asbestos.							x	**1 ls**	**Incl Below**							**$0**	
	9.14	Replace roofing materials that were assumed to contain asbestos.							x	**37100 sf**	**Incl Below**							**$0**	
	9.15	Remove and repaint painted surfaces that were assumed to be Lead Based Paint.							x									**$0**	
	9.16	Replace various equipment such as tubes, thermostats, exit signs and switches that were assumed to contain mercury.							x									**$0**	
	9.17	Replace caulking materials that were assumed to contain PCB's.							x	**26 ea.**	**Incl Below**							**$0**	
		HAZMAT ALLOWANCE									$620,000		$124,000	$744,000				**$744,000**	
		TOTAL													**$0**	**$0**	**$0**	**$744,000**	$744,000

GENERAL NOTES

1. Refer to each section of the Report for more detailed information. Before moving forward with a specific project, a detailed review of the scope of work and a re-assessment of the cost estimate for that scope should be performed.

2. Some items should be completed in combination with other items. Some of these suggestions may be noted above. We recommend that once a scope of work is desired to be pursued, a mini-study should be done to confirm which work should be done together. See the next general note below for additional information.

3. Due to the conceptual nature of these recommendations and estimates and the complexity of existing conditions, several solutions may be provided to achieve the end result. Existing conditions in some areas may limit the ability to fully implement the proposed scope of work. Part or all of this work may trigger other renovation requirements related to code, seismic, sprinklers or handicap accessibility. Once a determination is made to move forward with a