

# Existing Conditions

## GENERAL INFORMATION

|                 |                                |
|-----------------|--------------------------------|
| CONSTRUCTED     | 1968                           |
| ADDITIONS:      | NONE                           |
| ACREAGE:        | 14.8 ACRES                     |
| SQUARE FOOTAGE: | 72,000                         |
| GRADES:         | 3 5 (with PreK)                |
| ENROLLMENT:     | 389<br>+ 11 Case Collaborative |



## GENERAL

The Original Building is a 2 story, steel frame and brick veneer building which was constructed in 1968. The Building is approximately 72,000 sf and houses grades three, four and five as well as a Kindergarten after school program as part of the "Tiger's Den" program.

The Tiger's Den program also operates afternoon programs for children in grade levels K through 8. The school is located on Russell Street, sharing a campus with the Middle School. The building is a two story structure with a distinct division between the academic wing and the core spaces.

## ARCHITECTURAL

### EXTERIOR WALLS

Exterior walls of the original 1968 building consist of 4" masonry veneer which appears to be in good condition considering the age of the building. Areas of deterioration of the mortar joints require repointing, but the brick itself appears to be intact with few signs of damage or failure due to age, expansion or weather affects. The exterior wall assembly is a cavity wall type construction with 2" rigid insulation filling the cavity between the brick veneer and the 8" Concrete Block back-up wall system. The original Drawings show "membrane" base flashing at the bottom of the cavity to weep water from the cavity.

### WINDOWS

The exterior windows are the original metal windows, single

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glazed and non-thermally broken frames. The windows are in poor condition and in need of replacement. The units surveyed required significant force to operate or were inoperable and provided poor thermal insulating value. The perimeter caulking on the exterior was dry and brittle and likely a pathway for air and water into the masonry cavity.

## DOORS AND FRAMES

### ROOF

The Roof was replaced several years ago with a new single ply membrane. The roof replacement project was a "Full Rip" meaning that all layers were removed down to the metal deck and replaced with new products, therefore all Asbestos Containing materials that may have been part of the original roofing system have been removed. The perimeter roof edge flashing and roof top equipment were also replaced as part of the roofing replacement. All components of the new roofing system are performing well. Direct Inspection of the roof was not possible at the time of DRA's review of the building due to snow coverage.



### INTERIOR WALLS

Interior walls are generally of two types, Concrete Masonry Unit Construction is used at the Gymnasium, Kitchen, Tigers Den Rooms (formerly Shower Areas for the Gymnasium) Janitor's Closets, Incinerator Room, and at the Stair off the Main Entry Lobby. Also, the exterior wall's interior surface is painted CMU which is the back-up wall for the exterior brick veneer. The other general interior wall type is plaster on metal stud partitions. The plaster finishes are damaged in numerous areas, most significantly at window and door jamb and head details.



### CEILINGS

Ceilings throughout the facility are largely the original 2 x 4 ceilings tiles in a suspended grid system. The existing ceiling is Asbestos containing materials and has been replaced by the maintenance staff only as necessary where its been damaged or saturated due to roof leaks. The supporting grid system appears to be in satisfactory conditions and structurally sound but the ceiling panels are in dire need of replacement for their poor condition, sagging, water stained, deteriorating, breakage, as well as for the requirement to abate the ACM materials throughout the facility. There are several areas throughout the facility which have plaster ceil-

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ings and the gymnasium has exposed structure consisting of steel joists and insulating "concrete" (assumed) roof panels

## DOORS AND FRAMES

The interior doors in the facility are primarily flush metal door in metal frames. Doors to classrooms have wire glass vision panels and transoms above the door. Most of the doors show signs of wear, damage and in areas of moisture, some are showing signs of corrosion. Many of the doors throughout the facility have door knobs which do not meet Handicapped Accessibility Regulations. There are a number of entry configurations to classrooms and other spaces that also are not accessible per Massachusetts Handicapped Accessibility Regulation (521 CMR).



## TOILET ROOMS

Generally, Ceramic tile flooring and walls are in poor condition. In addition to discoloration of the tiles and grout, there is degradation of the grout and unsightly patches in both the floor and walls where toilet partition and accessory modifications have been made over the years. The faucets on the sink are manual, the water closets and urinal appear to have electronic flushometers but are inoperable and require manual operation to activate. There are no handicapped accessible toilet facilities, stalls, lavatories or grab bars. The toilet partitions are in very poor condition, dented, discolored and badly corroded creating unsanitary conditions.



## FLOORING

Flooring throughout the entire facility is 9" x 9" vinyl asbestos tile (VAT). Most of the tile is in good condition and has worn well given its extended age. There are several areas that were observed on the first floor where the material has cracked, presumably following expansion or settlement cracks in the concrete that have evolved over time. Other flooring material are present throughout the facility, carpeting is installed at both the Large Group Instruction Room and in the Library. Carpeting and area rugs are used at other areas throughout the facility. Kitchen Flooring system is quarry tile and the flooring in the gymnasium is a



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## STRUCTURAL



The school is located on Russell Street, sharing a campus with the Middle School. The building is a two story structure with a distinct division between the academic wing and the core spaces.

Foundations are traditional, cast-in-place, concrete footings with a permissible bearing capacity of 2 tons/sq. ft. The academic wing, Part A, has steel joists at the second floor (18" deep at classroom, 10" deep at corridor) supporting form deck and concrete (2" thick). The joists are supported on steel columns and beams along the corridor walls and concrete masonry units on the exterior. The vertical supporting elements continue to the roof, where joists (16" deep at classrooms and 8" deep at corridor) support a 1" steel deck.

The floor and roof are supported at the exterior on reinforced, concrete beams spanning between the windows and bearing on the CMU. The area at the large instruction group and library above is formed with precast, long span, prestressed, concrete, double tees at the second floor and are supported on steel columns and beams at the corridor and masonry on the exterior. These vertical elements continue to the roof which is formed with long span, open web, steel joists supporting a 1" deep, steel deck at a higher elevation than the main roof. The exterior façade is brick veneer. The dividing walls between classrooms have 3 5/8" light gage metal studs as do the main corridor walls.

The core area, Part B, houses the gymnasium, cafeteria, kitchen and locker rooms. The double height structures are generally steel framed. The gymnasium has steel, wide flange columns supporting arched, steel trusses with 12" open web, steel joist and insulated, roof panels. There is both vertical and horizontal bracing below the roofing.

The low roofs at either end of the gym have 8" prestressed, precast, concrete plank supported on steel framing. The cafeteria has long span, steel joists supported on steel framing while the roof over the kitchen has open web joists. Both have a 1" deep, steel, roof deck.

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## STRUCTURAL SUMMARY

Based on preliminary observations, the structure is performing satisfactorily for a 40 year old building.

The exterior façade is in good condition and there is no evidence of any distress to the main structural elements.

The existing structure is in sound condition, as is the exterior façade. Even though the structure is performing well, it is not up to the serviceability criteria of modern structures, nor would it be adequate to resist lateral loads as required by code for new construction.

At the time of renovations or upgrade to the school, the structure of the school would have to be upgraded depending on the type of renovations. If the proposed renovations are architectural in nature or involve upgrade or replacement of mechanical or electrical systems, the structure would also have to be upgraded as noted under LEVEL 2 WORK, please note that even though these structural upgrades could be extensive, they would not bring the structure up to compliance with code for new construction. It would not be capable of resisting earthquake or wind loads adequately, as would be expected of modern structures.

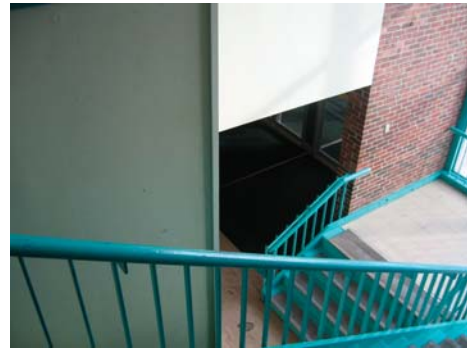
If the proposed renovations involve any major reconfiguration to the existing structure, these renovations would trigger the upgrading of other portions of the structure and this could become cost prohibitive. We would recommend that any proposed addition be kept structurally separate from the existing.

## PLUMBING

In general terms, the building systems are nearly all original to the building which was constructed in 1966/67. At 40 plus years of age, most all building systems have reached or exceeded their expected useful lifespan. Further details by system are noted below.

### A. PLUMBING SYSTEMS

1. The building domestic water service extends below grade from a municipal supply, as a 4" main to the meter room below the south end stair.
2. Condition of water service piping below grade is unknown. Above grade piping is in fair condition, and original to the building.
3. A new domestic water service should be considered under any major renovation project. Meter room location should be changed, so that the stair area can be kept clear of equipment.



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4. Interior supply piping should be replaced as a part of any major renovation, due to age.
5. The existing water heater is a large electrically heated storage type tank. This tank supplies all hot water to the building, with the exception of some kitchen loads. The tank is inefficient to maintain in service. Capacity overall exceeds daily demand, and thus much more electrical energy is used than would be required if the heater and tank system was sized for the actual utilization. Removal of the tank is recommended and a new tank or multiple water heater locations should be considered.
6. Sanitary waste is discharged to a force main pumping system on site. Condition of the pumping station is unknown, but functions correctly per building staff. The existing sanitary main from the building to the pump station should be snaked, and scoped as a part of a major renovation. Should there be piping perforations or other indications of piping failure, piping would require replacement or corrective action. Interior above grade piping appeared to be in fair condition. Interior below slab waste piping has failed in at least one location and will require further investigation as indicated above for exterior piping.
7. The kitchen presently has three grease traps installed. Two are active, and one is inactive (nearly never used). Should major kitchen renovations be undertaken, a new central grease trap and associated piping will be required.
8. Storm systems consist of roof leaders piped to dry wells on site. The capacity of the drywells is not sufficient to keep up with heavy rain events. Modifications to the dry wells or a new site drainage system piped to a more robust containment area will be required under a major renovation scenario.
9. There are presently no sprinklers in the building. Any major renovations will require installation of a new compliant sprinkler system throughout the building.

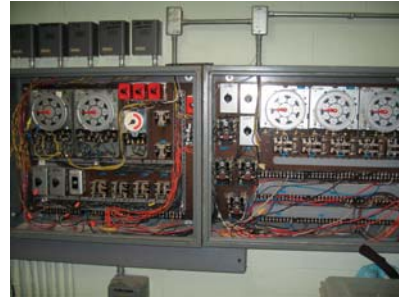
## HVAC SYSTEMS

- B. HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS
  1. The majority of the building is heated via wall mounted electric unit ventilators. These unit ventilators are connected to outside air louvers for fresh air, and have dedicated thermostats for most all spaces.
  2. Some spaces are heated via wall mounted baseboard electric radiation.
  3. Ventilation for most all spaces is via roof mounted exhaust

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- fans which rely on infiltration or the nominal amount of fresh air provided by the unit ventilators for makeup air.
4. There is a basic Honeywell control system in place that serves to provide an occupied/unoccupied schedule for most building HVAC systems. The system is not suited for a modern HVAC system, and a new complete DDC (direct digital control) system should be installed under a major renovation project.
  5. The kitchen, gym and former tech ed spaces (originally a middle school) are served H&V units which bring in nominal amounts of outside air and provide heating. These units are also original to the building construction and are beyond their expected service life.
  6. Kitchen hood exhaust systems were not reviewed in detail. Should major kitchen renovations occur, new hoods and fans should be anticipated.
  7. There is essentially no fixed or permanent air conditioning in the building.
  8. The existing systems are beyond their functionally useful expected lifespan, and should be replaced completely.
  9. Space and building considerations for new systems include a new boiler room, structural roof modifications for new roof mounted equipment, exterior wall modifications for either infill or modification to the unit ventilator locations depending on new system selection.



## ELECTRICAL

- C. ELECTRICAL
1. The building is served by a 2000A 277/480V fused switch and switchboard assembly fed from utility source transformers, and related distribution and branch panelboards. The capacity of the service reflects the electric heat serving the building and its load. For branch receptacle loads and circuits, there are several (8) step down transformers located in the building to provide 208/120V power.
2. The switchboard and all branch and distribution panels noted are original to the building. While these panels and associated breakers are in usable condition, they are beyond their normal service life. Breaker capacity in many of the panels has been taken up leaving no viable spare spaces for additional loads.
3. The existing switchboard, distribution panels, feeders and associated wiring should be replaced under any major renovation scope of work.



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4. Lighting fixtures are nearly all original to the building construction. These fixtures are in fair condition, and do not meet present code for energy conservation. A comprehensive replacement of all building lighting should be included as a part of any renovations.
5. Existing receptacles within classrooms are very limited in number and thus the available power to each classroom for educational technology and the like is likewise limited. Under a renovation scenario, we recommend complete replacement of the receptacles, wiring, and the provision of new branch circuits and devices to each classroom. New quantities would be in sufficient quantity to allow for the implementation of educational technology, and the circuits would be connected to TVSS type panelboards for surge protection.
6. Existing site lighting fixtures (predominantly building mounted) are also beyond their life expectancy and should be replaced entirely.
7. The building is equipped with a small 25kW generator and transfer switch. This equipment serves the emergency lighting needs of the building. The generator and its controls and associated equipment are beyond their service life, do not comply with present code and require removal and replacement.
8. The existing fire alarm system is obsolete and does not meet the full requirements for ADA compliance. A new fire alarm panel, and new initiating and annunciating devices are required to comply with code, and to allow additional devices to be installed and wired.
9. The existing public address system and clock system are obsolete, in some cases not functional, and should be replaced entirely.
10. Existing network wiring and infrastructure is in good condition, but is limited in capacity and coverage. We recommend replacing the network wiring, and provision of a new BICSI compliant internal voice and data wiring system including a main distribution room, and intermediate closets be constructed to provide new data wiring within 300 feet of any jack or outlet throughout the building.

## HAZARDOUS MATERIALS

On January 19, 2009 Smith & Wessel's Massachusetts Licensed Asbestos Inspector Ted Sherry (MADOS # 32572) conducted a walk through at the Russell Street Elementary School. Our primary focus was to determine the extent of asbestos building materials present in the school.

# Existing Conditions

Based on our review of the previous AHERA plan some of the building materials are known asbestos and other materials are assumed asbestos. Below is a list of suspect asbestos materials we identified at the school.

- Floor tile and associated mastic
- Mudded pipe fitting insulation
- Spray-on fire proofing (not observed, but Bill Marr indicated that it exists in the school)
- Baseboard mastic
- Plaster
- Gypsum board
- Joint compound
- Window glazing/caulking
- Suspended ceiling tiles
- Fire curtain
- Univent caulking
- Fridge mastic
- Door caulking
- Glue daubs associated with caulk/bulletin boards
- Fire door insulation
- Wood floor vapor barrier
- Wall vapor barrier
- Foundation moisture barrier
- Sink basin mastic
- Roofing materials

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