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MEMORANDUM

To:	Robert Deering, Chair EFPBC, Town of Winchester	Date:	November 7, 2012
From:	Anthony Iacovino, AIA	Project No.:	12023
Project:	Winchester High School & Feasibility Study		
Re:	Executive Summary		
Distribution:	E. Frenette, P. Poinelli, L. Finnegan – SMMA		

The following is a summary of existing building deficiencies described in further detail in Section 4 of the building condition report.

Building Description

- 280,700 GSF built in 1971-72
- Use Group: E- Education (with accessory occupancies A1 – Auditorium; A 2 Cafeteria; A-3 Library/Media Center, and A-4 Gymnasium)
- Type of Construction: IB – Noncombustible, unprotected construction
- Three Stories with Basement and crawlspace.
- Cast-in-place concrete two-way waffle slabs
- Concrete columns on pile-supported grade beams.
- Basement is full of MEP equipment located below the flood plane.

Building Structure

- Structural deficiencies of the existing reinforced concrete structure relate to the proposed renovation of the structure under the 8th Edition of the Massachusetts State Building Code (MSBC):
- The level of renovation under the current MSBC requires that the existing structure resist current seismic (earthquake) forces.
- The structure was designed in 1970 under a prior prevailing building code which did not include seismic considerations. The reinforced concrete frame does not include internal reinforcing to resist seismic forces and is unable to resist seismic forces under the current MSBC.
- In order to reuse the existing structure under the current MSBC the existing reinforced concrete frame must be reinforced with steel moment frames or shear walls to resist seismic forces.
- The separation of the raised first floor level platform from the foundation level requires this crawl space area to be reinforced as an additional story to resist seismic forces.
- The site is underlain by great thicknesses of organic material, resulting in a Site Class F designation under the MSBC. As such, additional expensive testing is required to determine the level of seismic forces the existing structure must resist, and the possible reduced capacity of the existing piles.

- It will not be feasible to drive additional piles inside the building if it is determined that seismic overturning has created increased forces which exceed the capacities of the existing piles in certain interior foundation locations.

Exterior Walls

- Brick on block exterior infill walls, uninsulated, seismically unreinforced
- Cast-in-place concrete walls at projecting bays with uninsulated interior finish walls

Exterior Windows/Louvers

- Thermally inefficient frames and single-paned glazing
- Thermally inefficient and optically cloudy plexiglass replacement glazing with failing gaskets on ground floor
- Some rusty louvers

Roofing

- Ballasted built-up roofing
- No insulation
- Medium albido peastone ballast adding to heat gain in the summer time. (Better than black bitumen, but not as reflective as a light membrane.)
- Minimally pitched roof slopes

Interior Partitions

- Concrete block, painted, unbraced seismically
- Good sound isolation, but bad for internal room acoustics (hard and reflective)
- Durable but Inflexible for renovation over time, can look institutional
- Colors are dark and do not enhance daylighting

Flooring

- Vinyl Composition Tile (VCT), Carpet, Tile in bathrooms and Painted Concrete
- Mostly Hard, Dark and Worn

Ceilings

- Acoustic Ceiling Tile (ACT), flat grid and flush tiles are old and institutional
- 2x2 ceiling lights have inefficient lenses that create glare and look cheap

Signage

- Inconsistent
- Non-compliant with MAAB/ADA

Casework

- Non-accessible cabinets in science rooms and other spaces with sinks.

Means of Egress and Doors

- Non-compliant cross-corridor doors with institutional-looking wired glass not allowed under current code
- Non-latching, non-labeled fire doors to stairways

Stairs

- Railings do not comply with 4” ball requirements
- Railings are 6” short of the 42” high guard requirement
- Handrails do not provide the required handrail extensions at landings

Elevator

- No elevator access to second floor gym, fitness room, or wrestling room
- Too small for gurney access

Exterior Doors

- Not all exterior doors are served by ramps for egress

MAAB/ADA Accessibility

- No Handicapped Door Operators at exterior doors
- Projection Booth, Gym, Fitness Room and Wrestling are inaccessible.
- No accessible Fume Hoods in Science
- Many wall mounted fixtures and equipment in corridors and occupied rooms exceed 4” maximum projection from wall.

Code Compliance, Fire Separations and Construction Classification

- Maximum allowed size for school building with no sprinklers is 53,000 sf
  [Rated separation walls required for code compliance.]
- Maximum allowed size for school building with sprinklers is 106,000 sf
  [Rated separation walls required for code compliance.]
- Maximum allowed size for school building with protected structure and sprinklers is unlimited.
  [Some additional fire protection of structural members would be required for code compliance.]

Auditorium

- Hard, reflective acoustic finishes in Auditorium
- No acoustic insulation from nearby train tracks
- No space provisions for sound board
- No fly loft over stage

Electrical

- Electrical switchgear and panelboards that was not replaced in 1996 is in poor condition.
- Main electric room code violations
- Main/Auditorium building generator is under sized, in poor condition and does not comply with todays life safety code
- Gymnasium Building generator is undersized currently not working and does not comply with todays life safety code. A temporary generator is currently being used in place of the existing genset.
- General purpose and computer equipment receptacles In general is lacking in adequate coverage for todays technology.
- The building currently does not contain a automated lighting control system. Lighting is controlled locally via line voltage switching.
- No occupancy sensors or daylight dimming sensors with exception to the gym are being utilized for energy savings.
- Lighting in general with exceptions to the gym and fitness center is in poor condition.

- Centralized clock system is obsolete.
- (5) IDF's "Intermediate distribution frames" are not installed in the appropriate environment which will result in short life of network equipment.
- The MDF "Main distribution frame" is not adequate for the equipment located within it. There is a general lack of power, and equipment racks.
- The fiber backbone is legacy 62.5 multimode cable.
- Data wiring is Cat5e.

Mechanical

- Boilers 2 & 4 are original and are no longer in use. Abandoned in place. Boilers 1 & 3 were replaced in kind in 2005 however the burners were not.
- Fuel Oil system is no longer being used and is abandoned.
- The steam to hot water converters in the chiller equipment room are original and are in poor condition.
- All chilled water/condenser water/hot water pumps are constant volume not utilizing variable frequency drives (VFD's). They appear to be in fair to poor condition.
- It has been determined the pneumatic control system is leaking.
- All air handling units and unit ventilators appear to be in fair to poor condition.

Fire Protection

- There is no existing fire protection system anywhere in the existing facility.

Plumbing

- All piping is original and is in fair to poor condition.
- Domestic hot and cold water piping is not expected to last more than 10 years without exhibiting widespread problems.
- Exception to above is Wing A which should be replaced very soon.
- Sanitary piping is original and is not expected to last more than 10 years.
- Kitchen waste is not separated and can cause long term clogging problems.
- Acid waste system and tank is not suitable for the types of usage expected in a High School.
- Most plumbing fixtures have been replaced and are in good condition.

Site Accessibility

- Most building entrances and egress points are not code compliant.
- Accessible parking and accessible routes of travel are not code compliant.
- Courtyards are not accessible, and do not have accessible surfaces/walkways.

Site Zoning

- Building is currently within the rear yard setback, and is non-conforming to the zoning.
- The site's Open Space is currently below the zoning requirement and therefore non-conforming.
- Building exceeds allowable height of 45 feet and therefore is non-confirming. (Approximately 53')

Site Features

- Many of the sidewalks and pavement areas including the courtyards are in poor condition.
- Access from the site to the building is in poor condition with many steep ramps.
- The loading dock access is in poor condition.

Site Utilities

- On-going site utility and drainage issues due to ground settlement requiring utility maintenance and replacement. Issues include reverse pipe slopes, poor courtyard drainage, and poor utility connectivity.
- Sewerage backflow during flooding events creates an unusable system.
- Stormwater system lacks current Best Management Practices.
- Poor condition of some of the underground electrical services.
- Basement flooding and relocation of basement building system equipment.

Recognized Environmental Concerns:

- Mold is present throughout the school and on the exterior. The mold is especially prevalent in the Auditorium wing.
- Deteriorated asbestos pipe and boiler insulation and vinyl asbestos floor tile.
- Lead based paint located in the library.
- Poor storage practices of hazardous materials, such as laboratory chemicals, paints, varnishes, automotive fluids, waste oil, etc.
- The presence of contaminated subsurface soil or groundwater due to the release discovered underground storage tanks were removed.
- The possible presence of contaminated subsurface soil or groundwater due to impacted historic fill and historic contamination of the surface water at the site.