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RSU #1
MORSE HIGH SCHOOL STUDY
Bath, Maine
PROJECT No. 13558

May 6, 2013

FINAL DRAFT

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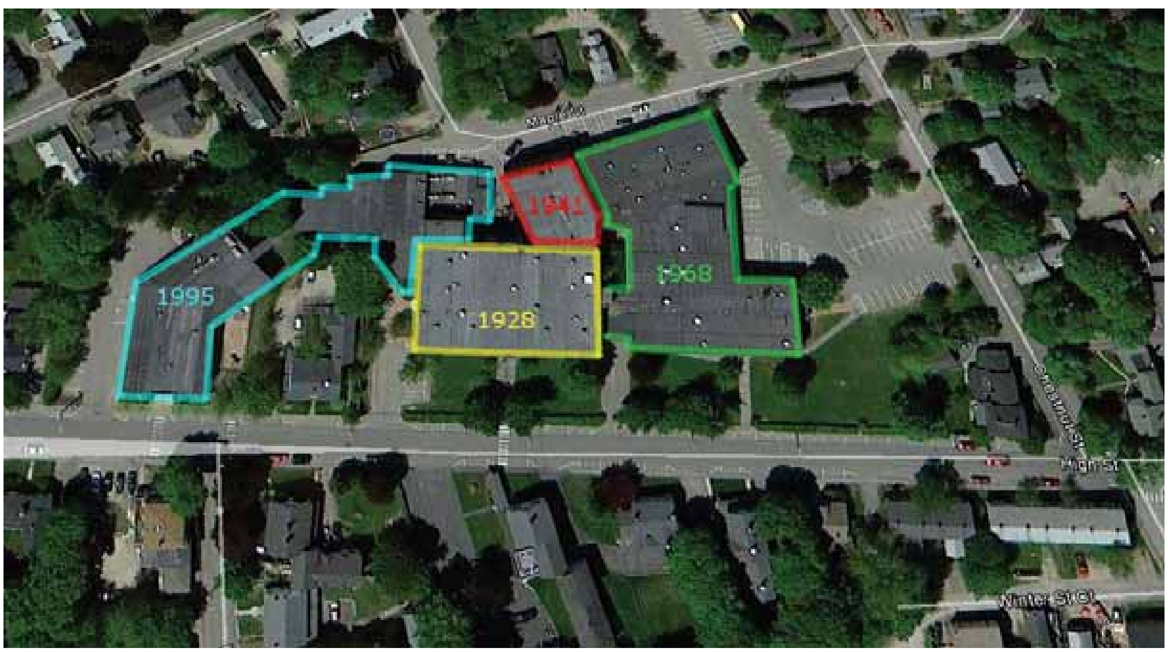
MORSE HIGH SCHOOL STUDY

INTRODUCTION

In the spring of 2013 Harriman was retained by Regional School Unit 1 to review the current condition of the Morse High School facilities. The intent of the study was to do a cursory review of major building systems, and electrical, in order to identify elements that would require extensive repair or replacement within the next ten to fifteen years, to help assess the level of urgency for phasing out the aging buildings.

The original Morse High School was constructed in 1928, designed by Bunker & Savage Architects. A three-story building, designed by Alonzo J. Harriman Architects, was added in 1941. In 1968 a large two-story addition was built, designed by Allied Engineering. A 1995 vocational center addition is not included in this study. The buildings are on a very tight site for a high school. The circulation created by the 1968 addition is complex, on split levels and varying angles. The original building has a 650-seat auditorium and a gymnasium below known as “The Pit”.



Site plan showing building phases

Original 1928 building

Main entrance between original building and 1968 addition

MORSE HIGH SCHOOL STUDY

ARCHITECTURAL

General

The Morse High School was originally constructed in 1928, designed by Bunker & Savage Architects. The original three-story building consists of a gymnasium known as "The Pit" and associated spaces on the below-grade ground level, an auditorium ringed by classrooms on the first floor, and a second level to the auditorium and additional classrooms on the third floor. The building is steel structure with brick façades. A similar three-story classroom addition, designed by Alonzo J. Harriman Architects, was built in 1941. In 1968 a large two-story addition, designed by Allied Engineering, was built consisting of brick veneer and "plastic" fascia panels on the exterior. A vocational center addition that was added in 1995 is not included in this study.

The architectural concerns with the building fall into three primary categories: functional issues that impact how the school operates; codes and accessibility issues where older components of the building are no longer in compliance; and major replacement/maintenance issues that would need to be addressed within the next fifteen years. The focus of this study is primarily on the latter issue of deteriorating building components, although the other items should be taken into account in regard to decisions concerning the long-term fate of the facility.

Porous Brick at Original Building

The original 1928 building was constructed of brick that has a high level of porosity leading to moisture migration through the wall and plaster deterioration and efflorescence on interior walls. S.W. Cole has performed a funnel test on the brick and demonstrated that the wall readily absorbs moisture. In order to prevent continual migration of moisture through the walls, sealing the brickwork on the original building needs to be part of a periodic maintenance program, with resealing occurring approximately every two years. The interior walls, in particular around some exterior windows, need to be patched and painted.

Exterior brickwork, 1928 building.

Moisture damage at interior window.

Window Replacement at Original Building

Vinyl replacement windows in the original building are compromised and not sealing well, resulting in energy loss and also contributing to moisture issues at the interior surfaces around windows. The 172 windows in the original building should be replaced in the near future.

Vinyl window at 1928 building.

Fiberglass Fascia Panels at 1968 Addition

The fiberglass fascia panels that were installed as part of the 1968 addition have periodically loosened and fallen off the façade. Many have been replaced. There are still a number of them needing replacement, primarily in the courtyard area.


Blue fiberglass panels at interior courtyard.

Roofing Over Boiler Room

The roofing over the Boiler Room is leaking and in need of replacement. Other roofs have more recently been replaced and should not need extensive work within the next ten to fifteen years.

Additional Maintenance and Replacement Issues

There are additional ongoing maintenance and replacement issues with the school, including door hardware replacement, finishes, and equipment. Flooring in the 1928 building has been largely replaced with Vinyl Composition Tile while the 1968 building still has Vinyl Asbestos Tile, which is monitored on a regular basis. There are many original lockers in the 1928 building which are no longer functional but remain in place. Carpeting in the 1968 building has been largely replaced. A few spaces have been recently refurbished, such as the Welding Shop, while others remain in good condition, such as the Girls' Gym in the 1968 building. Other spaces, especially in the 1928 building are in decline. Some ground level floor slabs are uneven with numerous cracks, such as the Carpentry Shop. Due to the broad scope of this study, the more minor items are not listed in detail or itemized in the cost estimate.

Corridor in 1928 building.

Equipment in Science Classroom, 1965 addition.

Codes and Accessibility Issues

Stairs in many areas do not meet current codes or accessibility requirements, such as tread and riser dimensions, guardrails, handrails and fire separation for egress stairs. The only portion with a sprinkler system is the 1995 addition. Elevators allow access to all levels except the 1928 building gymnasium level. Existing inaccessible features are not required to be corrected except as a percentage of funds that are spent on remodeling.

Stairs and rails at original main entrance, 1928 building.

Carpentry shop on ground level with uneven floor slab

MORSE HIGH SCHOOL STUDY

Functional Issues

Circulation within the original building and additions is very complex and disorienting, due to the varying levels and maze of corridors. In addition, the location of classrooms makes it difficult to organize into a departmental structure.

The older gymnasium, used for boys' PE classes, is poorly lit and has a sub-standard locker room. The girls' gym lacks spectator seating and has inadequate lockers as well. Varsity teams use the gymnasium at the middle school for most events and outdoor sports use the fields there as well.

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MORSE HIGH SCHOOL STUDY

STRUCTURAL

General

The existing Morse High School in Bath, Maine consists of an A-Wing, a B-Wing and a C-Wing. The A-Wing was designed by Bunker & Savage Architects in 1928. The B-Wing was designed by Alonzo J. Harriman Architects in 1941. The C-Wing was designed by Allied Engineering in 1968.

A building walk through of these areas was conducted in April of 2013. The focus of the walk through was to attempt to identify any structural issues that might require significant expenditures by the school district in the foreseeable future. Much of the existing structure is covered over by building finishes and was not observable at the time of the site visit. No destructive testing was performed during the walk through. Observations are limited to those areas that were visible during the site visit.

Roof Structure

A major focus for structure in Maine schools over that past thirty years has been the upgrading of roof structures to meet modern building code requirements. In 1985 the Bureau of General Services issued a Technical Policy Bulletin No. S-1-85 dated October 22, 1985 titled, "Policy for Roof Structural Considerations for Reroofing Projects for Public Schools (K-12) and State Owned Buildings". This mandate required that the roof framing for all school buildings in Maine be reviewed as part of any reroofing projects and reinforced as required to meet current building code snow load requirements.

In the past ten years, roof studies were performed on at least two occasions for Morse High School. A study was done by Richard M. Poulin Consulting Engineers in 2003, and by Lincoln/Haney Engineering Associates in 2007. The 2007 study by Lincoln/Haney required that some repair work be performed in the roof area directly over the main entrance to the C-Wing, and that some additional hangers below some steel joists be added to support a plaster ceiling in an area of the A-Wing. The Lincoln/Haney study concluded that once this work was done the roof structure over the A-Wing, B-Wing and C-Wing would meet the current building code snow load requirements.

No areas exhibiting any signs of problems were observed for the roof structure during our site visit. Based on the data above, it appears that the roof structures over the A-Wing, B-Wing and C-Wing of the existing facility have been upgraded to meet the current building code snow load provisions. It is not anticipated that any costs will be incurred in the foreseeable future to upgrade the roof structures in these areas.

Please refer to the Architectural portion of this report for a discussion of issues and possible repair or replacement costs associated with the existing roofing membranes.

Photo 1 - Boiler Room Roof

The roof over the existing Boiler Room (Photo 1) is surrounded by adjacent higher roof on three sides. Per the current building code requirements, this roof should be able to support substantial amounts of drifting snow. The drift provisions in the building codes only date back to the mid-1970's. The roof structure over the Boiler Room appears to date back to the original building construction, long before the mid-1970's.

It is not clear from the available data that the roof over the Boiler Room has ever been reviewed to ensure that it has sufficient capacity to support the modern building code snow load provisions, including those related to drifting snow. Our recommendation is that this roof should be reviewed to see if it has adequate capacity. We cannot know till such a study is performed, but it is likely that this roof will be found to be inadequate.

We have carried an allowance of $25,000 in this report to upgrade this roof structure. This figure represents a guess on our part, and will need to be adjusted based on the study results. Upgrading, or replacing, this roof structure may be disruptive to the school environment, as it is likely that there are many items (pipes, ducts, etc.) that are suspended from these joists that may need to be removed, or temporarily supported, while the reinforcing activities are performed.

Photo 2 - Exterior Steel Stair

There is an outdoor stair off to one side of the Boiler Room roof (Photo 2) that shows significant signs of rusting. Some repair work has been attempted for areas of the stair railing system. It is likely that this stair will need to be replaced in the near future. We recommend carrying an allowance of $20,000 for the replacement of this stair.

There is a covered roof at an entry over a back door to the school facility (Photo 3). This roof shows significant signs of degradation from exposure, and perhaps from snow falling on it from the adjacent high roof. It is likely that this roof will need to be removed, or replaced in the near future. We recommend carrying an allowance of $5,000 for the replacement of this roof.

Photo 3 - Covered Entry Roof

Other Observations

The bulk of the brickwork appears to be in good/decent condition. There do not appear to be any signs of any significant building settlement that has been detrimental to the condition of the brick. It was noted during the site visit that the bricks on the original 1929 A-Wing have experienced significant moisture wicking issues. This issue is dealt with in the Architectural portion of this report. The chimney (Photo 4) near the exterior steel stair has brickwork that will require repointing in the near future. We recommend an allowance of $7,000 to cover this repair work at the chimney.

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MORSE HIGH SCHOOL STUDY

MECHANICAL/PLUMBING

General

The existing Morse High School in Bath, Maine consists of an A-Wing, a B-Wing and a C-Wing. The A-Wing was designed by Bunker & Savage Architects in 1928. The B-Wing was designed by Alonzo J. Harriman Architects in 1941. The C-Wing was designed by Allied Engineering in 1968. A building walk through of these areas was conducted in April of 2013.

The basic mechanical/plumbing systems that were reviewed consisted of the boiler plant, heating distribution systems, temperature control systems, air moving systems, classroom heating and ventilating systems, heating terminal units, domestic hot water heating systems, plumbing fixtures and sprinkler systems.

The ages of the mechanical equipment ranged from very old (original to the building) to components that are only several years old. We would expect system components like boilers of this design to last 40 years or longer, provided proper maintenance is performed. While other systems, like unit ventilators, are expected to effectively last 20 years or so.

System Description

The primary heating system consists of two heating mediums. The original older portions of the building are fed with low pressure (5 psig) steam. This steam feeds terminal equipment such as unit ventilators, steam heating coils, cast iron radiators and convectors. The 1968, C-wing is fed with hot water that is converted through an insulated shell and tube, steam to water heat exchanger located in the boiler room. A set of constant flow base mounted pumps sitting below the heat exchanger circulates heating hot water through unit ventilators, hot water coils, fin tube radiation and convectors located throughout the wing. The buildings temperature controls are all pneumatic. It appears as though the air compressor is relatively new, however a significant portion of the control components seem to be quite old, if not original to the initial installation.

Figure 1 - Existing Steam Boilers

The main boiler room houses two Cleaver Brooks, fire tube low pressure steam boilers. The boiler model numbers are CB-101-150. The input capacity of each of these boilers is 6,277 mbh. The number 2 oil fired boilers are 27 years old. They were re-tubed six or seven years ago. This re-tubing process is common to be performed on boilers of their age. As long as they are properly maintained and treated it should allow the boilers to provide dependable service for many years to come. Low pressure steam boilers are required to be opened up on both the fire side and the water side annually. They need to be blown down on a regular basis and require boiler feed water chemical treatment to extend the life of the boiler and minimize the effect of oxygen in the fill water. The boilers are fed with number 2 fuel oil from an above ground 8,000 gallon steel oil tank. The tank is located in a building above and adjacent to the boiler room. Oil is drawn directly from the storage tank to each oil burner by dedicated oil pumps mounted on each individual boiler.

Figure 2 – Steam to Water Heat Exchanger

The low pressure steam to hot water heat exchanger which feeds heating hot water to the 1968 wing is original to the construction of this addition. It is controlled by a 1/3 – 2/3 steam control valve arrangement. The two base mounted pumps also appear to be original to the 1968 addition. These pumps are constant volume pumps that are simply on or off depending on system demand.

Figure 3-Basemounted Pumps

Figure 4 - Original Condensate Receiver Tank/Pumps

The original steel condensate receiver tank is currently in use. However, the condensate pumps have been replaced within the past several years and are in good condition. The tank is currently un-insulated and releases a significant amount of heat into the boiler room.

Figure 5 - Temperature Controls Air Compressor and Central Control Panel

The temperature controls pneumatic air compressor appears to be relatively new and is in good shape. It is difficult, however, to determine the condition of the thousands of feet of existing pneumatic tubing that currently runs throughout the facility. As with all pneumatic control systems that remain in use today, we recommend they be replaced with state of the art Direct Digital Control (DDC) systems as soon as possible and as funding allows.

Figure 6- Typical Classroom Unit Ventilator

The unit ventilator indicated above is one of three different age vintages located throughout the facility. This type is original to the 1968 building. There are a few significantly older types UV's and a number of UV's that are newer than the one shown. All of the newest units appear to be in good condition. The unit types shown appear to be in fair condition and the original UV's are well past their expected life span and should be considered for replacement.

Figure 7 - Ventilation Fan Serving Auditorium

The auditorium ventilation is provided by a large single backward curved centrifugal fan located in a plenum room above the stage area. Within the plenum located on the return wall is a large steam coil that actually heats the air coming back to the fan room. The air is then drawn in through the inlet bell of the fan, then distributed to the space below. The coil is not protected with adequate filtration. This fan appears to be an original mechanical component of the building's construction. The current arrangement of this fan causes significant concern for safety of the individuals who have access to this room. The fan has no inlet guard or fan belt guards in place. The wall mounted steam coil is also completely exposed within the room and poses a risk for burns, as it has no protective guard around it.

Figure 8 - Plenum Return Wall Mounted Steam Coil

Figure 9 - Unprotected Fan Belt/Pulley

Plumbing Systems

Figure 10 - Main Water Entrance

The 4 inch primary water entrance is located in the boiler room. It is separated from the 4 inch sprinkler entrance which is located within a foot or so. The water entrance is provided with a double backflow preventer and a 2 inch electronic water meter. From indications on the pressure gauge located upstream of the double backflow preventer, it appears that entering water pressures are running approximately 75 psig.

Figure 11 - 1800 Gallon Domestic Hot Water Storage Tank

Figure 12 - Domestic Hot Water Tank Boiler Piping

The domestic hot water for the facility is provided by the primary boilers feeding a 1,800 gallon storage tank equipped with an indirect coil inserted in the bottom of the tank as indicated in Figure 12. This tank was installed in 1995 and appears to be in good condition.

Figure 13 - Typical Floor Mounted Water Closet

It appears that most of the plumbing fixtures are original to their respective building additions. None of the water closets or urinals are low flow fixtures, however, it is reported that a majority of the flush valves have been replaced within the last several years. Other than the fact that the fixtures are not of the low flow design type, they appear to be in good condition.

Figure 14 - Typical Urinal Bank

Figure 15 - Typical Lavatory Bank

Wall hung lavatories appear to be original to the building additions in which they were installed. Faucets are lever type and are not of low flow design. They appear in relatively good shape, although most do not meet the ADA requirements.

Fire Protection System

Figure 16 - Sprinkler Entrance

The building has a relatively up to date wet sprinkler system installed throughout. The entrance size is 4 inch. The system is maintained by Eastern Fire of Auburn, Maine. All inspections appear to be current and intact.

System Recommendations

The existing mechanical systems that we reviewed throughout the 1928, 1941 and 1968 areas of the school have either already served well beyond their anticipated life span or are fast approaching the end of their expected lifespan. When we perform systems reviews such as this, we generally report on the condition of the existing systems and recommend appropriate system replacement alternatives as necessary, along with associated opinions of probable costs. In the case of Morse High School most of the major existing mechanical systems in place are in need of upgrade or replacement at some level. It is always best to start the replacement process with the areas that can provide the most attractive cost/ benefit ratio.

That being said, we most commonly look to the buildings automatic temperature control systems first. Because the existing pneumatic temperature control system is clearly outdated and does not provide the levels of control and comfort that newer technology systems do, we would recommend a complete and comprehensive upgrade to a state of the art DDC system. We have seen total system upgrades such as this to payback its initial capital outlay in as little as six years. We would estimate a total control system upgrade to cost in the neighborhood of $400,000 to $450,000.

The next item we look at is the heating medium that is being used. In the older sections of the building steam is still being used as a primary heat source as well as the driving force for the two steam to hot water heat exchangers that feed heating hot water to newer areas of the building.

The energy to create steam is considerably higher than it is to create hot water. In keeping with presenting ideas that deliver the highest cost/benefit ratios, we routinely recommend facilities that use steam as a heating medium be modified to hot water heating systems. This modification would involve re-trimming both boilers with hot water controls and specific devices designed for use in hot water boilers. The modification would then be moved out into the system where we would recommend replacing all of the steam supply and condensate return piping, along with all of the connected terminal heating units. An opinion of probable costs to re-trim both boilers with the current steam trim to hot water trim would be approximately $60,000. Replacing the existing steam supply and condensate return piping along with the replacement of the steam terminal heating equipment would cost approximately $10.00 per square foot or $450,000

As mentioned earlier, the lack of an adequately sized and properly functioning ventilation system in the original portions of the building, along with marginally operating ventilation systems in the 1968 wing, will require a complete upgrade and/or replacement. Replacing ventilation systems in facilities such as Morse High School can become quite intensive, due simply to the construction limitations that an older school typically presents. With this being said, an opinion of probable costs to remove and replace the existing ventilation system could cost upwards of $1 million dollars. The components that would be required for this replacement would be modular air handlers similar to those that were installed in the mid 1990's addition, a duct distribution system, associated controls terminal units, etc.

The water closets and urinals currently serving the facility are not currently low water volume flushing fixtures. Even though a significant number of the flush-o-meters have been replaced, the fixtures remain high water volume fixtures. We would recommend replacing all of the water closets and urinals with low flush fixtures. Just one existing water closet, if replaced, would go from using over 3 gallons per flush to 1.6 gallons per flush. Urinals would go from over 1 gallon per flush to 1/2 gallon or less per flush. Seeing this significant water consumption difference in just one fixture indicates the potential for high levels of water conservation, if this recommendation is implemented. Our opinion of probable costs for the fixture replacements would be approximately $1,500 per fixture. Flush-o-meters for water closets and urinals that were replaced within the past three or four years can be reused. However, they would need to be retrofitted with new replacement diaphragm kits to match the fixtures' lower flow rates.

MORSE HIGH SCHOOL STUDY

ELECTRICAL

General

The basic electrical systems that were reviewed consisted of the electrical power distribution system, lighting system, emergency lighting system, fire alarm system, the intercom/paging/clock system, the surveillance systems, and the technology system. The review lasted for two hours, which was sufficient to gain a general understanding of the conditions of the systems and the requirements of the High School. Partial electrical drawing documentation of the facility was provided to assist in the review. Equipment was not opened to review the condition or size of the conductors, etc.

In general, when electrical equipment and systems become 25-30 years old, they are considered to be approaching the end of their useful life. Insulation degrades and becomes weak from the effects of heat. Termination can become loose due to the effects of vibration of the equipment and the expansion and contraction of the metals.

While many systems will function well beyond 25-30 years, particularly when maintenance has occurred, the end of the life of the electrical systems should be considered.

Electrical Service

The building has three electrical service entrances. One for the Vocational Center, which is not in the scope of this report, one for the welding shop, and one for the high school.

The welding shop electrical service entrance equipment is rated 600 amps at 480 volt. It is fed from three pole mounted single phase 50 kVA transformers, configured for three-phase, overhead to a Square-D panel in the welding shop. The transformers will allow for 150 kVA or 180 amps at 480 volt. The welding shop service serves the welding shop equipment.

The high school electrical service entrance appears to have been upgraded during the 1995 building addition/renovation. The industry standard life of electrical switchboard equipment is 25 to 30 years. Replacing the switchboard should be considered in 10-15 years. The high school service entrance is fed from a pad mounted transformer rated at 225kVA at 208Y/120 volt. This service feeds the original 1928 building, and the 1949 and 1969 additions. A generator was not observed on site.

MORSE HIGH SCHOOL STUDY

Service Entrance


High School's Main Circuit Breaker

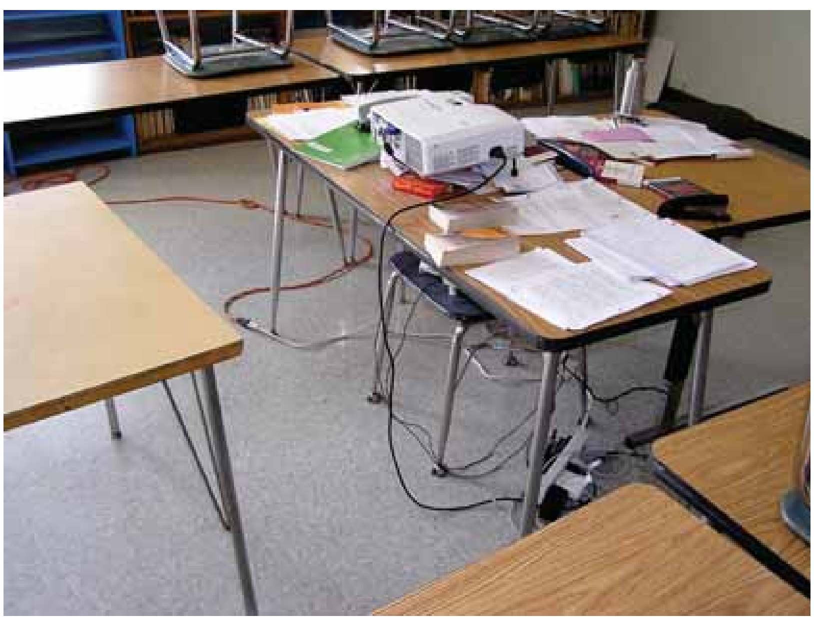
High Schools Main Distribution Section

Electrical Branch Circuits

The branch panels are a mixture of manufacturers. Frank Adam, General Electric, and Siemens were all observed in the building. The Frank Adam panels appear original to the building. Several of the Frank Adam panels have been gutted and replaced with Siemens internal components. There is a lack of spare branch circuit breakers in the Frank Adam panelboards. Parts are difficult if not impossible to obtain since the panels are no longer manufactured. There are numerous extension cords used in the classrooms some with plug strips.

Typical Frank Adam Branch Panel

Typical Frank Adam Branch Panelboard



Extension Cord Used as Permanent Power

Lighting

The lighting in the high school was upgraded about five years ago utilizing the incentive program from Efficiency Maine (at the time Efficiency Maine was offering double incentives). The building was upgraded from T12 fluorescent lamps to T8 and T5HO fluorescent lamps. Gymnasiums and shop areas have been upgraded with six lamp T5HO pendant/chain mounted fixtures. Classrooms have surface/pendant wraparound fixtures with two lamps. Occupancy sensors have been installed in the building in rooms such as classrooms. Locker rooms have vapor proof fixtures. The emergency lighting consists of LED exit signs and emergency lighting battery packs. Several exit signs show damage.

Typical Shop/Gym Lighting Fixture Using T5HO Lamping

MORSE HIGH SCHOOL STUDY

Fire Alarm System

The fire alarm system is an EST Panel serviced by R.B.Allen. The control panel was installed around 2006 with upgrade to EST devices and appliance a couple of years later, around 2008. Strobes were installed in bathrooms, corridors, gymnasiums, and the auditorium. The gymnasiums and the auditorium do not have voice notification. The auditorium seats about 700 people. The classrooms do not have strobes. Many of the pullstations have been lowered to ADA height. Several pullstations in the original building are mounted above the chair rail at 56.5 inches above finished floor.

Fire Alarm Control Panel

Intercom/ Paging/ Clock

The paging/intercom/clock system was replaced in 1996 as part of the Vocational Center addition. The system has been reported to have clock failures. The system is a Dukane system maintained by Canfield Communications (vendor).

Intercom/Paging/Clock System Typical Classroom Speaker/Clock

Intrusion Detection System

The IDS system has been reported as not functional. Windows are sometimes left open. There have been many brass keys handed out that have not been returned.

IDS Keypad

MORSE HIGH SCHOOL STUDY

Surveillance System (CCTV)

There are two surveillance systems in operation, one of which was purchased by the school department and installed by facilities/maintenance. The surveillance system cameras are typically located throughout the corridors and lobby. After the camera installation the vandalism in the school decreased.

Typical Cameras

Card Access System

The exterior doors have five entrances upgraded with locks and a key FOB system to limit access. A lock down system was not observed at the main entry way.

Card Access Reader (next to handicap door operator push pad)

Technology/ Data

Classrooms have projectors (cart/floor mounted, typically). There is a science classroom with a projector on a homemade shelf/pendant mount.

A typical classroom has four data cat 5 jacks.

The high school has a reported eight interactive white boards.

The building is equipped with wireless access.

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Opinion of Probable Cost

Regional School Unit 1 — Harriman
Morse High School — May 6, 2013

1	**Arcitectural**		**$355,000**
	Brick sealing every two years/ 15 years	$80,000	
	Window replacement in original building	$260,000	
	Fiberglass facia panel replacement	$5,000	
	Roofing replacement above Boiler Room	$10,000	
2	**Structural**		**$57,000**
	Roof structure upgrade	$25,000	
	Exterior stair replacement	$20,000	
	Canopy replacement	$5,000	
	Brick repair at chimney	$7,000	
3	**Mechanical/Plumbing**		**$3,145,000**
	Replace temperature control system	$450,000	
	Replace steam supply (1928 building only)	$450,000	
	Replace ventilation system throughout	$2,200,000	
	Replace plumbing fixtures	$45,000	
4	**Electrical**		**$690,000**
	Replace intercom/paging/clock system	$243,000	
	Upgrade power distribution system, add branch circuit to classrooms, change out the Frank Adam panelboards with current product	$150,000	
	Add fire alarm notification appliances to meet NFPA and ADA	$73,000	
	Add front vestibule door locking/card access system	$24,000	
	Upgrade building with informational technology equipment	$200,000	
	Project Total		**$4,247,000**

Cost total is 2013 dollars and does not reflect intrest accrued over 15 years.

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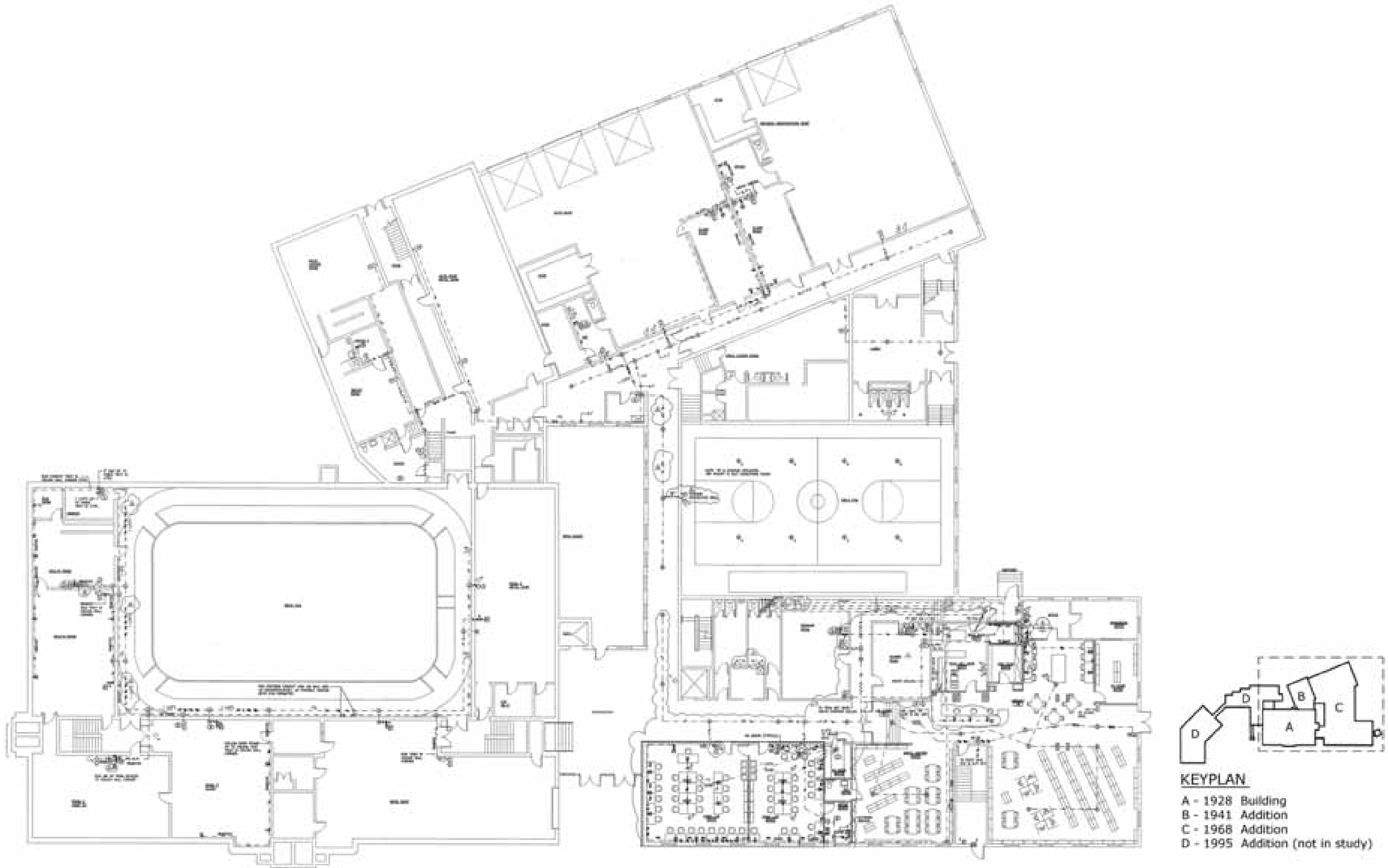
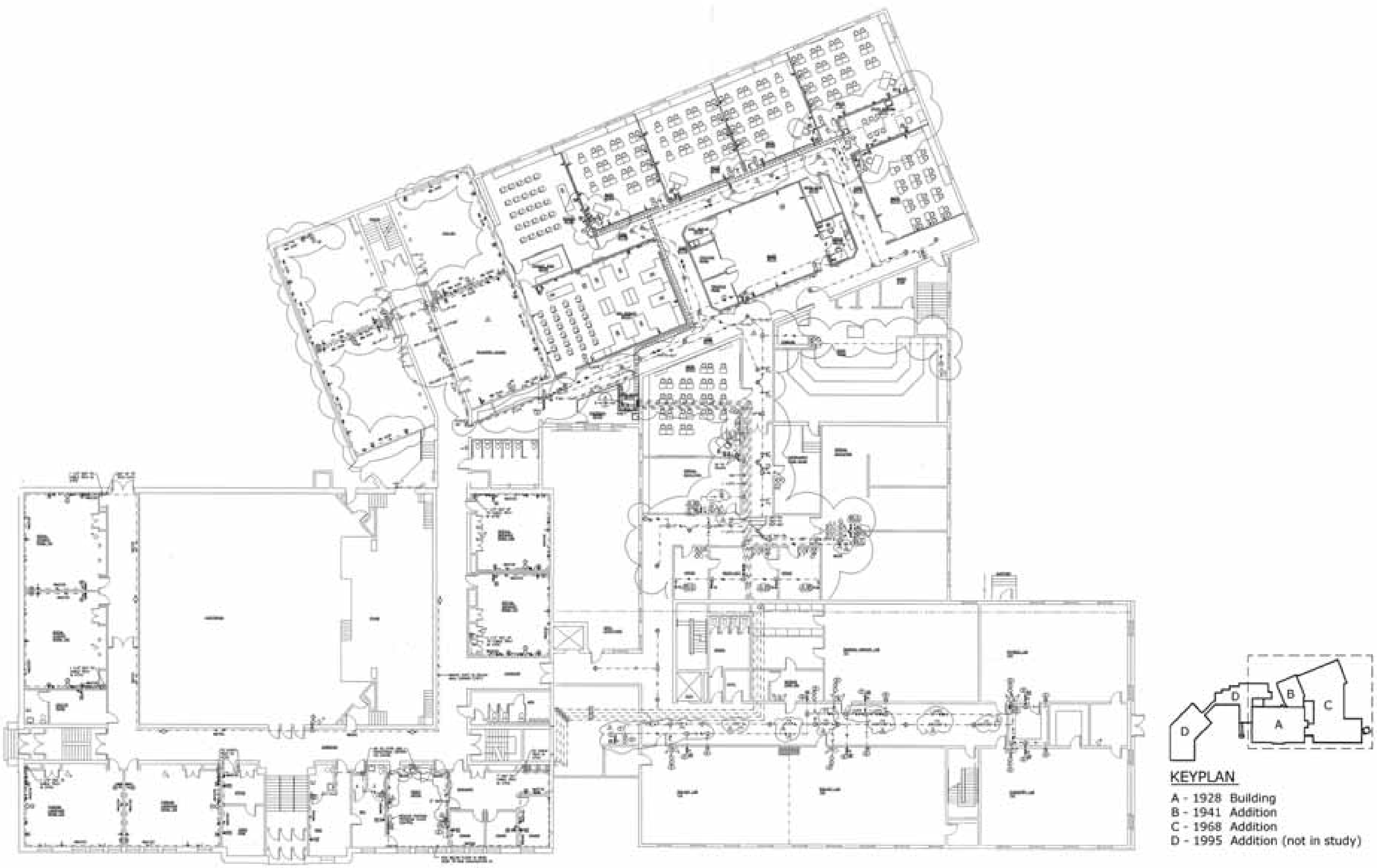
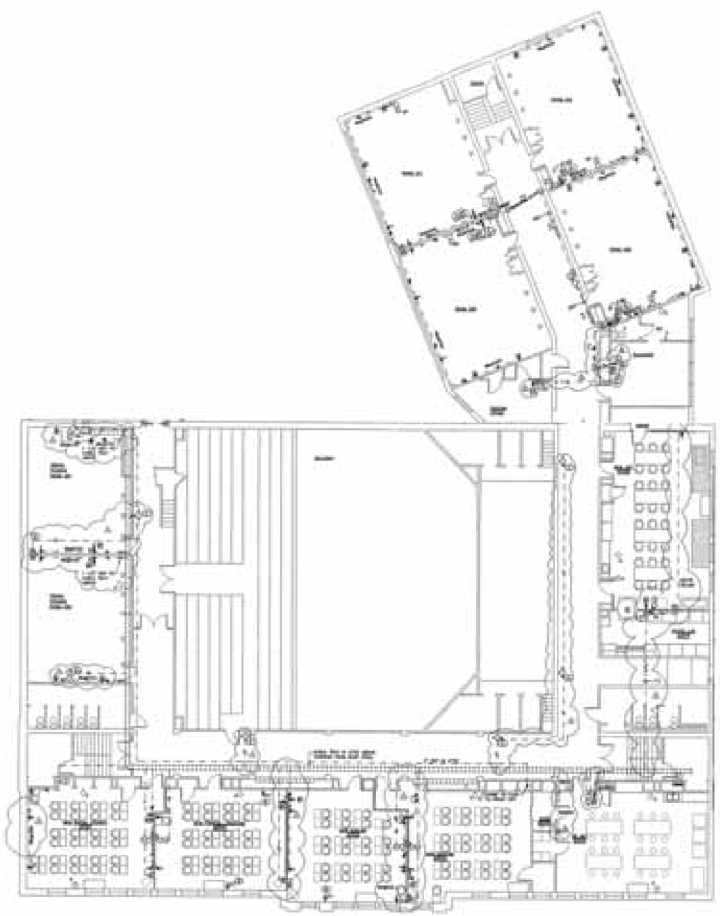


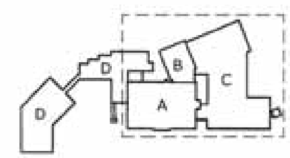
KEYPLAN
A - 1928 Building
B - 1941 Addition
C - 1968 Addition
D - 1995 Addition (not in study)

Ground Floor Plan



First Floor Plan





KEYPLAN

A - 1928 Building
B - 1941 Addition
C - 1968 Addition
D - 1995 Addition (not in study)

Second Floor Plan

MORSE HIGH SCHOOL STUDY

EXECUTIVE SUMMARY

As expected for a facility its age, the original Morse High School building is experiencing many physical challenges as well as deficient programmatic requirements for a school in the 21st century. In fact, a 1986 study by Harriman noted that, “This . . . school building contains many spaces that are becoming rapidly undesirable to meet today’s and future teaching standards and requirements. Classrooms are too noisy, lab spaces are outdated, and a lack of auxiliary spaces.” In addition, way-finding throughout the school is circuitous and the later additions are configured in a way that makes departmental organization difficult. Adequate athletic facilities and fields are not available on the site, leading to inconvenience and the added cost of bussing students off campus.

The major architectural concerns with the school focus primarily on the 1928 building, due to the porosity of the brick and failing windows. There are also some fiberglass panels in the 1968 building that still need to be replaced and a small amount of roofing to be replaced. Finishes throughout the school are in various stages of being upgraded and the auditorium has more recently been refurbished. Smaller items such as door hardware replacement and finishes are on-going maintenance issues. The facilities are not in compliance with some current codes and accessibility standards.

Structurally, the facilities are by and large sound and brickwork appears to be in adequate condition. There are a few minor structural needs, such as the Boiler Room roof is exhibiting signs of rust and an exterior stair is in need of replacement.

Mechanically, most major building systems are at the point of needing upgrading or replacement at some level. Unit ventilators are well past their expected life span and should be replaced. Domestic hot water and plumbing fixtures throughout the facility appear to be in good condition.

MORSE HIGH SCHOOL STUDY

The power distribution system is nearing or beyond its useful life and should be replaced. Lighting in the high school was upgraded about five years ago with efficient fixtures and occupancy sensors. The fire alarm system is fairly current although some spaces do not have voice notification. The intercom/paging/clock system was upgraded in 1996, although it is experiencing failures and should be considered for replacement.

In general, the Morse High School facilities are outdated, inefficient and not in line with some current codes standards. There would be a significant cost associated with maintaining the buildings in an effort to extend their life as a school over the next ten to fifteen years. Intangible costs should be factored in as well in determining the optimum time for phasing out the facility.

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