Minutes of the Town of Farmington
Regular Town Council Meeting
June 23, 2015

Present:
Nancy W. Nickerson, Chair
Jeffery P. Apuzzo
Jon Landry
Peter M. Mastrobattista
Amy Suffredini
Meredith A. Trimble
Jon Vibert

Kathleen Eagen, Town Manager
Paula B. Ray, Clerk

In attendance:
Mary Grace Reed, Chr Board of Education
Jean Baron, Board of Education
Paula O'Brien, Board of Education
Bernard Erickson, Board of Education
Mark Blore, Board of Education
Christopher Fagan, Board of Education

Kathy Greider, Superintendent Schools
William Silva, Principal FHS

A. Call to Order

The Chair called the meeting to order at 7:00 p.m.

B. Pledge of Allegiance

The Council, Board of Education and members of the public recited the Pledge of Allegiance.

C. Public Comments

Pam Fisher of 5 Julles Court told the Council she was grateful for the Town Council and Board of Education beginning the process to address the facility needs at Farmington High School. She told the Council the Friends of Music had been advocating and planning for upgrades to the auditorium and music wing for many years. They had started before the down turn in the economy in 2008 and put their plans on hold because of it until a couple of years ago. She believed the community was now ready to address the needs of the High School.

D. Consideration of Special Topics.

1) Presentation - Board of Education Statement of Need - Farmington High School Renovation Project.

DRAFT

Mary Grace Reed, Chair Board of Education, told the audience the last edition to Farmington High School was in 2004 and after that in 2008 the economy went into a recession, which were just recovering from. She believed it was now appropriate to thoughtfully plan in collaboration with the Council for the facility needs of Farmington High School.

Kathy Greider, Superintendent of Schools, gave a brief history of the project. She gave an overview of the Board of Education's approved "Statement of Need" for the Farmington High School project, which is recorded with these minutes as Agenda Item D-1. Dr. Silva, Principal Farmington High School reviewed the process Tecton had used to develop their facility report for Farmington High School, which is recorded with these minutes as Agenda Item D-2. He emphasized that the situation at the High School was that in many cases the limitations of the facility was dictating the educational opportunities available for students. Craig Saunders and Barbara Joslin from Tecton reviewed the highlights of the facility report using the presentation recorded with these minutes as Agenda Item D-3 and answered Council questions.

The Council expected to study the information they had been given and to consider the ability to schedule additional debit over the summer. The possibility of public meetings on the project and more joint meetings with the Board of Education in the fall was mentioned.

E. New Business

There was no new business conducted.

F. Executive Session

Motion was made and seconded (Apuzzo/Landry) to move to Executive Session at 8:47 p.m. for the discussion of the selection of a site or lease, sale or purchase of real estate with the Town Council and Town Manager present.

The Council returned to Open Session at 9:20 p.m.

G. Adjournment

Motion was made and seconded (Apuzzo/Landry) to adjourn the meeting at 9:20 p.m.

Adopted unanimously.

Respectfully submitted,

Paula B. Ray, Clerk

DRAFT

Agenda Item D-1

MEMORANDUM

TO: **Farmington Town Council:**
Nancy Nickerson, Chair
Jon Landry
Amy Suffredini
John Vibert
Jeffrey Apuzzo
Peter Mastrobattista
Meredith Trimble

FROM: Mary Grace Reed, Chair, Farmington Board of Education

SUBJECT: Farmington High School Renovation Project

DATE: April 13, 2015

The Board of Education discussed a motion that outlines the "statement of need" regarding the Farmington High School renovation project. The motion presented below was approved by the Board at the April 7, 2015 Board meeting in compliance with Farmington Town Code Section 53-2.

Motion:

1. *Whereas, the Farmington Board of Education has engaged in a comprehensive school feasibility study with TECTON that included multiple observations of existing conditions, age of equipment, facility, review of history of site, building and additions, analysis of energy efficiency and options for improvement, review of existing reports (OCR, NEASC, School Safety), focus groups with faculty, administration and students, assessment of education space needs and conceptual solutions to address needs.*
2. *Whereas, the FHS NEASC study summary highlights a need to improve travel distances for faculty and staff, improve circuitous and crowded corridors and intersecting/converging students and faculty, create informal collaboration spaces for students, faculty and staff, address building systems for a controllable interior environment and address accessibility to interior and exterior areas.*

3. *Whereas, several spaces at FHS do not meet ADA requirements as outlined by the OCR report issued in 2013-2014, including but not limited to the auditorium, stage, music instructional spaces, some classrooms, outdated chair lift in the weight room, media center, bathrooms, portions of 2nd and 3rd floors of 1928 building, culinary space, and outdoor athletic facilities.*
4. *Whereas, the FHS Safety and Security Study highlights accessibility issues (23 separate entry points to building), sight line issues, public/private use of building , inadequate interior and exterior lighting levels, building orientation difficulty and various issues around the multiple additions.*
5. *Whereas, Farmington High School (FHS) has experienced several additions over many years, with an aging 1928 building in need of significant renovation as well as several additions with an inefficient building envelope impacting energy costs and efficiencies (insulation, façade, windows-except for 900 wing) as well as aging mechanical, electrical, plumbing, fire alarm and protection building systems not in code compliance.*
6. *Whereas, Farmington High School system energy performance is lacking with a $393,000 cost per year and in need of a "Green Design" (new or renovated MEP systems could save an average of 35% of annual costs or 140,000 per year—could realize a 45% savings depending upon solution).*
7. *Whereas, the auditorium (poor acoustics), cafeteria, and library are undersized, impacting high school scheduling, educational programming as well as state and federal requirements on food services.*
8. *Whereas, the additions have primarily addressed enrollment increases, but have resulted in a very large, inefficient facility footprint impacting not only energy costs, but security, insufficient student classroom space, a need for students to travel outside the building to travel to classes (696 student cross intersection between classes 9 times per day and 1070 feet from one side of the building to another), significant hallway congestion, inadequate use of space (30% unused space), a lack of space for robotics, lack of space for whole school staff professional learning and collaboration as well as constraints on educational programming for students.*
9. *Whereas, with current and emerging educational requirements and demands on comprehensive high schools, FHS is in need of an efficient, functional, flexible learning*

facility that meets state and federal requirements and serves the diverse needs of all students.

10. *Whereas, the current parking is inadequate and requires expansion to accommodate the school and public use of Farmington High School's building.*

The Board, therefore, directs administration to begin planning a renovation of appropriate and necessary school space at Farmington High School to accommodate new MEP needs, educational programming needs, Connecticut school safety expectations, NEASC standards and OCR/ADA regulations not currently being addressed in their entirety:

- *Maximize square footage for educational programming (see #2, #8, #9)*
- *Create multiple levels to the building to address inefficient sprawl and "maze" like building to increase classroom space, space for robotics and other current and emerging learning spaces (see #2, #8, #9)*
- *Undersized auditorium (acoustic issues), stage cafeteria and media center (see #7)*
- *Address multiple ADA compliance issues (see #3)*
- *Address Mechanical, Equipment and Piping (MEP) code compliance issues (see #2, #5, #6)*
- *Address Security compliance issues (see #4)*
- *Address overcrowded Town Hall office space as well as off-site Farmington Alternative High School space needs (#8)*

It is Hereby Resolved, that the Farmington Board of Education recommends to the Farmington Town Council, as required in Section 53-2 in the Farmington Town Code and the Conn. General Statutes 10-220, that a renovation of Farmington High School as noted above and further, that the Farmington Town Council consider this statement of needs as soon as possible.

Cc: Board of Education Members

Agenda Item D-2

FARMINGTON HIGH SCHOOL

ARCHITECTS

BETTER BY DESIGN

FACILITY REPORT

February, 2015

ACKNOWLEDGMENTS

We would like to thank everyone involved in the study at Farmington High School, and in particular:

Kathleen C. Greider	Superintendent
Kimberly Wynne	Assistant Superintendent
Michael Ryan	Business Administrator
Tim Harris	Director of School Facilities
Dr. Bill Silva	Principal, Farmington High School
Curt Pandiscio	Assistant Principal, Farmington High School
Evan Foreman	AV Specialist, Teacher

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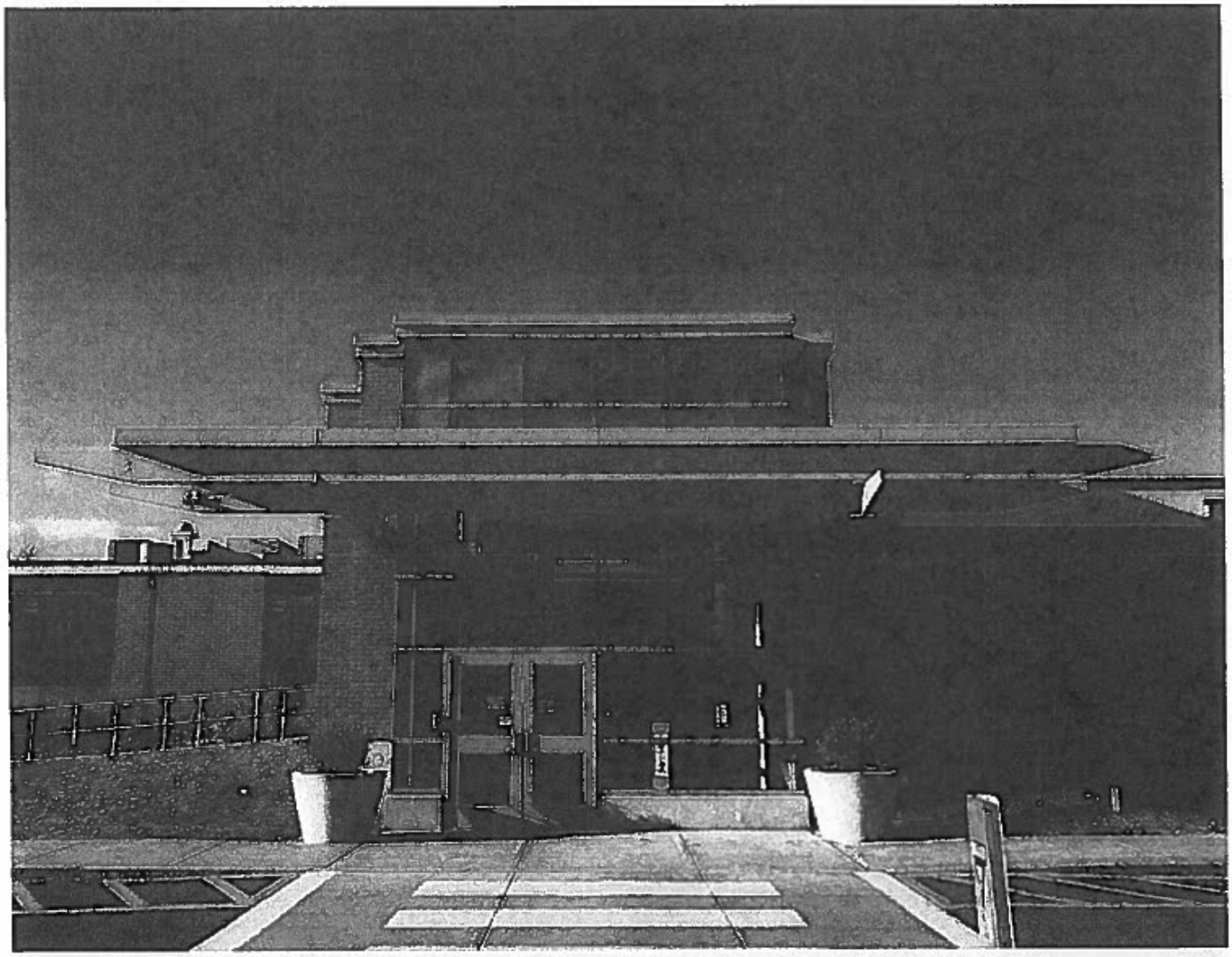


Executive Summary

In November of 2014 Tecton Architects commenced a study of the Farmington High School to review the facility and to develop initial design concepts.

The study began with an analysis of the existing conditions for both the building and the site. Our research included developing an understanding of the physical conditions of the building, along with how well the spaces function for the current programmatic needs. This included direct observation, along with a review of the original building documentation, maintenance and replacement records for mechanical equipment and building components. Anecdotal information was also provided by faculty and staff members within the school. Code compliance, accessibility, and security were also analysed within the existing building by reviewing existing reports and audits (OCR Report and NEASC Report, State School Safety Standards) and through discussions with faculty, staff and students. Our team then assessed the school facility and site from the perspective of life expectancy based on building conditions, energy efficiency, and conformance to building codes, and security and safety standards. We were also asked to look at less tangible issues such as how well the facility supports current and possible future pedagogies and educational programs, along with how well the school is able to support community use of the facilities.

Farmington High School last underwent major renovations in 2003 with the addition of the "900 Wing". A part of this project was the renovation of the existing cafeteria. In the twelve years since that project the curriculum has evolved, altering teaching methods and program needs that highlight more deficiencies in the high school beyond those simply created by an aging building. Ten conventional classrooms have been forfeited in order to accommodate specialized programming that was not in place in 2003.

FHS currently meets the educational and curriculum needs of the community; however, it does so by compromise. The nine periods in each day is a direct result of the lack of

◀ FARMINGTON HIGH SCHOOL 2003 BUILDING ENTRANCE

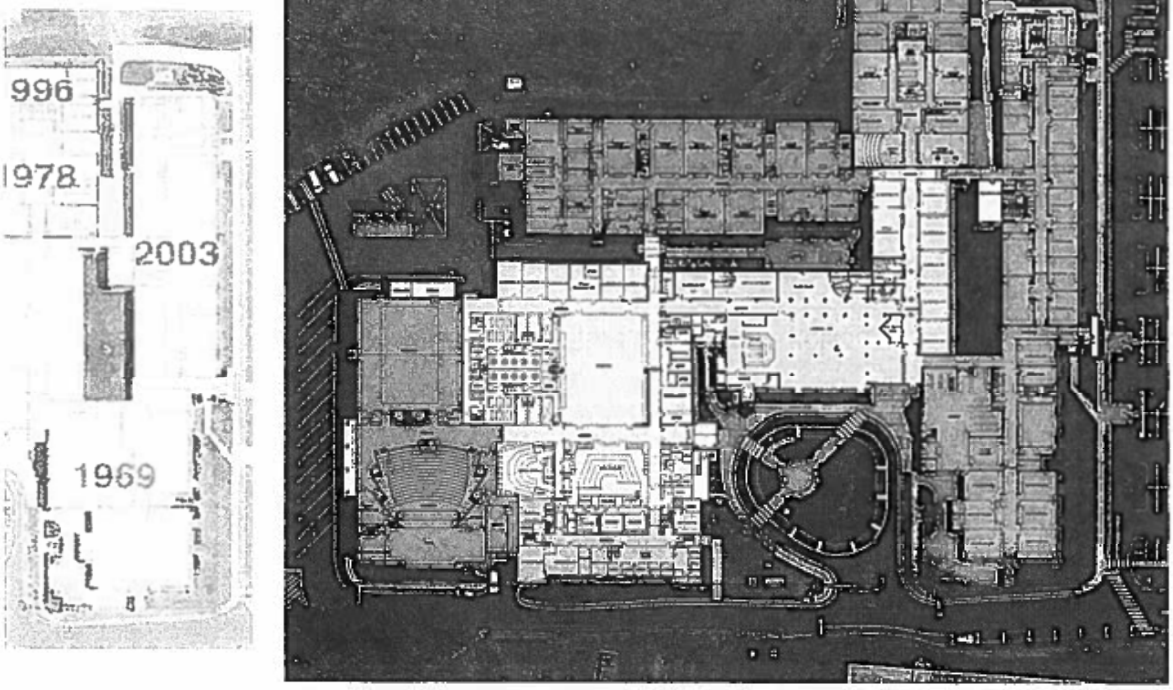
classroom space. This schedule results in a host of problems in itself, most notably shorter classes and more transition times. Additionally, the cafeteria is undersized for the student population, which results in a need for more lunch periods, the first of which is scheduled to start at 9:51 AM. The State does not allow lunch to be served any earlier than 10:00 AM; which forces students in this first lunch period to wait until 10:00 to begin eating.

The recommendations given in this report are meant to provide a road map that will align the physical space of Farmington High School with the mission, philosophy, core beliefs and vision for the Farmington School District.

We have organized our findings into categories to better understand how they interact with each other and create concerns for FHS moving forward.

Building Conditions: Farmington High School is comprised of eight distinctly different "wings" or "buildings."

- The average age of each of these wings is 50 years old.
- There are 23 ways to enter and exit the School. A large majority of these are



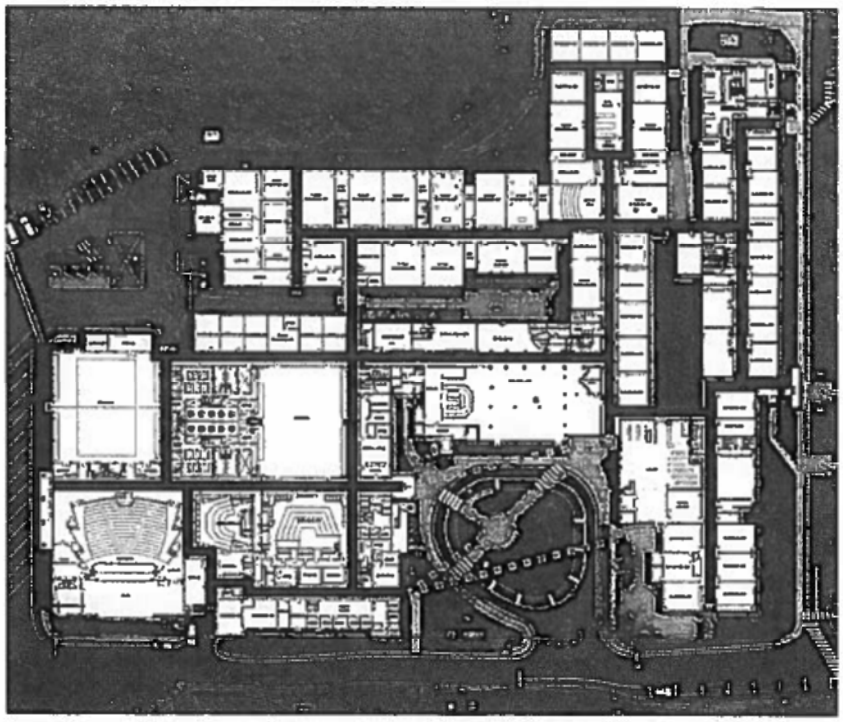
FARMINGTON HIGH SCHOOL BUILDING DIAGRAM

used throughout the day making it difficult to secure the school.

- The school has multiple accessibility and code issues throughout, with fewer issues in the newer constructed areas.
- Parts of the school built prior to the 1970's have little or no insulation.
- Previous upgrades, including window replacement to the 1928 building, have had minimal impact on improving the exterior envelope.
- The wide variety of construction types and ages of the wings/additions, has created an overall facility with a wide swing in temperature fluctuations.

Site: The site of Farmington High School has numerous grade changes to contend with, the original school was built at the top of the hill, and there are athletic fields that are located at a higher grade than the school. The site of the school is maximized, little room remains that is not assigned to parking, athletic use or the building itself.

- The parking is divided into two separate areas. There is no drive or connectivity between these for public use.
- Lack of adequate parking in one location, results in the entire school being left open



▲ FARMINGTON HIGH SCHOOL PATHS

for community and after hours use.

Cafeteria Size: The cafeteria is undersized for the student body;

- This necessitates four lunch periods. To accommodate these, the school must employ a nine period day.
- Four lunch periods mean that the first must start at 9:51 AM.

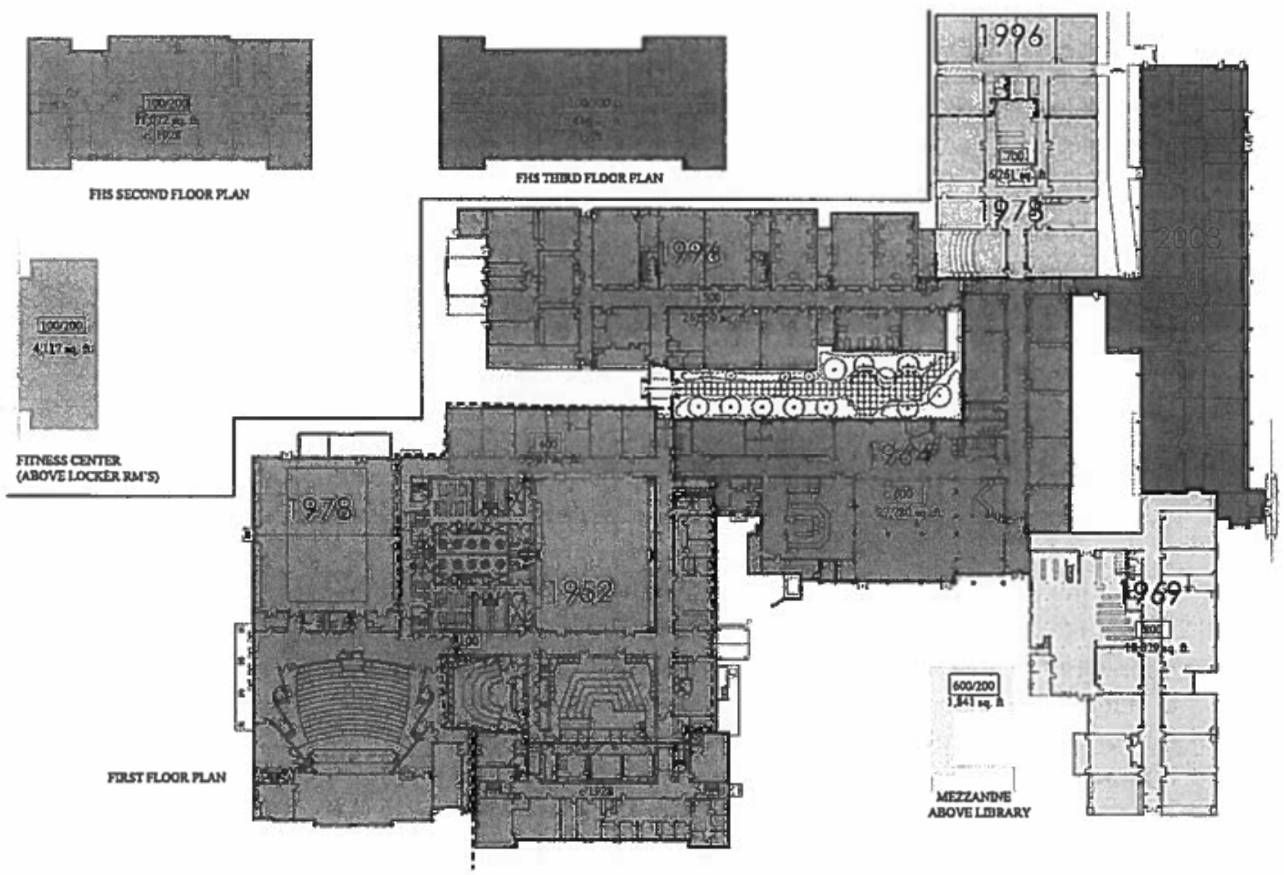
Sprawling Size: The size of the first floor of Farmington High School has created multiple problems. Among these;

- Each addition to the original building has created a school with an excess amount of hallways. This makes it difficult to navigate through the building, creating safety and security issues.
- Most of the hallways are not wide enough to safely accommodate the number of students passing through between every class.
- Time between classes is 4 minutes. This is not long enough to travel from one side of the school to the other.
- Students are allowed to exit the school, cross external courtyards, and re-enter the buildings to shorten their travel distance between classes., which causes a serious control and safety breach for the school.

The most difficult deficiency to document is the effect of the sprawling nature of the facility on all aspects of the culture at FHS. There are no metrics to substantiate the problems this creates, however, faculty, staff and students brought up this as problem, in virtually every meeting, workshop and conversation. Typically this was in relation to length of travel distances and safety. The multiple expansions over the last 50 years have resulted in a building that is, by our analysis, at least 10-15% less efficient than a school of the same size would be if it was multiple floors. This percentage of the usable floor area for FHS is somewhere between 20,000 and 30,000 SF.

Upon review of the above existing conditions, the Study Committee and Tecton set the following Design Criteria or Goals for the conceptual solutions, which are crucial to the success of the future project. They are listed in no particular order of importance;

- Provide a more comprehensive circulation plan that reduces user travel distance and time
- Design should incorporate a clear and obvious main entrance
- Provide a clear separation of bus and parent drop-off, prioritizing one entrance for all arrivals if possible
- Impart a clear access path for community usage
- Incorporate a clear and natural separation of community usage from academic usage
- Design should incorporate phasing which has the ability to complete the construction with minimal interruption to the school
- New construction should have a compact footprint and ability for vertical stacking
- Proposal must respect the historical significance of the original, 1928 building.
- Design must meet School Safety Infrastructure Standards
- Design must meet or exceed CT High Performance Building Standards



EXISTING CONDITIONS

Building Code

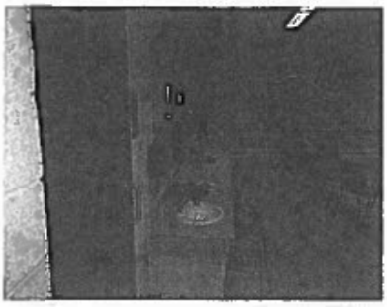
Farmington High School is a mixed use occupancy, with the primary use being educational, mixed with some assembly space (i.e. gymnasiums and an auditorium). These use groups are not separated by fire resistant construction; however, the building has been retrofitted with a full coverage sprinkler fire protection system.

The construction of the building took place through the 20th and early 21st centuries with multiple additions, interior renovations and upgrades made over time. Typically the construction falls into what would now be considered Type II B construction per the 2003 International Building Code (IBC)currently enforced in Connecticut. Type II construction is classified as those types of construction in which the building elements are of non-combustible materials. Type II B construction per IBC Table 601 allows the structural elements, bearing walls, floor and roof construction to have a fire rating of zero hours. The presence of a full coverage sprinkler system allows for corridor walls in educational and assembly space to be reduced to a fire rating of zero hours.

The 1926 drawings for the original three story structure indicate a wood rafter roof at the high sloped (formerly slate) roofed areas. Therefore, this three story building would be categorized as type III B construction under current code, permissible because full sprinkler coverage is provided. A review of available construction documents indicates that the typical campus structure is primarily composed of non-combustible masonry bearing wall structures with steel framed roofs or non-combustible steel framed structures with masonry veneer exterior walls.

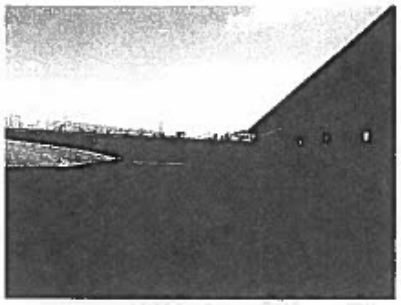
Fire department access to the north side of the building for emergency use is restricted by fencing and lack of a complete perimeter ring road and blockage by the freestanding field house adjacent to the southwest corner of the athletic track. This limits an apparatus to only approach 3 sides of the

◀ FARMINGTON HIGH SCHOOL BLOCK & YEAR DIAGRAM



GREEN-ROOM / CHANGING ROOM, NOT ADA COMPLIANT

MAIN GYMNASIUM



EXTERIOR CONSTRUCTION AT 500 AND 700 BLOCK

building. A bituminous foot path does extend around the north side of the campus, but is insufficient for emergency vehicle traffic.

Energy Efficiency

Envelope insulation in the majority of the Farmington High School campus structures were planned and constructed between 1926 and 1978 with the most recent "900 block" addition designed and constructed in 2003/ 2004. Many interior upgrades and renovations have been performed throughout the 20th century but none significantly focused on upgrades to envelope efficiency. One notable exception is the replacement of windows with double paned glazing.

Currently there are no portions of Farmington High School that comply with the current 2009 International Energy Conservation Code as adopted by the State of Connecticut. Areas of the structure that are typically insufficient are exterior walls and roofs, as windows and doors have been retrofit or replaced.

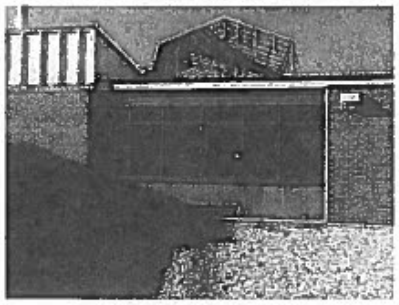
Exterior Walls

The majority of Farmington High School predates the oil crisis of the 1970's when the effects of energy efficiency first became a concern to the general population and the construction industry. As such, the majority of the building is poorly insulated and constructed of either bonded masonry or non-insulated masonry exterior wall systems. Exterior wall sections of the building have little to no insulation and are comprised primarily of solid masonry (which is a poor insulating material). The exceptions to this are the 1996 and 2003/2004 renovation/additions to the building comprising the 500 block, rooms 705 through 710 (1996), the 900 block (2004) and attached field house. The drawings for the 1996 additions indicate only 1" of rigid insulation (R value of R5 max) within the masonry cavity wall construction. 2004 drawings for the 900 block indicate 1 ½" rigid insulation (R7.5 max) within cavity wall construction. Current code requirements for exterior wall construction require a continuous R-value of 11.4 for masonry cavity walls and an R value of 13 plus a continuous R value of 7.5 for metal framed walls above grade.

Roofs

TYPICAL ROOFING

FIELD HOUSE



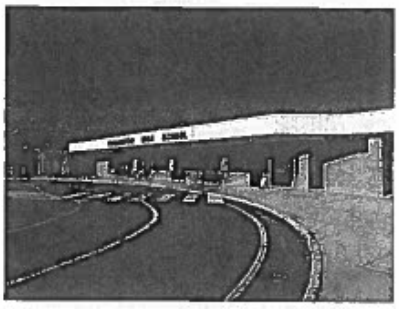
GREENHOUSE 700 WING - NOT ACCESSIBLE

Low slope roofs at one story and gymnasium/auditorium/cafeteria spaces predating 1996 are under-insulated per modern standards and do not meet energy code requirements.

The original documents dated in 1926 did not indicate any insulation above the third floor ceiling and the thermal mass of the plaster construction to mitigate temperature swings does little if anything to minimize energy usage. Insulation of the attic floorand the ceiling of the third floor was not field verified. 1952 drawings of the one story portion in the 100 block, cafeteria and 600 block indicate 1" of compressed fiberglass insulation (R-value unknown), under 2" of poured in place gypsum based Pyrofill decking. Drawings dated in 1964 of the 100 block locker room/music room addition, 700 block, and 800 block with library indicate only 1" of rigid insulation (R-value unknown) on 1 ½" steel decking. Drawings dated 1996 indicate 1 ½" metal decking under a maximum of 4 ½" rigid/tapered insulation (R20 average) at the 500 block and 700 block additions. The 900 block classrooms and field house are provided with a maximum 4 ½" rigid & tapered insulation system (R20 average) on 1 ½" metal decking; 4 ½" rigid tapered insulation (R20 average) on 5 ½" concrete decking is provided at the mechanical room. The 2009 International Energy Conservation Code as adopted by Connecticut requires an average R20 continuous insulation for insulation entirely above deck.

Windows

Exterior windows, both fixed and operable, have been renovated or replaced with aluminum or hollow metal double pane glazing in the majority of the campus. Notable exceptions are the glass block in the 1952 gymnasium, projecting window boxes at the library mezzanine, and exterior stairway doors at the original 1928 three story building which are still of original vintage. The windows in the 2004 900 block and the retro-fitted single hung windows in the three story portion of the 1928 100-block wing are double glazed, but were not confirmed to be thermally-broken. (Thermally broken windows have built-in insulating blocks to prevent conductivity of heat and cold.) Aluminum framed retrofitted windows in the 1928 structure were reportedly replaced in the 1990's and are of inferior quality, are very drafty, have no insect screening, and are difficult to operate.



ABANDONED DROP OFF ZONE
AND CAFETERIA

EXIT FROM STAIRWELL
NON-ADA COMPLIANT

STORM WATER MANAGEMENT
AT 1928 BUILDING

in the music room are also not accessible. Accessible seating spaces in the auditorium were lacking. Additionally, the presence of accessible toilets, and locker room facilities thoughout the building is absent.

Toilets / Locker Rooms

The following toilet locations are without accessible stalls or lavatories: Auditorium/gym dressing rooms located off of the drama classroom, toilets in the 100/200/300 blocks (three story structure), 500 block 600 block west and east ends and 800 block. The single toilet bathrooms in the 1928 first floor and the1996 addition to the 700 block were not observed. Toilets in 900 block classroom wing have accessible stalls and lavatories; however, the required swing-up grab bar was not provided in the accessible stall.

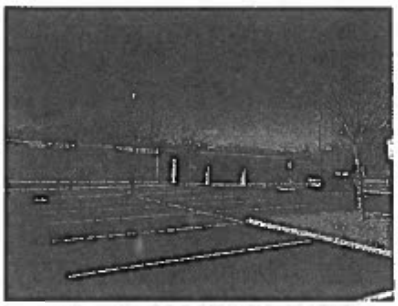
Toilets located in the west end of the 600 block adjacent to the 400 block are too narrow for passage by a wheelchair and are very narrowly flanked by brick wing-walls configured too narrow for the passage of a wheelchair. The door in this location is approximately 24" wide making it difficult for passage by those on crutches as well. A similar entryway condition was observed in the 800 block classroom wing. There are no accessible stalls or lavatories in the boys or girls rooms in this area.

Lockers and changing rooms are dated and do not have proper ADA clearances for door approaches, locker access or showers. A small attempt to provide access to one of the showers on the boys side was made but the shower stall size, lack of fold down seat, and shower head and controls location prevent use by wheelchair bound individuals. Toilet stalls in the locker rooms are not accessible.

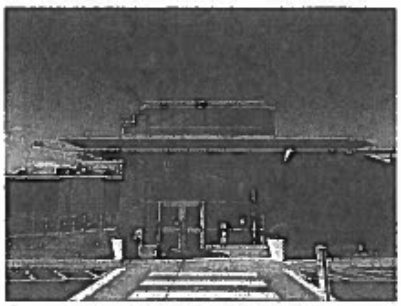
Although there are accessible toilets in the 900 block classroom, the distance to these toilets from the outlying areas of the campus exceeds the 500 foot maximum travel distance permitted by code. Furthermore an accessible toilet may not be more than one floor removed from any occupied space. This is most applicable at the 1928 three story wing. Even with the provision of an elevator, the third floor does not meet code requirements for proximity to an accessible toilet facility.

Ramps

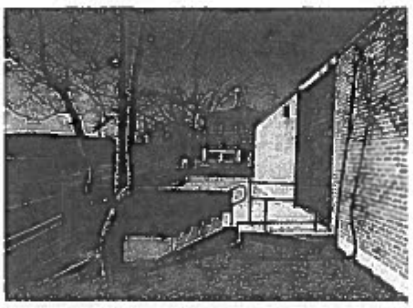
Corridor ramps connect the many different levels of the buildings/ additions throughout the FHS campus. As these are pubic corridors, the slope must



FIELD HOUSE ENTRY CANOPY AT 900 WING



2004 ENTRY ADDITION



SITE STAIRS - HANDRAILS NOT CODE COMPLIANT

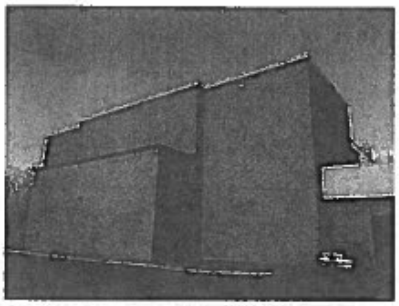
Roof

Low slope roofing on the single story sections of the buildings are comprised of metal decking, Tectum decking (500 block only) and poured in place gypsum deck structures. Roof deck posts dating 1996, both new and re-roofed, are provided with tapered/rigid insulation and non-ballasted EPDM. Many areas of the building including the majority of the taller portions of the building (gymnasium/ auditorium cafeteria library) have original gravel ballasted roofing with composite coal tar pitch membranes. Sections of the one story 100 block near the auditorium wing also have coal modified coal-tar pitch roofing membrane and pea-stone gravel ballast. The original three-story 1928 building has been re-roofed with 3 tab granular asphalt shingles rather than the original slate at the main hip-style roof and dormers. The cupola dome on the main building is clad with flat seamed copper sheets. A greenhouse structure on top of 700 block roof is original to the 1964 construction.

ADA

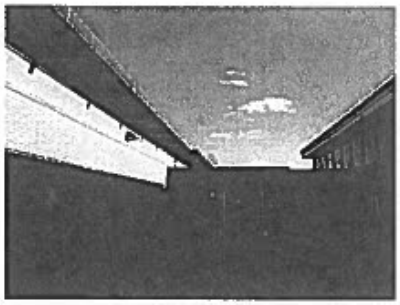
The majority of Farmington High School was constructed prior to the Americans with Disabilities Act of 1990 (ADA), 1991 ADA Standards for Accessible Design and the more recent 2010 ADA Standards for Accessible Design and, therefore, are non-compliant with accessibility requirements. Readably observable deficiencies include "path of travel" obstructions of door swing clearances to classroom doors at recessed nodes where doors are pulled back from the face of corridor in masonry "pockets". These areas of door obstructions are mostly located at the classroom entrances in the 600 and 800 blocks. Access to the third story wing is provided by an older vintage elevator and lacks proper clearances for wheelchair accessibility and turnaround. Furthermore, the elevator doors close with excessive pressure and speed before safely-retracting.

Second floor and mezzanine levels of the school which are not served by elevators are inherently inaccessible as they are only able to be reached by stairs. These areas include the weight room above the gymnasium lockers, library mezzanine and rooftop greenhouse. The recessed orchestra pit in front of the auditorium stage, recessed floor and tiers in the band room, and risers



WEST VIEW OF GYMNASIUM FACADE FACING ROUTE 6

VISITOR ENTRANCE



NON-COMPLIANT WOOD STAIRS AT ROOF

meet requirements for accessible egress ramps and not be steeper than a 1/12 pitch or 8% slope. The ramps connecting to the 500 wing (renovated in 1996) are not in compliance with ADA regulations as the height of the ramps are greater than would be permitted without intermediate landings. (Maximum rise before a landing is 3" for ramps with a rise to run between 1/10 and 1/8 and 6" for ramps between 1/12 and 1/10). The ramps adjacent to the administrative wing and music wing connecting the main building level to the lower level of the three story building are also both too steep and too high to be considered accessible.

Door Hardware

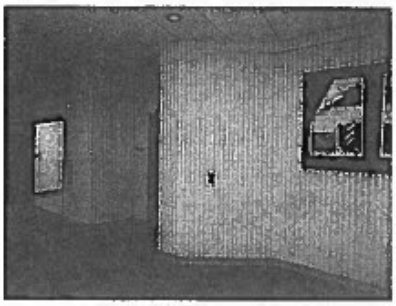
With the exception of the 1996 and 2004 additions, door hardware is dated. Typically older doors have round knob-style handles which require a twisting motion to operate. Accessibility code necessitates that doors be operated without the need for a twisting motion this is normally solved by lever style handles than knobs. Door operating force for doors surveyed did not appear to be excessive of the 5 pound maximum operating force requisite by code.

Hazmat

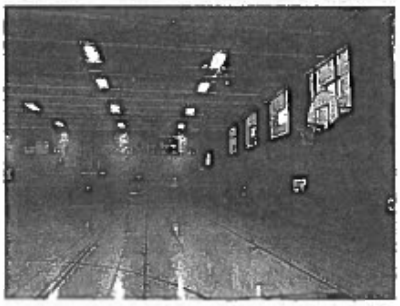
The majority of corridors and classrooms are carpeted. The removal of carpeting and destructive testing of sub-flooring to test for hazardous materials including asbestos was not performed. In 2005, a piping replacement project was performed throughout all pipe galleries underneath the ground level floor slabs. Hazardous material removal/ abatement of pipe wrapping material at that time has not been confirmed. Floor tile where observed was vinyl. Asbestos tile was not observed.

Mold Indoor Air Quality

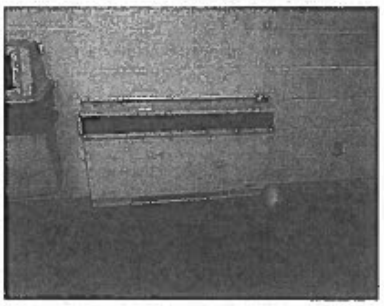
The 700 Block addition rooms 705 through 710 reportedly have microbial growth (mold/mildew) reported by FHS. The finished floor slab is approximately 1'-0"+/- below grade in this area indicating that there may be water/ moisture infiltration in these rooms from subterranean hydrostatic pressure. Review of the construction documents did not indicate the requirement of any damp-proofing or waterproofing of the portions of the exterior concrete walls



AUDITORIUM LOBBY
ACOUSTICAL / FLUTED CMU



ORIGINAL 1952 GYMNASIUM WITH
GLASS BLOCK WINDOWS



WALL MOUNTED UNIT HEATER
AT CORRIDOR

beneath grade. Air intakes for through-wall mechanical units in these rooms are located at grade potentially exacerbating the amount of moisture within these spaces. Although there may be additional causes to indoor air quality issues these are the most likely probable causes, to more thoroughly determine causes of moisture/ dampness destructive testing and investigations should be performed.

Rooms within the 400 bock and the 600 block are similarly partially recessed below grade. Review of original 1952 and 1964 documents indicate the presence of though wall flashings at subterranean walls. Microbial growth issues have not been reported in these areas.

Interior Conditions

Interior conditions of the building were typically in fair to good condition given some of the buildings' age. Some sections of the building have been recently renovated, most noticeably the cafeteria, and the auditorium / gymnasium lobby and corridor suspended ceilings. (Lobby & corridor ceiling replaced with 2'x2' acoustical ceiling tiles.)

The most notably worn items observed throughout the facility corridors are the wall base dating back to the 1964 additions. Typically, older glazed block cove base in corridors had minor chipping and damage at outside corners, but were in fair condition overall. 2x4 acoustical ceiling tile throughout the facility, although dated in appearance, are in generally good condition, the exception being the auditorium and band practice room ceilings which seem to be in fair condition. Walls, both brick and concrete masonry units (CMU) and gypsum board are in good condition overall. The rooms in the worst/ most worn condition are the toilets in the three stories of the 1928 structure and the locker rooms adjacent to the gymnasiums. The locker rooms and toilets commonly are most prone to wear and are the oldest in the campus. The finishes in these wet room locations though "serviceable," have well exceeded their expected useful life.

ACCESSIBLE TOILET IS NOT COMPLIANT WITH ADA REQUIREMENTS

TYPICAL CLASSROOM

TYPICAL CORRIDOR

Interior Finishes

The following is a list of interior finishes by block as verified in the field:

100/100 Block Classroom Maintenance Spaces Circa 1928 (School Plan Service Bureau, Inc., Architects)

Corridors

• Floor	Carpet
• Wall base	Vinyl/Rubber
• Wall	Gypsum Board (Painted)
• Doors	Exterior Hollow Metal Frames and Doors Interior wood (oak) stained Hollow metal single glazed sidelights
• Windows	N/A
• Lockers	Full height
• Ceiling	2x2 Acoustical ceiling tile
• Lighting	2x2 recessed prismatic lensed fluorescent
• Finishes	Paint

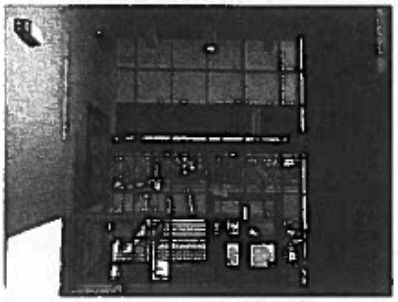
Classrooms

• Floor	Carpet
• Wall base	Vinyl/Rubber
• Wall	Painted Concrete Block/ Concrete Masonry Unit (CMU)
• Presentation Board	White board
• Windows	Aluminum single hung/ Double hung double glazed- Fair/Poor condition (drafty)
• Ceiling	2x4 Acoustical ceiling tile
• Lighting	2x4 recessed parabolic lensed fluorescent
• Finishes	Paint

Stairs

• Floor	VCT/Rubber floor with raised circular design
• Treads/ Risers	Rubber floor tread with raised circular design

TYPICAL BATHROOM LAVATORIES NOT ADA COMPLIANT



2004 ENTRY LOBBY ADDITION

CAFETERIA

- Wall base — Vinyl/rubber
- Handrails — Wood - painted
- Walls — Plaster/ Painted Brick
- Doors — Exterior Hollow Metal Frames and Doors
- Windows — Aluminum single hung/ Double hung double glazed-Fair/Poor condition (drafty)
  Original wood arched scallop/fan windows
  Stained Oak window Stools
- Ceiling — Plaster/ Gypsum board
- Lighting — Parabolic 1x4 surface mount fluorescent
- Finishes — Painted Murals

100/200 Block Circa 1928 (School Plan Service Bureau, Inc., Architects)

Corridors

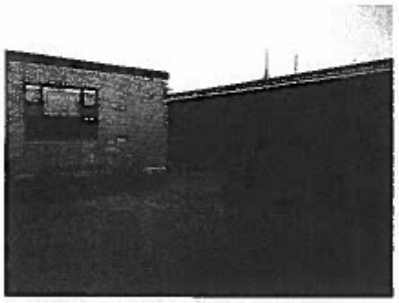
- Floor — Carpet
- Wall base — Vinyl/Rubber
- Wall — Gypsum Board (Painted)
- Doors — Interior wood (oak) stained
  Hollow metal single glazed sidelights
- Windows — N/A
- Lockers — Full height
- Ceiling — 2x2 Acoustical ceiling tile
- Lighting — 2x2 recessed prismatic lensed fluorescent
- Finishes — Paint

Classrooms

- Floor — Carpet
- Wall base — Vinyl/Rubber
- Wall — Masonry
- Presentation Board
- Windows — Aluminum single hung/ Double hung double glazed-Fair/Poor condition (drafty)
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

100/300 Block Circa 1928 (School Plan Service Bureau, Inc., Architects)

Corridors


HARDSCAPE COURTYARD


GALLERY AT 600 BLOCK CORRIDOR


STAIR FINISHES AT
3-STORY 1928 BUILDING

- Floor — Carpet
- Wall base — Vinyl/Rubber
- Wall — Painted wall Covering on Gypsum Board/ Painted Homasote
- Doors — Interior wood (oak) stained
- Windows — N/A
- Lockers — Full height
- Ceiling — 2x2 Acoustical ceiling tile
- Lighting — 2x2 recessed prismatic lensed fluorescent
- Finishes — Vinyl wall Covering / Paint / Magnetic/ Tack strips

TYPICAL ROOFING

Classrooms

- Floor — Carpet
- Wall base — Vinyl/Rubber
- Wall — Masonry
- Presentation Board — White board
- Windows — Aluminum single hung/ Double hung double glazed- Fair/Poor condition (drafty)
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

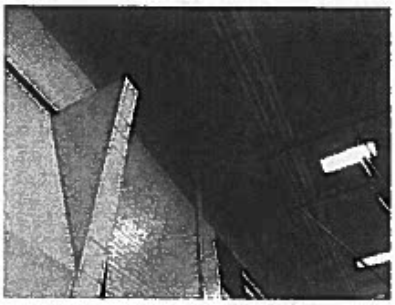
400 Block Circa Pre 1964- Room 414 Circa 1964 Unit C (Russell Gibson Van Dohlen Architects)

Corridors

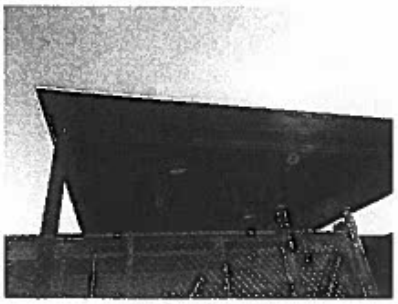
- Floor — Carpet
- Wall base — Glazed Block
- Wall — Exposed Brick
- Doors — Exterior Hollow Metal full gazed
  Interior wood (oak) stained Painted Hollow Metal frames
- Windows — Exterior hollow metal sidelights double glazed
- Lockers — Full height
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Exposed Brick

Classrooms

- Floor — Carpet
- Wall base — Vinyl/Rubber



WALL CEILING CONSTRUCTION
AT MAIN GYMNASIUM



WOOD FRAMED ROOF
AT EXTERIOR STORAGE

TECTUM/STEEL ROOF STRUCTURE AT
500 BLOCK - STEEL CONDUCTING
THERMAL ENERGY

- Walls — Painted Gypsum Board
- Presentation Board — White Board
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic fluorescent
- Finishes — Paint

500 Block Circa 1978 and 1996 (Freestanding 1978 building by Lyons Mather Lechner? 1996 addition/renovation by S|L|A|M)

Corridors

- Floor — Carpet
- Wall base — Glazed Block
- Wall — Painted CMU
- Doors — Exterior Hollow Metal full gazed
Interior wood (oak) stained, Painted Hollow Metal frames
- Windows — Hollow metal single glazed sidelights
- Lockers — Full height
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Painted CMU

Classrooms

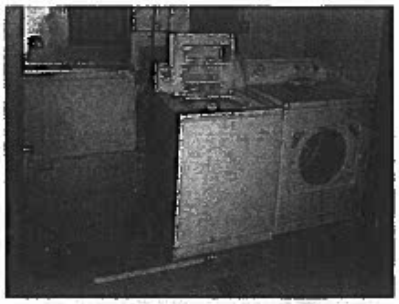
- Floor — VCT
- Wall base — Vinyl/rubber
- Walls — Painted CMU
- Presentation Board — White Board
- Windows — Aluminum frame double glazed casement w/ insect screening.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Paint

Toilets

- Floor — 2"x2" Ceramic Tile
- Walls — CMU Painted
- Ceiling — 2x4 Acoustical ceiling tile


TYPICAL CORRIDOR RAMP


BATHROOM - APPROACH NOT ACCESSIBLE


LAUNDRY/ICE FACILITIES AT PHYS. ED WING

- Lighting — 1x4 Surface mounted prismatic fluorescent
  *No ADA Stall

600 Block - Circa 1952 (Carl J. Malmfeldt Associates & Arthur Steele Baily Architects renovated 2004 by Moser Pylon)

Corridors/ Gallery

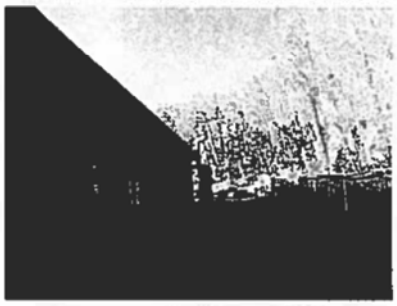
- Floor — Carpet
- Wall base — Glazed Block
- Wall — Gypsum Board painted
- Doors — Exterior Hollow Metal full gazed
  Interior wood (oak) stained Painted Hollow Metal frames
- Windows — N/A
- Lockers — Full height
- Ceiling — 2x2 Acoustical ceiling tile
- Lighting walls — Continuous strip recessed parabolic fluorescent lights at gallery
- Finishes — Painted Gypsum wall Board

Classrooms

- Floor — Vinyl Tile
- Wall base — Vinyl/rubber
- Walls — Painted CMU
- Presentation Board — White Board
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Doors — Interior wood (oak) stained Painted Hollow Metal frames & Oak Frames
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

Cafeteria

- Floor — VCT
- Wall base — Vinyl/rubber
- Wall — CMU Painted/ Brick (exposed/ painted)/ Gypsum board/


LIMITED ACCESS AT EAST SIDE


EXTERIOR CONSTRUCTION


FIELD HOUSE

	Laminate panels/ Granite tile
• Doors	Exterior Hollow Metal full gazed Interior wood (oak) stained Painted Hollow Metal frames
• Windows	Aluminum frame double glazed fixed and casement w/ insect screening.
• Ceiling	2x4 Acoustical ceiling tile
• Lighting	Linear direct indirect pendant at courtyard seating area. Circular direct indirect pendant at main seating area
• Finishes	Paint/ Plastic laminate / Granite tile / Brushed aluminum trim

700 Block Circa 1964 (Russell Gibson Van Dohlen Architects - Unit B)

Corridors

• Floor	Carpet
• Wall base	Glazed Block
• Wall	CMU (Painted)
• Doors	Interior wood (oak) stained Painted Hollow Metal frames
• Lockers	Full height
• Ceiling	2x4 Acoustical ceiling tile
• Lighting	2x4 recessed prismatic lensed fluorescent
• Finishes	Painted CMU

Classrooms

• Floor	Carpet
• Wall base	Vinyl/rubber
• Walls	Gypsum Wall Board
• Presentation Board	White Board
• Windows	Aluminum frame double glazed fixed and casement w/ insect screening.
• Ceiling	2x4 Acoustical ceiling tile
• Lighting	2x4 recessed prismatic lensed fluorescent
• Finishes	Paint

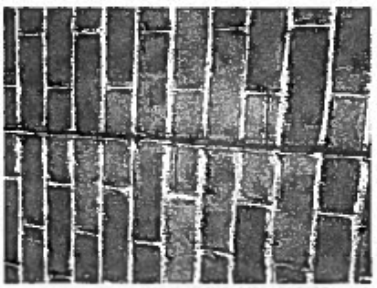
700 Block Rooms 705 through 710 circa 1996 (S|L|A|M)

Corridors

• Floor	Carpet

TYPICAL ROOFING

WINDOW & AIR INTAKE



TYPICAL MASONRY EXPANSION JOINTS

- Wall base — Glazed Block
- Wall — Masonry
- Doors — Exterior Hollow Metal full gazed
  Interior wood (oak) stained Painted Hollow Metal frames
- Windows — Hollow metal single glazed sidelights
- Lockers — Full height
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Brick

Classrooms

- Floor — Carpet
- Wall base — Vinyl/rubber
- Walls — Gypsum Wall Board
- Presentation Board — White Board
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed Parabolic lensed fluorescent
- Finishes — Paint

800 Block Circa 1964 Unit A (Russell Gibson Van Dohlen Architects)

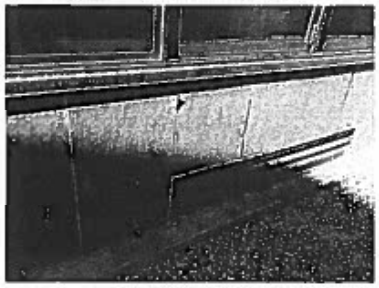
Corridors

- Floor — Carpet
- Wall base — Glazed Block/Slate
- Wall — Exposed Brick
- Doors — Exterior Hollow Metal full gazed
  Interior wood (oak) stained Painted Hollow Metal frames
- Windows — Hollow metal single glazed sidelights
- Lockers — Full height
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Brick

Classrooms

- Floor — Carpet
- Wall base — Glazed Block
- Walls — Glazed Block / Painted CMU


GREENHOUSE 700 WING - NOT ACCESSIBLE


SLATE UNDER WINDOW, CONDENSATE DRAIN


TYPICAL ENTRY DOORS, SIDELINES, TRANSOMS

- Presentation Board — White Board
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

Library

800 Library Circa 1964 (Russell Gibson Van Dohlen Architects)

- Floor — Carpet
- Wall base — Vinyl Rubber
- Walls — Gypsum Wall board / Exposed Brick
- Windows — Aluminum framed double glazed fixed clerestory
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — Circular direct indirect pendant
- Finishes — Paint / Stained Oak Trim

Library Mezzanine

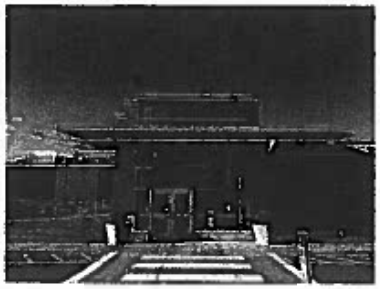
- Floor — Carpet
- Stairs — Terrazzo treads, painted steel, oak hand/guardrail
- Wall base — Vinyl Rubber
- Walls — Gypsum Wall board / Exposed Brick
- Windows — Aluminum framed double glazed casement in north masonry wall.
  Single glazed aluminum in window box extensions at roundabout.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — Linear direct indirect pendant
- Finishes — Paint / Stained Oak Trim

900 Block Circa 2004 (Moser Pilon)

Corridors

- Floor — Carpet
- Wall base — Glazed CMU
- Wall — Painted CMU
- Doors — Exterior Hollow Metal
  Interior wood (oak) stained Painted Hollow Metal frames
- Windows — Aluminum frame double glazed fixed and casement w/ insect


FIELD HOUSE ENTRY CANOPY


2004 ENTRY ADDITION


TYPICAL ENTRY DOORS, SIDELINES, TRANSOMS

screening.

- Lockers — Full height
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed prismatic lensed fluorescent
- Finishes — Painted CMU

Classrooms

- Floor — Carpet
- Wall base — Vinyl/rubber
- Walls — Painted Masonry
- Presentation Board — White Board
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

Band Room 180 Circa 1928 (Renovated 1964 Russell Gibson Van Dohlen Architects)

- Floor — VCT
- Wall base — Vinyl/rubber Walls
- Windows — Aluminum frame double glazed fixed and casement w/ insect screening.
- Lockers — Closets w/ wood shelving
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 2x4 recessed parabolic lensed fluorescent
- Finishes — Paint

Music Room 171 Circa 1964 (Russell Gibson Van Dohlen Architects Unit C)

- Floor — Main Floor Carpet / Risers VCT & Rubber Nosings
- Wall base — Vinyl/rubber
- Walls — Brick Painted / Gypsum wall Board Painted
- Lockers — Closets w/ wood shelving
- Ceiling — 2x2 Acoustical ceiling tile
- Lighting — 1x4 surface prismatic lensed fluorescent
- Finishes — Paint

Auditorium Circa 1977 (Lyons Mather Lechner)


GREENHOUSE 700 WING - NOT ACCESSIBLE


SLATE UNDER WINDOW, CONDENSATE DRAIN


TYPICAL ENTRY DOORS, SIDELINES, TRANSOMS

- Aisles — Carpet
- Floor at Seating — VCT
- Wall base — Vinyl/rubber
- Walls — Acoustical Ribbed CMU / Perforated corrugated metal
- Ceiling — 2x4 Acoustical ceiling tile
- Lighting — 6" recessed cans with compact fluorescent
- Finishes — Exposed block/ painted perforated metal.

Gymnasium 1 1952 (Carl J. Malmfeldt Associates & Arthur Steele Baily Architects)

- Floor — Maple hardwood
- Wall base — Stained oak covers over radiant baseboard heat
- Walls — Exposed Brick
- Windows — Glass Block
- Ceiling — Steel trusses & Tectum panels
- Lighting — 2x8 Fluorescent with safety cages
- Finishes — Paint on brick above windows and on ceiling

Gymnasium 2 Circa 1977 (Lyons Mather Lechner)

- Floor — Maple hardwood
- Wall base — Vinyl/rubber
- Walls — Painted CMU
- Windows — N/A
- Ceiling — Steel trusses & Metal deck
- Lighting — 2x8 Fluorescent with safety cages
- Finishes — Paint

Lockers Circa 1964 (Russell Gibson Van Dohlen Architects, Unit C)

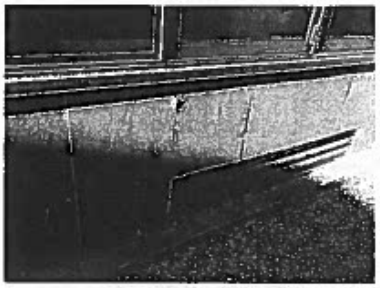
- Floor — 1x1 Ceramic Tile.
- Wall base — Ceramic Cove Tile.
- Walls — CMu Painted / 2x2 Ceramic tiles in showers.
- Lockers — Metal w/ perforated fronts.
- Ceiling — Gypsum board with metal edge trim.
- Lighting — 1x4 Surface mounted moisture resistant florescent.

Weight room Circa 1964 (Russell Gibson Van Dohlen, Unit C)

Classroom

- Floor — Rubber Gym Mat
- Wall base — Vinyl/Rubber

GREENHOUSE 700 WING - NOT ACCESSIBLE



SLATE UNDER WINDOW, CONDENSATE DRAIN

SITE STAIRS - HANDRAILS NOT COMPLIANT

- Walls — CMU Painted
- Windows — Skylights
- Ceiling — Painted Steel Deck
- Lighting — 1x8 Parabolics
- Finishes — Paint

Stairs

- Floor — VCT / Linoleum tread w/ safety tread
- Treads/ Risers — Rubber floor tread with raised circular design
- Wall base — Vinyl/rubber
- Handrails — Metal Painted
- Walls — Painted CMU
- Doors — Exterior Hollow Metal Frames and Doors
- Ceiling — Plaster/ Gypsum board
- Lighting — Parabolic 1x4 surface mount fluorescent

SQUARE FOOTAGES

100	49,960 SF
100/200	11,072 SF
100/200 FITNESS	4,117 SF
100/300	10,446 SF
400	3,981 SF
500	26,350 SF
600	27,780 SF
620/200 LIBRARY MEZZANINE	1,841 SF
700	16,261 SF
800	18,029 SF
900	19,275 SF

P-1: BUILDING 28 DOMESTIC WATER ENTRANCE

P-2: 900 WING DOMESTIC WATER ENTRANCE

Mechanical, Electrical, Plumbing and Fire Protection Systems

Executive Summary:

The following describes the mechanical, electrical, plumbing and fire protection (MEP) systems, which currently serve the existing Farmington High School in Farmington, Connecticut. The report delves into not only the type of MEP systems but also the existing condition of the systems which serve the building, it should be noted that several systems described within the report are recommended to be demolished either due to age (not being in compliance with renovate to new status requirements), lack of code compliance, lack of applicability to a new building design and or lack of energy efficiency. The systems which have been installed or replaced recently are included in the report along with an estimated useful remaining life. The only systems which would be recommended for reuse (new building design layout allowing) are as follows:

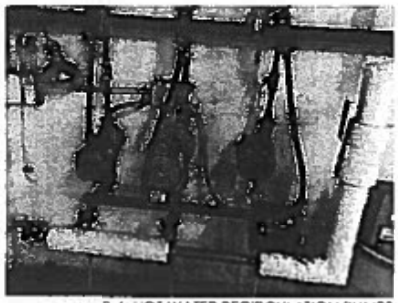
- 900 wing Water service on site
- 900 wing domestic water piping, vent, sanitary and storm piping
- Gas services on site
- Plumbing fixtures in the 900,700,600 and 500 wings
- 900 wing fire protection system (with the exception being the sprinkler heads which are to be replaced with new)

Plumbing Systems

Existing Plumbing Utilities

1. Domestic Water Service: The existing building is currently served by (2) two domestic water services (Photos P-1&P-2), supplied by the Connecticut Water Company. The services are both 4-inch services and enter the building via the outside boiler room walls/floors; it is believed that the mains are supplied from a water main located on Farmington Avenue. The original domestic water service enters the boiler room located below the principal and nurses suite. Once this 4-inch service enters the building it necks down to 2 inches. The domestic water service equipment at this location includes a water meter, 2 inch bypass, and isolation valves. After being metered the domestic main goes on to serve the entire building with the exception of the 900 wing which has its own dedicated service. The 900 wing domestic service enters the 900 wing boiler room located adjacent to the 900 wing locker rooms. Once this 4-inch service enters the building it necks down to 2 inches. The domestic water service equipment


P-3: CONDENSING GAS FIRED WATER HEATER

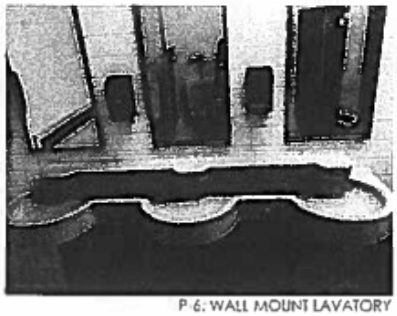

P-4: HOT WATER RECIRCULATION PUMPS

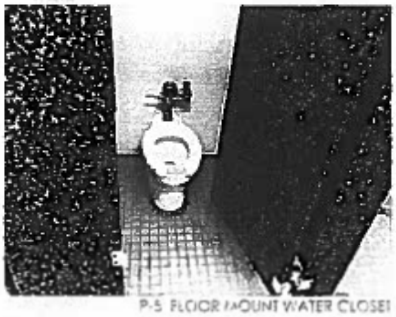
at this location includes a water meter, back flow preventer, and isolation valves. Due to the first service being original to the building it should under this project be demolished and replaced with new. The 900 wing service is in good condition with the exception of breeches in the insulation; once these are fixed this service would be recommended to remain as it was installed when the 900 wing addition was constructed and is of adequate size to serve the current 900 wing plus an addition of decent size.

2. Natural Gas Service: The existing building is currently served by (3) three natural gas services supplied by the Connecticut Natural Gas Company; all of the services are fed from a natural gas main believed to be located on Farmington Avenue. The first service enters the building on the southeast side of the school at the circle driveway and is routed at the boiler room ceiling below the principal and nurses suites. The second service enters the building on the northwest corner of the school at the 500 wing boiler room ceiling. The third service enters the building on the northeast side of the school at the 900 wing boiler room adjacent to the 900 wing locker rooms. The natural gas services entrance equipment are located outside of the building adjacent to the boiler rooms within a protective chain link fence. Gas service equipment includes gas meter, bypass, regulators and isolation valves. The capacity of the gas service is unknown at this time. The natural gas services and meter assemblies currently serve all (5) five of the schools existing boilers, the schools (3) three domestic water heaters, (3) three roof mount make up air units and miscellaneous kitchen and laboratory equipment. The gas services all appear to be in good condition and the only modifications which would be recommended at this time would be from the meter into the building so as to adjust to new boiler room layouts that would occur in a renovate to new project.

3. Sanitary Service: The School is served by buried gravity drain sanitary sewer exits, these are routed from the building to the site, all of the sanitary exits are believed to terminate at the towns sewer main located down the hill under Farmington Avenue. The buried piping condition is unknown however the piping appears to be original to the building; because of this it is recommend that the piping located below the building be demolished under this project, with the exception being the mains which serve the 900 wing as they were installed when the addition went up in 2003. Exact sanitary sewer exits locations are currently unknown and will be determined during further site surveys.


P-7: FLOOR MOUNT URINAL


P-6: WALL MOUNT LAVATORY


P-5 FLOOR MOUNT WATER CLOSET

4. Storm Service: The School is provided with buried gravity drain storm water exits, these are routed from the building to the site, all are believed to terminate at the towns storm main located down the hill under Farmington Avenue. The buried piping condition is unknown as the piping appears to be original to the building; because of this it is recommend that the services be demolished under this project, with the exception being the mains which serve the 900 wing as they were installed when the addition went up in 2003.. Exact storm water exit locations are currently unknown and will be determined during further site surveys.

Plumbing and Piping Systems

1. The existing storm, sanitary and vent piping is a combination of cast iron and copper it appears to be original to the building and its various additions. All existing storm, sanitary and vent piping buried and above grade shall be demolished due to age and the difficulty to modify its layout to serve any possible building renovations / new constructions, the one exception to this demolition would be the 900 wing pipes as they were installed when the addition went up in 2003.

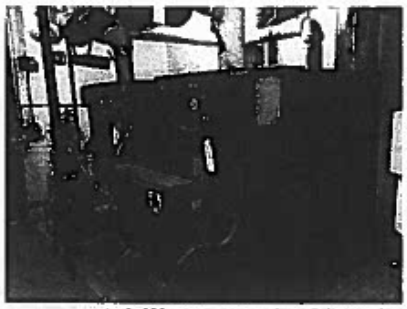
2. The existing hot, cold and hot water recirculation water piping which is copper appears to be original to the building and its various additions. The piping shall be demolished due to age and the difficulty to modify its layout to serve any possible building renovations / new constructions, the one exception to this demolition would be the 900 wing pipes as they were installed when the addition went up in 2003.

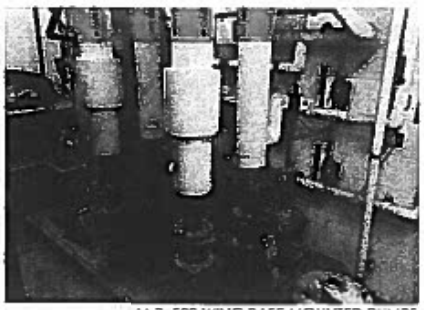
Domestic Hot Water Systems

Existing Domestic Hot Water System: The buildings existing domestic hot water is generated by (3) gas fired water heaters:

- The first water heater is in the original boiler room located below the principal/nurses suites and is a gas fired vertical condensing storage type water heater (Photo P-3). The water heater was installed four years ago. The storage capacity is 119 gallons. Water storage temperature is approximately 140 Degrees F. The water heater incorporates (3) recirculation pumps (Photo P-4) and a tempering valve. This water heater is believed to have 9 to 11 years of useable life; the capacity/recovery rate would be acceptable to serve a small addition however our recommendation is to demolish the water heater due to renovation to new requirements of 20 years of useful life remaining.
- The second water heater is located in the 500 wing boiler room which is adjacent to the shop areas, it is a gas fired vertical storage type water heater. The water heater appears to be original to the building addition, making it 19 years old. The storage capacity is 100 gallons.


M-1: BUILDING 28 DUAL FUEL FIRED BOILERS


M-2: 500 WING DUAL FUEL FIRED BOILERS


M-3: 500 WING BASE MOUNTED PUMPS

Water storage temperature is approximately 140 Degrees F. The water heater incorporates (2) two recirculation pumps and (2) two tempering valve. This water heater is believed to be past its useful life; our recommendation is to demolish the water heater due to its age.

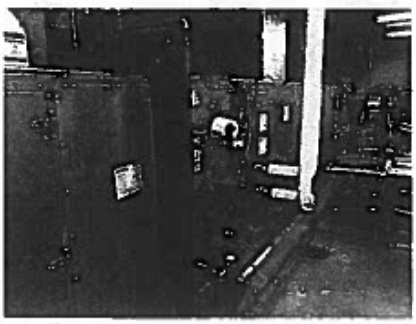
- The third water heater plant is located in the 900 wing boiler room which is adjacent to the locker rooms; the plant consists of a gas fired Lochinvar copper fin boiler mated to an indirect vertical storage type tank. The water heater appears to be 12 years old and original to the 900 wing addition. The storage capacity is 200 gallons. Water storage temperature is approximately 140 Degrees F. The water heater incorporates a recirculation pump and a tempering valve. This water heater is believed to have 6 years of useable life; our recommendation is to demolish the water heater due to renovation to new requirements of 20 years of useful life remaining.

Plumbing Fixtures

1. The existing fixtures are a combination of floor mount and wall mount water closets (Photo P-5), wall mounted lavatories, some constructed of synthetic and some of china (Photo P-6) and a combination of floor and wall mount urinals (Photo P-7). Several of the restrooms have been renovated within the past 20 years and are ADA accessible, the renovated/code compliant restrooms are located in the 900, 700, 600 and 500 wings. Outdated and non-accessible restrooms are located in the other areas of the building. Due to lack of ADA compliance in several of the other areas of the building the fixtures in all areas other than the 900, 700, 600 and 500 wings are viewed as being past their useful lives, in addition they do not provide the water saving technology that is possible with updated fixtures, all (with the exception of the renovated restrooms) are recommended to be demolished. The 900, 700, 600 and 500 wings do appear to be ADA complaint and have fixtures which are in good condition, these fixtures would be recommended to be existing to remain but a suggestion of flush valve replacement is given so as to increase water savings.

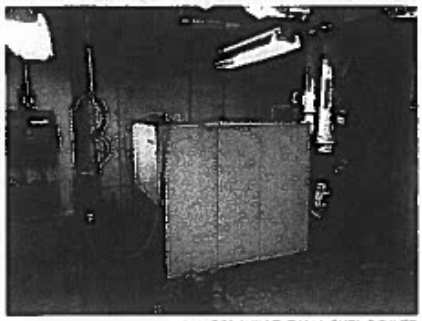
Fire Protection

1. Existing Fire Protection Service: The building is currently fully sprinkled. There are (3) three fire protection service entrances, the first is located in the set construction room behind the stage (Photo FP-1), this service entrance consists of a 6" water main which rises through the slab, this main first enters a reduced pressure backflow preventer then a wet alarm check valve, after the alarm check valve the main splits into four main feeds which exit the area and serve all of the building with the exception of the 500, 700 and 900 wing which have separate services. The 500 wing fire protection service consists of a 6" water main which enters the 500 wing in a science closet where it then flows through a reduced pressure backflow preventer and a wet



IA-7: 900 WING INDOOR AIR HANDLER

FP-2: 900 WING FIRE PROTECTION ENTRANCE



M-4: 900 WING DUAL FUEL BOILER

alarm check valve, from the alarm check valve a single main leaves to serve the 500 and 700 wings. The 900 wing fire protection service (Photo FP-2) consists of a 6" water main which enters the 900 wing boiler room where it then flows through a reduced pressure backflow preventer and a wet alarm check valve, from the alarm check valve a single main leaves to serve the 900 wing.

The buildings occupied spaces are all protected by concealed pendent heads located in the acoustic ceiling tiles while back of house spaces and the gymnasium are protected with upright sprinkler heads.

While the fire protection mains throughout the entire building appear to be in good condition, we recommend reuse of only the 900 wing mains as the rest of the building should be removed to comply with renovate to new status and provide room to route new MEP systems. A suggested update to the fire protection system in the 900 wing would be to provide new sprinkler heads throughout.

Mechanical Systems:

Existing Boiler Plants

1. The building is currently served by boilers located in (3) three different boiler rooms. The original boiler room is located below the principal and nurses suites; this room houses two (2) Power Flame CR4-GO-25 duel fuel fired Burnham V1122 steam boilers (Photo M-1). Each of these boilers has a capacity of 4334 MBH and is 2 years old. The burners currently receive make up air via a sidewall mount mechanical make up air louver which is interlocked to run during burner operation. The steam is fed out to devices throughout the building with the exception being to the 500, 700 and 900 wing, these spaces are severed by local boiler rooms. There are currently two base mount pumps associated with a shell and tube heat exchanger which receives steam from the heating plant, these pumps flow heating hot water to several unit ventilators, pieces of fin tube and air handlers out in building 28, the gymnasium and the auditorium. While the boilers and burners are expected to have an existing life remaining of approximately 28 years, reuse of the boilers in a new building design would not be recommended due to new higher efficient, more reliable technologies, our recommendation would be that these boilers and pumps be demolished if renovate to new status is desired. The replacement of the boilers and system conversion to heating hot water in lieu of the current steam would provide a large amount of energy savings.

M-6: INDOOR CHILLER BELOW LECTURE HALL

M-5: ROOF MOUNT AIR COOLED CHILLER

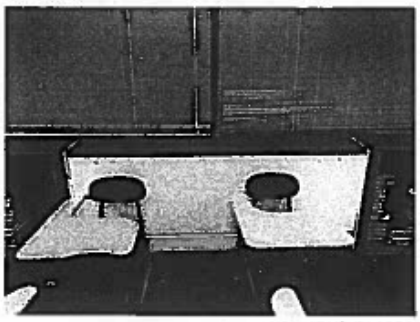
2. The 500 wing boiler room is located behind the shop areas, this room houses two (2) duel fuel fired Weil McClain hot water boilers (Photo M-2). These boilers are 19 years old. The burners currently receive make up air via a sidewall mount mechanical make up air louver which is interlocked to run during burner operation. There are currently two base mount pumps (Photo M-3) which flow heating hot water to several unit ventilators, air handlers and variable air volume boxes located in the 500 and 700 wings. In addition each of the boilers has a dedicated in line pump to assure minimum flow through the boilers while firing. While the boilers and burners are expected to have an existing life remaining of approximately 11 years, reuse of the boilers in a new building design would not be recommended due to new higher efficient, more reliable technologies along with the fact reuse would not comply with renovate to new status is desired.

3. The 900 wing boiler room is located behind the locker room area in this wing, this room houses one (1) duel fuel fired DeDiteich hot water boiler (Photo M-4). This boiler is 12 years old. The burner currently receives make up air via a sidewall mount mechanical make up air louver which is interlocked to run during burner operation. There are currently two base mounted pumps which flow heating hot water to an air handler and several variable air volume boxes located in the 900 wing. In addition the boiler has a dedicated in line pump to assure minimum flow while firing. While the boilers and burners are expected to have existing an life remaining of approximately 18 years, reuse of the boilers in a new building design would not be recommended due to new higher efficient, more reliable technologies along with the fact reuse would not comply with renovate to new status is desired.

Existing Chiller Plants

1. The building is currently served by chillers located in (2) two different locations. The first of the two is located above the principal and nurses suite on the roof, this chiller is an air cooled chiller (M-5) manufactured by Carrier with integral pumps. The chilled water piping leaves the chiller and is routed on the roof ultimately entering two mechanical spaces which contain air handlers that serve the auditorium and band room. This chiller was installed 7 years ago and appears to be in good condition. While the chiller is expected to have an existing life remaining of approximately 12 years, reuse of the chiller in a new building design would not be recommended due to non-compliance with renovate to new status.


M-9: ROOF MOUNT HEAT RECOVERY UNIT


M-8 UNIT VENTILATOR

2. The second of the two chillers is a split barrel chiller; the indoor section (Photo M-6) of the chiller is located beneath the lecture hall in the 700 wing while the outdoor air cooled section is located on the roof above. Two base mounted pumps are located adjacent to the indoor chiller barrel; these pumps convey chilled water through chilled water piping to the rooftop air handler which conditions the 500 wing and the unit ventilators located in the 700 wing. The indoor section of the chiller is beloved to be installed 19 years ago and appears to be towards the end of its useful life, while the outdoor section appears to be installed 12 years ago and is in good condition. While the chiller is expected to have an existing life remaining of approximately 6 years indoors and 8 years outdoors, reuse of the chiller in a new building design would not be recommended due to non-compliance with renovate to new status.

Existing Heating and Ventilating and Building Temperature Controls

1. 900 Wing: The 900 wing is mechanically conditioned by two different systems:

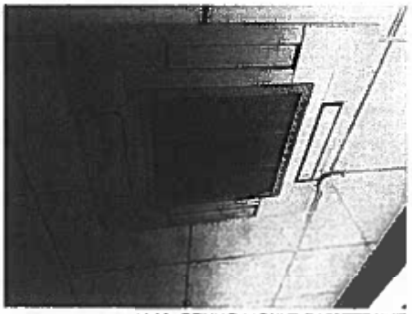
a. The first is an indoor air handler (Photo M-7) which provides conditioned (heated and cooled) air to fan assisted variable air volume boxes which serve the classrooms. The air handler has a heating hot water coil and a roof mount condensing unit which is linked to a cooling coil within the unit, outside air for ventilation is received from a sidewall mounted louver.

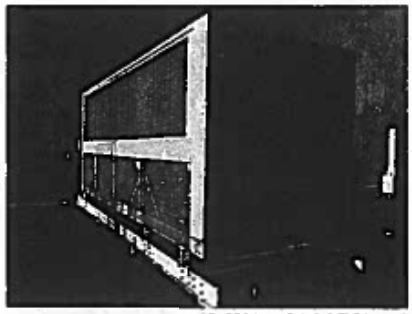
b. The second system which serves the wing is dedicated to the locker room, this is an indoor air handler which is located in the locker room, this unit has no cooling, only a heating hot water coil which is served from the adjacent boiler room.

c. All mechanical equipment in the 900 wing is original to the space, making it 12 years old. While the mechanical equipment is expected to have an existing life remaining of approximately 13 years, reuse of the in a new building design would not be recommended due to the reuse not complying with renovate to new status.

2. 800 Wing: The 800 wing is mechanically conditioned by three different systems:

a. The first is a rooftop air handler which provides conditioned (heated and cooled) air to variable air volume boxes which serve the library. The air handler has a dedicated roof mount condensing unit and a heating hot water coil which receives hot water from a shell and tube heat exchanger located in the building, the steam is supplied from the boiler plant located below the principal/nurse suite.


M-11: CEILING MOUNT CASSETTE UNIT


M-10: 500 WING ROOFTOP UNIT

b. The second are unit ventilators (Photo M-8) (in the classrooms and facility planning space) which provide conditioned air to the spaces; each unit ventilator has a steam coil within it that heats the space. Outside air for ventilation is provided to the unit ventilators via wall mounted louvers behind each unit ventilator. It should also be noted that the facility planning space unit ventilators have had refrigerant coils added for cooling, the split condensing units for these coils are located on the roof above, other classrooms in this wing have no cooling.

c. The third system in this wing is a roof mounted heat pump manufactured by Trane, the unit is dedicated to the AV Center. Conditioned (heated and cooled) air is conveyed to the space via ductwork from the unit to the space.

d. All mechanical equipment in the 800 wing is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status and noise concerns associated with the unit ventilators, this wing being provided with new mechanical systems could also lead to a large amount of energy savings.

3. 700 Wing: The 700 wing is mechanically conditioned by two different systems:

a. The first is a rooftop air handler which provides conditioned air (heated and cooled) to data center and server room. The air handler has on board direct expansion cooling and an electric reheat coil. The current zoning of this unit has proved problematic due to the constant cooling requirements of the server room.

b. The second are unit ventilators which provide heated and cooled air to the classrooms; each unit ventilator has a heating hot water coil and chilled water coil within them. Outside air for ventilation is provided to the unit ventilators via wall mounted louvers. The 500 wing boilers and chiller provide heated and chilled water to the units.

c. All mechanical equipment in the 700 wing is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status and noise concerns associated with the unit ventilators, just as in the 800 wing, this wing being provided with new mechanical systems could also lead to large amount of energy savings.

4. 600 Wing: The 600 wing is mechanically conditioned by a single type of system:

a. The mechanical system in this wing is a roof mount heat recovery unit (Photo M-9) (HRV) which serves the classrooms. The HRV has a steam heating coil within it to tem-

M-13 BUILDING 28 INDOOR AIR HANDLER

M-12 ROOFTOP UNIT

per the ventilation air which is ducted to each classroom. The main source of heat for the spaces in this wing is wall mounted steam fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suite. There is no cooling in these spaces.

b. All mechanical equipment in the 600 wing is past its useful life, this makes it so that in a renovate to new project it would all be demolished.

5. 500 Wing: The 500 wing is mechanically conditioned by two different systems:

a. The first is a rooftop air handler (Photo M-10) which provides conditioned (heated and cooled) air to variable air volume boxes which serve the classrooms. The air handler has a heating hot water coil which receives hot water from the 500 wing boiler room and a chilled water coil which receives chilled water from the chilled located below the lecture hall.

b. The second are (2) two gas fired make up air units located on the roof above the food lab, these provide heated air as make up for the cooking hoods located in the lab.

c. All mechanical equipment in the 500 wing is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

6. Cafeteria: The cafeteria is mechanically conditioned by two different systems:

a. The first is an indoor air handler which provides conditioned (heated and cooled) air to the cafeteria. The air handler has a heating hot water coil which receives hot water from the 500 wing boiler room and a refrigerant coil for cooling which is supplied by a condensing unit located on the roof above.

b. The second is a gas fired make up air unit located on the roof above the kitchen; this provides heated air as make up for the cooking hoods located in the kitchen.

c. All mechanical equipment in the cafeteria while only 12 years old is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

7. Senior Dining/Facility Dining/Classroom 601: These areas are mechanically conditioned by two different systems:


M-14: INDOOR AIR HANDLER


M-15: LOCKER ROOM HEAT RECOVERY UNIT

a. The first mechanical system in this area is a roof mounted heat recovery unit (HRV) which serves the spaces. The HRV has a steam heating coil and refrigerant cooling coil within it to temper the ventilation air which is ducted to each space. The main source of heat for the spaces in this wing is wall mounted steam fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suites. The refrigerant coil is served by a roof mount condensing unit.

b. The second are several Mitsubishi ductless split indoor air handlers (Photo M-11) to provide cooling; the refrigerant coils in each space are supplied by a condensing unit located on the roof above.

c. All mechanical equipment in the Senior Dining/Facility Dining/Classroom 601 while only 12 years old are not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

8. Athletic Director: This area is mechanically conditioned by a single system:

a. The system is an above ceiling concealed air handler which provides conditioned (heated and cooled) air to the athletic director's office. The air handler has refrigerant cooling coil linked to a rooftop condensing unit. The source of heat for this space is wall mounted steam fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suite.

b. The mechanical equipment in the Athletic Directors Office while only 12 years old is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

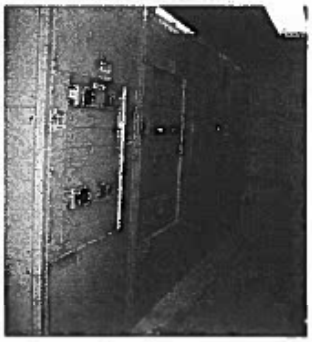
9. 400 Wing: The 400 wing is mechanically conditioned by a single type of system:

a. The mechanical system for the area is a roof mount heat recovery unit (HRV) which serves the classrooms. The HRV has a steam heating coil within it to temper the ventilation air which is ducted to each classroom. The main source of heat for the spaces in this wing is wall mounted steam fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suite. There is no cooling in these spaces.

b. All mechanical equipment in this area while having useful life remaining is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.


E 3: EXISTING BUILDING PANELBOARDS


E 2: ORIGINAL BUILDING MAIN ELECTRICAL SERVICE


E-1: CLASSROOM WING ADDITION: MAIN ELECTRICAL SERVICE

10. Main Office/Principal/Nurse: These areas are mechanically conditioned by two different types of systems:

a. The first type of system is a rooftop air handler (Photo M-12) which provides conditioned (cooled) air to the spaces. The air handler has on board direct expansion cooling. The main source of heat for these spaces is wall mounted steam fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suite. There is a dedicated rooftop unit for the principal's suite and a dedicated rooftop unit for the Main Office.

b. The system in the nurses suite is an above ceiling concealed air handler which provides conditioned (cooled) air to the space. The air handler has direct expansion cooling coil linked to a rooftop condensing unit. The source of heat for this space is steam wall mounted fin tube at the exterior walls. Steam is provided from the boiler room located below the principal/nurse suite.

c. All mechanical equipment in this area while only 12 years old is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status, this wing being provided with new mechanical systems could also lead to large amount of energy savings.

11. Guidance: These areas are mechanically conditioned by a single type of system:

a. The systems in the guidance suite are closet concealed air handlers which provide cooled air to the space. The (2) two air handlers each have a refrigerant cooling coil linked to a rooftop condensing unit. The source of heat for this space is wall mounted hot water fin tube at the exterior walls. Heating hot water is provided from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite.

b. All mechanical equipment in this area while having useful life remaining is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

12. Building 28 2nd+3rd Floors: These areas are mechanically conditioned by a single type of systems:

a. The system consists of (2) two air handlers (Photo M-13) located in the attic space, these provide ventilation and return air to duct mounted heating hot water coils which are also located in the attic. The heating hot water coils receive hot water from


E-5 CLASSROOM TELEPHONE


E-4 EXISTING BUILDING PANELBOARDS

the shell and tube heat exchanger located in the boiler room below the principal/nurse suite. The air continues through the ductwork into the spaces to provide heating and ventilation. The main source of heat for this space is wall mounted hot water fin tube at the exterior walls. There is no cooling in these spaces.

b. All mechanical equipment serving these floors is past its useful life, this makes it so that in a renovate to new project it would all be demolished.

13. Band Room: The band room is mechanically conditioned by a single system:

a. The system consists of an indoor air handler (located in a mechanical space off the foreign language office) which provides conditioned (heated and cooled) air to the space. The air handler has a heating hot water and chilled water coil, the unit receives heating hot water from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite and chilled water from the roof mount chiller located above the principal's suite.

b. All mechanical equipment in this area while having useful life remaining is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

14. Choral Room: The choral room is mechanically conditioned by a single system:

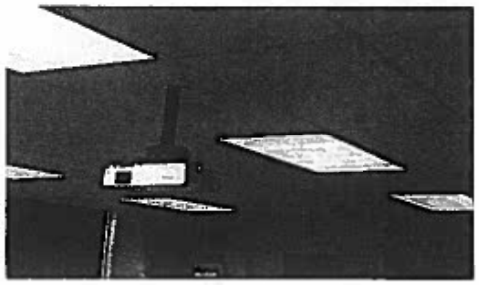
a. The system consists of an indoor air handler (located in a mechanical space off the weight room) which provides conditioned (heated and cooled) air to the space. The air handler has a steam heating and refrigerant cooling coil. The heating coil receives steam from the boilers located in the boiler room below the principal/nurse suite and the refrigerant coil is linked to a roof mount condensing unit.

b. All mechanical equipment serving these floors is past its useful life, this makes it so that in a renovate to new project it would be demolished.

15. Weight Room: The weight room is mechanically conditioned by a single type of system:

a. The mechanical system which conditions the weight room consists of (2) two indoor air handlers which provide conditioned (heated) air to the space. The air handlers each have a heating hot water coil which receives heating hot water from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite, there is no cooling in the space.

E-7: CLASSROOM TV



E-6: CLASSROOM CEILING PROJECTOR

b. All mechanical equipment serving this area is past its useful life, this makes it so that in a renovate to new project it would be demolished.

16. Auditorium: The auditorium is mechanically conditioned by a single system:

a. The system consists of an indoor air handler (located in a mechanical space on the mezzanine) which provides conditioned (heated and cooled) air to the space. The air handler has a heating hot water and chilled water coil, the unit receives heating hot water from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite and chilled water from the roof mount chiller located above the principal's suite.

b. All mechanical equipment serving this area is past its useful life, this makes it so that in a renovate to new project it would be demolished, this space being provided with new mechanical systems could also lead to large amount of energy savings.

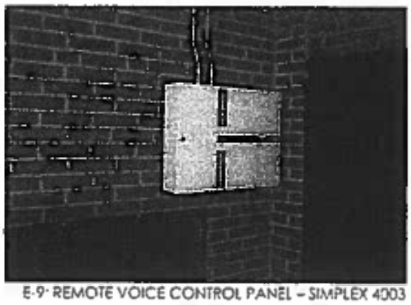
17. Old Gymnasium: The old gymnasium is mechanically conditioned by a single type of system:

a. The system consists of (2) two indoor air handlers (Photo M-14) (located in mechanical spaces off the roof) both of which provide heated air and ventilation to the space via sidewall mounted diffusers. The air handlers have steam heating coils within them. The coils receive steam from the boilers located in the boiler room below the principal/nurse suite. There is currently no cooling in the space.

b. All mechanical equipment serving this area is past its useful life, this makes it so that in a renovate to new project it would all be demolished, this space being provided with new mechanical systems could also lead to large amount of energy savings.

18. New Gymnasium: The new gymnasium is mechanically conditioned by a single type of system:

a. The system consists of (4) four indoor suspended air handlers (located at the roof of the gym and suspended from structure) all of which provide heated air and ventilation to the space. The air handlers have heating hot water coils within them. The coils receive heating hot water from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite. There is no cooling in the space.



E-9: REMOTE VOICE CONTROL PANEL - SIMPLEX 4003

E-8: FIRE ALARM CONTROL PANEL - SIMPLEX 4020

b. The mechanical equipment serving this area is past its useful life, this makes it so that in a renovate to new project it would all be demolished, this space being provided with new mechanical systems could also lead to large amount of energy savings.

19. Gym Locker Rooms: The locker rooms are mechanically conditioned by a single type of system:

a. The mechanical systems which serve the locker room areas consists of (2) two roof mounted heat recovery units (Photo M-15) (HRV), one for each locker room, these were both installed 2 years ago. The HRV's each have a heating hot water coil associated with them to temper the ventilation air which is ducted to the space. The coils receive heating hot water from the shell and tube heat exchanger located in the boiler room below the principal/nurse suite. There is no cooling in the space.

b. All mechanical equipment in this area while having useful life remaining is not recommended for reuse in a new building design due to the reuse not complying with renovate to new status.

20. Corridors/Building Storage: The existing building storage rooms and corridors are served by a combination of unit heaters, convectors and cabinet unit heaters. Several of the unit heaters, convectors and cabinet unit heaters are both beyond their useful life and are recommended for demolition if a renovate to new project occurs.

21. Building Direct Digital Controls: The existing building controls throughout consist of a direct digital controls system by Invensyis, while the controls equipment does have useful life remaining, the system is recommended to be demolished under a renovate to new project due to complete mechanical system changes to come.


E-11: CORRIDOR LIGHTING


E-10: CLASSROOM LIGHTING

Electrical Systems:

Existing Main Electrical Service and Distribution

General: All equipment in the category is recommended for demolition due to age, condition and or lack of code compliance.

1. The building includes two electrical services. One service for the added Classroom wing addition and the other is original to the building.

a. Classroom Wing Addition

i. The classroom wing building is served by a 1200 Amp, 208/120 Volt, 3-phase, 4-wire electrical service (Photo: E-1). The main switch section, CT section and main distribution sections are located in a dedicated electrical room. Also within this room are lighting and power panels.

ii. The electrical service originates at pad mounted transformers with an under ground secondary feeder to the service equipment. The Main service equipment is manufactured by General Electric rated 1200A, 208/120V, 3 phase, 4 wire, 65,000AIC.

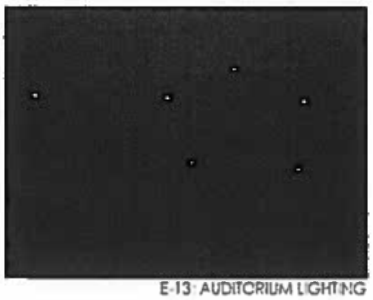
iii. The utility meter is located on the building exterior outside the 900 wing electrical room.

b. Original Building

i. The original building is served by a 3000A, 208/120V, 3 phase, 4 wire electrical service (Photo: E-2). The main switch section, CT section, several distribution switchboards are located within the Main Electrical Room. The Main Service Equipment is manufactured by General Electric and is original to the building and is in poor condition.

ii. There are a number of electrical panel boards located throughout the original building. Most are original to the building and mounted flush within CMU walls. The panel boards are 120/208V, 3 phase, manufactured by General Electric (Photo: E-3).

The condition of these panel boards is generally poor due to age. There are a number of original panels throughout the original building that have been


E-13: AUDITORIUM LIGHTING


E-12: GYMNASIUM LIGHTING

upgraded with newer General Electric panels (Photo:E-4). The majority of the original panel boards do not have spare circuit breakers or spaces available for new circuits to be added, the panels that were upgraded also have limited spare circuit breakers and limited spaces.

iii. The electrical service originates at pad mounted transformers with an underground secondary feeder to the service equipment. The Main service equipment is manufactured by General Electric rated 3000A, 208/120V, 3 phase, 4 wire, 65,000AIC.

iv. The utility meter is located on the building exterior outside the electrical room.

Existing Standby Generation System

General: All equipment in the category is recommended for demolition due to age and condition.

1. There is currently a 250kw diesel generator in a weatherproof enclosure that feeds limited loads throughout the original building.

Existing Telephone, Security, Fiber and Special System Services and Distribution

General: All equipment in the category is recommended for demolition due to change in technology, condition.

1. The building is currently equipped with Telephone, fiber and security.

2. The telephone system wiring is minimal and not appropriate for a full renovation of the school.

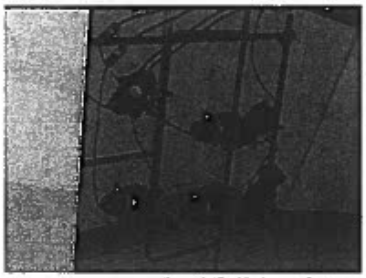
3. The security system wiring is newer and is in good condition.

4. The school is equipped with paging system with Master Clock. The system is in good condition.

5. The classrooms are equipped with paging speakers and wall mounted telephones (Photo: E-5).

6. The classrooms are equipped with ceiling mounted projectors and wall mounted flat screen TVs. (Photo E-6 & E-7).

7. Single stall toilet rooms within the newer modular addition are equipped with local call for aid devices with wall mounted audio/visual devices mounted in the corridors above the toilet room door.



E-14: THEATRICAL LIGHTING

8. Many classrooms within the original building contain inadequate quantities of receptacles. Where additional receptacles are installed they are generally fed from exposed surface mounted raceway.

Existing Fire Alarm System

General: All equipment in the category is recommended for demolition due to newer technology, condition and or lack of code compliance.

1. The building is equipped with a Simplex 4020 Fire Alarm Control Panel which is obsolete. The panel is located within the Main Office area (Photo: E8). The fire alarm control panel is in good condition.

2. Code required initiation and notification devices are present in many areas throughout the facility. However, many of the manual pull stations are not protected with covers.

3. No remote annunciator is present.

4. Classrooms within the original building and the classroom addition are with required audio/visual notification devices.

5. Corridor separation doors (double doors) are equipped with magnetic hold open devices.

6. The places of assembly (i.e. Gymnasiums, Auditorium, and Cafeteria) are equipment with remote voice control panels (Simplex 4003) (Photo: E9).

7. The visual (strobes) devices are most likely not synchronized which does not comply with code.

Existing Lighting

General: All equipment in the category is recommended for demolition due to age, condition, technology advancements and or lack of code compliance. It is understood a lighting retrofit occurred two years ago.

1. In the original building, the classrooms lighting is mainly 2' x 4' recessed mounted fluorescent parabolic fixtures with (3) 32 watt T-8 lamps per fixture (Photo: E10). Although the light levels are good, these rooms could be lit with the same levels with less wattage by using more efficient lighting fixtures.

2. In the classroom wing addition, the classrooms lighting is mainly 2' x 4' recessed mounted fluorescent parabolic fixtures with (3) 32 watt T-8 lamps per fixture. Although the light levels are good, these rooms could be lit with the same levels with less wattage by using more efficient lighting fixtures.

3. Lighting controls within all classrooms are controlled by manual wall switches and occupancy sensors. Lighting in corridors is controlled by keyed switching and occupancy sensors.

4. Light levels in the main, nurses, staff offices are good, and the light fixtures are in good to fair condition, these rooms could be lit with the same levels with less wattage by using more efficient lighting fixtures.

5. Lighting within the Corridors of the original building and classroom win addition is mainly 2' x 2' prismatic lensed fixtures with (2) 17 watt T-8 lamps per fixture and some 2'x4' prismatic lensed fixtures with (2) 32 watt T-8 Lamps (Photo: E11). The corridor lighting levels are adequate and may be over lit. The corridors could be lit with the same levels with less wattage by using more efficient lighting fixtures.

6. Emergency lighting in the original building and Classroom wing addition appears to be provided wall mounted dual head emergency lighting units strategically placed in corridors and places of assembly. There are battery inverter unit in some corridors and spaces that were recently renovated.

7. Lighting within Gymnasium A and B is mainly 2'x4' pendant mounted fluorescent high bay fixtures with wire guards and (4) 32watt T8 lamps (Photo: E12). Although the light levels are good, these rooms could be lit with the same levels or better with less wattage by using more efficient lighting fixtures.

8. Lighting within Cafeteria is a combination of recessed compact fluorescent down lights, recessed 2'x2' direct/indirect fluorescent architectural fixtures, pendant mounted fluorescent architectural bowls and pendent mount accent incandescent fixtures. The fixtures in this area are in good shape. Although the light levels are good, these rooms could be lit with the same levels with less wattage by using more efficient lighting fixtures.

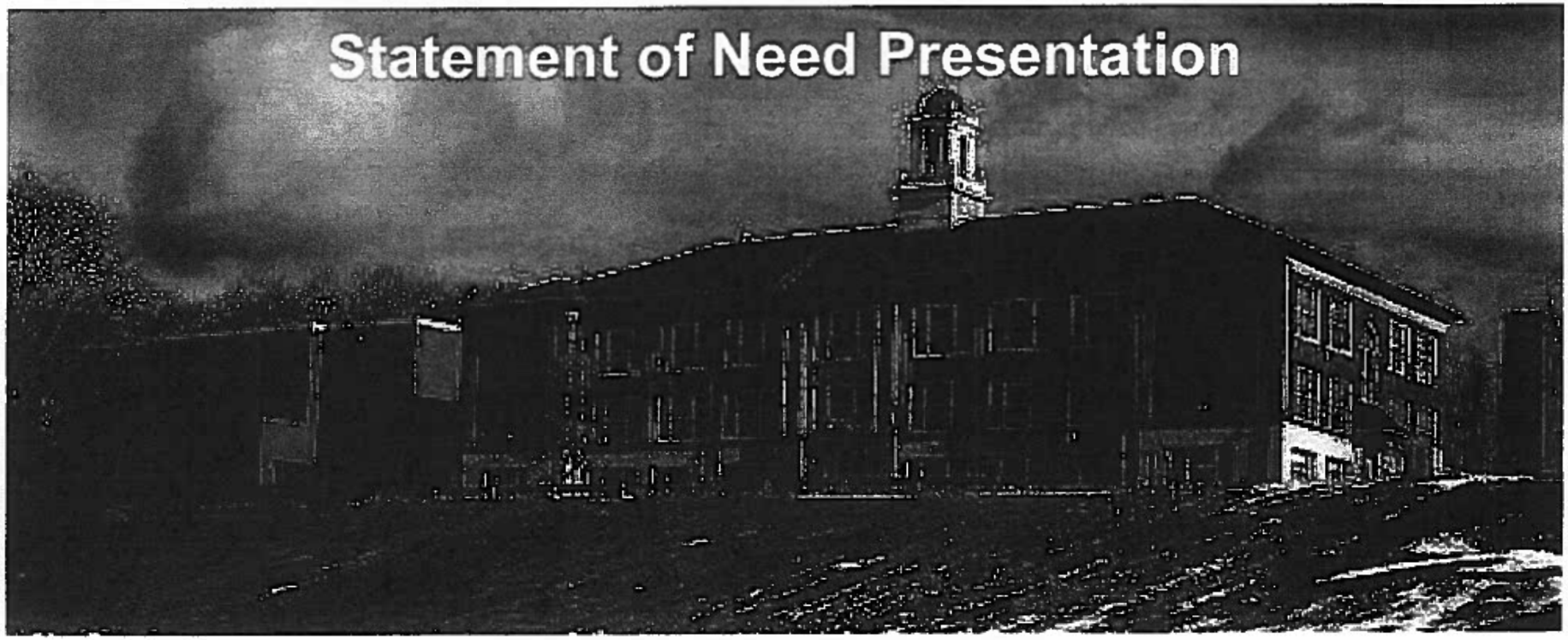
9. Lighting within Auditorium is recessed high wattage incandescent open down lights. The down light fixtures in this area are in poor condition and need to be replaces. Although the light levels are fair, the Auditorium can be lit better with less wattage by using more efficient lighting fixtures. The theatrical lighting appears to be original and working. The theatrical lighting should be replaced with newer technology (Photo: E13 & 14).

10. Lighting within Library is a combination of recessed 1'x1' parabolic compact fluorescent fixtures, pendant mounted fluorescent architectural bowls and surface fluorescent lensed wraparound fixtures. The fixtures in this area are in good shape. Although the light levels are good, these rooms could be lit with the same levels with less wattage by using more efficient lighting fixtures.

11. Exit signage in the original building and classroom wing addition are LED type and are in fair to poor condition and need to be replaced with new. Additional exit signs need to be added to need new code requirements.

Agenda Item 0-3.

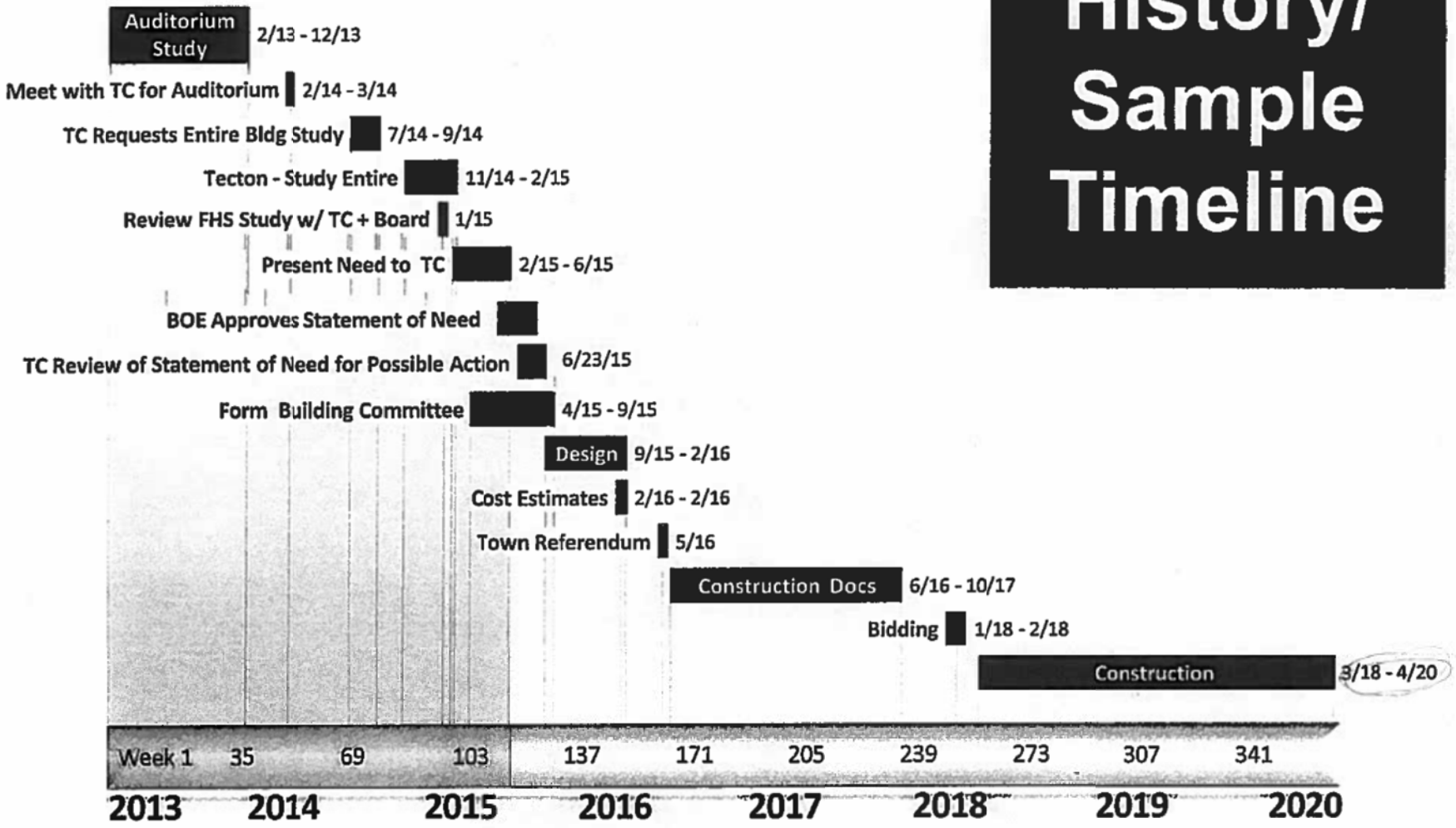
Farmington High School



FARMINGTON
PUBLIC SCHOOLS

June 23, 2015

History/ Sample Timeline



1.

Whereas, the Farmington Board of Education has engaged in a comprehensive school feasibility study with TECTON that included multiple observations of existing conditions, age of equipment, facility, review of history of site, building and additions, analysis of energy efficiency and options for improvement, review of existing reports (OCR, NEASC, School Safety), focus groups with faculty, administration and students, assessment of education space needs and conceptual solutions to address needs.

PROCESS

- Conducted multiple observations of existing conditions
- Assessed conditions; age of equipment, buildings
- Reviewed history of site, building, and additions
- Analyzed energy efficiency and options for improvement
- Reviewed of existing reports (OCR, NEASC, and School Safety)
- Conducted Focus Group Sessions (Faculty, Administration, and Students)
- Assessed education space needs

2.

Whereas, the FHS NEASC study summary highlights a need to improve travel distances for faculty and staff, improve circuitous and crowded corridors and intersecting/converging students and faculty, create informal collaboration spaces for students, faculty and staff, address building systems for a controllable interior environment and address accessibility to interior and exterior areas.

NEASC 2004 Recommendations Summary

- **Decrease/improve travel distances** for faculty and staff.
- **Improve circuitous and crowded corridors** and intersecting/converging students and faculty.
- **Create informal collaboration spaces** for students, faculty and staff.
- **Address building systems** for a controllable interior environment. – Partial improvements made
- **Address accessibility to exterior/interior areas** – partial improvements made

3.

Whereas, several spaces at FHS do not meet ADA requirements as outlined by the OCR report issued in 2013-2014, including but not limited to the auditorium, stage, music instructional spaces, some classrooms, outdated chair lift in the weight room, media center, bathrooms, portions of 2nd and 3rd floors of 1928 building, culinary space, and outdoor athletic facilities.

NON-COMPLIANT WITH CURRENT CODES

ADA INACCESSIBLE SPACES:

Auditorium/ Stage

Music Instructional Spaces

Library/Media Center

Bathrooms

Portions of 2nd and 3rd Floors of 1928 Building

Outdoor Athletic Facilities

Various Learning Spaces throughout Building

4.

Whereas, the FHS Safety and Security Study highlights accessibility issues (23 separate entry points to building), sight line issues, public/private use of building , inadequate interior and exterior lighting levels, building orientation difficulty and various issues around the multiple additions.

SECURITY
JUNE 2014 SCHOOL INFRASTRUCTURE REPORT

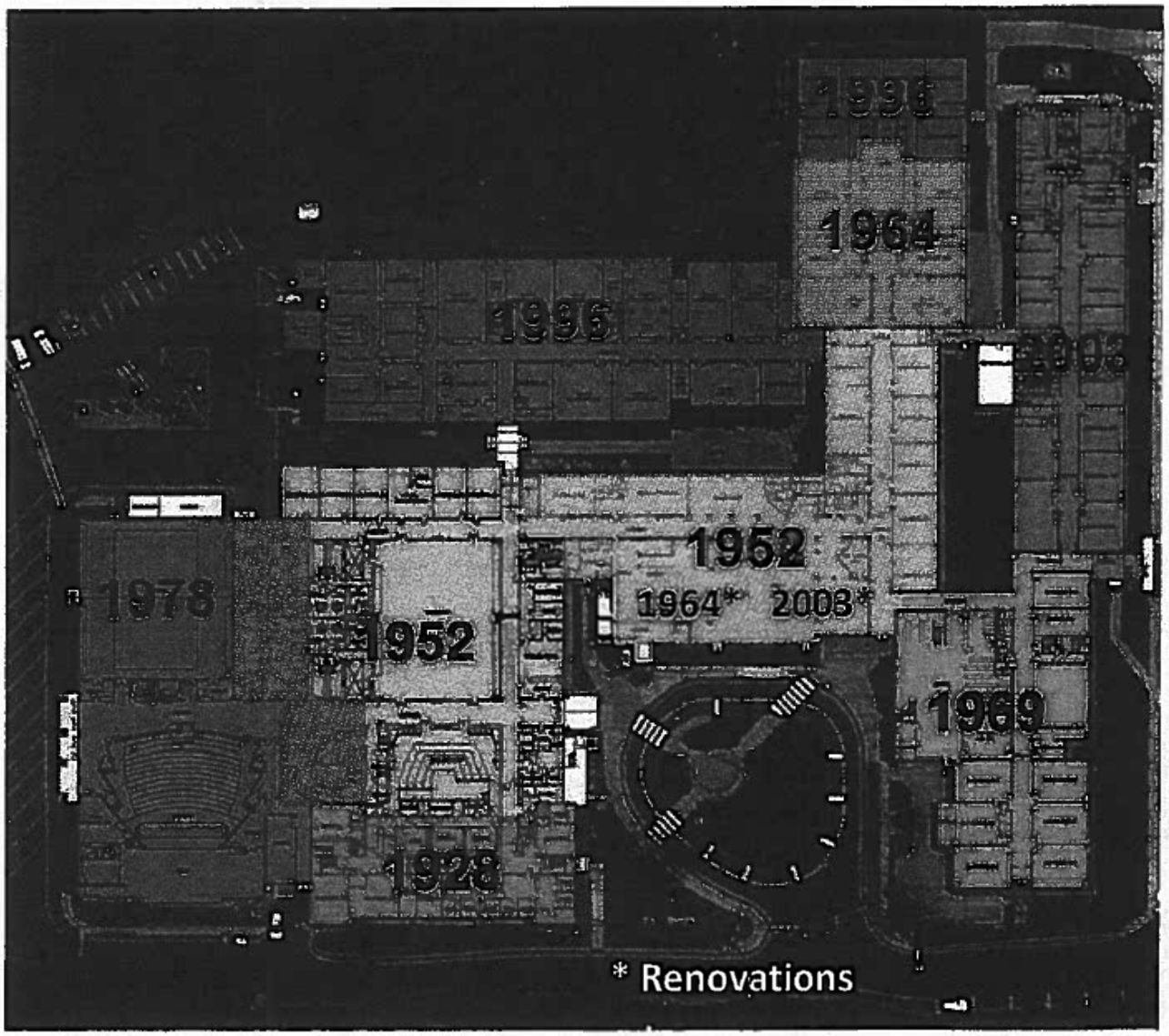
- **Accessibility Issues –** 23 Separate entry points to building
- **Sightlines –** Currently NOT possible to see individuals approaching building entrances
- **Lack of building separation –** When community events take place individuals can enter all spaces
- **Lighting –** Improve interior and exterior lighting levels
- **Building Orientation –** Despite signage, very difficult to navigate building "maze like" design

23

ENTRY POINTS INTO FHS

5.

Whereas, Farmington High School (FHS) has experienced several additions over many years, with an aging 1928 building in need of significant renovation as well as several additions with an inefficient building envelope impacting energy costs and efficiencies (insulation, façade, windows-except for 900 wing) as well as aging mechanical, electrical, plumbing, fire alarm and protection building systems not in code compliance.



50 YEARS =
Functional age of typical school building

FHS originally built in 1928 = 87 YRS

6 additions/ over last 60 years

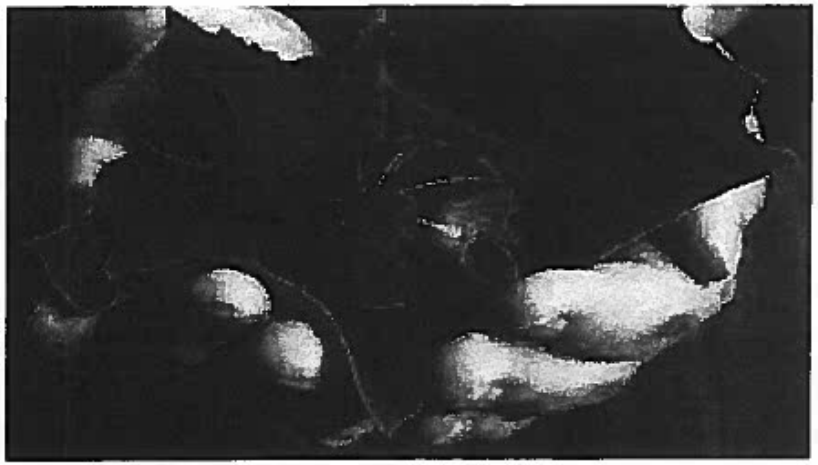
6.

Whereas, Farmington High School system energy performance is lacking with a $393,000 cost per year and in need of a "Green Design" (new or renovated MEP systems could save an average of 35% of annual costs or 140,000 per year—could realize a 45% savings depending upon solution).

MECHANICAL ELECTRICAL PLUMBING, FIRE PROTECTION & ALARMS

Existing MEP Systems Concerns:

- Age
- Condition of some Equipment
- Code Non-Compliant
- Life Safety Non –Compliant
- Lack of Energy Efficiency



POTENTIAL GREEN SOLUTIONS

- Geothermal
- Solar panels / PV's
- Heat recovery systems
- Earth ducts
- Daylight harvesting
- Sustainable materials
- Energy rebates – lighting, MEP equip.

7.

Whereas, the auditorium (poor acoustics), cafeteria, and library are undersized, impacting high school scheduling, educational programming as well as state and federal requirements on food services.

AUDITORIUM REVIEW 2013

- Major acoustic issues
- ADA issues: Pit, Booth, Bathrooms, Music Instructional Spaces – all non-compliant
- Seating capacity not adequate in auditorium
- Seats are in disrepair/ unable to replace
- Noisy mechanical system
- Bathroom capacity not adequate
- 2/3 of school population should be able to fit in auditorium currently only one class can fit in auditorium
- Inadequate storage
- Impacts entire school, school district as well as the music program

CAFETERIA SIZE =

10:00 am = First Lunch Starts

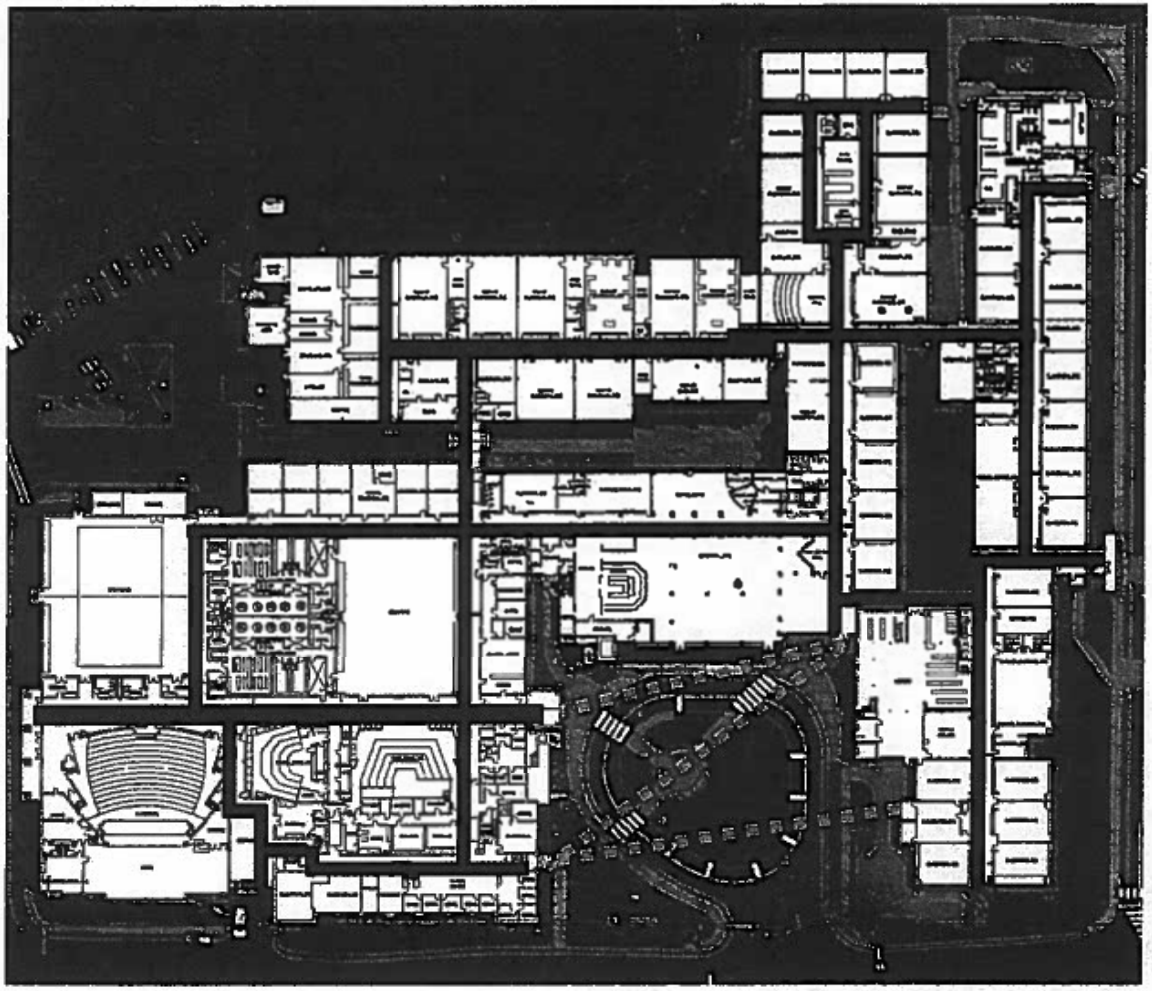
(Cafeteria size dictates number of lunch periods)

***Actual Period Starts at 9:51 am**

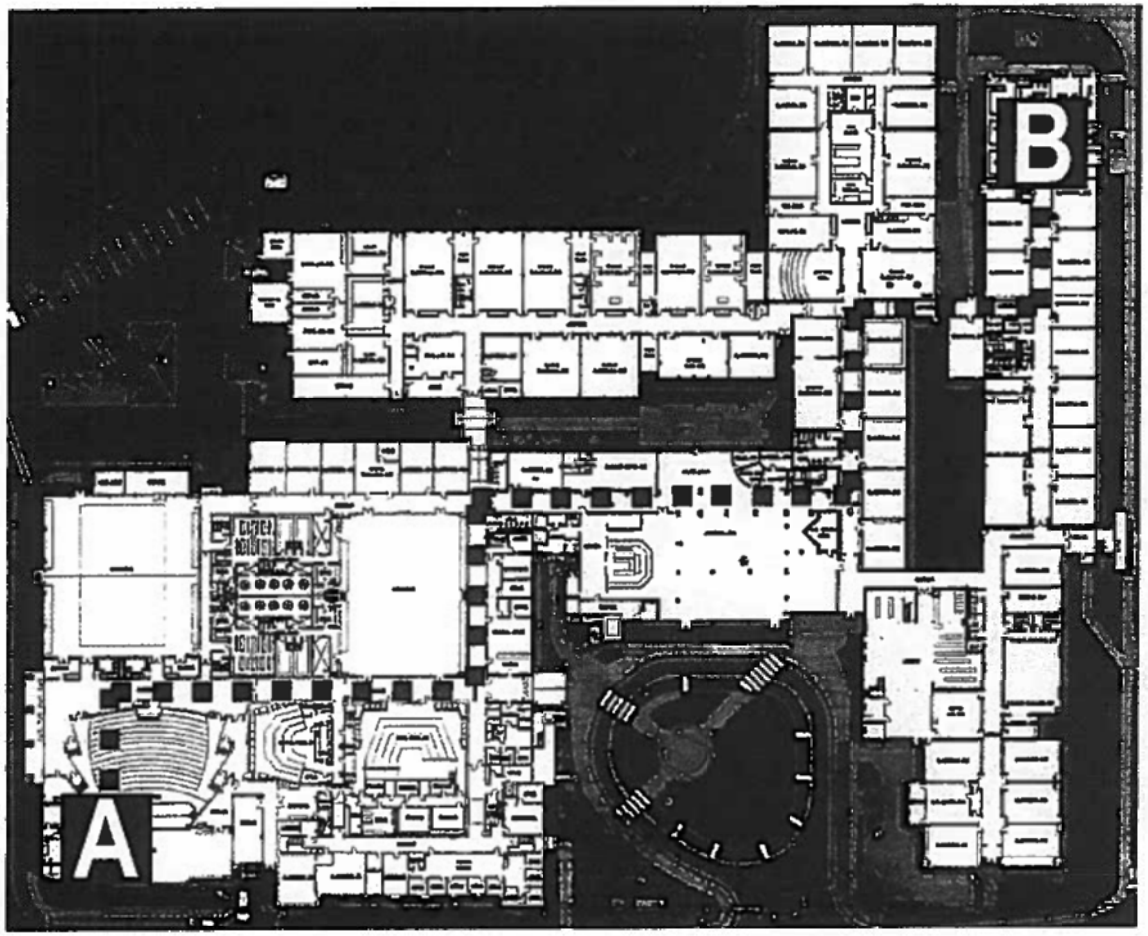
8.

Whereas, the additions have primarily addressed enrollment increases, but have resulted in a very large, inefficient facility footprint impacting not only energy costs, but security, insufficient student classroom space, a need for students to travel outside the building to travel to classes (696 student cross intersection between classes 9 times per day and 1070 feet from one side of the building to another), significant hallway congestion, inadequate use of space (30% unused space), a lack of space for robotics, lack of space for whole school staff professional learning and collaboration as well as constraints on educational programming for students.

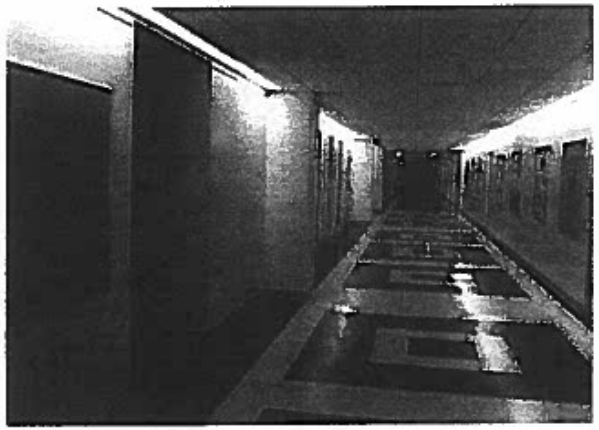
CURRENT HALLWAYS



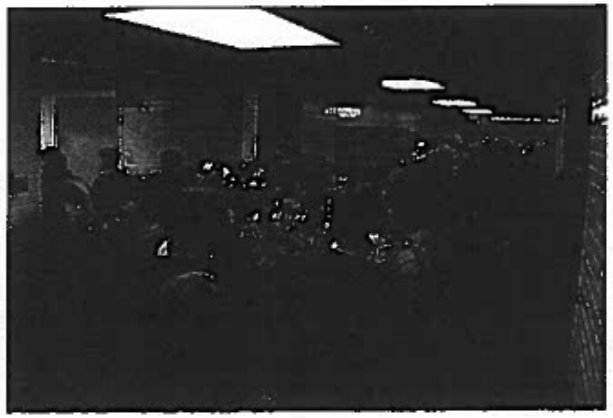
EXCESSIVE TRAVEL DISTANCE



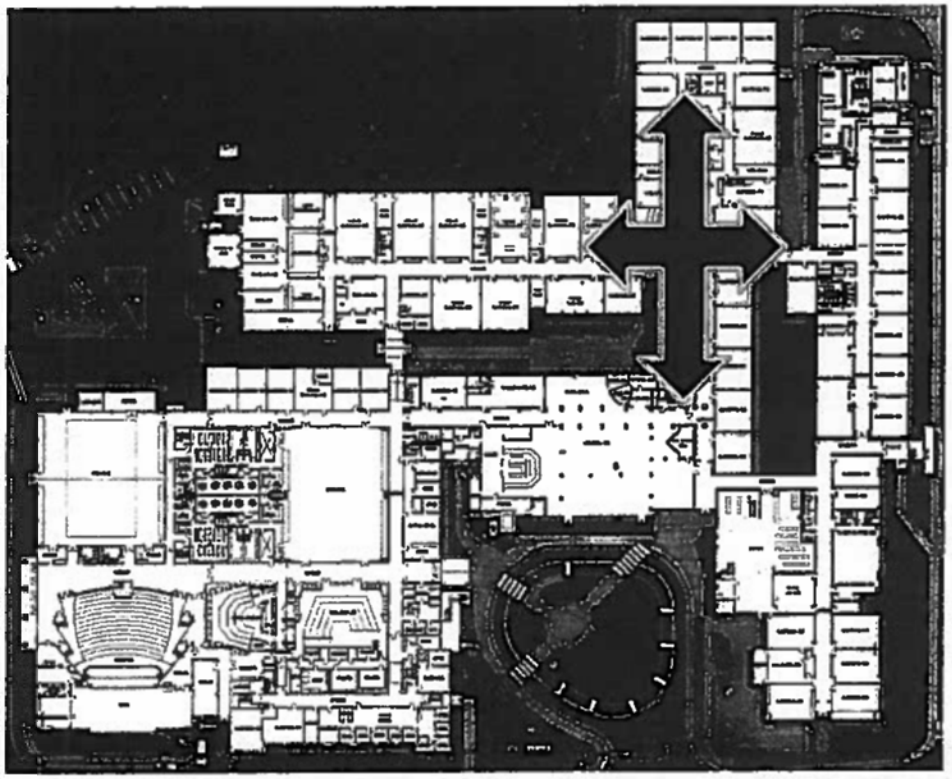
Nearly a 1/4 mile distance from point A to B (1070 ft)



4.25 MINUTES = Time it takes to walk 1070 ft. in an empty hallway



5.25 MINUTES = Time it takes to walk 1070 ft. with other students



696 =

Average # of students crossing this intersection between classes

4 minutes between classes

RECAPTURING SPACE

If the current floor plan is reconfigured to recapture poorly utilized space:

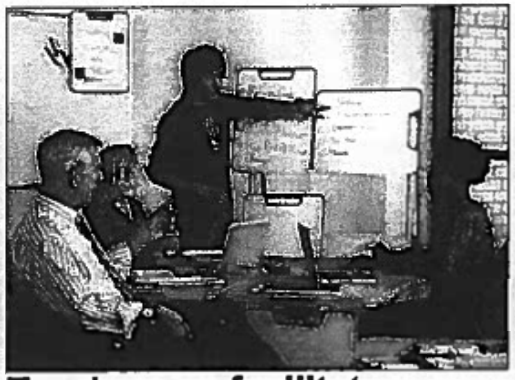
- 8.5 additional classrooms could be added
- Auditorium, Cafeteria and Library/Media space could be increased
- Create more flexible learning spaces

9.

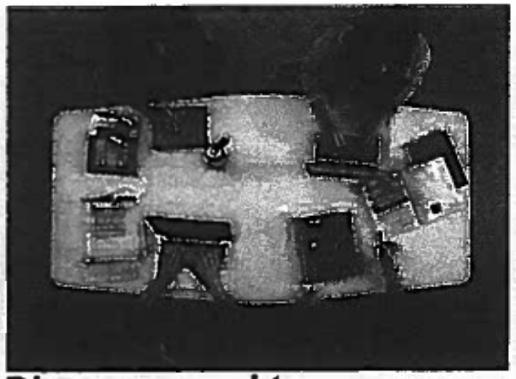
Whereas, with current and emerging educational requirements and demands on comprehensive high schools, FHS is in need of an efficient, functional, flexible learning facility that meets state and federal requirements and serves the diverse needs of all students.

INSTRUCTIONAL MODELS REQUIRE FLEXIBLE LEARNING SPACES

Learner-centered instructional model



Teachers as facilitators, activators of learning, guides or coaches



Discovery and team-based activities

DESIGNED TO SUPPORT TECHNOLOGY

Space can augment and leverage the learning experience for students.

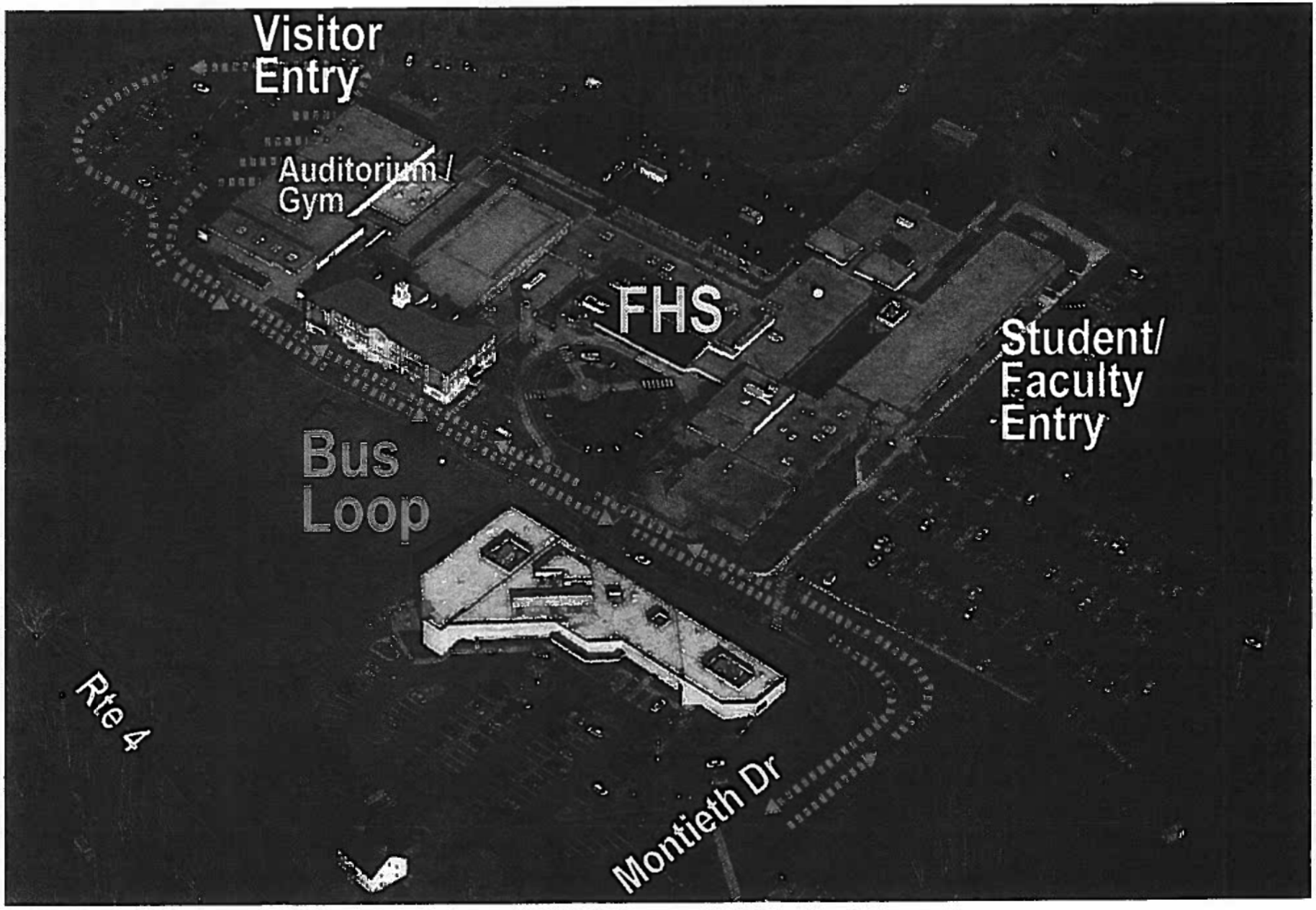
ACTIVE LEARNING SPACES

Research and trends

10.

Whereas, the current parking is inadequate and requires expansion to accommodate the school and public use of Farmington High School's building

EXISTING SITE LAYOUT: TRAFFIC PATTERNS



SUMMARY

The Board, therefore, directs administration to begin planning a renovation of appropriate and necessary school space at Farmington High School to accommodate new MEP needs, educational programming needs, Connecticut school safety expectations, NEASC standards and OCR/ADA regulations not currently being addressed in their entirety:

- Maximize square footage for educational programming
- Create multiple levels to the building to address inefficient sprawl and "maze" like building to increase classroom space, space for robotics and other current and emerging learning spaces
- Undersized auditorium (acoustic issues), stage cafeteria and media center
- Address multiple ADA compliance issues
- Address Mechanical, Equipment and Piping (MEP) code compliance issues
- Address Security compliance issues
- Address overcrowded Town Hall office space as well as off-site Farmington Alternative High School space needs

FARMINGTON
PUBLIC SCHOOLS

Backup Slides

Quick Overview: Teaching and Learning

- Undersized Cafeteria, Auditorium and Library/Media Center
- Need for additional classrooms
- 30% "unusable space" could be partially recaptured for additional classroom space and other learning spaces that reflect needs of students, programming and learning models
- Multiple issues with the Auditorium and Music Instructional Spaces
- Undersized Science Lab Spaces impacting science curriculum and programming
- Lack of flexible learning spaces impacting programming
- Lack of adequate art studios impacting programming
- Lack of adequate faculty meeting space for whole faculty professional learning

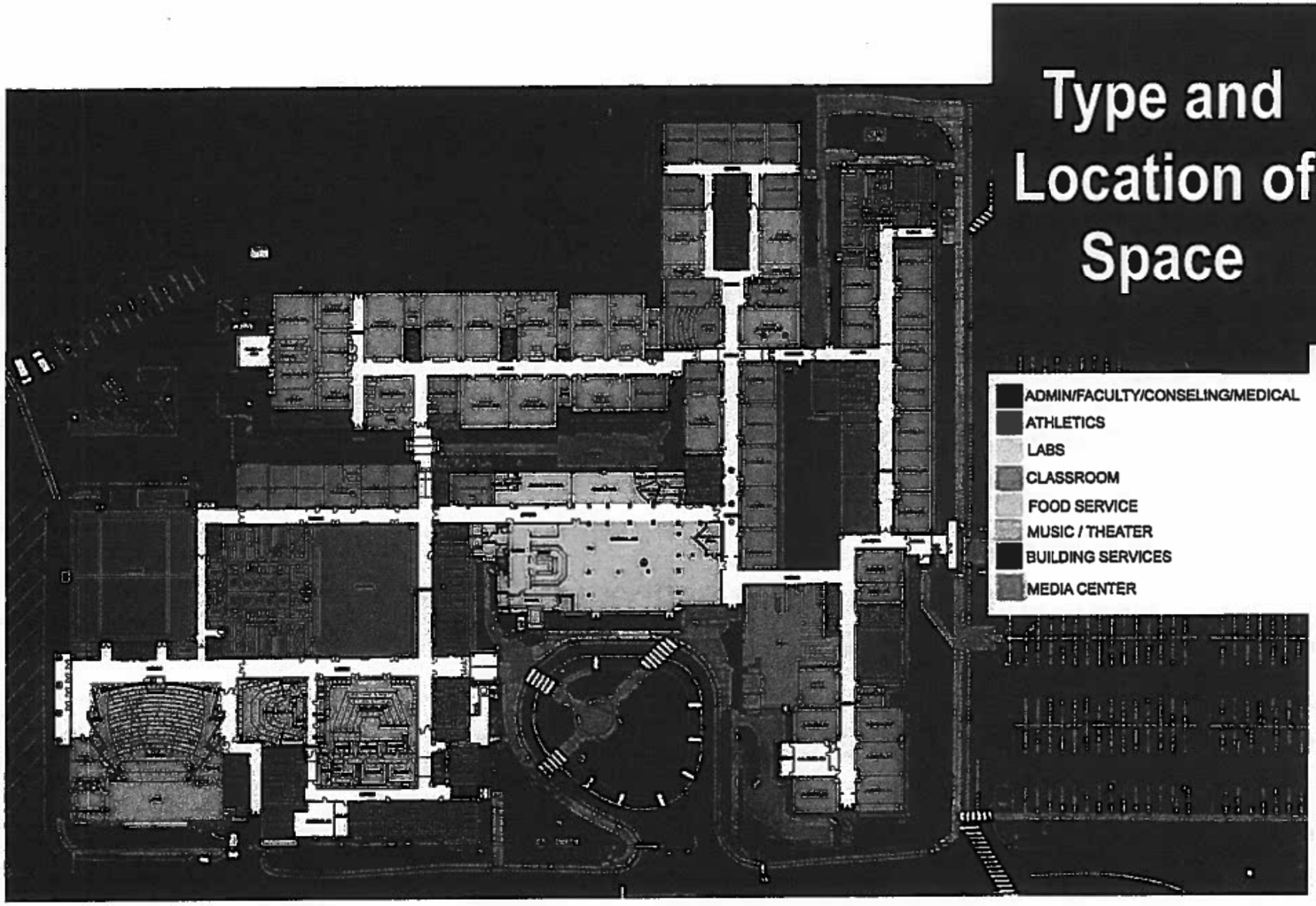
Quick Overview: Lack of Efficiency

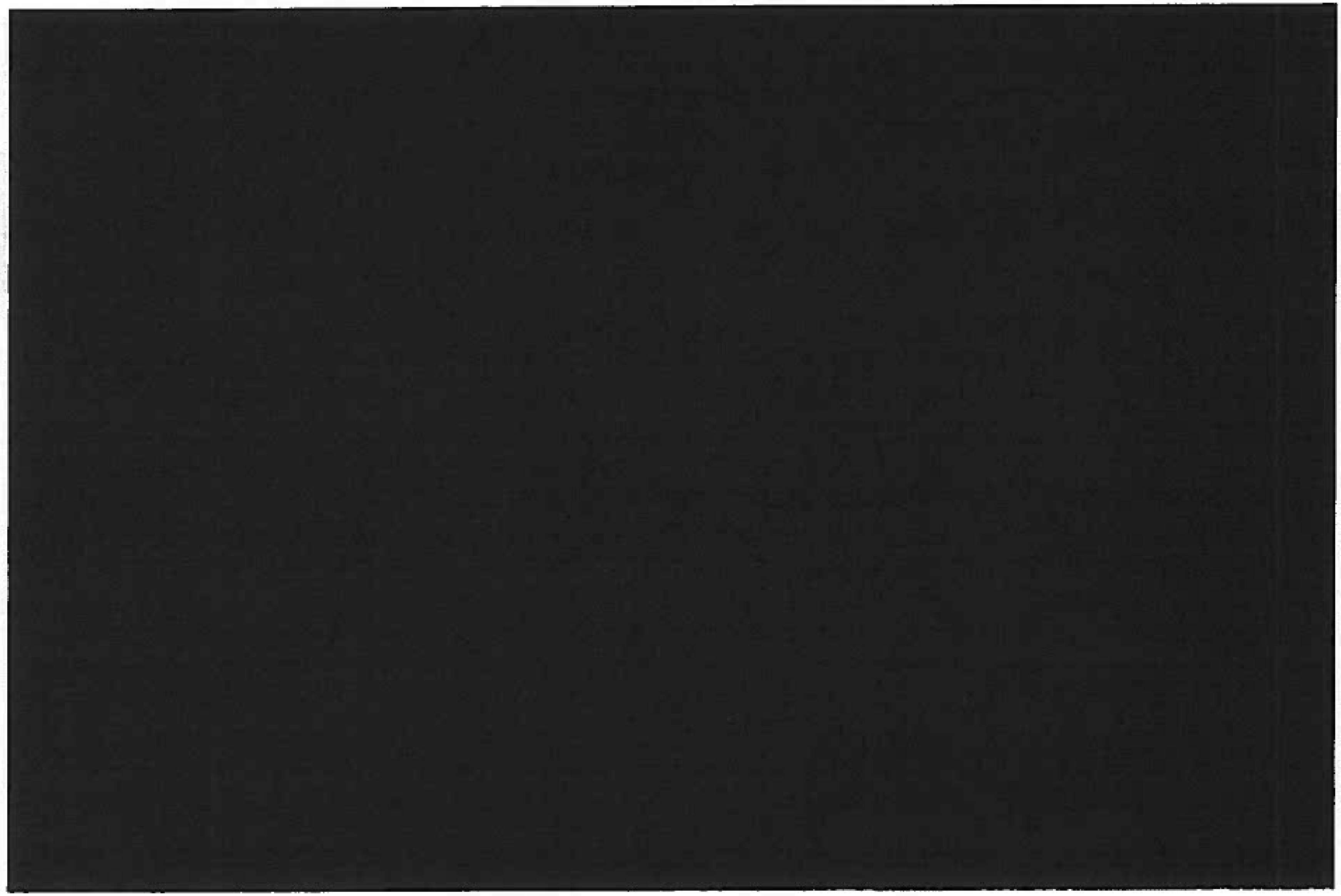
- Lack of energy efficiency due to age and footprint of school facility
- Aging mechanical systems and building envelope inadequate creating a lack of comfort and energy efficiency
- Faculty, staff and student work efficiency limited due to footprint of facility
- School schedule could be more efficient by recapturing space from 30% of "unusable" space
- Community use of facility limited due to security requirements and footprint of school building

Quick Overview: Facility

- Lack of compliance with State of Connecticut Security recommendations (June, 2014) for school facilities
- Areas of ADA code non-compliance throughout the facility
- Given current and projected enrollment, square footage and 30% "unusable" space create undersized classrooms, auditorium, library media, cafeteria and lower number of classrooms than needed
- 2004 NEASC facility recommendations have not been fully addressed
- Aging equipment
- Roof replacement: Areas of the school are in need of roof replacement
- Traffic flow and lack of parking are daily issues, especially when events occur
- 1928 building and other areas of the facility are aging and not adequately insulated
- Aging mechanical systems, equipment and piping
- Limited community use of facility due to multiple facility issues

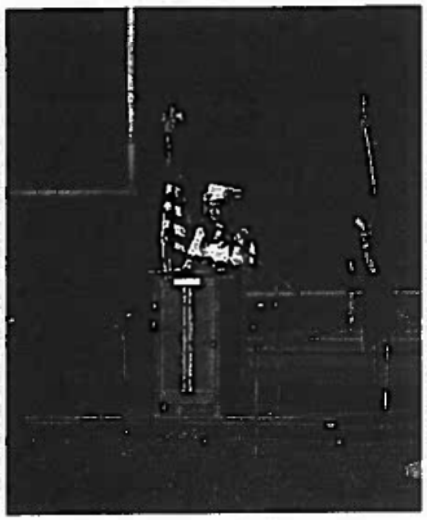
Type and Location of Space





This occurs 9 times a day

Vision of the Farmington Public Schools' Graduate



FARMINGTON PUBLIC SCHOOLS
"Vision of the FPS Graduate"

Farmington Graduates:
Pioneers-Scholars-Contributors-Citizens

Farmington Public Schools' Graduates will acquire an understanding of the essential knowledge and skills in the core academic disciplines and develop the thinking and learning skills necessary to meet the challenges of local, national and global citizenship in a rapidly changing world.

Critical Thinking and Reasoning: Students access, interpret, analyze, and evaluate ideas and information, draw evidence-based conclusions, synthesize new learning with prior knowledge and reflect critically on learning.

Collaboration and Communication: Students participate effectively in a variety of teams, actively listen and respond to the ideas of others, share responsibility for outcomes, articulate ideas clearly in multiple formats and use technology tools to enhance communication.

Problem Solving and Innovation: Students identify problems, analyze data, ask questions, utilize a variety of resources, think flexibly, make connections and seek practical, innovative and entrepreneurial solutions.

Self-Direction and Resourcefulness: Students explore interests, take initiative, set learning goals, demonstrate persistent effort, adapt to change with resiliency and exhibit ethical leadership and responsible citizenship.

Teaching and learning that impact schools today and tomorrow....

PROBLEM-BASED LEARNING

An approach to learning **focusing on the process of solving a problem** and acquiring knowledge. The approach is also inquiry-based when learners are active in creating the problem.

PROJECT-BASED LEARNING

An approach to learning **focusing on developing a product or creation**. The project may or may not be learner-centered, problem-based or inquiry-based.

INQUIRY-BASED LEARNING

A learner-centered, active learning approach **focusing on questioning, critical thinking, and problem solving**. It is associated with the idea "involve me and I understand."

◆

CTgov
STATE OF CONNECTICUT

2014-2015 Reimbursement Percentages

Status of data: Preliminary

Kevin Chambers (860) 713-6455

30.71%

Reimbursement

Select Year | Print | Download (CSV) | Da

Town	Name	DRG	Wealth AENGLC Rank	Adult Education (0-65%) [1]	Transportation (0-60%) [2]	C [2]		
29	COLEBROOK	E	50	18.96	12.72			
30	COLUMBIA	C	94	33.98	30.20			
31	CORNWALL	C	14	5.03	0.00			
32	COVENTRY	E	121	46.43	40.93			
33	CROMWELL	D	60	22.83	16.69			
34	DANBURY	H	122	46.82	41.32			
35	DARIEN	A	3	0.77	0.00			
36	DEEP RIVER	E	77	29.40	23.44	47.14	37.14	46.19
37	DERBY	H	152	58.42	53.25	73.93	63.93	81.90
39	EASTFORD	E	119	45.65	40.13	62.14	52.14	66.19
40	EAST GRANBY	D	64	24.38	18.28	42.50	32.50	40.00
41	EAST HADDAM	E	81	30.95	25.03	48.57	38.57	48.10
42	EAST HAMPTON	D	96	36.76	30.99	53.93	43.93	55.24
43	EAST HARTFORD	H	159	61.13	56.03	76.43	66.43	85.24
44	EAST HAVEN	G	139	53.39	48.08	69.29	59.29	80.00
45	EAST LYME	D	70	26.70	20.66	44.64	34.64	42.86
46	EASTON	A	17	6.19	0.00	25.71	15.71	17.62
47	EAST WINDSOR	F	116	44.49	38.94	61.07	51.07	64.76
48	ELLINGTON	C	105	40.24	34.57	57.14	47.14	59.52
49	ENFIELD	F	142	54.55	49.27	70.36	60.36	77.14
50	ESSEX	C	20	7.35	0.79	26.79	16.79	19.05
51	FAIRFIELD	B	18	6.56	0.00	26.07	16.07	18.10
52	FARMINGTON	B	31	11.61	5.17	30.71	20.71	24.29
53	FRANKLIN	E	93	36.57	30.60	53.57	43.57	54.76

2015 Notes:

[1] For Priority School Districts, their percentage shall not be less than 20%.
Increased by 7.5 percentage points but not to exceed 65% for local boards of education providing adult education programs at the Department of Mental Health and Addiction Services Facilities provided such adults reside at such facilities.

[2] Increased by 10 percentage points for K-12 regional districts and 5 percentage points for secondary regional districts.

[3] Increased by 10 percentage points for K-12 and secondary regional districts and cooperative arrangements and 5 percentage points for endowed academies. For regional districts and endowed academies the percentage cannot exceed 85%

[4] For applications made on or after 07/01/2011 for new construction or replacement of a school building unless a town or regional school district can demonstrate that a new construction or replacement is less expensive.

Statement of Need

1. *Whereas, the Farmington Board of Education has engaged in a comprehensive school feasibility study with TECTON that included multiple observations of existing conditions, age of equipment, facility, review of history of site, building and additions, analysis of energy efficiency and options for improvement, review of existing reports (OCR, NEASC, School Safety), focus groups with faculty, administration and students, assessment of education space needs and conceptual solutions to address needs.*
2. *Whereas, the FHS NEASC study summary highlights a need to improve travel distances for faculty and staff, improve circuitous and crowded corridors and intersecting/converging students and faculty, create informal collaboration spaces for students, faculty and staff, address building systems for a controllable interior environment and address accessibility to interior and exterior areas.*
3. *Whereas, several spaces at FHS do not meet ADA requirements as outlined by the OCR report issued in 2013-2014, including but not limited to the auditorium, stage, music instructional spaces, some classrooms, outdated chair lift in the weight room, media center, bathrooms, portions of 2nd and 3rd floors of 1928 building, culinary space, and outdoor athletic facilities.*
4. *Whereas, the FHS Safety and Security Study highlights accessibility issues (23 separate entry points to building), sight line issues, public/private use of building , inadequate interior and exterior lighting levels, building orientation difficulty and various issues around the multiple additions.*
5. *Whereas, Farmington High School (FHS) has experienced several additions over many years, with an aging 1928 building in need of significant renovation as well as several additions with an inefficient building envelope impacting energy costs and efficiencies (insulation, façade, windows-except for 900 wing) as well as aging mechanical, electrical, plumbing, fire alarm and protection building systems not in code compliance.*
6. *Whereas, Farmington High School system energy performance is lacking with a $393,000 cost per year and in need of a "Green Design" (new or renovated MEP systems could save an average of 35% of annual costs or 140,000 per year—could realize a 45% savings depending upon solution).*
7. *Whereas, the auditorium (poor acoustics), cafeteria, and library are undersized, impacting high school scheduling, educational programming as well as state and federal requirements on food services.*

8. *Whereas, the additions have primarily addressed enrollment increases, but have resulted in a very large, inefficient facility footprint impacting not only energy costs, but security, insufficient student classroom space, a need for students to travel outside the building to travel to classes (696 student cross intersection between classes 9 times per day and 1070 feet from one side of the building to another), significant hallway congestion, inadequate use of space (30% unused space), a lack of space for robotics, lack of space for whole school staff professional learning and collaboration as well as constraints on educational programming for students.*

9. *Whereas, with current and emerging educational requirements and demands on comprehensive high schools, FHS is in need of an efficient, functional, flexible learning facility that meets state and federal requirements and serves the diverse needs of all students.*

10. *Whereas, the current parking is inadequate and requires expansion to accommodate the school and public use of Farmington High School's building.*

The Board, therefore, directs administration to begin planning a renovation of appropriate and necessary school space at Farmington High School to accommodate new MEP needs, educational programming needs, Connecticut school safety expectations, NEASC standards and OCR/ADA regulations not currently being addressed in their entirety:

- *Maximize square footage for educational programming (see #2, #8, #9)*
- *Create multiple levels to the building to address inefficient sprawl and "maze" like building to increase classroom space, space for robotics and other current and emerging learning spaces (see #2, #8, #9)*
- *Undersized auditorium (acoustic issues), stage cafeteria and media center (see #7)*
- *Address multiple ADA compliance issues (see #3)*
- *Address Mechanical, Equipment and Piping (MEP) code compliance issues (see #2, #5, #6)*
- *Address Security compliance issues (see #4)*
- *Address overcrowded Town Hall office space as well as off-site Farmington Alternative High School space needs (#8)*