

COMPREHENSIVE FACILITIES STUDY  
OF THE  
EAST AND WEST HIGH SCHOOL BUILDINGS  
FOR THE

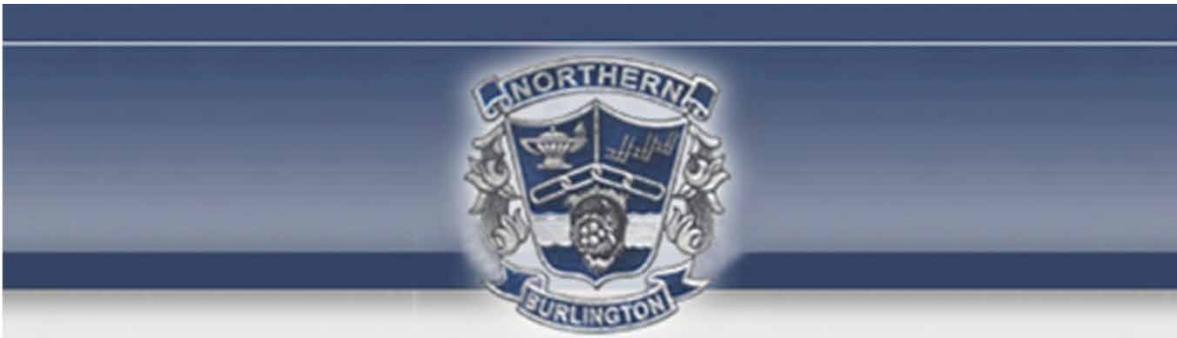


BOARD OF EDUCATION OF THE  
NORTHERN BURLINGTON COUNTY  
REGIONAL SCHOOL DISTRICT



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## PROFESSIONAL PROPOSAL

**DATE:** February 14, 2013

**TO:** Richard Kaz, District Business Administrator, Northern Burlington County Regional School District

**RE:** Northern Burlington County Regional School District - FVHD #9010

**SUBJECT:** Professional Architectural and Engineering Services for a Comprehensive Facilities Study for 2 Schools

Mr. Kaz,

We sincerely appreciate the opportunity to provide a proposal for a comprehensive facilities study for the **Northern Burlington County Regional High Schools, East building and West building.**

### **FVHD's Approach to Facility/Feasibility Studies**

We will visit the two schools, headed by myself with our consulting MEP engineer, and perform an on-site assessment of the Districts existing facilities including the condition of the building envelope, interior spaces and building infrastructure/systems to gain a full understanding of what entities of work may be required to be included in the comprehensive facilities study report.

The benefit of this base line assessment is to obtain a clear picture of required rehabilitation or replacement projects, including building infrastructure systems (HVAC, Electrical and electrical service, Plumbing/Fire Suppression, etc.) which should be considered in any building renovation program. We will work closely with your Director of Facilities personnel and on-site building personnel to incorporate their knowledge and concerns into our overall report.

### **Facilities Project Classifications**

Building components, both interior and exterior, will be evaluated based on the following priorities/code system:

**Category A - Life / Health / Safety / Building Code, Emergent** and Critical Projects requiring immediate attention to prevent injury to building occupants or continued damage to building security systems.

**Category B -** Strongly Recommended Projects to **prevent damage to building structure** or potential injury to building components in the project if not implemented.

**Category C - Recommended / Educational / Discretionary Projects** which should be implemented to enhance the educational program, building features, operation or efficiency depending on funding availability. Projects may include routine maintenance projects, building systems, or materials more than 10 years old and technology improvements.

**Category D - Barrier Free/ADA compliance** to improve accessibility in the existing buildings, around the sites and to playing fields.

**Category E - Energy related projects** which would improve building system operations and provide potential savings to the District by reduction in energy / operational costs.

### **MEP Engineering**

As part of the facility assessment and classification, the same approach will be employed with the building infrastructure and MEP systems. By providing due diligent investigative review of the existing building components which establish the condition of various building systems and service and to project the remaining useful life based on industry standards, a comprehensive value can be identified for rehabilitation and/or building system replacement. Investigative services will include the following:

- Perform on-site survey and assessment of the existing Mechanical, Electrical, Plumbing and Fire Suppression services and building utilities.
- Perform analysis of the Mechanical, Electrical, Plumbing, and Fire Suppression survey and assessment results.
- Review current building code requirements.
- Prepare report with conclusive recommendations and Statement of Probable Costs (SOPC) for mechanical, electrical, plumbing and fire protection systems.
- Review findings with the School District personnel for incorporation in overall report.

### **Cost Estimating for Facility/Feasibility Studies**

#### **Facilities Study:**

Our services will include the preparation of a statement of relative, probable cost for each line item or combination of like line items by school building summarized district wide by category. Provided in a final report form, this information provides the district with a summation of each category allowing entities of work to be prioritized for consideration and implementation. Quantities of system component to be repaired or replaced shall be estimated utilizing a National Construction Estimating Guide adjusted for geographic location and macro - market construction conditions and historical bidding data. It is important to recognize however, while we have established an extensive historical data base of regional construction cost for publically funded school projects, the current volatile, emotionally driven construction market conditions have challenged reasonable, historically based, estimating methodologies. We will also review existing the core facilities of each facility and provide student capacities of each space, which could be helpful in determining the overall capacity of the existing facility as it relates to the future considerations of the upcoming referendum.

## **Solar/Photovoltaic Design**

As we analyzed the Northern Burlington County Regional High School - West building for the feasibility of providing a photovoltaic/solar panel system, we will provide the same analysis for the remaining areas for both schools. We will explore multiple options to maximize the system size supported by the building to achieve maximum financial revenue (Solar Renewable Energy Certificates) and energy reduction. FVHD will review the existing structural components, electrical components, existing roofing systems, provide a preliminary solar analysis, and preliminary solar design for all facilities. FVHD believes that developing practical options for solar array consideration is the basis for a truly superior design solution.

## **Preliminary Schedule**

Architects authorization	March 25, 2013
Visit sites and meet with Personnel	June 25, 2013
Completion of assessment/report	August 28, 2013

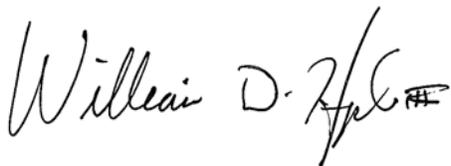
## **Architectural Fees**

We propose to provide the professional architectural fees for the facilities study and report for a fixed fee of \$17,500. We would also be agreeable to refunding the fee at which time a selected project(s) from the report of more than \$3,000,000 is approved and authorized.

Hoping you find this proposal acceptable, please let us know if you would like us to proceed with the Comprehensive Facilities Study and Report at your earliest convenience.

Please advise us of your authorization to proceed.

Very Truly Yours,



William D. Hopkins III, AIA, LEED AP

**COPIES:** Dr. James Sarruda, Superintendent of Schools, NBCRSD  
Don Czehut, Director of Facilities, NBCRSD  
Karen Mamo, Business Manager, FVHD Architects  
Project File

## INTRODUCTION

**DATE:** April 7, 2014

**SUBJECT: Comprehensive Facilities Study for the East and West High School Buildings  
Northern Burlington County Regional School District Board of Education  
FVHD#4444**

The Northern Burlington County Regional District Board of Education hired our firm to perform a comprehensive facilities study for the East and West High School buildings including associated ancillary structures.

Members of our firm, and that of our consulting MEP engineer, Gillan & Hartmann, Inc., have spent time analyzing the current conditions of the building envelope, building site, interior spaces, and building infrastructure systems for the listed facilities.

We have worked closely with your facilities staff and personnel to incorporate their knowledge and concerns into our overall report. We have completed our observations and offer to the District our assessment of each facility based on the following criteria:

### **FACILITIES PROJECT CLASSIFICATIONS**

Building components, both interior and exterior, will be evaluated based on the following priorities/code system:

- Category A** **Life / Health / Safety / Building Code / Emergent**, and critical projects requiring immediate attention to prevent injury to building occupants or continued damage to building security systems.
- Category B** **Prevent Damage to Building Structure** or potential injury to building components in the project if not implemented.
- Category C** **Recommended / Educational / Discretionary Projects** which should be implemented to enhance the educational program, building features, operation or efficiency depending on funding availability. Projects may include routine maintenance projects, building systems, replacement of materials more than 10 years old and technology improvements.
- Category D** **Barrier Free / ADA Compliance** to improve accessibility in the existing buildings, around the sites and to playing fields.
- Category E** **Energy Related Projects** which would improve building system operations and provide potential savings to the District by reduction in energy / operational costs.

## **FACILITIES STUDY**

Our services include the preparation of a statement of relative probable cost for each line item or combination of like items by school building summarized by category. Provided in a final report form, this information provides the District with a summation of each category allowing entities of work to be prioritized for consideration and implementation.

Many of the deficiencies noted in this report relate to systems that represent large areas of energy loss and inefficiencies in the buildings. This includes replacing single pane windows, metal exterior doors and aged mechanical systems. Their replacement is recommended for the District to reduce long term operating costs, and in the short term, help recoup the upfront replacement costs.

## **ROOFING EVALUATION**

Roof evaluation surveys have been previously conducted at both school buildings by members of FVHD Architect's staff.

The purpose of a roofing survey was to evaluate existing roof conditions and provide recommendations for repair, replacement, and/or maintenance as required. Our report provides an initial assessment of required maintenance recommendations for short term refurbishment and long term replacement. The evaluations are based on visual observations only. Invasive test cuts and infrared surveys were not performed. Deficiencies were found and noted for each facility.

Field surveys include a visual investigation of the waterproofing membrane. Core samples were not taken to identify roof composition. Deficiencies found in the roof system are noted.

The buildings referenced consist mainly of low - slope roof systems including multiple-ply built-up roof (BUR) with an aggregate surface, multi-ply Styrene Butadiene Styrene (SBS), and Ethylene Propylene Diene Monomer (EPDM) Single-Ply membrane, with a very small area of metal standing seam roofs at secondary entry points. Thermal resistance is provided by rigid insulation boards.

The existing roof membranes were not tested for the presence of asbestos bearing materials. Given the age and type of the original roof system and roof conditions, we will provide recommendations for repair, replacement, and/or maintenance as required. Our report provides an initial assessment of long term repair and/or replacement. They have each been assigned one of the following replacement priority numbers:

- **Priority 1** = Replacement is recommended within the next 1 to 3 years and should be budgeted for accordingly.
- **Priority 2** = Replacement is recommended within the next 3 to 5 years and should be budgeted for accordingly.
- **Priority 3** = Roof appears to be recently installed and replacement is not recommended until the existing warranty has expired, likely to be 10 or more years from the date of this report.

This report is also based on the following design standards:

- ✓ NJ Uniform Construction Code (NJUCC) which adopts the 2009 International Building Sub-code requiring a minimum roof slope of 1/4"/ft (which may necessitate the installation of tapered insulation, impacting existing roof perimeter, rising wall – through wall flashing conditions, penetration conditions and roof ventilation requirements).
- ✓ ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. requiring a minimum thermal resistance value of R=20.0 for commercial /institutional buildings.
- ✓ NRCA National Roof Contractors Association “Handbook of Accepted Roof Knowledge”, and “Roof and waterproofing Manual”, latest addition.
- ✓ Roof industry standard practices (which requires 8” minimum height from top of roof membrane to top of base flashing termination; roof membrane guarantee requirement).
- ✓ SMACNA “Architectural Sheet Metal Manual” and Guidelines for Roof Mounted Outdoor Air-conditioner Installations”, latest edition.
- ✓ NJ Uniform Construction Code (NJUCC), Building Sub-Code Data: 2009 International Building Code: Primary Building Use Groups – “B” Business, “E” Educational
- ✓ Construction Classification: Varies. Determines external fire exposure and interior fire resistance requirements based on structural roof deck type and overall building fire rated construction – to be assessed in more detail in subsequent phase.
- ✓ Minimum Roof Covering Required: Underwriter laboratories Class “C” (Exterior Flame Exposure).
- ✓ Roof Construction Fire Resistance Rating: Varies based on use group and construction type - to be assessed in more detail in subsequent phase.
- ✓ Wind Up-lift resistance: Minimum FM I-60, FM I-90 recommended.

### **ADA COMPLIANCE**

Each facility was reviewed for compliance with current ADA standards and related International Building Codes (IBC). The following areas were analyzed for barrier free conformity:

- Toilet Facilities (Quantity, Stalls, Lavatories, Urinals, Doors, Path from Door to Stall, etc.)
- Elevator (if applicable)
- Typical Classroom (Path to room, entrance door, Locker/Cubbie if applicable, etc.)

Implementation of the ADA Compliance recommendations, including appropriate signage, at each building will allow each facility to be considered “Handicapped Accessible”.

## **MEP ENGINEERING EVALUATION**

As part of the facility assessment and classification, the same approach was employed with the building infrastructure and MEP systems. By providing due diligent investigative review of the existing building components which establishes the condition of various building systems and service and projecting the remaining useful life based on industry standards, a comprehensive value can be identified for rehabilitation and/or building system replacement. Investigative services included the following:

- Performed on-site survey and assessment of the existing Mechanical, Electrical, Plumbing, and Fire Suppression services and building utilities.
- Performed analysis of the Mechanical, Electrical, Plumbing, and Fire Suppression systems and provide assessment results.
- Reviewed the current building code requirements as they relate to the District's facilities.
- Prepared conclusive recommendations and preliminary cost estimates for each system.

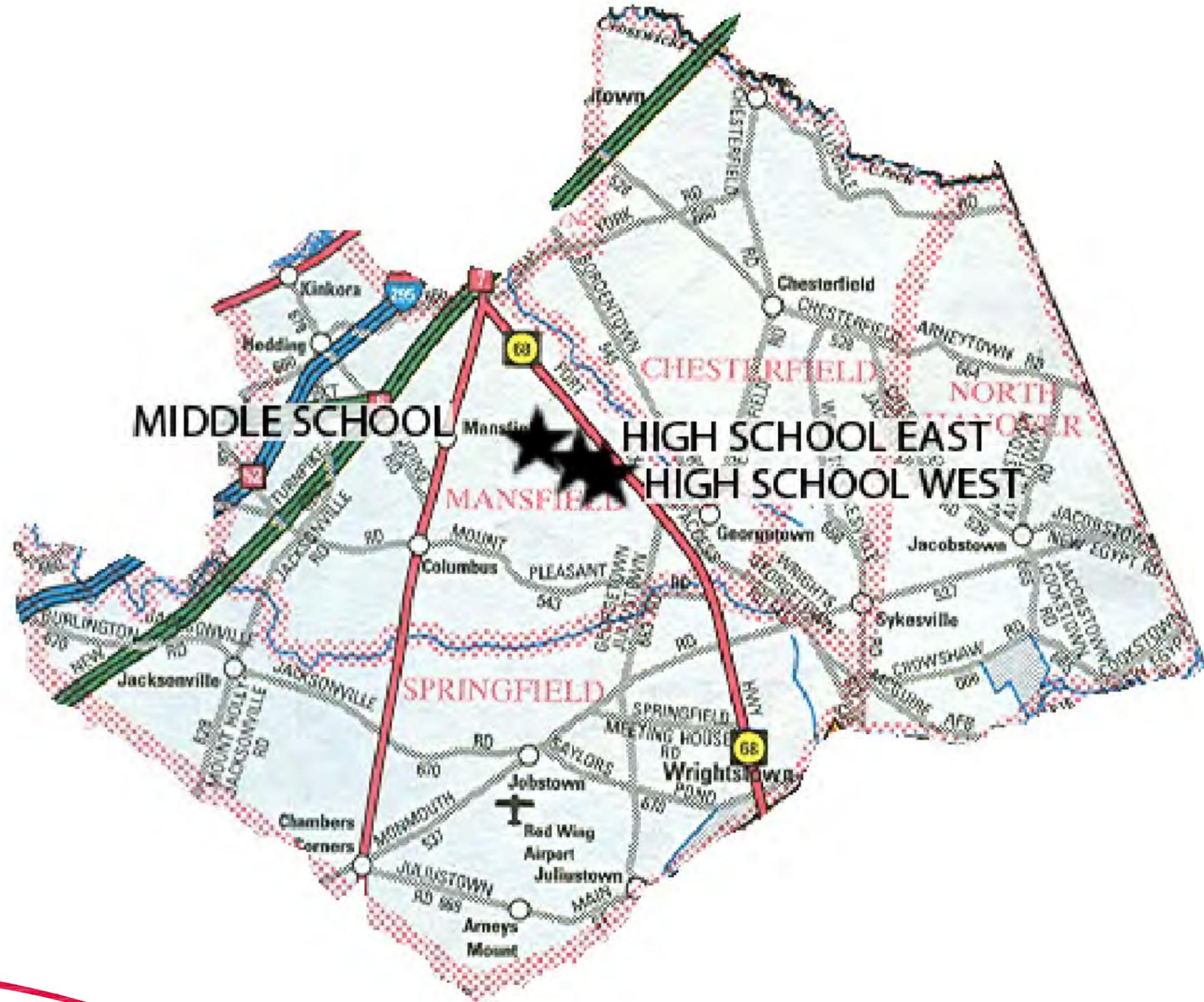
## **SUMMARY**

Preliminary cost estimates are provided for relative budget comparison. Final cost estimates, including specific costs for related site, building, HVAC, plumbing, electric, etc., modifications necessary for the repair or replacement of any building system will be provided subject to detailed field investigation and cost estimates upon selection of a particular project for bidding.

The following is a detailed report of the conditions at each District site including the interior finish surfaces and equipment, exterior building envelope, roofing, paved site areas, ADA compliance, building security and mechanical, electrical & plumbing systems.

# DISTRICT MAP

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT



**FVHD** architects  
planners

**Fraytak Veisz Hopkins Duthie P.C.**

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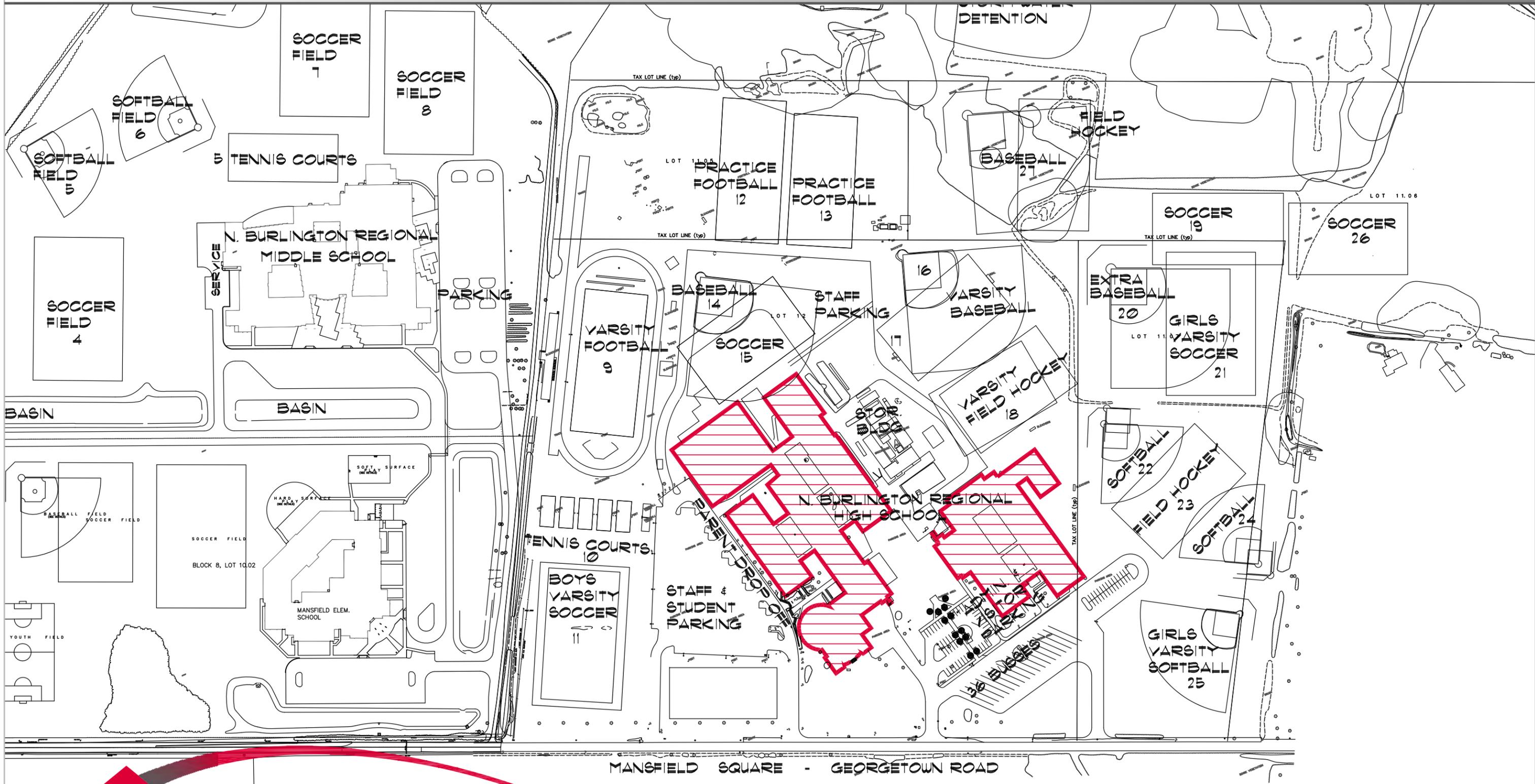
### SITE PLAN

Scale : N.T.S.  
Prj No : 4444  
Date : 02-04-2014

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# HIGH SCHOOL EAST AND WEST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT



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## **EAST HIGH SCHOOL BUILDING**

The original facility was constructed in 1963 with additions in 1998. In general, the building is in good condition. However, needed replacement of MEP systems will eliminate costly maintenance & repair to systems at the end of their life and greatly improve the energy efficiency of the building.

### ■ **INTERIOR CONDITIONS [CATEGORY C]**

○ For your consideration, the following interior finishes are in need of replacement:

- Replace VAT Flooring due to being an asbestos laden material:
  - Storage 714 (151 sf)
  - Art Room 603 (1,265 sf)
    - **TOTAL = 1,416 sf @ \$5.00/sf = \$8,000**
  
- Replace Carpet Flooring that has extensive wear, rips and/or tearing:
  - Admin. Office 902 (563 sf)
  - Assistant Principal's Office A (182 sf)
  - Office B (104 sf)
  - Assistant Principal's Office C (120 sf)
  - Guidance Office 900 (361 sf)
  - Office 1 (96 sf)
  - Office 2 (91 sf)
  - Office 3 (91 sf)
  - Conference Room C (315 sf)
  - Storage 900 F (44 sf)
    - **TOTAL = 1,967 sf @ \$6.00/sf = \$12,000**
  
- Replace Metal Bookcases due to extensive wear, damage and functionality issues:
  - Classroom 700 (703 sf)
  - Classroom 702 (754 sf)
  - Classroom 703 (747 sf)
  - Classroom 705 (752 sf)
  - Classroom 707 (752 sf)
  - Classroom 709 (752 sf)
  - Classroom 711 (752 sf)
  - Classroom 713 (752 sf)
  - Classroom 715 (752 sf)
  - Classroom 717 (752 sf)
  - Classroom 719 (752 sf)
  - Classroom 721 (783 sf)
  - Classroom 712 (779 sf)
  - Classroom 716 (655 sf)
  - Classroom 718 (670 sf)
  - Classroom 607 (727 sf)

- Classroom 605 (724 sf)
  - Classroom 608 (1,163 sf)
  - Faculty Room 604 (576 sf)
    - **TOTAL = 19 Rooms @ \$3,000 ea. = \$57,000**
  - Replace Existing Gymnasium Partition due to age, wear and functionality issues:
    - **TOTAL = \$50,000**
  - Repair Existing Corridor Terrazzo Floor at areas of localized cracking:
    - 800 Hallway
      - **TOTAL = \$10,000**
- **INTERIOR SUBTOTAL = \$137,000**



- **EXTERIOR CONDITIONS – BUILDING [CATEGORY B]**
  - For your consideration, the following exterior finishes are in need of replacement:
    - Exterior Masonry Restoration: **TOTAL = \$2,000**
  - **BUILDING SUBTOTAL = \$2,000**



■ **EXTERIOR CONDITIONS – ROOF [CATEGORY B]**

- Total Roof Area = 79,322 ± square feet
- Roof Priorities are designated as:
  - **Priority 1 = 1993 and 1994 Roofs**
  - **Priority 2 = 1998 Roofs**
  - **Priority 3 = 2013 Roofs**
- The existing roofing and flashing systems are varied. Replacement is recommended on the 1993 and 1994 roofs due to age and imminent warranty expiration, at an estimated cost of:
  - **\$1,210,000**
- DEFICIENCIES:
  - **None**
- RECOMMENDATIONS:
  - Any leaks / problems to these roofs should be reported to the warranty issuer.
  - See Roof Key Plan for additional information.
- **ROOF SUBTOTAL = \$1,210,000**



- **EXTERIOR CONDITIONS – SOLAR/PHOTOVOLTAIC [CATEGORY E]**
  - With the recent replacement of some existing roofs and the remaining balance of roofs needing replacement in the near future, the East Building is an ideal candidate for roof mounted solar panel arrays. In addition, the orientation of the building would also make it desirable for a photovoltaic installation. Attached is an aerial view of the building with roof areas highlighted that are appropriate for solar and the estimated electricity production.
  
- **ADA COMPLIANCE [CATEGORY D]**
  - Throughout our survey, we noted that several toilet facilities have been modified to provide access that approaches ADA compliance, but still do not meet the standards set forth in the current requirements of the code. As a result, a percentage of the schools toilet facilities would require additional grab bars to provide barrier free accessibility.
    - Add vertical grab bars to six (6) barrier free toilet facilities:
      - **TOTAL = 1 vertical grab bar @ \$500 ea. = \$3,000**
    - Renovate one Boys and Girls gang toilet rooms to meet barrier accessibility:
      - **TOTAL = 2 gang toilet facilities @ \$75,000 ea. = \$150,000**
  - **ADA COMPLIANCE SUBTOTAL = \$153,000**

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- **MECHANICAL, PLUMBING, AND ELECTRICAL CONDITIONS [CATEGORY C,E]**
  - Please see the attached report from our consulting engineers. There are many systems with a service life of 20 years, which means that those systems are at the end of that system life and should be considered for replacement. Our engineers have placed a **Statement of Probable Cost (SOPC)** for each item beyond the system life.
  - **MEP SUBTOTAL = \$1,141,000**

# 1. HIGH SCHOOL, EAST BUILDING

## 1.1 HVAC Systems

### A. General

1. SOPC for each HVAC recommendation below includes all associated electrical work, including disconnecting and reconnecting existing power wiring..

### B. 1963 Original Building

1. Office Area, Packaged Terminal Air Conditioning Units, Main Office 902 & Guidance 900, (12 total):

- Equipment age: 17 years;
- Equipment service life: 15 years;
- Equipment remaining service life: Exceeded;
- Condition: Fair;
- Recommendation: Replace;
- SOPC: \$36,000.00.

2. Classroom Finned Tube Radiation, CR #'s; 603, 605, 606, 607, 608, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712,713, 715, 717, 718, 719, 720, 721, (25 classrooms):

- Equipment age: 50 years;
- Equipment service life: 25-35 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace finned tube radiation, including associated heating water supply and return piping;
- SOPC: \$60,000.00.

3. Heating-Only Classroom Unit Ventilators CR #'s; 603, 605, 607, 700, 702, 703, 704, 705, 707, 709, 710, 711, 712, 713, 715, 717, 718, 719, 720, 721, (20 classrooms):

- Equipment age: 50 years;
- Equipment service life: 20-25 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace;
- SOPC: \$180,000.00.

4. Heating/Cooling Classroom Unit Ventilators with remote Condensers, 1996

Renovation, CR #'s; 604, 606, 608(2), 609, & 701, (six total):

- Equipment age: 17 years;
- Equipment service life: 15-20 years;
- Equipment remaining service life: Exceeded;
- Condition: Fair;
- Recommendation: Replace;
- SOPC: \$65,000.00.

5. Heating Hot Water Piping and Valves:

- Equipment age: 50 years;
- Equipment service life: 40-50 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace all piping, insulation, valves and supports;
- SOPC: \$250,000.00.

6. Classrooms and Nurse Suite Split Systems, 1996 Renovation, CR's #'s; 803, 805, 810, 812, 812A, 814, 701A thru D, 706, 706A, 708, & Nurse Suite 904, (11 units):

- Equipment age: 17 years;
- Equipment service life: 15 years;
- Equipment remaining service life: Exceeded;
- Condition: Fair;
- Recommendation: Replace. All ductwork will be reused;
- SOPC: \$140,000.00.

7. Gymnasium and Locker Room Heating and Ventilating Units, 1963 (two total):

- Equipment age: 50 years;
- Equipment service life: 20-25 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace. All ductwork will be reused;
- SOPC: \$45,000.00.

8. Cafeteria Heating and Ventilating Unit, 1963:

- Equipment age: 50 years;
- Equipment service life: 20-25 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace. All ductwork will be reused;
- SOPC: \$45,000.00.

9. Cafeteria Finned Tube Radiation, 1963:
  - Equipment age: 50 years;
  - Equipment service life: 25-35 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$3,000.00.
  
10. Corridor and Toilet Room Convectors and Finned Tube Radiation, 1963 (20 total):
  - Equipment age: 50 years;
  - Equipment service life: 25-35 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$120,000.00.

## 1.2 **Plumbing Systems**

### A. 1963 Original Building

1. Domestic Gas Fired Water Heater, installed in 2000, (720 MBH Input, 800 Gallons Storage):
  - Equipment age: 14 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: 7 years;
  - Condition: Good;
  - Recommendation: None.
  
2. Plumbing Fixtures:
  - Equipment age: Varies;
  - Equipment service life: 30 to 35 years;
  - Equipment remaining service life: 0 to 15 years;
  - Condition: All plumbing fixtures appeared to be in relatively good condition;
  - Recommendation: None.
  
3. Drinking Fountains and Electric Water Coolers (four total):
  - Equipment age: Varies;
  - Equipment service life: 10 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace old drinking fountains and water coolers with new water coolers;
  - SOPC: \$16,000.00, including new power wiring where required.

4. Grease Interceptor - Interior In-Floor Type:
  - Equipment age: 50 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Grease interceptor was not accessible and it is assumed to be in fair condition. District to confirm;
  - Recommendation: None.
  
5. Sump Pump - Basement Mechanical Room:
  - Equipment age: Unknown;
  - Equipment service life: 20 years;
  - Equipment remaining service life: Unknown;
  - Condition: Sump pump was not accessible and it is assumed to be in fair condition. District to confirm;
  - Recommendation: None.

### 1.3 Electrical Systems

#### A. 1963 Original Building

1. 5kV Electric Service Metering and Relaying Switchgear located in the Transformer Vault, serving the East Building, West Building, and Media Center 5kV X 120/208V, Three-Phase Distribution Transformers:
  - Equipment age: 50 years;
  - Equipment service life: 30 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair;
  - Recommendation: Replace;
  - SOPC: \$150,000.00.
  
2. Three 100 kVA Electric Service Transformers Located in the Interior Transformer Vault:
  - Existing conditions: Oil stains on the sides of the transformer tanks were observed from intermittent leaks out of the secondary bushings that extend down to the floor of vault;
  - Equipment age: 50 years;
  - Equipment service life: 25-40 years depending upon the load;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair;
  - Recommendation: Replace;
  - SOPC: \$31,000.00.

3. Electric Service Switchboard “MDP” and Distribution Panelboard “PPA”  
Located in the Basement Boiler Room:
  - Equipment age: 17 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: 23 years;
  - Condition: Good;
  - Recommendation: None.
  
4. Panelboards:
  - Equipment age: 17 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: 23 years;
  - Condition: Good;
  - Recommendation: None.
  
5. Branch Circuit Wiring:
  - Equipment age: Varies between 17 to 50 years;
  - Equipment service life: 55 years;
  - Equipment remaining service life: 5 or more years;
  - Condition: Good;
  - Recommendation: None.
  
6. 125kW/156kVA, 120/208V, Three-Phase, Four-Wire, Exterior Diesel Fueled  
Emergency Generator:
  - Equipment age: 17 years;
  - Equipment service life: 25 years;
  - Equipment remaining service life: 8 years;
  - Condition: Good;
  - Recommendation: None.
  
7. 420 Amp, 120/208V, Three-Phase, Four Wire Emergency Power Transfer  
Switch:
  - Equipment age: 17 years;
  - Equipment service life: 30 years;
  - Equipment remaining service life: 13 years;
  - Condition: Good;
  - Recommendation: None.
  
8. Interior and Exterior Light Fixtures:
  - Equipment age: Less than 10 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: 10 years;
  - Condition: Good;
  - Recommendation: None.

9. Fire Alarm System:

- Equipment age: 4 years;
- Equipment service life: 15 years;
- Equipment remaining service life: 11 years;
- Condition: Good;
- Recommendation: None.

10. Clock System:

- Equipment age: 5 years;
- Equipment service life: 15 years;
- Equipment remaining service life: 10 years;
- Condition: Good;
- Recommendation: None.

11. Public Address System:

- Equipment age: 7 years;
- Equipment service life: 20 years;
- Equipment remaining service life: 13 years;
- Condition: Good;
- Recommendation: None.

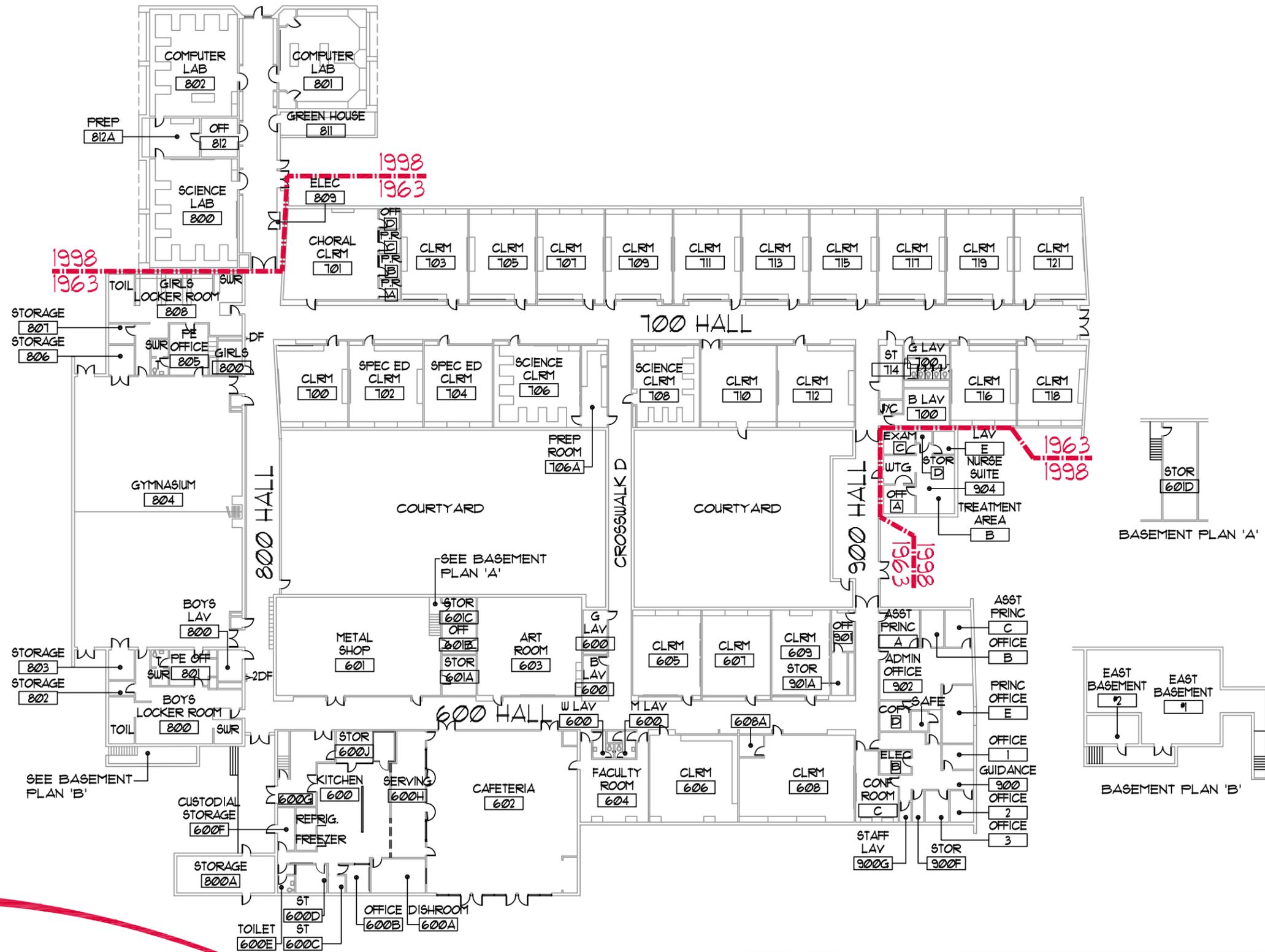
## Summary for EAST HIGH SCHOOL BUILDING:

Interior Conditions	\$137,000
Exterior Conditions (BUILDING)	\$2,000
Exterior Conditions (ROOF)	\$1,210,000
ADA Compliance	\$153,000
MEP Systems Conditions	\$1,141,000
<b>Subtotal for Construction</b>	<b>\$2,643,000</b>
Soft Costs @ 25%	\$660,750
<b>TOTAL</b>	<b>\$3,303,750</b>



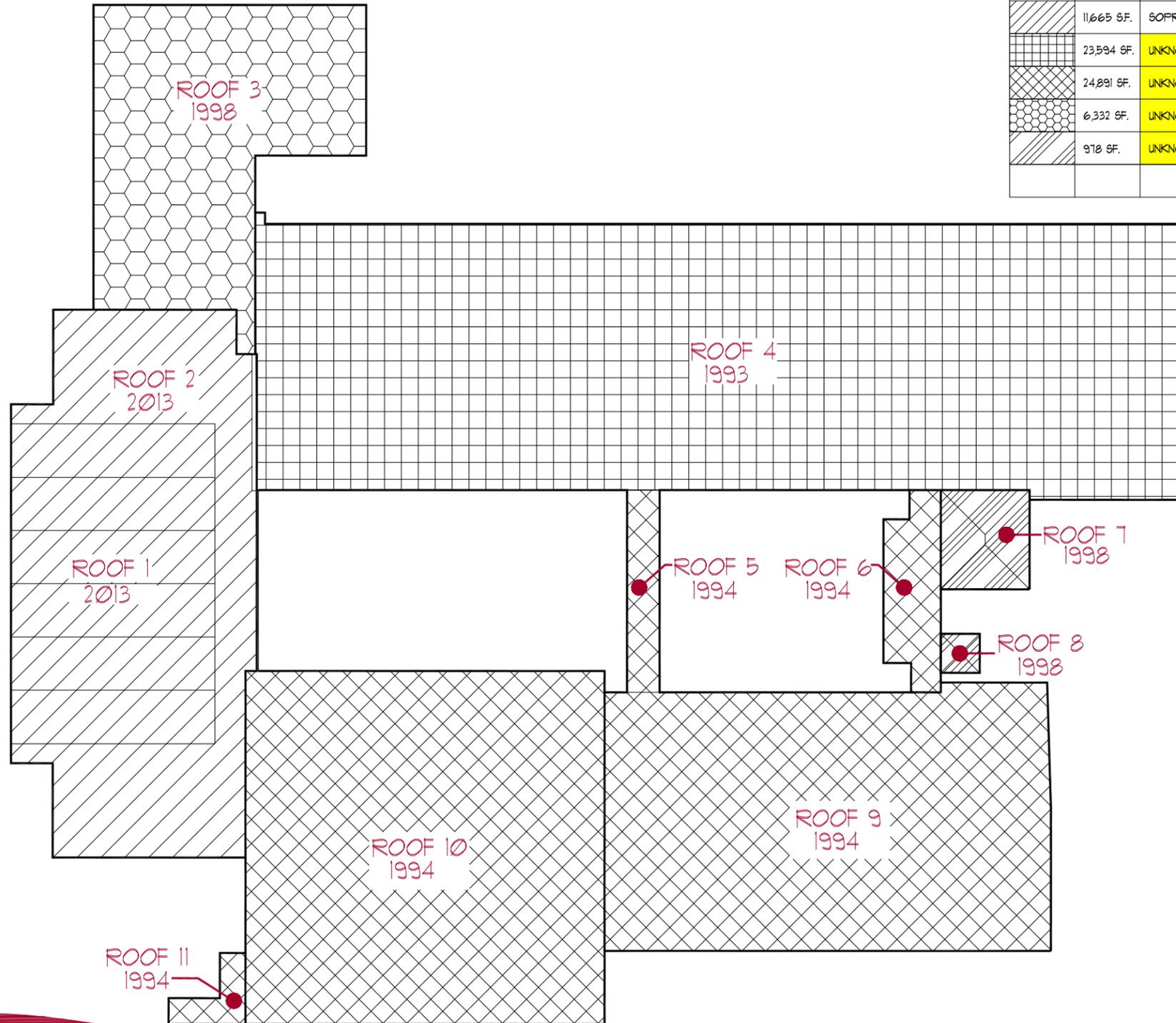
# HIGH SCHOOL EAST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT



# HIGH SCHOOL EAST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT



	AREA	MANUFACTURER	ROOFING SYSTEM	DATE INSTALLED	WARRANTY EXPIRATION	RECOMMENDED REPLACEMENT YEAR
	11,665 SF.	SOPREMA	SBS	2013	2033	2033
	23,594 SF.	UNKNOWN	TPO	1993	2008	2008
	24,891 SF.	UNKNOWN	TPO	1994	2009	2009
	6,332 SF.	UNKNOWN	TPO	1998	2018	2018
	978 SF.	UNKNOWN	S.S. METAL	1998		

= INFORMATION NEEDS TO BE VERIFIED

### ROOF HISTORY

# HIGH SCHOOL EAST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT

### ESTIMATED FUTURE SOLAR PRODUCTION

EXISTING ROOF AREA = 48,685 SF  
multiple by 0.4 (useable roof area) = 19,474 SF  
7W / SQUARE FOOT = 136,318 W  
divide by 1000 (convert to kW) = 136.3 kW

TOTAL ESTIMATED  
PRODUCTION = **136.3 kW**



**FVHD** architects  
planners

**Fraytak Veisz Hopkins Duthie P.C.**

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### SCHEMATIC FUTURE SOLAR ANALYSIS

Scale : NTS  
Prj No : 4444  
Date : 02-04-2014

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## WEST HIGH SCHOOL BUILDING

The original facility was constructed in 1959/1960 with additions in 1966 (greenhouses), 1974 (gym wing), and 1998 (music, media center). In general, the building is in good condition, especially with the recent roofing work in the summer of 2010. However, needed replacement of MEP systems, acoustical ceilings, wood casework and some major flooring areas will eliminate costly maintenance & repair to systems at the end of their life.

### ■ **INTERIOR CONDITIONS [CATEGORY C]**

○ For your consideration, the following interior finishes are in need of replacement:

- Replace VCT Flooring that has extensive, cracking, cupping and/or patches:
  - Boys Locker Room Storage 1 (89 sf)
  - Boys Locker Room Storage 2 (80 sf)
  - Classroom 112 (804 sf)
  - Distance Education Classroom 306 (749 sf)
    - **TOTAL = 1,722 sf @ \$3.00/sf = \$5,200**
  
- Replace VAT Flooring due to being an asbestos laden material:
  - Prep Room 204A (193 sf)
  - Graphic Arts Room 104 (1,552 sf)
  - Computer Room 102 (965 sf)
  - Classroom 105 (949 sf)
  - Duplication/Publishing (756 sf)
  - Classroom 303 (721 sf)
    - **TOTAL = 5,136 sf @ \$5.00/sf = \$26,000**
  
- Replace Carpet Flooring that has extensive wear and/or patches:
  - Facilities Department Office 213 (451 sf)
  - Facilities Director Office 213A (152 sf)
  - Office 213C (65 sf)
  - Business Office 215 (597 sf)
    - **TOTAL = 1,265 sf @ \$3.00/sf = \$4,000**
  
- Replace Interior Doors and Hardware for functionality and/or barrier free issues:
  - Single Doors
    - IDF/Tech. Storage (1 single)
    - Girls Toilet M-12 (1 single w/ louver)
    - Boys Toilet M-10 (1 single w/ louver)
    - Storage M-9 (1 single)
    - Storage M-8 (1 single)
    - Auto Shop 110 (1 single)
    - Art Classroom 207 (2 singles)
    - Facilities Director Office 213A (1 single)
    - Office 213B (1 single)
    - Office 213C (1 single)

- Custodial Office (1 single)
- Performing Arts/Music Storage (1 single)
- Performing Arts/Music Practice (2 singles)
- Performing Arts/Music IDF (1 single)
  - **TOTAL Single Doors = 16 @ \$2,500ea. = \$40,000**
- Double Doors
  - Performing Arts/Music (1 double )
  - Music Instruction (1 double)
    - **TOTAL Double Doors = 2 @ \$5,000ea. = \$10,000**
- Overlay Existing Ceramic Tile Flooring that is uneven, cracked or has missing tiles:
  - Girls Toilet 400 (125 sf)
  - Men's Auditorium Toilet (268 sf)
    - **TOTAL = 393 sf @ \$10.00/sf = \$4,000**
- Replace Acoustical Ceilings (Board & Grid) that is deteriorated, rusted and sagging:
  - Women's Faculty Toilet (50 sf)
  - Weight Room 307/308 (1,391 sf)
  - Classroom 309 (690 sf)
  - Men's Auditorium Toilet (268 sf)
    - **TOTAL = 2,399 sf @ \$6.00/sf = \$15,000**
- Replace Acoustical Ceilings (Boards only) that have extensive sag and deterioration:
  - Prep Room (193 sf)
  - Boys Locker Room 312b3 (1,315 sf)
  - Boys Team Room 312b2 (155 sf)
  - 100 Corridor (2,138 sf)
  - CAD Lab 106 (1,055 sf)
  - Prep Room 201A (215 sf)
  - Science Lab 201 (1,084 sf)
  - Boys Toilet 401 (313 sf)
  - Business Office 215 (597 sf)
  - Kitchen Receiving 219 (65 sf)
  - Performing Arts/Music Practice (49 sf)
  - Performing Arts/Music IDF (49 sf)
  - Auditorium Vestibule (199 sf)
  - Trainer Room 312g3 (362 sf)
  - 300 Corridor Storage (116 sf)
  - 300 Corridor (3,826 sf)
  - Home Economics 300 (1,062 sf)
  - Early Childhood Dev. Lab 301 (711 sf)
  - Distance Education Classroom 306 (749 sf)
  - 300 Corridor Boys Toilet (91 sf)
    - **TOTAL = 14,344 sf @ \$3.00/sf = \$44,000**

- Replace Chalkboards (CB) with Dry Marker Boards (DMB) and replace existing Dry Marker Boards (DMB) and Exhibition Boards (EB) that are worn and deteriorating:
  - Graphic Arts (1 ten foot tack strip)
  - Classroom 105 (1 eight foot chalkboard)
  - Weight Room 307/308 (1 eight foot DMB, 1 four foot DMB, 2 two foot EBs)
    - **TOTAL = 24 LF @ 4'-0" high = 96SF @ \$40/SF = \$4,000**
  
- Replace Casework due to extensive wear, damage and functionality issues:
  - Classroom 100
  - Classroom 101
  - Classroom 105
  - Classroom 107
  - Classroom 111
    - **TOTAL = 5 general classrooms @ \$7,200 ea. = \$36,000**
  
  - Science Lab 201
  - Science Classroom 203
  - Science Classroom 205
    - **TOTAL = 3 science labs @ \$80,000 ea. = \$240,000**
  
  - Home Economics 300
    - **TOTAL = 1 home economics labs @ \$60,000 ea. = \$60,000**
  
  - Art Classroom 207
    - **TOTAL = 2 art classrooms @ \$50,000 ea. = \$100,000**
  
  - CAD Lab 106
    - **TOTAL = 1 CAD lab @ \$1,000 ea. = \$1,000**
  
  - Agriculture Lab 109 (5 solid tall storage cabinets)
    - **TOTAL = 5 TSC's @ \$1,000 ea. = \$5,000**
  
  - Office M-6 (535 sf)
  - Break Room M-7 (443 sf)
    - **TOTAL = 2 Admin. Rooms @ \$3,000 ea. = \$6,000**
  
- Replace Stage Wood Flooring that has extensive wear:
  - Auditorium Stage 501 (2,264 sf)
    - **TOTAL = 2,264 sf @ \$15.00/sf = \$34,000**
  
- Replace Main and Auxiliary Gymnasium's Wood Flooring due to extensive wear:
  - Gymnasium 312 (8,180 sf)
  - Auxiliary Gymnasium (3,705 sf)
    - **TOTAL = 11,885 sf @ \$16.50/sf = \$200,000**
  
- Repair Existing Corridor Terrazzo Floor at areas of localized cracking:
  - 100 Corridor (approx. 75 sf)
    - **TOTAL = approx. 75 sf = \$15,000**

○ **INTERIOR CONDITIONS SUBTOTAL = \$849,200**



■ **EXTERIOR CONDITIONS – BUILDING [CATEGORY C,E]**

○ For your consideration, the following exterior finishes are in need of replacement:

• Exterior Masonry Restoration = **\$5,000**

○ **EXTERIOR BUILDING SUBTOTAL = \$5,000**



- **EXTERIOR CONDITIONS – ROOF [CATEGORY C,E]**
  - Total Roof Area = 132,484 ± square feet
  - Roof Priorities are designated as:
    - **Priority 2 = 1998 Roofs**
    - **Priority 3 = 2006 and 2010 Roofs**
  - The existing roofing and flashing systems are varied. Replacement is recommended in the near future on the 1997 roofs due to age and pending warranty expiration, at an estimated cost of:
    - **\$1,630,000**
  - DEFICIENCIES:
    - **None**
  - RECOMMENDATIONS:
    - Any leaks / problems to these roofs should be reported to the warranty issuer.
    - See Roof Key Plan for additional information.
  - **ROOF SUBTOTAL = \$1,630,000**
  
- **EXTERIOR CONDITIONS – SOLAR/PHOTOVOLTAIC [CATEGORY E]**
  - With the remaining balance of roofs needing replacement in the near future, the West Buildings roofs that did not get solar arrays as part of the previous project are ideal for roof mounted solar panel arrays. The orientation of the building would make it desirable to add to the existing photovoltaic installation. Attached is an aerial view of the building with roof areas highlighted that are appropriate for additional solar and the estimated electricity production.
  
- **ADA COMPLIANCE [CATEGORY D]**
  - Throughout our survey, we noted that several toilet facilities have been renovated to provide access that approaches ADA compliance, but still do not meet the standards set forth in the current requirements of the code. We recommend that at least one set of existing boys and girl's gang toilet facilities be renovated to provide complete barrier free accessibility. To meet the intent of ADA, one classroom should be fully compliant, providing proper widths and clearances at the door from the hallway, along with any other main core space.
    - Add vertical grab bars to two existing barrier free toilet facilities:
      - **TOTAL = 2 vertical grab bars @ \$500 ea. = \$1,000**
    - Renovate one Boys and Girls gang toilet rooms to meet barrier accessibility:
      - **TOTAL = 2 gang toilet facilities @ \$75,000 ea. = \$150,000**
  - **ADA COMPLIANCE SUBTOTAL = \$41,000**

- **MECHANICAL, PLUMBING, AND ELECTRICAL CONDITIONS [CATEGORY C,E]**
  - Please see the attached report from our consulting engineers. There are many systems with a service life of 20 years, which means that those systems are at the end of that system life and should be considered for replacement.
  - Our engineers have placed a **Statement of Probable Cost (SOPC)** for each item beyond the system life.
  
  - **MEP SUBTOTAL = \$2,167,200**

## 2.

### ORIGINAL HIGH SCHOOL, WEST BUILDING

#### 2.1 HVAC Systems

##### A. General

1. SOPC for each HVAC recommendation below includes all associated electrical work, including disconnecting and reconnecting existing power wiring.

##### B. 1959/1960 Original Building, and 1966 Greenhouse Addition.

1. Office Area, (1996 Renovation) seven Packaged Terminal Air Conditioning (PTAC) Units and five Direct Expansion Split Systems, Offices #'s 212, & 212B, C, D, E & F:

- Equipment age: 17 years;
- Equipment service life: 15 years;
- Equipment remaining service life: Exceeded;
- Condition: Fair;
- Recommendation: Replace all in kind. All ductwork will be reused;
- SOPC: \$50,000.00.

2. Business Office Rm. #215, Finned Tube Radiation:

- Equipment age: 54 years;
- Equipment service life: 25-35 years;
- Equipment remaining service life: Exceeded;
- Condition: Fair;
- Recommendation: Replace;
- SOPC: \$5,000.00.

3. Classroom Finned Tube Radiation, Rm #'s, 100,101, 102, 103, 104, 105, 106, 107, 109, 111, 112, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209,300, 301, 302, 303, 304, 305, 307, 308, 309, 400, 401, 402, 403, 404, 405, 406, 408, 409, 411, 412, 413, 414, 415, 416, 417 & 419 (47 CR's total):

- Equipment age: 54 years;
- Equipment service life: 25-35 years;
- Equipment remaining service life: Exceeded;
- Condition: Poor;
- Recommendation: Replace finned tube radiation, including associated heating water supply and return piping;
- SOPC: \$100,000.00.

4. Heating-Only Unit Ventilators, Rm #'s, 102, 104a & b, 105, 106, 107, 111, 112, 202, 203, 204, 205, 206, 302, 303, 304, 306, 307, 308, 309, 400, 401, 402, 403, 404, 406, 408, 412, 414, 416, 417 & 419, (32 CR's total):
  - Equipment age: 54 years;
  - Equipment service life: 20-25 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$300,000.00.
  
5. Heating/Cooling Unit Ventilators (installed in 1996 Renovation) with remote Condensers, Rm #'s, 200, 207, 208, 209, 211, 300, 301, 405, Art/Music, Tech Off, 409, 411, 410a & b, 413, & 415, (15 CR's total):
  - Equipment age: 54 years;
  - Equipment service life: 15-20 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair;
  - Recommendation: Replace;
  - SOPC: \$180,000.00.
  
6. Gas-Fired Boilers (three total):
  - Equipment age: Over 50 years;
  - Equipment service life: 25 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair, considering age;
  - Recommendation: Due to age, replace three boilers with new fully condensing, modular gas-fired boilers with all new vent stacks and supply/return piping;
  - SOPC: \$335,000.00.
  
7. Expansion Tank:
  - Equipment age: 54 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$4,500.00.

8. Base Mounted Pumps (two total) installed 1959, rebuilt within the last five years:
  - Equipment age: 54 years;
  - Equipment service life: 25 years;
  - Equipment remaining service life: Exceeded, for base pumps, an additional 5 years on the rebuild;
  - Condition: Poor;
  - Recommendation: Replace both pumps with new, replace all piping and associated components;
  - SOPC: \$45,000.00.
  
9. Inline Zone Pumps (two total):
  - Equipment age: 17 years;
  - Equipment service life: 25 years;
  - Equipment remaining service life: 8 years;
  - Condition: Fair;
  - Recommendation: None.
  
10. Boiler Room Combustion Air Fans, Louvers and Controls:
  - Equipment age: 17 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: 3 years;
  - Condition: Fair;
  - Recommendation: None.
  
11. Heating Hot Water Piping and Valves, original building, 1959, 1960:
  - Equipment age: 54 years;
  - Equipment service life: 40-50 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace all piping, insulation, valves and supports;
  - SOPC: \$350,000.00.
  
12. Classroom Split Systems, serving rooms; #'s 100, 101, 103, 109, 114, Fac Rm, Admin Office, Sec Office, Sac Office, 201, 201a, Nurse, (ten total):
  - Equipment age: 17 years;
  - Equipment service life: 15 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$175,000.00.

13. Gymnasium Heating and Ventilating Units 1960 (two total):
  - Equipment age: 54 years;
  - Equipment service life: 20-25 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$50,000.00.
  
14. Locker Rooms, Boys and Girls, Heating and Ventilating Units installed during 1996 Reno. (two total):
  - Equipment age: 18 years;
  - Equipment service life: 20-25 years;
  - Equipment remaining service life: 3-8 years;
  - Condition: Fair;
  - Recommendation: None.
  
15. Auxiliary Gym and Lockers Heating and Ventilating Units, 1974 Renovation, (two total):
  - Equipment age: 39 years;
  - Equipment service life: 25-30 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$45,000.00.
  
16. Corridor and Toilet Room Convectors (twenty total):
  - Equipment age: 54 years;
  - Equipment service life: 25-30 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$150,000.00.
  
17. Media Center Rooftop Air Conditioning Units:
  - Equipment age: 4 years;
  - Equipment service life: 15 years;
  - Equipment remaining service life: 11 years;
  - Condition: Good;
  - Recommendation: None.

18. Auditorium/Multi-Purpose Room Heating and Ventilating Unit, (1960 orig bldg):
  - Equipment age: 53 years;
  - Equipment service life: 20-25 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$65,000.00.
  
19. Greenhouse Finned Tube Radiation and Convectors, 1966 Addition:
  - Equipment age: 47 years;
  - Equipment service life: 25-35 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$50,000.00.
  
20. Agricultural Classrooms Air Handling Unit, 1996 Reno:
  - Equipment age: 18 years;
  - Equipment service life: 20-25 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Fair;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$8,500.00.
  
21. Cafeteria Heating and Ventilating Units and Finned Tube Radiation (1960, orig bldg) two total:
  - Equipment age: 50 years;
  - Equipment service life: 25-35 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace. All ductwork will be reused;
  - SOPC: \$45,000.00.

## **2.2 Plumbing Systems**

### **A. Original Building, Media Center, Auxiliary Gym and Greenhouse**

1. Domestic Gas-Fired Water Heater, installed in 2000 (720 MBH Input, 800 Gallon Storage):
  - Equipment age: 14 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: 7 years;
  - Condition: Good;
  - Recommendation: None.

2. Plumbing Fixtures:
  - Equipment age: Varies;
  - Equipment service life: 30 to 35 years;
  - Equipment remaining service life: 0 to 15 years;
  - Condition: All plumbing fixtures appeared to be in relatively good condition;
  - Recommendation: None.
  
3. Drinking Fountains and Electric Water Coolers (fifteen total):
  - Equipment age: Varies;
  - Equipment service life: 10 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace old drinking fountains and water coolers with new water coolers;
  - SOPC: \$60,000.00, including new power wiring where required.
  
4. Grease Interceptor - Interior In-Floor Type:
  - Equipment age: 54 years;
  - Equipment service life: 20 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Grease interceptor was not accessible and it is assumed to be in fair condition. District to confirm;
  - Recommendation: None.

### **2.3 Electrical Systems**

- A. Original Building, Media Center, Auxiliary Gym and Greenhouse
  1. Three 167kVA Electric Service Transformers Located in the Interior Transformer Vault:
    - Equipment age: 53 years;
    - Equipment service life: 25-40 years depending upon the load;
    - Equipment remaining service life: Exceeded;
    - Condition: Fair;
    - Recommendation: Replace;
    - SOPC: \$35,600.00.
  
  2. Exterior 500kVA Electric Service Padmount Transformer Serving the 1974 Media Center:
    - Equipment age: 39 years;
    - Equipment service life: 25-40 years depending upon the load;
    - Equipment remaining service life: 1 year;
    - Condition: Fair;
    - Recommendation: Replace;
    - SOPC: \$35,600.00.

3. Electric Service Switchboard “MDP” and Distribution Panelboard “PPA”  
Located in the Basement Boiler Room:
  - Equipment age: 54 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: Exceeded;
  - Condition: Poor;
  - Recommendation: Replace;
  - SOPC: \$60,000.00.
  
4. Electric Service Switchboard “MDP1” Located in the Basement Boiler Room:
  - Equipment age: 17 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: 23 years;
  - Condition: Good;
  - Recommendation: None.
  
5. Panelboards Serving the 1959 and 1960 Areas of the Building:
  - Equipment age: 17 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: 23 years;
  - Condition: Good;
  - Recommendation: None.
  
6. Panelboards Serving the 1974 Media Center:
  - Equipment age: 39 years;
  - Equipment service life: 40 years;
  - Equipment remaining service life: 1 year;
  - Condition: Good;
  - Recommendation: None.
  
7. Branch Circuit Wiring:
  - Equipment age: Varies between 17 to 50 years;
  - Equipment service life: 55 years;
  - Equipment remaining service life: 5 or more years;
  - Condition: Good;
  - Recommendation: None.
  -
  
8. 175kW/167kVA, 120/208V, Three-Phase, Four-Wire, Exterior Diesel Fueled  
Emergency Generator:
  - Equipment age: 17 years;
  - Equipment service life: 25 years;
  - Equipment remaining service life: 8 years;
  - Condition: Good;
  - Recommendation: None.

9. 800 Amp, 120/208V, Three-Phase, Four Wire Emergency Power Transfer Switch:

- Equipment age: 53 years;
- Equipment service life: 30 years;
- Equipment remaining service life: None;
- Condition: Fair;
- Recommendation: Replace;
- SOPC: \$18,000.00.

10. Interior and Exterior Light Fixtures:

- Equipment age: Less than 10 years;
- Equipment service life: 20 years;
- Equipment remaining service life: 10 years;
- Condition: Good;
- Recommendation: None.

11. Fire Alarm System:

- Equipment age: 4 years;
- Equipment service life: 15 years;
- Equipment remaining service life: 11 years;
- Condition: Good;
- Recommendation: None.

12. Clock System:

- Equipment age: 5 years;
- Equipment service life: 15 years;
- Equipment remaining service life: 10 years;
- Condition: Good;
- Recommendation: None.

13. Public Address System:

- Equipment age: 7 years;
- Equipment service life: 20 years;
- Equipment remaining service life: 13 years;
- Condition: Good;
- Recommendation: None.

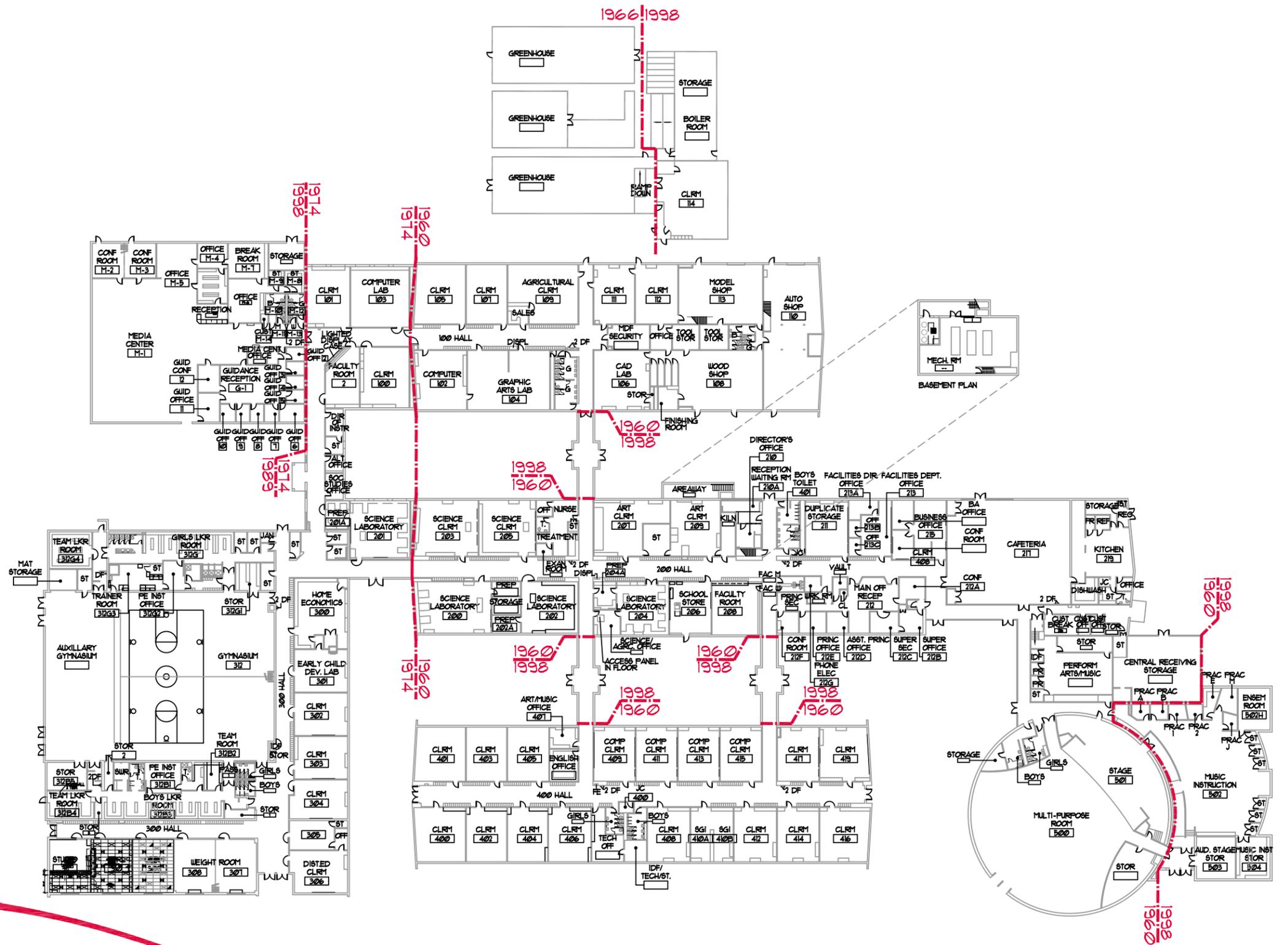
## Summary for the WEST HIGH SCHOOL BUILDING:

Interior Conditions	\$849,200
Exterior Conditions (BUILDING)	\$5,000
Exterior Conditions (ROOF)	\$1,630,000
ADA Compliance	\$41,000
MEP Systems Conditions	\$2,167,200
Subtotal for Construction	<b>\$4,692,400</b>
Soft Costs @ 25%	\$1,173,100
<b>TOTAL</b>	<b>\$5,865,500</b>



# HIGH SCHOOL WEST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT

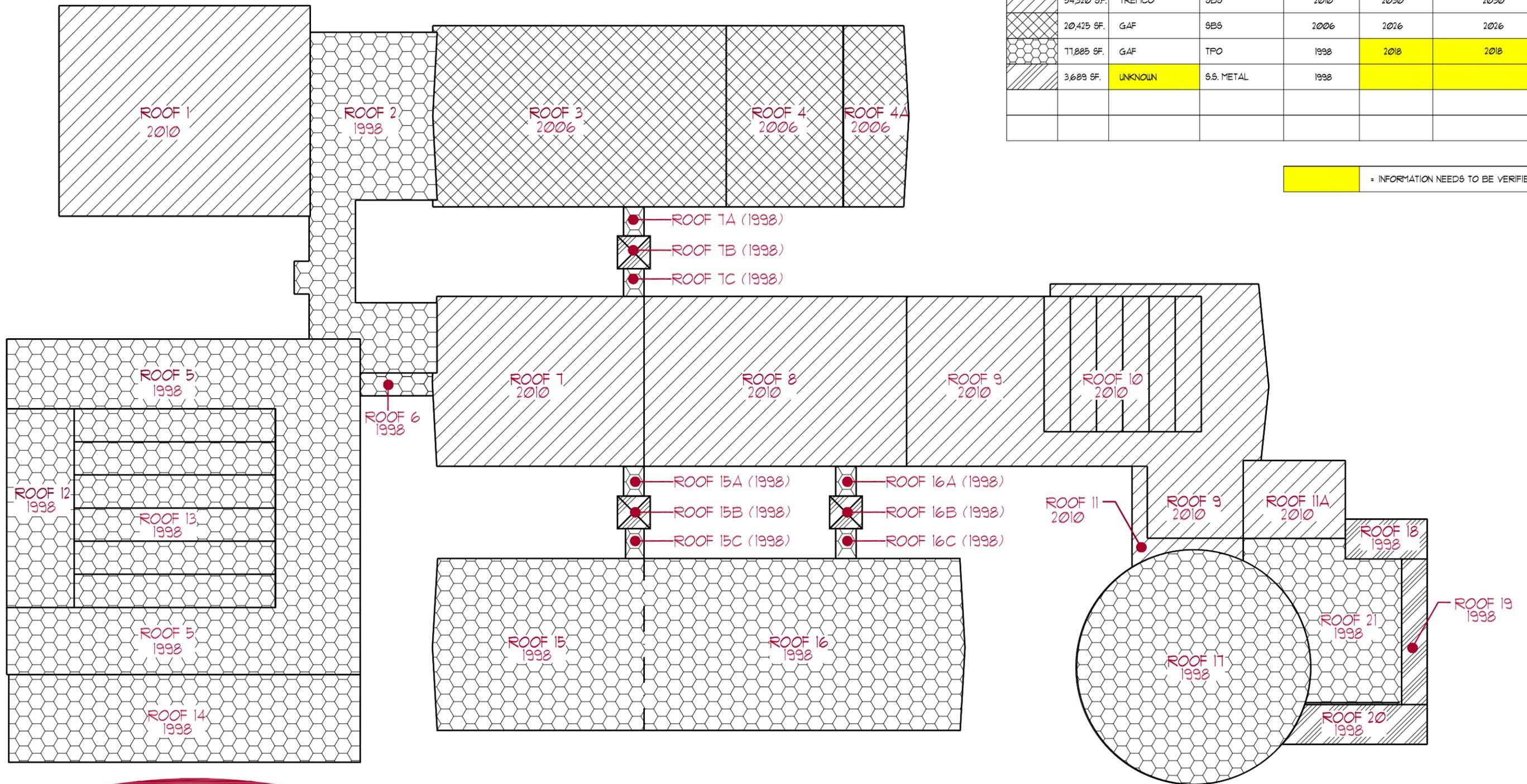


# HIGH SCHOOL WEST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT

HATCH	AREA	MANUFACTURER	ROOFING SYSTEM	DATE INSTALLED	WARRANTY EXPIRATION	RECOMMENDED REPLACEMENT YEAR
	54,320 SF.	TREMCO	SBS	2010	2030	2030
	20,425 SF.	GAF	SBS	2006	2026	2026
	11,885 SF.	GAF	TPO	1998	2018	2018
	3,689 SF.	UNKNOWN	S.S. METAL	1998		

= INFORMATION NEEDS TO BE VERIFIED



### ROOF HISTORY

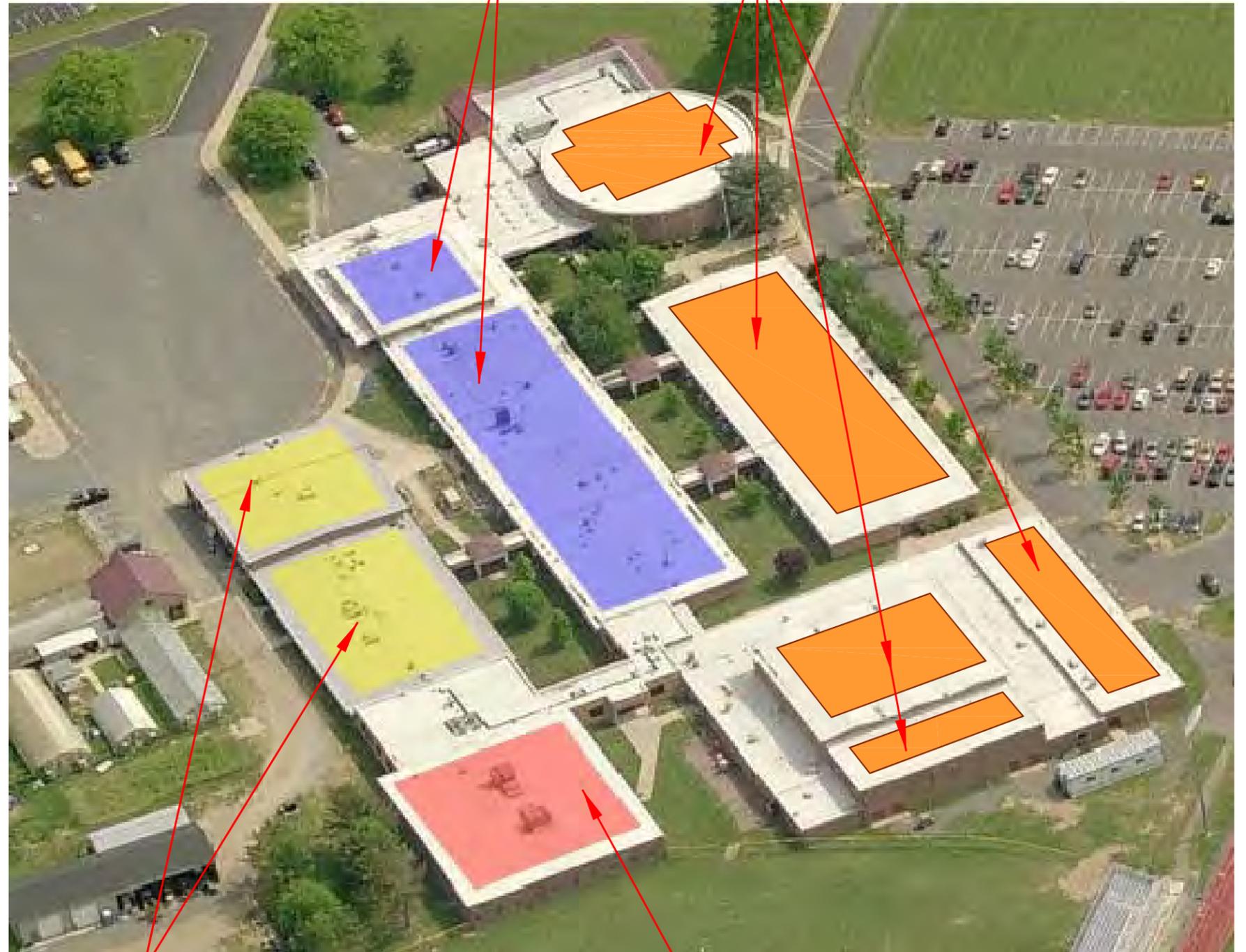
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 Date : 02-04-2014

# HIGH SCHOOL WEST

## NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT

2009 ROOF REPLACEMENT  
AND SOLAR PANEL INSTALLATION

FUTURE SOLAR PANEL  
INSTALLATION AREA



### ESTIMATED FUTURE SOLAR PRODUCTION

EXISTING ROOF AREA = 52,202 SF  
 multiple by 0.4 (useable roof area) = 20,881 SF  
 7W / SQUARE FOOT = 146,166 W  
 divide by 1000 (convert to kW) = 146.1 kW

TOTAL ESTIMATED  
 PRODUCTION = **146.1 kW**

-2006 ROOF REPLACEMENT  
 -2009 SOLAR PANEL INSTALLTION

2009 ROOF REPLACEMENT  
 AND SOLAR PANEL INSTALLATION



**FVH D** architects  
 planners

**Fraytak Veisz Hopkins Duthie P C**

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### SCHEMATIC FUTURE SOLAR ANALYSIS

Scale : NTS  
 Prj No : 4444  
 Date : 02-04-2014

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## SUMMARY

Generally, the facilities in this comprehensive study are in good condition and are well maintained. There are, like most school districts, common maintenance issues that are ongoing and must be addressed. However, some systems will require more immediate attention and maintenance, and ultimately, need replacement. HVAC systems, electrical systems, roofs and other interior finishes have certain life spans and will eventually go beyond their service life. Some systems, if not maintained or replaced at the appropriate time, will cause damage to the infrastructure of the facility. A regular maintenance program will not only prevent the building from decay, but extend the life of the system and the building. Please remember that the study was completed at a certain time, and conditions change from month to month, and year to year. We would expect to review the items again, if the district wishes to proceed with any particular item, and make any adjustments to extent of that item and revise its applicable cost.

## SUMMARY OF COSTS FOR ALL FACILITIES

○ East High School Building	<b>\$3,303,750</b>
○ West High School Building	<b>\$5,865,500</b>
<b>TOTAL Estimated Costs for All Facilities</b>	<b>\$9,169,250</b>

Respectfully submitted for your review and reference,

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Principal, FVHD Architects/Planners

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